# LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

# ADMINISTRATIVE RECORD

**Volume 23**

**2019**

**Bate Stamp Numbers**
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**Longhorn Army Ammunition Plant**

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***LONGHORN ARMY AMMUNITION PLANT***
***KARNACK, TEXAS***
**ADMINISTRATIVE RECORD – CHRONOLOGICAL INDEX**

VOLUME 23

2019

A. Title: Report (cont'd) – Draft Final Year 5 Annual Remedial Action Operation Report (September 2018–August 2019), LHAAP-35A (58) Shops Area, Longhorn Army Ammunition Plant, Karnack, Texas
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Recipient: Environmental Protection Agency and Texas Commission on Environmental Quality
Date: December 5, 2019
Bate Stamp: 00946403 – 00948288

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 212_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:02:11-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.052 | 37.2 | 460 | 31.4 | 1 | |
| Na | 23 | 1 | nogas | 10.373 | 14.1 | 714582 | 1.9 | 100 | |
| Mg | 24 | 1 | nogas | 7.940 | 22.2 | 144115 | 17.0 | 100 | |
| Al | 27 | 1 | nogas | 17.788 | 19.0 | 395476 | 17.1 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -39.486 | -25.4 | 7712879 | 2.1 | 100 | |
| Ti | 47 | 1 | nogas | 0.147 | 48.6 | 533 | 24.5 | 2.5 | |
| V | 51 | 1 | nogas | -16.718 | -2.5 | 1028212 | 1.7 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.773 | -5.0 | 66208 | 1.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.817 | 8.4 | 54139 | 2.8 | 2.5 | |
| Co | 59 | 1 | nogas | 0.071 | 36.6 | 2657 | 23.8 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.287 | 3.6 | 1167 | 4.1 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.119 | 17.5 | 3137 | 7.9 | 2 | |
| Zn | 66 | 1 | nogas | 0.613 | 5.2 | 2407 | 6.7 | 2.5 | |
| As | 75 | 1 | nogas | -12.193 | -3.8 | 145113 | 1.8 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.090 | 13.4 | 3570 | 9.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.033 | 11.9 | 580 | 9.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.034 | 16.6 | 130 | 15.4 | 1 | |
| Sb | 121 | 1 | nogas | 0.009 | 136.1 | 1260 | 12.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.604 | 60.3 | 14135 | 59.5 | 1 | |
| Pb | 208 | 1 | nogas | 0.061 | 43.9 | 3254 | 22.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.118 | 54.4 | 3607 | 54.6 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.056 | 53.1 | 873 | 27.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.059 | 27.4 | 723 | 15.5 | 2.5 | |
| Na | 23 | 2 | He | 7.665 | 13.8 | 62004 | 1.1 | 100 | |
| Mg | 24 | 2 | He | 5.507 | 5.0 | 5501 | 6.5 | 100 | |
| Al | 27 | 2 | He | 11.299 | 5.7 | 6425 | 6.3 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -5.417 | -39.0 | 177380 | 1.0 | 100 | |
| Ca | 43 | 2 | He | 37.591 | 42.4 | 107 | 39.0 | 100 | |
| Ca | 44 | 2 | He | 11.986 | 29.3 | 1680 | 7.9 | 100 | |
| V | 51 | 2 | He | -0.669 | -3.7 | 11947 | 2.5 | 2.5 | |
| Cr | 52 | 2 | He | -0.062 | -72.2 | 4601 | 4.4 | 2.5 | |
| Mn | 55 | 2 | He | 0.897 | 5.2 | 5614 | 3.8 | 2.5 | |
| Fe | 56 | 2 | He | 10.837 | 7.8 | 76526 | 8.6 | 100 | |
| Co | 59 | 2 | He | 0.030 | 14.1 | 613 | 7.4 | 2.5 | |
| Ni | 60 | 2 | He | 0.265 | 4.7 | 340 | 10.2 | 2.5 | |
| Cu | 63 | 2 | He | 0.211 | 6.7 | 1173 | 7.2 | 2 | |
| Zn | 66 | 2 | He | 0.756 | 7.2 | 723 | 10.0 | 2.5 | |
| As | 75 | 2 | He | -0.077 | -38.9 | 538 | 5.3 | 2.5 | |
| Se | 78 | 2 | He | 0.792 | 39.7 | 171 | 18.3 | 2 | |
| B | 11 | 1 | nogas | 44.680 | 3.2 | 221136 | 1.9 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 17.871 | 15.1 | 1881138 | 0.6 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 36.257 | 19.9 | 1970 | 12.8 | 100 | |
| Ca | 44 | 1 | nogas | -42.891 | -11.7 | 77808 | 3.0 | 100 | |
| Fe | 56 | 1 | nogas | -8.133 | -144.8 | 2857002 | 9.4 | 100 | |
| Se | 77 | 1 | nogas | -73.013 | -6.4 | 46205 | 3.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.232 | -142.7 | 203 | 44.6 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.302 | 56.4 | 2334 | 42.7 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.214 | 40.7 | 3014 | 21.5 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.245 | 9.5 | 1227 | 5.9 | 2.5 | |
| Sb | 121 | 2 | He | -0.024 | -21.4 | 403 | 7.6 | 2.5 | |
| P | 31 | 1 | nogas | -8.287 | -13.4 | 84280 | 2.5 | 10 | |
| La | 139 | 1 | nogas | 160.616 | 40.2 | 683 | 33.9 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 762.601 | 84.6 | 43 | 70.5 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1209527 | 1.10 | 1446753 | 83.60 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3491653 | 1.02 | 3206704 | 108.89 | 70 | 125 | |
| In | 115 | 1 | nogas | 3109819 | 2.59 | 2812441 | 110.57 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2395987 | 1.68 | 2322160 | 103.18 | 70 | 125 | |
| Ge | 72 | 2 | He | 824251 | 2.20 | 754516 | 109.24 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 223_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:23:51-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 109.517 | 1.837 | 736165 | 1.84 | 100 | 109.5 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9896.047 | 6.073 | 267727589 | 1.75 | 10000 | 99.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9805.076 | 4.940 | 169329179 | 0.99 | 10000 | 98.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 112.091 | 3.896 | 2404943 | 2.03 | 100 | 112.1 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10210.366 | 2.622 | 228314063 | 1.74 | 10000 | 102.1 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 100.016 | 3.134 | 190471 | 0.86 | 100 | 100.0 | 90 | 110 | |
| V | 51 | 1 | nogas | 86.262 | 5.846 | 3775697 | 1.73 | 100 | 86.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 96.626 | 2.441 | 2387298 | 1.45 | 100 | 96.6 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.721 | 3.456 | 2958562 | 1.35 | 100 | 98.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 96.998 | 5.126 | 2457285 | 2.11 | 100 | 97.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 99.358 | 3.028 | 542340 | 0.96 | 100 | 99.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 100.086 | 2.481 | 1305349 | 3.91 | 100 | 100.1 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.480 | 1.391 | 427184 | 2.85 | 100 | 99.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 89.884 | 4.559 | 678418 | 0.63 | 100 | 89.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 103.683 | 0.994 | 3074003 | 2.96 | 100 | 103.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.611 | 3.035 | 1472972 | 1.51 | 100 | 100.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 97.024 | 2.437 | 315550 | 0.46 | 100 | 97.0 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 99.390 | 2.071 | 1410760 | 1.82 | 100 | 99.4 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.566 | 3.635 | 2182623 | 1.49 | 100 | 102.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 104.133 | 0.674 | 2848545 | 0.67 | 100 | 104.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 88.553 | 2.854 | 2491021 | 0.74 | 100 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 97.822 | 3.439 | 712953 | 0.80 | 100 | 97.8 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 95.746 | 2.801 | 592417 | 0.43 | 100 | 95.7 | 90 | 110 | |
| Na | 23 | 2 | He | 9854.404 | 0.974 | 15942207 | 0.60 | 10000 | 98.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9607.042 | 1.302 | 8584426 | 0.97 | 10000 | 96.1 | 90 | 110 | |
| Al | 27 | 2 | He | 110.706 | 2.298 | 55669 | 2.36 | 100 | 110.7 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 11289.247 | 1.095 | 9637991 | 1.07 | 10000 | 112.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 10078.164 | 1.912 | 25818 | 2.08 | 10000 | 100.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 9901.816 | 0.514 | 423208 | 0.41 | 10000 | 99.0 | 90 | 110 | |
| V | 51 | 2 | He | 98.886 | 0.612 | 628011 | 0.22 | 100 | 98.9 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.003 | 2.682 | 669448 | 2.30 | 100 | 97.0 | 90 | 110 | |
| Mn | 55 | 2 | He | 97.133 | 0.874 | 466203 | 0.65 | 100 | 97.1 | 90 | 110 | |
| Fe | 56 | 2 | He | 9828.631 | 2.693 | 58370346 | 2.62 | 10000 | 98.3 | 90 | 110 | |
| Co | 59 | 2 | He | 96.227 | 1.600 | 905109 | 1.34 | 100 | 96.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 101.170 | 1.289 | 232252 | 0.96 | 100 | 101.2 | 90 | 110 | |
| Cu | 63 | 2 | He | 100.743 | 2.189 | 588970 | 2.26 | 100 | 100.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.736 | 2.059 | 138094 | 2.21 | 100 | 96.7 | 90 | 110 | |
| As | 75 | 2 | He | 100.474 | 0.625 | 137316 | 0.36 | 100 | 100.5 | 90 | 110 | |
| Se | 78 | 2 | He | 95.638 | 1.222 | 10449 | 0.87 | 100 | 95.6 | 90 | 110 | |
| B | 11 | 1 | nogas | 542.736 | 1.827 | 2198400 | 1.75 | 500 | 108.5 | 90 | 110 | |
| Si | 28 | 1 | nogas | 530.537 | 4.021 | 7811003 | 0.96 | 5000 | 10.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10207.701 | 4.270 | 388484 | 0.61 | 10000 | 102.1 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10020.231 | 5.748 | 6412303 | 2.08 | 10000 | 100.2 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9928.592 | 3.292 | 250975922 | 1.00 | 10000 | 99.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 33.897 | 31.117 | 69653 | 0.75 | 100 | 33.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 99.506 | 2.322 | 28376 | 3.10 | 100 | 99.5 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.748 | 2.254 | 578409 | 1.53 | 100 | 95.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 97.611 | 1.640 | 831954 | 0.81 | 100 | 97.6 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.139 | 1.639 | 441597 | 2.44 | 100 | 96.1 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.220 | 1.897 | 499501 | 1.62 | 100 | 100.2 | 90 | 110 | |
| Li | 7 | 1 | nogas | 113.125 | 3.062 | 1774552 | 2.83 | 100 | 113.1 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 422.612 | 3.770 | 835569 | 0.46 | 500 | 84.5 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 269.702 | 14.992 | 1137 | 12.51 | 100 | 269.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 80.215 | 486.985 | 10 | 173.21 | 100 | 80.2 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1059214 | 0.09 | 1446753 | 73.21 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3544923 | 3.75 | 3206704 | 110.55 | 70 | 125 | |
| In | 115 | 1 | nogas | 3176231 | 2.04 | 2812441 | 112.94 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2285557 | 2.90 | 2322160 | 98.42 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 834235 | 0.37 | 754516 | 110.57 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 224_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:25:50-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.074 | 15.2 | 600 | 12.0 | 1 | |
| Na | 23 | 1 | nogas | 7.733 | 19.4 | 665828 | 6.4 | 100 | |
| Mg | 24 | 1 | nogas | 6.928 | 21.8 | 131687 | 20.4 | 100 | |
| Al | 27 | 1 | nogas | 10.335 | 12.7 | 244304 | 9.0 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -46.645 | -25.2 | 7714249 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.162 | 38.6 | 570 | 18.2 | 2.5 | |
| V | 51 | 1 | nogas | -19.527 | -5.4 | 974167 | 2.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.064 | -10.6 | 60569 | 2.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.658 | 7.5 | 50506 | 1.0 | 2.5 | |
| Co | 59 | 1 | nogas | 0.069 | 20.7 | 2660 | 13.1 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.260 | 14.2 | 1040 | 18.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.095 | 39.3 | 2889 | 15.1 | 2 | |
| Zn | 66 | 1 | nogas | 0.545 | 15.3 | 2160 | 16.1 | 2.5 | |
| As | 75 | 1 | nogas | -14.377 | -4.1 | 136630 | 0.8 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.088 | 9.2 | 3574 | 4.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.042 | 24.2 | 723 | 18.7 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.046 | 11.3 | 163 | 7.1 | 1 | |
| Sb | 121 | 1 | nogas | 0.013 | 186.0 | 1347 | 24.2 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.690 | 58.8 | 15513 | 57.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.076 | 45.3 | 3660 | 25.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.134 | 65.5 | 3957 | 65.1 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.087 | 20.6 | 1077 | 13.0 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.063 | 59.1 | 730 | 33.2 | 2.5 | |
| Na | 23 | 2 | He | 6.180 | 13.3 | 59242 | 0.8 | 100 | |
| Mg | 24 | 2 | He | 5.233 | 4.9 | 5217 | 1.4 | 100 | |
| Al | 27 | 2 | He | 9.400 | 8.5 | 5451 | 4.4 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -6.621 | -24.8 | 176371 | 0.8 | 100 | |
| Ca | 43 | 2 | He | 23.308 | 57.7 | 70 | 49.5 | 100 | |
| Ca | 44 | 2 | He | 13.132 | 17.5 | 1717 | 4.1 | 100 | |
| V | 51 | 2 | He | -0.688 | -9.2 | 11752 | 2.0 | 2.5 | |
| Cr | 52 | 2 | He | -0.034 | -74.3 | 4761 | 4.5 | 2.5 | |
| Mn | 55 | 2 | He | 0.803 | 7.1 | 5131 | 2.7 | 2.5 | |
| Fe | 56 | 2 | He | 10.749 | 3.0 | 75407 | 0.6 | 100 | |
| Co | 59 | 2 | He | 0.047 | 13.8 | 763 | 5.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.257 | 4.5 | 320 | 11.3 | 2.5 | |
| Cu | 63 | 2 | He | 0.216 | 8.9 | 1193 | 7.8 | 2 | |
| Zn | 66 | 2 | He | 0.767 | 4.7 | 733 | 4.4 | 2.5 | |
| As | 75 | 2 | He | -0.101 | -40.3 | 502 | 8.9 | 2.5 | |
| Se | 78 | 2 | He | 1.081 | 17.1 | 201 | 10.3 | 2 | |
| B | 11 | 1 | nogas | 37.653 | 4.1 | 181958 | 3.3 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 16.297 | 29.1 | 1901084 | 0.6 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 29.809 | 3.7 | 1767 | 4.8 | 100 | |
| Ca | 44 | 1 | nogas | -58.924 | -8.1 | 69228 | 1.8 | 100 | |
| Fe | 56 | 1 | nogas | -10.844 | -127.1 | 2844146 | 9.7 | 100 | |
| Se | 77 | 1 | nogas | -89.430 | -7.4 | 43633 | 4.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.121 | -62.2 | 240 | 11.0 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.314 | 55.8 | 2440 | 40.7 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.270 | 40.1 | 3340 | 21.3 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.209 | 3.5 | 1023 | 1.1 | 2.5 | |
| Sb | 121 | 2 | He | -0.034 | -42.7 | 353 | 19.9 | 2.5 | |
| P | 31 | 1 | nogas | -8.395 | -19.9 | 85784 | 0.9 | 10 | |
| La | 139 | 1 | nogas | 110.528 | 30.5 | 470 | 22.2 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 213.916 | 59.6 | 17 | 34.6 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1165420 | 1.77 | 1446753 | 80.55 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3563819 | 2.52 | 3206704 | 111.14 | 70 | 125 | |
| In | 115 | 1 | nogas | 2995581 | 4.15 | 2812441 | 106.51 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2318074 | 1.43 | 2322160 | 99.82 | 70 | 125 | |
| Ge | 72 | 2 | He | 818849 | 3.07 | 754516 | 108.53 | 70 | 125 | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 231CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:39:46-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 87 | 33.51 |
| Na | 23 | 1 | nogas | 331429 | 0.00 |
| Mg | 24 | 1 | nogas | 30465 | 0.02 |
| Al | 27 | 1 | nogas | 77458 | 0.01 |
| K | 39 | 1 | nogas | 7580102 | 0.00 |
| Ti | 47 | 1 | nogas | 283 | 14.44 |
| V | 51 | 1 | nogas | 1238422 | 0.00 |
| Cr | 52 | 1 | nogas | 68854 | 0.00 |
| Mn | 55 | 1 | nogas | 23392 | 0.01 |
| Co | 59 | 1 | nogas | 833 | 2.61 |
| Ni | 60 | 1 | nogas | 323 | 9.63 |
| Cu | 63 | 1 | nogas | 1537 | 0.60 |
| Zn | 66 | 1 | nogas | 940 | 0.88 |
| As | 75 | 1 | nogas | 160546 | 0.00 |
| Sr | 88 | 1 | nogas | 1203 | 1.09 |
| Ag | 107 | 1 | nogas | 107 | 22.12 |
| Cd | 111 | 1 | nogas | 30 | 111.11 |
| Sb | 121 | 1 | nogas | 287 | 1.86 |
| Tl | 205 | 1 | nogas | 380 | 10.20 |
| Pb | 208 | 1 | nogas | 1157 | 0.42 |
| [Pb] | 206 | 1 | nogas | 337 | 1.35 |
| [Pb] | 207 | 1 | nogas | 267 | 4.52 |
| Na | 23 | 2 | He | 41901 | 0.01 |
| Mg | 24 | 2 | He | 1587 | 0.80 |
| Al | 27 | 2 | He | 1763 | 0.57 |
| K | 39 | 2 | He | 170286 | 0.00 |
| Ca | 43 | 2 | He | 37 | 214.72 |
| Ca | 44 | 2 | He | 917 | 1.43 |
| V | 51 | 2 | He | 14259 | 0.00 |
| Cr | 52 | 2 | He | 4124 | 0.18 |
| Mn | 55 | 2 | He | 1073 | 0.13 |
| Fe | 56 | 2 | He | 26059 | 0.01 |
| Co | 59 | 2 | He | 200 | 9.01 |
| Ni | 60 | 2 | He | 137 | 29.49 |
| Cu | 63 | 2 | He | 663 | 1.14 |
| Zn | 66 | 2 | He | 293 | 2.92 |
| As | 75 | 2 | He | 518 | 0.93 |
| Se | 78 | 2 | He | 161 | 6.59 |
| B | 11 | 1 | nogas | 146566 | 0.00 |
| Si | 28 | 1 | nogas | 1786796 | 0.00 |
| Ca | 43 | 1 | nogas | 823 | 1.19 |
| Ca | 44 | 1 | nogas | 54583 | 0.00 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 2564814 | 0.00 |
| Se | 77 | 1 | nogas | 51536 | 0.01 |
| Se | 82 | 1 | nogas | 233 | 12.50 |
| Mo | 95 | 1 | nogas | 367 | 3.67 |
| Sn | 118 | 1 | nogas | 1397 | 0.24 |
| Ba | 137 | 1 | nogas | 200 | 15.21 |
| Sb | 121 | 2 | He | 97 | 49.43 |
| Li | 7 | 1 | nogas | 100282 | 0.00 |
| P | 31 | 1 | nogas | 80236 | 0.00 |
| La | 139 | 1 | nogas | 197 | 5.97 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1195276 | 2.00 |
| Ge | 72 | 1 | nogas | 3552237 | 2.91 |
| In | 115 | 1 | nogas | 3134247 | 2.05 |
| Bi | 209 | 1 | nogas | 2336631 | 1.06 |
| Ge | 72 | 2 | He | 837498 | 0.96 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 232CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:41:46-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 14652 | 0.01 |
| Na | 23 | 1 | nogas | 5578140 | 0.00 |
| Mg | 24 | 1 | nogas | 3393445 | 0.00 |
| Al | 27 | 1 | nogas | 91527 | 0.00 |
| K | 39 | 1 | nogas | 11936197 | 0.00 |
| Ti | 47 | 1 | nogas | 3644 | 0.21 |
| V | 51 | 1 | nogas | 1427473 | 0.00 |
| Cr | 52 | 1 | nogas | 115870 | 0.00 |
| Mn | 55 | 1 | nogas | 77277 | 0.00 |
| Co | 59 | 1 | nogas | 48548 | 0.00 |
| Ni | 60 | 1 | nogas | 11324 | 0.02 |
| Cu | 63 | 1 | nogas | 27267 | 0.02 |
| Zn | 66 | 1 | nogas | 8886 | 0.05 |
| As | 75 | 1 | nogas | 181430 | 0.00 |
| Sr | 88 | 1 | nogas | 59543 | 0.00 |
| Ag | 107 | 1 | nogas | 28470 | 0.00 |
| Cd | 111 | 1 | nogas | 6195 | 0.04 |
| Sb | 121 | 1 | nogas | 28126 | 0.00 |
| Tl | 205 | 1 | nogas | 39274 | 0.01 |
| Pb | 208 | 1 | nogas | 55912 | 0.00 |
| [Pb] | 206 | 1 | nogas | 14210 | 0.02 |
| [Pb] | 207 | 1 | nogas | 12075 | 0.02 |
| Na | 23 | 2 | He | 342970 | 0.00 |
| Mg | 24 | 2 | He | 167204 | 0.00 |
| Al | 27 | 2 | He | 2477 | 0.49 |
| K | 39 | 2 | He | 350759 | 0.00 |
| Ca | 43 | 2 | He | 477 | 0.92 |
| Ca | 44 | 2 | He | 9096 | 0.02 |
| V | 51 | 2 | He | 27090 | 0.00 |
| Cr | 52 | 2 | He | 16961 | 0.02 |
| Mn | 55 | 2 | He | 10110 | 0.02 |
| Fe | 56 | 2 | He | 1169441 | 0.00 |
| Co | 59 | 2 | He | 18123 | 0.03 |
| Ni | 60 | 2 | He | 4694 | 0.10 |
| Cu | 63 | 2 | He | 11717 | 0.02 |
| Zn | 66 | 2 | He | 3084 | 0.27 |
| As | 75 | 2 | He | 3250 | 0.09 |
| Se | 78 | 2 | He | 358 | 1.95 |
| B | 11 | 1 | nogas | 185684 | 0.00 |
| Si | 28 | 1 | nogas | 2777141 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 8232 | 0.02 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 172086 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 7515342 | 0.00 |
| Se | 77 | 1 | nogas | 55933 | 0.00 |
| Se | 82 | 1 | nogas | 753 | 1.17 |
| Mo | 95 | 1 | nogas | 12031 | 0.04 |
| Sn | 118 | 1 | nogas | 16651 | 0.01 |
| Ba | 137 | 1 | nogas | 8916 | 0.03 |
| Sb | 121 | 2 | He | 9613 | 0.01 |
| P | 31 | 1 | nogas | 80634 | 0.00 |
| La | 139 | 1 | nogas | 133 | 16.24 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1168683 | 3.75 | 1195276 | 97.78 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3581535 | 3.98 | 3552237 | 100.82 | 70 | 125 | |
| In | 115 | 1 | nogas | 3148097 | 4.38 | 3134247 | 100.44 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2292529 | 3.78 | 2336631 | 98.11 | 70 | 125 | |
| Ge | 72 | 2 | He | 839655 | 0.93 | 837498 | 100.26 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 233CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:43:44-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 35794 | 0.01 |
| Na | 23 | 1 | nogas | 13289389 | 0.00 |
| Mg | 24 | 1 | nogas | 8405434 | 0.00 |
| Al | 27 | 1 | nogas | 201937 | 0.01 |
| K | 39 | 1 | nogas | 18312034 | 0.00 |
| Ti | 47 | 1 | nogas | 9529 | 0.01 |
| V | 51 | 1 | nogas | 1577440 | 0.00 |
| Cr | 52 | 1 | nogas | 189062 | 0.00 |
| Mn | 55 | 1 | nogas | 170430 | 0.00 |
| Co | 59 | 1 | nogas | 121849 | 0.00 |
| Ni | 60 | 1 | nogas | 27387 | 0.01 |
| Cu | 63 | 1 | nogas | 67120 | 0.00 |
| Zn | 66 | 1 | nogas | 22995 | 0.01 |
| As | 75 | 1 | nogas | 208320 | 0.00 |
| Sr | 88 | 1 | nogas | 147099 | 0.00 |
| Ag | 107 | 1 | nogas | 71683 | 0.00 |
| Cd | 111 | 1 | nogas | 15314 | 0.04 |
| Sb | 121 | 1 | nogas | 67460 | 0.00 |
| Tl | 205 | 1 | nogas | 98186 | 0.00 |
| Pb | 208 | 1 | nogas | 140518 | 0.00 |
| [Pb] | 206 | 1 | nogas | 35777 | 0.01 |
| [Pb] | 207 | 1 | nogas | 30830 | 0.00 |
| Na | 23 | 2 | He | 795149 | 0.00 |
| Mg | 24 | 2 | He | 418151 | 0.00 |
| Al | 27 | 2 | He | 4424 | 0.08 |
| K | 39 | 2 | He | 611946 | 0.00 |
| Ca | 43 | 2 | He | 1283 | 0.67 |
| Ca | 44 | 2 | He | 21132 | 0.01 |
| V | 51 | 2 | He | 46058 | 0.00 |
| Cr | 52 | 2 | He | 37255 | 0.00 |
| Mn | 55 | 2 | He | 24523 | 0.01 |
| Fe | 56 | 2 | He | 2947197 | 0.00 |
| Co | 59 | 2 | He | 44908 | 0.01 |
| Ni | 60 | 2 | He | 11684 | 0.01 |
| Cu | 63 | 2 | He | 29744 | 0.01 |
| Zn | 66 | 2 | He | 7518 | 0.01 |
| As | 75 | 2 | He | 7014 | 0.00 |
| Se | 78 | 2 | He | 699 | 0.91 |
| B | 11 | 1 | nogas | 255438 | 0.00 |
| Si | 28 | 1 | nogas | 4591023 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 19320 | 0.01 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 354984 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 14726538 | 0.00 |
| Se | 77 | 1 | nogas | 60607 | 0.00 |
| Se | 82 | 1 | nogas | 1517 | 0.25 |
| Mo | 95 | 1 | nogas | 29718 | 0.02 |
| Sn | 118 | 1 | nogas | 40106 | 0.01 |
| Ba | 137 | 1 | nogas | 21053 | 0.01 |
| Sb | 121 | 2 | He | 24190 | 0.00 |
| P | 31 | 1 | nogas | 123923 | 0.00 |
| La | 139 | 1 | nogas | 173 | 5.08 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1163476 | 14.78 | 1195276 | 97.34 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3561728 | 6.92 | 3552237 | 100.27 | 70 | 125 | |
| In | 115 | 1 | nogas | 3134210 | 10.14 | 3134247 | 100.00 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2284348 | 8.33 | 2336631 | 97.76 | 70 | 125 | |
| Ge | 72 | 2 | He | 828864 | 1.32 | 837498 | 98.97 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 234CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:45:43-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 72216 | 0.00 |
| Na | 23 | 1 | nogas | 26451404 | 0.00 |
| Mg | 24 | 1 | nogas | 16702194 | 0.00 |
| Al | 27 | 1 | nogas | 287698 | 0.00 |
| K | 39 | 1 | nogas | 29212753 | 0.00 |
| Ti | 47 | 1 | nogas | 18139 | 0.01 |
| V | 51 | 1 | nogas | 1826105 | 0.00 |
| Cr | 52 | 1 | nogas | 306749 | 0.00 |
| Mn | 55 | 1 | nogas | 313711 | 0.00 |
| Co | 59 | 1 | nogas | 240024 | 0.00 |
| Ni | 60 | 1 | nogas | 53024 | 0.00 |
| Cu | 63 | 1 | nogas | 130177 | 0.00 |
| Zn | 66 | 1 | nogas | 43382 | 0.01 |
| As | 75 | 1 | nogas | 241432 | 0.00 |
| Sr | 88 | 1 | nogas | 289603 | 0.00 |
| Ag | 107 | 1 | nogas | 144161 | 0.00 |
| Cd | 111 | 1 | nogas | 29909 | 0.02 |
| Sb | 121 | 1 | nogas | 135630 | 0.00 |
| Tl | 205 | 1 | nogas | 193555 | 0.00 |
| Pb | 208 | 1 | nogas | 274873 | 0.00 |
| [Pb] | 206 | 1 | nogas | 68240 | 0.00 |
| [Pb] | 207 | 1 | nogas | 59689 | 0.00 |
| Na | 23 | 2 | He | 1638658 | 0.00 |
| Mg | 24 | 2 | He | 820276 | 0.00 |
| Al | 27 | 2 | He | 6585 | 0.13 |
| K | 39 | 2 | He | 1040100 | 0.00 |
| Ca | 43 | 2 | He | 2477 | 0.32 |
| Ca | 44 | 2 | He | 40548 | 0.01 |
| V | 51 | 2 | He | 77214 | 0.00 |
| Cr | 52 | 2 | He | 68581 | 0.00 |
| Mn | 55 | 2 | He | 46836 | 0.01 |
| Fe | 56 | 2 | He | 5763138 | 0.00 |
| Co | 59 | 2 | He | 89414 | 0.00 |
| Ni | 60 | 2 | He | 23505 | 0.02 |
| Cu | 63 | 2 | He | 56751 | 0.00 |
| Zn | 66 | 2 | He | 13932 | 0.04 |
| As | 75 | 2 | He | 13794 | 0.01 |
| Se | 78 | 2 | He | 1195 | 0.31 |
| B | 11 | 1 | nogas | 361363 | 0.00 |
| Si | 28 | 1 | nogas | 7250697 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 37929 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 652309 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 27184110 | 0.00 |
| Se | 77 | 1 | nogas | 62674 | 0.01 |
| Se | 82 | 1 | nogas | 2904 | 0.43 |
| Mo | 95 | 1 | nogas | 58958 | 0.00 |
| Sn | 118 | 1 | nogas | 78296 | 0.00 |
| Ba | 137 | 1 | nogas | 43341 | 0.01 |
| Sb | 121 | 2 | He | 49186 | 0.00 |
| P | 31 | 1 | nogas | 167931 | 0.00 |
| La | 139 | 1 | nogas | 263 | 2.20 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1132234 | 3.66 | 1195276 | 94.73 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3596076 | 3.70 | 3552237 | 101.23 | 70 | 125 | |
| In | 115 | 1 | nogas | 3115480 | 4.58 | 3134247 | 99.40 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2292360 | 3.72 | 2336631 | 98.11 | 70 | 125 | |
| Ge | 72 | 2 | He | 826446 | 1.69 | 837498 | 98.68 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 235CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:47:41-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 726395 | 0.00 |
| Na | 23 | 1 | nogas | 259402164 | 0.00 |
| Mg | 24 | 1 | nogas | 161352099 | 0.00 |
| Al | 27 | 1 | nogas | 2058982 | 0.00 |
| K | 39 | 1 | nogas | 216604788 | 0.00 |
| Ti | 47 | 1 | nogas | 181697 | 0.00 |
| V | 51 | 1 | nogas | 4082142 | 0.00 |
| Cr | 52 | 1 | nogas | 2401369 | 0.00 |
| Mn | 55 | 1 | nogas | 2988634 | 0.00 |
| Co | 59 | 1 | nogas | 2385751 | 0.00 |
| Ni | 60 | 1 | nogas | 519376 | 0.00 |
| Cu | 63 | 1 | nogas | 1249207 | 0.00 |
| Zn | 66 | 1 | nogas | 415265 | 0.00 |
| As | 75 | 1 | nogas | 697353 | 0.00 |
| Sr | 88 | 1 | nogas | 2905617 | 0.00 |
| Ag | 107 | 1 | nogas | 1423334 | 0.00 |
| Cd | 111 | 1 | nogas | 298091 | 0.00 |
| Sb | 121 | 1 | nogas | 1348372 | 0.00 |
| Tl | 205 | 1 | nogas | 2045124 | 0.00 |
| Pb | 208 | 1 | nogas | 2779810 | 0.00 |
| [Pb] | 206 | 1 | nogas | 672927 | 0.00 |
| [Pb] | 207 | 1 | nogas | 599559 | 0.00 |
| Na | 23 | 2 | He | 15297983 | 0.00 |
| Mg | 24 | 2 | He | 8458521 | 0.00 |
| Al | 27 | 2 | He | 48760 | 0.00 |
| K | 39 | 2 | He | 9137637 | 0.00 |
| Ca | 43 | 2 | He | 23949 | 0.01 |
| Ca | 44 | 2 | He | 406952 | 0.00 |
| V | 51 | 2 | He | 624535 | 0.00 |
| Cr | 52 | 2 | He | 661999 | 0.00 |
| Mn | 55 | 2 | He | 468166 | 0.00 |
| Fe | 56 | 2 | He | 56918027 | 0.00 |
| Co | 59 | 2 | He | 879776 | 0.00 |
| Ni | 60 | 2 | He | 222439 | 0.00 |
| Cu | 63 | 2 | He | 566331 | 0.00 |
| Zn | 66 | 2 | He | 140492 | 0.00 |
| As | 75 | 2 | He | 134928 | 0.00 |
| Se | 78 | 2 | He | 10495 | 0.02 |
| B | 11 | 1 | nogas | 2454033 | 0.00 |
| Si | 28 | 1 | nogas | 57019467 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 366612 | 0.00 |
| Ca | 44 | 1 | nogas | 6101095 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 246346364 | 0.00 |
| Se | 77 | 1 | nogas | 81930 | 0.01 |
| Se | 82 | 1 | nogas | 26466 | 0.01 |
| Mo | 95 | 1 | nogas | 581341 | 0.00 |
| Sn | 118 | 1 | nogas | 769398 | 0.00 |
| Ba | 137 | 1 | nogas | 429972 | 0.00 |
| Sb | 121 | 2 | He | 479993 | 0.00 |
| P | 31 | 1 | nogas | 883777 | 0.00 |
| La | 139 | 1 | nogas | 590 | 0.76 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1060926 | 1.54 | 1195276 | 88.76 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3459544 | 4.03 | 3552237 | 97.39 | 70 | 125 | |
| In | 115 | 1 | nogas | 2926930 | 5.89 | 3134247 | 93.39 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2300732 | 1.28 | 2336631 | 98.46 | 70 | 125 | |
| Ge | 72 | 2 | He | 838051 | 0.73 | 837498 | 100.07 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 236CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:49:41-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1638983 | 0.00 |
| Na | 23 | 1 | nogas | 528973662 | 0.00 |
| Mg | 24 | 1 | nogas | 334413791 | 0.00 |
| Al | 27 | 1 | nogas | 4165751 | 0.00 |
| K | 39 | 1 | nogas | 439767910 | 0.00 |
| Ti | 47 | 1 | nogas | 386985 | 0.00 |
| V | 51 | 1 | nogas | 6790929 | 0.00 |
| Cr | 52 | 1 | nogas | 4813022 | 0.00 |
| Mn | 55 | 1 | nogas | 5965128 | 0.00 |
| Co | 59 | 1 | nogas | 4942487 | 0.00 |
| Ni | 60 | 1 | nogas | 1053571 | 0.00 |
| Cu | 63 | 1 | nogas | 2665951 | 0.00 |
| Zn | 66 | 1 | nogas | 853679 | 0.00 |
| As | 75 | 1 | nogas | 1258438 | 0.00 |
| Sr | 88 | 1 | nogas | 6055608 | 0.00 |
| Ag | 107 | 1 | nogas | 2935947 | 0.00 |
| Cd | 111 | 1 | nogas | 630633 | 0.00 |
| Sb | 121 | 1 | nogas | 2816754 | 0.00 |
| Tl | 205 | 1 | nogas | 4279645 | 0.00 |
| Pb | 208 | 1 | nogas | 5709558 | 0.00 |
| [Pb] | 206 | 1 | nogas | 1403975 | 0.00 |
| [Pb] | 207 | 1 | nogas | 1218131 | 0.00 |
| Na | 23 | 2 | He | 30809610 | 0.00 |
| Mg | 24 | 2 | He | 16672742 | 0.00 |
| Al | 27 | 2 | He | 94669 | 0.00 |
| K | 39 | 2 | He | 18129784 | 0.00 |
| Ca | 43 | 2 | He | 49272 | 0.00 |
| Ca | 44 | 2 | He | 823614 | 0.00 |
| V | 51 | 2 | He | 1270034 | 0.00 |
| Cr | 52 | 2 | He | 1381847 | 0.00 |
| Mn | 55 | 2 | He | 930187 | 0.00 |
| Fe | 56 | 2 | He | 114749172 | 0.00 |
| Co | 59 | 2 | He | 1859117 | 0.00 |
| Ni | 60 | 2 | He | 447375 | 0.00 |
| Cu | 63 | 2 | He | 1140694 | 0.00 |
| Zn | 66 | 2 | He | 276667 | 0.00 |
| As | 75 | 2 | He | 272270 | 0.00 |
| Se | 78 | 2 | He | 21213 | 0.01 |
| B | 11 | 1 | nogas | 4934583 | 0.00 |
| Si | 28 | 1 | nogas | 114625555 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 761679 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 12519365 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 497565694 | 0.00 |
| Se | 77 | 1 | nogas | 94138 | 0.00 |
| Se | 82 | 1 | nogas | 55987 | 0.00 |
| Mo | 95 | 1 | nogas | 1263968 | 0.00 |
| Sn | 118 | 1 | nogas | 1726992 | 0.00 |
| Ba | 137 | 1 | nogas | 877489 | 0.00 |
| Sb | 121 | 2 | He | 974035 | 0.00 |
| P | 31 | 1 | nogas | 1750887 | 0.00 |
| La | 139 | 1 | nogas | 857 | 1.70 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1034179 | 4.01 | 1195276 | 86.52 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3664190 | 2.17 | 3552237 | 103.15 | 70 | 125 | |
| In | 115 | 1 | nogas | 3158108 | 2.87 | 3134247 | 100.76 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2279275 | 2.70 | 2336631 | 97.55 | 70 | 125 | |
| Ge | 72 | 2 | He | 818978 | 2.26 | 837498 | 97.79 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCV |
| Data File Name | 237_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:51:40-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 83.848 | 0.814 | 744799 | 1.68 | 100 | 83.8 | 90 | 110 | ICV Main CR1 Failed |
| Na | 23 | 1 | nogas | 9473.067 | 5.158 | 257674256 | 1.59 | 10000 | 94.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9458.791 | 3.408 | 162157504 | 2.39 | 10000 | 94.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 123.163 | 6.727 | 2519908 | 2.50 | 100 | 123.2 | 90 | 110 | ICV Main CR1 Failed |
| K | 39 | 1 | nogas | 10070.174 | 5.002 | 218747330 | 1.47 | 10000 | 100.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 98.615 | 4.900 | 184262 | 2.22 | 100 | 98.6 | 90 | 110 | |
| V | 51 | 1 | nogas | 98.785 | 7.338 | 3929371 | 2.24 | 100 | 98.8 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 99.376 | 6.943 | 2363220 | 2.85 | 100 | 99.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 96.139 | 5.599 | 2813361 | 1.63 | 100 | 96.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 98.503 | 7.880 | 2360011 | 3.78 | 100 | 98.5 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.308 | 5.793 | 516068 | 1.85 | 100 | 100.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 97.046 | 4.866 | 1248080 | 0.78 | 100 | 97.0 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.904 | 3.042 | 415569 | 1.07 | 100 | 99.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 94.192 | 3.025 | 669338 | 1.83 | 100 | 94.2 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 98.328 | 5.314 | 2884457 | 1.68 | 100 | 98.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 99.452 | 3.828 | 1418022 | 2.48 | 100 | 99.5 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.549 | 1.316 | 298612 | 2.35 | 100 | 96.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 101.649 | 7.001 | 1385989 | 3.36 | 100 | 101.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 96.489 | 5.000 | 2071395 | 3.23 | 100 | 96.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.753 | 1.335 | 2776234 | 1.33 | 100 | 97.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 99.133 | 2.988 | 2839626 | 1.94 | 100 | 99.1 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 95.225 | 4.964 | 671276 | 2.54 | 100 | 95.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 97.381 | 2.566 | 598545 | 0.93 | 100 | 97.4 | 90 | 110 | |
| Na | 23 | 2 | He | 9545.903 | 2.850 | 14839266 | 0.64 | 10000 | 95.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9556.307 | 3.231 | 8062486 | 1.00 | 10000 | 95.6 | 90 | 110 | |
| Al | 27 | 2 | He | 115.494 | 1.159 | 56063 | 1.12 | 100 | 115.5 | 90 | 110 | ICV Main CR1 Failed |
| K | 39 | 2 | He | 9904.423 | 0.473 | 9061134 | 0.46 | 10000 | 99.0 | 90 | 110 | |
| Ca | 43 | 2 | He | 9659.751 | 3.386 | 23909 | 4.40 | 10000 | 96.6 | 90 | 110 | |
| Ca | 44 | 2 | He | 9743.988 | 1.700 | 404385 | 0.57 | 10000 | 97.4 | 90 | 110 | |
| V | 51 | 2 | He | 94.206 | 2.359 | 606696 | 0.37 | 100 | 94.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 93.363 | 2.651 | 647309 | 1.31 | 100 | 93.4 | 90 | 110 | |
| Mn | 55 | 2 | He | 96.404 | 1.324 | 453614 | 1.04 | 100 | 96.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9562.688 | 1.193 | 55312104 | 1.86 | 10000 | 95.6 | 90 | 110 | |
| Co | 59 | 2 | He | 93.457 | 2.764 | 867467 | 0.58 | 100 | 93.5 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.000 | 4.252 | 218644 | 2.03 | 100 | 97.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 95.689 | 4.025 | 549293 | 1.81 | 100 | 95.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 94.294 | 2.680 | 132120 | 2.57 | 100 | 94.3 | 90 | 110 | |
| As | 75 | 2 | He | 96.645 | 1.892 | 132758 | 0.41 | 100 | 96.6 | 90 | 110 | |
| Se | 78 | 2 | He | 95.670 | 3.454 | 10266 | 1.33 | 100 | 95.7 | 90 | 110 | |
| B | 11 | 1 | nogas | 449.770 | 1.233 | 2522051 | 1.40 | 500 | 90.0 | 90 | 110 | ICV Main CR1 Failed |
| Si | 28 | 1 | nogas | 5024.767 | 3.947 | 56961241 | 0.29 | 5000 | 100.5 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10068.410 | 3.841 | 372307 | 2.19 | 10000 | 100.7 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10091.344 | 3.500 | 6165577 | 0.74 | 10000 | 100.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9859.966 | 2.794 | 240470664 | 1.30 | 10000 | 98.6 | 90 | 110 | |
| Se | 77 | 1 | nogas | 90.576 | 11.463 | 71848 | 2.72 | 100 | 90.6 | 90 | 110 | |
| Se | 82 | 1 | nogas | 100.935 | 3.252 | 27411 | 1.03 | 100 | 100.9 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.675 | 3.362 | 581598 | 1.07 | 100 | 95.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.246 | 2.550 | 780269 | 1.00 | 100 | 93.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 98.047 | 2.279 | 425148 | 1.98 | 100 | 98.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 99.497 | 1.789 | 487836 | 1.57 | 100 | 99.5 | 90 | 110 | |
| Li | 7 | 1 | nogas | 93.698 | 4.466 | 1843806 | 4.90 | 100 | 93.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 503.287 | 4.209 | 895021 | 1.33 | 500 | 100.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 158.627 | 15.772 | 740 | 13.03 | 100 | 158.6 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 271.390 | 486.350 | 17 | 91.65 | 100 | 271.4 | 90 | 110 | ICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1151366 | 1.39 | 1195276 | 96.33 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3542945 | 4.01 | 3552237 | 99.74 | 70 | 125 | |
| In | 115 | 1 | nogas | 3084221 | 3.57 | 3134247 | 98.40 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2312209 | 3.10 | 2336631 | 98.95 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 830435 | 2.25 | 837498 | 99.16 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 238SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:53:38-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 231CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.628 | 1.628 | 11.47 | 16020 | 0.01 | 2000 | |
| Na | 23 | 1 | nogas | 207.294 | 207.294 | 2.13 | 6001586 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 205.541 | 205.541 | 3.69 | 3571595 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 0.431 | 0.431 | 25.46 | 88441 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 220.006 | 220.006 | 6.80 | 12540609 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 2.230 | 2.230 | 0.68 | 4581 | 0.05 | 2000 | |
| V | 51 | 1 | nogas | 8.852 | 8.852 | 25.57 | 1521333 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 2.253 | 2.253 | 6.07 | 124331 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 1.881 | 1.881 | 4.21 | 80287 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 2.103 | 2.103 | 3.00 | 52816 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 1.662 | 1.662 | 5.85 | 12077 | 0.01 | 2000 | |
| Cu | 63 | 1 | nogas | 2.078 | 2.078 | 3.04 | 29087 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 1.745 | 1.745 | 9.52 | 9916 | 0.02 | 2000 | |
| As | 75 | 1 | nogas | 1.863 | 1.863 | 32.54 | 191066 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.004 | 2.004 | 1.98 | 61817 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 2.072 | 2.072 | 1.01 | 30550 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 1.938 | 1.938 | 2.12 | 6408 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 3.159 | 3.159 | 5.57 | 44687 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 2.268 | 2.268 | 13.54 | 52492 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 2.139 | 2.139 | 1.55 | 61887 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 2.026 | 2.026 | 6.08 | 62203 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 1.993 | 1.993 | 6.96 | 15377 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 2.023 | 2.023 | 2.74 | 13589 | 0.01 | 2000 | |
| Na | 23 | 2 | He | 209.802 | 209.802 | 1.99 | 369617 | 0.06 | 200000 | |
| Mg | 24 | 2 | He | 213.119 | 213.119 | 0.65 | 182803 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 0.994 | 0.994 | 26.74 | 2234 | 0.04 | 2000 | |
| K | 39 | 2 | He | 219.547 | 219.547 | 0.46 | 367366 | 0.06 | 200000 | |
| Ca | 43 | 2 | He | 191.411 | 191.411 | 6.41 | 513 | 37.29 | 200000 | |
| Ca | 44 | 2 | He | 196.609 | 196.609 | 2.93 | 9122 | 2.16 | 200000 | |
| V | 51 | 2 | He | 2.918 | 2.918 | 2.97 | 29813 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | 1.961 | 1.961 | 3.50 | 17739 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 2.065 | 2.065 | 5.86 | 10843 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 210.766 | 210.766 | 3.42 | 1253761 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 2.048 | 2.048 | 4.05 | 19344 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 2.342 | 2.342 | 7.24 | 5097 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | 2.529 | 2.529 | 6.57 | 13268 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 2.087 | 2.087 | 1.06 | 3097 | 0.07 | 2000 | |
| As | 75 | 2 | He | 2.176 | 2.176 | 0.56 | 3518 | 0.06 | 2000 | |
| Se | 78 | 2 | He | 2.810 | 2.810 | 8.05 | 411 | 0.68 | 2000 | |
| B | 11 | 1 | nogas | 13.867 | 13.867 | 15.71 | 237077 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 99.677 | 99.677 | 14.63 | 2963510 | 0.00 | 2000 | |
| Ca | 43 | 1 | nogas | 208.155 | 208.155 | 2.27 | 8759 | 2.38 | 200000 | |

# Sample Report

| Ca | 44 | 1 | nogas | 197.239 | 197.239 | 2.30 | 179157 | 0.11 | 200000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 209.399 | 209.399 | 6.85 | 7837006 | 0.00 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Se | 77 | 1 | nogas | 26.571 | 26.571 | 46.96 | 59116 | 0.04 | 2000 | |
| Se | 82 | 1 | nogas | 2.370 | 2.370 | 15.23 | 897 | 0.26 | 2000 | |
| Mo | 95 | 1 | nogas | 2.253 | 2.253 | 8.30 | 14463 | 0.02 | 2000 | |
| Sn | 118 | 1 | nogas | 2.103 | 2.103 | 3.08 | 20172 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 1.981 | 1.981 | 3.96 | 9343 | 0.02 | 2000 | |
| Sb | 121 | 2 | He | 3.107 | 3.107 | 2.70 | 15444 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | -37.203 | -37.203 | -8.32 | 70 | -53.15 | 2000 | |
| Au | 197 | 1 | nogas | 649.630 | 649.630 | 186.19 | 13 | 4872.23 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1275207 | 7.51 | 1195276 | 106.69 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3647931 | 2.22 | 3552237 | 102.69 | 70 | 125 | |
| In | 115 | 1 | nogas | 3280686 | 2.68 | 3134247 | 104.67 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2475617 | 4.11 | 2336631 | 105.95 | 70 | 125 | |
| Ge | 72 | 2 | He | 836673 | 1.49 | 837498 | 99.90 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 239LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:55:37-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.530 | 9.453 | 37901 | 1.37 | 5 | 90.6 | 70 | 130 | |
| Na | 23 | 1 | nogas | 468.673 | 10.476 | 13683101 | 3.06 | 500 | 93.7 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 468.089 | 9.387 | 8433335 | 2.81 | 500 | 93.6 | 70 | 130 | |
| Al | 27 | 1 | nogas | 4.734 | 6.322 | 181334 | 3.53 | 5 | 94.7 | 70 | 130 | |
| K | 39 | 1 | nogas | 498.228 | 6.152 | 19061074 | 0.11 | 500 | 99.6 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 4.705 | 6.193 | 9586 | 2.65 | 5 | 94.1 | 70 | 130 | |
| V | 51 | 1 | nogas | 20.671 | 21.678 | 1906283 | 8.33 | 5 | 413.4 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 5.178 | 7.065 | 199255 | 0.95 | 5 | 103.6 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 4.808 | 4.378 | 172449 | 0.94 | 5 | 96.2 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.805 | 5.906 | 122761 | 2.66 | 5 | 96.1 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.684 | 7.140 | 28763 | 4.19 | 5 | 93.7 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 4.813 | 6.059 | 67046 | 3.27 | 5 | 96.3 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 4.743 | 6.717 | 23305 | 2.48 | 5 | 94.9 | 70 | 130 | |
| As | 75 | 1 | nogas | 6.789 | 34.112 | 223455 | 2.24 | 5 | 135.8 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 4.822 | 3.420 | 150992 | 0.61 | 5 | 96.4 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 4.879 | 2.723 | 73754 | 2.35 | 5 | 97.6 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 4.976 | 4.174 | 15921 | 0.57 | 5 | 99.5 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.342 | 4.712 | 77424 | 1.15 | 5 | 106.8 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.975 | 1.935 | 101479 | 1.48 | 5 | 99.5 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 5.034 | 2.373 | 144051 | 2.35 | 5 | 100.7 | 70 | 130 | |
| U | 238 | 1 | nogas | 5.139 | 2.329 | 139440 | 0.78 | 5 | 102.8 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 5.405 | 3.777 | 36381 | 3.16 | 5 | 108.1 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 5.370 | 4.884 | 31464 | 2.27 | 5 | 107.4 | 70 | 130 | |
| Na | 23 | 2 | He | 501.112 | 1.227 | 822290 | 1.00 | 500 | 100.2 | 70 | 130 | |
| Mg | 24 | 2 | He | 503.854 | 2.023 | 428633 | 1.30 | 500 | 100.8 | 70 | 130 | |
| Al | 27 | 2 | He | 4.762 | 16.015 | 4007 | 9.10 | 5 | 95.2 | 70 | 130 | |
| K | 39 | 2 | He | 508.721 | 0.350 | 626947 | 0.25 | 500 | 101.7 | 70 | 130 | |
| Ca | 43 | 2 | He | 463.254 | 10.843 | 1187 | 11.19 | 500 | 92.7 | 70 | 130 | |
| Ca | 44 | 2 | He | 509.433 | 0.991 | 22110 | 2.47 | 500 | 101.9 | 70 | 130 | |
| V | 51 | 2 | He | 5.915 | 2.841 | 48755 | 0.77 | 5 | 118.3 | 70 | 130 | |
| Cr | 52 | 2 | He | 4.903 | 2.277 | 38056 | 3.21 | 5 | 98.1 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.126 | 1.692 | 25241 | 1.38 | 5 | 102.5 | 70 | 130 | |
| Fe | 56 | 2 | He | 504.462 | 1.773 | 2955918 | 2.51 | 500 | 100.9 | 70 | 130 | |
| Co | 59 | 2 | He | 4.878 | 2.450 | 45684 | 2.41 | 5 | 97.6 | 70 | 130 | |
| Ni | 60 | 2 | He | 5.428 | 5.165 | 12081 | 5.17 | 5 | 108.6 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.413 | 2.735 | 29911 | 1.30 | 5 | 108.3 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.094 | 4.879 | 7315 | 4.52 | 5 | 101.9 | 70 | 130 | |
| As | 75 | 2 | He | 5.025 | 3.440 | 7425 | 4.15 | 5 | 100.5 | 70 | 130 | |
| Se | 78 | 2 | He | 6.027 | 3.636 | 753 | 2.41 | 5 | 120.5 | 70 | 130 | |
| B | 11 | 1 | nogas | 30.057 | 13.879 | 282626 | 0.67 | 25 | 120.2 | 70 | 130 | |
| Si | 28 | 1 | nogas | 240.868 | 14.210 | 4682363 | 6.32 | 25 | 963.5 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 487.462 | 5.687 | 19898 | 2.33 | 500 | 97.5 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 472.137 | 4.437 | 360231 | 0.67 | 500 | 94.4 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 491.450 | 4.324 | 15257974 | 2.17 | 500 | 98.3 | 70 | 130 | |
| Se | 77 | 1 | nogas | 47.180 | 32.878 | 65621 | 2.32 | 5 | 943.6 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 4.849 | 2.638 | 1630 | 4.02 | 5 | 97.0 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.673 | 5.813 | 30420 | 2.35 | 5 | 93.5 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.775 | 4.284 | 42625 | 2.59 | 5 | 95.5 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 4.915 | 3.456 | 22208 | 2.21 | 5 | 98.3 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.474 | 1.513 | 27051 | 1.07 | 5 | 109.5 | 70 | 130 | |
| Li | 7 | 1 | nogas | 5.564 | 17.680 | 188357 | 1.10 | 5 | 111.3 | 70 | 130 | |
| P | 31 | 1 | nogas | 27.947 | 14.489 | 132540 | 2.34 | 25 | 111.8 | 70 | 130 | |
| La | 139 | 1 | nogas | 6.001 | 342.949 | 220 | 29.81 | 5 | 120.0 | 70 | 130 | |
| Au | 197 | 1 | nogas | -91.200 | -949.432 | 20 | 50.00 | 5 | -1824.0 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1087629 | 7.70 | 1195276 | 90.99 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3749725 | 3.63 | 3552237 | 105.56 | 70 | 125 | |
| In | 115 | 1 | nogas | 3186690 | 3.57 | 3134247 | 101.67 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2188629 | 2.80 | 2336631 | 93.67 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 834160 | 1.58 | 837498 | 99.60 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCB |
| Data File Name | 240_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:57:35-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.022 | 33.5 | 287 | 26.2 | 1 | |
| Na | 23 | 1 | nogas | 3.189 | 35.7 | 384853 | 3.7 | 100 | |
| Mg | 24 | 1 | nogas | 1.016 | 38.6 | 43794 | 3.6 | 100 | |
| Al | 27 | 1 | nogas | -0.380 | -64.1 | 66457 | 1.2 | 5 | |
| K | 39 | 1 | nogas | 40.124 | 72.0 | 8002143 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.126 | 166.2 | 477 | 68.7 | 2.5 | |
| V | 51 | 1 | nogas | 17.152 | 29.5 | 1621827 | 1.6 | 2.5 | ICB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.858 | 25.9 | 84337 | 2.1 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.087 | 74.6 | 24610 | 1.3 | 2.5 | |
| Co | 59 | 1 | nogas | 0.001 | 834.3 | 807 | 11.1 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.510 | -1.6 | 587 | 1.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.057 | 22.9 | 2157 | 3.3 | 1 | |
| Zn | 66 | 1 | nogas | -0.349 | -6.0 | 927 | 1.6 | 2.5 | |
| As | 75 | 1 | nogas | 5.554 | 40.1 | 195257 | 2.3 | 2.5 | ICB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.020 | 40.0 | 1690 | 7.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.005 | 86.7 | 173 | 29.6 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.016 | 30.3 | 73 | 20.8 | 1 | |
| Sb | 121 | 1 | nogas | 0.257 | 3.4 | 3624 | 4.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.090 | 43.4 | 2144 | 30.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.003 | 125.1 | 1253 | 9.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.014 | 29.1 | 493 | 20.3 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.002 | 696.1 | 323 | 20.6 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.007 | 121.0 | 290 | 15.0 | 2.5 | |
| Na | 23 | 2 | He | 2.300 | 38.3 | 44729 | 3.2 | 100 | |
| Mg | 24 | 2 | He | 1.038 | 12.8 | 2427 | 5.0 | 100 | |
| Al | 27 | 2 | He | 0.191 | 277.8 | 1823 | 13.7 | 5 | |
| K | 39 | 2 | He | 15.090 | 13.3 | 183831 | 1.0 | 100 | |
| Ca | 43 | 2 | He | 8.488 | 74.2 | 57 | 27.0 | 100 | |
| Ca | 44 | 2 | He | 2.081 | 47.4 | 987 | 3.6 | 100 | |
| V | 51 | 2 | He | 1.200 | 2.2 | 18565 | 1.4 | 2.5 | |
| Cr | 52 | 2 | He | 0.058 | 17.0 | 4451 | 2.1 | 2.5 | |
| Mn | 55 | 2 | He | 0.068 | 23.2 | 1370 | 5.1 | 2.5 | |
| Fe | 56 | 2 | He | 0.104 | 486.7 | 26203 | 11.2 | 100 | |
| Co | 59 | 2 | He | 0.003 | 220.3 | 223 | 26.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.206 | 12.7 | 237 | 24.4 | 2.5 | |
| Cu | 63 | 2 | He | 0.395 | 3.7 | 887 | 9.7 | 1 | |
| Zn | 66 | 2 | He | 0.138 | 30.2 | 343 | 16.6 | 2.5 | |
| As | 75 | 2 | He | 0.086 | 65.7 | 626 | 12.0 | 2.5 | |
| Se | 78 | 2 | He | 0.762 | 26.3 | 189 | 11.6 | 1 | |
| B | 11 | 1 | nogas | 3.281 | 40.0 | 159852 | 2.6 | 10 | |
| Si | 28 | 1 | nogas | 7.551 | 152.6 | 1776849 | 1.2 | 5 | ICB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 6.277 | 19.1 | 1007 | 7.5 | 100 | |
| Ca | 44 | 1 | nogas | 6.129 | 106.2 | 55415 | 1.0 | 100 | |
| Fe | 56 | 1 | nogas | 8.009 | 125.4 | 2618680 | 2.3 | 100 | |

# Initial Calibration Blank (ICB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Se | 77 | 1 | nogas | 65.522 | 24.2 | 63119 | 3.5 | 2.5 | ICB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.025 | -217.1 | 217 | 9.6 | 1 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Mo | 95 | 1 | nogas | 0.031 | 32.7 | 527 | 12.4 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.013 | 178.8 | 1380 | 6.3 | 5 | |
| Ba | 137 | 1 | nogas | 0.029 | 76.7 | 297 | 22.4 | 2.5 | |
| Sb | 121 | 2 | He | 0.261 | 6.9 | 1363 | 6.1 | 2.5 | |
| P | 31 | 1 | nogas | 5.499 | 75.8 | 84699 | 0.4 | 10 | |
| La | 139 | 1 | nogas | -16.882 | -9.2 | 127 | 4.6 | 2.5 | |
| Au | 197 | 1 | nogas | 806.992 | 7.4 | 10 | 0.0 | 2.5 | ICB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1161998 | 4.83 | 1195276 | 97.22 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3385374 | 7.82 | 3552237 | 95.30 | 70 | 125 | |
| In | 115 | 1 | nogas | 2881253 | 7.72 | 3134247 | 91.93 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2184286 | 6.51 | 2336631 | 93.48 | 70 | 125 | |
| Ge | 72 | 2 | He | 823081 | 0.55 | 837498 | 98.28 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 252_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:21:23-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 86.986 | 4.957 | 747728 | 1.22 | 100 | 87.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10445.514 | 0.351 | 282560673 | 2.13 | 10000 | 104.5 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10115.302 | 1.611 | 172357862 | 2.17 | 10000 | 101.2 | 90 | 110 | |
| Al | 27 | 1 | nogas | 111.418 | 5.099 | 2251866 | 0.28 | 100 | 111.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10659.147 | 6.487 | 227342897 | 1.63 | 10000 | 106.6 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 101.182 | 5.359 | 186021 | 0.67 | 100 | 101.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 128.716 | 4.983 | 4672770 | 1.51 | 100 | 128.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 101.495 | 4.686 | 2378656 | 6.21 | 100 | 101.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.172 | 3.658 | 2919480 | 7.24 | 100 | 101.2 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.828 | 4.093 | 2356538 | 0.76 | 100 | 99.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 103.247 | 5.355 | 522772 | 0.79 | 100 | 103.2 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.636 | 7.627 | 1222207 | 3.14 | 100 | 96.6 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.708 | 4.093 | 412200 | 0.66 | 100 | 100.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 110.350 | 4.666 | 741953 | 1.52 | 100 | 110.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 101.161 | 3.714 | 2922477 | 2.12 | 100 | 101.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.143 | 4.117 | 1405201 | 1.66 | 100 | 100.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 98.636 | 2.864 | 295347 | 0.64 | 100 | 98.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.023 | 3.737 | 1343594 | 1.96 | 100 | 100.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.834 | 0.958 | 2010797 | 0.79 | 100 | 99.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 92.751 | 2.827 | 2634221 | 2.83 | 100 | 92.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 85.700 | 2.006 | 2302180 | 0.35 | 100 | 85.7 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 98.188 | 2.189 | 649389 | 0.96 | 100 | 98.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 94.486 | 5.172 | 544532 | 4.09 | 100 | 94.5 | 90 | 110 | |
| Na | 23 | 2 | He | 10801.288 | 0.275 | 16808372 | 1.67 | 10000 | 108.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 10287.141 | 0.348 | 8691425 | 1.71 | 10000 | 102.9 | 90 | 110 | |
| Al | 27 | 2 | He | 105.962 | 2.105 | 51628 | 0.65 | 100 | 106.0 | 90 | 110 | |
| K | 39 | 2 | He | 10644.298 | 0.776 | 9725294 | 0.76 | 10000 | 106.4 | 90 | 110 | |
| Ca | 43 | 2 | He | 10304.580 | 0.270 | 25524 | 1.64 | 10000 | 103.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 10363.457 | 1.309 | 430502 | 0.94 | 10000 | 103.6 | 90 | 110 | |
| V | 51 | 2 | He | 98.868 | 0.738 | 636938 | 0.97 | 100 | 98.9 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.391 | 0.966 | 655256 | 2.21 | 100 | 94.4 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.414 | 3.584 | 468126 | 2.41 | 100 | 99.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9761.148 | 1.914 | 56508889 | 1.09 | 10000 | 97.6 | 90 | 110 | |
| Co | 59 | 2 | He | 92.601 | 1.858 | 860524 | 0.47 | 100 | 92.6 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.011 | 2.593 | 218963 | 1.52 | 100 | 97.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 95.412 | 2.123 | 548444 | 1.14 | 100 | 95.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 93.814 | 0.662 | 131591 | 1.20 | 100 | 93.8 | 90 | 110 | |
| As | 75 | 2 | He | 97.803 | 1.873 | 134482 | 0.56 | 100 | 97.8 | 90 | 110 | |
| Se | 78 | 2 | He | 97.982 | 0.980 | 10526 | 1.45 | 100 | 98.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 619.414 | 4.036 | 3310898 | 1.20 | 500 | 123.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 555.125 | 5.911 | 7752419 | 1.23 | 5000 | 11.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10657.415 | 5.749 | 387586 | 1.64 | 10000 | 106.6 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10455.927 | 6.997 | 6279410 | 2.44 | 10000 | 104.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10238.822 | 3.934 | 245884455 | 5.65 | 10000 | 102.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 209.743 | 8.568 | 97174 | 0.61 | 100 | 209.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 99.319 | 5.519 | 26536 | 1.73 | 100 | 99.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 91.802 | 4.168 | 549206 | 1.33 | 100 | 91.8 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 95.955 | 0.702 | 777906 | 2.46 | 100 | 96.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.351 | 3.799 | 417102 | 1.93 | 100 | 99.4 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.913 | 1.343 | 480556 | 0.81 | 100 | 97.9 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.445 | 4.701 | 1834127 | 2.28 | 100 | 96.4 | 90 | 110 | |
| P | 31 | 1 | nogas | 473.343 | 5.372 | 832948 | 0.83 | 500 | 94.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 199.325 | 11.967 | 850 | 6.55 | 100 | 199.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -442.941 | -435.383 | 23 | 89.21 | 100 | -442.9 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1115999 | 4.98 | 1195276 | 93.37 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3488105 | 4.84 | 3552237 | 98.19 | 70 | 125 | |
| In | 115 | 1 | nogas | 2986720 | 2.93 | 3134247 | 95.29 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2167806 | 1.66 | 2336631 | 92.77 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 831202 | 1.41 | 837498 | 99.25 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 253_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:23:23-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.079 | 27.5 | 830 | 21.7 | 1 | |
| Na | 23 | 1 | nogas | 367.394 | 6.7 | 10106001 | 1.1 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 18.654 | 14.1 | 342464 | 7.6 | 100 | |
| Al | 27 | 1 | nogas | 2.756 | 1.6 | 126404 | 0.8 | 5 | |
| K | 39 | 1 | nogas | 73.620 | 5.1 | 8716121 | 1.2 | 100 | |
| Ti | 47 | 1 | nogas | 0.149 | 19.5 | 537 | 10.9 | 2.5 | |
| V | 51 | 1 | nogas | 17.404 | 21.0 | 1636644 | 4.8 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.424 | 17.8 | 75088 | 1.1 | 2.5 | |
| Mn | 55 | 1 | nogas | 1.104 | 3.4 | 53053 | 3.2 | 2.5 | |
| Co | 59 | 1 | nogas | 0.102 | 20.7 | 3140 | 16.6 | 2.5 | |
| Ni | 60 | 1 | nogas | 1.350 | 6.8 | 9696 | 3.4 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.643 | 0.7 | 9376 | 0.8 | 2 | |
| Zn | 66 | 1 | nogas | 0.499 | 9.0 | 4291 | 4.2 | 2.5 | |
| As | 75 | 1 | nogas | 4.398 | 40.8 | 190232 | 3.6 | 2.5 | CCB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.392 | 6.0 | 12174 | 6.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.072 | 17.9 | 1087 | 17.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.067 | 44.9 | 230 | 35.6 | 1 | |
| Sb | 121 | 1 | nogas | 0.134 | 21.7 | 2027 | 19.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.902 | 56.7 | 19384 | 55.7 | 1 | |
| Pb | 208 | 1 | nogas | 0.088 | 45.1 | 3644 | 30.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.171 | 48.3 | 4904 | 47.4 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.077 | 46.6 | 857 | 28.9 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.094 | 37.5 | 823 | 25.7 | 2.5 | |
| Na | 23 | 2 | He | 375.898 | 4.2 | 627445 | 2.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 21.051 | 11.1 | 19430 | 9.7 | 100 | |
| Al | 27 | 2 | He | 3.287 | 3.8 | 3314 | 3.7 | 5 | |
| K | 39 | 2 | He | 39.126 | 6.4 | 205408 | 1.1 | 100 | |
| Ca | 43 | 2 | He | 25.702 | 33.8 | 100 | 20.0 | 100 | |
| Ca | 44 | 2 | He | 31.599 | 4.2 | 2230 | 4.0 | 100 | |
| V | 51 | 2 | He | 1.368 | 3.4 | 19893 | 1.1 | 2.5 | |
| Cr | 52 | 2 | He | 0.101 | 36.7 | 4814 | 5.4 | 2.5 | |
| Mn | 55 | 2 | He | 0.956 | 8.8 | 5581 | 6.2 | 2.5 | |
| Fe | 56 | 2 | He | 7.398 | 7.7 | 68928 | 3.1 | 100 | |
| Co | 59 | 2 | He | 0.077 | 8.3 | 920 | 6.8 | 2.5 | |
| Ni | 60 | 2 | He | 0.340 | 8.5 | 543 | 10.8 | 2.5 | |
| Cu | 63 | 2 | He | 0.475 | 3.4 | 1360 | 5.8 | 2 | |
| Zn | 66 | 2 | He | 0.410 | 10.8 | 730 | 7.2 | 2.5 | |
| As | 75 | 2 | He | 0.170 | 17.3 | 749 | 4.0 | 2.5 | |
| Se | 78 | 2 | He | 0.895 | 19.1 | 206 | 7.6 | 2 | |
| B | 11 | 1 | nogas | 177.387 | 9.1 | 1141533 | 4.5 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 25.836 | 12.9 | 1977801 | 1.7 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 41.427 | 18.7 | 2250 | 12.0 | 100 | |
| Ca | 44 | 1 | nogas | 46.577 | 3.7 | 79157 | 2.6 | 100 | |
| Fe | 56 | 1 | nogas | 53.311 | 11.5 | 3681656 | 4.8 | 100 | |
| Se | 77 | 1 | nogas | 51.555 | 29.8 | 60340 | 5.1 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.026 | 546.4 | 230 | 15.1 | 2 | |
| Mo | 95 | 1 | nogas | 0.478 | 40.4 | 3140 | 36.8 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.256 | 31.3 | 3417 | 14.8 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.218 | 33.9 | 1107 | 23.2 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.124 | 23.1 | 707 | 18.8 | 2.5 | |
| P | 31 | 1 | nogas | 6.887 | 13.2 | 87294 | 1.0 | 10 | |
| La | 139 | 1 | nogas | -18.657 | -65.7 | 127 | 32.9 | 2.5 | |
| Au | 197 | 1 | nogas | 257.284 | 524.0 | 17 | 91.7 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1219280 | 4.78 | 1195276 | 102.01 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3390051 | 1.32 | 3552237 | 95.43 | 70 | 125 | |
| In | 115 | 1 | nogas | 3013427 | 4.53 | 3134247 | 96.15 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2268399 | 0.43 | 2336631 | 97.08 | 70 | 125 | |
| Ge | 72 | 2 | He | 834717 | 1.92 | 837498 | 99.67 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 264_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:45:19-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 87.096 | 2.669 | 753350 | 2.24 | 100 | 87.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10371.125 | 3.451 | 271943106 | 1.66 | 10000 | 103.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10167.893 | 2.619 | 167980516 | 1.76 | 10000 | 101.7 | 90 | 110 | |
| Al | 27 | 1 | nogas | 113.354 | 2.985 | 2182729 | 2.47 | 100 | 113.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 11358.738 | 1.619 | 230634547 | 2.63 | 10000 | 113.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ti | 47 | 1 | nogas | 107.627 | 3.818 | 188561 | 0.60 | 100 | 107.6 | 90 | 110 | |
| V | 51 | 1 | nogas | 117.291 | 5.274 | 4159320 | 2.58 | 100 | 117.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 106.520 | 3.833 | 2372744 | 2.52 | 100 | 106.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 108.748 | 6.502 | 2980584 | 3.29 | 100 | 108.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 107.085 | 3.898 | 2408282 | 1.86 | 100 | 107.1 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 106.648 | 4.511 | 514445 | 1.24 | 100 | 106.6 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 101.206 | 2.681 | 1220988 | 0.91 | 100 | 101.2 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 102.769 | 2.938 | 400777 | 1.54 | 100 | 102.8 | 90 | 110 | |
| As | 75 | 1 | nogas | 107.757 | 2.827 | 694201 | 1.25 | 100 | 107.8 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 107.660 | 2.283 | 2964268 | 3.51 | 100 | 107.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 105.883 | 3.397 | 1415401 | 0.11 | 100 | 105.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 99.511 | 2.244 | 292953 | 0.95 | 100 | 99.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.757 | 3.597 | 1327631 | 1.65 | 100 | 103.8 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.995 | 0.921 | 2031167 | 3.00 | 100 | 100.0 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 94.831 | 3.171 | 2693257 | 3.17 | 100 | 94.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 87.015 | 2.961 | 2356580 | 1.77 | 100 | 87.0 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 100.023 | 1.226 | 667069 | 1.58 | 100 | 100.0 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 94.940 | 1.831 | 551810 | 1.33 | 100 | 94.9 | 90 | 110 | |
| Na | 23 | 2 | He | 10468.489 | 1.550 | 16012758 | 2.26 | 10000 | 104.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 10459.216 | 0.611 | 8685904 | 2.20 | 10000 | 104.6 | 90 | 110 | |
| Al | 27 | 2 | He | 106.833 | 1.647 | 51149 | 0.83 | 100 | 106.8 | 90 | 110 | |
| K | 39 | 2 | He | 10673.170 | 2.487 | 9751211 | 2.44 | 10000 | 106.7 | 90 | 110 | |
| Ca | 43 | 2 | He | 10084.810 | 4.259 | 24540 | 2.17 | 10000 | 100.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 10216.425 | 2.719 | 417050 | 0.47 | 10000 | 102.2 | 90 | 110 | |
| V | 51 | 2 | He | 98.121 | 1.379 | 621371 | 1.26 | 100 | 98.1 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.468 | 2.442 | 644347 | 0.20 | 100 | 94.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.399 | 1.765 | 460098 | 0.50 | 100 | 99.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9940.074 | 0.475 | 56574426 | 2.48 | 10000 | 99.4 | 90 | 110 | |
| Co | 59 | 2 | He | 93.848 | 2.642 | 857549 | 4.15 | 100 | 93.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.691 | 2.132 | 218996 | 2.68 | 100 | 98.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.127 | 2.672 | 548715 | 1.17 | 100 | 97.1 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.184 | 1.489 | 132597 | 1.57 | 100 | 96.2 | 90 | 110 | |
| As | 75 | 2 | He | 97.008 | 1.879 | 131110 | 0.79 | 100 | 97.0 | 90 | 110 | |
| Se | 78 | 2 | He | 97.921 | 0.518 | 10340 | 1.76 | 100 | 97.9 | 90 | 110 | |
| B | 11 | 1 | nogas | 734.652 | 5.522 | 3922075 | 2.64 | 500 | 146.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 619.251 | 6.286 | 8044260 | 1.71 | 5000 | 12.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10818.810 | 3.150 | 375061 | 1.14 | 10000 | 108.2 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10814.241 | 3.490 | 6192753 | 2.60 | 10000 | 108.1 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10614.070 | 2.923 | 242517922 | 0.94 | 10000 | 106.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 156.226 | 7.427 | 81264 | 1.72 | 100 | 156.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 104.622 | 4.299 | 26630 | 2.63 | 100 | 104.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.099 | 2.410 | 547826 | 0.92 | 100 | 96.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 97.048 | 0.658 | 773423 | 2.47 | 100 | 97.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 101.742 | 2.322 | 419981 | 0.87 | 100 | 101.7 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.436 | 0.248 | 484615 | 2.53 | 100 | 100.4 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.803 | 3.712 | 1851175 | 1.98 | 100 | 96.8 | 90 | 110 | |
| P | 31 | 1 | nogas | 598.157 | 7.880 | 982856 | 5.22 | 500 | 119.6 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 209.530 | 15.389 | 870 | 11.95 | 100 | 209.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -1971.920 | -86.092 | 40 | 43.30 | 100 | -1971.9 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1122032 | 4.54 | 1195276 | 93.87 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3321355 | 3.34 | 3552237 | 93.50 | 70 | 125 | |
| In | 115 | 1 | nogas | 2936215 | 3.13 | 3134247 | 93.68 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2185904 | 2.54 | 2336631 | 93.55 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 817052 | 2.28 | 837498 | 97.56 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 265_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:47:18-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.076 | 33.1 | 793 | 25.5 | 1 | |
| Na | 23 | 1 | nogas | 125.336 | 9.2 | 3523086 | 2.6 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 13.816 | 25.1 | 250642 | 16.3 | 100 | |
| Al | 27 | 1 | nogas | 2.293 | 6.4 | 116198 | 1.6 | 5 | |
| K | 39 | 1 | nogas | 155.734 | 8.5 | 10240559 | 0.9 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.411 | 34.5 | 990 | 23.3 | 2.5 | |
| V | 51 | 1 | nogas | 6.074 | 45.7 | 1326165 | 7.1 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.663 | 5.1 | 79456 | 1.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 1.388 | 1.5 | 60191 | 1.0 | 2.5 | |
| Co | 59 | 1 | nogas | 0.147 | 11.8 | 4131 | 8.2 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.136 | -42.4 | 2390 | 9.9 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.300 | 14.4 | 5091 | 8.4 | 2 | |
| Zn | 66 | 1 | nogas | 0.200 | 42.0 | 3070 | 10.7 | 2.5 | |
| As | 75 | 1 | nogas | 1.294 | 62.1 | 172710 | 4.1 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.218 | 18.9 | 7182 | 14.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.070 | 9.5 | 1043 | 7.7 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.098 | 45.9 | 327 | 40.0 | 1 | |
| Sb | 121 | 1 | nogas | 0.288 | 10.5 | 3981 | 7.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.976 | 53.1 | 20573 | 54.9 | 1 | |
| Pb | 208 | 1 | nogas | 0.099 | 48.0 | 3970 | 34.0 | 2.5 | |
| U | 238 | 1 | nogas | 0.212 | 55.6 | 5971 | 57.4 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.087 | 51.5 | 913 | 36.1 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.099 | 54.8 | 840 | 41.2 | 2.5 | |
| Na | 23 | 2 | He | 121.939 | 6.9 | 229267 | 2.2 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 11.996 | 6.7 | 11630 | 4.3 | 100 | |
| Al | 27 | 2 | He | 2.535 | 31.6 | 2917 | 8.2 | 5 | |
| K | 39 | 2 | He | 103.286 | 1.1 | 263002 | 0.4 | 100 | CCB Main CR1 Failed |
| Ca | 43 | 2 | He | 31.876 | 58.4 | 113 | 36.7 | 100 | |
| Ca | 44 | 2 | He | 25.081 | 5.8 | 1940 | 6.2 | 100 | |
| V | 51 | 2 | He | 0.705 | 26.3 | 15496 | 2.7 | 2.5 | |
| Cr | 52 | 2 | He | 0.070 | 49.3 | 4547 | 1.9 | 2.5 | |
| Mn | 55 | 2 | He | 1.068 | 8.0 | 6038 | 2.1 | 2.5 | |
| Fe | 56 | 2 | He | 7.513 | 6.5 | 68896 | 2.2 | 100 | |
| Co | 59 | 2 | He | 0.119 | 15.4 | 1297 | 8.9 | 2.5 | |
| Ni | 60 | 2 | He | 0.314 | 0.7 | 480 | 5.5 | 2.5 | |
| Cu | 63 | 2 | He | 0.523 | 5.0 | 1623 | 10.3 | 2 | |
| Zn | 66 | 2 | He | 0.427 | 5.3 | 747 | 4.3 | 2.5 | |
| As | 75 | 2 | He | 0.109 | 54.0 | 658 | 10.1 | 2.5 | |
| Se | 78 | 2 | He | 1.138 | 38.9 | 229 | 18.8 | 2 | |
| B | 11 | 1 | nogas | 203.047 | 9.6 | 1278371 | 3.9 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 54.289 | 10.9 | 2249803 | 2.1 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 63.208 | 7.0 | 2984 | 4.4 | 100 | |
| Ca | 44 | 1 | nogas | 70.107 | 12.3 | 91637 | 3.5 | 100 | |
| Fe | 56 | 1 | nogas | 33.063 | 30.2 | 3172265 | 5.3 | 100 | |
| Se | 77 | 1 | nogas | 31.669 | 9.5 | 55394 | 2.9 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.573 | 19.5 | 367 | 6.3 | 2 | |
| Mo | 95 | 1 | nogas | 0.489 | 56.8 | 3137 | 48.7 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.319 | 37.1 | 3967 | 22.0 | 5 | |
| Ba | 137 | 1 | nogas | 0.222 | 24.4 | 1140 | 18.1 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sb | 121 | 2 | He | 0.237 | 6.4 | 1250 | 7.9 | 2.5 | |
| P | 31 | 1 | nogas | 21.447 | 16.2 | 108526 | 3.2 | 10 | CCB Main CR1 Failed |
| La | 139 | 1 | nogas | -24.976 | -16.3 | 107 | 14.3 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Au | 197 | 1 | nogas | -1627.090 | -89.8 | 37 | 41.7 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1213799 | 5.29 | 1195276 | 101.55 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3349960 | 1.85 | 3552237 | 94.31 | 70 | 125 | |
| In | 115 | 1 | nogas | 3042287 | 2.61 | 3134247 | 97.07 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2211162 | 2.71 | 2336631 | 94.63 | 70 | 125 | |
| Ge | 72 | 2 | He | 826869 | 5.10 | 837498 | 98.73 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 268_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:53:12-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 85.009 | 1.863 | 750986 | 0.84 | 100 | 85.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10337.709 | 5.012 | 263320848 | 2.07 | 10000 | 103.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10313.860 | 5.918 | 165426145 | 1.62 | 10000 | 103.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 112.635 | 5.285 | 2206420 | 3.53 | 100 | 112.6 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10814.002 | 1.682 | 223706480 | 0.68 | 10000 | 108.1 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 102.995 | 1.931 | 183688 | 1.48 | 100 | 103.0 | 90 | 110 | |
| V | 51 | 1 | nogas | 115.791 | 3.875 | 4193468 | 1.94 | 100 | 115.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 101.725 | 6.789 | 2308106 | 5.65 | 100 | 101.7 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.476 | 4.822 | 2834606 | 5.05 | 100 | 101.5 | 90 | 110 | |
| Co | 59 | 1 | nogas | 104.527 | 2.762 | 2392616 | 2.37 | 100 | 104.5 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 103.430 | 4.116 | 507860 | 2.32 | 100 | 103.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.530 | 3.615 | 1184854 | 1.74 | 100 | 96.5 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.495 | 2.826 | 394851 | 0.97 | 100 | 99.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 107.510 | 3.917 | 704994 | 1.12 | 100 | 107.5 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 104.558 | 3.506 | 2928233 | 3.11 | 100 | 104.6 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.290 | 2.748 | 1364376 | 1.68 | 100 | 100.3 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 100.266 | 5.016 | 294426 | 0.42 | 100 | 100.3 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 104.997 | 2.300 | 1367523 | 2.63 | 100 | 105.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.605 | 6.862 | 2030841 | 3.85 | 100 | 97.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 95.249 | 2.492 | 2705149 | 2.49 | 100 | 95.2 | 90 | 110 | |
| U | 238 | 1 | nogas | 86.383 | 6.105 | 2397543 | 2.02 | 100 | 86.4 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 97.183 | 6.667 | 663985 | 2.98 | 100 | 97.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 93.605 | 5.934 | 557533 | 2.51 | 100 | 93.6 | 90 | 110 | |
| Na | 23 | 2 | He | 10341.013 | 1.460 | 15593669 | 1.02 | 10000 | 103.4 | 90 | 110 | |
| Mg | 24 | 2 | He | 10238.993 | 0.418 | 8382361 | 0.95 | 10000 | 102.4 | 90 | 110 | |
| Al | 27 | 2 | He | 109.057 | 3.064 | 51450 | 3.21 | 100 | 109.1 | 90 | 110 | |
| K | 39 | 2 | He | 10367.453 | 1.898 | 9476780 | 1.86 | 10000 | 103.7 | 90 | 110 | |
| Ca | 43 | 2 | He | 10272.065 | 3.196 | 24657 | 3.63 | 10000 | 102.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 10386.182 | 1.860 | 418069 | 1.14 | 10000 | 103.9 | 90 | 110 | |
| V | 51 | 2 | He | 98.618 | 0.991 | 615662 | 0.31 | 100 | 98.6 | 90 | 110 | |
| Cr | 52 | 2 | He | 95.481 | 1.076 | 642158 | 0.63 | 100 | 95.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 100.691 | 2.890 | 459468 | 1.68 | 100 | 100.7 | 90 | 110 | |
| Fe | 56 | 2 | He | 10080.647 | 4.451 | 56541154 | 3.51 | 10000 | 100.8 | 90 | 110 | |
| Co | 59 | 2 | He | 93.785 | 4.023 | 844400 | 2.88 | 100 | 93.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.145 | 2.449 | 214672 | 1.42 | 100 | 98.1 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.820 | 1.483 | 544972 | 1.55 | 100 | 97.8 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.810 | 0.821 | 131583 | 1.24 | 100 | 96.8 | 90 | 110 | |
| As | 75 | 2 | He | 97.878 | 1.460 | 130424 | 0.35 | 100 | 97.9 | 90 | 110 | |
| Se | 78 | 2 | He | 98.962 | 3.187 | 10298 | 1.97 | 100 | 99.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 647.088 | 2.781 | 3546885 | 1.13 | 500 | 129.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 565.946 | 5.461 | 7629022 | 2.36 | 5000 | 11.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10743.652 | 2.437 | 379006 | 0.55 | 10000 | 107.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10404.255 | 3.959 | 6062831 | 2.06 | 10000 | 104.0 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10292.923 | 3.531 | 239373672 | 2.49 | 10000 | 102.9 | 90 | 110 | |
| Se | 77 | 1 | nogas | 171.580 | 10.022 | 85979 | 2.76 | 100 | 171.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 101.285 | 3.948 | 26239 | 2.32 | 100 | 101.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 94.726 | 4.632 | 549331 | 3.27 | 100 | 94.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 97.670 | 3.862 | 776461 | 1.57 | 100 | 97.7 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.917 | 4.356 | 411573 | 2.46 | 100 | 99.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.004 | 1.530 | 475603 | 0.27 | 100 | 100.0 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.244 | 5.199 | 1880210 | 3.68 | 100 | 96.2 | 90 | 110 | |
| P | 31 | 1 | nogas | 501.467 | 2.762 | 851241 | 0.65 | 500 | 100.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 205.193 | 25.659 | 850 | 16.47 | 100 | 205.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -407.821 | -365.258 | 23 | 65.47 | 100 | -407.8 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1145347 | 2.03 | 1195276 | 95.82 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3378546 | 1.88 | 3552237 | 95.11 | 70 | 125 | |
| In | 115 | 1 | nogas | 2932676 | 5.39 | 3134247 | 93.57 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2243494 | 4.90 | 2336631 | 96.01 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 805459 | 1.26 | 837498 | 96.17 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 269_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:55:13-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.090 | 29.7 | 923 | 23.0 | 1 | |
| Na | 23 | 1 | nogas | 101.048 | 10.0 | 2904419 | 1.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 12.395 | 24.1 | 227940 | 13.3 | 100 | |
| Al | 27 | 1 | nogas | 2.256 | 6.5 | 114987 | 2.6 | 5 | |
| K | 39 | 1 | nogas | 132.225 | 18.0 | 9723561 | 0.9 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.405 | 8.9 | 977 | 5.2 | 2.5 | |
| V | 51 | 1 | nogas | 11.462 | 6.6 | 1458297 | 4.0 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.762 | 18.8 | 81186 | 0.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 1.296 | 5.9 | 57392 | 0.7 | 2.5 | |
| Co | 59 | 1 | nogas | 0.131 | 23.2 | 3737 | 14.2 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.206 | -1.7 | 2043 | 4.5 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.257 | 11.5 | 4551 | 5.0 | 2 | |
| Zn | 66 | 1 | nogas | 0.166 | 24.2 | 2924 | 2.5 | 2.5 | |
| As | 75 | 1 | nogas | 2.327 | 17.6 | 176991 | 3.0 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.191 | 21.3 | 6375 | 13.4 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.081 | 17.6 | 1180 | 12.3 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.070 | 23.7 | 230 | 19.0 | 1 | |
| Sb | 121 | 1 | nogas | 0.275 | 16.6 | 3784 | 11.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.941 | 57.8 | 20106 | 56.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.088 | 46.5 | 3664 | 31.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.192 | 56.0 | 5485 | 55.0 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.084 | 38.5 | 903 | 24.8 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.092 | 33.0 | 810 | 22.5 | 2.5 | |
| Na | 23 | 2 | He | 98.828 | 1.7 | 191978 | 1.3 | 100 | |
| Mg | 24 | 2 | He | 10.887 | 1.2 | 10603 | 1.6 | 100 | |
| Al | 27 | 2 | He | 2.287 | 14.7 | 2784 | 5.2 | 5 | |
| K | 39 | 2 | He | 82.690 | 3.9 | 244514 | 1.2 | 100 | |
| Ca | 43 | 2 | He | 9.888 | 120.5 | 60 | 50.0 | 100 | |
| Ca | 44 | 2 | He | 25.050 | 8.9 | 1920 | 6.8 | 100 | |
| V | 51 | 2 | He | 0.765 | 10.4 | 15741 | 1.0 | 2.5 | |
| Cr | 52 | 2 | He | 0.079 | 32.9 | 4564 | 2.4 | 2.5 | |
| Mn | 55 | 2 | He | 1.056 | 6.2 | 5934 | 3.8 | 2.5 | |
| Fe | 56 | 2 | He | 7.962 | 2.6 | 70846 | 3.7 | 100 | |
| Co | 59 | 2 | He | 0.110 | 17.3 | 1203 | 13.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.284 | 15.2 | 410 | 25.7 | 2.5 | |
| Cu | 63 | 2 | He | 0.520 | 1.0 | 1590 | 2.3 | 2 | |
| Zn | 66 | 2 | He | 0.432 | 14.8 | 747 | 10.8 | 2.5 | |
| As | 75 | 2 | He | 0.106 | 11.0 | 649 | 0.3 | 2.5 | |
| Se | 78 | 2 | He | 1.073 | 13.1 | 221 | 6.0 | 2 | |
| B | 11 | 1 | nogas | 206.061 | 8.5 | 1292034 | 3.2 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 47.064 | 25.5 | 2162808 | 1.7 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 76.383 | 14.4 | 3420 | 7.1 | 100 | |
| Ca | 44 | 1 | nogas | 70.318 | 11.8 | 91311 | 1.5 | 100 | |
| Fe | 56 | 1 | nogas | 28.541 | 54.7 | 3049600 | 7.4 | 100 | |
| Se | 77 | 1 | nogas | 42.324 | 2.1 | 57421 | 3.8 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.488 | 41.3 | 343 | 14.7 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.449 | 55.1 | 2877 | 44.3 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.346 | 58.5 | 3981 | 35.2 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.196 | 8.3 | 987 | 7.3 | 2.5 | |
| Sb | 121 | 2 | He | 0.245 | 6.2 | 1280 | 5.4 | 2.5 | |
| P | 31 | 1 | nogas | 17.011 | 22.0 | 101212 | 1.7 | 10 | CCB Main CR1 Failed |
| La | 139 | 1 | nogas | -19.369 | -31.6 | 120 | 16.7 | 2.5 | |
| Au | 197 | 1 | nogas | 540.846 | 95.1 | 13 | 43.3 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1210124 | 4.48 | 1195276 | 101.24 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3335904 | 3.95 | 3552237 | 93.91 | 70 | 125 | |
| In | 115 | 1 | nogas | 2910023 | 4.03 | 3134247 | 92.85 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2254062 | 1.90 | 2336631 | 96.47 | 70 | 125 | |
| Ge | 72 | 2 | He | 818433 | 2.16 | 837498 | 97.72 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 270LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:57:12-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 3.988 | 1.405 | 38051 | 3.80 | 5 | 79.8 | 70 | 130 | |
| Na | 23 | 1 | nogas | 594.913 | 5.530 | 15456887 | 1.82 | 500 | 119.0 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 526.157 | 7.033 | 8469084 | 1.92 | 500 | 105.2 | 70 | 130 | |
| Al | 27 | 1 | nogas | 4.462 | 2.630 | 159413 | 0.55 | 5 | 89.2 | 70 | 130 | |
| K | 39 | 1 | nogas | 607.413 | 2.925 | 19509654 | 0.69 | 500 | 121.5 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 5.346 | 5.596 | 9859 | 5.00 | 5 | 106.9 | 70 | 130 | |
| V | 51 | 1 | nogas | 22.839 | 5.014 | 1785758 | 1.27 | 5 | 456.8 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 5.918 | 1.817 | 197400 | 0.31 | 5 | 118.4 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.366 | 0.950 | 172180 | 0.91 | 5 | 107.3 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.965 | 2.448 | 115223 | 1.08 | 5 | 99.3 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.915 | 1.983 | 27264 | 0.49 | 5 | 98.3 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 5.106 | 0.927 | 64540 | 1.80 | 5 | 102.1 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 4.905 | 3.163 | 21820 | 2.80 | 5 | 98.1 | 70 | 130 | |
| As | 75 | 1 | nogas | 12.418 | 18.707 | 231295 | 3.86 | 5 | 248.4 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 5.070 | 2.405 | 144102 | 1.75 | 5 | 101.4 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 5.032 | 2.088 | 69051 | 0.84 | 5 | 100.6 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 5.012 | 7.904 | 14463 | 1.96 | 5 | 100.2 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.107 | 4.594 | 67229 | 3.58 | 5 | 102.1 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.530 | 4.526 | 93843 | 2.39 | 5 | 90.6 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 4.613 | 0.389 | 132102 | 0.39 | 5 | 92.3 | 70 | 130 | |
| U | 238 | 1 | nogas | 4.692 | 4.024 | 129317 | 2.30 | 5 | 93.8 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 4.958 | 3.388 | 33916 | 1.41 | 5 | 99.2 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 4.888 | 4.190 | 29120 | 1.97 | 5 | 97.8 | 70 | 130 | |
| Na | 23 | 2 | He | 570.944 | 1.790 | 917151 | 0.52 | 500 | 114.2 | 70 | 130 | |
| Mg | 24 | 2 | He | 498.123 | 2.687 | 417416 | 0.76 | 500 | 99.6 | 70 | 130 | |
| Al | 27 | 2 | He | 4.996 | 10.881 | 4054 | 4.33 | 5 | 99.9 | 70 | 130 | |
| K | 39 | 2 | He | 548.704 | 1.251 | 662838 | 0.93 | 500 | 109.7 | 70 | 130 | |
| Ca | 43 | 2 | He | 543.253 | 6.536 | 1363 | 4.88 | 500 | 108.7 | 70 | 130 | |
| Ca | 44 | 2 | He | 506.627 | 3.493 | 21660 | 2.64 | 500 | 101.3 | 70 | 130 | |
| V | 51 | 2 | He | 5.677 | 0.619 | 46554 | 1.60 | 5 | 113.5 | 70 | 130 | |
| Cr | 52 | 2 | He | 4.674 | 3.565 | 35912 | 1.39 | 5 | 93.5 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.292 | 6.357 | 25625 | 4.44 | 5 | 105.8 | 70 | 130 | |
| Fe | 56 | 2 | He | 478.635 | 1.276 | 2764151 | 2.05 | 500 | 95.7 | 70 | 130 | |
| Co | 59 | 2 | He | 4.705 | 2.222 | 43408 | 1.00 | 5 | 94.1 | 70 | 130 | |
| Ni | 60 | 2 | He | 4.968 | 6.141 | 10867 | 4.32 | 5 | 99.4 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.342 | 3.592 | 29060 | 2.11 | 5 | 106.8 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.013 | 4.908 | 7095 | 4.88 | 5 | 100.3 | 70 | 130 | |
| As | 75 | 2 | He | 4.716 | 1.755 | 6898 | 3.68 | 5 | 94.3 | 70 | 130 | |
| Se | 78 | 2 | He | 5.172 | 6.528 | 653 | 6.50 | 5 | 103.4 | 70 | 130 | |
| B | 11 | 1 | nogas | 189.859 | 5.575 | 1227276 | 2.35 | 25 | 759.4 | 70 | 130 | LLICV Main CR1 Failed |
| Si | 28 | 1 | nogas | 280.924 | 2.821 | 4677439 | 0.57 | 25 | 1123.7 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 577.336 | 1.450 | 21266 | 2.23 | 500 | 115.5 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 544.355 | 1.483 | 369174 | 1.12 | 500 | 108.9 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 522.506 | 1.198 | 14573826 | 0.77 | 500 | 104.5 | 70 | 130 | |
| Se | 77 | 1 | nogas | 84.076 | 14.586 | 67632 | 4.09 | 5 | 1681.5 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 5.019 | 6.081 | 1523 | 5.51 | 5 | 100.4 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.966 | 5.617 | 29341 | 4.83 | 5 | 99.3 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.958 | 2.748 | 39951 | 3.72 | 5 | 99.2 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 5.203 | 6.463 | 21200 | 1.09 | 5 | 104.1 | 70 | 130 | |
| Sb | 121 | 2 | He | 4.845 | 4.842 | 23616 | 6.91 | 5 | 96.9 | 70 | 130 | |
| Li | 7 | 1 | nogas | 4.068 | 5.193 | 184897 | 5.21 | 5 | 81.4 | 70 | 130 | |
| P | 31 | 1 | nogas | 35.966 | 3.044 | 132892 | 1.84 | 25 | 143.9 | 70 | 130 | LLICV Main CR1 Failed |
| La | 139 | 1 | nogas | -7.207 | -207.031 | 157 | 26.57 | 5 | -144.1 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 220.306 | 477.045 | 17 | 69.28 | 5 | 4406.1 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1233854 | 2.97 | 1195276 | 103.23 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3402500 | 1.38 | 3552237 | 95.78 | 70 | 125 | |
| In | 115 | 1 | nogas | 2880269 | 5.73 | 3134247 | 91.90 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2223022 | 2.65 | 2336631 | 95.14 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 821806 | 2.06 | 837498 | 98.13 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 271SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:59:10-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 231CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.627 | 1.627 | 2.50 | 15053 | 0.01 | 2000 | |
| Na | 23 | 1 | nogas | 249.638 | 249.638 | 1.88 | 7100862 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 194.388 | 194.388 | 1.40 | 3355377 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 0.248 | 0.248 | 103.00 | 80522 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 279.208 | 279.208 | 7.34 | 13141152 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 2.243 | 2.243 | 7.31 | 4374 | 0.05 | 2000 | |
| V | 51 | 1 | nogas | 20.530 | 20.530 | 24.29 | 1756824 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 2.468 | 2.468 | 6.54 | 123119 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 2.075 | 2.075 | 5.47 | 81847 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 1.991 | 1.991 | 7.08 | 47552 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 1.598 | 1.598 | 11.11 | 11157 | 0.01 | 2000 | |
| Cu | 63 | 1 | nogas | 2.083 | 2.083 | 5.08 | 27714 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 1.606 | 1.606 | 6.08 | 8879 | 0.02 | 2000 | |
| As | 75 | 1 | nogas | 8.032 | 8.032 | 26.08 | 213231 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.067 | 2.067 | 4.57 | 60572 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 1.968 | 1.968 | 4.01 | 27578 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 1.900 | 1.900 | 10.58 | 5941 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 2.038 | 2.038 | 1.65 | 27532 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 1.887 | 1.887 | 6.06 | 39756 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 1.874 | 1.874 | 3.12 | 54367 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 1.885 | 1.885 | 4.05 | 52621 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 1.901 | 1.901 | 4.65 | 13369 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 1.960 | 1.960 | 6.59 | 11961 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 266.634 | 266.634 | 1.00 | 450199 | 0.06 | 200000 | |
| Mg | 24 | 2 | He | 200.675 | 200.675 | 3.38 | 169105 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 0.312 | 0.312 | 18.31 | 1877 | 0.02 | 2000 | |
| K | 39 | 2 | He | 246.834 | 246.834 | 0.89 | 391860 | 0.06 | 200000 | |
| Ca | 43 | 2 | He | 235.915 | 235.915 | 5.03 | 613 | 38.46 | 200000 | |
| Ca | 44 | 2 | He | 200.862 | 200.862 | 6.12 | 9126 | 2.20 | 200000 | |
| V | 51 | 2 | He | 2.814 | 2.814 | 4.94 | 28616 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | 1.744 | 1.744 | 5.18 | 15927 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 2.093 | 2.093 | 5.22 | 10763 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 193.195 | 193.195 | 5.22 | 1129490 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 1.909 | 1.909 | 3.17 | 17722 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 2.237 | 2.237 | 4.38 | 4767 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | 2.361 | 2.361 | 2.83 | 12074 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 1.929 | 1.929 | 8.90 | 2824 | 0.07 | 2000 | |
| As | 75 | 2 | He | 1.884 | 1.884 | 1.72 | 3060 | 0.06 | 2000 | |
| Se | 78 | 2 | He | 2.578 | 2.578 | 14.87 | 381 | 0.68 | 2000 | |
| B | 11 | 1 | nogas | 157.333 | 157.333 | 6.55 | 1007568 | 0.02 | 2000 | |
| Si | 28 | 1 | nogas | 112.891 | 112.891 | 5.69 | 2961235 | 0.00 | 2000 | |
| Ca | 43 | 1 | nogas | 247.817 | 247.817 | 9.02 | 9756 | 2.54 | 200000 | |

# Sample Report

| Ca | 44 | 1 | nogas | 230.648 | 230.648 | 4.05 | 190189 | 0.12 | 200000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 215.517 | 215.517 | 6.70 | 7596452 | 0.00 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Se | 77 | 1 | nogas | 67.543 | 67.543 | 15.96 | 65264 | 0.10 | 2000 | |
| Se | 82 | 1 | nogas | 2.171 | 2.171 | 18.49 | 800 | 0.27 | 2000 | |
| Mo | 95 | 1 | nogas | 1.880 | 1.880 | 1.18 | 11551 | 0.02 | 2000 | |
| Sn | 118 | 1 | nogas | 1.752 | 1.752 | 1.20 | 16151 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 1.934 | 1.934 | 3.62 | 8646 | 0.02 | 2000 | |
| Sb | 121 | 2 | He | 2.051 | 2.051 | 3.90 | 10036 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | -28.466 | -28.466 | -7.56 | 97 | -29.45 | 2000 | |
| Au | 197 | 1 | nogas | 549.704 | 549.704 | 84.38 | 13 | 4122.78 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1192689 | 4.12 | 1195276 | 99.78 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3469998 | 3.27 | 3552237 | 97.68 | 70 | 125 | |
| In | 115 | 1 | nogas | 3109113 | 3.47 | 3134247 | 99.20 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2249644 | 3.67 | 2336631 | 96.28 | 70 | 125 | |
| Ge | 72 | 2 | He | 821667 | 3.58 | 837498 | 98.11 | 70 | 125 | |

# Interference Check Solution A (ICS-A) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSA |
| Data File Name | 272ICSA.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-25T00:01:09-06:00 |
| Sample Type | ICSA |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.007 | 25.3 | 137 | 4.2 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 1 | nogas | 101367.269 | 8.2 | 2349594453 | 1.7 | 0 | |
| Mg | 24 | 1 | nogas | 101831.323 | 9.4 | 1487158067 | 0.3 | 0 | |
| Al | 27 | 1 | nogas | 101285.905 | 10.9 | 1742370801 | 1.8 | 0 | |
| K | 39 | 1 | nogas | 108230.766 | 10.6 | 1974944177 | 2.7 | 0 | |
| Ti | 47 | 1 | nogas | 2321.774 | 8.8 | 3759910 | 0.7 | 0 | |
| V | 51 | 1 | nogas | 8.626 | 97.6 | 1270737 | 7.2 | 0 | |
| Cr | 52 | 1 | nogas | 1.366 | 34.2 | 86849 | 1.6 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 1 | nogas | 0.916 | 20.3 | 43267 | 2.5 | 0 | ICSA Main CR1 Failed |
| Co | 59 | 1 | nogas | 0.468 | 8.2 | 10460 | 2.3 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 1 | nogas | 1.035 | 14.0 | 7392 | 0.9 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 1 | nogas | 1.051 | 6.7 | 13068 | 3.6 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 1 | nogas | 3.046 | 14.7 | 13001 | 3.2 | 0 | ICSA Main CR1 Failed |
| As | 75 | 1 | nogas | 7.880 | 60.6 | 187948 | 2.4 | 0 | |
| Sr | 88 | 1 | nogas | 0.979 | 10.3 | 25936 | 1.9 | 0 | ICSA Main CR1 Failed |
| Ag | 107 | 1 | nogas | 0.025 | 18.8 | 397 | 6.3 | 0 | ICSA Main CR1 Failed |
| Cd | 111 | 1 | nogas | 1.693 | 5.1 | 4504 | 6.2 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 1 | nogas | 0.250 | 18.8 | 3197 | 8.2 | 0 | ICSA Main CR1 Failed |
| Tl | 205 | 1 | nogas | 0.044 | 27.5 | 1097 | 11.1 | 0 | ICSA Main CR1 Failed |
| Pb | 208 | 1 | nogas | 0.045 | 18.8 | 2433 | 9.9 | 0 | ICSA Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 0.066 | 43.3 | 660 | 19.7 | 0 | ICSA Main CR1 Failed |
| [Pb] | 207 | 1 | nogas | 0.059 | 16.7 | 523 | 1.1 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 2 | He | 98411.987 | 2.5 | 137346271 | 1.2 | 0 | |
| Mg | 24 | 2 | He | 97925.606 | 1.6 | 74359109 | 0.3 | 0 | |
| Al | 27 | 2 | He | 94308.093 | 2.3 | 39912231 | 1.4 | 0 | |
| K | 39 | 2 | He | 92206.860 | 0.5 | 82941105 | 0.5 | 0 | |
| Ca | 43 | 2 | He | 96797.106 | 1.3 | 215258 | 0.3 | 0 | |
| Ca | 44 | 2 | He | 101586.698 | 1.0 | 3787366 | 2.2 | 0 | |
| V | 51 | 2 | He | 0.496 | 4.5 | 12850 | 0.9 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 2 | He | 0.236 | 9.2 | 5144 | 2.5 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 2 | He | 0.748 | 1.3 | 4117 | 1.6 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 2 | He | 97302.219 | 4.4 | 506125179 | 3.2 | 0 | |
| Co | 59 | 2 | He | 0.282 | 3.2 | 2534 | 1.6 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 2 | He | 0.782 | 3.4 | 1383 | 2.7 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 2 | He | 0.674 | 4.0 | 2250 | 6.8 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 2 | He | 1.839 | 7.0 | 2454 | 5.9 | 0 | ICSA Main CR1 Failed |
| As | 75 | 2 | He | 0.186 | 12.5 | 691 | 5.1 | 0 | ICSA Main CR1 Failed |
| Se | 78 | 2 | He | 0.793 | 41.0 | 175 | 17.4 | 0 | ICSA Main CR1 Failed |
| B | 11 | 1 | nogas | 155.367 | 13.9 | 901144 | 4.0 | 0 | |
| Si | 28 | 1 | nogas | 85.893 | 26.3 | 2363991 | 0.0 | 0 | |
| Ca | 43 | 1 | nogas | 107666.168 | 10.0 | 3445245 | 1.6 | 0 | |
| Ca | 44 | 1 | nogas | 105903.726 | 9.8 | 55666348 | 0.7 | 0 | |
| Fe | 56 | 1 | nogas | 104925.232 | 11.4 | 2195304782 | 2.2 | 0 | |
| Se | 77 | 1 | nogas | 76.857 | 46.5 | 59537 | 2.6 | 0 | |
| Se | 82 | 1 | nogas | 0.486 | 117.1 | 310 | 32.7 | 0 | ICSA Main CR1 Failed |
| Mo | 95 | 1 | nogas | 2049.112 | 11.4 | 10785464 | 2.2 | 0 | |
| Sn | 118 | 1 | nogas | 0.092 | 49.4 | 1854 | 24.0 | 0 | ICSA Main CR1 Failed |
| Ba | 137 | 1 | nogas | 0.263 | 17.0 | 1137 | 8.4 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 2 | He | 0.228 | 4.1 | 1093 | 2.8 | 0 | ICSA Main CR1 Failed |

# Interference Check Solution A (ICS-A) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P | 31 | 1 | nogas | 104595.665 | 12.0 | 146775791 | 2.8 | 0 | |
| La | 139 | 1 | nogas | 28.821 | 30.1 | 250 | 6.9 | 0 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1083094 | 7.51 | 1195276 | 90.61 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3087359 | 8.77 | 3552237 | 86.91 | 70 | 125 | |
| In | 115 | 1 | nogas | 2646821 | 10.32 | 3134247 | 84.45 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1938124 | 8.13 | 2336631 | 82.95 | 70 | 125 | |
| Ge | 72 | 2 | He | 747291 | 1.32 | 837498 | 89.23 | 70 | 125 | |

# Interference Check Solution AB (ICS-AB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSAB |
| Data File Name | 273ICSB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-25T00:03:11-06:00 |
| Sample Type | ICSB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 106.335 | 13.777 | 772121 | 0.42 | 100 | 106.3 | 80 | 120 | |
| Na | 23 | 1 | nogas | 120547.122 | 12.828 | 2636618259 | 0.17 | 100 | 120547.1 | 80 | 120 | ICSB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 117328.144 | 14.124 | 1616265869 | 1.82 | 100 | 117328.1 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 1 | nogas | 104664.465 | 12.831 | 1706755761 | 0.25 | 100 | 104664.5 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 1 | nogas | 123908.011 | 12.539 | 2142302715 | 0.20 | 100 | 123908.0 | 80 | 120 | ICSB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 2514.916 | 10.251 | 3863700 | 2.22 | 100 | 2514.9 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 1 | nogas | 130.437 | 14.157 | 3945968 | 1.98 | 100 | 130.4 | 80 | 120 | ICSB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 124.132 | 11.644 | 2416175 | 1.94 | 100 | 124.1 | 80 | 120 | ICSB Main CR1 Failed |
| Mn | 55 | 1 | nogas | 121.557 | 14.297 | 2916099 | 2.25 | 100 | 121.6 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 1 | nogas | 123.888 | 11.931 | 2442995 | 0.93 | 100 | 123.9 | 80 | 120 | ICSB Main CR1 Failed |
| Ni | 60 | 1 | nogas | 124.704 | 13.125 | 526724 | 1.68 | 100 | 124.7 | 80 | 120 | ICSB Main CR1 Failed |
| Cu | 63 | 1 | nogas | 119.195 | 14.817 | 1257539 | 2.20 | 100 | 119.2 | 80 | 120 | |
| Zn | 66 | 1 | nogas | 126.841 | 13.533 | 432640 | 0.96 | 100 | 126.8 | 80 | 120 | ICSB Main CR1 Failed |
| As | 75 | 1 | nogas | 128.313 | 14.318 | 697378 | 1.18 | 100 | 128.3 | 80 | 120 | ICSB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 121.442 | 14.372 | 2924263 | 1.74 | 100 | 121.4 | 80 | 120 | ICSB Main CR1 Failed |
| Ag | 107 | 1 | nogas | 117.824 | 14.074 | 1378626 | 1.52 | 100 | 117.8 | 80 | 120 | |
| Cd | 111 | 1 | nogas | 124.944 | 13.744 | 303488 | 1.33 | 100 | 124.9 | 80 | 120 | ICSB Main CR1 Failed |
| Sb | 121 | 1 | nogas | 126.956 | 12.961 | 1423132 | 1.79 | 100 | 127.0 | 80 | 120 | ICSB Main CR1 Failed |
| Tl | 205 | 1 | nogas | 122.974 | 8.920 | 2077038 | 2.90 | 100 | 123.0 | 80 | 120 | ICSB Main CR1 Failed |
| Pb | 208 | 1 | nogas | 98.827 | 1.054 | 2806718 | 1.05 | 100 | 98.8 | 80 | 120 | |
| U | 238 | 1 | nogas | 131.189 | 11.900 | 2948829 | 1.00 | 100 | 131.2 | 80 | 120 | ICSB Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 123.573 | 11.873 | 683822 | 1.05 | 100 | 123.6 | 80 | 120 | ICSB Main CR1 Failed |
| [Pb] | 207 | 1 | nogas | 124.166 | 10.318 | 599567 | 1.53 | 100 | 124.2 | 80 | 120 | ICSB Main CR1 Failed |
| Na | 23 | 2 | He | 110269.342 | 2.780 | 154082611 | 1.70 | 100 | 110269.3 | 80 | 120 | |
| Mg | 24 | 2 | He | 108970.204 | 1.867 | 82847489 | 0.80 | 100 | 108970.2 | 80 | 120 | |
| Al | 27 | 2 | He | 94571.275 | 2.271 | 40072659 | 1.16 | 100 | 94571.3 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 2 | He | 99930.370 | 1.812 | 89874225 | 1.81 | 100 | 99930.4 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 2 | He | 105499.893 | 0.451 | 234924 | 1.19 | 100 | 105499.9 | 80 | 120 | |
| Ca | 44 | 2 | He | 111136.897 | 0.752 | 4148237 | 1.58 | 100 | 111136.9 | 80 | 120 | |
| V | 51 | 2 | He | 107.074 | 1.619 | 620061 | 0.64 | 100 | 107.1 | 80 | 120 | |
| Cr | 52 | 2 | He | 103.381 | 1.091 | 645583 | 0.82 | 100 | 103.4 | 80 | 120 | |
| Mn | 55 | 2 | He | 109.463 | 1.363 | 463985 | 0.82 | 100 | 109.5 | 80 | 120 | |
| Fe | 56 | 2 | He | 108165.335 | 1.451 | 563524258 | 1.97 | 100 | 108165.3 | 80 | 120 | |
| Co | 59 | 2 | He | 104.465 | 1.307 | 873894 | 0.53 | 100 | 104.5 | 80 | 120 | |
| Ni | 60 | 2 | He | 108.631 | 1.060 | 220765 | 0.50 | 100 | 108.6 | 80 | 120 | |
| Cu | 63 | 2 | He | 107.299 | 1.021 | 555475 | 2.05 | 100 | 107.3 | 80 | 120 | |
| Zn | 66 | 2 | He | 108.753 | 1.642 | 137294 | 1.87 | 100 | 108.8 | 80 | 120 | |
| As | 75 | 2 | He | 108.163 | 0.919 | 133843 | 0.22 | 100 | 108.2 | 80 | 120 | |
| Se | 78 | 2 | He | 110.618 | 2.030 | 10683 | 1.56 | 100 | 110.6 | 80 | 120 | |
| B | 11 | 1 | nogas | 681.333 | 15.432 | 3060974 | 0.61 | 100 | 681.3 | 80 | 120 | |
| Si | 28 | 1 | nogas | 6235.205 | 12.431 | 57763436 | 1.89 | 100 | 6235.2 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 123526.457 | 13.748 | 3741967 | 1.25 | 100 | 123526.5 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 1 | nogas | 124180.887 | 15.110 | 61714852 | 2.44 | 100 | 124180.9 | 80 | 120 | ICSB Main CR1 Failed |
| Fe | 56 | 1 | nogas | 120143.232 | 12.915 | 2383171587 | 0.58 | 100 | 120143.2 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 77 | 1 | nogas | 202.393 | 18.099 | 80039 | 4.32 | 100 | 202.4 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 82 | 1 | nogas | 124.846 | 14.787 | 27765 | 2.02 | 100 | 124.8 | 80 | 120 | ICSB Main CR1 Failed |
| Mo | 95 | 1 | nogas | 2245.357 | 12.315 | 11211017 | 1.78 | 100 | 2245.4 | 80 | 120 | ICSB Main CR1 Failed |
| Sn | 118 | 1 | nogas | 119.841 | 12.782 | 788088 | 0.49 | 100 | 119.8 | 80 | 120 | |
| Ba | 137 | 1 | nogas | 127.425 | 14.067 | 433831 | 1.87 | 100 | 127.4 | 80 | 120 | ICSB Main CR1 Failed |
| Sb | 121 | 2 | He | 112.272 | 1.712 | 496037 | 1.77 | 100 | 112.3 | 80 | 120 | |
| La | 139 | 1 | nogas | 269.373 | 13.116 | 883 | 8.57 | 100 | 269.4 | 80 | 120 | ICSB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 952813 | 13.25 | 1195276 | 79.71 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 2937900 | 11.93 | 3552237 | 82.71 | 70 | 125 | |
| In | 115 | 1 | nogas | 2448930 | 12.30 | 3134247 | 78.13 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1829652 | 11.20 | 2336631 | 78.30 | 70 | 125 | |
| Ge | 72 | 2 | He | 748210 | 1.09 | 837498 | 89.34 | 70 | 125 | |

# Tune Report

**Batch Folder** C:\Agilent\ICPMH\1\DATA\122418A.b
**Report Comment**
**Instrument Name** G3281A JP11080910

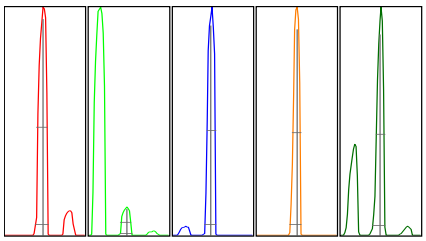
**[nogas]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 21396 | | | | NaN | - | |
| 24 | | 43271 | | | | NaN | - | |
| 59 | | 48170 | | | | NaN | - | |
| 115 | | 42261 | | | | NaN | - | |
| 208 | | 26050 | | | | NaN | - | |

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 0.71 | 5.00 | | | | |
| 24 | 0.24 | 5.00 | | | | |
| 59 | 0.34 | 5.00 | | | | |
| 115 | 1.73 | 5.00 | | | | |
| 208 | 0.65 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 21443 | 21454 | 21266 | 21221 | 21596 |
| 24 | 43115 | 43333 | 43234 | 43289 | 43386 |
| 59 | 48457 | 48041 | 48109 | 48090 | 48153 |
| 115 | 41738 | 41896 | 41658 | 42659 | 43355 |
| 208 | 26336 | 26067 | 25969 | 25909 | 25970 |

**Integration Time [sec]** 0.1



| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 6029.04 | 8.95 | 8.9 - 9.1 | | 0.37 | 0.467 | 0.750 | |
| 24 | 12180.39 | 23.95 | 23.9 - 24.1 | | 0.36 | 0.445 | 0.750 | |
| 59 | 14533.27 | 58.95 | 58.9 - 59.1 | | 0.33 | 0.436 | 0.750 | |
| 115 | 13634.77 | 115.05 | 114.9 - 115.1 | | 0.29 | 0.433 | 0.750 | |
| 208 | 7923.62 | 208.00 | 207.9 - 208.1 | | 0.31 | 0.486 | 0.750 | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

**Tune Parameters**

**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.40 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.70 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.40 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.0 V | Deflect | 15.0 V |
| Extract 2 | -200.0 V | Cell Entrance | -30 V | Plate Bias | -50 V |
| Omega Bias | -100 V | Cell Exit | -58 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -8.0 V | He Flow | 0.0 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 190 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

**[He]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 376 | | | | NaN | - | |
| 24 | | 2579 | | | | NaN | - | |
| 59 | | 19689 | | | | NaN | - | |

# Tune Report

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 3.23 | 5.00 | | | | |
| 24 | 2.44 | 5.00 | | | | |
| 59 | 1.03 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 366 | 393 | 364 | 383 | 377 |
| 24 | 2549 | 2663 | 2627 | 2511 | 2547 |
| 59 | 19803 | 19591 | 19429 | 19663 | 19960 |

**Integration Time [sec]** 0.1

| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 103.64 | 8.95 | 8.9 - 9.1 | | 0.37 | 0.482 | 0.750 | |
| 24 | 721.03 | 23.95 | 23.9 - 24.1 | | 0.37 | 0.444 | 0.750 | |
| 59 | 6137.87 | 58.95 | 58.9 - 59.1 | | 0.31 | 0.431 | 0.750 | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

**Tune Parameters**

**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.40 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.70 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.40 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.0 V | Deflect | 2.0 V |
| Extract 2 | -200.0 V | Cell Entrance | -32 V | Plate Bias | -60 V |
| Omega Bias | -100 V | Cell Exit | -70 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -18.0 V | He Flow | 4.0 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 190 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

# HS18120642 Wet Chem Raw Data

ALS WO# HS18120642

HS18120642

00946451

# PREP BATCH REPORT

Batch ID: **135598**

Prep Code: **P_TW_PR**

InitSampWt/Vol: 0

FinSampVol: 50

Start Date: **13-Dec-18 11:00 am**

End Date: **13-Dec-18 12:30 pm**

OriginalFac: 1

Technician:

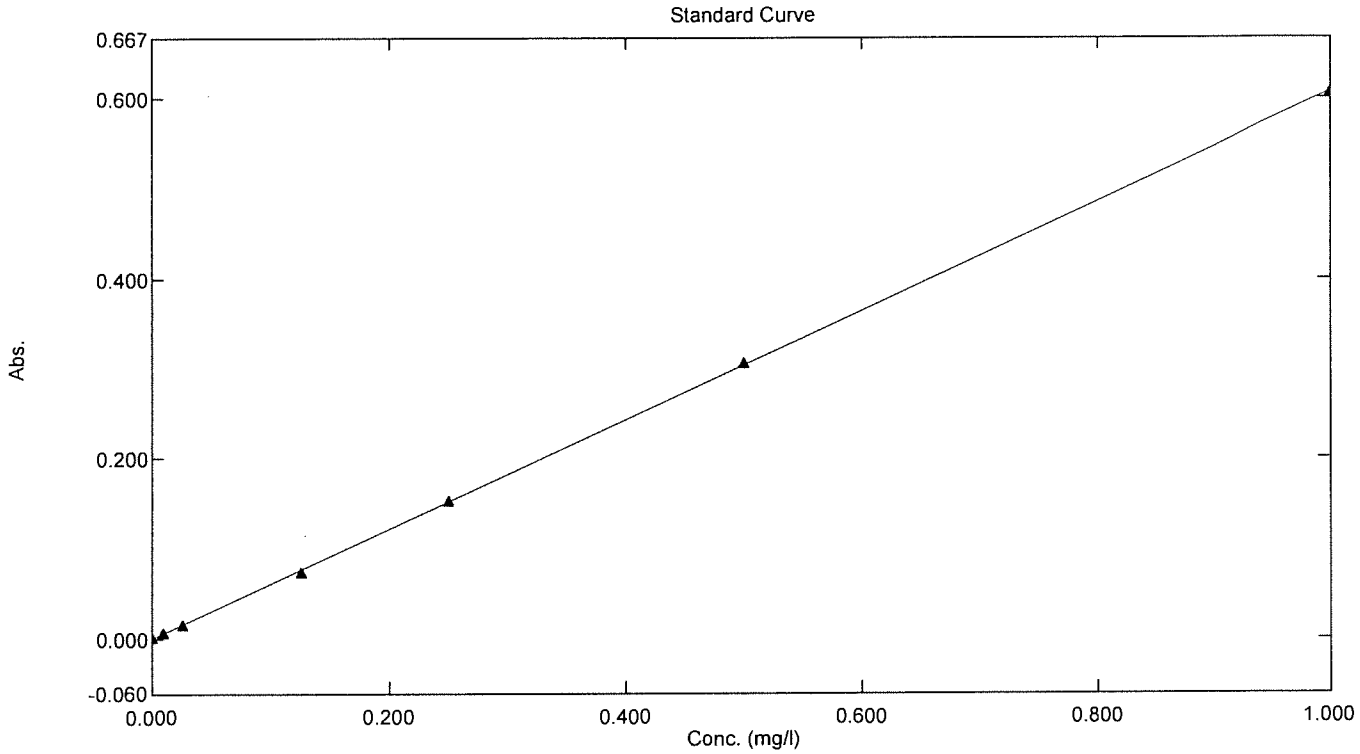
PrepUnitFac: 1

| SampID | Frac | Matrix | pH | Init Wt/Vol | FinalVol (mL) | PrepFac | SpkFac | Comments |
|---|---|---|---|---|---|---|---|---|
| HS18120487-01 | A | Water | | 50 | 50 | 1 | 1 | |
| HS18120487-01MS | A | | | 50 | 50 | 1 | 1 | |
| HS18120487-01MSD | A | | | 50 | 50 | 1 | 1 | |
| HS18120569-01 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120569-02 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120569-03 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120569-04 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120569-05 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120642-01 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120642-02 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120642-03 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| LCS-135598 | A | | | 50 | 50 | 1 | 1 | |
| MBLK-135598 | A | | | 50 | 50 | 1 | 1 | |

# Standard Table Report

01/21/2019 04:58:49 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181213_P_TW_.pho




Correlation Coefficient r2 = 0.99993

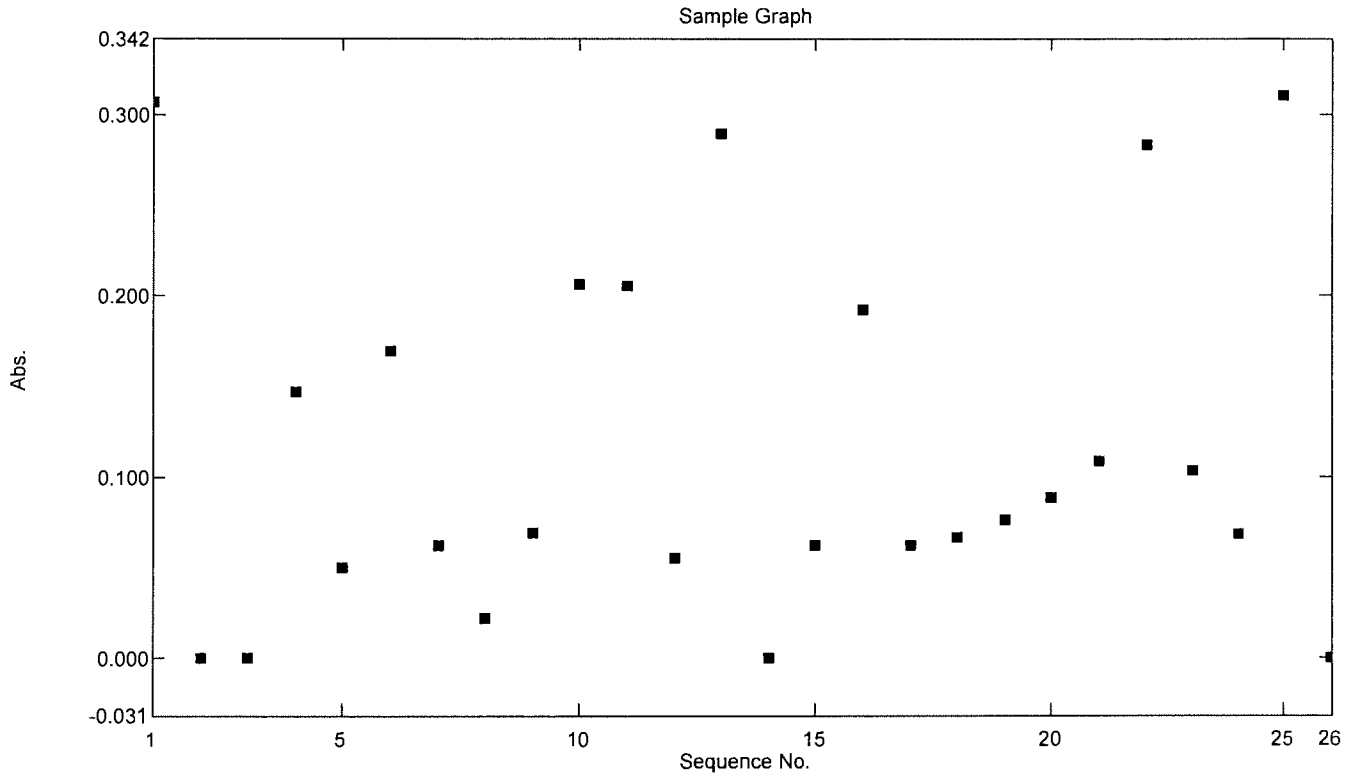
Standard Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Wgt.Facto | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | 0.001 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.007 | 1.000 | |
| 3 | STD3 | Standard | | 0.025 | 0.016 | 1.000 | |
| 4 | STD4 | Standard | | 0.125 | 0.073 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.153 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.307 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.606 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

01/21/2019 04:58:53 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181213_P_TW_.pho



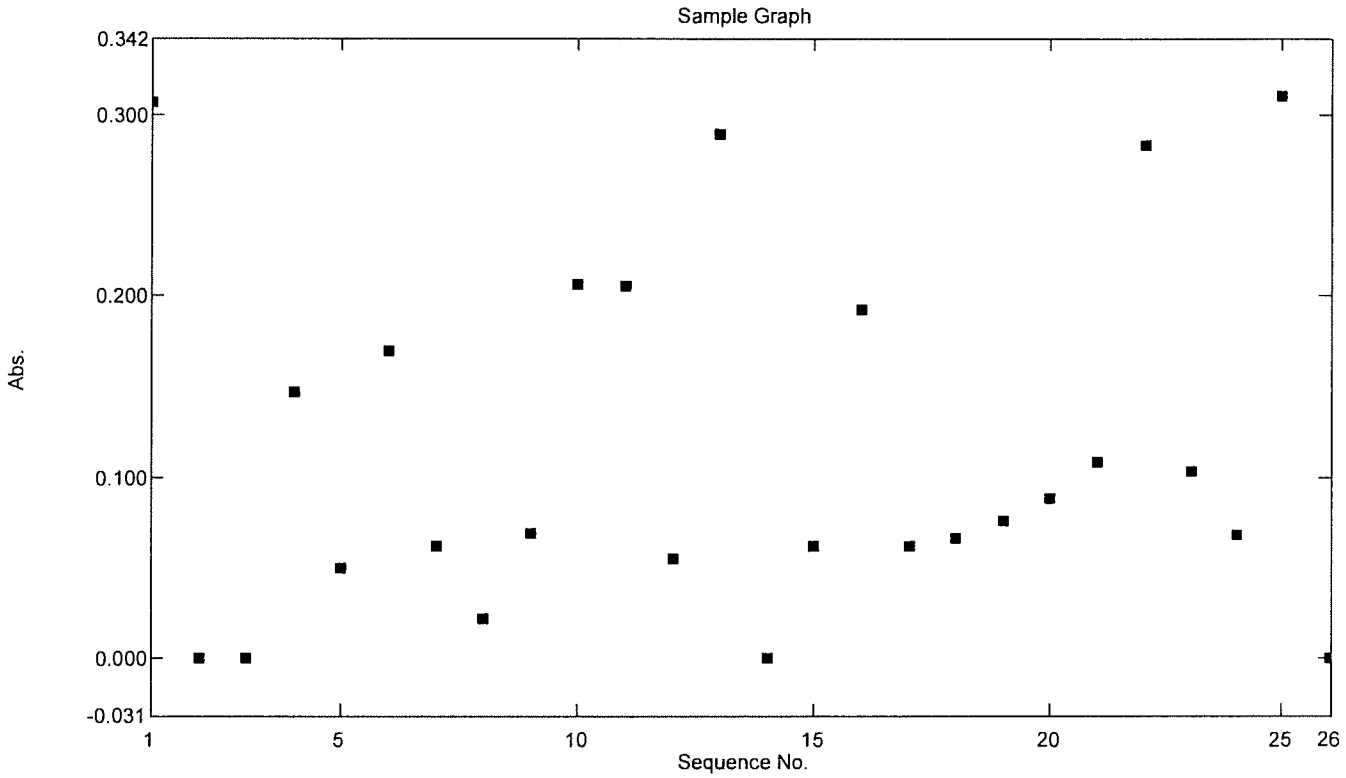

Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.505 | 0.307 | |
| 2 | CCB | Unknown | | -0.001 | 0.001 | |
| 3 | MBLK | Unknown | | -0.002 | -0.000 | |
| 4 | LCS | Unknown | | 0.241 | 0.147 | |
| 5 | 18120262.01 | Unknown | | 0.082 | 0.050 | |
| 6 | 18120370.01 | Unknown | | 0.279 | 0.170 | PF:10X |
| 7 | 18120370.02 | Unknown | | 0.101 | 0.062 | |
| 8 | 18120442.01 | Unknown | | 0.034 | 0.022 | |
| 9 | 18120487.01 | Unknown | | 0.113 | 0.069 | |
| 10 | 18120487.01MS | Unknown | | 0.339 | 0.206 | |
| 11 | 18120487.01MSD | Unknown | | 0.338 | 0.206 | |
| 12 | 18120490.01 | Unknown | | 0.090 | 0.055 | |
| 13 | CCV2 | Unknown | | 0.476 | 0.289 | |
| 14 | CCB2 | Unknown | | -0.000 | 0.001 | |
| 15 | 18120569.01 | Unknown | | 0.101 | 0.062 | |
| 16 | 18120569.02 | Unknown | | 0.316 | 0.193 | |
| 17 | 18120569.03 | Unknown | | 0.101 | 0.062 | |
| 18 | 18120569.04 | Unknown | | 0.108 | 0.066 | DF:10X |
| 19 | 18120569.05 | Unknown | | 0.125 | 0.076 | |

# Sample Table Report

01/21/2019 04:58:53 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181213_P_TW_.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 20 | 18120572.01 | Unknown | | 0.144 | 0.088 | |
| 21 | 18120574.01 | Unknown | | 0.177 | 0.108 | |
| 22 | 18120642.01 | Unknown | | 0.467 | 0.284 | |
| 23 | 18120642.02 | Unknown | | 0.169 | 0.103 | |
| 24 | 18120642.03 | Unknown | | 0.112 | 0.069 | |
| 25 | CCV3 | Unknown | | 0.511 | 0.311 | |
| 26 | CCB3 | Unknown | | -0.001 | 0.000 | |
| 27 | | | | | | |

HS18120642

| Reagent ID: | Prep. Date: | | Date/Time: | 12/17/18 14:30 | Reported by: | JHD/ |
|---|---|---|---|---|---|---|
| 2970207819 | | | Batch ID: | | Reviewed by: | |
| 2970207820 | | | | | Log Book #: | |
| 2970207101 | | | LCS ID# : | 2970206703 → | Prep. Date: | |
| 308055203 | 10/31/18 | | MS ID# : | 2970206703 → | Prep. Date: | |

**Calculated Iodine Normality => 0.024875 Iodine (N)**

| WO | WO | Sx Vol. (mL) | Iodine (mL) | Titrant used (mL) | Sod. Thio. (N) | Iodine (N) | Init. Conc. | Final Conc. |
|---|---|---|---|---|---|---|---|---|
| STD1 | STD1 | 0 | 20 | 19.90 | 0.0250 | 0.02488 | | |
| STD2 | STD2 | 0 | 20 | 19.90 | 0.0250 | 0.02488 | 0.0249 | |
| STD3 | STD3 | 0 | 20 | 19.90 | 0.0250 | 0.02488 | Iodine (N) | (mg/L) |
| BLK | BLK | 200 | 20 | 20.00 | 0.0250 | 0.0249 | | -0.16 |
| LCS | LCS | 200 | 20 | 8.80 | 0.0250 | 0.0249 | | 22.24 |
| LCSD | LCSD | 200 | 20 | 8.70 | 0.0250 | 0.0249 | | 22.44 |
| HS18120550-01 | SAMP | 200 | 30 | 14.50 | 0.0250 | 0.0249 | | 30.76 |
| HS18120550-02 | SAMP | 200 | 20 | 16.40 | 0.0250 | 0.0249 | | 7.04 |
| HS18120550-03 | SAMP | 200 | 20 | 19.10 | 0.0250 | 0.0249 | | 1.64 |
| HS18120569-01 | SAMP | 200 | 20 | 9.20 | 0.0250 | 0.0249 | | 21.44 |
| HS18120569-02 | SAMP | 200 | 20 | 20.20 | 0.0250 | 0.0249 | | -0.56 |
| HS18120569-03 | SAMP | 200 | 20 | 20.50 | 0.0250 | 0.0249 | | -1.16 |
| HS18120569-04 | SAMP | 200 | 20 | 19.90 | 0.0250 | 0.0249 | | 0.04 |
| HS18120569-05 | SAMP | 200 | 20 | 12.50 | 0.0250 | 0.0249 | | 14.84 |
| HS18120642-01 | SAMP | 200 | 20 | 20.00 | 0.0250 | 0.0249 | | -0.16 |
| HS18120642-02 | SAMP | 200 | 20 | 16.00 | 0.0250 | 0.0249 | | 7.84 |
| HS18120642-03 | SAMP | 200 | 20 | 20.40 | 0.0250 | 0.0249 | | -0.96 |
| HS18120569-04MS | MS | 200 | 20 | 7.60 | 0.0250 | 0.0249 | | 24.64 |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |

Report Date: 12/20/2018 : 8:27

# PC-TitratION PLUS
## Calibration Report

HS18120642

### Calibration Record # 2064

**Calibration Settings**

| | | | |
|---|---|---|---|
| Calibration ID | PH CAL 4-7-10 | Date | 12/20/2018 |
| Channel | 1 | Time | 8:27 PM |
| Probe Type | pH | Temperature | 295.99 K 22.84 C |
| Probe ID | PH ELECTRODE | Analysis Type | Single Line Fit |

**Calibration Results**

| | | | |
|---|---|---|---|
| Slope | -57.452 | CorrCoeff | 0.9997 |
| Intercept | 3.867 | Equation: | Y = (-57.452) X + ( 3.867 ) |

**Calibration Validity** True Operator

| | Result | Minimum | Maximum |
|---|---|---|---|
| **Slope** | -57.452 | -65.00 | -53.00 |
| **Intercept** | 3.867 | -100.00 | 100.00 |
| **Correlation Coefficient** | 0.9997 | 0.99 | 1.00 |

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

AIKA: 329695
AIKB: 329699 KLM
AIKC: 329708

| Calibration Data | Standard | Reading |
|---|---|---|
| | 4.00 | 178.58 |
| | 7.00 | -0.85 |
| | 10.00 | -166.13 |


*PC-TitratION PLUS by Man-Tech Associates, Inc.*
CALRPRTLive1.SRW
Copyright Hinterland Software Ltd.

Report Date: 12/21/2018 : 7:56 AM

# PC-TitratION PLUS
## Water Analysis Report

**Run Number** 3446 **Order Number** 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ICV-PH | 12/20/2018 | 8:34 PM | 22.92 | -1.00 | 6.05 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| TAP WATER | 12/20/2018 | 8:41 PM | 23.33 | -1.00 | 7.72 | .00 | 149.66 | 149.66 | .00 | .00 | .00 | 1.43 | 1.43 |
| WBLKW1-181220 | 12/20/2018 | 8:45 PM | 22.78 | -1.00 | 5.84 | .00 | .34 | .34 | .00 | .00 | .00 | .02 | .02 |
| LCS1-181220 | 12/20/2018 | 8:54 PM | 22.86 | -1.00 | 10.95 | 547.45 | 1,060.90 | .00 | 1,026.91 | 33.99 | 5.21 | 10.10 | 10.10 |
| LCSD1-181220 | 12/20/2018 | 9:04 PM | 22.86 | -1.00 | 10.95 | 544.55 | 1,056.90 | .00 | 1,024.69 | 32.21 | 5.19 | 10.07 | 10.07 |
| HS18120569-01 | 12/20/2018 | 9:13 PM | 22.74 | -1.00 | 6.90 | .00 | 1,193.63 | 1,193.63 | .00 | .00 | .00 | 11.37 | 11.37 |
| HS18120569-02 | 12/20/2018 | 9:18 PM | 22.60 | -1.00 | 5.95 | .00 | 45.86 | 45.86 | .00 | .00 | .00 | .44 | .44 |
| HS18120569-03 | 12/20/2018 | 9:24 PM | 22.43 | -1.00 | 6.56 | .00 | 198.03 | 198.03 | .00 | .00 | .00 | 1.89 | 1.89 |
| HS18120569-04 | 12/20/2018 | 9:34 PM | 22.35 | -1.00 | 6.11 | .00 | 1,109.93 | 1,109.93 | .00 | .00 | .00 | 10.57 | 10.57 |
| HS18120569-05 | 12/20/2018 | 9:45 PM | 22.49 | -1.00 | 7.25 | .00 | 1,637.90 | 1,637.90 | .00 | .00 | .00 | 15.60 | 15.60 |
| HS18120642-01 | 12/20/2018 | 9:55 PM | 22.57 | -1.00 | 6.13 | .00 | 1,212.56 | 1,212.56 | .00 | .00 | .00 | 11.55 | 11.55 |
| CCV-PH | 12/20/2018 | 9:57 PM | 22.70 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/20/2018 | 10:06 PM | 22.42 | -1.00 | 10.92 | 542.50 | 1,065.15 | .00 | 1,045.28 | 19.86 | 5.17 | 10.14 | 10.14 |
| DI RINSE | 12/20/2018 | 10:11 PM | 22.37 | -1.00 | 5.87 | .00 | .51 | .51 | .00 | .00 | .00 | .02 | .02 |
| HS18120642-02 | 12/20/2018 | 10:22 PM | 22.26 | -1.00 | 6.34 | .00 | 1,429.21 | 1,429.21 | .00 | .00 | .00 | 13.61 | 13.61 |
| HS18120642-03 | 12/20/2018 | 10:27 PM | 22.23 | -1.00 | 6.42 | .00 | 281.92 | 281.92 | .00 | .00 | .00 | 2.68 | 2.68 |
| HS18120927-01 | 12/20/2018 | 10:34 PM | 22.16 | -1.00 | 7.56 | .00 | 511.17 | 511.17 | .00 | .00 | .00 | 4.87 | 4.87 |
| HS18120927-03 | 12/20/2018 | 10:42 PM | 22.08 | -1.00 | 7.65 | .00 | 515.51 | 515.51 | .00 | .00 | .00 | 4.91 | 4.91 |
| HS18120927-04 | 12/20/2018 | 10:50 PM | 22.08 | -1.00 | 7.41 | .00 | 869.76 | 869.76 | .00 | .00 | .00 | 8.28 | 8.28 |
| HS18120927-05 | 12/20/2018 | 10:57 PM | 22.13 | -1.00 | 7.99 | .00 | 647.59 | 647.59 | .00 | .00 | .00 | 6.17 | 6.17 |
| HS18120927-05DUP | 12/20/2018 | 11:05 PM | 22.07 | -1.00 | 7.98 | .00 | 650.20 | 650.20 | .00 | .00 | .00 | 6.19 | 6.19 |
| HS18120736-01DF5 | 12/20/2018 | 11:12 PM | 21.87 | -1.00 | 7.26 | .00 | 172.44 | 172.44 | .00 | .00 | .00 | 1.64 | 1.64 |
| HS18120736-02DF10 | 12/20/2018 | 11:18 PM | 21.71 | -1.00 | 7.72 | .00 | 342.28 | 342.28 | .00 | .00 | .00 | 3.26 | 3.26 |
| CCV-PH | 12/20/2018 | 11:21 PM | 21.56 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/20/2018 | 11:29 PM | 21.34 | -1.00 | 10.92 | 542.29 | 1,061.88 | .00 | 1,039.18 | 22.70 | 5.16 | 10.11 | 10.11 |
| DI RINSE | 12/20/2018 | 11:34 PM | 21.45 | -1.00 | 6.11 | .00 | .52 | .52 | .00 | .00 | .00 | .02 | .02 |
| HS18120736-03 | 12/20/2018 | 11:39 PM | 21.40 | -1.00 | 6.15 | .00 | 50.38 | 50.38 | .00 | .00 | .00 | .48 | .48 |



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GENERAL RESULTS REPORT.SRW

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**Run Number** 3446 **Order Number** 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HS18120736-04 | 12/20/2018 | 11:45 PM | 21.41 | -1.00 | 6.13 | .00 | 55.09 | 55.09 | .00 | .00 | .00 | .52 | .52 |
| HS18120779-23 | 12/20/2018 | 11:49 PM | 21.58 | -1.00 | 5.76 | .00 | .44 | .44 | .00 | .00 | .00 | .02 | .02 |
| HS18120927-06 | 12/20/2018 | 11:57 PM | 21.48 | -1.00 | 7.87 | .00 | 97.35 | 97.35 | .00 | .00 | .00 | .93 | .93 |
| HS18120927-07 | 12/21/2018 | 12:03 AM | 21.38 | -1.00 | 7.66 | .00 | 514.19 | 514.19 | .00 | .00 | .00 | 4.90 | 4.90 |
| HS18120927-08 | 12/21/2018 | 12:11 AM | 21.31 | -1.00 | 7.79 | .00 | 289.56 | 289.56 | .00 | .00 | .00 | 2.76 | 2.76 |
| WBLKW2-181220 | 12/21/2018 | 12:15 AM | 21.19 | -1.00 | 5.84 | .00 | .42 | .42 | .00 | .00 | .00 | .02 | .02 |
| WLCS2-181220 | 12/21/2018 | 12:24 AM | 21.06 | -1.00 | 10.91 | 543.38 | 1,065.28 | .00 | 1,043.80 | 21.48 | 5.18 | 10.15 | 10.15 |
| WLCSD2-181220 | 12/21/2018 | 12:33 AM | 21.06 | -1.00 | 10.91 | 540.17 | 1,057.87 | .00 | 1,035.40 | 22.47 | 5.14 | 10.07 | 10.07 |
| CCV-PH | 12/21/2018 | 12:35 AM | 21.03 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 12:44 AM | 20.94 | -1.00 | 10.90 | 543.35 | 1,065.58 | .00 | 1,044.46 | 21.12 | 5.17 | 10.15 | 10.15 |
| DI RINSE | 12/21/2018 | 12:49 AM | 21.21 | -1.00 | 6.13 | .00 | .63 | .63 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-01 | 12/21/2018 | 12:56 AM | 21.06 | -1.00 | 8.63 | 16.83 | 478.96 | 445.31 | 33.65 | .00 | .16 | 4.56 | 4.56 |
| HS18120779-02 | 12/21/2018 | 1:03 AM | 20.96 | -1.00 | 7.51 | .00 | 322.36 | 322.36 | .00 | .00 | .00 | 3.07 | 3.07 |
| HS18120779-02DUP | 12/21/2018 | 1:09 AM | 20.89 | -1.00 | 7.52 | .00 | 321.87 | 321.87 | .00 | .00 | .00 | 3.07 | 3.07 |
| HS18120779-03 | 12/21/2018 | 1:16 AM | 20.81 | -1.00 | 7.54 | .00 | 412.60 | 412.60 | .00 | .00 | .00 | 3.93 | 3.93 |
| HS18120779-04 | 12/21/2018 | 1:23 AM | 20.78 | -1.00 | 7.72 | .00 | 466.80 | 466.80 | .00 | .00 | .00 | 4.45 | 4.45 |
| HS18120779-05 | 12/21/2018 | 1:31 AM | 20.74 | -1.00 | 8.22 | .00 | 634.92 | 634.92 | .00 | .00 | .00 | 6.05 | 6.05 |
| HS18120779-06 | 12/21/2018 | 1:38 AM | 20.73 | -1.00 | 8.17 | .00 | 664.91 | 664.91 | .00 | .00 | .00 | 6.33 | 6.33 |
| HS18120779-07 | 12/21/2018 | 1:46 AM | 20.91 | -1.00 | 8.48 | 11.64 | 501.47 | 478.19 | 23.27 | .00 | .11 | 4.78 | 4.78 |
| HS18120779-08 | 12/21/2018 | 1:52 AM | 20.83 | -1.00 | 7.36 | .00 | 231.19 | 231.19 | .00 | .00 | .00 | 2.20 | 2.20 |
| CCV-PH | 12/21/2018 | 1:55 AM | 20.63 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 2:04 AM | 20.48 | -1.00 | 10.89 | 541.68 | 1,070.54 | .00 | 1,057.72 | 12.82 | 5.16 | 10.20 | 10.20 |
| DI RINSE | 12/21/2018 | 2:09 AM | 20.49 | -1.00 | 6.10 | .00 | .57 | .57 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-09 | 12/21/2018 | 2:17 AM | 20.43 | -1.00 | 7.98 | .00 | 926.02 | 926.02 | .00 | .00 | .00 | 8.82 | 8.82 |
| HS18120779-10 | 12/21/2018 | 2:22 AM | 20.40 | -1.00 | 6.01 | .00 | .79 | .79 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-12 | 12/21/2018 | 2:29 AM | 20.40 | -1.00 | 7.93 | .00 | 515.07 | 515.07 | .00 | .00 | .00 | 4.91 | 4.91 |
| HS18120779-13 | 12/21/2018 | 2:38 AM | 20.41 | -1.00 | 8.08 | .00 | 731.43 | 731.43 | .00 | .00 | .00 | 6.97 | 6.97 |
| HS18120779-14 | 12/21/2018 | 2:44 AM | 20.49 | -1.00 | 7.70 | .00 | 453.37 | 453.37 | .00 | .00 | .00 | 4.32 | 4.32 |
| HS18120779-15 | 12/21/2018 | 2:51 AM | 20.36 | -1.00 | 7.50 | .00 | 247.94 | 247.94 | .00 | .00 | .00 | 2.36 | 2.36 |
| HS18120779-16 | 12/21/2018 | 2:58 AM | 20.25 | -1.00 | 7.70 | .00 | 395.33 | 395.33 | .00 | .00 | .00 | 3.77 | 3.77 |









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**Run Number** 3446 **Order Number** 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HS18120779-17 | 12/21/2018 | 3:05 AM | 20.19 | -1.00 | 8.41 | 7.88 | 401.51 | 385.76 | 15.76 | .00 | .08 | 3.82 | 3.82 |
| HS18120779-18 | 12/21/2018 | 3:12 AM | 20.08 | -1.00 | 7.57 | .00 | 722.42 | 722.42 | .00 | .00 | .00 | 6.88 | 6.88 |
| CCV-PH | 12/21/2018 | 3:15 AM | 20.00 | -1.00 | 7.07 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 3:24 AM | 19.92 | -1.00 | 10.87 | 539.52 | 1,065.42 | .00 | 1,051.80 | 13.62 | 5.14 | 10.15 | 10.15 |
| DI RINSE | 12/21/2018 | 3:29 AM | 19.96 | -1.00 | 6.08 | .00 | .53 | .53 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-19 | 12/21/2018 | 3:38 AM | 20.15 | -1.00 | 7.51 | .00 | 1,226.68 | 1,226.68 | .00 | .00 | .00 | 11.68 | 11.68 |
| HS18120779-20 | 12/21/2018 | 3:47 AM | 20.00 | -1.00 | 7.48 | .00 | 951.67 | 951.67 | .00 | .00 | .00 | 9.06 | 9.06 |
| HS18120779-21 | 12/21/2018 | 3:54 AM | 19.92 | -1.00 | 7.48 | .00 | 681.28 | 681.28 | .00 | .00 | .00 | 6.49 | 6.49 |
| WBLKW3-181220 | 12/21/2018 | 4:00 AM | 20.00 | -1.00 | 6.38 | .00 | 26.88 | 26.88 | .00 | .00 | .00 | .26 | .26 |
| LCS3-181220 | 12/21/2018 | 4:09 AM | 19.68 | -1.00 | 10.87 | 542.57 | 1,069.49 | .00 | 1,053.85 | 15.64 | 5.17 | 10.19 | 10.19 |
| LCSD3-181220 | 12/21/2018 | 4:18 AM | 19.71 | -1.00 | 10.87 | 538.56 | 1,061.72 | .00 | 1,046.31 | 15.41 | 5.13 | 10.11 | 10.11 |
| HS18121010-01 | 12/21/2018 | 4:24 AM | 19.63 | -1.00 | 6.76 | .00 | 298.43 | 298.43 | .00 | .00 | .00 | 2.84 | 2.84 |
| HS18121010-01DUP | 12/21/2018 | 4:30 AM | 19.56 | -1.00 | 6.78 | .00 | 296.07 | 296.07 | .00 | .00 | .00 | 2.82 | 2.82 |
| HS18121010-02 | 12/21/2018 | 4:36 AM | 19.50 | -1.00 | 6.68 | .00 | 267.13 | 267.13 | .00 | .00 | .00 | 2.54 | 2.54 |
| CCV-PH | 12/21/2018 | 4:39 AM | 19.63 | -1.00 | 7.07 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 4:48 AM | 19.59 | -1.00 | 10.84 | 539.66 | 1,072.45 | .00 | 1,065.58 | 6.87 | 5.14 | 10.21 | 10.21 |
| DI RINSE | 12/21/2018 | 4:53 AM | 19.55 | -1.00 | 6.08 | .00 | .49 | .49 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-22 | 12/21/2018 | 5:02 AM | 19.51 | -1.00 | 7.57 | .00 | 1,240.44 | 1,240.44 | .00 | .00 | .00 | 11.81 | 11.81 |
| HS18120832-01DF5 | 12/21/2018 | 5:09 AM | 19.43 | -1.00 | 6.96 | .00 | 8.33 | 8.33 | .00 | .00 | .00 | .10 | .10 |
| HS18120918-01 | 12/21/2018 | 5:17 AM | 19.38 | -1.00 | 8.64 | 33.51 | 956.57 | 889.54 | 67.02 | .00 | .32 | 9.11 | 9.11 |
| HS18120829-01 | 12/21/2018 | 5:26 AM | 19.35 | -1.00 | 7.22 | .00 | 1,007.30 | 1,007.30 | .00 | .00 | .00 | 9.59 | 9.59 |
| HS18120829-02 | 12/21/2018 | 5:34 AM | 19.22 | -1.00 | 7.11 | .00 | 755.96 | 755.96 | .00 | .00 | .00 | 7.20 | 7.20 |
| HS18120829-03 | 12/21/2018 | 5:41 AM | 19.36 | -1.00 | 7.16 | .00 | 758.73 | 758.73 | .00 | .00 | .00 | 7.23 | 7.23 |
| HS18120829-04 | 12/21/2018 | 5:54 AM | 19.31 | -1.00 | 7.52 | .00 | 1,902.18 | 1,902.18 | .00 | .00 | .00 | 18.12 | 18.12 |
| HS18120829-05 | 12/21/2018 | 6:03 AM | 19.24 | -1.00 | 7.26 | .00 | 895.16 | 895.16 | .00 | .00 | .00 | 8.53 | 8.53 |
| HS18120829-06 | 12/21/2018 | 6:11 AM | 19.23 | -1.00 | 7.21 | .00 | 920.45 | 920.45 | .00 | .00 | .00 | 8.77 | 8.77 |
| CCV-PH | 12/21/2018 | 6:13 AM | 19.05 | -1.00 | 7.07 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 6:22 AM | 18.96 | -1.00 | 10.84 | 536.26 | 1,061.91 | .00 | 1,051.30 | 10.61 | 5.11 | 10.11 | 10.11 |
| DI RINSE | 12/21/2018 | 6:26 AM | 18.94 | -1.00 | 6.07 | .00 | .43 | .43 | .00 | .00 | .00 | .02 | .02 |
| HS18120829-07 | 12/21/2018 | 6:37 AM | 18.93 | -1.00 | 7.56 | .00 | 1,303.08 | 1,303.08 | .00 | .00 | .00 | 12.41 | 12.41 |



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GENERAL RESULTS REPORT.SRW

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00946460

**Run Number** 3446 **Order Number** 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HS18120829-08 | 12/21/2018 | 6:44 AM | 18.93 | -1.00 | 7.31 | .00 | 774.69 | 774.69 | .00 | .00 | .00 | 7.38 | 7.38 |
| HS18120829-09 | 12/21/2018 | 6:57 AM | 19.10 | -1.00 | 7.51 | .00 | 1,910.33 | 1,910.33 | .00 | .00 | .00 | 18.19 | 18.19 |
| HS18120947-01 | 12/21/2018 | 7:05 AM | 19.18 | -1.00 | 7.67 | .00 | 925.75 | 925.75 | .00 | .00 | .00 | 8.82 | 8.82 |
| HS18120991-05 | 12/21/2018 | 7:10 AM | 19.10 | -1.00 | 6.41 | .00 | 1.04 | 1.04 | .00 | .00 | .00 | .03 | .03 |
| HS18120991-06 | 12/21/2018 | 7:16 AM | 19.07 | -1.00 | 6.19 | .00 | .73 | .73 | .00 | .00 | .00 | .02 | .02 |
| HS18120991-07 | 12/21/2018 | 7:24 AM | 19.07 | -1.00 | 11.73 | 246.49 | 310.75 | .00 | 128.53 | 182.23 | 2.35 | 2.96 | 2.96 |
| HS18120992-04 | 12/21/2018 | 7:31 AM | 19.09 | -1.00 | 7.42 | .00 | 355.60 | 355.60 | .00 | .00 | .00 | 3.39 | 3.39 |
| HS18120992-05 | 12/21/2018 | 7:38 AM | 19.05 | -1.00 | 7.84 | 00 | 247.09 | 247.09 | .00 | .00 | .00 | 2.35 | 2.35 |
| CCV-PH | 12/21/2018 | 7:41 AM | 19.02 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 7:49 AM | 19.17 | -1.00 | 10.80 | 527.01 | 1,061.96 | 7.93 | 1,054.03 | .00 | 5.02 | 10.11 | 10.11 |
| DI RINSE | 12/21/2018 | 7:53 AM | 19.38 | -1.00 | 6.00 | .00 | .55 | .55 | .00 | .00 | .00 | .02 | .02 |





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GENERAL RESULTS REPORT.SRW

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HS18120642

Sequence: 121218
Operator: alshs.nouser


Printed: 12/13/2018 6:21:52 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 101

Created: 12/12/2018 9:24:30 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume |
|---|---|---|---|---|---|---|---|---|
| 1 | STD1 | | Standard | 91 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 2 | STD2 | | Standard | 92 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 3 | STD3 | | Standard | 93 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 4 | STD4 | | Standard | 94 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 5 | STD5 | | Standard | 95 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 6 | STD6 | | Standard | 96 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 7 | ICV | | Unknown | 97 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 8 | ICB | | Unknown | 98 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 9 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 10 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 11 | WBLKW1-121218 | 300_W 9056_W | Unknown | 11 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 12 | WLCSW1-121218 | | Unknown | 12 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 13 | WLCSDW1-121218 | | Unknown | 13 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 14 | HS18120642-01DF2 | 9056_W | Unknown | 14 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 15 | HS18120642-01DF20 | | Unknown | 15 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 16 | HS18120642-02DF2 | | Unknown | 16 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 17 | HS18120642-02DF20 | | Unknown | 17 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 18 | HS18120642-03 | | Unknown | 18 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 19 | HS18120642-03DF2 | | Unknown | 19 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 20 | HS18120642-03DF20 | | Unknown | 20 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 21 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 22 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 23 | HS18120459-01 | 9056_W | Unknown | 24 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 24 | HS18120459-01MS | | Unknown | 25 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 25 | HS18120459-01MSD | | Unknown | 26 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 26 | HS18120582-01DF5 | | Unknown | 21 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 27 | HS18120582-02DF5 | | Unknown | 22 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 28 | HS18120582-03DF5 | HI SO4 | Unknown | 23 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 29 | DI H2O | | Unknown | 10 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 30 | DI H2O | | Unknown | 10 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 31 | HS18120166-11DF5 | | Unknown | 27 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 32 | HS18120166-43DF5 | | Unknown | 28 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 33 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 34 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 35 | HS18120067-01DF20 | | Unknown | 32 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 36 | HS18120067-02DF100 | | Unknown | 33 | 100.0000 | 10.0 | 1.00 | 1.00 |
| 37 | HS18120067-03DF100 | | Unknown | 34 | 100.0000 | 10.0 | 1.00 | 1.00 |
| 38 | HS18120067-04DF100 | | Unknown | 35 | 100.0000 | 10.0 | 1.00 | 1.00 |
| 39 | HS18120067-05DF20 | | Unknown | 36 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 40 | HS18120067-06DF100 | | Unknown | 37 | 100.0000 | 10.0 | 1.00 | 1.00 |
| 41 | HS18120173-06 | | Unknown | 29 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 42 | HS18120173-06MS | | Unknown | 30 | 1.0000 | 10.0 | 1.00 | 1.00 |

Chromeleon © Dionex Corporation, Version 6.80 SR8 Build 2623 (156243)

Sequence: 121218
Operator: alshs.nouser


Printed: 12/13/2018 6:21:52 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 101

Created: 12/12/2018 9:24:30 PM by alshs.nouser (Modified, not saved)

| No. | Name | Method | Status | Inj. Date/Time | Program |
|---|---|---|---|---|---|
| 1 | STD1 | 121218 | Finished | 12/12/2018 3:52:35 PM | Anions Gradient Program |
| 2 | STD2 | 121218 | Finished | 12/12/2018 4:07:08 PM | Anions Gradient Program |
| 3 | STD3 | 121218 | Finished | 12/12/2018 4:21:41 PM | Anions Gradient Program |
| 4 | STD4 | 121218 | Finished | 12/12/2018 4:36:13 PM | Anions Gradient Program |
| 5 | STD5 | 121218 | Finished | 12/12/2018 4:50:46 PM | Anions Gradient Program |
| 6 | STD6 | 121218 | Finished | 12/12/2018 5:05:19 PM | Anions Gradient Program |
| 7 | ICV | 121218 | Finished | 12/12/2018 5:19:52 PM | Anions Gradient Program |
| 8 | ICB | 121218 | Finished | 12/12/2018 5:34:25 PM | Anions Gradient Program |
| 9 | CCV | 121218 | Finished | 12/12/2018 9:36:19 PM | Anions Gradient Program |
| 10 | CCB | 121218 | Finished | 12/12/2018 9:50:51 PM | Anions Gradient Program |
| 11 | WBLKW1-121218 | 121218 | Finished | 12/12/2018 10:05:24 PM | Anions Gradient Program |
| 12 | WLCSW1-121218 | 121218 | Finished | 12/12/2018 10:19:57 PM | Anions Gradient Program |
| 13 | WLCSDW1-121218 | 121218 | Finished | 12/12/2018 10:34:30 PM | Anions Gradient Program |
| 14 | HS18120642-01DF2 | 121218 | Finished | 12/12/2018 10:49:03 PM | Anions Gradient Program |
| 15 | HS18120642-01DF20 | 121218 | Finished | 12/12/2018 11:03:36 PM | Anions Gradient Program |
| 16 | HS18120642-02DF2 | 121218 | Finished | 12/12/2018 11:18:09 PM | Anions Gradient Program |
| 17 | HS18120642-02DF20 | 121218 | Finished | 12/12/2018 11:32:42 PM | Anions Gradient Program |
| 18 | HS18120642-03 | 121218 | Finished | 12/12/2018 11:47:14 PM | Anions Gradient Program |
| 19 | HS18120642-03DF2 | 121218 | Finished | 12/13/2018 12:01:47 AM | Anions Gradient Program |
| 20 | HS18120642-03DF20 | 121218 | Finished | 12/13/2018 12:16:20 AM | Anions Gradient Program |
| 21 | CCV1 | 121218 | Finished | 12/13/2018 12:30:53 AM | Anions Gradient Program |
| 22 | CCB | 121218 | Finished | 12/13/2018 12:45:26 AM | Anions Gradient Program |
| 23 | HS18120459-01 | 121218 | Finished | 12/13/2018 12:59:58 AM | Anions Gradient Program |
| 24 | HS18120459-01MS | 121218 | Finished | 12/13/2018 1:14:31 AM | Anions Gradient Program |
| 25 | HS18120459-01MSD | 121218 | Finished | 12/13/2018 1:29:04 AM | Anions Gradient Program |
| 26 | HS18120582-01DF5 | 121218 | Finished | 12/13/2018 1:43:37 AM | Anions Gradient Program |
| 27 | HS18120582-02DF5 | 121218 | Finished | 12/13/2018 1:58:10 AM | Anions Gradient Program |
| 28 | HS18120582-03DF5 | 121218 | Finished | 12/13/2018 2:12:43 AM | Anions Gradient Program |
| 29 | DI H2O | 121218 | Finished | 12/13/2018 2:27:15 AM | Anions Gradient Program |
| 30 | DI H2O | 121218 | Finished | 12/13/2018 2:41:48 AM | Anions Gradient Program |
| 31 | HS18120166-11DF5 | 121218 | Finished | 12/13/2018 2:56:22 AM | Anions Gradient Program |
| 32 | HS18120166-43DF5 | 121218 | Finished | 12/13/2018 3:10:55 AM | Anions Gradient Program |
| 33 | CCV | 121218 | Finished | 12/13/2018 3:25:27 AM | Anions Gradient Program |
| 34 | CCB | 121218 | Finished | 12/13/2018 3:40:00 AM | Anions Gradient Program |
| 35 | HS18120067-01DF20 | 121218 | Finished | 12/13/2018 3:54:32 AM | Anions Gradient Program |
| 36 | HS18120067-02DF100 | 121218 | Finished | 12/13/2018 4:09:05 AM | Anions Gradient Program |
| 37 | HS18120067-03DF100 | 121218 | Finished | 12/13/2018 4:23:38 AM | Anions Gradient Program |
| 38 | HS18120067-04DF100 | 121218 | Finished | 12/13/2018 4:38:11 AM | Anions Gradient Program |
| 39 | HS18120067-05DF20 | 121218 | Finished | 12/13/2018 4:52:44 AM | Anions Gradient Program |
| 40 | HS18120067-06DF100 | 121218 | Finished | 12/13/2018 5:07:17 AM | Anions Gradient Program |
| 41 | HS18120173-06 | 121218 | Finished | 12/13/2018 5:21:50 AM | Anions Gradient Program |
| 42 | HS18120173-06MS | 121218 | Finished | 12/13/2018 5:36:23 AM | Anions Gradient Program |

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| | | | |
|---|---|---|---|
| Sequence: | 121218 | | Page 3 of 9 |
| Operator: | alshs.nouser | | Printed: 12/13/2018 6:21:52 PM |
| Title: | | | |
| Datasource: | DB7CGHK1_local | | |
| Location: | ICS2100\Sequences and Data\01-2018 | | |
| Timebase: | ICS2100 | Created: | 12/12/2018 9:24:30 PM by alshs.nouser |
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| 2 | STD2 | 2312cf21-fe5a-11e8-b6da-a24899608423 |
| 3 | STD3 | 2b6c8b0b-fe5c-11e8-b6da-a24899608423 |
| 4 | STD4 | 3332765f-fe5e-11e8-b6da-a24899608423 |
| 5 | STD5 | 3b9f44f1-fe60-11e8-b6da-a24899608423 |
| 6 | STD6 | 43711bee-fe62-11e8-b6da-a24899608423 |
| 7 | ICV | 4be5117f-fe64-11e8-b6da-a24899608423 |
| 8 | ICB | 544d1b67-fe66-11e8-b6da-a24899608423 |
| 9 | CCV | c02730d6-fe87-11e8-b6da-a24899608423 |
| 10 | CCB | 27c8bfc3-fe8a-11e8-b6da-a24899608423 |
| 11 | WBLKW1-121218 | 2fb26e12-fe8c-11e8-b6da-a24899608423 |
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| 13 | WLCSDW1-121218 | 40553593-fe90-11e8-b6da-a24899608423 |
| 14 | HS18120642-01DF2 | 488d90d7-fe92-11e8-b6da-a24899608423 |
| 15 | HS18120642-01DF20 | 50e9af16-fe94-11e8-b6da-a24899608423 |
| 16 | HS18120642-02DF2 | 591fa805-fe96-11e8-b6da-a24899608423 |
| 17 | HS18120642-02DF20 | 619ac495-fe98-11e8-b6da-a24899608423 |
| 18 | HS18120642-03 | 695e4d94-fe9a-11e8-b6da-a24899608423 |
| 19 | HS18120642-03DF2 | 7196a8d8-fe9c-11e8-b6da-a24899608423 |
| 20 | HS18120642-03DF20 | 7a011515-fe9e-11e8-b6da-a24899608423 |
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| 22 | CCB | 8a84de45-fea2-11e8-b6da-a24899608423 |
| 23 | HS18120459-01 | 92cb8787-fea4-11e8-b6da-a24899608423 |
| 24 | HS18120459-01MS | 9b14931e-fea6-11e8-b6da-a24899608423 |
| 25 | HS18120459-01MSD | a34cee62-fea8-11e8-b6da-a24899608423 |
| 26 | HS18120582-01DF5 | ab8549a6-feaa-11e8-b6da-a24899608423 |
| 27 | HS18120582-02DF5 | b3ce553d-feac-11e8-b6da-a24899608423 |
| 28 | HS18120582-03DF5 | bc1760d4-feae-11e8-b6da-a24899608423 |
| 29 | DI H2O | c44fbc18-feb0-11e8-b6da-a24899608423 |
| 30 | DI H2O | cc88175c-feb2-11e8-b6da-a24899608423 |
| 31 | HS18120166-11DF5 | d4d122f3-feb4-11e8-b6da-a24899608423 |
| 32 | HS18120166-43DF5 | dd8f00cf-feb6-11e8-b6da-a24899608423 |
| 33 | CCV | e5a5fb6d-feb8-11e8-b6da-a24899608423 |
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| 35 | HS18120067-01DF20 | f5e23ea7-febc-11e8-b6da-a24899608423 |
| 36 | HS18120067-02DF100 | fe09e998-febe-11e8-b6da-a24899608423 |
| 37 | HS18120067-03DF100 | 0644a731-fec1-11e8-b6da-a24899608423 |
| 38 | HS18120067-04DF100 | 0e8db2c8-fec3-11e8-b6da-a24899608423 |
| 39 | HS18120067-05DF20 | 16d6be5f-fec5-11e8-b6da-a24899608423 |
| 40 | HS18120067-06DF100 | 1f0f19a3-fec7-11e8-b6da-a24899608423 |
| 41 | HS18120173-06 | 2755c2e5-fec9-11e8-b6da-a24899608423 |
| 42 | HS18120173-06MS | 2f97a77d-fecb-11e8-b6da-a24899608423 |

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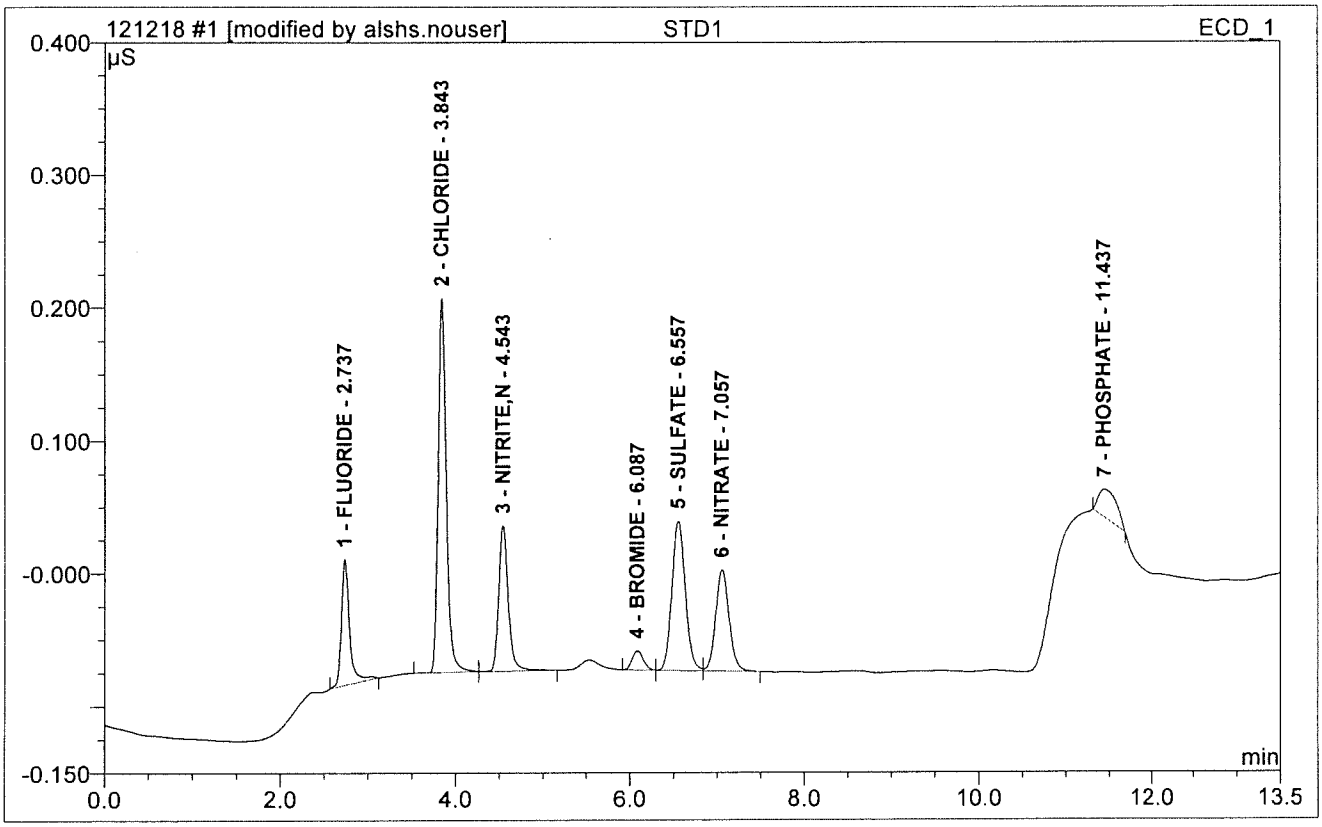
# 1 STD1

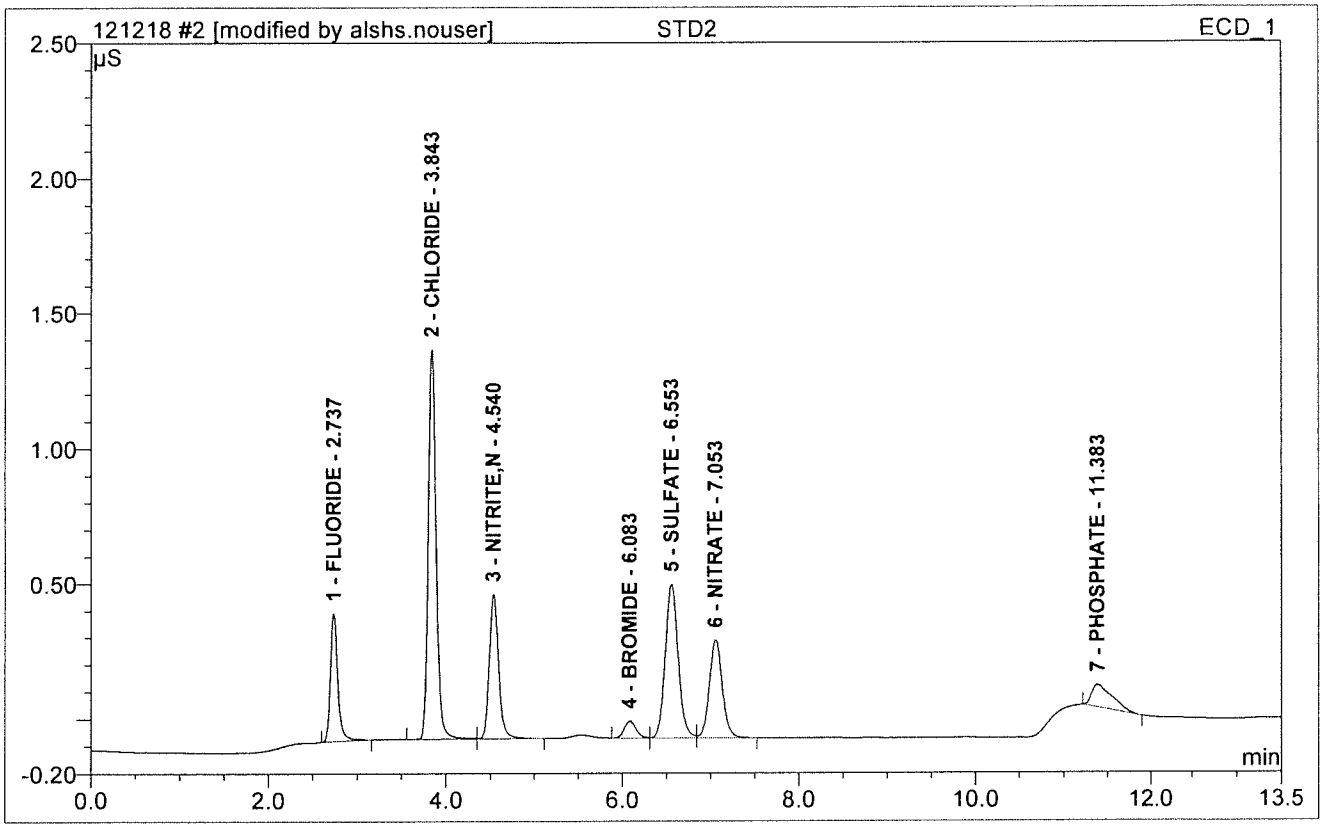
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **91** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 15:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.095 | 0.010 | 10.60 | 0.106 | 1. |
| 2 | 3.84 | CHLORIDE | 0.281 | 0.030 | 31.72 | 0.532 | 1. |
| 3 | 4.54 | NITRITE,N | 0.110 | 0.014 | 14.54 | 0.096 | 1. |
| 4 | 6.09 | BROMIDE | 0.015 | 0.002 | 2.26 | 0.137 | 1. |
| 5 | 6.56 | SULFATE | 0.112 | 0.020 | 21.05 | 0.570 | 1. |
| 6 | 7.06 | NITRATE | 0.076 | 0.014 | 14.23 | 0.121 | 1. |
| 7 | 11.44 | PHOSPHATE | 0.021 | 0.005 | 5.60 | 0.138 | 1. |
| **Total:** | | | 0.709 | 0.096 | 100.00 | 1.700 | |

## 2 STD2

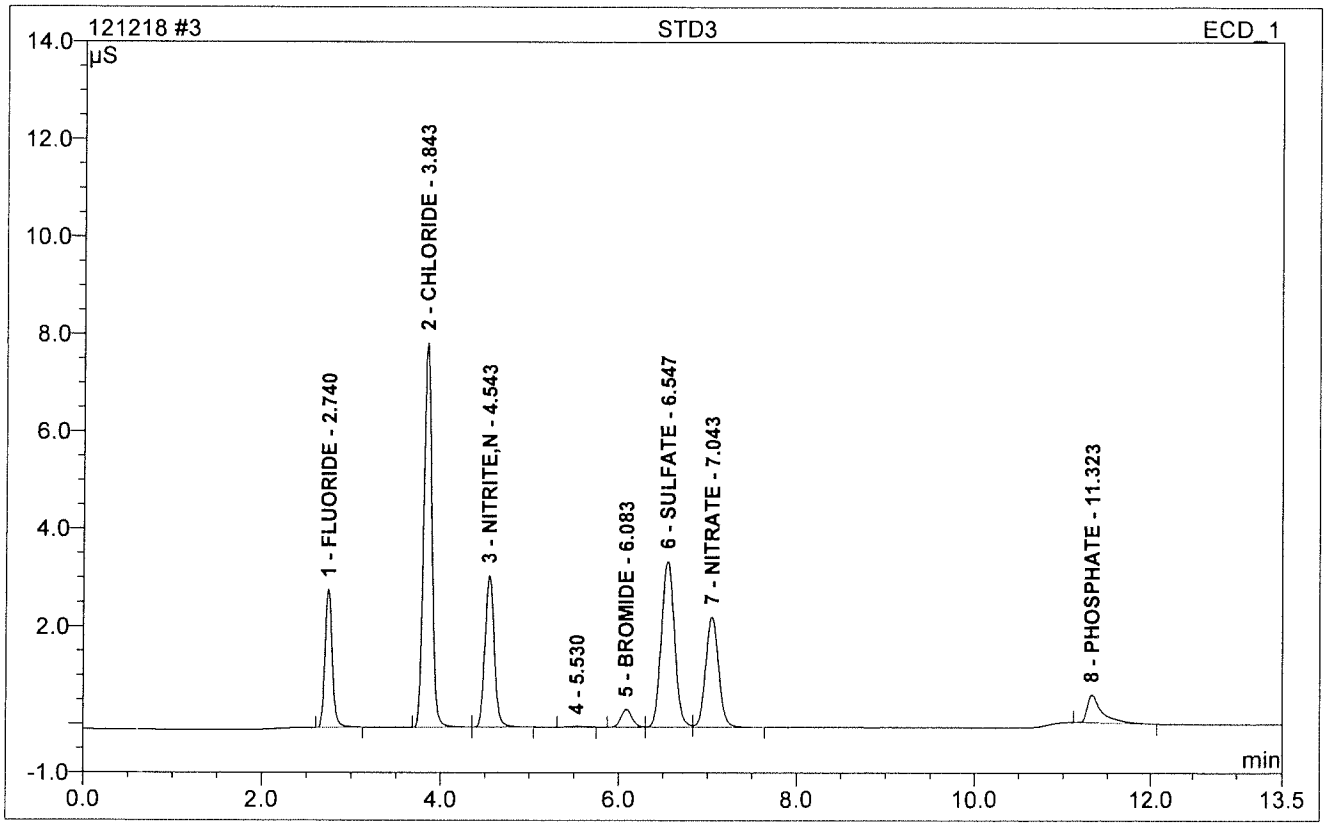
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **92** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:07** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.474 | 0.046 | 10.15 | 0.359 | 1. |
| 2 | 3.84 | CHLORIDE | 1.439 | 0.149 | 33.19 | 1.875 | 1. |
| 3 | 4.54 | NITRITE,N | 0.535 | 0.064 | 14.31 | 0.366 | 1. |
| 4 | 6.08 | BROMIDE | 0.063 | 0.010 | 2.13 | 0.348 | 1. |
| 5 | 6.55 | SULFATE | 0.568 | 0.097 | 21.51 | 1.771 | 1. |
| 6 | 7.05 | NITRATE | 0.361 | 0.062 | 13.74 | 0.341 | 1. |
| 7 | 11.38 | PHOSPHATE | 0.083 | 0.022 | 4.97 | 0.367 | 1. |
| **Total:** | | | 3.522 | 0.449 | 100.00 | 5.427 | |

# 3 STD3

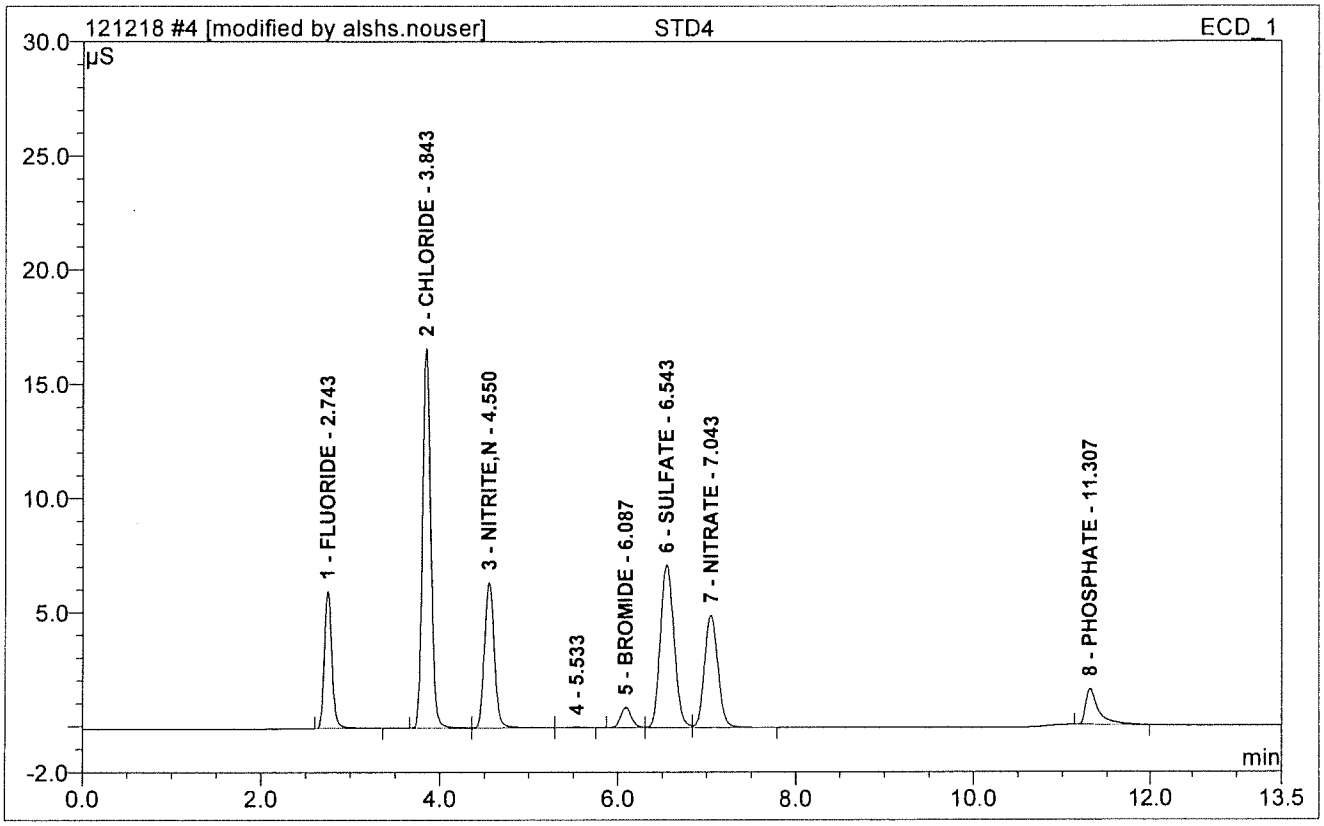
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD3** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **93** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:21** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 2.841 | 0.270 | 10.24 | 1.964 | 1. |
| 2 | 3.84 | CHLORIDE | 7.900 | 0.843 | 31.93 | 9.717 | 1. |
| 3 | 4.54 | NITRITE,N | 3.116 | 0.382 | 14.47 | 2.062 | 1. |
| 5 | 6.08 | BROMIDE | 0.372 | 0.054 | 2.05 | 1.615 | 1. |
| 6 | 6.55 | SULFATE | 3.415 | 0.589 | 22.31 | 9.499 | 1. |
| 7 | 7.04 | NITRATE | 2.279 | 0.388 | 14.71 | 1.837 | 1. |
| 8 | 11.32 | PHOSPHATE | 0.580 | 0.109 | 4.15 | 1.542 | 1. |
| **Total:** | | | 20.503 | 2.635 | 99.86 | 28.236 | |

# 4 STD4

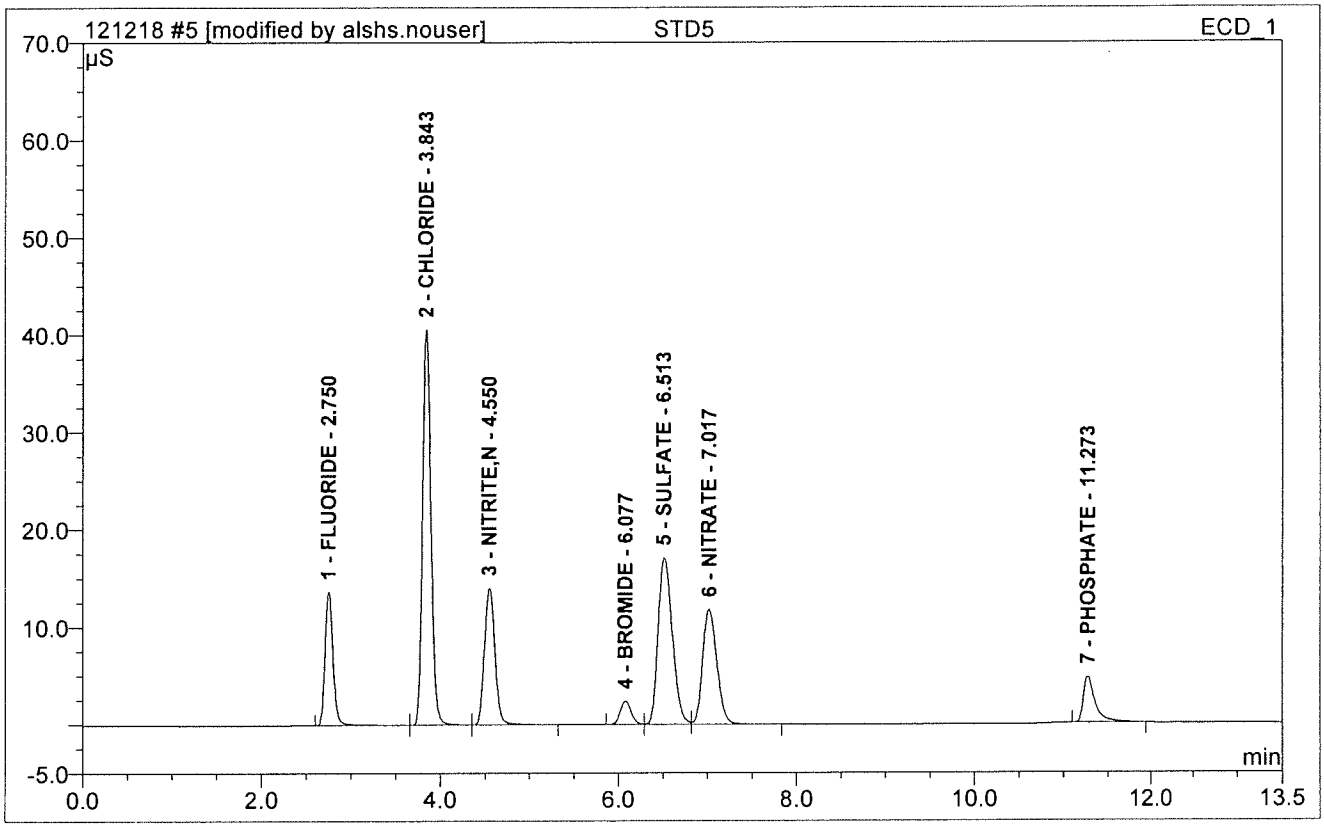
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD4** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **94** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:36** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 6.010 | 0.591 | 10.29 | 4.251 | 1. |
| 2 | 3.84 | CHLORIDE | 16.630 | 1.799 | 31.33 | 20.529 | 1. |
| 3 | 4.55 | NITRITE,N | 6.372 | 0.816 | 14.22 | 4.383 | 1. |
| 5 | 6.09 | BROMIDE | 0.887 | 0.126 | 2.20 | 3.678 | 1. |
| 6 | 6.54 | SULFATE | 7.129 | 1.281 | 22.31 | 20.361 | 1. |
| 7 | 7.04 | NITRATE | 4.918 | 0.866 | 15.08 | 4.026 | 1. |
| 8 | 11.31 | PHOSPHATE | 1.568 | 0.258 | 4.49 | 3.545 | 1. |
| **Total:** | | | 43.514 | 5.736 | 99.92 | 60.772 | |

# 5 STD5

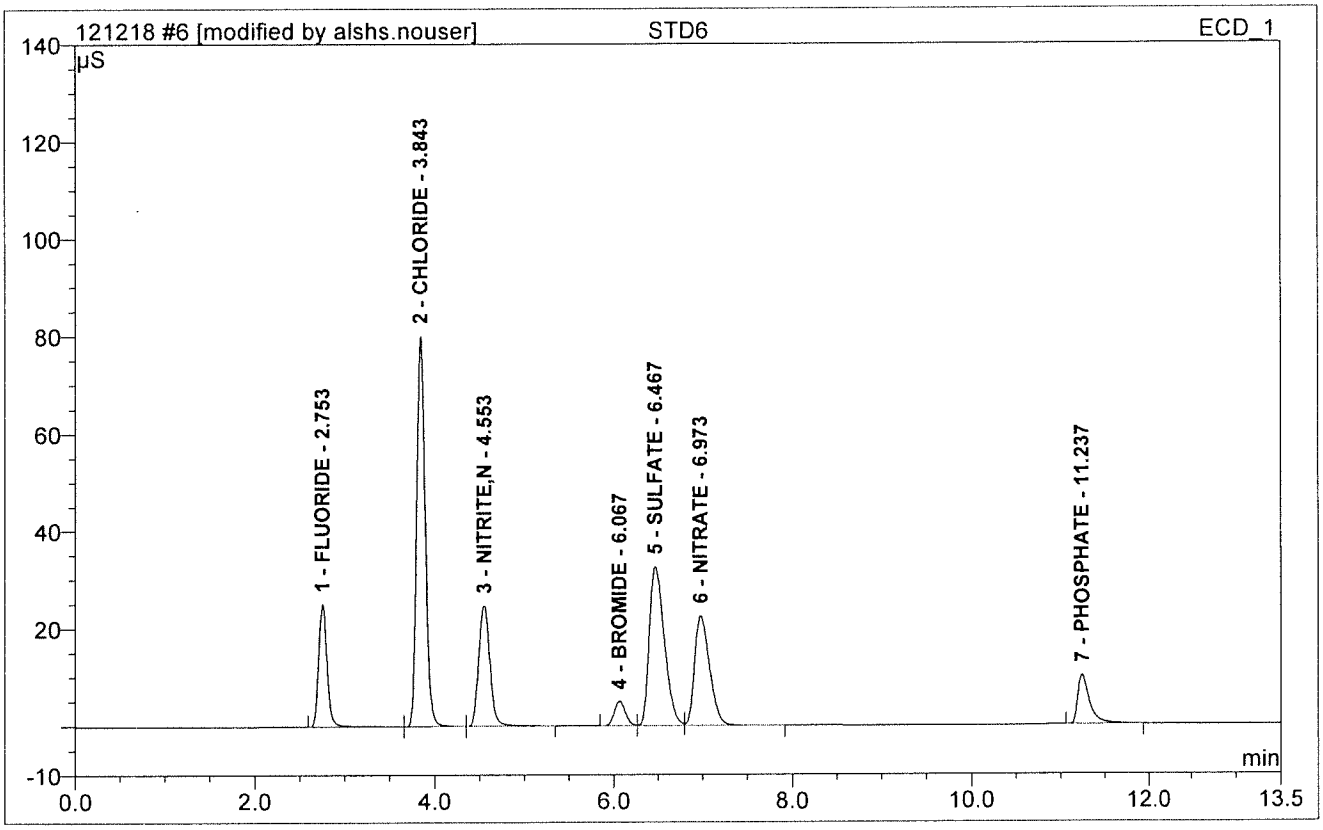
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD5** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **95** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:50** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | 13.744 | 1.431 | 10.06 | 10.252 | 1. |
| 2 | 3.84 | CHLORIDE | 40.596 | 4.426 | 31.11 | 50.239 | 1. |
| 3 | 4.55 | NITRITE,N | 14.095 | 1.927 | 13.54 | 10.316 | 1. |
| 4 | 6.08 | BROMIDE | 2.438 | 0.346 | 2.43 | 9.953 | 1. |
| 5 | 6.51 | SULFATE | 17.140 | 3.186 | 22.39 | 50.277 | 1. |
| 6 | 7.02 | NITRATE | 11.863 | 2.183 | 15.35 | 10.065 | 1. |
| 7 | 11.27 | PHOSPHATE | 4.736 | 0.728 | 5.12 | 9.884 | 1. |
| **Total:** | | | 104.613 | 14.227 | 100.00 | 150.986 | |

# 6 STD6

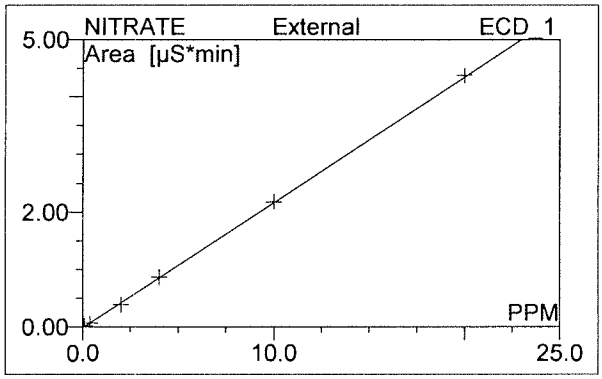
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:05** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

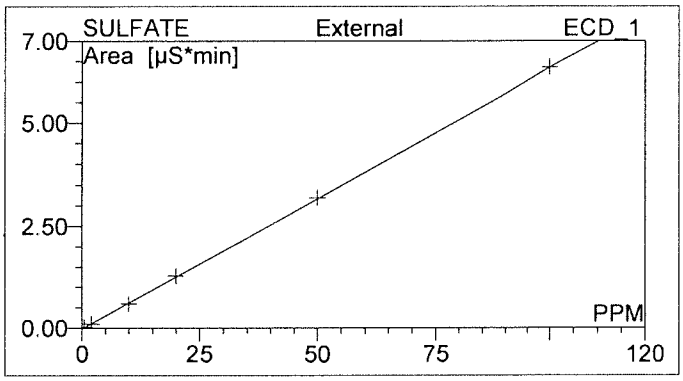


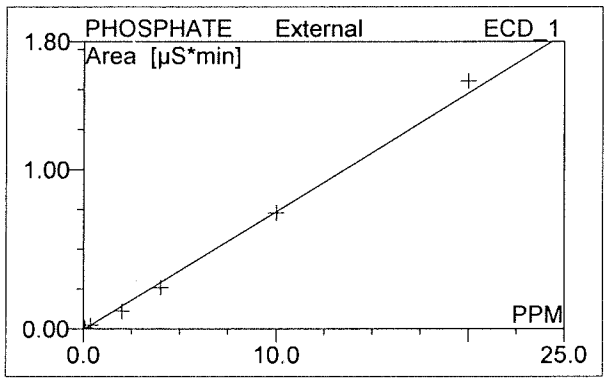

| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | 25.094 | 2.735 | 9.72 | 19.570 | 1. |
| 2 | 3.84 | CHLORIDE | 80.004 | 8.792 | 31.24 | 99.609 | 1. |
| 3 | 4.55 | NITRITE,N | 24.712 | 3.604 | 12.81 | 19.277 | 1. |
| 4 | 6.07 | BROMIDE | 5.009 | 0.726 | 2.58 | 20.769 | 1. |
| 5 | 6.47 | SULFATE | 32.582 | 6.354 | 22.58 | 100.022 | 1. |
| 6 | 6.97 | NITRATE | 22.503 | 4.375 | 15.55 | 20.109 | 1. |
| 7 | 11.24 | PHOSPHATE | 10.023 | 1.553 | 5.52 | 21.023 | 1. |
| **Total:** | | | 199.927 | 28.140 | 100.00 | 300.378 | |

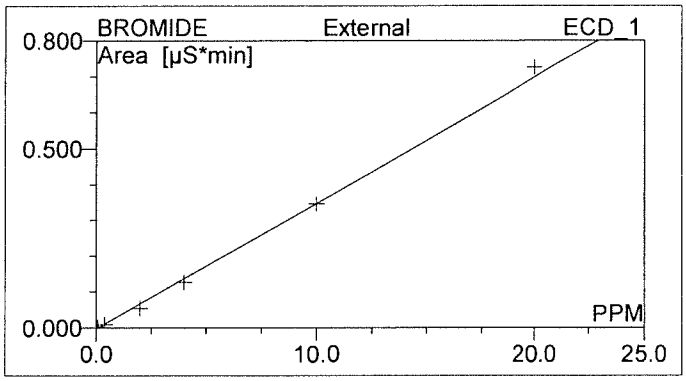
# 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **###############** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

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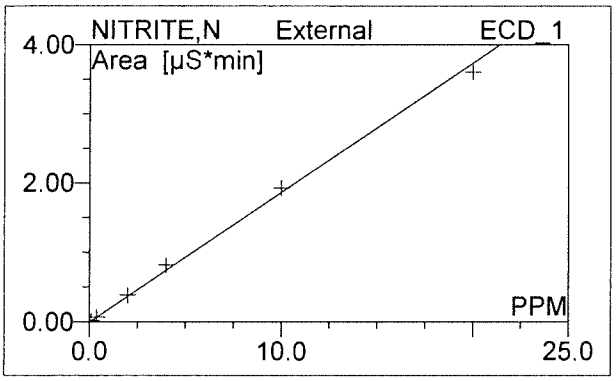
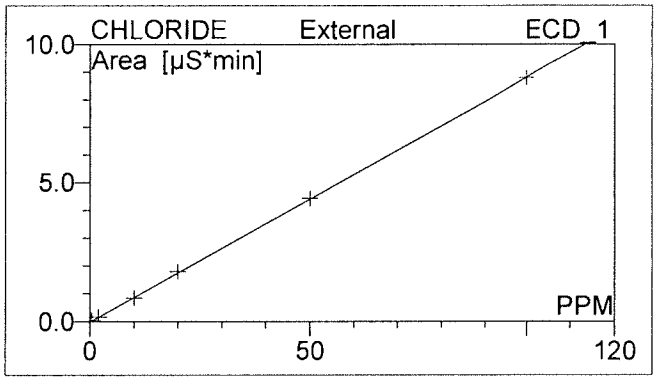
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.892 | -0.0046 | 0.1400 | 0.000 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.980 | -0.0166 | 0.0884 | 0.000 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.770 | -0.0041 | 0.1872 | 0.000 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.558 | -0.0026 | 0.0351 | 0.000 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.959 | -0.0162 | 0.0637 | 0.000 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.919 | -0.0128 | 0.2182 | 0.000 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.331 | -0.0049 | 0.0741 | 0.000 |
| **Average:** | | | | | 99.7727 | -0.0088 | 0.1152 | 0.0000 |

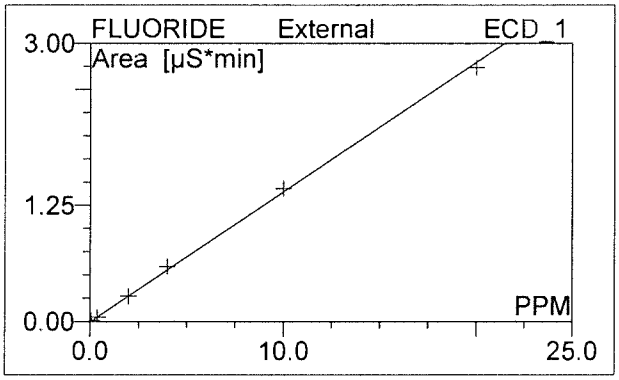
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.946 | 7.143 | 0.009 | 15.424 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.990 | 11.308 | 0.012 | 6.781 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.885 | 5.343 | 0.017 | 21.923 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.779 | 28.515 | 0.005 | 34.807 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.980 | 15.701 | 0.013 | 9.915 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.960 | 4.583 | 0.012 | 14.214 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.665 | 13.491 | 0.012 | 41.812 |
| **Average:** | | | | | 99.8862 | 12.2975 | 0.0114 | 20.6967 |

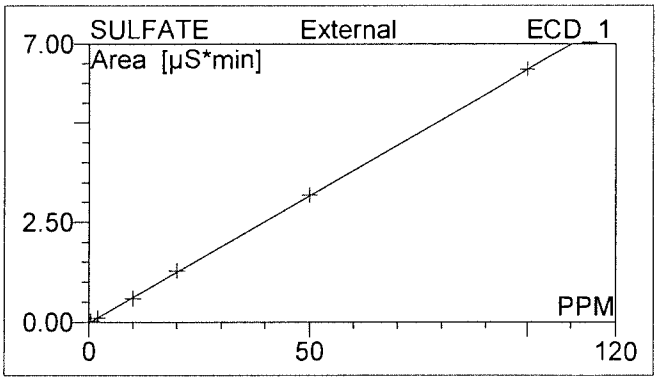
## 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.000** |
| *Recording Time:* | **12/12/2018 17:05** | *Sample Weight/Volume:* | **1.000** |
| *Run Time (min):* | **13.50** | *Final Volume:* | **1.000** |




Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\121218.SEQ\CD_1.CHL\223.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\121218.SEQ\CD_1.CHL\223.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\121218.SEQ\CD_1.CHL\223.acd". The system cannot find the path specified.

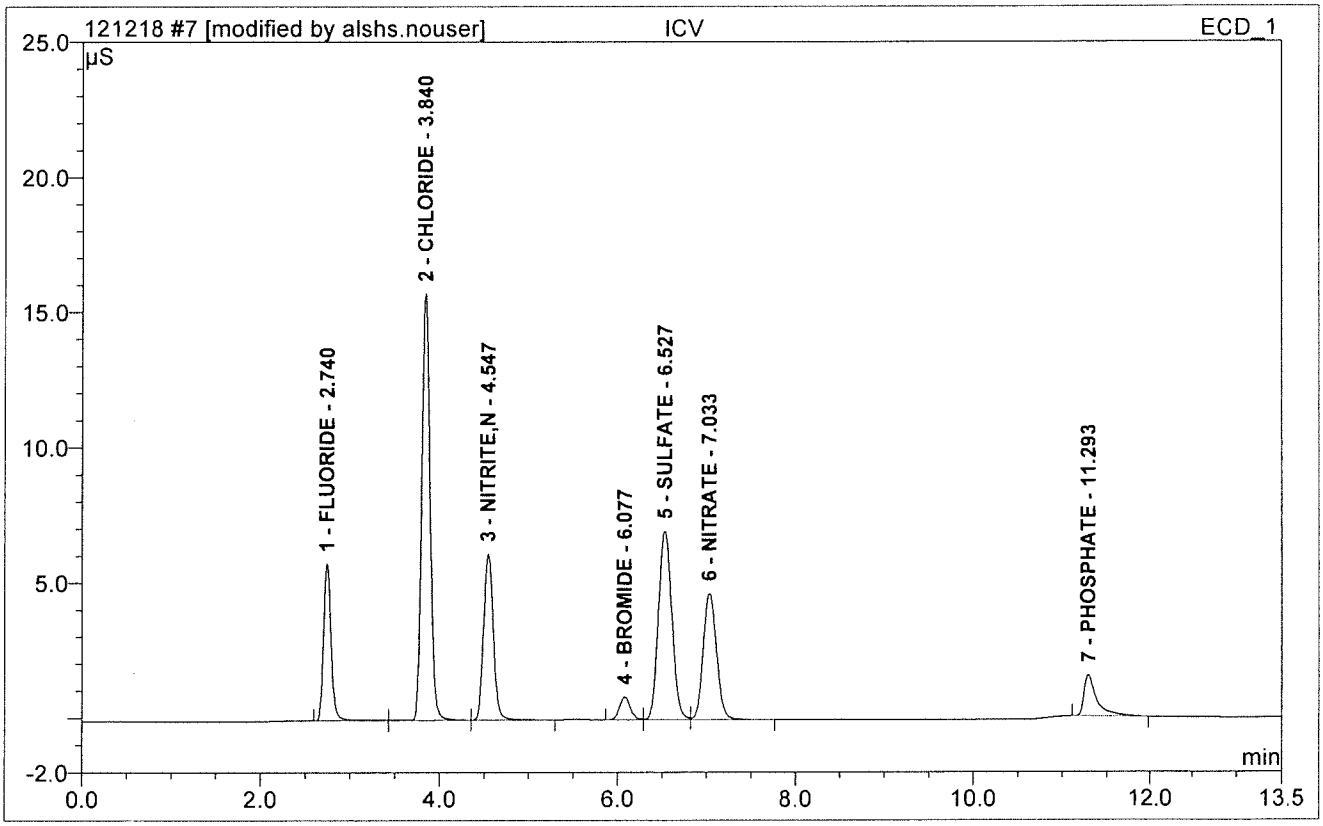
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\121218.SEQ\CD_1.CHL\223.acd". The system cannot find the path specified.

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.8920 | -0.0046 | 0.1400 | 0.000 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.9796 | -0.0166 | 0.0884 | 0.000 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.7703 | -0.0041 | 0.1872 | 0.000 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.5575 | -0.0026 | 0.0351 | 0.000 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.9591 | -0.0162 | 0.0637 | 0.000 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.9192 | -0.0128 | 0.2182 | 0.000 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.3314 | -0.0049 | 0.0741 | 0.000 |
| Average: | | | | | 99.7727 | -0.0088 | 0.1152 | 0.000 |

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.946 | 7.143 | 0.009 | 15.424 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.990 | 11.308 | 0.012 | 6.781 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.885 | 5.343 | 0.017 | 21.923 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.779 | 28.515 | 0.005 | 34.807 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.980 | 15.701 | 0.013 | 9.915 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.960 | 4.583 | 0.012 | 14.214 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.665 | 13.491 | 0.012 | 41.812 |
| Average: | | | | | 99.8862 | 12.298 | 0.011 | 20.697 |

# 7 ICV

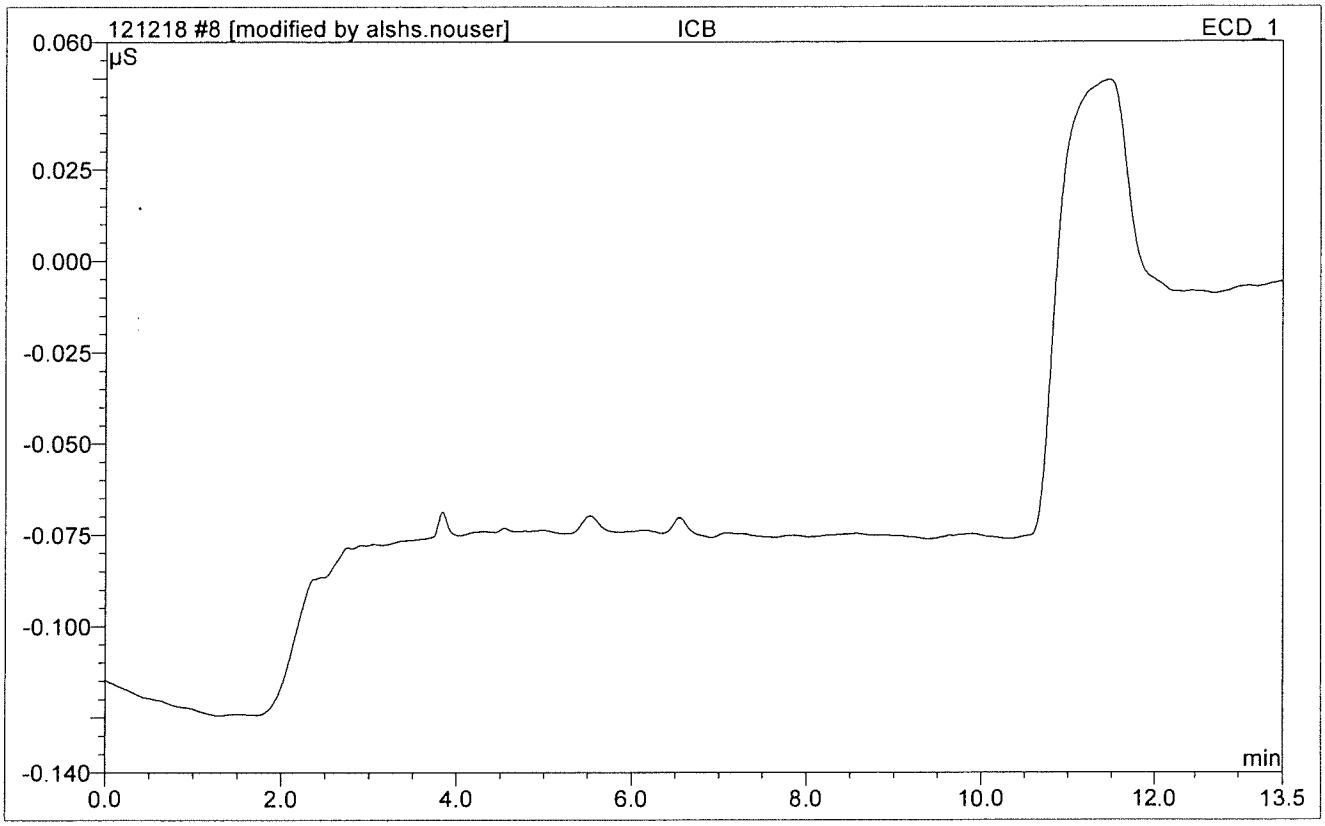
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **97** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:19** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 5.803 | 0.572 | 10.40 | 4.119 | 1. |
| 2 | 3.84 | CHLORIDE | 15.767 | 1.715 | 31.18 | 19.578 | 1. |
| 3 | 4.55 | NITRITE,N | 6.151 | 0.786 | 14.30 | 4.224 | 1. |
| 4 | 6.08 | BROMIDE | 0.844 | 0.120 | 2.19 | 3.509 | 1. |
| 5 | 6.53 | SULFATE | 6.990 | 1.234 | 22.43 | 19.623 | 1. |
| 6 | 7.03 | NITRATE | 4.677 | 0.820 | 14.90 | 3.814 | 1. |
| 7 | 11.29 | PHOSPHATE | 1.523 | 0.252 | 4.58 | 3.465 | 1. |
| **Total:** | | | 41.755 | 5.499 | 100.00 | 58.332 | |

## 8 ICB

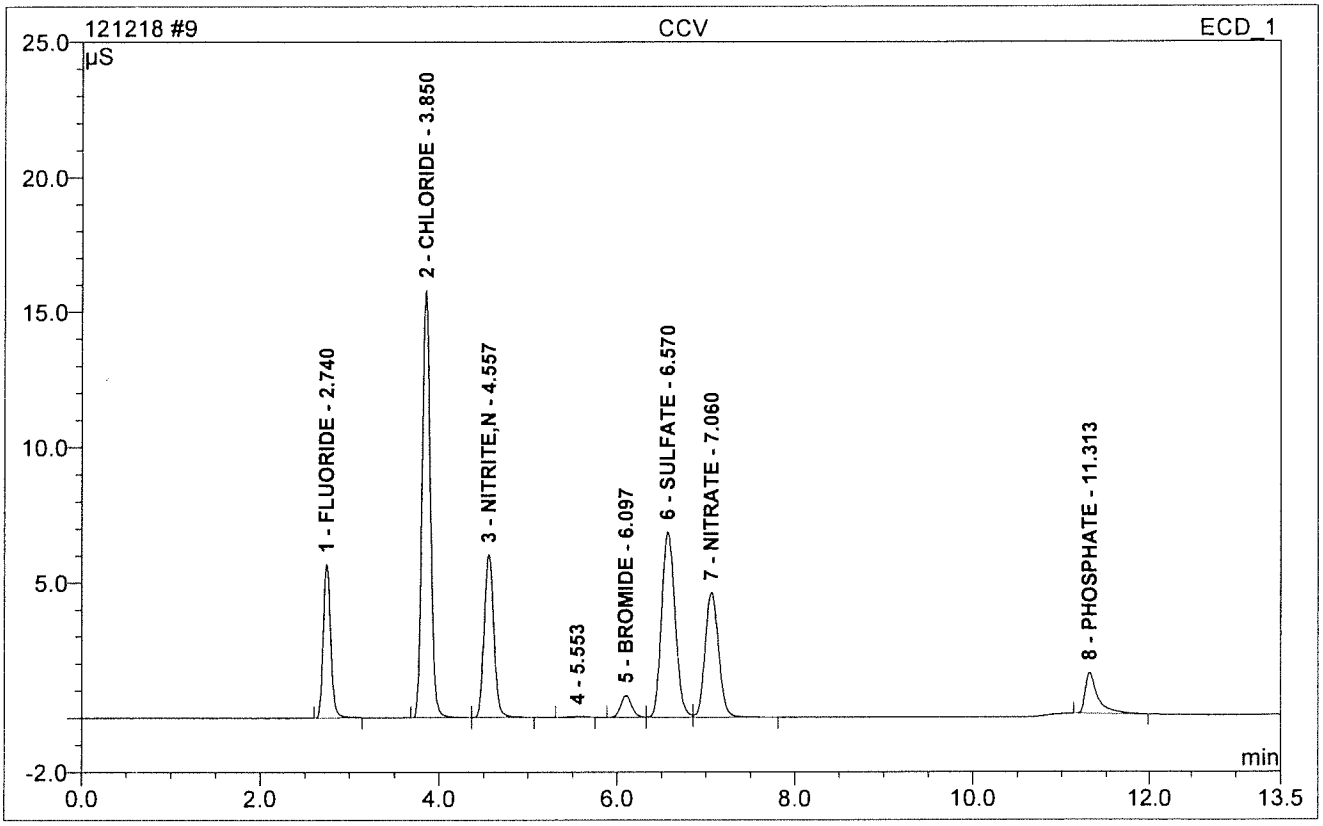
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **98** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:34** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| **Total:** | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 9 CCV

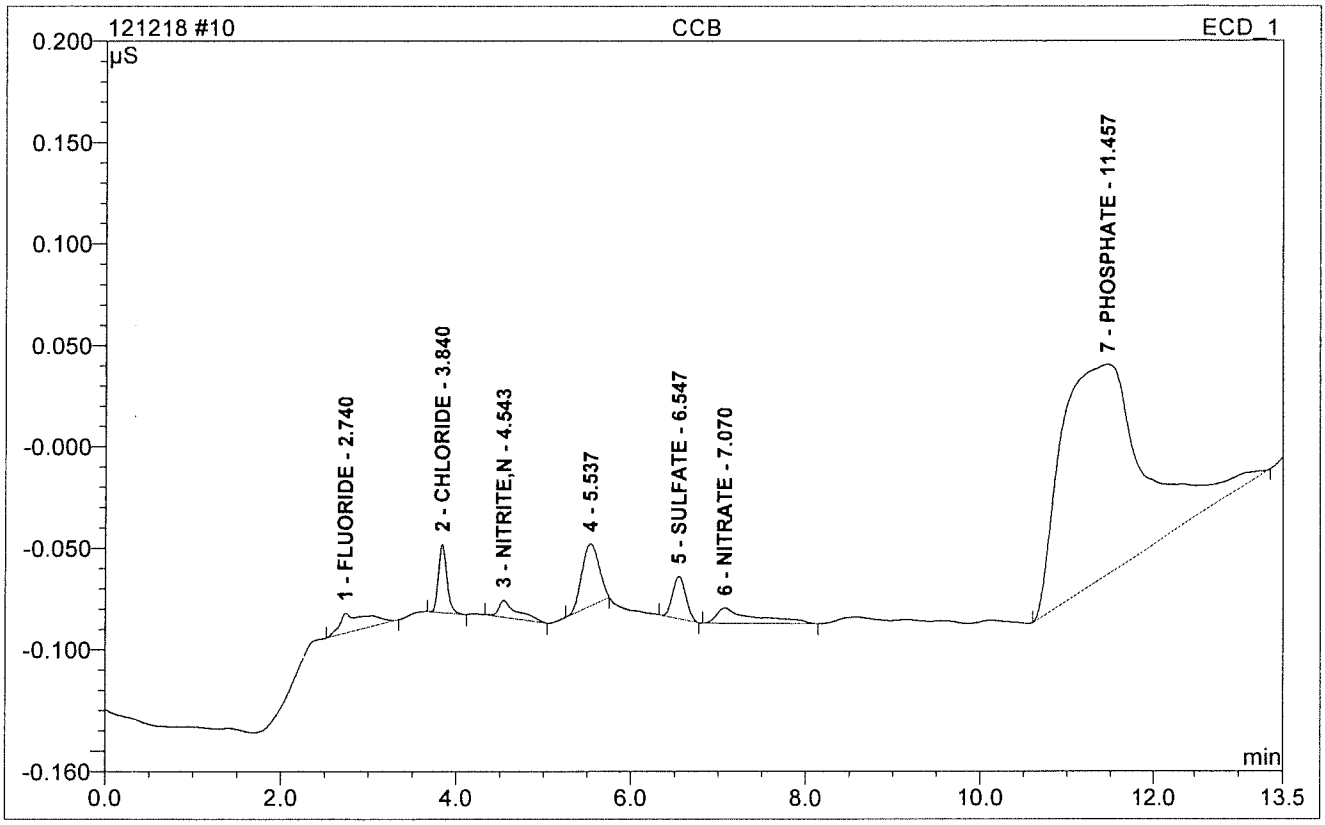
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 21:36** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 5.691 | 0.554 | 10.22 | 3.993 | 1. |
| 2 | 3.85 | CHLORIDE | 15.792 | 1.701 | 31.35 | 19.420 | 1. |
| 3 | 4.56 | NITRITE,N | 6.044 | 0.768 | 14.15 | 4.125 | 1. |
| 5 | 6.10 | BROMIDE | 0.808 | 0.117 | 2.15 | 3.398 | 1. |
| 6 | 6.57 | SULFATE | 6.884 | 1.219 | 22.47 | 19.397 | 1. |
| 7 | 7.06 | NITRATE | 4.631 | 0.814 | 15.00 | 3.789 | 1. |
| 8 | 11.31 | PHOSPHATE | 1.516 | 0.246 | 4.54 | 3.388 | 1. |
| **Total:** | | | 41.366 | 5.419 | 99.87 | 57.510 | |

# 10 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 21:50** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

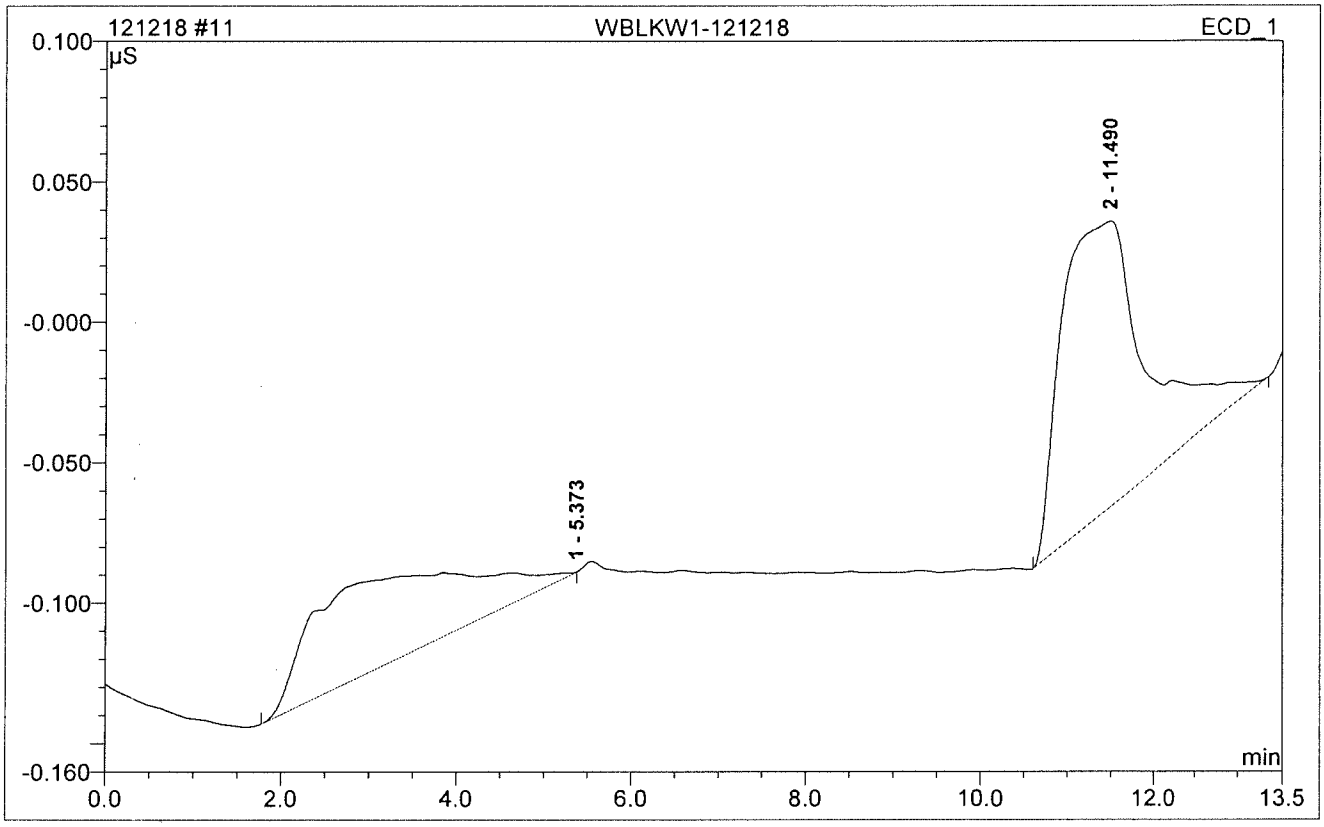



| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.010 | 0.003 | 2.45 | 0.058 | 1. |
| 2 | 3.84 | CHLORIDE | 0.034 | 0.004 | 2.65 | 0.230 | 1. |
| 3 | 4.54 | NITRITE,N | 0.008 | 0.002 | 1.48 | 0.033 | 1. |
| 5 | 6.55 | SULFATE | 0.021 | 0.004 | 2.59 | 0.311 | 1. |
| 6 | 7.07 | NITRATE | 0.008 | 0.004 | 2.70 | 0.076 | 1. |
| 7 | 11.46 | PHOSPHATE | 0.104 | 0.117 | 83.21 | 1.649 | 1. |
| **Total:** | | | 0.184 | 0.134 | 95.08 | 2.358 | |

## 11 WBLKW1-121218

### 300_W 9056_W

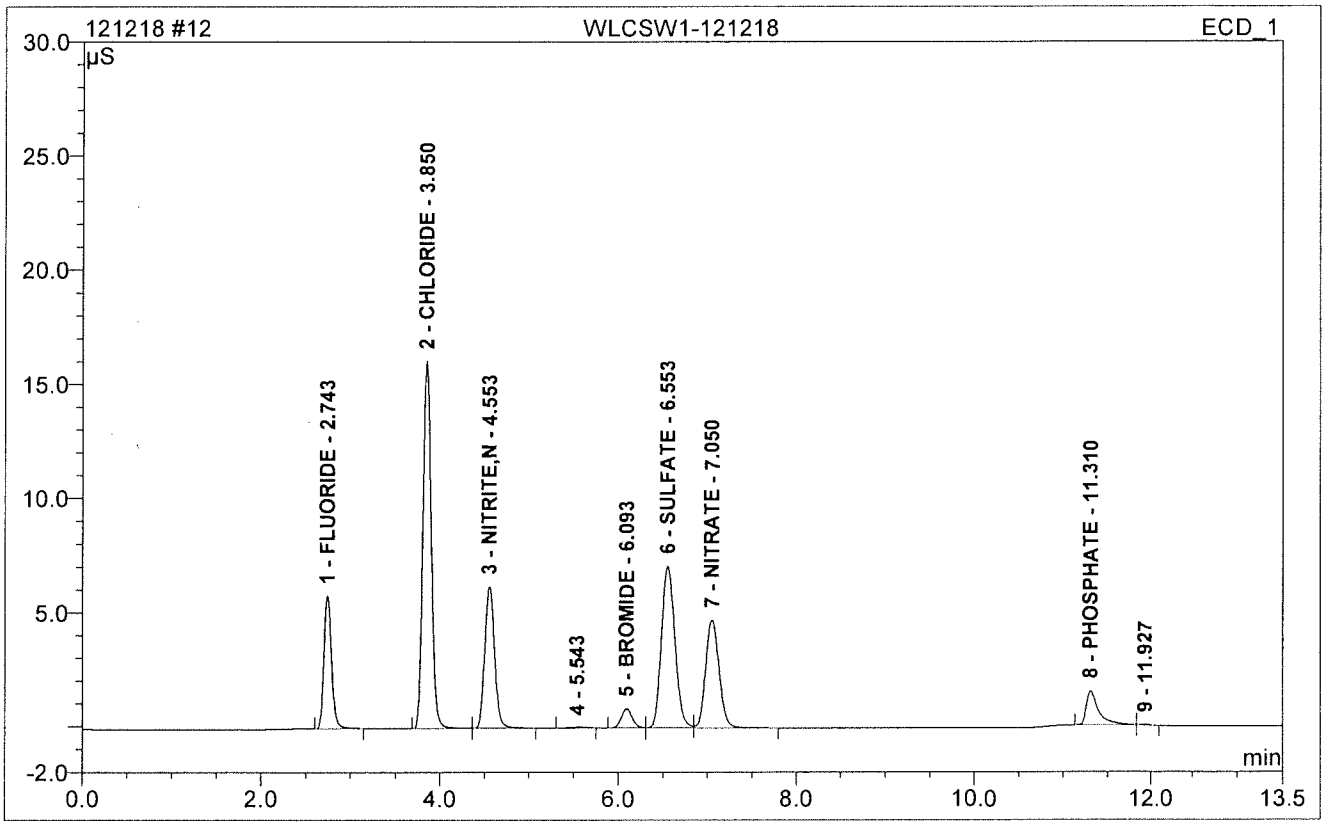
| | | | |
|---|---|---|---|
| *Sample Name:* | **WBLKW1-121218** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **11** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 22:05** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| Total: | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 12 WLCSW1-121218

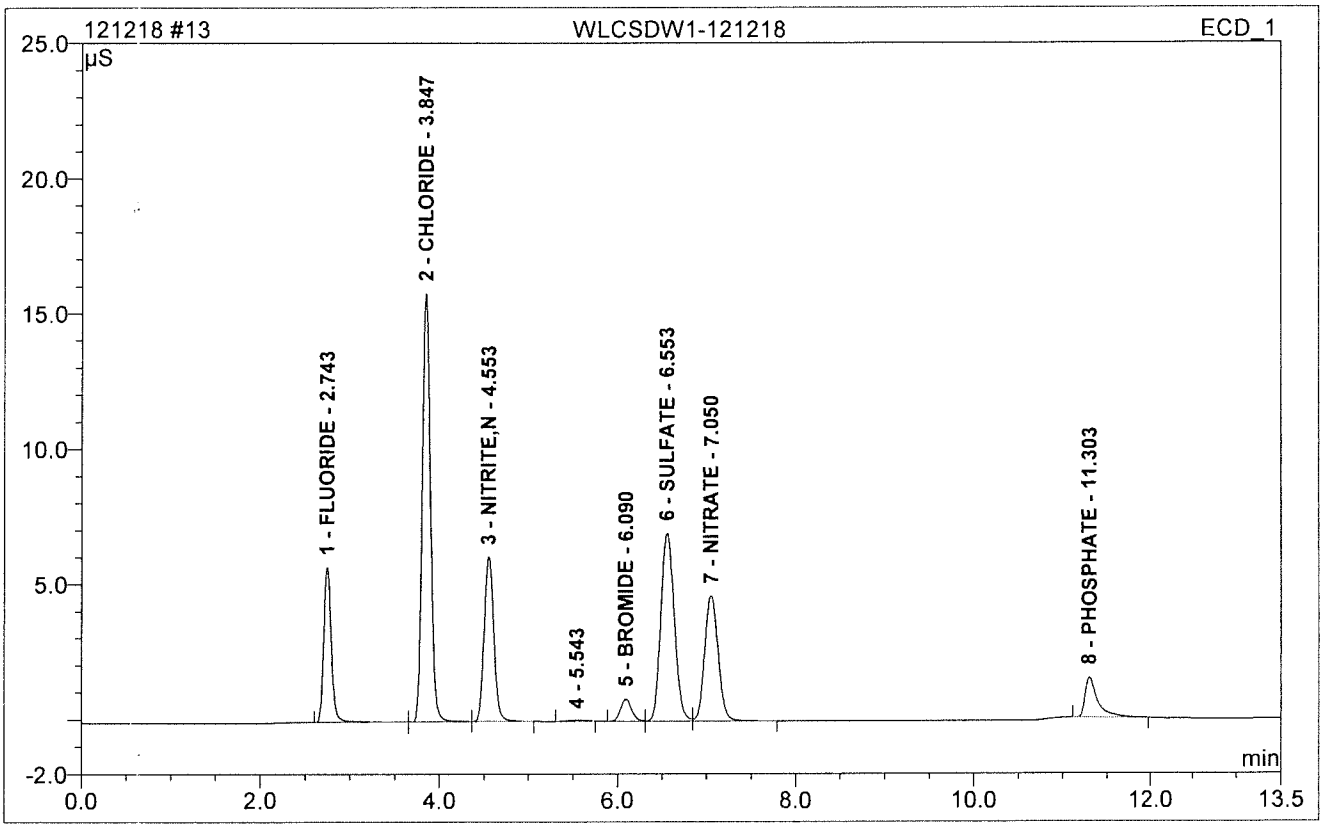
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSW1-121218** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **12** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 22:19** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 5.833 | 0.573 | 10.27 | 4.123 | 1. |
| 2 | 3.85 | CHLORIDE | 16.099 | 1.745 | 31.31 | 19.921 | 1. |
| 3 | 4.55 | NITRITE,N | 6.227 | 0.794 | 14.25 | 4.266 | 1. |
| 5 | 6.09 | BROMIDE | 0.847 | 0.121 | 2.17 | 3.526 | 1. |
| 6 | 6.55 | SULFATE | 7.105 | 1.255 | 22.53 | 19.966 | 1. |
| 7 | 7.05 | NITRATE | 4.763 | 0.835 | 14.97 | 3.883 | 1. |
| 8 | 11.31 | PHOSPHATE | 1.500 | 0.238 | 4.28 | 3.282 | 1. |
| **Total:** | | | 42.375 | 5.561 | 99.78 | 58.967 | |

# 13 WLCSDW1-121218

| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSDW1-121218** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **13** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 22:34** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

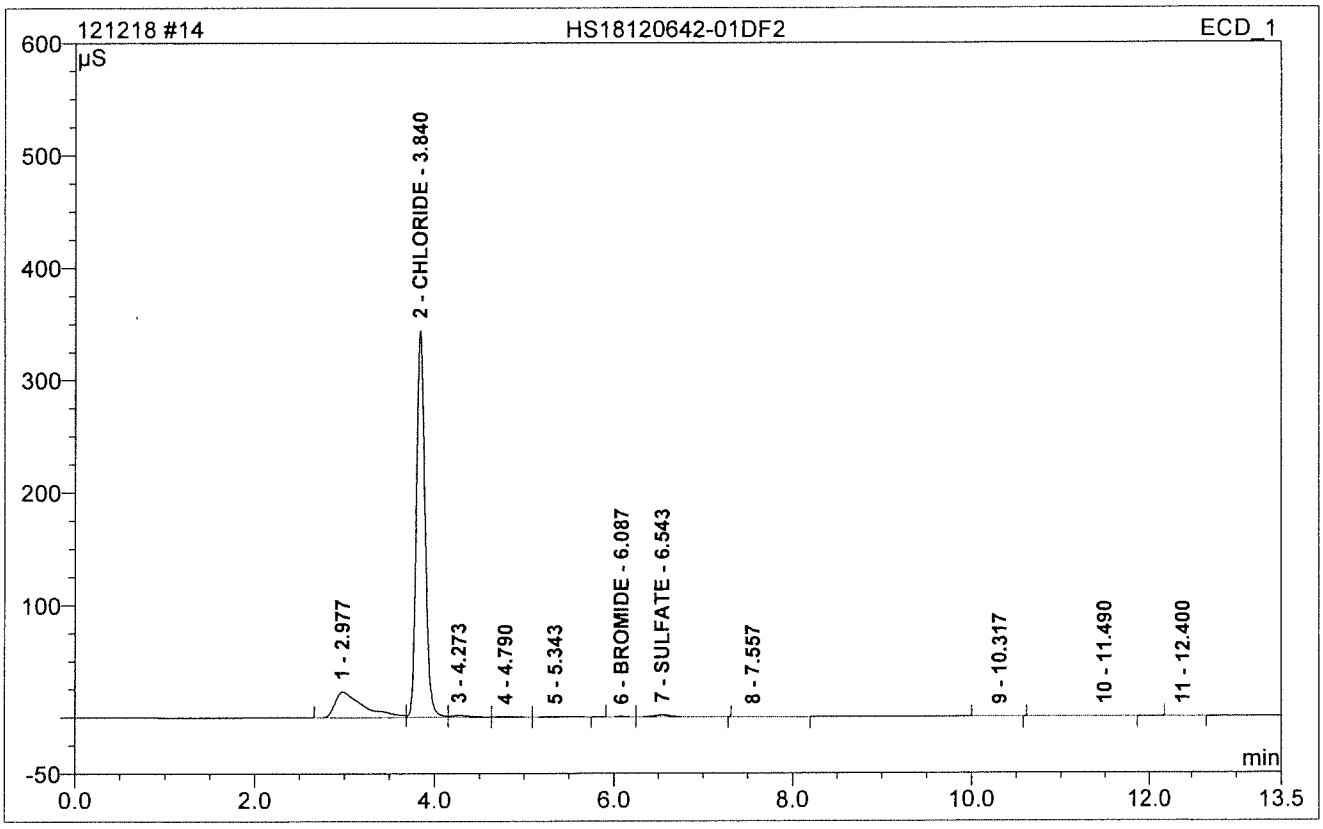



| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 5.730 | 0.568 | 10.40 | 4.088 | 1. |
| 2 | 3.85 | CHLORIDE | 15.823 | 1.709 | 31.31 | 19.512 | 1. |
| 3 | 4.55 | NITRITE,N | 6.079 | 0.773 | 14.17 | 4.154 | 1. |
| 5 | 6.09 | BROMIDE | 0.820 | 0.118 | 2.15 | 3.426 | 1. |
| 6 | 6.55 | SULFATE | 6.950 | 1.229 | 22.51 | 19.545 | 1. |
| 7 | 7.05 | NITRATE | 4.634 | 0.812 | 14.88 | 3.782 | 1. |
| 8 | 11.30 | PHOSPHATE | 1.480 | 0.241 | 4.42 | 3.318 | 1. |
| **Total:** | | | 41.518 | 5.450 | 99.84 | 57.824 | |

## 14 HS18120642-01DF2

**9056_W**

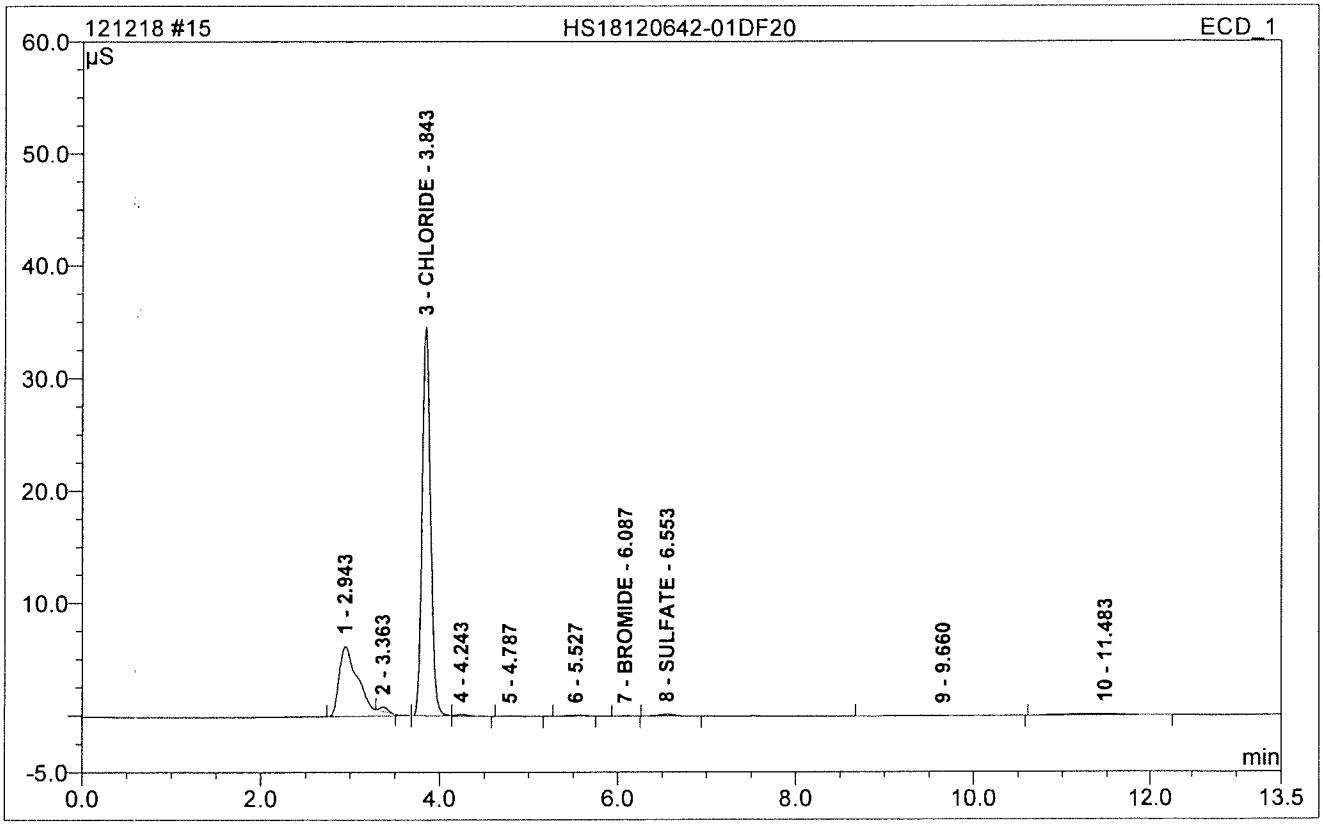
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-01DF2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **14** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **2.** |
| *Recording Time:* | **12/12/2018 22:49** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 2 | 3.84 | CHLORIDE | 344.265 | 38.483 | 79.85 | 870.699 | 2. |
| 6 | 6.09 | BROMIDE | 0.431 | 0.060 | 0.12 | 3.570 | 2. |
| 7 | 6.54 | SULFATE | 1.851 | 0.410 | 0.85 | 13.368 | 2. |
| **Total:** | | | 346.547 | 38.953 | 80.82 | 887.636 | |

## 15 HS18120642-01DF20

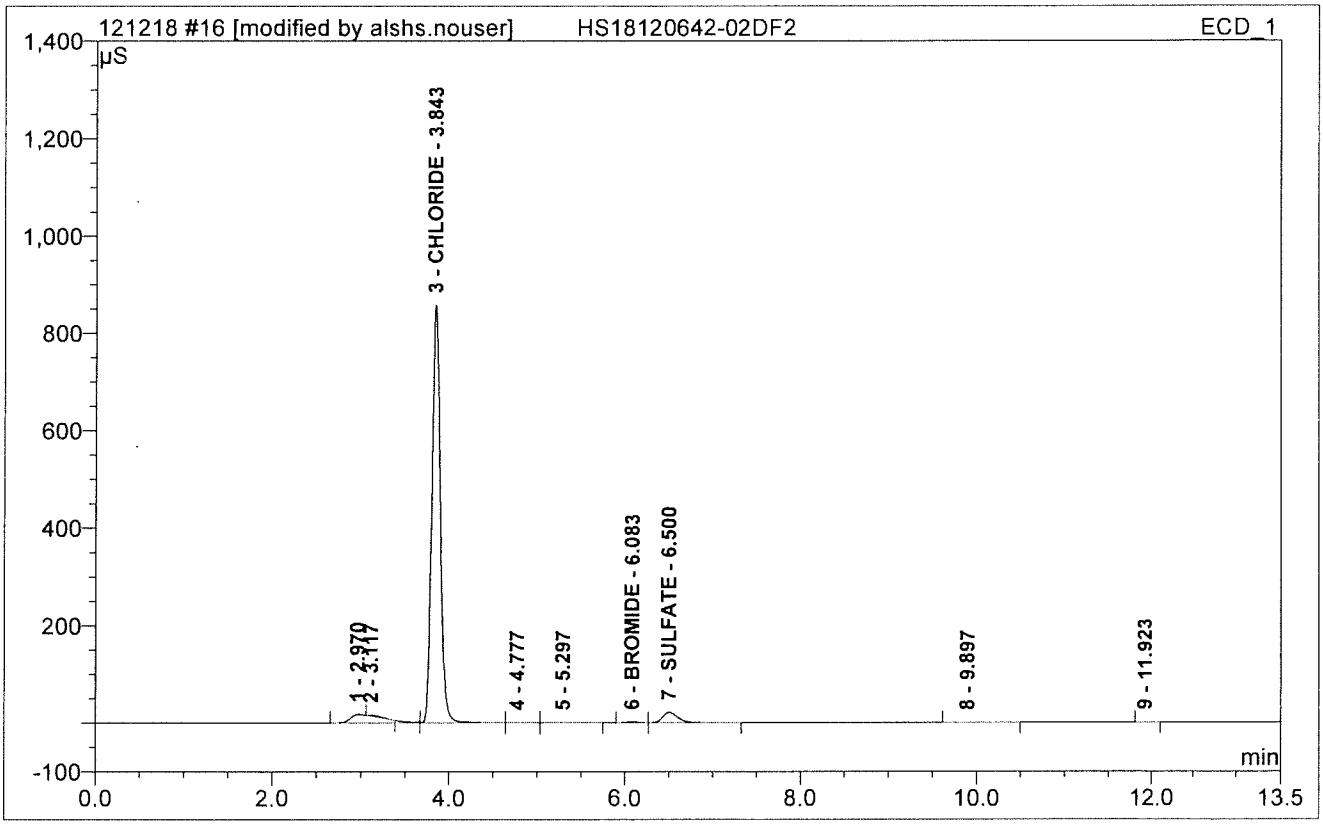
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-01DF20** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **15** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **20.** |
| *Recording Time:* | **12/12/2018 23:03** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 3 | 3.84 | CHLORIDE | 34.503 | 3.777 | 67.50 | 857.926 | 20. |
| 7 | 6.09 | BROMIDE | 0.033 | 0.005 | 0.08 | 4.099 | 20. |
| 8 | 6.55 | SULFATE | 0.176 | 0.037 | 0.66 | 16.704 | 20. |
| **Total:** | | | 34.712 | 3.818 | 68.25 | 878.729 | |

# 16 HS18120642-02DF2

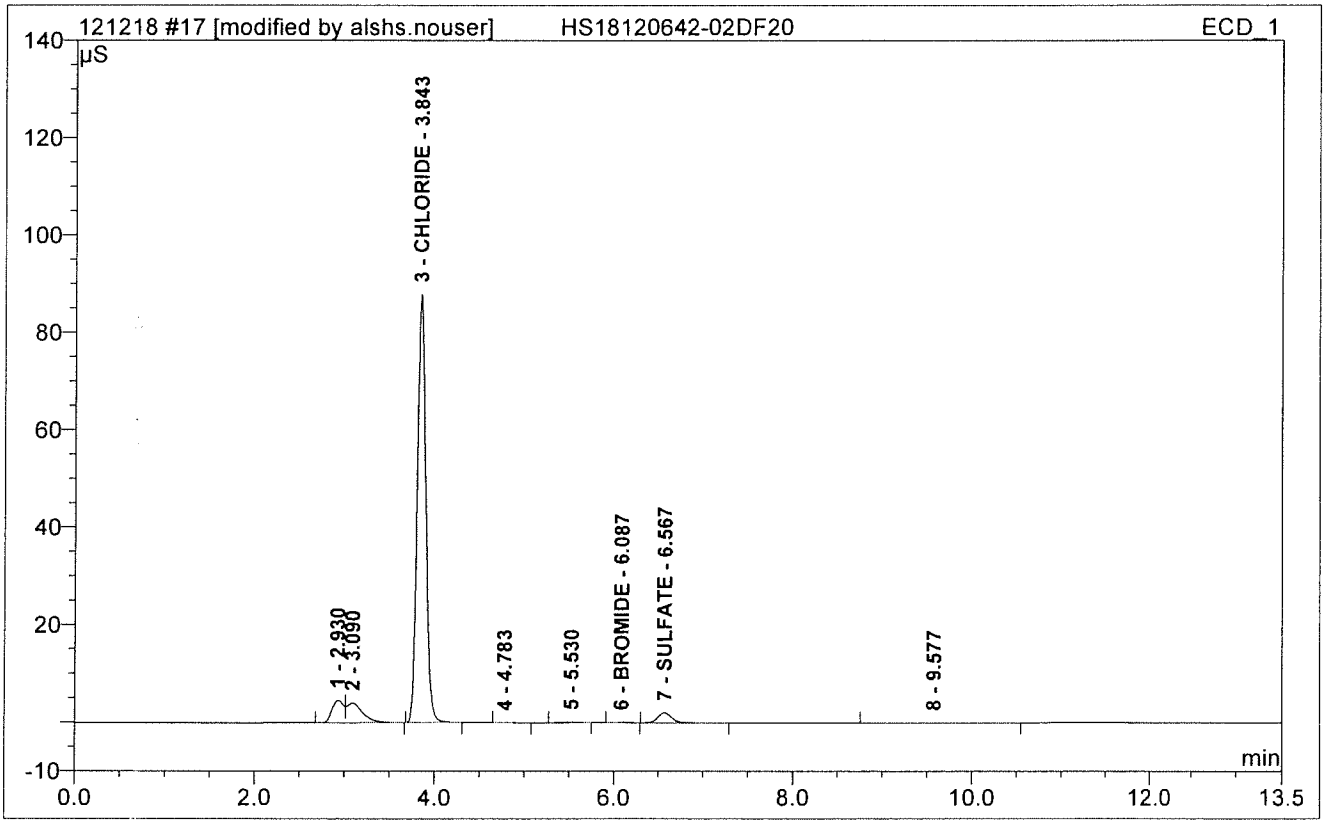
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-02DF2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **16** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **2.** |
| *Recording Time:* | **12/12/2018 23:18** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 3 | 3.84 | CHLORIDE | 858.581 | 96.653 | 88.93 | 2186.248 | 2. |
| 6 | 6.08 | BROMIDE | 1.159 | 0.162 | 0.15 | 9.379 | 2. |
| 7 | 6.50 | SULFATE | 20.851 | 4.026 | 3.70 | 126.942 | 2. |
| **Total:** | | | 880.591 | 100.841 | 92.78 | 2322.570 | |

# 17 HS18120642-02DF20

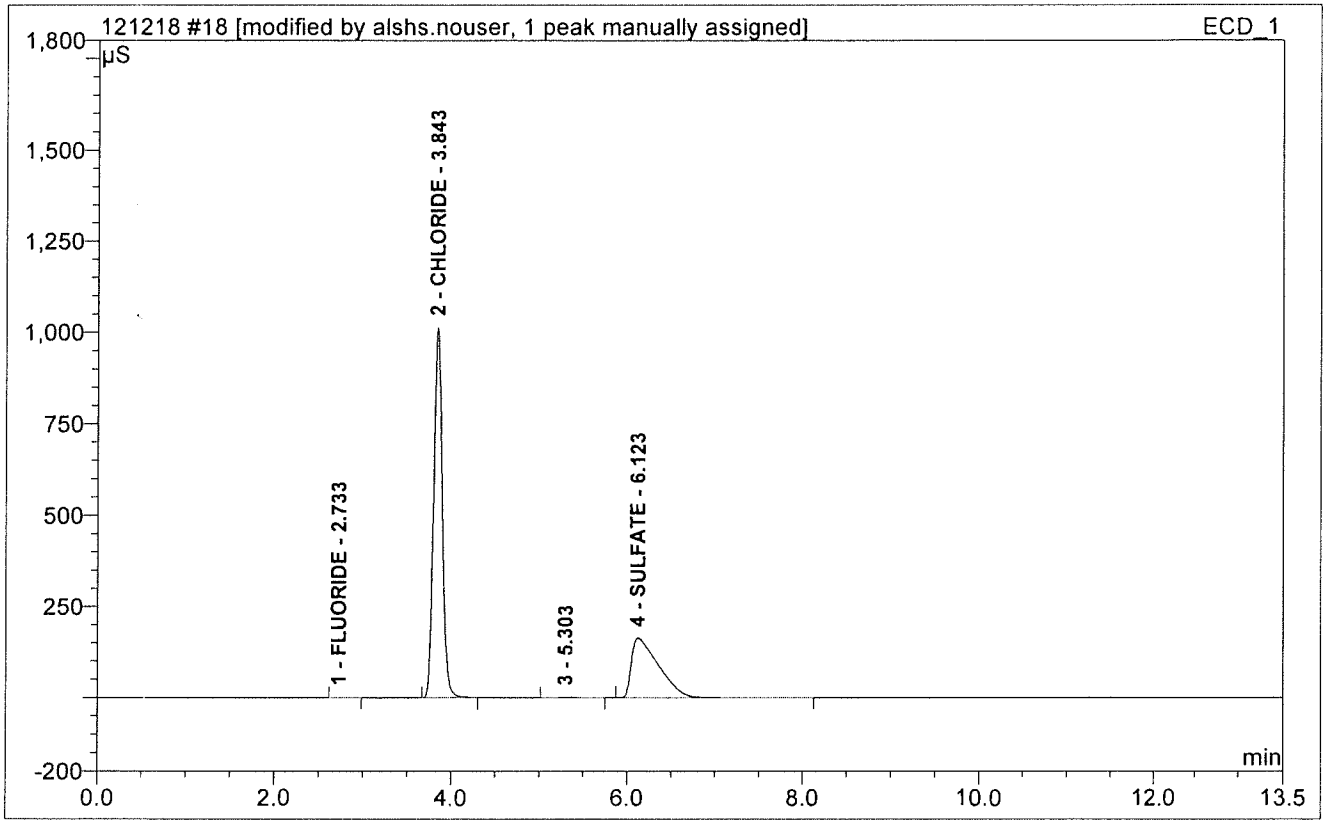
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-02DF20** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **17** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **20.** |
| *Recording Time:* | **12/12/2018 23:32** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 3 | 3.84 | CHLORIDE | 87.826 | 9.763 | 83.74 | 2211.639 | 20. |
| 6 | 6.09 | BROMIDE | 0.085 | 0.012 | 0.11 | 8.538 | 20. |
| 7 | 6.57 | SULFATE | 2.049 | 0.363 | 3.11 | 119.029 | 20. |
| **Total:** | | | 89.960 | 10.138 | 86.96 | 2339.206 | |

## 18 HS18120642-03

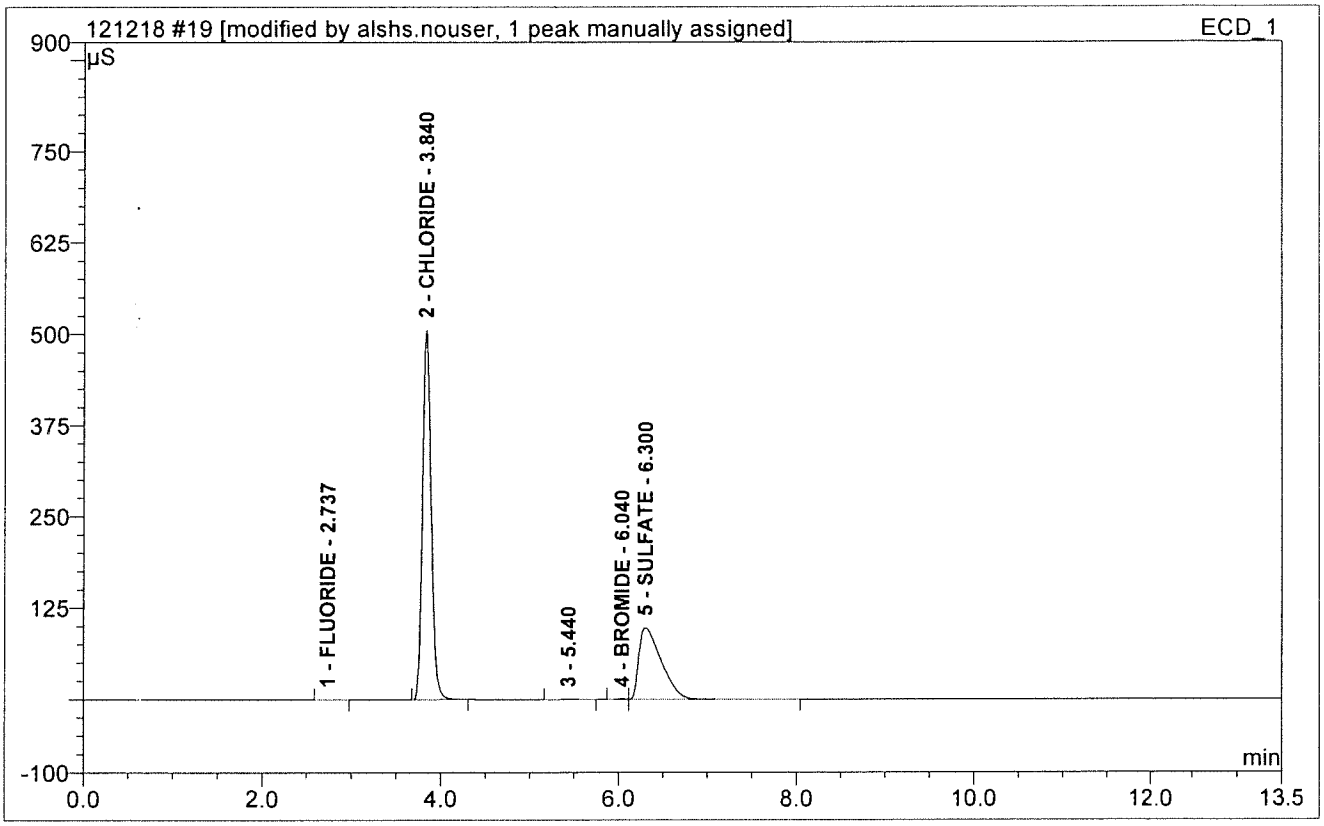
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-03** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **18** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 23:47** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.213 | 0.025 | 0.01 | 0.210 | 1. |
| 2 | 3.84 | CHLORIDE | 1011.542 | 115.465 | 66.74 | 1305.853 | 1. |
| 4 | 6.12 | SULFATE | 163.339 | 57.413 | 33.19 | 901.710 | 1. |
| **Total:** | | | 1175.094 | 172.903 | 99.94 | 2207.773 | |

# 19 HS18120642-03DF2

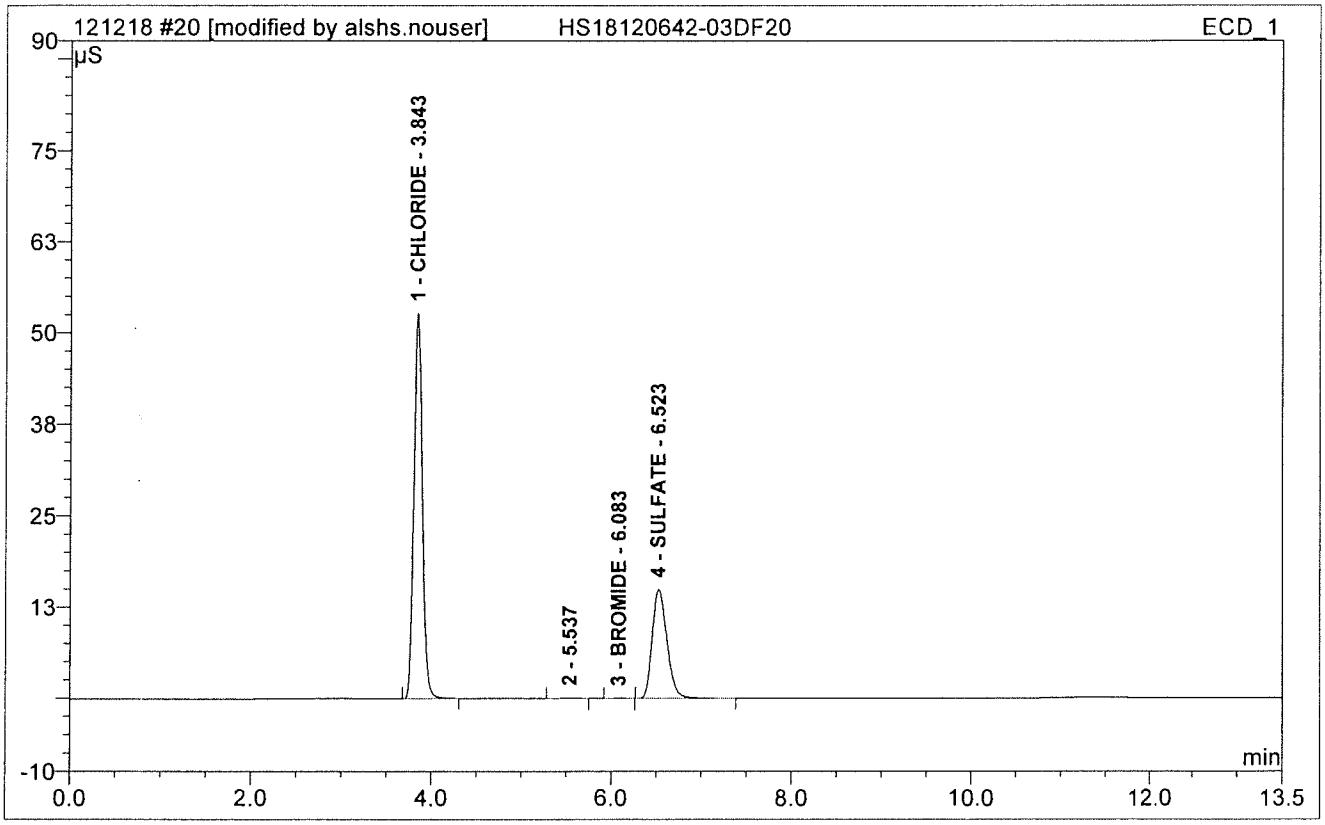
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-03DF2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **19** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **2.** |
| *Recording Time:* | **12/13/2018 0:01** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.108 | 0.012 | 0.01 | 0.240 | 2. |
| 2 | 3.84 | CHLORIDE | 505.149 | 56.704 | 66.59 | 1282.778 | 2. |
| 4 | 6.04 | BROMIDE | 0.653 | 0.079 | 0.09 | 4.683 | 2. |
| 5 | 6.30 | SULFATE | 98.229 | 28.298 | 33.23 | 889.131 | 2. |
| **Total:** | | | 604.139 | 85.094 | 99.94 | 2176.831 | |

## 20 HS18120642-03DF20

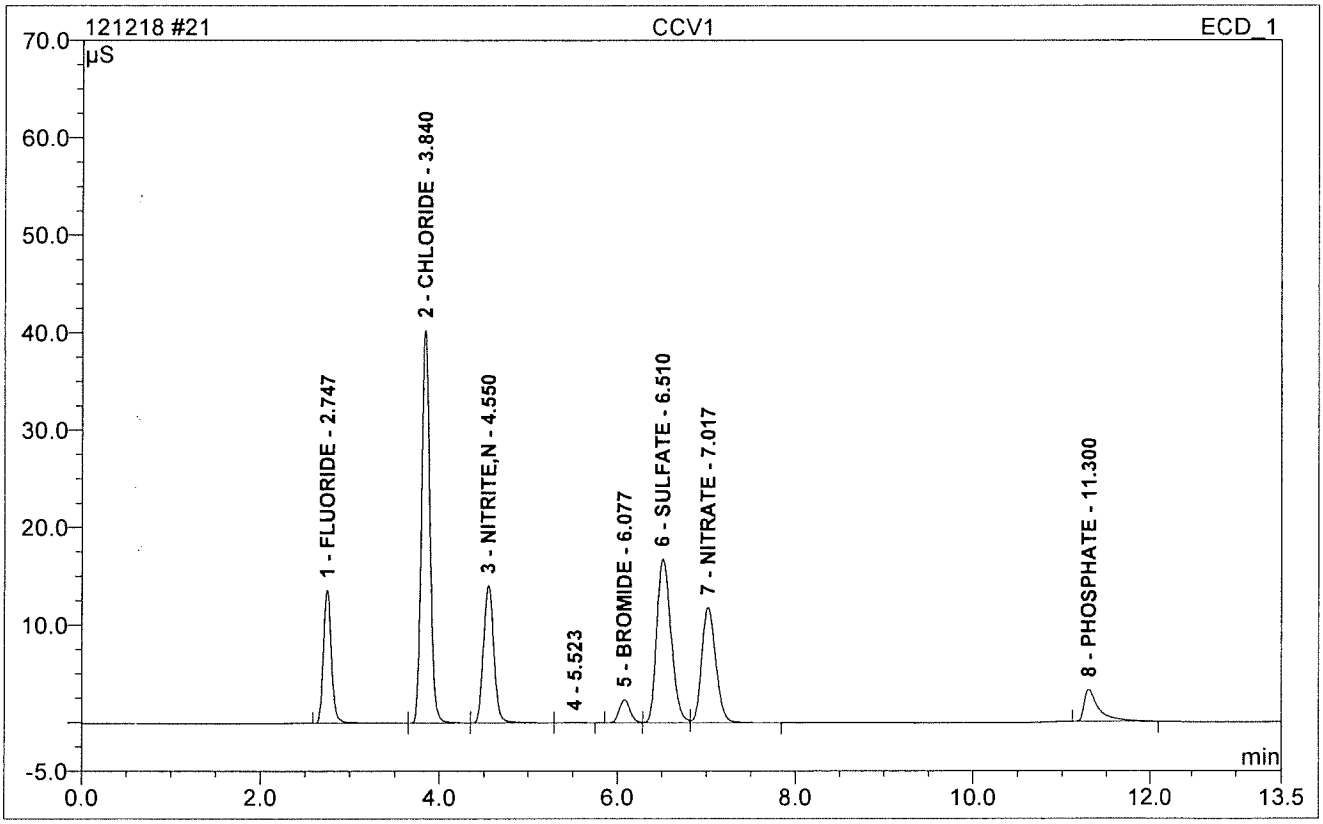
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-03DF20** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **20** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **20.** |
| *Recording Time:* | **12/13/2018 0:16** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 3.84 | CHLORIDE | 52.712 | 5.810 | 66.87 | 1317.628 | 20. |
| 3 | 6.08 | BROMIDE | 0.050 | 0.007 | 0.08 | 5.548 | 20. |
| 4 | 6.52 | SULFATE | 14.983 | 2.858 | 32.90 | 902.654 | 20. |
| **Total:** | | | 67.745 | 8.675 | 99.86 | 2225.830 | |

# 21 CCV1

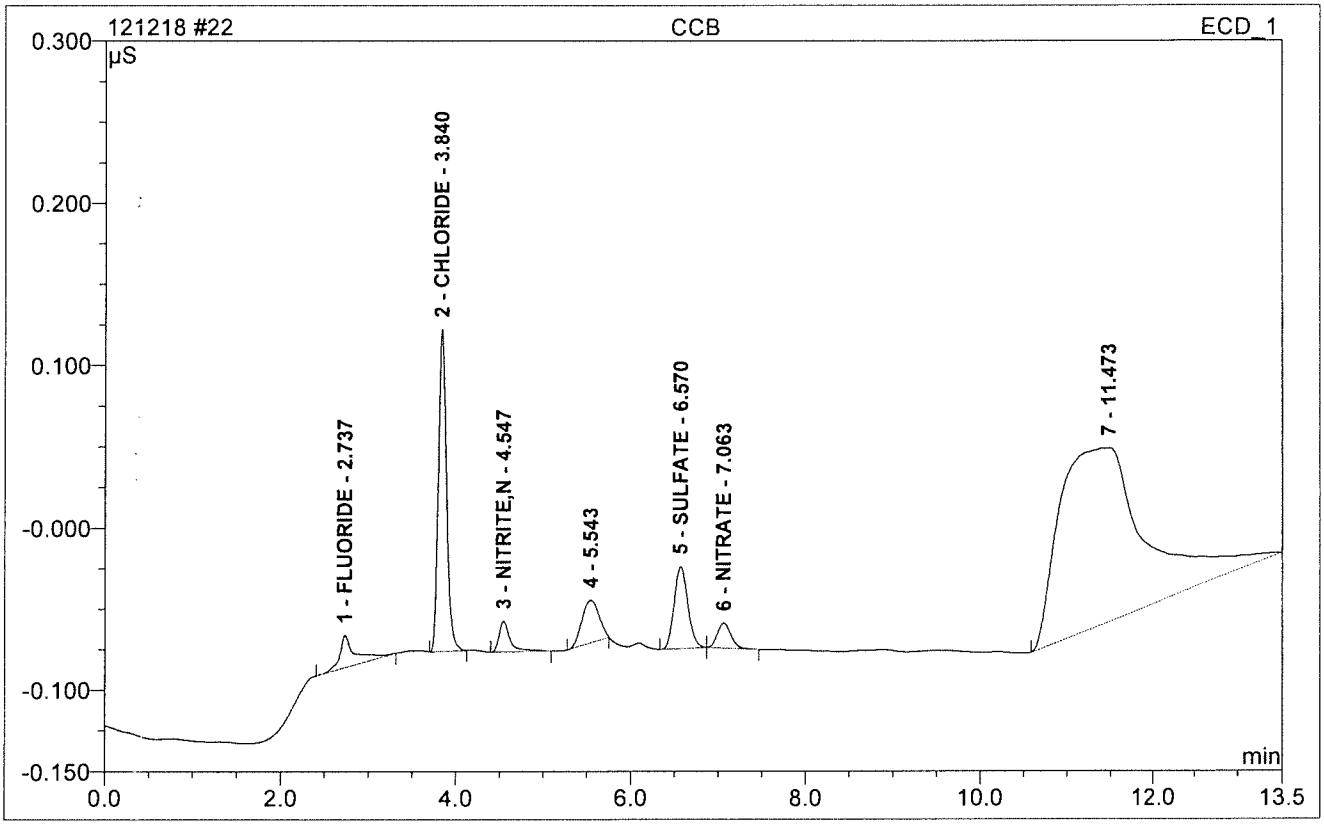
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 0:30** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | 13.664 | 1.430 | 10.13 | 10.250 | 1. |
| 2 | 3.84 | CHLORIDE | 40.342 | 4.428 | 31.35 | 50.257 | 1. |
| 3 | 4.55 | NITRITE,N | 14.114 | 1.937 | 13.71 | 10.368 | 1. |
| 5 | 6.08 | BROMIDE | 2.387 | 0.343 | 2.43 | 9.842 | 1. |
| 6 | 6.51 | SULFATE | 16.816 | 3.162 | 22.39 | 49.906 | 1. |
| 7 | 7.02 | NITRATE | 11.898 | 2.188 | 15.49 | 10.086 | 1. |
| 8 | 11.30 | PHOSPHATE | 3.328 | 0.625 | 4.43 | 8.502 | 1. |
| **Total:** | | | 102.550 | 14.113 | 99.93 | 149.212 | |

# 22 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 0:45** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

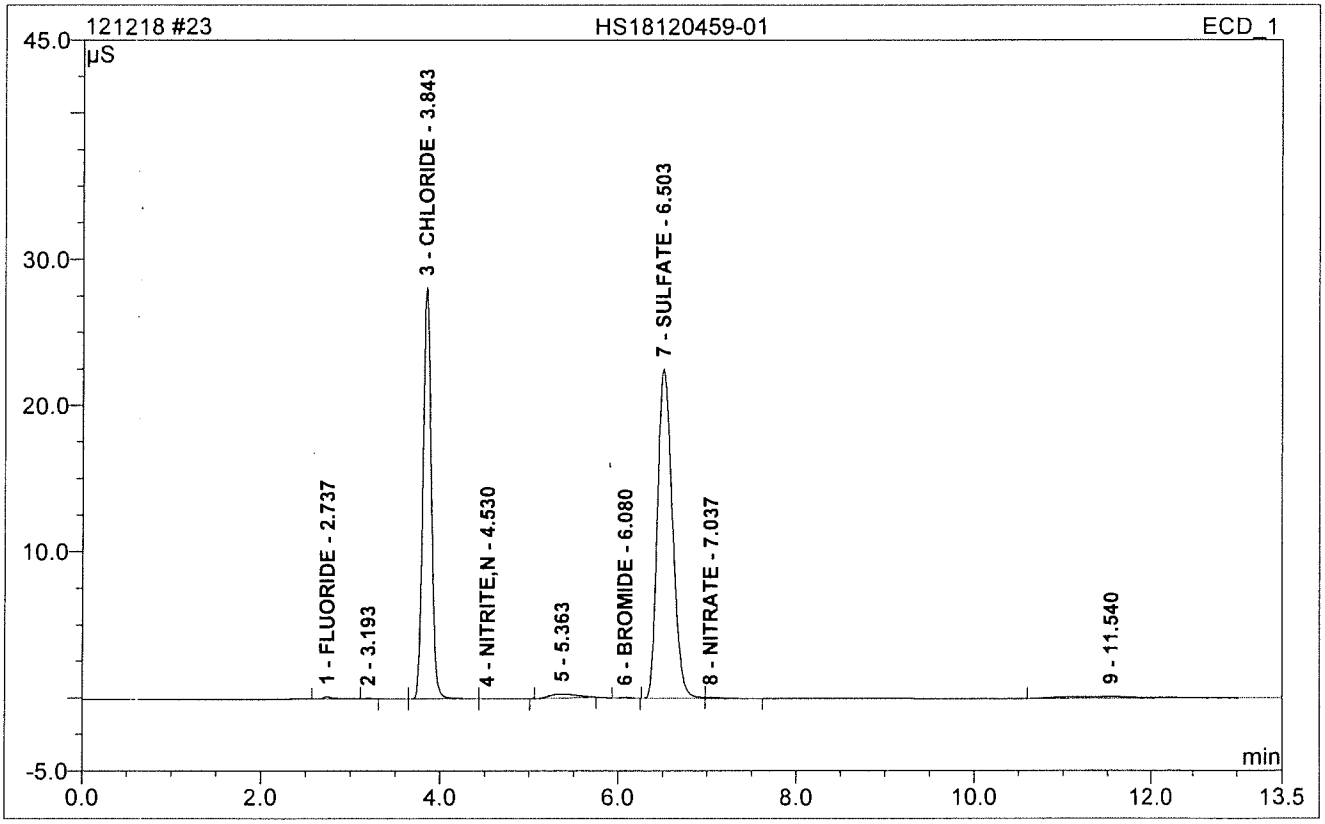



| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.020 | 0.004 | 2.33 | 0.062 | 1. |
| 2 | 3.84 | CHLORIDE | 0.198 | 0.021 | 12.37 | 0.430 | 1. |
| 3 | 4.55 | NITRITE,N | 0.019 | 0.003 | 1.63 | 0.037 | 1. |
| 5 | 6.57 | SULFATE | 0.051 | 0.009 | 5.35 | 0.399 | 1. |
| 6 | 7.06 | NITRATE | 0.016 | 0.003 | 1.62 | 0.071 | 1. |
| **Total:** | | | 0.304 | 0.040 | 23.30 | 0.999 | |

## 23 HS18120459-01

**9056_W**

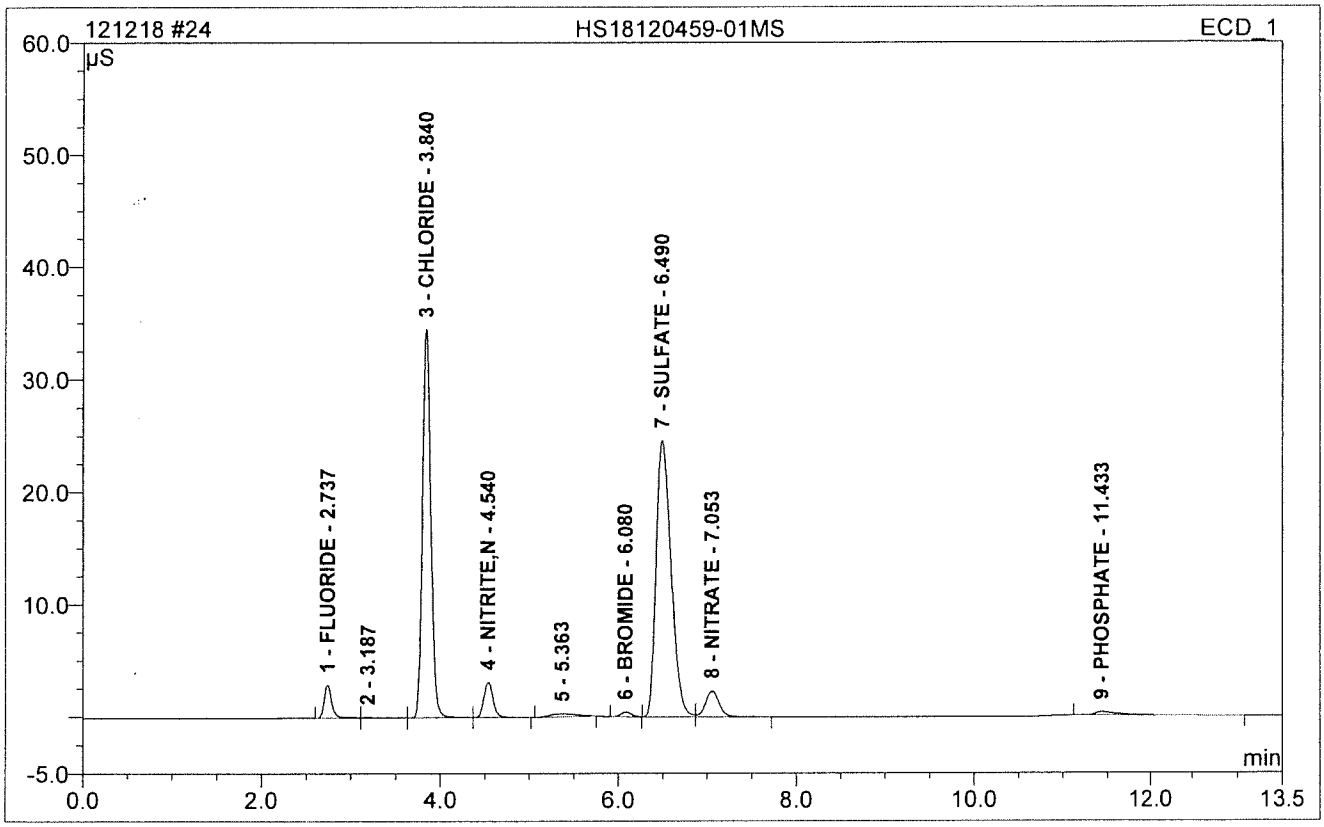
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120459-01** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **24** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 0:59** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.167 | 0.028 | 0.36 | 0.232 | 1. |
| 3 | 3.84 | CHLORIDE | 28.141 | 3.062 | 39.35 | 34.817 | 1. |
| 4 | 4.53 | NITRITE,N | 0.017 | 0.003 | 0.04 | 0.041 | 1. |
| 6 | 6.08 | BROMIDE | 0.050 | 0.007 | 0.09 | 0.269 | 1. |
| 7 | 6.50 | SULFATE | 22.532 | 4.423 | 56.83 | 69.693 | 1. |
| 8 | 7.04 | NITRATE | 0.081 | 0.017 | 0.21 | 0.135 | 1. |
| **Total:** | | | 50.988 | 7.540 | 96.88 | 105.186 | |

# 24 HS18120459-01MS

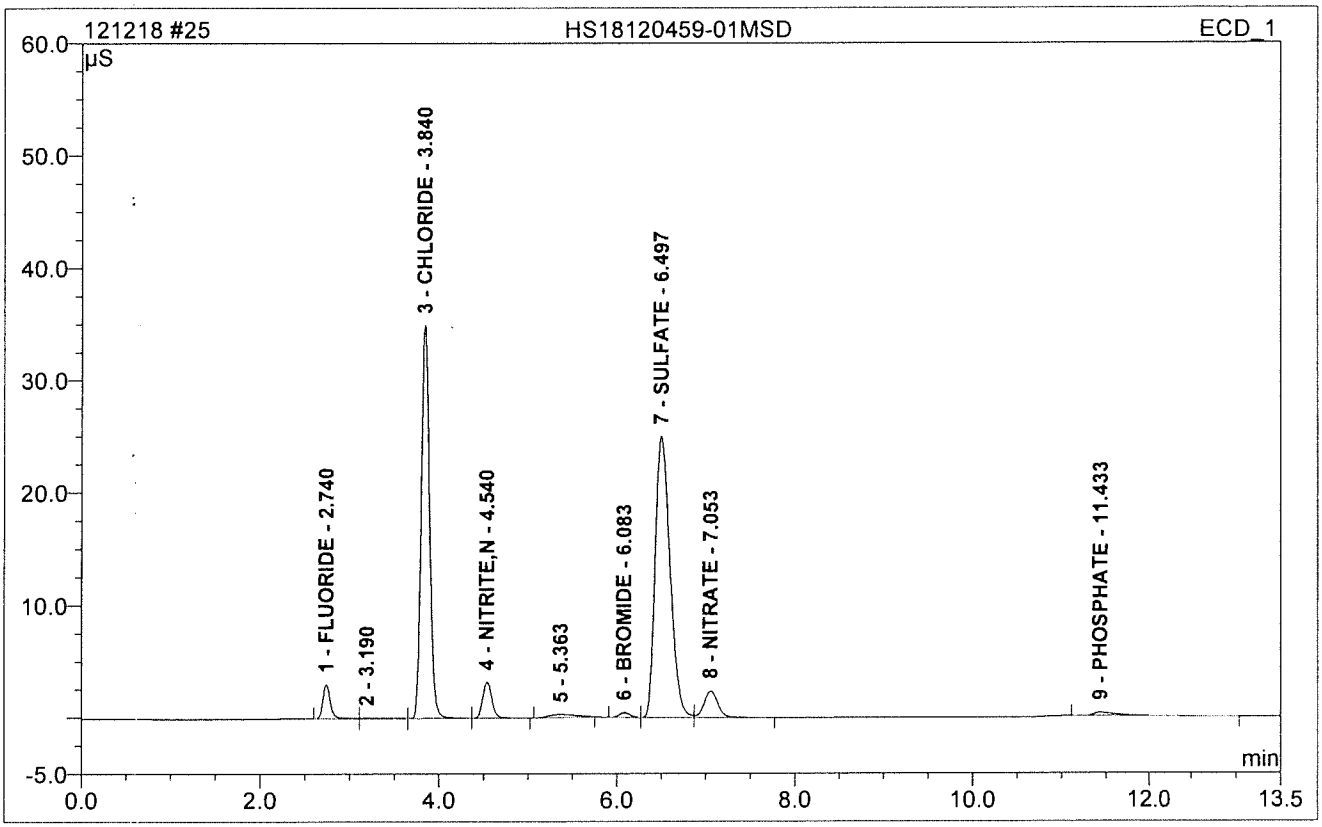
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120459-01MS** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **25** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 1:14** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 2.931 | 0.288 | 2.92 | 2.092 | 1. |
| 3 | 3.84 | CHLORIDE | 34.518 | 3.763 | 38.08 | 42.734 | 1. |
| 4 | 4.54 | NITRITE,N | 3.161 | 0.377 | 3.81 | 2.035 | 1. |
| 6 | 6.08 | BROMIDE | 0.411 | 0.057 | 0.57 | 1.689 | 1. |
| 7 | 6.49 | SULFATE | 24.647 | 4.805 | 48.64 | 75.697 | 1. |
| 8 | 7.05 | NITRATE | 2.297 | 0.403 | 4.08 | 1.906 | 1. |
| 9 | 11.43 | PHOSPHATE | 0.287 | 0.084 | 0.85 | 1.198 | 1. |
| **Total:** | | | 68.251 | 9.776 | 98.95 | 127.352 | |

## 25 HS18120459-01MSD

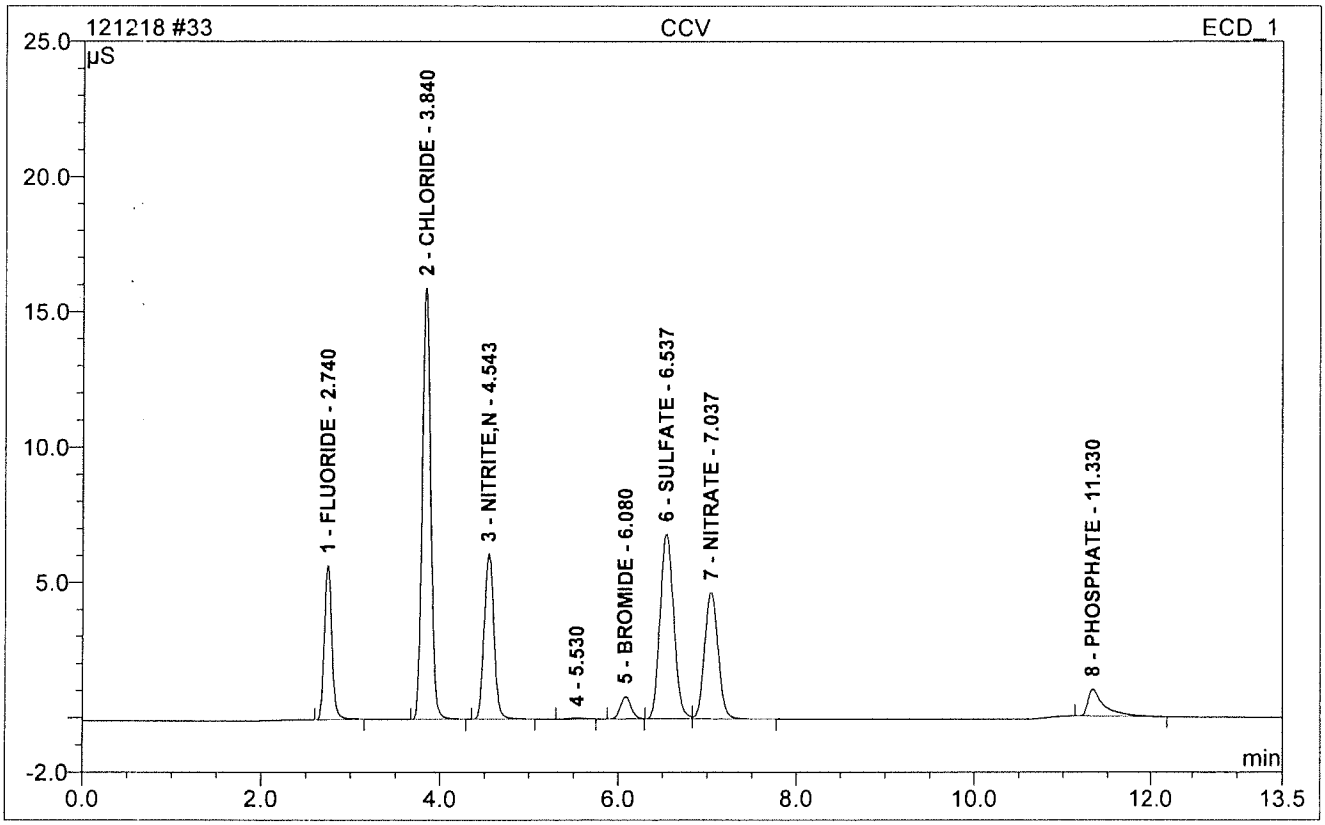
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120459-01MSD** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **26** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 1:29** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 3.028 | 0.298 | 2.97 | 2.160 | 1. |
| 3 | 3.84 | CHLORIDE | 34.965 | 3.813 | 38.07 | 43.301 | 1. |
| 4 | 4.54 | NITRITE,N | 3.257 | 0.390 | 3.89 | 2.103 | 1. |
| 6 | 6.08 | BROMIDE | 0.426 | 0.059 | 0.59 | 1.751 | 1. |
| 7 | 6.50 | SULFATE | 25.019 | 4.845 | 48.38 | 76.328 | 1. |
| 8 | 7.05 | NITRATE | 2.369 | 0.418 | 4.17 | 1.973 | 1. |
| 9 | 11.43 | PHOSPHATE | 0.298 | 0.089 | 0.89 | 1.267 | 1. |
| **Total:** | | | 69.361 | 9.911 | 98.96 | 128.884 | |

# 33 CCV

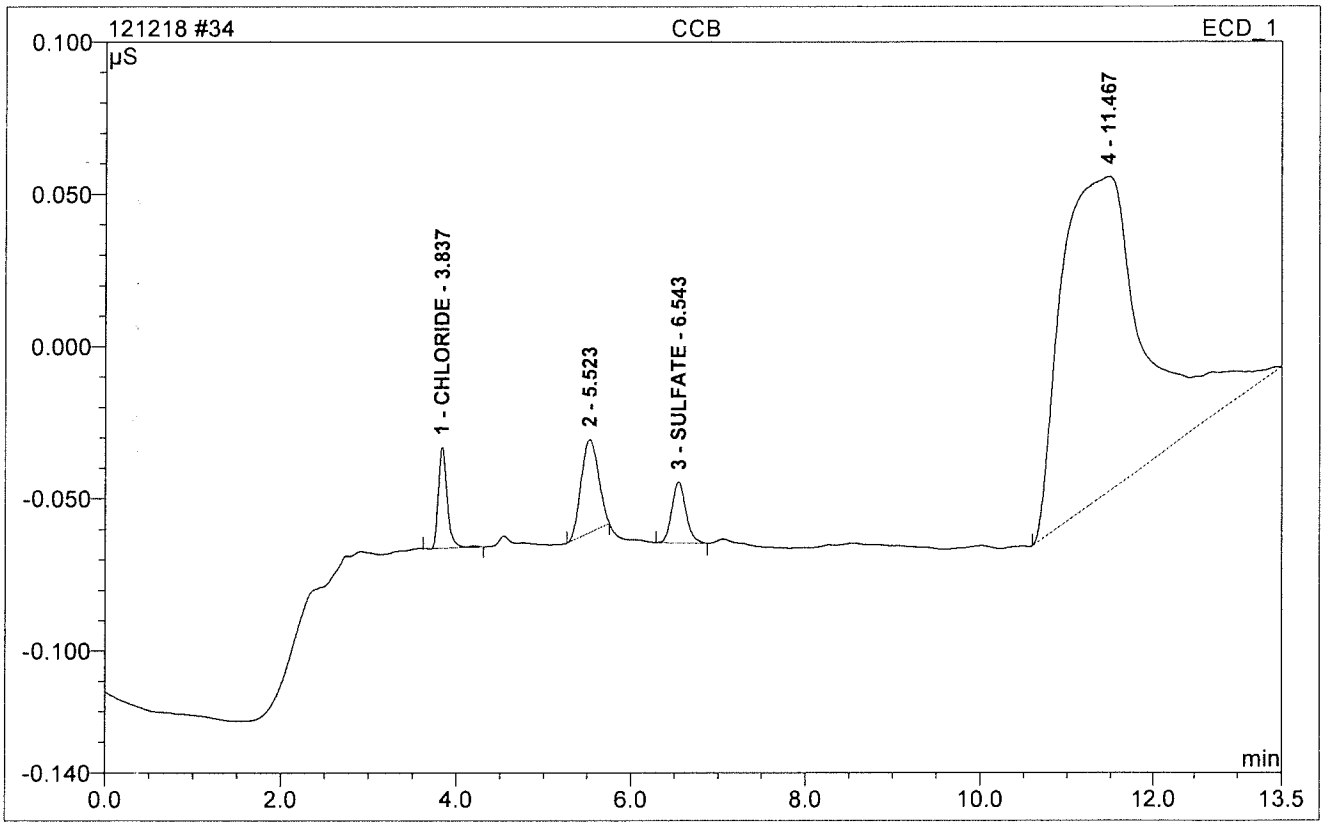
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 3:25** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 5.712 | 0.563 | 10.32 | 4.055 | 1. |
| 2 | 3.84 | CHLORIDE | 15.944 | 1.730 | 31.71 | 19.752 | 1. |
| 3 | 4.54 | NITRITE,N | 6.123 | 0.781 | 14.31 | 4.193 | 1. |
| 5 | 6.08 | BROMIDE | 0.827 | 0.116 | 2.13 | 3.383 | 1. |
| 6 | 6.54 | SULFATE | 6.840 | 1.227 | 22.49 | 19.517 | 1. |
| 7 | 7.04 | NITRATE | 4.692 | 0.825 | 15.11 | 3.837 | 1. |
| 8 | 11.33 | PHOSPHATE | 0.991 | 0.207 | 3.80 | 2.860 | 1. |
| **Total:** | | | 41.129 | 5.448 | 99.86 | 57.596 | |

## 34 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 3:40** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 3.84 | CHLORIDE | 0.033 | 0.004 | 2.83 | 0.231 | 1. |
| 3 | 6.54 | SULFATE | 0.020 | 0.004 | 2.77 | 0.312 | 1. |
| **Total:** | | | 0.053 | 0.007 | 5.60 | 0.543 | |

HS18120642

Sequence: 121318
Operator: ALSHS.NoUser


Printed: 1/21/2019 6:41:39 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume |
|---|---|---|---|---|---|---|---|---|
| 1 | STD1 | | Standard | 91 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 2 | STD2 | | Standard | 92 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 3 | STD3 | | Standard | 93 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 4 | STD4 | | Standard | 94 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 5 | STD5 | | Standard | 95 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 6 | STD6 | | Standard | 96 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 7 | ICV | | Unknown | 97 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 8 | ICB | | Unknown | 98 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 9 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 10 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 11 | MBLK-135564 | | Unknown | 11 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 12 | LCS-135564 | | Unknown | 12 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 13 | LCSD-135564 | | Unknown | 13 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 14 | HS18120413-02DF10 | | Unknown | 14 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 15 | HS18120413-04 | | Unknown | 15 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 16 | HS18120413-06DF5 | | Unknown | 16 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 17 | HS18120413-08DF20 | | Unknown | 17 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 18 | HS18120413-08MSDF20 | | Unknown | 18 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 19 | HS18120413-08MSDDF20 | | Unknown | 19 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 20 | HS18120413-10DF10 | | Unknown | 20 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 21 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 22 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 23 | WBLKW1-121318 | | Unknown | 21 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 24 | WLCSW1-121318 | | Unknown | 22 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 25 | WLCSDW1-121318 | | Unknown | 23 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 26 | HS18120736-03 | | Unknown | 28 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 27 | HS18120736-03DF5 | | Unknown | 29 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 28 | HS18120736-04 | | Unknown | 30 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 29 | HS18120736-04MS | | Unknown | 31 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 30 | HS18120736-04MSD | | Unknown | 32 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 31 | HS18120783-01 | | Unknown | 42 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 32 | HS18111386-01 | | Unknown | 36 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 33 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 34 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 35 | HS18120736-01DF2 | | Unknown | 24 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 36 | HS18120736-01DF50 | | Unknown | 25 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 37 | HS18120736-02DF2 | | Unknown | 26 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 38 | HS18120736-02DF50 | | Unknown | 27 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 39 | HS18120736-01 | | Unknown | 45 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 40 | HS18120757-01 | | Unknown | 37 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 41 | HS18120757-02 | | Unknown | 38 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 42 | HS18120757-02MS | | Unknown | 39 | 1.0000 | 10.0 | 1.00 | 1.00 |

Chromeleon © Dionex Corporation, Version 6.80 SR8 Build 2623 (156243)

Sequence: 121318
Operator: ALSHS.NoUser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Method | Status | Inj. Date/Time | Program |
|---|---|---|---|---|---|
| 1 | STD1 | 121218 | Finished | 12/12/2018 3:52:35 PM | Anions Gradient Program |
| 2 | STD2 | 121218 | Finished | 12/12/2018 4:07:08 PM | Anions Gradient Program |
| 3 | STD3 | 121218 | Finished | 12/12/2018 4:21:41 PM | Anions Gradient Program |
| 4 | STD4 | 121218 | Finished | 12/12/2018 4:36:13 PM | Anions Gradient Program |
| 5 | STD5 | 121218 | Finished | 12/12/2018 4:50:46 PM | Anions Gradient Program |
| 6 | STD6 | 121218 | Finished | 12/12/2018 5:05:19 PM | Anions Gradient Program |
| 7 | ICV | 121218 | Finished | 12/12/2018 5:19:52 PM | Anions Gradient Program |
| 8 | ICB | 121218 | Finished | 12/12/2018 5:34:25 PM | Anions Gradient Program |
| 9 | CCV | 121218 | Finished | 12/13/2018 12:10:57 PM | Anions Gradient Program |
| 10 | CCB | 121218 | Finished | 12/13/2018 12:25:30 PM | Anions Gradient Program |
| 11 | MBLK-135564 | 121218 | Finished | 12/13/2018 1:17:50 PM | Anions Gradient Program |
| 12 | LCS-135564 | 121218 | Finished | 12/13/2018 1:32:23 PM | Anions Gradient Program |
| 13 | LCSD-135564 | 121218 | Finished | 12/13/2018 1:46:56 PM | Anions Gradient Program |
| 14 | HS18120413-02DF10 | 121218 | Finished | 12/13/2018 2:01:29 PM | Anions Gradient Program |
| 15 | HS18120413-04 | 121218 | Finished | 12/13/2018 2:16:03 PM | Anions Gradient Program |
| 16 | HS18120413-06DF5 | 121218 | Finished | 12/13/2018 2:30:35 PM | Anions Gradient Program |
| 17 | HS18120413-08DF20 | 121218 | Finished | 12/13/2018 2:45:08 PM | Anions Gradient Program |
| 18 | HS18120413-08MSDF20 | 121218 | Finished | 12/13/2018 2:59:41 PM | Anions Gradient Program |
| 19 | HS18120413-08MSDDF20 | 121218 | Finished | 12/13/2018 3:14:13 PM | Anions Gradient Program |
| 20 | HS18120413-10DF10 | 121218 | Finished | 12/13/2018 3:28:46 PM | Anions Gradient Program |
| 21 | CCV1 | 121218 | Finished | 12/13/2018 3:43:18 PM | Anions Gradient Program |
| 22 | CCB | 121218 | Finished | 12/13/2018 3:57:51 PM | Anions Gradient Program |
| 23 | WBLKW1-121318 | 121218 | Finished | 12/13/2018 4:12:24 PM | Anions Gradient Program |
| 24 | WLCSW1-121318 | 121218 | Finished | 12/13/2018 4:26:57 PM | Anions Gradient Program |
| 25 | WLCSDW1-121318 | 121218 | Finished | 12/13/2018 4:41:30 PM | Anions Gradient Program |
| 26 | HS18120736-03 | 121218 | Finished | 12/13/2018 4:56:02 PM | Anions Gradient Program |
| 27 | HS18120736-03DF5 | 121218 | Finished | 12/13/2018 5:10:35 PM | Anions Gradient Program |
| 28 | HS18120736-04 | 121218 | Finished | 12/13/2018 5:25:08 PM | Anions Gradient Program |
| 29 | HS18120736-04MS | 121218 | Finished | 12/13/2018 5:39:41 PM | Anions Gradient Program |
| 30 | HS18120736-04MSD | 121218 | Finished | 12/13/2018 5:54:13 PM | Anions Gradient Program |
| 31 | HS18120783-01 | 121218 | Finished | 12/13/2018 6:08:46 PM | Anions Gradient Program |
| 32 | HS18111386-01 | 121218 | Finished | 12/13/2018 6:23:19 PM | Anions Gradient Program |
| 33 | CCV | 121218 | Finished | 12/13/2018 6:37:51 PM | Anions Gradient Program |
| 34 | CCB | 121218 | Finished | 12/13/2018 6:52:24 PM | Anions Gradient Program |
| 35 | HS18120736-01DF2 | 121218 | Finished | 12/13/2018 7:24:41 PM | Anions Gradient Program |
| 36 | HS18120736-01DF50 | 121218 | Finished | 12/13/2018 7:39:14 PM | Anions Gradient Program |
| 37 | HS18120736-02DF2 | 121218 | Finished | 12/13/2018 7:53:48 PM | Anions Gradient Program |
| 38 | HS18120736-02DF50 | 121218 | Finished | 12/13/2018 8:08:20 PM | Anions Gradient Program |
| 39 | HS18120736-01 | 121218 | Finished | 12/13/2018 8:37:43 PM | Anions Gradient Program |
| 40 | HS18120757-01 | 121218 | Finished | 12/13/2018 8:52:16 PM | Anions Gradient Program |
| 41 | HS18120757-02 | 121218 | Finished | 12/13/2018 9:06:49 PM | Anions Gradient Program |
| 42 | HS18120757-02MS | 121218 | Finished | 12/13/2018 9:21:22 PM | Anions Gradient Program |

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Sequence: 121318
Operator: ALSHS.NoUser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | GUID |
|---|---|---|
| 1 | STD1 | 1ad81188-fe58-11e8-b6da-a24899608423 |
| 2 | STD2 | 2312cf21-fe5a-11e8-b6da-a24899608423 |
| 3 | STD3 | 2b6c8b0b-fe5c-11e8-b6da-a24899608423 |
| 4 | STD4 | 3332765f-fe5e-11e8-b6da-a24899608423 |
| 5 | STD5 | 3b9f44f1-fe60-11e8-b6da-a24899608423 |
| 6 | STD6 | 43711bee-fe62-11e8-b6da-a24899608423 |
| 7 | ICV | 4be5117f-fe64-11e8-b6da-a24899608423 |
| 8 | ICB | 544d1b67-fe66-11e8-b6da-a24899608423 |
| 9 | CCV | 4f2554d2-ff02-11e8-b6da-a24899608423 |
| 10 | CCB | 56f004d0-ff04-11e8-b6da-a24899608423 |
| 11 | MBLK-135564 | 47503773-ff0b-11e8-b6da-a24899608423 |
| 12 | LCS-135564 | ae81b8c5-ff0d-11e8-b6da-a24899608423 |
| 13 | LCSD-135564 | b7255cfa-ff0f-11e8-b6da-a24899608423 |
| 14 | HS18120413-02DF10 | bf918c4f-ff11-11e8-b6da-a24899608423 |
| 15 | HS18120413-04 | c87b2097-ff13-11e8-b6da-a24899608423 |
| 16 | HS18120413-06DF5 | d0bc1d17-ff15-11e8-b6da-a24899608423 |
| 17 | HS18120413-08DF20 | d8f9c809-ff17-11e8-b6da-a24899608423 |
| 18 | HS18120413-08MSDF20 | e0deb1ae-ff19-11e8-b6da-a24899608423 |
| 19 | HS18120413-08MSDDF20 | e91bd19c-ff1b-11e8-b6da-a24899608423 |
| 20 | HS18120413-10DF10 | f164dd33-ff1d-11e8-b6da-a24899608423 |
| 21 | CCV1 | f94e8b82-ff1f-11e8-b6da-a24899608423 |
| 22 | CCB | 0167e875-ff22-11e8-b6da-a24899608423 |
| 23 | WBLKW1-121318 | 09a50863-ff24-11e8-b6da-a24899608423 |
| 24 | WLCSW1-121318 | 11dfc5fc-ff26-11e8-b6da-a24899608423 |
| 25 | WLCSDW1-121318 | 1a2ff892-ff28-11e8-b6da-a24899608423 |
| 26 | HS18120736-03 | 226ab62b-ff2a-11e8-b6da-a24899608423 |
| 27 | HS18120736-03DF5 | 2a4adb26-ff2c-11e8-b6da-a24899608423 |
| 28 | HS18120736-04 | 32b54763-ff2e-11e8-b6da-a24899608423 |
| 29 | HS18120736-04MS | 3afe52fa-ff30-11e8-b6da-a24899608423 |
| 30 | HS18120736-04MSD | 43344be9-ff32-11e8-b6da-a24899608423 |
| 31 | HS18120783-01 | 4b16d339-ff34-11e8-b6da-a24899608423 |
| 32 | HS18111386-01 | 536e2cce-ff36-11e8-b6da-a24899608423 |
| 33 | CCV | 5ba425bd-ff38-11e8-b6da-a24899608423 |
| 34 | CCB | 63ed3154-ff3a-11e8-b6da-a24899608423 |
| 35 | HS18120736-01DF2 | 876241de-ff3e-11e8-b6da-a24899608423 |
| 36 | HS18120736-01DF50 | eeb2c181-ff40-11e8-b6da-a24899608423 |
| 37 | HS18120736-02DF2 | f72dde11-ff42-11e8-b6da-a24899608423 |
| 38 | HS18120736-02DF50 | ff8c5ea5-ff44-11e8-b6da-a24899608423 |
| 39 | HS18120736-01 | bb0e010d-ff48-11e8-b6da-a24899608423 |
| 40 | HS18120757-01 | 229c7d52-ff4b-11e8-b6da-a24899608423 |
| 41 | HS18120757-02 | 2ae588e9-ff4d-11e8-b6da-a24899608423 |
| 42 | HS18120757-02MS | 3348ce27-ff4f-11e8-b6da-a24899608423 |

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Sequence: 121318
Operator: ALSHS.NoUser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume |
|---|---|---|---|---|---|---|---|---|
| 43 | HS18120757-02MSD | | Unknown | 40 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 44 | HS18120642-02DF50 | | Unknown | 46 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 45 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 46 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 47 | HS18111386-01DF2 | | Unknown | 44 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 48 | HS18120741-01DF10 | | Unknown | 41 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 49 | HS18111369-01DF20 | | Unknown | 33 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 50 | HS18111369-01DF400 | | Unknown | 34 | 400.0000 | 10.0 | 1.00 | 1.00 |
| 51 | HS18111369-01DF4000 | | Unknown | 35 | 4000.0000 | 10.0 | 1.00 | 1.00 |
| 52 | HS18111473-01DF20 | | Unknown | 47 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 53 | HS18111473-01DF400 | | Unknown | 48 | 400.0000 | 10.0 | 1.00 | 1.00 |
| 54 | HS18111473-02DF20 | | Unknown | 49 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 55 | HS18111473-02DF400 | | Unknown | 50 | 400.0000 | 10.0 | 1.00 | 1.00 |
| 56 | HS18111377-12DF50 | | Unknown | 51 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 57 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 58 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 59 | HS18111377-14 | | Unknown | 52 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 60 | HS18111377-13DF50 | | Unknown | 53 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 61 | HS18111377-11DF10 | | Unknown | 54 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 62 | HS18111377-10 | | Unknown | 55 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 63 | HS18111377-09 | | Unknown | 56 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 64 | HS18111377-08DF5 | | Unknown | 57 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 65 | HS18120449-02 | | Unknown | 70 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 66 | HS18120449-03 | | Unknown | 71 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 67 | HS18120312-01 | | Unknown | 76 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 68 | HS18120312-02 | | Unknown | 77 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 69 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 70 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 71 | HS18120305-01 | | Unknown | 72 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 72 | HS18120305-01MS | | Unknown | 73 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 73 | HS18120305-01MSD | | Unknown | 74 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 74 | HS18120306-01 | | Unknown | 75 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 75 | HS18120315-01 | | Unknown | 78 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 76 | HS18120315-02 | | Unknown | 79 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 77 | HS18120432-01 | | Unknown | 80 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 78 | HS18120432-02 | | Unknown | 81 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 79 | HS18120435-01 | | Unknown | 82 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 80 | HS18120435-02 | | Unknown | 83 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 81 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 82 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 83 | WBLKW1-121418 | | Unknown | 67 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 84 | WLCSW1-121418 | | Unknown | 68 | 1.0000 | 10.0 | 1.00 | 1.00 |

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Sequence: 121318 Page 5 of 12
Operator: ALSHS.NoUser Printed: 1/21/2019 6:41:39 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100 Created: 12/13/2018 7:20:14 PM by alshs.nouser
#Samples: 153 (Modified, not saved)

| No. | Name | Method | Status | Inj. Date/Time | Program |
|---|---|---|---|---|---|
| 43 | HS18120757-02MSD | 121218 | Finished | 12/13/2018 9:35:55 PM | Anions Gradient Program |
| 44 | HS18120642-02DF50 | 121218 | Finished | 12/13/2018 9:50:28 PM | Anions Gradient Program |
| 45 | CCV1 | 121218 | Finished | 12/13/2018 10:05:00 PM | Anions Gradient Program |
| 46 | CCB | 121218 | Finished | 12/13/2018 10:19:32 PM | Anions Gradient Program |
| 47 | HS18111386-01DF2 | 121218 | Finished | 12/13/2018 10:44:24 PM | Anions Gradient Program |
| 48 | HS18120741-01DF10 | 121218 | Finished | 12/13/2018 10:58:57 PM | Anions Gradient Program |
| 49 | HS18111369-01DF20 | 121218 | Finished | 12/13/2018 11:13:30 PM | Anions Gradient Program |
| 50 | HS18111369-01DF400 | 121218 | Finished | 12/13/2018 11:28:03 PM | Anions Gradient Program |
| 51 | HS18111369-01DF4000 | 121218 | Finished | 12/13/2018 11:42:36 PM | Anions Gradient Program |
| 52 | HS18111473-01DF20 | 121218 | Finished | 12/13/2018 11:57:09 PM | Anions Gradient Program |
| 53 | HS18111473-01DF400 | 121218 | Finished | 12/14/2018 12:11:41 AM | Anions Gradient Program |
| 54 | HS18111473-02DF20 | 121218 | Finished | 12/14/2018 12:26:14 AM | Anions Gradient Program |
| 55 | HS18111473-02DF400 | 121218 | Finished | 12/14/2018 12:40:47 AM | Anions Gradient Program |
| 56 | HS18111377-12DF50 | 121218 | Finished | 12/14/2018 12:55:20 AM | Anions Gradient Program |
| 57 | CCV | 121218 | Finished | 12/14/2018 1:09:52 AM | Anions Gradient Program |
| 58 | CCB | 121218 | Finished | 12/14/2018 1:24:25 AM | Anions Gradient Program |
| 59 | HS18111377-14 | 121218 | Finished | 12/14/2018 1:38:58 AM | Anions Gradient Program |
| 60 | HS18111377-13DF50 | 121218 | Finished | 12/14/2018 1:53:31 AM | Anions Gradient Program |
| 61 | HS18111377-11DF10 | 121218 | Finished | 12/14/2018 2:08:03 AM | Anions Gradient Program |
| 62 | HS18111377-10 | 121218 | Finished | 12/14/2018 2:22:36 AM | Anions Gradient Program |
| 63 | HS18111377-09 | 121218 | Finished | 12/14/2018 2:37:09 AM | Anions Gradient Program |
| 64 | HS18111377-08DF5 | 121218 | Finished | 12/14/2018 2:51:42 AM | Anions Gradient Program |
| 65 | HS18120449-02 | 121218 | Finished | 12/14/2018 3:06:15 AM | Anions Gradient Program |
| 66 | HS18120449-03 | 121218 | Finished | 12/14/2018 3:20:48 AM | Anions Gradient Program |
| 67 | HS18120312-01 | 121218 | Finished | 12/14/2018 3:35:21 AM | Anions Gradient Program |
| 68 | HS18120312-02 | 121218 | Finished | 12/14/2018 3:49:54 AM | Anions Gradient Program |
| 69 | CCV1 | 121218 | Finished | 12/14/2018 4:04:27 AM | Anions Gradient Program |
| 70 | CCB | 121218 | Finished | 12/14/2018 4:19:00 AM | Anions Gradient Program |
| 71 | HS18120305-01 | 121218 | Finished | 12/14/2018 4:33:32 AM | Anions Gradient Program |
| 72 | HS18120305-01MS | 121218 | Finished | 12/14/2018 4:48:05 AM | Anions Gradient Program |
| 73 | HS18120305-01MSD | 121218 | Finished | 12/14/2018 5:02:38 AM | Anions Gradient Program |
| 74 | HS18120306-01 | 121218 | Finished | 12/14/2018 5:17:10 AM | Anions Gradient Program |
| 75 | HS18120315-01 | 121218 | Finished | 12/14/2018 5:31:43 AM | Anions Gradient Program |
| 76 | HS18120315-02 | 121218 | Finished | 12/14/2018 5:46:16 AM | Anions Gradient Program |
| 77 | HS18120432-01 | 121218 | Finished | 12/14/2018 6:00:49 AM | Anions Gradient Program |
| 78 | HS18120432-02 | 121218 | Finished | 12/14/2018 6:15:22 AM | Anions Gradient Program |
| 79 | HS18120435-01 | 121218 | Finished | 12/14/2018 6:29:55 AM | Anions Gradient Program |
| 80 | HS18120435-02 | 121218 | Finished | 12/14/2018 6:44:28 AM | Anions Gradient Program |
| 81 | CCV | 121218 | Finished | 12/14/2018 6:59:00 AM | Anions Gradient Program |
| 82 | CCB | 121218 | Finished | 12/14/2018 7:13:33 AM | Anions Gradient Program |
| 83 | WBLKW1-121418 | 121218 | Finished | 12/14/2018 7:28:06 AM | Anions Gradient Program |
| 84 | WLCSW1-121418 | 121218 | Finished | 12/14/2018 7:42:39 AM | Anions Gradient Program |

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Sequence: 121318 Page 6 of 12
Operator: ALSHS.NoUser Printed: 1/21/2019 6:41:39 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100 Created: 12/13/2018 7:20:14 PM by alshs.nouser
#Samples: 153 (Modified, not saved)

| No. | Name | GUID |
|---|---|---|
| 43 | HS18120757-02MSD | 3b6bb46e-ff51-11e8-b6da-a24899608423 |
| 44 | HS18120642-02DF50 | 43a8d45c-ff53-11e8-b6da-a24899608423 |
| 45 | CCV1 | 4ba332fe-ff55-11e8-b6da-a24899608423 |
| 46 | CCB | 53704551-ff57-11e8-b6da-a24899608423 |
| 47 | HS18111386-01DF2 | 6d8ae74a-ff5a-11e8-b6da-a24899608423 |
| 48 | HS18120741-01DF10 | d4fa653e-ff5c-11e8-b6da-a24899608423 |
| 49 | HS18111369-01DF20 | dd67217e-ff5e-11e8-b6da-a24899608423 |
| 50 | HS18111369-01DF400 | e5c2afae-ff60-11e8-b6da-a24899608423 |
| 51 | HS18111369-01DF4000 | edf94b5d-ff62-11e8-b6da-a24899608423 |
| 52 | HS18111473-01DF20 | f63408f6-ff64-11e8-b6da-a24899608423 |
| 53 | HS18111473-01DF400 | fe8dc4e0-ff66-11e8-b6da-a24899608423 |
| 54 | HS18111473-02DF20 | 06c3bdcf-ff69-11e8-b6da-a24899608423 |
| 55 | HS18111473-02DF400 | 0f118e10-ff6b-11e8-b6da-a24899608423 |
| 56 | HS18111377-12DF50 | 17668550-ff6d-11e8-b6da-a24899608423 |
| 57 | CCV | 1f2ed2f9-ff6f-11e8-b6da-a24899608423 |
| 58 | CCB | 27757c3b-ff71-11e8-b6da-a24899608423 |
| 59 | HS18111377-14 | 2fadd77f-ff73-11e8-b6da-a24899608423 |
| 60 | HS18111377-13DF50 | 37e632c3-ff75-11e8-b6da-a24899608423 |
| 61 | HS18111377-11DF10 | 400b7b5f-ff77-11e8-b6da-a24899608423 |
| 62 | HS18111377-10 | 4856e94b-ff79-11e8-b6da-a24899608423 |
| 63 | HS18111377-09 | 508ce23a-ff7b-11e8-b6da-a24899608423 |
| 64 | HS18111377-08DF5 | 58d85026-ff7d-11e8-b6da-a24899608423 |
| 65 | HS18120449-02 | 610e4915-ff7f-11e8-b6da-a24899608423 |
| 66 | HS18120449-03 | 69bdd8f3-ff81-11e8-b6da-a24899608423 |
| 67 | HS18120312-01 | 72048235-ff83-11e8-b6da-a24899608423 |
| 68 | HS18120312-02 | 7a1ddf28-ff85-11e8-b6da-a24899608423 |
| 69 | CCV1 | 82694d14-ff87-11e8-b6da-a24899608423 |
| 70 | CCB | 8aaff656-ff89-11e8-b6da-a24899608423 |
| 71 | HS18120305-01 | 92a5904e-ff8b-11e8-b6da-a24899608423 |
| 72 | HS18120305-01MS | 9adb893d-ff8d-11e8-b6da-a24899608423 |
| 73 | HS18120305-01MSD | a31646d6-ff8f-11e8-b6da-a24899608423 |
| 74 | HS18120306-01 | ab6da06b-ff91-11e8-b6da-a24899608423 |
| 75 | HS18120315-01 | b3a5fbaf-ff93-11e8-b6da-a24899608423 |
| 76 | HS18120315-02 | bc0e0597-ff95-11e8-b6da-a24899608423 |
| 77 | HS18120432-01 | c430ebde-ff97-11e8-b6da-a24899608423 |
| 78 | HS18120432-02 | cc8380c9-ff99-11e8-b6da-a24899608423 |
| 79 | HS18120435-01 | d4b979b8-ff9b-11e8-b6da-a24899608423 |
| 80 | HS18120435-02 | dd0c0ea3-ff9d-11e8-b6da-a24899608423 |
| 81 | CCV | e552b7e5-ff9f-11e8-b6da-a24899608423 |
| 82 | CCB | ed923a28-ffa1-11e8-b6da-a24899608423 |
| 83 | WBLKW1-121418 | f5d68115-ffa3-11e8-b6da-a24899608423 |
| 84 | WLCSW1-121418 | fe0a17af-ffa5-11e8-b6da-a24899608423 |

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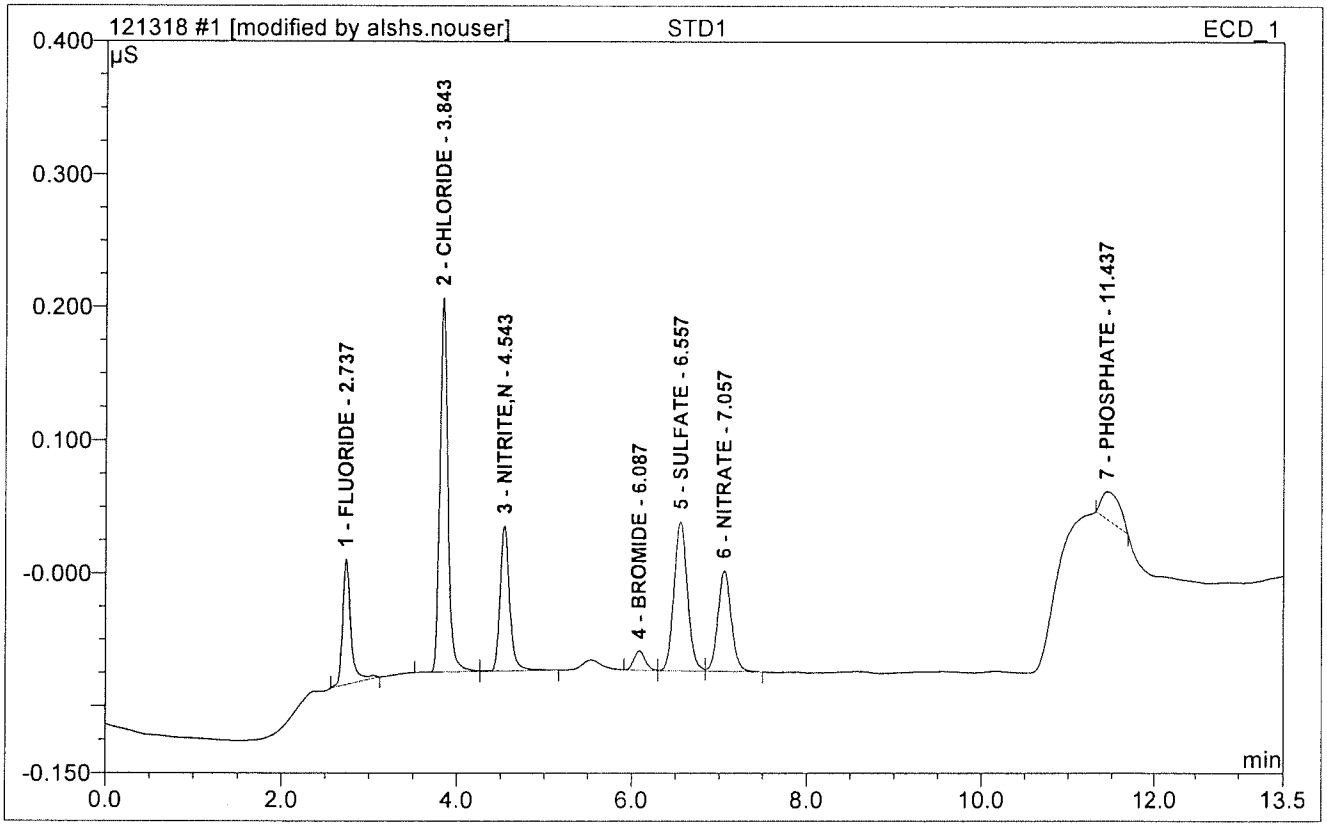
# 1 STD1

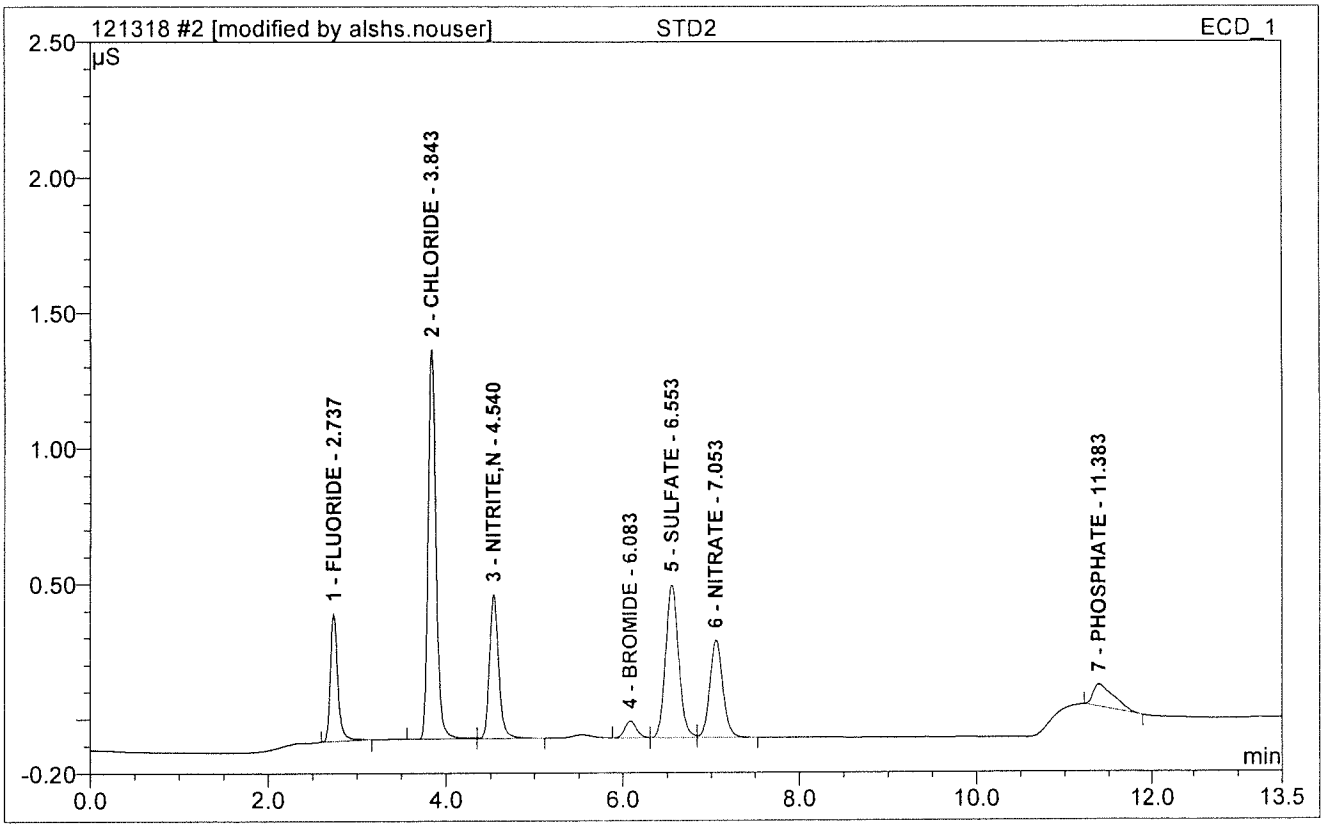
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **91** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 15:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.095 | 0.010 | 10.60 | 0.106 | 1. |
| 2 | 3.84 | CHLORIDE | 0.281 | 0.030 | 31.72 | 0.532 | 1. |
| 3 | 4.54 | NITRITE,N | 0.110 | 0.014 | 14.54 | 0.096 | 1. |
| 4 | 6.09 | BROMIDE | 0.015 | 0.002 | 2.26 | 0.137 | 1. |
| 5 | 6.56 | SULFATE | 0.112 | 0.020 | 21.05 | 0.571 | 1. |
| 6 | 7.06 | NITRATE | 0.076 | 0.014 | 14.23 | 0.121 | 1. |
| 7 | 11.44 | PHOSPHATE | 0.021 | 0.005 | 5.60 | 0.138 | 1. |
| **Total:** | | | 0.709 | 0.096 | 100.00 | 1.701 | |

# 2 STD2

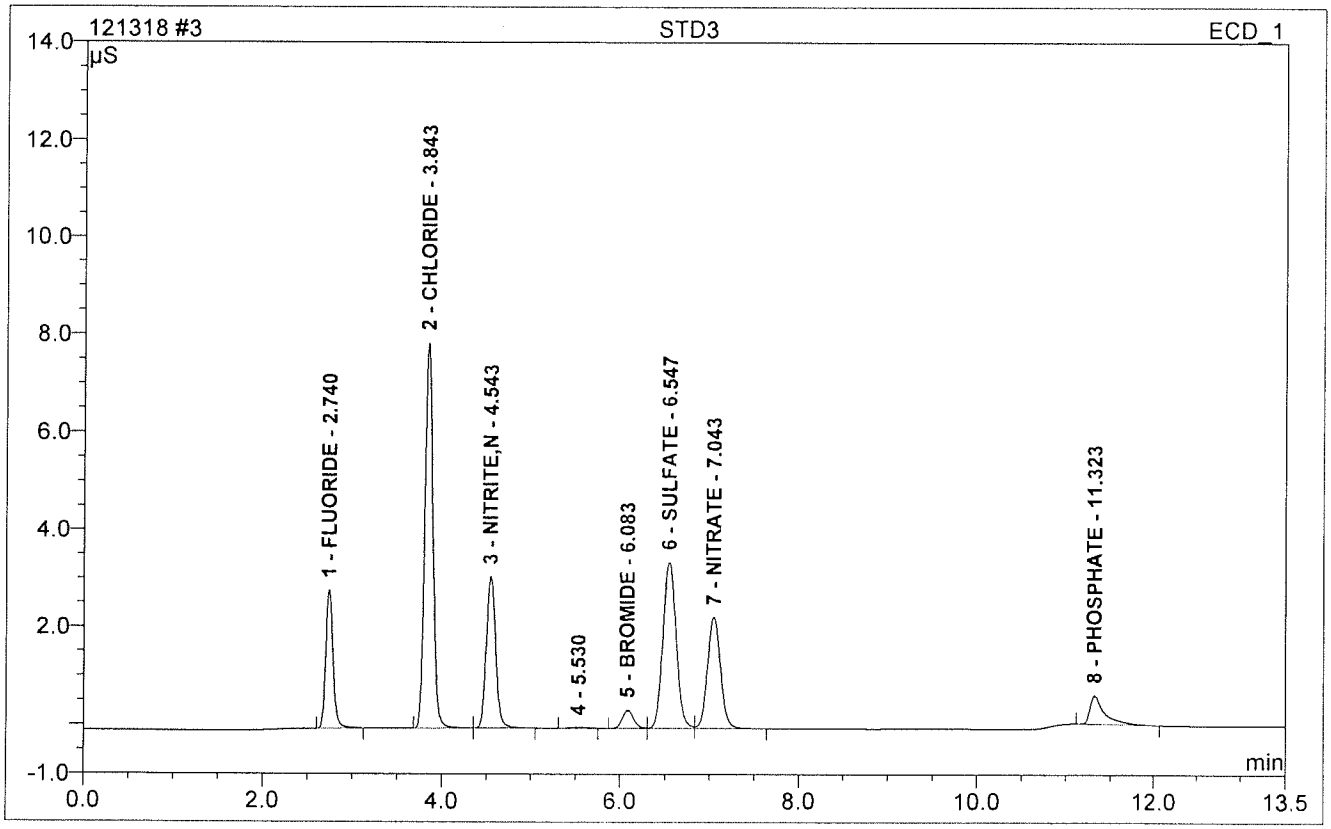
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **92** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:07** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.474 | 0.046 | 10.15 | 0.359 | 1. |
| 2 | 3.84 | CHLORIDE | 1.439 | 0.149 | 33.19 | 1.875 | 1. |
| 3 | 4.54 | NITRITE,N | 0.535 | 0.064 | 14.31 | 0.366 | 1. |
| 4 | 6.08 | BROMIDE | 0.063 | 0.010 | 2.13 | 0.348 | 1. |
| 5 | 6.55 | SULFATE | 0.568 | 0.097 | 21.51 | 1.771 | 1. |
| 6 | 7.05 | NITRATE | 0.361 | 0.062 | 13.74 | 0.341 | 1. |
| 7 | 11.38 | PHOSPHATE | 0.083 | 0.022 | 4.97 | 0.367 | 1. |
| **Total:** | | | 3.522 | 0.449 | 100.00 | 5.427 | |

# 3 STD3

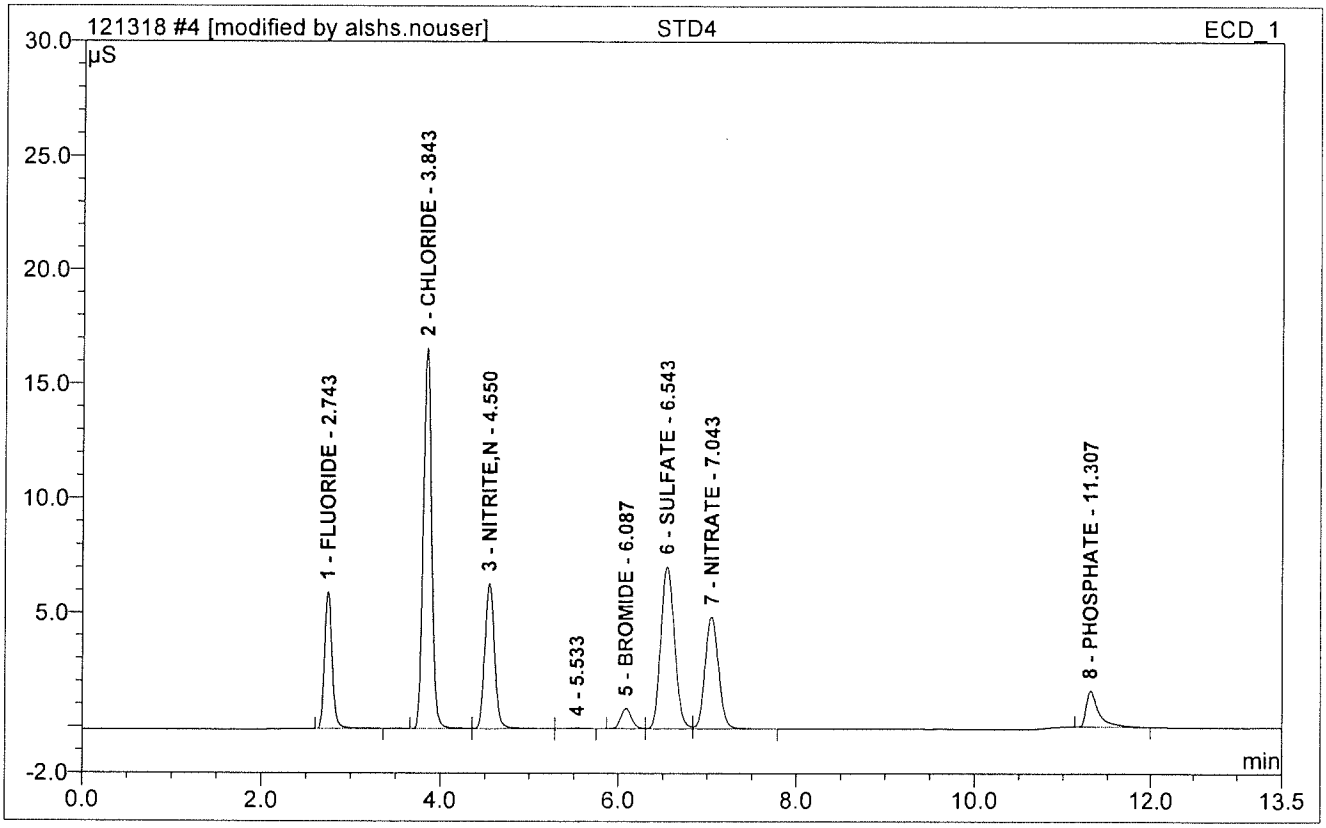
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD3** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **93** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:21** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 2.841 | 0.270 | 10.24 | 1.964 | 1. |
| 2 | 3.84 | CHLORIDE | 7.900 | 0.843 | 31.93 | 9.717 | 1. |
| 3 | 4.54 | NITRITE,N | 3.116 | 0.382 | 14.47 | 2.062 | 1. |
| 5 | 6.08 | BROMIDE | 0.372 | 0.054 | 2.05 | 1.614 | 1. |
| 6 | 6.55 | SULFATE | 3.415 | 0.589 | 22.31 | 9.497 | 1. |
| 7 | 7.04 | NITRATE | 2.279 | 0.388 | 14.71 | 1.837 | 1. |
| 8 | 11.32 | PHOSPHATE | 0.580 | 0.109 | 4.15 | 1.542 | 1. |
| **Total:** | | | 20.503 | 2.635 | 99.86 | 28.233 | |

# 4 STD4

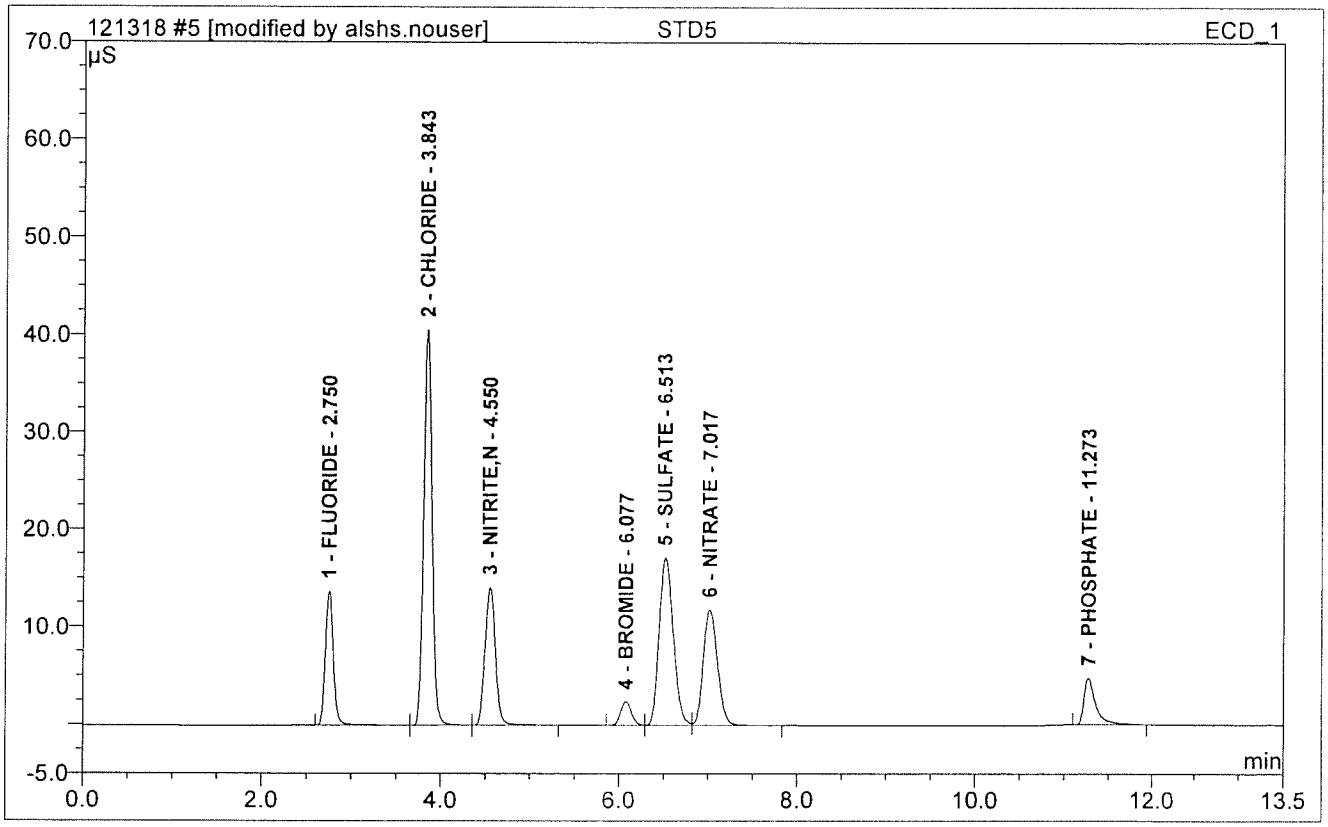
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD4** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **94** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:36** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 6.010 | 0.591 | 10.29 | 4.251 | 1. |
| 2 | 3.84 | CHLORIDE | 16.630 | 1.799 | 31.33 | 20.529 | 1. |
| 3 | 4.55 | NITRITE,N | 6.372 | 0.816 | 14.22 | 4.383 | 1. |
| 5 | 6.09 | BROMIDE | 0.887 | 0.126 | 2.20 | 3.675 | 1. |
| 6 | 6.54 | SULFATE | 7.129 | 1.281 | 22.31 | 20.357 | 1. |
| 7 | 7.04 | NITRATE | 4.918 | 0.866 | 15.08 | 4.025 | 1. |
| 8 | 11.31 | PHOSPHATE | 1.568 | 0.258 | 4.49 | 3.545 | 1. |
| **Total:** | | | 43.514 | 5.736 | 99.92 | 60.764 | |

# 5 STD5

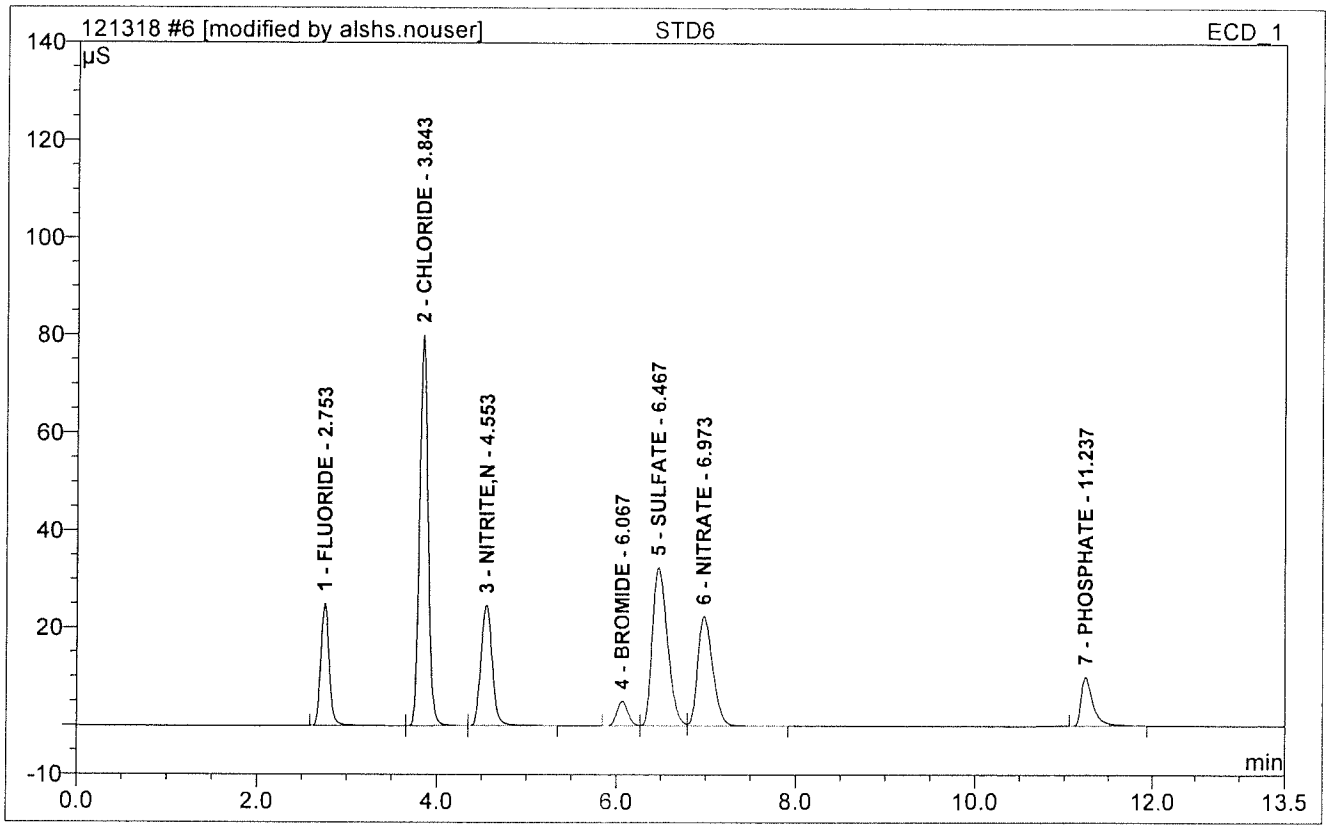
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD5** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **95** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:50** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | 13.744 | 1.431 | 10.06 | 10.252 | 1. |
| 2 | 3.84 | CHLORIDE | 40.596 | 4.426 | 31.11 | 50.239 | 1. |
| 3 | 4.55 | NITRITE,N | 14.095 | 1.927 | 13.54 | 10.316 | 1. |
| 4 | 6.08 | BROMIDE | 2.438 | 0.346 | 2.43 | 9.945 | 1. |
| 5 | 6.51 | SULFATE | 17.140 | 3.186 | 22.39 | 50.267 | 1. |
| 6 | 7.02 | NITRATE | 11.863 | 2.183 | 15.35 | 10.062 | 1. |
| 7 | 11.27 | PHOSPHATE | 4.736 | 0.728 | 5.12 | 9.884 | 1. |
| **Total:** | | | 104.613 | 14.227 | 100.00 | 150.965 | |

# 6 STD6

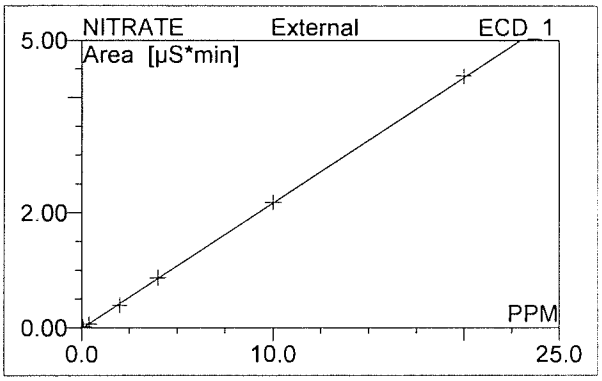
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:05** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

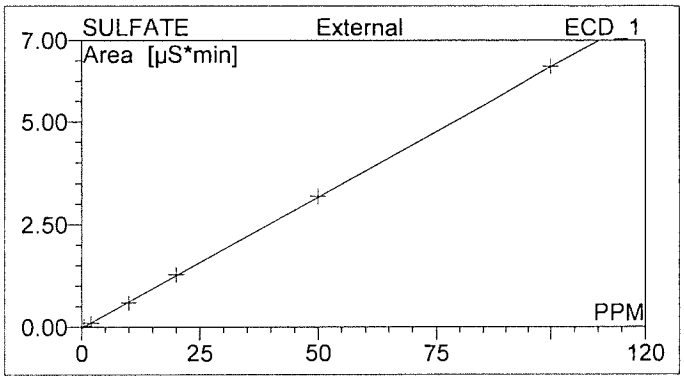


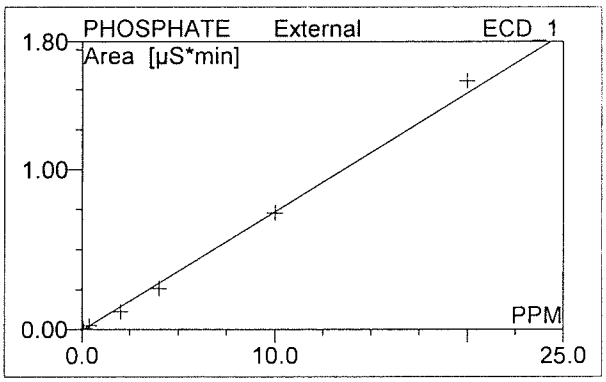

| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | 25.094 | 2.735 | 9.72 | 19.570 | 1. |
| 2 | 3.84 | CHLORIDE | 80.004 | 8.792 | 31.24 | 99.609 | 1. |
| 3 | 4.55 | NITRITE,N | 24.712 | 3.604 | 12.80 | 19.277 | 1. |
| 4 | 6.07 | BROMIDE | 5.012 | 0.727 | 2.58 | 20.782 | 1. |
| 5 | 6.47 | SULFATE | 32.586 | 6.356 | 22.58 | 100.037 | 1. |
| 6 | 6.97 | NITRATE | 22.506 | 4.377 | 15.55 | 20.113 | 1. |
| 7 | 11.24 | PHOSPHATE | 10.023 | 1.553 | 5.52 | 21.023 | 1. |
| **Total:** | | | 199.937 | 28.145 | 100.00 | 300.410 | |

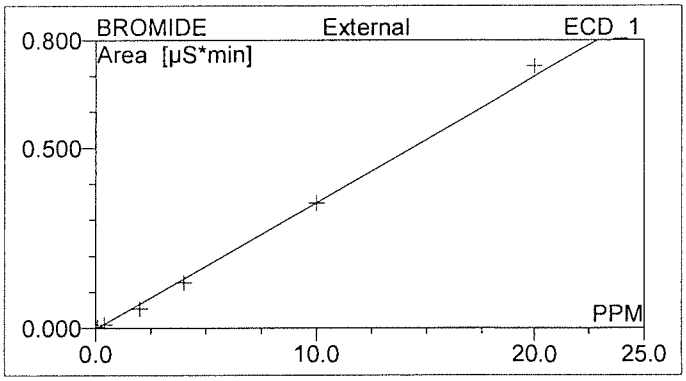
# 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **###############** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

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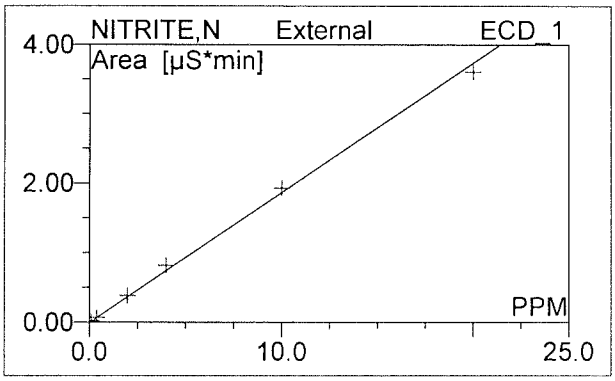
The system cannot find the path specified.

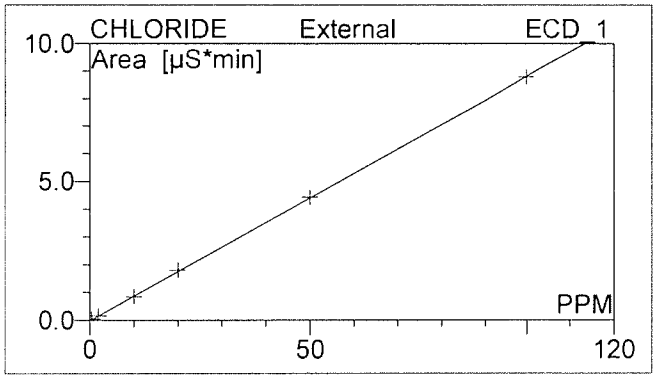
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.892 | -0.0046 | 0.1400 | 0.000 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.980 | -0.0166 | 0.0884 | 0.000 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.770 | -0.0041 | 0.1872 | 0.000 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.551 | -0.0026 | 0.0351 | 0.000 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.959 | -0.0162 | 0.0637 | 0.000 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.919 | -0.0128 | 0.2183 | 0.000 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.331 | -0.0049 | 0.0741 | 0.000 |
| **Average:** | | | | | 99.7718 | -0.0088 | 0.1153 | 0.0000 |

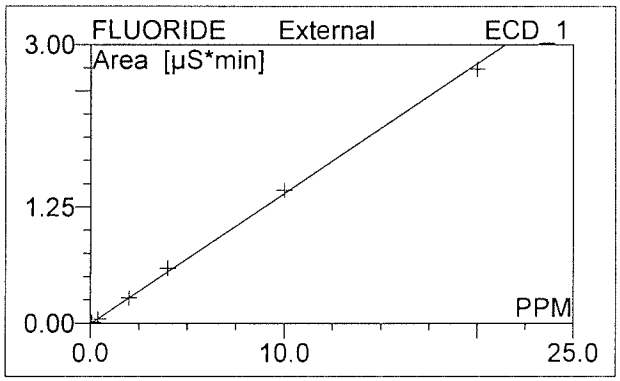
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.946 | 7.143 | 0.009 | 15.424 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.990 | 11.308 | 0.012 | 6.781 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.885 | 5.343 | 0.017 | 21.923 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.775 | 28.489 | 0.005 | 35.074 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.980 | 15.698 | 0.013 | 9.916 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.959 | 4.582 | 0.012 | 14.239 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.665 | 13.491 | 0.012 | 41.812 |
| **Average:** | | | | | 99.8858 | 12.2932 | 0.0114 | 20.7385 |

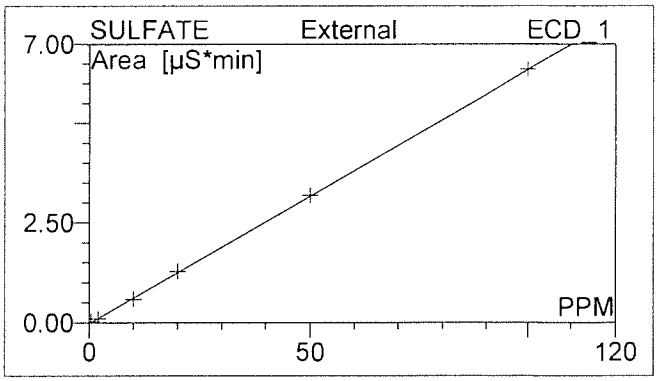
# 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.000** |
| *Recording Time:* | **12/12/2018 17:05** | *Sample Weight/Volume:* | **1.000** |
| *Run Time (min):* | **13.50** | *Final Volume:* | **1.000** |

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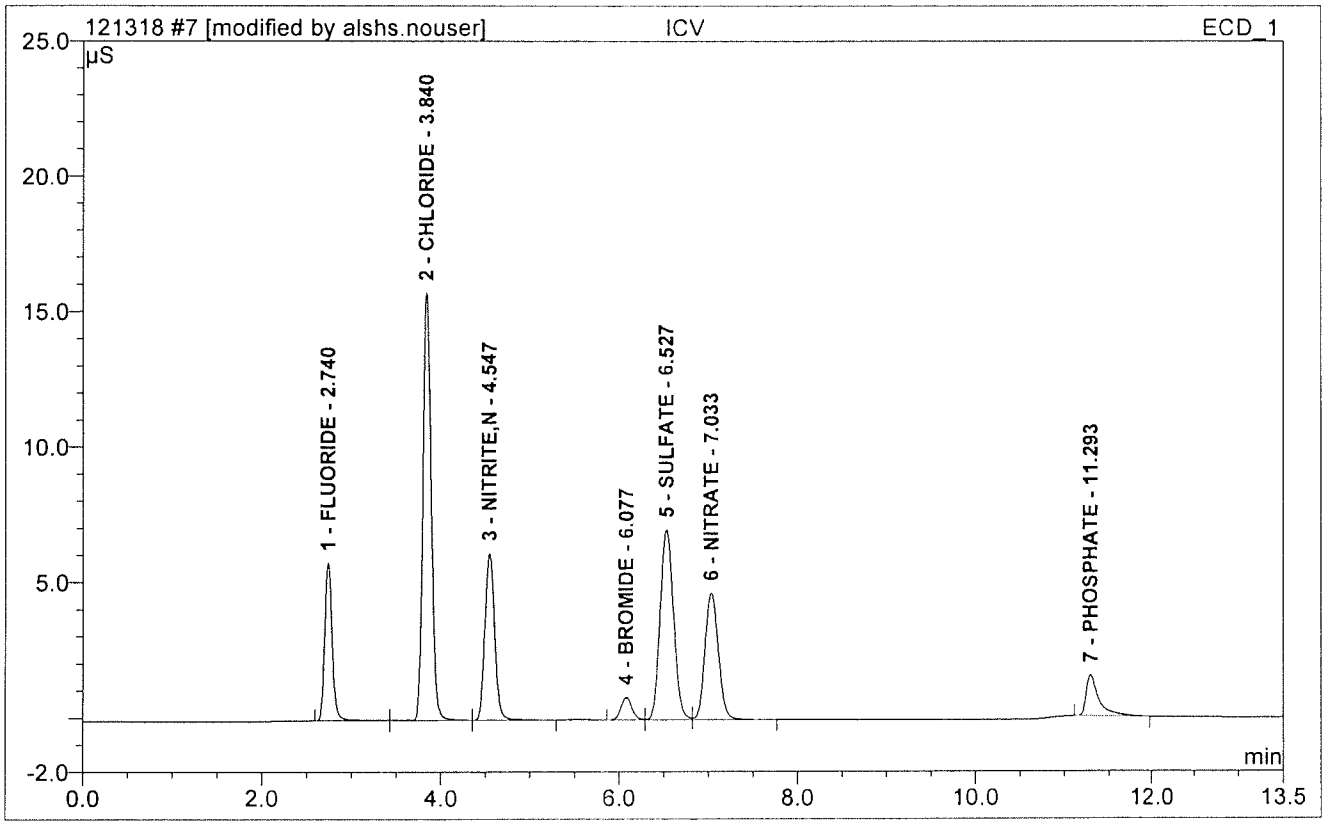
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.8920 | -0.0046 | 0.1400 | 0.000 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.9796 | -0.0166 | 0.0884 | 0.000 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.7703 | -0.0041 | 0.1872 | 0.000 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.5513 | -0.0026 | 0.0351 | 0.000 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.9591 | -0.0162 | 0.0637 | 0.000 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.9189 | -0.0128 | 0.2183 | 0.000 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.3314 | -0.0049 | 0.0741 | 0.000 |
| **Average:** | | | | | 99.7718 | -0.0088 | 0.1153 | 0.000 |

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.946 | 7.143 | 0.009 | 15.424 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.990 | 11.308 | 0.012 | 6.781 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.885 | 5.343 | 0.017 | 21.923 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.775 | 28.489 | 0.005 | 35.074 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.980 | 15.698 | 0.013 | 9.916 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.959 | 4.582 | 0.012 | 14.239 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.665 | 13.491 | 0.012 | 41.812 |
| **Average:** | | | | | 99.8858 | 12.293 | 0.011 | 20.739 |

# 7 ICV

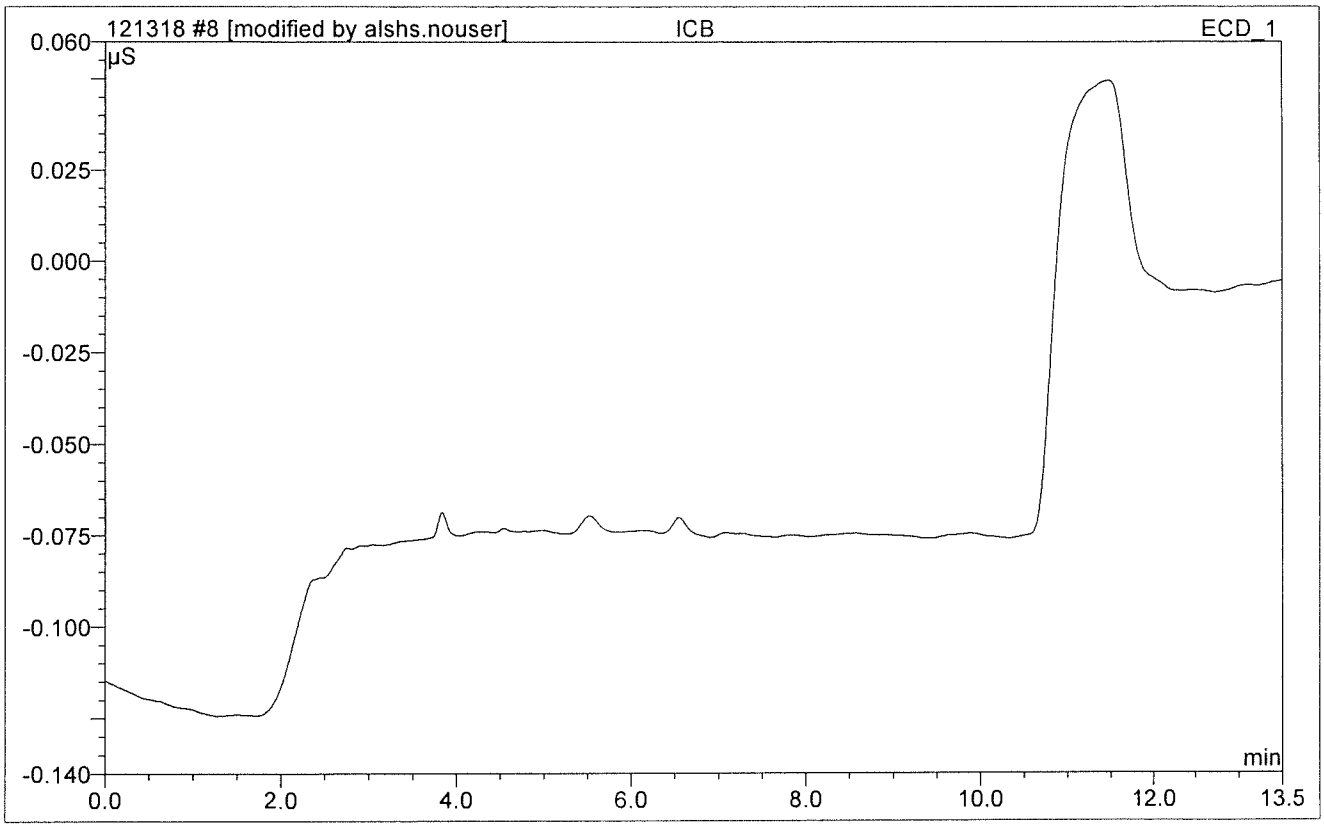
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **97** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:19** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 5.803 | 0.572 | 10.40 | 4.119 | 1. |
| 2 | 3.84 | CHLORIDE | 15.767 | 1.715 | 31.18 | 19.578 | 1. |
| 3 | 4.55 | NITRITE,N | 6.151 | 0.786 | 14.30 | 4.224 | 1. |
| 4 | 6.08 | BROMIDE | 0.844 | 0.120 | 2.19 | 3.506 | 1. |
| 5 | 6.53 | SULFATE | 6.990 | 1.234 | 22.43 | 19.619 | 1. |
| 6 | 7.03 | NITRATE | 4.677 | 0.820 | 14.90 | 3.813 | 1. |
| 7 | 11.29 | PHOSPHATE | 1.523 | 0.252 | 4.58 | 3.465 | 1. |
| **Total:** | | | 41.755 | 5.499 | 100.00 | 58.324 | |

## 8 ICB

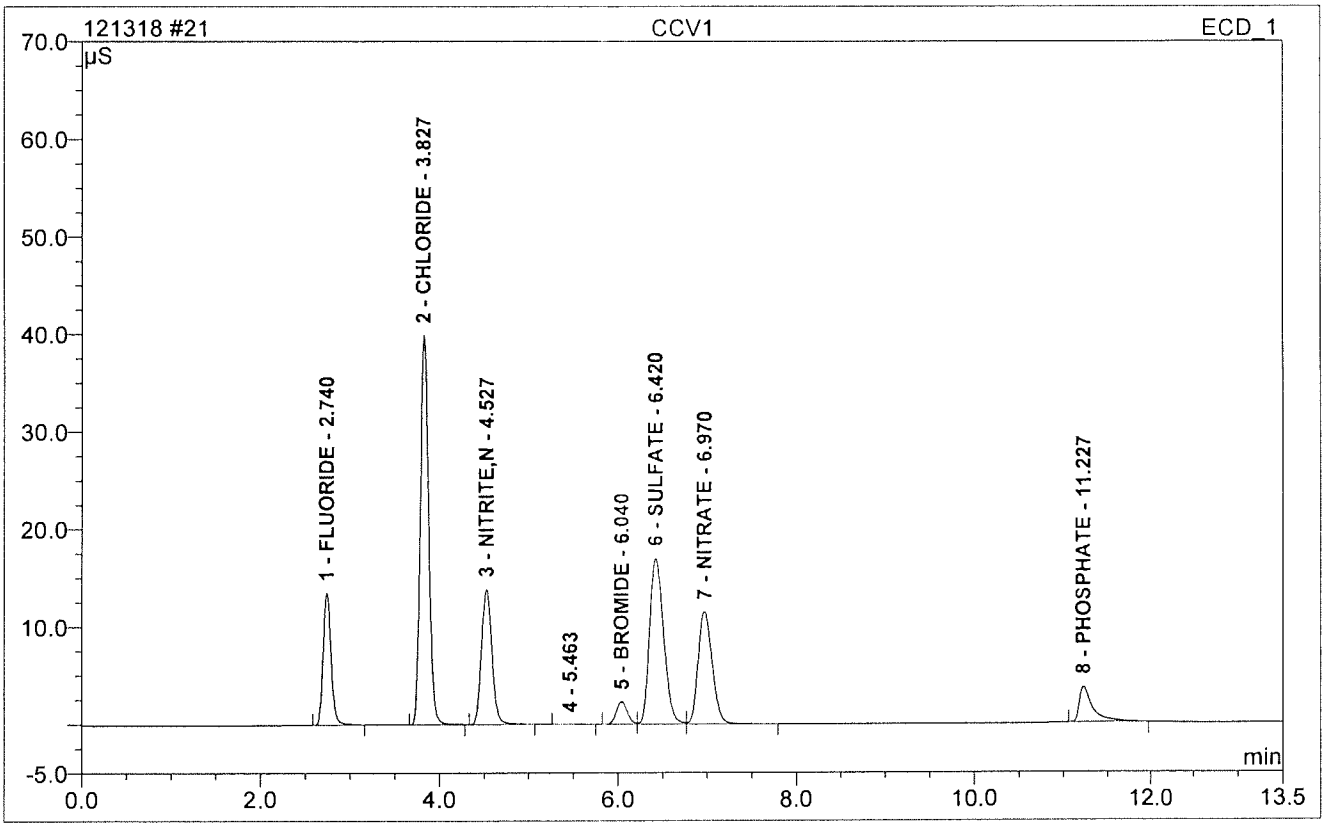
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **98** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:34** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| **Total:** | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 21 CCV1

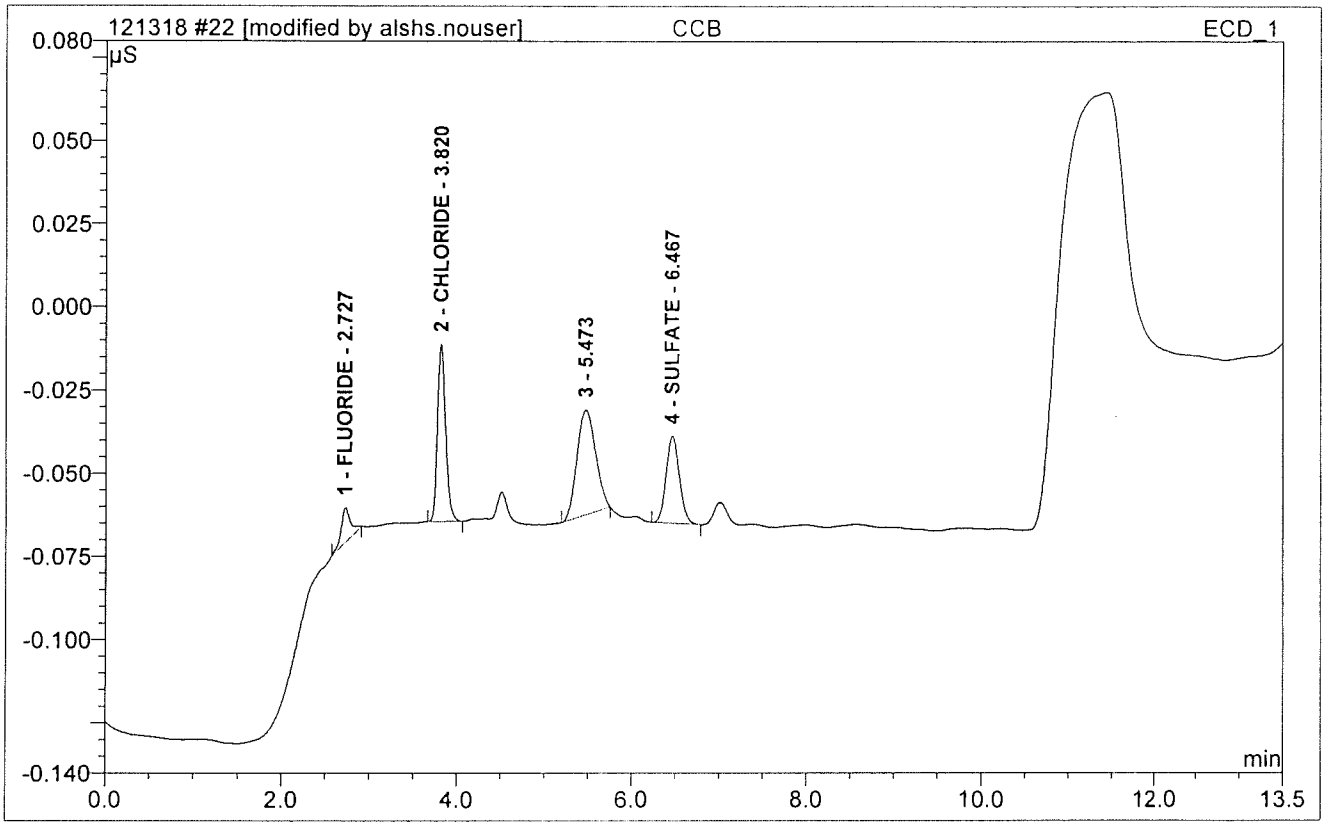
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 15:43** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 13.559 | 1.393 | 10.04 | 9.981 | 1. |
| 2 | 3.83 | CHLORIDE | 39.956 | 4.347 | 31.33 | 49.341 | 1. |
| 3 | 4.53 | NITRITE,N | 13.899 | 1.889 | 13.62 | 10.117 | 1. |
| 5 | 6.04 | BROMIDE | 2.328 | 0.332 | 2.39 | 9.536 | 1. |
| 6 | 6.42 | SULFATE | 17.031 | 3.132 | 22.58 | 49.421 | 1. |
| 7 | 6.97 | NITRATE | 11.597 | 2.134 | 15.38 | 9.837 | 1. |
| 8 | 11.23 | PHOSPHATE | 3.684 | 0.640 | 4.61 | 8.694 | 1. |
| **Total:** | | | 102.053 | 13.867 | 99.96 | 146.927 | |

## 22 CCB

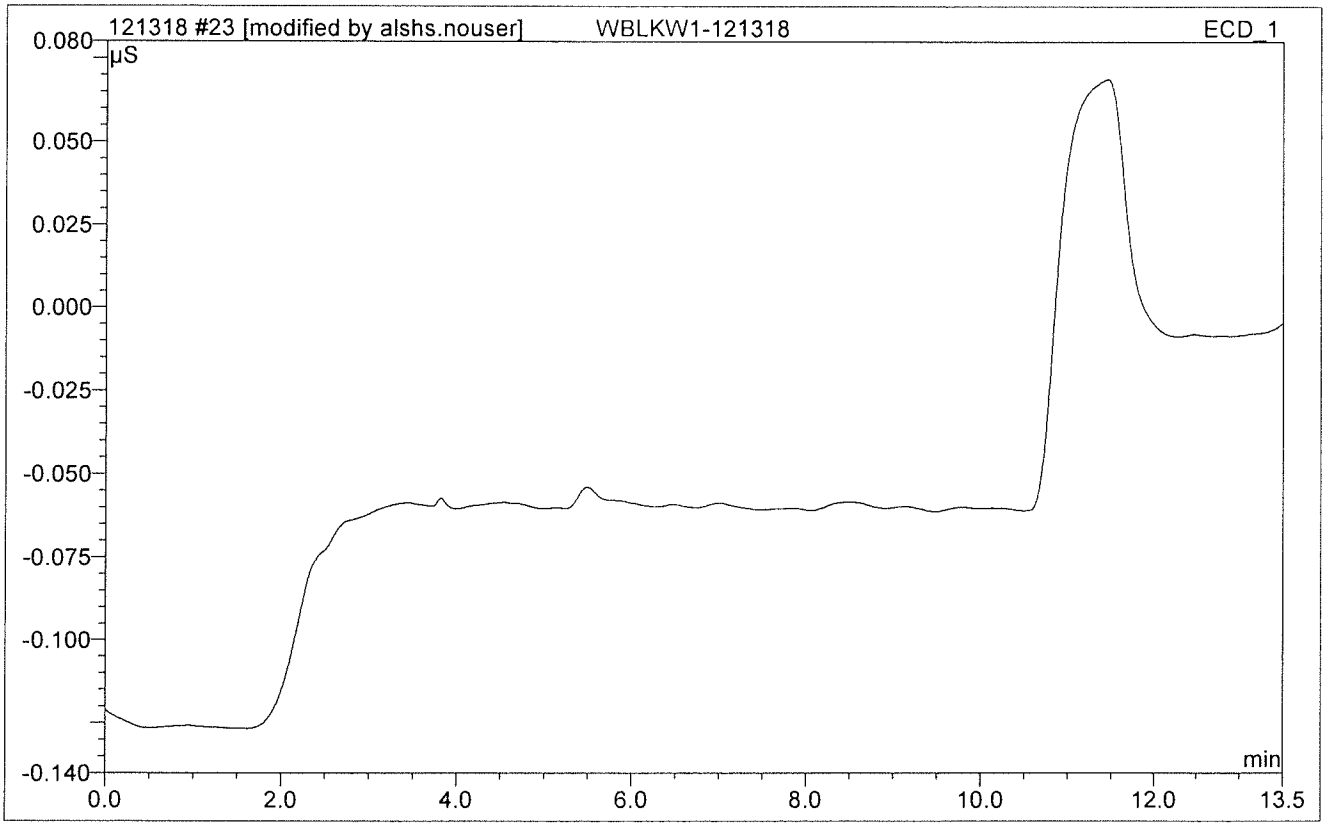
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 15:57** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.010 | 0.001 | 6.29 | 0.042 | 1. |
| 2 | 3.82 | CHLORIDE | 0.053 | 0.006 | 29.83 | 0.254 | 1. |
| 4 | 6.47 | SULFATE | 0.026 | 0.005 | 24.07 | 0.328 | 1. |
| **Total:** | | | 0.090 | 0.012 | 60.18 | 0.623 | |

## 23 WBLKW1-121318

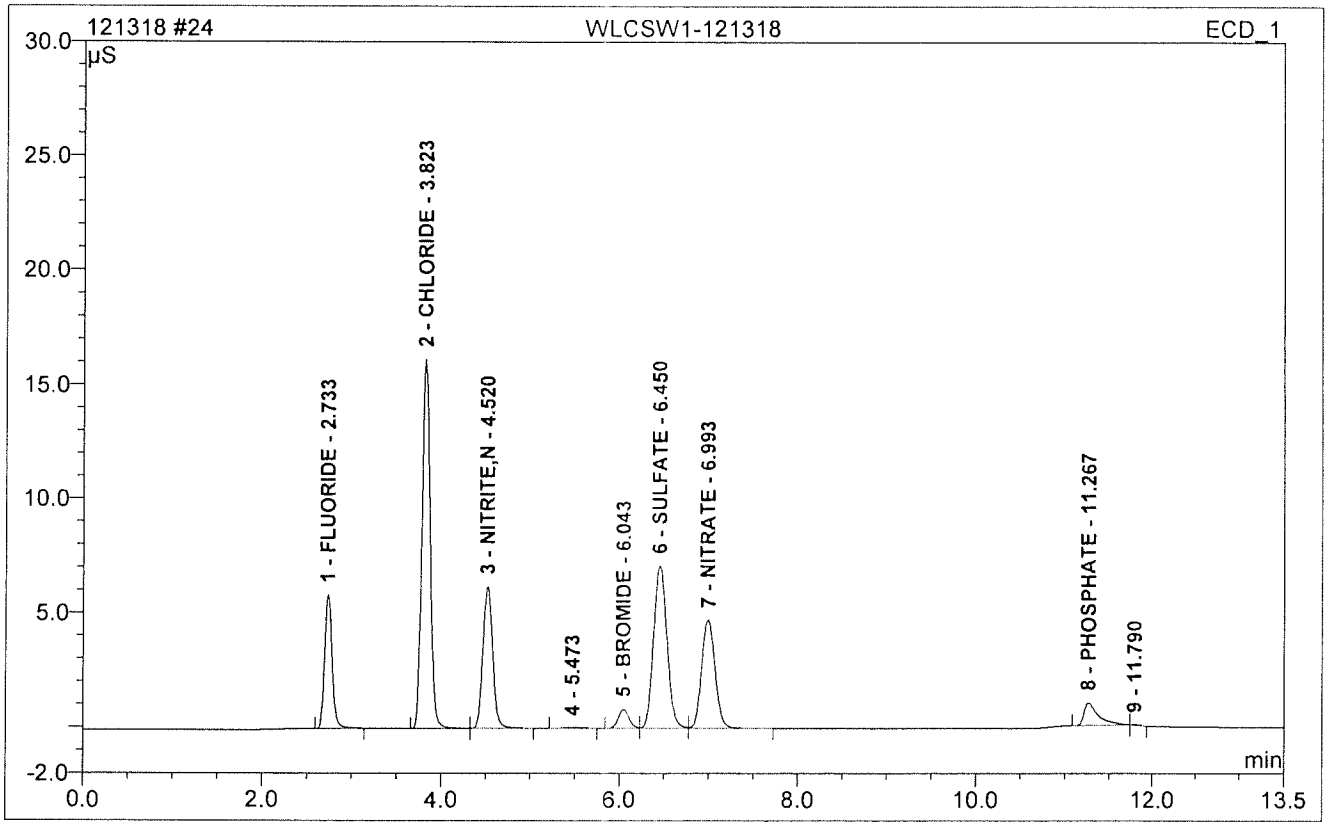
| | | | |
|---|---|---|---|
| *Sample Name:* | **WBLKW1-121318** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **21** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 16:12** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| **Total:** | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 24 WLCSW1-121318

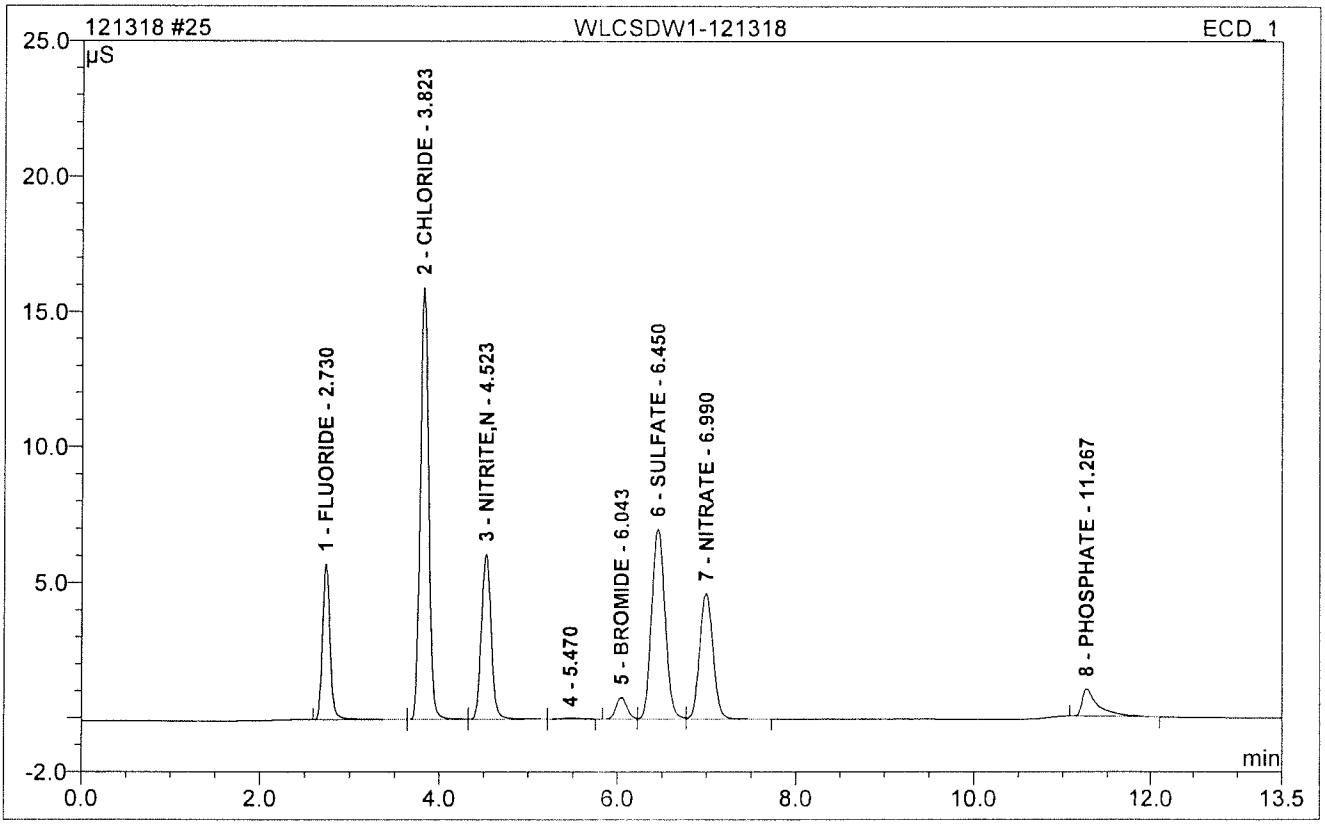
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSW1-121318** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **22** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 16:26** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 5.834 | 0.569 | 10.38 | 4.101 | 1. |
| 2 | 3.82 | CHLORIDE | 16.157 | 1.739 | 31.70 | 19.851 | 1. |
| 3 | 4.52 | NITRITE,N | 6.180 | 0.787 | 14.35 | 4.228 | 1. |
| 5 | 6.04 | BROMIDE | 0.828 | 0.118 | 2.15 | 3.428 | 1. |
| 6 | 6.45 | SULFATE | 7.090 | 1.251 | 22.81 | 19.895 | 1. |
| 7 | 6.99 | NITRATE | 4.732 | 0.825 | 15.05 | 3.840 | 1. |
| 8 | 11.27 | PHOSPHATE | 0.988 | 0.183 | 3.34 | 2.537 | 1. |
| **Total:** | | | 41.807 | 5.473 | 99.77 | 57.880 | |

# 25 WLCSDW1-121318

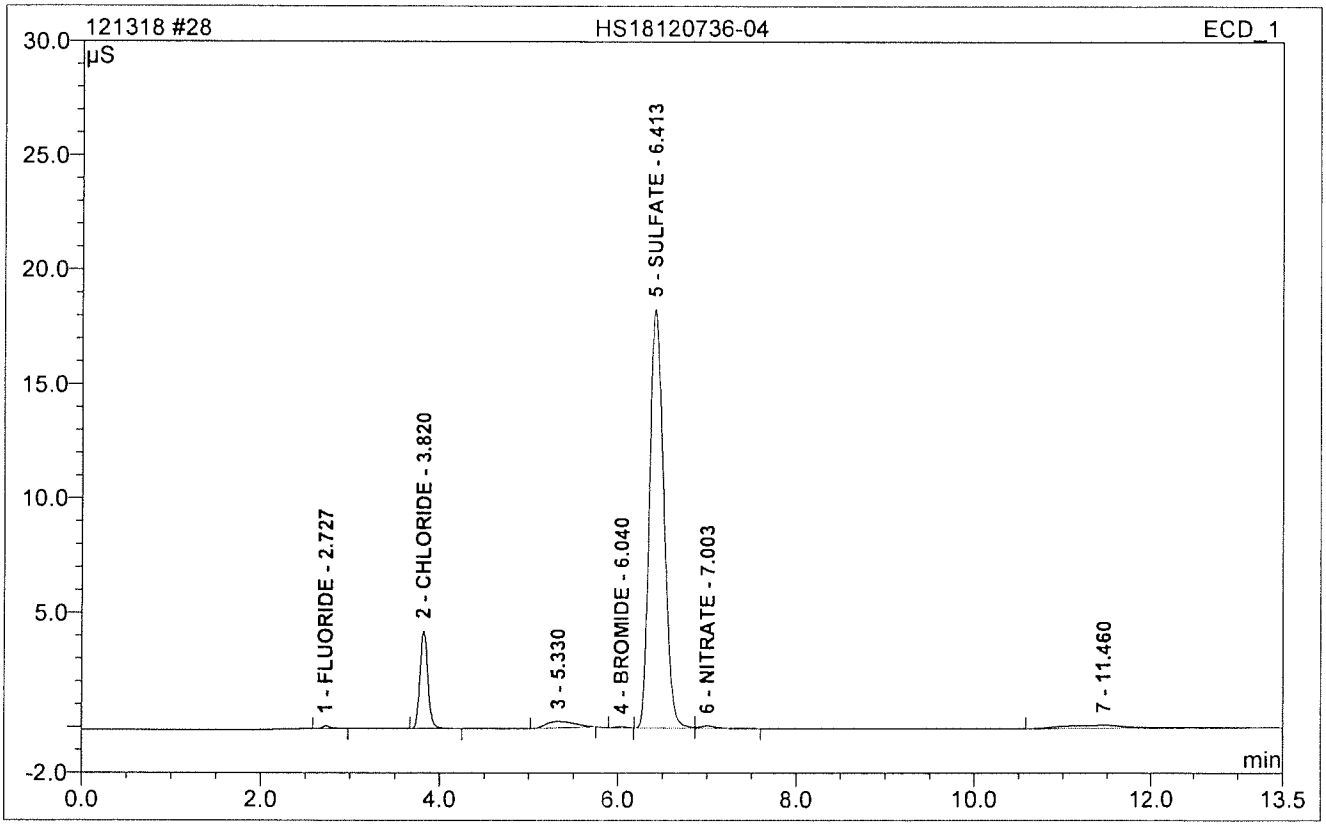
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSDW1-121318** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **23** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 16:41** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 5.764 | 0.571 | 10.43 | 4.109 | 1. |
| 2 | 3.82 | CHLORIDE | 15.977 | 1.726 | 31.54 | 19.706 | 1. |
| 3 | 4.52 | NITRITE,N | 6.115 | 0.783 | 14.31 | 4.204 | 1. |
| 5 | 6.04 | BROMIDE | 0.819 | 0.116 | 2.13 | 3.390 | 1. |
| 6 | 6.45 | SULFATE | 7.032 | 1.238 | 22.62 | 19.688 | 1. |
| 7 | 6.99 | NITRATE | 4.680 | 0.815 | 14.90 | 3.794 | 1. |
| 8 | 11.27 | PHOSPHATE | 1.020 | 0.212 | 3.88 | 2.931 | 1. |
| **Total:** | | | 41.407 | 5.462 | 99.81 | 57.822 | |

## 28 HS18120736-04

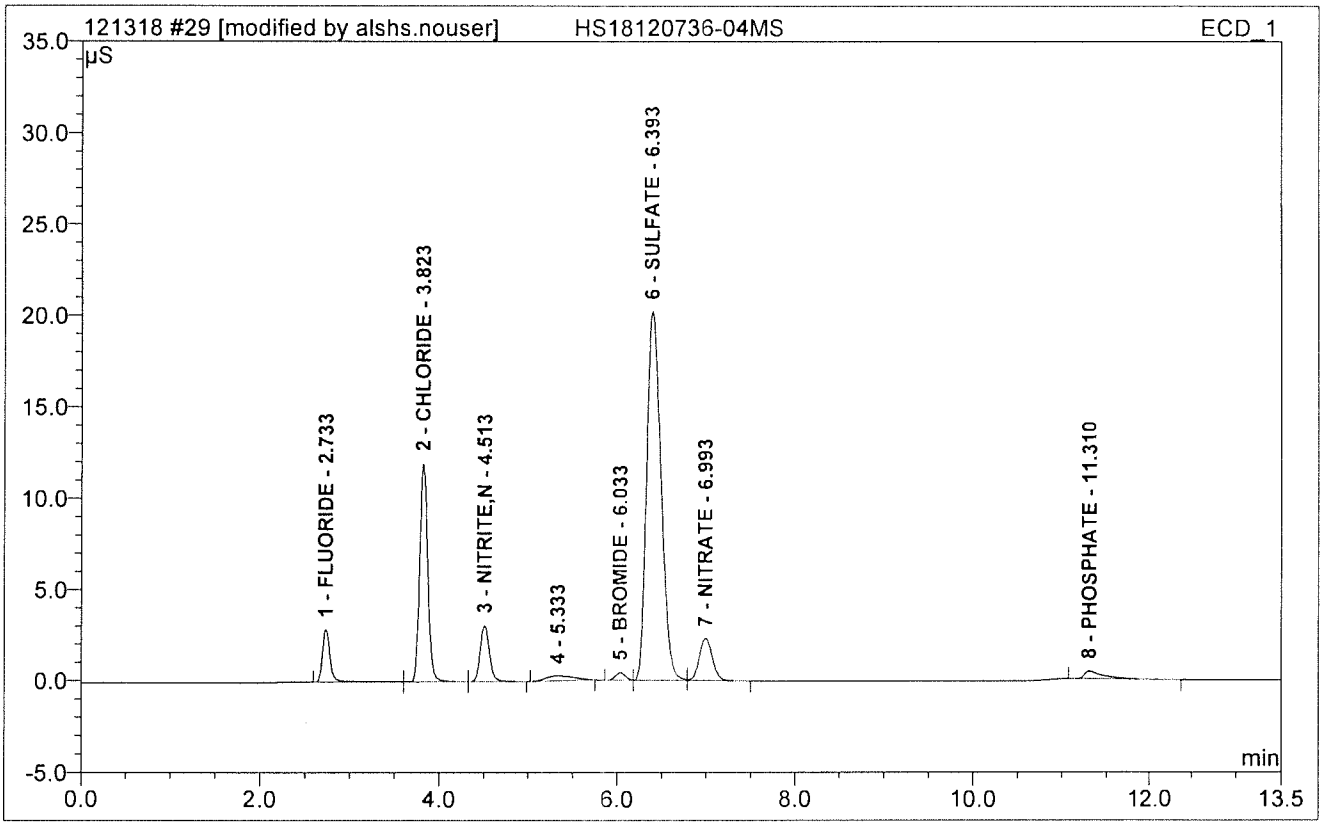
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-04** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **30** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 17:25** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.119 | 0.013 | 0.31 | 0.123 | 1. |
| 2 | 3.82 | CHLORIDE | 4.254 | 0.440 | 10.71 | 5.166 | 1. |
| 4 | 6.04 | BROMIDE | 0.060 | 0.008 | 0.19 | 0.295 | 1. |
| 5 | 6.41 | SULFATE | 18.307 | 3.387 | 82.39 | 53.420 | 1. |
| 6 | 7.00 | NITRATE | 0.107 | 0.022 | 0.53 | 0.159 | 1. |
| **Total:** | | | 22.846 | 3.869 | 94.12 | 59.163 | |

# 29 HS18120736-04MS

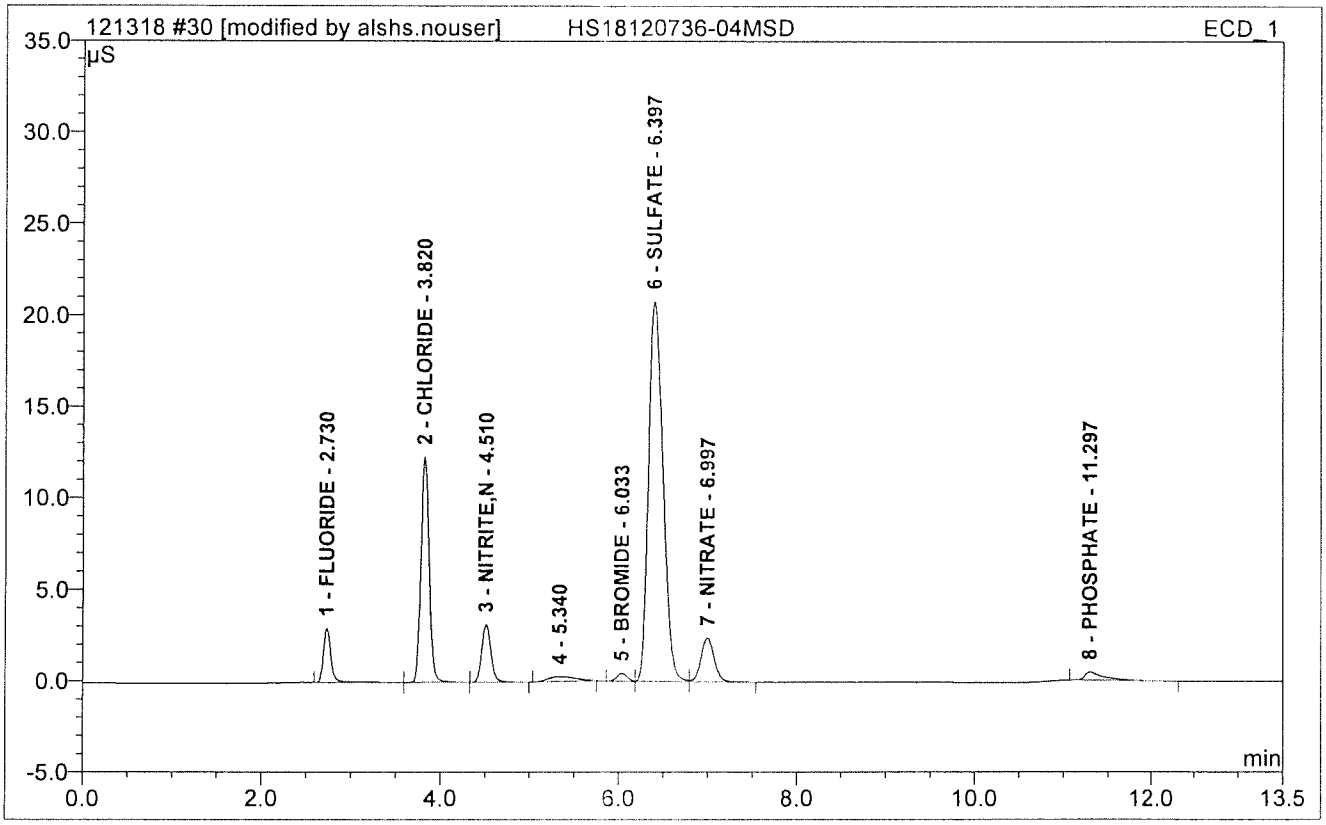
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-04MS** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **31** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 17:39** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.885 | 0.281 | 4.39 | 2.040 | 1. |
| 2 | 3.82 | CHLORIDE | 11.974 | 1.272 | 19.89 | 14.571 | 1. |
| 3 | 4.51 | NITRITE,N | 3.092 | 0.368 | 5.75 | 1.988 | 1. |
| 5 | 6.03 | BROMIDE | 0.416 | 0.056 | 0.88 | 1.674 | 1. |
| 6 | 6.39 | SULFATE | 20.209 | 3.818 | 59.70 | 60.183 | 1. |
| 7 | 6.99 | NITRATE | 2.327 | 0.398 | 6.23 | 1.884 | 1. |
| 8 | 11.31 | PHOSPHATE | 0.422 | 0.103 | 1.61 | 1.451 | 1. |
| **Total:** | | | 41.326 | 6.296 | 98.45 | 83.790 | |

# 30 HS18120736-04MSD

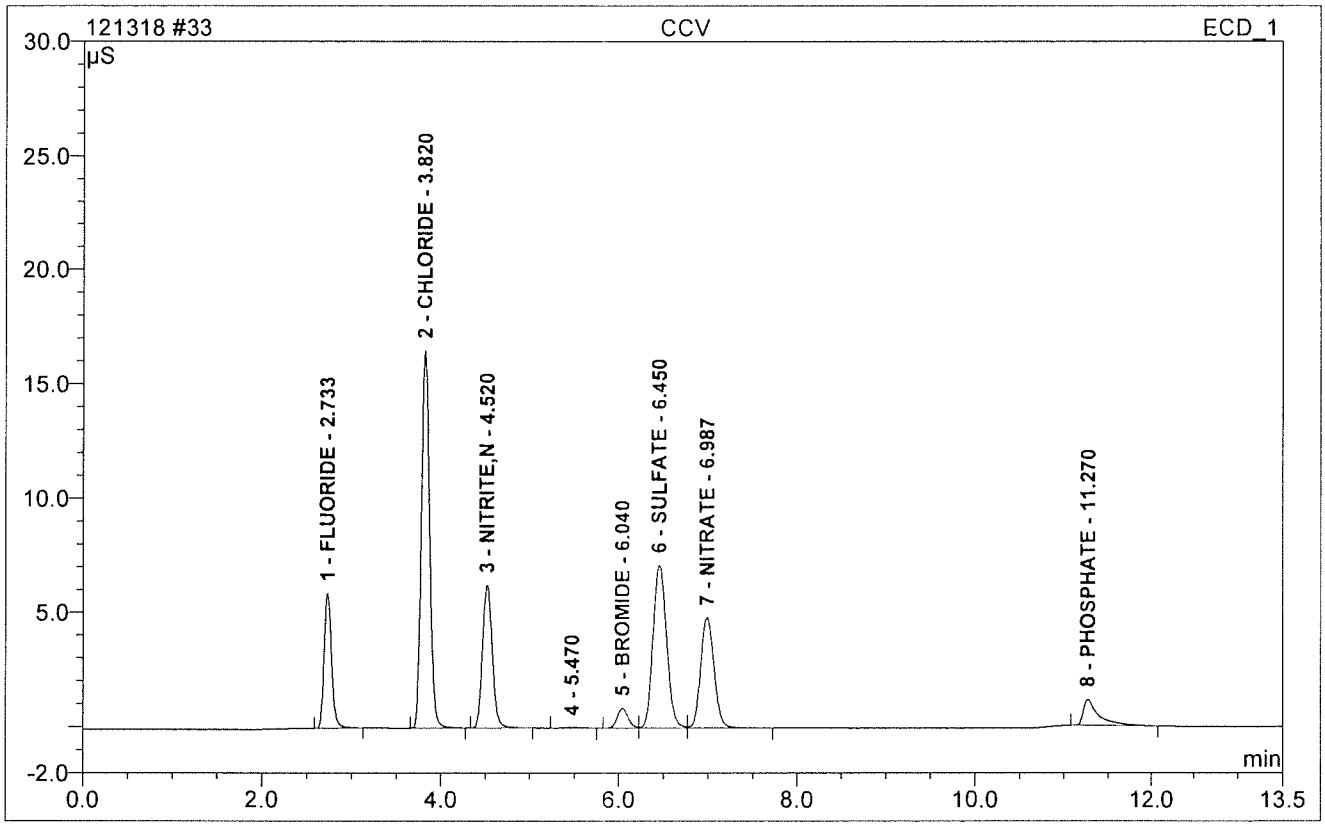
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-04MSD** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **32** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 17:54** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.960 | 0.289 | 4.41 | 2.097 | 1. |
| 2 | 3.82 | CHLORIDE | 12.293 | 1.307 | 19.92 | 14.967 | 1. |
| 3 | 4.51 | NITRITE,N | 3.171 | 0.379 | 5.78 | 2.047 | 1. |
| 5 | 6.03 | BROMIDE | 0.431 | 0.058 | 0.89 | 1.741 | 1. |
| 6 | 6.40 | SULFATE | 20.774 | 3.910 | 59.59 | 61.632 | 1. |
| 7 | 7.00 | NITRATE | 2.403 | 0.411 | 6.27 | 1.942 | 1. |
| 8 | 11.30 | PHOSPHATE | 0.458 | 0.109 | 1.66 | 1.533 | 1. |
| **Total:** | | | 42.490 | 6.463 | 98.51 | 85.961 | |

# 33 CCV

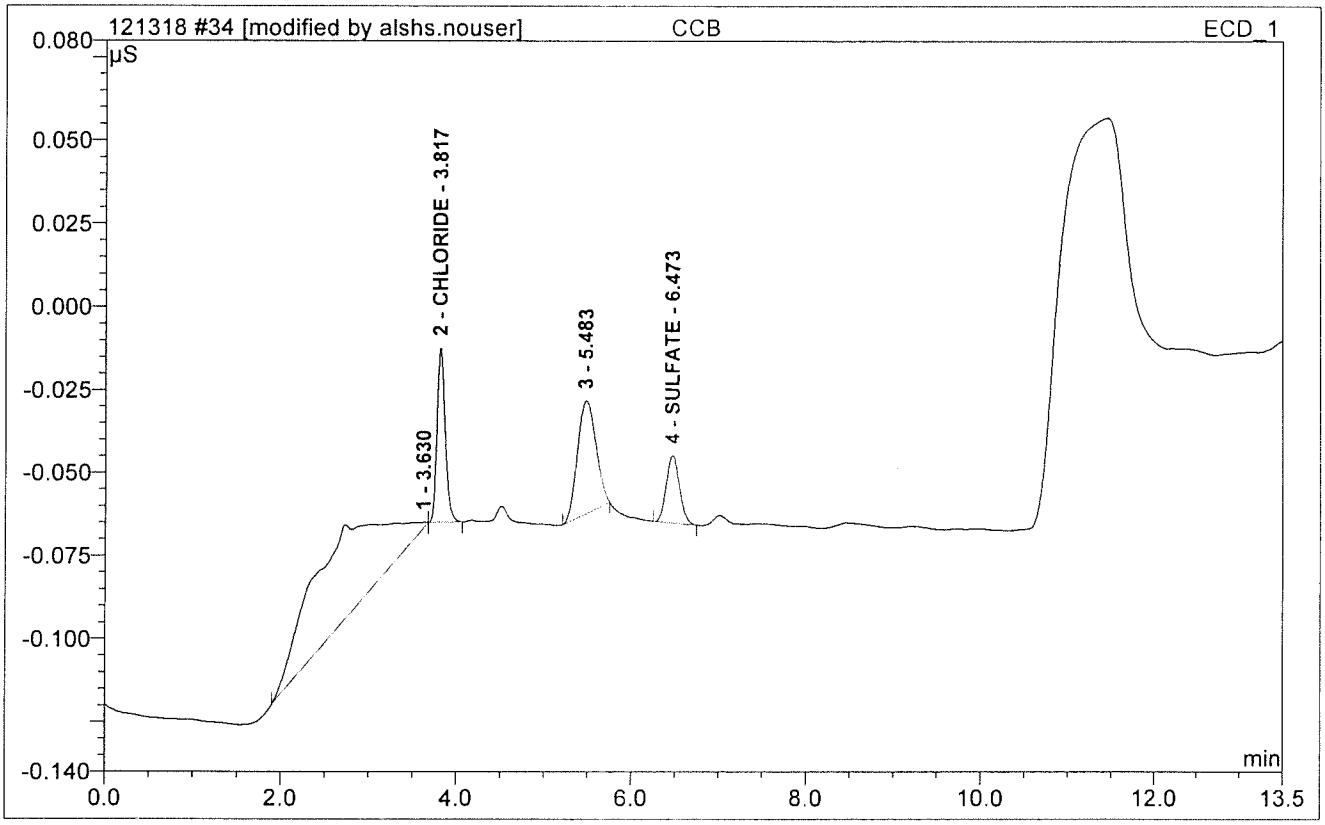
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 18:37** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 5.902 | 0.575 | 10.28 | 4.139 | 1. |
| 2 | 3.82 | CHLORIDE | 16.494 | 1.771 | 31.66 | 20.218 | 1. |
| 3 | 4.52 | NITRITE,N | 6.262 | 0.794 | 14.20 | 4.266 | 1. |
| 5 | 6.04 | BROMIDE | 0.854 | 0.121 | 2.16 | 3.519 | 1. |
| 6 | 6.45 | SULFATE | 7.135 | 1.260 | 22.52 | 20.028 | 1. |
| 7 | 6.99 | NITRATE | 4.828 | 0.843 | 15.07 | 3.921 | 1. |
| 8 | 11.27 | PHOSPHATE | 1.132 | 0.225 | 4.02 | 3.096 | 1. |
| **Total:** | | | 42.607 | 5.589 | 99.90 | 59.187 | |

## 34 CCB

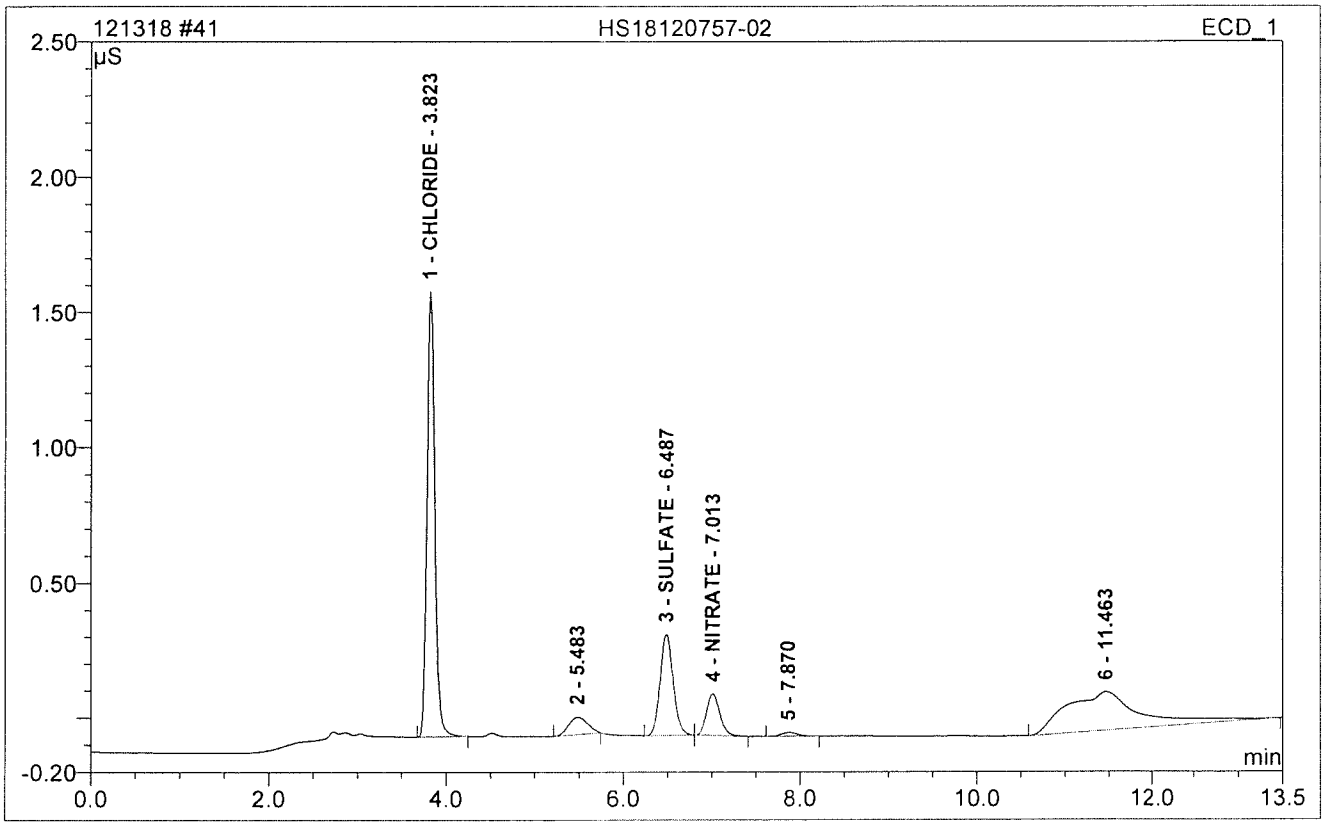
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 18:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 2 | 3.82 | CHLORIDE | 0.053 | 0.006 | 12.77 | 0.253 | 1. |
| 4 | 6.47 | SULFATE | 0.020 | 0.004 | 7.95 | 0.310 | 1. |
| **Total:** | | | 0.073 | 0.009 | 20.72 | 0.563 | |

## 41 HS18120757-02

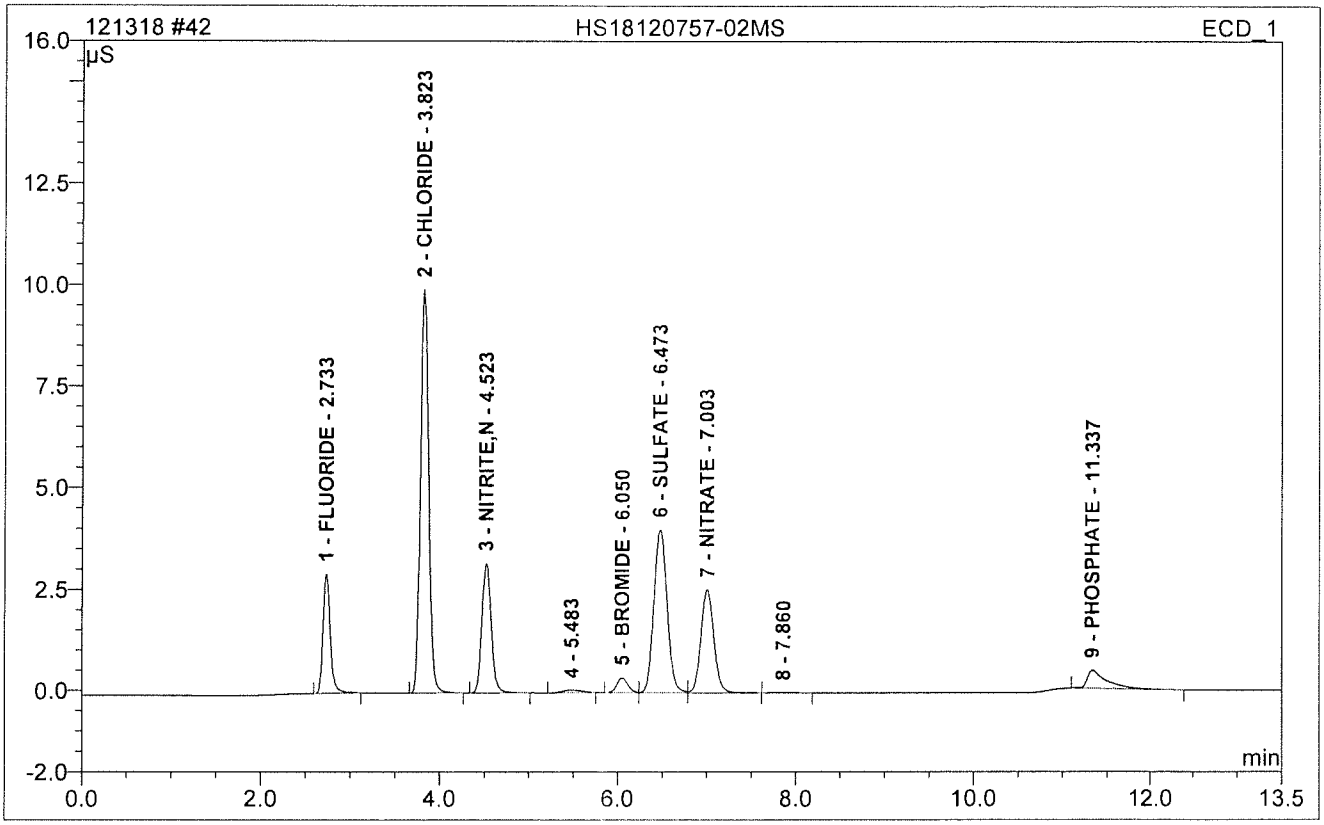
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120757-02** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **38** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 21:06** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 3.82 | CHLORIDE | 1.647 | 0.170 | 40.54 | 2.107 | 1. |
| 3 | 6.49 | SULFATE | 0.376 | 0.065 | 15.44 | 1.268 | 1. |
| 4 | 7.01 | NITRATE | 0.155 | 0.027 | 6.39 | 0.181 | 1. |
| **Total:** | | | 2.177 | 0.261 | 62.36 | 3.556 | |

# 42 HS18120757-02MS

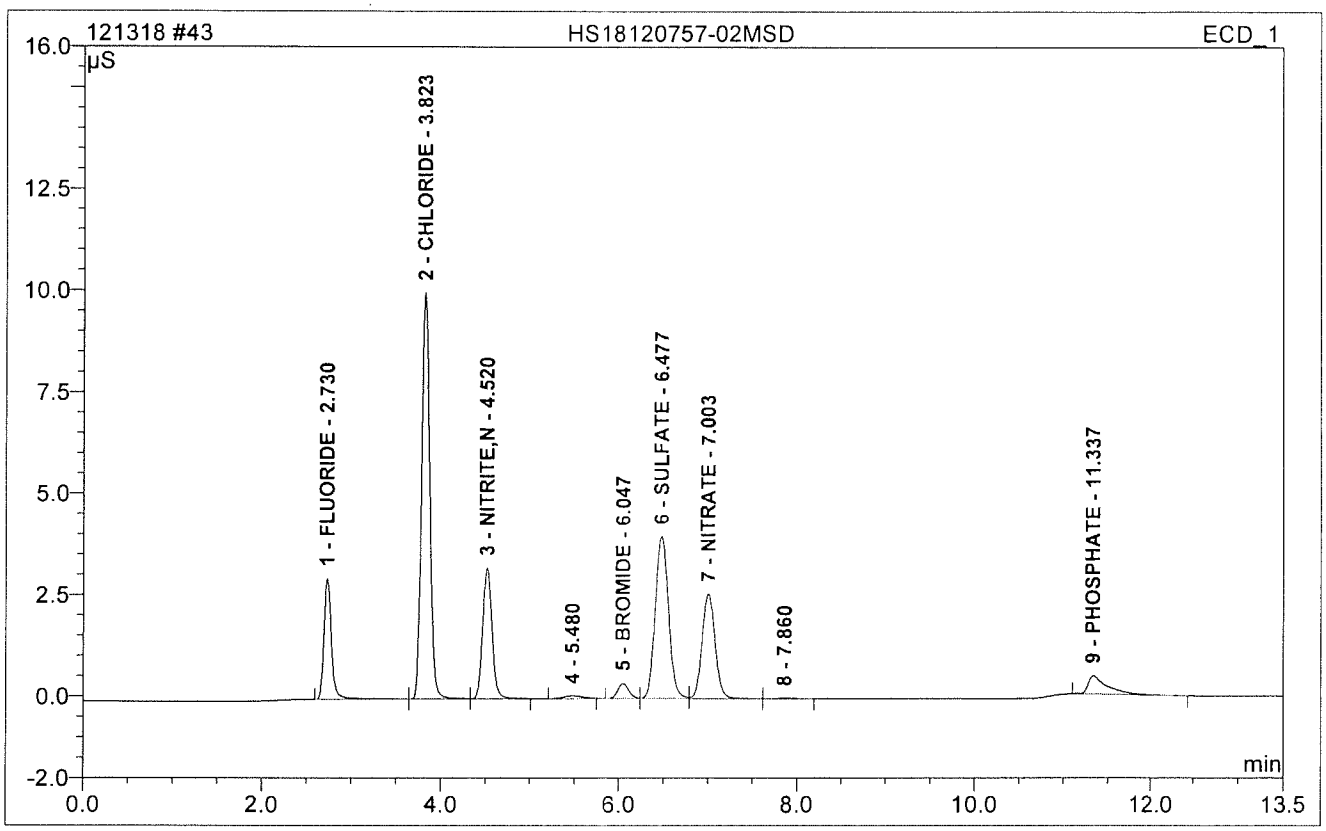
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120757-02MS** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **39** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 21:21** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.953 | 0.284 | 9.28 | 2.064 | 1. |
| 2 | 3.82 | CHLORIDE | 9.949 | 1.067 | 34.83 | 12.251 | 1. |
| 3 | 4.52 | NITRITE,N | 3.199 | 0.392 | 12.81 | 2.117 | 1. |
| 5 | 6.05 | BROMIDE | 0.374 | 0.054 | 1.76 | 1.610 | 1. |
| 6 | 6.47 | SULFATE | 4.024 | 0.698 | 22.78 | 11.204 | 1. |
| 7 | 7.00 | NITRATE | 2.560 | 0.438 | 14.29 | 2.063 | 1. |
| 9 | 11.34 | PHOSPHATE | 0.451 | 0.111 | 3.62 | 1.560 | 1. |
| **Total:** | | | 23.509 | 3.043 | 99.36 | 32.870 | |

# 43 HS18120757-02MSD

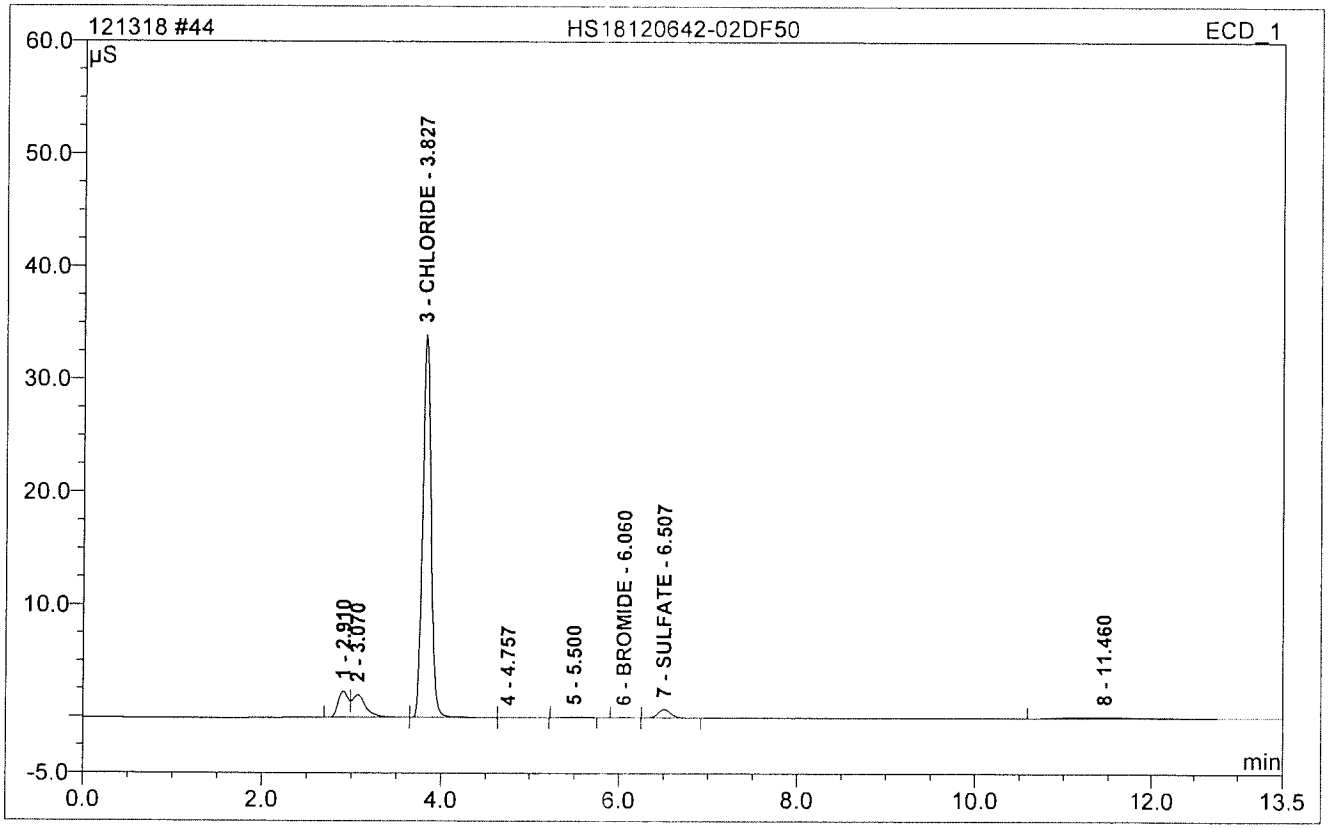
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120757-02MSD** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **40** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 21:35** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.975 | 0.293 | 9.50 | 2.125 | 1. |
| 2 | 3.82 | CHLORIDE | 10.006 | 1.072 | 34.78 | 12.306 | 1. |
| 3 | 4.52 | NITRITE,N | 3.218 | 0.394 | 12.80 | 2.129 | 1. |
| 5 | 6.05 | BROMIDE | 0.373 | 0.054 | 1.75 | 1.611 | 1. |
| 6 | 6.48 | SULFATE | 3.997 | 0.699 | 22.67 | 11.220 | 1. |
| 7 | 7.00 | NITRATE | 2.580 | 0.439 | 14.24 | 2.069 | 1. |
| 9 | 11.34 | PHOSPHATE | 0.447 | 0.111 | 3.62 | 1.570 | 1. |
| **Total:** | | | 23.596 | 3.062 | 99.37 | 33.029 | |

# 44 HS18120642-02DF50

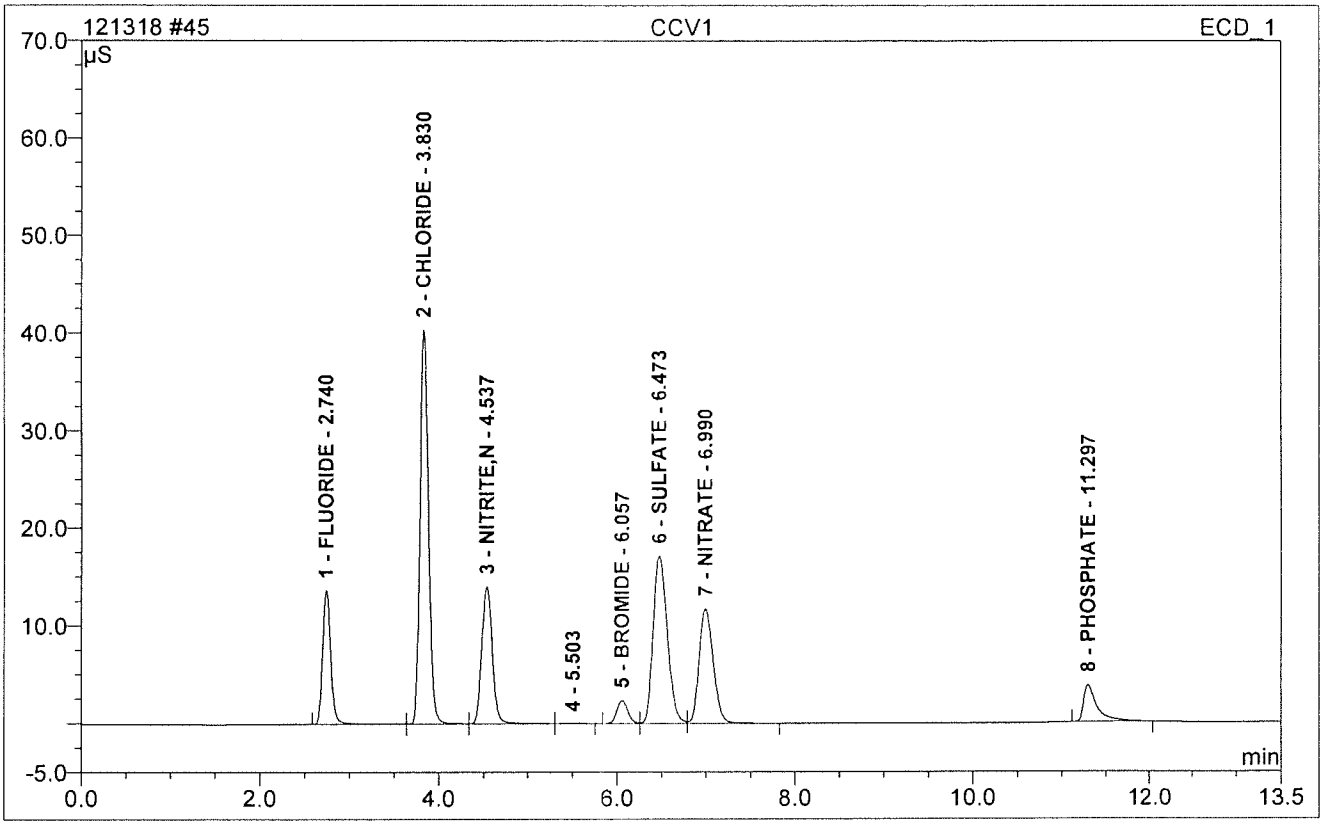
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120642-02DF50** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **46** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **50.** |
| *Recording Time:* | **12/13/2018 21:50** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 3 | 3.83 | CHLORIDE | 34.036 | 3.738 | 79.80 | 2123.020 | 50. |
| 6 | 6.06 | BROMIDE | 0.029 | 0.004 | 0.09 | 9.642 | 50. |
| 7 | 6.51 | SULFATE | 0.761 | 0.129 | 2.74 | 113.605 | 50. |
| **Total:** | | | 34.826 | 3.871 | 82.63 | 2246.267 | |

# 45 CCV1

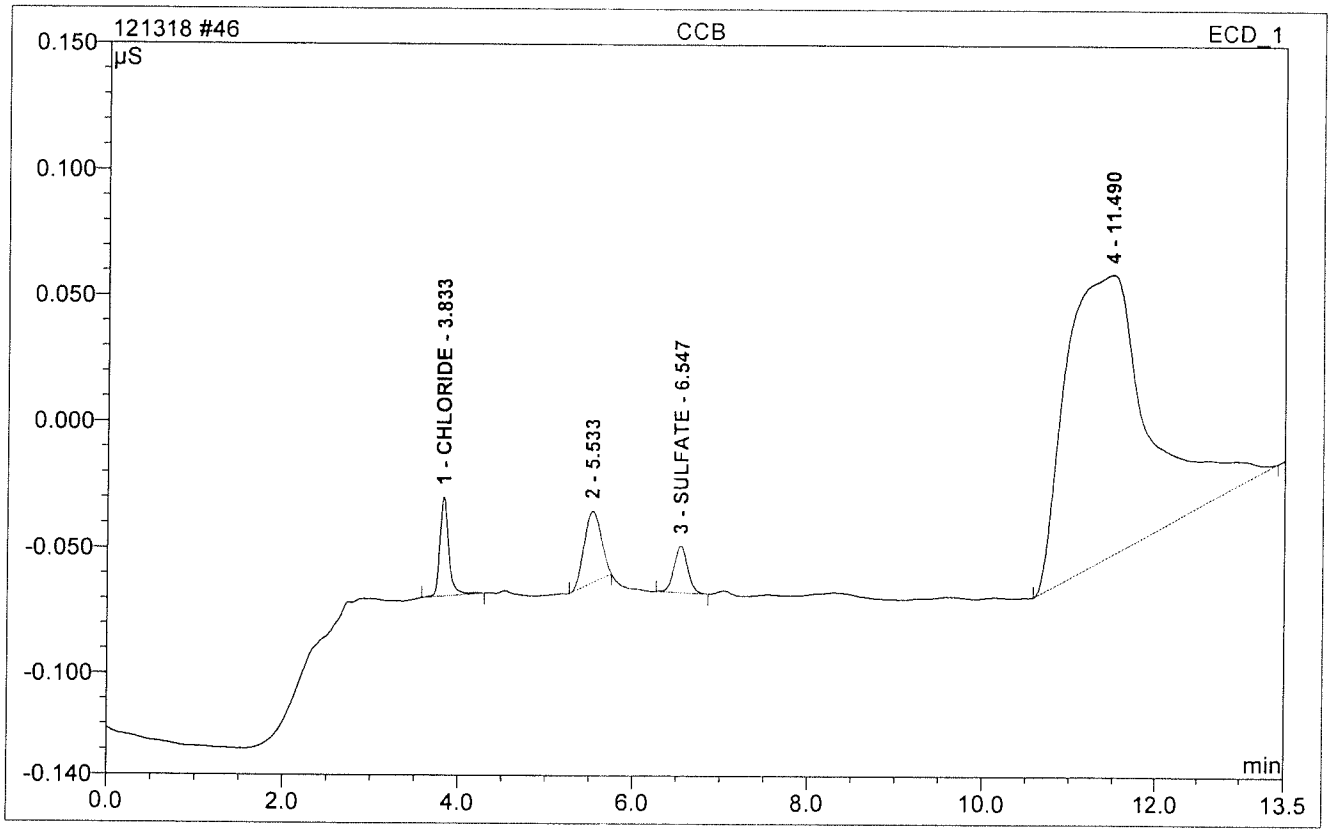
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 22:05** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 13.665 | 1.428 | 10.10 | 10.233 | 1. |
| 2 | 3.83 | CHLORIDE | 40.386 | 4.423 | 31.29 | 50.206 | 1. |
| 3 | 4.54 | NITRITE,N | 14.054 | 1.935 | 13.68 | 10.358 | 1. |
| 5 | 6.06 | BROMIDE | 2.367 | 0.339 | 2.40 | 9.741 | 1. |
| 6 | 6.47 | SULFATE | 17.142 | 3.178 | 22.48 | 50.142 | 1. |
| 7 | 6.99 | NITRATE | 11.745 | 2.172 | 15.37 | 10.012 | 1. |
| 8 | 11.30 | PHOSPHATE | 3.766 | 0.654 | 4.63 | 8.889 | 1. |
| **Total:** | | | 103.127 | 14.130 | 99.94 | 149.582 | |

# 46 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 22:19** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 3.83 | CHLORIDE | 0.039 | 0.005 | 3.31 | 0.241 | 1. |
| 3 | 6.55 | SULFATE | 0.019 | 0.003 | 2.40 | 0.307 | 1. |
| **Total:** | | | 0.058 | 0.008 | 5.71 | 0.548 | |

# HS18120736 Cover Page

ALS WO# HS18120736

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Form 11 - ICPMS05 Internal Standard Association

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Form 8 - ICPMS04_329719 SD

HS18120736 Wet Chem Raw Data

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# WorkOrder: HS18120736

**LHAAP-58**

**Bhate Environmental Associates, Inc.**

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**28-Jan-2019**

# HS18120736 LHAAP58 Final

ALS WO# HS18120736

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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January 04, 2019

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS18120736**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 9 sample(s) on Dec 13, 2018 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

**Generated By: JUMOKE.LAWAL**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18120736

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS18120736-01 | 03WW01_121218 | Groundwater | | 12-Dec-2018 08:20 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-02 | 35AWW08_121218 | Groundwater | | 12-Dec-2018 09:10 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-03 | 35AWW10_121218 | Groundwater | | 12-Dec-2018 10:30 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-04 | 35AWW10_121218_a | Groundwater | | 12-Dec-2018 10:30 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-05 | 35AWW16_121218 | Groundwater | | 12-Dec-2018 11:50 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-06 | 35AWW15_121218 | Groundwater | | 12-Dec-2018 12:40 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-07 | 35AWW05_121218 | Groundwater | | 12-Dec-2018 13:35 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-08 | 35AWW09_121118 | Water | | 11-Dec-2018 11:30 | 13-Dec-2018 09:35 | ☐ |
| HS18120736-09 | Trip Blank | Water | ALS 112818-39 | 12-Dec-2018 00:00 | 13-Dec-2018 09:35 | ☐ |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** LHAAP-58
**Work Order:** HS18120736

## Work Order Comments

- The analyses for RSK-175 Dissolved Gases and CO2 were subcontracted to ALS Environmental in Simi Valley, CA. Final Report attached.

  The analyses for Ferrous Iron and Volatile Fatty Acids were subcontracted to ALS Environmental in Rochester, NY. Final Report attached.

  The analysis for TOC was subcontracted to ALS Environmental in Kelso, WA. Final Report attached.

  The analyses for DHC/DHB were subcontracted to Microbial Insights in Knoxville, TN. Final Report attached.

## GCMS Volatiles by Method SW8260

### Batch ID: R329822

**Sample ID: 35AWW08_121218 (HS18120736-02)**

- Lowest practical dilution for sample HS18120736-02. Sample is very foamy.

**Sample ID: HS18120927-05MS**

- MS and MSD are for an unrelated sample.

### Batch ID: R329894

**Sample ID: HS18120913-03MS**

- MS and MSD are for an unrelated sample.

## Metals by Method SW6020

### Batch ID: 135804

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

### Batch ID: 135805

**Sample ID: HS18120927-08MS**

- MS and MSD are for an unrelated sample.

## WetChemistry by Method E376.1

### Batch ID: R330126

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method SW9056

### Batch ID: R329941

**Sample ID: 35AWW10_121218_a (HS18120736-04MS)**

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Sulfate)

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18120736

**CASE NARRATIVE**

## WetChemistry by Method SM2320B

### Batch ID: R329695

**Sample ID: 03WW01_121218 (HS18120736-01)**

- Dilution performed due to sample matrix.

**Sample ID: 35AWW08_121218 (HS18120736-02)**

- Dilution performed due to sample matrix.

## WetChemistry by Method E365.3

### Batch ID: 135984

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121218
Collection Date: 12-Dec-2018 08:20

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| **Acetone** | **25** | | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 22-Dec-2018 20:09 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121218
Collection Date: 12-Dec-2018 08:20

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| **cis-1,2-Dichloroethene** | **22** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 22-Dec-2018 20:09 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| **Tetrachloroethene** | **15** | | **0.30** | **0.50** | **1.0** | **UG/L** | 1 | 22-Dec-2018 20:09 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| **trans-1,2-Dichloroethene** | **0.62** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 22-Dec-2018 20:09 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| **Trichloroethene** | **5.7** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 22-Dec-2018 20:09 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:09 |
| **Vinyl chloride** | **7.6** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 22-Dec-2018 20:09 |
| *Surr: 1,2-Dichloroethane-d4* | *94.9* | | | **0** | *81-118* | *%REC* | *1* | *22-Dec-2018 20:09* |
| *Surr: 4-Bromofluorobenzene* | *99.0* | | | **0** | *85-114* | *%REC* | *1* | *22-Dec-2018 20:09* |
| *Surr: Dibromofluoromethane* | *90.2* | | | **0** | *80-119* | *%REC* | *1* | *22-Dec-2018 20:09* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *22-Dec-2018 20:09* |
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Iron** | **32.9** | | **0.0120** | **0.100** | **0.200** | **mg/L** | 1 | 21-Dec-2018 21:37 |
| **Manganese** | **4.82** | | **0.0350** | **0.0500** | **0.250** | **mg/L** | 50 | 24-Dec-2018 13:38 |
| **DISSOLVED METALS BY SW6020A** | | **Method:SW6020 (dissolved)** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Iron** | **32.1** | | **0.0120** | **0.100** | **0.200** | **mg/L** | 1 | 21-Dec-2018 23:51 |
| **Manganese** | **4.22** | | **0.0350** | **0.0500** | **0.250** | **mg/L** | 50 | 24-Dec-2018 14:02 |
| **PHOSPHORUS BY E365.3** | | **Method:E365.3** | | | | Prep:E365.3 / 24-Dec-2018 | | Analyst: MZD |
| **Phosphorus, Total (As P)** | **3.05** | | **0.200** | **0.400** | **0.500** | **mg/L** | 1 | 24-Dec-2018 17:00 |
| **SULFIDE BY E376.1** | | **Method:E376.1** | | | | | | Analyst: KVL |
| Sulfide | 1.00 | U | 1.00 | 1.00 | 1.00 | mg/L | 1 | 19-Dec-2018 19:00 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121218
Collection Date: 12-Dec-2018 08:20

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **ALKALINITY BY SM2320B** | | **Method:SM2320B** | | | | | | Analyst: AJH |
| **Alkalinity, Total (As CaCO3)** | **862** | | **25.0** | **25.0** | **25.0** | **mg/L** | 5 | 20-Dec-2018 23:12 |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **336** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 13-Dec-2018 19:39 |
| Nitrogen, Nitrate (As N) | 0.100 | U | 0.0300 | 0.100 | 0.100 | mg/L | 1 | 13-Dec-2018 20:37 |
| Nitrogen, Nitrite (As N) | 0.100 | U | 0.0300 | 0.100 | 0.100 | mg/L | 1 | 13-Dec-2018 20:37 |
| **Sulfate** | **42.8** | | **0.200** | **0.500** | **0.500** | **mg/L** | 1 | 13-Dec-2018 20:37 |
| **SUBCONTRACT ANALYSIS - DHC/DHB** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Dec-2018 16:09 |
| **SUBCONTRACT ANALYSIS - FERROUS IRON** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:40 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:25 |
| **SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121218
Collection Date: 12-Dec-2018 09:10

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,1,1-Trichloroethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,1,2,2-Tetrachloroethane | 5.0 | U | 5.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,1,2-Trichloroethane | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,1-Dichloroethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,1-Dichloroethene | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,1-Dichloropropene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2,3-Trichlorobenzene | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2,3-Trichloropropane | 5.0 | U | 5.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2,4-Trichlorobenzene | 5.0 | U | 5.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2,4-Trimethylbenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2-Dibromo-3-chloropropane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2-Dibromoethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2-Dichlorobenzene | 5.0 | U | 5.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2-Dichloroethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,2-Dichloropropane | 5.0 | U | 5.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,3,5-Trimethylbenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,3-Dichlorobenzene | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,3-Dichloropropane | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 1,4-Dichlorobenzene | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 2,2-Dichloropropane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 2-Butanone | 10 | U | 5.0 | 10 | 20 | UG/L | 10 | 22-Dec-2018 19:44 |
| 2-Chlorotoluene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 2-Hexanone | 10 | U | 10 | 10 | 20 | UG/L | 10 | 22-Dec-2018 19:44 |
| 4-Chlorotoluene | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 4-Isopropyltoluene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| 4-Methyl-2-pentanone | 10 | U | 7.0 | 10 | 20 | UG/L | 10 | 22-Dec-2018 19:44 |
| **Acetone** | **76** | | **4.0** | **20** | **20** | **UG/L** | 10 | 22-Dec-2018 19:44 |
| Benzene | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Bromobenzene | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Bromochloromethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Bromodichloromethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Bromoform | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Bromomethane | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Carbon disulfide | 10 | U | 6.0 | 10 | 20 | UG/L | 10 | 22-Dec-2018 19:44 |
| Carbon tetrachloride | 5.0 | U | 5.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Chlorobenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Chloroethane | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Chloroform | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121218
Collection Date: 12-Dec-2018 09:10

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloromethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| **cis-1,2-Dichloroethene** | **8.9** | J | **2.0** | **5.0** | **10** | **UG/L** | 10 | 22-Dec-2018 19:44 |
| cis-1,3-Dichloropropene | 5.0 | U | 1.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Dibromochloromethane | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Dibromomethane | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Dichlorodifluoromethane | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Ethylbenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Hexachlorobutadiene | 10 | U | 10 | 10 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Isopropylbenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| m,p-Xylene | 10 | U | 5.0 | 10 | 20 | UG/L | 10 | 22-Dec-2018 19:44 |
| Methylene chloride | 5.0 | U | 4.0 | 5.0 | 20 | UG/L | 10 | 22-Dec-2018 19:44 |
| n-Butylbenzene | 5.0 | U | 4.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| n-Propylbenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Naphthalene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| o-Xylene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| sec-Butylbenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Styrene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| tert-Butylbenzene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Tetrachloroethene | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Toluene | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| trans-1,2-Dichloroethene | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| trans-1,3-Dichloropropene | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| **Trichloroethene** | **12** | | **2.0** | **5.0** | **10** | **UG/L** | 10 | 22-Dec-2018 19:44 |
| Trichlorofluoromethane | 5.0 | U | 3.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| Vinyl chloride | 5.0 | U | 2.0 | 5.0 | 10 | UG/L | 10 | 22-Dec-2018 19:44 |
| *Surr: 1,2-Dichloroethane-d4* | *95.4* | | | **0** | *81-118* | *%REC* | *10* | *22-Dec-2018 19:44* |
| *Surr: 4-Bromofluorobenzene* | *97.4* | | | **0** | *85-114* | *%REC* | *10* | *22-Dec-2018 19:44* |
| *Surr: Dibromofluoromethane* | *91.6* | | | **0** | *80-119* | *%REC* | *10* | *22-Dec-2018 19:44* |
| *Surr: Toluene-d8* | *104* | | | **0** | *89-112* | *%REC* | *10* | *22-Dec-2018 19:44* |
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Arsenic** | **0.0593** | | **0.00400** | **0.0100** | **0.0200** | **mg/L** | 10 | 21-Dec-2018 21:39 |
| **Iron** | **39.9** | | **0.120** | **1.00** | **2.00** | **mg/L** | 10 | 21-Dec-2018 21:39 |
| **Manganese** | **9.01** | | **0.00700** | **0.0100** | **0.0500** | **mg/L** | 10 | 21-Dec-2018 21:39 |
| **DISSOLVED METALS BY SW6020A** | | **Method:SW6020 (dissolved)** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Iron** | **38.2** | | **0.120** | **1.00** | **2.00** | **mg/L** | 10 | 21-Dec-2018 23:53 |
| **Manganese** | **8.96** | | **0.00700** | **0.0100** | **0.0500** | **mg/L** | 10 | 21-Dec-2018 23:53 |
| **PHOSPHORUS BY E365.3** | | **Method:E365.3** | | | | Prep:E365.3 / 24-Dec-2018 | | Analyst: MZD |
| **Phosphorus, Total (As P)** | **2.43** | | **0.200** | **0.400** | **0.500** | **mg/L** | 1 | 24-Dec-2018 17:00 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121218
Collection Date: 12-Dec-2018 09:10

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SULFIDE BY E376.1** | | **Method:E376.1** | | | | | | Analyst: KVL |
| Sulfide | 1.00 | U | 1.00 | 1.00 | 1.00 | mg/L | 1 | 19-Dec-2018 19:00 |
| **ALKALINITY BY SM2320B** | | **Method:SM2320B** | | | | | | Analyst: AJH |
| **Alkalinity, Total (As CaCO3)** | **3,420** | | **50.0** | **50.0** | **50.0** | **mg/L** | 10 | 20-Dec-2018 23:18 |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **2,240** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 13-Dec-2018 20:08 |
| **Nitrogen, Nitrate (As N)** | **0.147** | J | **0.0600** | **0.200** | **0.200** | **mg/L** | 2 | 13-Dec-2018 19:53 |
| Nitrogen, Nitrite (As N) | 0.200 | U | 0.0600 | 0.200 | 0.200 | mg/L | 2 | 13-Dec-2018 19:53 |
| **Sulfate** | **4.76** | | **0.400** | **1.00** | **1.00** | **mg/L** | 2 | 13-Dec-2018 19:53 |
| **SUBCONTRACT ANALYSIS - DHC/DHB** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Dec-2018 16:09 |
| **SUBCONTRACT ANALYSIS - FERROUS IRON** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:40 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:25 |
| **SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218
Collection Date: 12-Dec-2018 10:30

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218
Collection Date: 12-Dec-2018 10:30

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:33 |
| *Surr: 1,2-Dichloroethane-d4* | *97.5* | | | **0** | *81-118* | *%REC* | *1* | *22-Dec-2018 20:33* |
| *Surr: 4-Bromofluorobenzene* | *97.1* | | | **0** | *85-114* | *%REC* | *1* | *22-Dec-2018 20:33* |
| *Surr: Dibromofluoromethane* | *92.5* | | | **0** | *80-119* | *%REC* | *1* | *22-Dec-2018 20:33* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *22-Dec-2018 20:33* |
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Iron** | **0.340** | | **0.0120** | **0.100** | **0.200** | **mg/L** | 1 | 21-Dec-2018 21:41 |
| **Manganese** | **0.0474** | | **0.000700** | **0.00100** | **0.00500** | **mg/L** | 1 | 21-Dec-2018 21:41 |
| **DISSOLVED METALS BY SW6020A** | | **Method:SW6020 (dissolved)** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Iron** | **0.332** | | **0.0120** | **0.100** | **0.200** | **mg/L** | 1 | 21-Dec-2018 23:55 |
| **Manganese** | **0.0512** | | **0.000700** | **0.00100** | **0.00500** | **mg/L** | 1 | 21-Dec-2018 23:55 |
| **PHOSPHORUS BY E365.3** | | **Method:E365.3** | | | | Prep:E365.3 / 24-Dec-2018 | | Analyst: MZD |
| **Phosphorus, Total (As P)** | **0.244** | | **0.0200** | **0.0400** | **0.0500** | **mg/L** | 1 | 24-Dec-2018 17:00 |
| **SULFIDE BY E376.1** | | **Method:E376.1** | | | | | | Analyst: KVL |
| Sulfide | 1.00 | U | 1.00 | 1.00 | 1.00 | mg/L | 1 | 19-Dec-2018 19:00 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218
Collection Date: 12-Dec-2018 10:30

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **ALKALINITY BY SM2320B** | | **Method:SM2320B** | | | | | | Analyst: AJH |
| **Alkalinity, Total (As CaCO3)** | **50.4** | | **5.00** | **5.00** | **5.00** | **mg/L** | 1 | 20-Dec-2018 23:39 |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **4.83** | | **0.200** | **0.500** | **0.500** | **mg/L** | 1 | 13-Dec-2018 16:56 |
| **Nitrogen, Nitrate (As N)** | **0.131** | | **0.0300** | **0.100** | **0.100** | **mg/L** | 1 | 13-Dec-2018 16:56 |
| Nitrogen, Nitrite (As N) | 0.100 | U | 0.0300 | 0.100 | 0.100 | mg/L | 1 | 13-Dec-2018 16:56 |
| **Sulfate** | **50.3** | | **0.200** | **0.500** | **0.500** | **mg/L** | 1 | 13-Dec-2018 16:56 |
| **SUBCONTRACT ANALYSIS - DHC/DHB** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Dec-2018 16:09 |
| **SUBCONTRACT ANALYSIS - FERROUS IRON** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:40 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:25 |
| **SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218_a
Collection Date: 12-Dec-2018 10:30

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218_a
Collection Date: 12-Dec-2018 10:30

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 22-Dec-2018 20:58 |
| *Surr: 1,2-Dichloroethane-d4* | *96.3* | | | **0** | *81-118* | *%REC* | *1* | *22-Dec-2018 20:58* |
| *Surr: 4-Bromofluorobenzene* | *97.2* | | | **0** | *85-114* | *%REC* | *1* | *22-Dec-2018 20:58* |
| *Surr: Dibromofluoromethane* | *91.5* | | | **0** | *80-119* | *%REC* | *1* | *22-Dec-2018 20:58* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *22-Dec-2018 20:58* |
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Iron** | **0.166** | J | **0.0120** | **0.100** | **0.200** | **mg/L** | 1 | 21-Dec-2018 21:44 |
| **Manganese** | **0.0530** | | **0.000700** | **0.00100** | **0.00500** | **mg/L** | 1 | 21-Dec-2018 21:44 |
| **DISSOLVED METALS BY SW6020A** | | **Method:SW6020 (dissolved)** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Iron** | **0.227** | | **0.0120** | **0.100** | **0.200** | **mg/L** | 1 | 21-Dec-2018 23:58 |
| **Manganese** | **0.0567** | | **0.000700** | **0.00100** | **0.00500** | **mg/L** | 1 | 21-Dec-2018 23:58 |
| **PHOSPHORUS BY E365.3** | | **Method:E365.3** | | | | Prep:E365.3 / 24-Dec-2018 | | Analyst: MZD |
| **Phosphorus, Total (As P)** | **0.253** | | **0.0200** | **0.0400** | **0.0500** | **mg/L** | 1 | 24-Dec-2018 17:00 |
| **SULFIDE BY E376.1** | | **Method:E376.1** | | | | | | Analyst: KVL |
| Sulfide | 1.00 | U | 1.00 | 1.00 | 1.00 | mg/L | 1 | 19-Dec-2018 19:00 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218_a
Collection Date: 12-Dec-2018 10:30

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **ALKALINITY BY SM2320B** | | **Method:SM2320B** | | | | | | Analyst: AJH |
| **Alkalinity, Total (As CaCO3)** | **55.1** | | **5.00** | **5.00** | **5.00** | **mg/L** | 1 | 20-Dec-2018 23:45 |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **5.17** | | **0.200** | **0.500** | **0.500** | **mg/L** | 1 | 13-Dec-2018 17:25 |
| **Nitrogen, Nitrate (As N)** | **0.159** | | **0.0300** | **0.100** | **0.100** | **mg/L** | 1 | 13-Dec-2018 17:25 |
| Nitrogen, Nitrite (As N) | 0.100 | U | 0.0300 | 0.100 | 0.100 | mg/L | 1 | 13-Dec-2018 17:25 |
| **Sulfate** | **53.4** | | **0.200** | **0.500** | **0.500** | **mg/L** | 1 | 13-Dec-2018 17:25 |
| **SUBCONTRACT ANALYSIS - FERROUS IRON** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:40 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 28-Dec-2018 10:25 |
| **SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Jan-2019 10:12 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW16_121218
Collection Date: 12-Dec-2018 11:50

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW16_121218
Collection Date: 12-Dec-2018 11:50

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:20 |
| *Surr: 1,2-Dichloroethane-d4* | *96.6* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 12:20* |
| *Surr: 4-Bromofluorobenzene* | *97.8* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 12:20* |
| *Surr: Dibromofluoromethane* | *89.9* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 12:20* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 12:20* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_121218
Collection Date: 12-Dec-2018 12:40

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-06
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| **Acetone** | **1.9** | J | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 24-Dec-2018 12:45 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_121218
Collection Date: 12-Dec-2018 12:40

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-06
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 12:45 |
| *Surr: 1,2-Dichloroethane-d4* | *96.6* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 12:45* |
| *Surr: 4-Bromofluorobenzene* | *98.6* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 12:45* |
| *Surr: Dibromofluoromethane* | *90.6* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 12:45* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 12:45* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_121218
Collection Date: 12-Dec-2018 13:35

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_121218
Collection Date: 12-Dec-2018 13:35

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:10 |
| *Surr: 1,2-Dichloroethane-d4* | *95.6* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 13:10* |
| *Surr: 4-Bromofluorobenzene* | *98.1* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 13:10* |
| *Surr: Dibromofluoromethane* | *89.6* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 13:10* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 13:10* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_121118
Collection Date: 11-Dec-2018 11:30

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-08
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| **Arsenic** | **0.000964** | J | **0.000400** | **0.00100** | **0.00200** | **mg/L** | 1 | 21-Dec-2018 21:46 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 12-Dec-2018 00:00

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-09
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 12-Dec-2018 00:00

**ANALYTICAL REPORT**
WorkOrder:HS18120736
Lab ID:HS18120736-09
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:31 |
| *Surr: 1,2-Dichloroethane-d4* | *95.7* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 11:31* |
| *Surr: 4-Bromofluorobenzene* | *98.7* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 11:31* |
| *Surr: Dibromofluoromethane* | *89.9* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 11:31* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 11:31* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**WEIGHT LOG**

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**Batch ID:** 135804 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

| SampID | Container | Sample Wt/Vol | Final Volume | Prep Factor |
|---|---|---|---|---|
| HS18120736-01 | 1 | 10 | 10 (mL) | 1 |
| HS18120736-02 | 1 | 10 | 10 (mL) | 1 |
| HS18120736-03 | 1 | 10 | 10 (mL) | 1 |
| HS18120736-04 | 1 | 10 | 10 (mL) | 1 |
| HS18120736-08 | 1 | 10 | 10 (mL) | 1 |

**Batch ID:** 135805 **Method:** DISSOLVED METALS BY SW6020A **Prep:** 3010A DISS

| SampID | Container | Sample Wt/Vol | Final Volume | Prep Factor |
|---|---|---|---|---|
| HS18120736-01 | 1 | 10 | 10 (mL) | 1 |
| HS18120736-02 | 1 | 10 | 10 (mL) | 1 |
| HS18120736-03 | 1 | 10 | 10 (mL) | 1 |
| HS18120736-04 | 1 | 10 | 10 (mL) | 1 |

**Batch ID:** 135984 **Method:** PHOSPHORUS BY E365.3 **Prep:** P_TW_PR

| SampID | Container | Sample Wt/Vol | Final Volume | Prep Factor |
|---|---|---|---|---|
| HS18120736-01 | 1 | 5 | 50 (mL) | 10 |
| HS18120736-02 | 1 | 5 | 50 (mL) | 10 |
| HS18120736-03 | 1 | 50 | 50 (mL) | 1 |
| HS18120736-04 | 1 | 50 | 50 (mL) | 1 |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** 135804 | **Test Name :** ICP-MS METALS BY SW6020A | | | **Matrix:** Water | | |
| HS18120736-08 | 35AWW09_121118 | 11 Dec 2018 11:30 | | 19 Dec 2018 13:00 | 21 Dec 2018 21:46 | 1 |
| **Batch ID** 135804 | **Test Name :** ICP-MS METALS BY SW6020A | | | **Matrix:** Groundwater | | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | 19 Dec 2018 13:00 | 24 Dec 2018 13:38 | 50 |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | 19 Dec 2018 13:00 | 21 Dec 2018 21:37 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | 19 Dec 2018 13:00 | 21 Dec 2018 21:39 | 10 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | 19 Dec 2018 13:00 | 21 Dec 2018 21:41 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | 19 Dec 2018 13:00 | 21 Dec 2018 21:44 | 1 |
| **Batch ID** 135805 | **Test Name :** DISSOLVED METALS BY SW6020A | | | **Matrix:** Groundwater | | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | 19 Dec 2018 13:00 | 24 Dec 2018 14:02 | 50 |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | 19 Dec 2018 13:00 | 21 Dec 2018 23:51 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | 19 Dec 2018 13:00 | 21 Dec 2018 23:53 | 10 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | 19 Dec 2018 13:00 | 21 Dec 2018 23:55 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | 19 Dec 2018 13:00 | 21 Dec 2018 23:58 | 1 |
| **Batch ID** 135984 | **Test Name :** PHOSPHORUS BY E365.3 | | | **Matrix:** Groundwater | | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | 24 Dec 2018 12:00 | 24 Dec 2018 17:00 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | 24 Dec 2018 12:00 | 24 Dec 2018 17:00 | 1 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | 24 Dec 2018 12:00 | 24 Dec 2018 17:00 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | 24 Dec 2018 12:00 | 24 Dec 2018 17:00 | 1 |
| **Batch ID** R329596 | **Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB | | | **Matrix:** Groundwater | | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 19 Dec 2018 16:09 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 19 Dec 2018 16:09 | 1 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 19 Dec 2018 16:09 | 1 |
| **Batch ID** R329695 | **Test Name :** ALKALINITY BY SM2320B | | | **Matrix:** Groundwater | | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 20 Dec 2018 23:12 | 5 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 20 Dec 2018 23:18 | 10 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 20 Dec 2018 23:39 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 20 Dec 2018 23:45 | 1 |
| **Batch ID** R329822 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Groundwater | | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 22 Dec 2018 20:09 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 22 Dec 2018 19:44 | 10 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 22 Dec 2018 20:33 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 22 Dec 2018 20:58 | 1 |
| **Batch ID** R329894 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Water | | |
| HS18120736-09 | Trip Blank | 12 Dec 2018 00:00 | | | 24 Dec 2018 11:31 | 1 |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R329894 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | | **Matrix:** Groundwater | |
| HS18120736-05 | 35AWW16_121218 | 12 Dec 2018 11:50 | | | 24 Dec 2018 12:20 | 1 |
| HS18120736-06 | 35AWW15_121218 | 12 Dec 2018 12:40 | | | 24 Dec 2018 12:45 | 1 |
| HS18120736-07 | 35AWW05_121218 | 12 Dec 2018 13:35 | | | 24 Dec 2018 13:10 | 1 |
| **Batch ID** R329941 | **Test Name :** ANIONS BY SW9056A | | | | **Matrix:** Groundwater | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 13 Dec 2018 20:37 | 1 |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 13 Dec 2018 19:39 | 50 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 13 Dec 2018 20:08 | 50 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 13 Dec 2018 19:53 | 2 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 13 Dec 2018 16:56 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 13 Dec 2018 17:25 | 1 |
| **Batch ID** R330084 | **Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS | | | | **Matrix:** Groundwater | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 28 Dec 2018 10:25 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 28 Dec 2018 10:25 | 1 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 28 Dec 2018 10:25 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 28 Dec 2018 10:25 | 1 |
| **Batch ID** R330087 | **Test Name :** SUBCONTRACT ANALYSIS - RSK | | | | **Matrix:** Groundwater | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 28 Dec 2018 10:40 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 28 Dec 2018 10:40 | 1 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 28 Dec 2018 10:40 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 28 Dec 2018 10:40 | 1 |
| **Batch ID** R330126 | **Test Name :** SULFIDE BY E376.1 | | | | **Matrix:** Groundwater | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 19 Dec 2018 19:00 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 19 Dec 2018 19:00 | 1 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 19 Dec 2018 19:00 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 19 Dec 2018 19:00 | 1 |
| **Batch ID** R330453 | **Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS | | | | **Matrix:** Groundwater | |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 04 Jan 2019 10:12 | 1 |
| HS18120736-01 | 03WW01_121218 | 12 Dec 2018 08:20 | | | 04 Jan 2019 10:12 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 04 Jan 2019 10:12 | 1 |
| HS18120736-02 | 35AWW08_121218 | 12 Dec 2018 09:10 | | | 04 Jan 2019 10:12 | 1 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 04 Jan 2019 10:12 | 1 |
| HS18120736-03 | 35AWW10_121218 | 12 Dec 2018 10:30 | | | 04 Jan 2019 10:12 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 04 Jan 2019 10:12 | 1 |
| HS18120736-04 | 35AWW10_121218_a | 12 Dec 2018 10:30 | | | 04 Jan 2019 10:12 | 1 |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: 135804** **Instrument: ICPMS04** **Method: SW6020**

**MBLK** Sample ID: **MBLK-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:07**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879116** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00100 | 0.00200 | | | | | | | | U |
| Iron | 0.100 | 0.200 | | | | | | | | U |
| Manganese | 0.00100 | 0.00500 | | | | | | | | U |

**LCS** Sample ID: **LCS-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:10**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879117** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.04962 | 0.00200 | 0.05 | 0 | 99.2 | 80 - 120 | | | | |
| Iron | 4.811 | 0.200 | 5 | 0 | 96.2 | 80 - 120 | | | | |
| Manganese | 0.04729 | 0.00500 | 0.05 | 0 | 94.6 | 80 - 120 | | | | |

**MS** Sample ID: **HS18120913-04MS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:12**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879142** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.05079 | 0.00200 | 0.05 | 0.000056 | 101 | 80 - 120 | | | | |
| Iron | 15.56 | 0.200 | 5 | 10.76 | 96.0 | 80 - 120 | | | | |
| Manganese | 0.1135 | 0.00500 | 0.05 | 0.06587 | 95.3 | 80 - 120 | | | | |

**MSD** Sample ID: **HS18120913-04MSD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:14**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879143** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.04889 | 0.00200 | 0.05 | 0.000056 | 97.7 | 80 - 120 | 0.05079 | 3.81 | 20 | |
| Iron | 15.34 | 0.200 | 5 | 10.76 | 91.6 | 80 - 120 | 15.56 | 1.43 | 20 | |
| Manganese | 0.1084 | 0.00500 | 0.05 | 0.06587 | 85.0 | 80 - 120 | 0.1135 | 4.65 | 20 | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: 135804** **Instrument: ICPMS04** **Method: SW6020**

**PDS** Sample ID: **HS18120913-04PDS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:17**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879144** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.1074 | 0.00200 | 0.1 | 0.000056 | 107 | 75 - 125 | | | | |
| Iron | 22.17 | 0.200 | 10 | 10.76 | 114 | 75 - 125 | | | | |
| Manganese | 0.1632 | 0.00500 | 0.1 | 0.06587 | 97.3 | 75 - 125 | | | | |

**SD** Sample ID: **HS18120913-04SD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:10**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879141** PrepDate: **19-Dec-2018** DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %D | %D Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00500 | 0.0100 | | | | | 0.000056 | 0 | 10 | U |
| Iron | 11.5 | 1.00 | | | | | 10.76 | 6.85 | 10 | |
| Manganese | 0.06612 | 0.0250 | | | | | 0.06587 | 0.376 | 10 | |

**The following samples were analyzed in this batch:** HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04 HS18120736-08

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: 135805** **Instrument: ICPMS04** **Method: SW6020 (dissolved) (DISSOLVED)**

**MBLK** Sample ID: **MBLK-135805** Units: **mg/L** Analysis Date: **21-Dec-2018 23:24**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879287** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 0.100 | 0.200 | | | | | | | | U |
| Manganese | 0.00100 | 0.00500 | | | | | | | | U |

**LCS** Sample ID: **LCS-135805** Units: **mg/L** Analysis Date: **21-Dec-2018 23:26**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879288** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.612 | 0.200 | 5 | 0 | 92.2 | 80 - 120 | | | | |
| Manganese | 0.04744 | 0.00500 | 0.05 | 0 | 94.9 | 80 - 120 | | | | |

**MS** Sample ID: **HS18120927-08MS** Units: **mg/L** Analysis Date: **22-Dec-2018 00:45**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879323** PrepDate: **19-Dec-2018** DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.965 | 2.00 | 5 | 0.101 | 97.3 | 75 - 125 | | | | |
| Manganese | 0.04104 | 0.0500 | 0.05 | 0.004999 | 72.1 | 75 - 125 | | | | JS |

**MSD** Sample ID: **HS18120927-08MSD** Units: **mg/L** Analysis Date: **22-Dec-2018 00:47**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879324** PrepDate: **19-Dec-2018** DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.346 | 2.00 | 5 | 0.101 | 84.9 | 75 - 125 | 4.965 | 13.3 | 20 | |
| Manganese | 0.03526 | 0.0500 | 0.05 | 0.004999 | 60.5 | 75 - 125 | 0.04104 | 0 | 20 | JS |

**PDS** Sample ID: **HS18120927-08PDS** Units: **mg/L** Analysis Date: **22-Dec-2018 00:50**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879325** PrepDate: **19-Dec-2018** DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 99.19 | 2.00 | 100 | 0 | 99.2 | 75 - 125 | | | | |
| Manganese | 1.104 | 0.0500 | 1 | 0 | 110 | 75 - 125 | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: 135805** **Instrument: ICPMS04** **Method: SW6020 (dissolved) (DISSOLVED)**

**SD** Sample ID: **HS18120927-08SD** Units: **mg/L** Analysis Date: **22-Dec-2018 00:43**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879322** PrepDate: **19-Dec-2018** DF: **50**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %D | %D Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 0.6201 | 10.0 | | | | | 0.101 | 0 | 10 | J |
| Manganese | 0.0500 | 0.250 | | | | | 0.004999 | 0 | 10 | U |

**The following samples were analyzed in this batch:** HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181222** Units: **UG/L** Analysis Date: **22-Dec-2018 12:18**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879626** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,1-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,3,5-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 2,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 2-Butanone | 1.0 | 2.0 | | | | | | | | U |
| 2-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 2-Hexanone | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 1.0 | 2.0 | | | | | | | | U |
| Acetone | 2.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181222** Units: **UG/L** Analysis Date: **22-Dec-2018 12:18**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879626** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 1.0 | 2.0 | | | | | | | | U |
| Carbon tetrachloride | 0.50 | 1.0 | | | | | | | | U |
| Chlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| Chloroethane | 0.50 | 1.0 | | | | | | | | U |
| Chloroform | 0.50 | 1.0 | | | | | | | | U |
| Chloromethane | 0.50 | 1.0 | | | | | | | | U |
| cis-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| cis-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Dibromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Dibromomethane | 0.50 | 1.0 | | | | | | | | U |
| Dichlorodifluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Ethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Hexachlorobutadiene | 1.0 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 0.50 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| n-Propylbenzene | 0.50 | 1.0 | | | | | | | | U |
| o-Xylene | 0.50 | 1.0 | | | | | | | | U |
| sec-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Styrene | 0.50 | 1.0 | | | | | | | | U |
| tert-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Tetrachloroethene | 0.50 | 1.0 | | | | | | | | U |
| Toluene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Trichloroethene | 0.50 | 1.0 | | | | | | | | U |
| Trichlorofluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Vinyl chloride | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *46.45* | *1.0* | *50* | *0* | *92.9* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *49.25* | *1.0* | *50* | *0* | *98.5* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *43.49* | *1.0* | *50* | *0* | *87.0* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *52.33* | *1.0* | *50* | *0* | *105* | *89 - 112* | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812022** Units: **UG/L** Analysis Date: **22-Dec-2018 11:28**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879625** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 19.87 | 1.0 | 20 | 0 | 99.3 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 20.02 | 1.0 | 20 | 0 | 100 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 20 | 1.0 | 20 | 0 | 100 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 20.26 | 1.0 | 20 | 0 | 101 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 20.14 | 1.0 | 20 | 0 | 101 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 19.53 | 1.0 | 20 | 0 | 97.6 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 19.53 | 1.0 | 20 | 0 | 97.7 | 78 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 19.73 | 1.0 | 20 | 0 | 98.6 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 20.19 | 1.0 | 20 | 0 | 101 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 19.84 | 1.0 | 20 | 0 | 99.2 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 20.42 | 1.0 | 20 | 0 | 102 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 19.13 | 1.0 | 20 | 0 | 95.7 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 21.02 | 1.0 | 20 | 0 | 105 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 19.5 | 1.0 | 20 | 0 | 97.5 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 20.5 | 1.0 | 20 | 0 | 102 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 20.11 | 1.0 | 20 | 0 | 101 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 20.15 | 1.0 | 20 | 0 | 101 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 19.53 | 1.0 | 20 | 0 | 97.6 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 20.44 | 1.0 | 20 | 0 | 102 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 19.13 | 1.0 | 20 | 0 | 95.6 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 20.92 | 1.0 | 20 | 0 | 105 | 60 - 139 | | | | |
| 2-Butanone | 41.9 | 2.0 | 40 | 0 | 105 | 56 - 143 | | | | |
| 2-Chlorotoluene | 19.88 | 1.0 | 20 | 0 | 99.4 | 79 - 122 | | | | |
| 2-Hexanone | 43.82 | 2.0 | 40 | 0 | 110 | 57 - 139 | | | | |
| 4-Chlorotoluene | 20.23 | 1.0 | 20 | 0 | 101 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 19.72 | 1.0 | 20 | 0 | 98.6 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 42.54 | 2.0 | 40 | 0 | 106 | 67 - 130 | | | | |
| Acetone | 43.87 | 2.0 | 40 | 0 | 110 | 39 - 160 | | | | |
| Benzene | 20.07 | 1.0 | 20 | 0 | 100 | 79 - 120 | | | | |
| Bromobenzene | 19.97 | 1.0 | 20 | 0 | 99.9 | 80 - 120 | | | | |
| Bromochloromethane | 21.98 | 1.0 | 20 | 0 | 110 | 78 - 123 | | | | |
| Bromodichloromethane | 20.39 | 1.0 | 20 | 0 | 102 | 79 - 125 | | | | |
| Bromoform | 18.95 | 1.0 | 20 | 0 | 94.7 | 66 - 130 | | | | |
| Bromomethane | 22.74 | 1.0 | 20 | 0 | 114 | 53 - 141 | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812022** Units: **UG/L** Analysis Date: **22-Dec-2018 11:28**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879625** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 39.56 | 2.0 | 40 | 0 | 98.9 | 64 - 133 | | | | |
| Carbon tetrachloride | 18.79 | 1.0 | 20 | 0 | 94.0 | 72 - 136 | | | | |
| Chlorobenzene | 19.95 | 1.0 | 20 | 0 | 99.7 | 82 - 118 | | | | |
| Chloroethane | 20.2 | 1.0 | 20 | 0 | 101 | 60 - 138 | | | | |
| Chloroform | 20.18 | 1.0 | 20 | 0 | 101 | 79 - 124 | | | | |
| Chloromethane | 23.38 | 1.0 | 20 | 0 | 117 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 20.59 | 1.0 | 20 | 0 | 103 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 19.44 | 1.0 | 20 | 0 | 97.2 | 75 - 124 | | | | |
| Dibromochloromethane | 19.36 | 1.0 | 20 | 0 | 96.8 | 74 - 126 | | | | |
| Dibromomethane | 20.44 | 1.0 | 20 | 0 | 102 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 19.68 | 1.0 | 20 | 0 | 98.4 | 32 - 152 | | | | |
| Ethylbenzene | 20.1 | 1.0 | 20 | 0 | 100 | 79 - 121 | | | | |
| Hexachlorobutadiene | 17.05 | 1.0 | 20 | 0 | 85.3 | 66 - 134 | | | | |
| Isopropylbenzene | 20.34 | 1.0 | 20 | 0 | 102 | 72 - 131 | | | | |
| m,p-Xylene | 40.53 | 2.0 | 40 | 0 | 101 | 80 - 121 | | | | |
| Methylene chloride | 20.32 | 2.0 | 20 | 0 | 102 | 74 - 124 | | | | |
| Naphthalene | 19.84 | 1.0 | 20 | 0 | 99.2 | 61 - 128 | | | | |
| n-Butylbenzene | 18.85 | 1.0 | 20 | 0 | 94.3 | 75 - 128 | | | | |
| n-Propylbenzene | 19.99 | 1.0 | 20 | 0 | 99.9 | 76 - 126 | | | | |
| o-Xylene | 20.62 | 1.0 | 20 | 0 | 103 | 78 - 122 | | | | |
| sec-Butylbenzene | 19.13 | 1.0 | 20 | 0 | 95.7 | 77 - 126 | | | | |
| Styrene | 21.44 | 1.0 | 20 | 0 | 107 | 78 - 123 | | | | |
| tert-Butylbenzene | 19.61 | 1.0 | 20 | 0 | 98.0 | 78 - 124 | | | | |
| Tetrachloroethene | 18.88 | 1.0 | 20 | 0 | 94.4 | 74 - 129 | | | | |
| Toluene | 20.38 | 1.0 | 20 | 0 | 102 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 20.25 | 1.0 | 20 | 0 | 101 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 19.15 | 1.0 | 20 | 0 | 95.8 | 73 - 127 | | | | |
| Trichloroethene | 19.86 | 1.0 | 20 | 0 | 99.3 | 79 - 123 | | | | |
| Trichlorofluoromethane | 20.19 | 1.0 | 20 | 0 | 101 | 65 - 141 | | | | |
| Vinyl chloride | 20.43 | 1.0 | 20 | 0 | 102 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *52.97* | *1.0* | *50* | *0* | *106* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.27* | *1.0* | *50* | *0* | *103* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *51.52* | *1.0* | *50* | *0* | *103* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *51.18* | *1.0* | *50* | *0* | *102* | *89 - 112* | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120927-05MS** Units: **UG/L** Analysis Date: **22-Dec-2018 13:57**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879630** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 24.94 | 1.0 | 20 | 0 | 125 | 78 - 124 | | | | S |
| 1,1,1-Trichloroethane | 24.67 | 1.0 | 20 | 0 | 123 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 25.5 | 1.0 | 20 | 0 | 128 | 71 - 121 | | | | S |
| 1,1,2-Trichloroethane | 25.56 | 1.0 | 20 | 0 | 128 | 80 - 119 | | | | S |
| 1,1-Dichloroethane | 23.44 | 1.0 | 20 | 0 | 117 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 23.44 | 1.0 | 20 | 0 | 117 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 26.44 | 1.0 | 20 | 0 | 132 | 78 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 24.93 | 1.0 | 20 | 0 | 125 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 24.99 | 1.0 | 20 | 0 | 125 | 73 - 122 | | | | S |
| 1,2,4-Trichlorobenzene | 25.55 | 1.0 | 20 | 0 | 128 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 27.34 | 1.0 | 20 | 0 | 137 | 76 - 124 | | | | S |
| 1,2-Dibromo-3-chloropropane | 23.87 | 1.0 | 20 | 0 | 119 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 26.09 | 1.0 | 20 | 0 | 130 | 77 - 121 | | | | S |
| 1,2-Dichlorobenzene | 25.3 | 1.0 | 20 | 0 | 126 | 80 - 119 | | | | S |
| 1,2-Dichloroethane | 25.88 | 1.0 | 20 | 0 | 129 | 73 - 128 | | | | S |
| 1,2-Dichloropropane | 25.49 | 1.0 | 20 | 0 | 127 | 78 - 122 | | | | S |
| 1,3,5-Trimethylbenzene | 27.67 | 1.0 | 20 | 0 | 138 | 75 - 124 | | | | S |
| 1,3-Dichlorobenzene | 25.27 | 1.0 | 20 | 0 | 126 | 80 - 119 | | | | S |
| 1,3-Dichloropropane | 25.9 | 1.0 | 20 | 0 | 130 | 80 - 119 | | | | S |
| 1,4-Dichlorobenzene | 24.68 | 1.0 | 20 | 0 | 123 | 79 - 118 | | | | S |
| 2,2-Dichloropropane | 24.7 | 1.0 | 20 | 0 | 124 | 60 - 139 | | | | |
| 2-Butanone | 45.06 | 2.0 | 40 | 0 | 113 | 56 - 143 | | | | |
| 2-Chlorotoluene | 26.48 | 1.0 | 20 | 0 | 132 | 79 - 122 | | | | S |
| 2-Hexanone | 54.57 | 2.0 | 40 | 0 | 136 | 57 - 139 | | | | |
| 4-Chlorotoluene | 26.53 | 1.0 | 20 | 0 | 133 | 78 - 122 | | | | S |
| 4-Isopropyltoluene | 27.81 | 1.0 | 20 | 0 | 139 | 77 - 127 | | | | S |
| 4-Methyl-2-pentanone | 53.91 | 2.0 | 40 | 0 | 135 | 67 - 130 | | | | S |
| Acetone | 52.06 | 2.0 | 40 | 6.812 | 113 | 39 - 160 | | | | |
| Benzene | 25.77 | 1.0 | 20 | 0 | 129 | 79 - 120 | | | | S |
| Bromobenzene | 25.72 | 1.0 | 20 | 0 | 129 | 80 - 120 | | | | S |
| Bromochloromethane | 24.92 | 1.0 | 20 | 0 | 125 | 78 - 123 | | | | S |
| Bromodichloromethane | 25.52 | 1.0 | 20 | 0 | 128 | 79 - 125 | | | | S |
| Bromoform | 23.45 | 1.0 | 20 | 0 | 117 | 66 - 130 | | | | |
| Bromomethane | 16.37 | 1.0 | 20 | 0 | 81.9 | 53 - 141 | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120927-05MS** Units: **UG/L** Analysis Date: **22-Dec-2018 13:57**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879630** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit Qual |
|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 45.7 | 2.0 | 40 | 0 | 114 | 64 - 133 | | | |
| Carbon tetrachloride | 25.64 | 1.0 | 20 | 0 | 128 | 72 - 136 | | | |
| Chlorobenzene | 25.89 | 1.0 | 20 | 0 | 129 | 82 - 118 | | | S |
| Chloroethane | 22.14 | 1.0 | 20 | 0 | 111 | 60 - 138 | | | |
| Chloroform | 23.42 | 1.0 | 20 | 0 | 117 | 79 - 124 | | | |
| Chloromethane | 20.56 | 1.0 | 20 | 0 | 103 | 50 - 139 | | | |
| cis-1,2-Dichloroethene | 23.51 | 1.0 | 20 | 0 | 118 | 78 - 123 | | | |
| cis-1,3-Dichloropropene | 23.36 | 1.0 | 20 | 0 | 117 | 75 - 124 | | | |
| Dibromochloromethane | 23.95 | 1.0 | 20 | 0 | 120 | 74 - 126 | | | |
| Dibromomethane | 25.5 | 1.0 | 20 | 0 | 128 | 79 - 123 | | | S |
| Dichlorodifluoromethane | 16.85 | 1.0 | 20 | 0 | 84.2 | 32 - 152 | | | |
| Ethylbenzene | 27.26 | 1.0 | 20 | 0 | 136 | 79 - 121 | | | S |
| Hexachlorobutadiene | 24.09 | 1.0 | 20 | 0 | 120 | 66 - 134 | | | |
| Isopropylbenzene | 27.98 | 1.0 | 20 | 0 | 140 | 72 - 131 | | | S |
| m,p-Xylene | 53.93 | 2.0 | 40 | 0 | 135 | 80 - 121 | | | S |
| Methylene chloride | 23.1 | 2.0 | 20 | 0 | 116 | 74 - 124 | | | |
| Naphthalene | 25.12 | 1.0 | 20 | 0 | 126 | 61 - 128 | | | |
| n-Butylbenzene | 27.37 | 1.0 | 20 | 0 | 137 | 75 - 128 | | | S |
| n-Propylbenzene | 27.85 | 1.0 | 20 | 0 | 139 | 76 - 126 | | | S |
| o-Xylene | 26.88 | 1.0 | 20 | 0 | 134 | 78 - 122 | | | S |
| sec-Butylbenzene | 28.04 | 1.0 | 20 | 0 | 140 | 77 - 126 | | | S |
| Styrene | 27.63 | 1.0 | 20 | 0 | 138 | 78 - 123 | | | S |
| tert-Butylbenzene | 27.8 | 1.0 | 20 | 0 | 139 | 78 - 124 | | | S |
| Tetrachloroethene | 28.12 | 1.0 | 20 | 0 | 141 | 74 - 129 | | | S |
| Toluene | 26.71 | 1.0 | 20 | 0 | 134 | 80 - 121 | | | S |
| trans-1,2-Dichloroethene | 23.68 | 1.0 | 20 | 0 | 118 | 75 - 124 | | | |
| trans-1,3-Dichloropropene | 23.44 | 1.0 | 20 | 0 | 117 | 73 - 127 | | | |
| Trichloroethene | 26.02 | 1.0 | 20 | 0 | 130 | 79 - 123 | | | S |
| Trichlorofluoromethane | 24.22 | 1.0 | 20 | 0 | 121 | 65 - 141 | | | |
| Vinyl chloride | 20.68 | 1.0 | 20 | 0 | 103 | 58 - 137 | | | |
| *Surr: 1,2-Dichloroethane-d4* | *45.51* | *1.0* | *50* | *0* | *91.0* | *81 - 118* | | | |
| *Surr: 4-Bromofluorobenzene* | *51.18* | *1.0* | *50* | *0* | *102* | *85 - 114* | | | |
| *Surr: Dibromofluoromethane* | *45.09* | *1.0* | *50* | *0* | *90.2* | *80 - 119* | | | |
| *Surr: Toluene-d8* | *52.7* | *1.0* | *50* | *0* | *105* | *89 - 112* | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120927-05MSD** Units: **UG/L** Analysis Date: **22-Dec-2018 14:22**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879631** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 24.81 | 1.0 | 20 | 0 | 124 | 78 - 124 | 24.94 | 0.537 | 20 | S |
| 1,1,1-Trichloroethane | 24.22 | 1.0 | 20 | 0 | 121 | 74 - 131 | 24.67 | 1.83 | 20 | |
| 1,1,2,2-Tetrachloroethane | 25.11 | 1.0 | 20 | 0 | 126 | 71 - 121 | 25.5 | 1.53 | 20 | S |
| 1,1,2-Trichloroethane | 25.73 | 1.0 | 20 | 0 | 129 | 80 - 119 | 25.56 | 0.693 | 20 | S |
| 1,1-Dichloroethane | 22.92 | 1.0 | 20 | 0 | 115 | 77 - 125 | 23.44 | 2.23 | 20 | |
| 1,1-Dichloroethene | 23.05 | 1.0 | 20 | 0 | 115 | 71 - 131 | 23.44 | 1.65 | 20 | |
| 1,1-Dichloropropene | 26.07 | 1.0 | 20 | 0 | 130 | 78 - 125 | 26.44 | 1.41 | 20 | S |
| 1,2,3-Trichlorobenzene | 24.88 | 1.0 | 20 | 0 | 124 | 69 - 129 | 24.93 | 0.208 | 20 | |
| 1,2,3-Trichloropropane | 25.58 | 1.0 | 20 | 0 | 128 | 73 - 122 | 24.99 | 2.31 | 20 | S |
| 1,2,4-Trichlorobenzene | 25.4 | 1.0 | 20 | 0 | 127 | 69 - 130 | 25.55 | 0.618 | 20 | |
| 1,2,4-Trimethylbenzene | 26.9 | 1.0 | 20 | 0 | 134 | 76 - 124 | 27.34 | 1.63 | 20 | S |
| 1,2-Dibromo-3-chloropropane | 24.32 | 1.0 | 20 | 0 | 122 | 62 - 128 | 23.87 | 1.85 | 20 | |
| 1,2-Dibromoethane | 26.14 | 1.0 | 20 | 0 | 131 | 77 - 121 | 26.09 | 0.214 | 20 | S |
| 1,2-Dichlorobenzene | 24.94 | 1.0 | 20 | 0 | 125 | 80 - 119 | 25.3 | 1.43 | 20 | S |
| 1,2-Dichloroethane | 25.87 | 1.0 | 20 | 0 | 129 | 73 - 128 | 25.88 | 0.0205 | 20 | S |
| 1,2-Dichloropropane | 25.02 | 1.0 | 20 | 0 | 125 | 78 - 122 | 25.49 | 1.88 | 20 | S |
| 1,3,5-Trimethylbenzene | 26.82 | 1.0 | 20 | 0 | 134 | 75 - 124 | 27.67 | 3.09 | 20 | S |
| 1,3-Dichlorobenzene | 25.3 | 1.0 | 20 | 0 | 127 | 80 - 119 | 25.27 | 0.137 | 20 | S |
| 1,3-Dichloropropane | 26.06 | 1.0 | 20 | 0 | 130 | 80 - 119 | 25.9 | 0.606 | 20 | S |
| 1,4-Dichlorobenzene | 24.32 | 1.0 | 20 | 0 | 122 | 79 - 118 | 24.68 | 1.46 | 20 | S |
| 2,2-Dichloropropane | 23.83 | 1.0 | 20 | 0 | 119 | 60 - 139 | 24.7 | 3.59 | 20 | |
| 2-Butanone | 46.98 | 2.0 | 40 | 0 | 117 | 56 - 143 | 45.06 | 4.16 | 20 | |
| 2-Chlorotoluene | 25.84 | 1.0 | 20 | 0 | 129 | 79 - 122 | 26.48 | 2.46 | 20 | S |
| 2-Hexanone | 56.56 | 2.0 | 40 | 0 | 141 | 57 - 139 | 54.57 | 3.58 | 20 | S |
| 4-Chlorotoluene | 26.05 | 1.0 | 20 | 0 | 130 | 78 - 122 | 26.53 | 1.82 | 20 | S |
| 4-Isopropyltoluene | 27.31 | 1.0 | 20 | 0 | 137 | 77 - 127 | 27.81 | 1.81 | 20 | S |
| 4-Methyl-2-pentanone | 55.54 | 2.0 | 40 | 0 | 139 | 67 - 130 | 53.91 | 2.99 | 20 | S |
| Acetone | 52.78 | 2.0 | 40 | 6.812 | 115 | 39 - 160 | 52.06 | 1.37 | 20 | |
| Benzene | 25.56 | 1.0 | 20 | 0 | 128 | 79 - 120 | 25.77 | 0.822 | 20 | S |
| Bromobenzene | 25.33 | 1.0 | 20 | 0 | 127 | 80 - 120 | 25.72 | 1.53 | 20 | S |
| Bromochloromethane | 24.65 | 1.0 | 20 | 0 | 123 | 78 - 123 | 24.92 | 1.07 | 20 | S |
| Bromodichloromethane | 25.17 | 1.0 | 20 | 0 | 126 | 79 - 125 | 25.52 | 1.37 | 20 | S |
| Bromoform | 23.77 | 1.0 | 20 | 0 | 119 | 66 - 130 | 23.45 | 1.36 | 20 | |
| Bromomethane | 18.44 | 1.0 | 20 | 0 | 92.2 | 53 - 141 | 16.37 | 11.9 | 20 | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329822** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120927-05MSD** Units: **UG/L** Analysis Date: **22-Dec-2018 14:22**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879631** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 44.61 | 2.0 | 40 | 0 | 112 | 64 - 133 | 45.7 | 2.42 | 20 | |
| Carbon tetrachloride | 25.1 | 1.0 | 20 | 0 | 125 | 72 - 136 | 25.64 | 2.16 | 20 | |
| Chlorobenzene | 25.62 | 1.0 | 20 | 0 | 128 | 82 - 118 | 25.89 | 1.05 | 20 | S |
| Chloroethane | 22 | 1.0 | 20 | 0 | 110 | 60 - 138 | 22.14 | 0.629 | 20 | |
| Chloroform | 23.15 | 1.0 | 20 | 0 | 116 | 79 - 124 | 23.42 | 1.16 | 20 | |
| Chloromethane | 19.72 | 1.0 | 20 | 0 | 98.6 | 50 - 139 | 20.56 | 4.16 | 20 | |
| cis-1,2-Dichloroethene | 23.07 | 1.0 | 20 | 0 | 115 | 78 - 123 | 23.51 | 1.89 | 20 | |
| cis-1,3-Dichloropropene | 23.25 | 1.0 | 20 | 0 | 116 | 75 - 124 | 23.36 | 0.462 | 20 | |
| Dibromochloromethane | 24.41 | 1.0 | 20 | 0 | 122 | 74 - 126 | 23.95 | 1.89 | 20 | |
| Dibromomethane | 25.3 | 1.0 | 20 | 0 | 127 | 79 - 123 | 25.5 | 0.79 | 20 | S |
| Dichlorodifluoromethane | 16.44 | 1.0 | 20 | 0 | 82.2 | 32 - 152 | 16.85 | 2.48 | 20 | |
| Ethylbenzene | 26.44 | 1.0 | 20 | 0 | 132 | 79 - 121 | 27.26 | 3.02 | 20 | S |
| Hexachlorobutadiene | 23.96 | 1.0 | 20 | 0 | 120 | 66 - 134 | 24.09 | 0.547 | 20 | |
| Isopropylbenzene | 27.49 | 1.0 | 20 | 0 | 137 | 72 - 131 | 27.98 | 1.77 | 20 | S |
| m,p-Xylene | 53.51 | 2.0 | 40 | 0 | 134 | 80 - 121 | 53.93 | 0.773 | 20 | S |
| Methylene chloride | 22.8 | 2.0 | 20 | 0 | 114 | 74 - 124 | 23.1 | 1.33 | 20 | |
| Naphthalene | 25.31 | 1.0 | 20 | 0 | 127 | 61 - 128 | 25.12 | 0.763 | 20 | |
| n-Butylbenzene | 26.56 | 1.0 | 20 | 0 | 133 | 75 - 128 | 27.37 | 2.98 | 20 | S |
| n-Propylbenzene | 27.1 | 1.0 | 20 | 0 | 135 | 76 - 126 | 27.85 | 2.72 | 20 | S |
| o-Xylene | 26.52 | 1.0 | 20 | 0 | 133 | 78 - 122 | 26.88 | 1.37 | 20 | S |
| sec-Butylbenzene | 27.23 | 1.0 | 20 | 0 | 136 | 77 - 126 | 28.04 | 2.91 | 20 | S |
| Styrene | 27.22 | 1.0 | 20 | 0 | 136 | 78 - 123 | 27.63 | 1.5 | 20 | S |
| tert-Butylbenzene | 27.28 | 1.0 | 20 | 0 | 136 | 78 - 124 | 27.8 | 1.89 | 20 | S |
| Tetrachloroethene | 26.71 | 1.0 | 20 | 0 | 134 | 74 - 129 | 28.12 | 5.15 | 20 | S |
| Toluene | 26.58 | 1.0 | 20 | 0 | 133 | 80 - 121 | 26.71 | 0.494 | 20 | S |
| trans-1,2-Dichloroethene | 23.03 | 1.0 | 20 | 0 | 115 | 75 - 124 | 23.68 | 2.76 | 20 | |
| trans-1,3-Dichloropropene | 23.2 | 1.0 | 20 | 0 | 116 | 73 - 127 | 23.44 | 1.01 | 20 | |
| Trichloroethene | 25.49 | 1.0 | 20 | 0 | 127 | 79 - 123 | 26.02 | 2.05 | 20 | S |
| Trichlorofluoromethane | 22.99 | 1.0 | 20 | 0 | 115 | 65 - 141 | 24.22 | 5.19 | 20 | |
| Vinyl chloride | 20.82 | 1.0 | 20 | 0 | 104 | 58 - 137 | 20.68 | 0.689 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *45.77* | *1.0* | *50* | *0* | *91.5* | *81 - 118* | *45.51* | *0.576* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *51.8* | *1.0* | *50* | *0* | *104* | *85 - 114* | *51.18* | *1.21* | *20* | |
| *Surr: Dibromofluoromethane* | *44.56* | *1.0* | *50* | *0* | *89.1* | *80 - 119* | *45.09* | *1.2* | *20* | |
| *Surr: Toluene-d8* | *52.97* | *1.0* | *50* | *0* | *106* | *89 - 112* | *52.7* | *0.504* | *20* | |

**ALS Houston, US** Date: 04-Jan-19

| | |
|---|---|
| **Client:** | Bhate Environmental Associates, Inc. |
| **Project:** | LHAAP-58 |
| **WorkOrder:** | HS18120736 |

**QC BATCH REPORT**

| | | | | | |
|---|---|---|---|---|---|
| **Batch ID:** | **R329822** | **Instrument:** | **VOA9** | **Method:** | **SW8260** |

| | | | | |
|---|---|---|---|---|
| **The following samples were analyzed in this batch:** | HS18120736-01 | HS18120736-02 | HS18120736-03 | HS18120736-04 |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,1-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,3,5-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 2,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 2-Butanone | 1.0 | 2.0 | | | | | | | | U |
| 2-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 2-Hexanone | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 1.0 | 2.0 | | | | | | | | U |
| Acetone | 2.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 1.0 | 2.0 | | | | | | | | U |
| Carbon tetrachloride | 0.50 | 1.0 | | | | | | | | U |
| Chlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| Chloroethane | 0.50 | 1.0 | | | | | | | | U |
| Chloroform | 0.50 | 1.0 | | | | | | | | U |
| Chloromethane | 0.50 | 1.0 | | | | | | | | U |
| cis-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| cis-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Dibromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Dibromomethane | 0.50 | 1.0 | | | | | | | | U |
| Dichlorodifluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Ethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Hexachlorobutadiene | 1.0 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 0.50 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| n-Propylbenzene | 0.50 | 1.0 | | | | | | | | U |
| o-Xylene | 0.50 | 1.0 | | | | | | | | U |
| sec-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Styrene | 0.50 | 1.0 | | | | | | | | U |
| tert-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Tetrachloroethene | 0.50 | 1.0 | | | | | | | | U |
| Toluene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Trichloroethene | 0.50 | 1.0 | | | | | | | | U |
| Trichlorofluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Vinyl chloride | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *47.4* | *1.0* | *50* | *0* | *94.8* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.2* | *1.0* | *50* | *0* | *96.4* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *44.37* | *1.0* | *50* | *0* | *88.7* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *52.27* | *1.0* | *50* | *0* | *105* | *89 - 112* | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 20.16 | 1.0 | 20 | 0 | 101 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 21.11 | 1.0 | 20 | 0 | 106 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 20.07 | 1.0 | 20 | 0 | 100 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 21.18 | 1.0 | 20 | 0 | 106 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 21.09 | 1.0 | 20 | 0 | 105 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 20.42 | 1.0 | 20 | 0 | 102 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 20.99 | 1.0 | 20 | 0 | 105 | 78 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 20.31 | 1.0 | 20 | 0 | 102 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 20.24 | 1.0 | 20 | 0 | 101 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 21.21 | 1.0 | 20 | 0 | 106 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 22.29 | 1.0 | 20 | 0 | 111 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 18.25 | 1.0 | 20 | 0 | 91.2 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 21.18 | 1.0 | 20 | 0 | 106 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 20.6 | 1.0 | 20 | 0 | 103 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 21.54 | 1.0 | 20 | 0 | 108 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 20.78 | 1.0 | 20 | 0 | 104 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 22.13 | 1.0 | 20 | 0 | 111 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 20.97 | 1.0 | 20 | 0 | 105 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 21.09 | 1.0 | 20 | 0 | 105 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 20.29 | 1.0 | 20 | 0 | 101 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 22 | 1.0 | 20 | 0 | 110 | 60 - 139 | | | | |
| 2-Butanone | 38.79 | 2.0 | 40 | 0 | 97.0 | 56 - 143 | | | | |
| 2-Chlorotoluene | 21.45 | 1.0 | 20 | 0 | 107 | 79 - 122 | | | | |
| 2-Hexanone | 40.62 | 2.0 | 40 | 0 | 102 | 57 - 139 | | | | |
| 4-Chlorotoluene | 21.76 | 1.0 | 20 | 0 | 109 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 22.33 | 1.0 | 20 | 0 | 112 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 40.91 | 2.0 | 40 | 0 | 102 | 67 - 130 | | | | |
| Acetone | 40.17 | 2.0 | 40 | 0 | 100 | 39 - 160 | | | | |
| Benzene | 21.12 | 1.0 | 20 | 0 | 106 | 79 - 120 | | | | |
| Bromobenzene | 20.81 | 1.0 | 20 | 0 | 104 | 80 - 120 | | | | |
| Bromochloromethane | 21.94 | 1.0 | 20 | 0 | 110 | 78 - 123 | | | | |
| Bromodichloromethane | 21.19 | 1.0 | 20 | 0 | 106 | 79 - 125 | | | | |
| Bromoform | 18.69 | 1.0 | 20 | 0 | 93.4 | 66 - 130 | | | | |
| Bromomethane | 23.72 | 1.0 | 20 | 0 | 119 | 53 - 141 | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 41.71 | 2.0 | 40 | 0 | 104 | 64 - 133 | | | | |
| Carbon tetrachloride | 20.11 | 1.0 | 20 | 0 | 101 | 72 - 136 | | | | |
| Chlorobenzene | 21 | 1.0 | 20 | 0 | 105 | 82 - 118 | | | | |
| Chloroethane | 21.28 | 1.0 | 20 | 0 | 106 | 60 - 138 | | | | |
| Chloroform | 21 | 1.0 | 20 | 0 | 105 | 79 - 124 | | | | |
| Chloromethane | 24 | 1.0 | 20 | 0 | 120 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 21.07 | 1.0 | 20 | 0 | 105 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 19.85 | 1.0 | 20 | 0 | 99.2 | 75 - 124 | | | | |
| Dibromochloromethane | 19.36 | 1.0 | 20 | 0 | 96.8 | 74 - 126 | | | | |
| Dibromomethane | 21.38 | 1.0 | 20 | 0 | 107 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 20.2 | 1.0 | 20 | 0 | 101 | 32 - 152 | | | | |
| Ethylbenzene | 21.65 | 1.0 | 20 | 0 | 108 | 79 - 121 | | | | |
| Hexachlorobutadiene | 19.46 | 1.0 | 20 | 0 | 97.3 | 66 - 134 | | | | |
| Isopropylbenzene | 22.24 | 1.0 | 20 | 0 | 111 | 72 - 131 | | | | |
| m,p-Xylene | 43.9 | 2.0 | 40 | 0 | 110 | 80 - 121 | | | | |
| Methylene chloride | 21.23 | 2.0 | 20 | 0 | 106 | 74 - 124 | | | | |
| Naphthalene | 19.59 | 1.0 | 20 | 0 | 98.0 | 61 - 128 | | | | |
| n-Butylbenzene | 22.04 | 1.0 | 20 | 0 | 110 | 75 - 128 | | | | |
| n-Propylbenzene | 22.34 | 1.0 | 20 | 0 | 112 | 76 - 126 | | | | |
| o-Xylene | 21.97 | 1.0 | 20 | 0 | 110 | 78 - 122 | | | | |
| sec-Butylbenzene | 22.08 | 1.0 | 20 | 0 | 110 | 77 - 126 | | | | |
| Styrene | 22.39 | 1.0 | 20 | 0 | 112 | 78 - 123 | | | | |
| tert-Butylbenzene | 22.16 | 1.0 | 20 | 0 | 111 | 78 - 124 | | | | |
| Tetrachloroethene | 20.33 | 1.0 | 20 | 0 | 102 | 74 - 129 | | | | |
| Toluene | 21.58 | 1.0 | 20 | 0 | 108 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 21.03 | 1.0 | 20 | 0 | 105 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 19.56 | 1.0 | 20 | 0 | 97.8 | 73 - 127 | | | | |
| Trichloroethene | 20.92 | 1.0 | 20 | 0 | 105 | 79 - 123 | | | | |
| Trichlorofluoromethane | 21.1 | 1.0 | 20 | 0 | 105 | 65 - 141 | | | | |
| Vinyl chloride | 21.62 | 1.0 | 20 | 0 | 108 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *52.09* | *1.0* | *50* | *0* | *104* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.83* | *1.0* | *50* | *0* | *104* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *50.79* | *1.0* | *50* | *0* | *102* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.79* | *1.0* | *50* | *0* | *102* | *89 - 112* | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 23.21 | 1.0 | 20 | 0 | 116 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 22.95 | 1.0 | 20 | 0 | 115 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 24.2 | 1.0 | 20 | 0 | 121 | 71 - 121 | | | | S |
| 1,1,2-Trichloroethane | 25.3 | 1.0 | 20 | 0 | 127 | 80 - 119 | | | | S |
| 1,1-Dichloroethane | 22.71 | 1.0 | 20 | 0 | 114 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 23.04 | 1.0 | 20 | 0 | 115 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 25.45 | 1.0 | 20 | 0 | 127 | 78 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 22.1 | 1.0 | 20 | 0 | 111 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 23.35 | 1.0 | 20 | 0 | 117 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 22.37 | 1.0 | 20 | 0 | 112 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 25.22 | 1.0 | 20 | 0 | 126 | 76 - 124 | | | | S |
| 1,2-Dibromo-3-chloropropane | 20.81 | 1.0 | 20 | 0 | 104 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 25.44 | 1.0 | 20 | 0 | 127 | 77 - 121 | | | | S |
| 1,2-Dichlorobenzene | 23.76 | 1.0 | 20 | 0 | 119 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 25.48 | 1.0 | 20 | 0 | 127 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 24.78 | 1.0 | 20 | 0 | 124 | 78 - 122 | | | | S |
| 1,3,5-Trimethylbenzene | 25.58 | 1.0 | 20 | 0 | 128 | 75 - 124 | | | | S |
| 1,3-Dichlorobenzene | 23.33 | 1.0 | 20 | 0 | 117 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 24.94 | 1.0 | 20 | 0 | 125 | 80 - 119 | | | | S |
| 1,4-Dichlorobenzene | 23.26 | 1.0 | 20 | 0 | 116 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 22.8 | 1.0 | 20 | 0 | 114 | 60 - 139 | | | | |
| 2-Butanone | 45.46 | 2.0 | 40 | 0 | 114 | 56 - 143 | | | | |
| 2-Chlorotoluene | 24.95 | 1.0 | 20 | 0 | 125 | 79 - 122 | | | | S |
| 2-Hexanone | 52.86 | 2.0 | 40 | 0 | 132 | 57 - 139 | | | | |
| 4-Chlorotoluene | 25.12 | 1.0 | 20 | 0 | 126 | 78 - 122 | | | | S |
| 4-Isopropyltoluene | 25.22 | 1.0 | 20 | 0 | 126 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 51.36 | 2.0 | 40 | 0 | 128 | 67 - 130 | | | | |
| Acetone | 51.25 | 2.0 | 40 | 0 | 128 | 39 - 160 | | | | |
| Benzene | 25.09 | 1.0 | 20 | 0 | 125 | 79 - 120 | | | | S |
| Bromobenzene | 23.78 | 1.0 | 20 | 0 | 119 | 80 - 120 | | | | |
| Bromochloromethane | 24.02 | 1.0 | 20 | 0 | 120 | 78 - 123 | | | | |
| Bromodichloromethane | 24.47 | 1.0 | 20 | 0 | 122 | 79 - 125 | | | | |
| Bromoform | 21.34 | 1.0 | 20 | 0 | 107 | 66 - 130 | | | | |
| Bromomethane | 24.97 | 1.0 | 20 | 0 | 125 | 53 - 141 | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 43.18 | 2.0 | 40 | 0 | 108 | 64 - 133 | | | | |
| Carbon tetrachloride | 23.76 | 1.0 | 20 | 0 | 119 | 72 - 136 | | | | |
| Chlorobenzene | 24.99 | 1.0 | 20 | 0 | 125 | 82 - 118 | | | | S |
| Chloroethane | 21.76 | 1.0 | 20 | 0 | 109 | 60 - 138 | | | | |
| Chloroform | 22.96 | 1.0 | 20 | 0 | 115 | 79 - 124 | | | | |
| Chloromethane | 22.1 | 1.0 | 20 | 0 | 111 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 24.28 | 1.0 | 20 | 0 | 121 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 21.7 | 1.0 | 20 | 0 | 109 | 75 - 124 | | | | |
| Dibromochloromethane | 22.33 | 1.0 | 20 | 0 | 112 | 74 - 126 | | | | |
| Dibromomethane | 25.07 | 1.0 | 20 | 0 | 125 | 79 - 123 | | | | S |
| Dichlorodifluoromethane | 14.71 | 1.0 | 20 | 0 | 73.6 | 32 - 152 | | | | |
| Ethylbenzene | 25.65 | 1.0 | 20 | 0 | 128 | 79 - 121 | | | | S |
| Hexachlorobutadiene | 19.31 | 1.0 | 20 | 0 | 96.5 | 66 - 134 | | | | |
| Isopropylbenzene | 26.47 | 1.0 | 20 | 0 | 132 | 72 - 131 | | | | S |
| m,p-Xylene | 51.94 | 2.0 | 40 | 0 | 130 | 80 - 121 | | | | S |
| Methylene chloride | 22.91 | 2.0 | 20 | 0 | 115 | 74 - 124 | | | | |
| Naphthalene | 22.43 | 1.0 | 20 | 0 | 112 | 61 - 128 | | | | |
| n-Butylbenzene | 24.46 | 1.0 | 20 | 0 | 122 | 75 - 128 | | | | |
| n-Propylbenzene | 25.91 | 1.0 | 20 | 0 | 130 | 76 - 126 | | | | S |
| o-Xylene | 25.64 | 1.0 | 20 | 0 | 128 | 78 - 122 | | | | S |
| sec-Butylbenzene | 25.41 | 1.0 | 20 | 0 | 127 | 77 - 126 | | | | S |
| Styrene | 26.3 | 1.0 | 20 | 0 | 131 | 78 - 123 | | | | S |
| tert-Butylbenzene | 25.39 | 1.0 | 20 | 0 | 127 | 78 - 124 | | | | S |
| Tetrachloroethene | 24.22 | 1.0 | 20 | 0 | 121 | 74 - 129 | | | | |
| Toluene | 26.12 | 1.0 | 20 | 0 | 131 | 80 - 121 | | | | S |
| trans-1,2-Dichloroethene | 23.07 | 1.0 | 20 | 0 | 115 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 21.38 | 1.0 | 20 | 0 | 107 | 73 - 127 | | | | |
| Trichloroethene | 26.19 | 1.0 | 20 | 0 | 131 | 79 - 123 | | | | S |
| Trichlorofluoromethane | 22.5 | 1.0 | 20 | 0 | 113 | 65 - 141 | | | | |
| Vinyl chloride | 21.27 | 1.0 | 20 | 0 | 106 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *47.14* | *1.0* | *50* | *0* | *94.3* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.68* | *1.0* | *50* | *0* | *103* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *45.74* | *1.0* | *50* | *0* | *91.5* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *53.29* | *1.0* | *50* | *0* | *107* | *89 - 112* | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 23.48 | 1.0 | 20 | 0 | 117 | 78 - 124 | 23.21 | 1.12 | 20 | |
| 1,1,1-Trichloroethane | 23.85 | 1.0 | 20 | 0 | 119 | 74 - 131 | 22.95 | 3.86 | 20 | |
| 1,1,2,2-Tetrachloroethane | 25.53 | 1.0 | 20 | 0 | 128 | 71 - 121 | 24.2 | 5.32 | 20 | S |
| 1,1,2-Trichloroethane | 25.33 | 1.0 | 20 | 0 | 127 | 80 - 119 | 25.3 | 0.11 | 20 | S |
| 1,1-Dichloroethane | 23.23 | 1.0 | 20 | 0 | 116 | 77 - 125 | 22.71 | 2.24 | 20 | |
| 1,1-Dichloroethene | 23.12 | 1.0 | 20 | 0 | 116 | 71 - 131 | 23.04 | 0.317 | 20 | |
| 1,1-Dichloropropene | 25.23 | 1.0 | 20 | 0 | 126 | 78 - 125 | 25.45 | 0.901 | 20 | S |
| 1,2,3-Trichlorobenzene | 23.31 | 1.0 | 20 | 0 | 117 | 69 - 129 | 22.1 | 5.31 | 20 | |
| 1,2,3-Trichloropropane | 24.69 | 1.0 | 20 | 0 | 123 | 73 - 122 | 23.35 | 5.58 | 20 | S |
| 1,2,4-Trichlorobenzene | 23.66 | 1.0 | 20 | 0 | 118 | 69 - 130 | 22.37 | 5.62 | 20 | |
| 1,2,4-Trimethylbenzene | 26.26 | 1.0 | 20 | 0 | 131 | 76 - 124 | 25.22 | 4.02 | 20 | S |
| 1,2-Dibromo-3-chloropropane | 22.44 | 1.0 | 20 | 0 | 112 | 62 - 128 | 20.81 | 7.53 | 20 | |
| 1,2-Dibromoethane | 25.59 | 1.0 | 20 | 0 | 128 | 77 - 121 | 25.44 | 0.588 | 20 | S |
| 1,2-Dichlorobenzene | 24.61 | 1.0 | 20 | 0 | 123 | 80 - 119 | 23.76 | 3.52 | 20 | S |
| 1,2-Dichloroethane | 25.75 | 1.0 | 20 | 0 | 129 | 73 - 128 | 25.48 | 1.02 | 20 | S |
| 1,2-Dichloropropane | 24.75 | 1.0 | 20 | 0 | 124 | 78 - 122 | 24.78 | 0.143 | 20 | S |
| 1,3,5-Trimethylbenzene | 26.32 | 1.0 | 20 | 0 | 132 | 75 - 124 | 25.58 | 2.86 | 20 | S |
| 1,3-Dichlorobenzene | 24.37 | 1.0 | 20 | 0 | 122 | 80 - 119 | 23.33 | 4.36 | 20 | S |
| 1,3-Dichloropropane | 25.46 | 1.0 | 20 | 0 | 127 | 80 - 119 | 24.94 | 2.04 | 20 | S |
| 1,4-Dichlorobenzene | 23.85 | 1.0 | 20 | 0 | 119 | 79 - 118 | 23.26 | 2.5 | 20 | S |
| 2,2-Dichloropropane | 22.69 | 1.0 | 20 | 0 | 113 | 60 - 139 | 22.8 | 0.477 | 20 | |
| 2-Butanone | 48.23 | 2.0 | 40 | 0 | 121 | 56 - 143 | 45.46 | 5.92 | 20 | |
| 2-Chlorotoluene | 25.59 | 1.0 | 20 | 0 | 128 | 79 - 122 | 24.95 | 2.53 | 20 | S |
| 2-Hexanone | 54.29 | 2.0 | 40 | 0 | 136 | 57 - 139 | 52.86 | 2.68 | 20 | |
| 4-Chlorotoluene | 25.92 | 1.0 | 20 | 0 | 130 | 78 - 122 | 25.12 | 3.12 | 20 | S |
| 4-Isopropyltoluene | 26.15 | 1.0 | 20 | 0 | 131 | 77 - 127 | 25.22 | 3.63 | 20 | S |
| 4-Methyl-2-pentanone | 53.35 | 2.0 | 40 | 0 | 133 | 67 - 130 | 51.36 | 3.81 | 20 | S |
| Acetone | 56.13 | 2.0 | 40 | 0 | 140 | 39 - 160 | 51.25 | 9.1 | 20 | |
| Benzene | 25.56 | 1.0 | 20 | 0 | 128 | 79 - 120 | 25.09 | 1.85 | 20 | S |
| Bromobenzene | 24.7 | 1.0 | 20 | 0 | 123 | 80 - 120 | 23.78 | 3.78 | 20 | S |
| Bromochloromethane | 24.56 | 1.0 | 20 | 0 | 123 | 78 - 123 | 24.02 | 2.24 | 20 | |
| Bromodichloromethane | 24.72 | 1.0 | 20 | 0 | 124 | 79 - 125 | 24.47 | 1.04 | 20 | |
| Bromoform | 21.74 | 1.0 | 20 | 0 | 109 | 66 - 130 | 21.34 | 1.83 | 20 | |
| Bromomethane | 24.74 | 1.0 | 20 | 0 | 124 | 53 - 141 | 24.97 | 0.929 | 20 | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 43.81 | 2.0 | 40 | 0 | 110 | 64 - 133 | 43.18 | 1.44 | 20 | |
| Carbon tetrachloride | 23.83 | 1.0 | 20 | 0 | 119 | 72 - 136 | 23.76 | 0.262 | 20 | |
| Chlorobenzene | 25.13 | 1.0 | 20 | 0 | 126 | 82 - 118 | 24.99 | 0.573 | 20 | S |
| Chloroethane | 22.25 | 1.0 | 20 | 0 | 111 | 60 - 138 | 21.76 | 2.2 | 20 | |
| Chloroform | 23.5 | 1.0 | 20 | 0 | 118 | 79 - 124 | 22.96 | 2.35 | 20 | |
| Chloromethane | 22.78 | 1.0 | 20 | 0 | 114 | 50 - 139 | 22.1 | 3.04 | 20 | |
| cis-1,2-Dichloroethene | 23.76 | 1.0 | 20 | 0 | 119 | 78 - 123 | 24.28 | 2.17 | 20 | |
| cis-1,3-Dichloropropene | 22.27 | 1.0 | 20 | 0 | 111 | 75 - 124 | 21.7 | 2.58 | 20 | |
| Dibromochloromethane | 22.83 | 1.0 | 20 | 0 | 114 | 74 - 126 | 22.33 | 2.25 | 20 | |
| Dibromomethane | 25.35 | 1.0 | 20 | 0 | 127 | 79 - 123 | 25.07 | 1.12 | 20 | S |
| Dichlorodifluoromethane | 15.5 | 1.0 | 20 | 0 | 77.5 | 32 - 152 | 14.71 | 5.21 | 20 | |
| Ethylbenzene | 25.77 | 1.0 | 20 | 0 | 129 | 79 - 121 | 25.65 | 0.469 | 20 | S |
| Hexachlorobutadiene | 19.88 | 1.0 | 20 | 0 | 99.4 | 66 - 134 | 19.31 | 2.89 | 20 | |
| Isopropylbenzene | 26.75 | 1.0 | 20 | 0 | 134 | 72 - 131 | 26.47 | 1.03 | 20 | S |
| m,p-Xylene | 52.36 | 2.0 | 40 | 0 | 131 | 80 - 121 | 51.94 | 0.81 | 20 | S |
| Methylene chloride | 23.35 | 2.0 | 20 | 0 | 117 | 74 - 124 | 22.91 | 1.88 | 20 | |
| Naphthalene | 23.92 | 1.0 | 20 | 0 | 120 | 61 - 128 | 22.43 | 6.43 | 20 | |
| n-Butylbenzene | 25.47 | 1.0 | 20 | 0 | 127 | 75 - 128 | 24.46 | 4.06 | 20 | |
| n-Propylbenzene | 26.51 | 1.0 | 20 | 0 | 133 | 76 - 126 | 25.91 | 2.27 | 20 | S |
| o-Xylene | 26.1 | 1.0 | 20 | 0 | 130 | 78 - 122 | 25.64 | 1.78 | 20 | S |
| sec-Butylbenzene | 26.21 | 1.0 | 20 | 0 | 131 | 77 - 126 | 25.41 | 3.1 | 20 | S |
| Styrene | 26.53 | 1.0 | 20 | 0 | 133 | 78 - 123 | 26.3 | 0.883 | 20 | S |
| tert-Butylbenzene | 26.17 | 1.0 | 20 | 0 | 131 | 78 - 124 | 25.39 | 3 | 20 | S |
| Tetrachloroethene | 24.34 | 1.0 | 20 | 0 | 122 | 74 - 129 | 24.22 | 0.488 | 20 | |
| Toluene | 25.86 | 1.0 | 20 | 0 | 129 | 80 - 121 | 26.12 | 0.978 | 20 | S |
| trans-1,2-Dichloroethene | 23.18 | 1.0 | 20 | 0 | 116 | 75 - 124 | 23.07 | 0.473 | 20 | |
| trans-1,3-Dichloropropene | 21.86 | 1.0 | 20 | 0 | 109 | 73 - 127 | 21.38 | 2.21 | 20 | |
| Trichloroethene | 25.67 | 1.0 | 20 | 0 | 128 | 79 - 123 | 26.19 | 2 | 20 | S |
| Trichlorofluoromethane | 22.74 | 1.0 | 20 | 0 | 114 | 65 - 141 | 22.5 | 1.05 | 20 | |
| Vinyl chloride | 21.67 | 1.0 | 20 | 0 | 108 | 58 - 137 | 21.27 | 1.89 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *47.33* | *1.0* | *50* | *0* | *94.7* | *81 - 118* | *47.14* | *0.404* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *51.76* | *1.0* | *50* | *0* | *104* | *85 - 114* | *51.68* | *0.153* | *20* | |
| *Surr: Dibromofluoromethane* | *45.85* | *1.0* | *50* | *0* | *91.7* | *80 - 119* | *45.74* | *0.237* | *20* | |
| *Surr: Toluene-d8* | *53.06* | *1.0* | *50* | *0* | *106* | *89 - 112* | *53.29* | *0.432* | *20* | |

**ALS Houston, US** Date: 04-Jan-19

| | |
|---|---|
| **Client:** | Bhate Environmental Associates, Inc. |
| **Project:** | LHAAP-58 |
| **WorkOrder:** | HS18120736 |

**QC BATCH REPORT**

| | | | | | |
|---|---|---|---|---|---|
| **Batch ID:** | **R329894** | **Instrument:** | **VOA9** | **Method:** | **SW8260** |

| | | | | |
|---|---|---|---|---|
| **The following samples were analyzed in this batch:** | HS18120736-05 | HS18120736-06 | HS18120736-07 | HS18120736-09 |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: 135984** **Instrument: UV-2450** **Method: E365.3**

**MBLK** Sample ID: **MBLK-135984** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880483** PrepDate: **24-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total (As P) | 0.0400 | 0.0500 | | | | | | | | U |

**LCS** Sample ID: **LCS-135984** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880482** PrepDate: **24-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total (As P) | 0.232 | 0.0500 | 0.25 | 0 | 92.8 | 80 - 120 | | | | |

**MS** Sample ID: **HS18120973-02MS** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880480** PrepDate: **24-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total (As P) | 0.24 | 0.0500 | 0.25 | 0.009 | 92.4 | 80 - 120 | | | | |

**MSD** Sample ID: **HS18120973-02MSD** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880481** PrepDate: **24-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total (As P) | 0.241 | 0.0500 | 0.25 | 0.009 | 92.8 | 80 - 120 | 0.24 | 0.416 | 20 | |

**The following samples were analyzed in this batch:** HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329695** **Instrument: ManTech01** **Method: SM2320B**

**MBLK** Sample ID: **WBLKW1-181220** Units: **mg/L** Analysis Date: **20-Dec-2018 20:45**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876171** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 5.00 | 5.00 | | | | | | | | U |

**LCS** Sample ID: **LCS1-181220** Units: **mg/L** Analysis Date: **20-Dec-2018 20:54**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876172** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 1061 | 5.00 | 1000 | 0 | 106 | 85 - 115 | | | | |

**LCSD** Sample ID: **LCSD1-181220** Units: **mg/L** Analysis Date: **20-Dec-2018 21:04**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876173** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 1057 | 5.00 | 1000 | 0 | 106 | 85 - 115 | 1061 | 0.378 | 20 | |

**DUP** Sample ID: **HS18120927-05DUP** Units: **mg/L** Analysis Date: **20-Dec-2018 23:05**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876188** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 650.2 | 5.00 | | | | | 647.6 | 0.402 | 20 | |

**The following samples were analyzed in this batch:** HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329941** **Instrument: ICS2100** **Method: SW9056**

**MBLK** Sample ID: **WBLKW1-121318** Units: **mg/L** Analysis Date: **13-Dec-2018 16:12**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882213** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.500 | 0.500 | | | | | | | | U |
| Nitrogen, Nitrate (As N) | 0.100 | 0.100 | | | | | | | | U |
| Nitrogen, Nitrite (As N) | 0.100 | 0.100 | | | | | | | | U |
| Sulfate | 0.500 | 0.500 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-121318** Units: **mg/L** Analysis Date: **13-Dec-2018 16:26**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882214** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 19.85 | 0.500 | 20 | 0 | 99.3 | 80 - 120 | | | | |
| Nitrogen, Nitrate (As N) | 3.84 | 0.100 | 4 | 0 | 96.0 | 80 - 120 | | | | |
| Nitrogen, Nitrite (As N) | 4.228 | 0.100 | 4 | 0 | 106 | 80 - 120 | | | | |
| Sulfate | 19.9 | 0.500 | 20 | 0 | 99.5 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-121318** Units: **mg/L** Analysis Date: **13-Dec-2018 16:41**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882215** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 19.71 | 0.500 | 20 | 0 | 98.5 | 80 - 120 | 19.85 | 0.733 | 20 | |
| Nitrogen, Nitrate (As N) | 3.794 | 0.100 | 4 | 0 | 94.8 | 80 - 120 | 3.84 | 1.21 | 20 | |
| Nitrogen, Nitrite (As N) | 4.204 | 0.100 | 4 | 0 | 105 | 80 - 120 | 4.228 | 0.569 | 20 | |
| Sulfate | 19.69 | 0.500 | 20 | 0 | 98.4 | 80 - 120 | 19.9 | 1.05 | 20 | |

**MS** Sample ID: **HS18120757-02MS** Units: **mg/L** Analysis Date: **13-Dec-2018 21:21**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882229** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 12.25 | 0.500 | 10 | 2.107 | 101 | 80 - 120 | | | | |
| Nitrogen, Nitrate (As N) | 2.063 | 0.100 | 2 | 0.181 | 94.1 | 80 - 120 | | | | |
| Nitrogen, Nitrite (As N) | 2.117 | 0.100 | 2 | 0 | 106 | 80 - 120 | | | | |
| Sulfate | 11.2 | 0.500 | 10 | 1.268 | 99.4 | 80 - 120 | | | | |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R329941** **Instrument: ICS2100** **Method: SW9056**

**MS** Sample ID: **HS18120736-04MS** Units: **mg/L** Analysis Date: **13-Dec-2018 17:39**
Client ID: **35AWW10_121218_a** Run ID: **ICS2100_329941** SeqNo: **4882219** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14.57 | 0.500 | 10 | 5.166 | 94.0 | 80 - 120 | | | | |
| Nitrogen, Nitrate (As N) | 1.884 | 0.100 | 2 | 0.159 | 86.2 | 80 - 120 | | | | |
| Nitrogen, Nitrite (As N) | 1.988 | 0.100 | 2 | 0 | 99.4 | 80 - 120 | | | | |
| Sulfate | 60.18 | 0.500 | 10 | 53.42 | 67.6 | 80 - 120 | | | | SO |

**MSD** Sample ID: **HS18120757-02MSD** Units: **mg/L** Analysis Date: **13-Dec-2018 21:35**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882230** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 12.31 | 0.500 | 10 | 2.107 | 102 | 80 - 120 | 12.25 | 0.448 | 20 | |
| Nitrogen, Nitrate (As N) | 2.069 | 0.100 | 2 | 0.181 | 94.4 | 80 - 120 | 2.063 | 0.29 | 20 | |
| Nitrogen, Nitrite (As N) | 2.129 | 0.100 | 2 | 0 | 106 | 80 - 120 | 2.117 | 0.565 | 20 | |
| Sulfate | 11.22 | 0.500 | 10 | 1.268 | 99.5 | 80 - 120 | 11.2 | 0.143 | 20 | |

**MSD** Sample ID: **HS18120736-04MSD** Units: **mg/L** Analysis Date: **13-Dec-2018 17:54**
Client ID: **35AWW10_121218_a** Run ID: **ICS2100_329941** SeqNo: **4882220** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14.97 | 0.500 | 10 | 5.166 | 98.0 | 80 - 120 | 14.57 | 2.68 | 20 | |
| Nitrogen, Nitrate (As N) | 1.942 | 0.100 | 2 | 0.159 | 89.2 | 80 - 120 | 1.884 | 3.03 | 20 | |
| Nitrogen, Nitrite (As N) | 2.047 | 0.100 | 2 | 0 | 102 | 80 - 120 | 1.988 | 2.92 | 20 | |
| Sulfate | 61.63 | 0.500 | 10 | 53.42 | 82.1 | 80 - 120 | 60.18 | 2.38 | 20 | O |

**The following samples were analyzed in this batch:** HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

**QC BATCH REPORT**

**Batch ID: R330126** **Instrument: WetChem_HS** **Method: E376.1**

**MBLK** Sample ID: **MBLK-R330126** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: Run ID: **WetChem_HS_330126** SeqNo: **4885930** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide | 1.00 | 1.00 | | | | | | | | U |

**LCS** Sample ID: **LCS-R330126** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: Run ID: **WetChem_HS_330126** SeqNo: **4885929** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide | 22.52 | 1.00 | 25 | 0 | 90.1 | 80 - 120 | | | | |

**LCSD** Sample ID: **LCSD-R330126** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: Run ID: **WetChem_HS_330126** SeqNo: **4885928** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide | 22.12 | 1.00 | 25 | 0 | 88.5 | 80 - 120 | 22.52 | 1.79 | 20 | |

**MS** Sample ID: **HS18120736-04MS** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: **35AWW10_121218_a** Run ID: **WetChem_HS_330126** SeqNo: **4885931** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide | 28.12 | 1.00 | 25 | 0.12 | 112 | 80 - 120 | | | | |

**The following samples were analyzed in this batch:** HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** **HS18120736**

**QUALIFIERS, ACRONYMS, UNITS**

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| M | Manually integrated, see raw data for justification |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL/SDL |

| Acronym | Description |
|---|---|
| DCS | Detectability Check Study |
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SD | Serial Dilution |
| SDL | Sample Detection Limit |
| TRRP | Texas Risk Reduction Program |

| Unit Reported | Description |
|---|---|
| mg/L | Milligrams per Liter |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 88-0356 | 27-Mar-2019 |
| Texas | T10470231-18-21 | 30-Apr-2019 |
| North Dakota | R193 2018-2019 | 30-Apr-2019 |
| Illinois | 004438 | 29-Jun-2019 |
| Louisiana | 03087 | 30-Jun-2019 |
| Kentucky | 123043 - 2018 | 30-Apr-2019 |
| Kansas | E-10352 2018-2019 | 31-Jul-2019 |
| Oklahoma | 2018-156 | 31-Aug-2019 |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18120736

**SAMPLE TRACKING**

| Lab Samp ID | Client Sample ID | Action | Date | Person | New Location |
|---|---|---|---|---|---|
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | WET287 |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | WET287 |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | WET303 |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | MET038 |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | MET038 |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | VOA032 |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-01 | 03WW01_121218 | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | WET287 |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | WET287 |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | WET303 |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | MET038 |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | MET038 |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | VOA032 |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-02 | 35AWW08_121218 | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | WET287 |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | WET287 |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | WET303 |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | MET038 |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | MET038 |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | VOA032 |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-04 | 35AWW10_121218_a | Login | 12/13/2018 11:24:17 AM | JRM | Sub |
| HS18120736-05 | 35AWW16_121218 | Login | 12/13/2018 11:24:17 AM | JRM | VOA032 |
| HS18120736-09 | Trip Blank | Login | 12/13/2018 11:24:17 AM | JRM | VOA032 |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | WET343 |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | Sub |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | WET343 |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | WET343 |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | MET043 |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | MET043 |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | VOA156 |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | Sub |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | Sub |
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | Sub |

**ALS Houston, US** Date: 04-Jan-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18120736

**SAMPLE TRACKING**

| | | | | | |
|---|---|---|---|---|---|
| HS18120736-03 | 35AWW10_121218 | Login | 12/13/2018 11:25:32 AM | JML | Sub |
| HS18120736-06 | 35AWW15_121218 | Login | 12/13/2018 11:25:32 AM | JML | VOA156 |
| HS18120736-07 | 35AWW05_121218 | Login | 12/13/2018 11:25:32 AM | JML | VOA156 |
| HS18120736-08 | 35AWW09_121118 | Login | 12/13/2018 11:33:25 AM | JML | MET043 |

**ALS Houston, US** Date: 04-Jan-19

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18120736
Date/Time Received: **13-Dec-2018 09:35**
Received by: **PMG**

Checklist completed by: *Jared R. Makan* eSignature 13-Dec-2018 Date
Reviewed by: *RJ Modashia* eSignature 13-Dec-2018 Date

Matrices: **Water**
Carrier name: **FedEx Priority Overnight**

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | |
| Temperature(s)/Thermometer(s): | 1.6c/2.0c UC/C | IR11 | |
| Cooler(s)/Kit(s): | 44098 | | |
| Date/Time sample(s) sent to storage: | 12/13/2018 12:00 | | |
| Water - VOA vials have zero headspace? | Yes ☑ | No ☐ | No VOA vials submitted ☐ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☑ | N/A ☐ |
| pH adjusted? | Yes ☑ | No ☐ | N/A ☐ |
| pH adjusted by: | Si Ma | | |

Login Notes: Sample pH>2 (6) for 35AWW08. Metals (Total & Diss) preserved with 0.25ml HNO3 (Acid lot # 308055508). Total Phosphorous preserved with 0.5ml H2SO4 (Acid lot # 300107019-10) Samples preserved 12/13/18 at 10:40am. Sample pH=1 after preservation.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

# Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Sample Analysis Requested [5] | Quality Assurance Samples [6]

| Field Sample ID (30 Characters Max) | ERPIMS LOCID (15 Characters Max) | Date Collected (dd-mmm-yyyy) | Time Collected (Military) (hhmm) | Sample Depth (beginning - ending) | SA Code [2] | Sample Number [3] | Sample Matrix [4] | Number of containers | VOC | MEE | TOC | Carbon Dioxide | Total Phosphorous | Total Manganese & Iron | Dissolved Manganese & Iron | Sulfide | Arsenic | Anions/Alkalinity | Ambient Blank Lot Control Number | Equipment Blank Lot Control Number | Trip Blank Lot Control Number | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 03WWD1_121218 | | 12 Dec 2018 | 0820 | - | N | | WG | 14 | X | X | X | X | X | X | X | X | | X | | | | |
| 35AWW08_121218 | | 12 Dec 2018 | 0910 | - | N | | WG | 15 | X | X | X | X | X | X | X | X | X | X | | | | |
| 35AWW10_121218 | | 12 Dec 2018 | 1030 | - | N | | WG | 14 | X | X | X | X | X | X | X | X | | X | | | | |
| 35AWW10_121218_a | | 12 Dec 2018 | 1030 | | FD | | WG | 14 | X | X | X | X | X | X | X | X | | X | | | | |
| 35AWW16_121218 | | 12 Dec 2018 | 1150 | | N | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW15_121218 | | 12 Dec 2018 | 1240 | - | N | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW05_121218 | | 12 Dec 2018 | 1335 | - | N | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW09_121118 | | 11 Dec 2018 | 1130 | - | N | | WG | 1 | | | | | | | | | X | | | | | |
| TRIP BLANK | | 12 Dec 2018 | | - | TB | | W | 3 | X | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | |

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

| Relinquished by (Signed) | Date | Time | Received by (signed) | Date | Time |
|---|---|---|---|---|---|
| 1. Scott Beesinger | 12/12/18 | 1430 | 1. NA | 12/13/18 | 09:35 |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

44013 ulc 1.6
IR# 11 df +-0.4

Bhate Environmental Associates, Inc.
LHAAP-58

HS18120736

00946594

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

44098

**CUSTODY SEAL**

Date: 12/12/18 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By:
Date: 12/13/18

44098 DEC 13 2018

**Must Deliver Next Business Day**
**Time and Tempature Sensitive!**

44098

ORIGIN ID:SGRA (303) 597-2450
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 04DEC18
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 26x14x14 IN

TO **CLIENT SERVICES**
**ALS LABORATORY GROUP**
**10450 STANCLIFF ROAD**
**SUITE 210**
**HOUSTON TX 77099**
(281) 530-5656
REF: LHAAP-58-BD 62565-RJ

DMA:

FedEx Express

FedEx TRK# 0221 4380 9535 2813

THU - 13 DEC 10:30A
PRIORITY OVERNIGHT

**AB SGRA**

77099
TX-US
IAH

FID 162706 120CC18 0GGA 5530/F1FF/8C8A

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

December 28, 2018 **Analytical Report for Service Request No:** K1812272

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

**RE: HS18120736 / HS18120736**

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 14, 2018
For your reference, these analyses have been assigned our service request number **K1812272.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

for Kelley Lovejoy
Project Manager

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

# Table of Contents

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Qualifiers
State Certifications, Accreditations, And Licenses
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Chain of Custody
General Chemistry
Raw Data
    General Chemistry

## Acronyms

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

## Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

## Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

# Case Narrative

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

ALS Environmental

**Client:** ALS Environmental - US
**Project:** HS18120736
**Sample Matrix:** Ground Water

**Service Request:** K1812272
**Date Received:** 12/14/2018

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

**Sample Receipt:**

Four ground water samples were received for analysis at ALS Environmental on 12/14/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by Noe D. Diaz Date 12/28/2018

# Chain of Custody

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

HS12272

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**COC ID: 10432**

**SUBCONTRACT TO:**

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

**Phone:** +1 360 501 3312

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | Jumoke M. Lawal |
| **Email:** | jumoke.lawal@alsglobal.com |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS18120736 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS18120736-01** | **03WW01_121218** | **Groundwater** | **12 Dec 2018 08:20** |
| | TOC Analysis for DOD Level IV | | | 28 Dec 2018 |
| **2.** | **HS18120736-02** | **35AWW08_121218** | **Groundwater** | **12 Dec 2018 09:10** |
| | TOC Analysis for DOD Level IV | | | 28 Dec 2018 |
| **3.** | **HS18120736-03** | **35AWW10_121218** | **Groundwater** | **12 Dec 2018 10:30** |
| | TOC Analysis for DOD Level IV | | | 28 Dec 2018 |
| **4.** | **HS18120736-04** | **35AWW10_121218_a** | **Groundwater** | **12 Dec 2018 10:30** |
| | TOC Analysis for DOD Level IV | | | 28 Dec 2018 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: R Cisneros Date/Time: 12/13/18 1800

Received By: Date/Time: 12/14/18 0950

Cooler ID(s): Temperature(s):

K1812272 00946605

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Purchase Order

**PO: HS18120736**

**VENDOR:**

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

**Phone:** +1 360 501 3312

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | Jumoke M. Lawal |
| **Email:** | jumoke.lawal@alsglobal.com |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | 10432 |
| **TSR:** | Danielle Winnings |

| Item | Catalog No | Unit Price | Quantity | Ext Price |
|---|---|---|---|---|
| 1. TOC Analysis for DOD Level IV | NA | $9.00 | 4 | $36.00 |

**Order Total:** $36.00

RIGHT SOLUTIONS | RIGHT PARTNER

00946606

PC KL

# Cooler Receipt and Preservation Form

Client ALS/Houston Service Request K18 12772

Received: 12/14/18 Opened: 12/14/18 By: [signature] Unloaded: 12/14/18 By: [signature]

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front + back
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

| Raw Cooler Temp | Corrected Cooler Temp | Raw Temp Blank | Corrected Temp Blank | Corr. Factor | Thermometer ID | Cooler/COC ID NA | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|---|
| 0.2 | 0.1 | 1.8 | 1.7 | -0.1 | 381 | 10432 | 4380 9535 6340 | |
| | | | | | | 10419 | | |
| | | | | | | 10429 | | |
| | | | | | | | | |
| | | | | | | | | |

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Out of Temp | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

***Notes, Discrepancies, & Resolutions:*** _____

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K1812272 |
| **Project:** | HS18120736/HS18120736 | **Date Collected:** | 12/12/18 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 12/14/18 |
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |

**Carbon, Total Organic**

| Sample Name | Lab Code | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| 03WW01_121218 | K1812272-001 | **42.2** | 2.0 | 0.8 | 0.3 | 4 | 12/22/18 00:42 | |
| 35AWW08_121218 | K1812272-002 | **392** | 50 | 20 | 7 | 100 | 12/22/18 03:06 | |
| 35AWW10_121218 | K1812272-003 | **3.97** | 0.50 | 0.20 | 0.07 | 1 | 12/22/18 03:38 | |
| 35AWW10_121218_a | K1812272-004 | **4.03** | 0.50 | 0.20 | 0.07 | 1 | 12/22/18 04:09 | |
| Method Blank | K1812272-MB | ND U | 0.50 | 0.20 | 0.07 | 1 | 12/21/18 11:06 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K1812272 |
| **Project:** | HS18120736/HS18120736 | **Date Analyzed:** | 12/21/18 |
| **Sample Matrix:** | Ground Water | **Date Extracted:** | NA |

**Lab Control Sample Summary**
**Carbon, Total Organic**

| | | | |
|---|---|---|---|
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |
| | | **Analysis Lot:** | 619810 |

| Sample Name | Lab Code | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Lab Control Sample | K1812272-LCS | 20.3 | 21.9 | 93 | 83-117 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:** K1812272
**Project:** HS18120736/HS18120736

## Continuing Calibration Verification (CCV) Summary

### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:** mg/L

| | Analysis Lot | Lab Code | Date Analyzed | True Value | Measured Value | Percent Recovery | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| CCV1 | 619810 | KQ1818709-28 | 12/21/18 05:13 | 25.0 | 24.3 | 97 | 90-110 |
| CCV2 | 619810 | KQ1818709-29 | 12/21/18 10:33 | 25.0 | 24.0 | 96 | 90-110 |
| CCV3 | 619810 | KQ1818709-30 | 12/21/18 15:37 | 25.0 | 23.7 | 95 | 90-110 |
| CCV4 | 619810 | KQ1818709-31 | 12/21/18 21:13 | 25.0 | 23.6 | 94 | 90-110 |
| CCV5 | 619810 | KQ1818709-32 | 12/22/18 02:33 | 25.0 | 23.6 | 95 | 90-110 |
| CCV6 | 619810 | KQ1818709-33 | 12/22/18 07:36 | 25.0 | 23.9 | 95 | 90-110 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**K1812272
**Project:** HS18120736/HS18120736

## Continuing Calibration Blank (CCB) Summary
### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:**mg/L

| | Analysis Lot | Lab Code | Date Analyzed | LOQ | LOD | MDL | Result | Q |
|---|---|---|---|---|---|---|---|---|
| CCB1 | 619810 | KQ1818709-34 | 12/21/18 05:30 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB2 | 619810 | KQ1818709-35 | 12/21/18 10:49 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB3 | 619810 | KQ1818709-36 | 12/21/18 15:54 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB4 | 619810 | KQ1818709-37 | 12/21/18 21:29 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB5 | 619810 | KQ1818709-38 | 12/22/18 02:49 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB6 | 619810 | KQ1818709-39 | 12/22/18 07:53 | 0.50 | 0.20 | 0.07 | ND | U |

# Raw Data

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
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# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

Work Request # (Original) K1811658, 1888, 2001, 1625, 1728, 1789, 1849, 1831, 2101, 2154, 1928, 2278, 2279, 2272, 1745, 1747, 2416

Tier: II IV III I I IV II II IV IV II IV IV IV IV IV II

Date Analyzed: 12/20/18

Analyst: CLS

Run # TOC: 619808, 619810
DOC: 620105

Analysis: TOC/DOC

**DATA QUALITY REPORT**
**INORGANICS**

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

| | | |
|---|---|---|
| 1. | Is the method name and number correct and appropriate? | (yes)/no/NA |
| 2. | Holding times met for all analyses and for all samples? | (yes)/no/NA |
| 3. | Are calculations correct? | (yes)/no/NA |
| 4. | Is the reporting basis correct? (Dry Weight) | (yes)/no/NA |
| 5. | All quality control criteria met? | yes/(no) |
| 6. | Is the calibration curve correlation coefficient ≥ 0.995? | (yes)/no/NA |
| 7. | MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? | (yes)/no/NA |
| 8. | Are ICVs, CCVs, and CCBs all within acceptance limits? | (yes)/no/NA |
| 9. | Are results for methods blanks all ND? | (yes)/no/NA |
| 10. | Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) | yes/(no)/NA |
| 11. | Are all exceptions explained? | (yes)/no/NA |
| 12. | Have all applicable service requests been reviewed? | (yes)/no/NA |
| 13. | Are all samples labeled correctly? | (yes)/no/NA |
| 14. | Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V) | (yes)/no/NA |
| 15. | Are detection limits and units reported correctly? | (yes)/no/NA |
| 16. | Is the unused space on the benchsheet crossed out? | (yes)/no/NA |
| 17. | Was analysis turned in by the due date? (n-2) (If not record SR#) | yes/(no)/NA |

**COMMENTS:**

1789-2, 3, 4, 5, 8, 1849-4, 2416-35 RPD not within acceptance limits. The sample results are less than 5x the MRL.
RA 2154-1, 2154-5 - over diluted.
1831-2, 1745-1 RPD not within acceptance limits - samples contain sediment - non homogeneous.

Final Approved by: _____ Date: 12/26/18

DQREPORT

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619808 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1811625-001 | Carbon, Total Organic | N/A | | Ground Water | 4.25 mg/L | 10 ml | 8.5 mg/L | 2 | 0.2 | 1.0 | | | 12/20/18 16:31 | N | I |
| K1811625-003 | Carbon, Total Organic | N/A | | Ground Water | 4.47 mg/L | 10 ml | 4.47 mg/L | 1 | 0.07 | 0.50 | | | 12/20/18 17:51 | N | I |
| K1811658-004 | Carbon, Total Organic | N/A | | Water | 3.83 mg/L | 10 ml | 3.83 mg/L | 1 | 0.07 | 0.50 | | | 12/20/18 13:18 | N | II |
| K1811728-001 | Carbon, Total Organic | N/A | | Reagent Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 18:54 | N | I |
| K1811728-002 | Carbon, Total Organic | N/A | | Reagent Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 19:26 | N | I |
| K1811789-002 | Carbon, Total Organic | N/A | | Ground Water | 0.51 mg/L | 10 ml | 0.51 mg/L | 1 | 0.07 | 0.50 | | | 12/20/18 19:58 | N | IV |
| K1811789-003 | Carbon, Total Organic | N/A | | Ground Water | 0.74 mg/L | 10 ml | 0.74 mg/L | 1 | 0.07 | 0.50 | | | 12/20/18 22:39 | N | IV |
| K1811789-004 | Carbon, Total Organic | N/A | | Ground Water | 0.16 mg/L | 10 ml | 0.16 mg/L J | 1 | 0.07 | 0.50 | | | 12/20/18 23:42 | N | IV |
| K1811789-005 | Carbon, Total Organic | N/A | | Ground Water | 0.77 mg/L | 10 ml | 0.77 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 00:45 | N | IV |
| K1811789-006 | Carbon, Total Organic | N/A | | Ground Water | 0.55 mg/L | 10 ml | 0.55 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 01:48 | N | IV |
| K1811789-008 | Carbon, Total Organic | N/A | | Ground Water | 0.39 mg/L | 10 ml | 0.39 mg/L J | 1 | 0.07 | 0.50 | | | 12/21/18 02:51 | N | IV |
| K1811831-002 | Carbon, Total Organic | N/A | | Water | 6.74 mg/L | 10 ml | 6.74 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 08:25 | N | II |
| K1811849-001 | Carbon, Total Organic | N/A | | Water | 1.24 mg/L | 10 ml | 1.24 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 04:25 | N | II |
| K1811849-002 | Carbon, Total Organic | N/A | | Water | 8.22 mg/L | 10 ml | 32.9 mg/L | 4 | 0.3 | 2.0 | | | 12/21/18 05:46 | N | II |
| K1811849-003 | Carbon, Total Organic | N/A | | Water | 7.74 mg/L | 10 ml | 31.0 mg/L | 4 | 0.3 | 2.0 | | | 12/21/18 06:18 | N | II |
| K1811849-004 | Carbon, Total Organic | N/A | | Water | 1.09 mg/L | 10 ml | 1.09 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 06:50 | N | II |
| K1811849-005 | Carbon, Total Organic | N/A | | Water | 5.34 mg/L | 10 ml | 5.34 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 07:22 | N | II |
| K1811888-002 | Carbon, Total Organic | N/A | | Water | 2.74 mg/L | 10 ml | 2.74 mg/L | 1 | 0.07 | 0.50 | | | 12/20/18 14:22 | N | IV |
| K1812001-001 | Carbon, Total Organic | N/A | | Water | 6.94 mg/L | 10 ml | 69.4 mg/L | 10 | 0.7 | 5.0 | | | 12/20/18 14:54 | N | IV |
| KQ1818705-01 | Carbon, Total Organic | DUP | K1811658-004 | Water | 3.91 mg/L | 10 ml | 3.91 mg/L | 1 | 0.07 | 0.50 | | 2 | 12/20/18 13:18 | N | II |
| KQ1818705-02 | Carbon, Total Organic | DUP | K1811888-002 | Water | 2.73 mg/L | 10 ml | 2.73 mg/L | 1 | 0.07 | 0.50 | | <1 | 12/20/18 14:22 | N | IV |
| KQ1818705-03 | Carbon, Total Organic | MS | K1812001-001 | Water | 31.62 mg/L | 10 ml | 316 mg/L | 10 | 0.7 | 5.0 | 99 | | 12/20/18 15:25 | N | IV |
| KQ1818705-04 | Carbon, Total Organic | DUP | K1812001-001 | Water | 6.88 mg/L | 10 ml | 68.8 mg/L | 10 | 0.7 | 5.0 | | <1 | 12/20/18 14:54 | N | IV |
| KQ1818705-05 | Carbon, Total Organic | MS | K1811625-001 | Ground Water | 29.15 mg/L | 10 ml | 58.3 mg/L | 2 | 0.2 | 1.0 | 100 | | 12/20/18 17:03 | N | I |
| KQ1818705-06 | Carbon, Total Organic | DUP | K1811625-001 | Ground Water | 3.84 mg/L | 10 ml | 7.7 mg/L | 2 | 0.2 | 1.0 | | 10 | 12/20/18 16:31 | N | I |
| KQ1818705-07 | Carbon, Total Organic | DUP | K1811625-003 | Ground Water | 4.23 mg/L | 10 ml | 4.23 mg/L | 1 | 0.07 | 0.50 | | 6 | 12/20/18 17:51 | N | I |
| KQ1818705-08 | Carbon, Total Organic | DUP | K1811728-001 | Reagent Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 12/20/18 18:54 | N | I |
| KQ1818705-09 | Carbon, Total Organic | DUP | K1811728-002 | Reagent Water | 0.80 mg/L | 10 ml | 0.80 mg/L | 1 | 0.07 | 0.50 | | NC | 12/20/18 19:26 | N | I |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619808 **Method/Testcode:** 9060/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ1818705-10 | Carbon, Total Organic | MS | K1811789-002 | Ground Water | 25.21 mg/L | 10 ml | 25.2 mg/L | 1 | 0.07 | 0.50 | 99 | | 12/20/18 21:01 | N | IV |
| KQ1818705-11 | Carbon, Total Organic | DUP | K1811789-002 | Ground Water | 0.26 mg/L | 10 ml | 0.26 mg/L J | 1 | 0.07 | 0.50 | | 66* | 12/20/18 19:58 | N | IV |
| KQ1818705-12 | Carbon, Total Organic | TRP | K1811789-002 | Ground Water | 0.22 mg/L | 10 ml | 0.22 mg/L J | 1 | 0.07 | 0.50 | | 48* | 12/20/18 19:58 | N | IV |
| KQ1818705-13 | Carbon, Total Organic | QUAD | K1811789-002 | Ground Water | 0.23 mg/L | 10 ml | 0.23 mg/L J | 1 | 0.07 | 0.50 | | 45* | 12/20/18 19:58 | N | IV |
| KQ1818705-14 | Carbon, Total Organic | DUP | K1811789-003 | Ground Water | 0.60 mg/L | 10 ml | 0.60 mg/L | 1 | 0.07 | 0.50 | | 21* | 12/20/18 22:39 | N | IV |
| KQ1818705-15 | Carbon, Total Organic | TRP | K1811789-003 | Ground Water | 0.58 mg/L | 10 ml | 0.58 mg/L | 1 | 0.07 | 0.50 | | 14 | 12/20/18 22:39 | N | IV |
| KQ1818705-16 | Carbon, Total Organic | QUAD | K1811789-003 | Ground Water | 0.52 mg/L | 10 ml | 0.52 mg/L | 1 | 0.07 | 0.50 | | 16 | 12/20/18 22:39 | N | IV |
| KQ1818705-17 | Carbon, Total Organic | DUP | K1811789-004 | Ground Water | 1.01 mg/L | 10 ml | 1.01 mg/L | 1 | 0.07 | 0.50 | | 146* | 12/20/18 23:42 | N | IV |
| KQ1818705-18 | Carbon, Total Organic | TRP | K1811789-004 | Ground Water | 0.19 mg/L | 10 ml | 0.19 mg/L J | 1 | 0.07 | 0.50 | | 106* | 12/20/18 23:42 | N | IV |
| KQ1818705-19 | Carbon, Total Organic | QUAD | K1811789-004 | Ground Water | 0.07 mg/L | 10 ml | 0.07 mg/L J | 1 | 0.07 | 0.50 | | 122* | 12/20/18 23:42 | N | IV |
| KQ1818705-20 | Carbon, Total Organic | DUP | K1811789-005 | Ground Water | 0.58 mg/L | 10 ml | 0.58 mg/L | 1 | 0.07 | 0.50 | | 27* | 12/21/18 00:45 | N | IV |
| KQ1818705-21 | Carbon, Total Organic | TRP | K1811789-005 | Ground Water | 0.57 mg/L | 10 ml | 0.57 mg/L | 1 | 0.07 | 0.50 | | 17 | 12/21/18 00:45 | N | IV |
| KQ1818705-22 | Carbon, Total Organic | QUAD | K1811789-005 | Ground Water | 0.61 mg/L | 10 ml | 0.61 mg/L | 1 | 0.07 | 0.50 | | 14 | 12/21/18 00:45 | N | IV |
| KQ1818705-23 | Carbon, Total Organic | DUP | K1811789-006 | Ground Water | 0.53 mg/L | 10 ml | 0.53 mg/L | 1 | 0.07 | 0.50 | | 3 | 12/21/18 01:48 | N | IV |
| KQ1818705-24 | Carbon, Total Organic | TRP | K1811789-006 | Ground Water | 0.50 mg/L | 10 ml | 0.50 mg/L | 1 | 0.07 | 0.50 | | 5 | 12/21/18 01:48 | N | IV |
| KQ1818705-25 | Carbon, Total Organic | QUAD | K1811789-006 | Ground Water | 0.54 mg/L | 10 ml | 0.54 mg/L | 1 | 0.07 | 0.50 | | 4 | 12/21/18 01:48 | N | IV |
| KQ1818705-26 | Carbon, Total Organic | DUP | K1811789-008 | Ground Water | 0.34 mg/L | 10 ml | 0.34 mg/L J | 1 | 0.07 | 0.50 | | 16 | 12/21/18 02:51 | N | IV |
| KQ1818705-27 | Carbon, Total Organic | TRP | K1811789-008 | Ground Water | 0.20 mg/L | 10 ml | 0.20 mg/L J | 1 | 0.07 | 0.50 | | 31* | 12/21/18 02:51 | N | IV |
| KQ1818705-28 | Carbon, Total Organic | QUAD | K1811789-008 | Ground Water | 0.26 mg/L | 10 ml | 0.26 mg/L J | 1 | 0.07 | 0.50 | | 28* | 12/21/18 02:51 | N | IV |
| KQ1818705-29 | Carbon, Total Organic | MS | K1811849-001 | Water | 25.43 mg/L | 10 ml | 25.4 mg/L | 1 | 0.07 | 0.50 | 97 | | 12/21/18 04:57 | N | II |
| KQ1818705-30 | Carbon, Total Organic | DUP | K1811849-001 | Water | 1.25 mg/L | 10 ml | 1.25 mg/L | 1 | 0.07 | 0.50 | | 1 | 12/21/18 04:25 | N | II |
| KQ1818705-31 | Carbon, Total Organic | DUP | K1811849-002 | Water | 8.05 mg/L | 10 ml | 32.2 mg/L | 4 | 0.3 | 2.0 | | 2 | 12/21/18 05:46 | N | II |
| KQ1818705-32 | Carbon, Total Organic | DUP | K1811849-003 | Water | 7.59 mg/L | 10 ml | 30.3 mg/L | 4 | 0.3 | 2.0 | | 2 | 12/21/18 06:18 | N | II |
| KQ1818705-33 | Carbon, Total Organic | DUP | K1811849-004 | Water | 0.86 mg/L | 10 ml | 0.86 mg/L | 1 | 0.07 | 0.50 | | 24* | 12/21/18 06:50 | N | II |
| KQ1818705-34 | Carbon, Total Organic | DUP | K1811849-005 | Water | 5.16 mg/L | 10 ml | 5.16 mg/L | 1 | 0.07 | 0.50 | | 3 | 12/21/18 07:22 | N | II |
| KQ1818705-35 | Carbon, Total Organic | MS | K1811831-002 | Water | 31.00 mg/L | 10 ml | 31.0 mg/L | 1 | 0.07 | 0.50 | 97 | | 12/21/18 08:57 | N | II |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619808 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ1818705-36 | Carbon, Total Organic | DUP | K1811831-002 | Water | 6.02 mg/L | 10 ml | 6.02 mg/L | 1 | 0.07 | 0.50 | | 11* | 12/21/18 08:25 | N | II |
| KQ1818705-37 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 12:29 | N | II |
| KQ1818705-37 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 12:29 | N | II |
| KQ1818705-38 | Carbon, Total Organic | LCS | | Water | 20.64 mg/L | 10 ml | 20.6 mg/L | 1 | 0.07 | 0.50 | 94 | | 12/20/18 12:46 | N | II |
| KQ1818705-38 | Carbon, Total Organic | LCS | | Water | 20.64 mg/L | 10 ml | 20.6 mg/L | 1 | 0.07 | 0.50 | 94 | | 12/20/18 12:46 | N | II |
| KQ1818705-39 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 22:06 | N | II |
| KQ1818705-39 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 22:06 | N | II |
| KQ1818705-40 | Carbon, Total Organic | LCS | | Water | 20.62 mg/L | 10 ml | 20.6 mg/L | 1 | 0.07 | 0.50 | 94 | | 12/20/18 22:23 | N | II |
| KQ1818705-40 | Carbon, Total Organic | LCS | | Water | 20.62 mg/L | 10 ml | 20.6 mg/L | 1 | 0.07 | 0.50 | 94 | | 12/20/18 22:23 | N | II |
| KQ1818705-41 | Carbon, Total Organic | CCV | | Water | 24.08 mg/L | 10 ml | 24.1 mg/L | 1 | | | 96 | | 12/20/18 11:56 | N | II |
| KQ1818705-41 | Carbon, Total Organic | CCV | | Water | 24.08 mg/L | 10 ml | 24.1 mg/L | 1 | | | 96 | | 12/20/18 11:56 | N | II |
| KQ1818705-42 | Carbon, Total Organic | CCV | | Water | 24.01 mg/L | 10 ml | 24.0 mg/L | 1 | | | 96 | | 12/20/18 15:58 | N | II |
| KQ1818705-42 | Carbon, Total Organic | CCV | | Water | 24.01 mg/L | 10 ml | 24.0 mg/L | 1 | | | 96 | | 12/20/18 15:58 | N | II |
| KQ1818705-43 | Carbon, Total Organic | CCV | | Water | 24.07 mg/L | 10 ml | 24.1 mg/L | 1 | | | 96 | | 12/20/18 21:33 | N | II |
| KQ1818705-43 | Carbon, Total Organic | CCV | | Water | 24.07 mg/L | 10 ml | 24.1 mg/L | 1 | | | 96 | | 12/20/18 21:33 | N | II |
| KQ1818705-44 | Carbon, Total Organic | CCV | | Water | 24.26 mg/L | 10 ml | 24.3 mg/L | 1 | | | 97 | | 12/21/18 05:13 | N | II |
| KQ1818705-44 | Carbon, Total Organic | CCV | | Water | 24.26 mg/L | 10 ml | 24.3 mg/L | 1 | | | 97 | | 12/21/18 05:13 | N | II |
| KQ1818705-45 | Carbon, Total Organic | CCV | | Water | 24.05 mg/L | 10 ml | 24.0 mg/L | 1 | | | 96 | | 12/21/18 10:33 | N | II |
| KQ1818705-45 | Carbon, Total Organic | CCV | | Water | 24.05 mg/L | 10 ml | 24.0 mg/L | 1 | | | 96 | | 12/21/18 10:33 | N | II |
| KQ1818705-46 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 12:13 | N | II |
| KQ1818705-46 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 12:13 | N | II |
| KQ1818705-47 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 16:14 | N | II |
| KQ1818705-47 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 16:14 | N | II |
| KQ1818705-48 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 21:50 | N | II |
| KQ1818705-48 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/20/18 21:50 | N | II |
| KQ1818705-49 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 05:30 | N | II |
| KQ1818705-49 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 05:30 | N | II |
| KQ1818705-50 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 10:49 | N | II |
| KQ1818705-50 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 10:49 | N | II |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619810 **Method/Testcode:** 415.1/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1811745-001 | Carbon, Total Organic | N/A | | Water | 1.55 mg/L | 10 ml | 1.55 mg/L | 1 | 0.07 | 0.50 | | | 12/22/18 05:13 | N | IV |
| K1811747-001 | Carbon, Total Organic | N/A | | Water | 4.71 mg/L | 10 ml | 4.71 mg/L | 1 | 0.07 | 0.50 | | | 12/22/18 06:48 | N | IV |
| K1811928-001 | Carbon, Total Organic | N/A | | Drinking Water | 0.10 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 17:14 | N | II |
| K1812101-001 | Carbon, Total Organic | N/A | | Water | 16.05 mg/L | 10 ml | 16.0 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 09:45 | N | IV |
| K1812154-001 | Carbon, Total Organic | N/A | | Ground Water | 0.19 mg/L | 10 ml | 10 mg/L J | 50 | 4 | 25 | | | 12/21/18 11:39 | N | IV |
| K1812154-002 | Carbon, Total Organic | N/A | | Ground Water | 1.67 mg/L | 10 ml | 1.67 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 12:59 | N | IV |
| K1812154-003 | Carbon, Total Organic | N/A | | Ground Water | 2.17 mg/L | 10 ml | 2.17 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 14:02 | N | IV |
| K1812154-004 | Carbon, Total Organic | N/A | | Ground Water | 17.57 mg/L | 10 ml | 879 mg/L | 50 | 4 | 25 | | | 12/21/18 14:34 | N | IV |
| K1812154-005 | Carbon, Total Organic | N/A | | Ground Water | 0.16 mg/L | 10 ml | 3 mg/L J | 20 | 2 | 10 | | | 12/21/18 16:10 | N | IV |
| K1812272-001 | Carbon, Total Organic | N/A | | Ground Water | 10.54 mg/L | 10 ml | 42.2 mg/L | 4 | 0.3 | 2.0 | | | 12/22/18 00:42 | N | IV |
| K1812272-002 | Carbon, Total Organic | N/A | | Ground Water | 3.92 mg/L | 10 ml | 392 mg/L | 100 | 7 | 50 | | | 12/22/18 03:06 | N | IV |
| K1812272-003 | Carbon, Total Organic | N/A | | Ground Water | 3.97 mg/L | 10 ml | 3.97 mg/L | 1 | 0.07 | 0.50 | | | 12/22/18 03:38 | N | IV |
| K1812272-004 | Carbon, Total Organic | N/A | | Ground Water | 4.03 mg/L | 10 ml | 4.03 mg/L | 1 | 0.07 | 0.50 | | | 12/22/18 04:09 | N | IV |
| K1812278-001 | Carbon, Total Organic | N/A | | Ground Water | 13.71 mg/L | 10 ml | 685 mg/L | 50 | 4 | 25 | | | 12/21/18 18:19 | N | IV |
| K1812278-002 | Carbon, Total Organic | N/A | | Ground Water | 14.02 mg/L | 10 ml | 701 mg/L | 50 | 4 | 25 | | | 12/21/18 22:19 | N | IV |
| K1812278-003 | Carbon, Total Organic | N/A | | Ground Water | 1.13 mg/L | 10 ml | 4.5 mg/L | 4 | 0.3 | 2.0 | | | 12/21/18 20:41 | N | IV |
| K1812279-001 | Carbon, Total Organic | N/A | | Water | 24.72 mg/L | 10 ml | 24.7 mg/L | 1 | 0.07 | 0.50 | | | 12/21/18 23:22 | N | IV |
| KQ1818709-01 | Carbon, Total Organic | MS | K1812101-001 | Water | 40.70 mg/L | 10 ml | 40.7 mg/L | 1 | 0.07 | 0.50 | 99 | | 12/21/18 10:16 | N | IV |
| KQ1818709-02 | Carbon, Total Organic | DUP | K1812101-001 | Water | 16.03 mg/L | 10 ml | 16.0 mg/L | 1 | 0.07 | 0.50 | | <1 | 12/21/18 09:45 | N | IV |
| KQ1818709-03 | Carbon, Total Organic | MS | K1812154-001 | Ground Water | 24.33 mg/L | 10 ml | 1220 mg/L | 50 | 4 | 25 | 97 | | 12/21/18 12:11 | N | IV |
| KQ1818709-04 | Carbon, Total Organic | DUP | K1812154-001 | Ground Water | 0.00 mg/L | 10 ml | 25 mg/L U | 50 | 4 | 25 | | NC | 12/21/18 11:39 | N | IV |
| KQ1818709-05 | Carbon, Total Organic | DUP | K1812154-002 | Ground Water | 1.52 mg/L | 10 ml | 1.52 mg/L | 1 | 0.07 | 0.50 | | 9 | 12/21/18 12:59 | N | IV |
| KQ1818709-06 | Carbon, Total Organic | DUP | K1812154-003 | Ground Water | 2.18 mg/L | 10 ml | 2.18 mg/L | 1 | 0.07 | 0.50 | | <1 | 12/21/18 14:02 | N | IV |
| KQ1818709-07 | Carbon, Total Organic | DUP | K1812154-004 | Ground Water | 17.56 mg/L | 10 ml | 878 mg/L | 50 | 4 | 25 | | <1 | 12/21/18 14:34 | N | IV |
| KQ1818709-08 | Carbon, Total Organic | DUP | K1812154-005 | Ground Water | 0.00 mg/L | 10 ml | 10 mg/L U | 20 | 2 | 10 | | NC | 12/21/18 16:10 | N | IV |
| KQ1818709-09 | Carbon, Total Organic | MS | K1811928-001 | Drinking Water | 24.48 mg/L | 10 ml | 24.5 mg/L | 1 | 0.07 | 0.50 | 98 | | 12/21/18 17:46 | N | II |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.



CLS 12/26/18

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619810 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ1818709-10 | Carbon, Total Organic | DUP | K1811928-001 | Drinking Water | 0.01 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 12/21/18 17:14 | N | II |
| KQ1818709-11 | Carbon, Total Organic | MS | K1812278-001 | Ground Water | 38.12 mg/L | 10 ml | 1910 mg/L | 50 | 4 | 25 | 98 | | 12/21/18 19:22 | N | IV |
| KQ1818709-12 | Carbon, Total Organic | DUP | K1812278-001 | Ground Water | 13.53 mg/L | 10 ml | 677 mg/L | 50 | 4 | 25 | | 1 | 12/21/18 18:19 | N | IV |
| KQ1818709-13 | Carbon, Total Organic | DUP | K1812278-002 | Ground Water | 13.66 mg/L | 10 ml | 683 mg/L | 50 | 4 | 25 | | 3 | 12/21/18 22:19 | N | IV |
| KQ1818709-14 | Carbon, Total Organic | DUP | K1812278-003 | Ground Water | 1.15 mg/L | 10 ml | 4.6 mg/L | 4 | 0.3 | 2.0 | | 1 | 12/21/18 20:41 | N | IV |
| KQ1818709-15 | Carbon, Total Organic | MS | K1812279-001 | Water | 48.60 mg/L | 10 ml | 48.6 mg/L | 1 | 0.07 | 0.50 | 96 | | 12/21/18 23:54 | N | IV |
| KQ1818709-16 | Carbon, Total Organic | DUP | K1812279-001 | Water | 24.96 mg/L | 10 ml | 25.0 mg/L | 1 | 0.07 | 0.50 | | <1 | 12/21/18 23:22 | N | IV |
| KQ1818709-17 | Carbon, Total Organic | MS | K1812272-001 | Ground Water | 36.01 mg/L | 10 ml | 144 mg/L | 4 | 0.3 | 2.0 | 102 | | 12/22/18 01:14 | N | IV |
| KQ1818709-18 | Carbon, Total Organic | DUP | K1812272-001 | Ground Water | 10.47 mg/L | 10 ml | 41.9 mg/L | 4 | 0.3 | 2.0 | | <1 | 12/22/18 00:42 | N | IV |
| KQ1818709-19 | Carbon, Total Organic | DUP | K1812272-002 | Ground Water | 3.78 mg/L | 10 ml | 378 mg/L | 100 | 7 | 50 | | 4 | 12/22/18 03:06 | N | IV |
| KQ1818709-20 | Carbon, Total Organic | DUP | K1812272-003 | Ground Water | 3.95 mg/L | 10 ml | 3.95 mg/L | 1 | 0.07 | 0.50 | | <1 | 12/22/18 03:38 | N | IV |
| KQ1818709-21 | Carbon, Total Organic | DUP | K1812272-004 | Ground Water | 3.99 mg/L | 10 ml | 3.99 mg/L | 1 | 0.07 | 0.50 | | 1 | 12/22/18 04:09 | N | IV |
| KQ1818709-23 | Carbon, Total Organic | DUP | K1811745-001 | Water | 2.34 mg/L | 10 ml | 2.34 mg/L | 1 | 0.07 | 0.50 | | 41* | 12/22/18 05:13 | N | IV |
| KQ1818709-24 | Carbon, Total Organic | MS | K1811747-001 | Water | 29.30 mg/L | 10 ml | 29.3 mg/L | 1 | 0.07 | 0.50 | 98 | | 12/22/18 07:20 | N | IV |
| KQ1818709-25 | Carbon, Total Organic | DUP | K1811747-001 | Water | 4.71 mg/L | 10 ml | 4.71 mg/L | 1 | 0.07 | 0.50 | | <1 | 12/22/18 06:48 | N | IV |
| KQ1818709-26 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 11:06 | N | IV |
| KQ1818709-26 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 11:06 | N | IV |
| KQ1818709-27 | Carbon, Total Organic | LCS | | Water | 20.26 mg/L | 10 ml | 20.3 mg/L | 1 | 0.07 | 0.50 | 93 | | 12/21/18 11:22 | N | IV |
| KQ1818709-27 | Carbon, Total Organic | LCS | | Water | 20.26 mg/L | 10 ml | 20.3 mg/L | 1 | 0.07 | 0.50 | 93 | | 12/21/18 11:22 | N | IV |
| KQ1818709-28 | Carbon, Total Organic | CCV | | Water | 24.26 mg/L | 10 ml | 24.3 mg/L | 1 | | | 97 | | 12/21/18 05:13 | N | IV |
| KQ1818709-28 | Carbon, Total Organic | CCV | | Water | 24.26 mg/L | 10 ml | 24.3 mg/L | 1 | | | 97 | | 12/21/18 05:13 | N | IV |
| KQ1818709-29 | Carbon, Total Organic | CCV | | Water | 24.05 mg/L | 10 ml | 24.0 mg/L | 1 | | | 96 | | 12/21/18 10:33 | N | IV |
| KQ1818709-29 | Carbon, Total Organic | CCV | | Water | 24.05 mg/L | 10 ml | 24.0 mg/L | 1 | | | 96 | | 12/21/18 10:33 | N | IV |
| KQ1818709-30 | Carbon, Total Organic | CCV | | Water | 23.72 mg/L | 10 ml | 23.7 mg/L | 1 | | | 95 | | 12/21/18 15:37 | N | IV |
| KQ1818709-30 | Carbon, Total Organic | CCV | | Water | 23.72 mg/L | 10 ml | 23.7 mg/L | 1 | | | 95 | | 12/21/18 15:37 | N | IV |
| KQ1818709-31 | Carbon, Total Organic | CCV | | Water | 23.55 mg/L | 10 ml | 23.6 mg/L | 1 | | | 94 | | 12/21/18 21:13 | N | IV |
| KQ1818709-31 | Carbon, Total Organic | CCV | | Water | 23.55 mg/L | 10 ml | 23.6 mg/L | 1 | | | 94 | | 12/21/18 21:13 | N | IV |
| KQ1818709-32 | Carbon, Total Organic | CCV | | Water | 23.63 mg/L | 10 ml | 23.6 mg/L | 1 | | | 94 | | 12/22/18 02:33 | N | IV |
| KQ1818709-32 | Carbon, Total Organic | CCV | | Water | 23.63 mg/L | 10 ml | 23.6 mg/L | 1 | | | 94 | | 12/22/18 02:33 | N | IV |
| KQ1818709-33 | Carbon, Total Organic | CCV | | Water | 23.86 mg/L | 10 ml | 23.9 mg/L | 1 | | | 96 | | 12/22/18 07:36 | N | IV |
| KQ1818709-33 | Carbon, Total Organic | CCV | | Water | 23.86 mg/L | 10 ml | 23.9 mg/L | 1 | | | 96 | | 12/22/18 07:36 | N | IV |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619810 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ1818709-34 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 05:30 | N | IV |
| KQ1818709-34 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 05:30 | N | IV |
| KQ1818709-35 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 10:49 | N | IV |
| KQ1818709-35 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 10:49 | N | IV |
| KQ1818709-36 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 15:54 | N | IV |
| KQ1818709-36 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 15:54 | N | IV |
| KQ1818709-37 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 21:29 | N | IV |
| KQ1818709-37 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 21:29 | N | IV |
| KQ1818709-38 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/22/18 02:49 | N | IV |
| KQ1818709-38 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/22/18 02:49 | N | IV |
| KQ1818709-39 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/22/18 07:53 | N | IV |
| KQ1818709-39 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/22/18 07:53 | N | IV |
| KQ1818709-40 | Carbon, Total Organic | MS | K1811745-001 | Water | 26.18 mg/L | 10 ml | 26.2 mg/L | 1 | 0.07 | 0.50 | 99 | | 12/22/18 05:45 | N | IV |
| KQ1818709-41 | Carbon, Total Organic | DMS | K1811745-001 | Water | 25.64 mg/L | 10 ml | 25.6 mg/L | 1 | 0.07 | 0.50 | 96 | | 12/22/18 05:45 | N | IV |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 620105 **Method/Testcode:** SM 5310 C/TOC D

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1812416-035 | Carbon, Dissolved Organic (DOC) | N/A | | Water | 1.24 mg/L | 10 ml | 1.24 mg/L | 1 | 0.07 | 0.50 | | | 12/22/18 08:10 | N | II |
| KQ1818712-01 | Carbon, Dissolved Organic (DOC) | MS | K1812416-035 | Water | 24.33 mg/L | 10 ml | 24.3 mg/L | 1 | 0.07 | 0.50 | 92 | | 12/22/18 08:41 | N | II |
| KQ1818712-02 | Carbon, Dissolved Organic (DOC) | DUP | K1812416-035 | Water | 1.48 mg/L | 10 ml | 1.48 mg/L | 1 | 0.07 | 0.50 | | 18* | 12/22/18 08:10 | N | II |
| KQ1818712-03 | Carbon, Dissolved Organic (DOC) | MB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 21:46 | N | II |
| KQ1818712-04 | Carbon, Dissolved Organic (DOC) | LCS | | Water | 19.23 mg/L | 10 ml | 19.2 mg/L | 1 | 0.07 | 0.50 | 88 | | 12/21/18 22:02 | N | II |
| KQ1818712-05 | Carbon, Dissolved Organic (DOC) | CCV | | Water | 23.55 mg/L | 10 ml | 23.6 mg/L | 1 | | | 94 | | 12/21/18 21:13 | N | II |
| KQ1818712-06 | Carbon, Dissolved Organic (DOC) | CCV | | Water | 23.63 mg/L | 10 ml | 23.6 mg/L | 1 | | | 94 | | 12/22/18 02:33 | N | II |
| KQ1818712-07 | Carbon, Dissolved Organic (DOC) | CCV | | Water | 23.86 mg/L | 10 ml | 23.9 mg/L | 1 | | | 96 | | 12/22/18 07:36 | N | II |
| KQ1818712-08 | Carbon, Dissolved Organic (DOC) | CCV | | Water | 23.93 mg/L | 10 ml | 23.9 mg/L | 1 | | | 96 | | 12/22/18 08:58 | N | II |
| KQ1818712-09 | Carbon, Dissolved Organic (DOC) | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/21/18 21:29 | N | II |
| KQ1818712-10 | Carbon, Dissolved Organic (DOC) | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/22/18 02:49 | N | II |
| KQ1818712-11 | Carbon, Dissolved Organic (DOC) | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/22/18 07:53 | N | II |
| KQ1818712-12 | Carbon, Dissolved Organic (DOC) | CCB | | Water | 0.00 mg/L | 10 ml | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 12/22/18 09:14 | N | II |

CES 12/26/18

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

StarLIMS Run: 619808, 619810, 620105

Analysis: TOC

Method: SM 5310 C, 9060, 415.1

CCV: 11-GEN-05-73F 50 ppm LCS: 11-GEN-05-73C 21.9 ppm

ICAL Date: 11/26/18

ICAL ID: 11-GEN-05-72J

ICS ID: 11-GEN-05-73B

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-70O 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-73J

21 % H3PO4: 11-GEN-05-73I

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, Marge, 129001F, N11314F

FILTER ID: NA

| | |
|---|---|
| Analyzed By: CES | Date Analyzed: 12/20/18 |
| Reviewed By: | Date Reviewed: 12/26/18 |

TOC: 619808, 619810
DOC: 620105

# Schedule: 12202018

**Version:** 9
**Instrument:** Fusion1
**Last Saved by:** Fusion1 (Fusion1)
**Last Saved on:** 2018/12/21 10:33 - Friday

| Position | Sample Type | Sample ID | Method ID (Calibration ID) | Reps |
|---|---|---|---|---|
| (Clean) | Clean | Clean | | 1 |
| D | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| (Clean) | Clean | Clean | | 1 |
| D | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| (Clean) | Clean | Clean | | 1 |
| D | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| (Blank) | Blank | Reagent/Acid Blank | | 1 |
| D | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| B | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| D | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 1 | Sample | MB1 | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 2 | Check Standard | [TOC] LCS ER [21.9 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 3 | Sample | ICS | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 4 | Sample | K1811658-004.01 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 5 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 6 | Sample | K1811888-002.01 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 7 | Sample | K1812001-001.01 10x | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 8 | Sample | K1812001-001.01 ms 10x | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 9 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| B | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| D | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 10 | Sample | K1811625-001.03 2x | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 11 | Sample | K1811625-001.03 ms 2x | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 12 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 13 | Sample | K1811625-003.03 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 14 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 15 | Sample | K1811728-001 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 16 | Sample | K1811728-002 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 17 | Sample | K1811789-002.08 | Extended Reaction 021711 (Extended Reaction 021711) | 4 |
| 18 | Sample | K1811789-002.08 ms | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 19 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| B | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| D | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 20 | Sample | MB2 | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 2 | Check Standard | [TOC] LCS ER [21.9 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 21 | Sample | K1811789-003.08 | Extended Reaction 021711 (Extended Reaction 021711) | 4 |
| 22 | Sample | K1811789-004.08 | Extended Reaction 021711 (Extended Reaction 021711) | 4 |
| 23 | Sample | K1811789-005.08 | Extended Reaction 021711 (Extended Reaction 021711) | 4 |
| 24 | Sample | K1811789-006.08 | Extended Reaction 021711 (Extended Reaction 021711) | 4 |
| 25 | Sample | K1811789-008.08 | Extended Reaction 021711 (Extended Reaction 021711) | 4 |
| 26 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 27 | Sample | K1811849-001.04 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 28 | Sample | K1811849-001.04 ms | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| B | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| D | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 29 | Sample | K1811849-002.04 4x | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 30 | Sample | K1811849-003.04 4x | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 31 | Sample | K1811849-004.04 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 32 | Sample | K1811849-005.04 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 33 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 34 | Sample | K1811831-002.01 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 35 | Sample | K1811831-002.01 ms | Extended Reaction 021711 (Extended Reaction 021711) | 1 |
| 36 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 2 |
| 37 | Sample | K1812101-001.02 | Extended Reaction 021711 (Extended Reaction 021711) | 2 |

# Schedule: 12202018

| Position | Sample Type | Sample ID | Method ID (Calibration ID) | Page |
|---|---|---|---|---|
| 38 | Sample | K1812101-001.02 ms | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 39 | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 40 | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 41 | Sample | K1812154-001.01 ms 50x | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 42 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 43 | Sample | K1812154-002.01 | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 44 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 45 | Sample | K1812154-003.01 | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 46 | Sample | K1812154-004.01 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 47 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 48 | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 49 | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 50 | Sample | K1812154-005.01 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 51 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 52 | Sample | K1811825-001.01 ms | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 53 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 54 | Sample | K1812276-001.01 50x | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 55 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 56 | Sample | K1812275-001.01 ms 50x | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 57 | Sample | K1812276-002.02 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 58 | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 59 | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 60 | Sample | K1812276-003.01 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 61 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 62 | Sample | K1812276-001.02 | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 63 | Sample | K1812276-001.02 ms | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 64 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 65 | Sample | K1812272-001.01 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 66 | Sample | K1812272-001.01 ms dup | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 67 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 14 |
| 68 | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 69 | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 70 | Sample | K1812272-002.01 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 71 | Sample | K1812272-001.01 | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 72 | Sample | K1812272-001.01 ms | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 73 | Sample | RB | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 74 | Sample | K1811745-001.01 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 75 | Sample | K1811745-001.01 ms | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 76 | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 77 | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 78 | Sample | K1812416-001.01 dup | Extended Reaction 021711 (Extended Reaction 021711) | 12 |
| 79 | Sample | K1812416-001.01 ms dup | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 80 | Check Standard | [TOC] CCV 021711 [25 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |
| 81 | Check Standard | [TOC] CCB 021711 [0.0 ppm] | Extended Reaction 021711 (Extended Reaction 021711) | 11 |

00946625

# Fusion Report - 12202018
# Thursday, December 20, 2018 08:21 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2018/12/26 11:38 - Wednesday

## Report Summary Information

| | | | |
|---|---|---|---|
| Company Location: | Gen Chem Lab | | |
| Schedule Name: | 12202018 | Engine Version: | 1.1.5.1 |
| Instrument Name: | Fusion1 | Firmware Version: | 1.2.0696 |
| Report Version: | 1 of 1 | Connection: | RS232 COM1 |
| Report Creation by Operators (schedule version): | Fusion1 (Fusion1) (v1)<br>Fusion1 (Fusion1) (v2)<br>Fusion1 (Fusion1) (v3)<br>Fusion1 (Fusion1) (v5)<br>Fusion1 (Fusion1) (v6)<br>Fusion1 (Fusion1) (v7)<br>Fusion1 (Fusion1) (v8)<br>Fusion1 (Fusion1) (v9) | | |
| Comment: | | | |

## Report Results

**Sample Type**: Clean — From Schedule Version 1

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (clean) | | Clean | 2018/12/20 08:21 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 12.04 | 16.47 | 4.43 | 49.47 | 05:34 |
| | | | | | | |
| 2 | TC Clean | 8.60 | 11.29 | 2.69 | 49.71 | 07:15 |
| 3 | TC Clean | 2.48 | 5.22 | 2.74 | 49.77 | 07:01 |
| 4 | TC Clean | 1.83 | 4.57 | 2.75 | 49.73 | 07:03 |

**Sample Type**: Sample — From Schedule Version 1

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 08:53 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 13.50 | 16.00 | 2.50 | 49.87 | 12:34 |

**Dilution** **Blank Contribution** **Method** **Calibration**

| | | | |
|---|---|---|---|
| 1:10 | (TC) 17.0445 (IC) (v1201) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Clean — From Schedule Version 1

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◈ | (clean) | | Clean | 2018/12/20 09:09 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 10.06 | 13.45 | 3.39 | 49.37 | 07:59 |
| | | | | | | |
| 2 | TC Clean | 5.19 | 7.86 | 2.67 | 49.71 | 07:17 |
| 3 | TC Clean | 3.04 | 5.66 | 2.63 | 49.76 | 07:01 |
| 4 | TC Clean | 1.91 | 4.53 | 2.62 | 49.76 | 07:03 |

**Sample Type**: Sample — From Schedule Version 1

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 09:43 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 13.36 | 15.83 | 2.47 | 49.86 | 12:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 17.0445 (IC) (v1201) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Clean — From Schedule Version 1

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◈ | (clean) | | Clean | 2018/12/20 10:00 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 10.15 | 13.24 | 3.09 | 49.44 | 08:00 |
| 2 | TC Clean | 4.75 | 7.44 | 2.69 | 49.80 | 07:17 |
| 3 | TC Clean | 1.82 | 4.43 | 2.62 | 49.83 | 07:02 |
| 4 | TC Clean | 1.43 | 4.08 | 2.65 | 49.84 | 07:02 |

**Sample Type**: Sample — From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 10:34 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 13.13 | 15.68 | 2.54 | 49.91 | 12:32 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 17.0445 (IC) (v1201) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Blank (Creating v1202) From Schedule Version 3

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (blank) | | Reagent/Acid Blank | 2018/12/20 10:50 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 10.18 | 13.18 | 3.00 | 49.42 | 07:58 |
| | | | | | | |
| 2 | TC Clean | 4.60 | 7.15 | 2.55 | 49.76 | 07:16 |
| 3 | TC Clean | 1.96 | 4.47 | 2.51 | 49.84 | 07:03 |
| 4 | TC Clean | 1.49 | 4.08 | 2.59 | 49.85 | 07:01 |
| | | | | | | |
| 5 | Reagent Blank | 5.37 | 8.01 | 2.63 | 49.80 | 08:12 |
| | | | | | | |
| 6 | Acid Blank | 1.31 | 3.85 | 2.54 | 49.49 | 05:40 |

**Sample Type**: Sample From Schedule Version 5

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | RB | 0.7100 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 11:40 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.7100 | 7.1003 | 22.39 | 25.22 | 2.83 | 49.95 | 12:32 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> CCV 021711 From Schedule Version

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 24.0779 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 11:56 |

| | Base |
|---|---|

| Pos | Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.0779 | 240.7790 | 202.52 | 205.21 | 2.70 | 49.94 | 12:32 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

**Sample Type**: Check Standard --> CCB 021711 From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 12:13 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 17.20 | 19.92 | 2.72 | 49.96 | 12:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 5

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 1 | TOC | MB1 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 12:29 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 16.53 | 19.20 | 2.67 | 49.98 | 12:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> LCS ER From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | 2 | TOC | 21.9000 | 1:1 | [TOC] LCS ER [21.9 ppm] | 0 / infinity ( NA / NA ) | 20.6415 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 12:46 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 21.9 ppm | 1 | 20.6415 | 206.4151 | 176.24 | 178.89 | 2.65 | 49.99 | 12:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos 2 |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 21.9 ppmC |

**Sample Type**: Sample From Schedule Version 5

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 3 | TOC | ICS | 0.2428 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 13:02 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.2428 | 2.4278 | 18.82 | 21.60 | 2.78 | 50.00 | 12:33 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 4 | TOC | K1811658-004.01 | 3.8703 ppm | 0.0531 ppm | 1.3700% | 2018/12/20 13:18 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.8327 | 38.3274 | 46.26 | 49.03 | 2.77 | 49.98 | 12:27 |
| 2 | TOC | 3.9078 | 39.0782 | 46.84 | 49.59 | 2.76 | 50.00 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 5 | TOC | RB | 0.0004 ppm | 0.0006 ppm | 141.4200% | 2018/12/20 13:50 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0008 | 0.0078 | 16.97 | 19.66 | 2.69 | 50.05 | 12:27 |
| 2 | TOC | 0.0000 | 0.0000 | 15.66 | 18.25 | 2.59 | 50.03 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 6 | TOC | K1811888-002.01 | 2.7312 ppm | 0.0057 ppm | 0.2100% | 2018/12/20 14:22 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.7352 | 27.3524 | 37.87 | 40.73 | 2.86 | 50.02 | 12:28 |
| 2 | TOC | 2.7271 | 27.2713 | 37.81 | 40.62 | 2.81 | 50.08 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 7 | TOC | K1812001-001.01 10x | 6.9117 ppm | 0.0401 ppm | 0.5800% | 2018/12/20 14:54 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 6.9401 | 69.4013 | 70.02 | 72.80 | 2.79 | 50.07 | 12:25 |
| 2 | TOC | 6.8834 | 68.8336 | 69.58 | 72.19 | 2.61 | 50.09 | 12:22 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 8 | TOC | K1812001-001.01 ms 10x | 31.6218 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 15:25 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 31.6218 | 316.2181 | 258.70 | 261.23 | 2.53 | 50.11 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 9 | TOC | RB | 0.1048 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 15:41 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.1048 | 1.0477 | 17.76 | 20.50 | 2.74 | 50.11 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> CCV 021711 From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 24.0103 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 15:58 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.0103 | 240.1027 | 202.00 | 204.73 | 2.73 | 50.11 | 12:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

~~**Sample Type**: Check Standard --> CCB 021711 From Schedule Version~~

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 16:14 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 17.00 | 19.74 | 2.75 | 50.14 | 12:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 5

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 10 | TOC | K1811625-001.03 2x | 4.0447 ppm | 0.2857 ppm | 7.0600% | 2018/12/20 16:31 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.2468 | 42.4675 | 49.43 | 52.16 | 2.73 | 50.15 | 12:28 |
| 2 | TOC | 3.8427 | 38.4268 | 46.34 | 48.97 | 2.63 | 50.14 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 11 | TOC | K1811625-001.03 ms 2x | 29.1500 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 17:03 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 29.1500 | 291.5002 | 239.80 | 242.66 | 2.86 | 50.11 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 12 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 17:19 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.64 | 17.28 | 2.63 | 50.16 | 12:29 |
| 2 | TOC | 0.0000 | 0.0000 | 14.52 | 17.37 | 2.85 | 50.16 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 13 | TOC | K1811625-003.03 | 4.3494 ppm | 0.1702 ppm | 3.9100% | 2018/12/20 17:51 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.4698 | 44.6978 | 51.13 | 53.85 | 2.72 | 50.20 | 12:30 |
| 2 | TOC | 4.2291 | 42.2909 | 49.29 | 51.80 | 2.51 | 50.15 | 12:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 14 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 18:23 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 13.47 | 16.22 | 2.75 | 50.18 | 12:22 |
| 2 | TOC | 0.0000 | 0.0000 | 14.66 | 17.23 | 2.57 | 50.14 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 15 | TOC | K1811728-001 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 18:54 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.67 | 17.32 | 2.65 | 50.14 | 12:26 |
| 2 | TOC | 0.0000 | 0.0000 | 14.89 | 17.48 | 2.58 | 50.12 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 16 | TOC | K1811728-002 | 0.3981 ppm | 0.5629 ppm | 141.4200% | 2018/12/20 19:26 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.71 | 17.40 | 2.68 | 50.14 | 12:27 |
| 2 | TOC | 0.7961 | 7.9611 | 23.05 | 25.78 | 2.73 | 50.12 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 17 | TOC | K1811789-002.08 | 0.3032 ppm | 0.1364 ppm | 44.9900% | 2018/12/20 19:58 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.5064 | 5.0636 | 20.83 | 23.42 | 2.59 | 50.08 | 12:28 |
| 2 | TOC | 0.2565 | 2.5651 | 18.92 | 21.63 | 2.71 | 50.14 | 12:25 |
| 3 | TOC | 0.2160 | 2.1596 | 18.61 | 21.36 | 2.75 | 50.13 | 12:2 |
| 4 | TOC | 0.2341 | 2.3415 | 18.75 | 21.38 | 2.63 | 50.14 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | | Analysis | | | Std. Dev. | | |
|---|---|---|---|---|---|---|---|

| | Pos | Type | Sample ID | Result (ppmC) | (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 18 | TOC | K1811789-002.08 ms | 25.2126 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 21:01 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 25.2126 | 252.1263 | 209.70 | 212.25 | 2.55 | 50.12 | 12:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 19 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 21:17 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 16.94 | 19.63 | 2.68 | 50.10 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> CCV 021711 From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 24.0674 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 21:33 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.0674 | 240.6743 | 202.44 | 205.01 | 2.58 | 50.10 | 12:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

**Sample Type**: Check Standard --> CCB 021711 From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 21:50 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 16.32 | 19.03 | 2.72 | 50.15 | 12:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 5

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 20 | TOC | MB2 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/20 22:06 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 15.21 | 17.97 | 2.76 | 50.11 | 12:33 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> LCS ER From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | 2 | TOC | 21.9000 | 1:1 | [TOC] LCS ER [21.9 ppm] | 0 / infinity ( NA / NA ) | 20.6186 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/20 22:23 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 21.9 ppm | 1 | 20.6186 | 206.1862 | 176.07 | 178.69 | 2.62 | 50.07 | 12:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos 2 |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 21.9 ppmC |

**Sample Type**: Sample From Schedule Version 5

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 21 | TOC | K1811789-003.08 | 0.6115 ppm | 0.0957 ppm | 15.6500% | 2018/12/20 22:39 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.7447 | 7.4470 | 22.65 | 25.41 | 2.75 | 50.03 | 12:29 |
| 2 | TOC | 0.6046 | 6.0460 | 21.58 | 24.25 | 2.67 | 49.99 | 12:26 |
| 3 | TOC | 0.5775 | 5.7752 | 21.38 | 23.89 | 2.51 | 49.91 | 12:24 |
| 4 | TOC | 0.5192 | 5.1918 | 20.93 | 23.51 | 2.58 | 49.93 | 12:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 22 | TOC | K1811789-004.08 | 0.3582 ppm | 0.4373 ppm | 122.0700% | 2018/12/20 23:42 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.1593 | 1.5932 | 18.18 | 20.90 | 2.72 | 49.89 | 12:24 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 1.0099 | 10.0985 | 24.68 | 27.32 | 2.64 | 49.87 | 12:26 |
| 3 | TOC | 0.1908 | 1.9085 | 18.42 | 21.15 | 2.73 | 49.87 | 12:26 |
| 4 | TOC | 0.0729 | 0.7286 | 17.52 | 20.19 | 2.67 | 49.84 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 23 | TOC | K1811789-005.08 | 0.6339 ppm | 0.0893 ppm | 14.0800% | 2018/12/21 00:45 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.7650 | 7.6497 | 22.81 | 25.45 | 2.65 | 49.83 | 12:24 |
| 2 | TOC | 0.5847 | 5.8472 | 21.43 | 24.13 | 2.70 | 49.81 | 12:25 |
| 3 | TOC | 0.5711 | 5.7111 | 21.33 | 24.07 | 2.74 | 49.79 | 12:24 |
| 4 | TOC | 0.6149 | 6.1493 | 21.66 | 24.35 | 2.68 | 49.78 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 24 | TOC | K1811789-006.08 | 0.5329 ppm | 0.0218 ppm | 4.1000% | 2018/12/21 01:48 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.5515 | 5.5149 | 21.18 | 23.88 | 2.70 | 49.78 | 12:27 |
| 2 | TOC | 0.5332 | 5.3318 | 21.04 | 23.57 | 2.54 | 49.78 | 12:26 |
| 3 | TOC | 0.5022 | 5.0218 | 20.80 | 23.44 | 2.64 | 49.72 | 12:25 |
| 4 | TOC | 0.5447 | 5.4469 | 21.12 | 23.86 | 2.73 | 49.78 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 25 | TOC | K1811789-008.08 | 0.2970 ppm | 0.0830 ppm | 27.9500% | 2018/12/21 02:51 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.3918 | 3.9177 | 19.96 | 22.52 | 2.56 | 49.74 | 12:28 |
| 2 | TOC | 0.3350 | 3.3500 | 19.52 | 22.21 | 2.69 | 49.74 | 12:24 |
| 3 | TOC | 0.2038 | 2.0380 | 18.52 | 21.29 | 2.77 | 49.72 | 12:27 |
| 4 | TOC | 0.2574 | 2.5743 | 18.93 | 21.62 | 2.69 | 49.72 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 26 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 03:54 |

| Rep | Base | | | Adjusted | | Baseline | Pressure | Run |
|---|---|---|---|---|---|---|---|---|

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| # | Analysis Type | ppm | µg | (Abs) | NDIR (Abs) | (Abs) | (psig) | Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 15.47 | 17.90 | 2.42 | 49.72 | 12:24 |
| 2 | TOC | 0.0000 | 0.0000 | 14.64 | 17.20 | 2.56 | 49.73 | 12:23 |

**Dilution** 1:10
**Blank Contribution** (TC) 16.9610 (IC) (v1202)
**Method** Extended Reaction 021711 (v3)
**Calibration** Extended Reaction 021711 (v24)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 27 | TOC | K1811849-001.04 | 1.2435 ppm | 0.0105 ppm | 0.8400% | 2018/12/21 04:25 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.2362 | 12.3615 | 26.41 | 29.06 | 2.65 | 49.71 | 12:22 |
| 2 | TOC | 1.2509 | 12.5093 | 26.52 | 29.16 | 2.63 | 49.71 | 12:26 |

**Dilution** 1:10
**Blank Contribution** (TC) 16.9610 (IC) (v1202)
**Method** Extended Reaction 021711 (v3)
**Calibration** Extended Reaction 021711 (v24)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 28 | TOC | K1811849-001.04 ms | 25.4293 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 04:57 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 25.4293 | 254.2925 | 211.36 | 213.95 | 2.59 | 49.70 | 12:30 |

**Dilution** 1:10
**Blank Contribution** (TC) 16.9610 (IC) (v1202)
**Method** Extended Reaction 021711 (v3)
**Calibration** Extended Reaction 021711 (v24)

**Sample Type**: Check Standard --> CCV 021711 From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 24.2565 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 05:13 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.2565 | 242.5645 | 203.88 | 206.62 | 2.74 | 49.66 | 12:31 |

**Completion State** Success - Criteria met.
**Success Action** Do Nothing
**Method** Extended Reaction 021711 (v3)
**Calibration** Extended Reaction 021711 (v24)
**STD Conc - Pos B** 50 ppmC

**Sample Type**: Check Standard --> CCB 021711 From Schedule Version 5

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 05:30 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 16.31 | 19.10 | 2.80 | 49.66 | 12:27 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 5

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 29 | TOC | K1811849-002.04 4x | 8.1359 ppm | 0.1209 ppm | 1.4900% | 2018/12/21 05:46 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 8.2214 | 82.2142 | 79.81 | 82.70 | 2.89 | 49.69 | 12:23 |
| 2 | TOC | 8.0505 | 80.5045 | 78.50 | 81.19 | 2.69 | 49.68 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 30 | TOC | K1811849-003.04 4x | 7.6636 ppm | 0.1108 ppm | 1.4500% | 2018/12/21 06:18 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 7.7420 | 77.4200 | 76.15 | 78.89 | 2.75 | 49.68 | 12:26 |
| 2 | TOC | 7.5853 | 75.8529 | 74.95 | 77.63 | 2.68 | 49.71 | 12:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 31 | TOC | K1811849-004.04 | 0.9762 ppm | 0.1639 ppm | 16.7900% | 2018/12/21 06:50 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.0921 | 10.9213 | 25.31 | 27.99 | 2.68 | 49.67 | 12:28 |
| 2 | TOC | 0.8603 | 8.6033 | 23.54 | 26.17 | 2.64 | 49.67 | 12:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 32 | TOC | K1811849-005.04 | 5.2512 ppm | 0.1272 ppm | 2.4200% | 2018/12/21 07:22 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 5.3411 | 53.4111 | 57.79 | 60.40 | 2.61 | 49.69 | 12:24 |
| 2 | TOC | 5.1612 | 51.6125 | 56.42 | 59.23 | 2.82 | 49.71 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 33 | TOC | RB | 0.3241 ppm | 0.4583 ppm | 141.4200% | 2018/12/21 07:53 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 16.09 | 18.66 | 2.57 | 49.67 | 12:29 |
| 2 | TOC | 0.6482 | 6.4816 | 21.92 | 24.59 | 2.67 | 49.61 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 34 | TOC | K1811831-002.01 | 6.3814 ppm | 0.5082 ppm | 7.9600% | 2018/12/21 08:25 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 6.7408 | 67.4078 | 68.49 | 71.00 | 2.51 | 49.71 | 12:27 |
| 2 | TOC | 6.0221 | 60.2211 | 63.00 | 65.39 | 2.40 | 49.90 | 12:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Sample — From Schedule Version 6

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 35 | TOC | K1811831-002.01 ms | 31.0037 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 08:57 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 31.0037 | 310.0373 | 253.97 | 256.56 | 2.59 | 49.92 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Sample — From Schedule Version 7

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 36 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 09:13 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 13.45 | 16.02 | 2.57 | 49.95 | 12:24 |
| 2 | TOC | 0.0000 | 0.0000 | 13.80 | 16.48 | 2.67 | 49.92 | 12:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Sample — From Schedule Version 8

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 37 | TOC | K1812101-001.02 | 16.0372 ppm | 0.0155 ppm | 0.1000% | 2018/12/21 09:45 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 16.0482 | 160.4819 | 139.64 | 142.30 | 2.66 | 49.93 | 12:27 |
| 2 | TOC | 16.0262 | 160.2622 | 139.48 | 142.17 | 2.69 | 49.89 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 38 | TOC | K1812101-001.02 ms | 40.7000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 10:16 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 40.7000 | 407.0004 | 328.10 | 330.64 | 2.54 | 49.86 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> CCV 021711 — From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 24.0495 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 10:33 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.0495 | 240.4951 | 202.30 | 204.97 | 2.67 | 49.86 | 12:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

**Sample Type**: Check Standard --> CCB 021711 — From Schedule Version

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 10:49 |

00946640

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 15.93 | 18.55 | 2.62 | 49.84 | 12:29 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample — From Schedule Version 9

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 39 | TOC | MB3 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 11:06 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.88 | 17.48 | 2.60 | 50.04 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> LCS ER — From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | 2 | TOC | 21.9000 | 1:1 | [TOC] LCS ER [21.9 ppm] | 0 / infinity ( NA / NA ) | 20.2644 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 11:22 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 21.9 ppm | 1 | 20.2644 | 202.6439 | 173.36 | 175.92 | 2.56 | 49.99 | 12:35 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos 2 |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 21.9 ppmC |

**Sample Type**: Sample — From Schedule Version 9

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 40 | TOC | K1812154-001.01 50x | 0.0965 ppm | 0.1365 ppm | 141.4200% | 2018/12/21 11:39 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.1931 | 1.9307 | 18.44 | 21.05 | 2.61 | 49.95 | 12:28 |
| 2 | TOC | 0.0000 | 0.0000 | 16.89 | 19.63 | 2.74 | 49.95 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 41 | TOC | K1812154-001.01 ms 50x | 24.3267 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 12:11 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 24.3267 | 243.2665 | 202.93 | 205.49 | 2.56 | 49.93 | 12:33 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 42 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 12:27 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.90 | 17.47 | 2.57 | 49.92 | 12:27 |
| 2 | TOC | 0.0000 | 0.0000 | 13.95 | 16.42 | 2.47 | 49.95 | 12:21 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 43 | TOC | K1812154-002.01 | 1.5973 ppm | 0.1048 ppm | 6.5600% | 2018/12/21 12:59 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.6714 | 16.7136 | 29.74 | 32.52 | 2.78 | 49.93 | 12:27 |
| 2 | TOC | 1.5232 | 15.2315 | 28.60 | 31.41 | 2.81 | 49.97 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 44 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 13:31 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.83 | 17.44 | 2.61 | 49.98 | 12:26 |
| 2 | TOC | 0.0000 | 0.0000 | 13.52 | 16.27 | 2.75 | 49.99 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 45 | TOC | K1812154-003.01 | 2.1735 ppm | 0.0087 ppm | 0.4000% | 2018/12/21 14:02 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.1674 | 21.6739 | 33.53 | 36.21 | 2.68 | 49.99 | 12:27 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 2.1797 | 21.7969 | 33.62 | 36.23 | 2.60 | 49.96 | 12:25 |

**Dilution**: 1:10
**Blank Contribution**: (TC) 16.9610 (IC) (v1202)
**Method**: Extended Reaction 021711 (v3)
**Calibration**: Extended Reaction 021711 (v24)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 46 | TOC | K1812154-004.01 50x | 17.5683 ppm | 0.0074 ppm | 0.0400% | 2018/12/21 14:34 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 17.5736 | 175.7357 | 151.30 | 154.08 | 2.77 | 50.00 | 12:27 |
| 2 | TOC | 17.5631 | 175.6311 | 151.22 | 153.86 | 2.64 | 49.96 | 12:28 |

**Dilution**: 1:10
**Blank Contribution**: (TC) 16.9610 (IC) (v1202)
**Method**: Extended Reaction 021711 (v3)
**Calibration**: Extended Reaction 021711 (v24)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 47 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 15:06 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 15.33 | 17.92 | 2.59 | 49.96 | 12:28 |
| 2 | TOC | 0.0000 | 0.0000 | 13.94 | 16.74 | 2.80 | 49.99 | 12:26 |

**Dilution**: 1:10
**Blank Contribution**: (TC) 16.9610 (IC) (v1202)
**Method**: Extended Reaction 021711 (v3)
**Calibration**: Extended Reaction 021711 (v24)

**Sample Type**: Check Standard --> CCV 021711 — From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 23.7161 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 15:37 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.7161 | 237.1608 | 199.75 | 202.36 | 2.62 | 50.01 | 12:29 |

**Completion State**: Success - Criteria met.
**Success Action**: Do Nothing
**Method**: Extended Reaction 021711 (v3)
**Calibration**: Extended Reaction 021711 (v24)
**STD Conc - Pos B**: 50 ppmC

**Sample Type**: Check Standard --> CCB 021711 — From Schedule Version

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 15:54 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 15.45 | 17.92 | 2.47 | 50.01 | 12:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 9

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 48 | TOC | K1812154-005.01 20x | 0.0816 ppm | 0.1112 ppm | 136.2200% | 2018/12/21 16:10 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.1602 | 1.6024 | 18.19 | 20.63 | 2.44 | 50.06 | 12:26 |
| 2 | TOC | 0.0030 | 0.0300 | 16.98 | 19.62 | 2.63 | 50.02 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 49 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 16:42 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.08 | 16.76 | 2.68 | 50.06 | 12:24 |
| 2 | TOC | 0.0000 | 0.0000 | 13.43 | 15.97 | 2.54 | 50.07 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 50 | TOC | K1811928-001.01 | 0.0564 ppm | 0.0642 ppm | 113.8700% | 2018/12/21 17:14 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.1018 | 1.0177 | 17.74 | 20.38 | 2.64 | 50.07 | 12:24 |
| 2 | TOC | 0.0110 | 0.1098 | 17.05 | 19.66 | 2.62 | 50.06 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 51 | TOC | K1811928-001.01 ms | 24.4826 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 17:46 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 24.4826 | 244.8258 | 204.12 | 206.67 | 2.55 | 50.07 | 12:34 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 52 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 18:02 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 15.50 | 18.26 | 2.75 | 50.01 | 12:34 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 53 | TOC | K1812278-001.01 50x | 13.6190 ppm | 0.1234 ppm | 0.9100% | 2018/12/21 18:19 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 13.7063 | 137.0630 | 121.74 | 124.53 | 2.79 | 49.97 | 12:26 |
| 2 | TOC | 13.5318 | 135.3180 | 120.41 | 123.06 | 2.65 | 49.99 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 54 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 18:50 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.98 | 17.57 | 2.59 | 50.00 | 12:29 |
| 2 | TOC | 0.0000 | 0.0000 | 14.14 | 16.73 | 2.59 | 49.98 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 55 | TOC | K1812278-001.01 ms 50x | 38.1173 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 19:22 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 38.1173 | 381.1732 | 308.36 | 311.11 | 2.76 | 50.03 | 12:33 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reactio 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 56 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 19:38 |

| Rep | Base | ppm | µg | Adjusted | NDIR (Abs) | Baseline | Pressure | Run |
|---|---|---|---|---|---|---|---|---|

| # | Analysis Type | | | (Abs) | | (Abs) | (psig) | Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 15.38 | 18.03 | 2.65 | 50.12 | 12:21 |
| 2 | TOC | 0.0000 | 0.0000 | 13.18 | 15.90 | 2.72 | 50.12 | 12:29 |
| 3 | TOC | 0.0000 | 0.0000 | 13.10 | 15.85 | 2.75 | 50.11 | 12:25 |
| 4 | TOC | 0.0000 | 0.0000 | 13.37 | 15.90 | 2.53 | 50.14 | 12:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 57 | TOC | K1812278-003.02 4x | 1.1389 ppm | 0.0119 ppm | 1.0500% | 2018/12/21 20:41 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.1305 | 11.3046 | 25.60 | 28.30 | 2.69 | 50.14 | 12:28 |
| 2 | TOC | 1.1473 | 11.4733 | 25.73 | 28.49 | 2.76 | 50.17 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

Sample Type: Check Standard --> CCV 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 23.5524 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 21:13 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.5524 | 235.5243 | 198.50 | 201.17 | 2.67 | 50.15 | 12:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

Sample Type: Check Standard --> CCB 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 21:29 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 16.23 | 18.82 | 2.59 | 50.15 | 12:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample — From Schedule Version 9

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 58 | TOC | MB4 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 21:46 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.51 | 17.24 | 2.74 | 50.15 | 12:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> LCS ER — From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | 2 | TOC | 21.9000 | 1:1 | [TOC] LCS ER [21.9 ppm] | 0 / infinity ( NA / NA ) | 19.2260 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/21 22:02 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 21.9 ppm | 1 | 19.2260 | 192.2601 | 165.42 | 168.09 | 2.66 | 50.13 | 12:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos 2 |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 21.9 ppmC |

**Sample Type**: Sample — From Schedule Version 9

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 59 | TOC | K1812278-002.01 50x | 13.8400 ppm | 0.2571 ppm | 1.8600% | 2018/12/21 22:19 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 14.0218 | 140.2181 | 124.15 | 126.95 | 2.79 | 50.10 | 12:23 |
| 2 | TOC | 13.6582 | 136.5816 | 121.37 | 124.17 | 2.79 | 50.13 | 12:22 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 60 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 22:50 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 14.44 | 17.22 | 2.77 | 50.12 | 12:27 |
| 2 | TOC | 0.0000 | 0.0000 | 13.12 | 15.76 | 2.64 | 50.12 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 61 | TOC | K1812279-001.02 | 24.8410 ppm | 0.1722 ppm | 0.6900% | 2018/12/21 23:22 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 24.7192 | 247.1921 | 205.93 | 208.61 | 2.68 | 50.12 | 12:24 |
| 2 | TOC | 24.9628 | 249.6278 | 207.79 | 210.56 | 2.77 | 50.10 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 62 | TOC | K1812279-001.02 ms | 48.6019 ppm | 0.0000 ppm | 0.0000% | 2018/12/21 23:54 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 48.6019 | 486.0190 | 388.51 | 391.29 | 2.78 | 50.13 | 12:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 63 | TOC | RB | 0.3638 ppm | 0.5145 ppm | 141.4200% | 2018/12/22 00:10 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.7276 | 7.2756 | 22.52 | 25.36 | 2.84 | 50.13 | 12:25 |
| 2 | TOC | 0.0000 | 0.0000 | 16.69 | 19.45 | 2.76 | 50.14 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 64 | TOC | K1812272-001.01 4x | 10.5041 ppm | 0.0528 ppm | 0.5000% | 2018/12/22 00:42 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 10.5415 | 105.4147 | 97.55 | 100.17 | 2.62 | 50.14 | 12:27 |
| 2 | TOC | 10.4668 | 104.6678 | 96.98 | 99.78 | 2.81 | 50.13 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 65 | TOC | K1812272-001.01 ms 4x | 36.0064 ppm | 0.0000 ppm | 0.0000% | 2018/12/22 01:14 |

| Rep | Base | | | Adjusted | | Baseline | Pressure | Run |
|---|---|---|---|---|---|---|---|---|

| # | Analysis Type | ppm | µg | (Abs) | NDIR (Abs) | (Abs) | (psig) | Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 36.0064 | 360.0644 | 292.22 | 294.86 | 2.64 | 50.13 | 12:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 66 | TOC | RB | 0.0221 ppm | 0.0441 ppm | 200.0000% | 2018/12/22 01:30 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0883 | 0.8829 | 17.64 | 20.45 | 2.81 | 50.10 | 12:26 |
| 2 | TOC | 0.0000 | 0.0000 | 15.76 | 18.39 | 2.63 | 50.11 | 12:26 |
| 3 | TOC | 0.0000 | 0.0000 | 14.56 | 17.38 | 2.82 | 50.12 | 12:26 |
| 4 | TOC | 0.0000 | 0.0000 | 14.00 | 16.68 | 2.68 | 50.13 | 12:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

Sample Type: Check Standard --> CCV 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 23.6288 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/22 02:33 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.6288 | 236.2883 | 199.08 | 201.57 | 2.49 | 50.12 | 12:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

Sample Type: Check Standard --> CCB 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/22 02:49 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 15.09 | 17.75 | 2.66 | 50.13 | 12:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample — From Schedule Version 9

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 67 | TOC | K1812272-002.01 100x | 3.8476 ppm | 0.0975 ppm | 2.5300% | 2018/12/22 03:06 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.9166 | 39.1659 | 46.90 | 49.50 | 2.60 | 50.12 | 12:28 |
| 2 | TOC | 3.7787 | 37.7871 | 45.85 | 48.70 | 2.85 | 50.12 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 68 | TOC | K1812272-003.01 | 3.9636 ppm | 0.0156 ppm | 0.3900% | 2018/12/22 03:38 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.9747 | 39.7467 | 47.35 | 50.10 | 2.76 | 50.12 | 12:26 |
| 2 | TOC | 3.9526 | 39.5256 | 47.18 | 49.88 | 2.70 | 50.11 | 12:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 69 | TOC | K1812272-004.01 | 4.0087 ppm | 0.0333 ppm | 0.8300% | 2018/12/22 04:09 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.0322 | 40.3222 | 47.79 | 50.48 | 2.69 | 50.10 | 12:29 |
| 2 | TOC | 3.9851 | 39.8513 | 47.43 | 50.17 | 2.74 | 50.12 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 70 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/22 04:41 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 15.38 | 18.09 | 2.72 | 50.15 | 12:28 |
| 2 | TOC | 0.0000 | 0.0000 | 14.56 | 17.22 | 2.66 | 50.14 | 12:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24 |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 71 | TOC | K1811745-001.09 | 1.9426 ppm | 0.5604 ppm | 28.8500% | 2018/12/22 05:13 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.5463 | 15.4630 | 28.78 | 31.48 | 2.70 | 50.17 | 12:27 |
| 2 | TOC | 2.3389 | 23.3888 | 34.84 | 37.63 | 2.79 | 50.13 | 12:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 72 | TOC | K1811745-001.09 ms | 25.9104 ppm | 0.3760 ppm | 1.4500% | 2018/12/22 05:45 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 26.1763 | 261.7631 | 217.07 | 219.81 | 2.74 | 50.12 | 12:24 |
| 2 | TOC | 25.6446 | 256.4457 | 213.00 | 215.81 | 2.81 | 50.13 | 12:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 73 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2018/12/22 06:16 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 15.93 | 18.61 | 2.68 | 50.12 | 12:23 |
| 2 | TOC | 0.0000 | 0.0000 | 14.21 | 17.02 | 2.81 | 50.10 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 74 | TOC | K1811747-001.09 | 4.7084 ppm | 0.0027 ppm | 0.0600% | 2018/12/22 06:48 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.7103 | 47.1034 | 52.97 | 55.91 | 2.94 | 50.11 | 12:24 |
| 2 | TOC | 4.7065 | 47.0655 | 52.94 | 55.63 | 2.69 | 50.12 | 12:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 75 | TOC | K1811747-001.09 ms | 29.2991 ppm | 0.0000 ppm | 0.0000% | 2018/12/22 07:20 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 29.2991 | 292.9914 | 240.94 | 243.69 | 2.75 | 50.09 | 12:34 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

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**Sample Type**: Check Standard --> CCV 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 23.8618 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/22 07:36 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.8618 | 238.6180 | 200.86 | 203.53 | 2.67 | 50.09 | 12:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

**Sample Type**: Check Standard --> CCB 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/22 07:53 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 14.88 | 17.69 | 2.81 | 50.09 | 12:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 9

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 1 | TOC | K1812416-035.01 doc | 1.3602 ppm | 0.1716 ppm | 12.6100% | 2018/12/22 08:10 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.2389 | 12.3890 | 26.43 | 29.31 | 2.88 | 50.08 | 12:27 |
| 2 | TOC | 1.4816 | 14.8155 | 28.29 | 31.38 | 3.09 | 50.10 | 12:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 3 | TOC | K1812416-035.01 ms doc | 24.3251 ppm | 0.0000 ppm | 0.0000% | 2018/12/22 08:41 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 24.3251 | 243.2508 | 202.92 | 205.83 | 2.92 | 50.10 | 12:30 |

00946652

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 16.9610 (IC) (v1202) | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) |

**Sample Type**: Check Standard --> CCV 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 021711 [25 ppm] | 0 / infinity ( NA / NA ) | 23.9324 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/22 08:58 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.9324 | 239.3244 | 201.40 | 204.23 | 2.82 | 50.11 | 12:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 50 ppmC |

**Sample Type**: Check Standard --> CCB 021711 From Schedule Version 9

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:2 | [TOC] CCB 021711 [0.0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2018/12/22 09:14 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0.0 ppm | 1 | 0.0000 | 0.0000 | 16.24 | 18.97 | 2.73 | 50.12 | 12:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | Extended Reaction 021711 (v3) | Extended Reaction 021711 (v24) | 0 ppmC |

## Meta Data Used in this Report

**Blanks**

| Version | Reagent (Abs) | Acid (Abs) | DI IC (Abs) | DI TC (Abs) | DI TOC (Abs) | Save Time | Operator |
|---|---|---|---|---|---|---|---|
| v1201 | 2.2080 | 1.6200 | 0.0000 | 0.0000 | 0.0000 | 2018/12/17 20:18 | Fusion1 (Fusion1) |
| v1202 | 1.7907 | 1.3090 | 0.0000 | 0.0000 | 0.0000 | 2018/12/20 11:40 | Fusion1 (Fusion1) |

**Calibrations**

**Name: Extended Reaction 021711 (TOC)**

| | | | |
|---|---|---|---|
| Version: | v24 | Calibration curve formula: | TOC: y = 7.645x + 18.448 |
| Ver Creation: | 2018/11/26 18:53 | $r^2$ value: | TOC: $r^2$ = 0.99984 |
| Comment: | | | |
| Operator: | Fusion1 (Fusion1) | | |
| Basic Analysis Type | TOC | | |

**Basic Analysis Type**: TOC

| Sample ID | Y Raw Value | X Expected | Message | End Time |
|---|---|---|---|---|
| 0.0 ppm | 19.1720 | 0.0000 | | 2018/11/26 17:15 |
| 0.50 ppm | 23.8410 | 0.5000 | | 2018/11/26 17:31 |
| 1.00 ppm | 25.1300 | 1.0000 | | 2018/11/26 17:47 |
| 5.00 ppm | 53.5500 | 5.0000 | | 2018/11/26 18:03 |
| 10.0 ppm | 95.3860 | 10.0000 | | 2018/11/26 18:20 |
| 25.0 ppm | 211.7220 | 25.0000 | | 2018/11/26 18:36 |
| 50.0 ppm | 399.8190 | 50.0000 | | 2018/11/26 18:52 |

**Methods**

**Name: Extended Reaction 021711 (TOC)**

| | | | |
|---|---|---|---|
| Version: | v3 | Operator: | Gen Chem Lab (Fusion1) |
| Ver Creation: | 2013/02/04 11:44 | | |
| Comment: | | | |

| Parameter | Value |
|---|---|
| SampleVolume | 10.0 mL |
| Dilution | 1:10 |
| AcidVolume | 0.5 ml |
| ReagentVolume | 2.0 ml |
| UVReactorPrerinse | Off |
| UVReactorPrerinseVolume | 5.0 |
| NumberOfUVReactorPrerinses | 1 |
| ICSpargeTime | 1.00 mins |
| DetectorSweepFlow | 500 ml/min |
| PreSpargeTime | 4.00 mins |
| SystemFlow | 500 ml/min |

| Advanced Parameter | Value |
|---|---|
| NeedleRinseVolume | 5.0 ml |
| VialPrimeVolume | 2.0 ml |
| ICSamplePrimeVolume | 2.0 ml |
| ICSpargeRinseVolume | 12.0 ml |
| BaselineStabilizeTime | 0.70 min |
| DetectorPressureFlow | 150 ml/min |
| SyringeSpeedWaste | 10 |
| SyringeSpeedAcid | 7 |
| SyringeSpeedReagent | 7 |
| SyringeSpeedDIWater | 7 |
| NDIRPressurization | 60 psig |
| SyringeSpeedSampleDispense | 5 |
| SyringeSpeedSampleAspirate | 4 |
| SyringeSpeedUVDispense | 7 |
| SyringeSpeedUVAspirate | 5 |
| SyringeSpeedICDispense | 7 |
| SyringeSpeedICAspirate | 5 |
| NDIRPressureStabilize | 1.75 min |
| SampleMixing | Off |
| SampleMixingCycles | 1 |

00946654

| | |
|---|---|
| SampleMixingVolume | 10.0 |
| LowLevelFilterNDIR | Off |

## Acceptance / Approval

**Electronic Signatures**

| Report Version | User Name | Acceptance | Reason | Date |
|---|---|---|---|---|

## Report History

**Report History**

| Report Version | User Name | System Reason | User Reason | Date |
|---|---|---|---|---|
| 1 | Fusion1 (Fusion1) | Schedule completed | Schedule completed | 2018/12/22 09:34 |

January 03, 2019 Service Request No:R1812085

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

**Laboratory Results for: LHAAP / Site 58**

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 13, 2018
For your reference, these analyses have been assigned our service request number **R1812085.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

Janice Jaeger
Project Manager

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**ALS Environmental—Rochester Laboratory**
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

ALS Environmental

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Received:** 12/13/2018

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

**Sample Receipt:**

Four water samples were received for analysis at ALS Environmental on 12/13/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 0 to 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature. If any samples were received for the analysis of pH, chlorine residual, sulfite, dissolved oxygen, or ferrous iron, the samples were analyzed past their holding time expiration since these analyses are required to be analyzed within 15 minutes of sampling.

**Semivoa GC:**

No significant anomalies were noted with this analysis.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by _____ Date 01/03/2019

## SAMPLE DETECTION SUMMARY

| CLIENT ID: 03WW01_121218 | | | Lab ID: R1812085-001 | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Iron, Divalent (Ferrous Iron) | 27.5 | | 0.3 | 1.0 | mg/L | SM 3500-Fe B.4.c |

| CLIENT ID: 35AWW08_121218 | | | Lab ID: R1812085-002 | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Iron, Divalent (Ferrous Iron) | 21 | | 3 | 10 | mg/L | SM 3500-Fe B.4.c |
| Pyruvic Acid | 0.48 | | 0.016 | 0.20 | mg/L | Organic Acids |
| Acetic Acid | 120 | | 1.0 | 4.0 | mg/L | Organic Acids |
| Propionic Acid | 9.5 | | 0.19 | 2.0 | mg/L | Organic Acids |

| CLIENT ID: 35AWW10_121218 | | | Lab ID: R1812085-003 | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Iron, Divalent (Ferrous Iron) | 0.09 | J | 0.03 | 0.10 | mg/L | SM 3500-Fe B.4.c |

| CLIENT ID: 35AWW10_121218_a | | | Lab ID: R1812085-004 | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Iron, Divalent (Ferrous Iron) | 0.07 | J | 0.03 | 0.10 | mg/L | SM 3500-Fe B.4.c |

# Sample Receipt Information

**ALS Environmental—Rochester Laboratory**
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

**Client:** ALS Environmental - US **Service Request:**R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

## SAMPLE CROSS-REFERENCE

| SAMPLE # | CLIENT SAMPLE ID | DATE | TIME |
|---|---|---|---|
| R1812085-001 | 03WW01_121218 | 12/12/2018 | 0820 |
| R1812085-002 | 35AWW08_121218 | 12/12/2018 | 0910 |
| R1812085-003 | 35AWW10_121218 | 12/12/2018 | 1030 |
| R1812085-004 | 35AWW10_121218_a | 12/12/2018 | 1030 |

bhate ENVIRONMENTAL CONSTRUCTION LIMITED

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

# Chain of Custody and Analytical Request

Page: of

Project/Phase No: NWO1312.0150

COC Number(1):

LIMS Number:

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

| Field Sample ID (30 Characters Max) | ERPIMS LOCID (15 Characters Max) | Date Collected (dd-mmm-yyyy) | Time Collected (Military) (hhmm) | Sample Depth (beginning - ending) | SA Code (2) | Sample Number (3) | Sample Matrix (4) | Number of containers | VFA | Ferrous Iron | | | | | | | | | | Ambient Blank Lot Control Number | Equipment Blank Lot Control Number | Trip Blank Lot Control Number | Cooler ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 03WW01_121218 | | 12 Dec 2018 | 0820 | - | N | | WG | 2 | X | X | | | | | | | | | | | | | |
| 35ANW08_121218 | | 12 Dec 2018 | 0910 | - | N | | WG | 2 | X | X | | | | | | | | | | | | | |
| 35ANW10_121218 | | 12 Dec 2018 | 1030 | - | N | | WG | 2 | X | X | | | | | | | | | | | | | |
| 35ANW10_121218_a | | 12 Dec 2018 | 1030 | | FD | | WG | 2 | X | X | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | | |

Sample Analysis Requested (5) | Quality Assurance Samples (6)

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

| | Relinquished By (Signed) | Date | Time | Received by (Signed) | Date | Time |
|---|---|---|---|---|---|---|
| 1. | Scott Beesinger | 12/18/18 | 1430 | | | |
| 2. | | | | | 12-13-18 | 09:35 |
| 3. | | | | | | |

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment:

Fed Ex Airbill Number:

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipme

R1812085 5
ALS Group USA, Corp.
LHAAP / Site 58

00946664

# Cooler Receipt and Preservation Check Form

R1812085 5
ALS Group USA, Corp.
LHAAP / Site 69

Project/Client Bhate Folder Number

Cooler received on 12-13-18 by: JE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

| | | | |
|---|---|---|---|
| 1 | Were **Custody seals** on outside of cooler? | (Y) | N |
| 2 | **Custody papers** properly completed (ink, signed)? | (Y) | N |
| 3 | Did all bottles arrive in good **condition** (unbroken)? | (Y) | N |
| 4 | Circle: (Wet Ice) **Dry Ice, Gel packs** present? | (Y) | N |

| | | | | |
|---|---|---|---|---|
| 5a | **Perchlorate** samples have required headspace? | Y | N | (NA) |
| 5b | Did VOA vials, Alk,or Sulfide have sig* **bubbles**? | Y | N | (NA) |
| 6 | Where did the bottles originate? ALS/ROC (CLIENT) | | | |
| 7 | Soil VOA received as: Bulk Encore 5035set (NA) | | | |

8. Temperature Readings Date: 12-13-18 Time: 10:07 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Observed Temp (°C) | 1.8 | | | | | | |
| Correction Factor (°C) | 0 | | | | | | |
| Corrected Temp (°C) | 1.8 | | | | | | |
| Temp from:Type of bottle | — | | | | | | |
| Within 0-6°C? | (Y) N | Y N | Y N | Y N | Y N | Y N | Y N |
| If <0°C, were samples frozen? | Y N | Y N | Y N | Y N | Y N | Y N | Y N |

**If out of Temperature, note packing/ice condition:** _____ Ice melted Poorly Packed (described below) Same Day Rule

**&Client Approval to Run Samples:** _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by HE on 12-13-18 at 10:11
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 12/13/18 Time: 1556 by: JW

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO N/A
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated N/A

| pH | Lot of test paper | Reagent | Preserved? Yes | Preserved? No | Lot Received | Exp | Sample ID Adjusted | Vol. Added | Lot Added | Final pH |
|---|---|---|---|---|---|---|---|---|---|---|
| ≥12 | | NaOH | | | | | | | | |
| ≤2 | | $HNO_3$ | | | | | | | | |
| ≤2 | | $H_2SO_4$ | | | | | | | | |
| <4 | | $NaHSO_4$ | | | | | | | | |
| 5-9 | | For 608pest | | | No=Notify for 3day | | | | | |
| Residual Chlorine (-) | | For CN, Phenol, 625, 608pest, 522 | | | If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol). | | | | | |
| | | $Na_2S_2O_3$ | | | | | | | | |
| | | ZnAcetate | - | - | | | | | | |
| | | HCl | ** | ** | | | | | | |

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: client

Explain all Discrepancies/ Other Comments:

| | |
|---|---|
| CLRES | BULK |
| DO | FLDT |
| HPROD | HGFB |
| HTR | LL3541 |
| PH | SUB |
| SO3 | MARRS |
| ALS | REV |

Labels secondary reviewed by: JW
PC Secondary Review: MM 12/13/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

**ALS Group USA, Corp.**
**dba ALS Environmental**

**Internal Chain of Custody Report**

**Client:** ALS Laboratory Group **Service Request:** R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

| Bottle ID | Methods | Date | Time | Sample Location / User | Disposed On |
|---|---|---|---|---|---|
| **R1812085-001.01** | | | | | |
| | SM 3500-Fe B.4.c | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |
| | | 12/15/2018 | 1334 | RT000630 / DWARD | |
| | | 12/15/2018 | 1334 | R-015 / DWARD | |
| **R1812085-001.02** | | | | | |
| | Organic Acids | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |
| | | 12/13/2018 | 1611 | R-002 / GESMERIAN | |
| | | 12/17/2018 | 0848 | In Lab / BALLGEIER | |
| | | 12/17/2018 | 1520 | R-002 / BALLGEIER | |
| **R1812085-002.01** | | | | | |
| | SM 3500-Fe B.4.c | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |
| | | 12/15/2018 | 1334 | RT000630 / DWARD | |
| | | 12/15/2018 | 1334 | R-015 / DWARD | |
| **R1812085-002.02** | | | | | |
| | Organic Acids | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |
| | | 12/13/2018 | 1611 | R-002 / GESMERIAN | |
| | | 12/17/2018 | 0812 | In Lab / BALLGEIER | |
| | | 12/17/2018 | 1520 | R-002 / BALLGEIER | |
| **R1812085-003.01** | | | | | |
| | SM 3500-Fe B.4.c | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |
| | | 12/15/2018 | 1334 | RT000630 / DWARD | |
| | | 12/15/2018 | 1334 | R-015 / DWARD | |
| **R1812085-003.02** | | | | | |
| | Organic Acids | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |
| | | 12/13/2018 | 1611 | R-002 / GESMERIAN | |
| | | 12/17/2018 | 0812 | In Lab / BALLGEIER | |
| | | 12/17/2018 | 1520 | R-002 / BALLGEIER | |
| **R1812085-004.01** | | | | | |
| | SM 3500-Fe B.4.c | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |
| | | 12/15/2018 | 1334 | RT000630 / DWARD | |
| | | 12/15/2018 | 1334 | R-015 / DWARD | |
| **R1812085-004.02** | | | | | |
| | Organic Acids | | | | |
| | | 12/13/2018 | 1611 | SMO / GESMERIAN | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

**Internal Chain of Custody Report**

**Client:** ALS Laboratory Group **Service Request:** R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

| Bottle ID | Methods | Date | Time | Sample Location / User | Disposed On |
|---|---|---|---|---|---|
| | Organic Acids | | | | |
| | | 12/13/2018 | 1611 | R-002 / GESMERIAN | |
| | | 12/17/2018 | 0812 | In Lab / BALLGEIER | |
| | | 12/17/2018 | 1520 | R-002 / BALLGEIER | |

# Miscellaneous Forms

**ALS Environmental—Rochester Laboratory**
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ALS Environmental

# REPORT QUALIFIERS AND DEFINITIONS

| | |
|---|---|
| U | Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative. |
| J | Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors). |
| B | Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result. |
| E | Inorganics- Concentration is estimated due to the serial dilution was outside control limits. |
| E | Organics- Concentration has exceeded the calibration range for that specific analysis. |
| D | Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed. |
| * | Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time. |
| H | Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria. |
| # | Spike was diluted out. |
| + | Correlation coefficient for MSA is <0.995. |
| N | Inorganics- Matrix spike recovery was outside laboratory limits. |
| N | Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search. |
| S | Concentration has been determined using Method of Standard Additions (MSA). |
| W | Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance. |
| P | Concentration >40% difference between the two GC columns. |
| C | Confirmed by GC/MS |
| Q | DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns). |
| X | See Case Narrative for discussion. |
| MRL<br>LOQ | Method Reporting Limit. Also known as:<br>Limit of Quantitation (LOQ)<br>The lowest concentration at which the method analyte may be reliably quantified under the method conditions. |
| MDL | Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier). |
| LOD | Limit of Detection. A value at or above the MDL which has been verified to be detectable. |
| ND | Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier. |

ACCREDITED IN ACCORDANCE WITH nelac

## Rochester Lab ID # for State Certifications[1]

| | | |
|---|---|---|
| Connecticut ID # PH0556 | Maine ID #NY0032 | Pennsylvania ID# 68-786 |
| Delaware Approved | New Hampshire ID # 2941 | Rhode Island ID # 158 |
| DoD ELAP #65817 | New York ID # 10145 | Virginia #460167 |
| Florida ID # E87674 | North Carolina #676 | |

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

# ALS Laboratory Group

**Acronyms**

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analyst Summary report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Service Request:** R1812085

**Sample Name:** 03WW01_121218
**Lab Code:** R1812085-001
**Sample Matrix:** Water
**Date Collected:** 12/12/18
**Date Received:** 12/13/18

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| Organic Acids | | BALLGEIER |
| SM 3500-Fe B.4.c | | MROGERSON |

**Sample Name:** 35AWW08_121218
**Lab Code:** R1812085-002
**Sample Matrix:** Water
**Date Collected:** 12/12/18
**Date Received:** 12/13/18

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| Organic Acids | | BALLGEIER |
| SM 3500-Fe B.4.c | | MROGERSON |

**Sample Name:** 35AWW10_121218
**Lab Code:** R1812085-003
**Sample Matrix:** Water
**Date Collected:** 12/12/18
**Date Received:** 12/13/18

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| Organic Acids | | BALLGEIER |
| SM 3500-Fe B.4.c | | MROGERSON |

**Sample Name:** 35AWW10_121218_a
**Lab Code:** R1812085-004
**Sample Matrix:** Water
**Date Collected:** 12/12/18
**Date Received:** 12/13/18

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| Organic Acids | | BALLGEIER |
| SM 3500-Fe B.4.c | | MROGERSON |

# INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

**Water/Liquid Matrix**

| Analytical Method | Preparation Method |
|---|---|
| 200.7 | 200.2 |
| 200.8 | 200.2 |
| 6010C | 3005A/3010A |
| 6020A | ILM05.3 |
| 9014 Cyanide Reactivity | SW846 Ch7, 7.3.4.2 |
| 9034 Sulfide Reactivity | SW846 Ch7, 7.3.4.2 |
| 9034 Sulfide Acid Soluble | 9030B |
| 9056A Bomb (Halogens) | 5050A |
| 9066 Manual Distillation | 9065 |
| SM 4500-CN-E Residual Cyanide | SM 4500-CN-G |
| SM 4500-CN-E WAD Cyanide | SM 4500-CN-I |

**Solid/Soil/Non-Aqueous Matrix**

| Analytical Method | Preparation Method |
|---|---|
| 6010C | 3050B |
| 6020A | 3050B |
| 6010C TCLP (1311) extract | 3005A/3010A |
| 6010 SPLP (1312) extract | 3005A/3010A |
| 7196A | 3060A |
| 7199 | 3060A |
| 9056A Halogens/Halides | 5050 |
| 300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions | DI extraction |

For analytical methods not listed, the preparation method is the same as the analytical method reference.

# Sample Results

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# Semivolatile Organic Compounds by GC

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www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 08:20 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 03WW01_121218 | **Units:** | mg/L |
| **Lab Code:** | R1812085-001 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 12/21/18 08:20 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 12/21/18 08:20 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/21/18 08:20 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/21/18 08:20 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 12/21/18 08:20 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 09:10 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW08_121218 | **Units:** | mg/L |
| **Lab Code:** | R1812085-002 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | **0.48** | 0.20 | 0.10 | 0.016 | 1 | 12/30/00 02:47 | |
| Acetic Acid | **120** | 4.0 | 2.0 | 1.0 | 1 | 12/30/00 02:47 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/30/00 02:47 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/30/00 02:47 | |
| Propionic Acid | **9.5** | 2.0 | 1.0 | 0.19 | 1 | 12/30/00 02:47 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218 | **Units:** | mg/L |
| **Lab Code:** | R1812085-003 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 12/19/18 23:03 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 12/19/18 23:03 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/19/18 23:03 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/19/18 23:03 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 12/19/18 23:03 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218_a | **Units:** | mg/L |
| **Lab Code:** | R1812085-004 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 12/19/18 23:56 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 12/19/18 23:56 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/19/18 23:56 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/19/18 23:56 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 12/19/18 23:56 | |

# General Chemistry

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**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 08:20 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 03WW01_121218 | **Basis:** | NA |
| **Lab Code:** | R1812085-001 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **27.5** | mg/L | 1.0 | 0.8 | 0.3 | 10 | 12/13/18 21:21 | * |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 09:10 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW08_121218 | **Basis:** | NA |
| **Lab Code:** | R1812085-002 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **21** | mg/L | 10 | 8 | 3 | 100 | 12/13/18 21:21 | * |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218 | **Basis:** | NA |
| **Lab Code:** | R1812085-003 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **0.09 J** | mg/L | 0.10 | 0.08 | 0.03 | 1 | 12/13/18 21:21 | * |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218_a | **Basis:** | NA |
| **Lab Code:** | R1812085-004 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **0.07 J** | mg/L | 0.10 | 0.08 | 0.03 | 1 | 12/13/18 21:21 | * |

# QC Summary Forms

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# Semivolatile Organic Compounds by GC

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**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 |
| | | **Date Analyzed:** | 12/20/18 |

## Duplicate Matrix Spike Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

| | | | |
|---|---|---|---|
| **Sample Name:** | 35AWW10_121218_a | **Units:** | mg/L |
| **Lab Code:** | R1812085-004 | **Basis:** | NA |
| **Analysis Method:** | Organic Acids | | |

| | | Matrix Spike RQ1814001-08 | | | Duplicate Matrix Spike RQ1814001-09 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Sample Result** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Pyruvic Acid | ND U | 2.84 | 2.02 | 140 * | 2.96 | 2.02 | 146 * | 73-122 | 4 | 30 |
| Acetic Acid | ND U | 19.8 | 19.9 | 100 | 21.0 | 19.9 | 105 | 80-130 | 6 | 30 |
| Butanoic Acid (Butyric Acid) | ND U | 16.7 | 20.3 | 82 * | 17.9 | 20.3 | 88 | 86-128 | 7 | 30 |
| Lactic Acid | ND U | 22.2 | 20.6 | 107 | 23.1 | 20.6 | 112 | 81-114 | 4 | 30 |
| Propionic Acid | ND U | 19.2 | 20.0 | 96 | 19.3 | 20.0 | 96 | 63-153 | <1 | 30 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Analyzed:** 01/01/19 00:11

## Method Blank Summary

## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Sample Name:** Method Blank
**Lab Code:** RQ1900011-03

**Instrument ID:**R-HPLC-05
**File ID:**I:\ACQUDATA\hplc05\data\123118\A0002718.D\

**Analysis Method:** Organic Acids

**Analysis Lot:**620723

This Method Blank applies to the following analyses.

| Sample Name | Lab Code | File ID | Date Analyzed |
|---|---|---|---|
| 35AWW08_121218 | R1812085-002 | I:\ACQUDATA\hplc05\data\123118\A0002721.D\ | 12/30/00 02:47 |
| Lab Control Sample | RQ1900011-04 | I:\ACQUDATA\hplc05\data\123118\A0002719.D\ | 01/01/19 01:04 |
| Duplicate Lab Control Sample | RQ1900011-05 | I:\ACQUDATA\hplc05\data\123118\A0002720.D\ | 01/01/19 01:57 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Analyzed:** 12/18/18 16:38

## Method Blank Summary

## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Sample Name:** Method Blank
**Lab Code:** RQ1814001-01

**Instrument ID:**R-HPLC-05
**File ID:**I:\ACQUDATA\hplc05\data\121718\A0002588.D\

**Analysis Method:** Organic Acids

**Analysis Lot:**619495

This Method Blank applies to the following analyses.

| Sample Name | Lab Code | File ID | Date Analyzed |
|---|---|---|---|
| Lab Control Sample | RQ1814001-02 | I:\ACQUDATA\hplc05\data\121718\A0002589.D\ | 12/18/18 17:35 |
| Duplicate Lab Control Sample | RQ1814001-03 | I:\ACQUDATA\hplc05\data\121718\A0002590.D\ | 12/18/18 18:28 |
| 35AWW10_121218 | R1812085-003 | I:\ACQUDATA\hplc05\data\121918\A0002617.D\ | 12/19/18 23:03 |
| 35AWW10_121218_a | R1812085-004 | I:\ACQUDATA\hplc05\data\121918\A0002618.D\ | 12/19/18 23:56 |
| 35AWW10_121218_aMS | RQ1814001-08 | I:\ACQUDATA\hplc05\data\121918\A0002619.D\ | 12/20/18 00:50 |
| 35AWW10_121218_aDMS | RQ1814001-09 | I:\ACQUDATA\hplc05\data\121918\A0002620.D\ | 12/20/18 01:42 |
| 03WW01_121218 | R1812085-001 | I:\ACQUDATA\hplc05\data\121918\A0002655.D\ | 12/21/18 08:20 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | NA |
| **Sample Matrix:** | Water | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | mg/L |
| **Lab Code:** | RQ1814001-01 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 12/18/18 16:38 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 12/18/18 16:38 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/18/18 16:38 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/18/18 16:38 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 12/18/18 16:38 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | NA |
| **Sample Matrix:** | Water | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | mg/L |
| **Lab Code:** | RQ1900011-03 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 01/01/19 00:11 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 01/01/19 00:11 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 01/01/19 00:11 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 01/01/19 00:11 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 01/01/19 00:11 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Analyzed:** 01/01/19 01:04

## Lab Control Sample Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Sample Name:** Lab Control Sample
**Lab Code:** RQ1900011-04

**Instrument ID:**R-HPLC-05
**File ID:**I:\ACQUDATA\hplc05\data\123118\A0002719.D\

**Analysis Method:** Organic Acids

**Analysis Lot:**620723

This Lab Control Sample applies to the following analyses.

| Sample Name | Lab Code | File ID | Date Analyzed |
|---|---|---|---|
| 35AWW08_121218 | R1812085-002 | I:\ACQUDATA\hplc05\data\123118\A0002721.D\ | 12/30/00 02:47 |
| Method Blank | RQ1900011-03 | I:\ACQUDATA\hplc05\data\123118\A0002718.D\ | 01/01/19 00:11 |
| Duplicate Lab Control Sample | RQ1900011-05 | I:\ACQUDATA\hplc05\data\123118\A0002720.D\ | 01/01/19 01:57 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Analyzed:** 12/18/18 17:35

## Lab Control Sample Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Sample Name:** Lab Control Sample
**Lab Code:** RQ1814001-02

**Instrument ID:**R-HPLC-05
**File ID:**I:\ACQUDATA\hplc05\data\121718\A0002589.D\

**Analysis Method:** Organic Acids

**Analysis Lot:**619495

This Lab Control Sample applies to the following analyses.

| Sample Name | Lab Code | File ID | Date Analyzed |
|---|---|---|---|
| Method Blank | RQ1814001-01 | I:\ACQUDATA\hplc05\data\121718\A0002588.D\ | 12/18/18 16:38 |
| Duplicate Lab Control Sample | RQ1814001-03 | I:\ACQUDATA\hplc05\data\121718\A0002590.D\ | 12/18/18 18:28 |
| 35AWW10_121218 | R1812085-003 | I:\ACQUDATA\hplc05\data\121918\A0002617.D\ | 12/19/18 23:03 |
| 35AWW10_121218_a | R1812085-004 | I:\ACQUDATA\hplc05\data\121918\A0002618.D\ | 12/19/18 23:56 |
| 35AWW10_121218_aMS | RQ1814001-08 | I:\ACQUDATA\hplc05\data\121918\A0002619.D\ | 12/20/18 00:50 |
| 35AWW10_121218_aDMS | RQ1814001-09 | I:\ACQUDATA\hplc05\data\121918\A0002620.D\ | 12/20/18 01:42 |
| 03WW01_121218 | R1812085-001 | I:\ACQUDATA\hplc05\data\121918\A0002655.D\ | 12/21/18 08:20 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Analyzed:** 12/18/18

## Duplicate Lab Control Sample Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Units:**mg/L
**Basis:**NA

| | | Lab Control Sample RQ1814001-02 | | | Duplicate Lab Control Sample RQ1814001-03 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Analytical Method** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Pyruvic Acid | Organic Acids | 2.97 | 2.02 | 147 * | 2.97 | 2.02 | 147 * | 73-122 | <1 | 30 |
| Acetic Acid | Organic Acids | 19.8 | 19.9 | 99 | 20.1 | 19.9 | 101 | 80-130 | 1 | 30 |
| Butanoic Acid (Butyric Acid) | Organic Acids | 18.0 | 20.3 | 89 | 18.0 | 20.3 | 88 | 86-128 | <1 | 30 |
| Lactic Acid | Organic Acids | 21.3 | 20.6 | 103 | 21.4 | 20.6 | 104 | 81-114 | <1 | 30 |
| Propionic Acid | Organic Acids | 19.2 | 20.0 | 96 | 18.6 | 20.0 | 93 | 63-153 | 3 | 30 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Analyzed:** 01/01/19

## Duplicate Lab Control Sample Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Units:**mg/L
**Basis:**NA

| | | Lab Control Sample RQ1900011-04 | | | Duplicate Lab Control Sample RQ1900011-05 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Analytical Method** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Pyruvic Acid | Organic Acids | 1.92 | 2.01 | 95 | 1.91 | 2.01 | 95 | 73-122 | <1 | 30 |
| Acetic Acid | Organic Acids | 19.7 | 19.9 | 99 | 19.8 | 19.9 | 100 | 80-130 | <1 | 30 |
| Butanoic Acid (Butyric Acid) | Organic Acids | 21.1 | 20.3 | 104 | 20.2 | 20.3 | 100 | 86-128 | 4 | 30 |
| Lactic Acid | Organic Acids | 20.3 | 20.6 | 99 | 20.3 | 20.6 | 98 | 81-114 | <1 | 30 |
| Propionic Acid | Organic Acids | 19.8 | 20.0 | 99 | 19.0 | 20.0 | 95 | 63-153 | 4 | 30 |

# General Chemistry

**ALS Environmental—Rochester Laboratory**
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www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | NA |
| **Sample Matrix:** | Water | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Basis:** | NA |
| **Lab Code:** | R1812085-MB | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | ND U | mg/L | 0.10 | 0.08 | 0.03 | 1 | 12/13/18 21:21 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 |
| | | **Date Analyzed:** | 12/13/18 |

**Duplicate Matrix Spike Summary**
**Iron, Divalent (Ferrous Iron)**

| | | | |
|---|---|---|---|
| **Sample Name:** | 35AWW10_121218_a | **Units:** | mg/L |
| **Lab Code:** | R1812085-004 | **Basis:** | NA |
| **Analysis Method:** | SM 3500-Fe B.4.c | | |

| | | Matrix Spike R1812085-004MS | | | Duplicate Matrix Spike R1812085-004DMS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Sample Result** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Iron, Divalent (Ferrous Iron) | 0.07 J | 0.51 | 0.40 | 110 | 0.48 | 0.40 | 102 | 67-129 | 6 | 20 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150
**Sample Matrix:** Water

**Service Request:** R1812085
**Date Analyzed:** 12/13/18

## Lab Control Sample Summary
## General Chemistry Parameters

**Units:**mg/L
**Basis:**NA

### Lab Control Sample
R1812085-LCS

| Analyte Name | Analytical Method | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | 0.39 | 0.40 | 97 | 67-129 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

## Continuing Calibration Blank (CCB) Summary
### Iron, Divalent (Ferrous Iron)

**Analysis Method:** SM 3500-Fe B.4.c **Units:**mg/L

| | Analysis Lot | Lab Code | Date Analyzed | LOQ | LOD | MDL | Result | Q |
|---|---|---|---|---|---|---|---|---|
| CCB1 | 619164 | RQ1813873-02 | 12/13/18 21:21 | 0.10 | 0.08 | 0.03 | ND | U |
| CCB2 | 619164 | RQ1813873-05 | 12/13/18 21:21 | 0.10 | 0.08 | 0.03 | ND | U |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:** R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

## Continuing Calibration Verification (CCV) Summary

### Iron, Divalent (Ferrous Iron)

**Analysis Method:** SM 3500-Fe B.4.c **Units:** mg/L

| | Analysis Lot | Lab Code | Date Analyzed | True Value | Measured Value | Percent Recovery | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| CCV1 | 619164 | RQ1813873-01 | 12/13/18 21:21 | 2.00 | 2.04 | 102 | 90-110 |
| CCV2 | 619164 | RQ1813873-06 | 12/13/18 21:21 | 2.00 | 2.04 | 102 | 90-110 |

# Raw Data

**ALS Environmental—Rochester Laboratory**
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# Semivolatile Organic Compounds by GC

**ALS Environmental—Rochester Laboratory**
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 08:20 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 03WW01_121218 | **Units:** | mg/L |
| **Lab Code:** | R1812085-001 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 12/21/18 08:20 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 12/21/18 08:20 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/21/18 08:20 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/21/18 08:20 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 12/21/18 08:20 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 09:10 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW08_121218 | **Units:** | mg/L |
| **Lab Code:** | R1812085-002 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | **0.48** | 0.20 | 0.10 | 0.016 | 1 | 12/30/00 02:47 | |
| Acetic Acid | **120** | 4.0 | 2.0 | 1.0 | 1 | 12/30/00 02:47 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/30/00 02:47 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/30/00 02:47 | |
| Propionic Acid | **9.5** | 2.0 | 1.0 | 0.19 | 1 | 12/30/00 02:47 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218 | **Units:** | mg/L |
| **Lab Code:** | R1812085-003 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 12/19/18 23:03 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 12/19/18 23:03 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/19/18 23:03 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/19/18 23:03 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 12/19/18 23:03 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218_a | **Units:** | mg/L |
| **Lab Code:** | R1812085-004 | **Basis:** | NA |

**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** Organic Acids

| Analyte Name | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | ND U | 0.20 | 0.10 | 0.016 | 1 | 12/19/18 23:56 | |
| Acetic Acid | ND U | 4.0 | 2.0 | 1.0 | 1 | 12/19/18 23:56 | |
| Butanoic Acid (Butyric Acid) | ND U | 2.0 | 1.0 | 0.32 | 1 | 12/19/18 23:56 | |
| Lactic Acid | ND U | 2.0 | 1.0 | 0.14 | 1 | 12/19/18 23:56 | |
| Propionic Acid | ND U | 2.0 | 1.0 | 0.19 | 1 | 12/19/18 23:56 | |

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002655.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:48:38~~ 21-Dec-2018, 08:20:00
Operator : b.allgeier
Sample : r1812085-001
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 10:17:07 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 0.000 | 0 | N.D. | ppm | d |
| 2) T | Pyruvic acid | 0.000 | 0 | N.D. | ppm | d |
| 3) T | Lactic Acid | 0.000 | 0 | N.D. | ppm | |
| 4) T | Acetic Acid | 0.000 | 0 | N.D. | ppm | |
| 5) T | Propionic Acid | 0.000 | 0 | N.D. | ppm | |
| 6) T | Butyric Acid | 0.000 | 0 | N.D. | ppm | d |

(f)=RT Delta > 1/2 Window (m)=manual int.



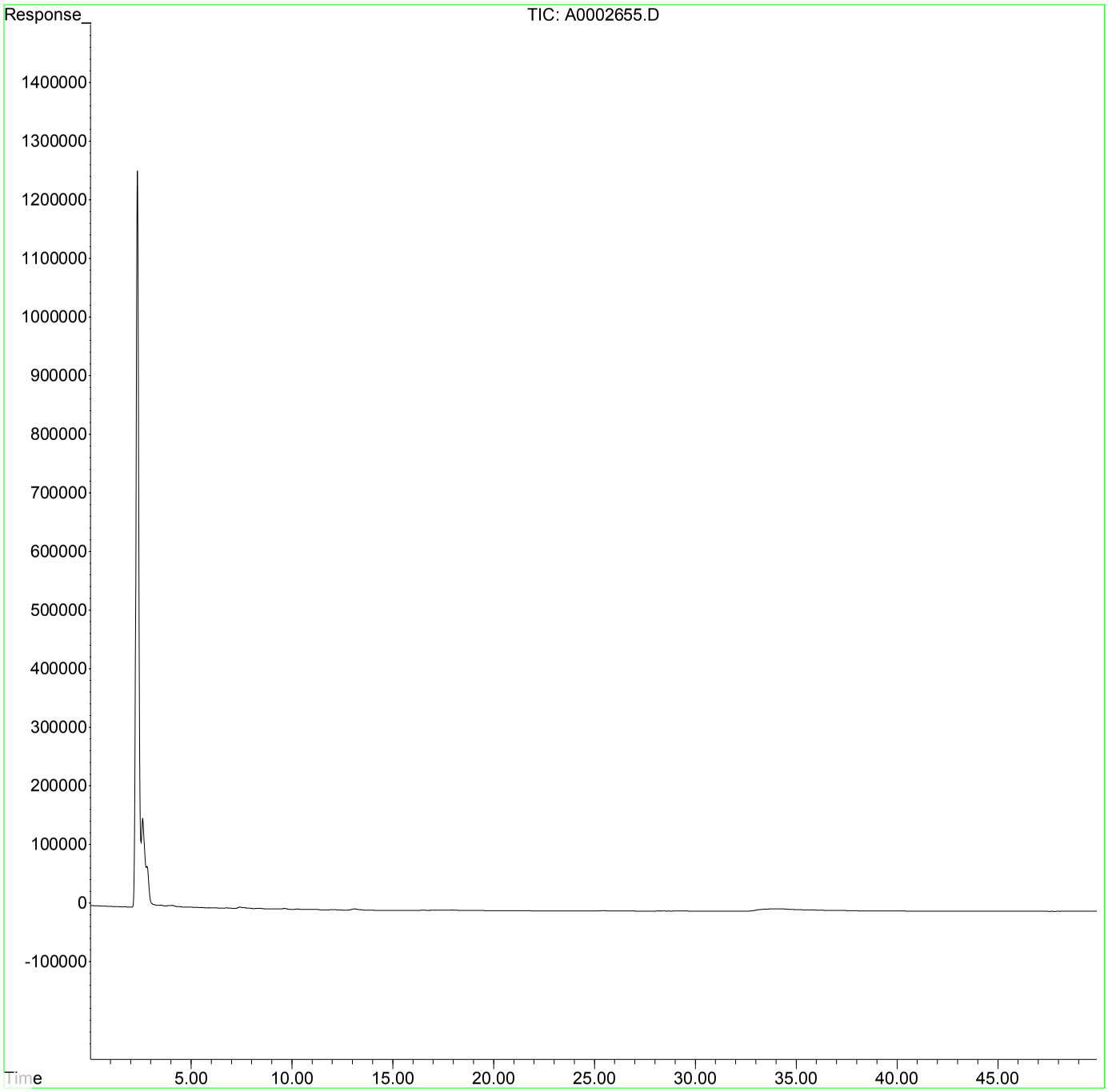
00946707

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002655.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:48:38
Operator : b.allgeier
Sample : r1812085-001
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 10:17:07 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210





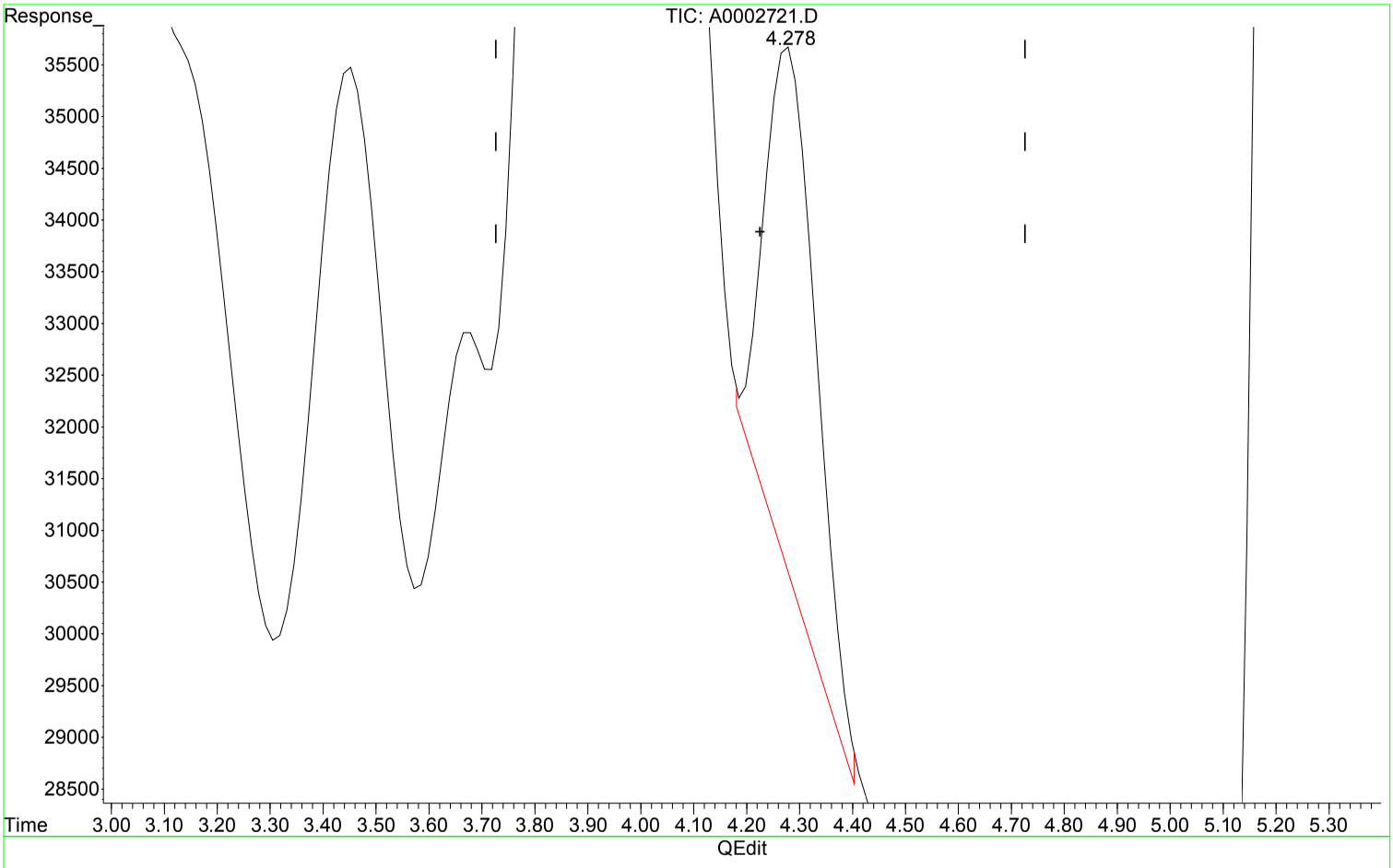

00946708

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002721.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : r1812085-002
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(2) Pyruvic acid (T)

4.278min 0.482 ppm m

response 346522

No Before

Manual Integration:

After

Poor integration.

01/02/19

(+) = Expected Retention Time



00946709

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002721.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : r1812085-002
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.453 | 537917 | 5.754 | ppm | |
| 2) T | Pyruvic acid | 4.278 | 346522 | 0.482 | ppm | m |
| 3) T | Lactic Acid | 0.000 | 0 | N.D. | ppm | d |
| 4) T | Acetic Acid | 5.269 | 7124965 | 122.069 | ppm | |
| 5) T | Propionic Acid | 12.919 | 547657 | 9.503 | ppm | |
| 6) T | Butyric Acid | 0.000 | 0 | N.D. | ppm | |

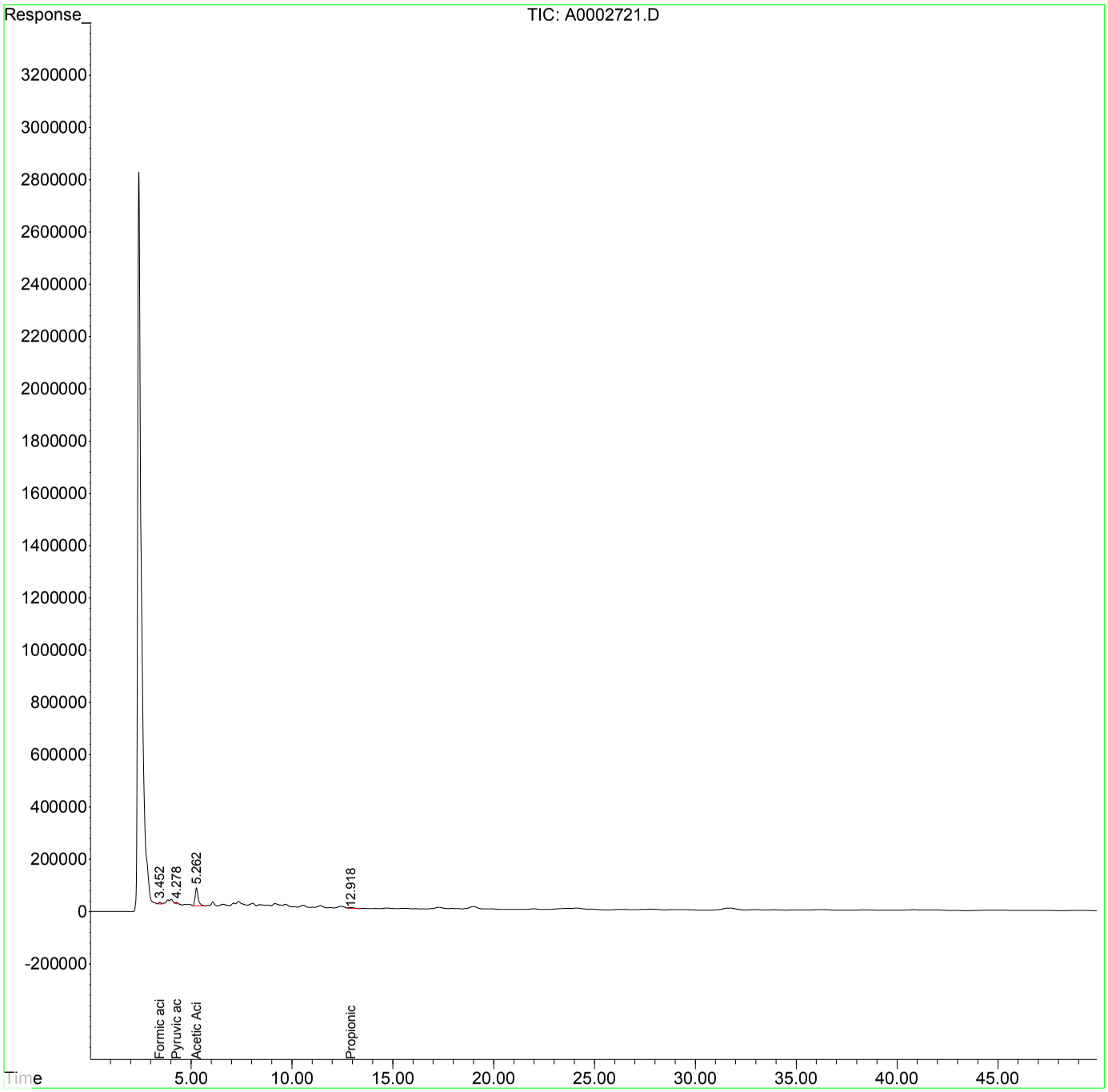
(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002721.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : r1812085-002
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002617.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:03:21
Operator : b.allgeier
Sample : r1812085-003
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:42 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 0.000 | 0 | N.D. | ppm | |
| 2) T | Pyruvic acid | 0.000 | 0 | N.D. | ppm | d |
| 3) T | Lactic Acid | 0.000 | 0 | N.D. | ppm | d |
| 4) T | Acetic Acid | 0.000 | 0 | N.D. | ppm | |
| 5) T | Propionic Acid | 0.000 | 0 | N.D. | ppm | |
| 6) T | Butyric Acid | 0.000 | 0 | N.D. | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



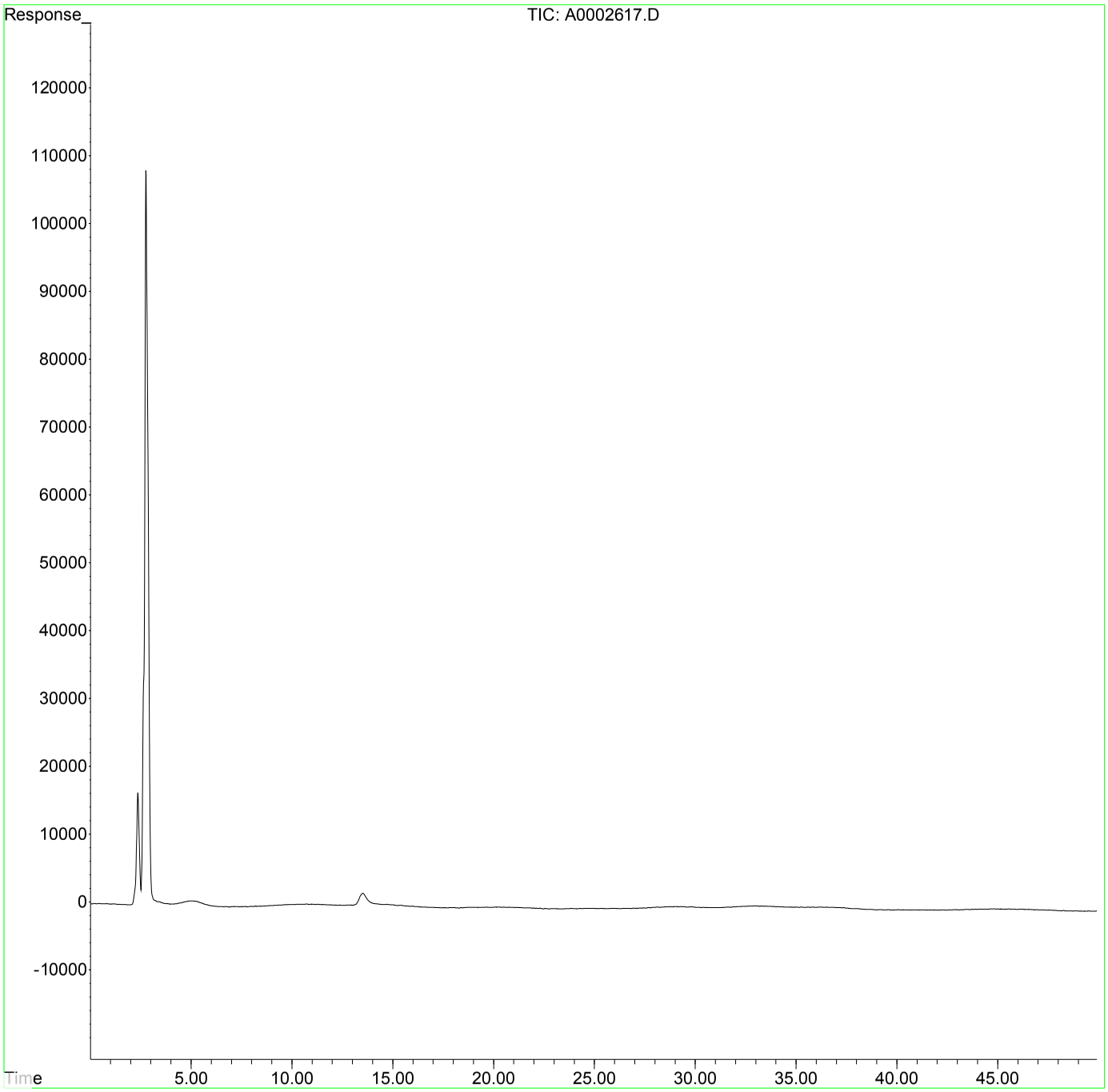
00946712

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002617.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:03:21
Operator : b.allgeier
Sample : r1812085-003
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:42 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002618.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:56:12
Operator : b.allgeier
Sample : r1812085-004
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) t | Formic acid | 0.000 | 0 | N.D. | ppm |
| 2) T | Pyruvic acid | 0.000 | 0 | N.D. | ppm |
| 3) T | Lactic Acid | 0.000 | 0 | N.D. | ppm |
| 4) T | Acetic Acid | 0.000 | 0 | N.D. | ppm |
| 5) T | Propionic Acid | 0.000 | 0 | N.D. | ppm |
| 6) T | Butyric Acid | 0.000 | 0 | N.D. | ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



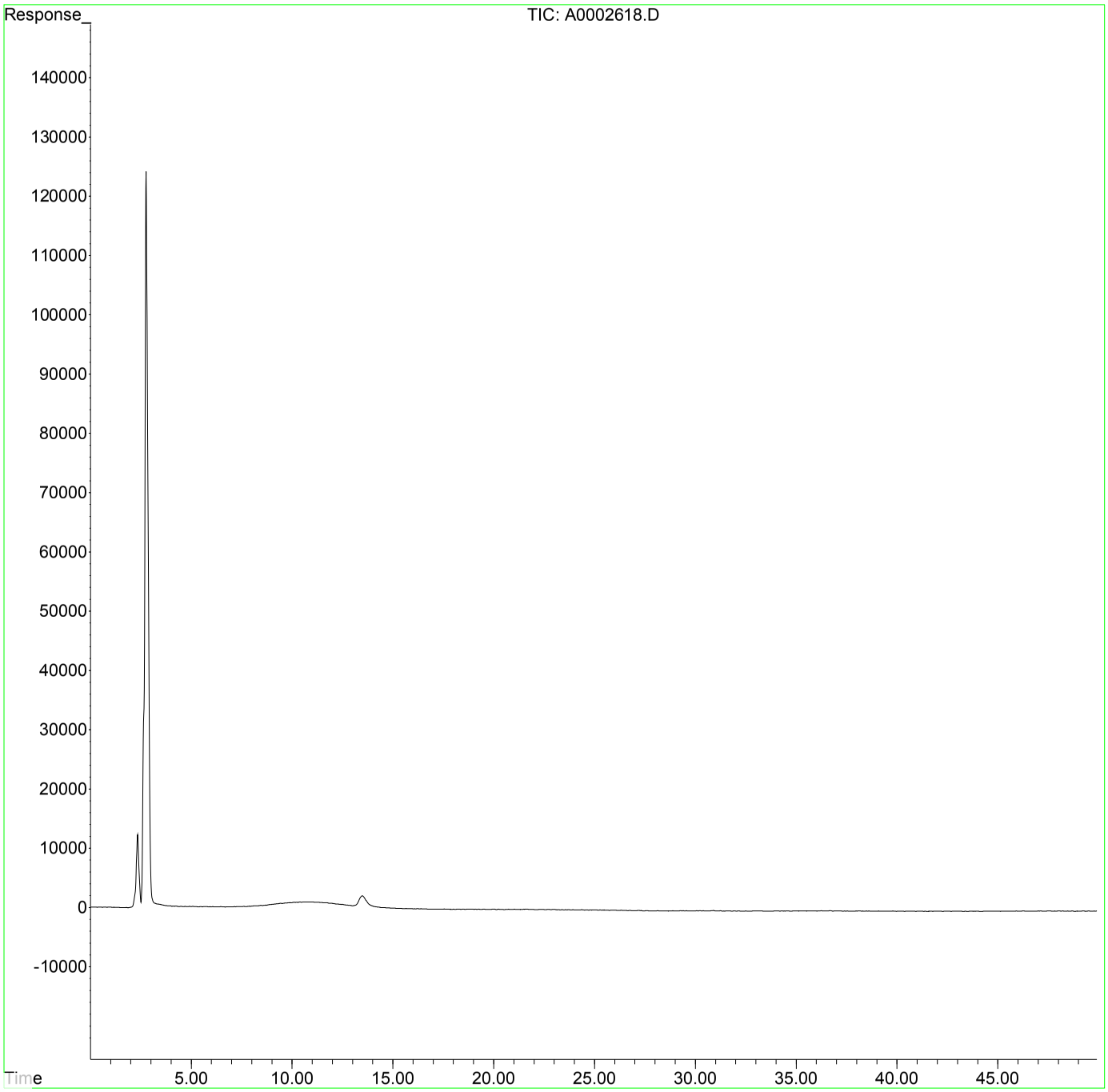
00946714

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002618.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:56:12
Operator : b.allgeier
Sample : r1812085-004
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002588.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 16:38:32
Operator : b.allgeier
Sample : MB
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:55 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 0.000 | 0 | N.D. | ppm | d |
| 2) T | Pyruvic acid | 0.000 | 0 | N.D. | ppm | |
| 3) T | Lactic Acid | 0.000 | 0 | N.D. | ppm | |
| 4) T | Acetic Acid | 0.000 | 0 | N.D. | ppm | |
| 5) T | Propionic Acid | 0.000 | 0 | N.D. | ppm | |
| 6) T | Butyric Acid | 0.000 | 0 | N.D. | ppm | |

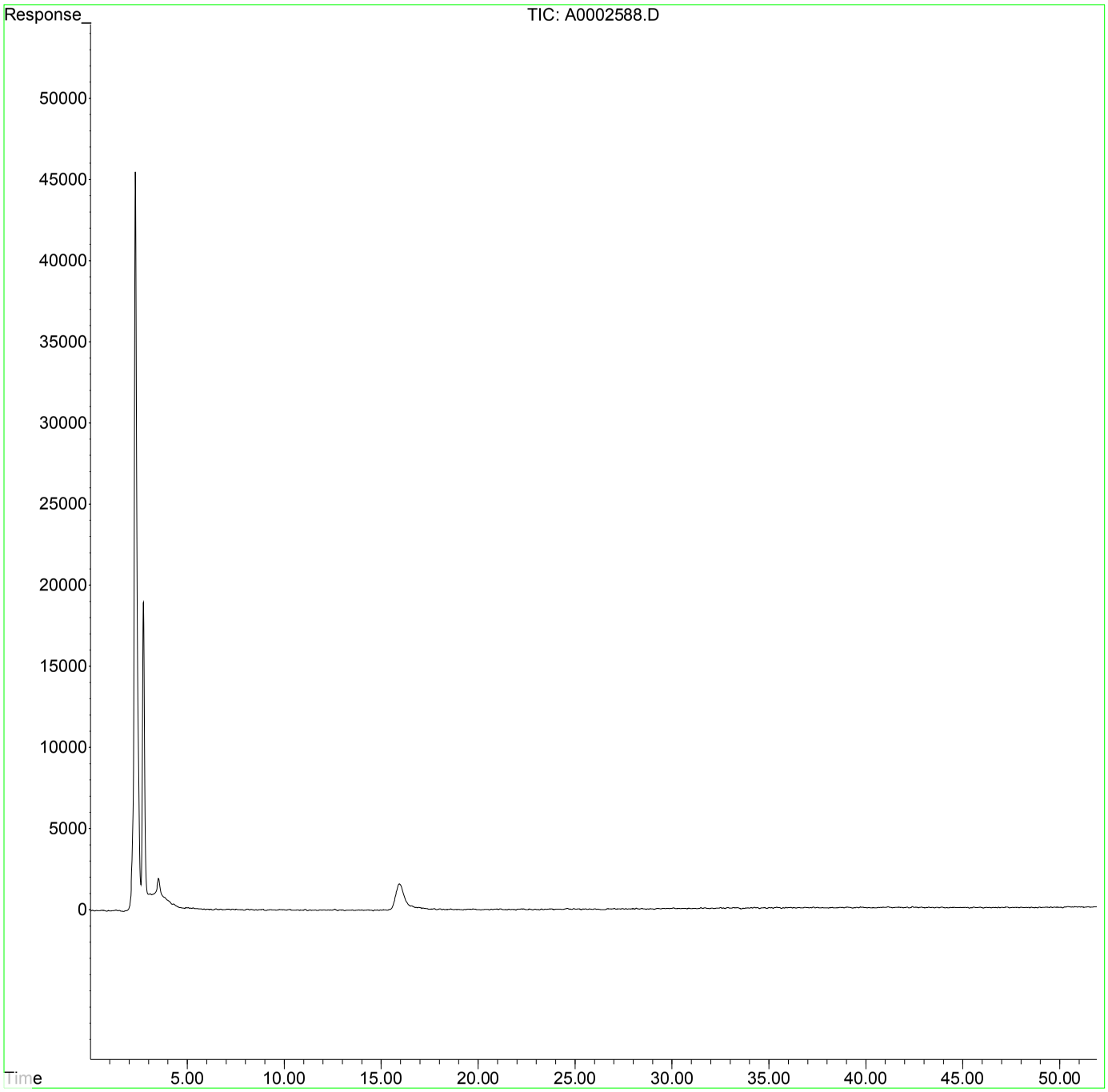
(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002588.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 16:38:32
Operator : b.allgeier
Sample : MB
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:55 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002718.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 00:11:33
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:25 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) t | Formic acid | 0.000 | 0 | N.D. | ppm |
| 2) T | Pyruvic acid | 0.000 | 0 | N.D. | ppm |
| 3) T | Lactic Acid | 0.000 | 0 | N.D. | ppm |
| 4) T | Acetic Acid | 0.000 | 0 | N.D. | ppm |
| 5) T | Propionic Acid | 0.000 | 0 | N.D. | ppm |
| 6) T | Butyric Acid | 0.000 | 0 | N.D. | ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.

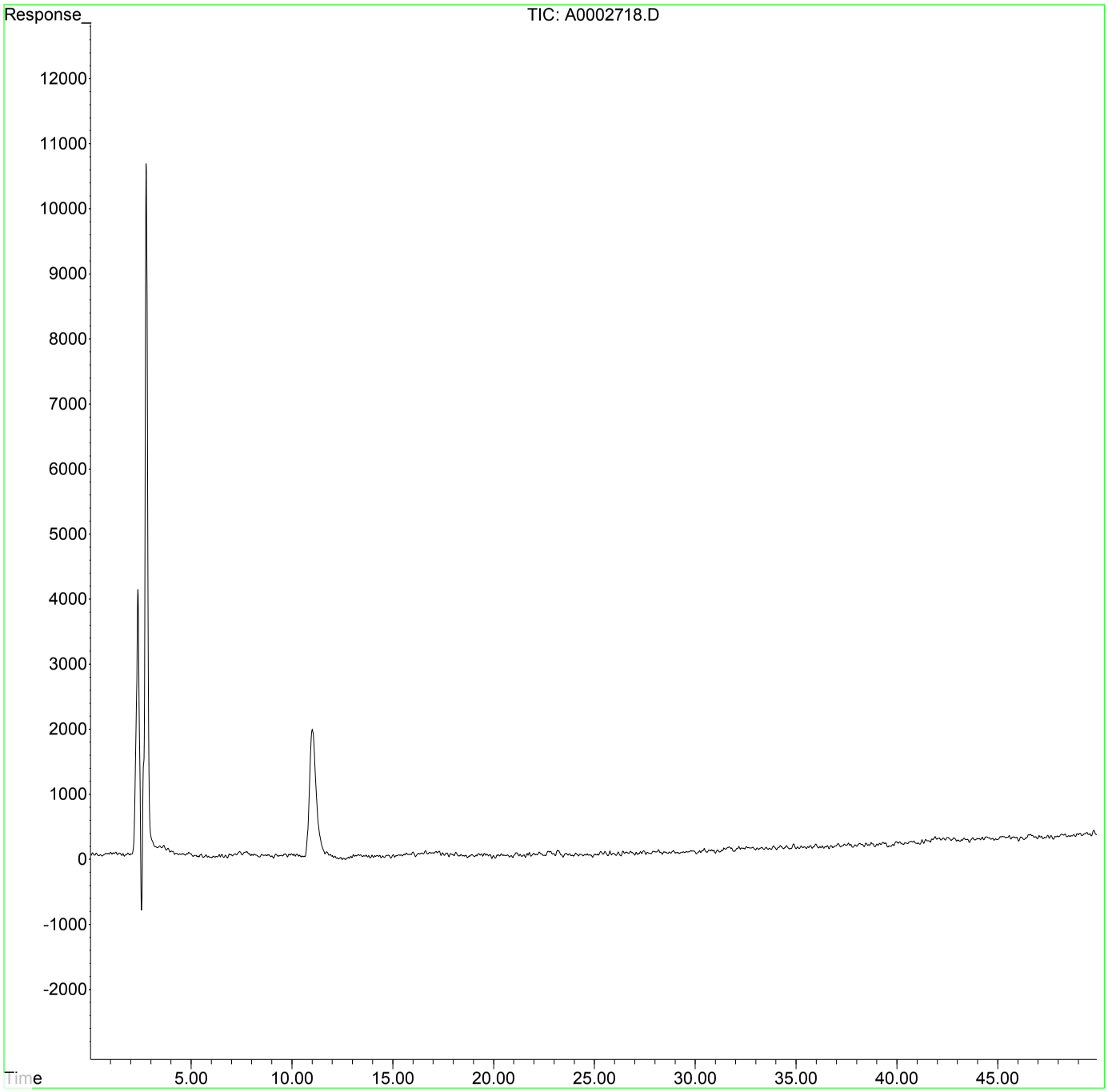
00946718

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002718.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 00:11:33
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:25 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210





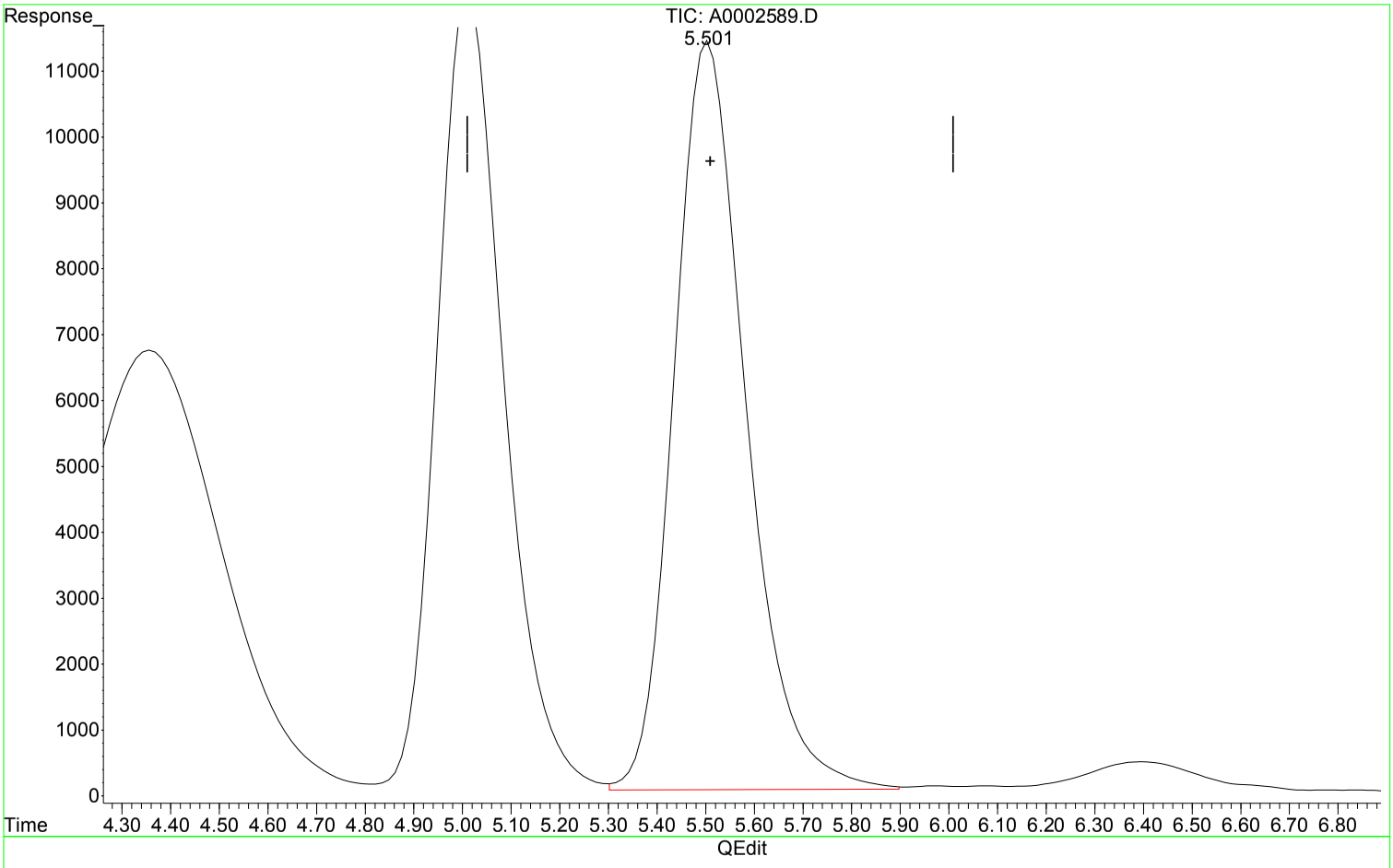

00946719

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

5.501min 19.770 ppm m

response 1169791

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time



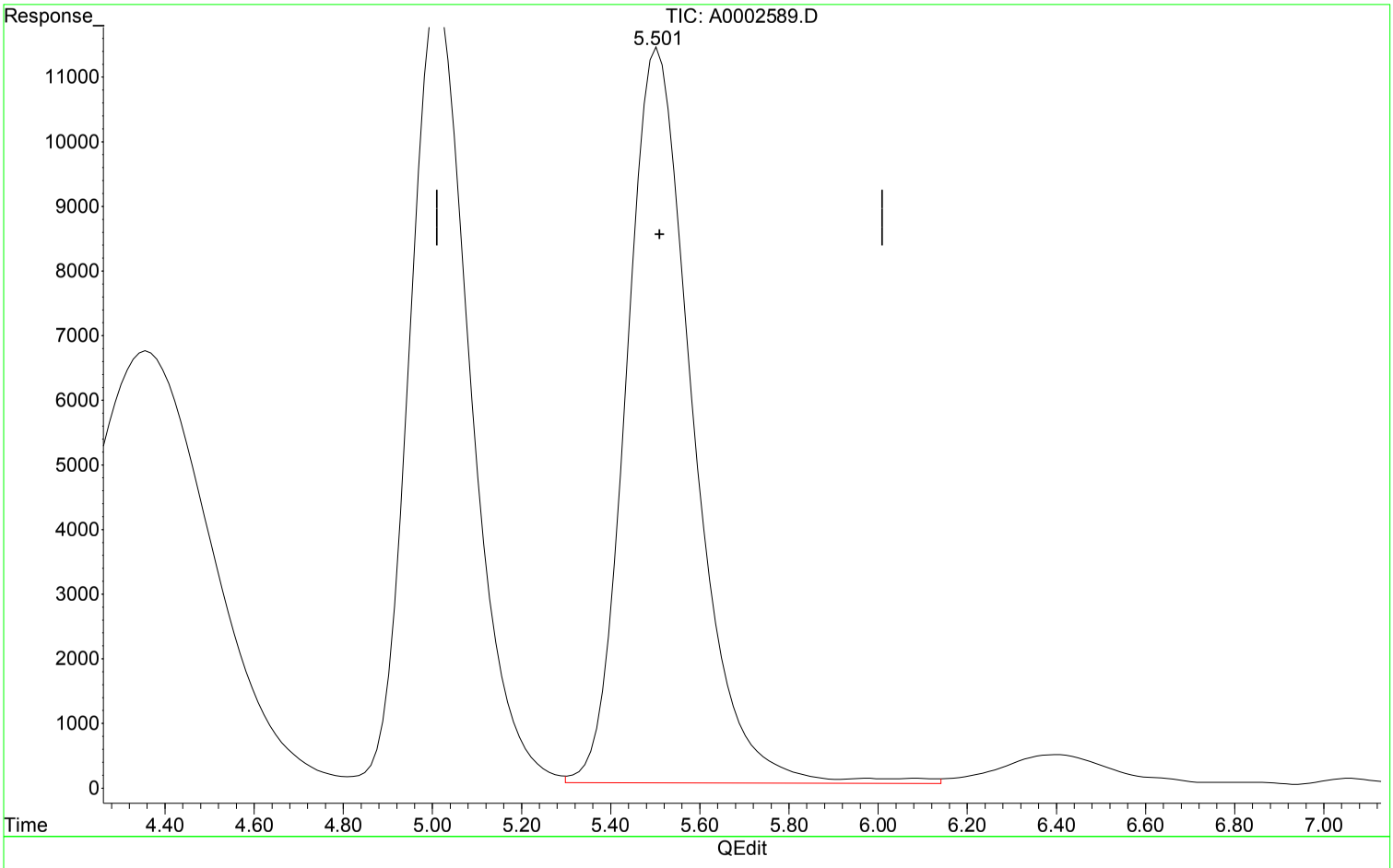
00946720

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

5.507min 20.052 ppm

response 1186474

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time



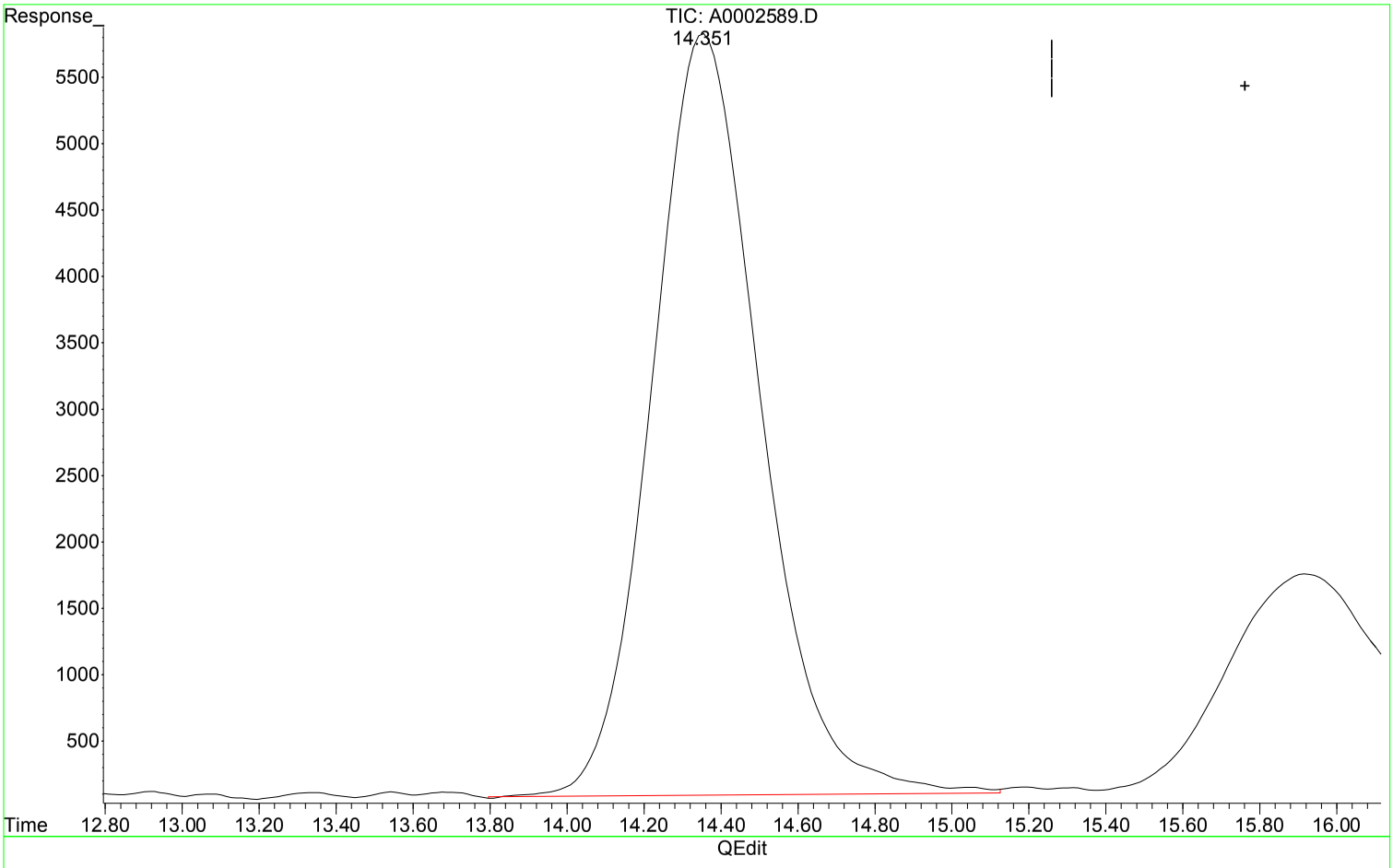
00946721

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:01:23 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:01:05 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

14.351min 18.786 ppm m

response 1119471

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:12:31 2018



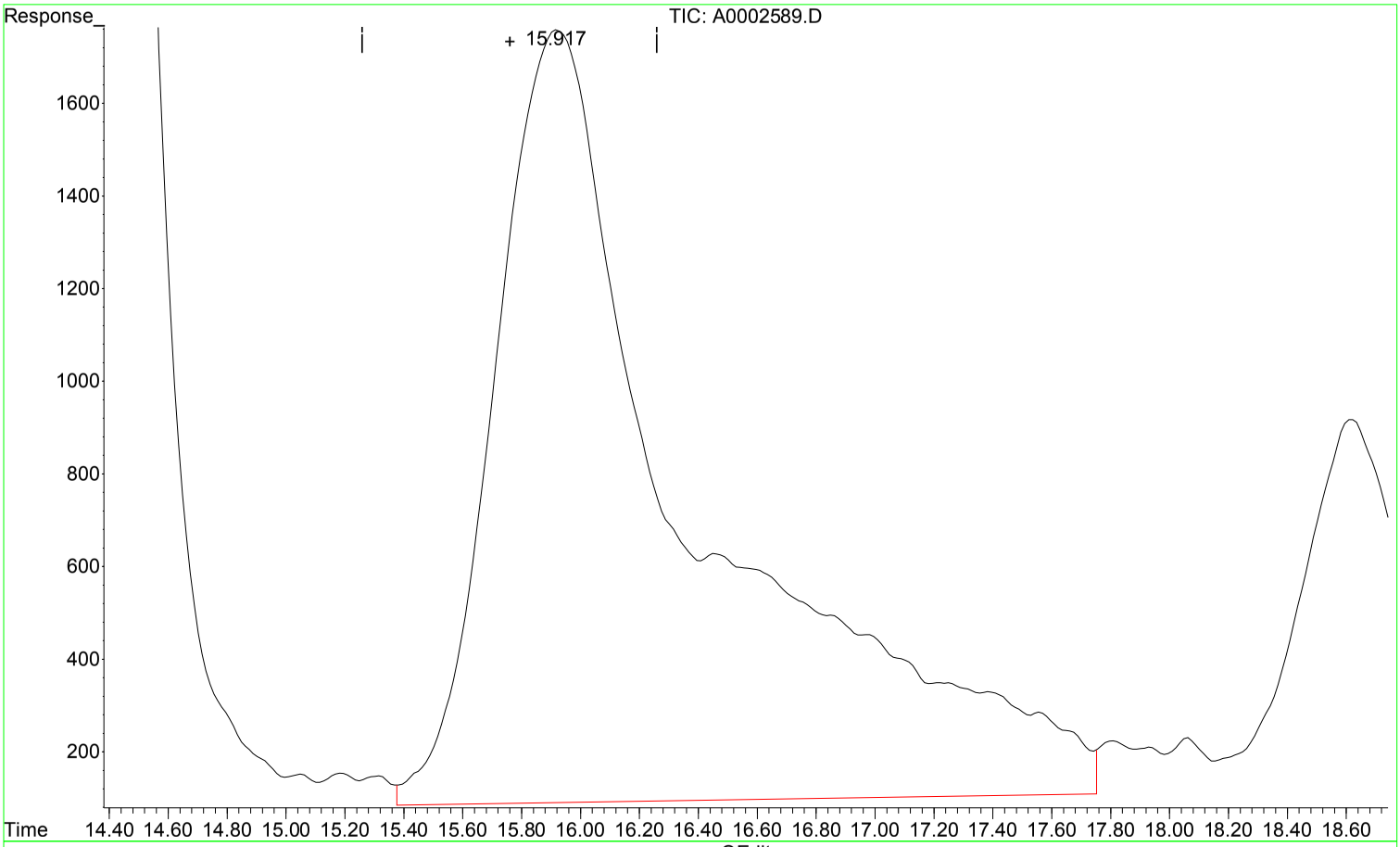
00946722

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:01:23 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:01:05 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

15.925min 13.163 ppm

response 784404

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:12:25 2018



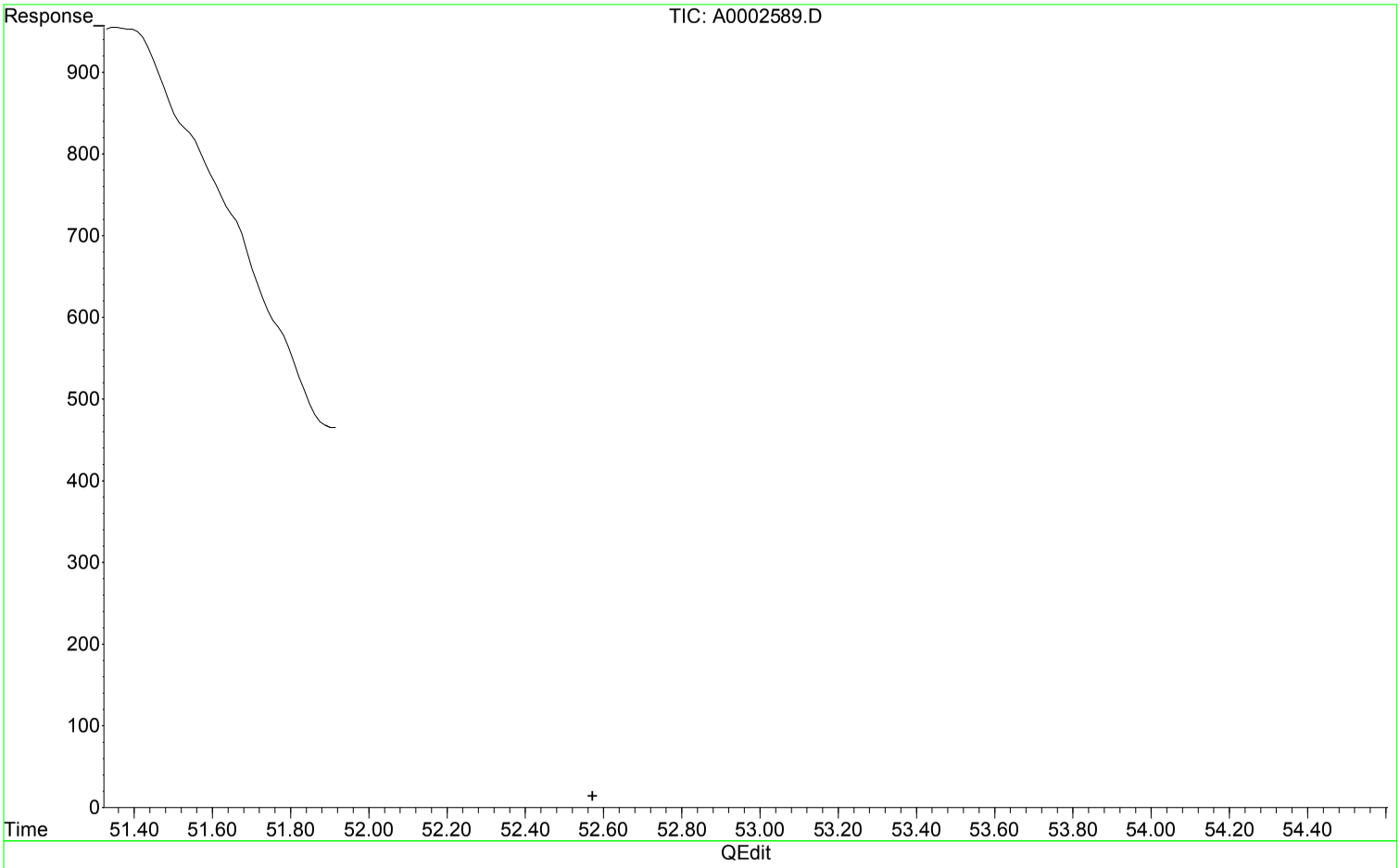
00946723

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:01:23 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:01:05 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

52.572min 0.000 ppm

response 0

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:12:42 2018 Page: 1



00946724

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:47:47~~ 18-Dec-2018, 17:35:00
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.398 | 1948872 | 20.228 | ppm | |
| 2) T | Pyruvic acid | 4.361 | 1343905 | 2.967 | ppm | |
| 3) T | Lactic Acid | 5.016 | 1147308 | 21.339 | ppm | |
| 4) T | Acetic Acid | 5.501 | 1169791 | 19.770 | ppm | m |
| 5) T | Propionic Acid | 14.358 | 1142782 | 19.177 | ppm | |
| 6) T | Butyric Acid | 46.164 | 1132410 | 18.004 | ppm | |

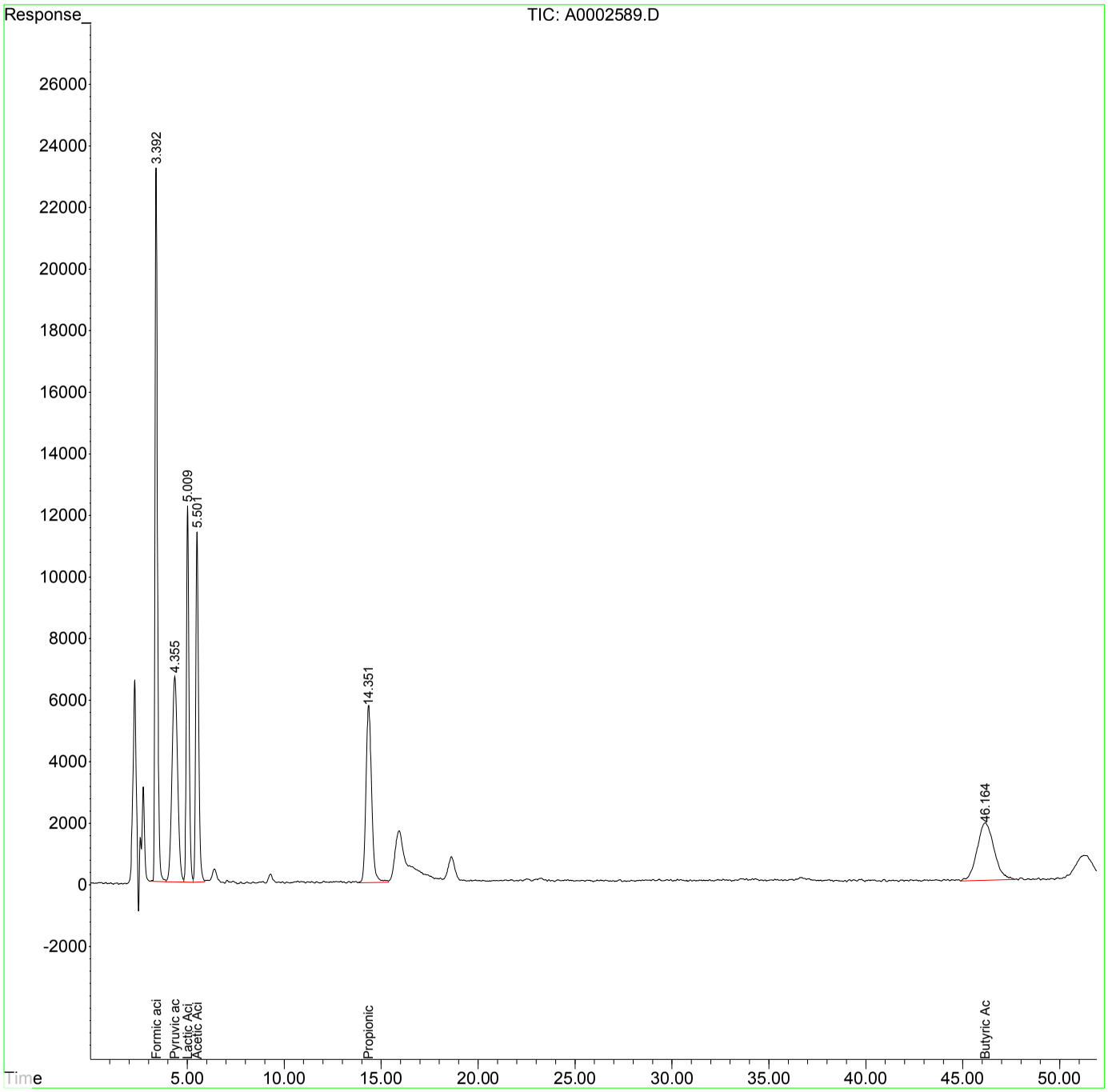
(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002719.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:04:28
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:27 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.398 | 1880578 | 20.117 ppm |
| 2) T | Pyruvic acid | 4.225 | 1379930 | 1.919 ppm |
| 3) T | Lactic Acid | 4.838 | 1186595 | 20.333 ppm |
| 4) T | Acetic Acid | 5.279 | 1148685 | 19.680 ppm |
| 5) T | Propionic Acid | 12.885 | 1143195 | 19.836 ppm |
| 6) T | Butyric Acid | 39.339 | 1140518 | 21.079 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



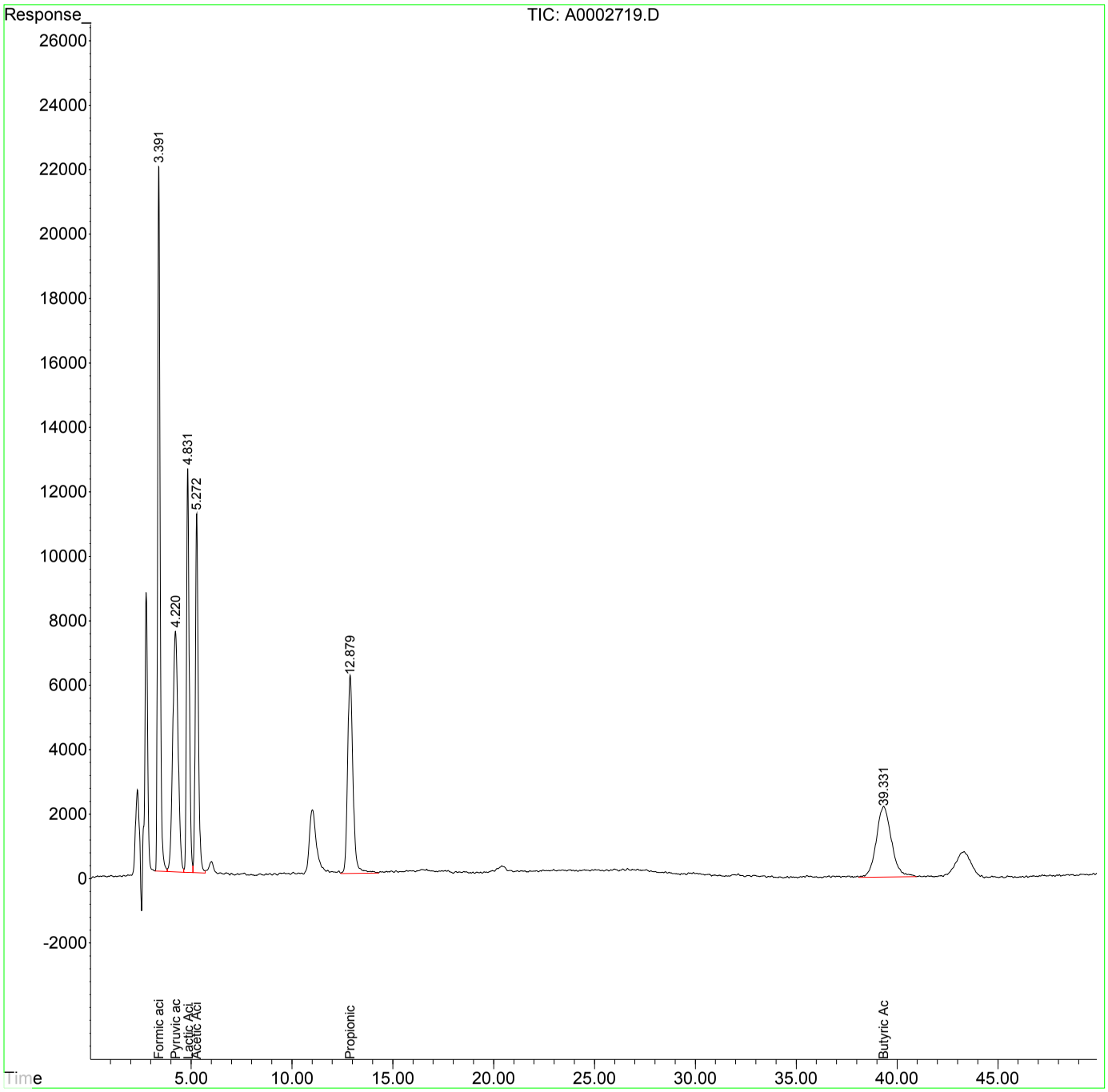
00946727

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002719.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:04:28
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:27 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

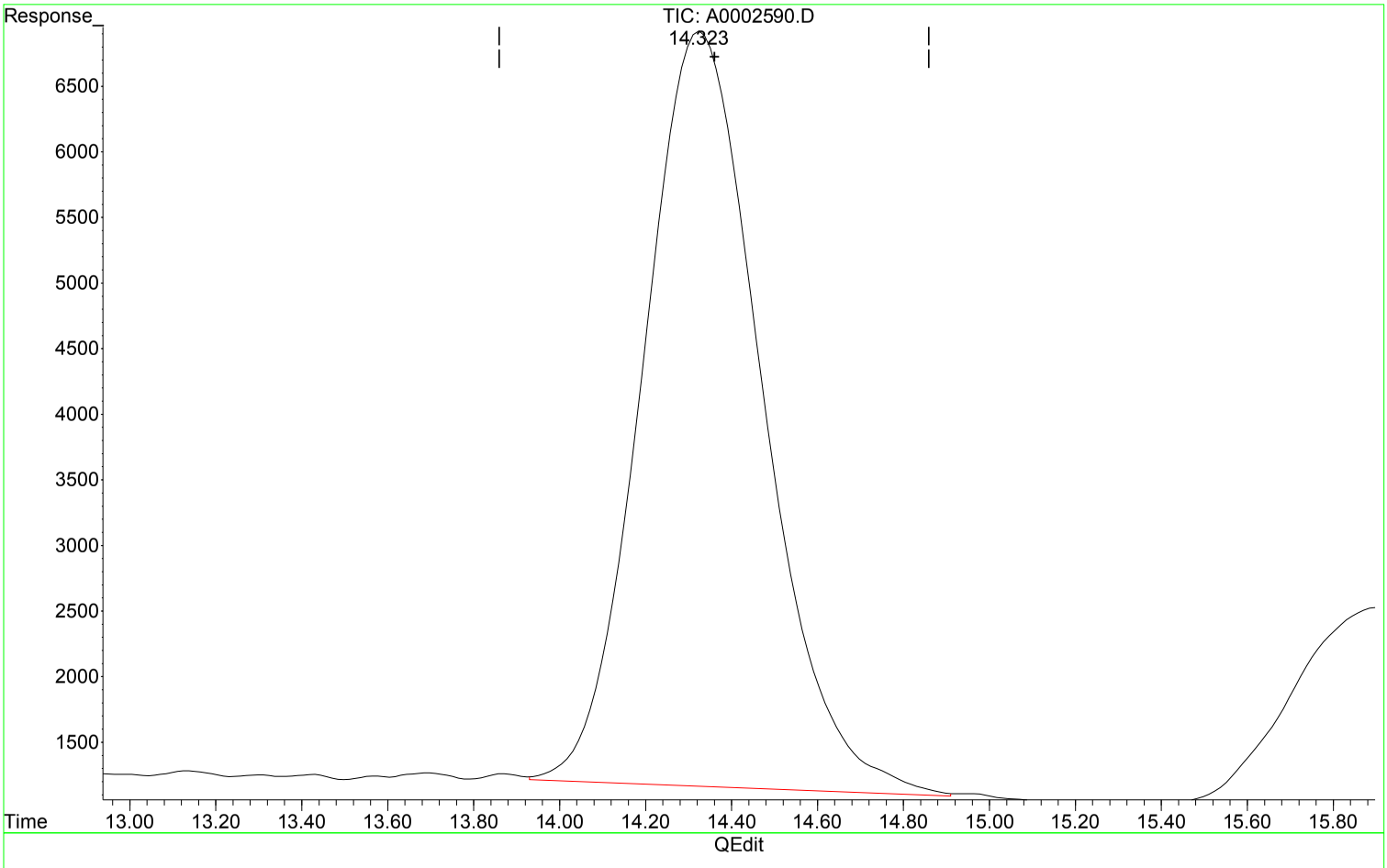


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

14.323min 18.639 ppm m

response 1110701

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:16:01 2018



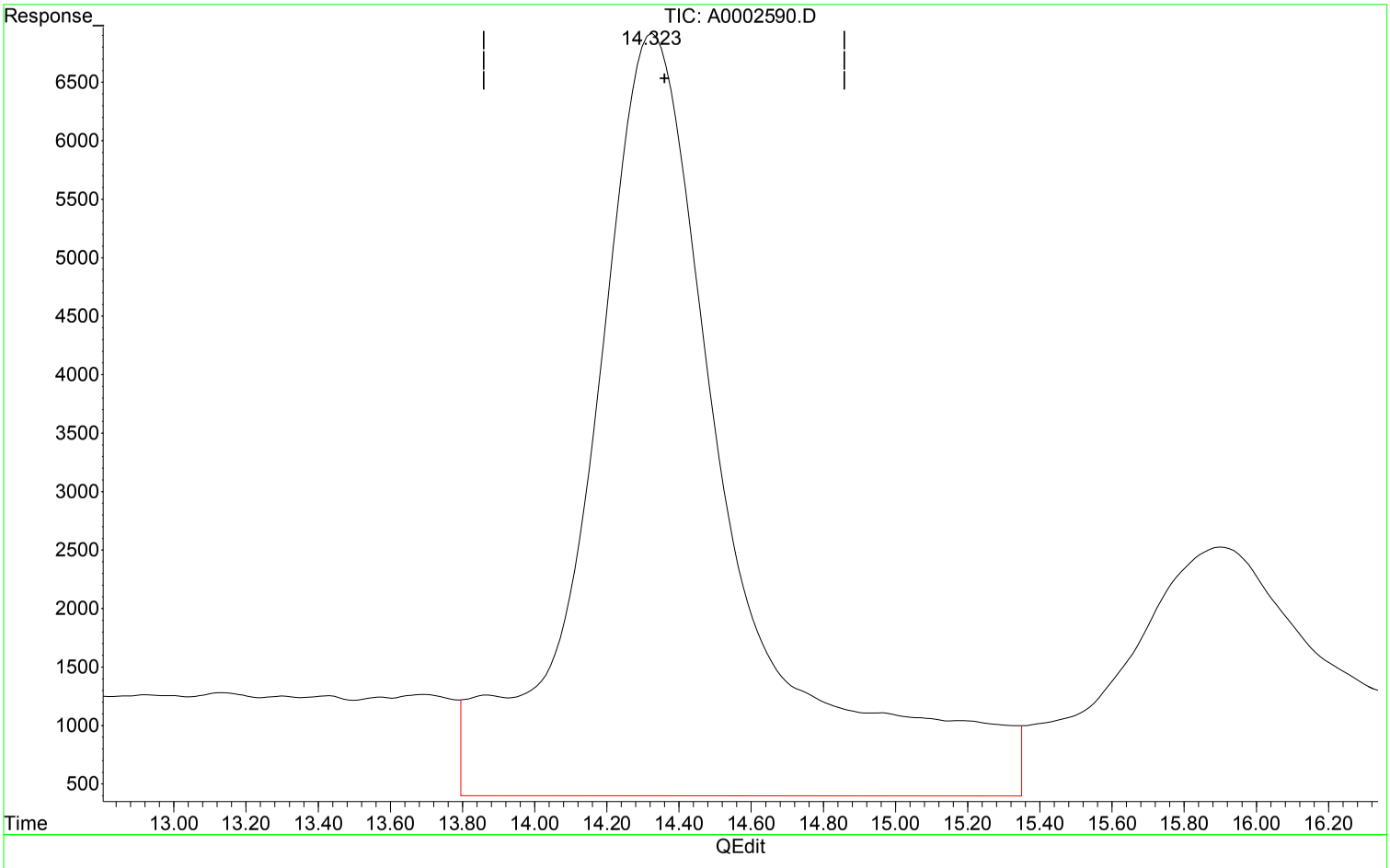
00946729

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

14.329min 30.117 ppm

response 1794742

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:15:55 2018



00946730

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.398 | 1956662 | 20.309 | ppm | |
| 2) T | Pyruvic acid | 4.359 | 1346166 | 2.972 | ppm | |
| 3) T | Lactic Acid | 5.014 | 1149193 | 21.374 | ppm | |
| 4) T | Acetic Acid | 5.505 | 1186924 | 20.060 | ppm | |
| 5) T | Propionic Acid | 14.323 | 1110701 | 18.639 | ppm | m |
| 6) T | Butyric Acid | 46.044 | 1131013 | 17.982 | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



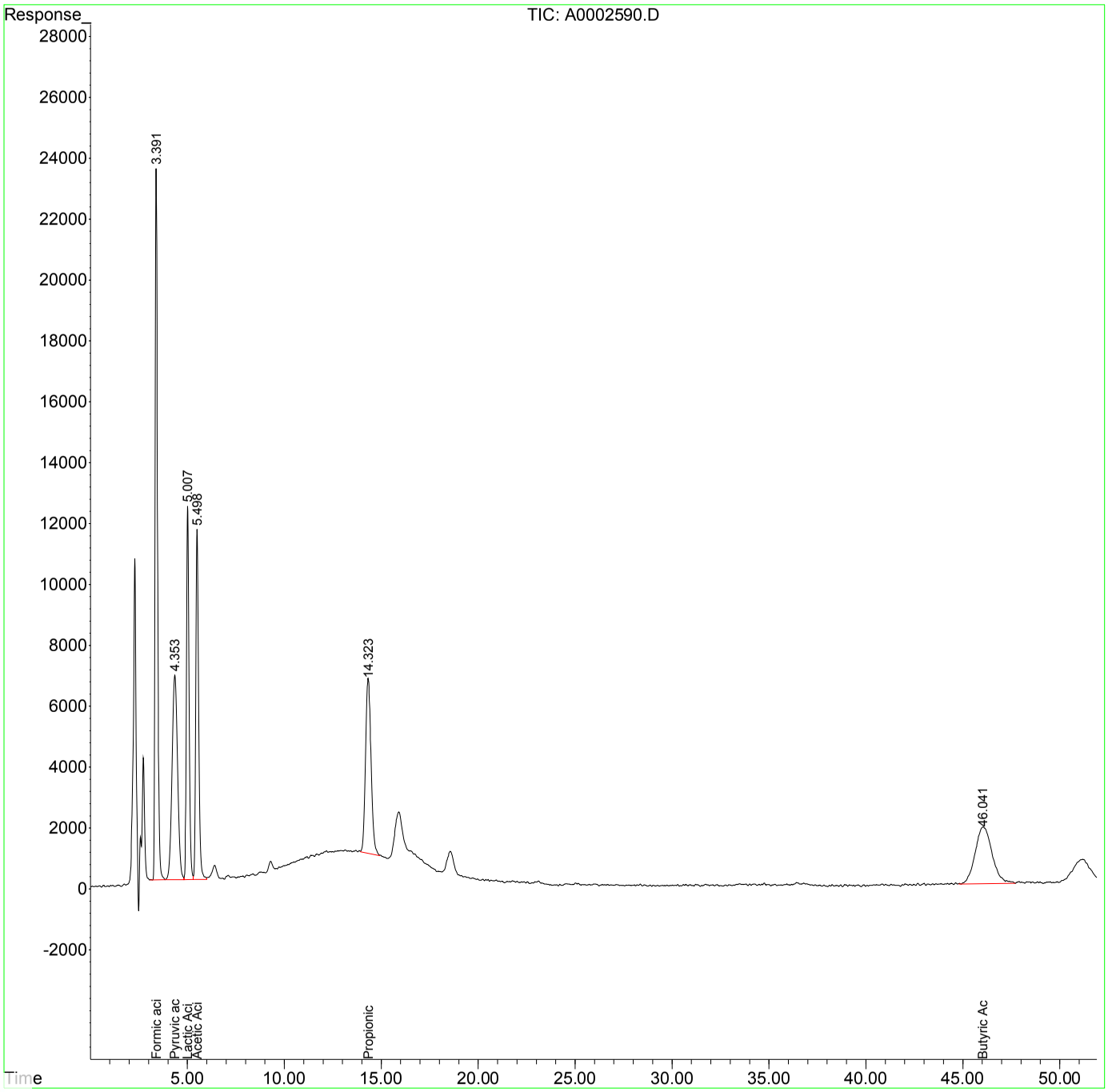
00946731

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002720.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:57:20
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:29 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.398 | 1871563 | 20.021 ppm |
| 2) T | Pyruvic acid | 4.225 | 1376293 | 1.914 ppm |
| 3) T | Lactic Acid | 4.838 | 1184077 | 20.290 ppm |
| 4) T | Acetic Acid | 5.279 | 1156811 | 19.819 ppm |
| 5) T | Propionic Acid | 12.894 | 1094142 | 18.985 ppm |
| 6) T | Butyric Acid | 39.376 | 1094225 | 20.223 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



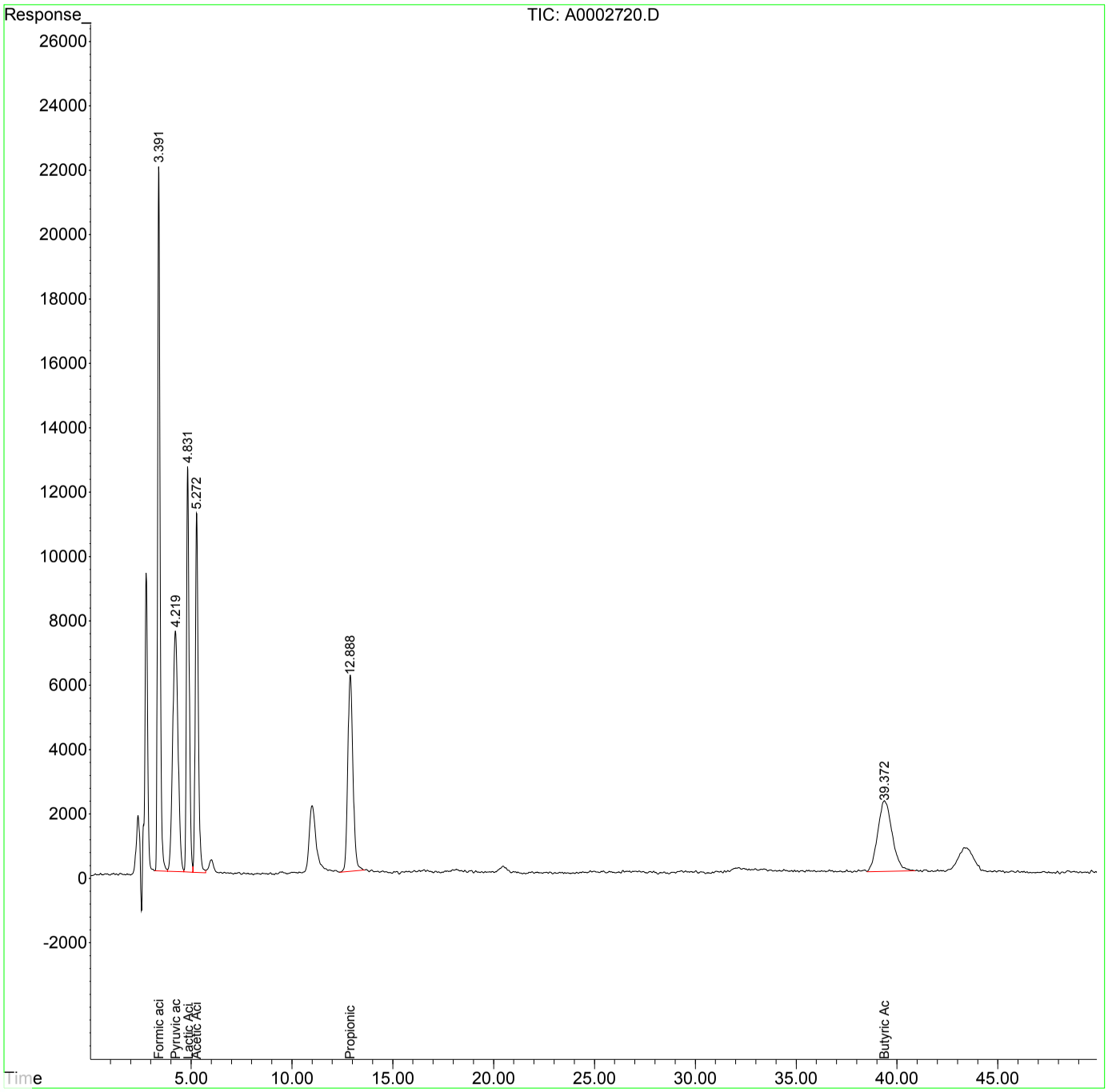
00946733

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002720.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:57:20
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:29 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

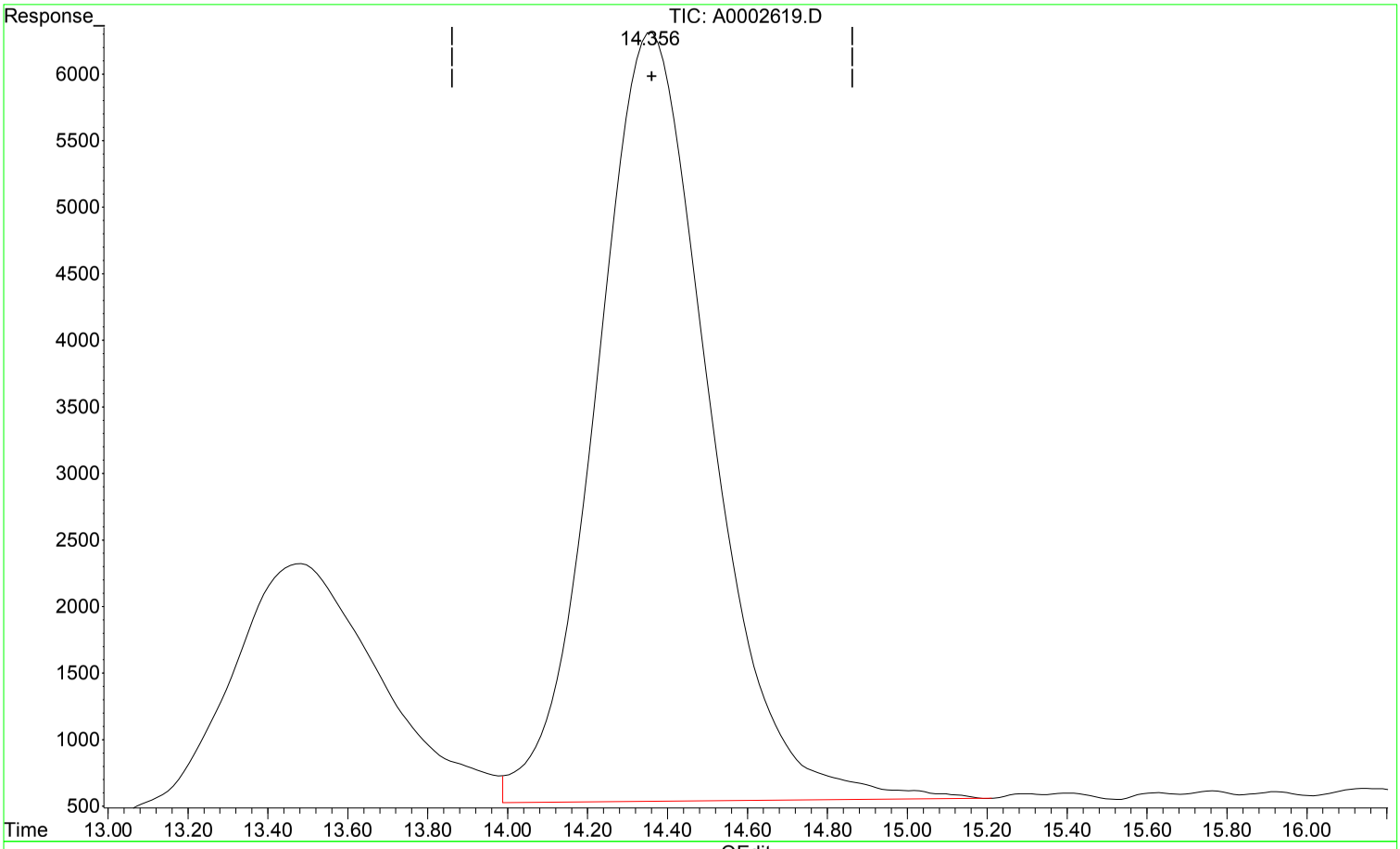


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:18:26
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

14.356min 19.149 ppm m

response 1141145

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:35:55 2018



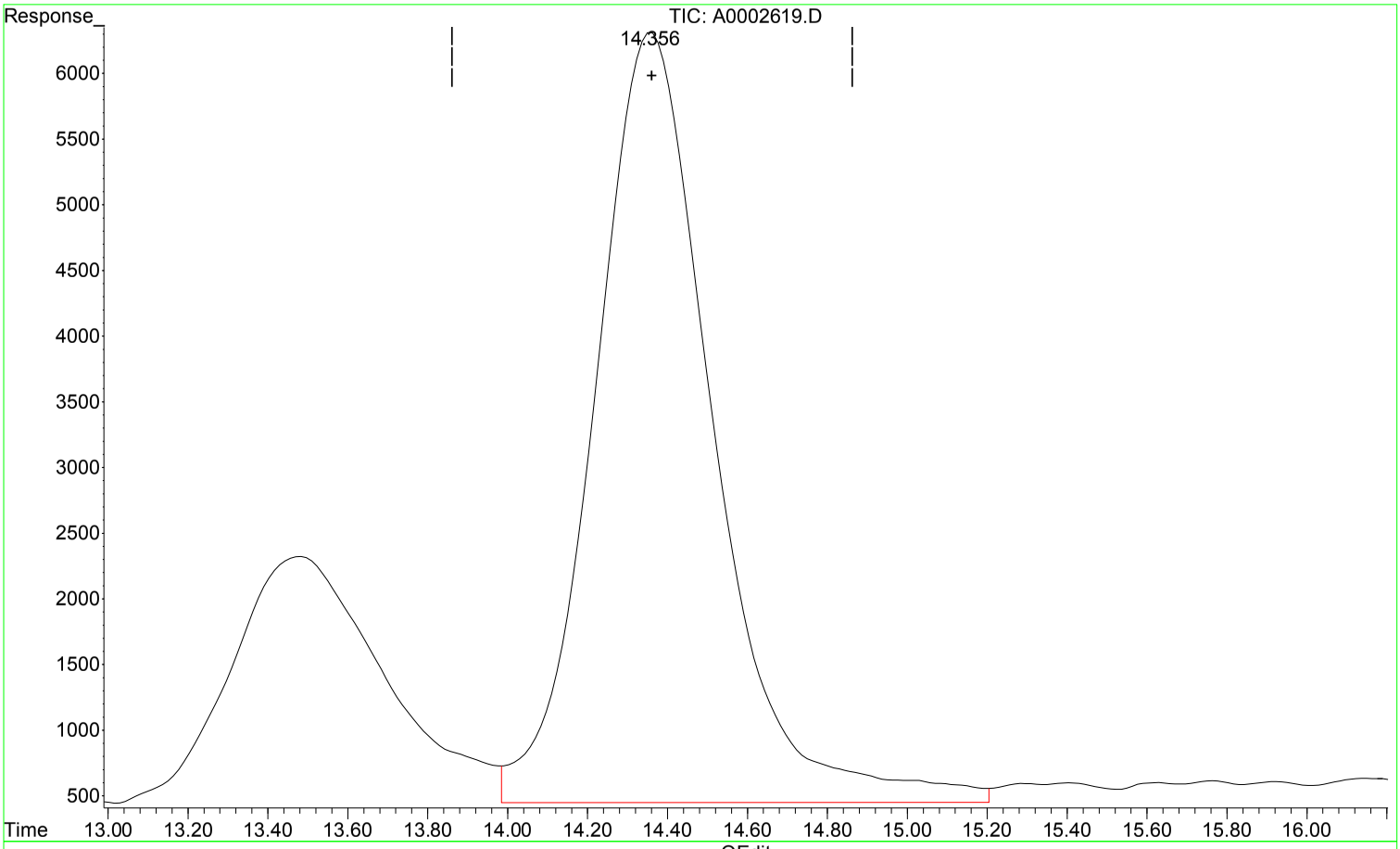
00946735

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:18:26
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

14.361min 20.312 ppm

response 1210420

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:35:47 2018



00946736

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:18:26~~ 20-Dec-2018, 00:50:00
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.436 | 1884118 | 19.556 | ppm | |
| 2) T | Pyruvic acid | 4.401 | 1284292 | 2.835 | ppm | |
| 3) T | Lactic Acid | 5.068 | 1190829 | 22.149 | ppm | |
| 4) T | Acetic Acid | 5.550 | 1172816 | 19.821 | ppm | |
| 5) T | Propionic Acid | 14.356 | 1141145 | 19.149 | ppm | m |
| 6) T | Butyric Acid | 45.889 | 1047703 | 16.657 | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



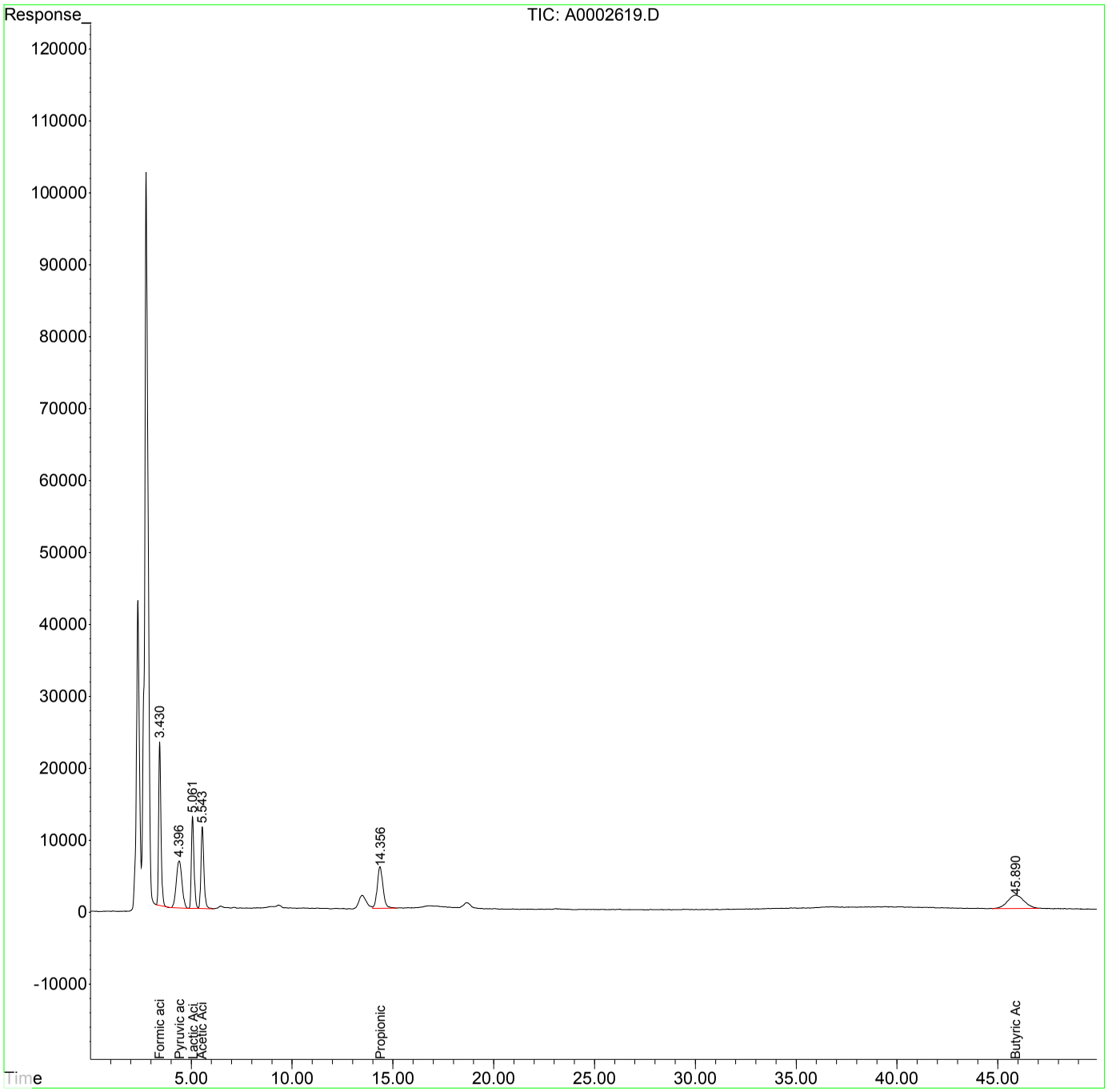
00946737

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:18:26
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210






00946738

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002620.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 01:42:07
Operator : b.allgeier
Sample : r1812085-004 msd
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.436 | 1950033 | 20.241 ppm |
| 2) T | Pyruvic acid | 4.401 | 1338679 | 2.956 ppm |
| 3) T | Lactic Acid | 5.066 | 1242914 | 23.118 ppm |
| 4) T | Acetic Acid | 5.548 | 1240321 | 20.962 ppm |
| 5) T | Propionic Acid | 14.361 | 1149813 | 19.295 ppm |
| 6) T | Butyric Acid | 45.935 | 1123619 | 17.864 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



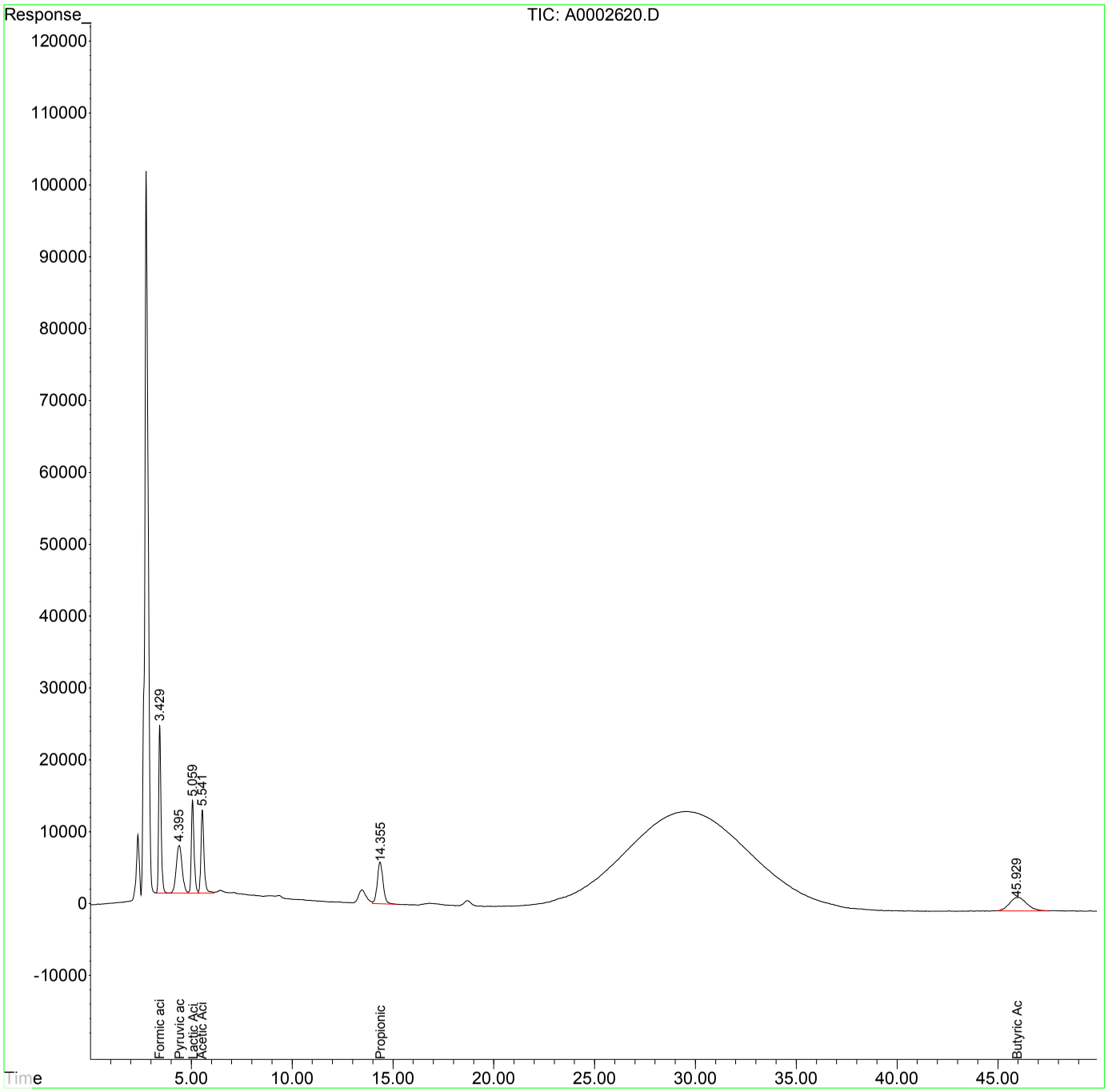
00946739

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002620.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 01:42:07
Operator : b.allgeier
Sample : r1812085-004 msd
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



1st BA 12/19/18
2nd DM 12/26/18

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002587.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:47:53~~ 18-Dec-2018, 15:45:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:53 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 97.545 E3 | -1.2 | 101 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 451.371 E3 | 0.3 | 98 | 0.00 |
| 3 T | Lactic Acid | 53.765 | 58.152 E3 | -8.2 | 107 | 0.00 |
| 4 T | Acetic Acid | 59.169 | 60.054 E3 | -1.5 | 99 | 0.00 |
| 5 T | Propionic Acid | 59.592 | 58.025 E3 | 2.6 | 98 | 0.00 |
| 6 T | Butyric Acid | 62.897 | 55.870 E3 | 11.2 | 95 | 0.00 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946741

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002587.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:47:53~~ 18-Dec-2018, 15:45:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:53 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.398 | 4877269 | 50.624 ppm |
| 2) T | Pyruvic acid | 4.365 | 2256853 | 4.983 ppm |
| 3) T | Lactic Acid | 5.018 | 2907596 | 54.080 ppm |
| 4) T | Acetic Acid | 5.509 | 3002708 | 50.748 ppm |
| 5) T | Propionic Acid | 14.360 | 2901256 | 48.686 ppm |
| 6) T | Butyric Acid | 46.228 | 2793510 | 44.414 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.

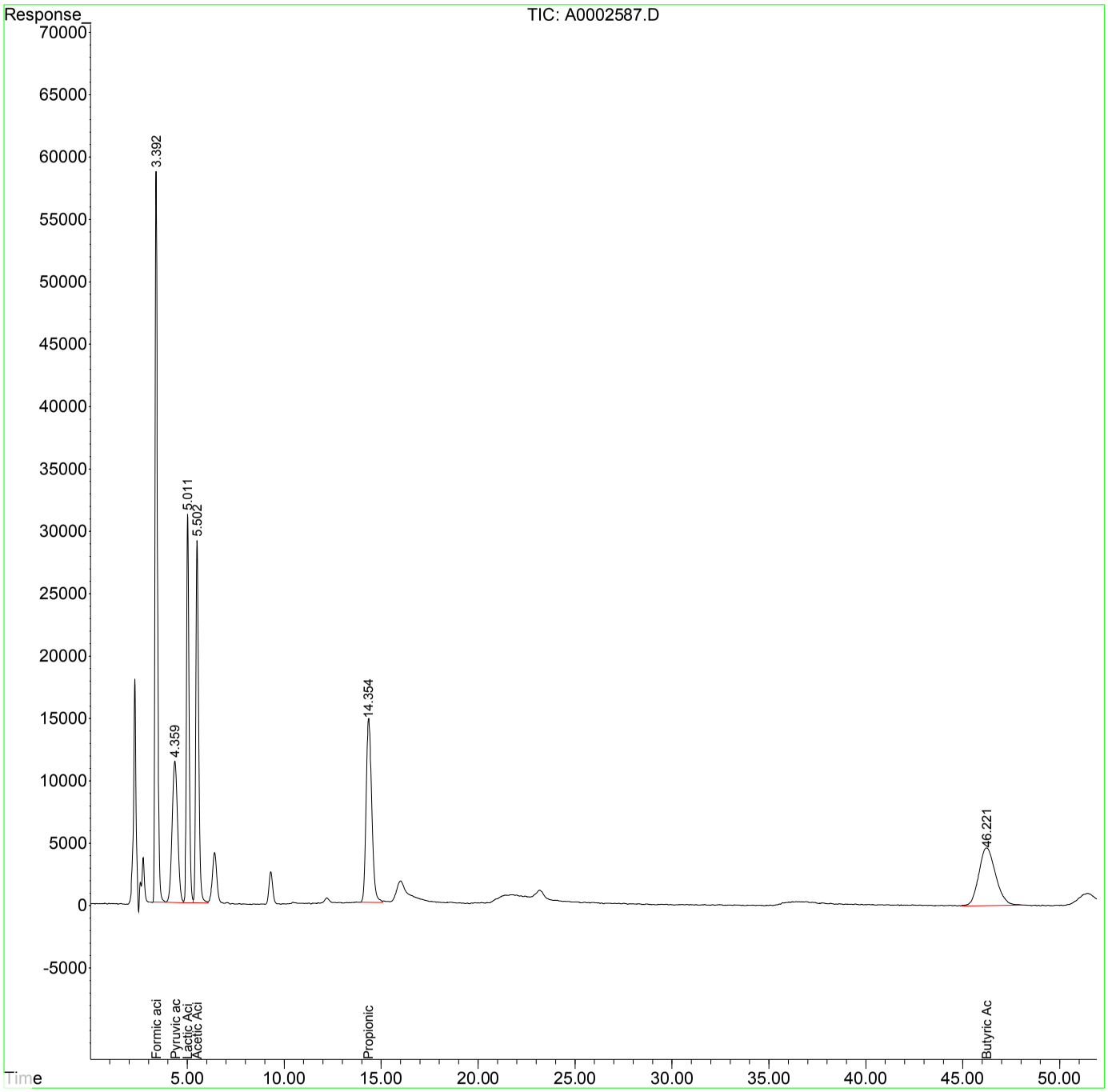
00946742

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002587.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:53 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210





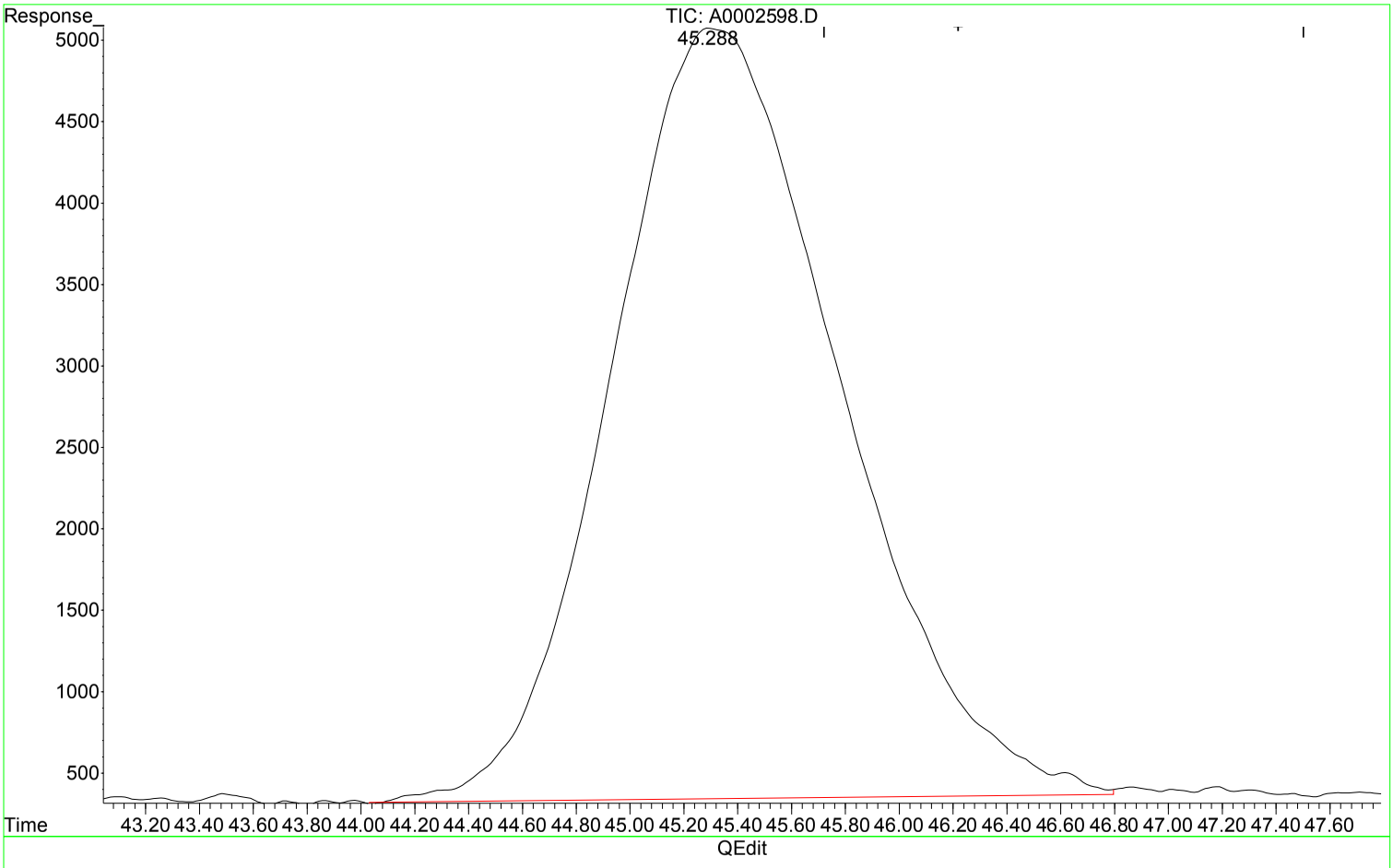

00946743

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

45.288min 44.291 ppm m

response 2785759

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:20:31 2018 Page: 1



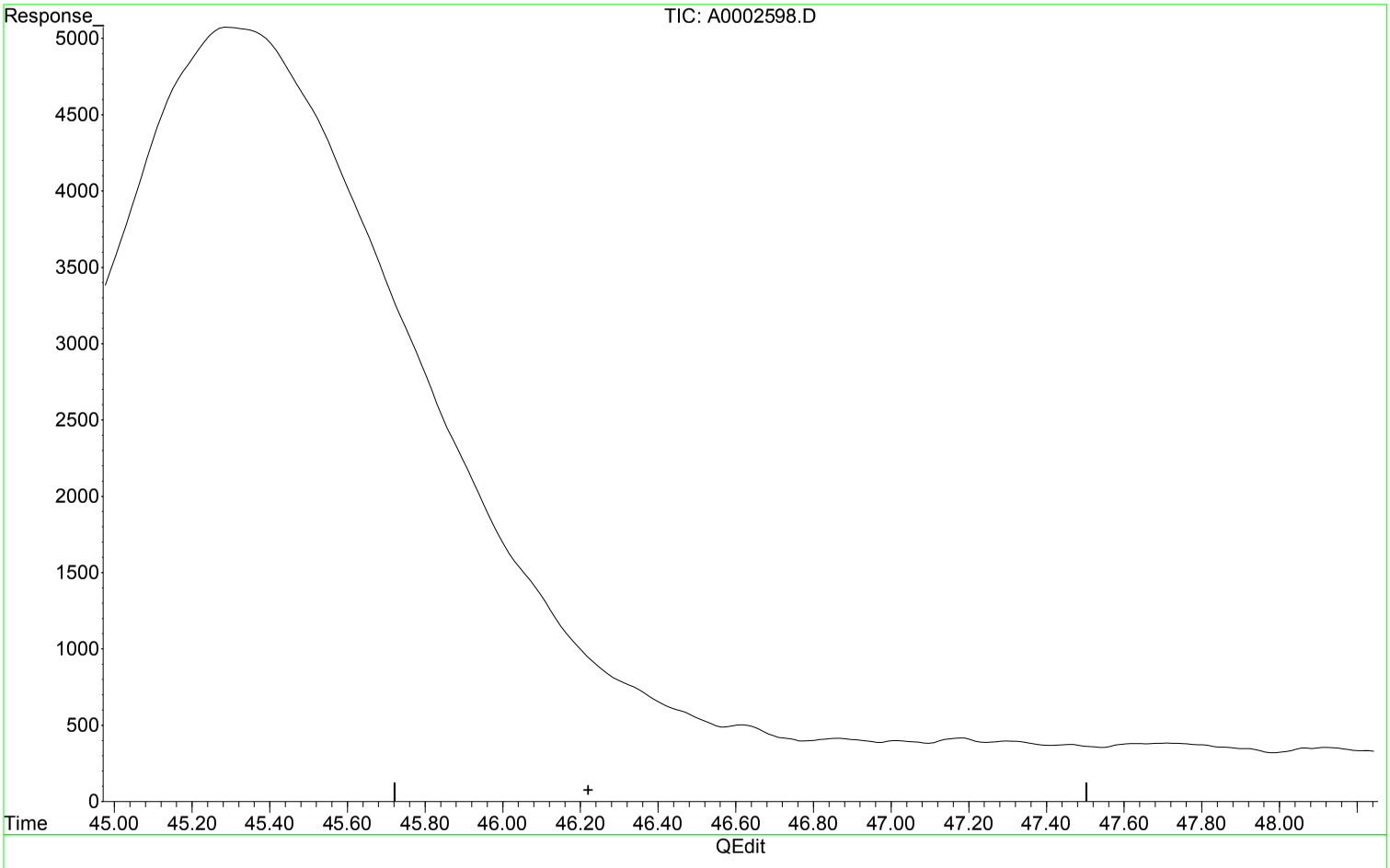
00946744

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

46.221min 0.000 ppm

response 0

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:20:23 2018



00946745

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 96.724 E3 | -0.4 | 100 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 445.920 E3 | 1.5 | 97 | -0.03 |
| 3 T | Lactic Acid | 53.765 | 58.468 E3 | -8.7 | 108 | -0.03 |
| 4 T | Acetic Acid | 59.169 | 59.478 E3 | -0.5 | 98 | -0.03 |
| 5 T | Propionic Acid | 59.592 | 58.220 E3 | 2.3 | 99 | -0.17 |
| 6 T | Butyric Acid | 62.897 | 55.715 E3 | 11.4 | 95 | -0.94# |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946746

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.392 | 4836188 | 50.198 | ppm | |
| 2) T | Pyruvic acid | 4.334 | 2229601 | 4.923 | ppm | |
| 3) T | Lactic Acid | 4.992 | 2923402 | 54.374 | ppm | |
| 4) T | Acetic Acid | 5.480 | 2973916 | 50.261 | ppm | |
| 5) T | Propionic Acid | 14.188 | 2911015 | 48.849 | ppm | |
| 6) T | Butyric Acid | 45.288f | 2785759 | 44.291 | ppm | m |

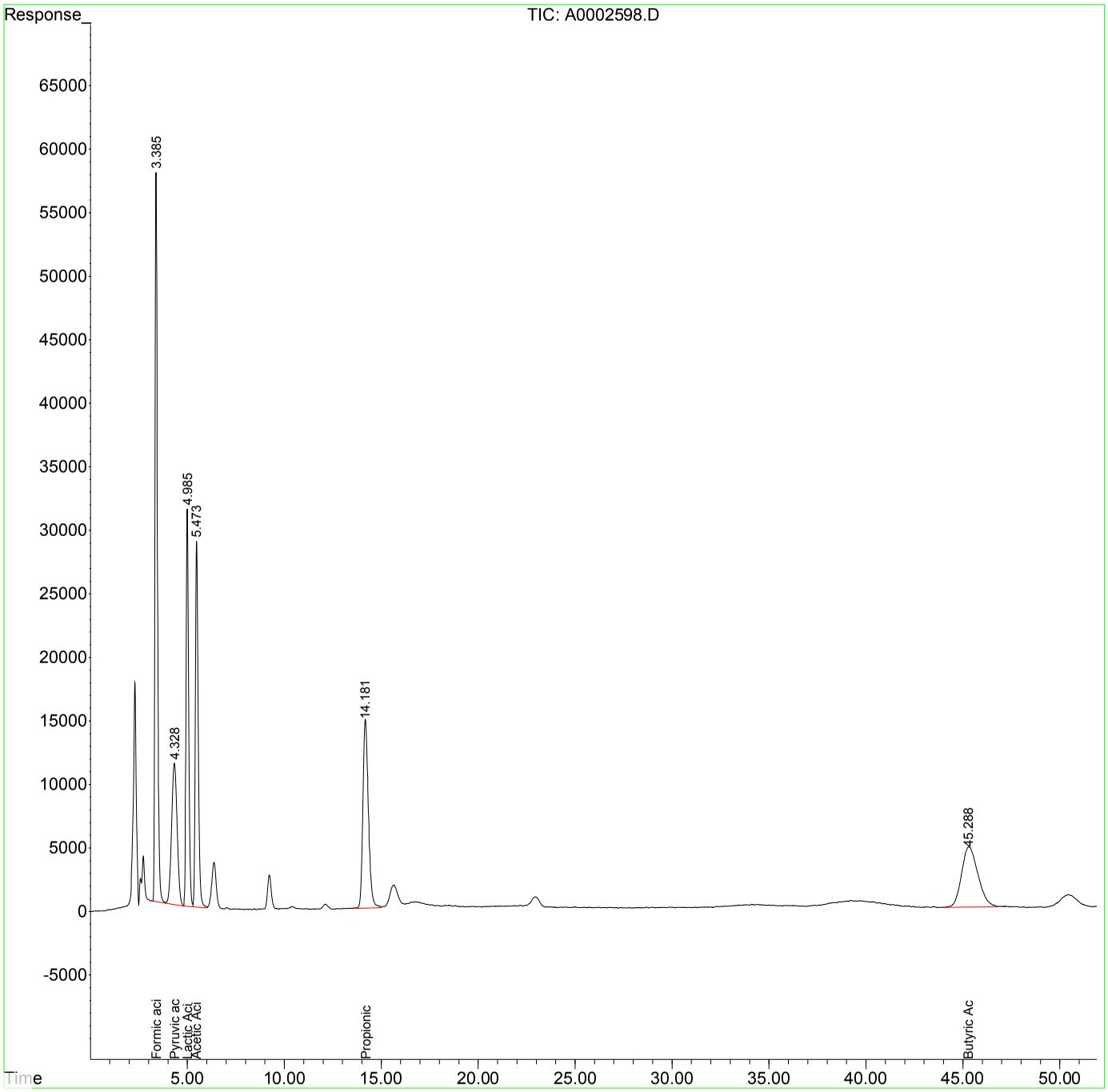
(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002621.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 01:28:24~~ 20-Dec-2018, 02:35:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:50 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 96.744 E3 | -0.4 | 100 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 453.830 E3 | -0.2 | 99 | 0.00 |
| 3 T | Lactic Acid | 53.765 | 58.697 E3 | -9.2 | 108 | 0.00 |
| 4 T | Acetic Acid | 59.169 | 59.940 E3 | -1.3 | 99 | 0.00 |
| 5 T | Propionic Acid | 59.592 | 58.984 E3 | 1.0 | 100 | 0.03 |
| 6 T | Butyric Acid | 62.897 | 56.296 E3 | 10.5 | 96 | 0.16 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946749

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002621.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 01:28:24~~ 20-Dec-2018, 02:35:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:50 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.436 | 4837191 | 50.208 ppm |
| 2) T | Pyruvic acid | 4.398 | 2269150 | 5.010 ppm |
| 3) T | Lactic Acid | 5.065 | 2934854 | 54.587 ppm |
| 4) T | Acetic Acid | 5.547 | 2997009 | 50.651 ppm |
| 5) T | Propionic Acid | 14.326 | 2949206 | 49.490 ppm |
| 6) T | Butyric Acid | 45.642 | 2814809 | 44.752 ppm |

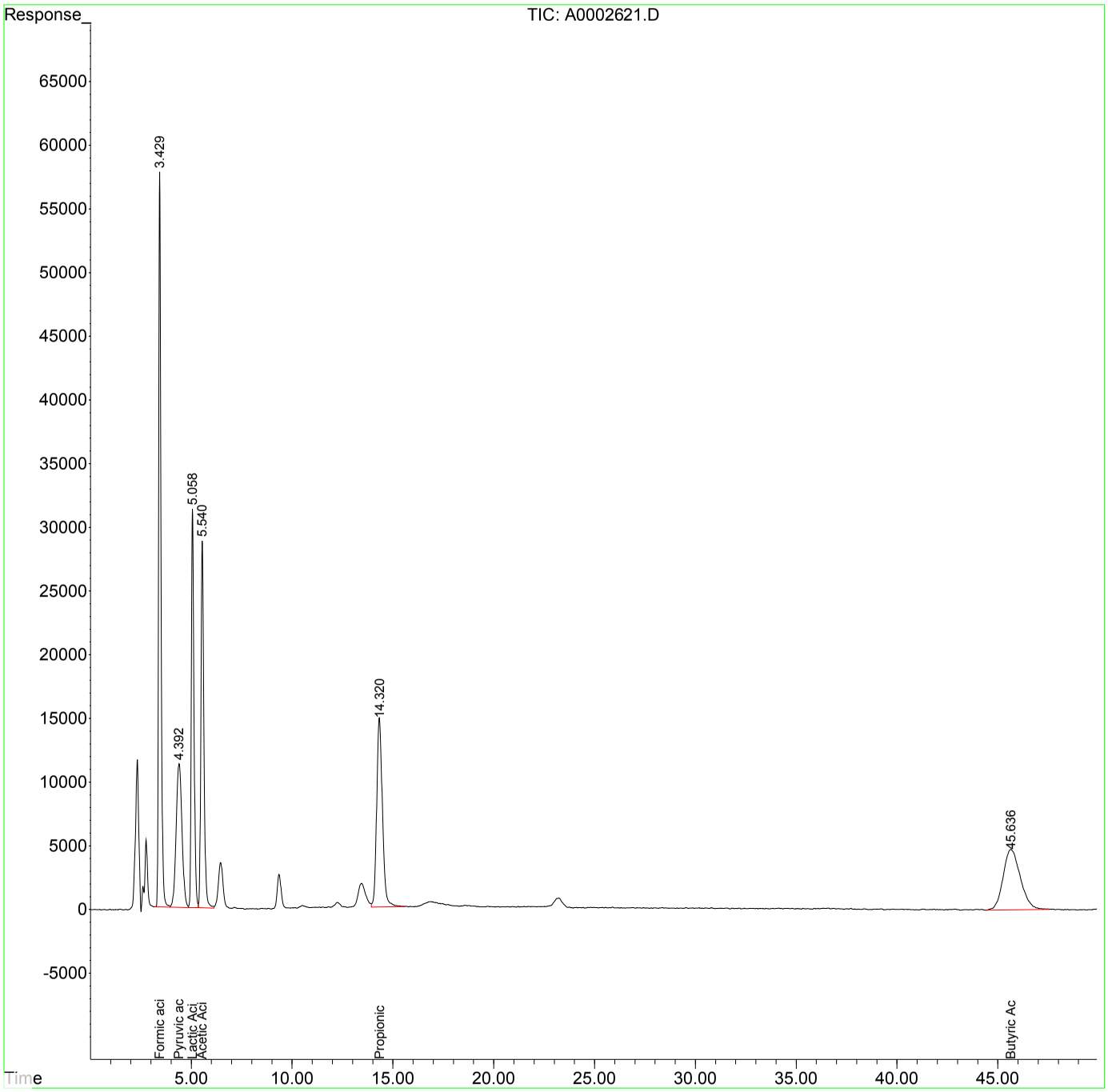
(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002621.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:28:24
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:50 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002623.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 04:21:02
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:30:51 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:30:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 96.194 E3 | 0.2 | 100 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 443.729 E3 | 2.0 | 97 | 0.00 |
| 3 T | Lactic Acid | 53.765 | 58.140 E3 | -8.1 | 107 | 0.00 |
| 4 T | Acetic Acid | 59.169 | 59.231 E3 | -0.1 | 98 | 0.00 |
| 5 T | Propionic Acid | 59.592 | 58.485 E3 | 1.9 | 99 | 0.00 |
| 6 T | Butyric Acid | 62.897 | 55.287 E3 | 12.1 | 94 | 0.00 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946752

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002623.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 04:21:02
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:30:51 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:30:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.435 | 4809684 | 49.922 ppm |
| 2) T | Pyruvic acid | 4.393 | 2218644 | 4.898 ppm |
| 3) T | Lactic Acid | 5.060 | 2906976 | 54.068 ppm |
| 4) T | Acetic Acid | 5.541 | 2961574 | 50.052 ppm |
| 5) T | Propionic Acid | 14.292 | 2924251 | 49.072 ppm |
| 6) T | Butyric Acid | 45.483 | 2764365 | 43.950 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



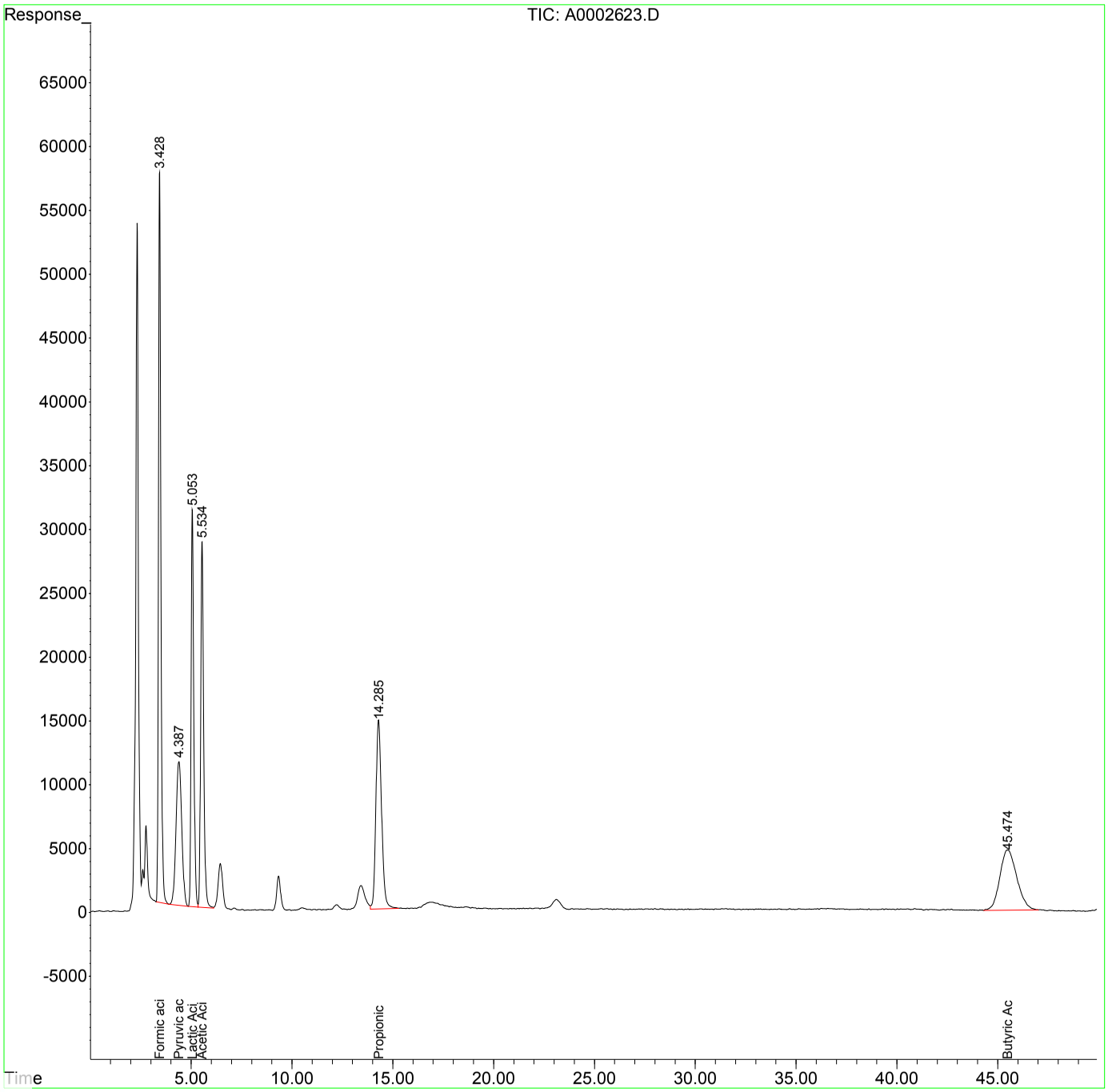
00946753

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002623.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 04:21:02
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:30:51 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:30:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002651.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 05:03:39
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 09:51:28 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 09:51:11 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 96.212 E3 | 0.1 | 100 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 451.409 E3 | 0.3 | 98 | 0.00 |
| 3 T | Lactic Acid | 53.765 | 60.234 E3 | -12.0 | 111 | -0.01 |
| 4 T | Acetic Acid | 59.169 | 59.299 E3 | -0.2 | 98 | 0.00 |
| 5 T | Propionic Acid | 59.592 | 60.176 E3 | -1.0 | 102 | -0.07 |
| 6 T | Butyric Acid | 62.897 | 55.921 E3 | 11.1 | 95 | -0.32 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946755

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002651.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 05:03:39
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 09:51:28 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 09:51:11 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.413 | 4810618 | 49.932 ppm |
| 2) T | Pyruvic acid | 4.334 | 2257047 | 4.983 ppm |
| 3) T | Lactic Acid | 4.979 | 3011701 | 56.016 ppm |
| 4) T | Acetic Acid | 5.447 | 2964931 | 50.109 ppm |
| 5) T | Propionic Acid | 13.850 | 3008788 | 50.490 ppm |
| 6) T | Butyric Acid | 43.641 | 2796063 | 44.454 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



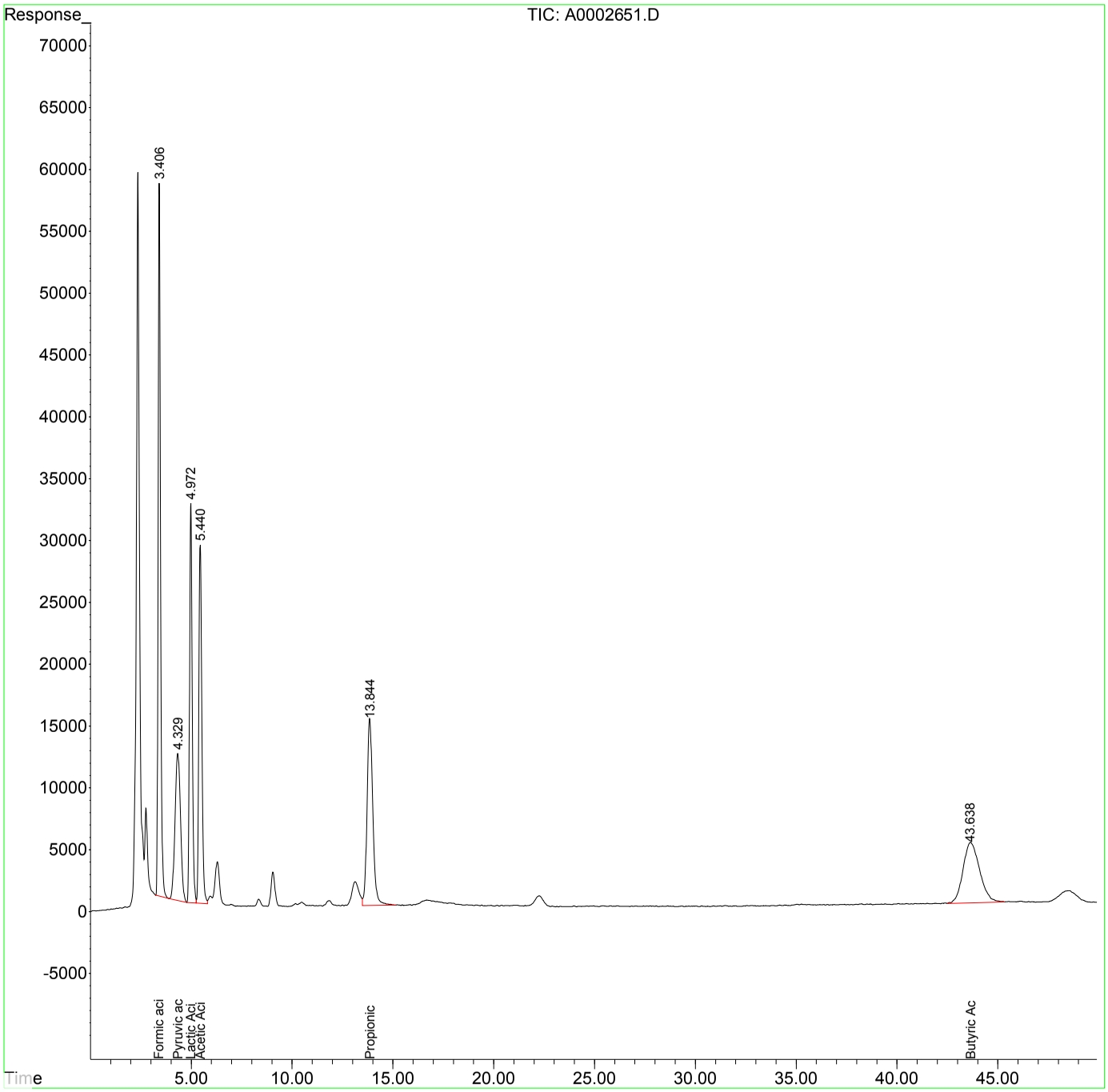
00946756

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002651.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 05:03:39
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 09:51:28 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 09:51:11 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210





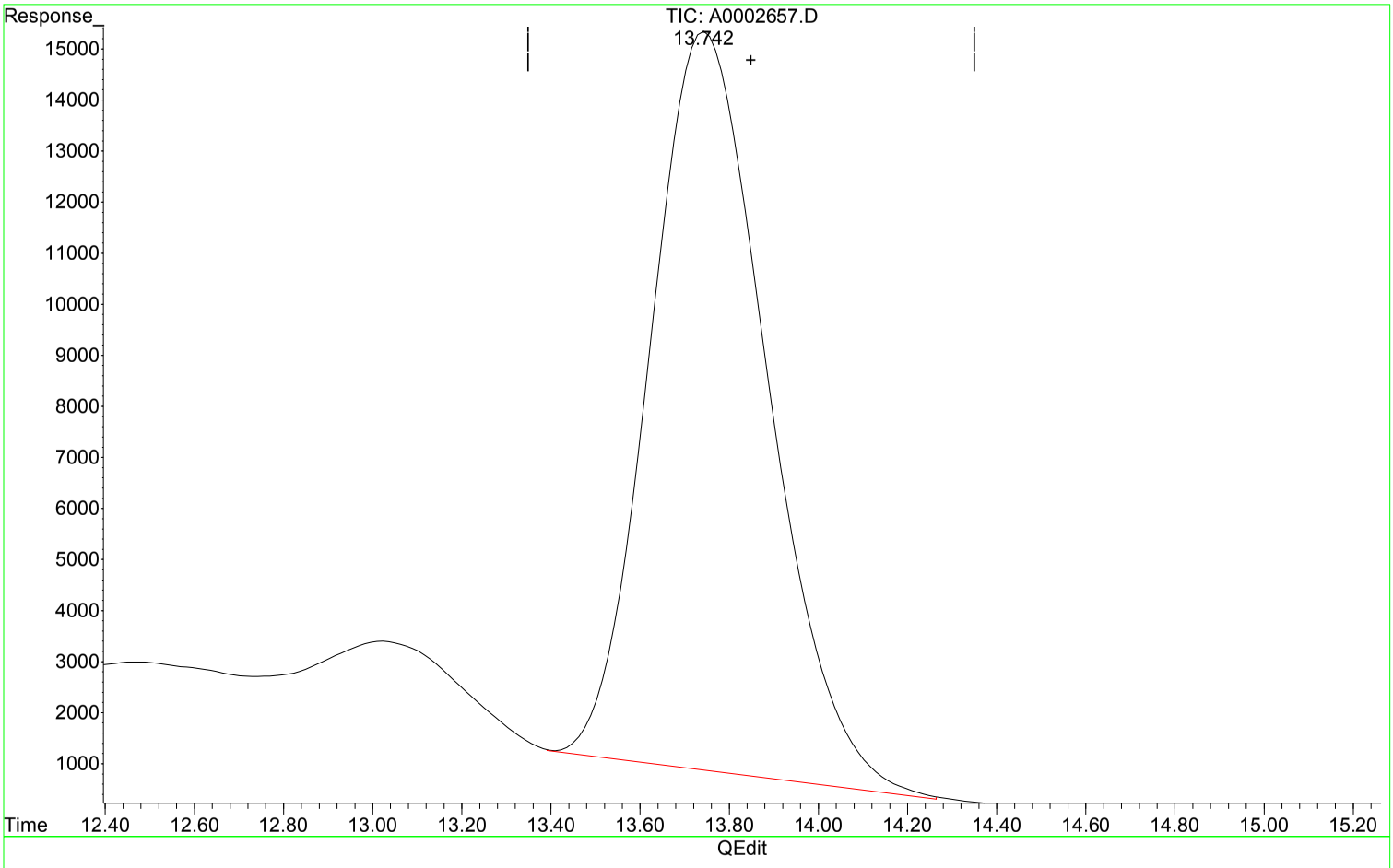

00946757

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:10:32
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:25:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

13.742min 44.551 ppm m

response 2654877

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 11:26:03 2018



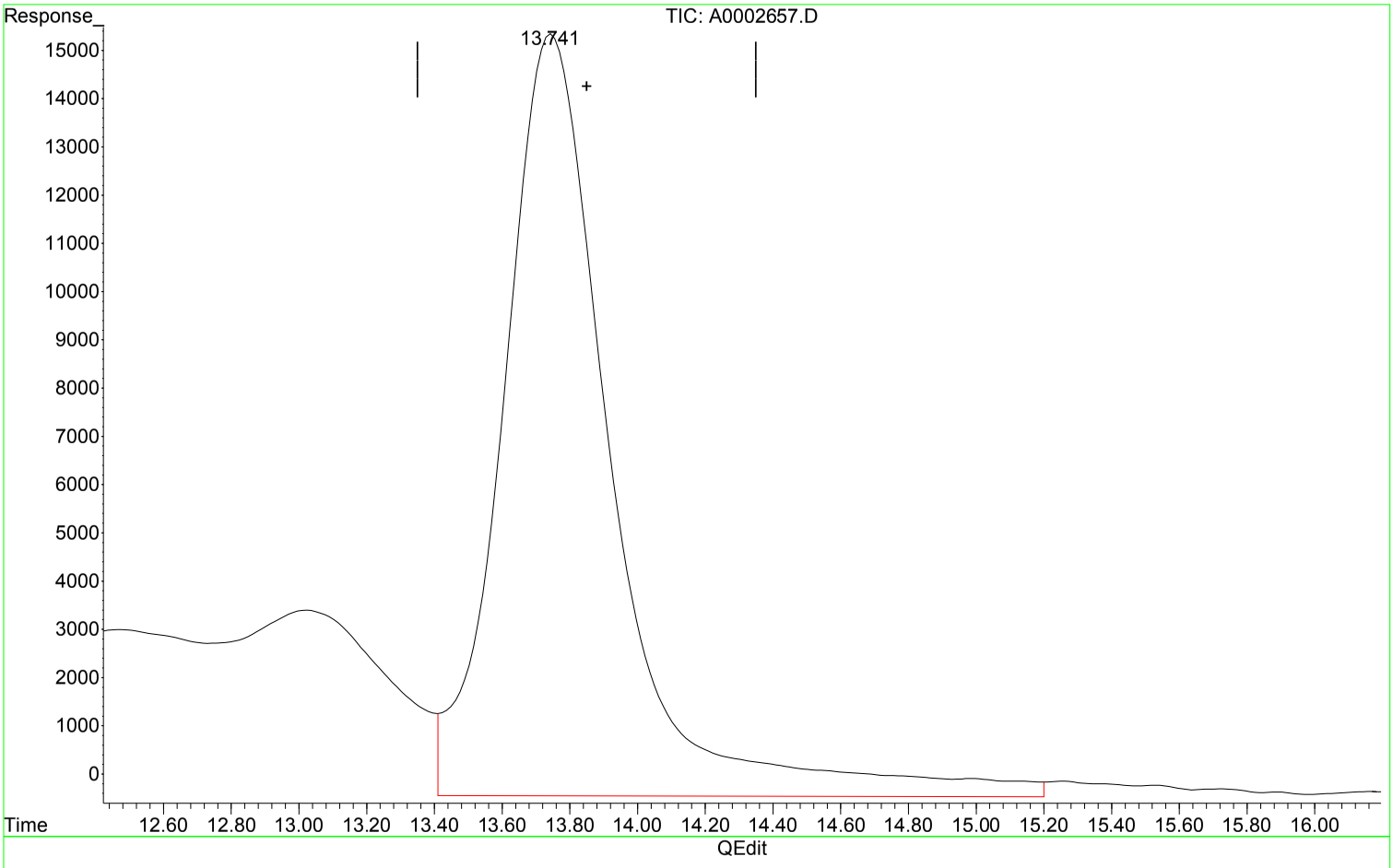
00946758

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:10:32
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:25:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

13.747min 59.660 ppm

response 3555234

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 11:25:57 2018

Page: 1



00946759

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:10:32~~ 21-Dec-2018, 09:00:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:26:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 11:26:29 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 97.608 E3 | -1.3 | 101 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 458.020 E3 | -1.1 | 100 | 0.00 |
| 3 T | Lactic Acid | 53.765 | 60.544 E3 | -12.6 | 112 | -0.01 |
| 4 T | Acetic Acid | 59.169 | 59.707 E3 | -0.9 | 99 | -0.02 |
| 5 T | Propionic Acid | 59.592 | 53.194 E3 | 10.7 | 90 | -0.11 |
| 6 T | Butyric Acid | 62.897 | 55.389 E3 | 11.9 | 94 | -0.46 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:10:32~~ 21-Dec-2018, 09:00:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:26:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 11:26:29 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.411 | 4880415 | 50.657 | ppm | |
| 2) T | Pyruvic acid | 4.326 | 2290098 | 5.056 | ppm | |
| 3) T | Lactic Acid | 4.965 | 3027179 | 56.304 | ppm | |
| 4) T | Acetic Acid | 5.430 | 2985327 | 50.454 | ppm | |
| 5) T | Propionic Acid | 13.742 | 2659702 | 44.632 | ppm | m |
| 6) T | Butyric Acid | 43.180f | 2769435 | 44.031 | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



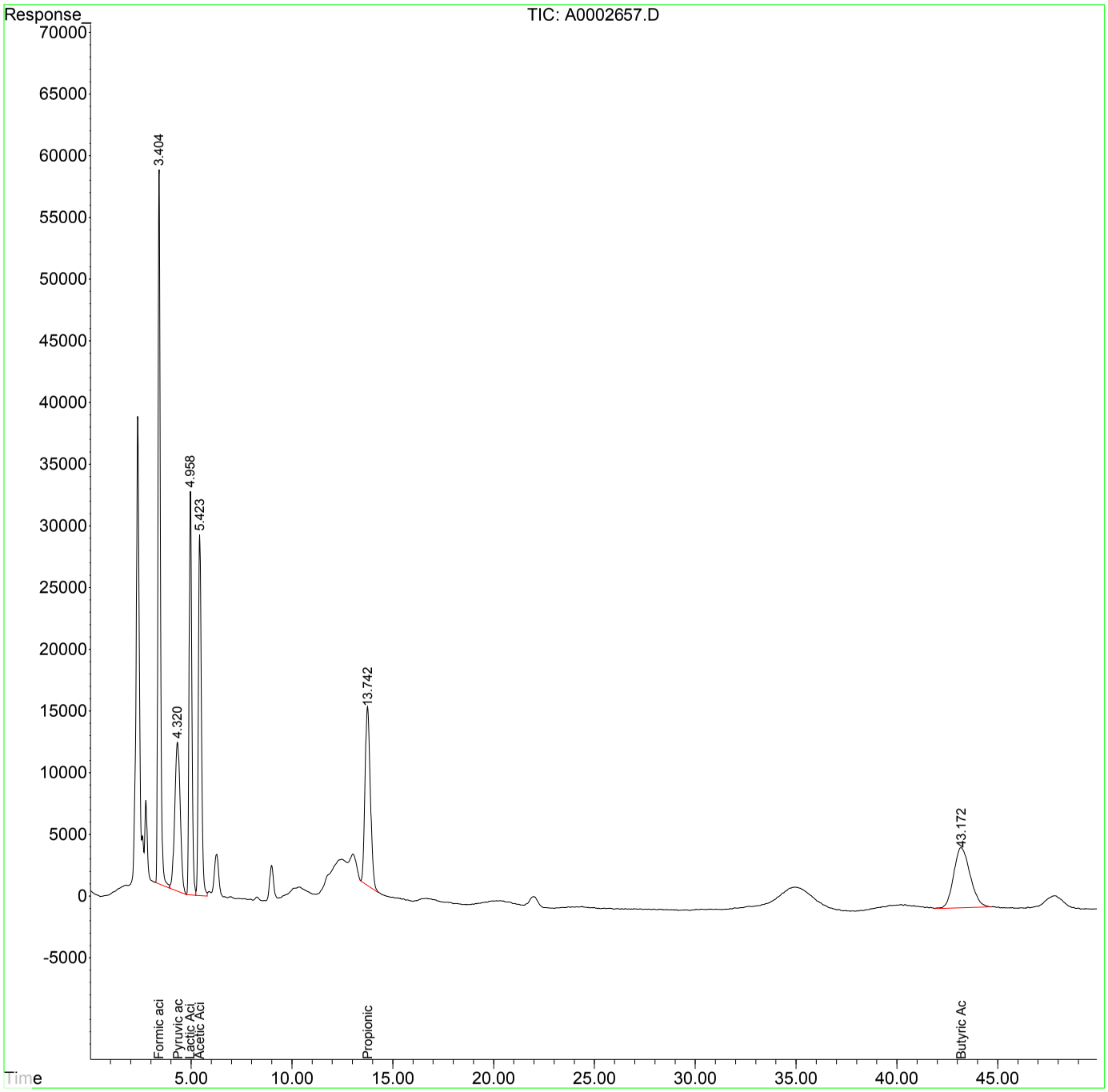
00946761

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:10:32
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:26:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 11:26:29 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

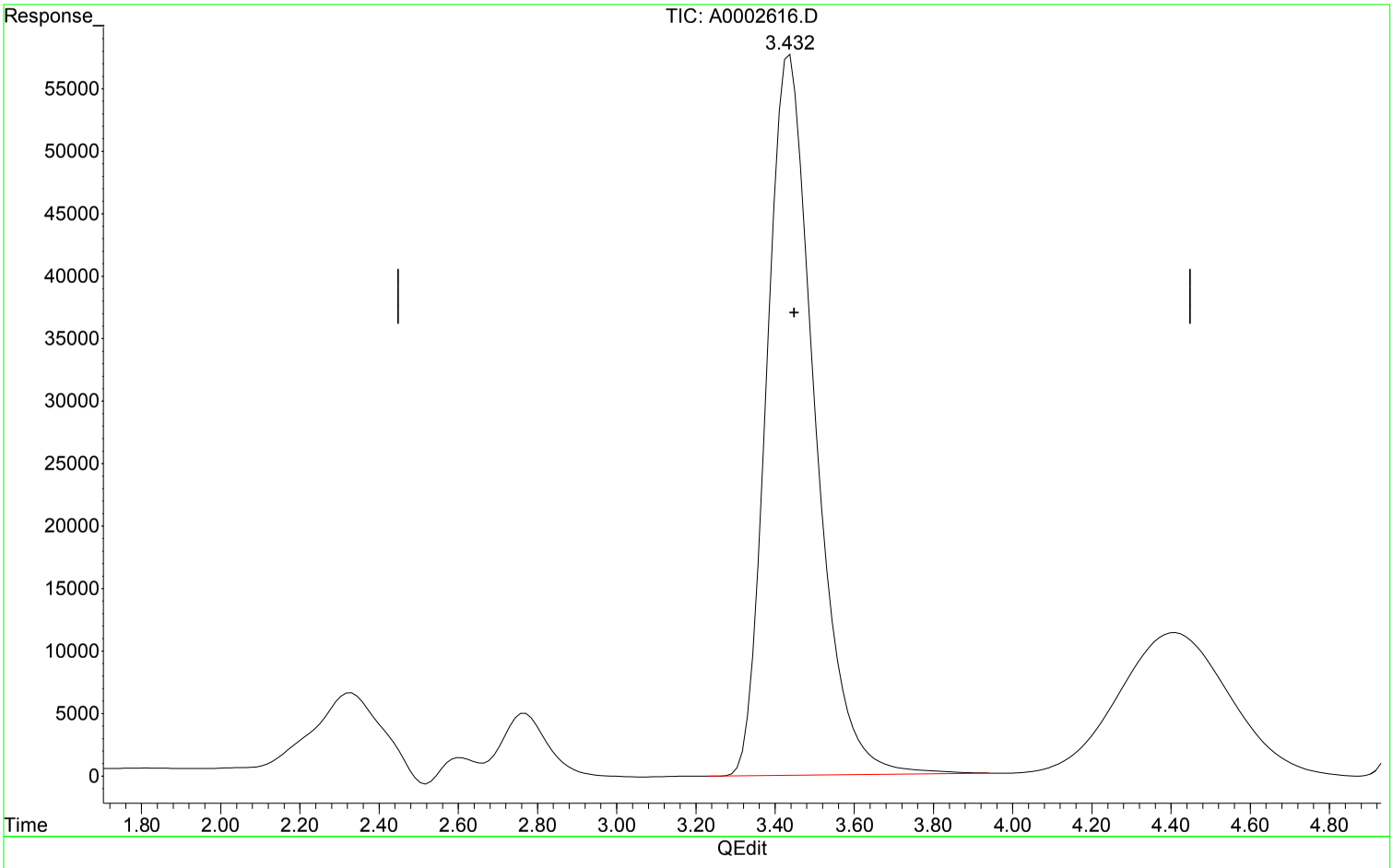


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(1) Formic acid (t)

3.432min 50.416 ppm m

response 4857207

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time



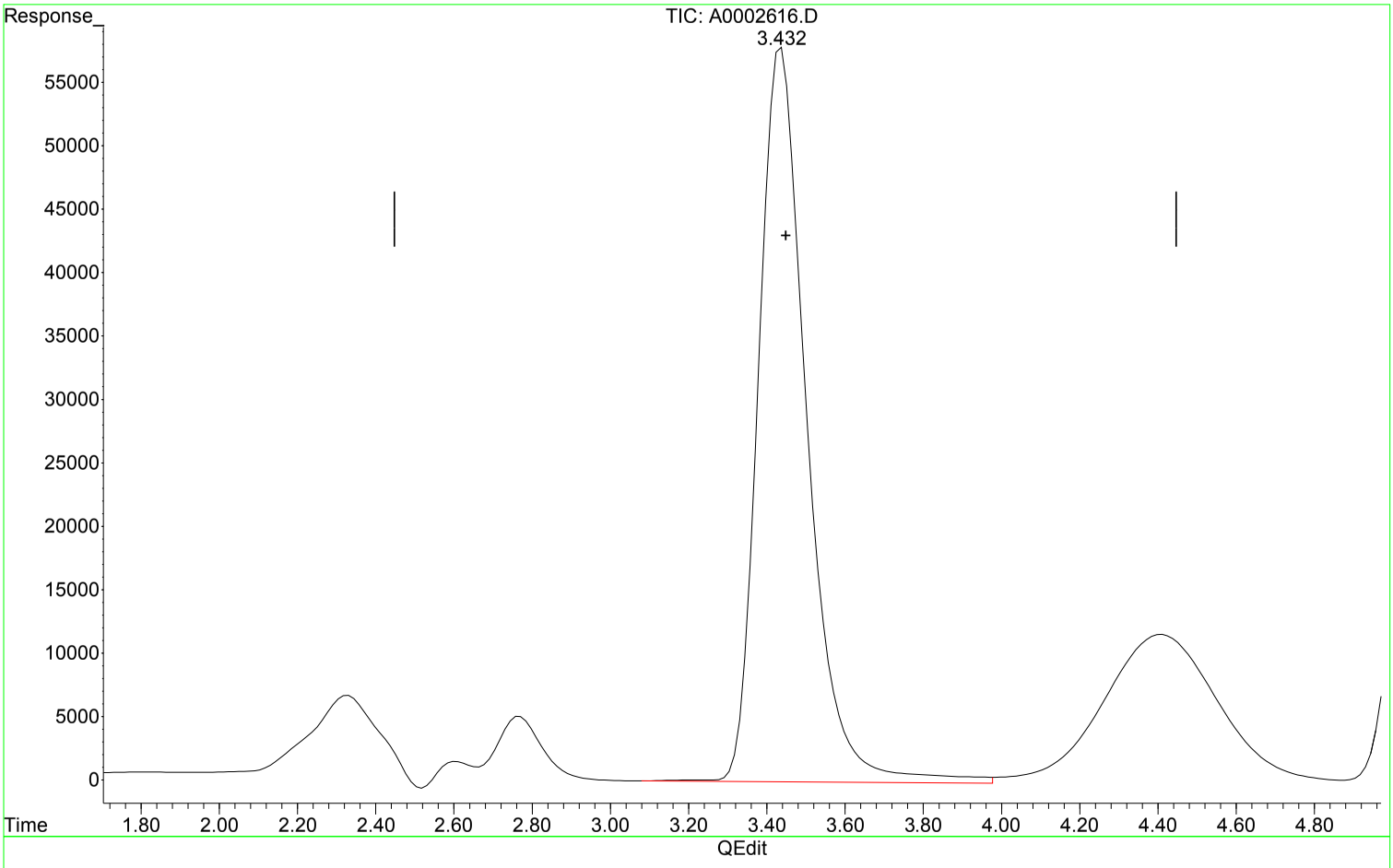
00946763

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(1) Formic acid (t)

3.439min 51.810 ppm

response 4991581

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time



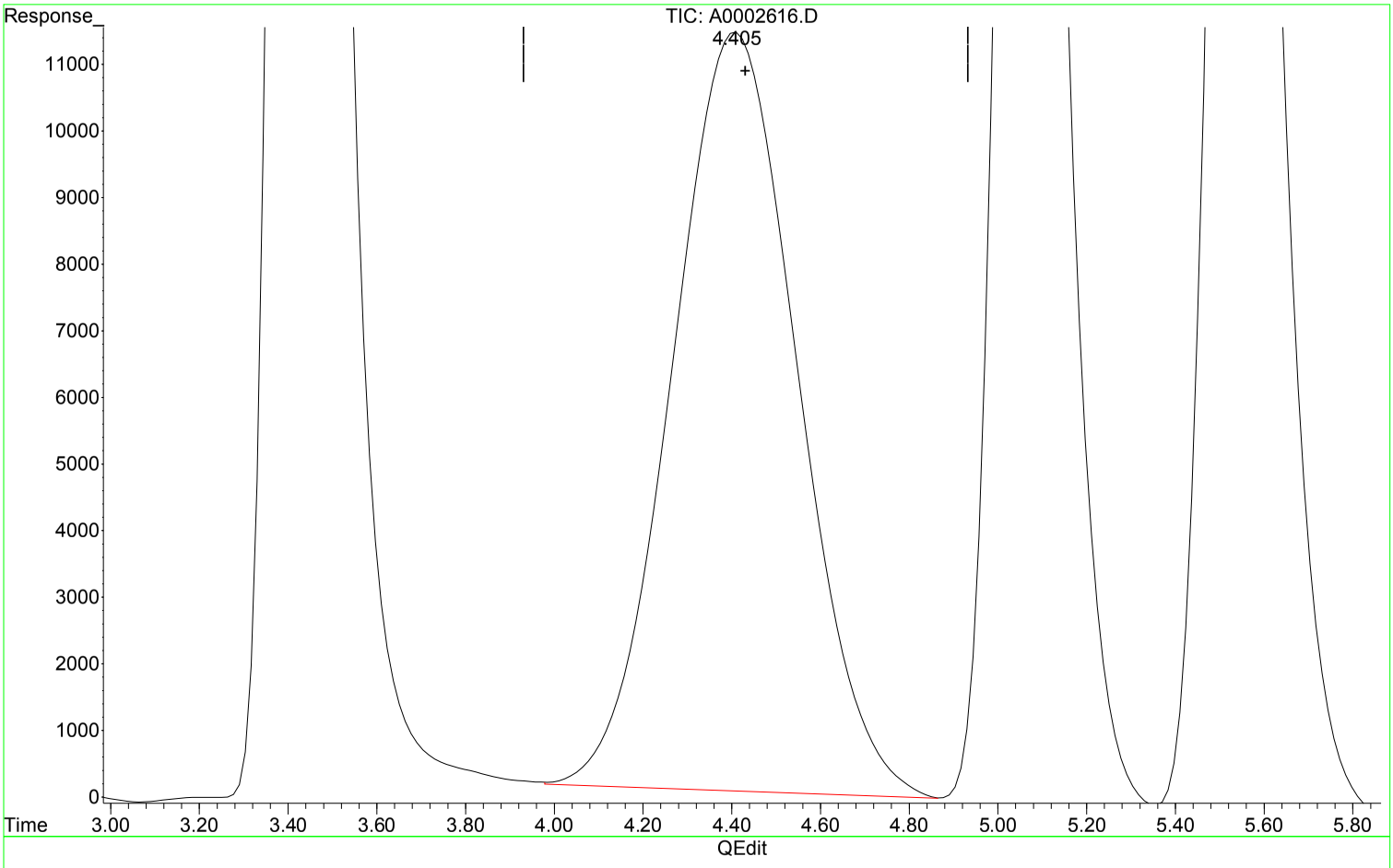
00946764

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(2) Pyruvic acid (T)

4.405min 4.933 ppm m

response 2234360

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:22 2018



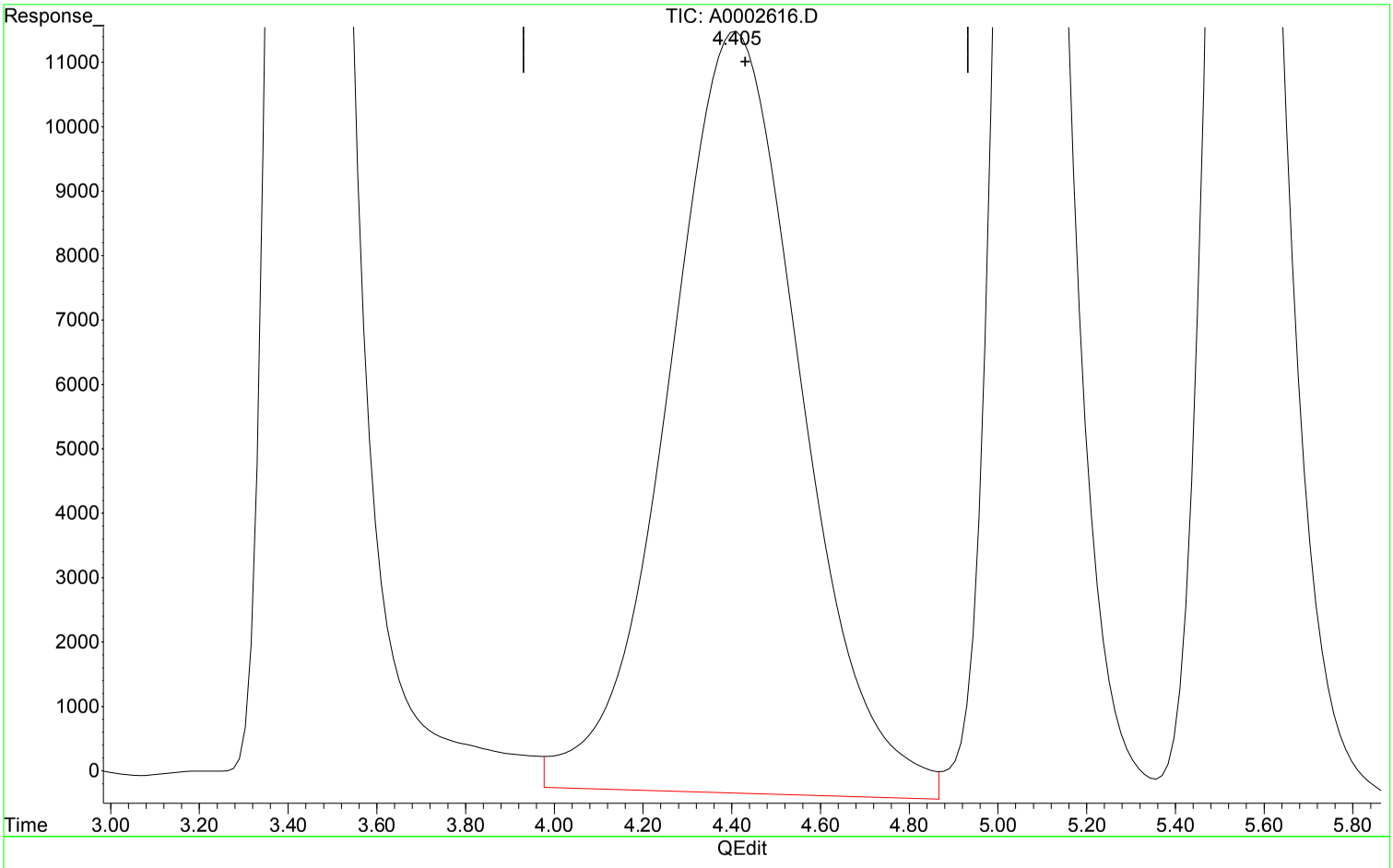
00946765

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(2) Pyruvic acid (T)

4.411min 5.448 ppm

response 2467745

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:15 2018



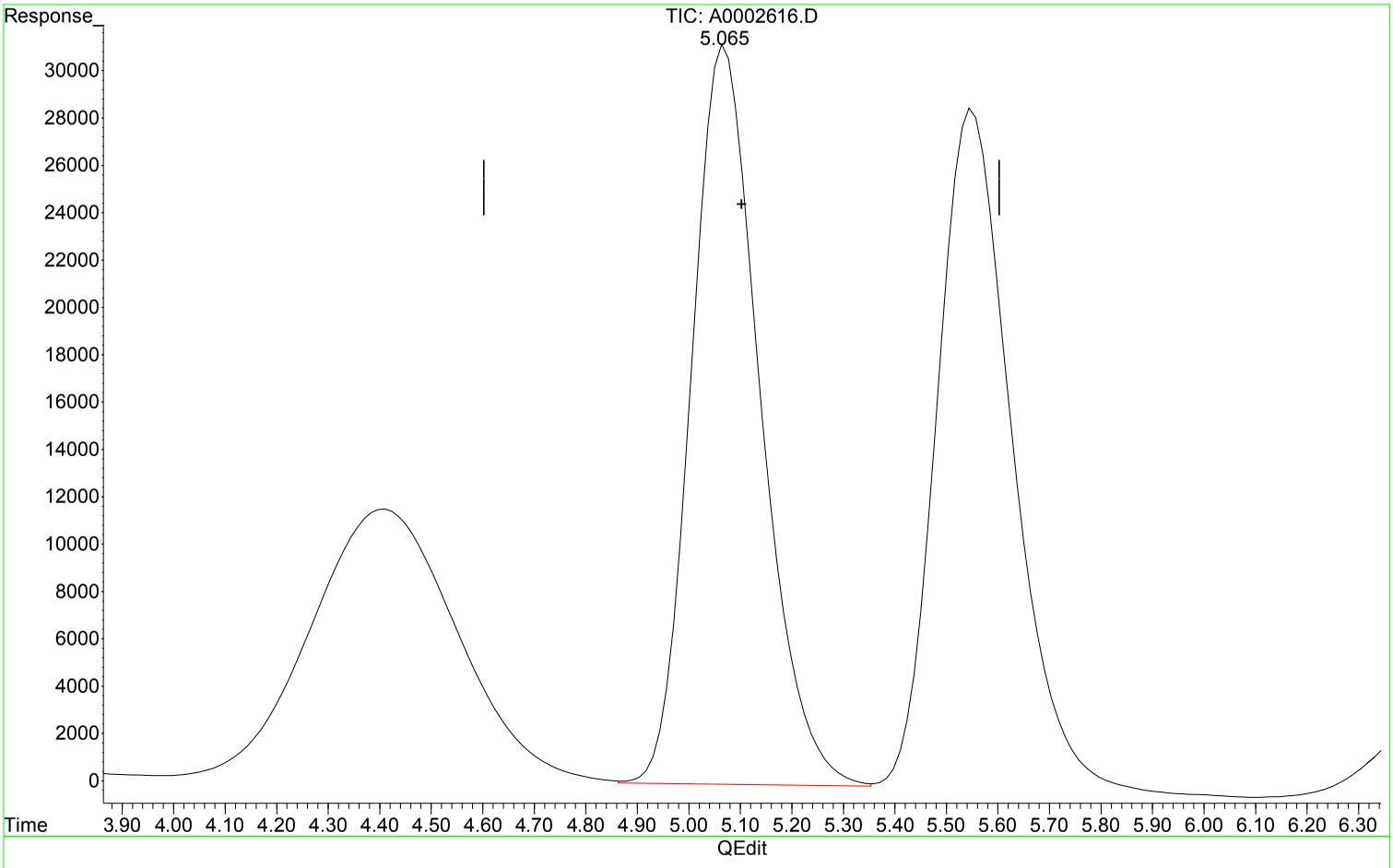
00946766

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(3) Lactic Acid (T)

5.065min 54.023 ppm m

response 2904540

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time



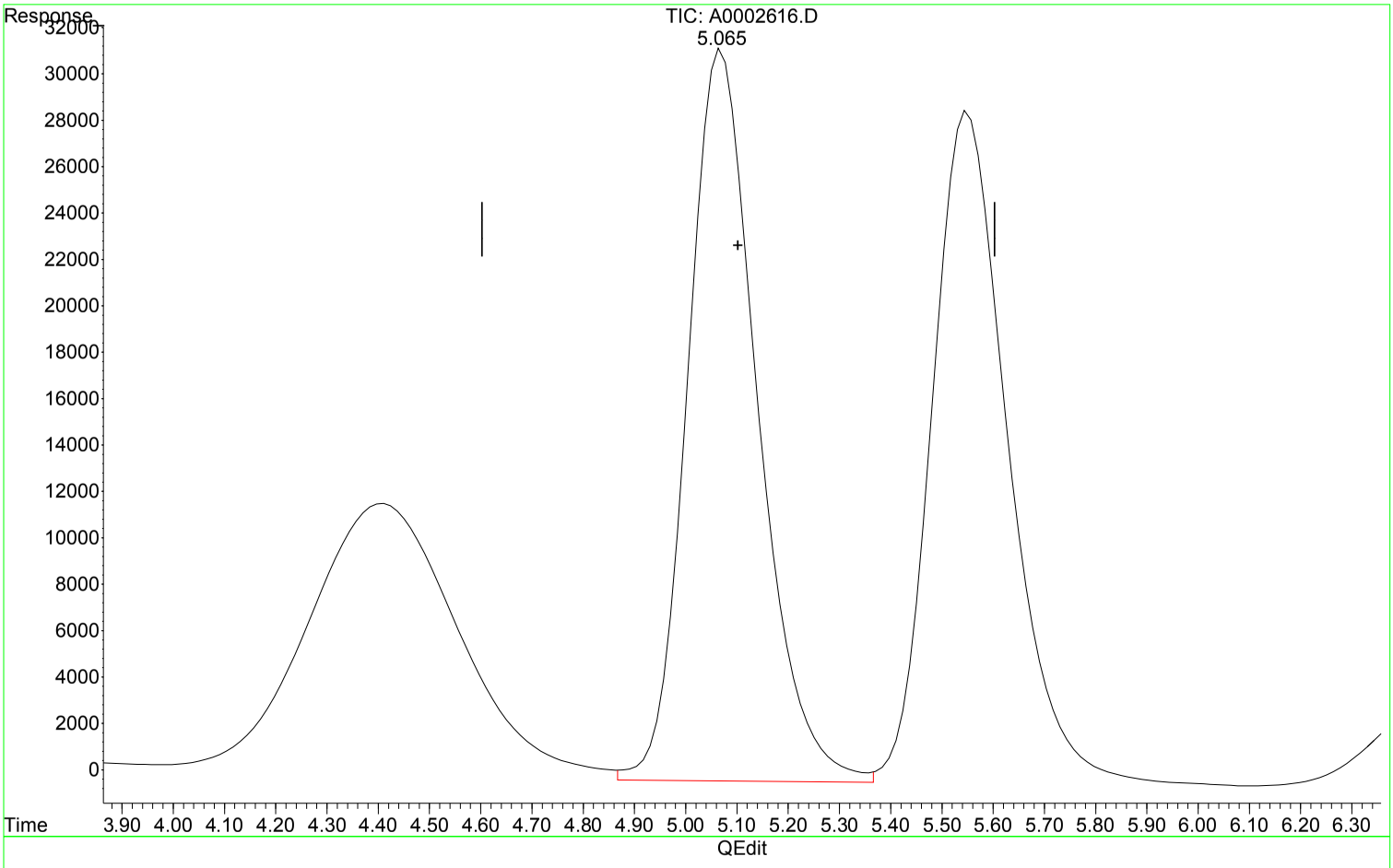
00946767

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(3) Lactic Acid (T)

5.072min 55.891 ppm

response 3004993

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:27 2018



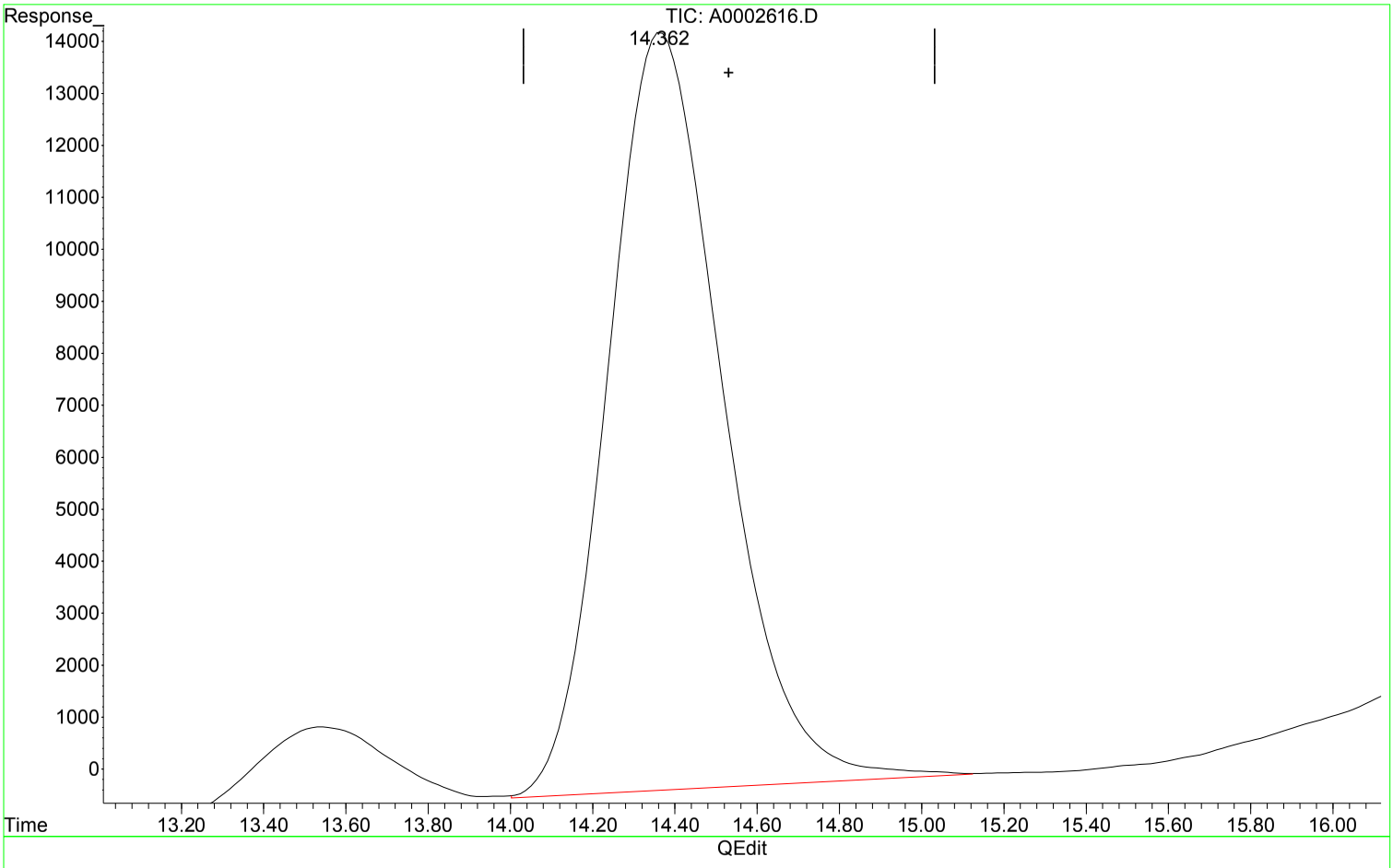
00946768

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

14.362min 47.411 ppm m

response 2825301

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time



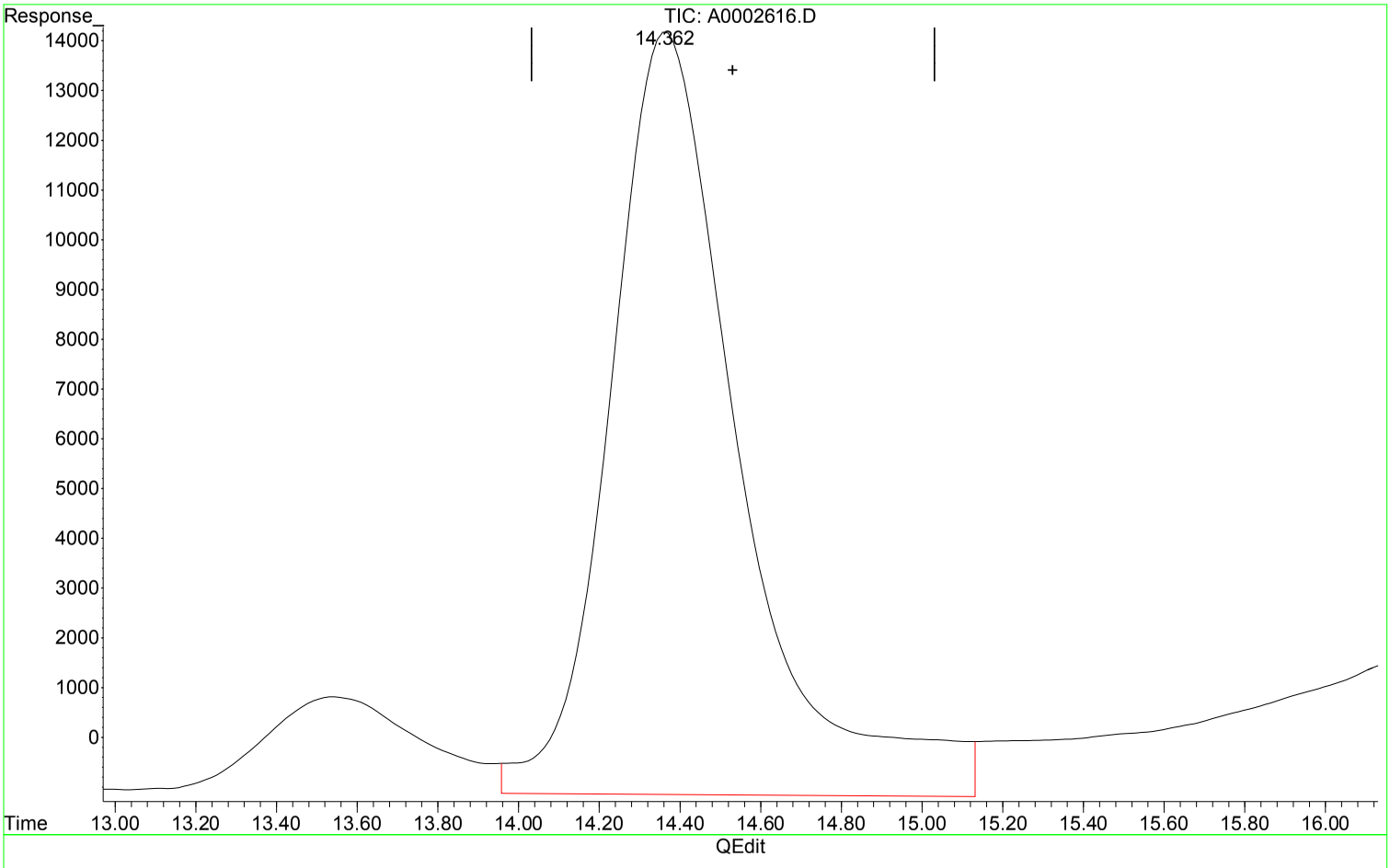
00946769

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

14.368min 57.152 ppm

response 3405796

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:40 2018



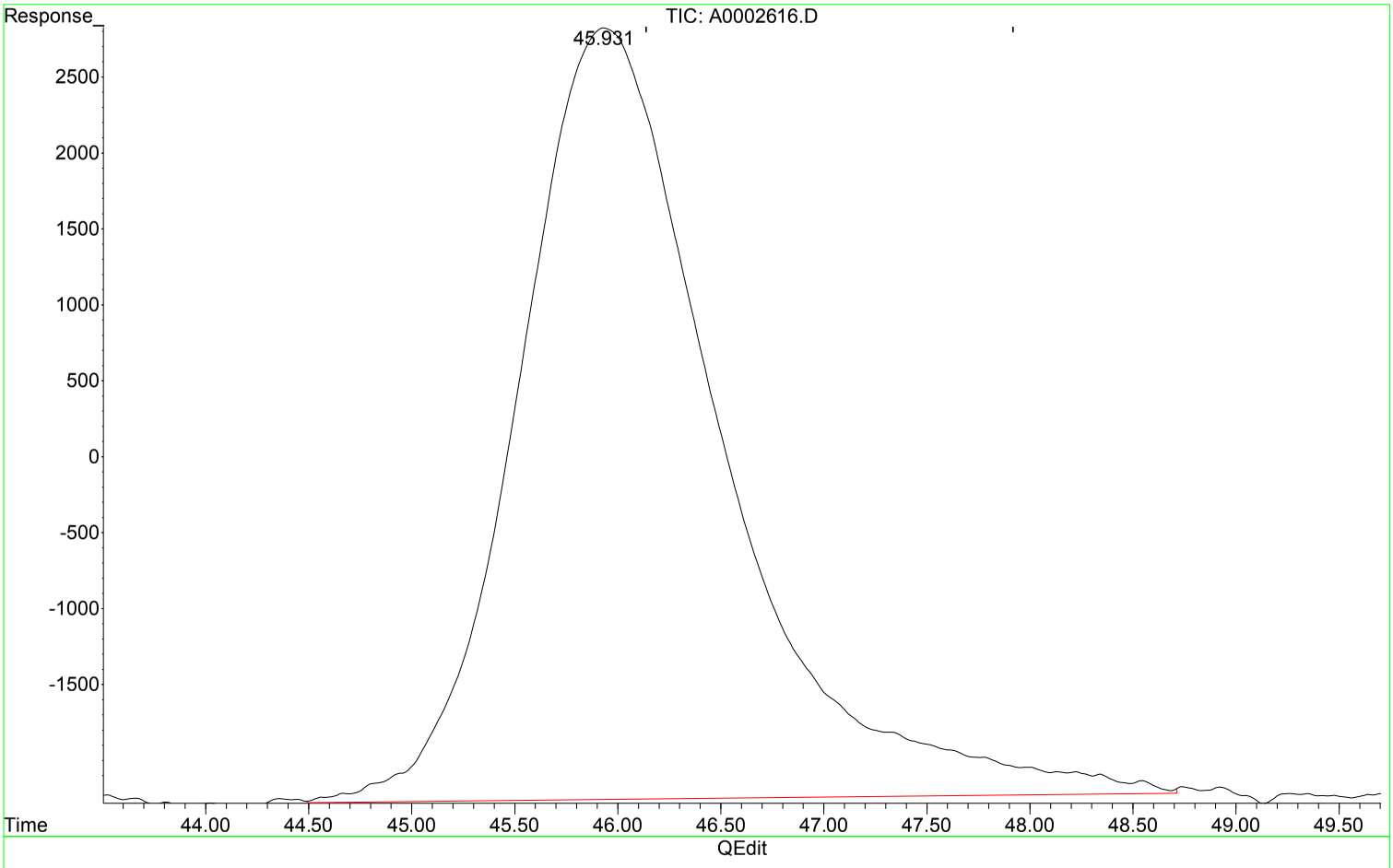
0094670

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

45.931min 55.051 ppm m

response 3462535

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:29:03 2018



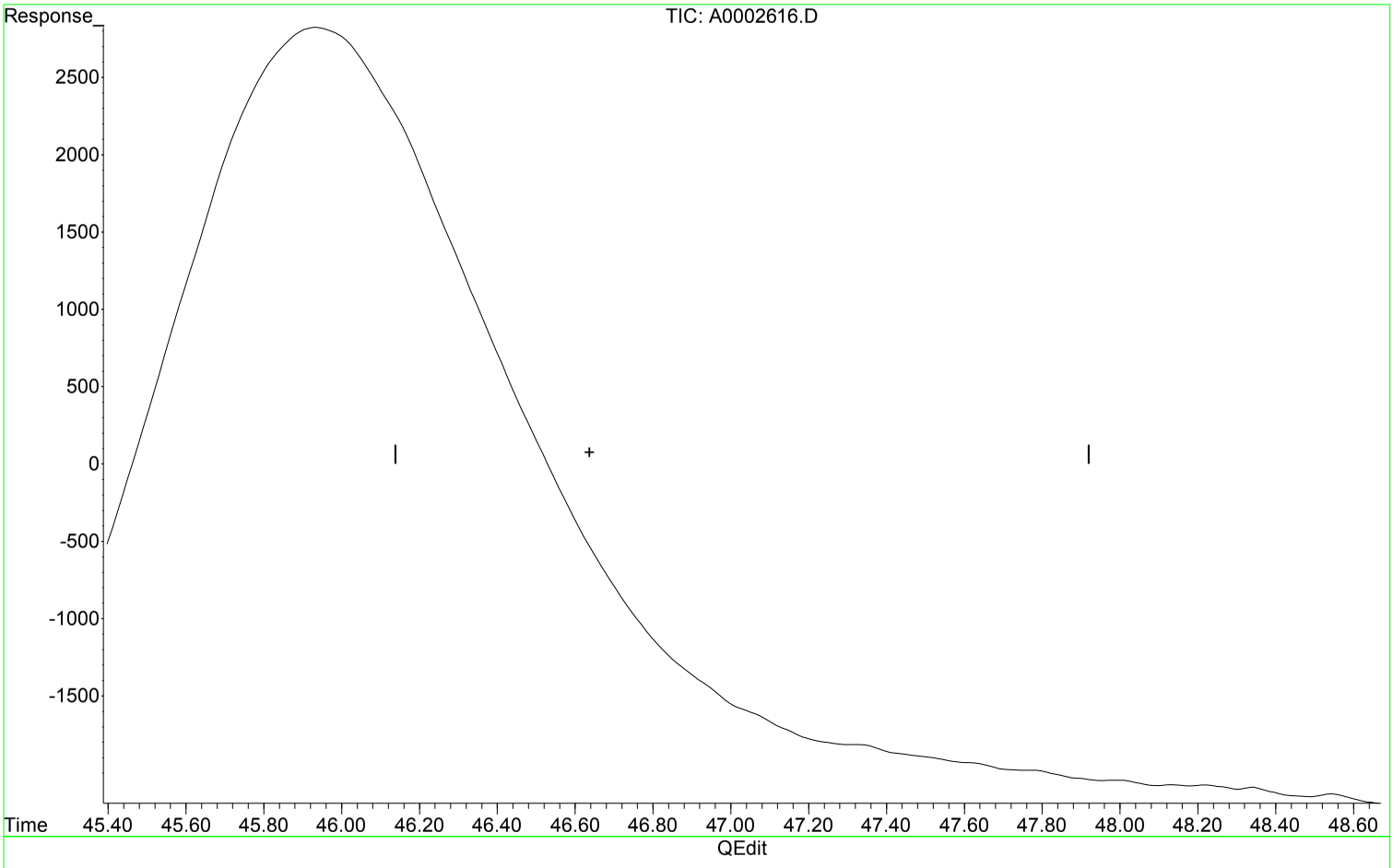
00946771

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

46.638min 0.000 ppm

response 0

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time



00946772

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 97.144 E3 | -0.8 | 101 | -0.02 |
| 2 T | Pyruvic acid | 452.935 | 446.872 E3 | 1.3 | 97 | -0.03 |
| 3 T | Lactic Acid | 53.765 | 58.091 E3 | -8.0 | 107 | -0.04 |
| 4 T | Acetic Acid | 59.169 | 59.782 E3 | -1.0 | 99 | -0.04 |
| 5 T | Propionic Acid | 59.592 | 56.506 E3 | 5.2 | 96 | -0.17 |
| 6 T | Butyric Acid | 62.897 | 69.251 E3 | -10.1 | 118 | -0.71# |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946773

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.432 | 4857207 | 50.416 | ppm | m |
| 2) T | Pyruvic acid | 4.405 | 2234360 | 4.933 | ppm | m |
| 3) T | Lactic Acid | 5.065 | 2904540 | 54.023 | ppm | m |
| 4) T | Acetic Acid | 5.552 | 2989104 | 50.518 | ppm | |
| 5) T | Propionic Acid | 14.362 | 2825301 | 47.411 | ppm | m |
| 6) T | Butyric Acid | 45.931f | 3462535 | 55.051 | ppm | m |

(f)=RT Delta > 1/2 Window (m)=manual int.



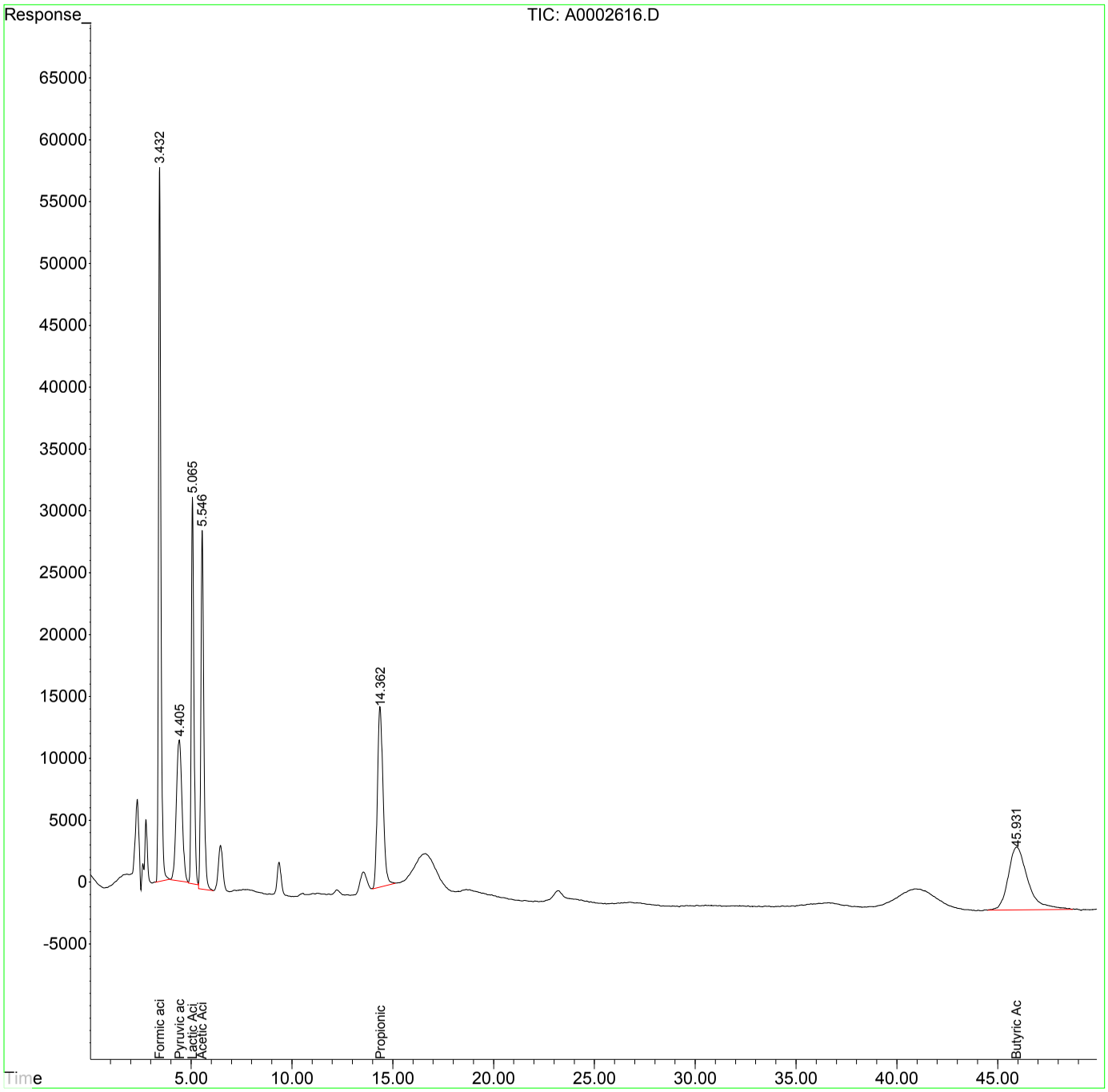
00946774

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210





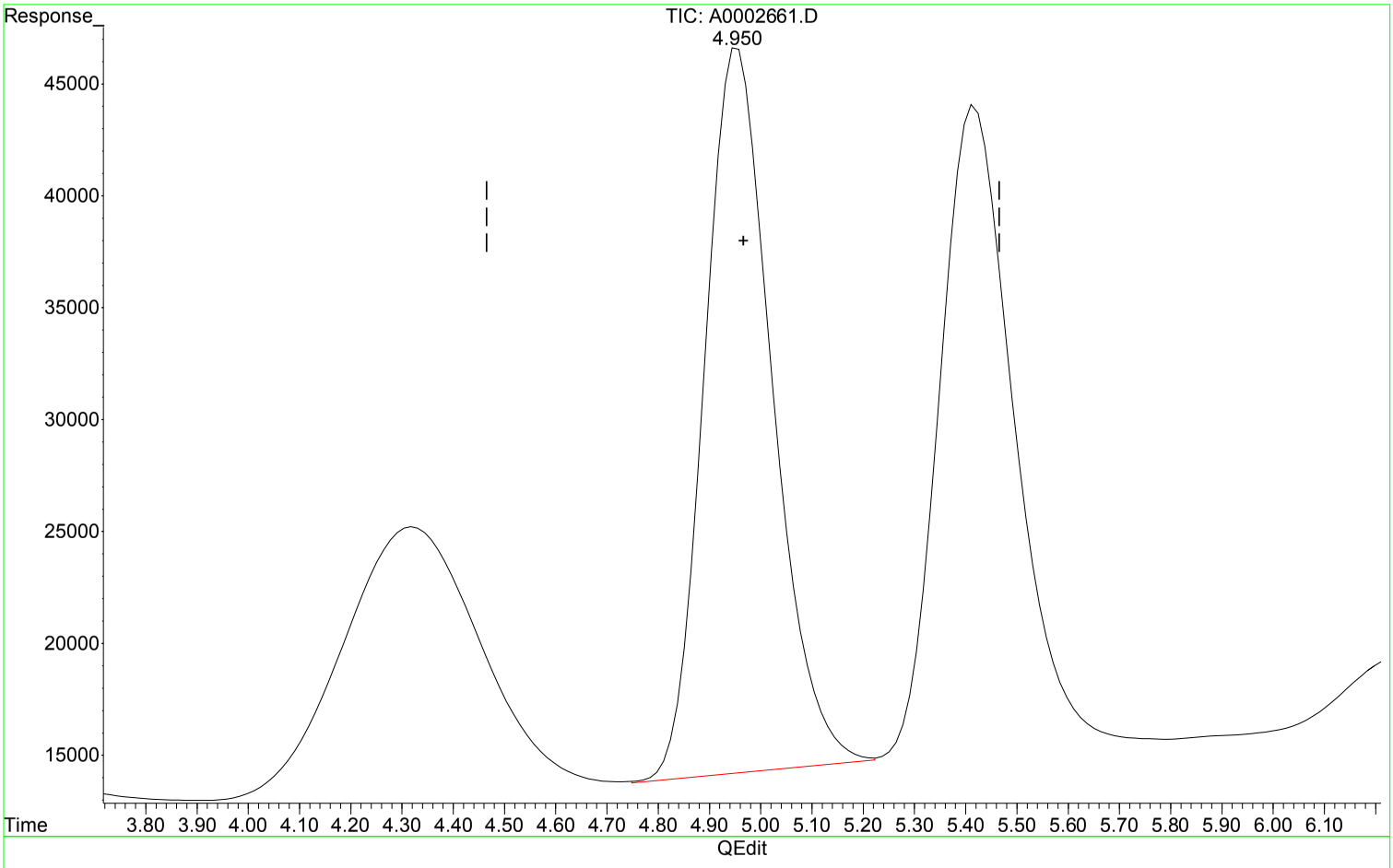

00946775

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(3) Lactic Acid (T)

4.950min 55.665 ppm m

response 2992819

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 14:46:49 2018



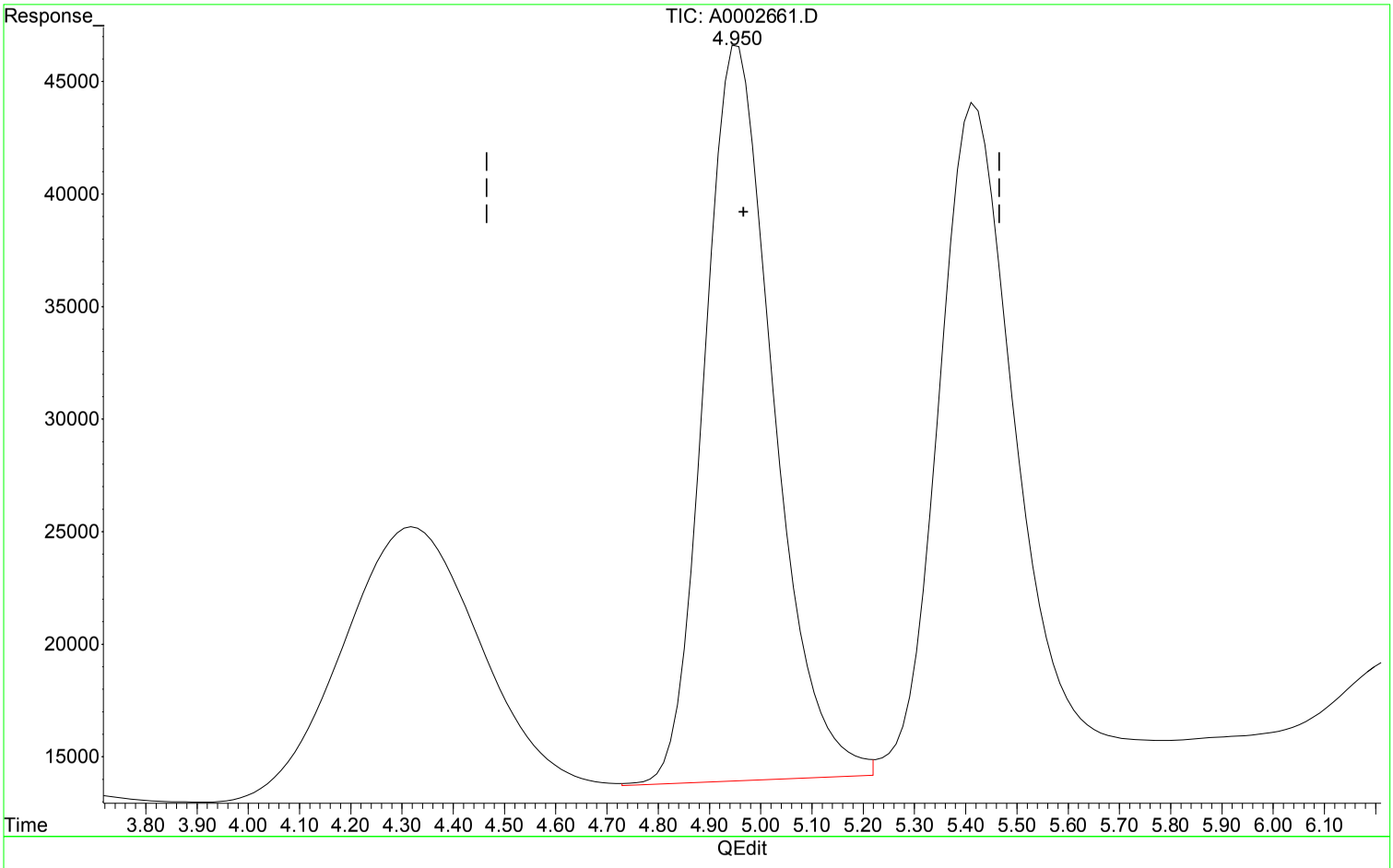
00946776

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(3) Lactic Acid (T)

4.957min 57.280 ppm

response 3079640

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 14:46:43 2018



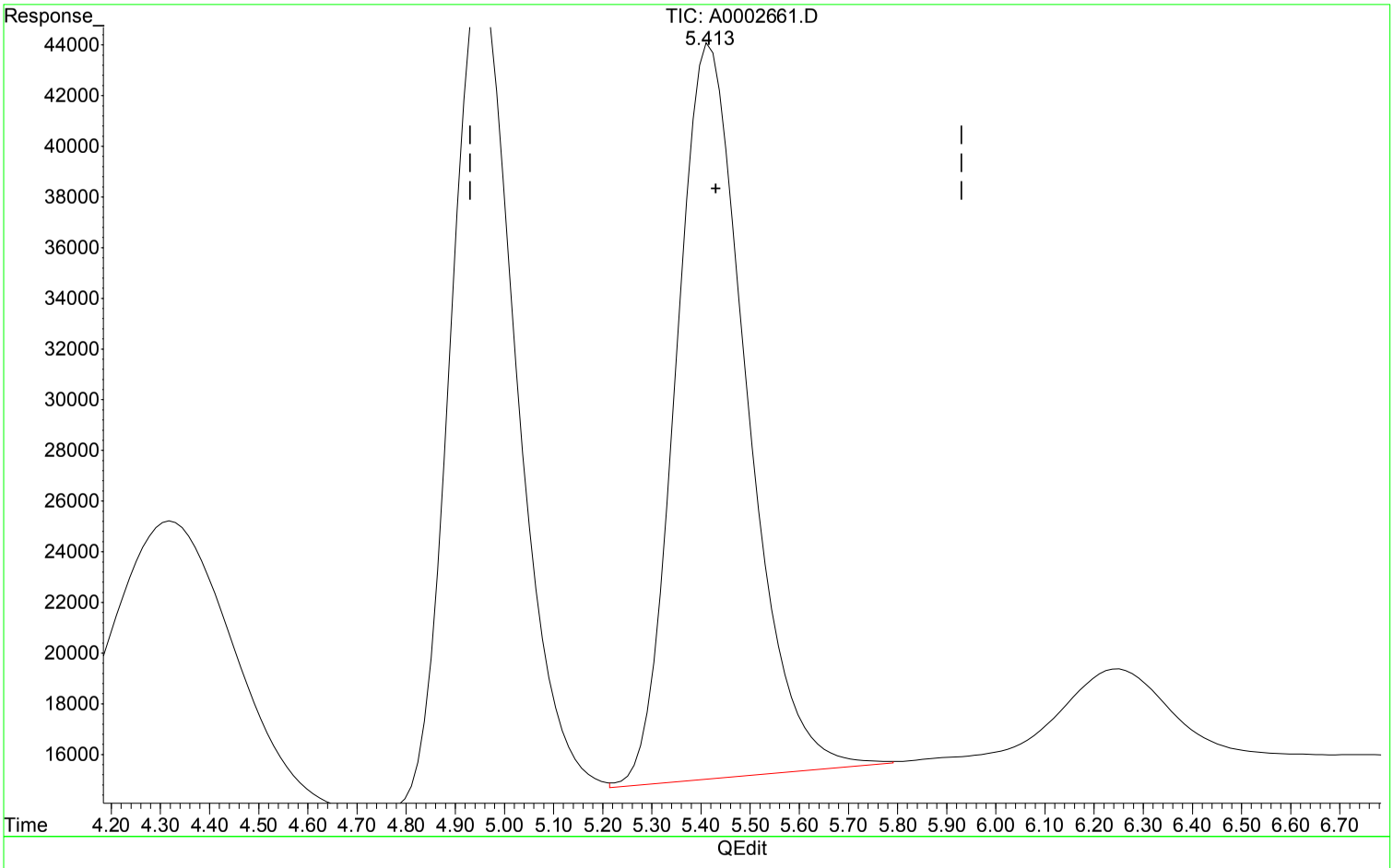
00946777

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

5.413min 49.499 ppm m

response 2928823

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time



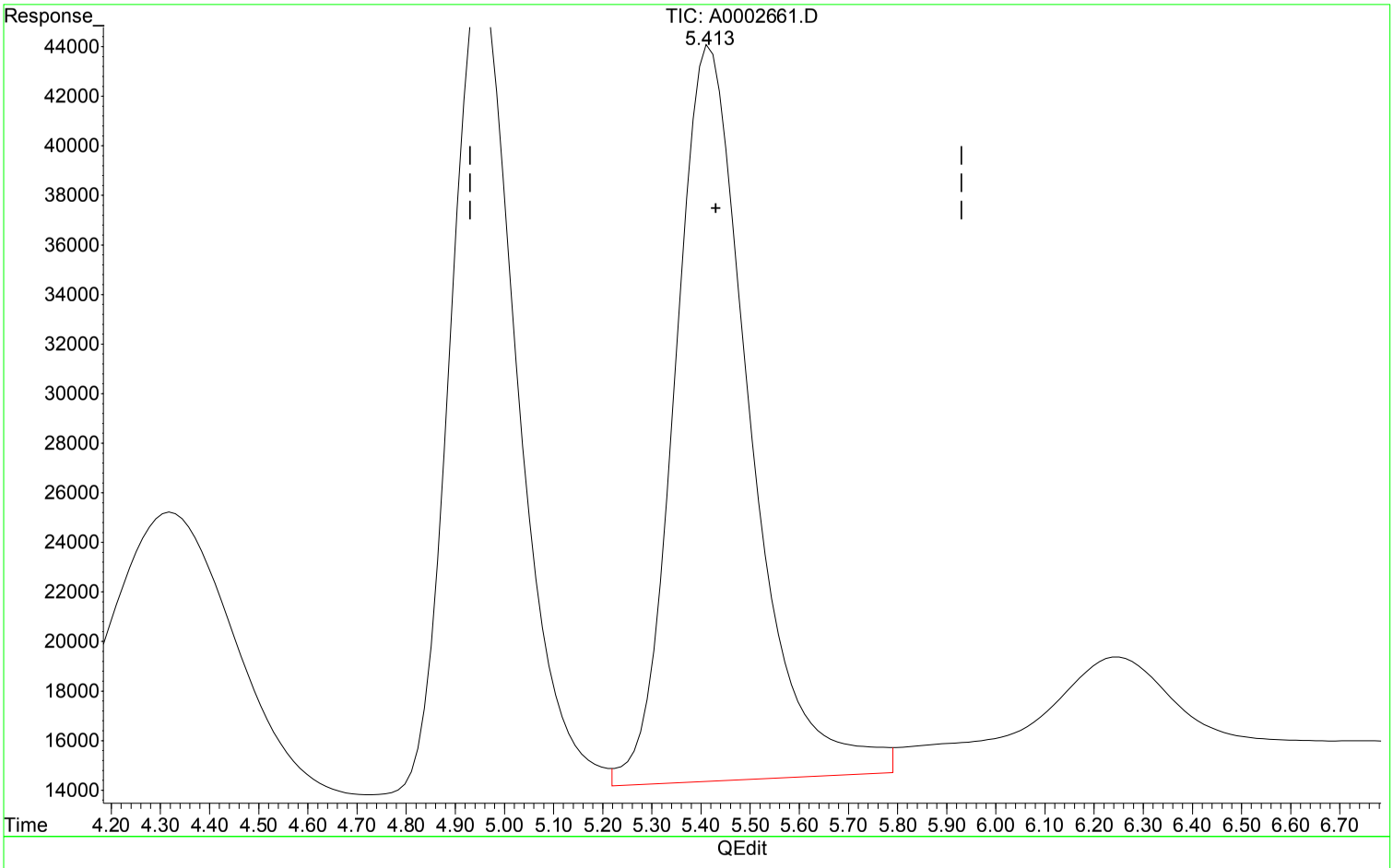
00946778

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

5.420min 53.746 ppm

response 3180137

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time



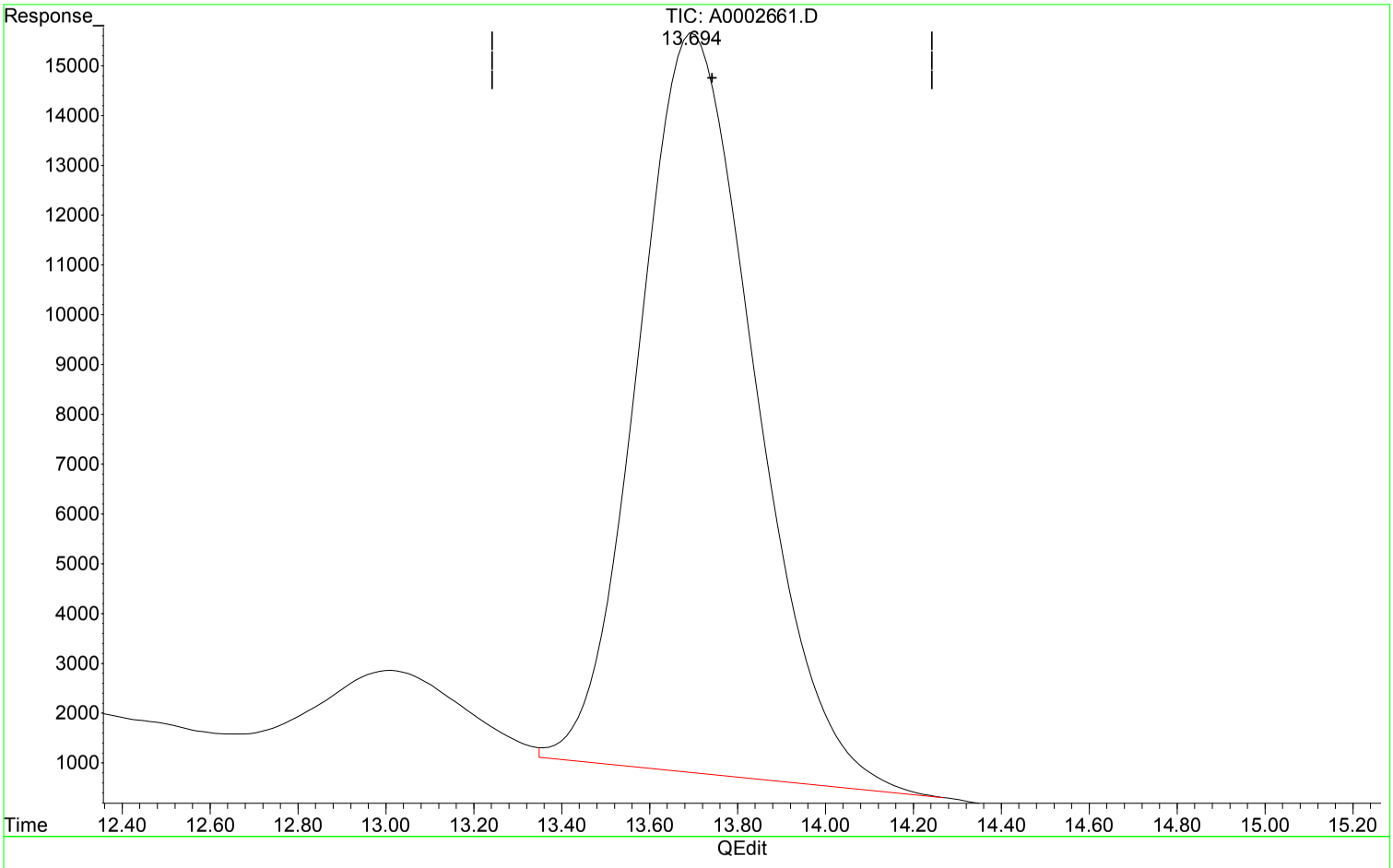
00946779

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

13.694min 46.178 ppm m

response 2751846

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 14:47:09 2018



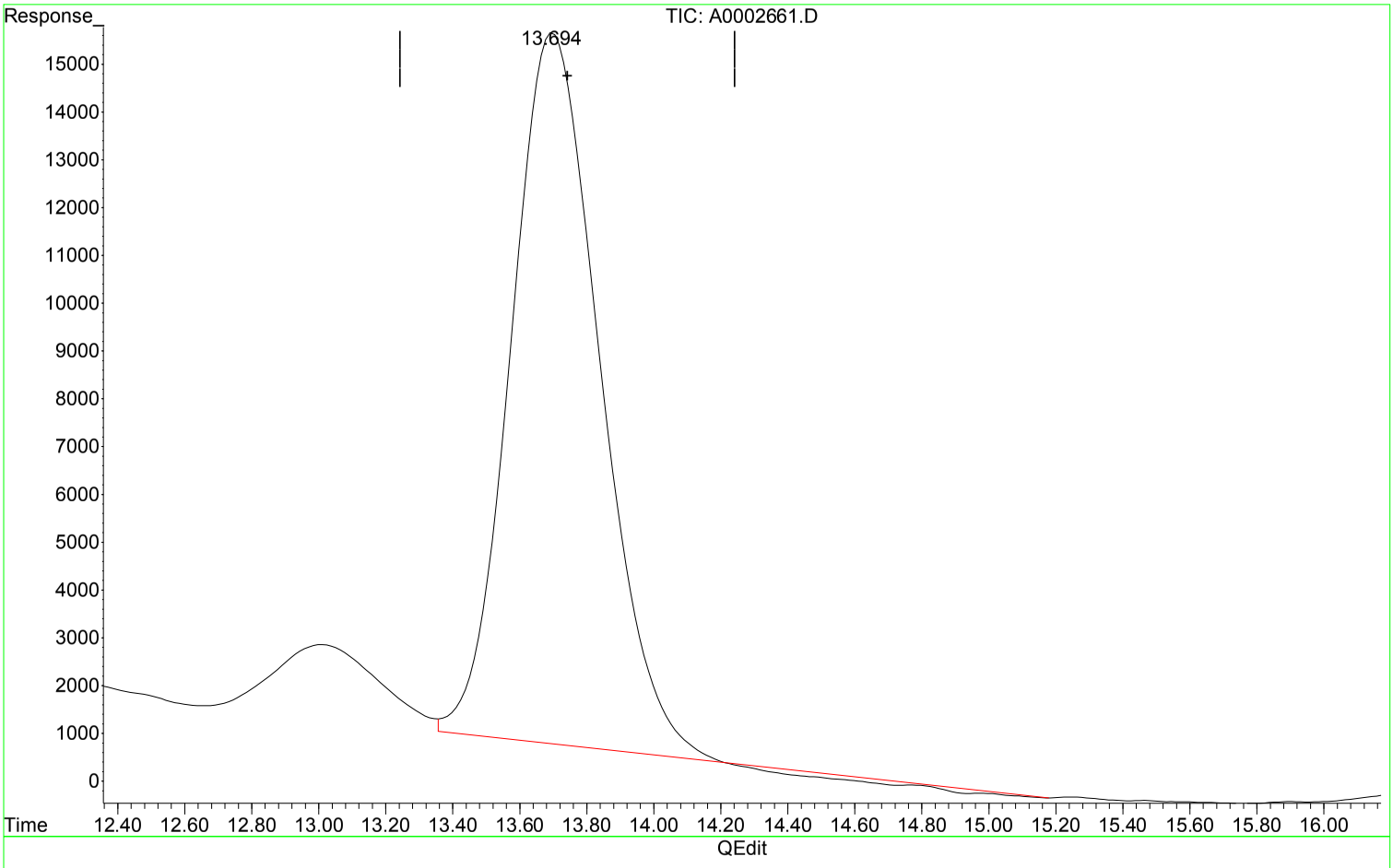
00946780

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

13.701min 45.674 ppm

response 2721779

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time



00946781

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:15~~ 21-Dec-2018, 13:50:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 94.769 E3 | 1.6 | 98 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 439.778 E3 | 2.9 | 96 | 0.00 |
| 3 T | Lactic Acid | 53.765 | 59.856 E3 | -11.3 | 110 | -0.02 |
| 4 T | Acetic Acid | 59.169 | 58.576 E3 | 1.0 | 97 | -0.02 |
| 5 T | Propionic Acid | 59.592 | 55.037 E3 | 7.6 | 93 | -0.05 |
| 6 T | Butyric Acid | 62.897 | 54.523 E3 | 13.3 | 93 | -0.22 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946782

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:15~~ 21-Dec-2018, 13:50:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.409 | 4738427 | 49.183 | ppm | |
| 2) T | Pyruvic acid | 4.323 | 2198889 | 4.855 | ppm | |
| 3) T | Lactic Acid | 4.950 | 2992819 | 55.665 | ppm | m |
| 4) T | Acetic Acid | 5.413 | 2928823 | 49.499 | ppm | m |
| 5) T | Propionic Acid | 13.694 | 2751846 | 46.178 | ppm | m |
| 6) T | Butyric Acid | 42.960 | 2726132 | 43.343 | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



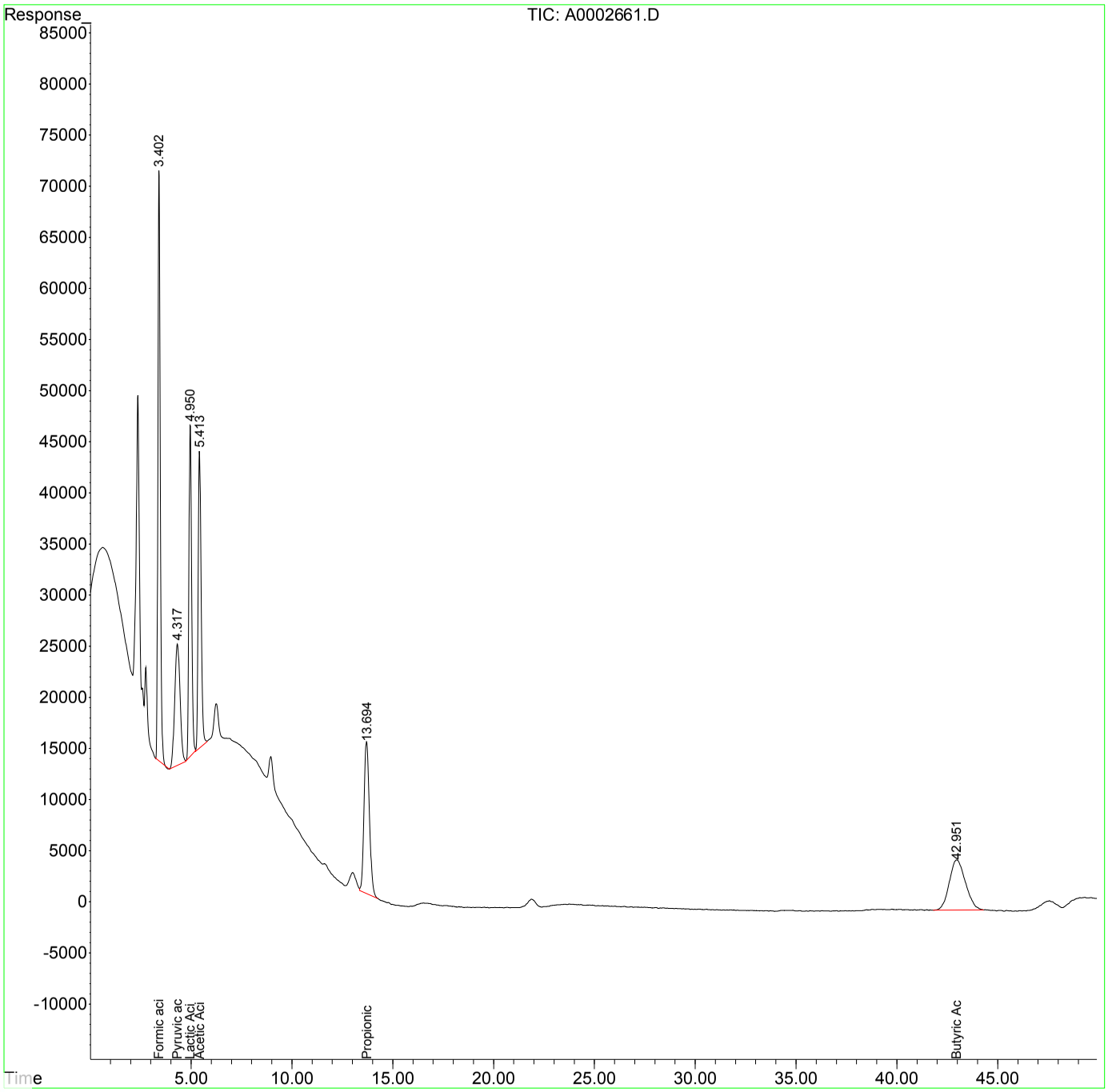
00946783

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002664.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 16:31:46
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 24 09:50:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Mon Dec 24 09:49:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 96.917 E3 | -0.6 | 101 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 455.683 E3 | -0.6 | 99 | 0.00 |
| 3 T | Lactic Acid | 53.765 | 60.657 E3 | -12.8 | 112 | 0.00 |
| 4 T | Acetic Acid | 59.169 | 59.543 E3 | -0.6 | 98 | 0.00 |
| 5 T | Propionic Acid | 59.592 | 59.498 E3 | 0.2 | 101 | 0.00 |
| 6 T | Butyric Acid | 62.897 | 56.871 E3 | 9.6 | 97 | -0.02 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946785

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002664.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 16:31:46
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 24 09:50:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Mon Dec 24 09:49:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.410 | 4845835 | 50.298 ppm |
| 2) T | Pyruvic acid | 4.318 | 2278413 | 5.030 ppm |
| 3) T | Lactic Acid | 4.957 | 3032840 | 56.409 ppm |
| 4) T | Acetic Acid | 5.420 | 2977131 | 50.315 ppm |
| 5) T | Propionic Acid | 13.692 | 2974878 | 49.921 ppm |
| 6) T | Butyric Acid | 42.935 | 2843527 | 45.209 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



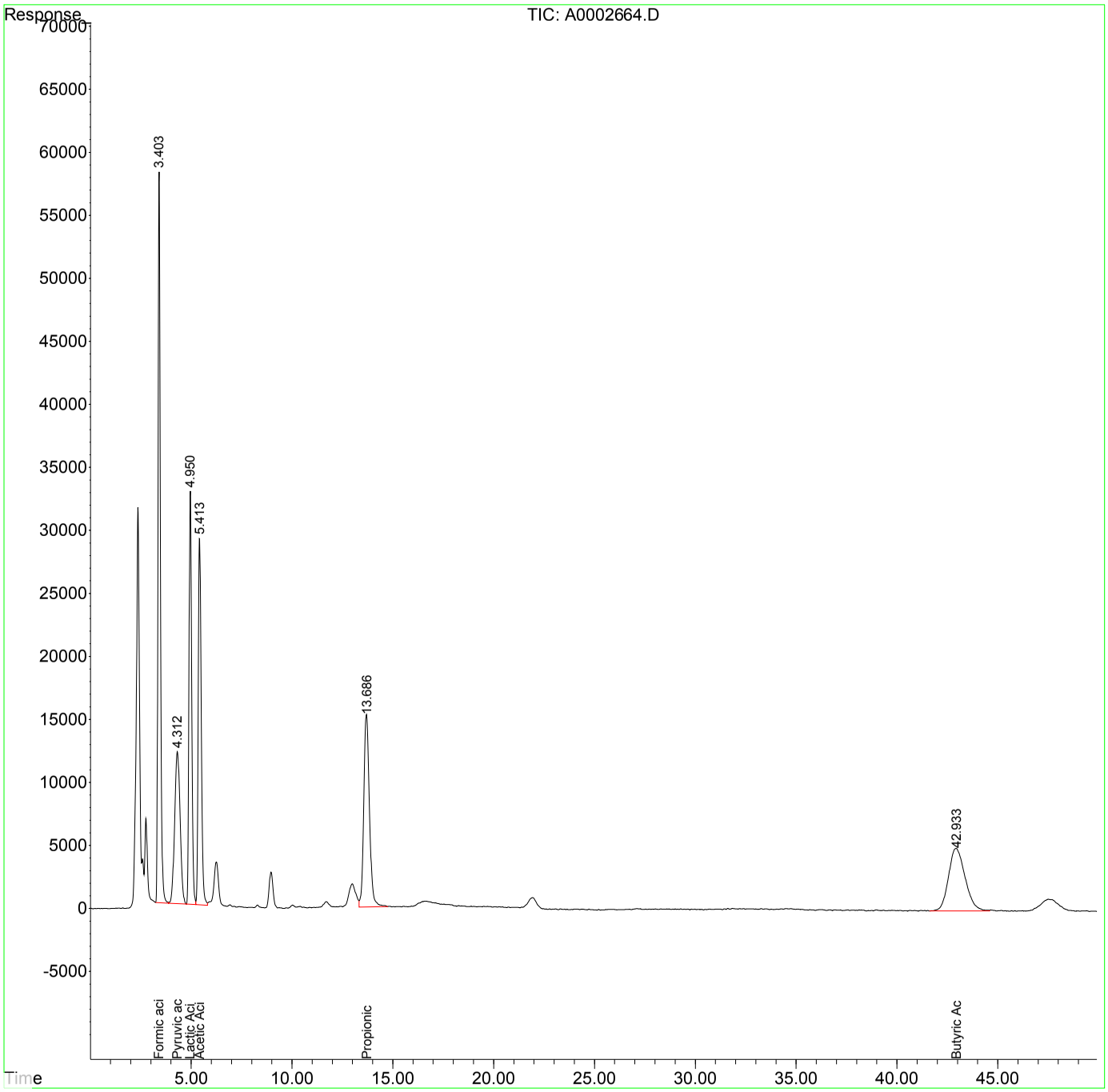
00946786

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002664.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 16:31:46
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 24 09:50:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Mon Dec 24 09:49:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210






00946787

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002717.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 23:18:33
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 93.481 | 94.395 E3 | -1.0 | 100 | 0.00 |
| 2 T | Pyruvic acid | 719.144 | 710.268 E3 | 1.2 | 100 | 0.00 |
| 3 T | Lactic Acid | 58.359 | 59.763 E3 | -2.4 | 100 | 0.00 |
| 4 T | Acetic Acid | 58.368 | 59.233 E3 | -1.5 | 100 | 0.00 |
| 5 T | Propionic Acid | 57.631 | 55.776 E3 | 3.2 | 99 | 0.00 |
| 6 T | Butyric Acid | 54.107 | 54.456 E3 | -0.6 | 100 | 0.00 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946788

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002717.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 23:18:33
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.399 | 4719758 | 50.489 ppm |
| 2) T | Pyruvic acid | 4.226 | 3551341 | 4.938 ppm |
| 3) T | Lactic Acid | 4.837 | 2988151 | 51.203 ppm |
| 4) T | Acetic Acid | 5.278 | 2961665 | 50.741 ppm |
| 5) T | Propionic Acid | 12.879 | 2788796 | 48.391 ppm |
| 6) T | Butyric Acid | 39.291 | 2722784 | 50.322 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



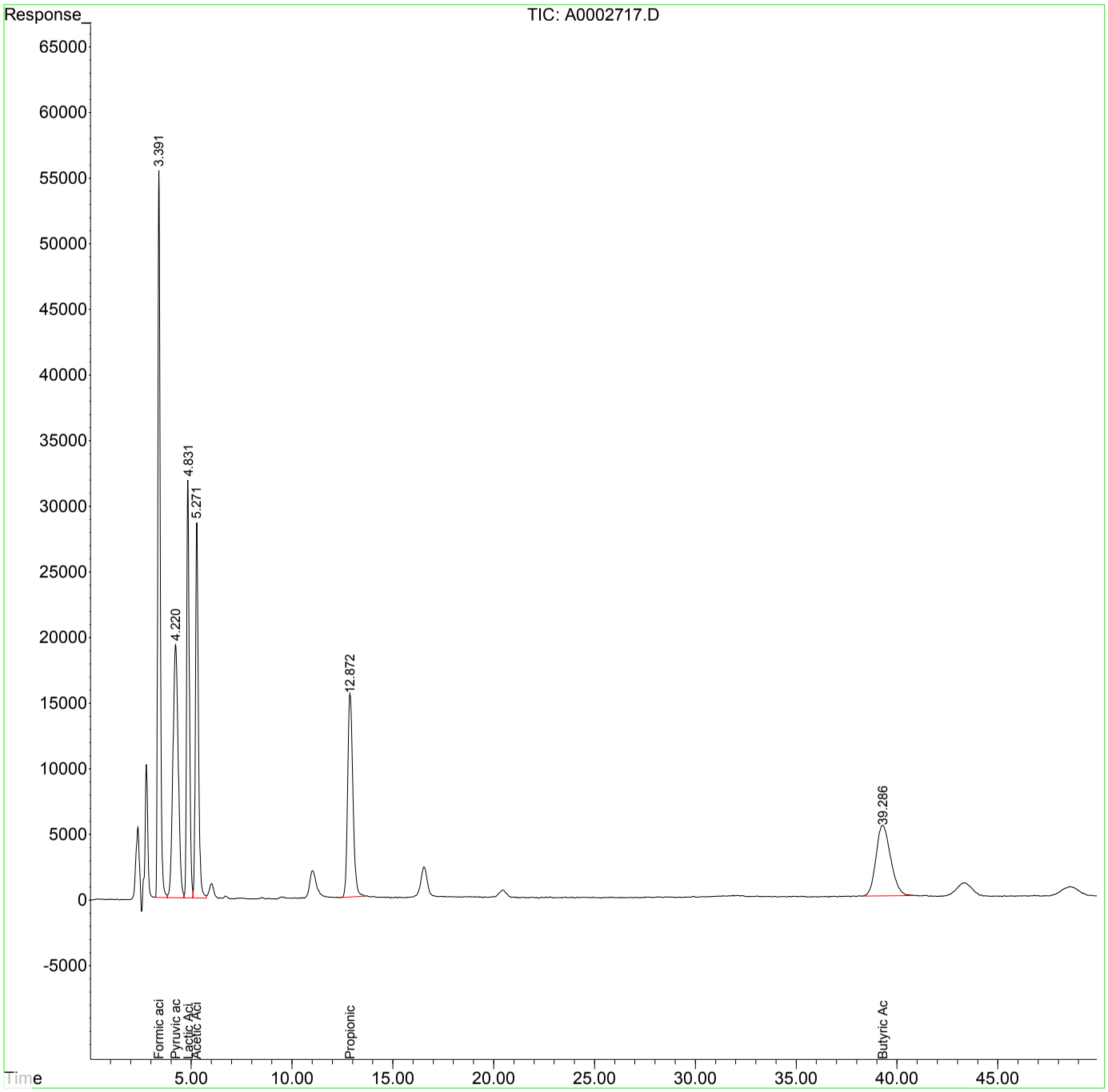
00946789

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002717.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 23:18:33
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210





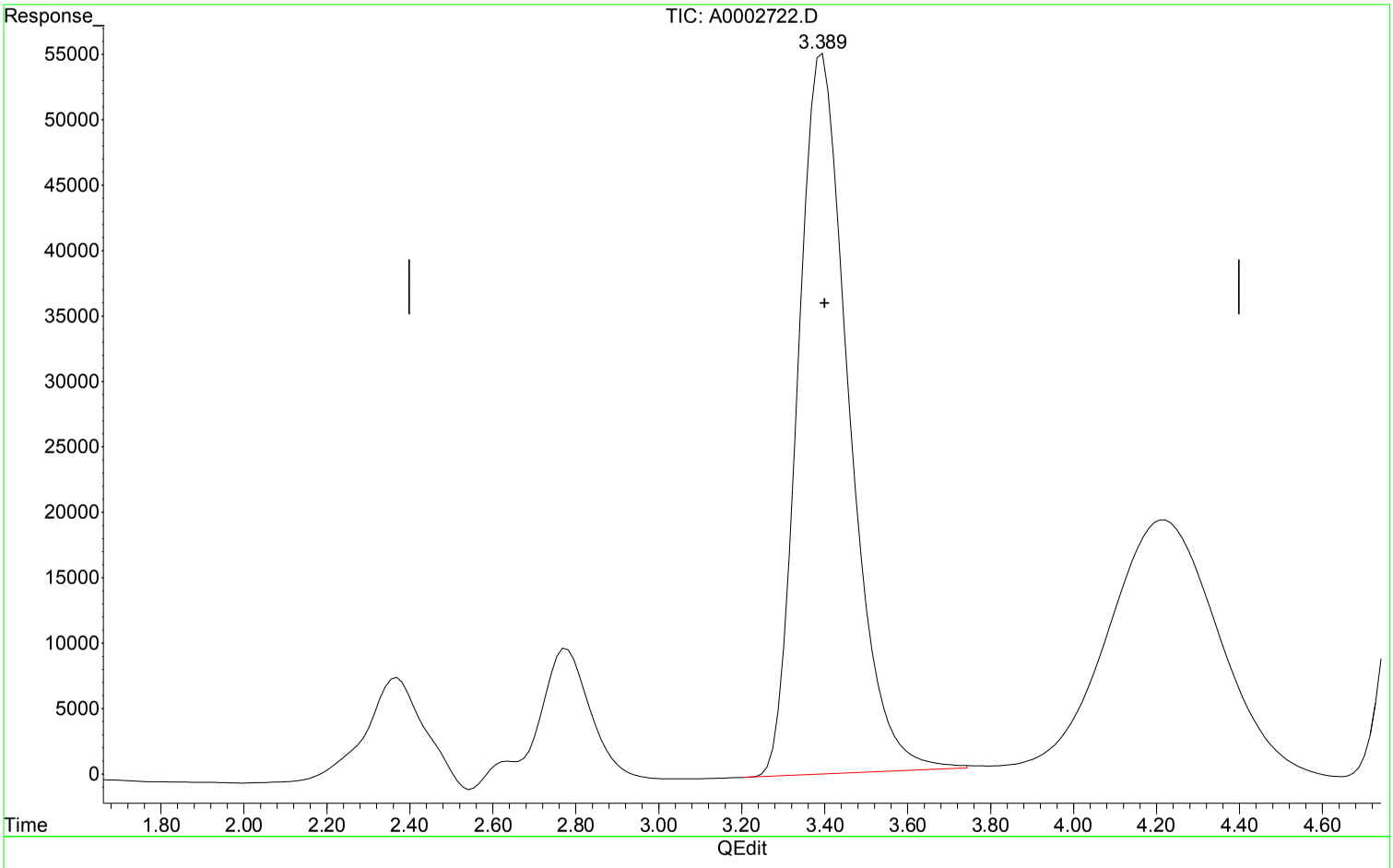

00946790

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(1) Formic acid (t)

3.389min 50.262 ppm m

response 4698578

Manual Integration:

After

Poor integration.

01/02/19

(+) = Expected Retention Time

MA123118.M Wed Jan 02 11:18:40 2019



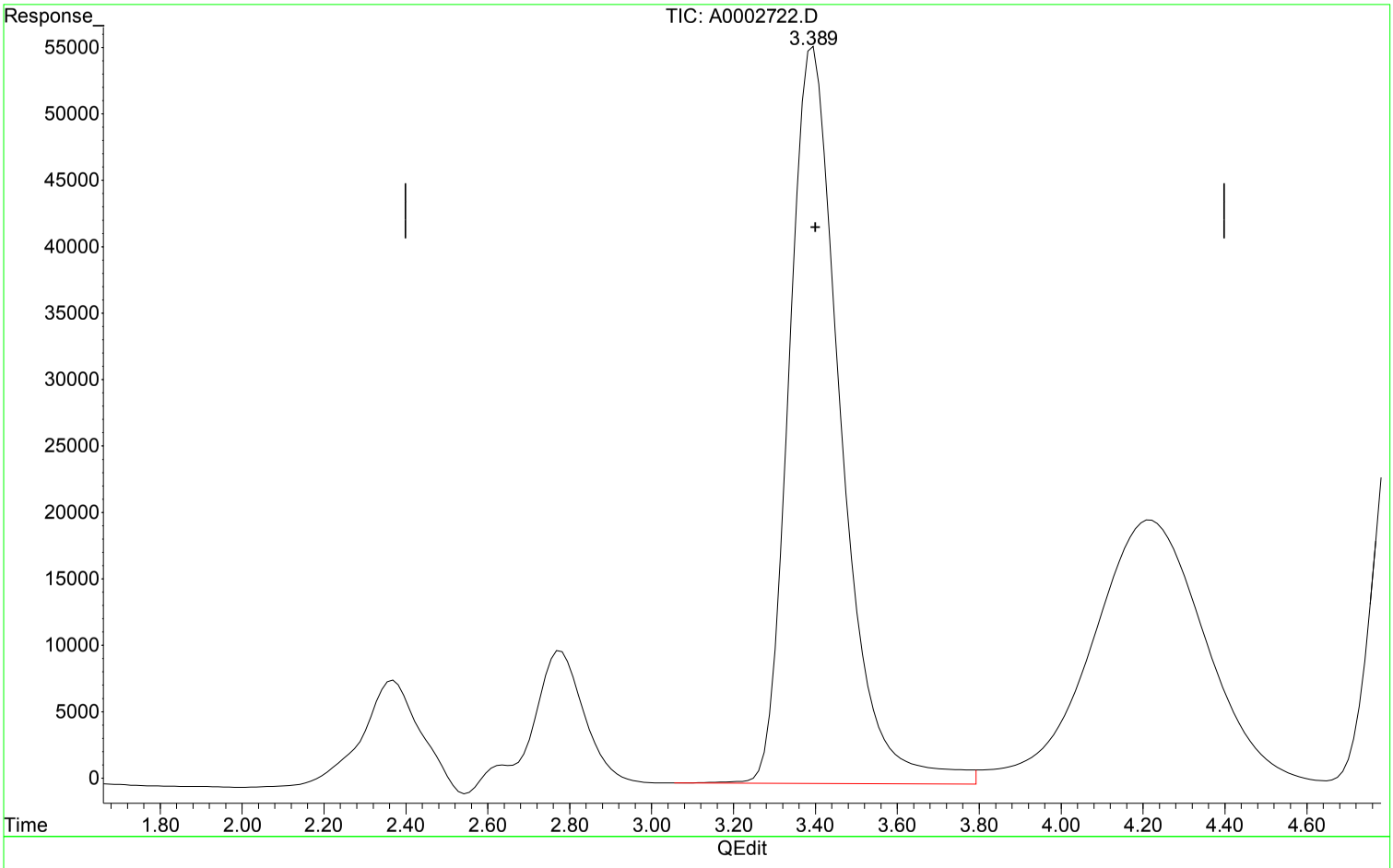
00946791

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(1) Formic acid (t)

3.396min 52.412 ppm

response 4899515

Manual Integration:

Before

01/02/19

(+) = Expected Retention Time
MA123118.M Wed Jan 02 11:18:34 2019



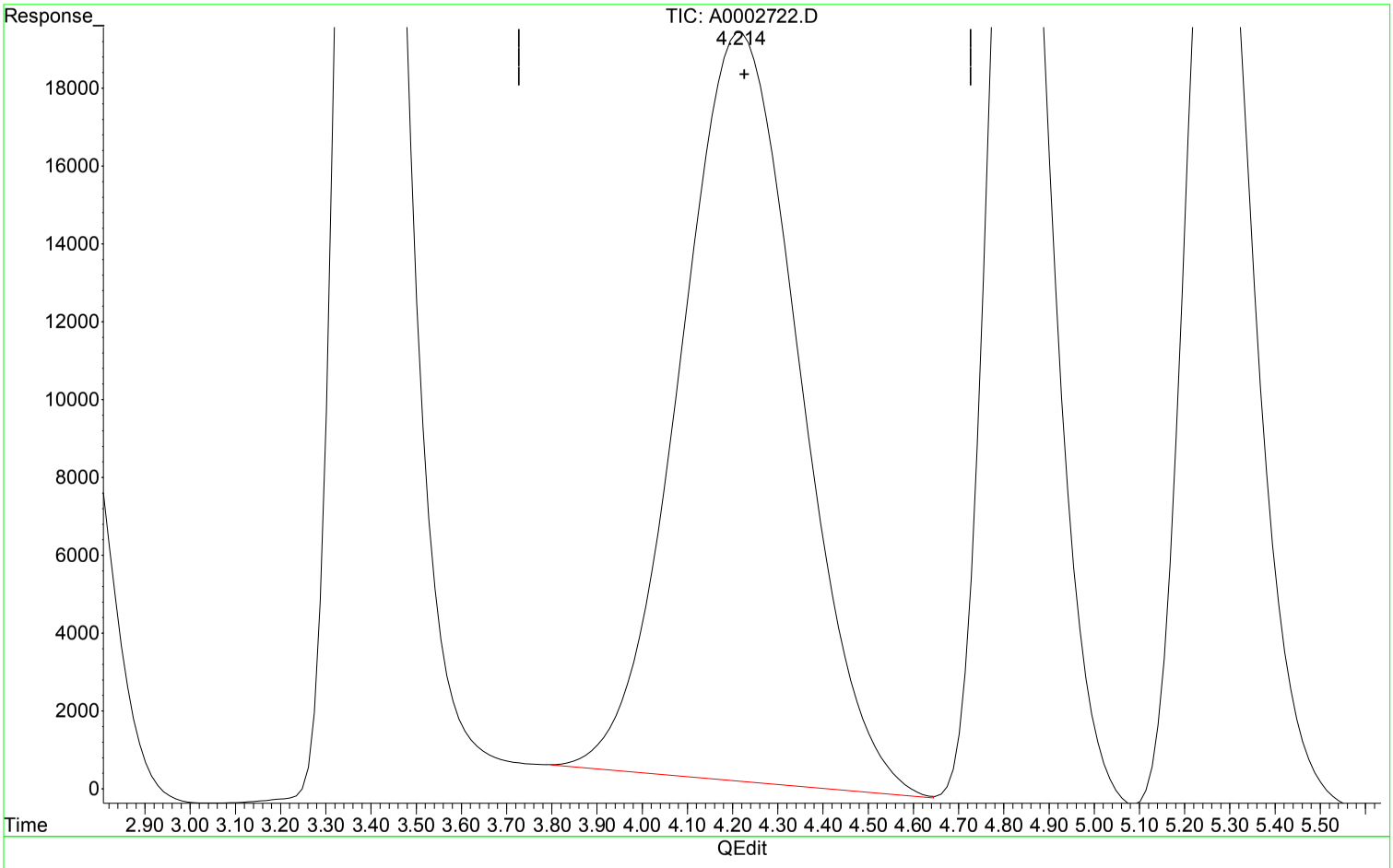
00946792

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(2) Pyruvic acid (T)

4.214min 4.925 ppm m

response 3542117

Manual Integration:

After

Poor integration.

01/02/19

(+) = Expected Retention Time



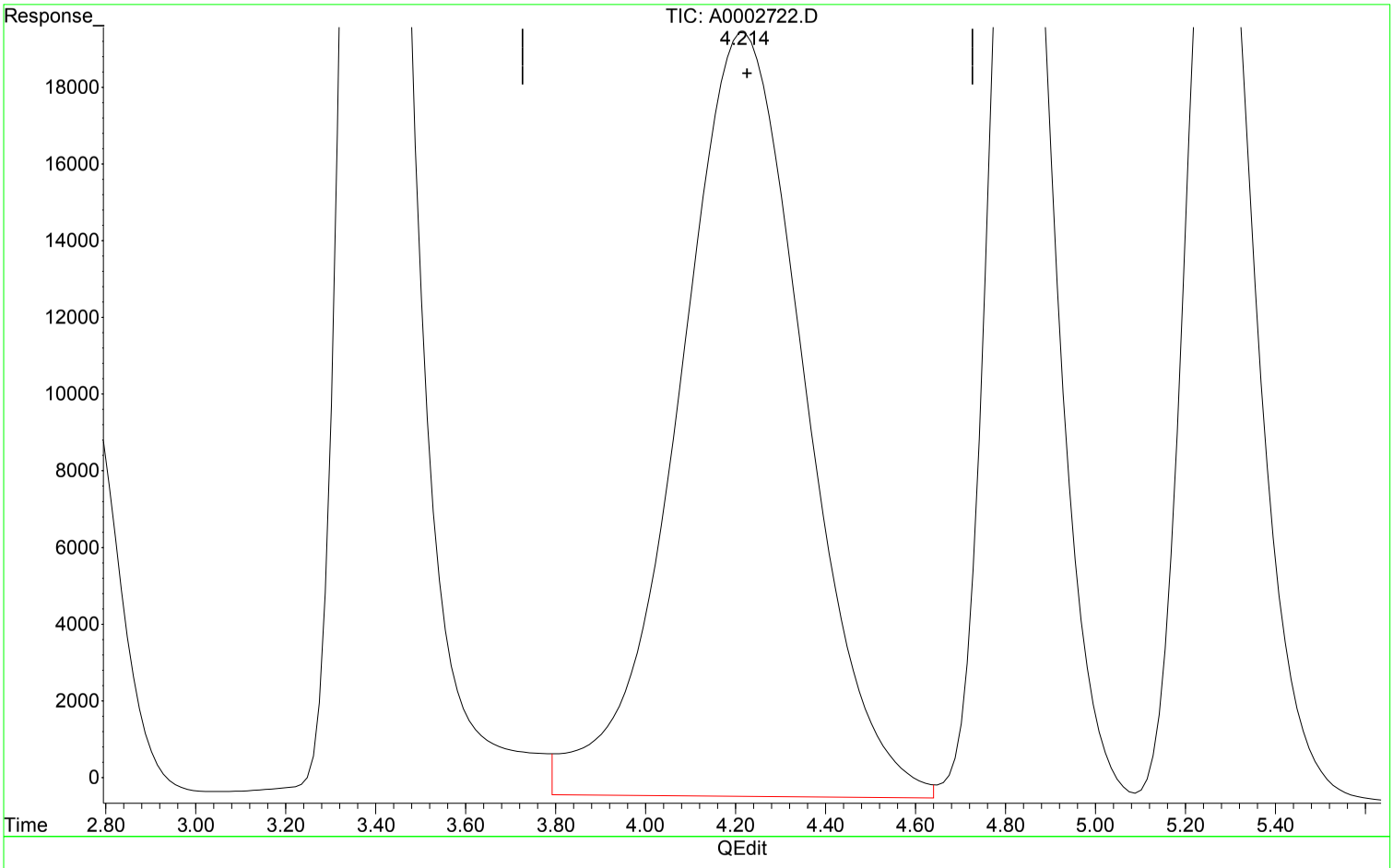
00946793

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(2) Pyruvic acid (T)

4.219min 5.413 ppm

response 3892397

Manual Integration:

Before

01/02/19

(+) = Expected Retention Time



00946794

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 93.481 | 93.972 E3 | -0.5 | 100 | 0.00 |
| 2 T | Pyruvic acid | 719.144 | 708.423 E3 | 1.5 | 100 | -0.01 |
| 3 T | Lactic Acid | 58.359 | 59.444 E3 | -1.9 | 100 | 0.00 |
| 4 T | Acetic Acid | 58.368 | 56.958 E3 | 2.4 | 96 | 0.00 |
| 5 T | Propionic Acid | 57.631 | 57.440 E3 | 0.3 | 102 | -0.03 |
| 6 T | Butyric Acid | 54.107 | 54.008 E3 | 0.2 | 99 | -0.09 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0



00946795

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.389 | 4698578 | 50.262 | ppm | m |
| 2) T | Pyruvic acid | 4.214 | 3542117 | 4.925 | ppm | m |
| 3) T | Lactic Acid | 4.833 | 2972182 | 50.929 | ppm | |
| 4) T | Acetic Acid | 5.274 | 2847915 | 48.792 | ppm | |
| 5) T | Propionic Acid | 12.853 | 2872024 | 49.835 | ppm | |
| 6) T | Butyric Acid | 39.194 | 2700380 | 49.908 | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



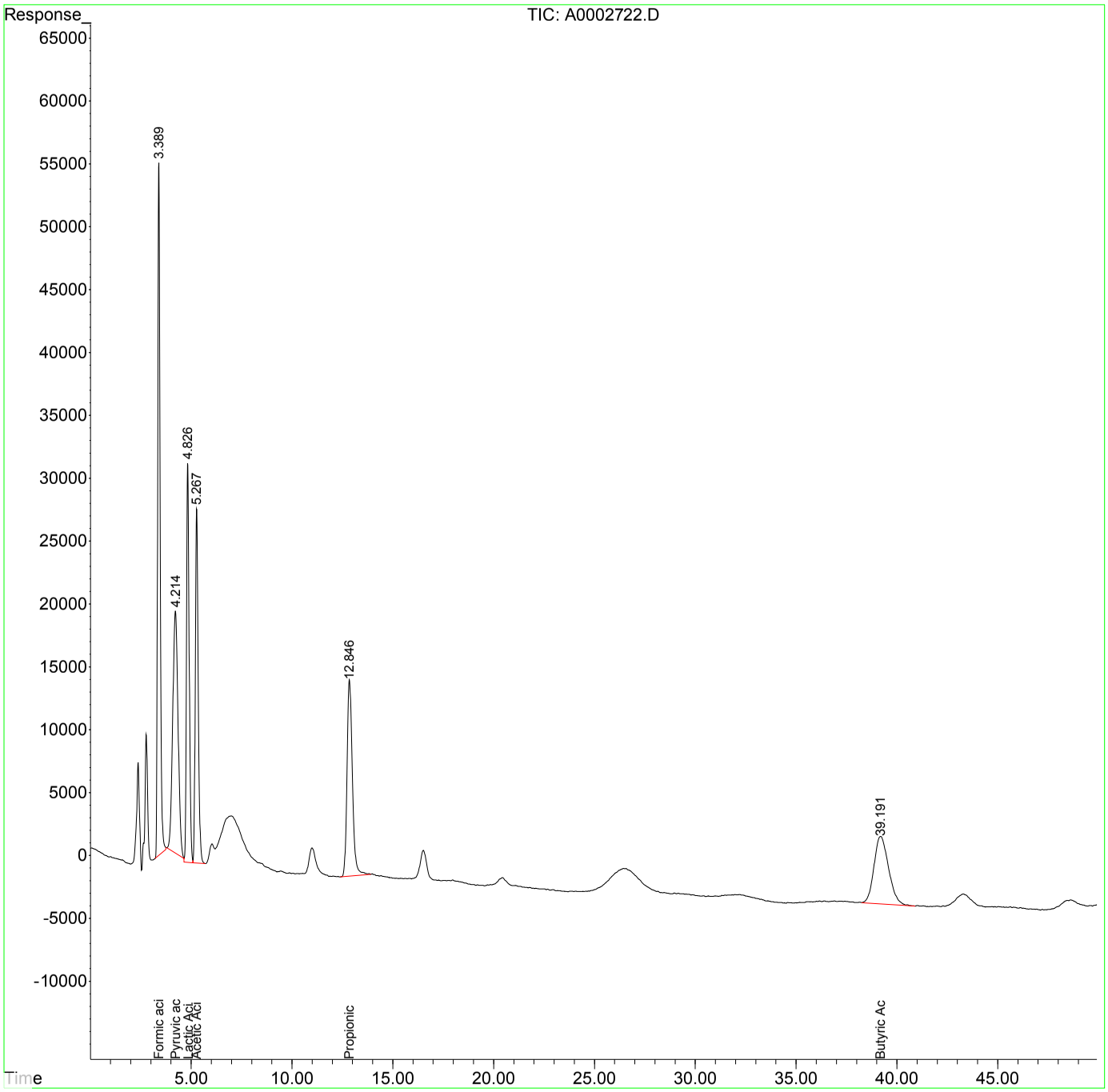
00946796

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210






00946797

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002375.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 05 08:21:24 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| Target Compounds | | | | |
| 1) t | Formic acid | 3.131 | 1896636 | 19.686 ppm |
| 2) T | Pyruvic acid | 3.628 | 1357394 | 2.997 ppm |
| 3) T | Lactic Acid | 4.052 | 1086883 | 20.215 ppm |
| 4) T | Acetic Acid | 4.405 | 1218452 | 20.593 ppm |
| 5) T | Propionic Acid | 9.222 | 1146657 | 19.242 ppm |
| 6) T | Butyric Acid | 25.002 | 1138865 | 18.107 ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.



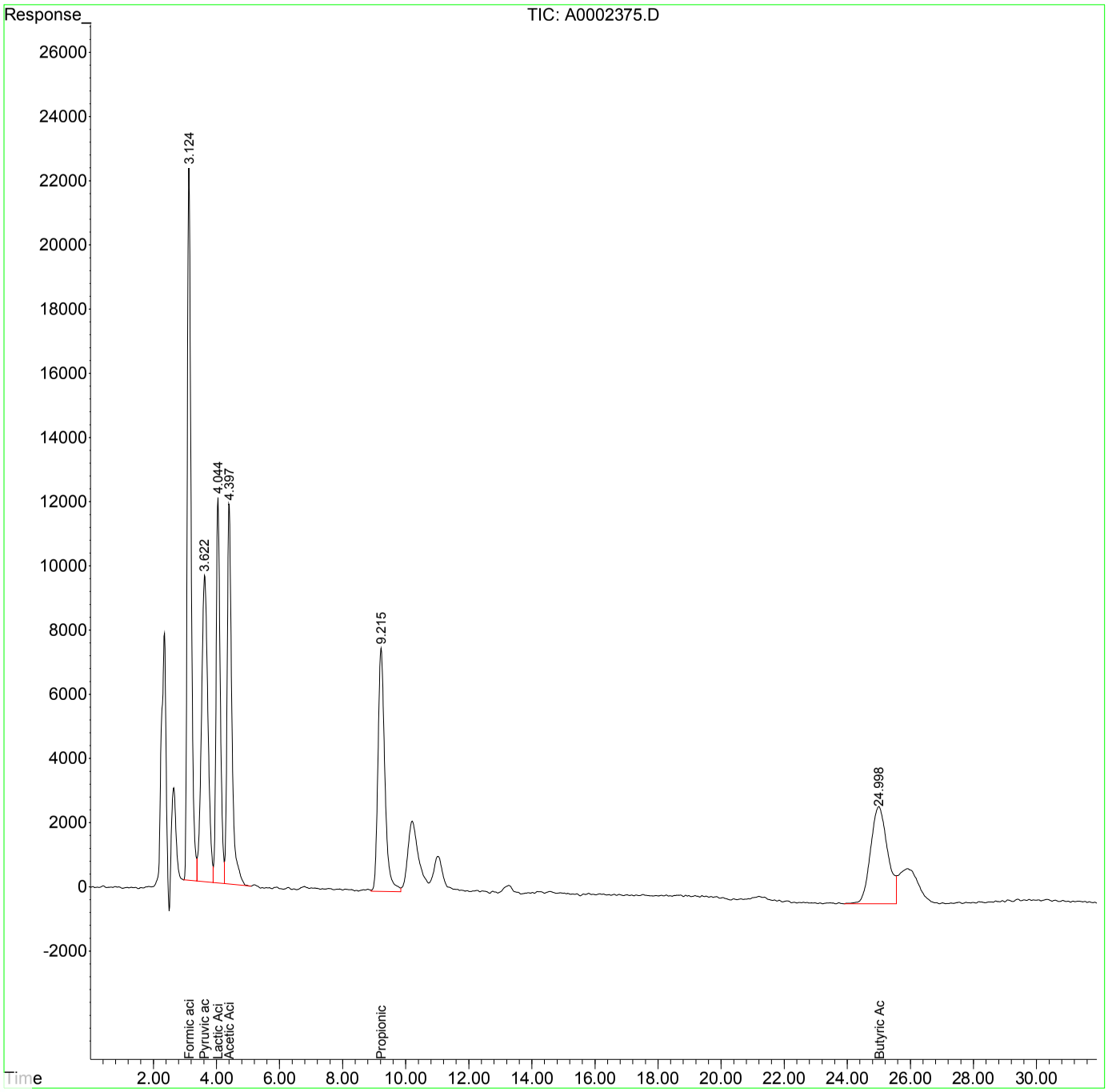
00946798

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002375.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 05 08:21:24 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210






00946799

# Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002375.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 05 08:21:24 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 1 t | Formic acid | 96.343 | 94.832 E3 | 1.6 | 100 | 0.00 |
| 2 T | Pyruvic acid | 452.935 | 678.697 E3 | -49.8# | 160# | 0.00 |
| 3 T | Lactic Acid | 53.765 | 54.344 E3 | -1.1 | 108 | 0.00 |
| 4 T | Acetic Acid | 59.169 | 60.923 E3 | -3.0 | 111 | 0.00 |
| 5 T | Propionic Acid | 59.592 | 57.333 E3 | 3.8 | 101 | 0.03 |
| 6 T | Butyric Acid | 62.897 | 56.943 E3 | 9.5 | 94 | 0.16 |

Evaluate Continuing Calibration Report - Not Founds

---

(#) = Out of Range SPCC's out = 0 CCC's out = 0

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.129 | 18870917 | 195.296 | ppm | |
| 2) T | Pyruvic acid | 3.625 | 9170882 | 20.284 | ppm | |
| 3) T | Lactic Acid | 4.045 | 10741636 | 199.759 | ppm | |
| 4) T | Acetic Acid | 4.387 | 11865318 | 200.607 | ppm | m |
| 5) T | Propionic Acid | 9.141 | 11451173 | 191.091 | ppm | |
| 6) T | Butyric Acid | 24.580 | 12106071 | 191.444 | ppm | m |

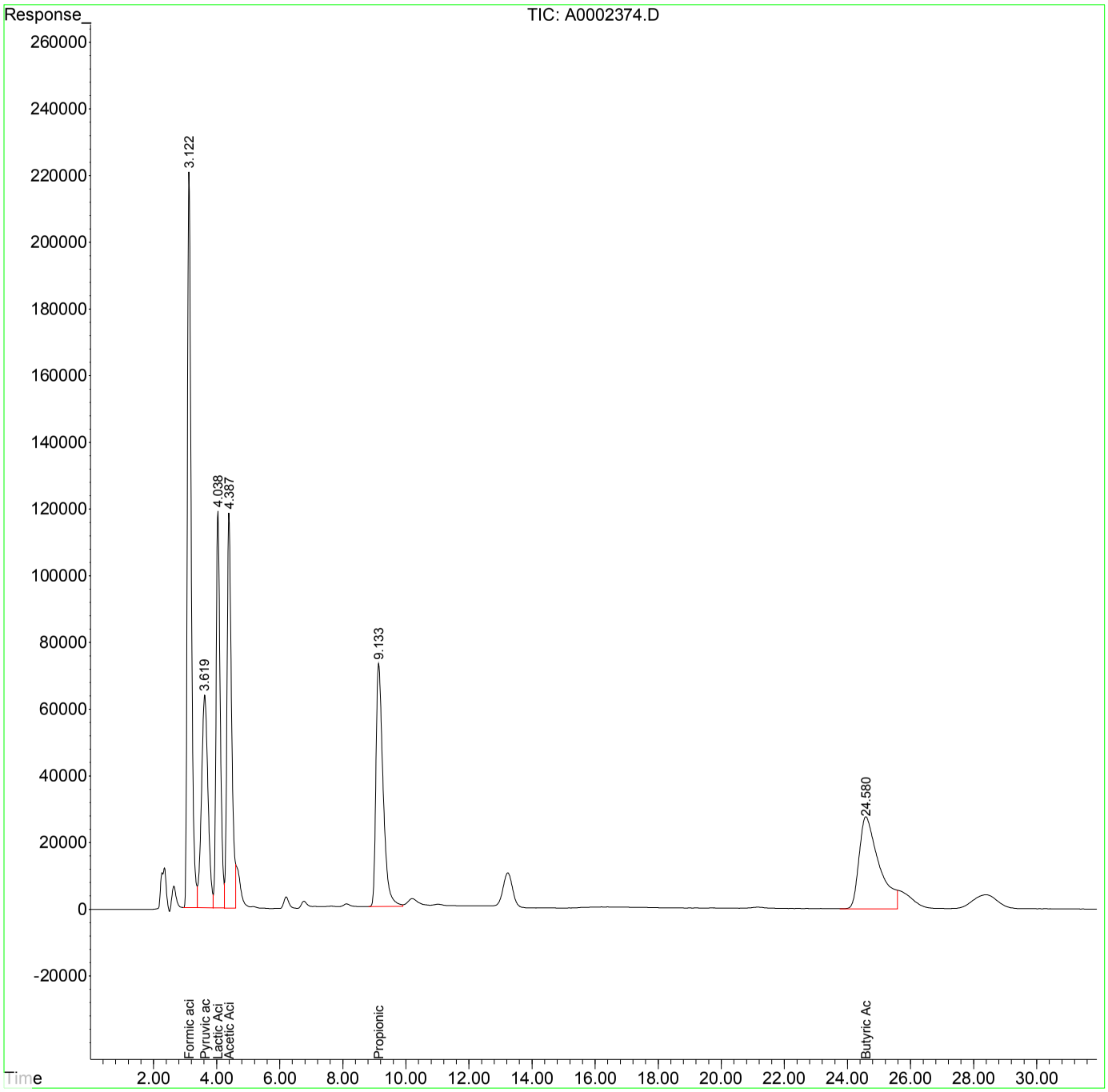
(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

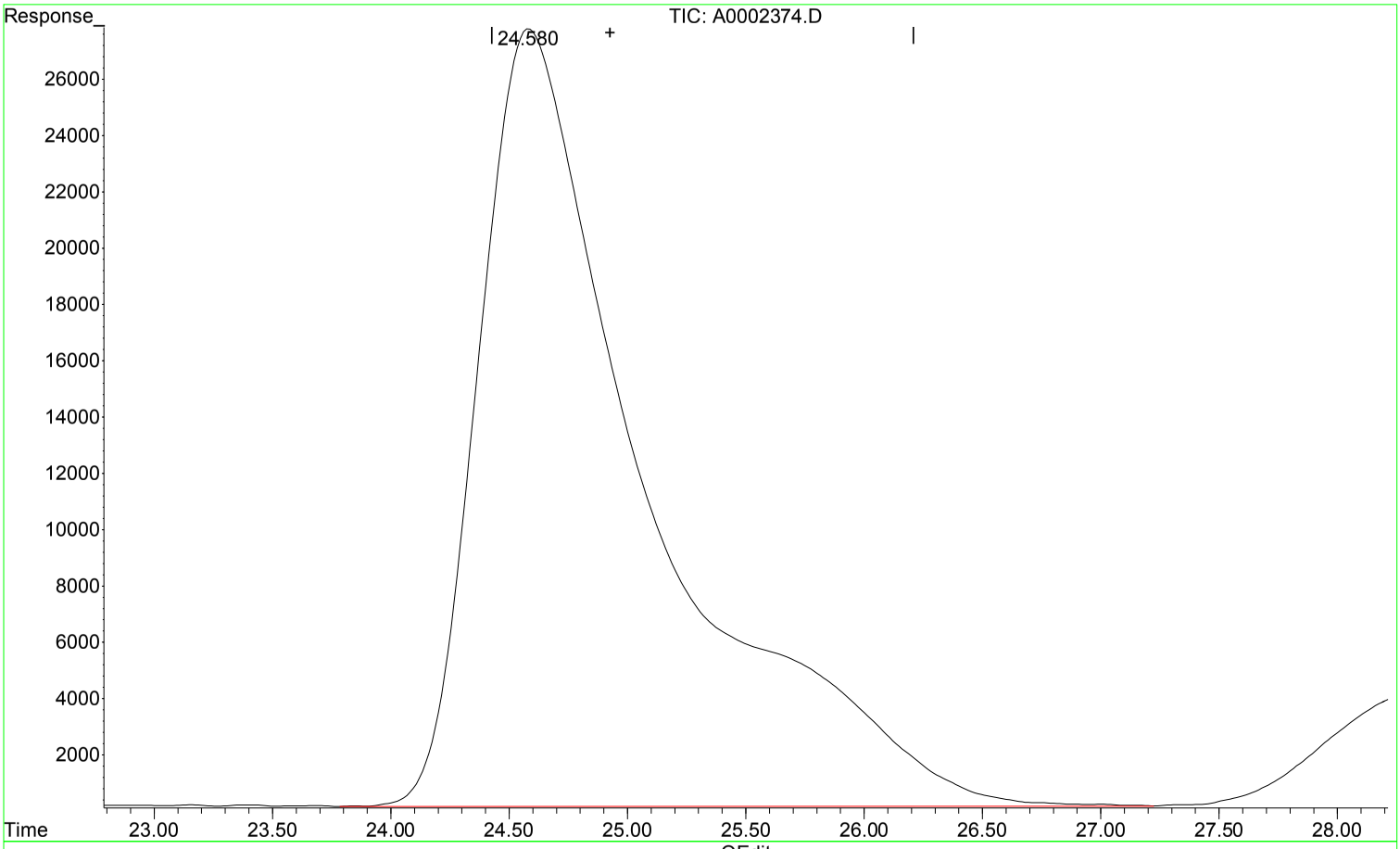


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

24.587min 217.586 ppm

response 13759140

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time



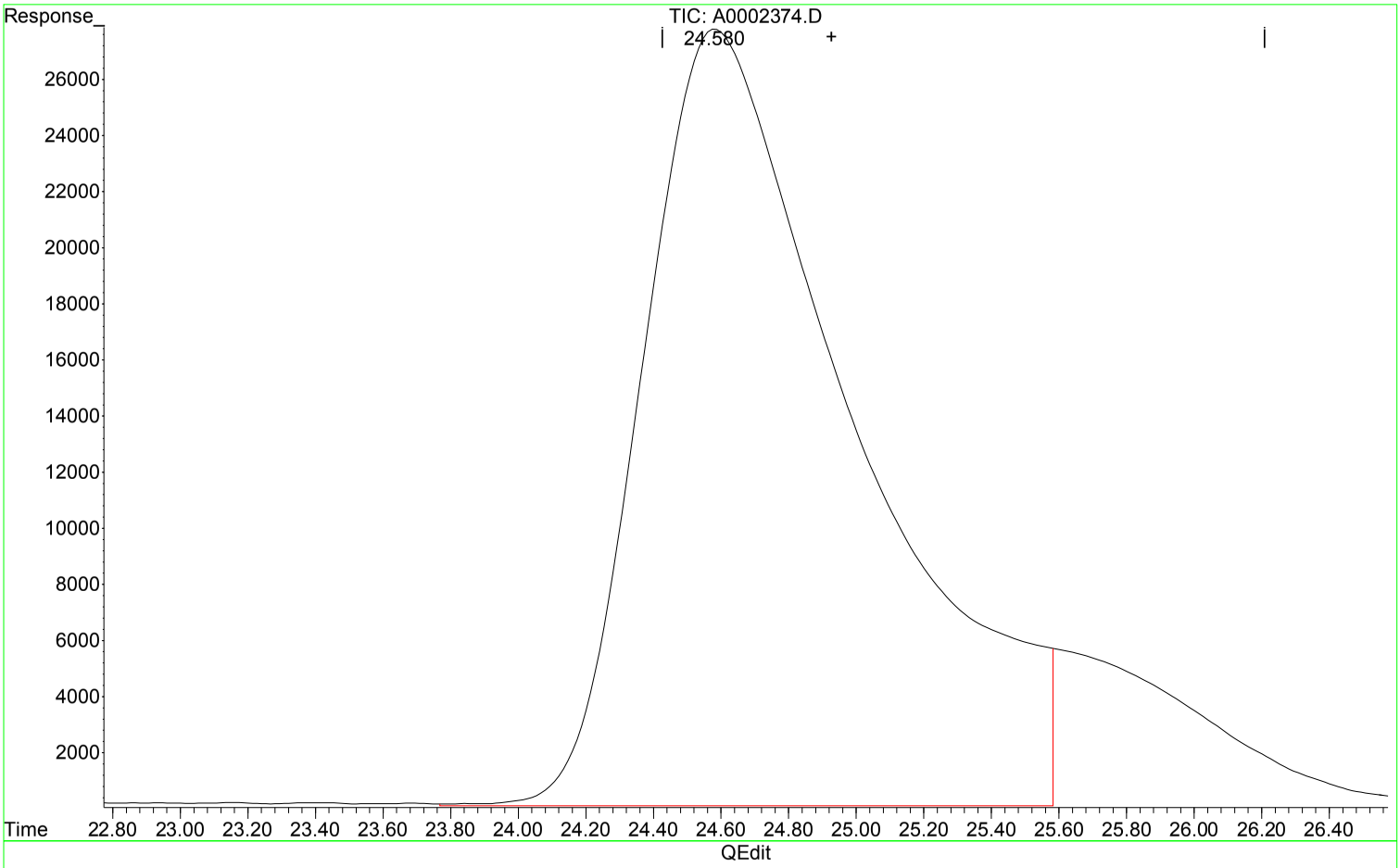
00946803

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

24.580min 191.444 ppm m

response 12106071

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:42:27 2018



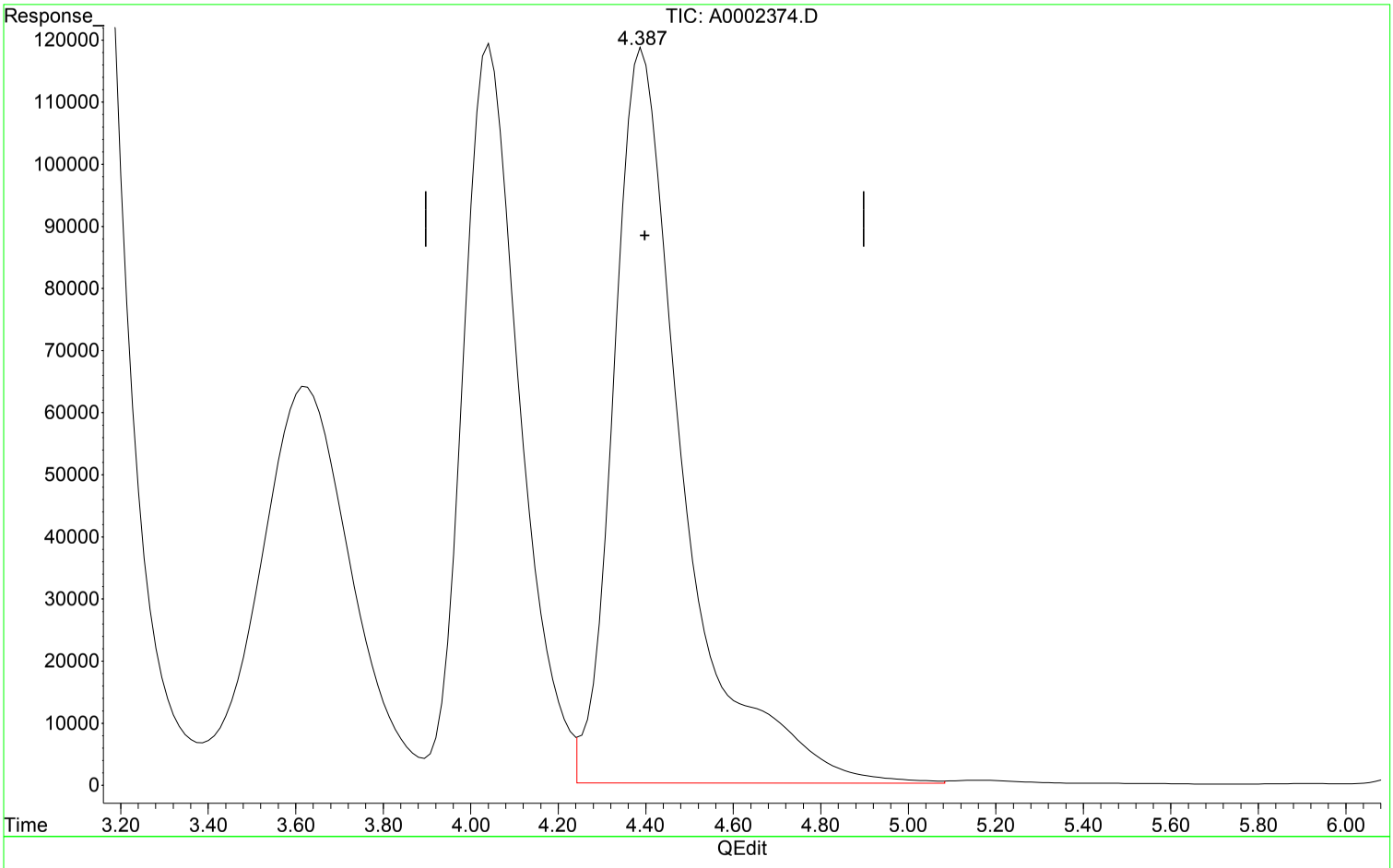
00946804

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.394min 222.004 ppm

response 13130885

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time



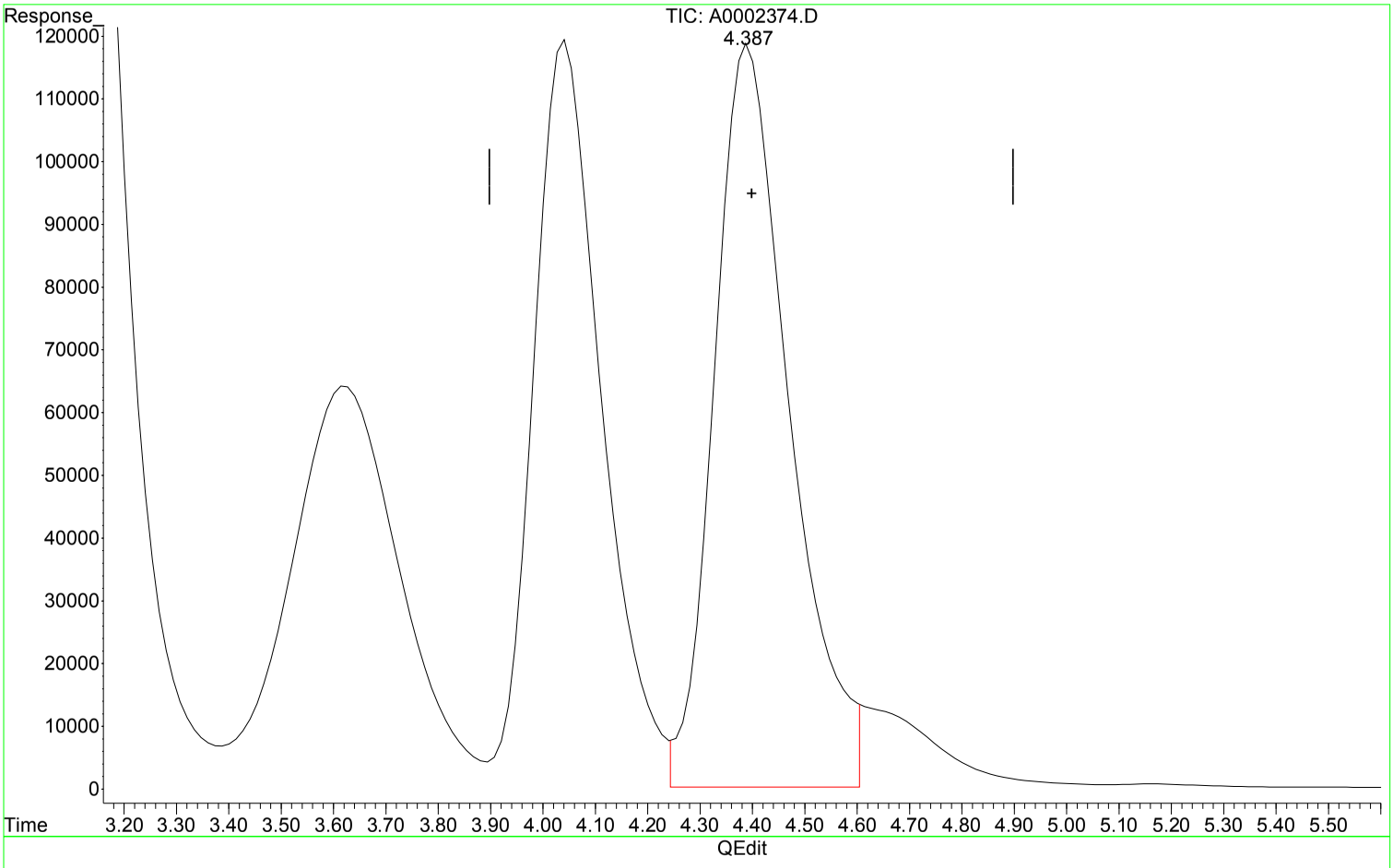
00946805

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.387min 200.607 ppm m

response 11865318

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time



00946806

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.132 | 9131569 | 96.958 | ppm | |
| 2) T | Pyruvic acid | 3.629 | 4430352 | 9.849 | ppm | |
| 3) T | Lactic Acid | 4.052 | 5216101 | 98.587 | ppm | |
| 4) T | Acetic Acid | 4.397 | 5725459 | 96.715 | ppm | m |
| 5) T | Propionic Acid | 9.203 | 5508012 | 93.403 | ppm | |
| 6) T | Butyric Acid | 24.847 | 5510917 | 91.221 | ppm | m |

(f)=RT Delta > 1/2 Window (m)=manual int.



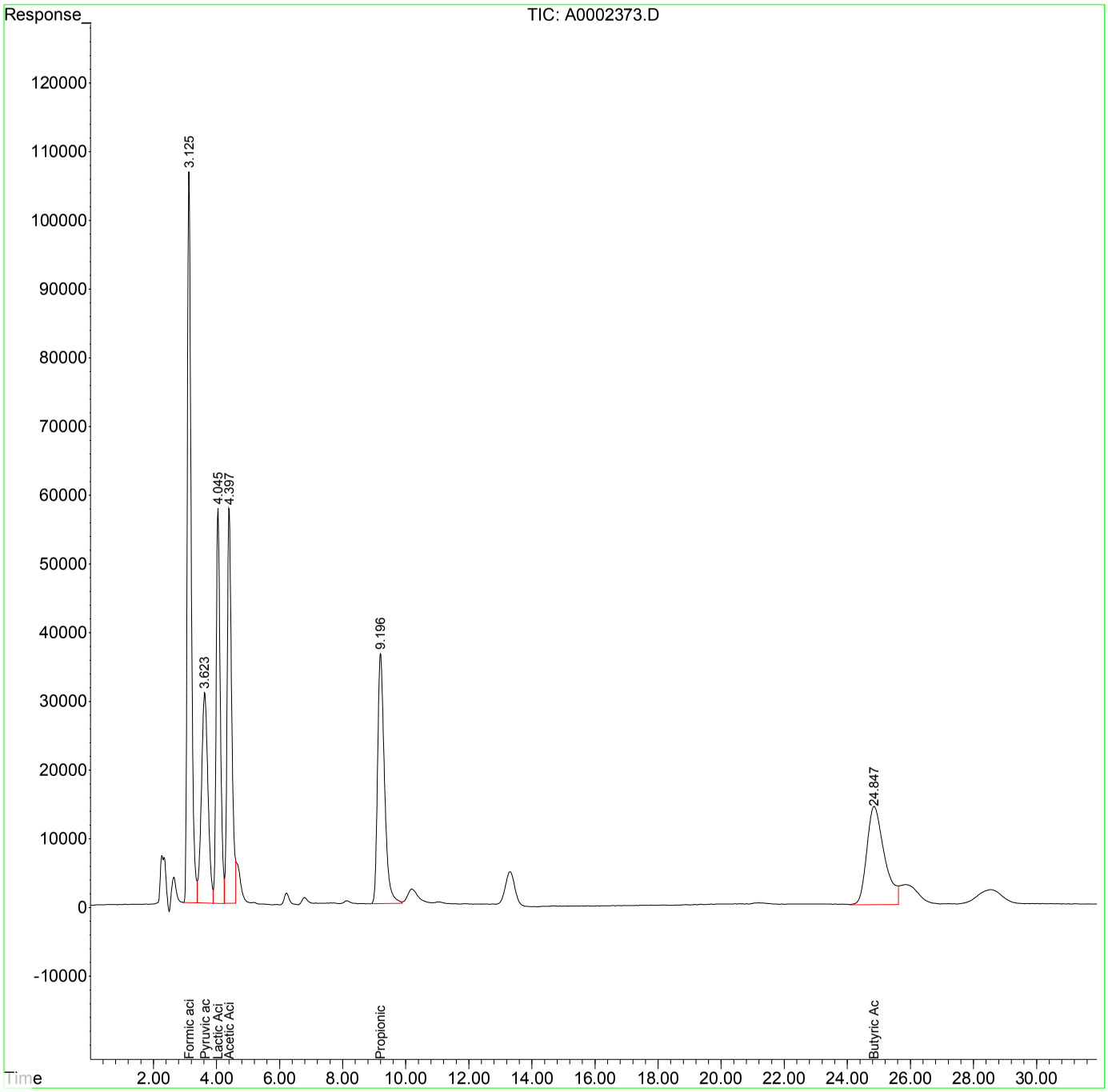
00946807

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

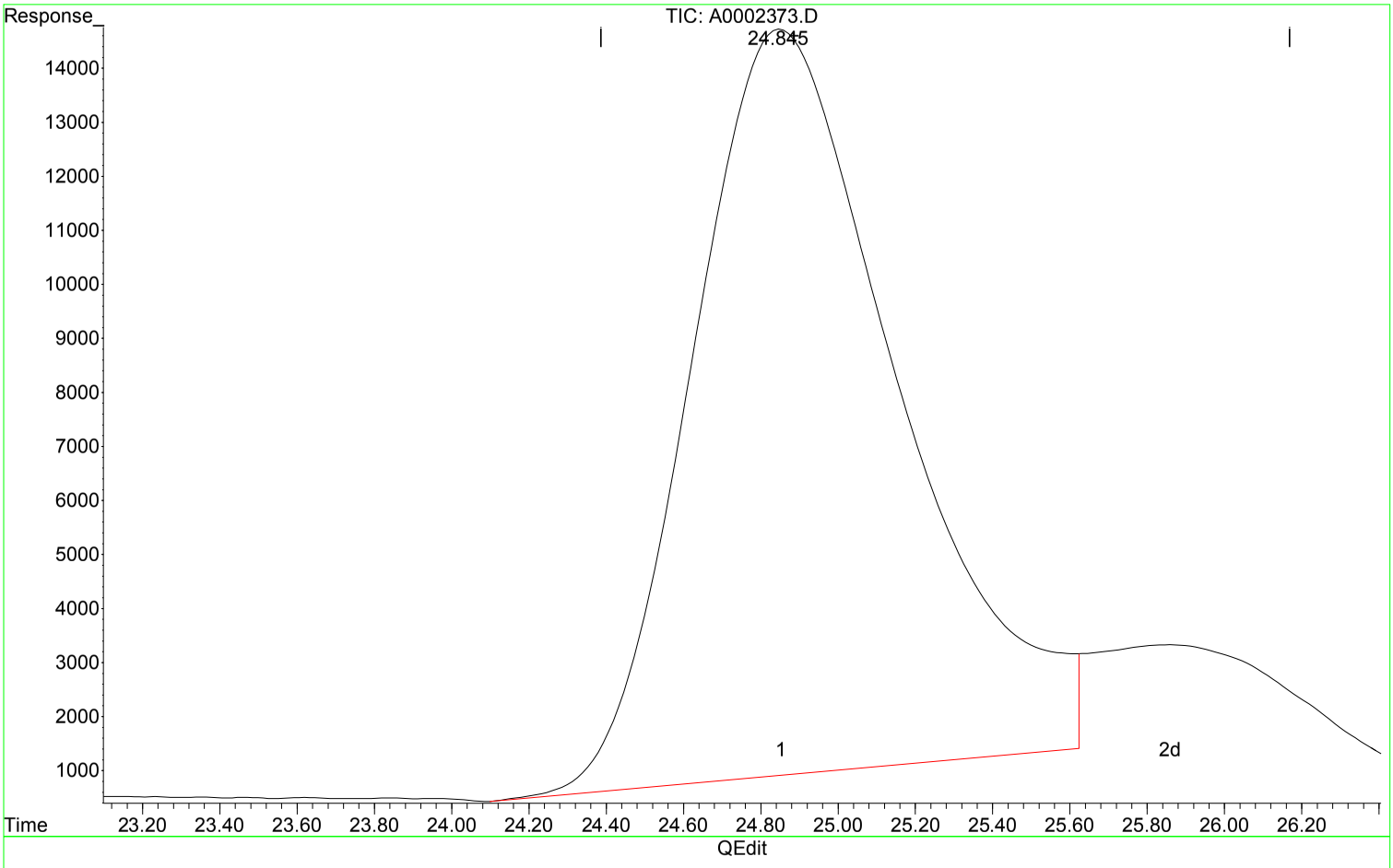


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

24.853min 84.188 ppm

response 5086048

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:11:08 2018



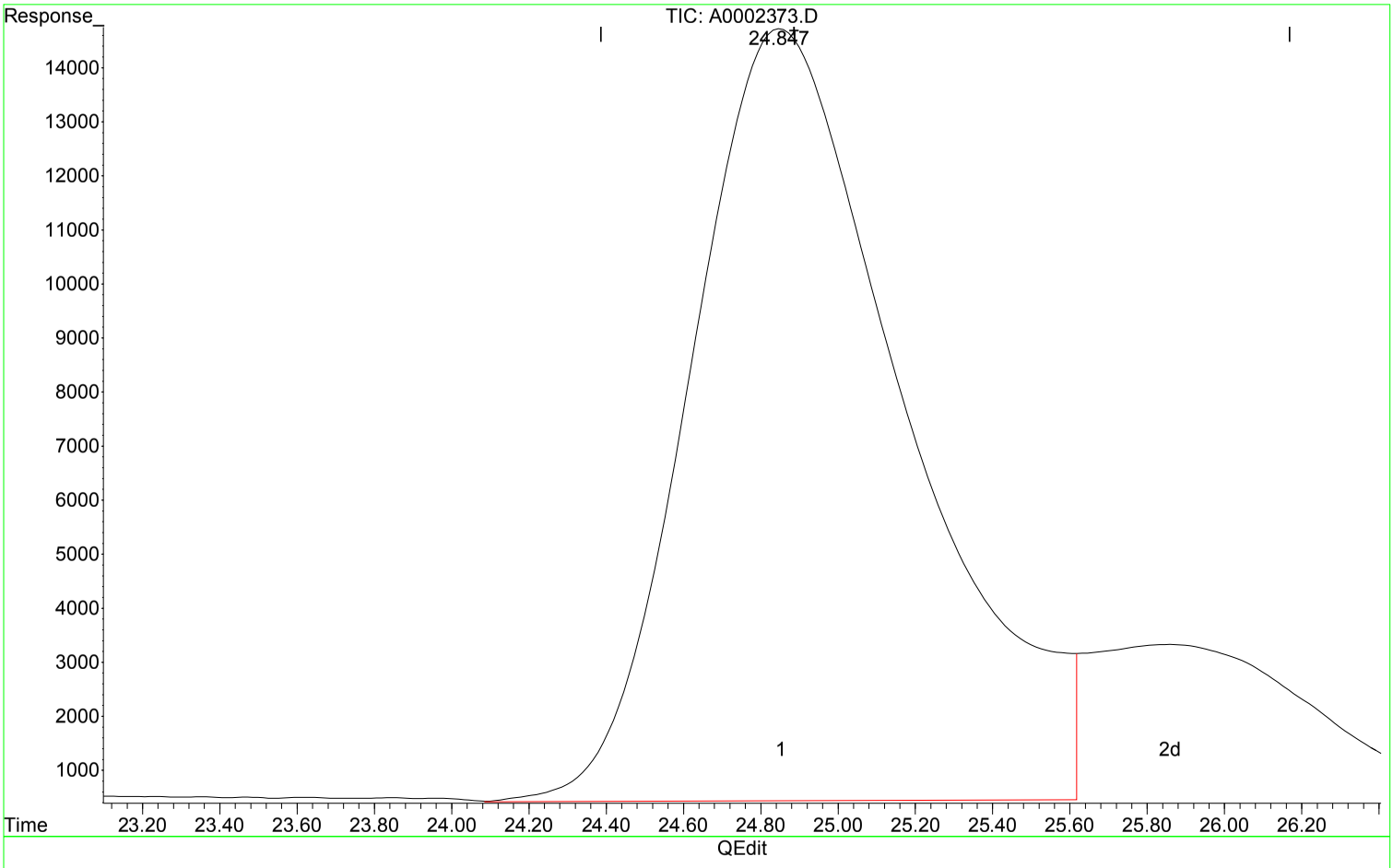
00946809

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

24.847min 91.221 ppm m

response 5510917

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:11:21 2018



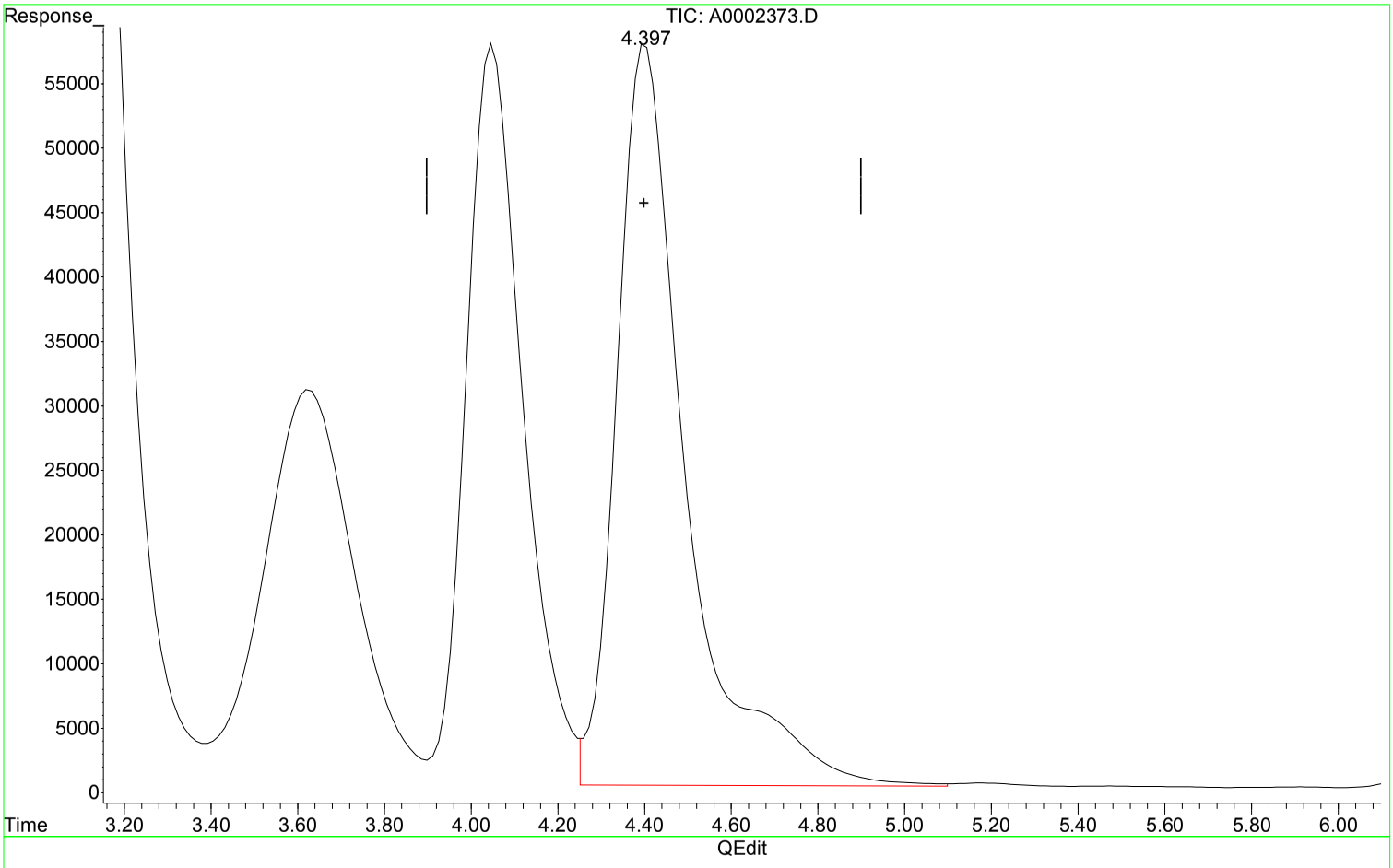
00946810

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.405min 107.446 ppm

response 6360712

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:10:56 2018



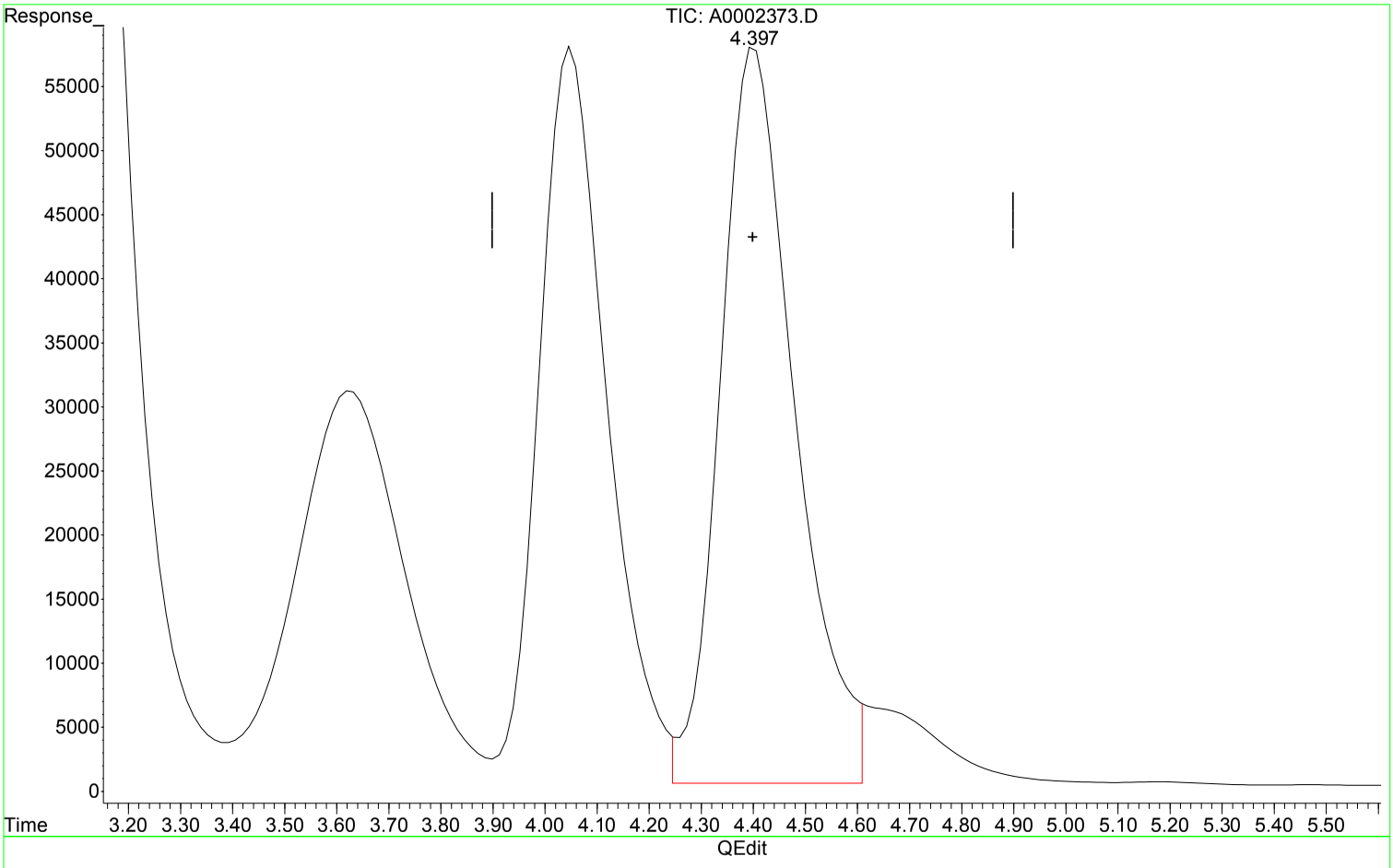
00946811

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.397min 96.715 ppm m

response 5725459

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time



00946812

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.133 | 4817586 | 51.153 | ppm | |
| 2) T | Pyruvic acid | 3.630 | 2294161 | 5.100 | ppm | |
| 3) T | Lactic Acid | 4.053 | 2711599 | 51.251 | ppm | |
| 4) T | Acetic Acid | 4.398 | 3026497 | 51.124 | ppm | m |
| 5) T | Propionic Acid | 9.212 | 2949938 | 50.024 | ppm | |
| 6) T | Butyric Acid | 24.928 | 2932273 | 48.537 | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



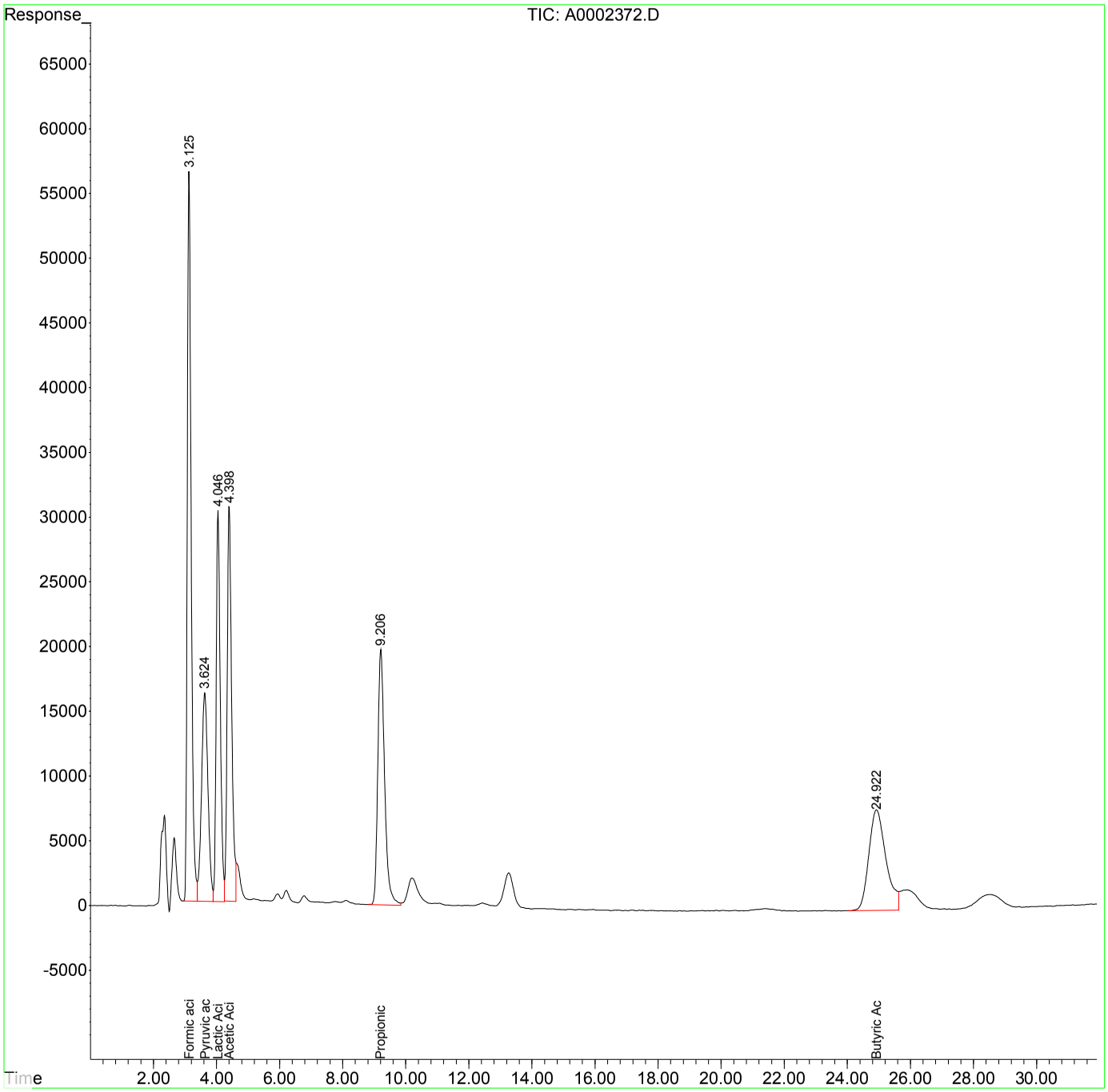
00946813

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

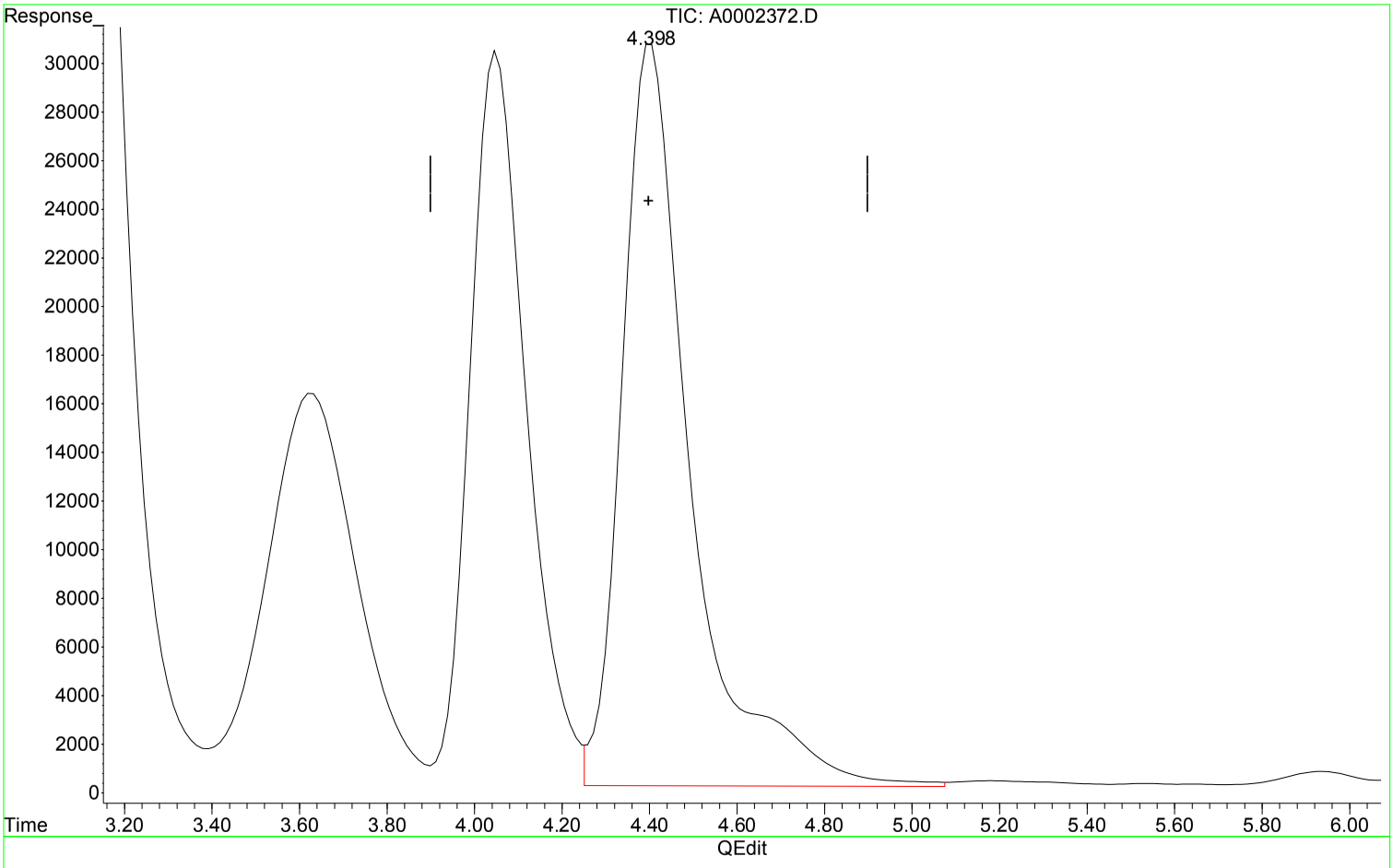


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.406min 56.131 ppm

response 3322912

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:10:16 2018



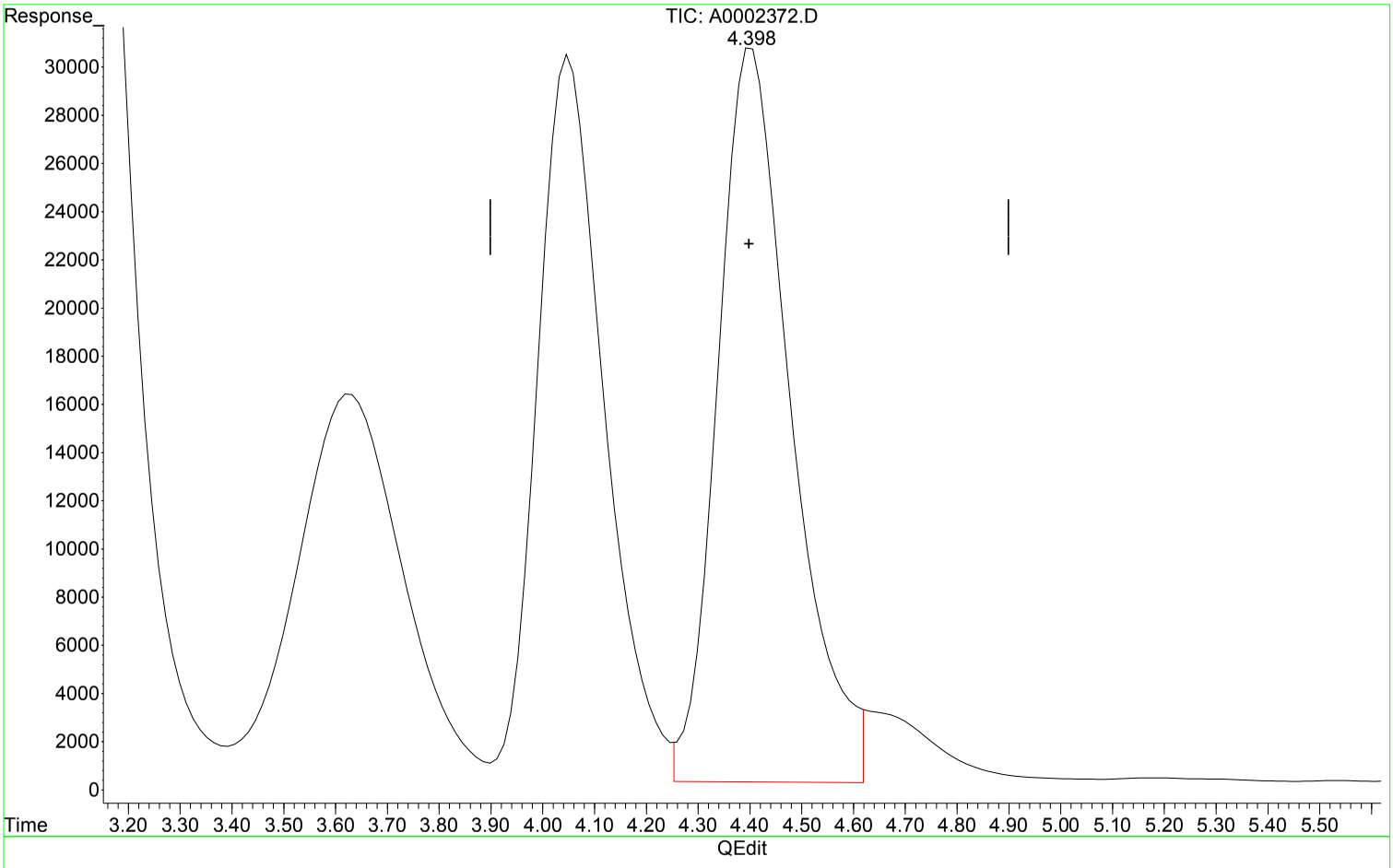
00946815

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.398min 51.124 ppm m

response 3026497

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:10:25 2018



00946816

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.131 | 1890077 | 20.069 | ppm | |
| 2) T | Pyruvic acid | 3.629 | 850051 | 1.890 | ppm | |
| 3) T | Lactic Acid | 4.051 | 1003444 | 18.966 | ppm | |
| 4) T | Acetic Acid | 4.397 | 1096677 | 18.525 | ppm | m |
| 5) T | Propionic Acid | 9.206 | 1140510 | 19.340 | ppm | m |
| 6) T | Butyric Acid | 24.960 | 1207082 | 19.981 | ppm | |

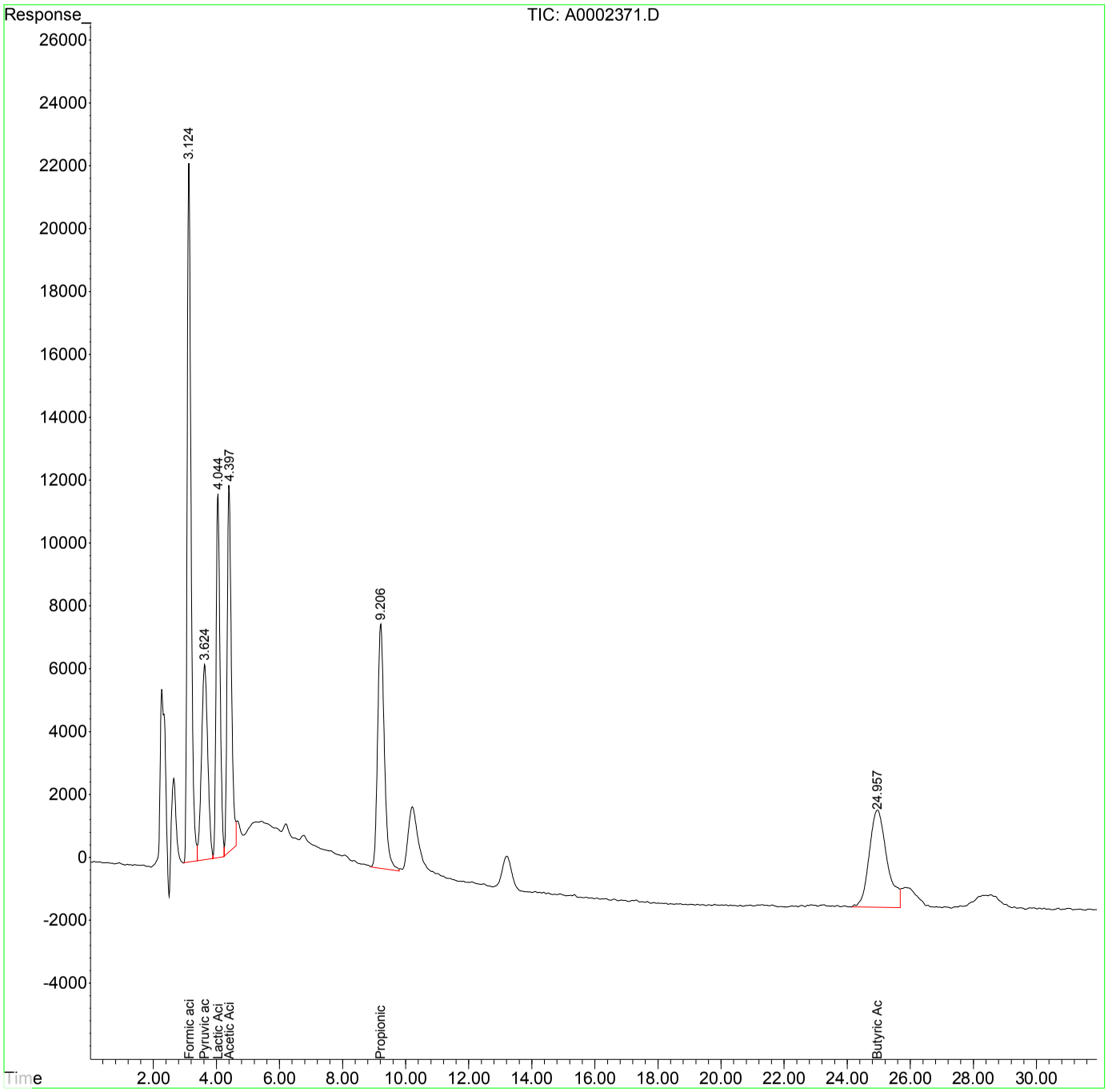
(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

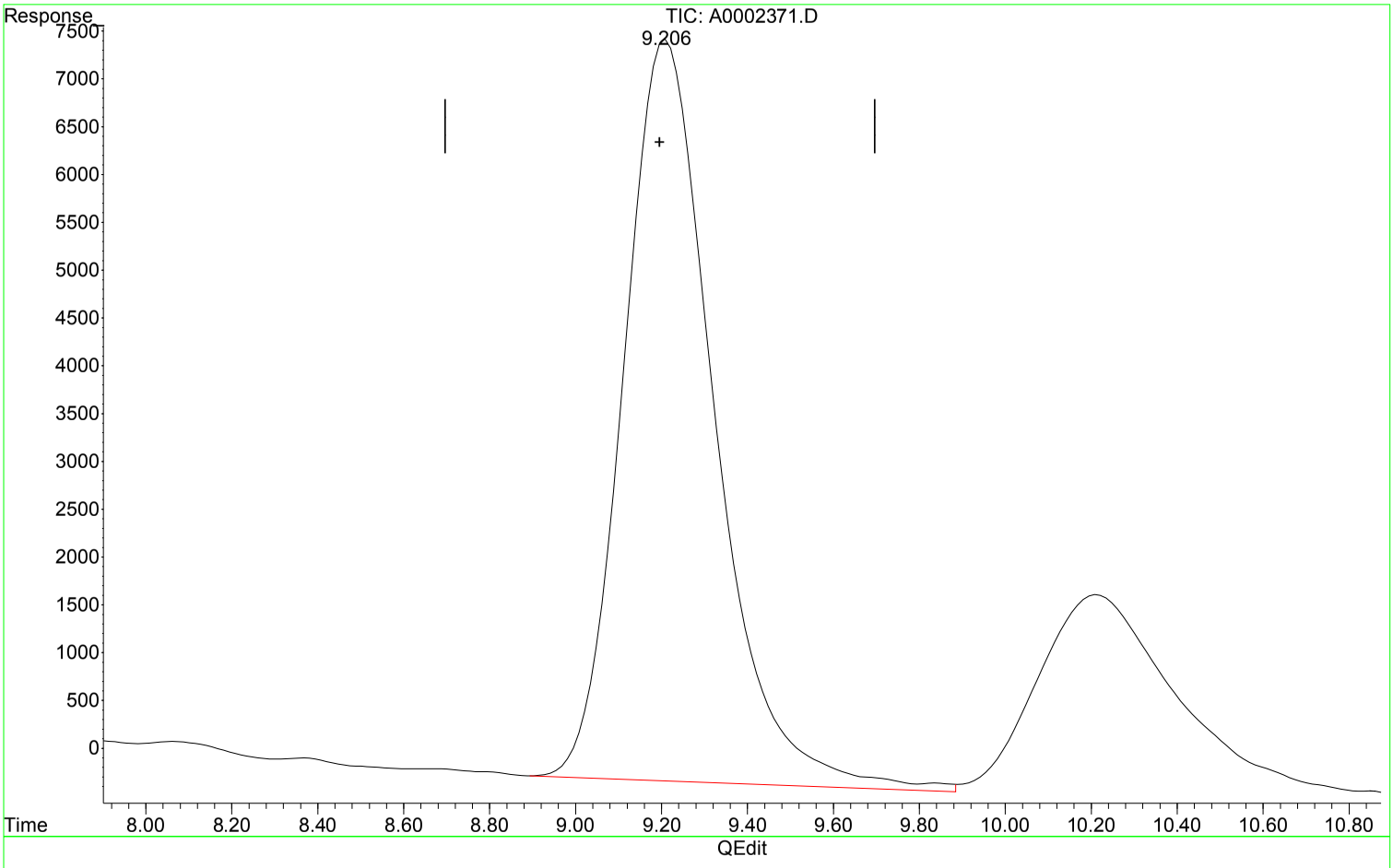


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

9.212min 19.380 ppm

response 1142822

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:09:40 2018



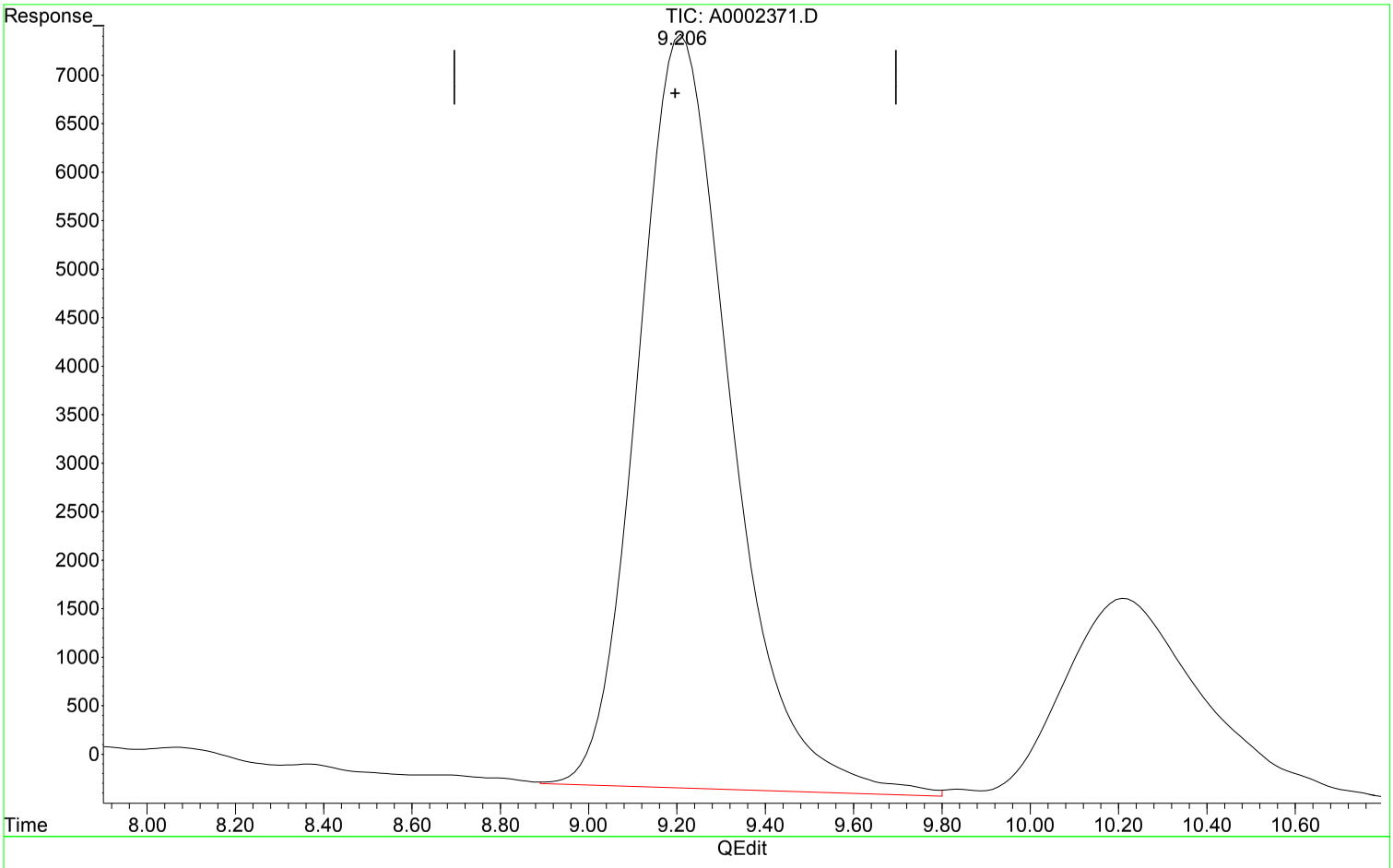
00946819

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

9.206min 19.340 ppm m

response 1140510

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:09:47 2018



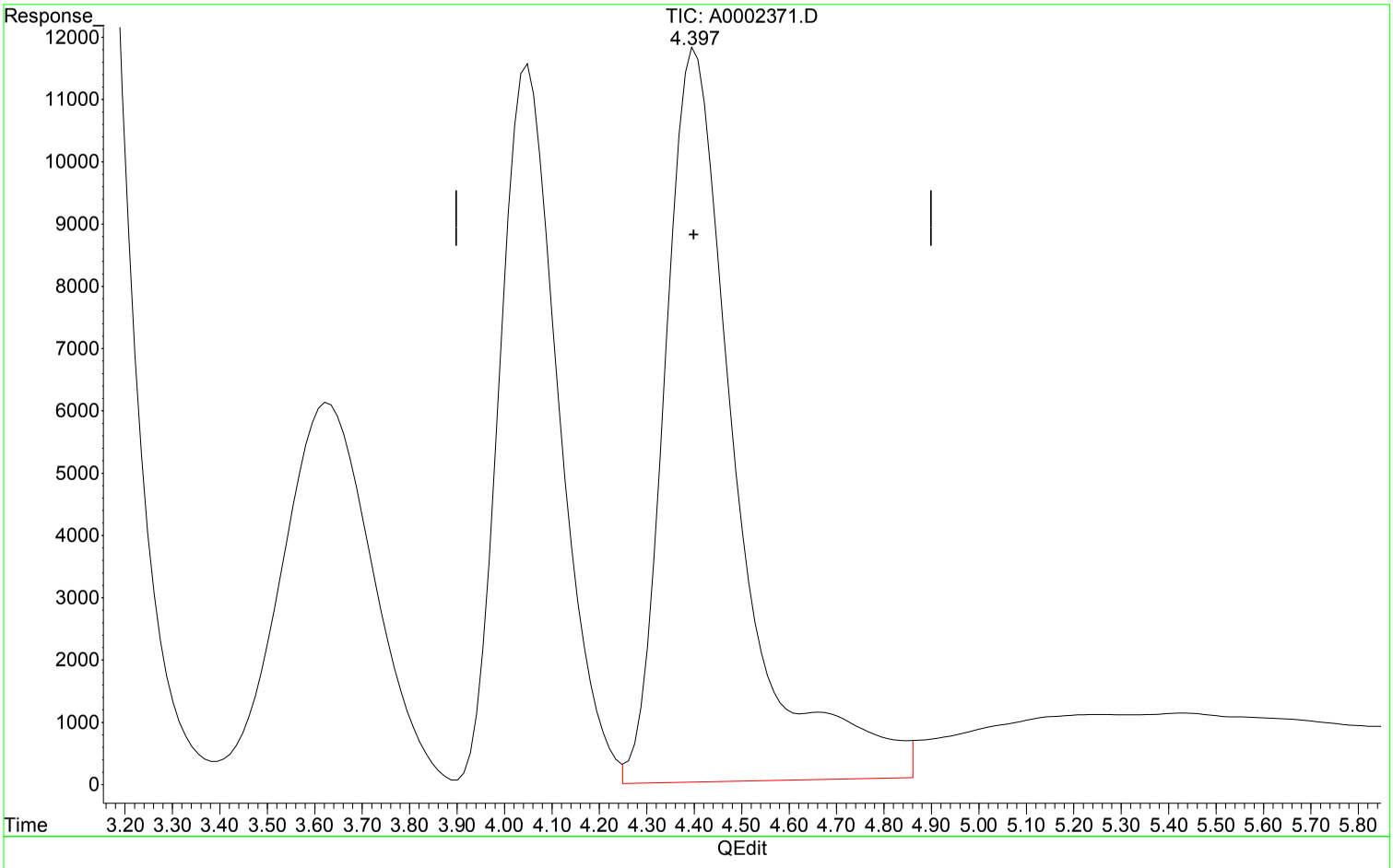
00946820

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.404min 21.093 ppm

response 1248683

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time



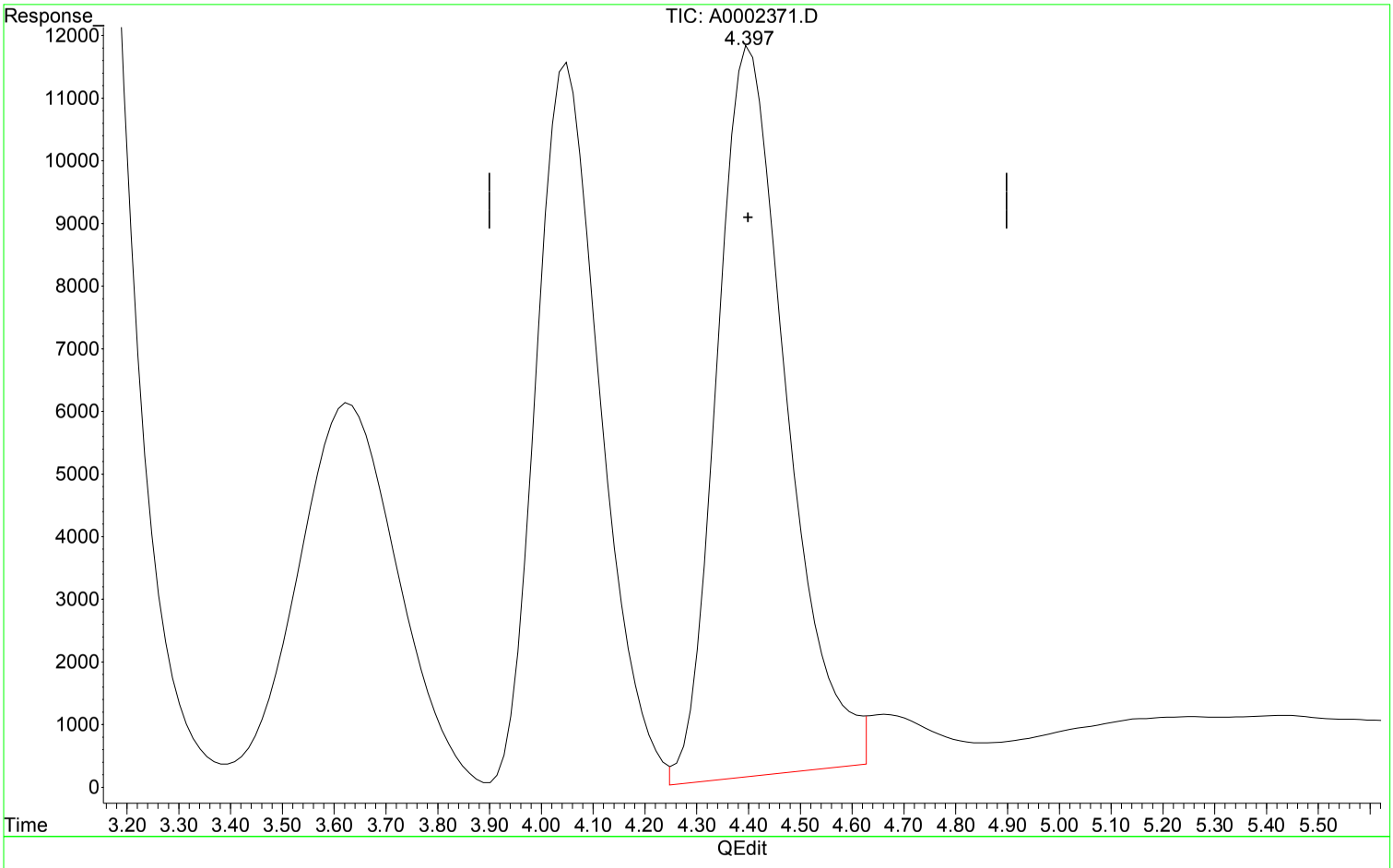
00946821

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.397min 18.525 ppm m

response 1096677

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time



00946822

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.133 | 942238 | 10.005 | ppm | |
| 2) T | Pyruvic acid | 3.631 | 448113 | 0.996 | ppm | |
| 3) T | Lactic Acid | 4.053 | 528635 | 9.991 | ppm | |
| 4) T | Acetic Acid | 4.399 | 585881 | 9.897 | ppm | m |
| 5) T | Propionic Acid | 9.226 | 585985 | 9.937 | ppm | |
| 6) T | Butyric Acid | 25.010 | 602088 | 9.966 | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



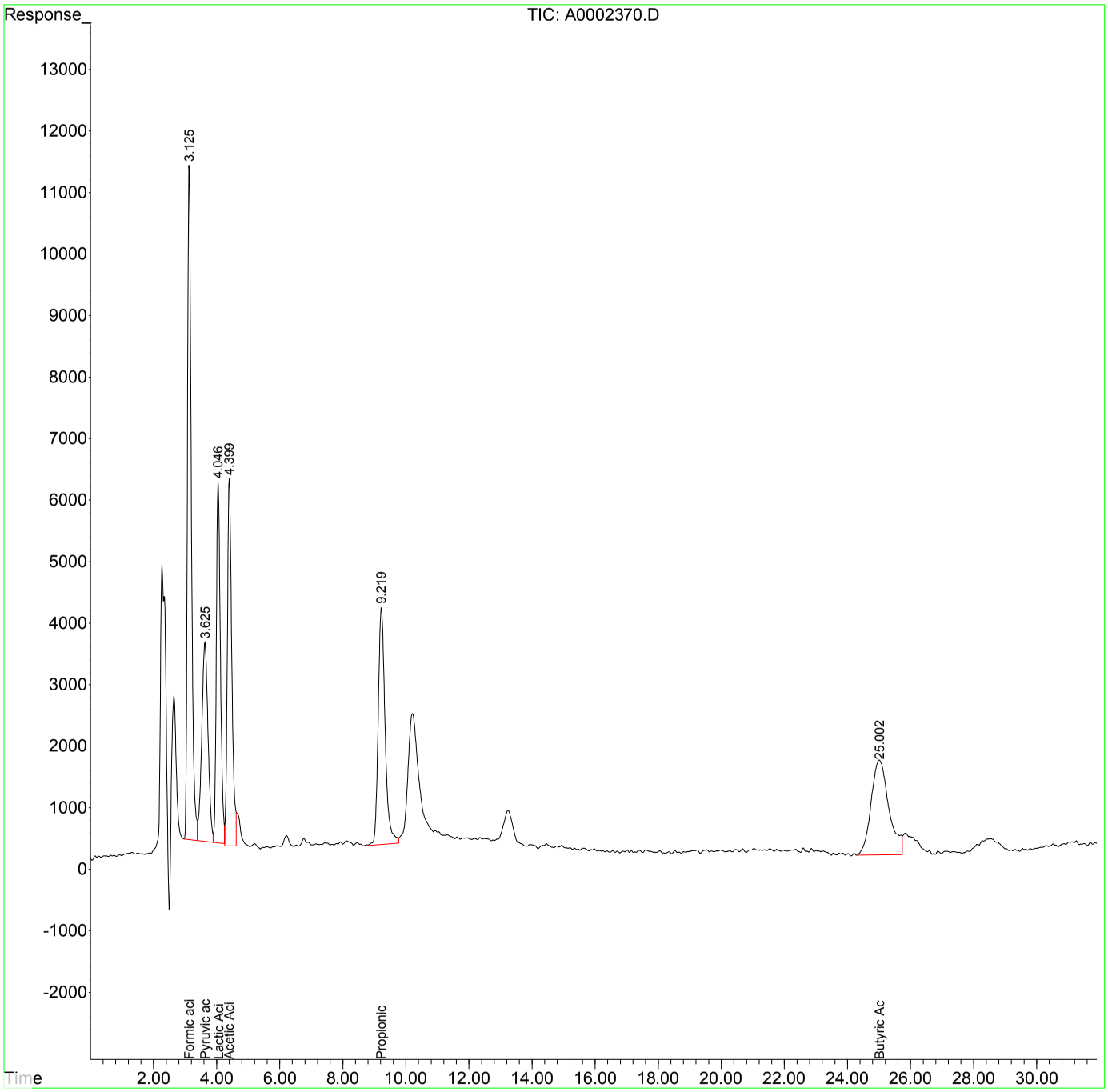
00946823

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

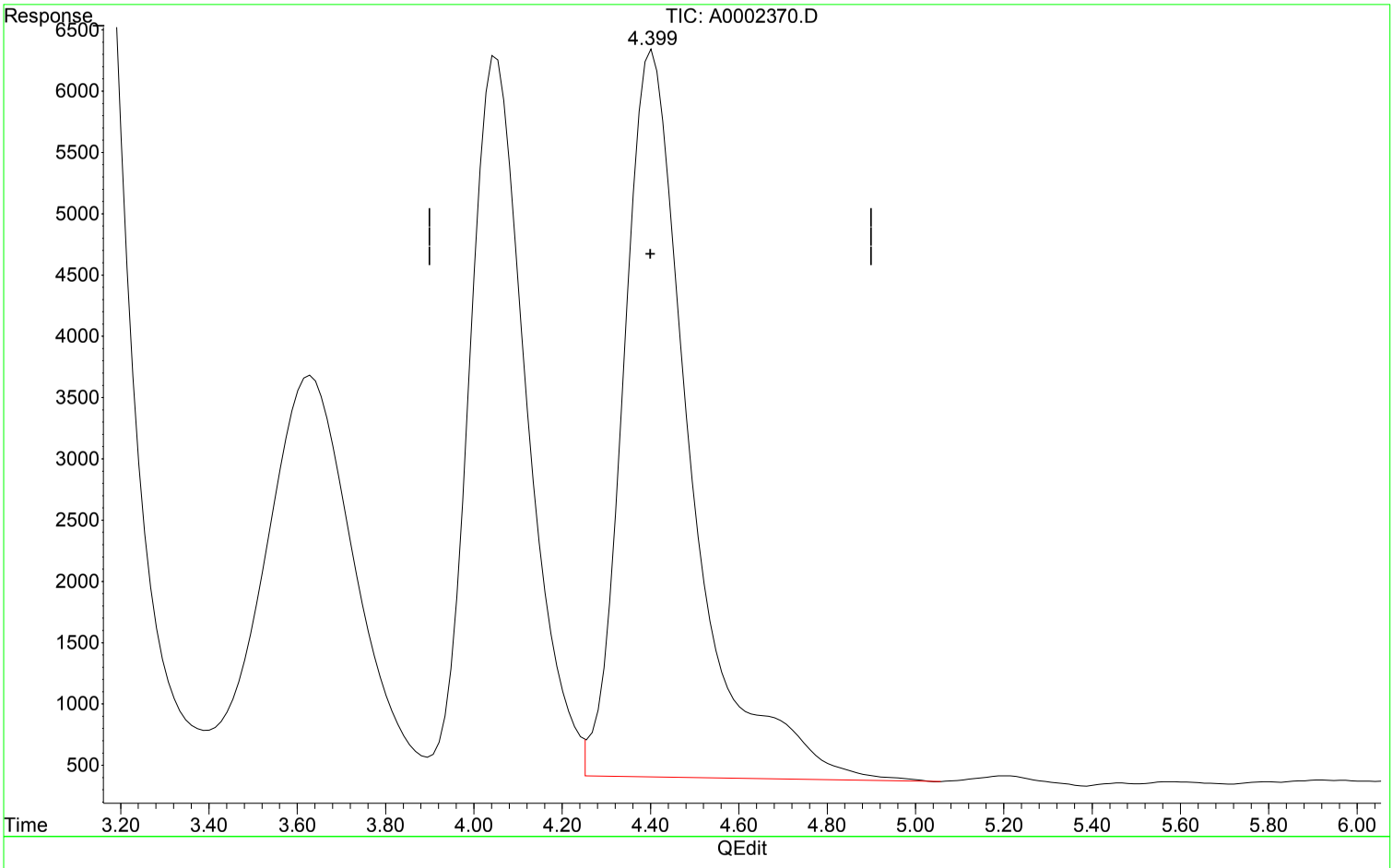


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.406min 10.646 ppm

response 630261

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:08:50 2018



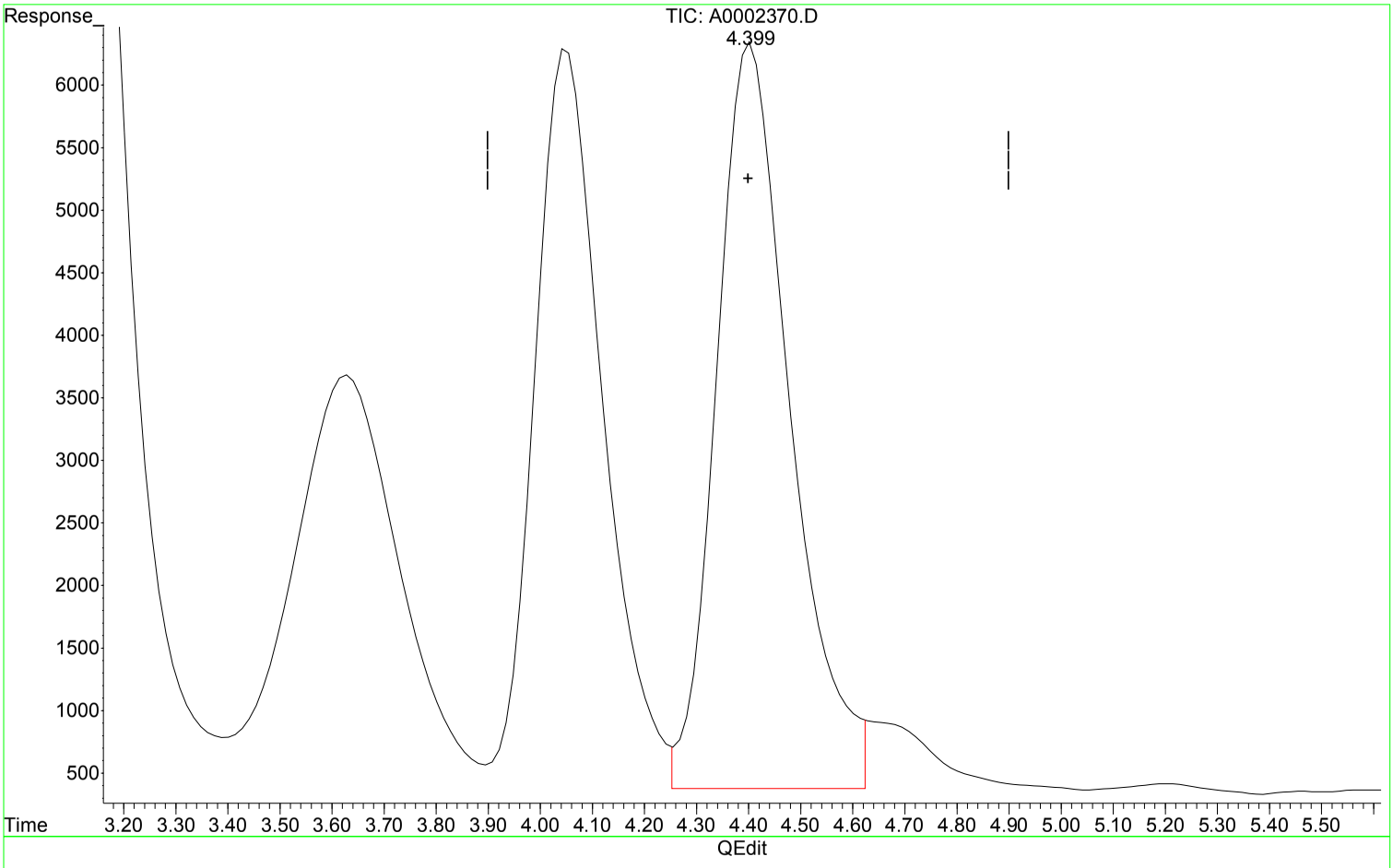
00946825

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.399min 9.897 ppm m

response 585881

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time



00946826

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.133 | 497049 | 5.278 | ppm | |
| 2) T | Pyruvic acid | 3.631 | 227620 | 0.506 | ppm | |
| 3) T | Lactic Acid | 4.053 | 269401 | 5.092 | ppm | |
| 4) T | Acetic Acid | 4.399 | 309471 | 5.228 | ppm | m |
| 5) T | Propionic Acid | 9.220 | 306395 | 5.196 | ppm | m |
| 6) T | Butyric Acid | 25.001 | 310758 | 5.144 | ppm | m |

(f)=RT Delta > 1/2 Window (m)=manual int.



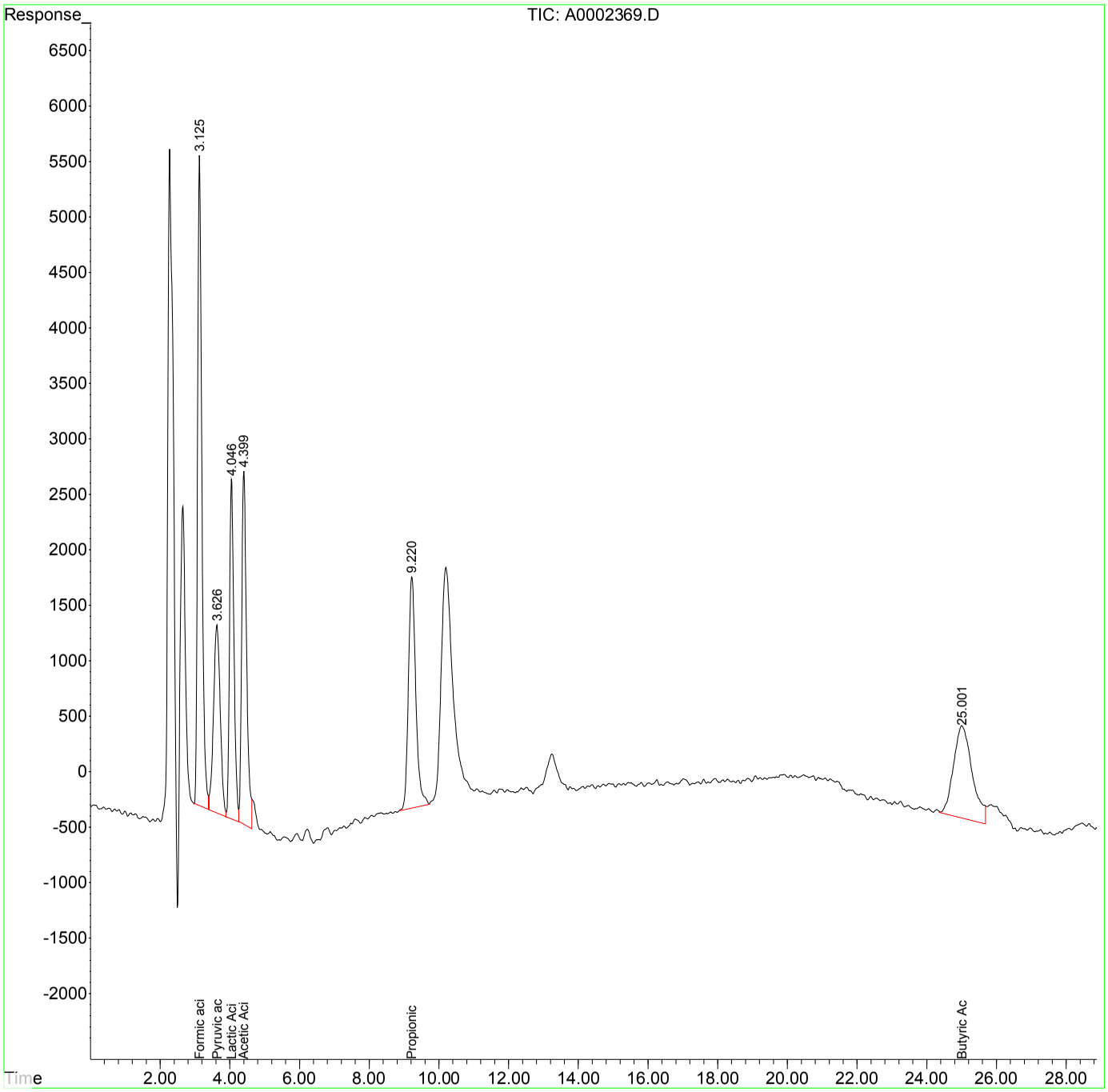
00946827

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

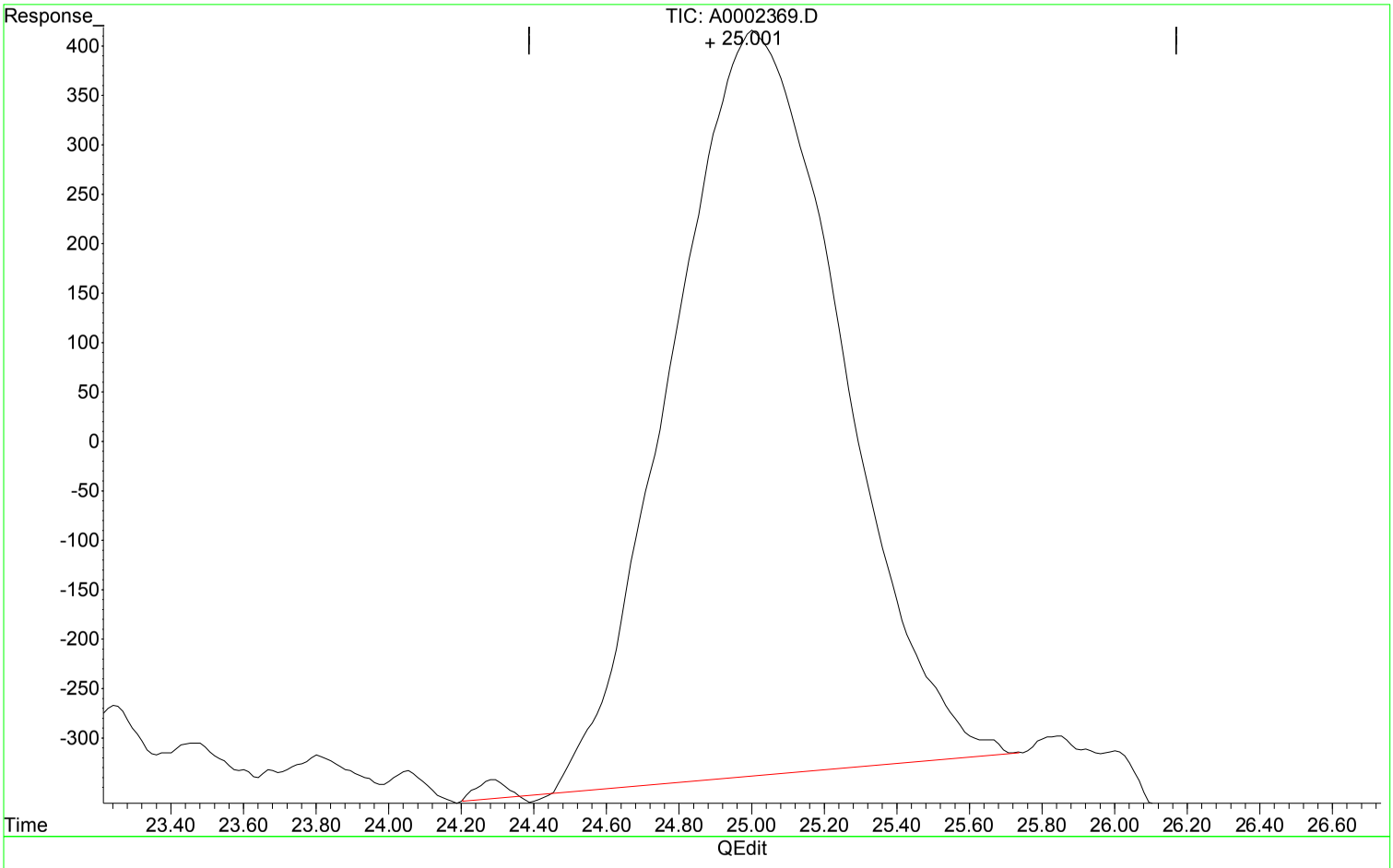


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

25.009min 4.071 ppm

response 245954

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time



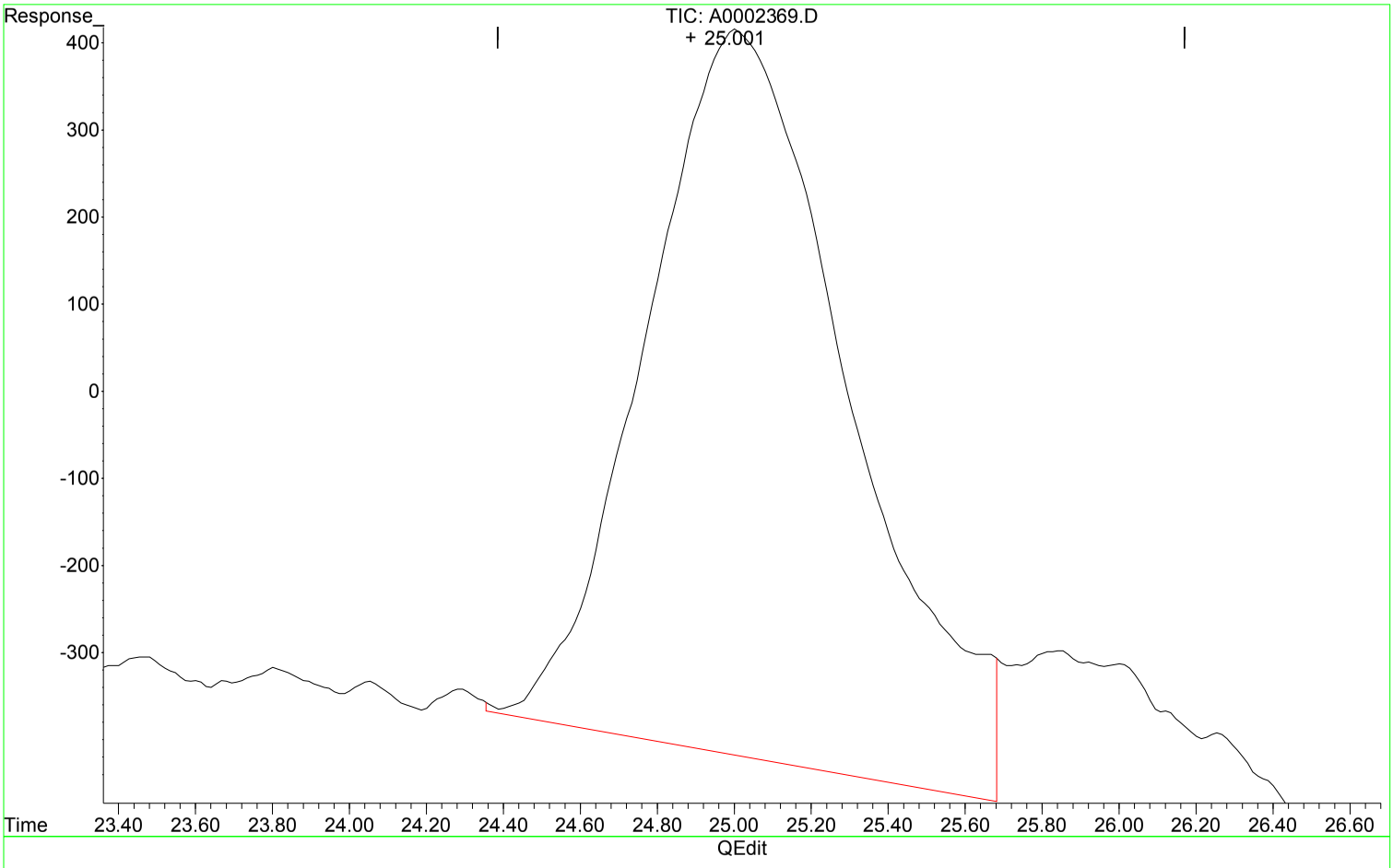
00946829

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

25.001min 5.144 ppm m

response 310758

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:45:19 2018



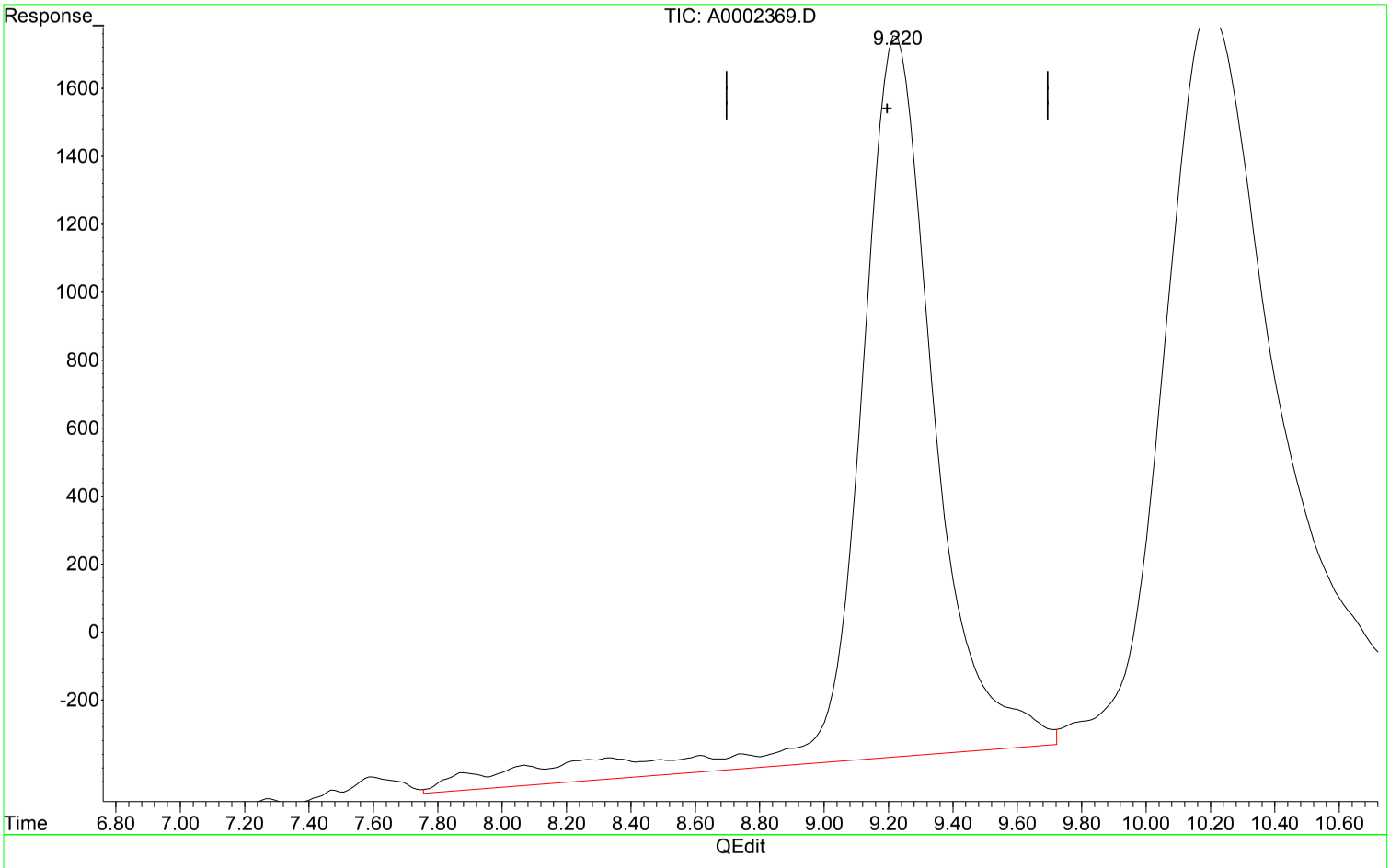
00946830

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

9.226min 6.027 ppm

response 355419

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:57 2018



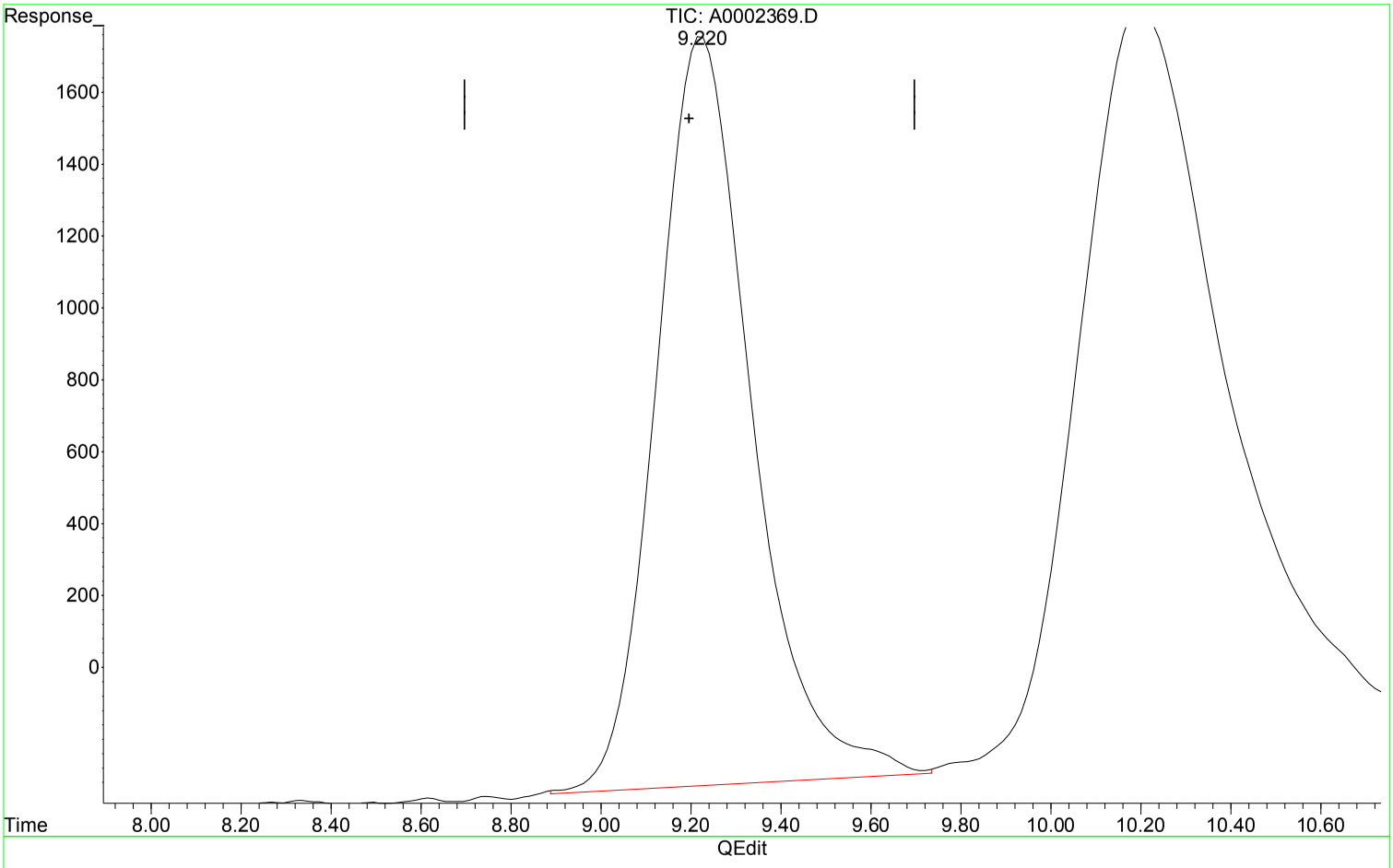
00946831

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

9.220min 5.196 ppm m

response 306395

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:45:02 2018



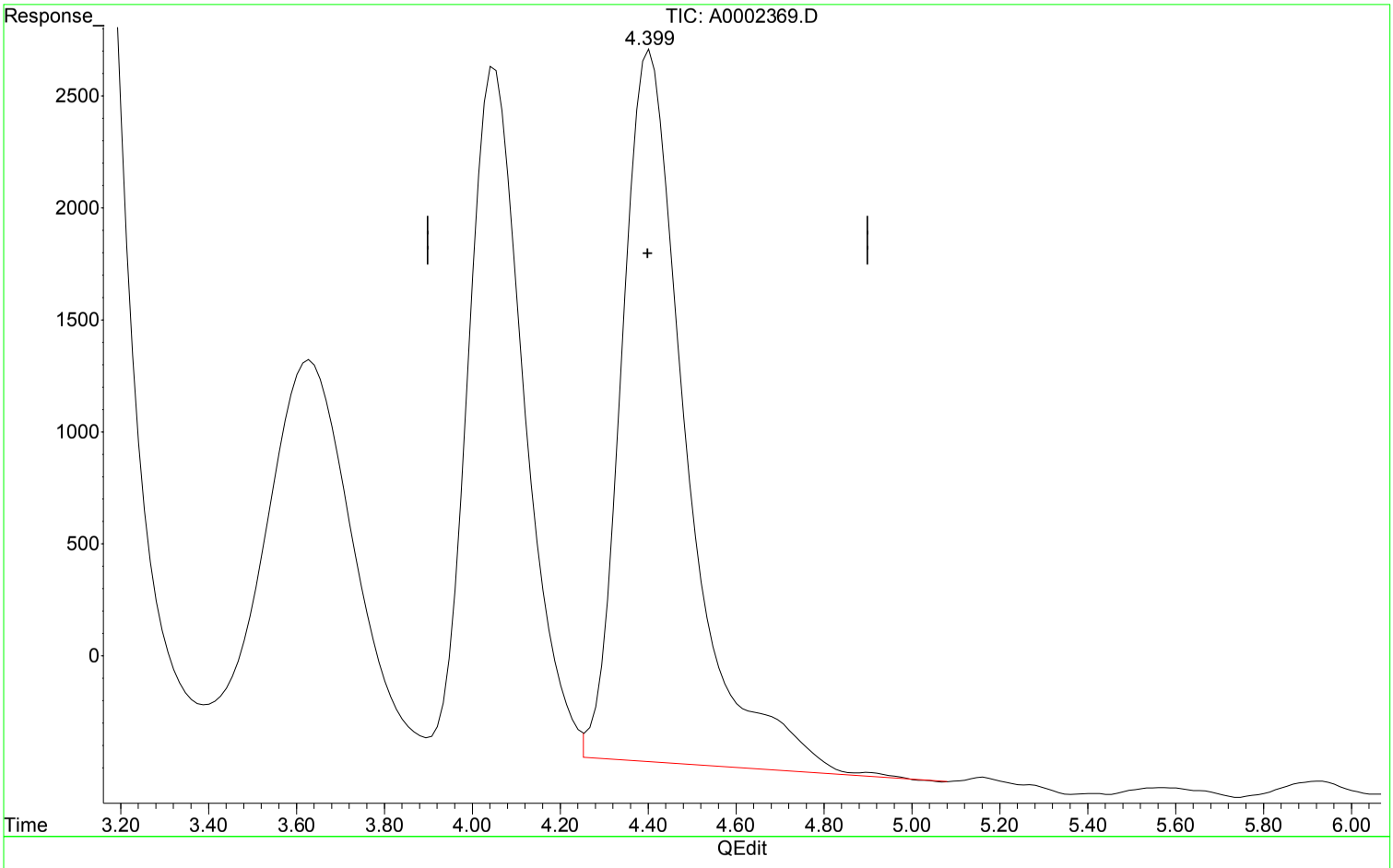
00946832

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.406min 5.542 ppm

response 328094

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:46 2018



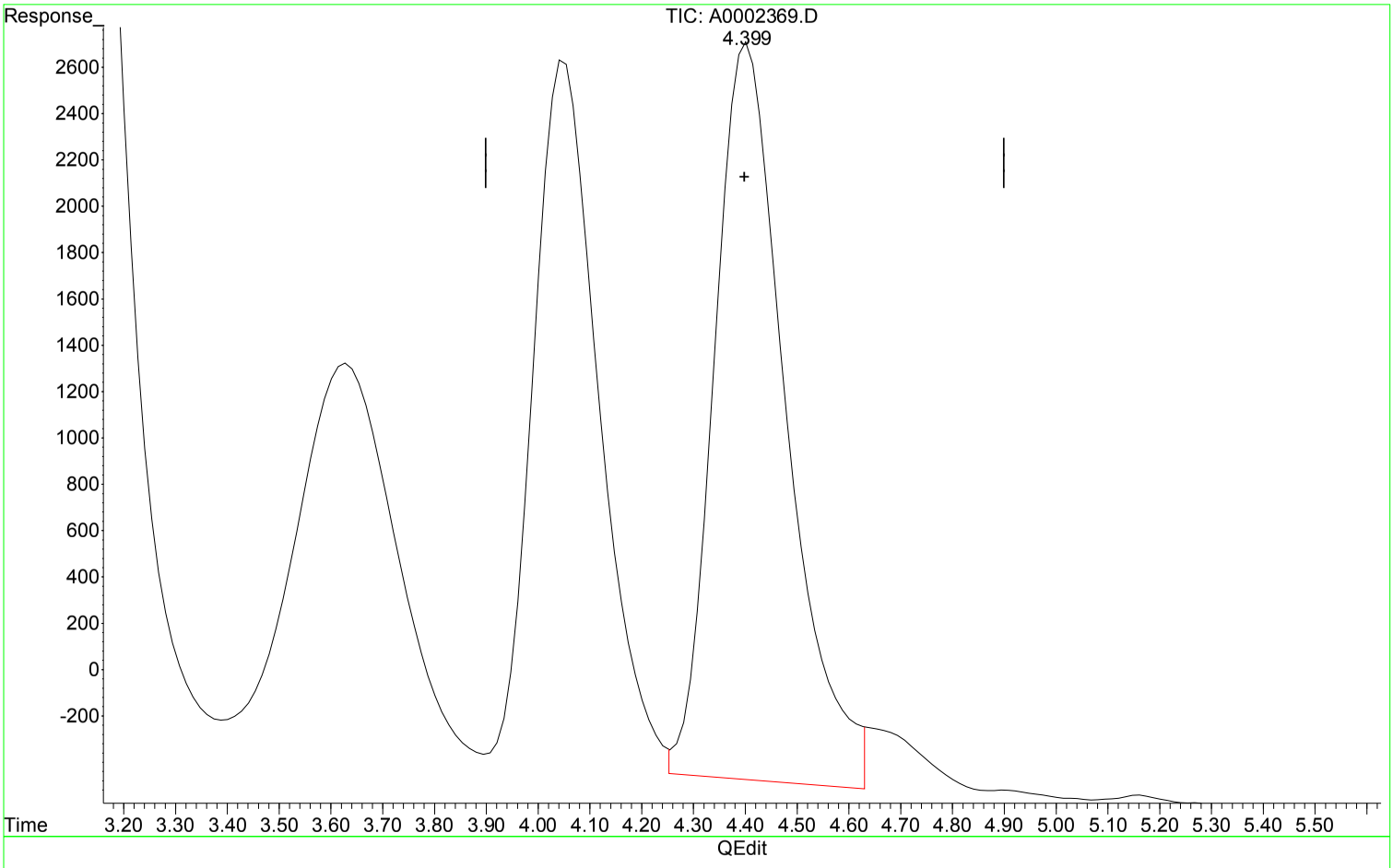
00946833

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.399min 5.228 ppm m

response 309471

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time



00946834

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.133 | 197324 | 2.095 | ppm | |
| 2) T | Pyruvic acid | 3.628 | 94203 | 0.209 | ppm | |
| 3) T | Lactic Acid | 4.053 | 108314 | 2.047 | ppm | |
| 4) T | Acetic Acid | 4.399 | 121343 | 2.050 | ppm | m |
| 5) T | Propionic Acid | 9.219 | 118189 | 2.004 | ppm | m |
| 6) T | Butyric Acid | 24.985 | 143852 | 2.381 | ppm | m |

(f)=RT Delta > 1/2 Window (m)=manual int.



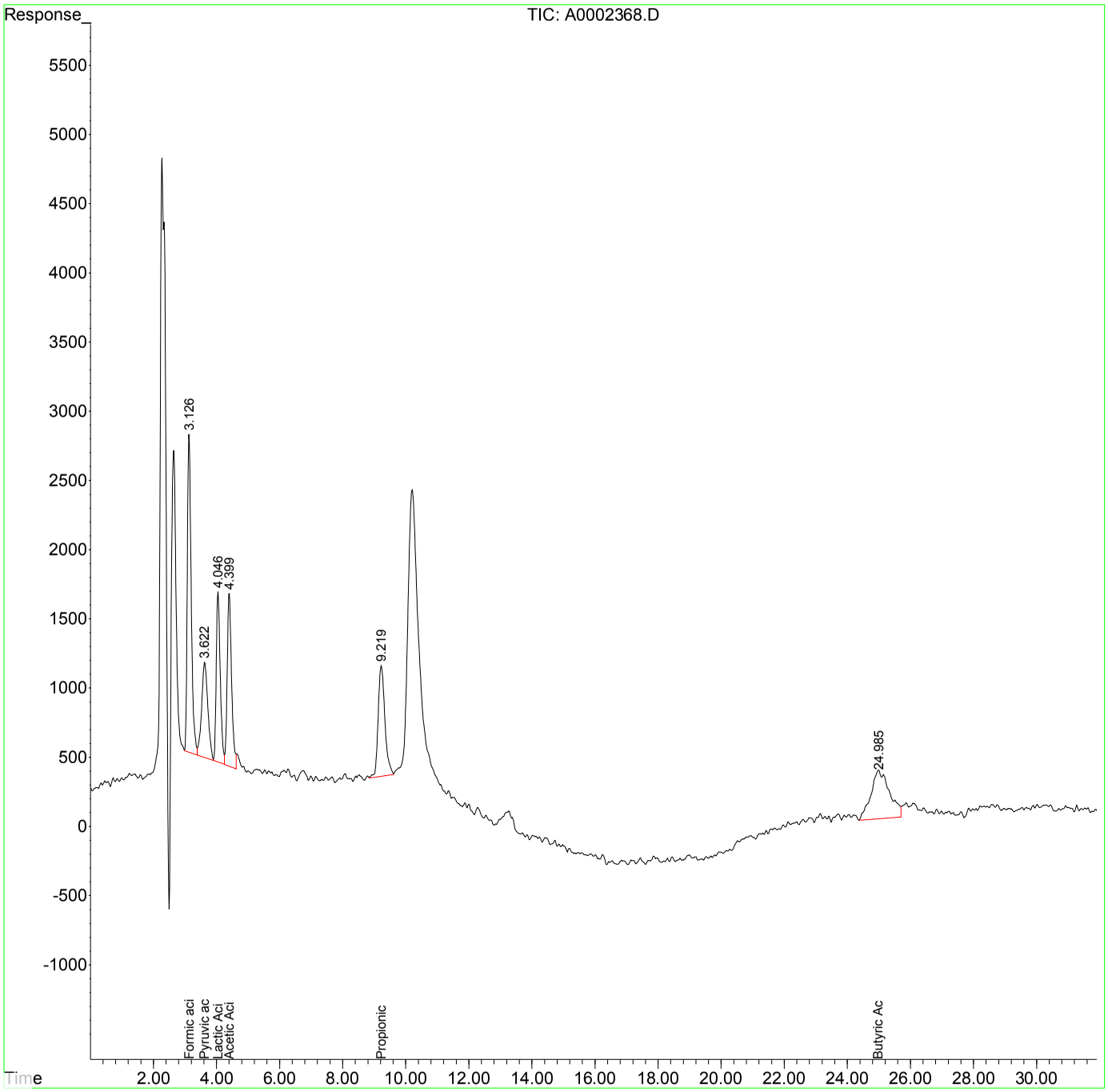
00946835

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

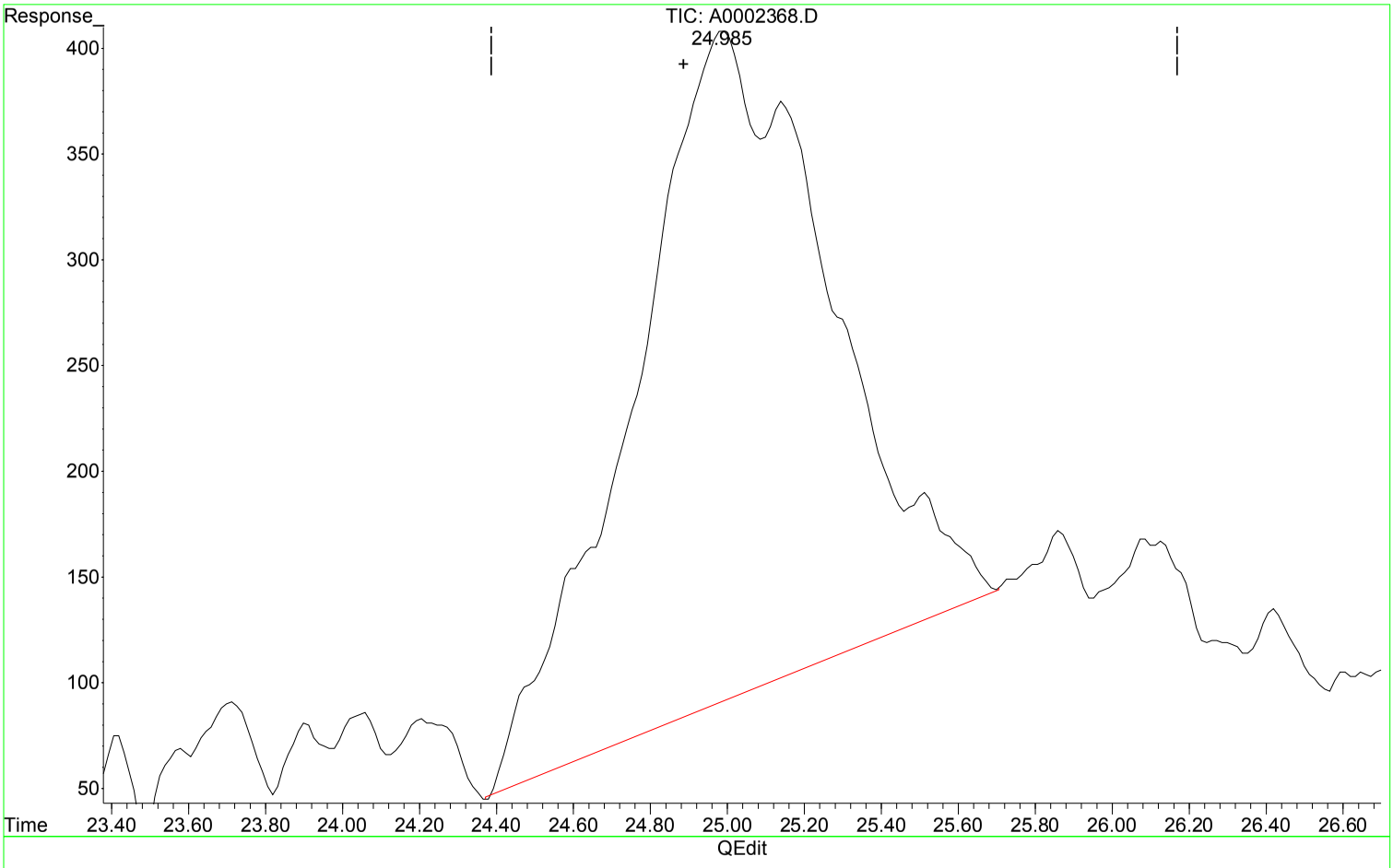


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

24.991min 1.857 ppm

response 112205

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time



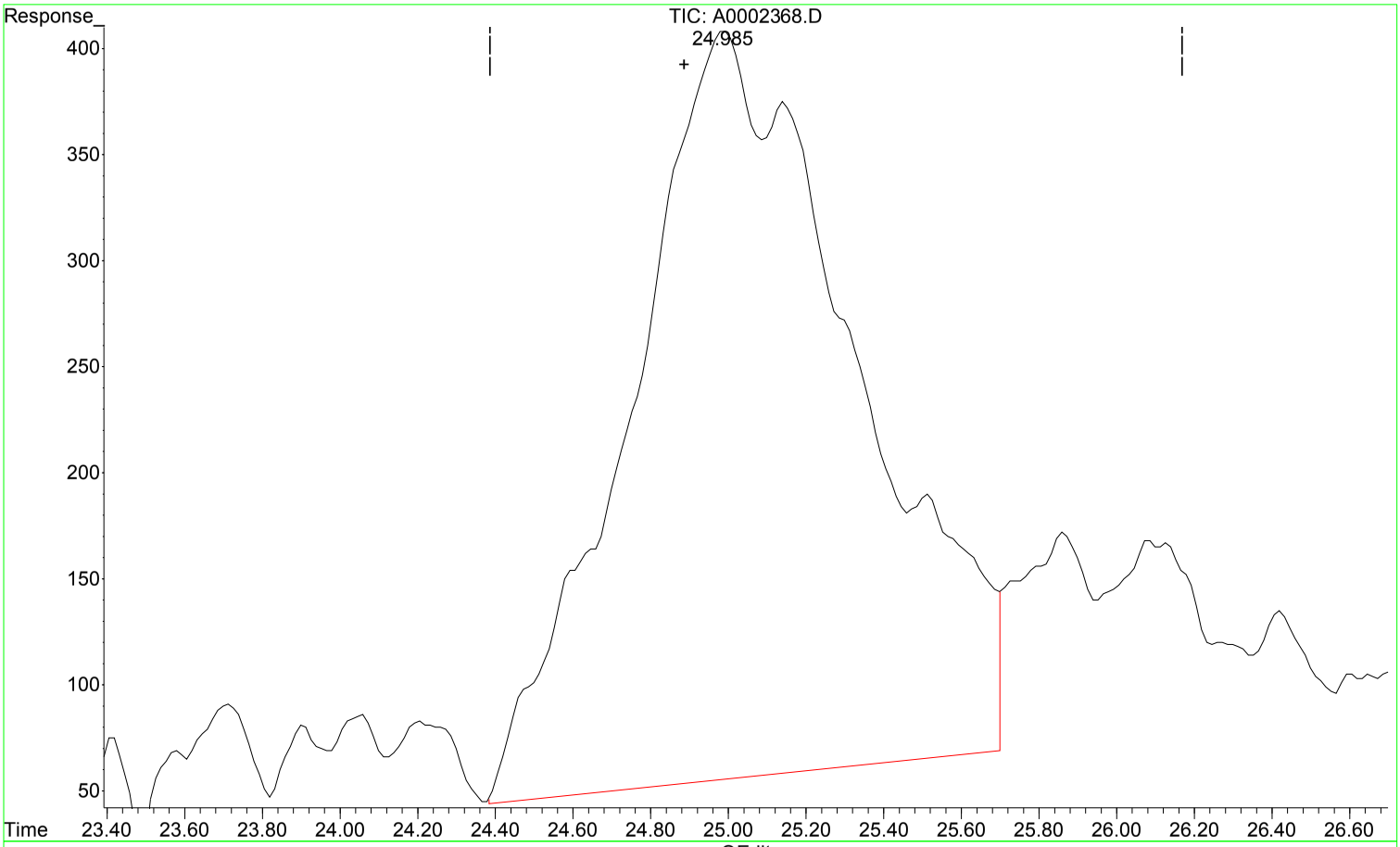
00946837

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

24.985min 2.381 ppm m

response 143852

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:27 2018 Page: 1



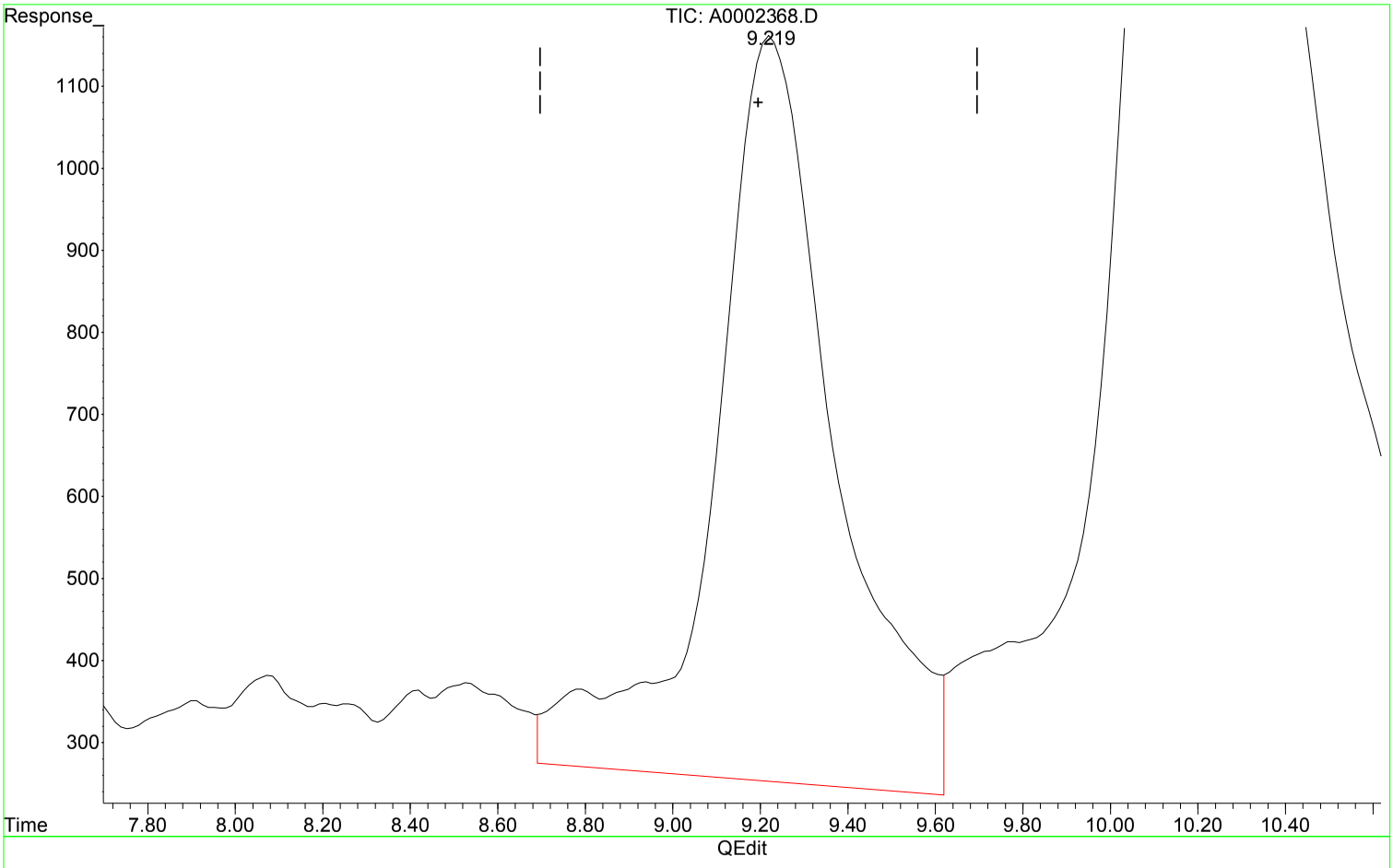
00946838

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

9.226min 3.005 ppm

response 177221

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:07 2018



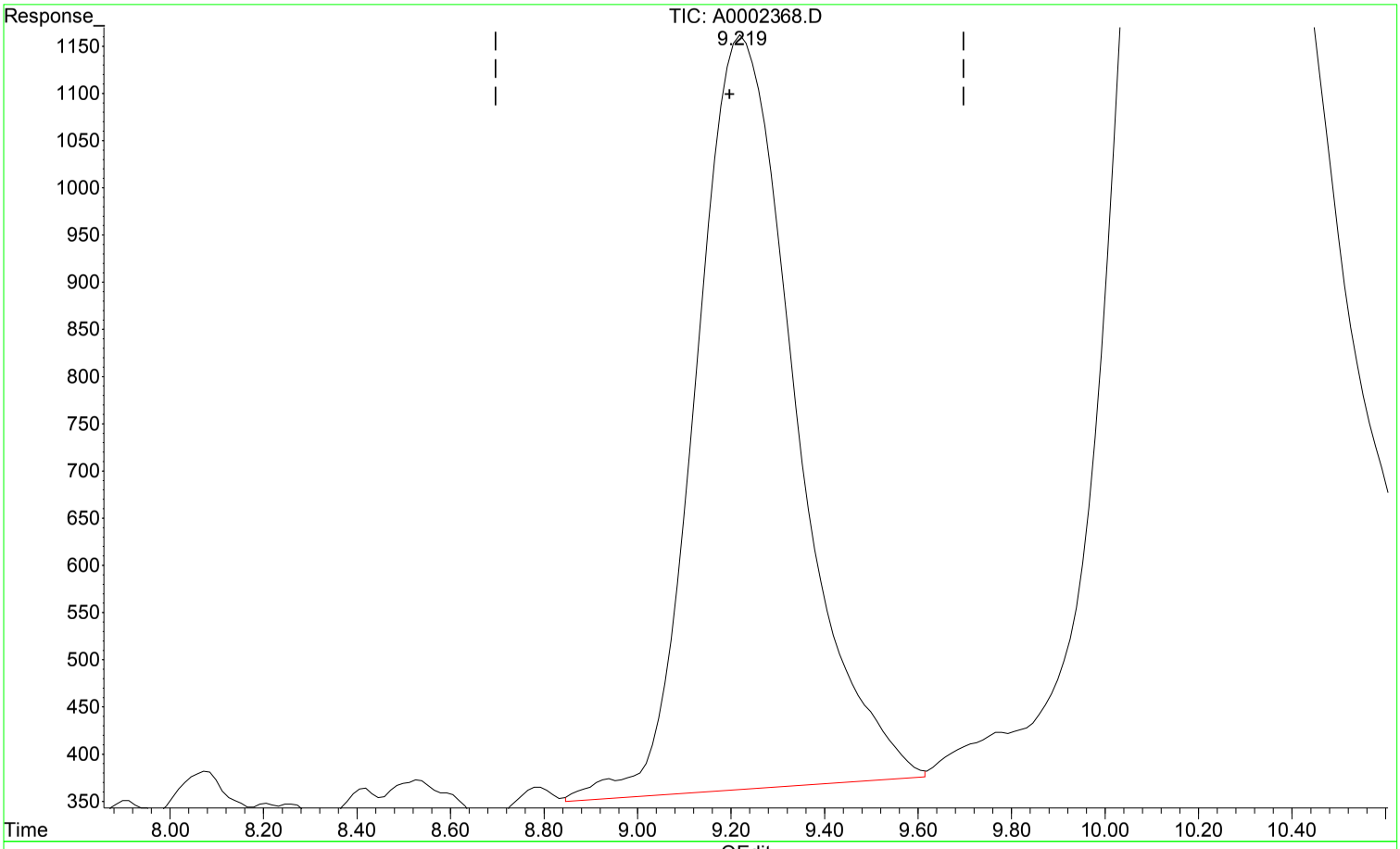
00946839

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

9.219min 2.004 ppm m

response 118189

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:13 2018



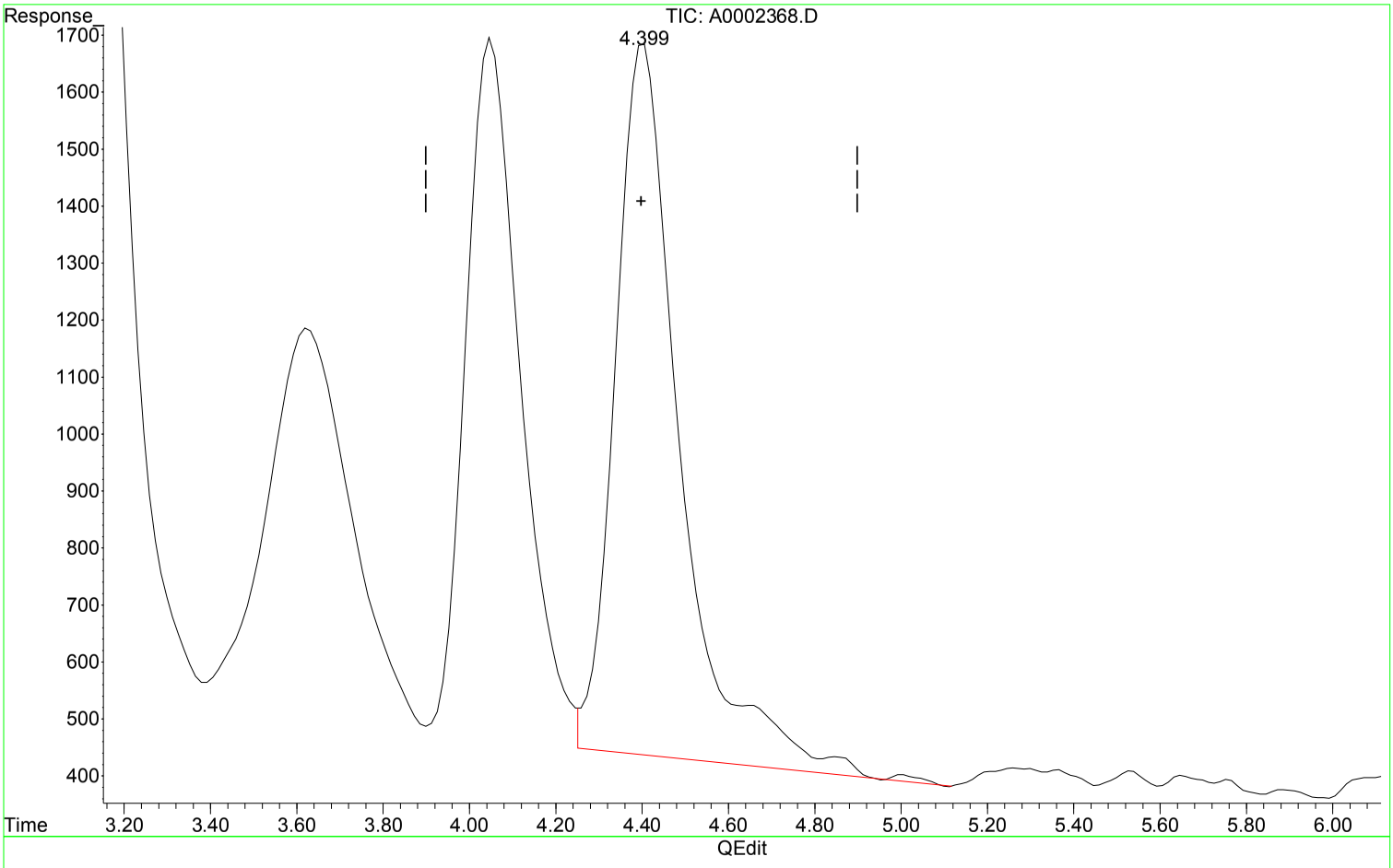
00946840

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.406min 2.212 ppm

response 130945

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:43:56 2018



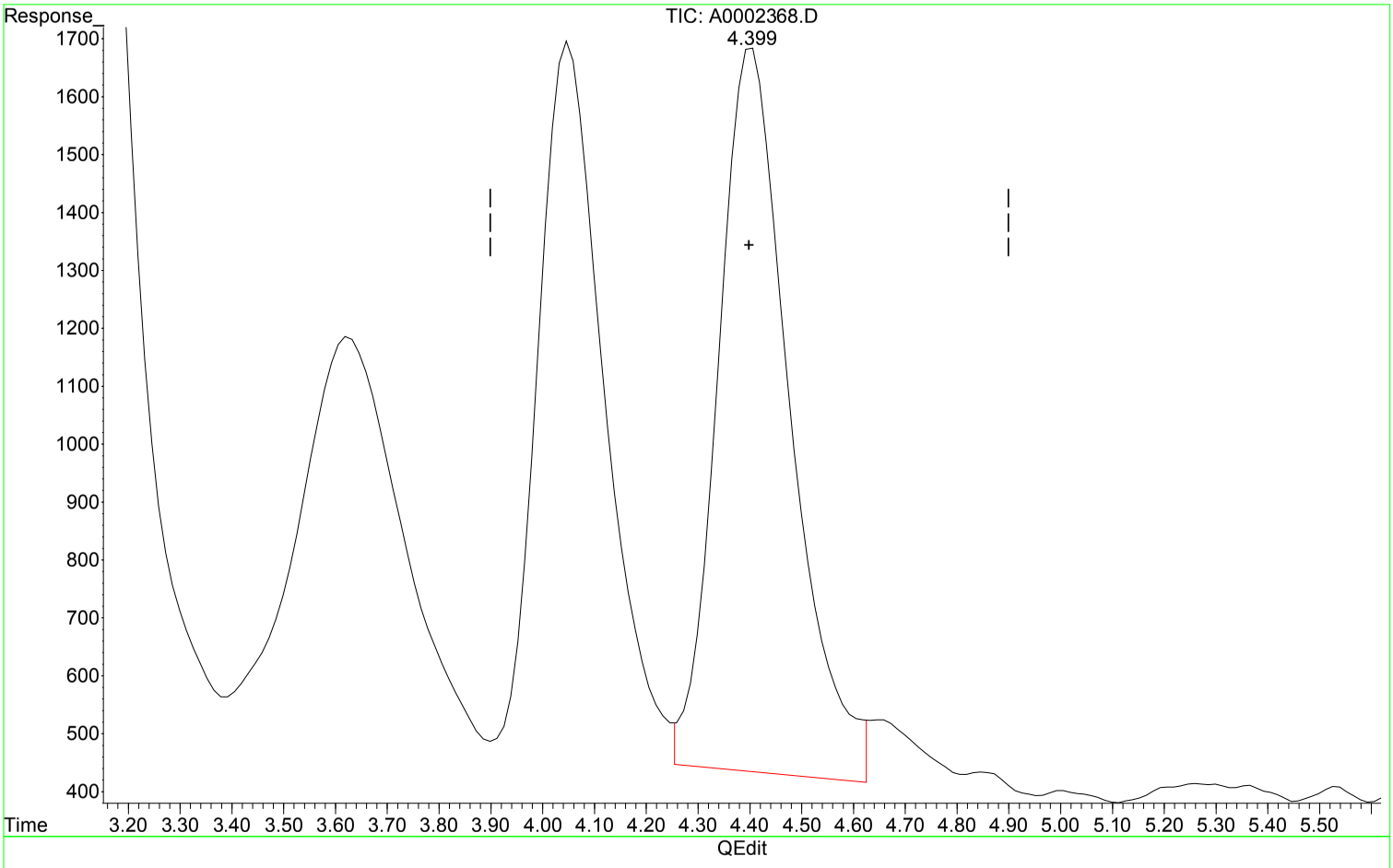
00946841

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(4) Acetic Acid (T)

4.399min 2.050 ppm m

response 121343

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time



00946842

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 3.133 | 101923 | 1.082 | ppm | |
| 2) T | Pyruvic acid | 3.631 | 46367 | 0.103 | ppm | |
| 3) T | Lactic Acid | 4.052 | 58945 | 1.114 | ppm | |
| 4) T | Acetic Acid | 4.404 | 60257 | 1.018 | ppm | |
| 5) T | Propionic Acid | 9.215 | 69400 | 1.177 | ppm | m |
| 6) T | Butyric Acid | 24.964 | 74253 | 1.229 | ppm | m |

(f)=RT Delta > 1/2 Window (m)=manual int.



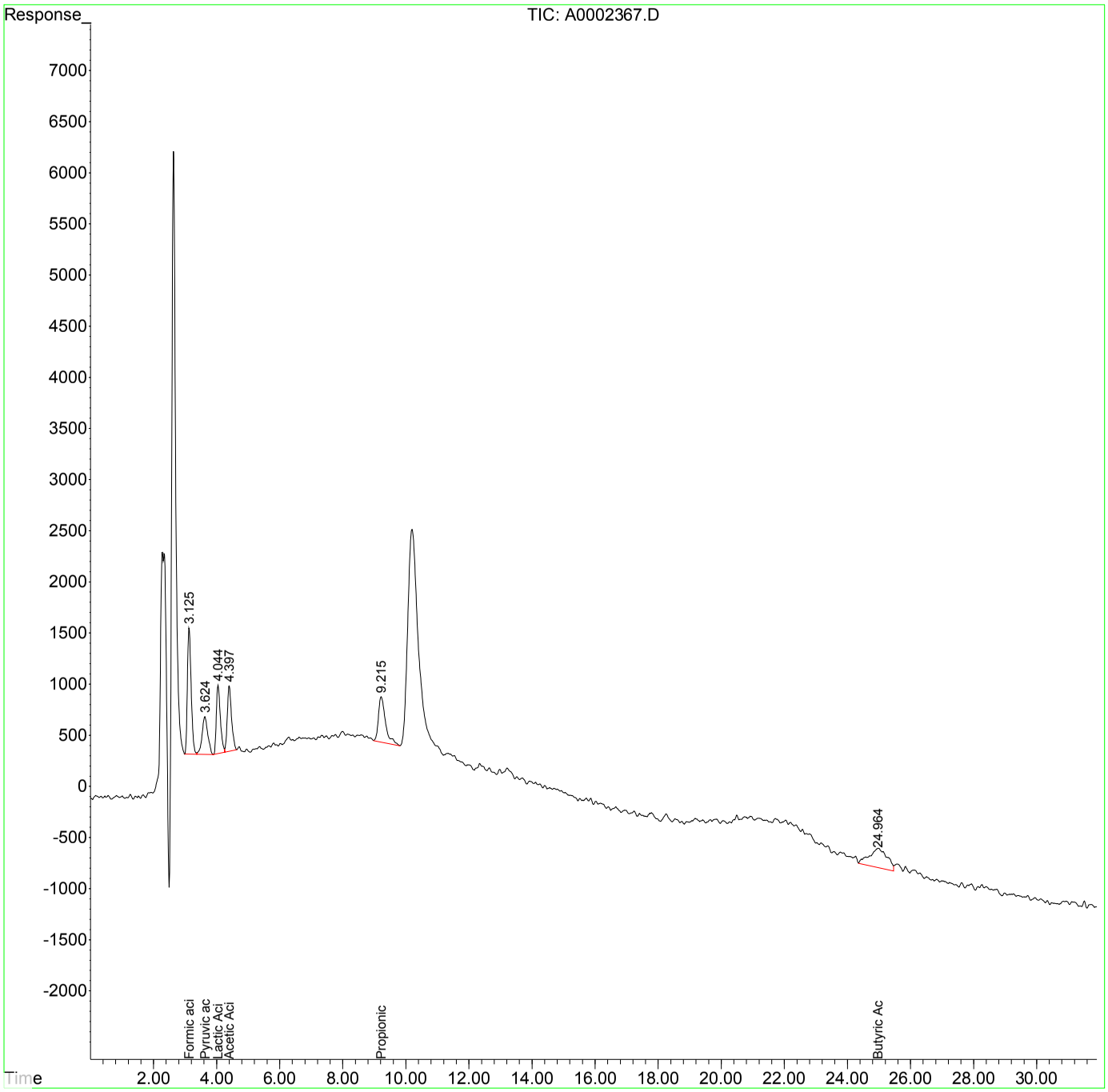
00946843

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

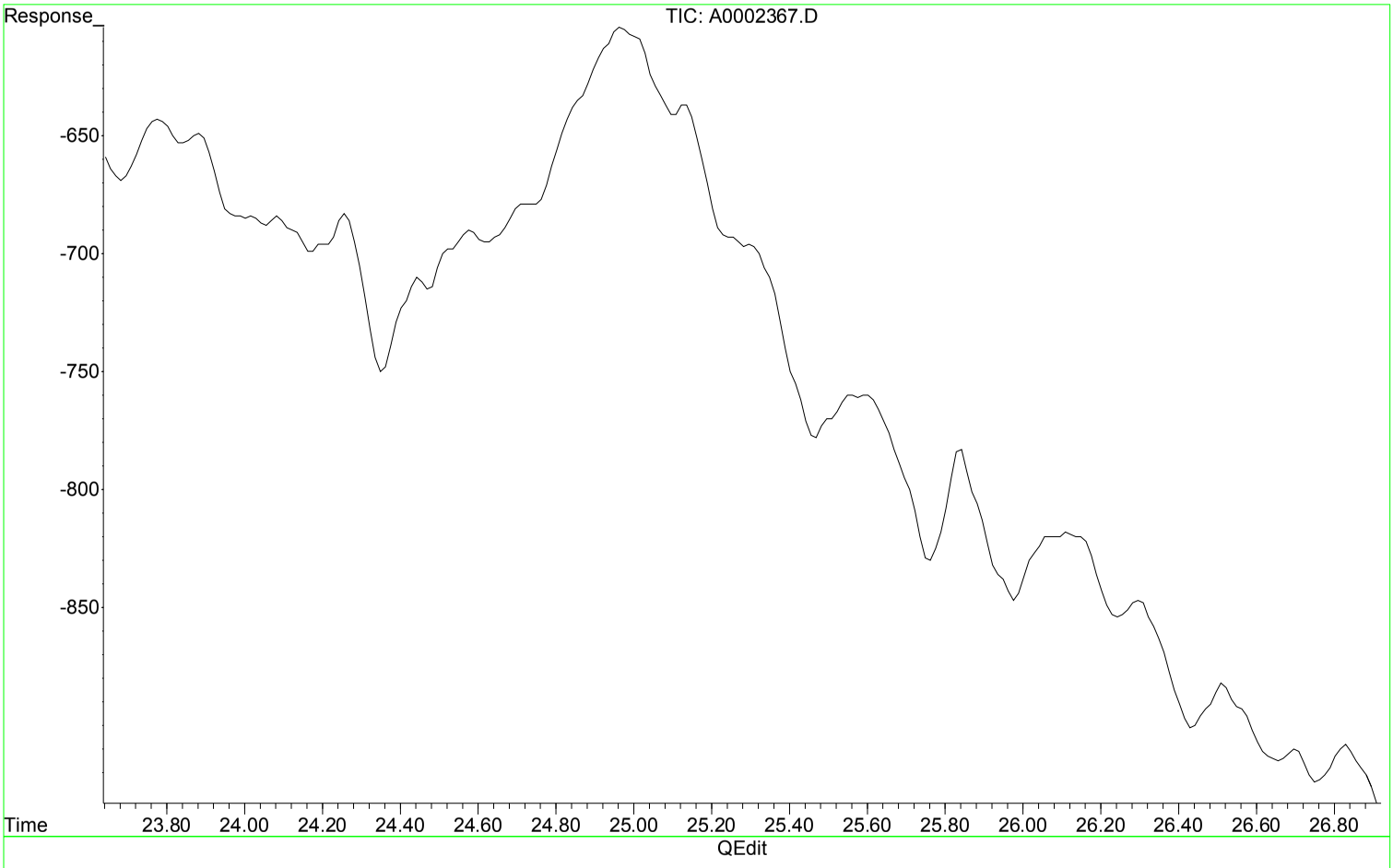


# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(6) Butyric Acid (T)

24.887min 0.000 ppm

response 0

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:43:19 2018



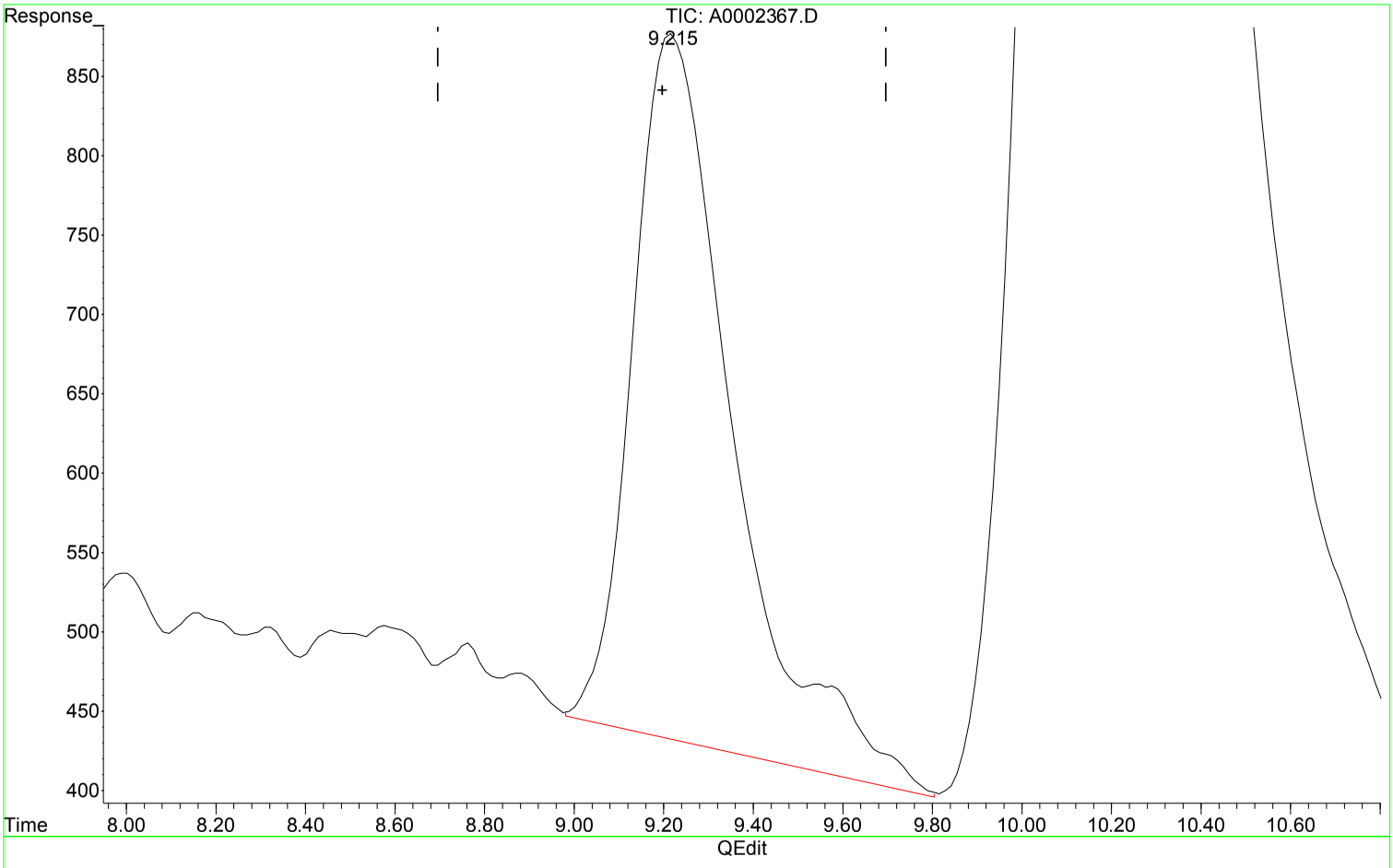
00946845

# Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210




(5) Propionic Acid (T)

9.215min 1.177 ppm m

response 69400

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time



00946846

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002366.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 11:26:57
Operator : b.allgeier
Sample : inst blk
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:43:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) t | Formic acid | 0.000 | 0 | N.D. | ppm | |
| 2) T | Pyruvic acid | 3.655 | 25630 | 0.057 | ppm | m |
| 3) T | Lactic Acid | 0.000 | 0 | N.D. | ppm | |
| 4) T | Acetic Acid | 0.000 | 0 | N.D. | ppm | |
| 5) T | Propionic Acid | 0.000 | 0 | N.D. | ppm | |
| 6) T | Butyric Acid | 0.000 | 0 | N.D. | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.



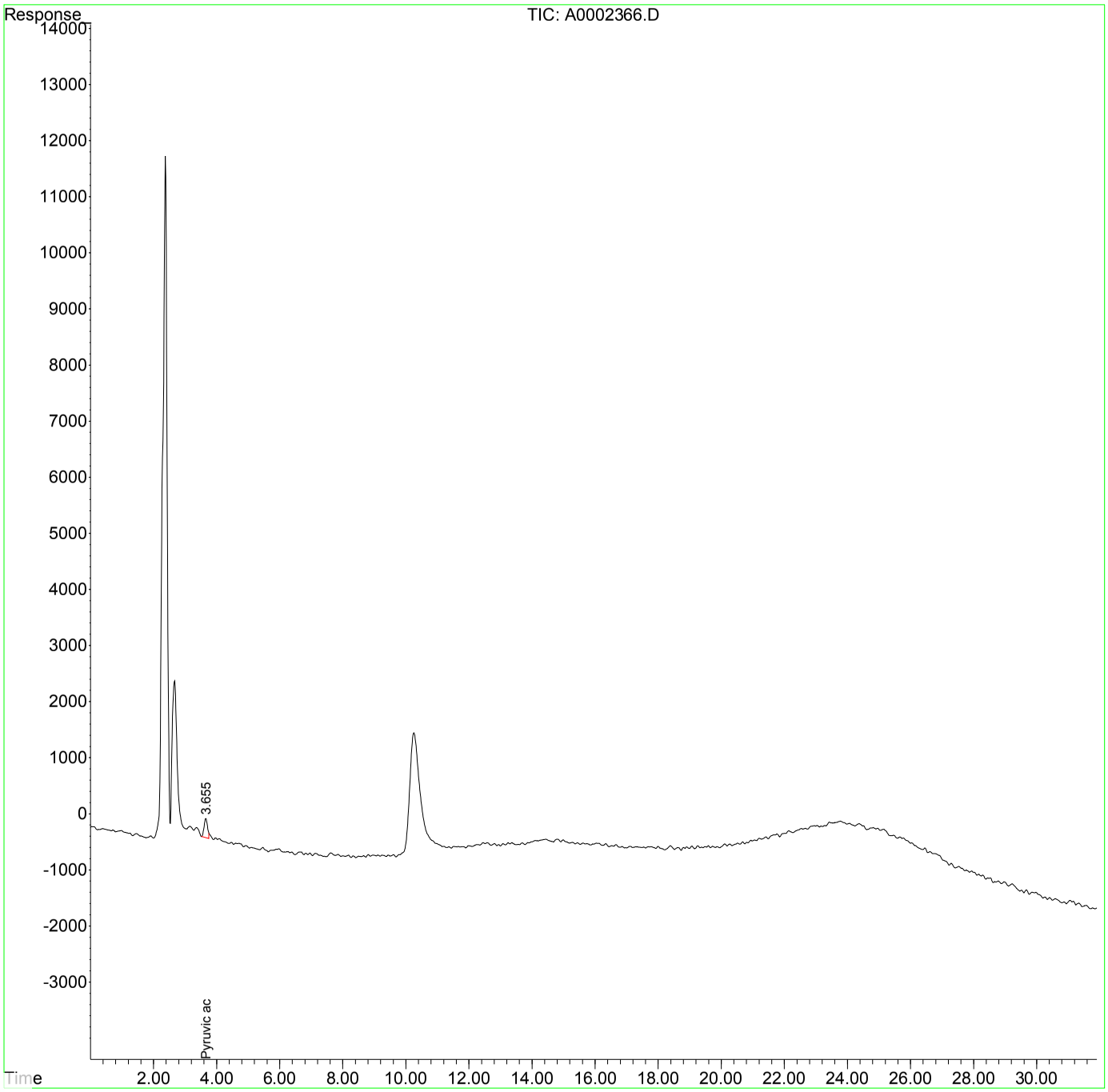
00946847

# Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002366.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 11:26:57
Operator : b.allgeier
Sample : inst blk
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:43:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210






00946848

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58

**Service Request:** R1812085
**Calibration Date:** 10/4/2018

# Initial Calibration Summary
# Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Calibration ID:** RC1800114
**Instrument ID:** R-HPLC-05

**Signal ID:** synergi hydro rp

| # | Lab Code | Sample Name | File Location | Acquisition Date |
|---|---|---|---|---|
| 01 | RC1800114-01 | 0.1-1.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002367.D | 10/04/2018 12:01 |
| 02 | RC1800114-02 | 0.2-2.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002368.D | 10/04/2018 12:32 |
| 03 | RC1800114-03 | 0.5-5.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002369.D | 10/04/2018 13:04 |
| 04 | RC1800114-04 | 1.0-10.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002370.D | 10/04/2018 13:36 |
| 05 | RC1800114-05 | 2.0-20.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002371.D | 10/04/2018 14:21 |
| 06 | RC1800114-06 | 5.0-50.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002372.D | 10/04/2018 14:56 |
| 07 | RC1800114-07 | 10.0-100.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002373.D | 10/04/2018 15:31 |
| 08 | RC1800114-08 | 20.0-200.0ppm | I:\ACQUDATA\hplc05\data\100418\A0002374.D | 10/04/2018 16:03 |

## Analyte

**Acetic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1.000 | 6.026E4 | 02 | 2.000 | 6.067E4 | 03 | 5.000 | 6.189E4 | 04 | 10.000 | 5.859E4 |
| 05 | 20.000 | 5.483E4 | 06 | 50.000 | 6.053E4 | 07 | 100.000 | 5.725E4 | 08 | 200.000 | 5.933E4 |

**Butanoic Acid (Butyric Acid)**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1.000 | 7.425E4 | 02 | 2.000 | 7.193E4 | 03 | 5.000 | 6.215E4 | 04 | 10.000 | 6.021E4 |
| 05 | 20.000 | 6.035E4 | 06 | 50.000 | 5.865E4 | 07 | 100.000 | 5.511E4 | 08 | 200.000 | 6.053E4 |

**Lactic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1.000 | 5.895E4 | 02 | 2.000 | 5.416E4 | 03 | 5.000 | 5.388E4 | 04 | 10.000 | 5.286E4 |
| 05 | 20.000 | 5.017E4 | 06 | 50.000 | 5.423E4 | 07 | 100.000 | 5.216E4 | 08 | 200.000 | 5.371E4 |

**Propionic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1.000 | 6.94E4 | 02 | 2.000 | 5.909E4 | 03 | 5.000 | 6.128E4 | 04 | 10.000 | 5.86E4 |
| 05 | 20.000 | 5.703E4 | 06 | 50.000 | 5.9E4 | 07 | 100.000 | 5.508E4 | 08 | 200.000 | 5.726E4 |

**Pyruvic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 0.100 | 4.637E5 | 02 | 0.200 | 4.71E5 | 03 | 0.500 | 4.552E5 | 04 | 1.000 | 4.481E5 |
| 05 | 2.000 | 4.25E5 | 06 | 5.000 | 4.588E5 | 07 | 10.000 | 4.43E5 | 08 | 20.000 | 4.585E5 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58

**Service Request:** R1812085
**Calibration Date:** 10/4/2018

# Initial Calibration Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Calibration ID:** RC1800114
**Instrument ID:** R-HPLC-05

**Signal ID:** synergi hydro rp

| Analyte Name | Compound Type | Calibration Evaluation | | | | Calibration Evaluation | |
|---|---|---|---|---|---|---|---|
| | | Fit Type | Eval | Eval Result | Control Criteria | Average RRF | Minimum RRF |
| Acetic Acid | TRG | Average RF | % RSD | 3.8 | ≤ | 5.917E4 | |
| Butanoic Acid (Butyric Acid) | TRG | Average RF | % RSD | 10.6 | ≤ | 6.29E4 | |
| Lactic Acid | TRG | Average RF | % RSD | 4.6 | ≤ | 5.376E4 | |
| Propionic Acid | TRG | Average RF | % RSD | 7.3 | ≤ | 5.959E4 | |
| Pyruvic Acid | TRG | Average RF | % RSD | 3.1 | ≤ | 4.529E5 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58

**Service Request:** R1812085
**Calibration Date:** 12/31/2018

# Initial Calibration Summary
# Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Calibration ID:** RC1900001
**Instrument ID:** R-HPLC-05

**Signal ID:** synergi hydro rp

| # | Lab Code | Sample Name | File Location | Acquisition Date |
|---|---|---|---|---|
| 01 | RC1900001-01 | 0.1-1.0ppm | I:\ACQUDATA\hplc05\data\123118\A0002708.D | 12/31/2018 15:30 |
| 02 | RC1900001-02 | 0.2-2.0ppm | I:\ACQUDATA\hplc05\data\123118\A0002709.D | 12/31/2018 16:20 |
| 03 | RC1900001-03 | 0.5-5.0ppm | I:\ACQUDATA\hplc05\data\123118\A0002710.D | 12/31/2018 17:10 |
| 04 | RC1900001-04 | 1.0-10.0ppm | I:\ACQUDATA\hplc05\data\123118\A0002711.D | 12/31/2018 18:01 |
| 05 | RC1900001-05 | 2.0-20.0ppm | I:\ACQUDATA\hplc05\data\123118\A0002712.D | 12/31/2018 18:53 |
| 06 | RC1900001-06 | 5.0-50.0ppm | I:\ACQUDATA\hplc05\data\123118\A0002713.D | 12/31/2018 20:00 |
| 07 | RC1900001-07 | 10.0-100ppm | I:\ACQUDATA\hplc05\data\123118\A0002714.D | 12/31/2018 20:39 |
| 08 | RC1900001-08 | 20.0-200.0ppm | I:\ACQUDATA\hplc05\data\123118\A0002715.D | 12/31/2018 21:32 |

## Analyte

**Acetic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1.000 | 6.213E4 | 02 | 2.000 | 6.158E4 | 03 | 5.000 | 5.682E4 | 04 | 10.000 | 5.642E4 |
| 05 | 20.000 | 5.639E4 | 06 | 50.000 | 5.924E4 | 07 | 100.000 | 5.609E4 | 08 | 200.000 | 5.826E4 |

**Butanoic Acid (Butyric Acid)**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 02 | 2.000 | 6.107E4 | 03 | 5.000 | 5.113E4 | 04 | 10.000 | 5.523E4 | 05 | 20.000 | 5.225E4 |
| 06 | 50.000 | 5.443E4 | 07 | 100.000 | 5.078E4 | 08 | 200.000 | 5.385E4 | | | |

**Lactic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1.000 | 6.114E4 | 02 | 2.000 | 5.896E4 | 03 | 5.000 | 5.734E4 | 04 | 10.000 | 5.761E4 |
| 05 | 20.000 | 5.722E4 | 06 | 50.000 | 5.956E4 | 07 | 100.000 | 5.638E4 | 08 | 200.000 | 5.866E4 |

**Propionic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1.000 | 6.654E4 | 02 | 2.000 | 6.347E4 | 03 | 5.000 | 5.393E4 | 04 | 10.000 | 5.633E4 |
| 05 | 20.000 | 5.432E4 | 06 | 50.000 | 5.624E4 | 07 | 100.000 | 5.442E4 | 08 | 200.000 | 5.58E4 |

**Pyruvic Acid**

| # | Amount | RF | # | Amount | RF | # | Amount | RF | # | Amount | RF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 0.100 | 7.214E5 | 02 | 0.200 | 7.356E5 | 03 | 0.500 | 6.717E5 | 04 | 1.000 | 6.659E5 |
| 05 | 2.000 | 8.776E5 | 06 | 5.000 | 7.096E5 | 07 | 10.000 | 6.717E5 | 08 | 20.000 | 6.998E5 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58

**Service Request:** R1812085
**Calibration Date:** 12/31/2018

# Initial Calibration Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Calibration ID:** RC1900001
**Instrument ID:** R-HPLC-05

**Signal ID:** synergi hydro rp

| Analyte Name | Compound Type | Calibration Evaluation | | | | Calibration Evaluation | |
|---|---|---|---|---|---|---|---|
| | | Fit Type | Eval | Eval Result | Control Criteria | Average RRF | Minimum RRF |
| Acetic Acid | TRG | Average RF | % RSD | 4.1 | ≤ | 5.837E4 | |
| Butanoic Acid (Butyric Acid) | TRG | Average RF | % RSD | 6.5 | ≤ | 5.411E4 | |
| Lactic Acid | TRG | Average RF | % RSD | 2.6 | ≤ | 5.836E4 | |
| Propionic Acid | TRG | Average RF | % RSD | 8.2 | ≤ | 5.763E4 | |
| Pyruvic Acid | TRG | Average RF | % RSD | 9.6 | ≤ | 7.191E5 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58

**Service Request:** R1812085
**Calibration Date:** 10/4/2018

# Initial Calibration Verification Summary
# Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Calibration ID:** RC1800114
**Instrument ID:** R-HPLC-05

**Signal ID:** synergi hydro rp

| # | Lab Code | Sample Name | File Location | Acquisition Date |
|---|---|---|---|---|
| 09 | RC1800114-09 | icv | I:\ACQUDATA\hplc05\data\100418\A0002375.D | 10/04/2018 16:35 |

| Analyte Name | Expected | Result | Average RF | SSV RF | Rec. | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | 2.00 | 3.00 | 4.529E5 | 6.787E5 | 150* | 85-115 | Average RF |
| Acetic Acid | 20.0 | 20.6 | 5.917E4 | 6.092E4 | 103 | 85-115 | Average RF |
| Butanoic Acid (Butyric Acid) | 20.0 | 18.1 | 6.29E4 | 5.694E4 | 90.5 | 85-115 | Average RF |
| Lactic Acid | 20.0 | 20.2 | 5.376E4 | 5.434E4 | 101 | 85-115 | Average RF |
| Propionic Acid | 20.0 | 19.2 | 5.959E4 | 5.733E4 | 96.0 | 85-115 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58

**Service Request:** R1812085
**Calibration Date:** 12/31/2018

## Initial Calibration Verification Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Calibration ID:** RC1900001
**Instrument ID:** R-HPLC-05

**Signal ID:** synergi hydro rp

| # | Lab Code | Sample Name | File Location | Acquisition Date |
|---|---|---|---|---|
| 09 | RC1900001-09 | icv | I:\ACQUDATA\hplc05\data\123118\A0002716.D | 12/31/2018 22:10 |

| Analyte Name | Expected | Result | Average RF | SSV RF | Rec. | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|
| Pyruvic Acid | 2.00 | 1.90 | 7.191E5 | 6.83E5 | 95.0 | 85-115 | Average RF |
| Acetic Acid | 20.0 | 19.8 | 5.837E4 | 5.791E4 | 99.0 | 85-115 | Average RF |
| Butanoic Acid (Butyric Acid) | 20.0 | 20.2 | 5.411E4 | 5.455E4 | 101 | 85-115 | Average RF |
| Lactic Acid | 20.0 | 20.0 | 5.836E4 | 5.835E4 | 100 | 85-115 | Average RF |
| Propionic Acid | 20.0 | 19.2 | 5.763E4 | 5.535E4 | 96.0 | 85-115 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/18/18 15:45

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121718\A0002587.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 4.98 | 4.529E5 | 4.489E5 | -0.9 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.8 | 5.917E4 | 5.993E4 | 1.3 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 44.4 | 6.29E4 | 5.496E4 | -12.6 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 54.1 | 5.376E4 | 5.844E4 | 8.7 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 48.7 | 5.959E4 | 5.763E4 | -3.3 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/19/18 01:48

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121718\A0002598.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 4.92 | 4.529E5 | 4.435E5 | -2.1 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.3 | 5.917E4 | 5.936E4 | 0.3 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 44.3 | 6.29E4 | 5.481E4 | -12.9 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 54.4 | 5.376E4 | 5.876E4 | 9.3 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 48.9 | 5.959E4 | 5.783E4 | -3.0 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/20/18 02:35

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121918\A0002621.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 5.01 | 4.529E5 | 4.514E5 | -0.3 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.7 | 5.917E4 | 5.982E4 | 1.1 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 44.8 | 6.29E4 | 5.538E4 | -12.0 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 54.6 | 5.376E4 | 5.899E4 | 9.7 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 49.5 | 5.959E4 | 5.859E4 | -1.7 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/20/18 04:21

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121918\A0002623.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 4.90 | 4.529E5 | 4.413E5 | -2.6 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.1 | 5.917E4 | 5.911E4 | -0.1 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 44.0 | 6.29E4 | 5.438E4 | -13.5 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 54.1 | 5.376E4 | 5.843E4 | 8.7 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 49.1 | 5.959E4 | 5.809E4 | -2.5 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/21/18 05:03

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121918\A0002651.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 4.98 | 4.529E5 | 4.49E5 | -0.9 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.1 | 5.917E4 | 5.918E4 | 0.0 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 44.5 | 6.29E4 | 5.501E4 | -12.5 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 56.0 | 5.376E4 | 6.053E4 | 12.6 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 50.5 | 5.959E4 | 5.977E4 | 0.3 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/21/18 09:00

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121918\A0002657.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 5.06 | 4.529E5 | 4.556E5 | 0.6 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.5 | 5.917E4 | 5.959E4 | 0.7 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 44.0 | 6.29E4 | 5.448E4 | -13.4 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 56.3 | 5.376E4 | 6.084E4 | 13.2 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 44.6 | 5.959E4 | 5.283E4 | -11.3 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/19/18 22:10

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121918\A0002616.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 4.93 | 4.529E5 | 4.445E5 | -1.9 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.5 | 5.917E4 | 5.966E4 | 0.8 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 55.1 | 6.29E4 | 6.812E4 | 8.3 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 54.0 | 5.376E4 | 5.838E4 | 8.6 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 47.4 | 5.959E4 | 5.612E4 | -5.8 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/21/18 13:50

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121918\A0002661.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 4.85 | 4.529E5 | 4.374E5 | -3.4 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 49.5 | 5.917E4 | 5.846E4 | -1.2 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 43.3 | 6.29E4 | 5.363E4 | -14.7 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 55.7 | 5.376E4 | 6.015E4 | 11.9 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 46.2 | 5.959E4 | 5.467E4 | -8.3 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/21/18 16:31

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\121918\A0002664.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 10/4/2018
**Calibration ID:** RC1800114
**Analysis Lot:** 619495
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.03 | 5.03 | 4.529E5 | 4.532E5 | 0.1 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.3 | 5.917E4 | 5.942E4 | 0.4 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 45.2 | 6.29E4 | 5.594E4 | -11.1 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 56.4 | 5.376E4 | 6.096E4 | 13.4 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 49.9 | 5.959E4 | 5.91E4 | -0.8 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/31/18 23:18

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\123118\A0002717.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 12/31/2018
**Calibration ID:** RC1900001
**Analysis Lot:** 620723
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.05 | 4.94 | 7.191E5 | 7.034E5 | -2.2 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 50.7 | 5.837E4 | 5.912E4 | 1.3 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 50.3 | 5.411E4 | 5.357E4 | -1.0 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 51.2 | 5.836E4 | 6.006E4 | 2.9 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 48.4 | 5.763E4 | 5.54E4 | -3.9 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US
**Project:** LHAAP / Site 58/NWO1312.0150

**Service Request:** R1812085
**Date Analyzed:** 12/30/00 17:47

## Continuing Calibration Verification (CCV) Summary
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids
**File ID:** I:\ACQUDATA\hplc05\data\123118\A0002722.D\
**Signal ID:** synergi hydro rp

**Calibration Date:** 12/31/2018
**Calibration ID:** RC1900001
**Analysis Lot:** 620723
**Units:** mg/L

| Analyte Name | Expected | Result | Average RF | CCV RF | % D | % Drift | Criteria | Curve Fit |
|---|---|---|---|---|---|---|---|---|
| **Pyruvic Acid** | 5.05 | 4.93 | 7.191E5 | 7.015E5 | -2.4 | NA | ±15 | Average RF |
| **Acetic Acid** | 50.1 | 48.8 | 5.837E4 | 5.684E4 | -2.6 | NA | ±15 | Average RF |
| **Butanoic Acid (Butyric Acid)** | 50.8 | 49.9 | 5.411E4 | 5.313E4 | -1.8 | NA | ±15 | Average RF |
| **Lactic Acid** | 49.8 | 50.9 | 5.836E4 | 5.974E4 | 2.4 | NA | ±15 | Average RF |
| **Propionic Acid** | 50.3 | 49.8 | 5.763E4 | 5.705E4 | -1.0 | NA | ±15 | Average RF |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

## Analysis Run Log
## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** **Analysis Lot:**619495
**Instrument ID:**R-HPLC-05

| Raw Data File | Sample Name | Lab Code | Date Analyzed | Time Analyzed | Q |
|---|---|---|---|---|---|
| I:\ACQUDATA\hplc05\data\121918 \A0002627.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 00:06:10 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002663.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 00:10:08 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002638.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 00:10:31 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002657.D\ | Continuing Calibration Verification | RQ1814001-18 | 12/30/2000 | 00:10:32 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002619.D\ | 35AWW10_121218_a MS | RQ1814001-08 | 12/30/2000 | 00:18:26 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002621.D\ | Continuing Calibration Verification | RQ1814001-10 | 12/30/2000 | 01:28:24 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002595.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 01:28:29 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002589.D\ | Lab Control Sample | RQ1814001-02 | 12/30/2000 | 02:47:47 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002587.D\ | Continuing Calibration Verification | RQ1814001-06 | 12/30/2000 | 02:47:53 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002660.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 02:48:16 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002593.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 02:48:30 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002655.D\ | 03WW01_121218 | R1812085-001 | 12/30/2000 | 02:48:38 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002636.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 02:48:42 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002625.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 03:48:16 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002624.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 05:48:22 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002628.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 17:48:05 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002661.D\ | Continuing Calibration Verification | RQ1814001-23 | 12/30/2000 | 17:48:15 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002591.D\ | ZZZZZZZ | ZZZZZZZ | 12/30/2000 | 17:48:42 | |
| I:\ACQUDATA\hplc05\data\121918 \A0002634.D\ | ZZZZZZZ | ZZZZZZZ | 12/31/2000 | 03:47:56 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002587.D\ | Continuing Calibration Verification | RQ1814001-06 | 12/18/2018 | 15:45:00 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002588.D\ | Method Blank | RQ1814001-01 | 12/18/2018 | 16:38:32 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002589.D\ | Lab Control Sample | RQ1814001-02 | 12/18/2018 | 17:35:00 | |
| I:\ACQUDATA\hplc05\data\121718 \A0002590.D\ | Duplicate Lab Control Sample | RQ1814001-03 | 12/18/2018 | 18:28:31 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

**Analysis Run Log**
**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** **Analysis Lot:**619495
**Instrument ID:**R-HPLC-05

| Raw Data File | Sample Name | Lab Code | Date Analyzed | Time Analyzed | Q |
|---|---|---|---|---|---|
| I:\ACQUDATA\hplc05\data\121718\A0002591.D\ | ZZZZZZZ | ZZZZZZZ | 12/18/2018 | 19:25:00 | |
| I:\ACQUDATA\hplc05\data\121718\A0002592.D\ | ZZZZZZZ | ZZZZZZZ | 12/18/2018 | 20:18:17 | |
| I:\ACQUDATA\hplc05\data\121718\A0002593.D\ | ZZZZZZZ | ZZZZZZZ | 12/18/2018 | 21:15:00 | |
| I:\ACQUDATA\hplc05\data\121718\A0002594.D\ | ZZZZZZZ | ZZZZZZZ | 12/18/2018 | 22:08:14 | |
| I:\ACQUDATA\hplc05\data\121718\A0002595.D\ | ZZZZZZZ | ZZZZZZZ | 12/18/2018 | 23:05:00 | |
| I:\ACQUDATA\hplc05\data\121718\A0002597.D\ | ZZZZZZZ | ZZZZZZZ | 12/19/2018 | 00:53:09 | |
| I:\ACQUDATA\hplc05\data\121718\A0002598.D\ | Continuing Calibration Verification | RQ1814001-07 | 12/19/2018 | 01:48:07 | |
| I:\ACQUDATA\hplc05\data\121918\A0002616.D\ | Continuing Calibration Verification | RQ1814001-22 | 12/19/2018 | 22:10:28 | |
| I:\ACQUDATA\hplc05\data\121918\A0002617.D\ | 35AWW10_121218 | R1812085-003 | 12/19/2018 | 23:03:21 | |
| I:\ACQUDATA\hplc05\data\121918\A0002618.D\ | 35AWW10_121218_a | R1812085-004 | 12/19/2018 | 23:56:12 | |
| I:\ACQUDATA\hplc05\data\121918\A0002619.D\ | 35AWW10_121218_a MS | RQ1814001-08 | 12/20/2018 | 00:50:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002620.D\ | 35AWW10_121218_a DMS | RQ1814001-09 | 12/20/2018 | 01:42:07 | |
| I:\ACQUDATA\hplc05\data\121918\A0002621.D\ | Continuing Calibration Verification | RQ1814001-10 | 12/20/2018 | 02:35:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002622.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 03:28:04 | |
| I:\ACQUDATA\hplc05\data\121918\A0002623.D\ | Continuing Calibration Verification | RQ1814001-11 | 12/20/2018 | 04:21:02 | |
| I:\ACQUDATA\hplc05\data\121918\A0002624.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 05:15:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002625.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 06:10:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002626.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 06:59:53 | |
| I:\ACQUDATA\hplc05\data\121918\A0002627.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 07:52:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002628.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 08:49:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002634.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 13:00:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002635.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 14:56:30 | |
| I:\ACQUDATA\hplc05\data\121918\A0002636.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 15:50:00 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

**Analysis Run Log**
**Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time**

**Analysis Method:** **Analysis Lot:**619495
**Instrument ID:**R-HPLC-05

| Raw Data File | Sample Name | Lab Code | Date Analyzed | Time Analyzed | Q |
|---|---|---|---|---|---|
| I:\ACQUDATA\hplc05\data\121918\A0002637.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 16:42:18 | |
| I:\ACQUDATA\hplc05\data\121918\A0002638.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 17:20:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002639.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 18:28:13 | |
| I:\ACQUDATA\hplc05\data\121918\A0002640.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 19:21:16 | |
| I:\ACQUDATA\hplc05\data\121918\A0002641.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 20:14:08 | |
| I:\ACQUDATA\hplc05\data\121918\A0002645.D\ | ZZZZZZZ | ZZZZZZZ | 12/20/2018 | 23:45:50 | |
| I:\ACQUDATA\hplc05\data\121918\A0002646.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 00:38:42 | |
| I:\ACQUDATA\hplc05\data\121918\A0002647.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 01:31:38 | |
| I:\ACQUDATA\hplc05\data\121918\A0002648.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 02:24:42 | |
| I:\ACQUDATA\hplc05\data\121918\A0002649.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 03:17:35 | |
| I:\ACQUDATA\hplc05\data\121918\A0002650.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 04:10:42 | |
| I:\ACQUDATA\hplc05\data\121918\A0002651.D\ | Continuing Calibration Verification | RQ1814001-17 | 12/21/2018 | 05:03:39 | |
| I:\ACQUDATA\hplc05\data\121918\A0002654.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 07:42:15 | |
| I:\ACQUDATA\hplc05\data\121918\A0002655.D\ | 03WW01_121218 | R1812085-001 | 12/21/2018 | 08:20:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002657.D\ | Continuing Calibration Verification | RQ1814001-18 | 12/21/2018 | 09:00:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002658.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 11:14:02 | |
| I:\ACQUDATA\hplc05\data\121918\A0002659.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 12:06:57 | |
| I:\ACQUDATA\hplc05\data\121918\A0002660.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 13:00:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002661.D\ | Continuing Calibration Verification | RQ1814001-23 | 12/21/2018 | 13:50:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002662.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 14:45:51 | |
| I:\ACQUDATA\hplc05\data\121918\A0002663.D\ | ZZZZZZZ | ZZZZZZZ | 12/21/2018 | 15:40:00 | |
| I:\ACQUDATA\hplc05\data\121918\A0002664.D\ | Continuing Calibration Verification | RQ1814001-24 | 12/21/2018 | 16:31:46 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**R1812085
**Project:** LHAAP / Site 58/NWO1312.0150

## Analysis Run Log

## Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

**Analysis Method:** Organic Acids **Analysis Lot:**620723
**Instrument ID:**R-HPLC-05

| Raw Data File | Sample Name | Lab Code | Date Analyzed | Time Analyzed | Q |
|---|---|---|---|---|---|
| I:\ACQUDATA\hplc05\data\123118\A0002721.D\ | 35AWW08_121218 | R1812085-002 | 12/30/2000 | 02:47:53 | |
| I:\ACQUDATA\hplc05\data\123118\A0002722.D\ | Continuing Calibration Verification | RQ1900011-02 | 12/30/2000 | 17:47:49 | |
| I:\ACQUDATA\hplc05\data\123118\A0002717.D\ | Continuing Calibration Verification | RQ1900011-01 | 12/31/2018 | 23:18:33 | |
| I:\ACQUDATA\hplc05\data\123118\A0002718.D\ | Method Blank | RQ1900011-03 | 1/1/2019 | 00:11:33 | |
| I:\ACQUDATA\hplc05\data\123118\A0002719.D\ | Lab Control Sample | RQ1900011-04 | 1/1/2019 | 01:04:28 | |
| I:\ACQUDATA\hplc05\data\123118\A0002720.D\ | Duplicate Lab Control Sample | RQ1900011-05 | 1/1/2019 | 01:57:20 | |

Analysis: Organic Acids  Analyst: BA  Run Method: ~~0810~~ NEW METH
Date: 12/17/18  Instr. HPLC-05  Quant Method: MA100418
LIMS Run#: 619495
Setup: Column: Synergi Hydro RP 150x4.6  Col.Temp: 35  Flow: 0.60 ml/min
Mobile Phase: 0.02 KH2 prep 0.1PO4  ul Inj.: 50

| Pos. | Sample | Diln. | Stds. ID | File# | OK? | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| | CCV | 1000/1mL | 193753 | A0000587 | YC | |
| | MeOH BLK | | | 88 87 | Y | |
| | LCS | 1000/1mL | 193754 | 89 88 | Y | > PYRUVIC OUT + |
| | DLCS | " | " | 90 89 | Y | |
| | R1817147-001 | | | 91 90 | Y | |
| | " -002 | | | 92 91 | Y | |
| | R1811942-001 | | | 93 92 | Y | |
| | -002 | | | 94 93 | Y | |
| | -003 | | | 95 94 | Y | |
| | -004 | | | 96 95 | N | RPT 1/10 |
| | -005 | | | 97 96 | Y | |
| | CCV | | | 98 97 | YC | RT SHIFT prep and BOTTLE |
| | R1811991-001 | | | 99 98 | N | RPT 1/10 |
| | -002 | | | 600 99 | | 1/5 |
| | -003 | | | 01 600 | | |
| | R1812085-001 | | | 02 01 | | |
| | -002 | | | 03 02 | | |
| | -003 | | | 04 03 | | |
| | -004 | | | 05 04 | | |
| | -004MS | 1000/1mL | 193754 | 06 05 | | |
| | -004MSD | " | " | 07 06 | | INST SHUTDOWN NOCLOC |
| | ~~CCV~~ | ~~1000/1mL~~ | ~~193753~~ | ~~08 07~~ | | WHY MISSED 12 HR CLOCK |
| | R1811991-001 | | | 09 08 | | RESTART |
| | -002 | | 12/20 | 10 09 | | |
| | -003 | | | 11 10 | | |
| | R1812085-001 | BA | | 12 11 | | |
| | -002 | | | 13 12 | | |
| | -003 | | | 14 13 | | |
| | -004 | | | 15 14 | | |
| | -004MS | 1000/1mL | 193754 | 16 15 | | |
| | -004MSD | " | " | 17 16 | | |
| | CCV | " | 193753 | 18 17 | | |
| | | | | | | |

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp:  Secondary :_____ exp:
Primary:_____ exp:  Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids  Analyst: BA  Run Method: NEWMETA
Date: 12/19/18  Instr. _HPLC-05_  Quant Method: MA100418
LIMS Run#: _____
Setup:  Column: Synergi Hydro RP150x4.6  Col.Temp: 35  Flow: 0.6 mL/min
Mobile Phase: 0.02 KH2 pRep 0.1 pO4  ul Inj.: 50

| Pos. | Sample | Diln. | Stds. ID | File# | OK? | Comments |
|---|---|---|---|---|---|---|
| | CCV | 1000ul/1mL | 193753 | A0002608 | — | |
| | R1811991-001 | 10.0 | | 09 | — | |
| | CCV | | | 10 | YC | |
| | R1811991-001 | 10.0 | | 11 | N | RPT RT SHEET |
| | -002 | 5.0 | | 12 | | |
| | -003 | | | 13 | | |
| | R1812085-001 | | | 14 | | |
| | -002 | | | 15 | ↓ | |
| | CCV | 1000ul/1mL | 193753 | 16 | YC | |
| | R1812085-003 | | | 17 | Y | |
| | -004 | | | 18 | Y | |
| | -004MS | 1000ul/1mL | 193754 | 19 | Y | |
| | -004MSD | ↓ | ↓ | 20 | Y | |
| | CCV | | | 21 | YC | |
| | R1811942-004 | 10.0 | | 22 | Y | |
| | CCV | 1000ul/1mL | 193753 | 23 | YC | |
| | MET BLK | | | 24 | Y | |
| | LCS | 1000ul/1mL | 193754 | 25 | Y | |
| | LCSD | ↓ | ↓ | 26 | Y | |
| | R1812089-006 | | | 27 | Y | |
| | -007 | | | 28 | Y | |
| | -008 | | | 29 | N | |
| | -009 | | | 30 | | |
| | -015 | | | 31 | | |
| | -016 | | | 32 | | |
| | -017 | | | 33 | ↓ | |
| | -018 | | | 34 | Y | |
| | -019 | | | 35 | Y | |
| | R1812120-005 | | | 36 | Y | |
| | CCV | 1000ul/1mL | 193753 | 37 | YC | RT PROP + BUTYRIC NO HETD |
| | R1812120-006 | | | 38 | Y | |
| | -007 | | | 39 | Y | |
| | -009 | | | 40 | Y | |
| | -010 | | | 41 | Y | |

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp:  Secondary :_____ exp:
Primary:_____ exp:  Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids  Analyst: BA  Run Method: NEW METH

Date: 12/20/18  Instr. _HPLC-05  Quant Method: MA100418

LIMS Run#:

Setup:  Column: Synergi Hydro RP 150x4.6  Col.Temp: 35  Flow: 0.6 ml/min

Mobile Phase: 0.02M $H_3PO_4$ prep 0.1 $PO_4$  ul Inj.: 50

| Pos. | Sample | Diln. | Stds. ID | File# | OK? | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| | R1812120-011 | | | A0002642 | N | RPT 1/2.5 |
| | -011ms | | | 43 | ↓ | ↓ |
| | -011msD | | | 44 | ↓ | ↓ |
| | CCV | 1000/1ml | 193753 | 45 | YC | |
| | R1812089-008 | | | 46 | Y | |
| | -009 | | | 47 | Y | |
| | -015 | | | 48 | Y | |
| | -016 | | | 49 | Y | |
| | -017 | | | 50 | Y | |
| | CCV | 1000/1ml | 193753 | 51 | YC | |
| | R1811991-001 | 10.0 | | 52 | N | |
| | -002 | 5.0 | | 53 | N | |
| | -003 | | | 54 | N Y | |
| | R1812085-001 | | | 55 | Y Y | |
| | -002 | | | 56 | ~~Y~~ N | |
| | CCV | 1000/1ml | 193753 | 57 | YC | RT SHIFT PROP + Buty. |
| | R1812120-011 | | | 58 | Y | |
| | -011ms | | | 59 | Y | |
| | -011msD | | | 60 | Y | |
| | CCV | 1000/1ml | 193753 | 61 | YC | |
| | R1811199-001 | 10.0 | | 62 | Y | |
| | -002 | 5.0 | | 63 | Y | |
| | CCV | 1000/1ml | 193753 | 64 | YC | |

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp:  Secondary :_____ exp:

Primary:_____ exp:  Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

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Analysis: Organic Acids  Analyst: BA  Run Method: ~~OXIO~~ NEW METH
Date: 12/17/18  Instr. _HPLC-05_  Quant Method: MA100418
LIMS Run#: 619495
Setup:  Column: Synergi Hydro RP 150x4.6  Col.Temp: 35  Flow: 0.60 ml/min
Mobile Phase: 0.02 KH2 prep 0.1 PO4  ul Inj.: 50

| Pos. | Sample | Diln. | Stds. ID | File# | OK? | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| | CCV | 1000/1ml | 193753 | A0087 | YC | |
| | MEOT BLK | | | 88 87 | Y | |
| | LCS | 100/1ml | 193754 | 89 88 | Y | > PYRUVIC OUT |
| | DLCS | ↓ | ↓ | 90 89 | Y | |
| | R1812142-001 | | | 91 90 | Y | |
| | ↓ -002 | | | 92 91 | Y | |
| | R1811942-001 | | | 93 92 | Y | |
| | -002 | | | 94 93 | Y | |
| | -003 | | | 95 94 | Y | |
| | -004 | | | 96 95 | N | RPT 1/10 |
| | ↓ -005 | | | 97 96 | Y | |
| | CCV | | | 98 97 | YC | RT SHIFT prep and BOTTLE |
| | R1811991-001 | | | 99 98 | N | RPT 1/10 |
| | -002 | | | 100 99 | | 1/5 |
| | -003 | | | 01 00 | | |
| | R1812085-004 | | | 02 01 | | |
| | -002 | | | 03 02 | | |
| | -003 | | | 04 03 | | |
| | -004 | | | 05 04 | | |
| | -004MS | 100/1ml | 193754 | 06 05 | | |
| | -004MSD | ↓ | ↓ | 07 06 | ↓ | JUST SHUTDOWN NO CLOCK |
| | ~~CCV~~ | 1000/1ml | ~~193753~~ | ~~08 07~~ | | WHY MISSED 12 HR CLOCK |
| | R1811991-001 | | | 09 08 | | RESTART |
| | -002 | | 12/20 | 10 09 | | |
| | -003 | | | 11 10 | | |
| | R1812085-001 | BA | | 12 11 | | |
| | -002 | | | 13 12 | | |
| | -003 | | | 14 13 | | |
| | -004 | | | 15 14 | | |
| | -004MS | 100/1ml | 193754 | 16 15 | | |
| | -004MSD | ↓ | ↓ | 17 16 | | |
| | ~~CCV~~ | ↓ | 193753 | 18 17 | | |
| | | | | | | |

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp:  Secondary :_____ exp:
Primary:_____ exp:  Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids  Analyst: BA  Run Method: NEWMETA
Date: 12/19/18  Instr. _HPLC-05_  Quant Method: MA100418
LIMS Run#: _____
Setup:  Column: Synergi Hydro RP150x4.6  Col.Temp: 35  Flow: 0.6 mL/min N
Mobile Phase: 0.02 KH2 PREP 0.1 PO4  ul Inj.: 50

| Pos. | Sample | Diln. | Stds. ID | File# | OK? | Comments |
|---|---|---|---|---|---|---|
| | CCV | 1000ul/1mL | 193753 | A0002608 | — | |
| | R1811991-001 | 10.0 | | 09 | — | |
| | CCV | | | 10 | YC | |
| | R1811991-001 | 10.0 | | 11 | N | RPT RT SHEET |
| | -002 | 5.0 | | 12 | | |
| | -003 | | | 13 | | |
| | R1812085-001 | | | 14 | | |
| | -002 | | | 15 | | |
| | CCV | 1000ul/1mL | 193753 | 16 | YC | |
| | R1812085-003 | | | 17 | Y | |
| | -004 | | | 18 | Y | |
| | -004MS | 1000ul/1mL | 193754 | 19 | Y | |
| | -004MSD | ↓ | ↓ | 20 | Y | |
| | CCV | | | 21 | YC | |
| | R1811942-004 | 10.0 | | 22 | Y | |
| | CCV | 1000ul/1mL | 193753 | 23 | YC | |
| | MET BLK | | | 24 | Y | |
| | LCS | 1000ul/1mL | 193754 | 25 | Y | |
| | LCSD | ↓ | ↓ | 26 | Y | |
| | R1812089-006 | | | 27 | Y | |
| | -007 | | | 28 | Y | |
| | -008 | | | 29 | N | |
| | -009 | | | 30 | | |
| | -015 | | | 31 | | |
| | -016 | | | 32 | | |
| | -017 | | | 33 | ↓ | |
| | -018 | | | 34 | Y | |
| | -019 | | | 35 | Y | |
| | R1812120-005 | | | 36 | Y | |
| | CCV | 1000ul/1mL | 193753 | 37 | YC | RT PROP + BUTYRIC WAS HIGH |
| | R1812120-006 | | | 38 | Y | |
| | -007 | | | 39 | Y | |
| | -009 | | | 40 | Y | |
| | -010 | | | 41 | Y | |

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp:  Secondary :_____ exp:
Primary:_____ exp:  Secondary :_____ exp:

Analysis: Organic Acids  Analyst: BA  Run Method: NEW META
Date: 12/20/18  Instr. _HPLC-05  Quant Method: MA100418
LIMS Run#:
Setup:  Column: Synergi Hydro RP 150x4.6  Col.Temp: 35  Flow: 0.6 ml/min
Mobile Phase: 0.02 $KH_2$ prep 0.1 $H_3PO_4$  ul Inj.: 50

| Pos. | Sample | Diln. | Stds. ID | File# | OK? | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| | R182120-011 | | | 4000242 | N | RPT 1/2.5 |
| | -011MS | | | 43 | | |
| | -011MSD | | | 44 | | |
| | CCV | 1000/1mL | 193753 | 45 | YC | |
| | R1812089-008 | | | 46 | Y | |
| | -009 | | | 47 | Y | |
| | -015 | | | 48 | Y | |
| | -016 | | | 49 | Y | |
| | -017 | | | 50 | Y | |
| | CCV | 1000/1mL | 193753 | 51 | YC | |
| | R1811991-001 | 10.0 | | 52 | N | |
| | -002 | 5.0 | | 53 | N | |
| | -003 | | | 54 | N Y | |
| | R1812085-001 | | | 55 | Y Y | |
| | -002 | | | 56 | Y N | |
| | CCV | 1000/1mL | 193753 | 57 | YC | RT SHIFT PROP + Buty. |
| | R1812120-011 | | | 58 | Y | |
| | -011MS | | | 59 | Y | |
| | -011MSD | | | 60 | Y | |
| | CCV | 1000/1mL | 193753 | 61 | YC | |
| | R181199-001 | 10.0 | | 62 | Y | |
| | -002 | 5.0 | | 63 | Y | |
| | CCV | 1000/1mL | 193753 | 64 | YC | |

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp:  Secondary :_____ exp:
Primary:_____ exp:  Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids  Analyst: BA  Run Method: NEWMETH

Date: 12/31/18  Instr. _HPLC-05_  Quant Method: MA123118

LIMS Run#: 620723

Setup:  Column: Synergi Hydro RP 150x4.6  Col.Temp: 35  Flow: 0.6 mL/min

Mobile Phase: 0.02 $KH_2$ prep 0.1 Pay  ul Inj.: 50

| Pos. | Sample | Diln. | Stds. ID | File# | OK? | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| | BLK | | | A0002705 | — | |
| | BLK | | | 06 | — | |
| | INST BLK | | | 07 | Y | |
| | 0.1 - 1.0 PPM | 2x/1mL | 195967 | 08 | Y | |
| | 0.2 - 2.0 | 4x/1mL | | 09 | Y | |
| | 0.5 - 5.0 | 10x/ | | 10 | Y | |
| | 1.0 - 10.0 | 20x/ | | 11 | Y | |
| | 2.0 - 20.0 | 40x/ | | 12 | Y | |
| | 5.0 - 50.0 | 100x/ | | 13 | Y | |
| | 10.0 - 100.0 | 200x/ | | 14 | Y | |
| | 20.0 - 200.0 | 400x/ | | 15 | Y | |
| | ICV | 100x/1mL | 195968 | 16 | Y | |
| | CCV | " | 195967 | 17 | YC | |
| | MET BLK | | | 18 | Y | |
| | LCS | 100x/1mL | 195968 | 19 | Y | |
| | DLCS | " | " | 20 | Y | |
| | R1812085-002 | | | 21 | Y | |
| | CCV | 100x/1mL | 195967 | 22 | YC | |

12/31/18

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 195967 exp: 3/16/19  Secondary: 195968 exp: 3/16/19

Primary: _____ exp:  Secondary: _____ exp:

Runlog HPLC05r1
1/10/13

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# General Chemistry

**ALS Environmental—Rochester Laboratory**
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 08:20 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 03WW01_121218 | **Basis:** | NA |
| **Lab Code:** | R1812085-001 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **27.5** | mg/L | 1.0 | 0.8 | 0.3 | 10 | 12/13/18 21:21 | * |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 09:10 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW08_121218 | **Basis:** | NA |
| **Lab Code:** | R1812085-002 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **21** | mg/L | 10 | 8 | 3 | 100 | 12/13/18 21:21 | * |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218 | **Basis:** | NA |
| **Lab Code:** | R1812085-003 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **0.09 J** | mg/L | 0.10 | 0.08 | 0.03 | 1 | 12/13/18 21:21 | * |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | R1812085 |
| **Project:** | LHAAP / Site 58/NWO1312.0150 | **Date Collected:** | 12/12/18 10:30 |
| **Sample Matrix:** | Water | **Date Received:** | 12/13/18 09:35 |
| **Sample Name:** | 35AWW10_121218_a | **Basis:** | NA |
| **Lab Code:** | R1812085-004 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|---|
| Iron, Divalent (Ferrous Iron) | SM 3500-Fe B.4.c | **0.07 J** | mg/L | 0.10 | 0.08 | 0.03 | 1 | 12/13/18 21:21 | * |

# Analytical Results Summary

**Instrument Name:** R-UV-VIS-05 **Analyst:** MROGERSON **Analysis Lot:** 619164 **Method/Testcode:** SM 3500-Fe B.4.c/Ferrous DOD

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RQ1813873-01 | Iron, Divalent (Ferrous Iron) | CCV | | Water | 2.04 mg/L | 5 mL | 2.04 mg/L | 1 | | | | | 12/13/18 21:21 | N | IV |
| RQ1813873-02 | Iron, Divalent (Ferrous Iron) | CCB | | Water | 0.00 mg/L | 5 mL | 0.10 mg/L U | 1 | 0.03 | 0.10 | | | 12/13/18 21:21 | N | IV |
| RQ1813873-03 | Iron, Divalent (Ferrous Iron) | LCS | | Water | 0.39 mg/L | 5 mL | 0.389 mg/L | 1 | 0.03 | 0.10 | 97 | | 12/13/18 21:21 | N | IV |
| RQ1813873-04 | Iron, Divalent (Ferrous Iron) | MB | | Water | 0.00 mg/L | 5 mL | 0.10 mg/L U | 1 | 0.08 | 0.10 | | | 12/13/18 21:21:00 | N | IV |
| R1812085-001 | Iron, Divalent (Ferrous Iron) | N/A | | Water | 27.47 mg/L | 5 mL | 27.5 mg/L | 10 | 0.3 | 1.0 | | | 12/13/18 21:21 | N | IV |
| R1812085-002 | Iron, Divalent (Ferrous Iron) | N/A | | Water | 21.35 mg/L | 5 mL | 21 mg/L | 100 | 3 | 10 | | | 12/13/18 21:21 | N | IV |
| R1812085-003 | Iron, Divalent (Ferrous Iron) | N/A | | Water | 0.09 mg/L | 5 mL | 0.09 mg/L J | 1 | 0.03 | 0.10 | | | 12/13/18 21:21 | N | IV |
| R1812085-004 | Iron, Divalent (Ferrous Iron) | N/A | | Water | 0.07 mg/L | 5 mL | 0.07 mg/L J | 1 | 0.03 | 0.10 | | | 12/13/18 21:21 | N | IV |
| RQ1813873-07 | Iron, Divalent (Ferrous Iron) | MS | R1812085-004 | Water | 0.51 mg/L | 5 mL | 0.51 mg/L | 1 | 0.03 | 0.10 | 110 | | 12/13/18 21:21 | N | IV |
| RQ1813873-08 | Iron, Divalent (Ferrous Iron) | DMS | R1812085-004 | Water | 0.48 mg/L | 5 mL | 0.48 mg/L | 1 | 0.03 | 0.10 | 102 | 6 | 12/13/18 21:21 | N | IV |
| RQ1813873-06 | Iron, Divalent (Ferrous Iron) | CCV | | Water | 2.04 mg/L | 5 mL | 2.04 mg/L | 1 | | | | | 12/13/18 21:21 | N | IV |
| RQ1813873-05 | Iron, Divalent (Ferrous Iron) | CCB | | Water | 0.00 mg/L | 5 mL | 0.10 mg/L U | 1 | 0.03 | 0.10 | | | 12/13/18 21:21 | N | IV |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Pippetor Calibration

ALS Environmental

**Frequency:**

| | |
|---|---|
| **Pipettes:** 3 trials for both bias and precision<br>DOD Projects - Daily before use at each volume of use, or if more than 3 volumes of use, a high, medium, and low.<br>Non-DOD: Monthly at high, medium, and low. | **Calculations:**<br>%Recovery = Mean/Nominal Volume*100<br>%RSD = Stdev/Volume*100 |
| **Repeaters, Dispensers, and Repipettors:** 3 trials for both bias and precision<br>If used for dilutions - Daily before use and each time the volume is changed.<br>If not used for dilutions - monthly | **Limits:** % Rec: 98-102 for Pipettes and others for dilutions<br>% Recovery: 90-110 (Repeaters, Dispensers, Repipettors not for dilutions)<br>%RSD: ≤1 (Pipets); ≤3 (Repeaters, Dispensers, and Repipettors) |

Use a balance and DI for all except Dispensers and Repipettors which contain reagents. For these, dispense into a To Contain Class A grad cylinder and document the Max Volume of the cylinder instead of the Balance ID. Record to 1/10 the graduation of the cylinder.

| Date | Init. | Equipment ID | Volume (mL) | Trial #1 (g/mL) | Trial #2 (g/mL) | Trial #3 (g/mL) | Bias %Recovery | Pass/ Fail | Precision %RSD | Pass/ Fail | Recal? Y/N | Balance ID or Class A (TC) | Comments/ Corrective Action |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/6/18 | GN | HTULIC | 2.00 | 1.9688 | 1.9640 | 1.9680 | 98.34667 | P | 0.12858 | P | N | R-10 | |
| ↓ | ↓ | - ↓ | 5.00 | 4.9225 | 4.9516 | 4.9338 | 98.71933 | P | 0.29341 | P | N | ↓ | |
| | | Donald | 0.5000 | 0.5052 | 0.5054 | 0.5051 | 101.0467 | P | 0.03955 | P | N | | |
| | | ↓ | 1.0000 | 1.0021 | 1.0010 | 1.0002 | 100.1100 | P | 0.09534 | P | N | | |
| ↓ | ↓ | ↓ | 0.2000 | 0.2021 | 0.2024 | 02025 | 101.1667 | P | 0.10408 | P | N | ↓ | |
| 12/12/18 | MAR | Hank | 1.00 | 0.9998 | 0.9983 | 0.9993 | 99.91 | P | 0.07 | P | N | R-10 | DOD/Monthly |
| | | ↓ | 3.00 | 2.9999 | 3.0003 | 3.0029 | 100.03 | P | 0.05 | P | | | |
| | | ↓ | 5.00 | 5.0134 | 5.0016 | 5.0055 | 100.19 | P | 0.12 | P | | | |
| | | Thor | 0.200 | 0.1994 | 0.2000 | 0.2021 | 100.08 | P | 0.43 | P | | | |
| | | ↓ | 0.500 | 0.4967 | 0.4956 | 0.4957 | 99.20 | P | 0.12 | P | | | |
| | | ↓ | 1.000 | 0.9974 | 0.9970 | 0.9964 | 99.76 | P | 0.16 | P | | | |
| | | Darsy | 0.200 | 0.1991 | 0.1988 | 0.1990 | 99.49 | P | 0.09 | P | | | |
| | | ↓ | 0.100 | 0.0999 | 0.0998 | 0.0989 | 99.87 | P | 0.06 | P | | | |
| ↓ | ↓ | ↓ | 0.0200 | 0.0101 | 0.0101 | 0.0101 | 101 | P | 0 | P | ↓ | ↓ | ↓ |
| 12/13/18 | MAR | Thor | 0.5000 | 0.4954 | 0.4952 | 0.4960 | 99.11 | P | 0.05 | P | N | R-10 | DOD |
| ↓ | ↓ | Hank | 2.500 | 2.4983 | 2.5027 | 2.4903 | 99.88 | P | 0.25 | P | ↓ | ↓ | ↓ |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | MAR 12/17/18 | | | | |

# Sample Dilutions

Analyst: MAR
Instrument: UV-05

Date 12/13/18
Analysis $Fe^{2+}$

| Sample ID | Matrix of Diluent | 1st Dilution | | | 2nd Dilution | | | 3rd Dilution | | | 4th Dilution | | | 5th Dilution | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mL's of Sample | mL's of Diluent | Dilution Factor | mL's of Sample | mL's of Diluent | Dilution Factor | mL's of Sample | mL's of Diluent | Dilution Factor | mL's of Sample | mL's of Diluent | Dilution Factor | mL's of Sample | mL's of Diluent | Dilution Factor |
| R1812085-001 | DI | 1 | 9 | 1/10 | | | | | | | | | | | | |
| R1812085-002 | DI | 1 | 9 | 1/10 | 1 | 9 | 1/100 | | | | | | | | | |

MAR 12/17/18

C:\Users\chris.woods\Downloads\Sample Dilution Sheets R2Original

9/18/15

ALS ENVIRONMENTAL



**Analyte: Ferrous Iron By Standard Methods** Analyst: MAR Date: 12/13/18

**Method: 3500-Fe,D** Pipette: HANK, THOR Time: 21:21

**Instrument: UV-1600PC (R-UVVIS-05)** DOD Pipet Check: WC194 P. 3 Balance: NA

**Calibration:**

Phenanthroline (0.1%w/v): 190443

Ammonium Acetate: 194232

| Std | Conc. | Absorb. | Result | % Rec |
|---|---|---|---|---|
| 1 | 0.00 | 0.000 | -0.001 | |
| 2 | 0.10 | 0.010 | 0.097 | 96.6% |
| 3 | 0.20 | 0.021 | 0.204 | 101.9% |
| 4 | 0.30 | 0.031 | 0.301 | 100.4% |
| 5 | 0.40 | 0.041 | 0.399 | 99.7% |
| 6 | 0.80 | 0.081 | 0.788 | 98.5% |
| 7 | 1.00 | 0.103 | 1.003 | 100.3% |
| 8 | 2.00 | 0.207 | 2.016 | 100.8% |
| 9 | 3.00 | 0.308 | 3.000 | 100.0% |
| 10 | 4.00 | 0.410 | 3.994 | 99.8% |

Curve Date: 7/16/2018

C.C = 0.999986

y-int. = 0.000084

Slope: 0.102641

Wavelength: 510nm

| | Misc. | Order # | Absorb. | Color Blk, if nec. | Abs. Difference Sample - Color | mg/L | Dilution | Final Result (mg/L)/(mg/Kg | Check if Soil |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TV=2.0 | ICV | 0.202 | | 0.202 | 1.9672 | 1.0 | 1.967 | |
| 2 | | ICB | 0.000 | | 0.000 | -0.0008 | 1.0 | -0.001 | |
| 3 | TV=0.4 | LCS | 0.038 | | 0.038 | 0.3694 | 1.0 | 0.369 | |
| 4 | | CCV | 0.209 | | 0.209 | 2.0354 | 1.0 | 2.035 | |
| 5 | | CCB | 0.000 | | 0.000 | -0.0008 | 1.0 | -0.001 | |
| 6 | | LCS | 0.040 | | 0.040 | 0.3889 | 1.0 | 0.389 | |
| 7 | | R1812085-001 | 0.282 | 0.003 | 0.282 | 2.7466 | 10.0 | 27.466 | |
| 8 | | R1812085-002 | 0.022 | 0.002 | 0.022 | 0.2135 | 100.0 | 21.353 | |
| 9 | | R1812085-003 | 0.009 | | 0.009 | 0.0869 | 1.0 | 0.087 | |
| 10 | | R1812085-004 | 0.007 | | 0.007 | 0.0674 | 1.0 | 0.067 | |
| 11 | | R1812085-004 MS | 0.052 | | 0.052 | 0.5058 | 1.0 | 0.506 | |
| 12 | | R1812085-004 DMS | 0.049 | | 0.049 | 0.4766 | 1.0 | 0.477 | |
| 13 | | CCV | 0.209 | | 0.209 | 2.0354 | 1.0 | 2.035 | |
| 14 | | CCB | 0.000 | | 0.000 | -0.0008 | 1.0 | -0.001 | |



Soil Samples: 1g --> 100mL final volume. Decanted and filtered before analysis.

**ALS Environmental**
**1565 Jefferson Rd., Rochester, NY 14623**

**General Chemistry Analytical Run Cover Sheet**

Analyst: MAE Date: 12/13/18

Analysis: Ferrous Iron by Method 3500-Fe, D. Instrument: R-UV-VIS-05

**Quality Control:**

| | Same as Log#, Date, | Stocks Prep. Log#, Date, | Stock Sol (mLs) | Stock Sol (mg/L) | Final Vol (mLs) | True Value (mg/L) |
|---|---|---|---|---|---|---|
| | | | | | | |
| *a) Standards Prep.:* | WC126121A,11/25/13 | WC149110A, 10/13/15 | | | | |
| | | | | | | |
| *b) ICV Preparation:* | WC126121B,11/25/13 | 191837, 7/16/18 | 2.5 | 4.0 | 5 | 2.00 |
| *b2) CCV Preparation:* | WC126121B, 11/25/14 | 191837, 7/16/18 | | | | |
| *c) LCS Preparation:* | WC126121C, 11/25/14 | 191836, 7/16/18 | 0.5 | 4.0 | 5 | 0.40 |
| | | | | | | |
| *d) Matrix Spike Prep.:* | WC126121C, 11/25/13 | 191836, 7/16/18 | 0.5 | 4.0 | 5 | 0.40 |

**Instrument log filled in?** (Y) (N)

**Packages:** Copy and attach Standards Preparation

**Comments:**

All standards, QC (CCV's, LCS's, Matrix Spikes) and samples are based on the Standard Methods 3500-Fe D. Phenanthroline Method being scaled down by a factor of 10. Hence, 1.0 mL of Ammonium acetate buffer and 2.0 mL of Phenanthroline solution are added to 5.0 mL of sample, standards, or QC and brought to 10.0 mL with DI water. True values are based on sample volumes of 5.0 mLs.

Color blank absorbance is not measured where the sample itself is clear or the sample absorbance is less than the PQL. Samples above the PQL do not have their color blank absorbance subtracted if it is less than the absorbance of the low standard (PQL).

# LABORATORY REPORT

December 27, 2018

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

**RE: HS18120736**

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on December 14, 2018. For your reference, these analyses have been assigned our service request number P1806865.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

Kate Kaneko
*By Kate Kaneko at 4:14 pm, 12/27/18*

Kate Kaneko
Laboratory Director

Client: ALS Laboratory Group Service Request No: P1806865
Project: HS18120736

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## CASE NARRATIVE

The samples were received intact under chain of custody on December 14, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

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*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

*Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.*

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1521096 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-005 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-18-9 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA016272018-9 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

**ALS ENVIRONMENTAL**

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P1806865
Project ID: HS18120736

Date Received: 12/14/2018
Time Received: 09:10

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | RSK 175 - Gases | RSK 175 - CO2 |
|---|---|---|---|---|---|---|
| 03WW01_121218 | P1806865-001 | Water | 12/12/2018 | 08:20 | X | X |
| 35AWW08_121218 | P1806865-002 | Water | 12/12/2018 | 09:10 | X | X |
| 35AWW10_121218 | P1806865-003 | Water | 12/12/2018 | 10:30 | X | X |
| 35AWW10_121218_a | P1806865-004 | Water | 12/12/2018 | 10:30 | X | X |

P1806865

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**COC ID: 10433**

**SUBCONTRACT TO:**

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

**Phone:** +1 805 526 7161

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | Jumoke M. Lawal |
| **Email:** | jumoke.lawal@alsglobal.com |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS18120736 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS18120736-01** | **03WW01_121218** | **Groundwater** | **12 Dec 2018 08:20** |
| | MEE plus CO2 Sub to ALS SimiValley | | | 28 Dec 2018 |
| 2. | **HS18120736-02** | **35AWW08_121218** | **Groundwater** | **12 Dec 2018 09:10** |
| | MEE plus CO2 Sub to ALS SimiValley | | | 28 Dec 2018 |
| 3. | **HS18120736-03** | **35AWW10_121218** | **Groundwater** | **12 Dec 2018 10:30** |
| | MEE plus CO2 Sub to ALS SimiValley | | | 28 Dec 2018 |
| 4. | **HS18120736-04** | **35AWW10_121218_a** | **Groundwater** | **12 Dec 2018 10:30** |
| | MEE plus CO2 Sub to ALS SimiValley | | | 28 Dec 2018 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: R Gi... Date/Time: 12/13/18 1500

Received By: Date/Time: 12-14-18 0910

Cooler ID(s): Temperature(s): 1° wet ice

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P1806865

Project: HS18120736

Sample(s) received on: 12/14/18  Date opened: 12/14/18  by: ADAVID

***Note:*** This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☒ | ☐ | ☐ |
| | Cooler Temperature: ° C  Blank Temperature: 1° C  Thermometer ID CO907034581  Wet Ice | | | |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☒ | ☐ | ☐ |
| | Location of seal(s)? Cooler lid.  Sealing Lid? | ☒ | ☐ | ☐ |
| | Were signature and date included? | ☒ | ☐ | ☐ |
| | Were seals intact? | ☒ | ☐ | ☐ |
| 9 | Do containers have appropriate **preservation**, according to method/SOP or Client specified information? | ☒ | ☐ | ☐ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☒ | ☐ | ☐ |
| | Were **VOA vials** checked for presence/absence of air bubbles? | ☒ | ☐ | ☐ |
| | Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it? | ☐ | ☒ | ☐ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1806865-001.01 | 40ml VOA HCL | | 1 | | A | MR 12/19/18 |
| P1806865-001.02 | 40ml VOA HCL | | | | A | |
| P1806865-001.04 | 40mL VOA NP | | 7 | | A | MR 12/20/18 |
| P1806865-001.05 | 40mL VOA NP | | | | A | |
| P1806865-002.01 | 40ml VOA HCL | | 1 | | A | MR 12/19/18 |
| P1806865-002.02 | 40ml VOA HCL | | | | A | |
| P1806865-002.04 | 40mL VOA NP | | 7 | | A | MR 12/20/18 |
| P1806865-002.05 | 40mL VOA NP | | | | A | |
| P1806865-003.01 | 40ml VOA HCL | | 1 | | A | MR 12/19/18 |
| P1806865-003.04 | 40mL VOA NP | | 7 | | A | MR 12/20/18 |
| P1806865-003.05 | 40mL VOA NP | | | | A | |
| P1806865-003.06 | 40ml VOA HCL | | | | A | |
| P1806865-004.01 | 40ml VOA HCL | | 1 | | A | MR 12/19/18 |
| P1806865-004.04 | 40mL VOA NP | | 7 | | A | MR 12/20/18 |
| P1806865-004.05 | 40mL VOA NP | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P1806865

Project: HS18120736

Sample(s) received on: 12/14/18  Date opened: 12/14/18  by: ADAVID

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1806865-004.06 | 40ml VOA HCL | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Project ID:** **HS18120736** ALS Project ID: P1806865

## Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date(s) Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/20/18

| Client Sample ID | ALS Sample ID | Injection Volume ml(s) | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|---|
| 03WW01_121218 | P1806865-001 | 0.050 | **390,000** | 2,000 | 1,700 | 740 | |
| 35AWW08_121218 | P1806865-002 | 0.050 | **290,000** | 2,000 | 1,700 | 740 | |
| 35AWW10_121218 | P1806865-003 | 0.050 | **430,000** | 2,000 | 1,700 | 740 | |
| 35AWW10_121218_a | P1806865-004 | 0.050 | **450,000** | 2,000 | 1,700 | 740 | |
| Method Control Sample | P181220-MB | 0.10 | 860 | 1,000 | 860 | 370 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample**
**Client Project ID:** **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P181220-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/20/18
Volume(s) Analyzed: NA ml(s)

| CAS # | Compound | Spike Amount LCS / DLCS ug/L | Result[1] LCS ug/L | Result[1] DLCS ug/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 124-38-9 | Carbon Dioxide | 22,900 | 18,700 | 20,500 | **82** | **90** | 80-122 | 9 | 12 | |

[1] = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **03WW01_121218**
**Client Project ID:** **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **1,800** | 1.3 | 1.0 | 0.51 | |
| 74-85-1 | Ethene | **2.3** | 1.0 | 0.55 | 0.24 | |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **03WW08_121218**
**Client Project ID:** **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **03WW10_121218**
**Client Project ID:** **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **3,500** | 1.3 | 1.0 | 0.51 | |
| 74-85-1 | Ethene | **2.8** | 1.0 | 0.55 | 0.24 | |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **03WW10_121218a**
**Client Project ID:** **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Method Control Sample**
**Client Project ID:** **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P181219-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample**
**Client Project ID:** **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P181219-LCS
P181219-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount LCS / DLCS µg/L | Result$_1$ LCS µg/L | Result$_1$ DLCS µg/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 2.50 | 2.43 | 2.40 | **97** | **96** | 73-125 | 1 | 26 | |
| 74-85-1 | Ethene | 4.37 | 4.49 | 4.43 | **103** | **101** | 72-133 | 2 | 11 | |
| 74-84-0 | Ethane | 4.69 | 4.67 | 4.65 | **100** | **99** | 74-131 | 1 | 10 | |

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:04:40
Operator : MR
Sample : P1806865-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:18:19 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

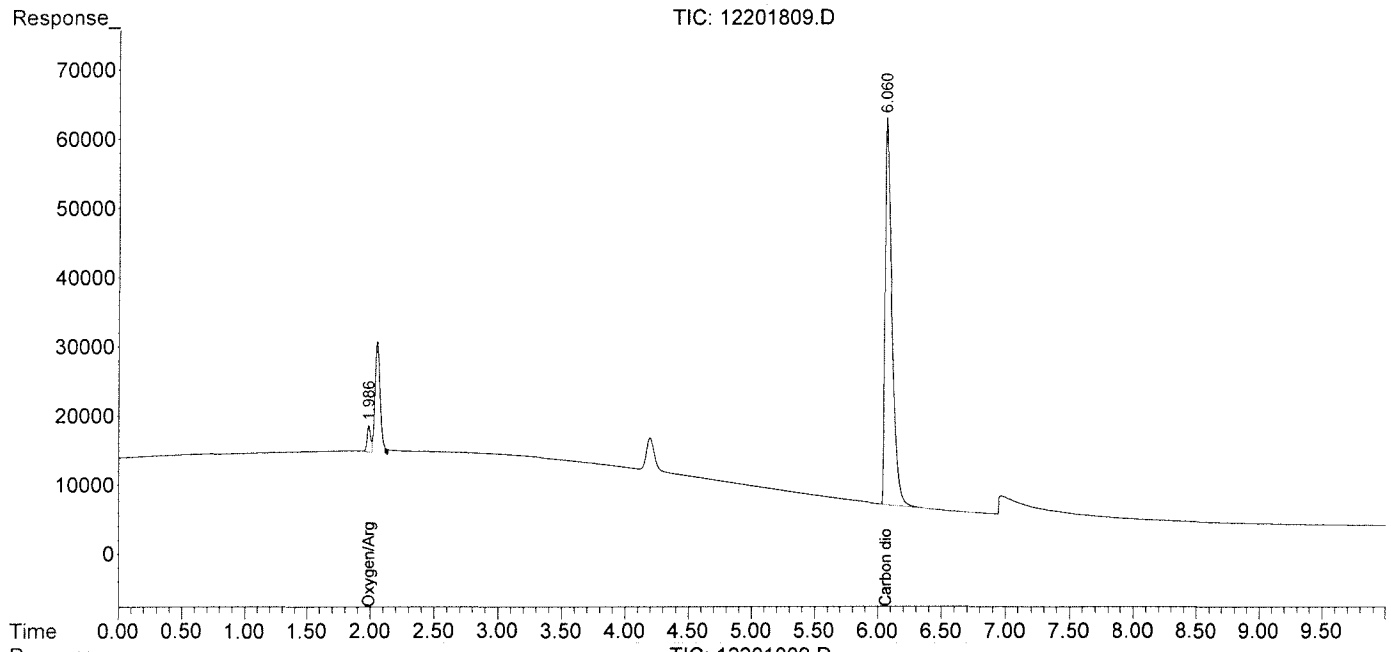
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.987f | 72752 | 0.015 | ppm |
| 2) | Carbon monoxide | 1.987f | 72752 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 6.061 | 2097873 | 8937.416 | ppm |
| 6) | Methane (FID) | 1.110 | 11423076 | 1209.071 | ppm |
| 7) | Ethylene | 1.673 | 11069 | 0.657 | ppm |
| 8) | Ethane | 1.673f | 11069 | 0.642 | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

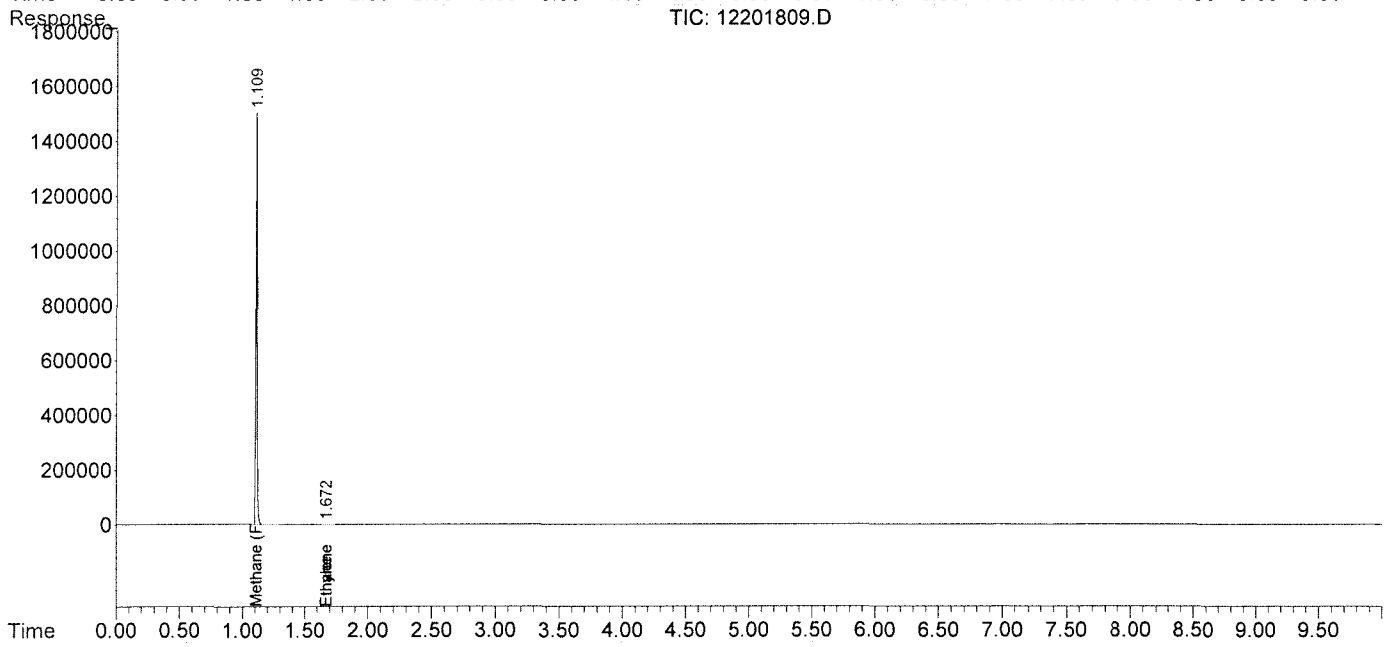
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:04:40
Operator : MR
Sample : P1806865-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:18:19 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:19:57
Operator : MR
Sample : P1806865-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:43:06 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

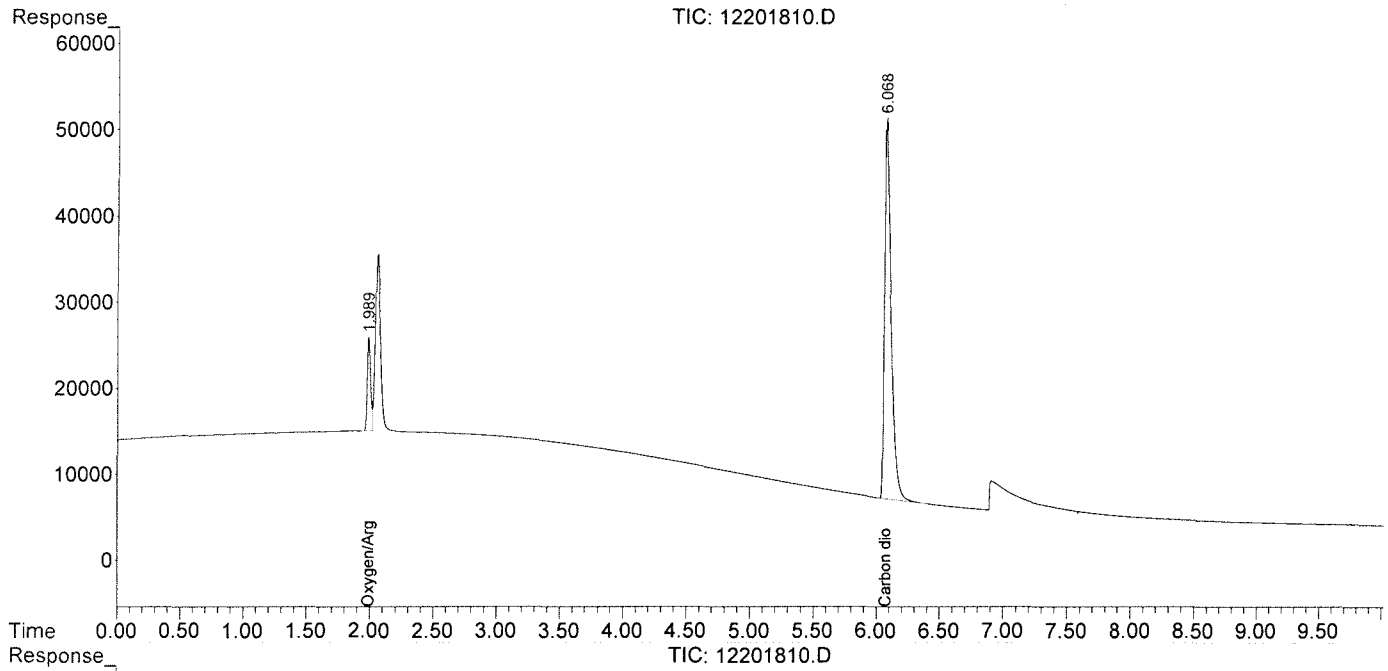
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.990f | 198253 | 0.042 | ppm |
| 2) | Carbon monoxide | 1.990f | 198253 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 6.069 | 1575813 | 6713.325 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

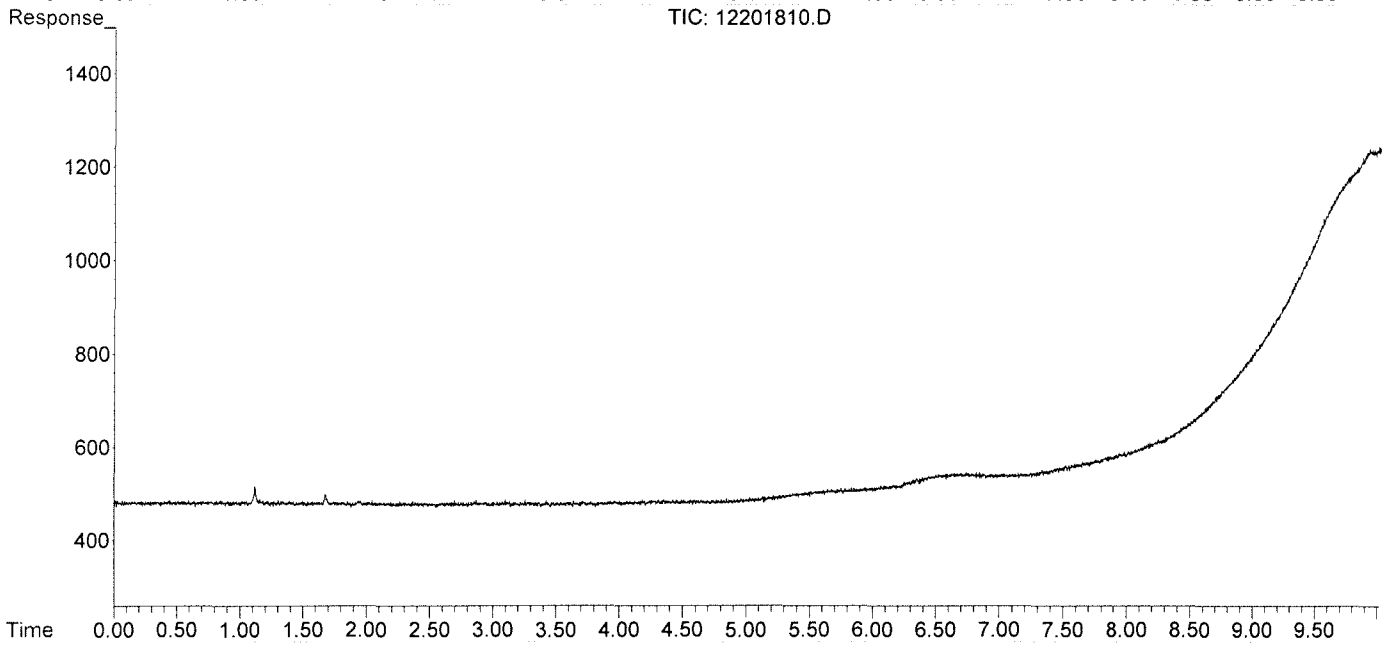
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:19:57
Operator : MR
Sample : P1806865-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:43:06 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:38:24
Operator : MR
Sample : P1806865-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:39 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

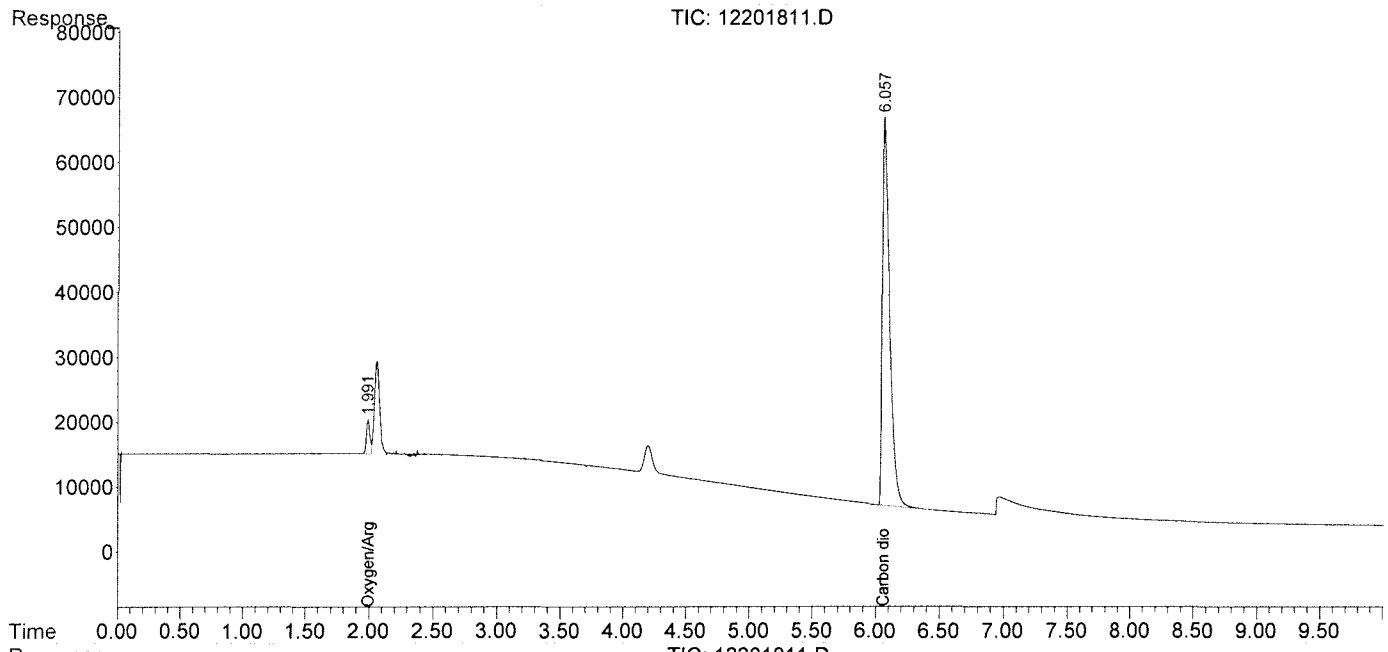
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.992f | 97552 | 0.020 | ppm |
| 2) | Carbon monoxide | 1.992f | 97552 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 6.058 | 2307540 | 9830.648 | ppm |
| 6) | Methane (FID) | 1.117 | 10153506 | 1074.694 | ppm |
| 7) | Ethylene | 1.679 | 5407 | 0.321 | ppm |
| 8) | Ethane | 1.679f | 5407 | 0.314 | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

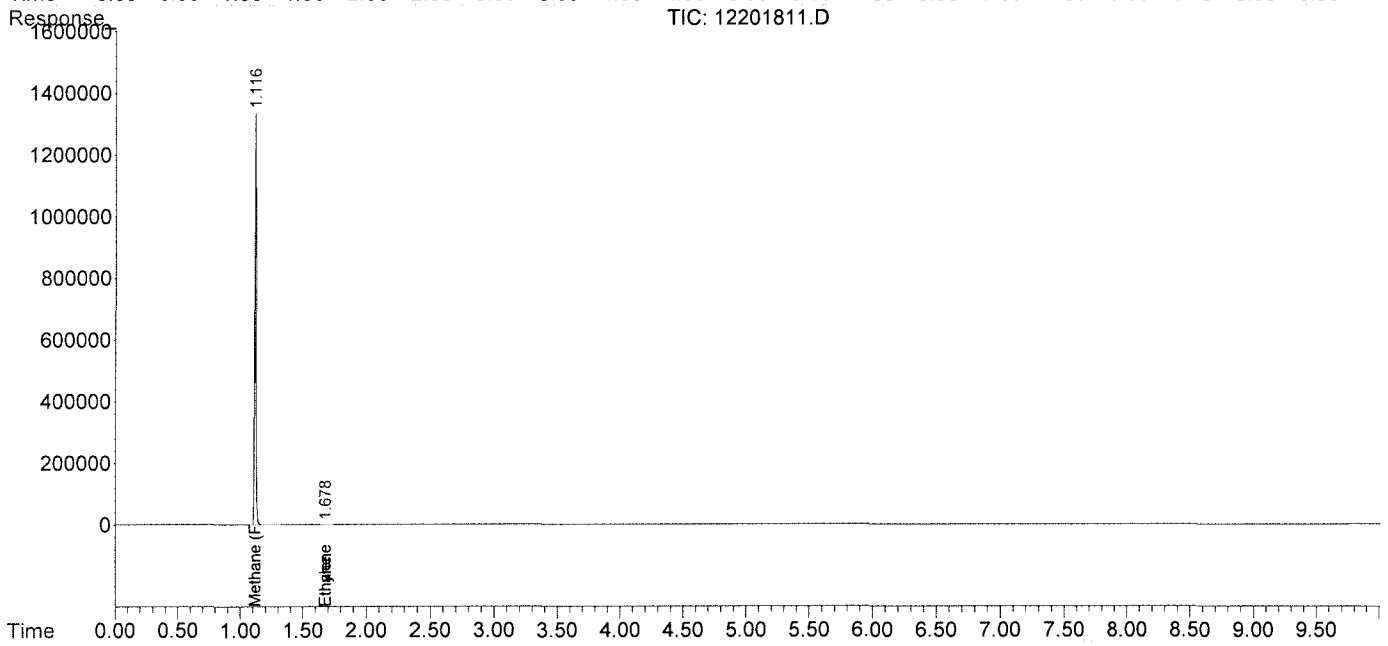
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:38:24
Operator : MR
Sample : P1806865-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:39 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:56:31
Operator : MR
Sample : P1806865-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:58 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

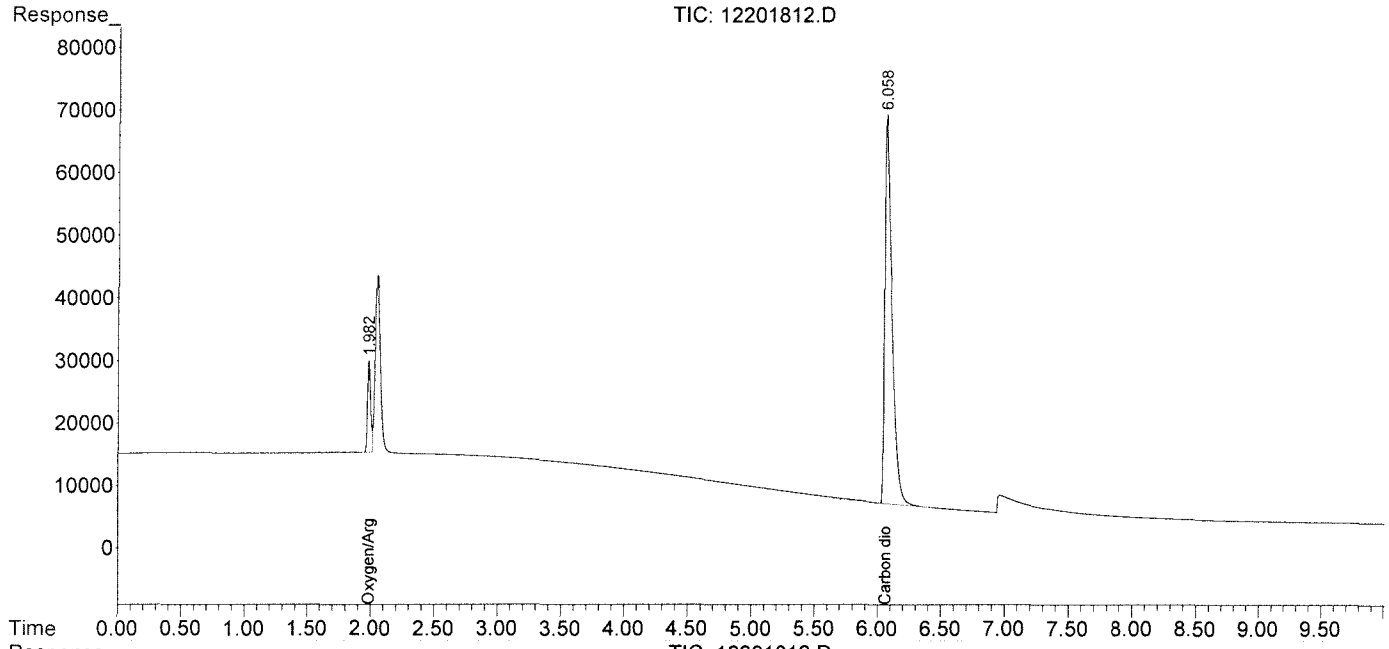
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.983f | 262927 | 0.055 | ppm |
| 2) | Carbon monoxide | 1.983f | 262927 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 6.059 | 2422738 | 10321.420 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

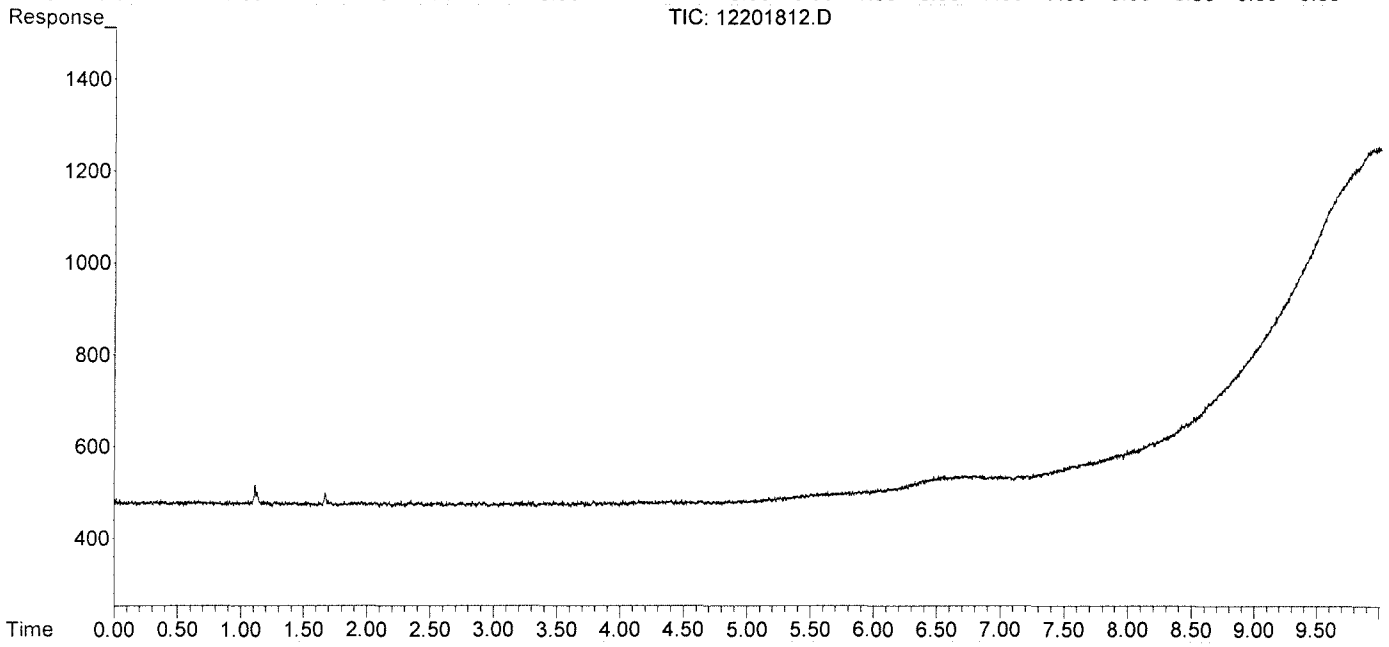
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:56:31
Operator : MR
Sample : P1806865-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:58 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:01:09
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 12:49:36 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

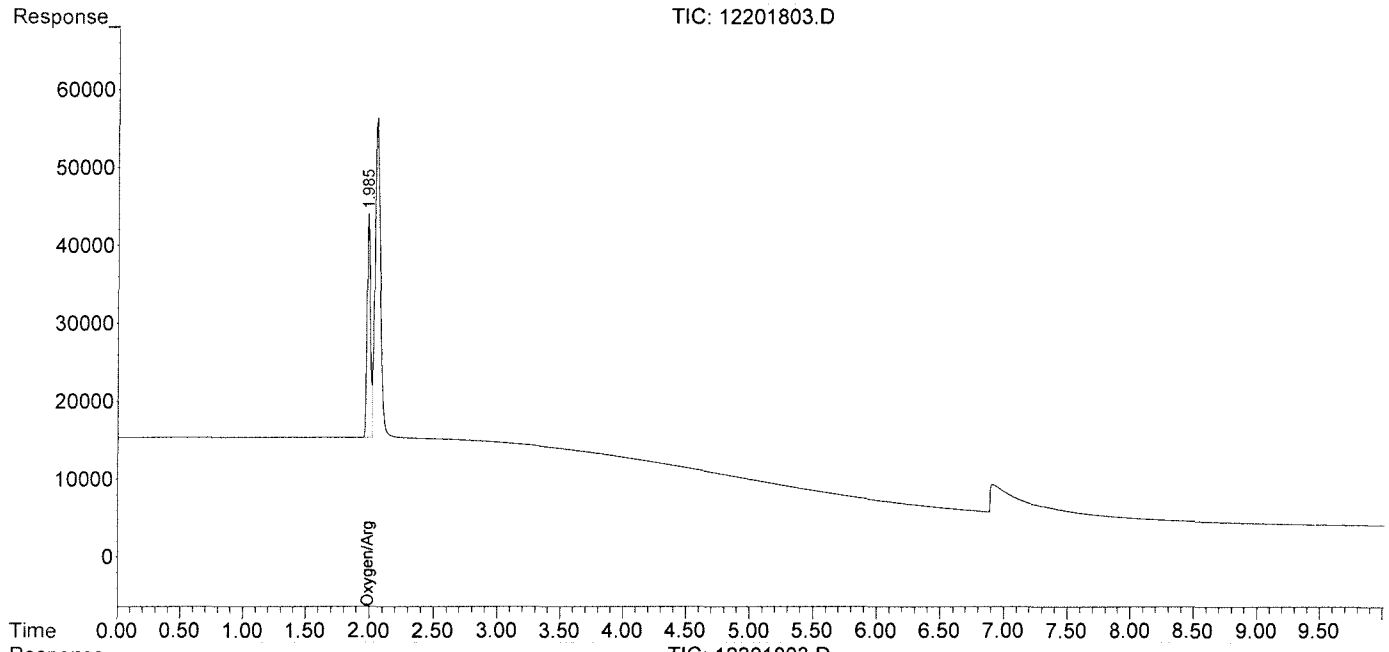
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.985f | 524802 | 0.110 | ppm |
| 2) | Carbon monoxide | 1.985f | 524802 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.119 | 1505 | 0.159 | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

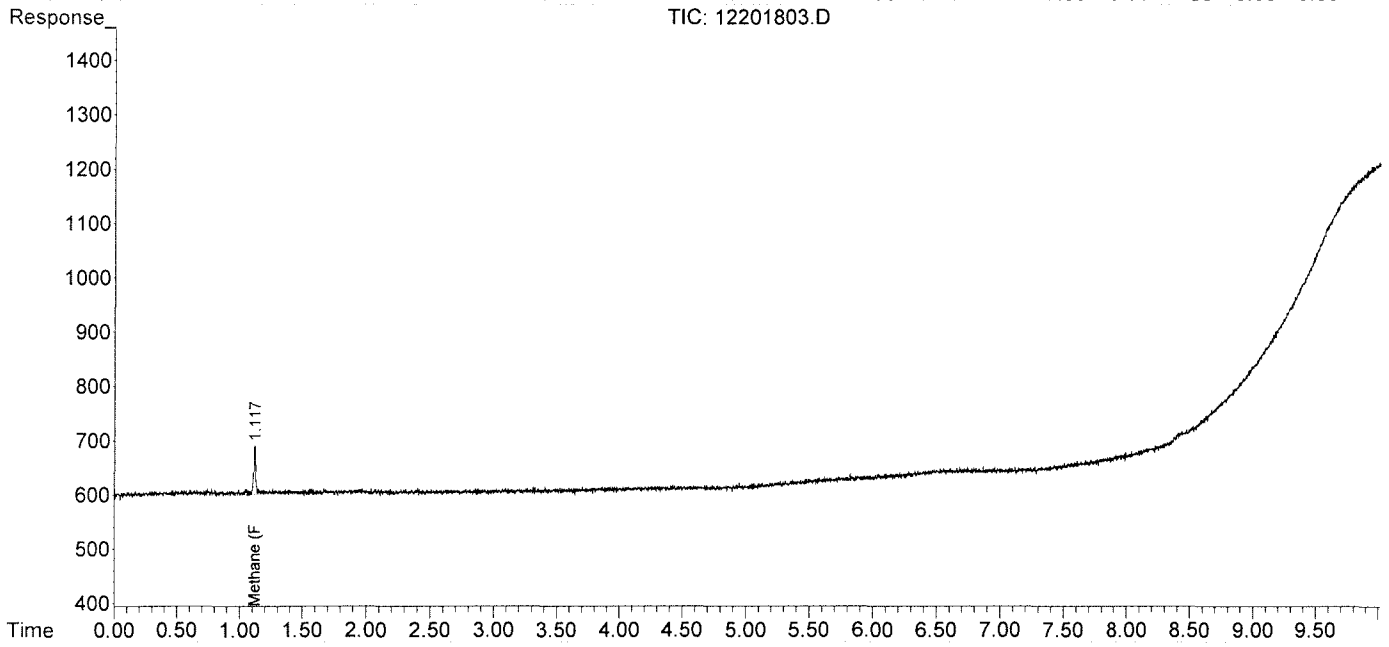
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:01:09
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 12:49:36 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

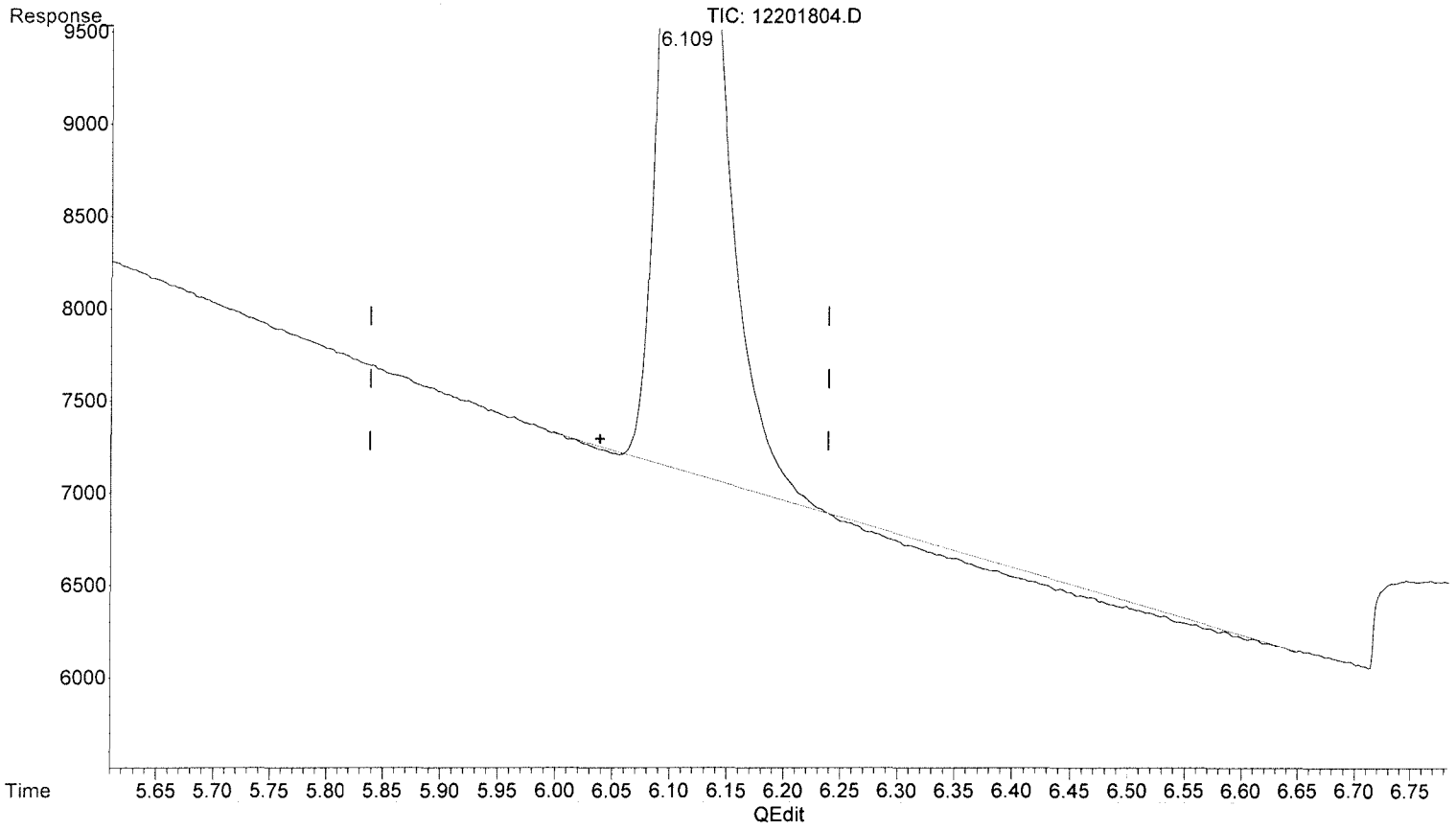
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.973f | 1286380 | 0.270 | ppm | |
| 2) | Carbon monoxide | 1.973f | 1286380 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 6.109 | 201115 | 856.794 | ppm | m |
| 6) | Methane (FID) | 1.116 | 30694128 | 3248.807 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

6.111min 803.961 ppm

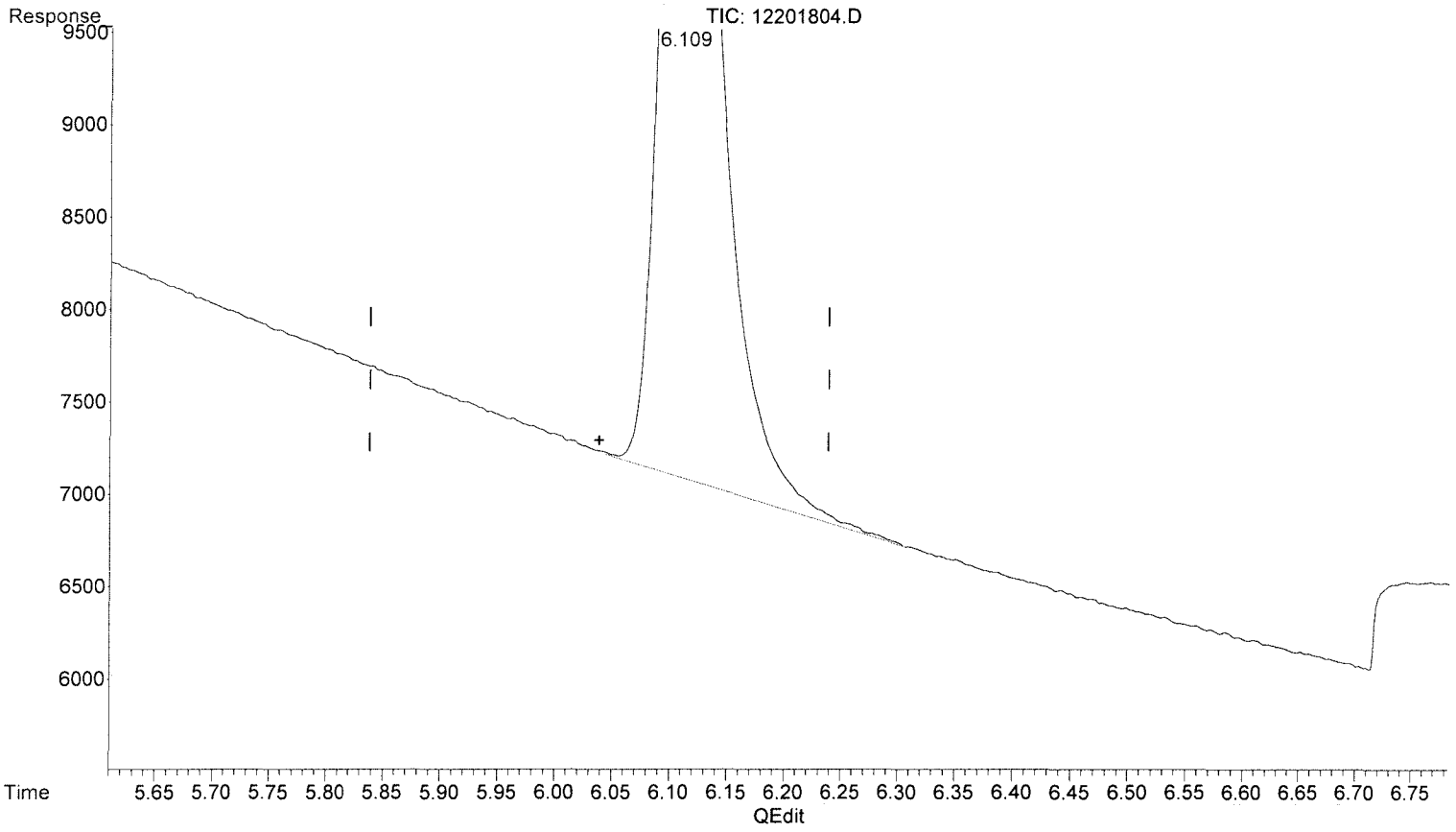
response 188713

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

6.109min 856.794 ppm m

response 201115

MK 12/21/18
BLC

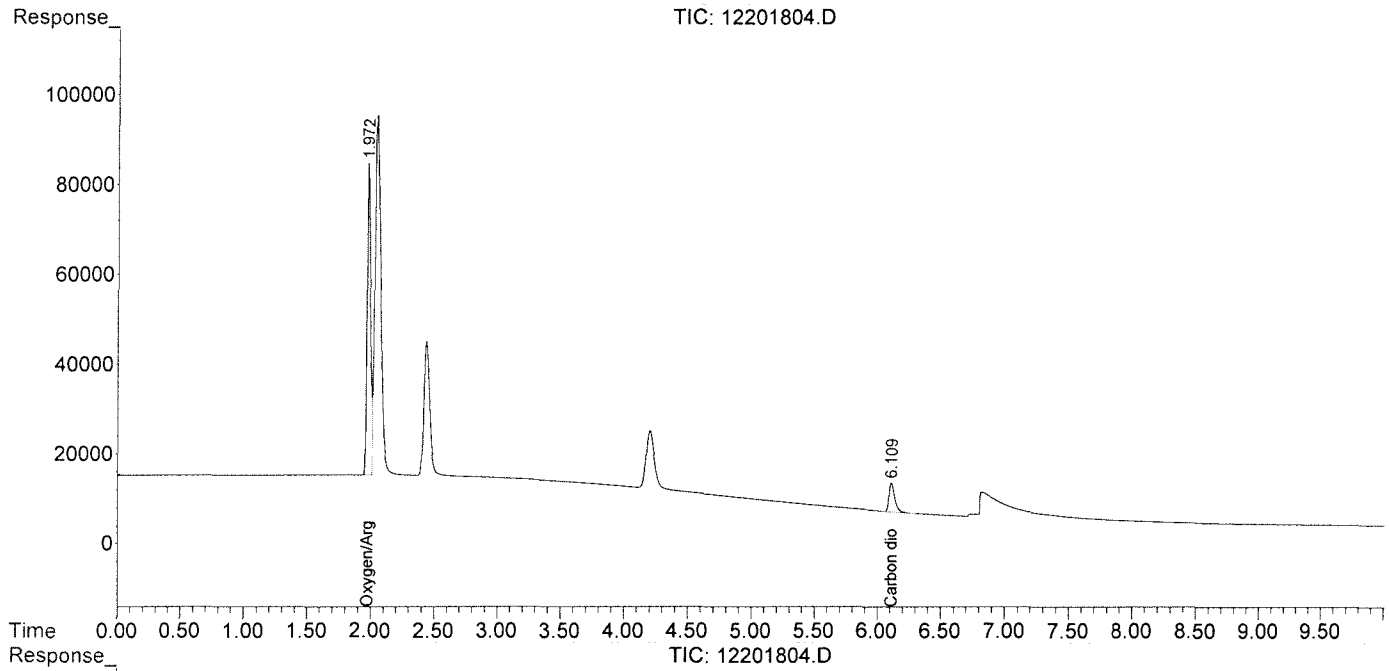
(+) = Expected Retention Time

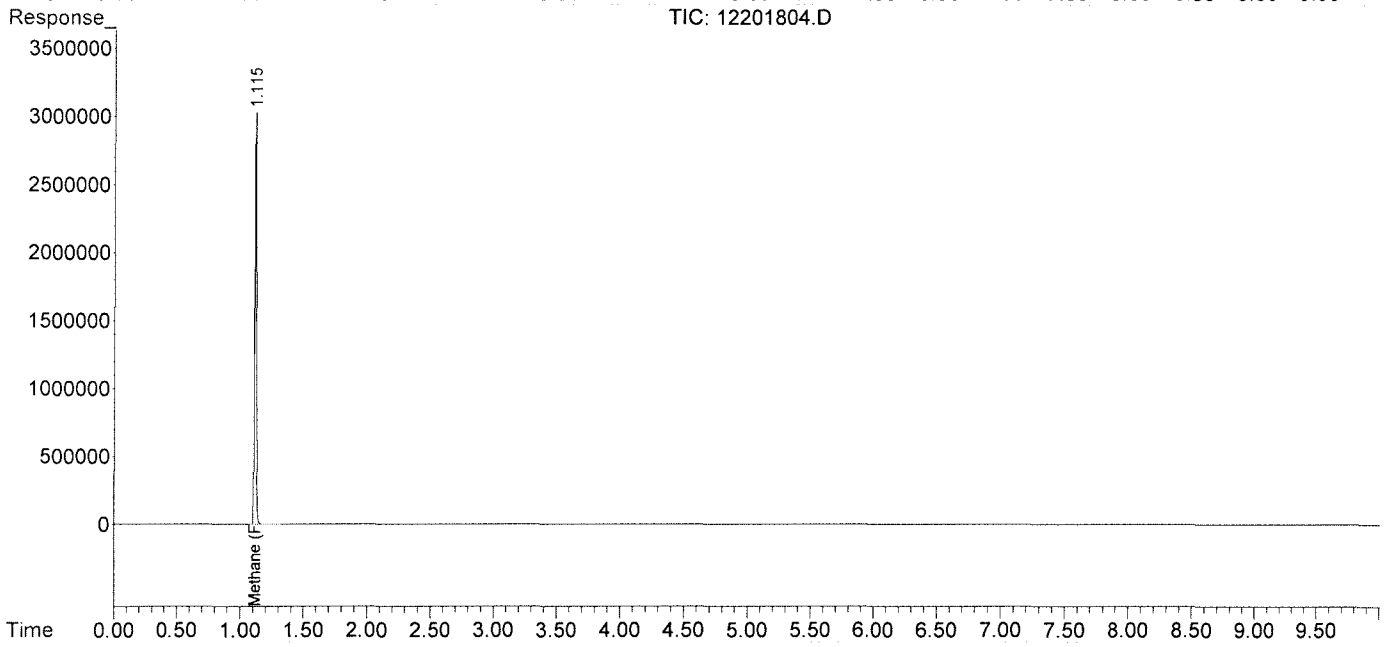
RS082817_CO2.M Thu Dec 20 16:38:57 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

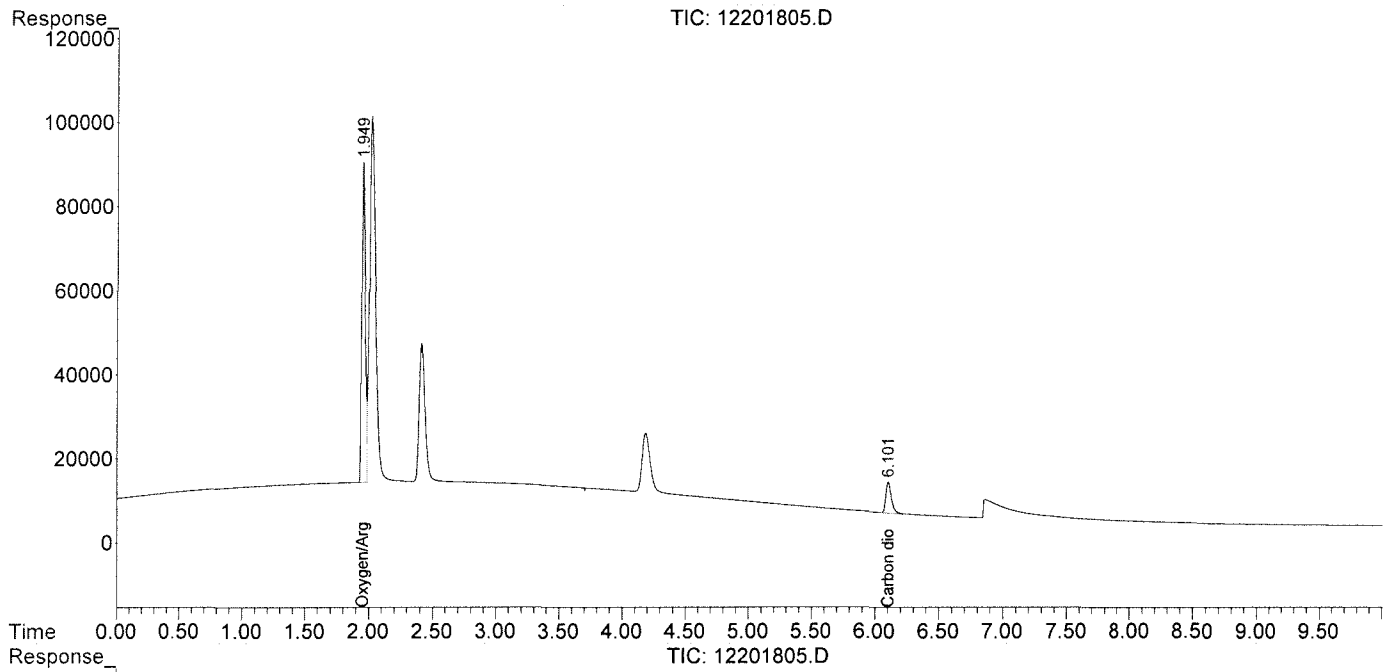
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.950f | 1418439 | 0.298 | ppm | |
| 2) | Carbon monoxide | 1.950f | 1418439 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 6.101 | 220359 | 938.778 | ppm | m |
| 6) | Methane (FID) | 1.097 | 33961665 | 3594.658 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

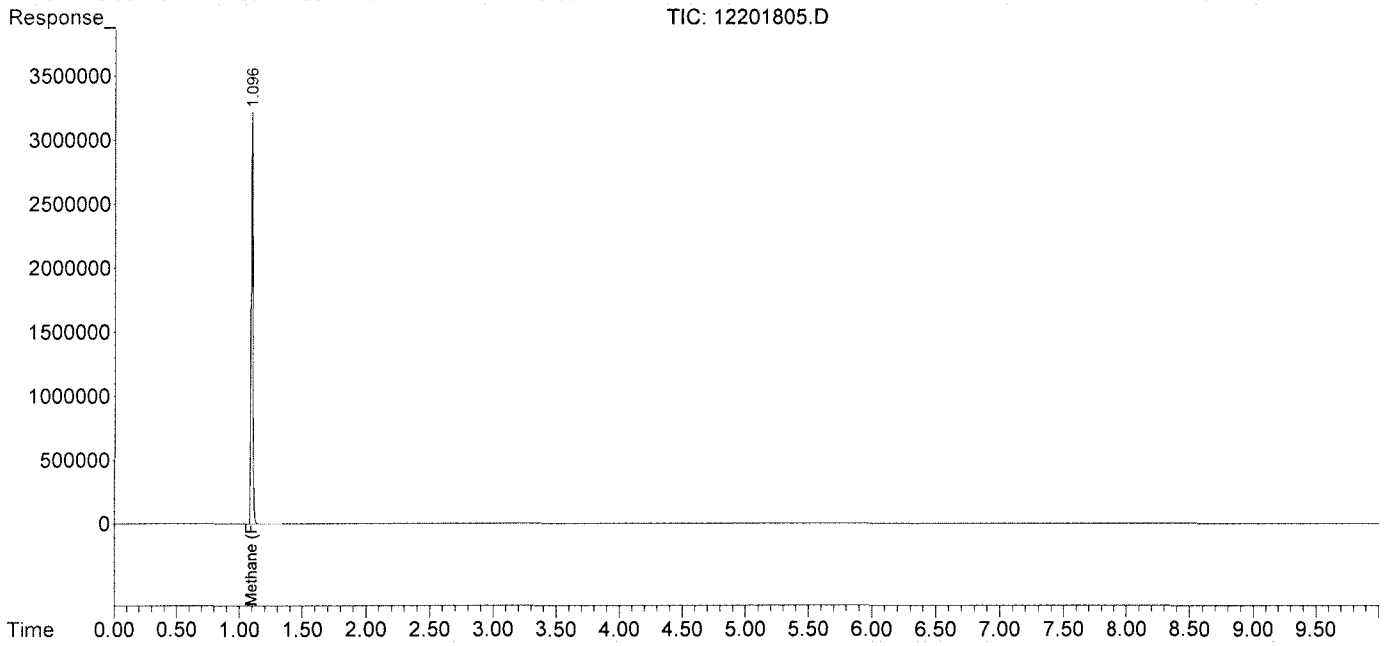
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

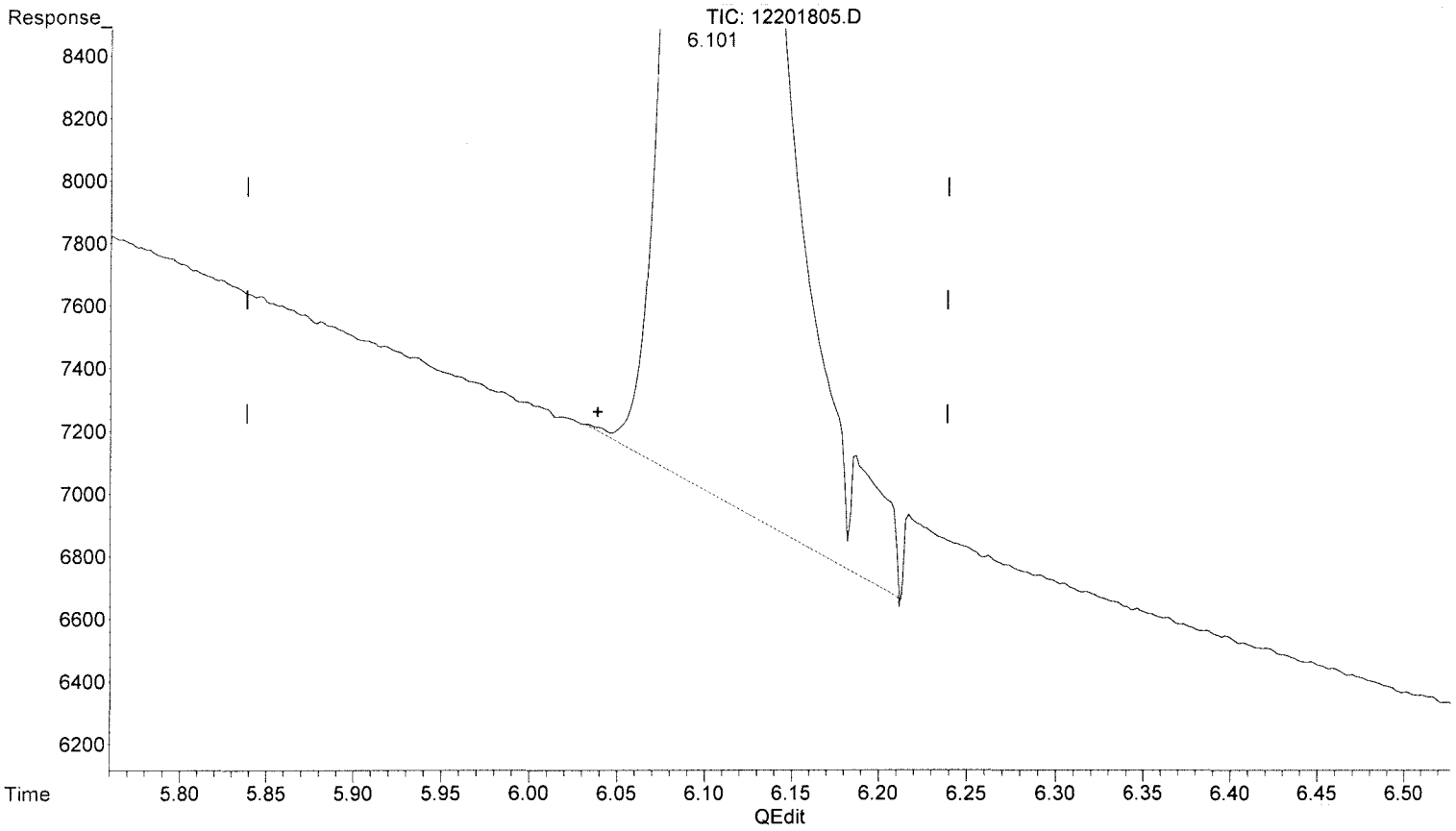


Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

6.102min 989.017 ppm

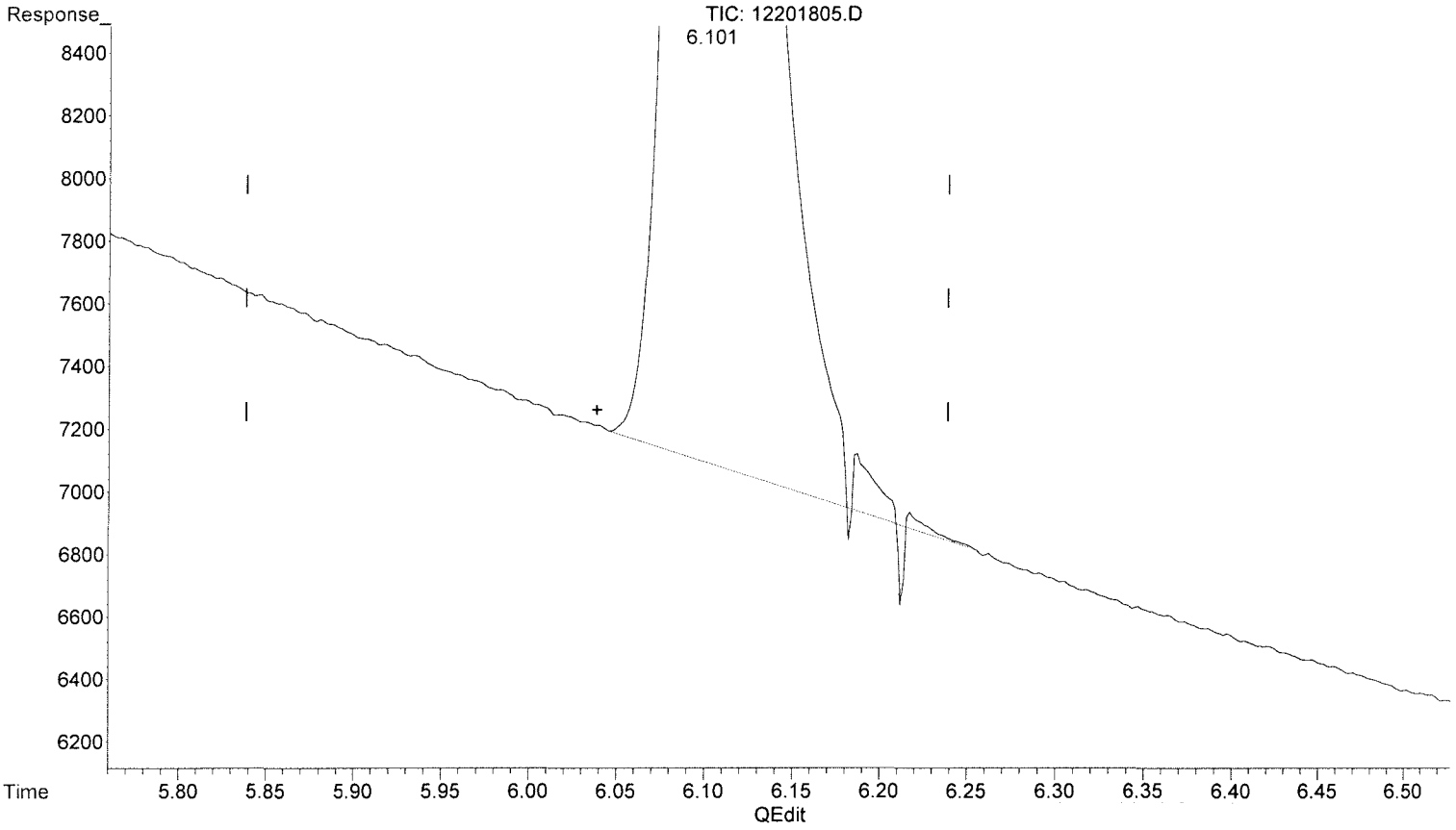
response 232151

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

6.101min 938.778 ppm m

response 220359

MK 12/21/18
BLC

12/21/18

(+) = Expected Retention Time

RS082817_CO2.M Thu Dec 20 16:39:44 2018 Page: 1

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) | Oxygen/Argon | 4.760 | | | | | | 4.760 | E6 | 0.00 |
| 2) | Carbon monoxide | 2.775 | | 1.066 | 0.043 | 0.033 | 0.027 | 0.657 | E6 | 170.12 |
| 3) | Methane (TCD) | | | | | | | 9.457 | | 0.00 |
| 4) | Carbon dioxide | 2.717 | 2.193 | 2.338 | 2.272 | 2.265 | 2.298 | 2.347 | E2 | 7.99 |

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 6) | Methane (FID) | 1.253 | 1.160 | 1.005 | 0.927 | 0.848 | 0.848 | 0.945 | E4 | 15.85 |
| 7) | Ethylene | 1.677 | 1.605 | 1.900 | 1.749 | 1.597 | 1.579 | 1.684 | E4 | 7.30 |
| 8) | Ethane | 1.769 | 1.631 | 1.866 | 1.767 | 1.639 | 1.667 | 1.723 | E4 | 5.40 |
| 9) | Propylene | 2.402 | 2.309 | 2.767 | 2.551 | 2.331 | 2.333 | 2.449 | E4 | 7.32 |
| 10) | Propane | 2.906 | 2.737 | 2.817 | 2.639 | 2.410 | 2.420 | 2.655 | E4 | 7.75 |
| 11) | Isobutylene | | | | | | | 0.000 | | -1.00 |
| 12) | Isobutane | | | | | | | 0.000 | | -1.00 |
| 13) | n-Butane | | | | | | | 0.000 | | -1.00 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

Compounds -- Compound #4 -- Carbon dioxide

Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 25.000000 | 6793.665186 |
| 2 | 100.000000 | 21932.418000 |
| 3 | 250.000000 | 58460.642510 |
| 4 | 2500.000000 | 568043.388750 |
| 5 | 5000.000000 | 1132363.215937 |
| 6 | 25000.000000 | 5744294.891563 |
| 7 | 25000.000000 | |
| 8 | 25000.000000 | |
| 9 | 2000.000000 | |
| 10 | 30000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| | | |
| | | |
| | | |
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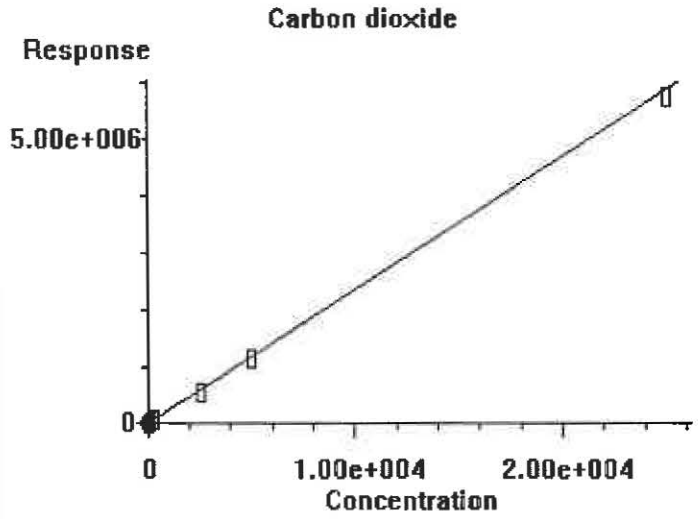
| | | |
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 2.347e+002 | Linear term |
| 0.000e+000 | Constant term |
| 7.987% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

| # | ID | Conc | ISTD Conc | Path\File |
|---|---|---|---|---|
| 1 | 1 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D |
| 2 | 2 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D |
| 3 | 3 | 3 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D |
| 4 | 4 | 10 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D |
| 5 | 5 | 25 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D |
| 6 | 6 | 125 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D |
| 7 | 7 | 5000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D |
| 8 | 8 | 25000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D |
| 9 | 9 | 2000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D |
| 10 | 10 | 30000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D |

| # | ID | Update Time | Quant Time | Acquisition Time |
|---|---|---|---|---|
| 1 | 1 | Aug 29 14:21 2017 | Aug 29 14:20 2017 | 29-Aug-2017, 14:07 |
| 2 | 2 | Aug 29 14:52 2017 | Aug 29 14:51 2017 | 29-Aug-2017, 14:22 |
| 3 | 3 | Aug 29 15:04 2017 | Aug 29 15:04 2017 | 29-Aug-2017, 14:53 |
| 4 | 4 | Aug 29 15:36 2017 | Aug 29 15:36 2017 | 29-Aug-2017, 15:23 |
| 5 | 5 | Aug 29 15:57 2017 | Aug 29 15:57 2017 | 29-Aug-2017, 15:44 |
| 6 | 6 | Aug 29 16:13 2017 | Aug 29 16:13 2017 | 29-Aug-2017, 16:00 |
| 7 | 7 | Aug 25 09:05 2017 | Aug 24 16:00 2017 | 24-Aug-2017, 15:44 |
| 8 | 8 | Aug 25 09:06 2017 | Aug 24 16:13 2017 | 24-Aug-2017, 16:02 |
| 9 | 9 | Aug 25 09:06 2017 | Aug 24 16:31 2017 | 24-Aug-2017, 16:16 |
| 10 | 10 | Aug 25 09:07 2017 | Aug 24 16:42 2017 | 24-Aug-2017, 16:33 |

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

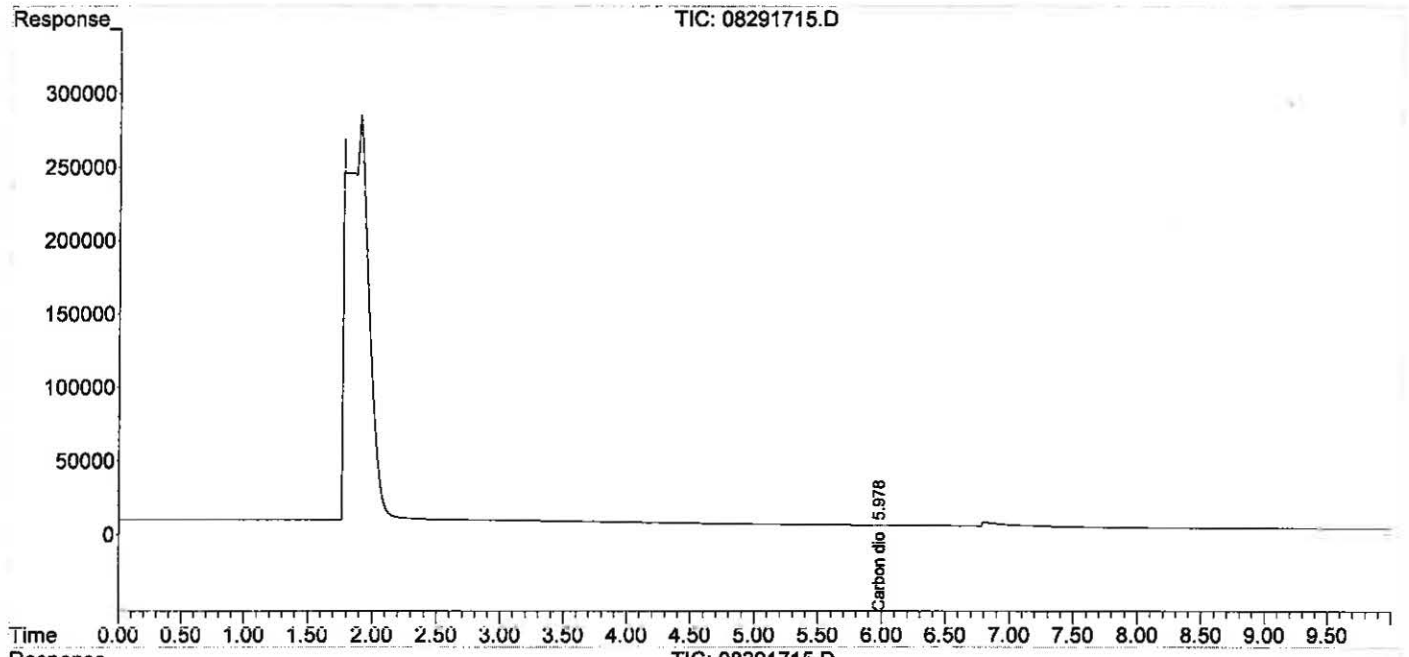
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.776 | 277465 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 5.978 | 6794 | 27.870 | ppm | m |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

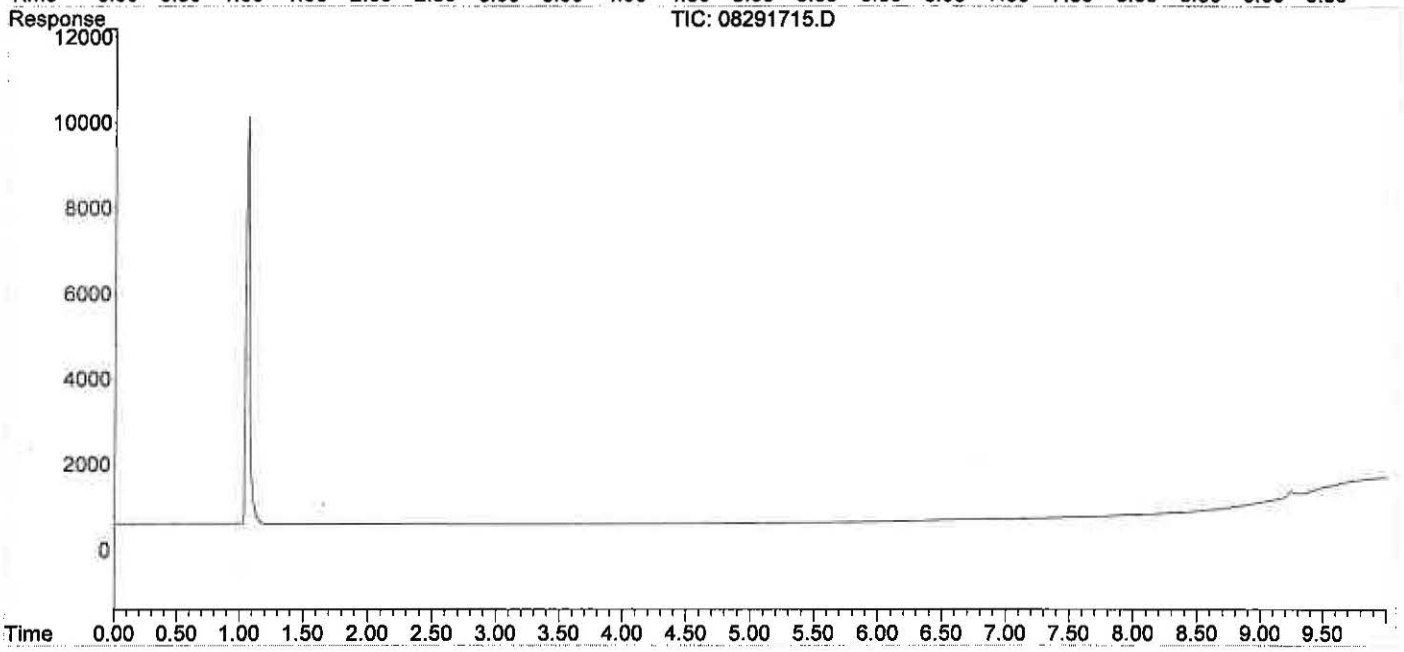
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

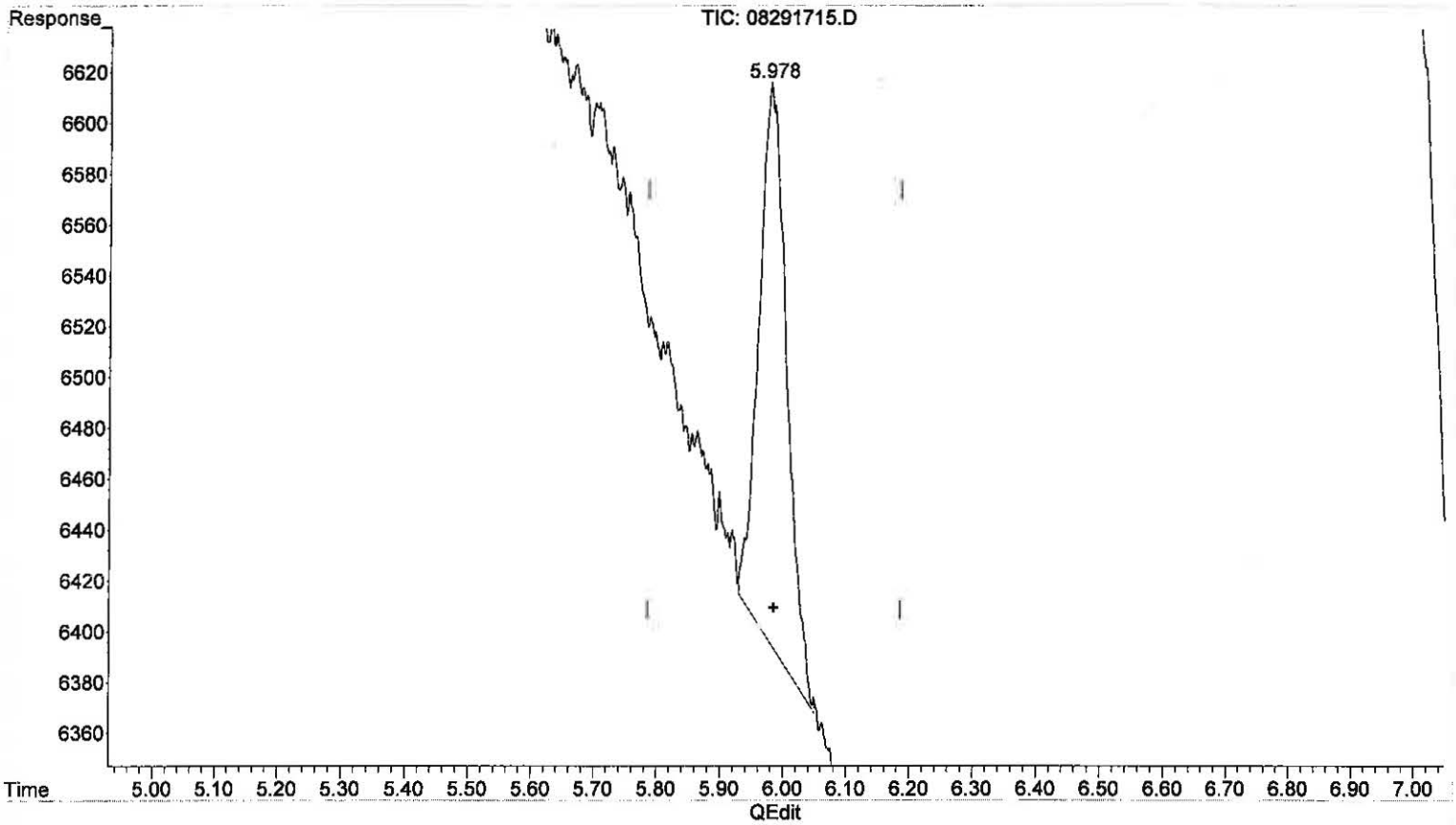


Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

9/30/17
BLW
M.
prelim

9/4/17

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017 Page: 1

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

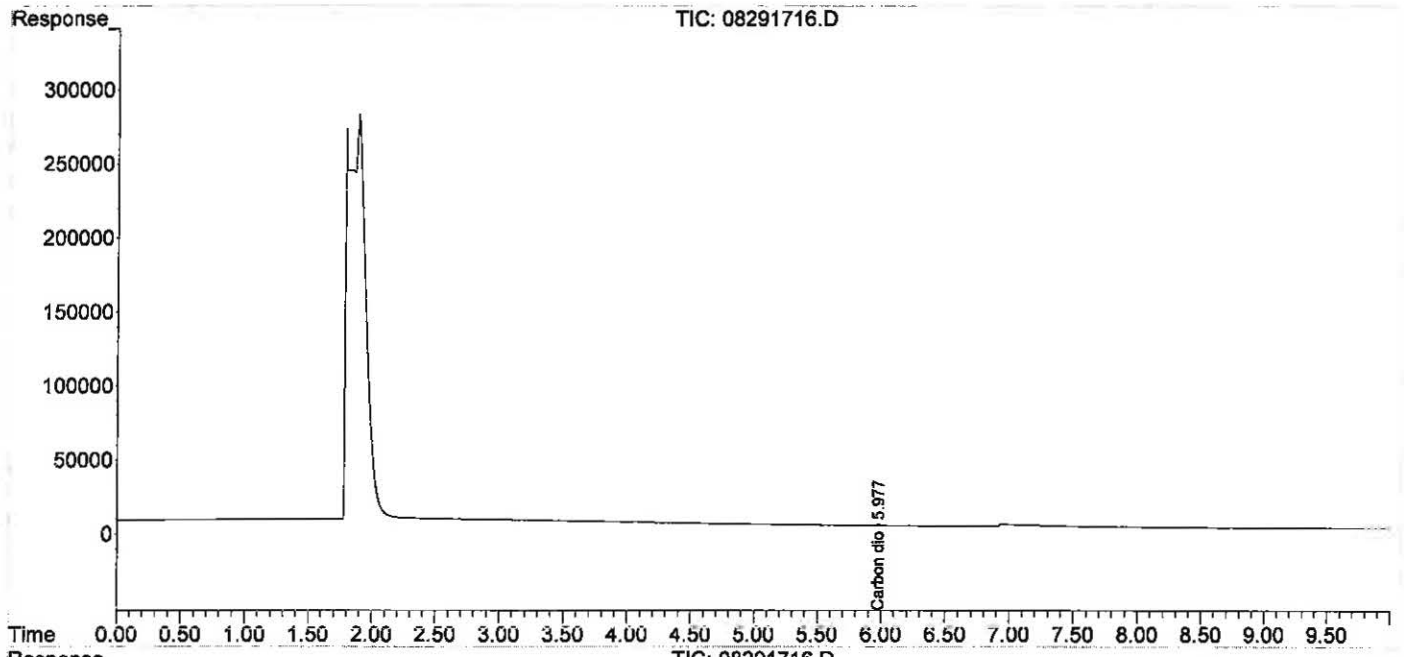
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.790 | -598962 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | d |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 5.978 | 21932 | 87.858 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

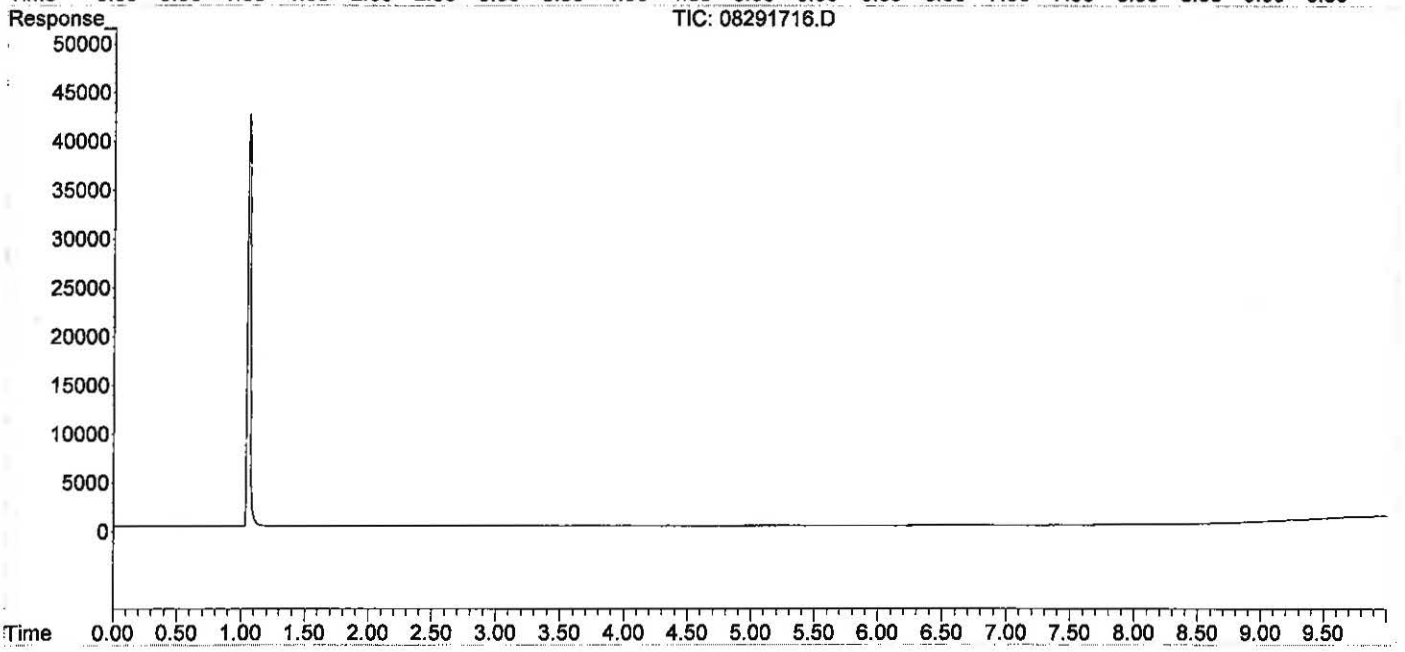
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

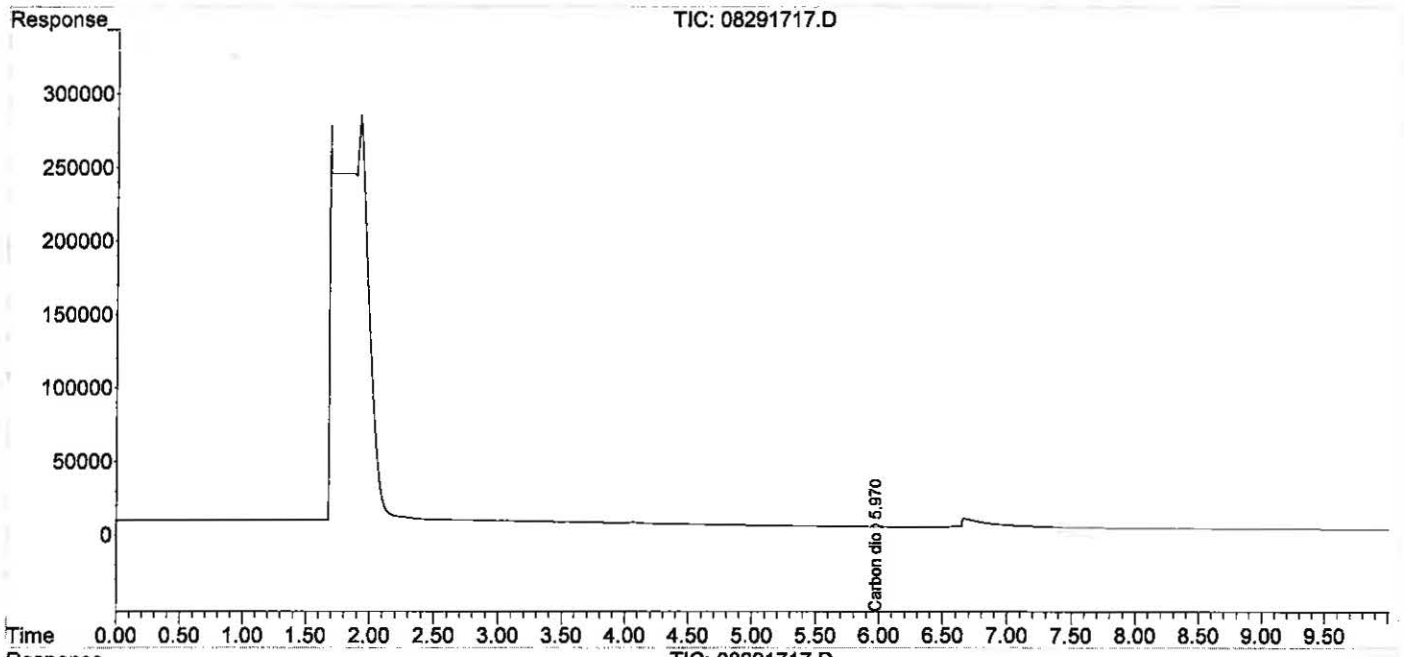
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.920f | -30716454 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | d |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.970 | 58461 | 240.204 | ppm | m |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

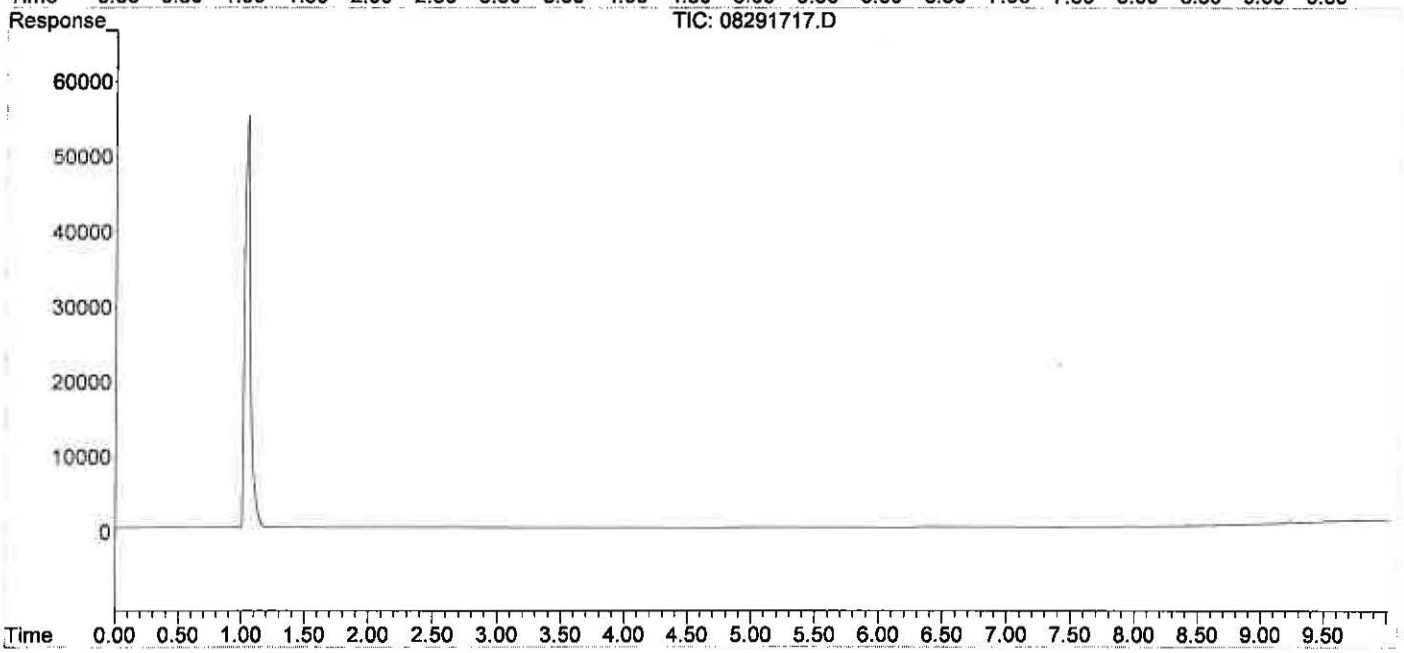
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

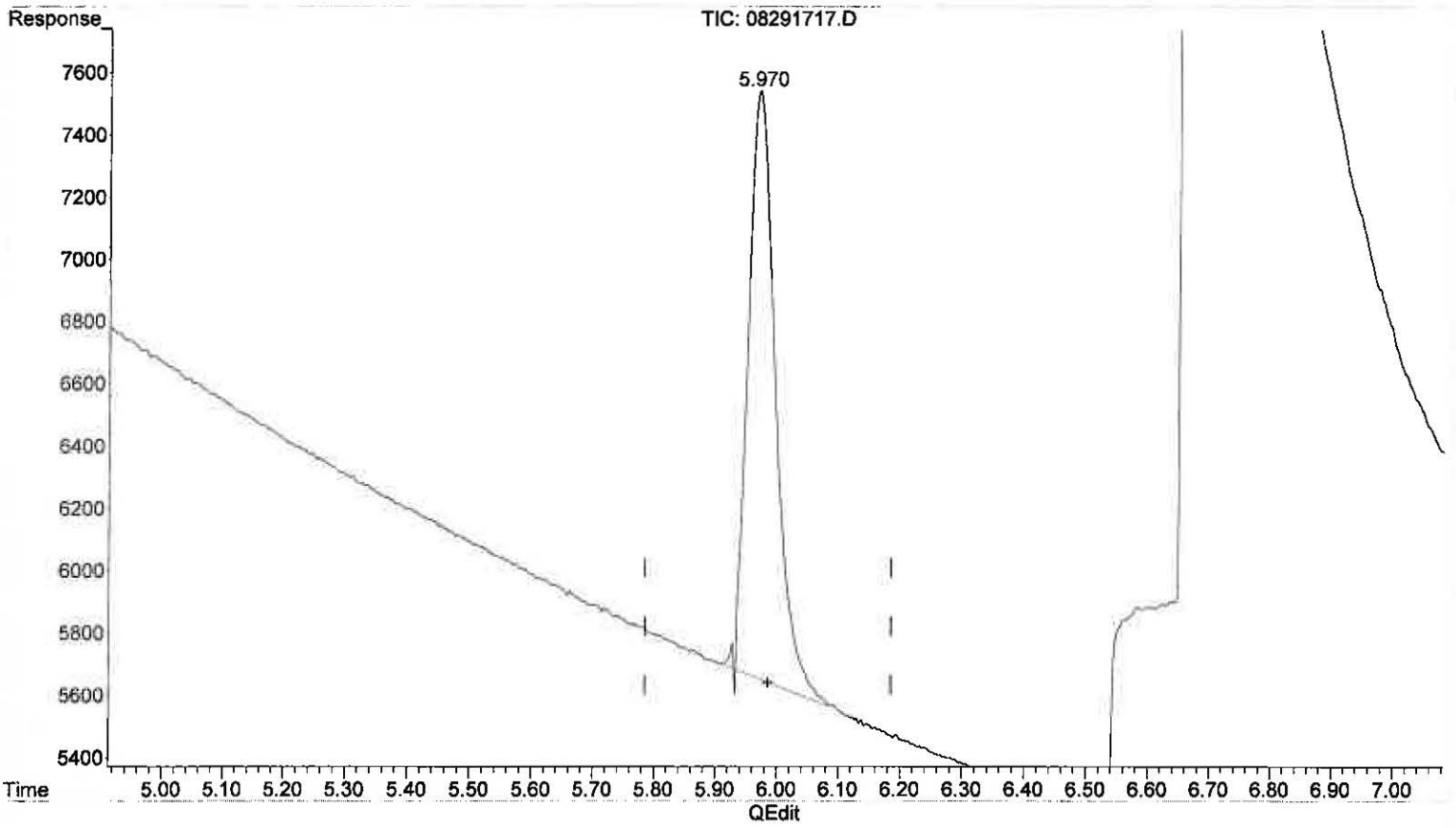


Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

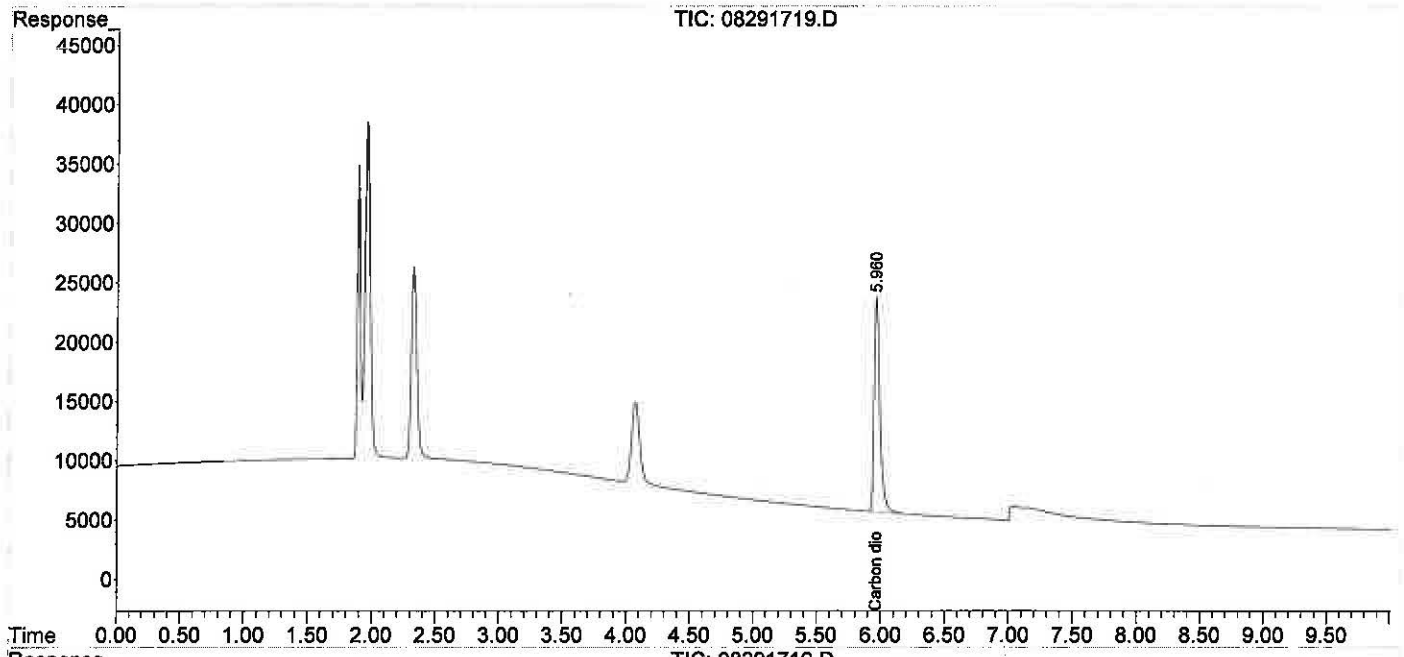
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.891 | 425113 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.962 | 568043 | 2369.673 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

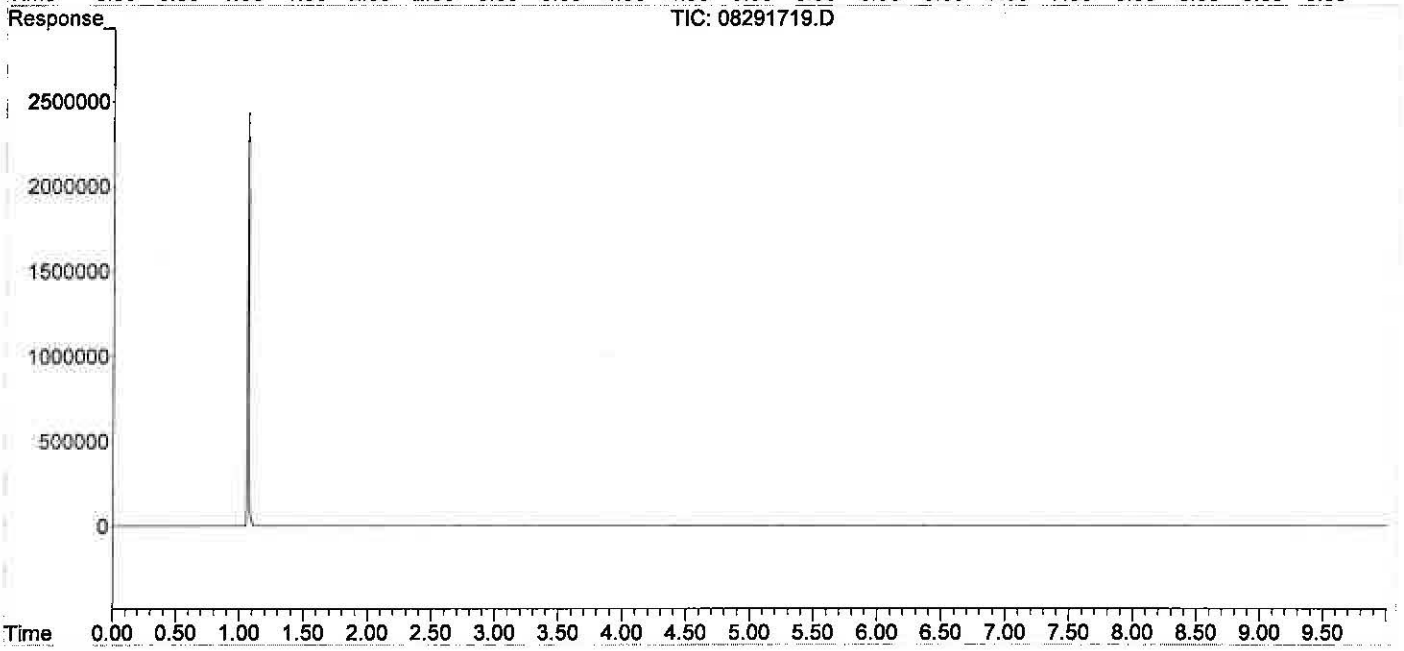
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

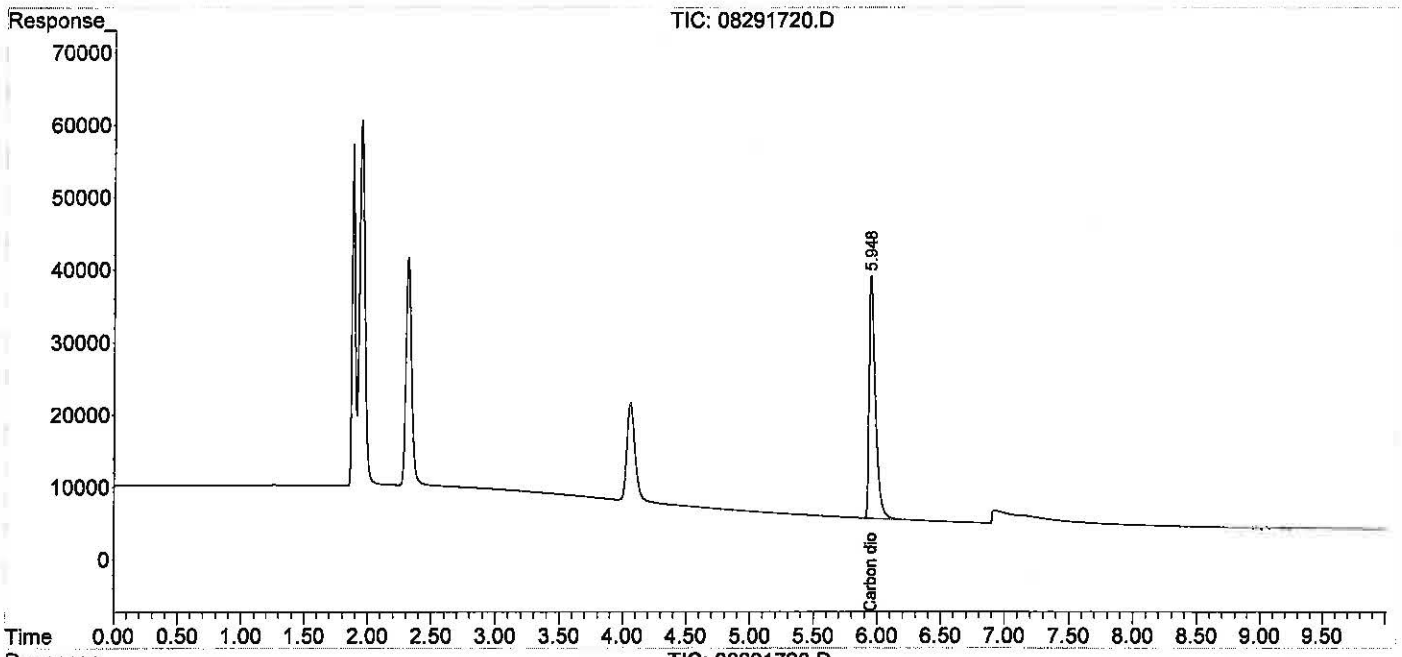
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.880 | 819221 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.948 | 1132363 | 4753.126 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

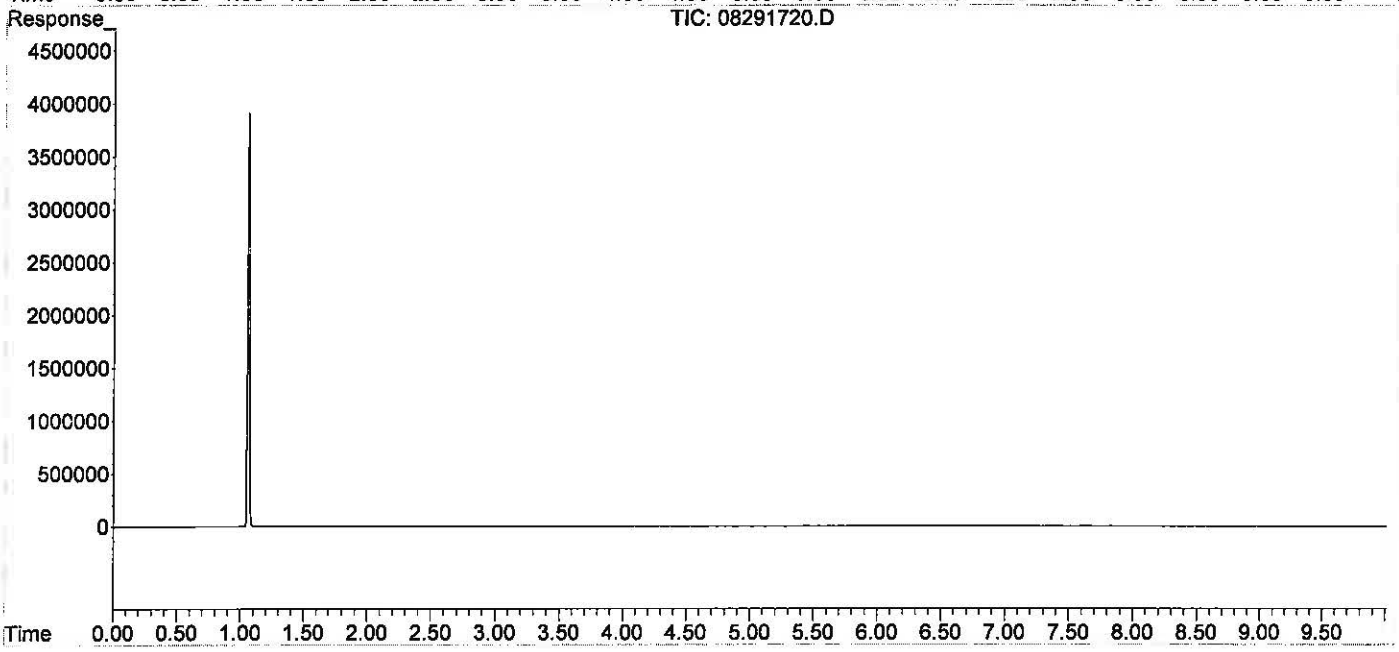
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

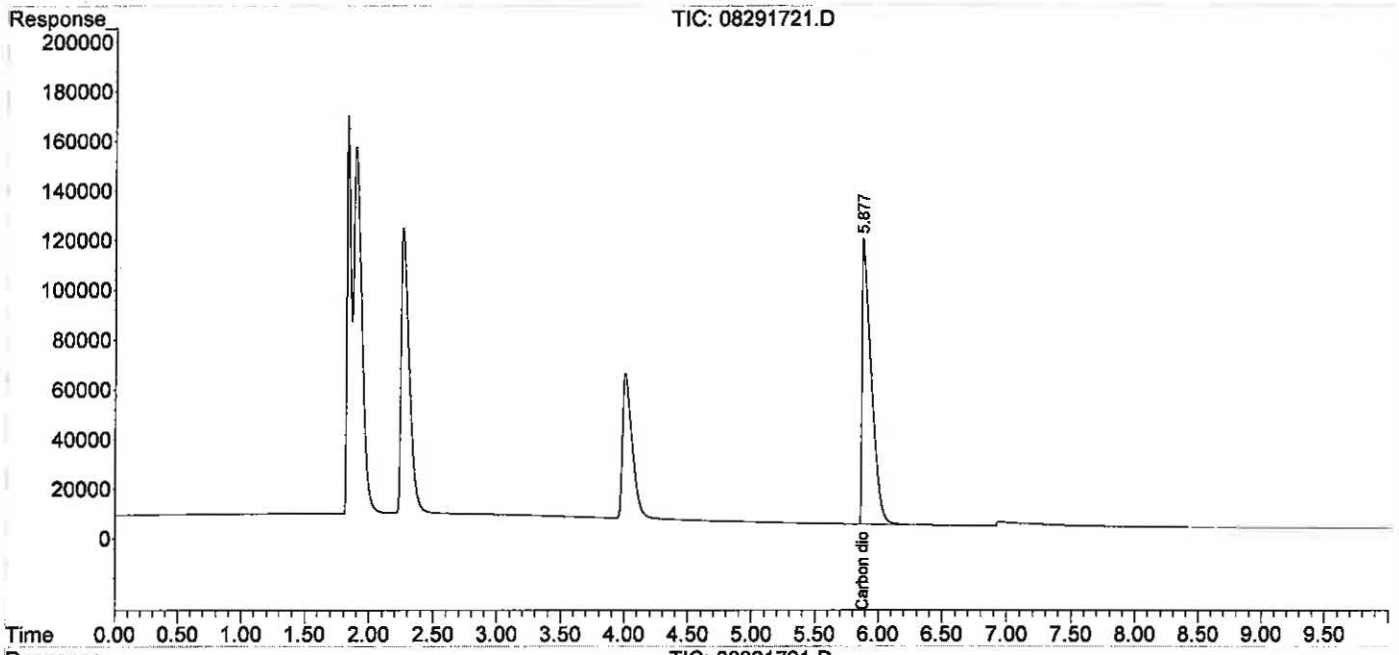
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.827 | 3325463 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.879f | 5744295 | 24443.288 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

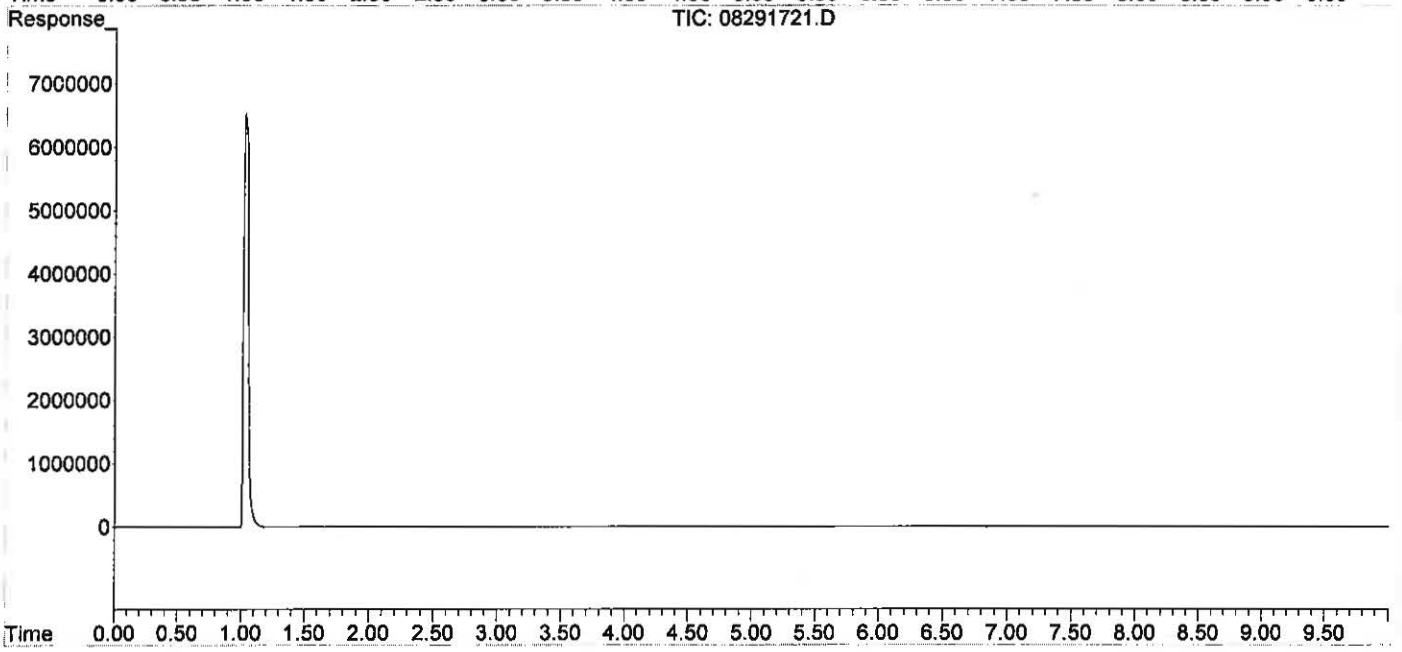
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.886 | 536422 | 0.113 | ppm |
| 2) | Carbon monoxide | 1.886 | 536422 | N.D. | ppm |
| 3) | Methane (TCD) | 4.059f | 626500 | 66244.710 | ppm |
| 4) | Carbon dioxide | 5.947 | 1163775 | 4957.948 | ppm |
| 6) | Methane (FID) | 1.062 | 37290742 | 3947.023 | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

Actual %D
5000 99.16

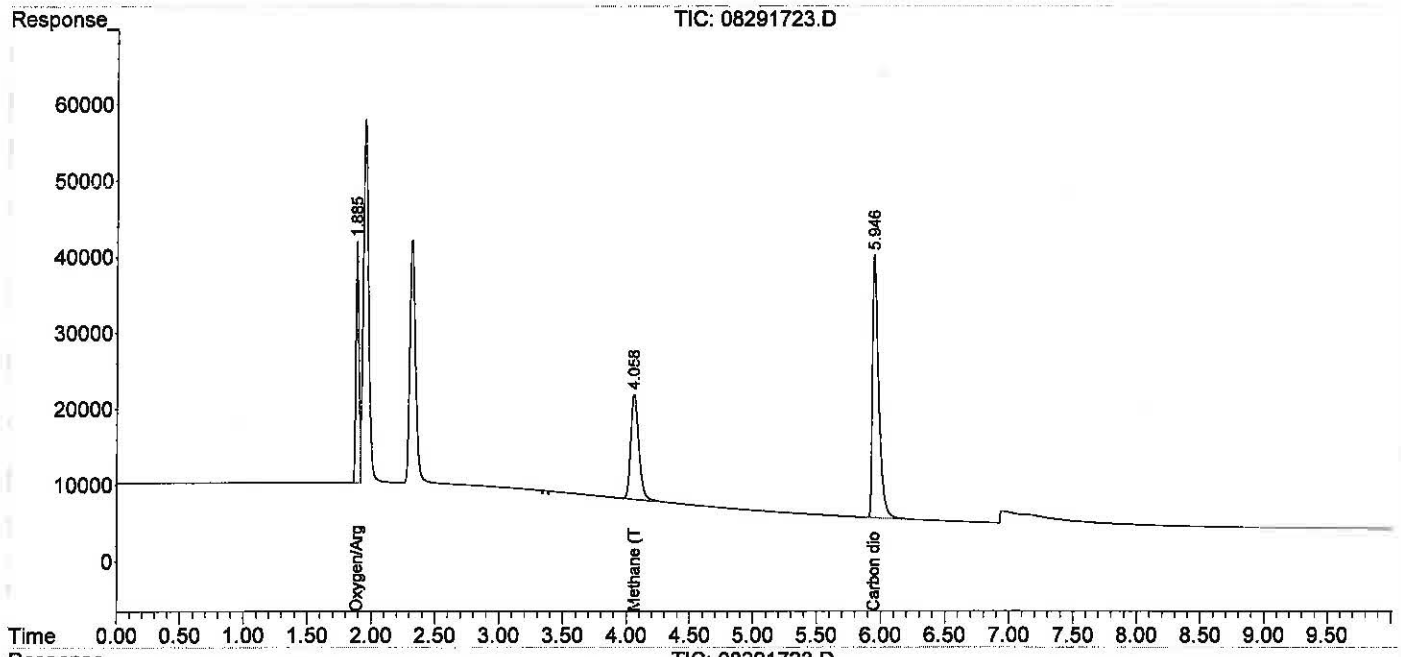
(f)=RT Delta > 1/2 Window (m)=manual int.

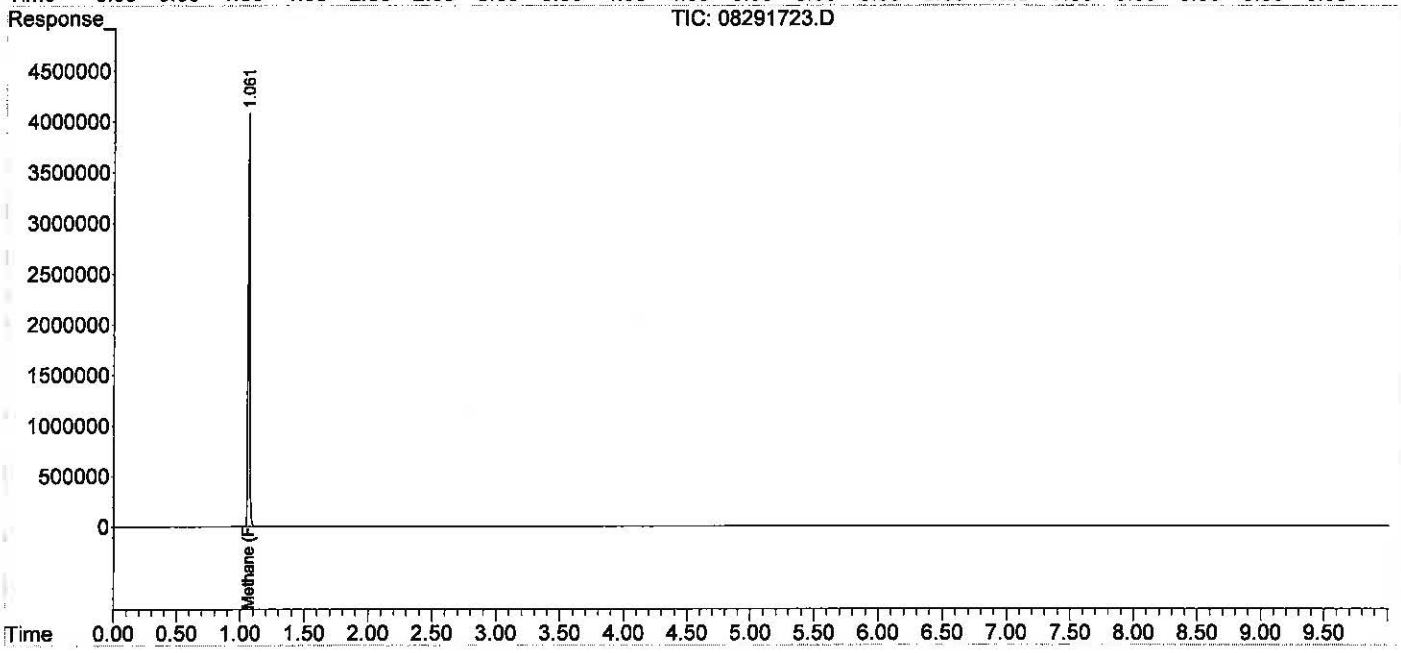
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



## *ALS Environmental*

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD

Client : ALS Laboratory Group | Analyst : MR | Instrument : GC#10

Service Request: P1806865 | Date Analysis : 12/20/18 | Detector : FID#10, TCD#10

Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

**HEAD SPACE RESULT (ppm)**

| Sample ID | Inj. Vol. | Carbon Dioxide |
|---|---|---|
| std s32-11091801 | 0.100 | 4891.803 |
| ACTUAL | | 5000.00 |
| %Difference | | 2.2% |
| mcs 0.1ml | 0.100 | 0.000 |
| rb 0.1ml | 0.100 | 0.000 |
| tcd lcs s32-10081801 | 0.100 | 856.794 |
| tcd lcsd s32-10081801 | 0.100 | 938.778 |
| P1806865-001 50ul | 0.050 | 8937.416 |
| P1806865-002 50ul | 0.050 | 6713.325 |
| P1806865-003 50ul | 0.050 | 9830.648 |
| P1806865-004 50ul | 0.050 | 10321.42 |

**FINAL HEAD SPACE RESULT (ppm)**

| | Carbon Dioxide |
|---|---|
| **WWt.** | 44.10 |
| **HENRY'S CONSTANT** | 1.42E+03 |
| **RL** | 100.00 |
| mcs 0.1ml | 0.000 |
| tcd lcs s32-10081801 | 8567.940 |
| tcd lcsd s32-10081801 | 9387.780 |
| P1806865-001 50ul | 178748.32 |
| P1806865-002 50ul | 134266.50 |
| P1806865-003 50ul | 196612.96 |
| P1806865-004 50ul | 206428.40 |

| | |
|---|---|
| std s32-11091801 | 4915.636 |
| ACTUAL | 5000.00 |
| %Difference | 1.7% |

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.979f | 566505 | 0.119 | ppm | |
| 2) | Carbon monoxide | 1.979f | 566505 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 6.076 | 1148249 | 4891.803 | ppm | m |
| 6) | Methane (FID) | 1.113 | 32620061 | 3452.657 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

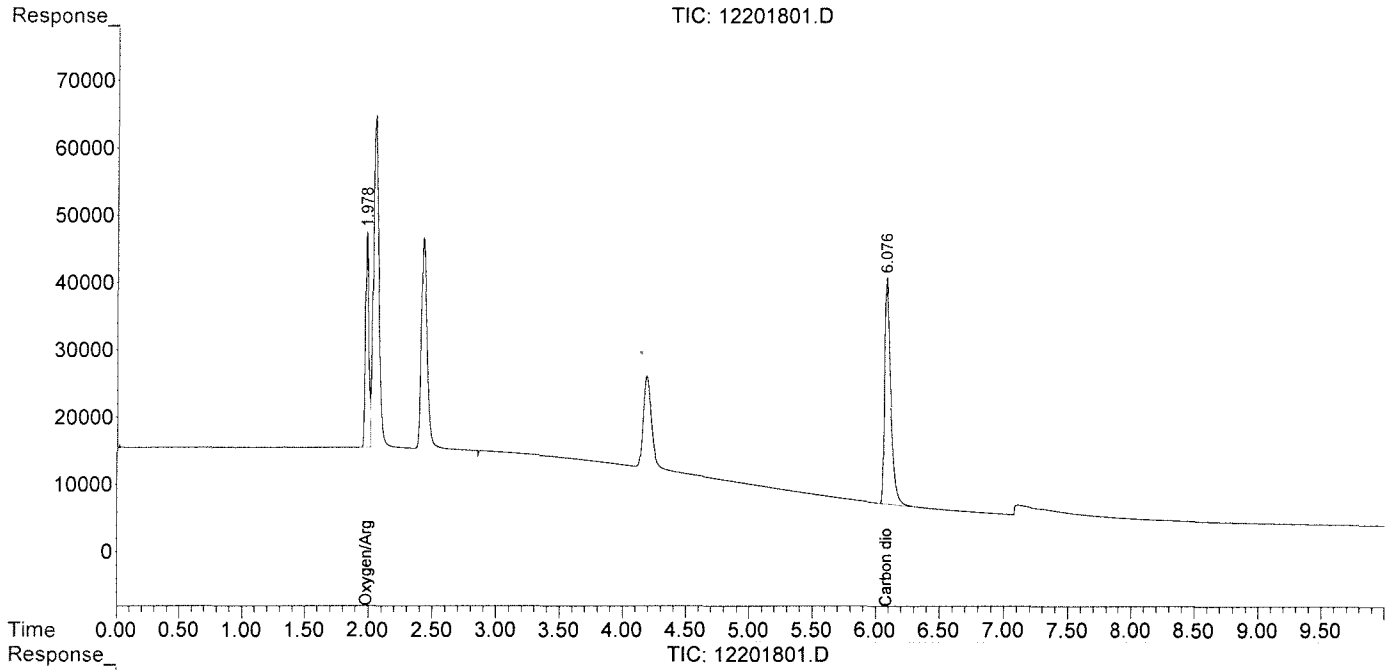
(f)=RT Delta > 1/2 Window (m)=manual int.

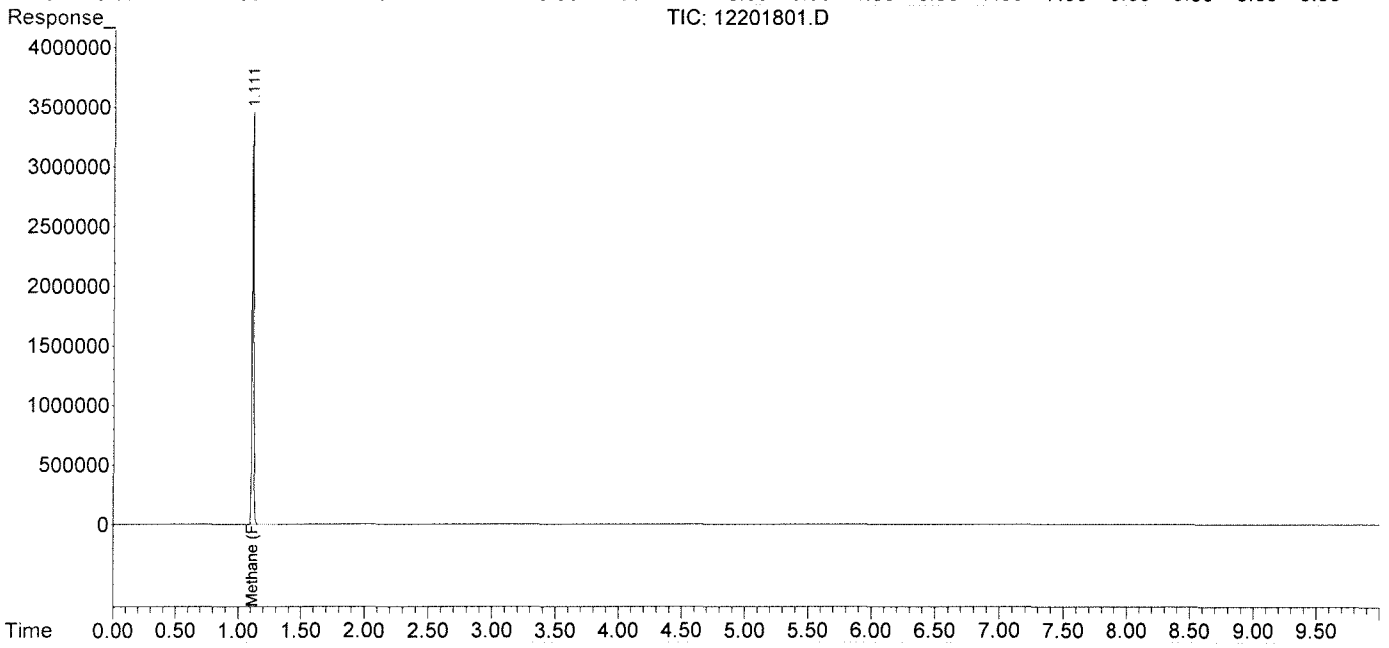
MR 12/21/18

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

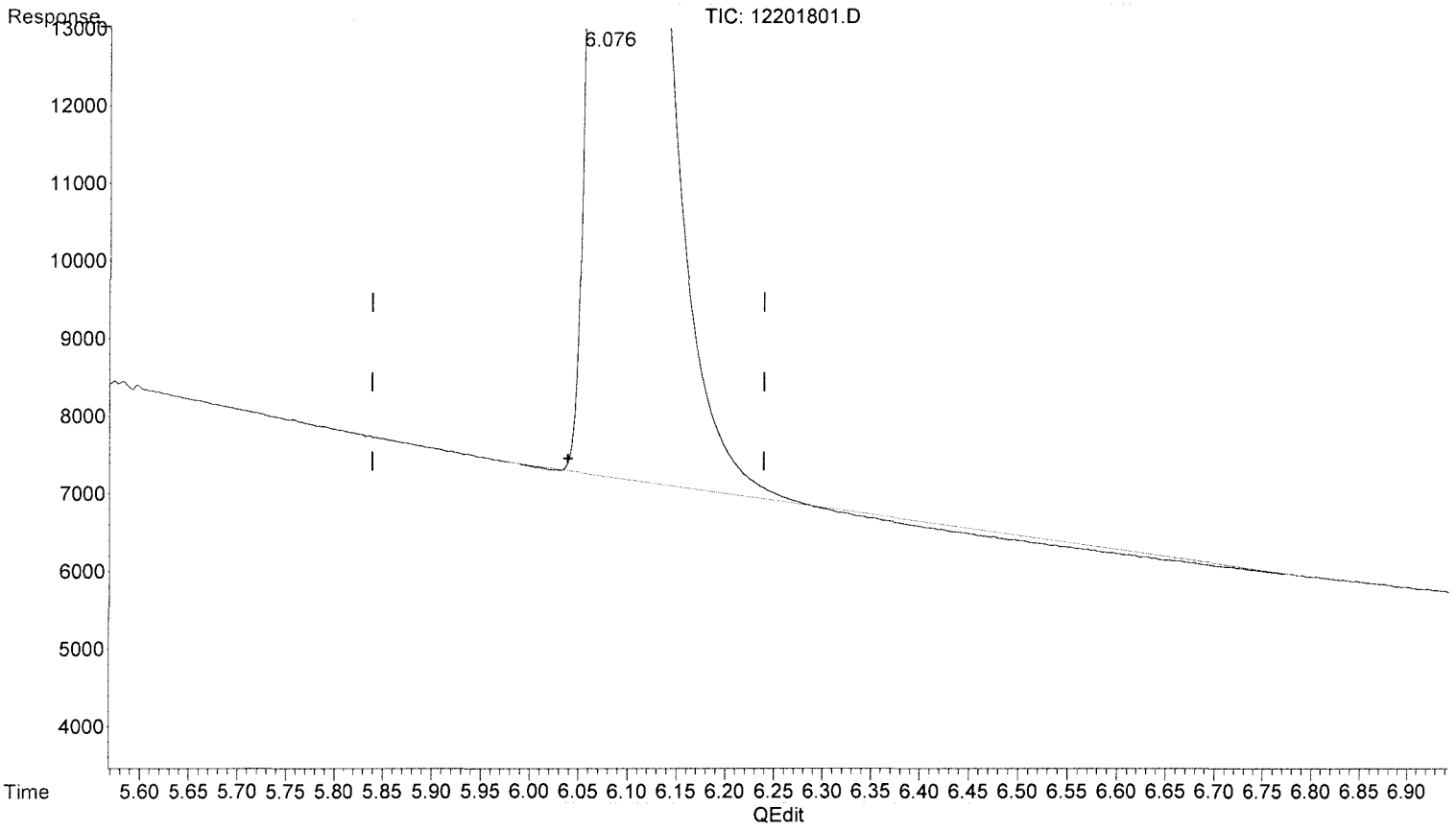


Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

6.078min 4810.455 ppm

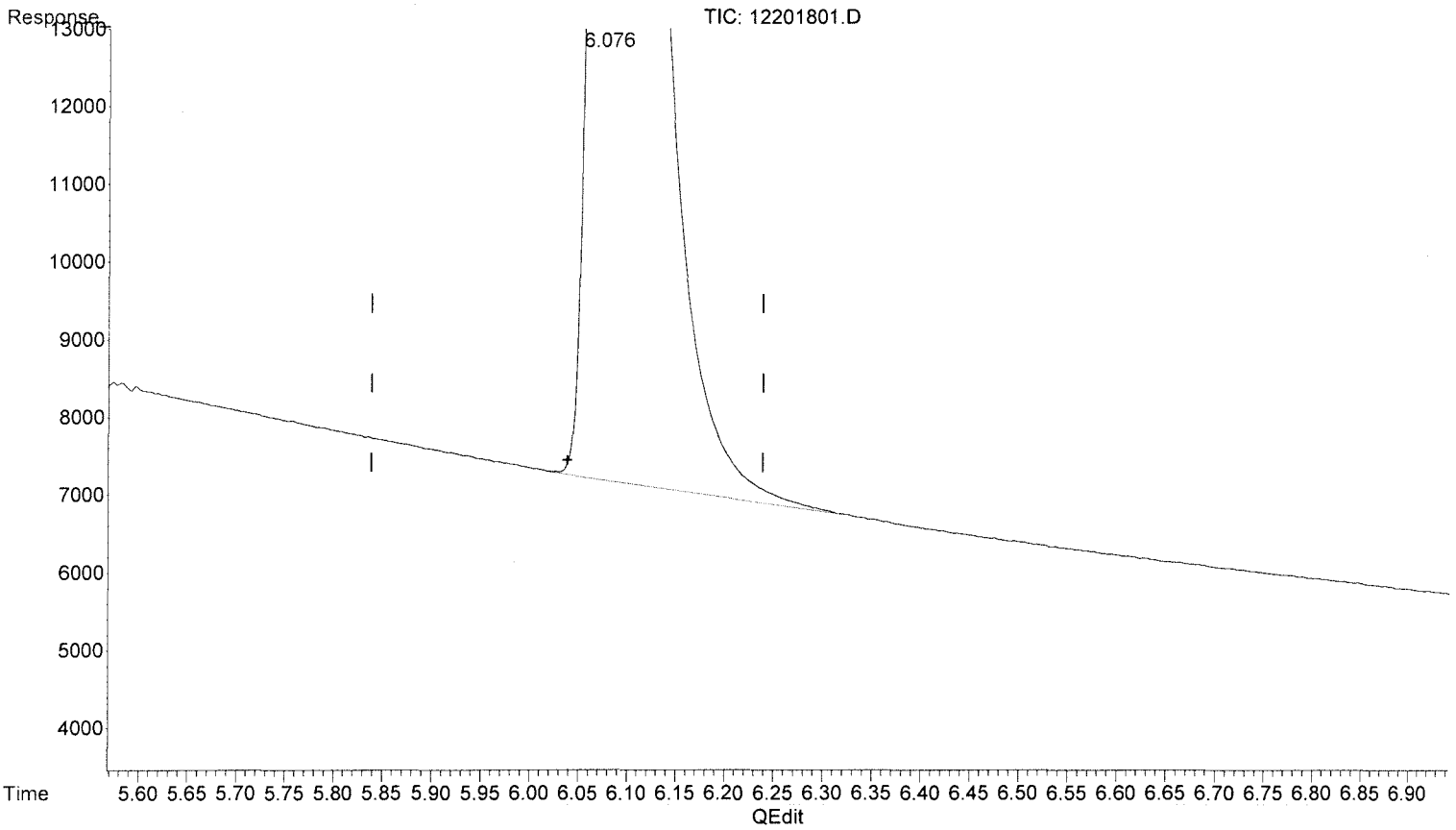
response 1129154

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

6.076min 4891.803 ppm m

response 1148249

MR 12/21/18
BLC

MR 12/21/18

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

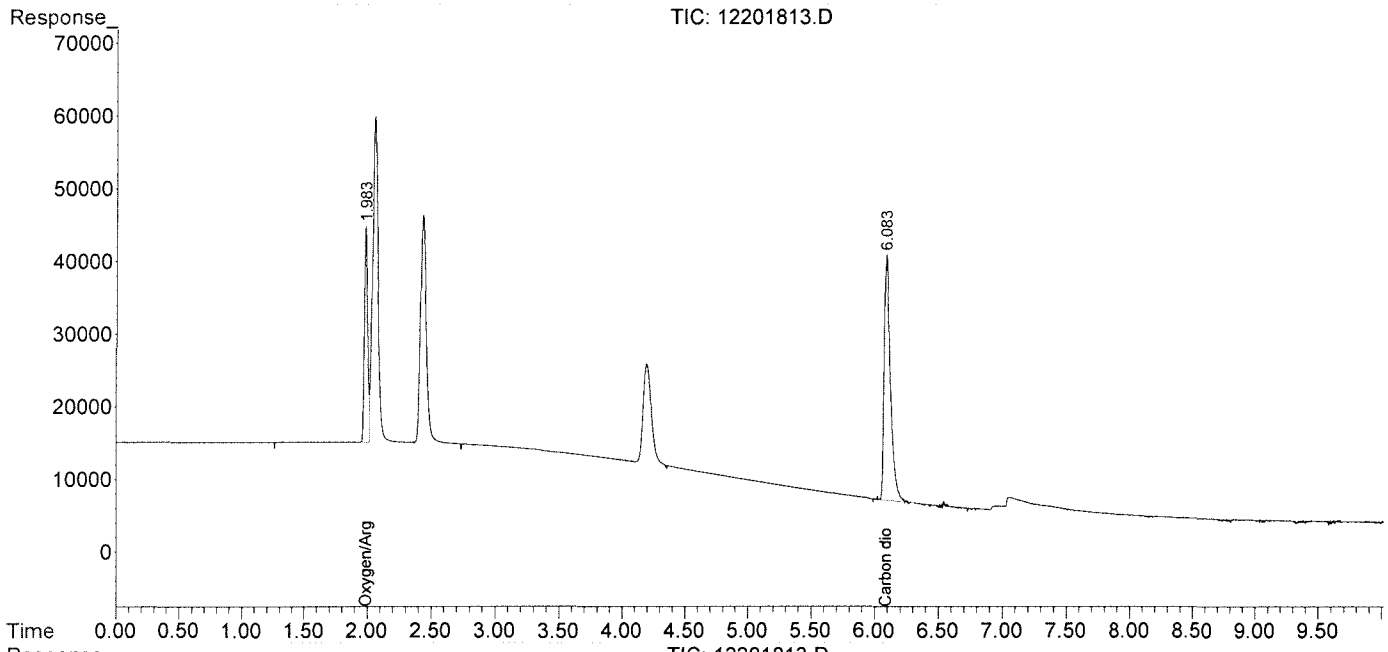
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.983f | 529088 | 0.111 | ppm | |
| 2) | Carbon monoxide | 1.983f | 529088 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 6.083 | 1153843 | 4915.636 | ppm | m |
| 6) | Methane (FID) | 1.114 | 33106517 | 3504.145 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

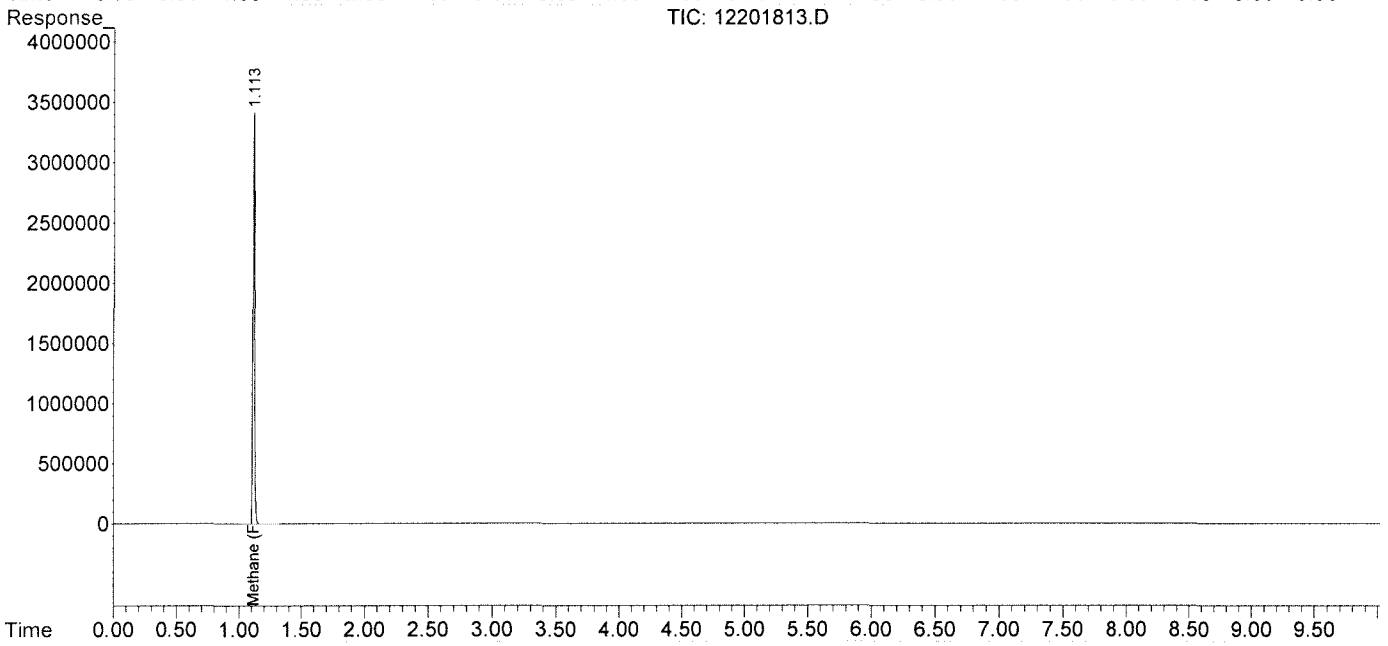
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

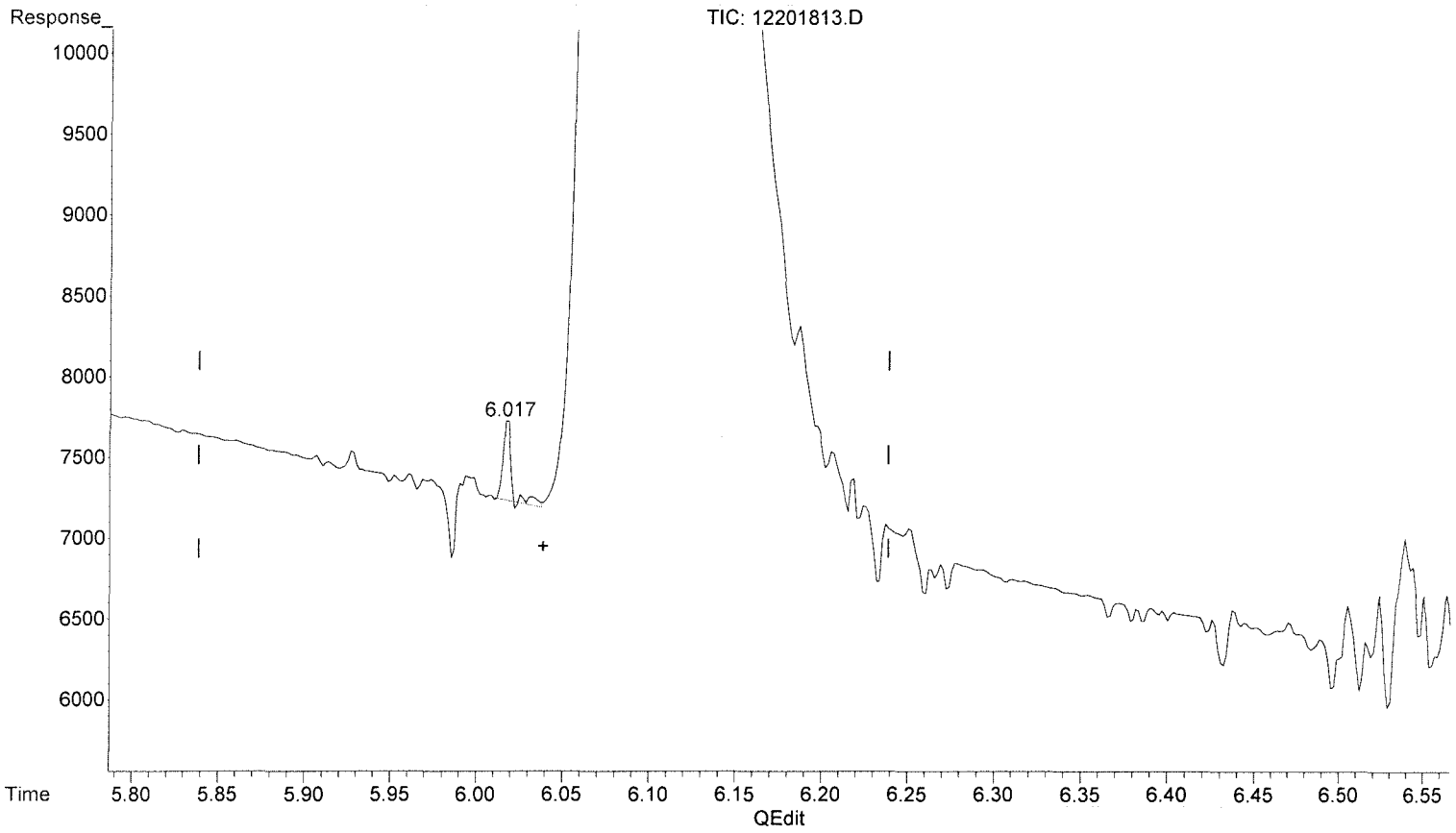


Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

6.018min 7.400 ppm

response 1737

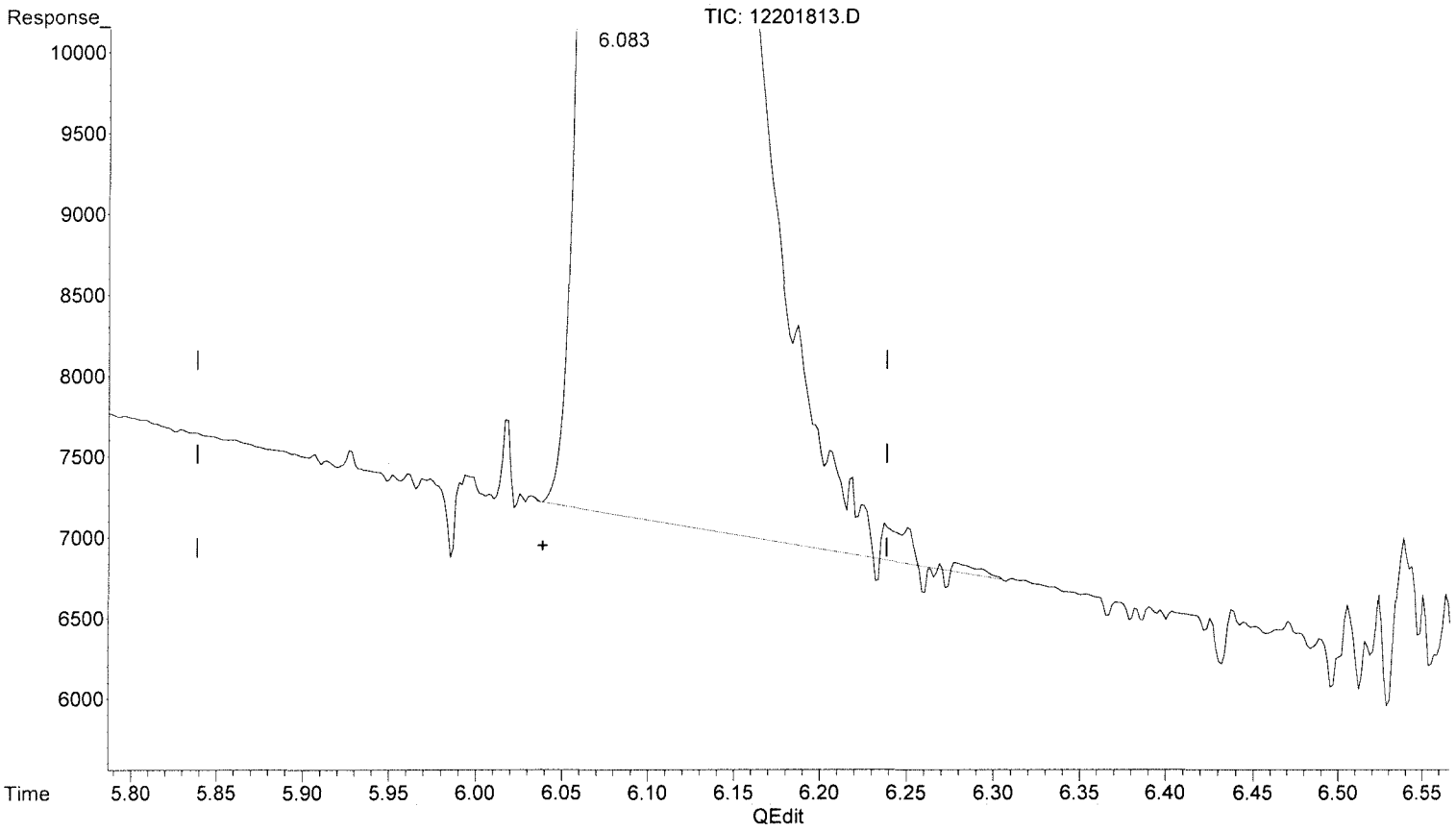
(+) = Expected Retention Time

RS082817_CO2.M Thu Dec 20 16:42:32 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

6.083min 4915.636 ppm m

response 1153843

MR 12/21/18
MP

12/21/18

(+) = Expected Retention Time

RS082817_CO2.M Thu Dec 20 16:42:41 2018 Page: 1

# Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 29-Aug-17, 07:58:00 | 08291701.D | std s30-06161601 | | MC | RSKBOTH.M | Pass |
| 2 | 29-Aug-17, 08:11:02 | 08291702.D | mb 0.5ml | | MC | RSKBOTH.M | Pass |
| 3 | 29-Aug-17, 08:24:13 | 08291703.D | 4089-001 0.5ml | | MC | RSKBOTH.M | |
| 4 | 29-Aug-17, 08:39:29 | 08291704.D | 4089-002 0.5ml | | MC | RSKBOTH.M | |
| 5 | 29-Aug-17, 08:53:38 | 08291705.D | 4089-003 0.5ml | | MC | RSKBOTH.M | |
| 6 | 29-Aug-17, 09:33:52 | 08291706.D | 4089-004 0.5ml | | MC | RSKBOTH.M | |
| 7 | 29-Aug-17, 09:50:51 | 08291707.D | 4089-005 0.5ml | | MC | RSKBOTH.M | |
| 8 | 29-Aug-17, 10:07:54 | 08291708.D | 4089-006 0.5ml | | MC | RSKBOTH.M | |
| 9 | 29-Aug-17, 10:42:34 | 08291709.D | 4089-007 0.5ml | | MC | RSKBOTH.M | |
| 10 | 29-Aug-17, 11:06:01 | 08291710.D | 4089-008 0.5ml | | MC | RSKBOTH.M | |
| 11 | 29-Aug-17, 11:23:53 | 08291711.D | 4089-009 0.5ml | | MC | RSKBOTH.M | |
| 12 | 29-Aug-17, 11:37:17 | 08291712.D | lcs s30-05241604 | | MC | RSKBOTH.M | Pass |
| 13 | 29-Aug-17, 11:50:31 | 08291713.D | lcs s30-05241604 | | MC | RSKBOTH.M | Pass |
| 14 | 29-Aug-17, 12:29:45 | 08291714.D | std s30-06161601 | | MC | RSKBOTH.M | Pass |
| 15 | 29-Aug-17, 14:07:01 | 08291715.D | 25ppm s32-08291701 0.25ml | | MC | RSKBOTH.M | Curve |
| 16 | 29-Aug-17, 14:22:12 | 08291716.D | 100ppm s32-08291702 0.2ml | | MC | RSKBOTH.M | Curve |
| 17 | 29-Aug-17, 14:53:00 | 08291717.D | 250ppm s32-08291702 0.5ml | | MC | RSKBOTH.M | Curve |
| 18 | 29-Aug-17, 15:07:43 | 08291718.D | mls inject | | MC | RSKBOTH.M | |
| 19 | 29-Aug-17, 15:23:21 | 08291719.D | 2500ppm s32-08231701 50ul | | MC | RSKBOTH.M | Curve |
| 20 | 29-Aug-17, 15:44:54 | 08291720.D | 5000ppm s32-08231701 0.1ml | | MC | RSKBOTH.M | Curve |
| 21 | 29-Aug-17, 16:00:09 | 08291721.D | 25000ppm s32-08231701 0.5ml | | MC | RSKBOTH.M | Curve |
| 22 | 29-Aug-17, 16:15:43 | 08291722.D | mb 0.1ml | | MC | RSKBOTH.M | Pass |
| 23 | 29-Aug-17, 16:35:37 | 08291723.D | lcv s30-07071701 | | MC | RSKBOTH.M | Pass |

# Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2018_12\20\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 20-Dec-18, 11:26:02 | 12201801.D | std s32-11091801 | | MR | RSKBOTH.M | pass |
| 2 | 20-Dec-18, 11:39:49 | 12201802.D | rb 0.1ml | | MR | RSKBOTH.M | pass |
| 3 | 20-Dec-18, 12:01:09 | 12201803.D | mcs 0.1ml | | MR | RSKBOTH.M | pass |
| 4 | 20-Dec-18, 12:38:52 | 12201804.D | tcd lcs s32-10081801 | | MR | RSKBOTH.M | pass |
| 5 | 20-Dec-18, 12:52:24 | 12201805.D | tcd lcsd s32-10081801 | | MR | RSKBOTH.M | |
| 6 | 20-Dec-18, 13:19:14 | 12201806.D | P1806863-001 50ul | | MR | RSKBOTH.M | |
| 7 | 20-Dec-18, 13:35:16 | 12201807.D | P1806863-002 50ul | | MR | RSKBOTH.M | |
| 8 | 20-Dec-18, 13:49:24 | 12201808.D | P1806863-003 50ul | | MR | RSKBOTH.M | |
| 9 | 20-Dec-18, 14:04:40 | 12201809.D | P1806865-001 50u | | MR | RSKBOTH.M | |
| 10 | 20-Dec-18, 14:19:57 | 12201810.D | P1806865-002 50u | | MR | RSKBOTH.M | |
| 11 | 20-Dec-18, 14:38:24 | 12201811.D | P1806865-003 50u | | MR | RSKBOTH.M | |
| 12 | 20-Dec-18, 14:56:31 | 12201812.D | P1806865-004 50u | | MR | RSKBOTH.M | |
| 13 | 20-Dec-18, 15:30:51 | 12201813.D | std s32-11091801 | | MR | RSKBOTH.M | pass |

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:23:14
Operator : MR
Sample : P1806865-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:20:46 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

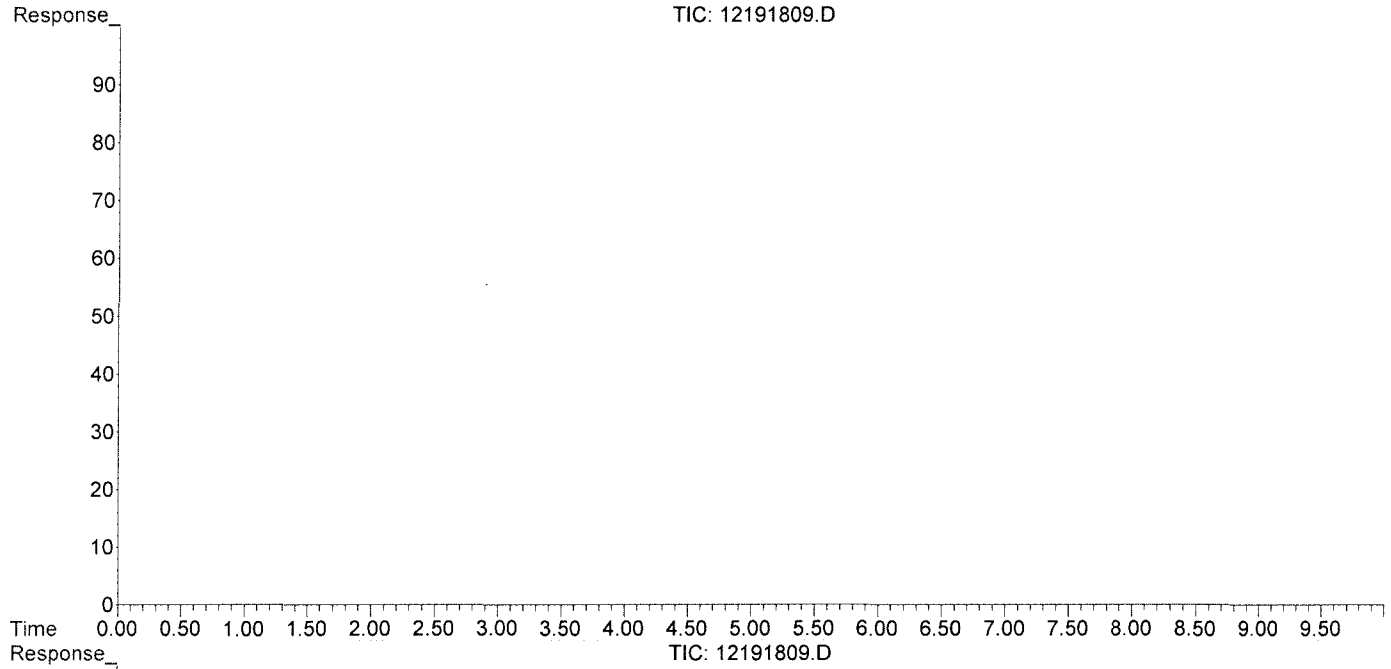
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.106 | 8773938 | 967.290 | ppm |
| 7) | Ethylene | 1.668 | 8740 | 0.522 | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

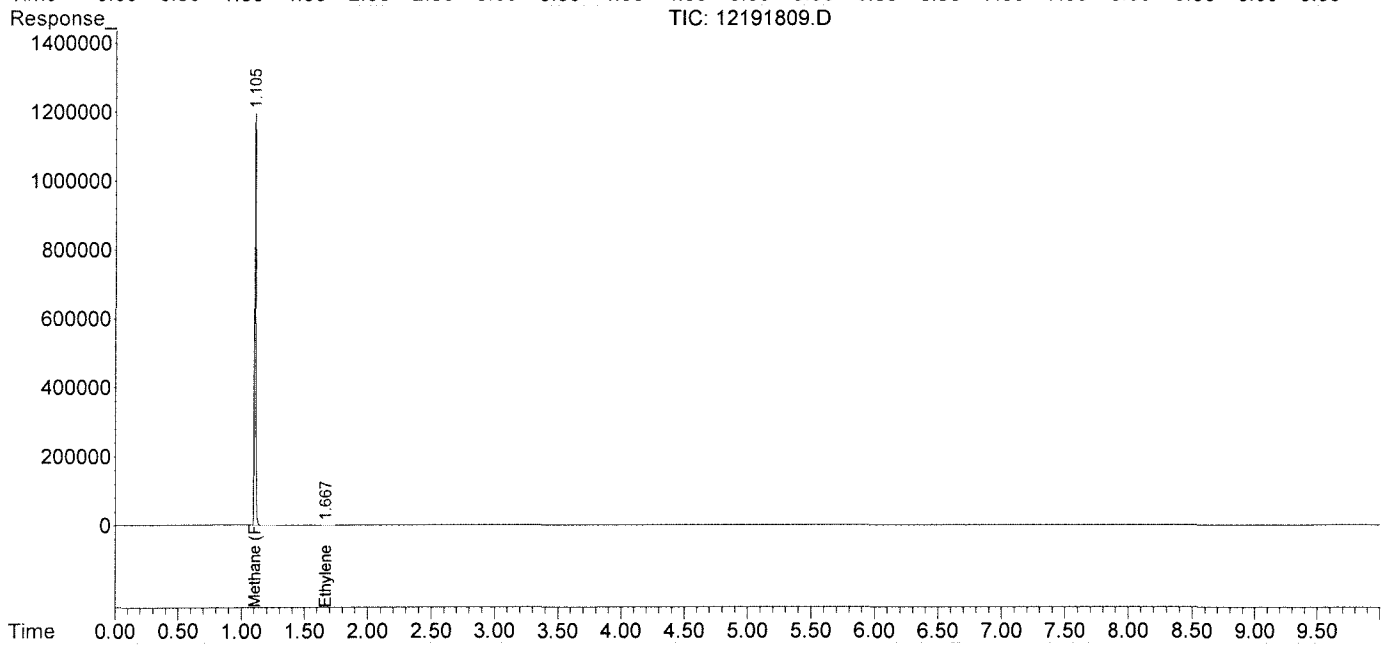
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:23:14
Operator : MR
Sample : P1806865-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:20:46 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

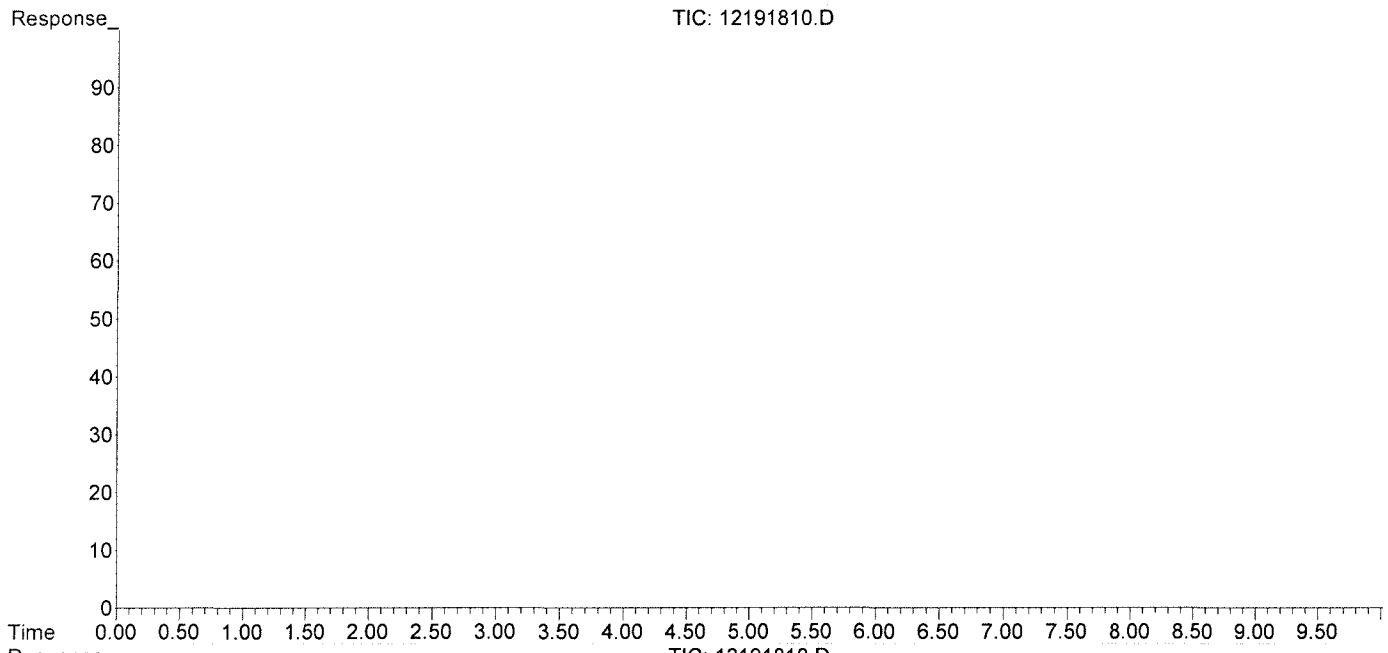
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.112 | 706 | 0.078 | ppm | m |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

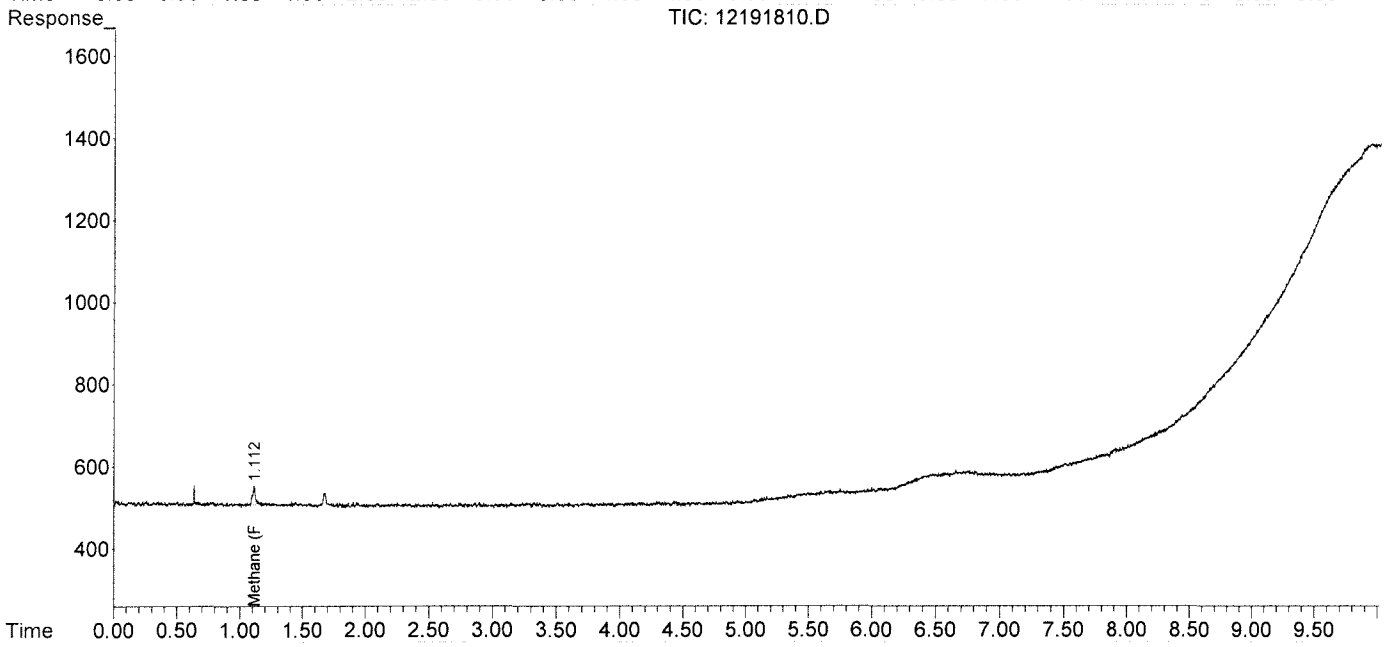
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

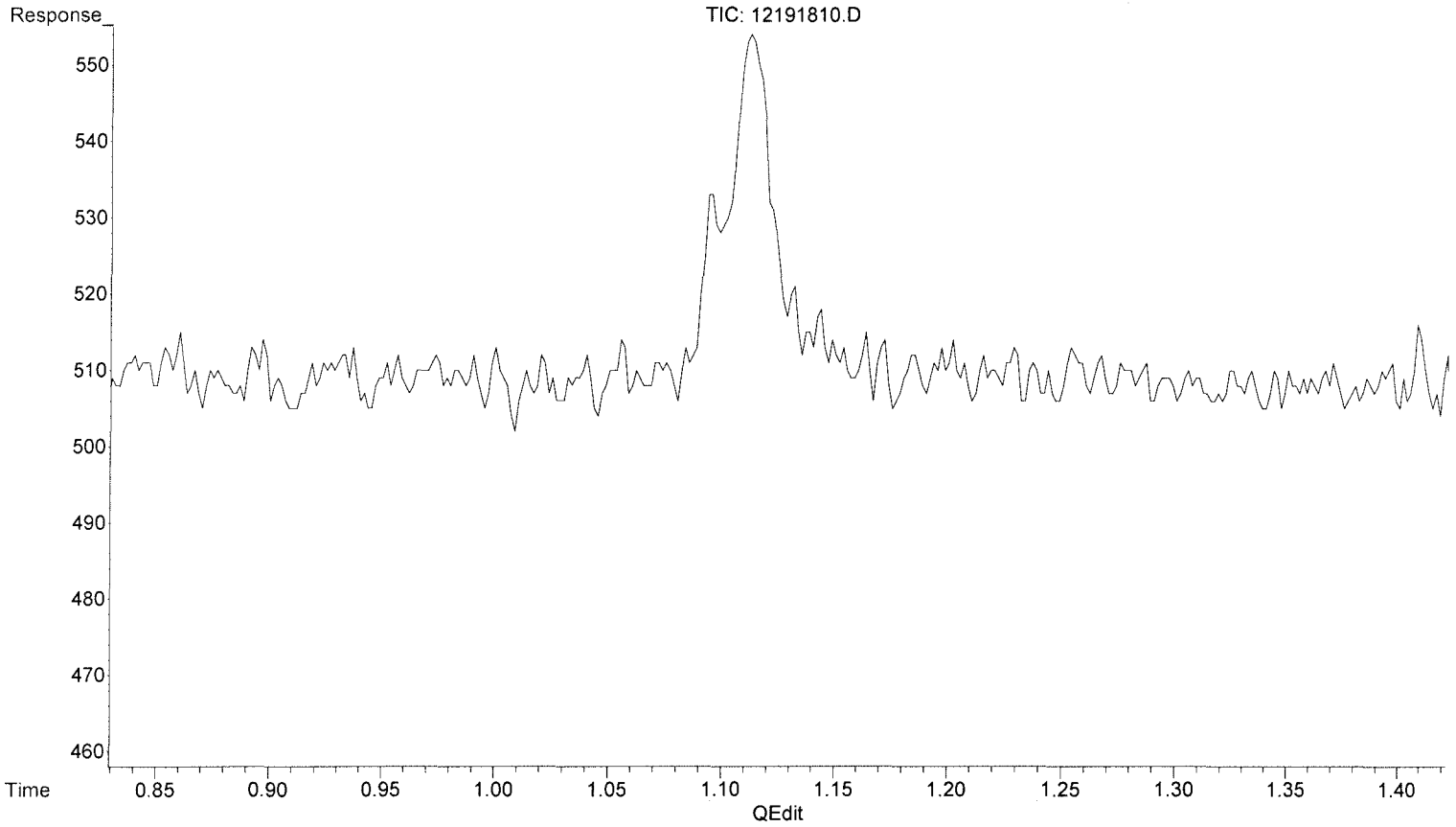


Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(6) Methane (FID)

1.115min 0.000 ppm

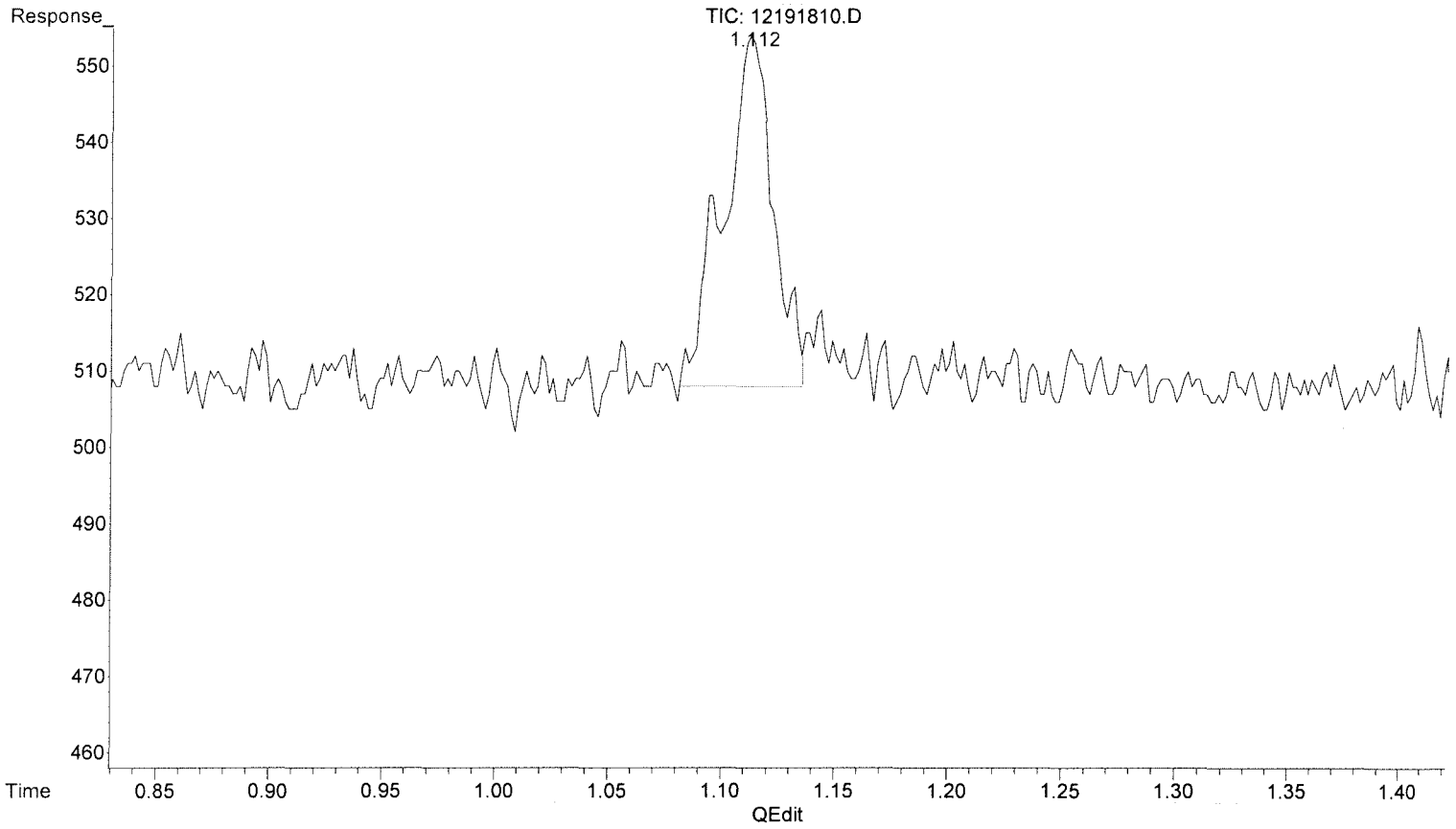
response 0

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(6) Methane (FID)

1.112min 0.078 ppm m

response 706

MR 12/20/18
MP

(+) = Expected Retention Time

RS091217_R.M Thu Dec 20 14:21:48 2018 Page: 1

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:52:18
Operator : MR
Sample : P1806865-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:04 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

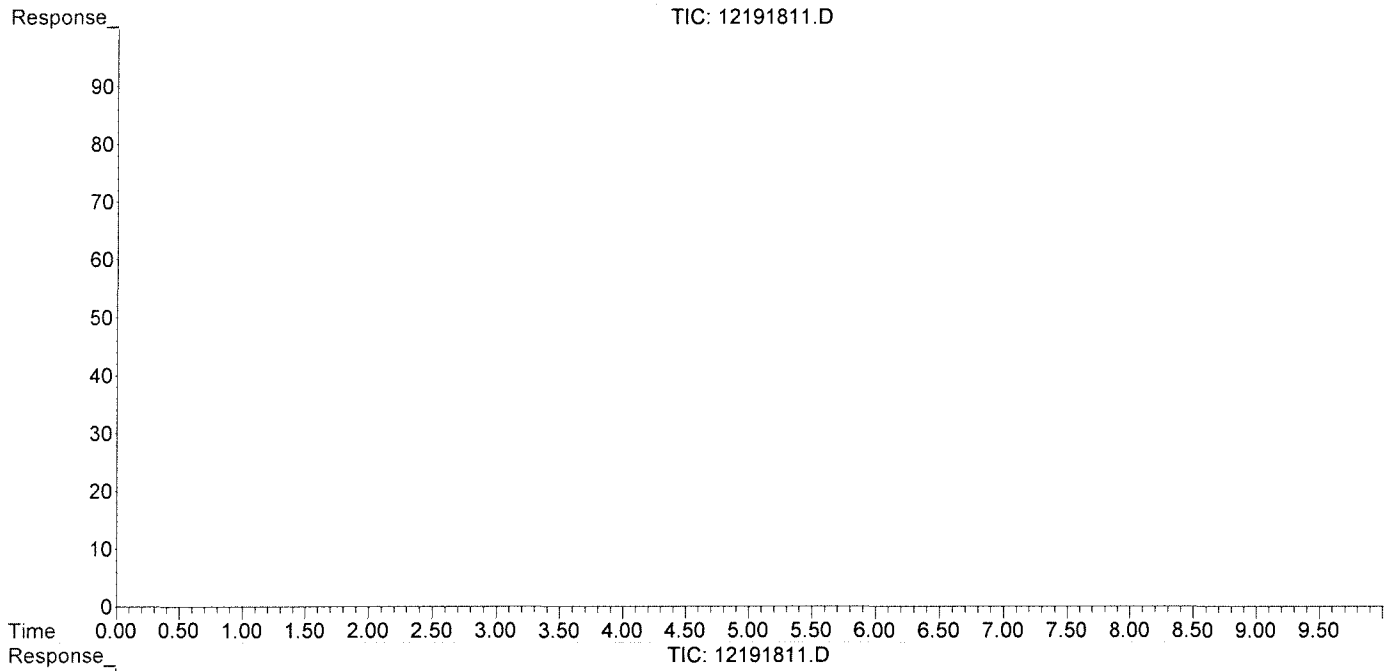
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.110 | 16601196 | 1830.212 | ppm |
| 7) | Ethylene | 1.669 | 10441 | 0.624 | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

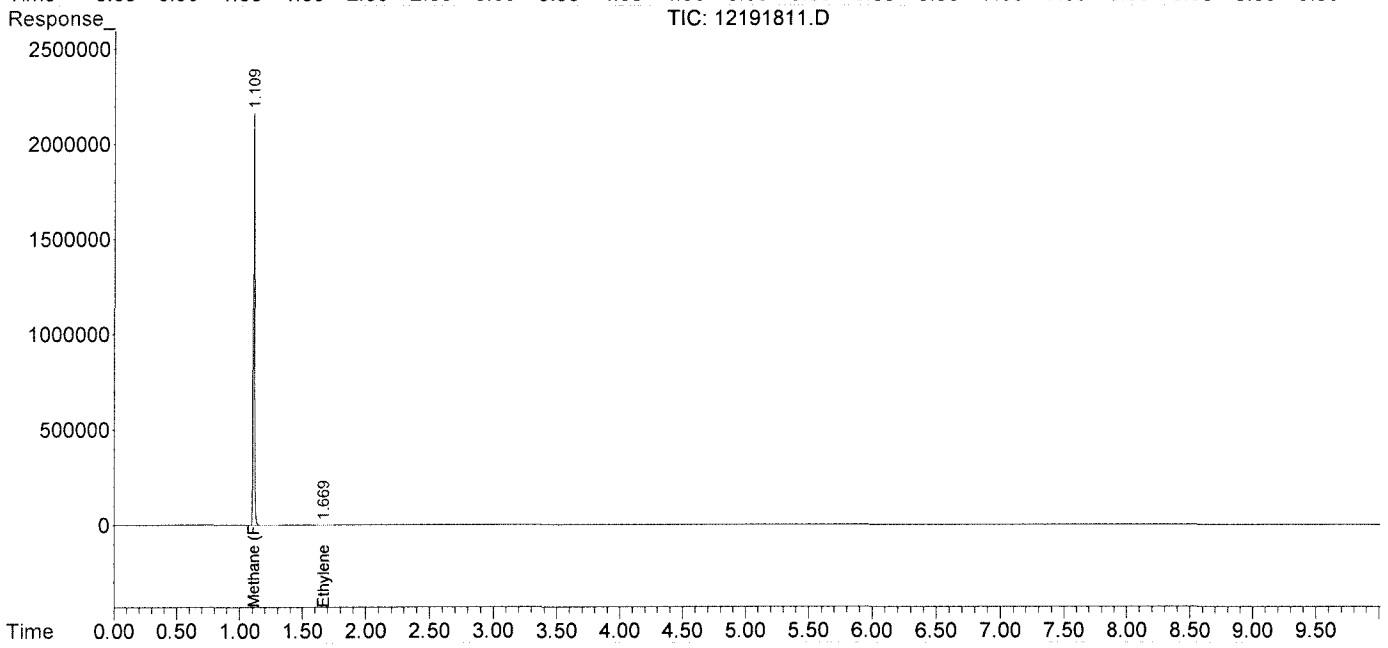
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:52:18
Operator : MR
Sample : P1806865-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:04 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

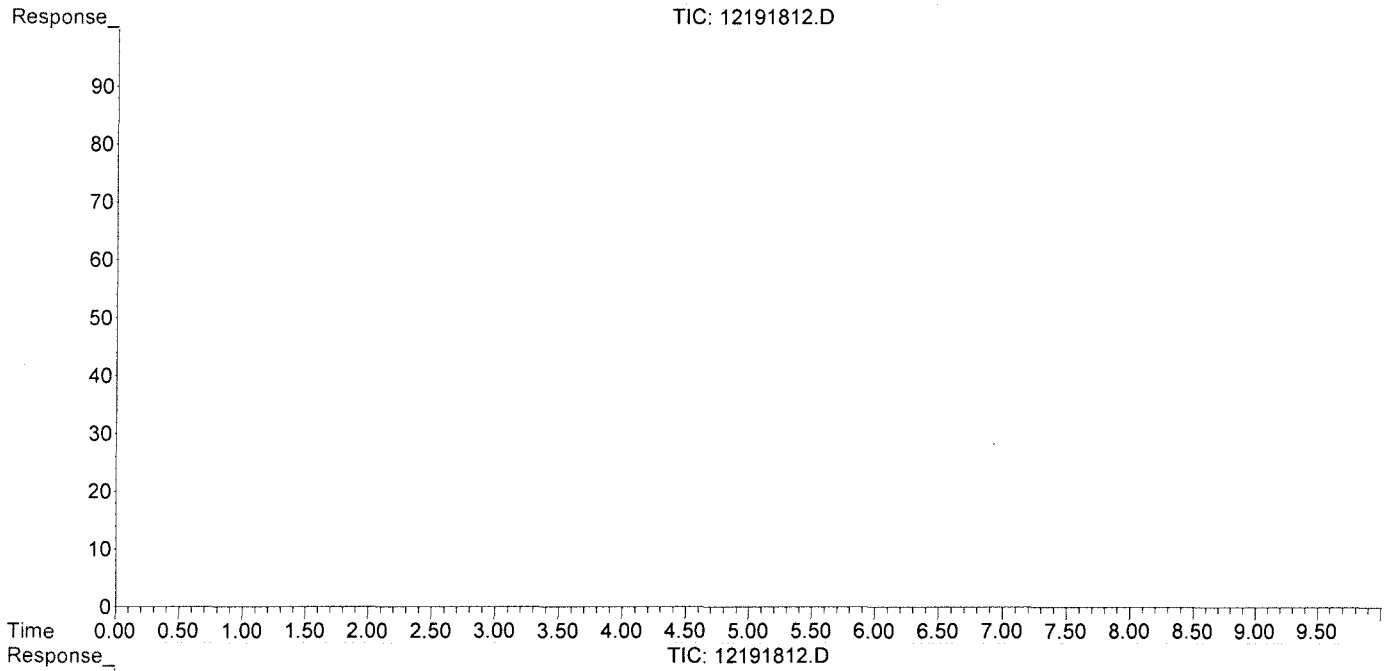
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.103 | 937 | 0.103 | ppm | m |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

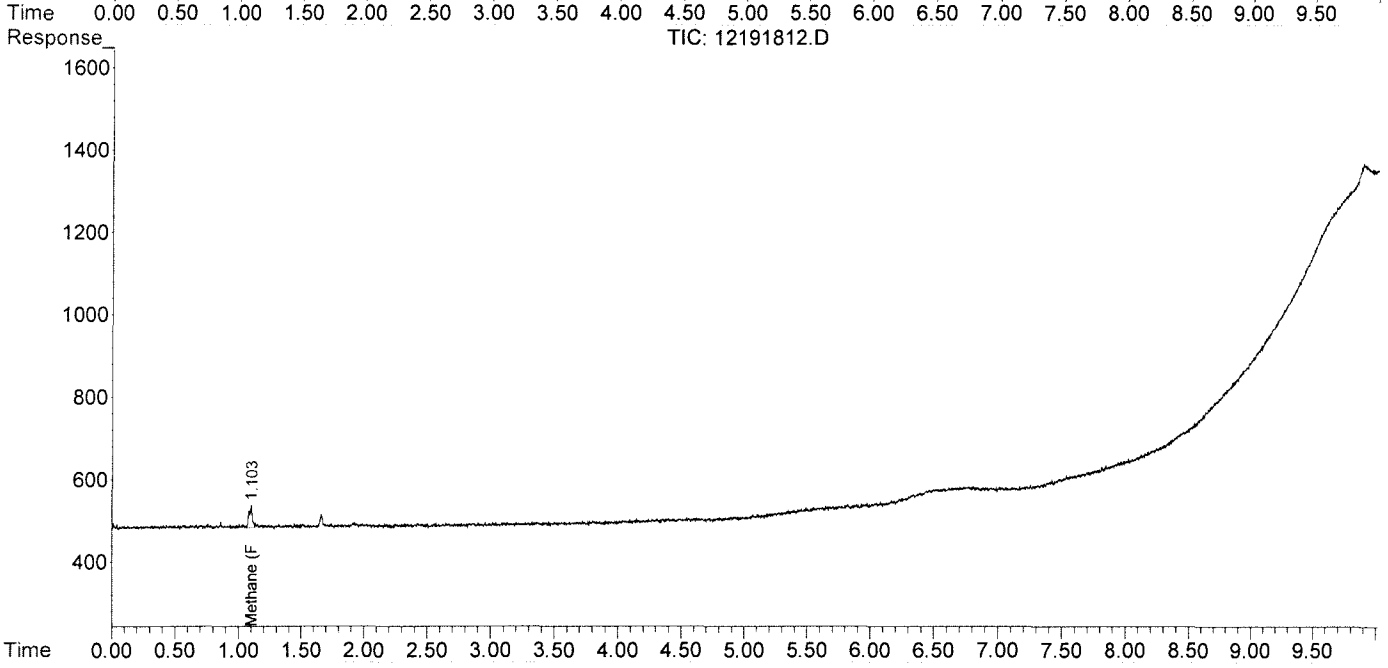
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

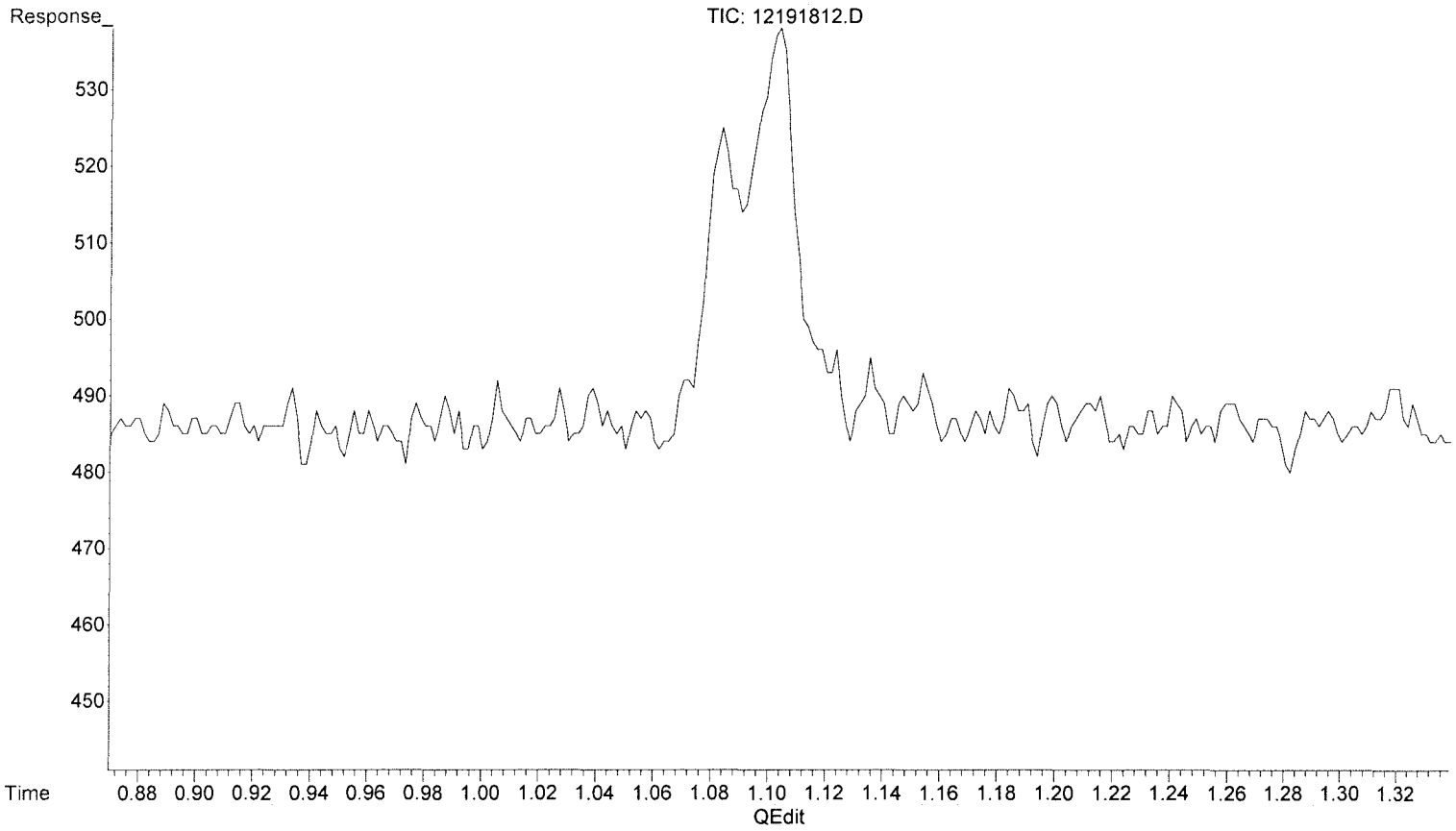


Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(6) Methane (FID)

1.115min 0.000 ppm

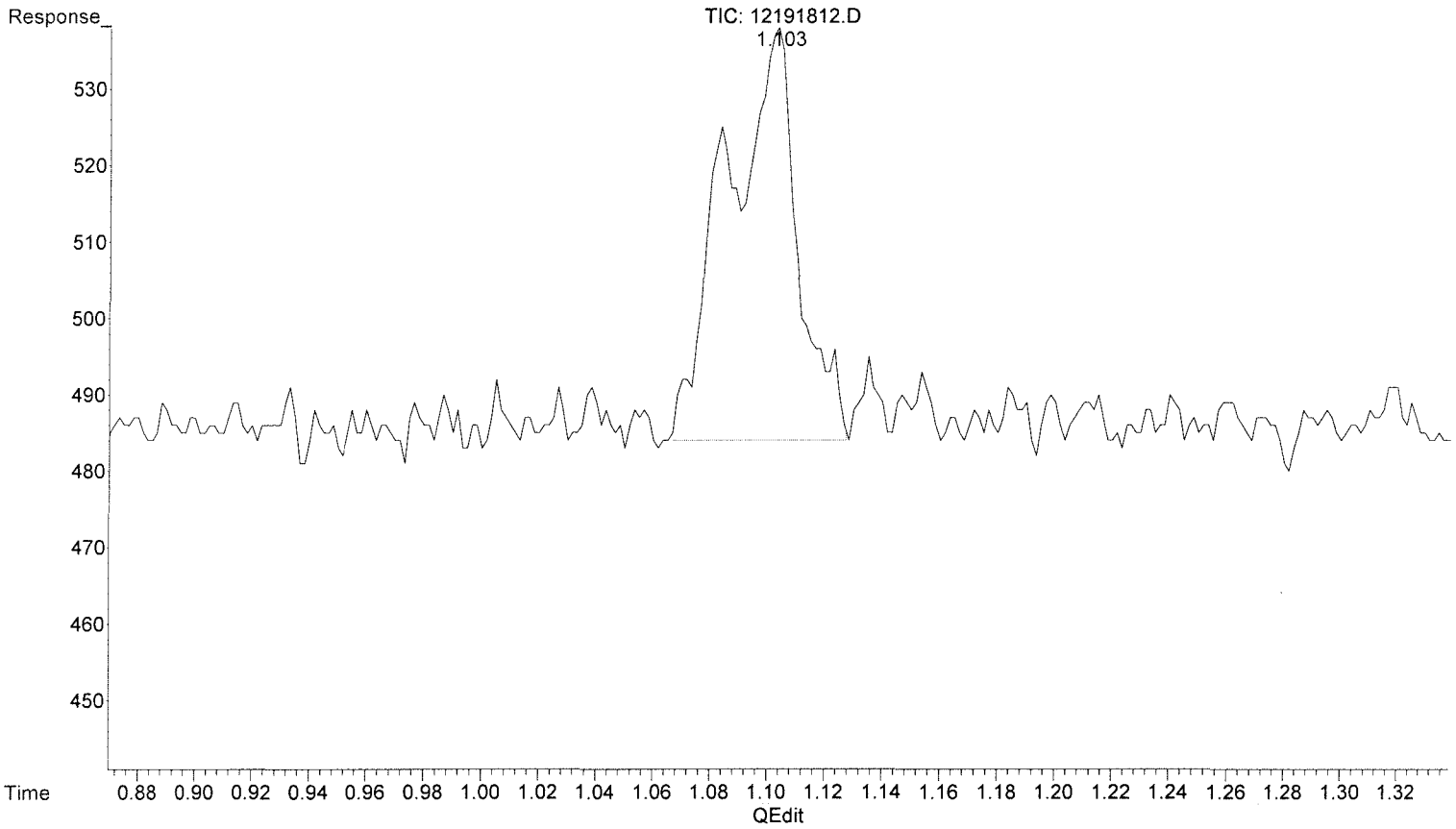
response 0

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(6) Methane (FID)

1.103min 0.103 ppm m

response 937

MR 12/20/18
MP

12/20/18

(+) = Expected Retention Time

RS091217_R.M Thu Dec 20 14:23:12 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

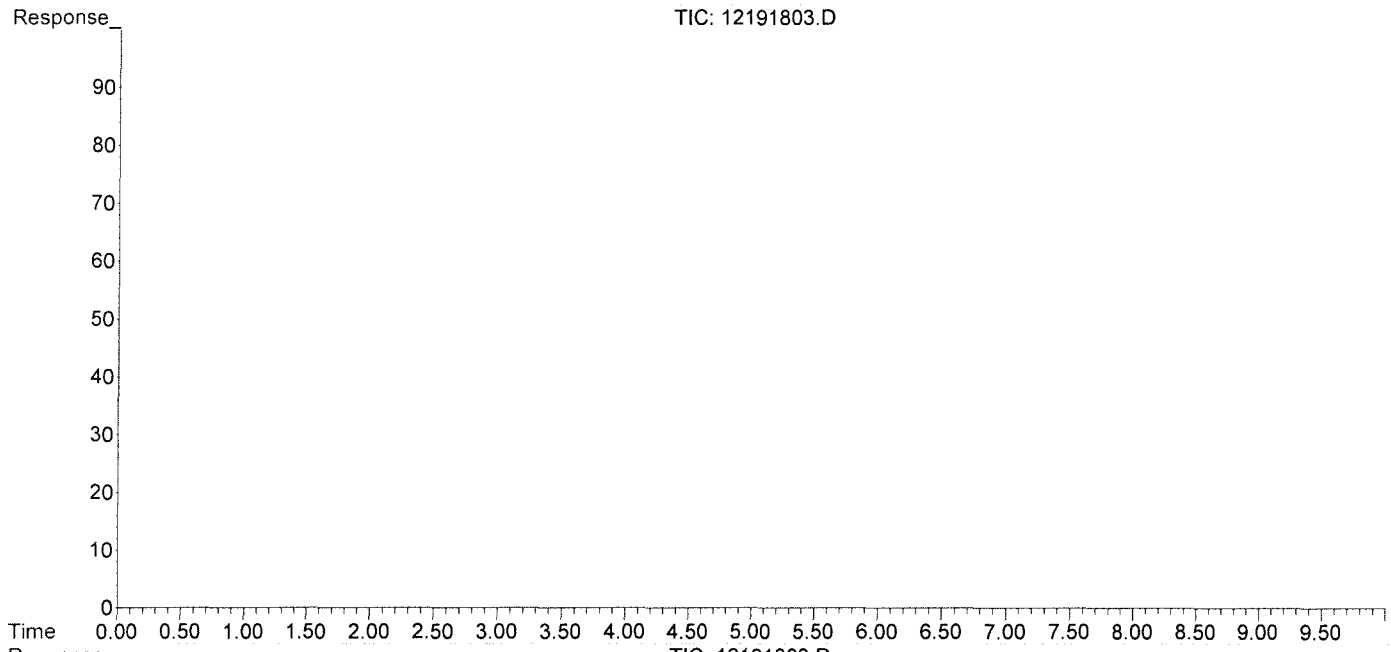
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.120 | 1664 | 0.183 | ppm | m |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

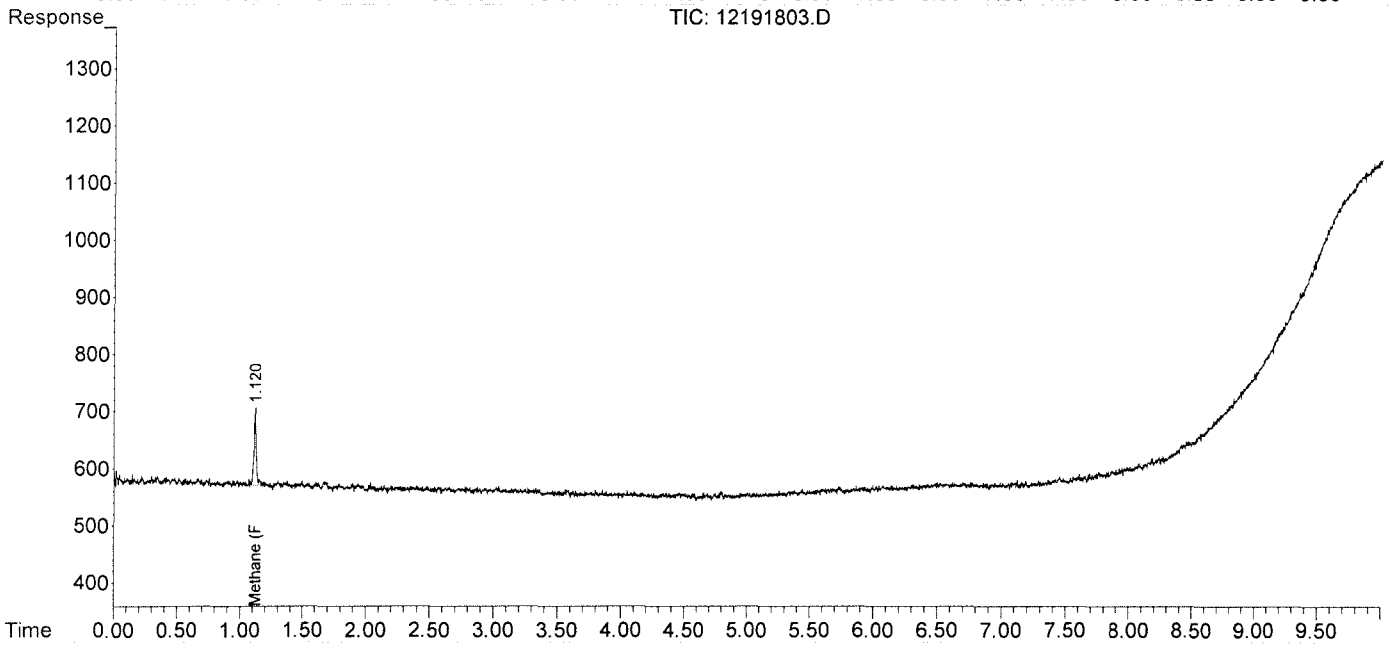
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

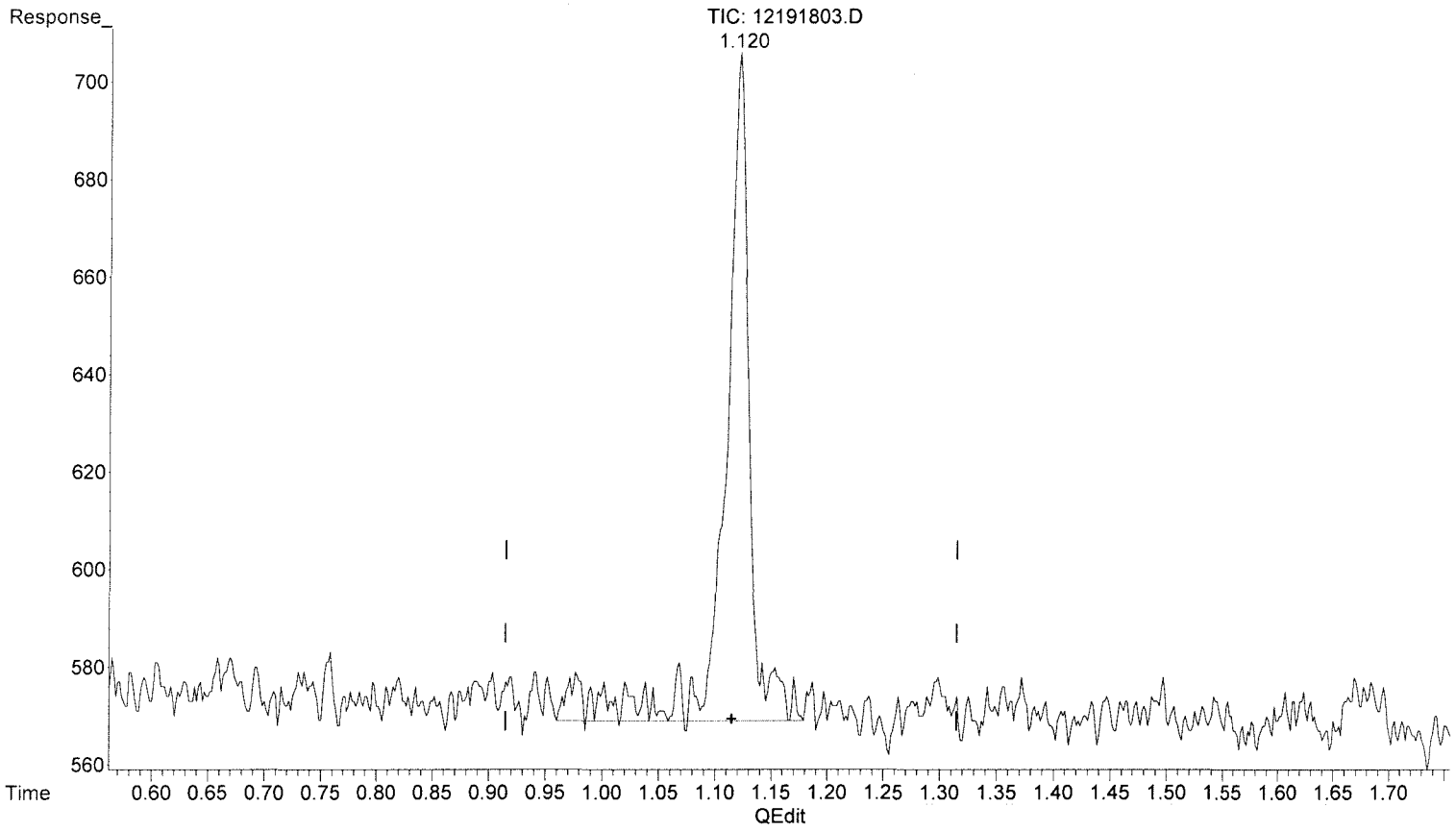


Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(6) Methane (FID)

1.121min 0.230 ppm

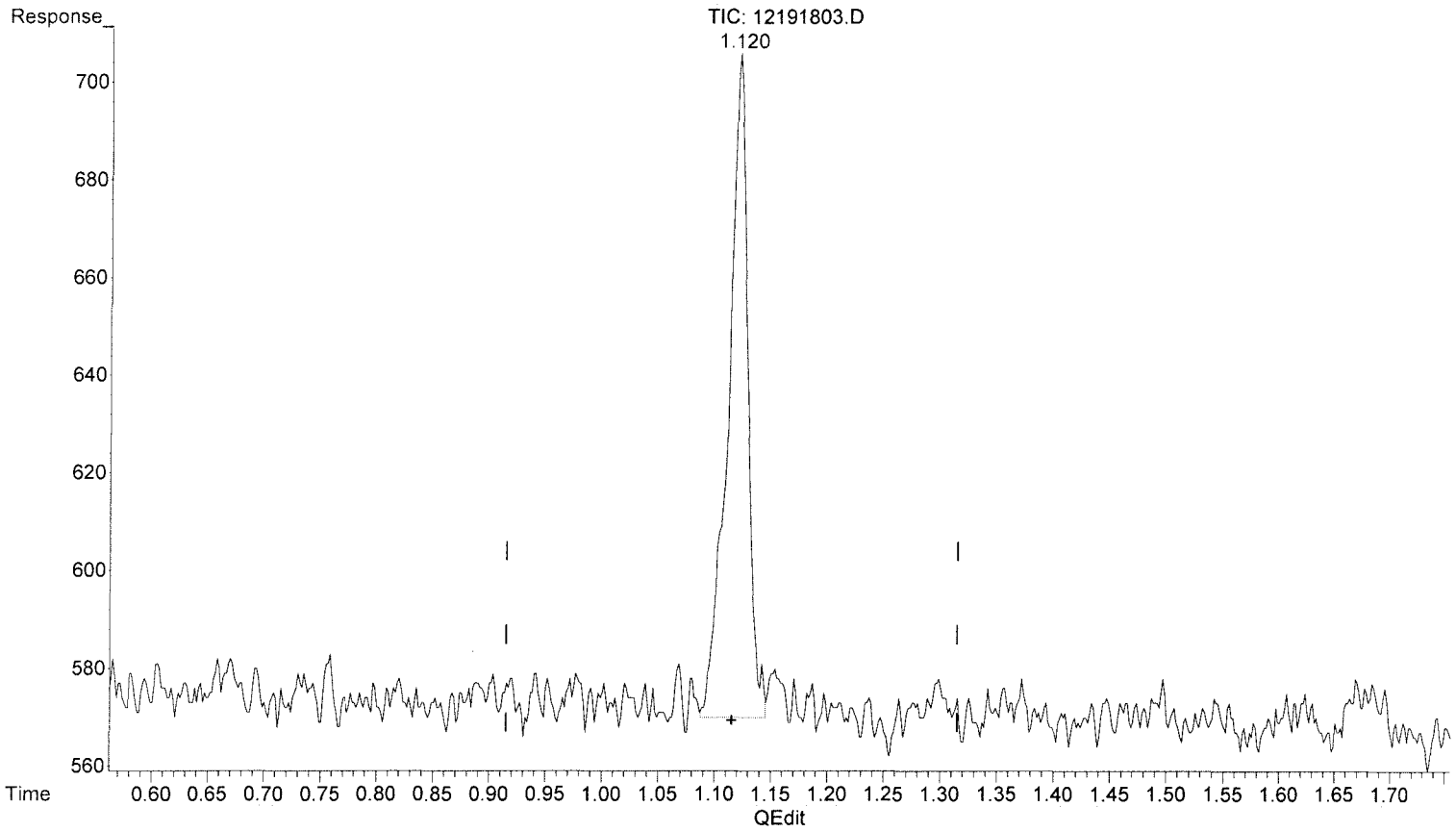
response 2085

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(6) Methane (FID)

1.120min 0.183 ppm m

response 1664

MR 12/20/18
BLC

(+) = Expected Retention Time

RS091217_R.M Wed Dec 19 14:14:16 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:29:51
Operator : MR
Sample : fid lcs s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:47:01 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

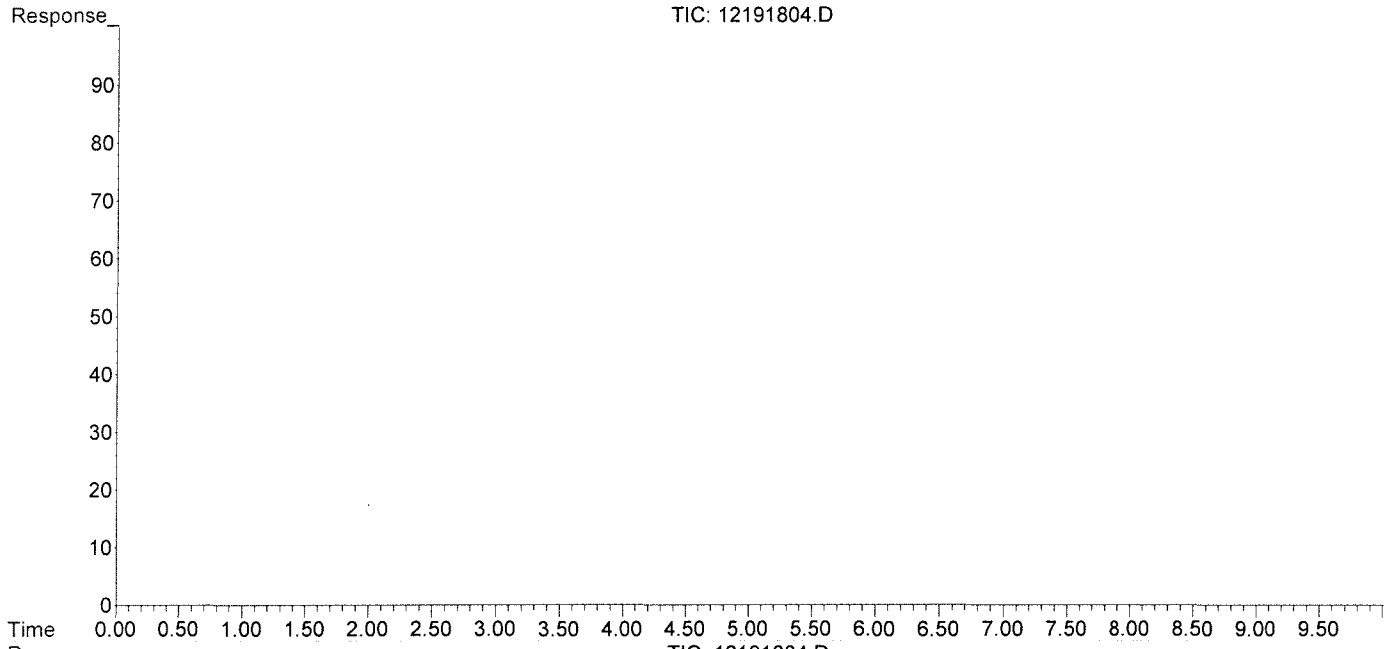
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.119 | 13215 | 1.457 | ppm |
| 7) | Ethylene | 1.682 | 16932 | 1.012 | ppm |
| 8) | Ethane | 1.946 | 21056 | 1.242 | ppm |
| 9) | Propylene | 4.322 | 23272 | 0.993 | ppm |
| 10) | Propane | 4.443 | 32697 | 1.314 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.657 | 43027 | 1.616 | ppm |
| 13) | n-Butane | 6.657 | 43027 | 1.616 | ppm |

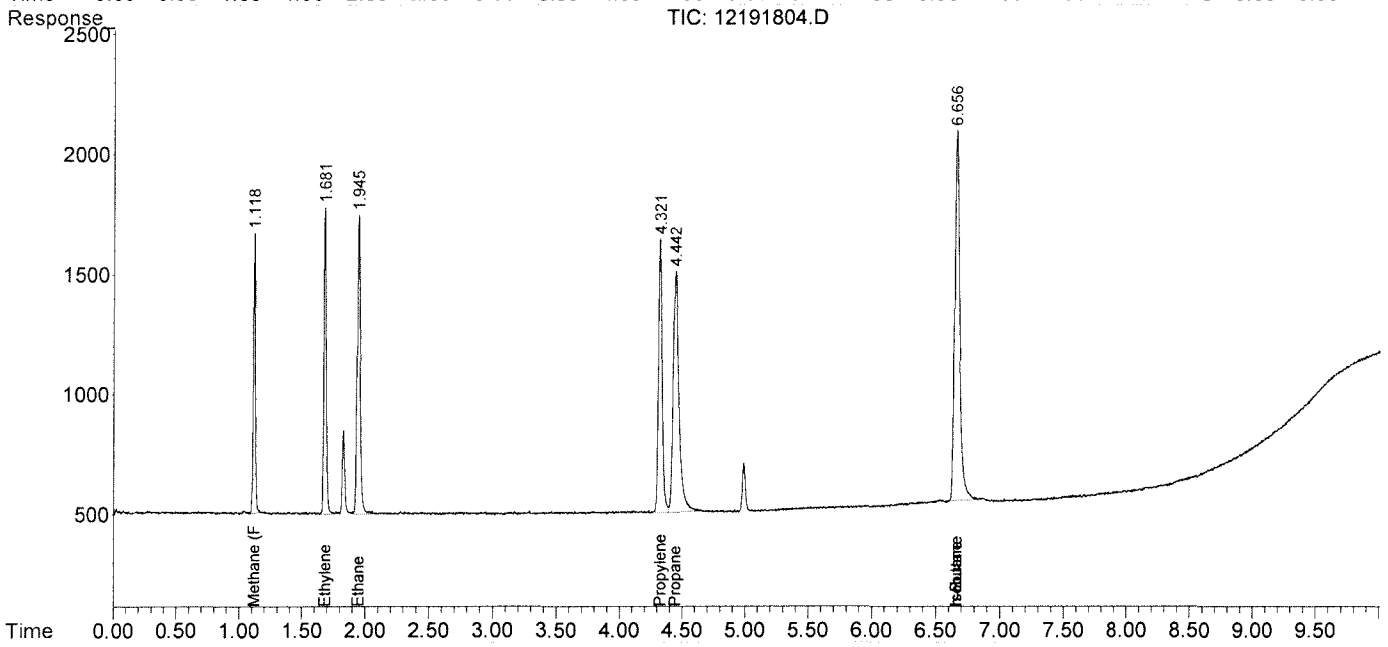
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:29:51
Operator : MR
Sample : fid lcs s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:47:01 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:45:28
Operator : MR
Sample : fid lcsd s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 12:54:06 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

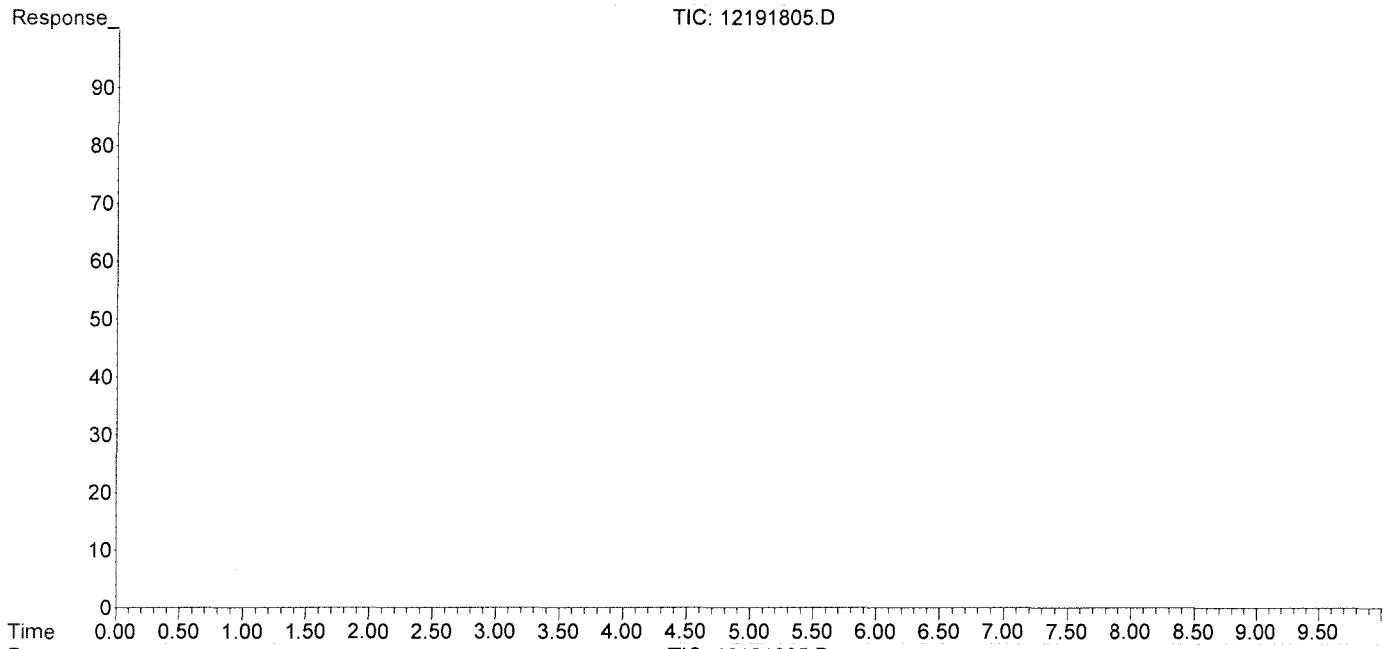
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.119 | 13106 | 1.445 | ppm |
| 7) | Ethylene | 1.683 | 16707 | 0.998 | ppm |
| 8) | Ethane | 1.946 | 20957 | 1.236 | ppm |
| 9) | Propylene | 4.322 | 23610 | 1.008 | ppm |
| 10) | Propane | 4.443 | 33371 | 1.341 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.656 | 44089 | 1.656 | ppm |
| 13) | n-Butane | 6.656 | 44089 | 1.656 | ppm |

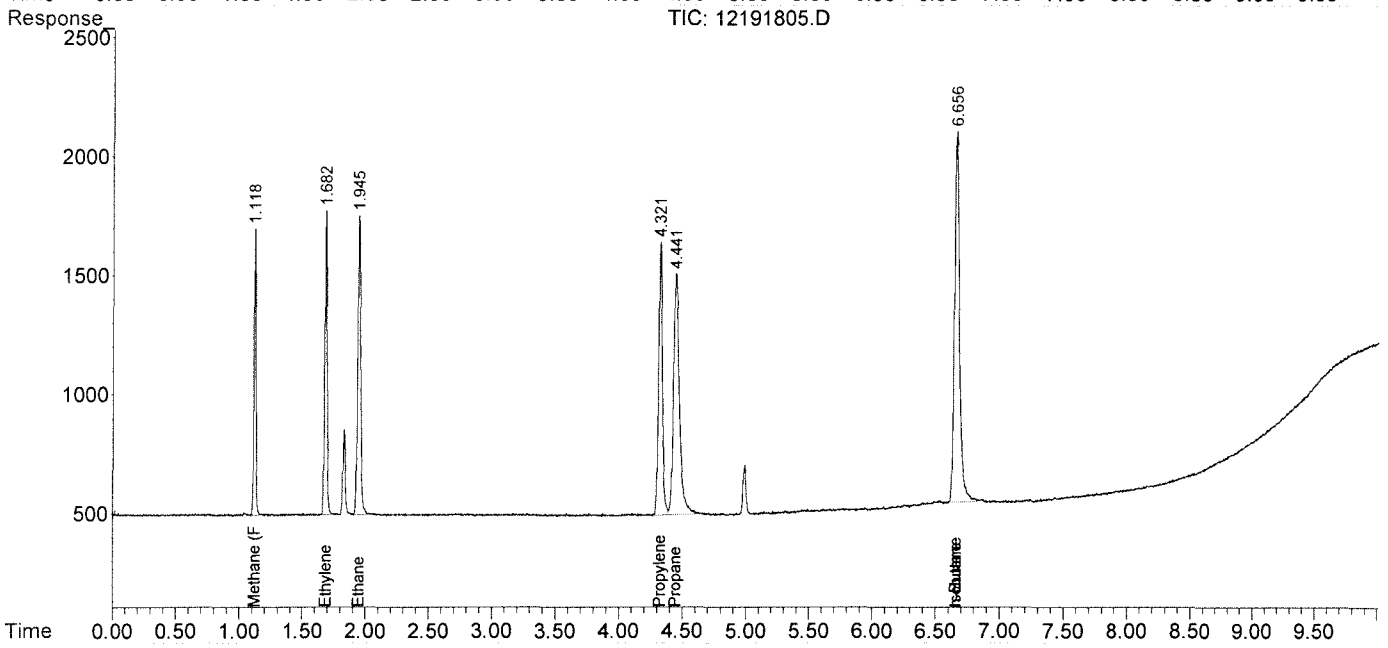
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:45:28
Operator : MR
Sample : fid lcsd s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 12:54:06 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



# Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

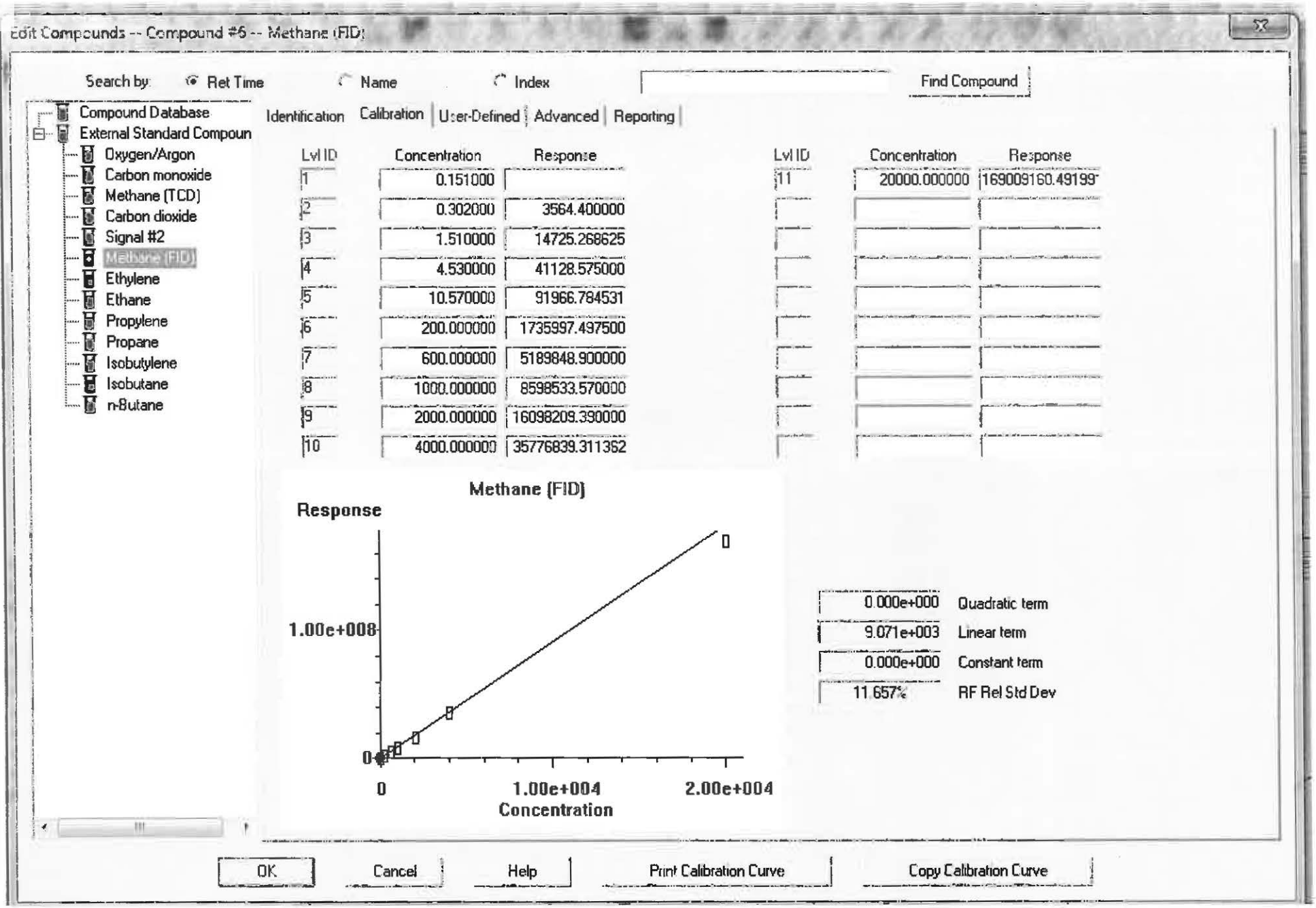
| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) | Oxygen/Argon | 3.739 | | 1.014 | | | 0.001 | 0.793 | E6 | 189.17 |
| 2) | Carbon monoxide | 3.739 | | 1.014 | | | 0.001 | 0.594 | E6 | 221.92 |
| 3) | Methane (TCD) | | | | | | 2.161 | 0.951 | E2 | 106.37 |
| 4) | Carbon dioxide | 2.365 | 2.569 | 2.558 | 2.361 | 2.459 | 2.314 | 2.438 | E2 | 4.44 |

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 6) | Methane (FID) | | 1.180 | 0.975 | 0.908 | 0.870 | 0.868 | 0.907 | E4 | 11.66 |
| 7) | Ethylene | 1.736 | 1.638 | 1.780 | 1.720 | 1.628 | 1.670 | 1.673 | E4 | 3.90 |
| 8) | Ethane | 1.781 | 1.676 | 1.784 | 1.730 | 1.692 | 1.675 | 1.695 | E4 | 3.83 |
| 9) | Propylene | 2.505 | 2.296 | 2.592 | 2.480 | 2.346 | 2.252 | 2.343 | E4 | 6.56 |
| 10) | Propane | 2.439 | 2.283 | 2.645 | 2.555 | 2.433 | 2.522 | 2.488 | E4 | 4.20 |
| 11) | Isobutylene | | | | | | | 0.652 | E1 | 138.46 |
| 12) | Isobutane | 6.058 | 4.793 | 2.214 | 1.553 | 1.353 | | 2.662 | E4 | 86.17 |
| 13) | n-Butane | 6.058 | 4.793 | 2.214 | 1.553 | 1.353 | | 2.662 | E4 | 86.17 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
Lvl ID Concentration Response
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve



00946971

Edit Compounds -- Compound #7 -- Ethylene

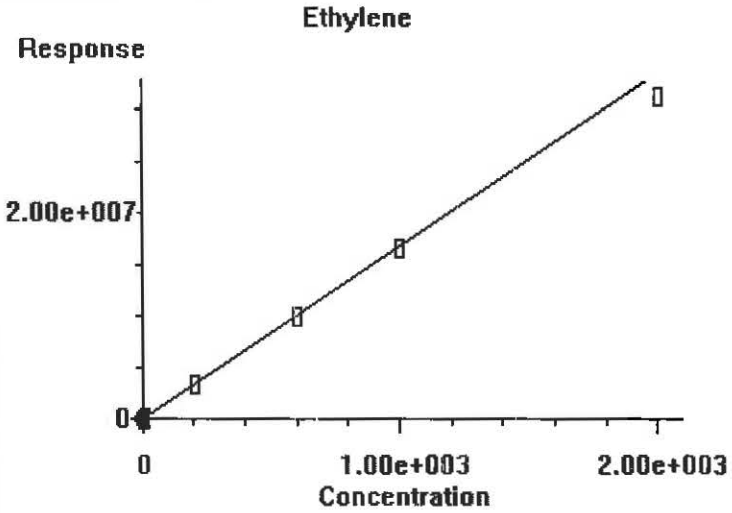
Search by: Ret Time | Name | Index | Find Compound

Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 2621.970000 |
| 2 | 0.302000 | 4946.731301 |
| 3 | 1.510000 | 26884.746847 |
| 4 | 4.530000 | 77902.721497 |
| 5 | 10.570000 | 172085.529560 |
| 6 | 200.000000 | 3339702.313219 |
| 7 | 600.000000 | 10007758.776971 |
| 8 | 1000.000000 | 16608503.805988 |
| 9 | 2000.000000 | 31192443.898600 |
| 10 | 4000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 1.673e+004 | Linear term |
| 0.000e+000 | Constant term |
| 3.897% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 2689.928008 |
| 2 | 0.302000 | 5060.331943 |
| 3 | 1.510000 | 26943.667500 |
| 4 | 4.530000 | 78353.525045 |
| 5 | 10.570000 | 178840.731148 |
| 6 | 200.000000 | 3350442.319129 |
| 7 | 600.000000 | 10048964.218029 |
| 8 | 1000.000000 | 16703164.879012 |
| 9 | 2000.000000 | 31424217.938900 |
| 10 | 4000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | |
| | | |
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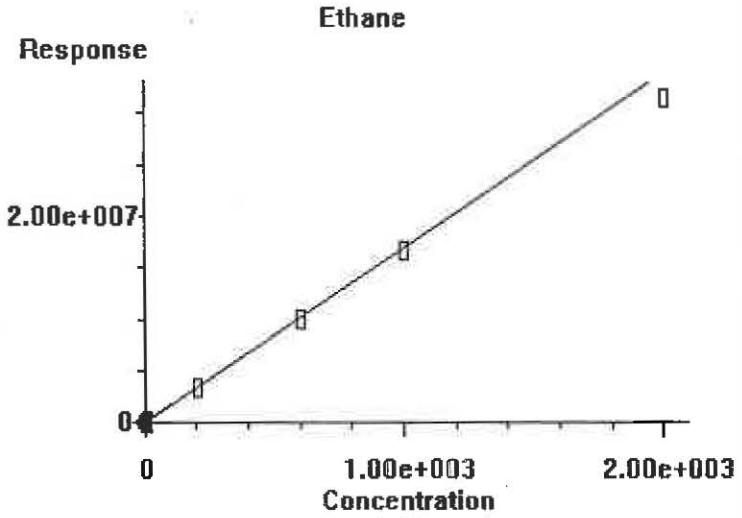
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 1.695e+004 | Linear term |
| 0.000e+000 | Constant term |
| 3.831% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 3782.537646 |
| 2 | 0.302000 | 6933.285530 |
| 3 | 1.510000 | 39139.518208 |
| 4 | 4.530000 | 112341.896872 |
| 5 | 10.570000 | 248003.903623 |
| 6 | 200.000000 | 4504060.086084 |
| 7 | 600.000000 | 13569342.761419 |
| 8 | 1000.000000 | 22494887.720990 |
| 9 | 2000.000000 | 42124689.656800 |
| 10 | 4000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | |
| | | |
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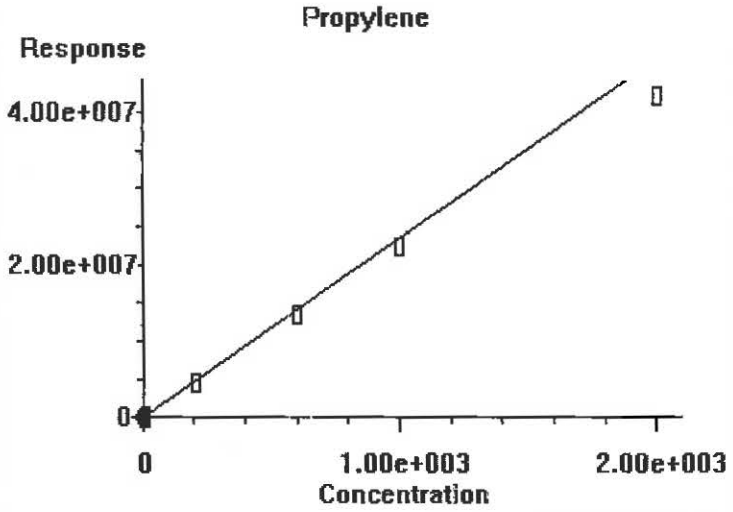
| | | |
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 2.343e+004 | Linear term |
| 0.000e+000 | Constant term |
| 6.559% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 3682.897354 |
| 2 | 0.302000 | 6894.237803 |
| 3 | 1.510000 | 39934.166792 |
| 4 | 4.530000 | 115723.428128 |
| 5 | 10.570000 | 257124.432806 |
| 6 | 200.000000 | 5043035.663316 |
| 7 | 600.000000 | 15251325.797404 |
| 8 | 1000.000000 | 25459410.657938 |
| 9 | 2000.000000 | 48583085.287451 |
| 10 | 4000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | |
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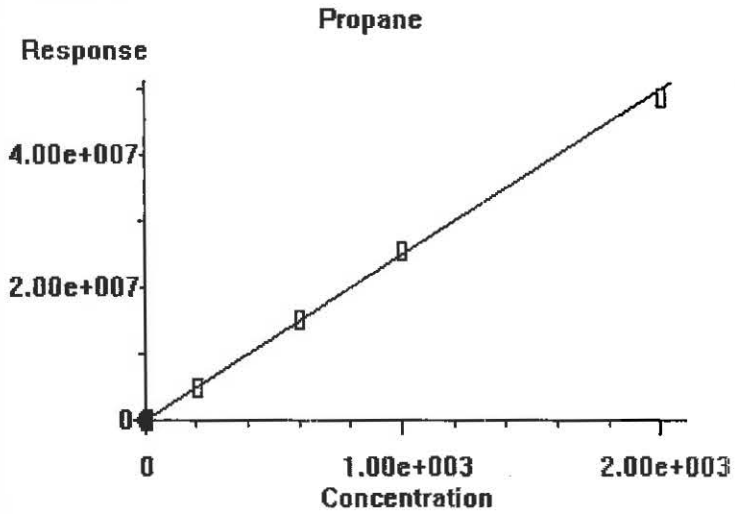
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 2.488e+004 | Linear term |
| 0.000e+000 | Constant term |
| 4.200% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve



00946975

# Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

| # | ID | Conc | ISTD Conc | Path\File |
|---|---|---|---|---|
| 1 | 1 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D |
| 2 | 2 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D |
| 3 | 3 | 3 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D |
| 4 | 4 | 10 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D |
| 5 | 5 | 25 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D |
| 6 | 6 | 125 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D |
| 7 | 7 | 5000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D |
| 8 | 8 | 25000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D |
| 9 | 9 | 2000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D |
| 10 | 10 | 30000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D |
| 11 | 11 | 20000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D |

| # | ID | Update Time | Quant Time | Acquisition Time |
|---|---|---|---|---|
| 1 | 1 | Sep 13 11:04 2017 | Sep 12 15:03 2017 | 12-Sep-2017, 10:52 |
| 2 | 2 | Sep 13 11:05 2017 | Sep 13 11:05 2017 | 12-Sep-2017, 11:05 |
| 3 | 3 | Sep 13 11:06 2017 | Sep 13 11:05 2017 | 12-Sep-2017, 11:45 |
| 4 | 4 | Sep 13 11:09 2017 | Sep 13 11:06 2017 | 12-Sep-2017, 12:09 |
| 5 | 5 | Sep 13 11:09 2017 | Sep 13 11:09 2017 | 12-Sep-2017, 12:30 |
| 6 | 6 | Sep 13 11:10 2017 | Sep 13 11:10 2017 | 12-Sep-2017, 12:47 |
| 7 | 7 | Sep 13 11:11 2017 | Sep 13 11:10 2017 | 12-Sep-2017, 13:00 |
| 8 | 8 | Sep 13 11:12 2017 | Sep 13 11:11 2017 | 12-Sep-2017, 13:47 |
| 9 | 9 | Sep 13 11:12 2017 | Sep 13 11:12 2017 | 12-Sep-2017, 14:07 |
| 10 | 10 | Sep 13 11:14 2017 | Sep 13 11:13 2017 | 12-Sep-2017, 14:48 |
| 11 | 11 | Sep 13 11:14 2017 | Sep 13 11:14 2017 | 12-Sep-2017, 15:21 |

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.767 | 373920 | 0.128 | ppm | |
| 2) | Carbon monoxide | 1.767 | 373920 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 1.595 | 2622 | 0.156 | ppm | |
| 8) | Ethane | 1.848 | 2690 | 0.156 | ppm | |
| 9) | Propylene | 4.222 | 3783 | 0.154 | ppm | |
| 10) | Propane | 4.348 | 3683 | 0.139 | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 6.582f | 6058 | NoCal | ppm | |
| 13) | n-Butane | 6.582f | 6058 | NoCal | ppm | |

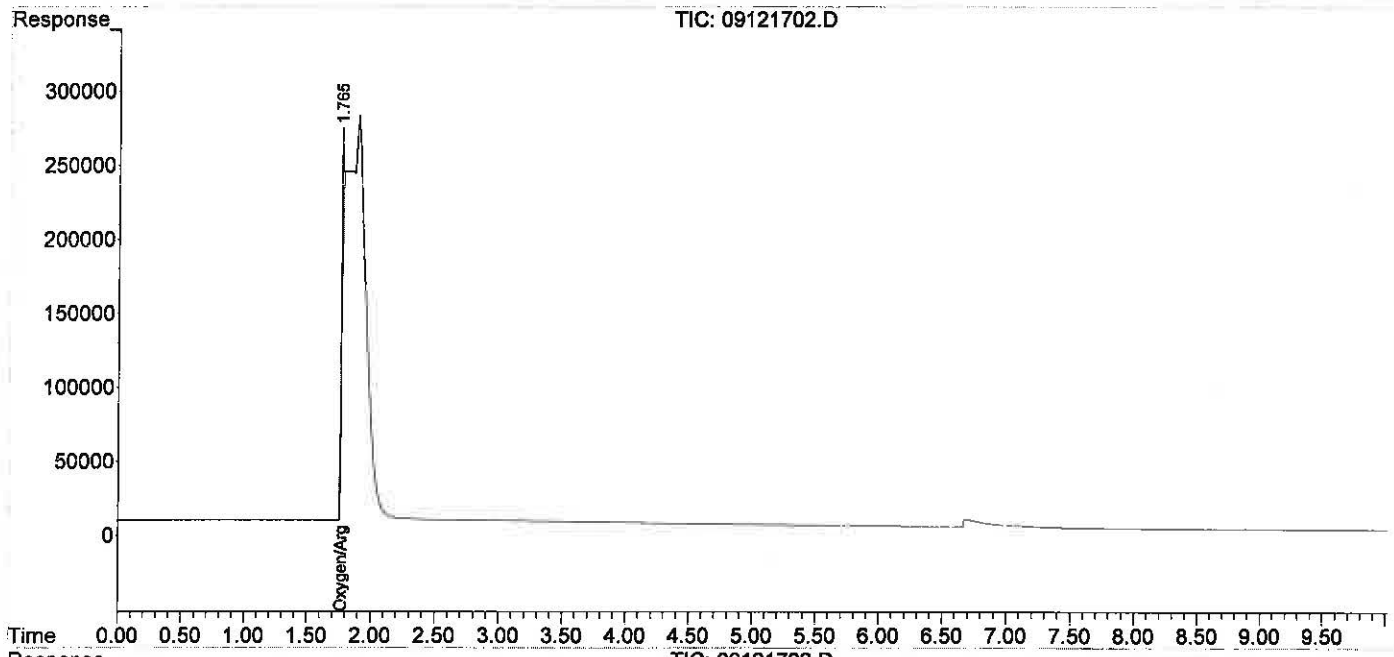
(f)=RT Delta > 1/2 Window (m)=manual int.

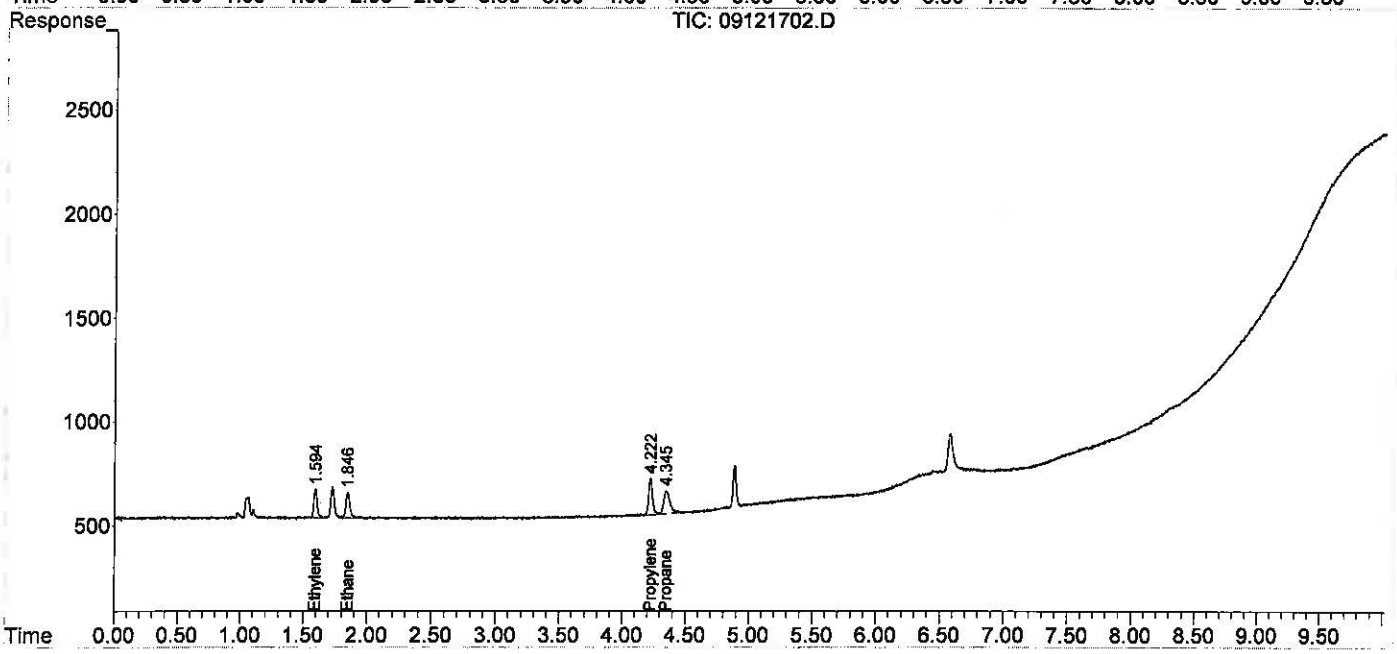
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

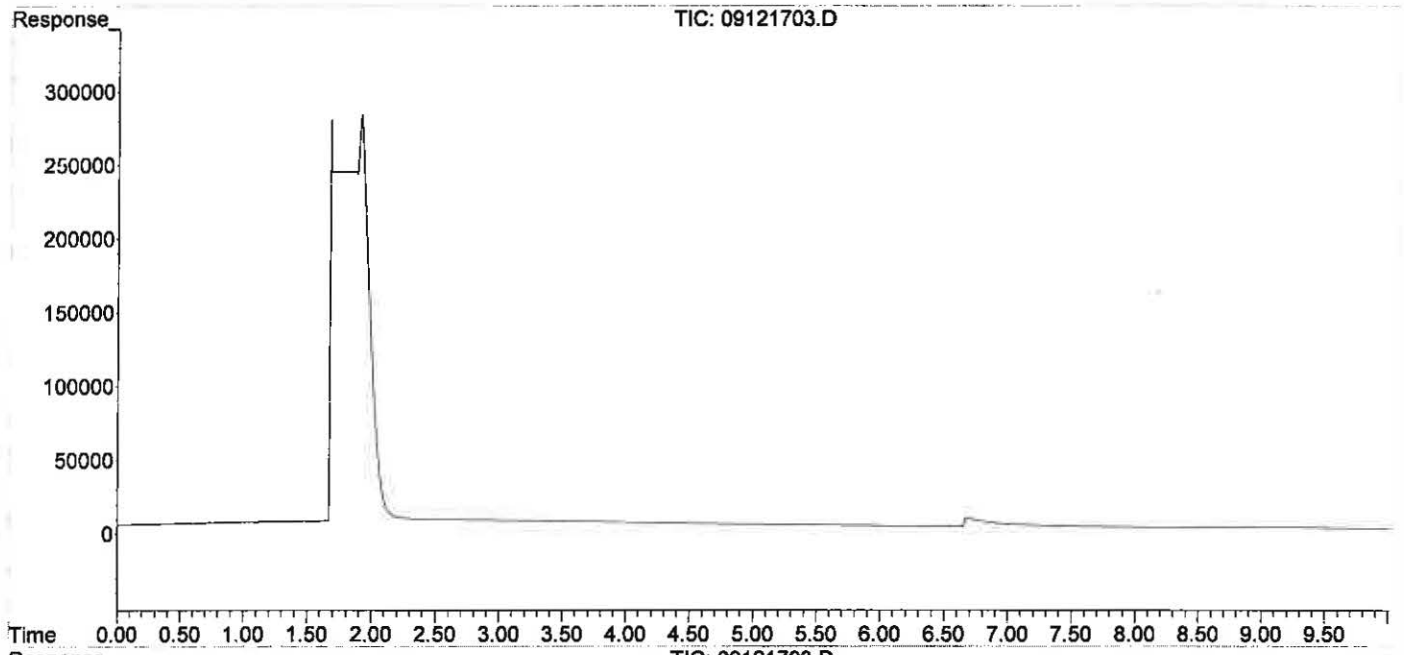
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.913f | -25181981 | N.D. | ppm | |
| 2) | Carbon monoxide | 1.913f | -25181981 | 1.089 | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.049 | 3564 | 0.391 | ppm | m |
| 7) | Ethylene | 1.577 | 4947 | 0.292 | ppm | |
| 8) | Ethane | 1.828 | 5060 | 0.293 | ppm | |
| 9) | Propylene | 4.207 | 6933 | 0.281 | ppm | |
| 10) | Propane | 4.337 | 6894 | 0.268 | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 6.579f | 9587 | 0.158 | ppm | |
| 13) | n-Butane | 6.579f | 9587 | 0.158 | ppm | |

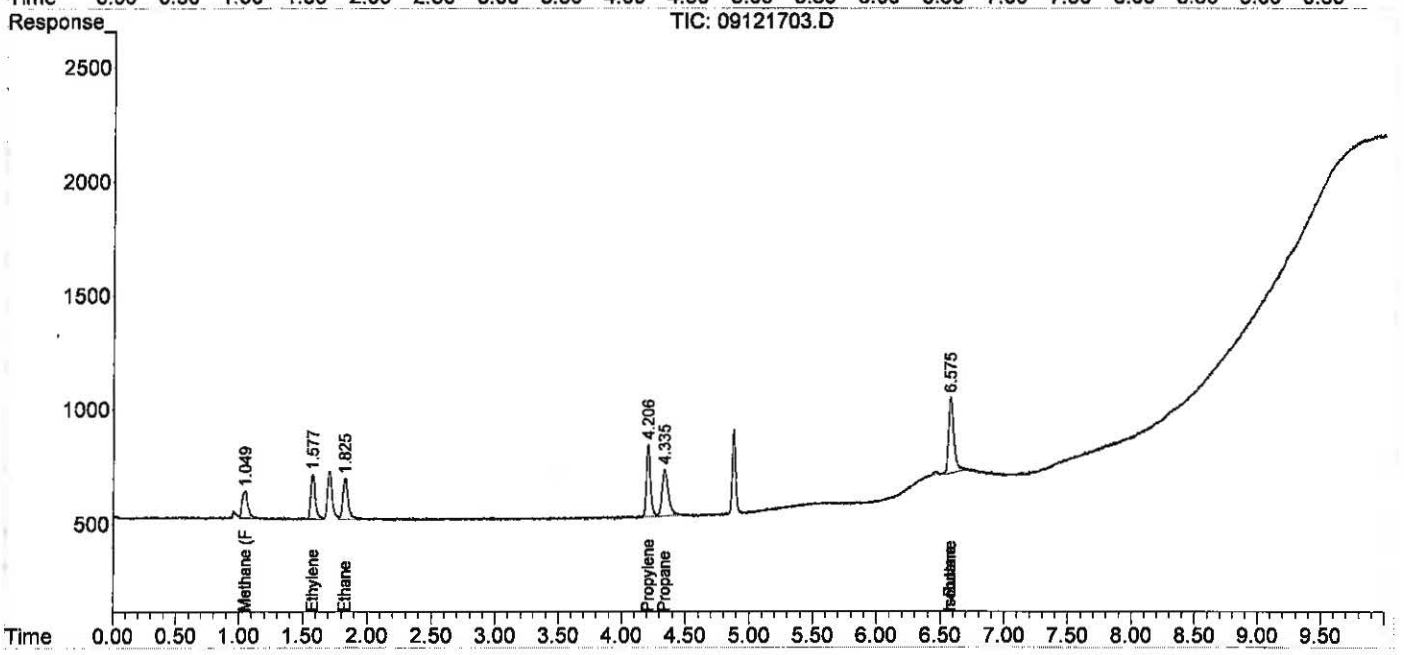
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

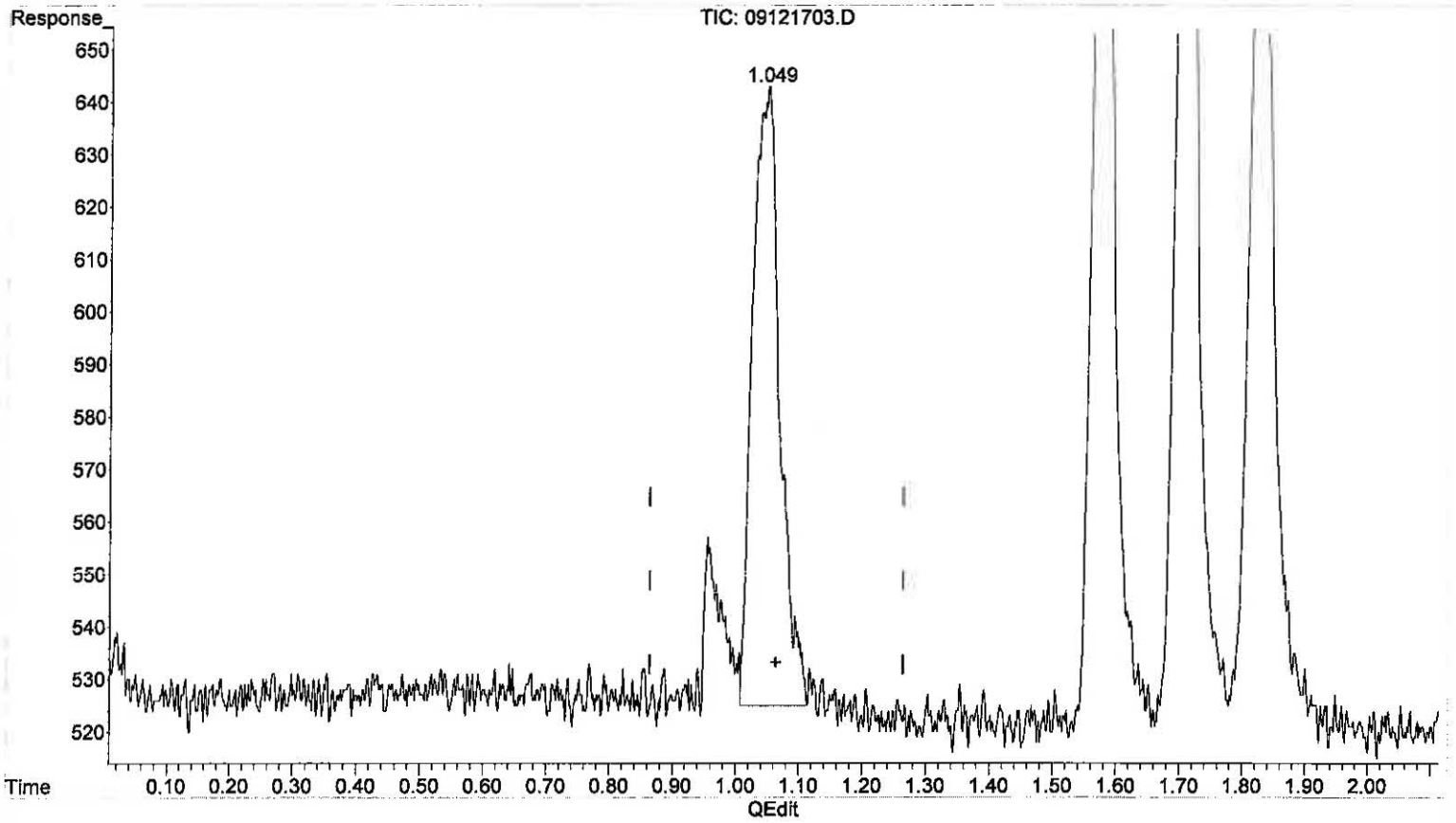


Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

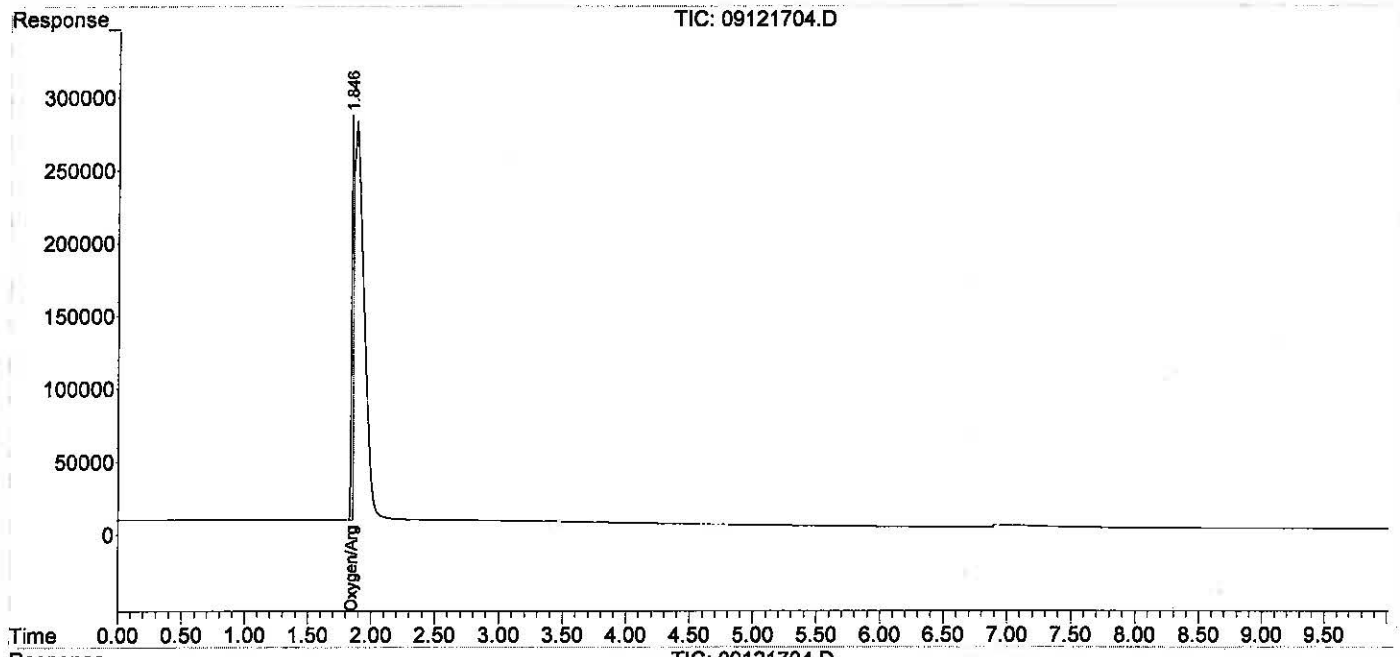
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.847 | 2536230 | 1.056 | ppm |
| 2) | Carbon monoxide | 1.847 | 2536230 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.064 | 14725 | 1.613 | ppm |
| 7) | Ethylene | 1.598 | 26885 | 1.582 | ppm |
| 8) | Ethane | 1.851 | 26944 | 1.555 | ppm |
| 9) | Propylene | 4.220 | 39140 | 1.589 | ppm |
| 10) | Propane | 4.349 | 39934 | 1.596 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.578f | 55348 | 1.020 | ppm |
| 13) | n-Butane | 6.578f | 55348 | 1.020 | ppm |

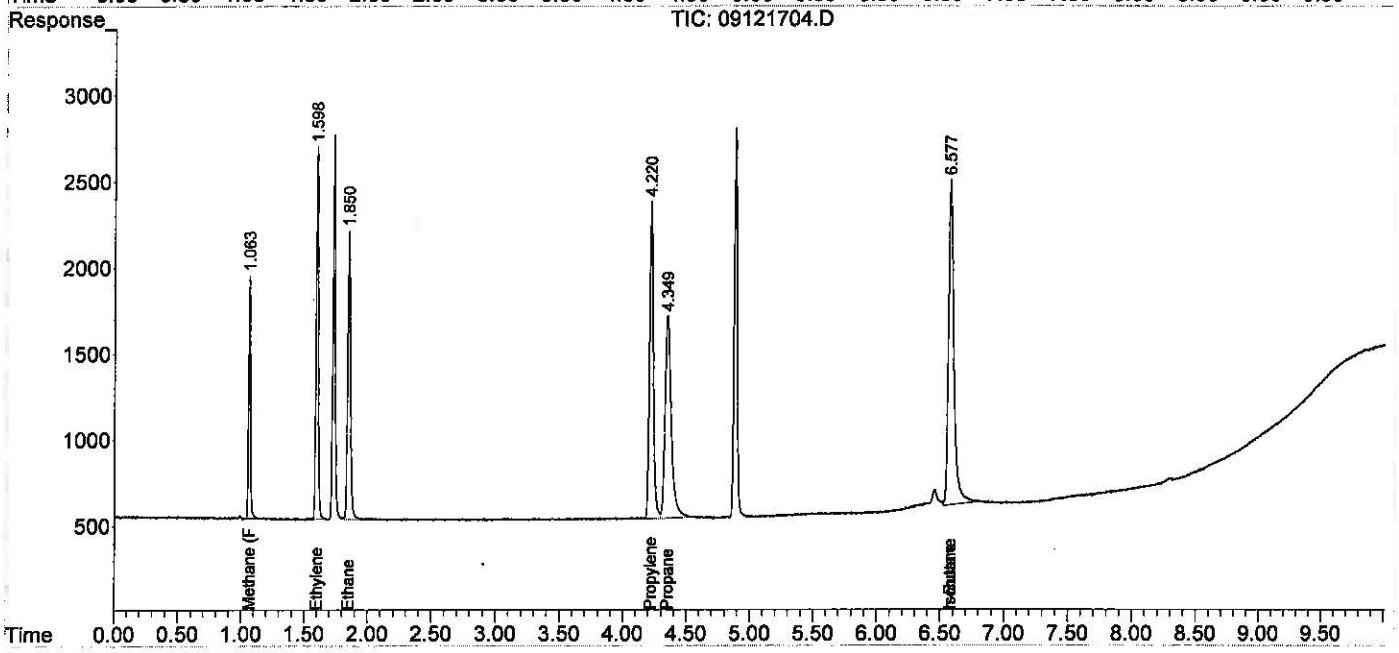
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

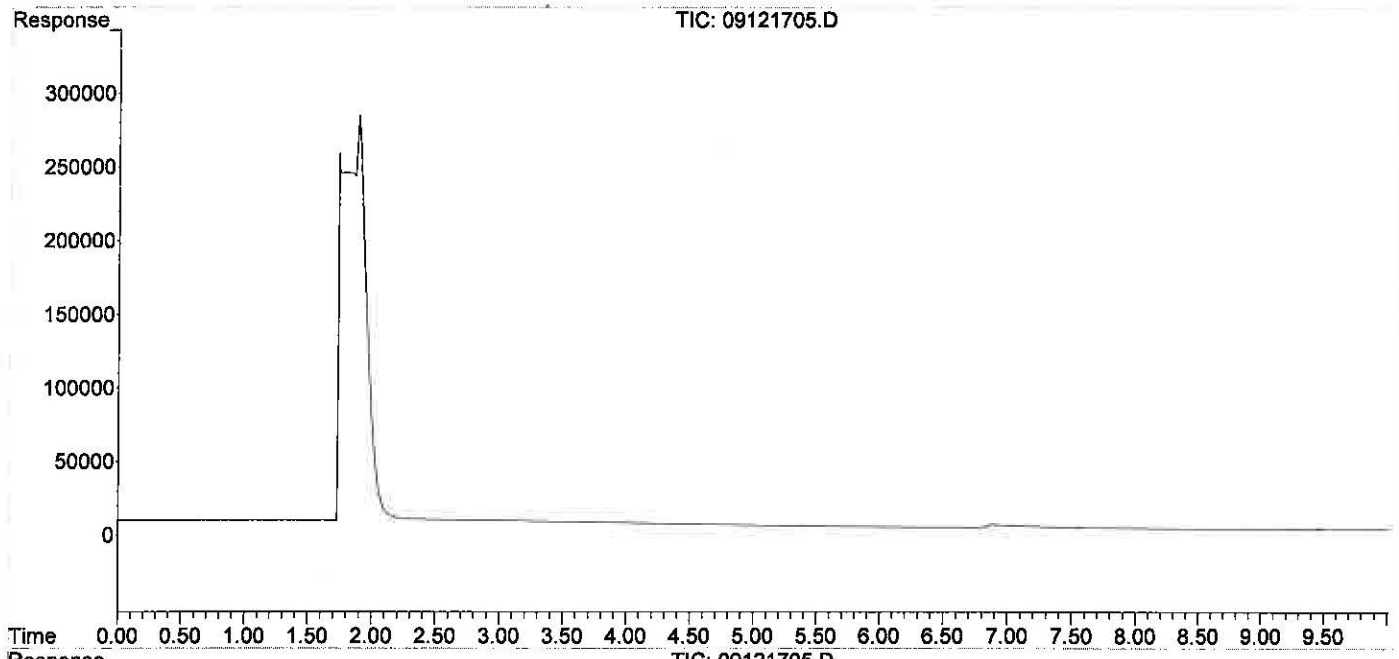
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.738 | -331216 | N.D. | ppm |
| 2) | Carbon monoxide | 1.738 | -331216 | 0.019 | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.052 | 41129 | 4.522 | ppm |
| 7) | Ethylene | 1.586 | 77903 | 4.637 | ppm |
| 8) | Ethane | 1.838 | 78354 | 4.558 | ppm |
| 9) | Propylene | 4.218 | 112342 | 4.614 | ppm |
| 10) | Propane | 4.347 | 115723 | 4.680 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.580f | 155256 | 3.565 | ppm |
| 13) | n-Butane | 6.580f | 155256 | 3.565 | ppm |

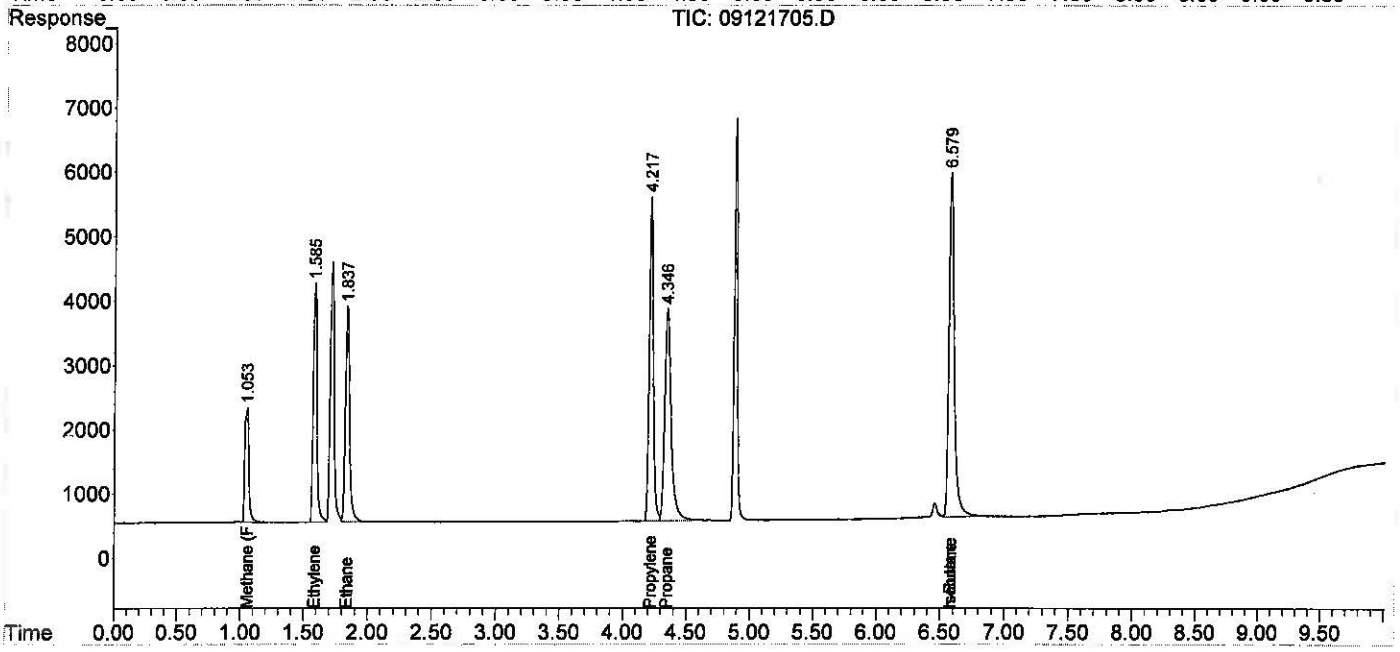
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

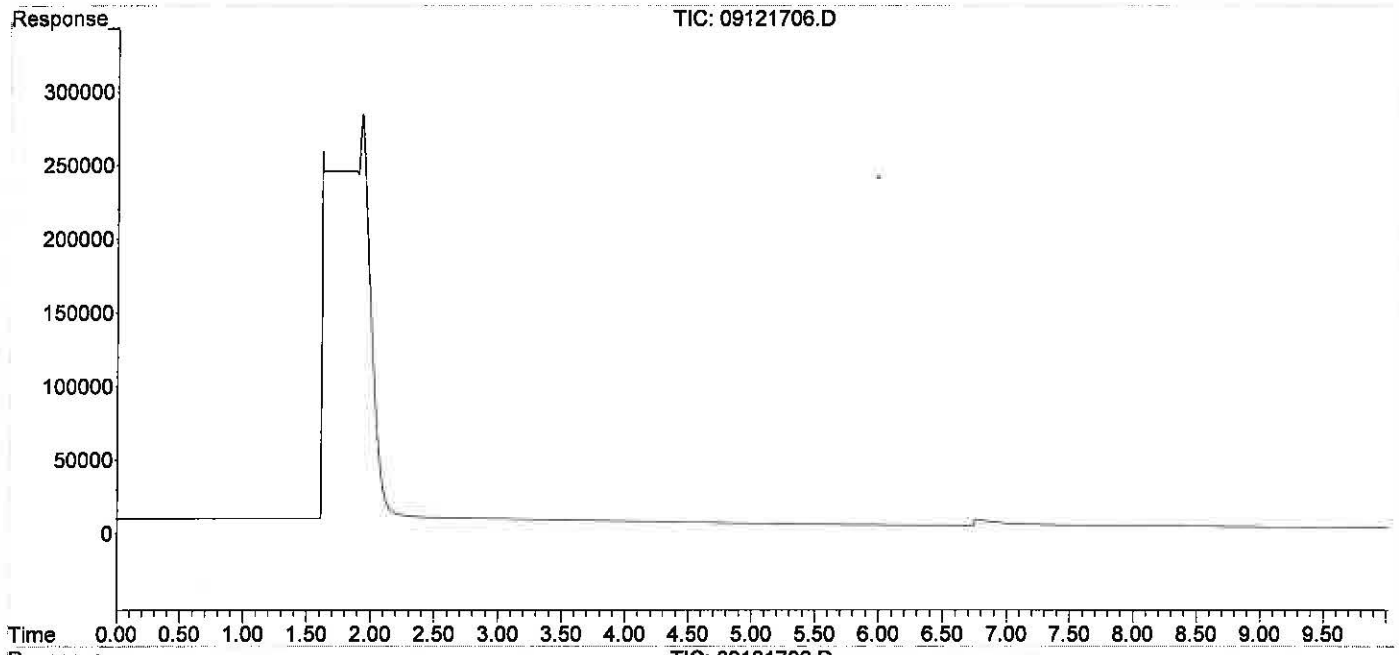
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.929f | -31871242 | N.D. | ppm |
| 2) | Carbon monoxide | 1.929f | -31871242 | 1.818 | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.025 | 91967 | 10.135 | ppm |
| 7) | Ethylene | 1.568 | 172086 | 10.273 | ppm |
| 8) | Ethane | 1.822 | 178841 | 10.441 | ppm |
| 9) | Propylene | 4.214 | 248004 | 10.236 | ppm |
| 10) | Propane | 4.344 | 257124 | 10.458 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.578f | 338181 | 9.254 | ppm |
| 13) | n-Butane | 6.578f | 338181 | 9.254 | ppm |

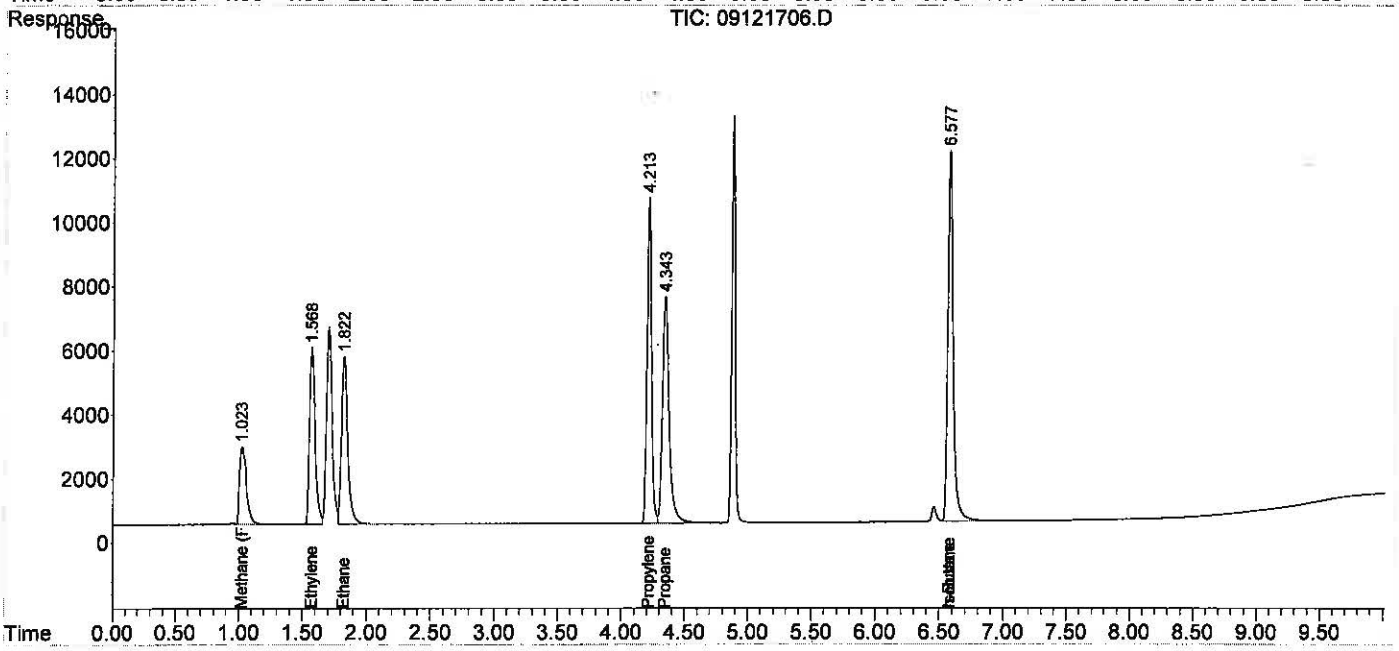
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



# Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

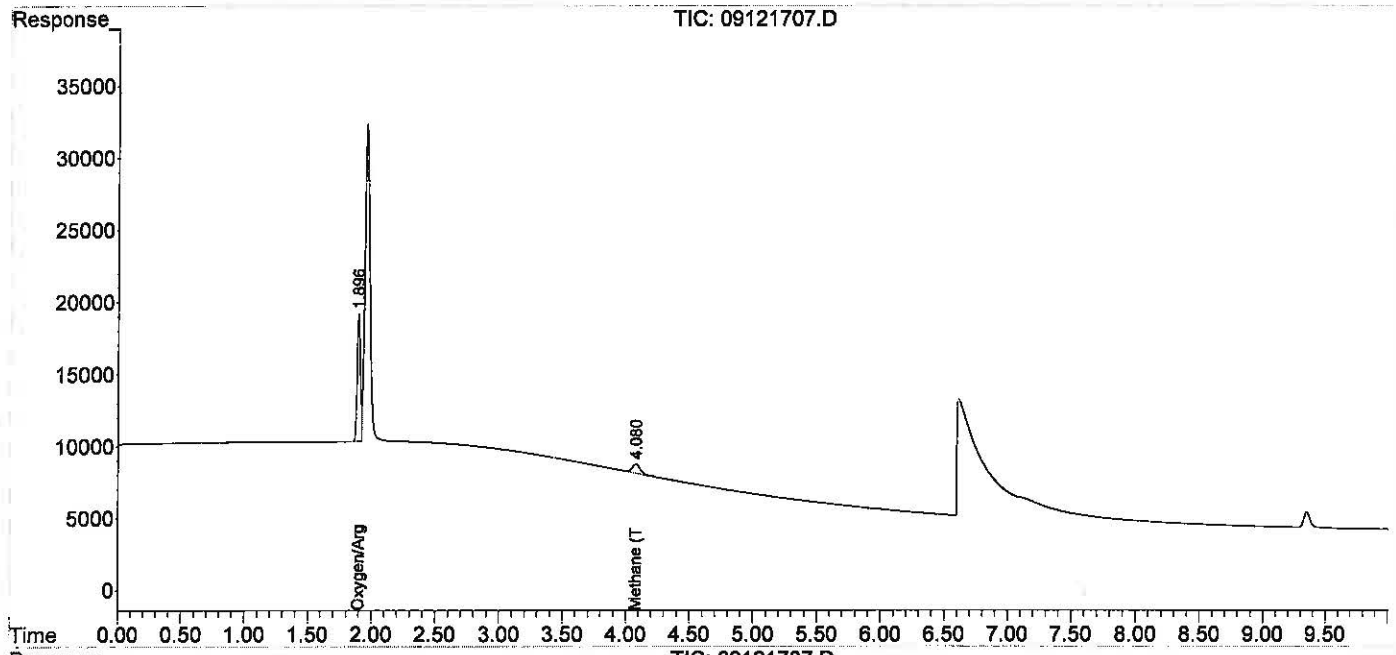
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.897 | 155286 | 0.065 | ppm |
| 2) | Carbon monoxide | 1.897 | 155286 | N.D. | ppm |
| 3) | Methane (TCD) | 4.079f | 27015 | 2856.472 | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.063 | 1735997 | 190.792 | ppm |
| 7) | Ethylene | 1.597 | 3339702 | 198.758 | ppm |
| 8) | Ethane | 1.849 | 3350442 | 194.597 | ppm |
| 9) | Propylene | 4.201 | 4504060 | 185.706 | ppm |
| 10) | Propane | 4.333 | 5043036 | 204.809 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

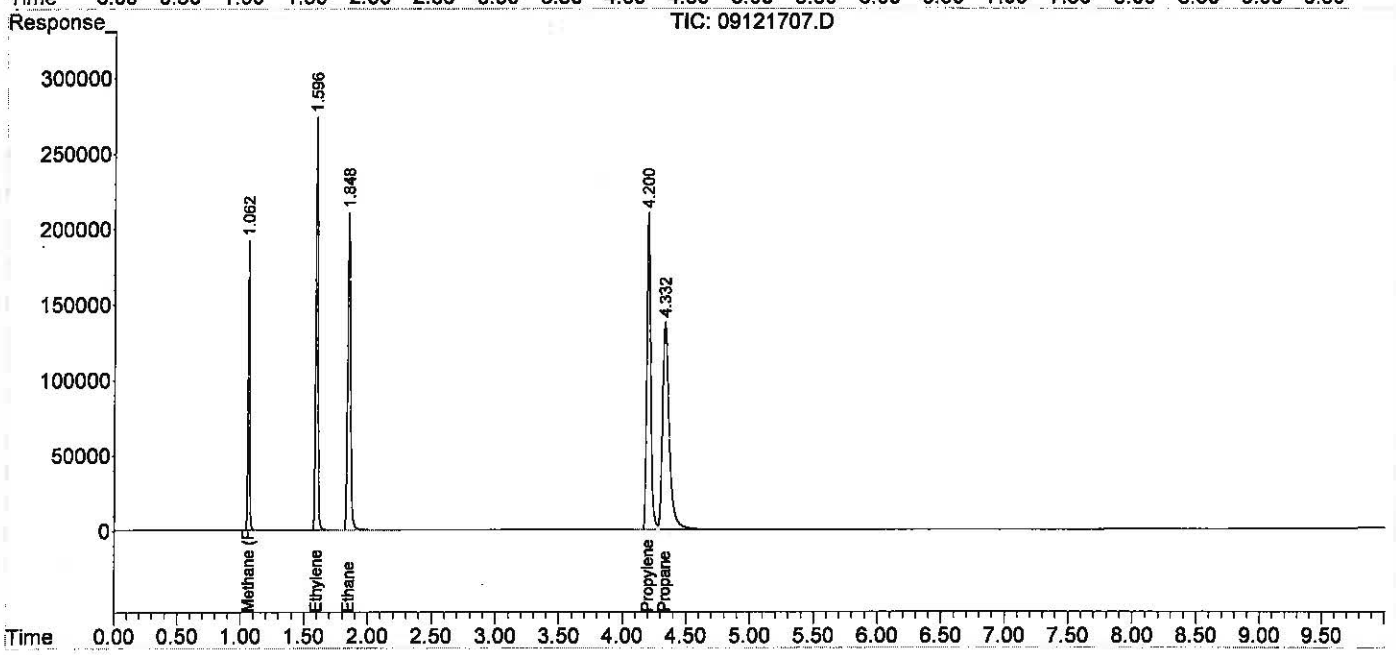
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

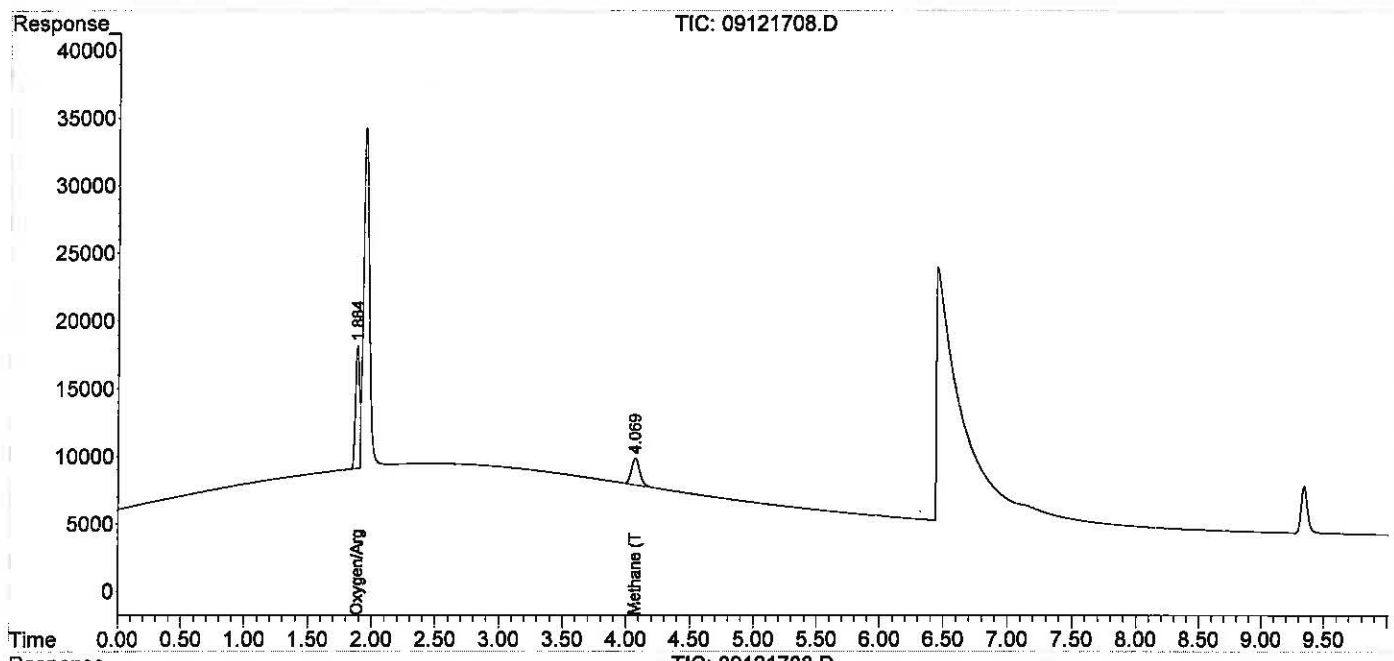
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.884 | 196022 | 0.124 | ppm |
| 2) | Carbon monoxide | 1.884 | 196022 | N.D. | ppm |
| 3) | Methane (TCD) | 4.070f | 88282 | 782.730 | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.044 | 5189849 | 539.759 | ppm |
| 7) | Ethylene | 1.573 | 10007759 | 590.286 | ppm |
| 8) | Ethane | 1.822 | 10048964 | 583.213 | ppm |
| 9) | Propylene | 4.160 | 13569343 | 562.612 | ppm |
| 10) | Propane | 4.300 | 15251326 | 615.171 | ppm |
| 11) | Isobutylene | 6.143 | 9815 | NoCal | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

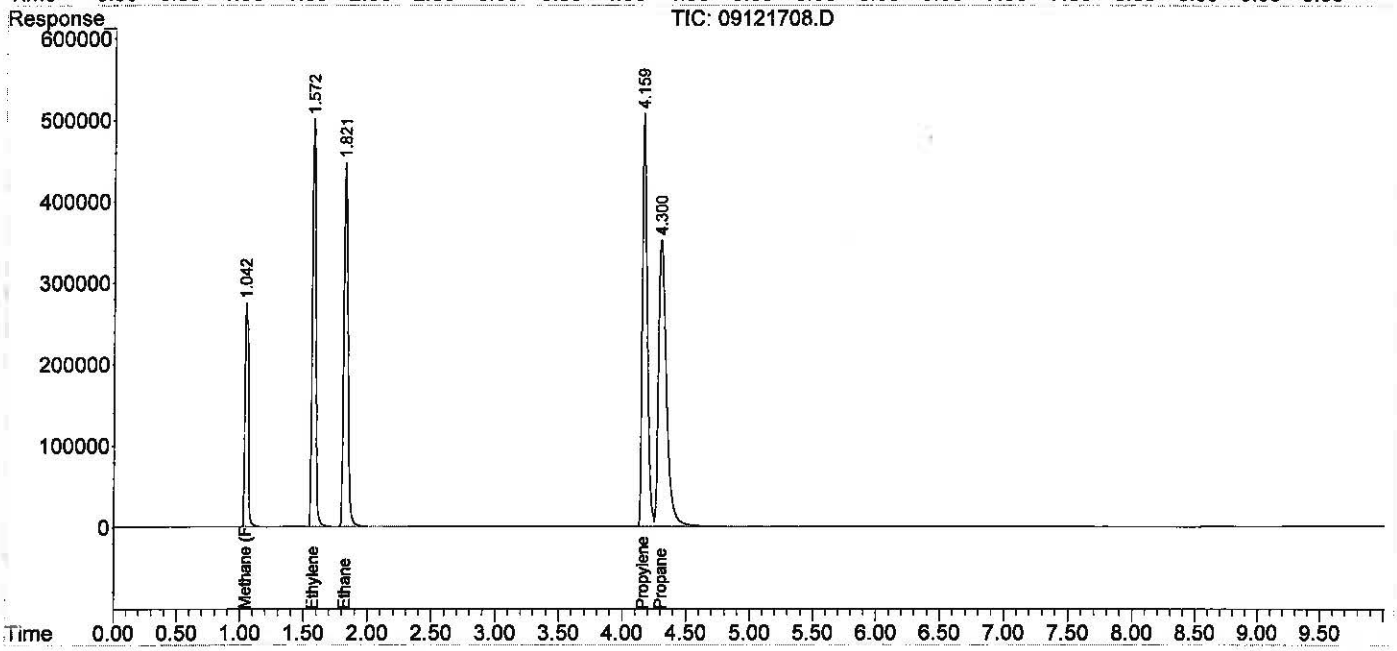
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

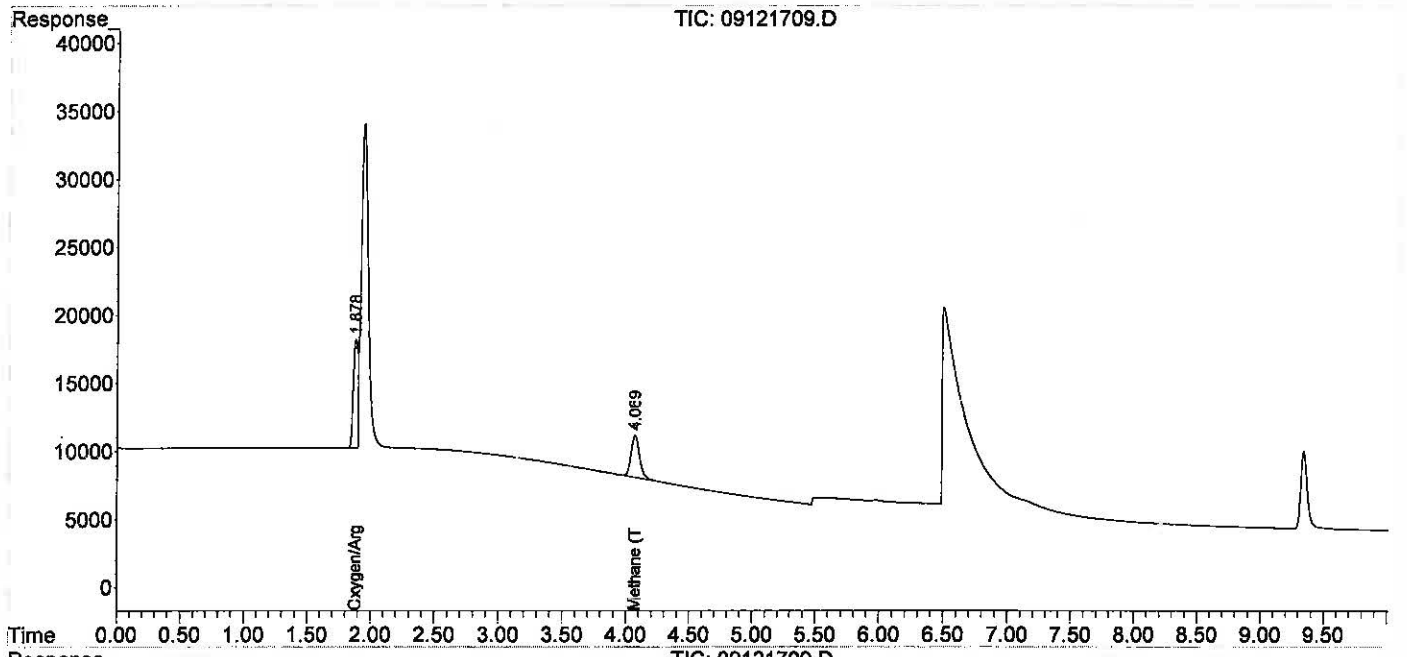
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.879 | 192611 | 0.162 | ppm |
| 2) | Carbon monoxide | 1.879 | 192611 | N.D. | ppm |
| 3) | Methane (TCD) | 4.070f | 145492 | 1244.729 | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.039 | 8598534 | 945.644 | ppm |
| 7) | Ethylene | 1.576 | 16608504 | 981.887 | ppm |
| 8) | Ethane | 1.827 | 16709165 | 973.644 | ppm |
| 9) | Propylene | 4.161 | 22494888 | 941.060 | ppm |
| 10) | Propane | 4.298 | 25459411 | 1023.223 | ppm |
| 11) | Isobutylene | 6.138 | 16970 | 8645.243 | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

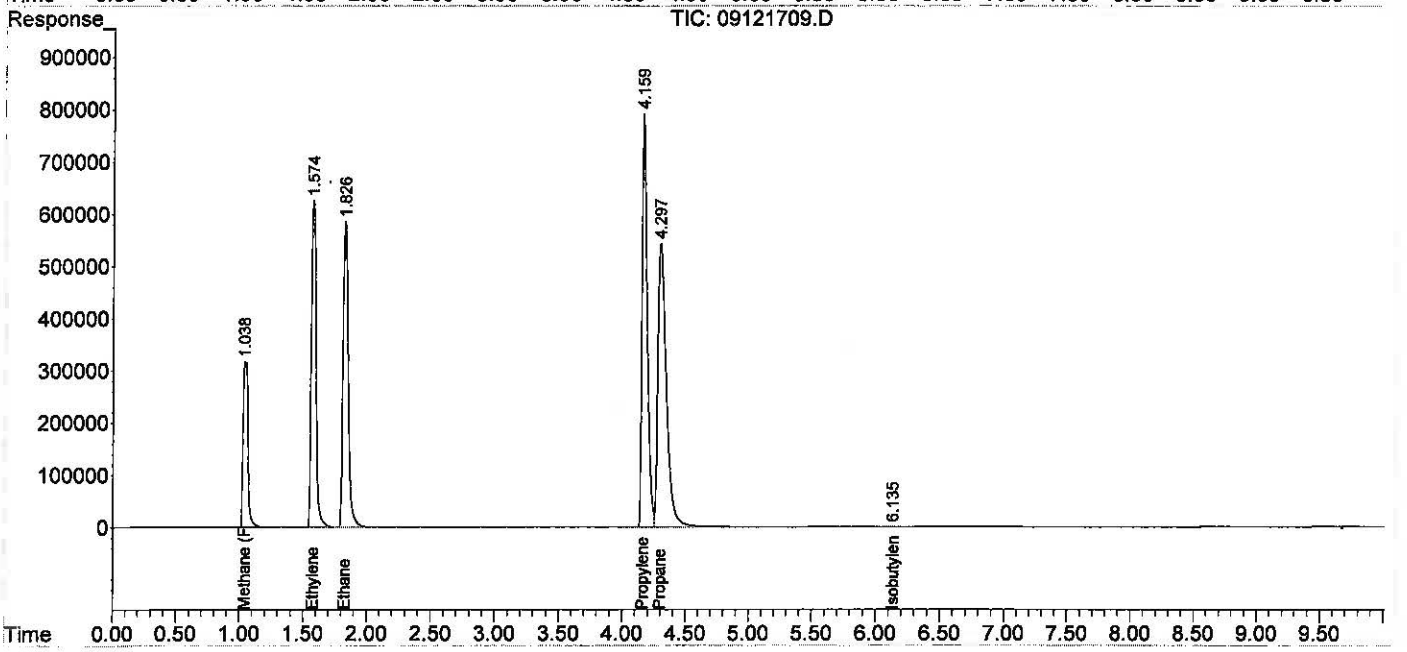
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

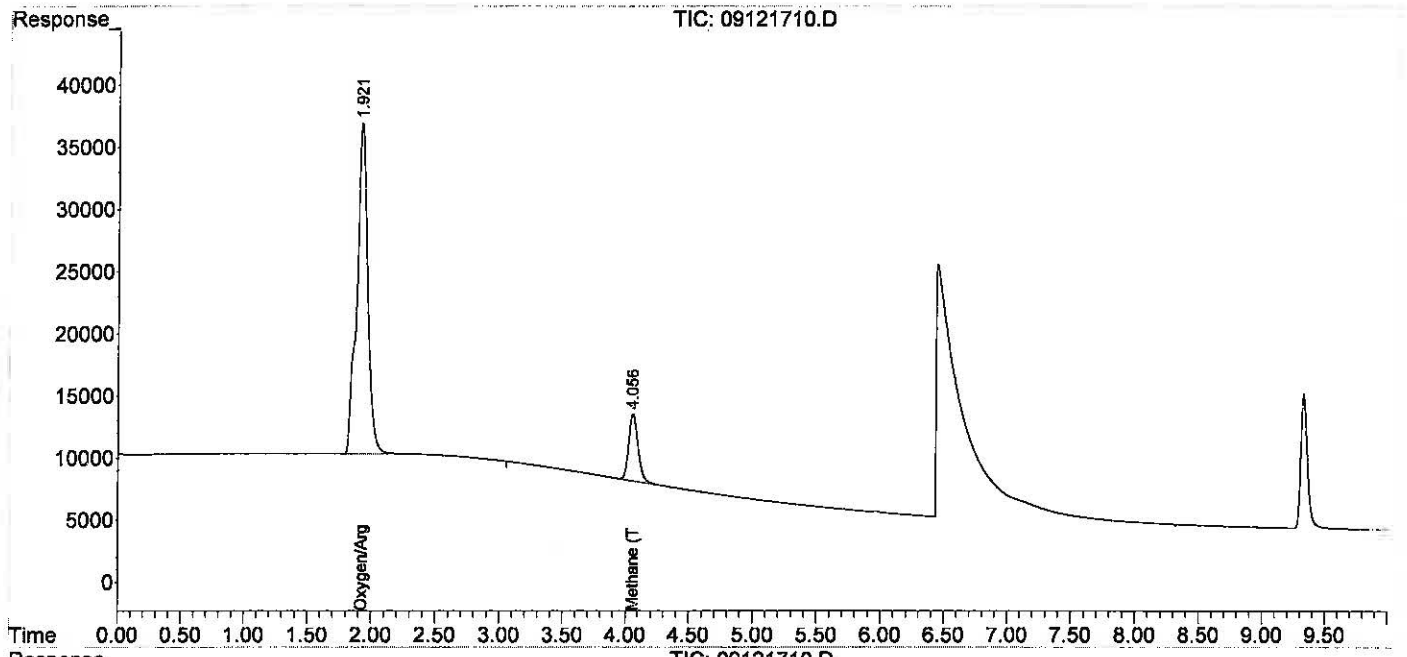
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.922f | 1578147 | 1.659 | ppm | |
| 2) | Carbon monoxide | 1.922f | 1578147 | N.D. | ppm | |
| 3) | Methane (TCD) | 4.057f | 281651 | 3526.607 | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.016 | 16098209 | 1763.622 | ppm | |
| 7) | Ethylene | 1.552 | 31192444 | 1848.268 | ppm | |
| 8) | Ethane | 1.801 | 31424218 | 1837.143 | ppm | |
| 9) | Propylene | 4.129 | 42124690 | 1775.341 | ppm | m |
| 10) | Propane | 4.269 | 48583085 | 1946.921 | ppm | |
| 11) | Isobutylene | 6.136 | 33832 | 25613.603 | ppm | |
| 12) | Isobutane | 6.576f | 3845 | 0.120 | ppm | |
| 13) | n-Butane | 6.576f | 3845 | 0.120 | ppm | |

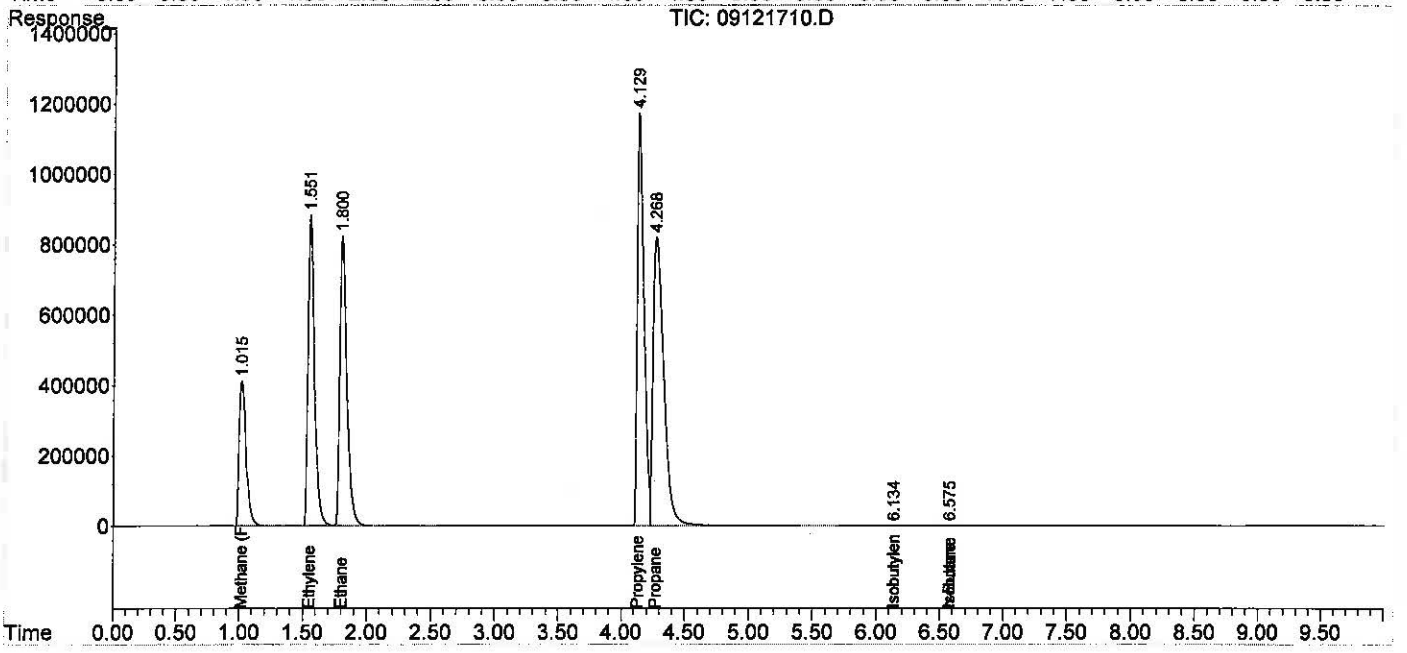
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



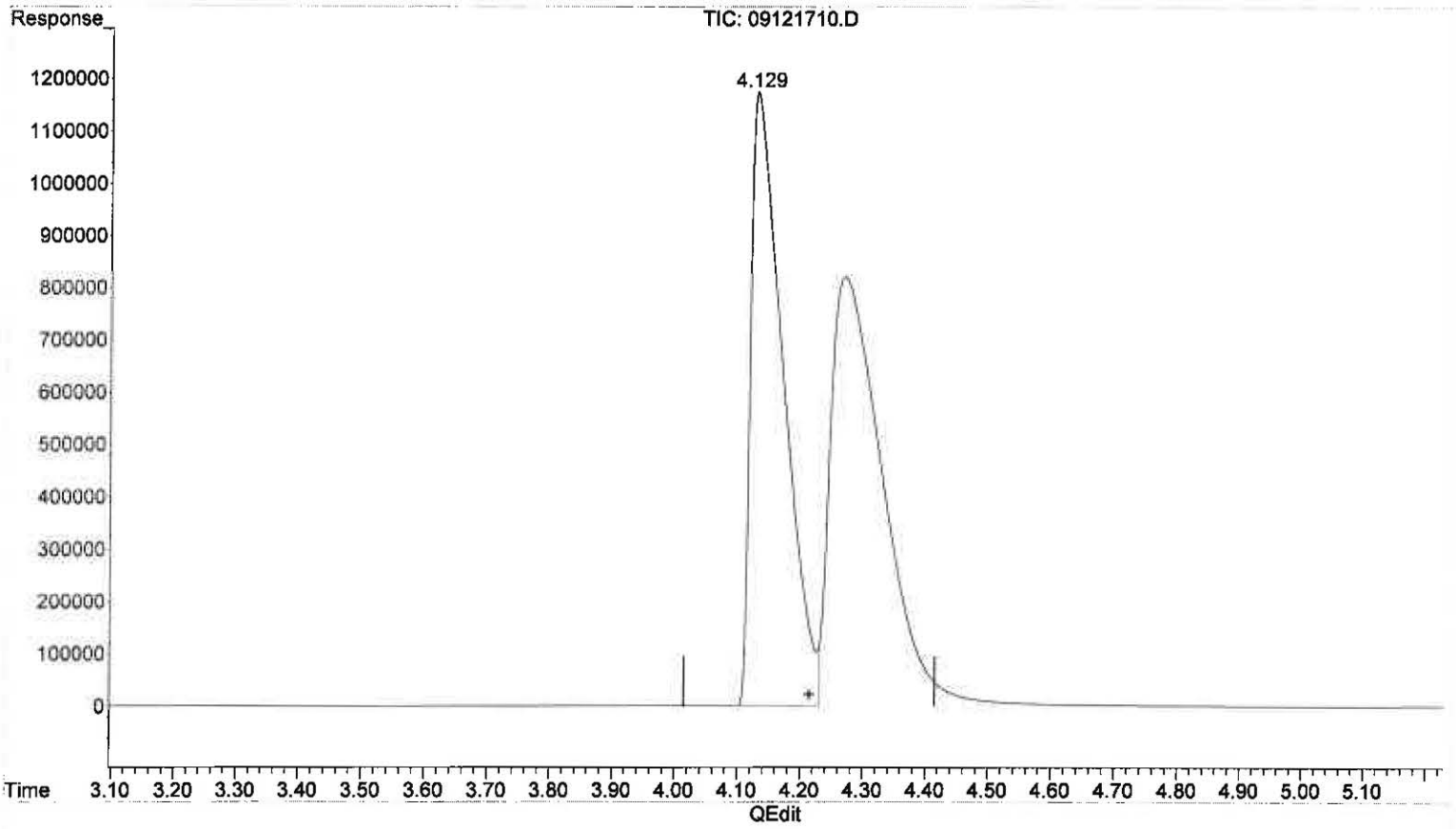



# Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(9) Propylene

4.129min 1775.341 ppm m

response 42124690

(+) = Expected Retention Time

RS091217_R.M Wed Sep 13 15:08:03 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

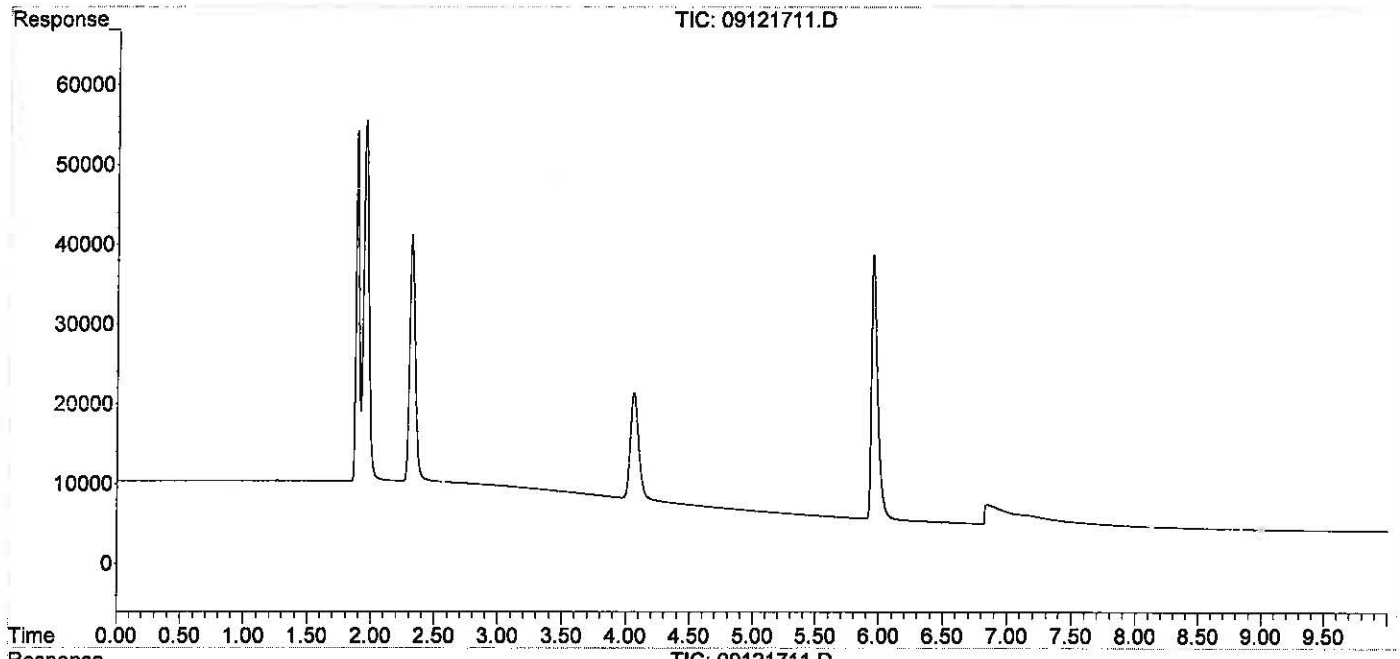
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | d |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | d |
| 6) | Methane (FID) | 1.059 | 35776839 | 3925.122 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

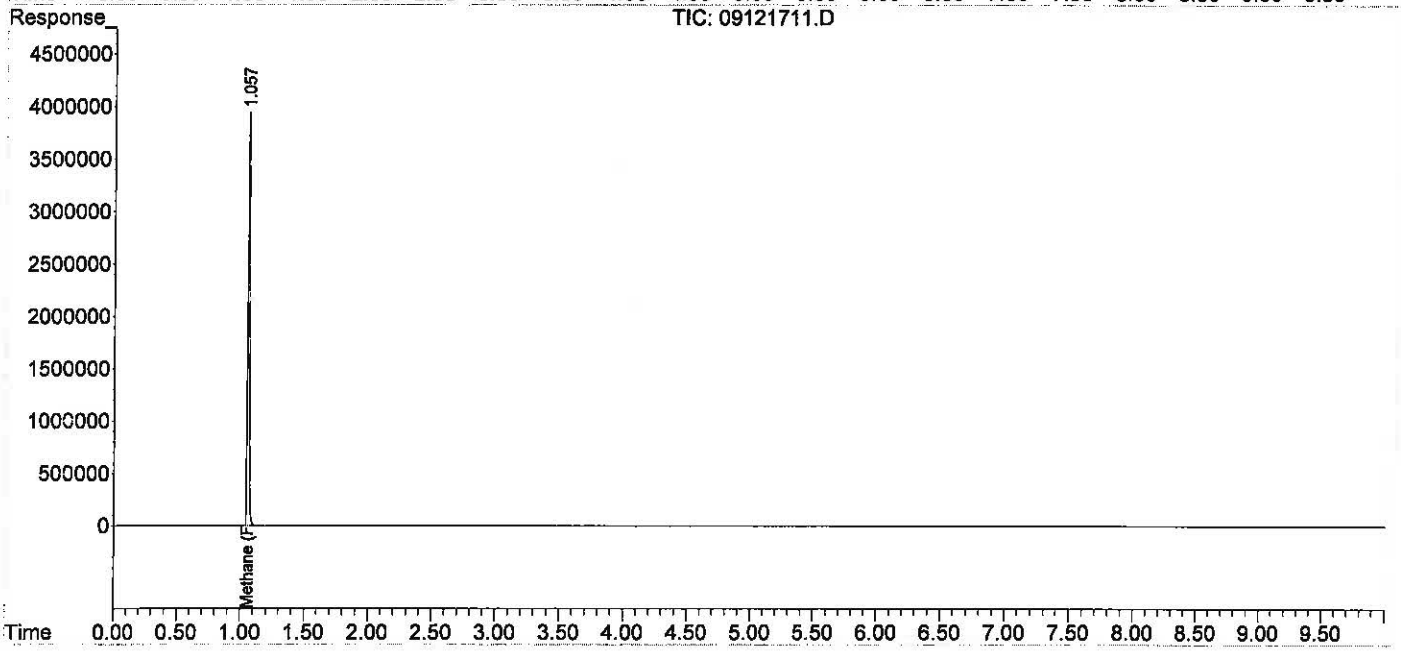
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

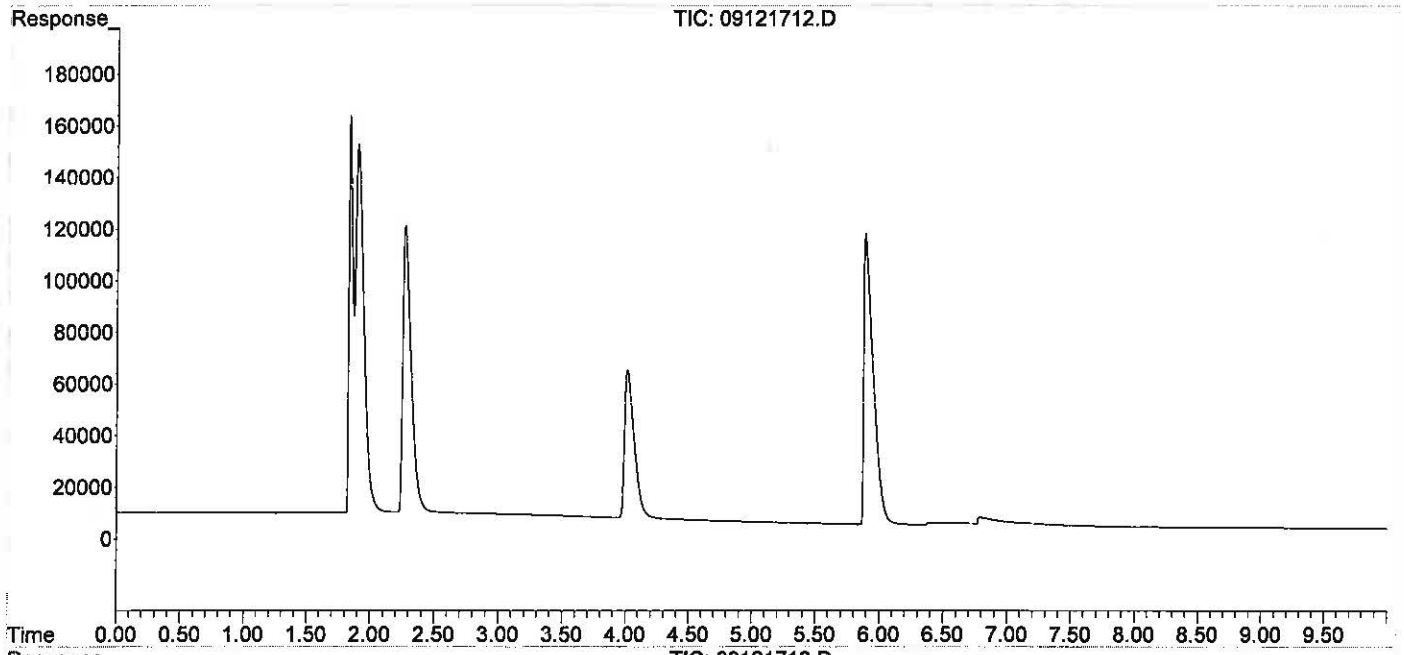
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.836 | 3190788 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | d |
| 6) | Methane (FID) | 1.034 | 169009160 | 18492.064 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

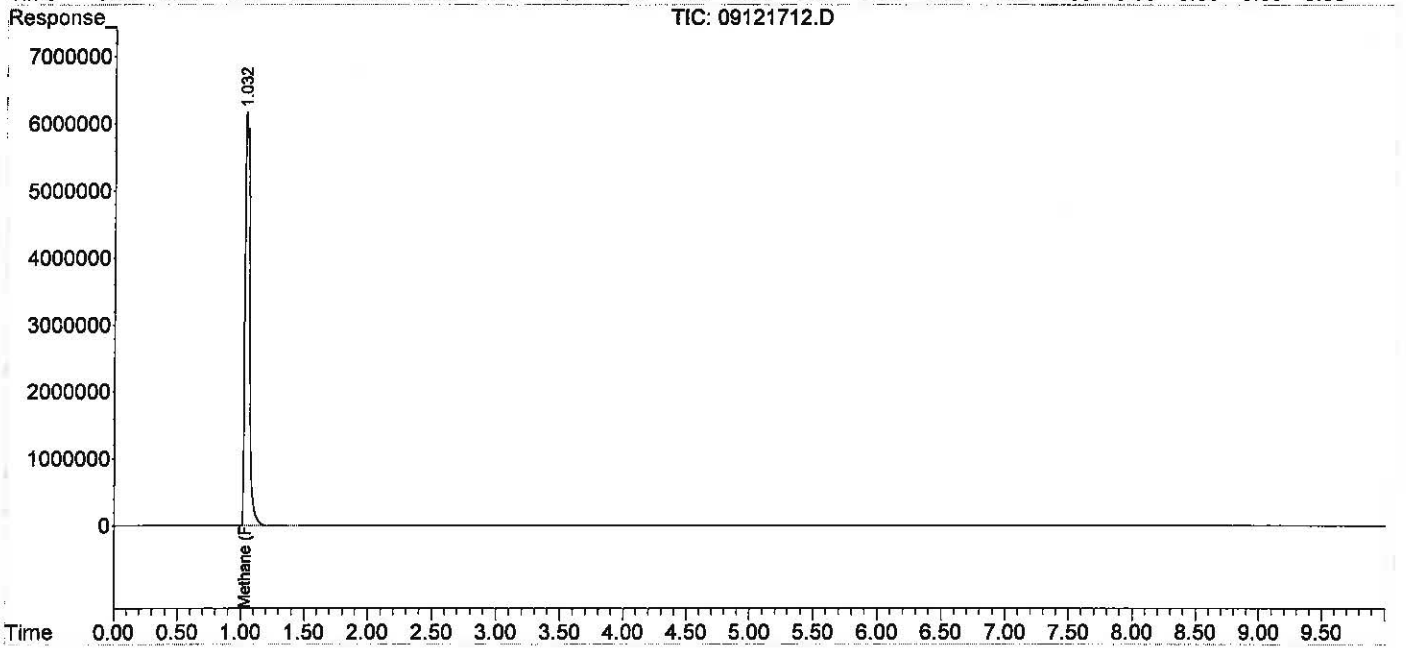
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.843 | 2922459 | 3.687 | ppm | |
| 2) | Carbon monoxide | 1.843 | 2922459 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | actual %D |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.063 | 13748 | 1.516 | ppm | ~~1.510~~ 1.50 101.1 |
| 7) | Ethylene | 1.598 | 24153 | 1.443 | ppm | ~~1.510~~ 1.50 96.2 |
| 8) | Ethane | 1.850 | 24488 | 1.445 | ppm | ~~1.510~~ 1.50 96.3 |
| 9) | Propylene | 4.221 | 36004 | 1.537 | ppm | ~~1.510~~ 1.50 102.5 |
| 10) | Propane | 4.350 | 37738 | 1.517 | ppm | ~~1.511~~ 1.51 100.5 |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 6.579f | 48019 | 1.804 | ppm | 9/14/2 |
| 13) | n-Butane | 6.579f | 48019 | 1.804 | ppm | |

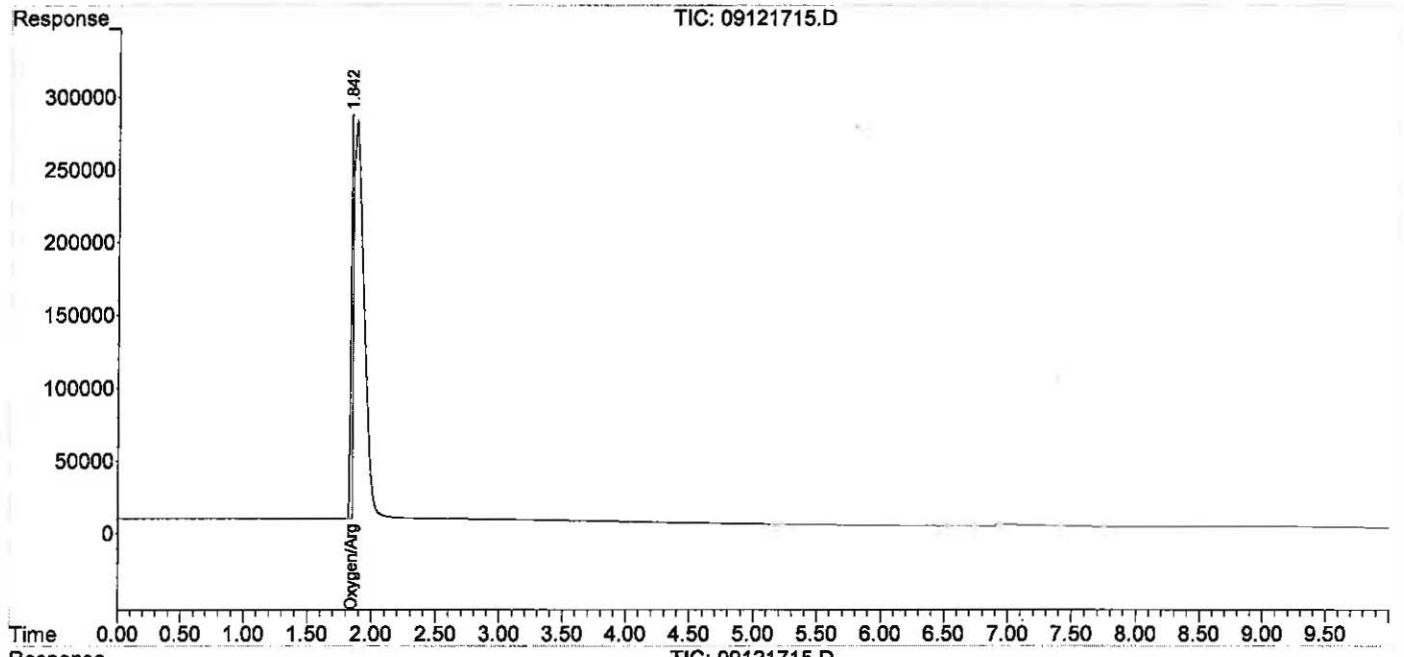
(f)=RT Delta > 1/2 Window (m)=manual int.

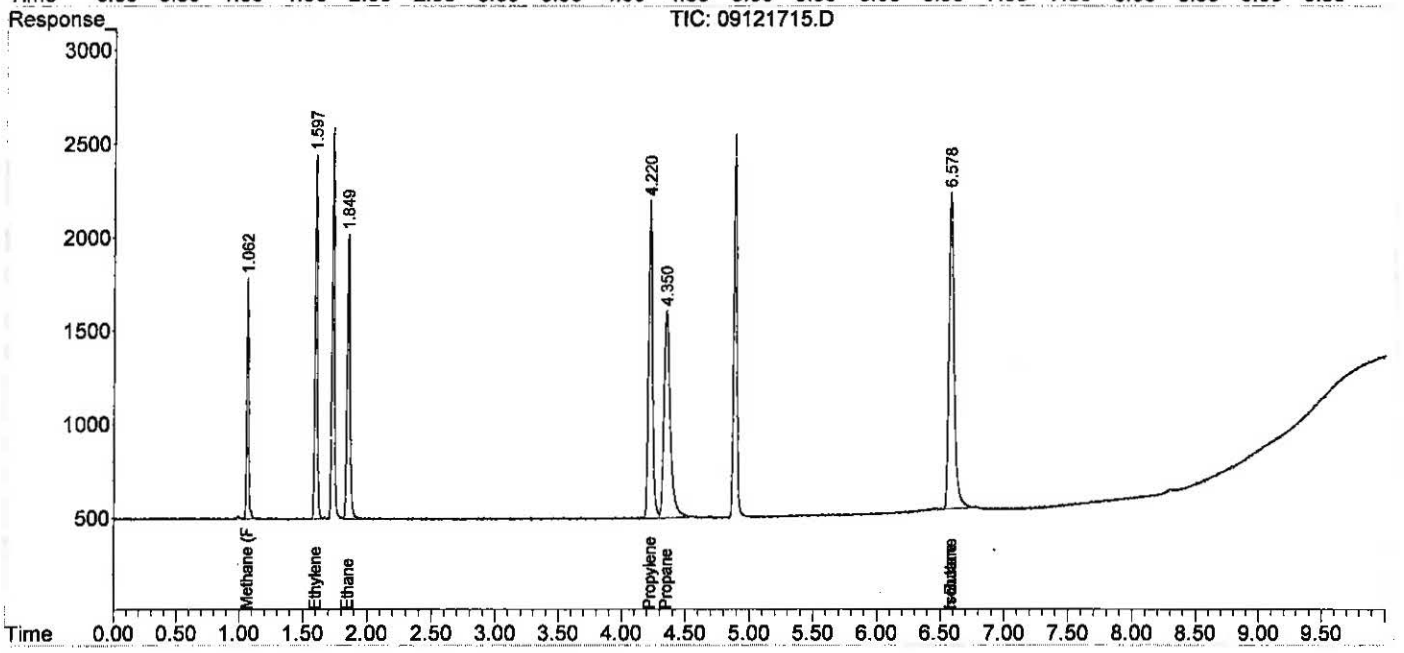
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



## *ALS Environmental*

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1806865
Sample Vol. (ml) : 32.00 ml
Analyst : MR
Date Analysis : 12/19/18
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

**HEAD SPACE RESULT (ppm)**

| Sample ID | Inj. Vol. | Methane | Ethylene | Ethane |
|---|---|---|---|---|
| std s32-07231801 | 0.100 | 1.508 | 1.430 | 1.398 |
| ACTUAL | | 1.51 | 1.51 | 1.51 |
| %Difference | | 0.1% | 5.3% | 7.4% |
| mcs 0.1ml | 0.100 | 0.183 | 0.000 | 0.000 |
| rb 0.1ml | 0.100 | 0.000 | 0.000 | 0.000 |
| fid lcs s30-05241604 | 0.100 | 1.457 | 1.012 | 1.242 |
| fid lcsd s30-05241604 | 0.100 | 1.445 | 0.998 | 1.236 |
| P1806865-001 0.1ml | 0.100 | 967.290 | 0.522 | 0.000 |
| P1806865-002 0.1ml | 0.100 | 0.078 | 0.000 | 0.000 |
| P1806865-003 0.1ml | 0.100 | 1830.21 | 0.624 | 0.000 |
| P1806865-004 0.1ml | 0.100 | 0.103 | 0.000 | 0.000 |

**FINAL HEAD SPACE RESULT (ppm)**

| | Methane | Ethylene | Ethane |
|---|---|---|---|
| **WWt.** | 16.04 | 28.05 | 30.07 |
| **HENRY'S CONSTANT** | 3.76E+04 | 1.02E+04 | 2.63E+04 |
| **RL** | 1.30 | 1.00 | 0.60 |
| mcs 0.1ml | 1.830 | 0.000 | 0.000 |
| fid lcs s30-05241604 | 14.570 | 10.120 | 12.420 |
| fid lcsd s30-05241604 | 14.450 | 9.980 | 12.360 |
| P1806865-001 0.1ml | 9672.900 | 5.220 | 0.000 |
| P1806865-002 0.1ml | 0.780 | 0.000 | 0.000 |
| P1806865-003 0.1ml | 18302.12 | 6.240 | 0.000 |
| P1806865-004 0.1ml | 1.030 | 0.000 | 0.000 |



| | | | |
|---|---|---|---|
| std s32-07231801 | 1.507 | 1.463 | 1.442 |
| ACTUAL | 1.51 | 1.51 | 1.51 |
| %Difference | 0.2% | 3.1% | 4.5% |

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 10:38:40
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:45:57 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.116 | 13675 | 1.508 | ppm |
| 7) | Ethylene | 1.679 | 23933 | 1.430 | ppm |
| 8) | Ethane | 1.942 | 23704 | 1.398 | ppm |
| 9) | Propylene | 4.319 | 33295 | 1.421 | ppm |
| 10) | Propane | 4.443 | 35022 | 1.408 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.652 | 44527 | 1.673 | ppm |
| 13) | n-Butane | 6.652 | 44527 | 1.673 | ppm |

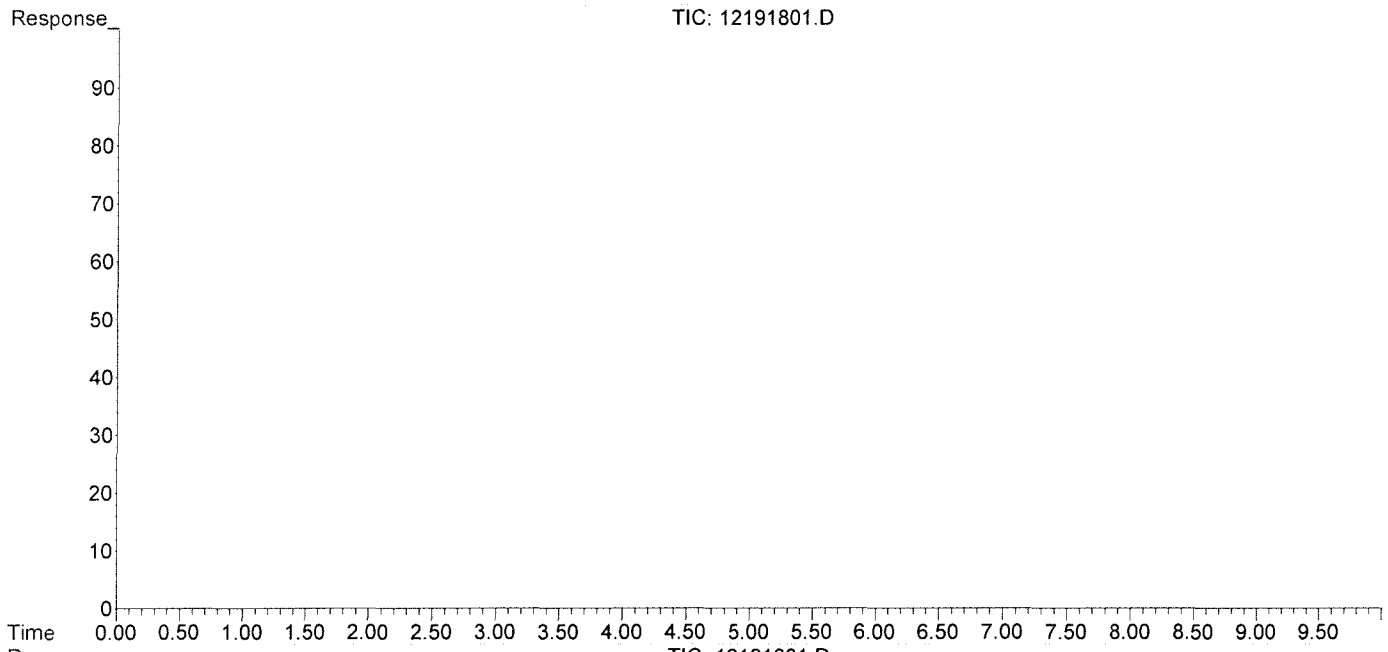
(f)=RT Delta > 1/2 Window (m)=manual int.

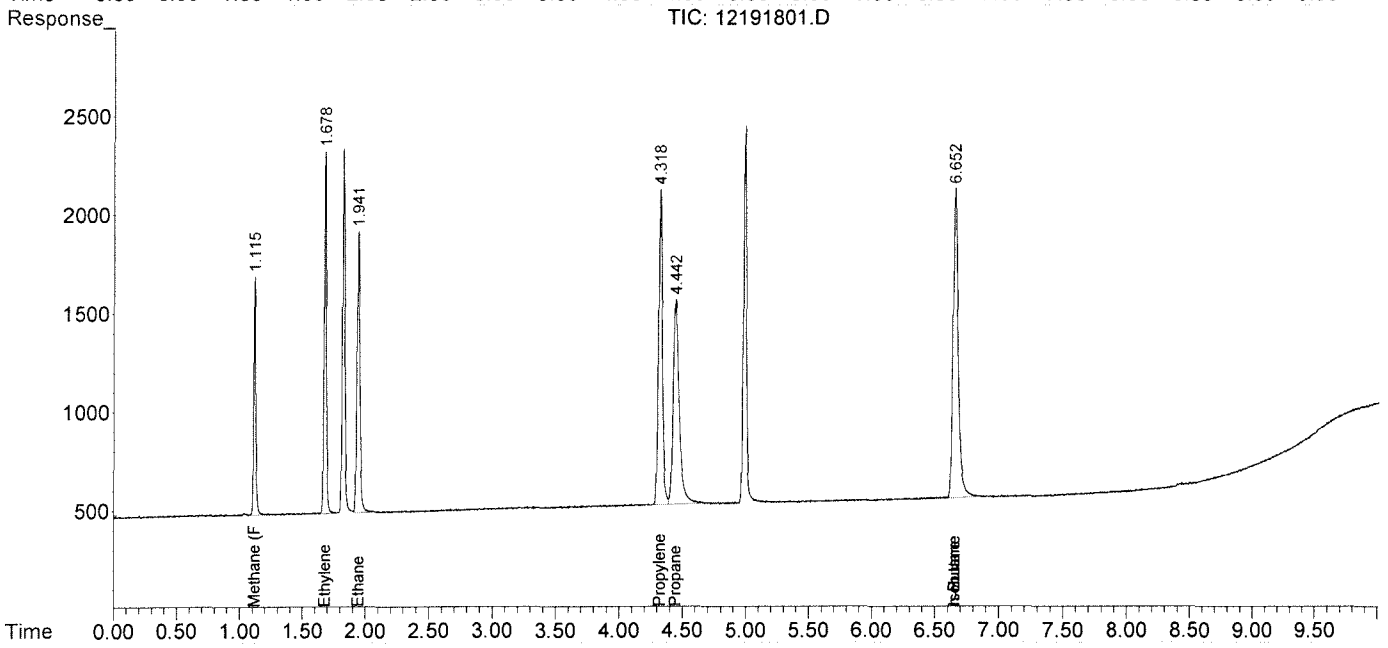
MK 12/20/18

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 10:38:40
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:45:57 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:22:31
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 14:35:00 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

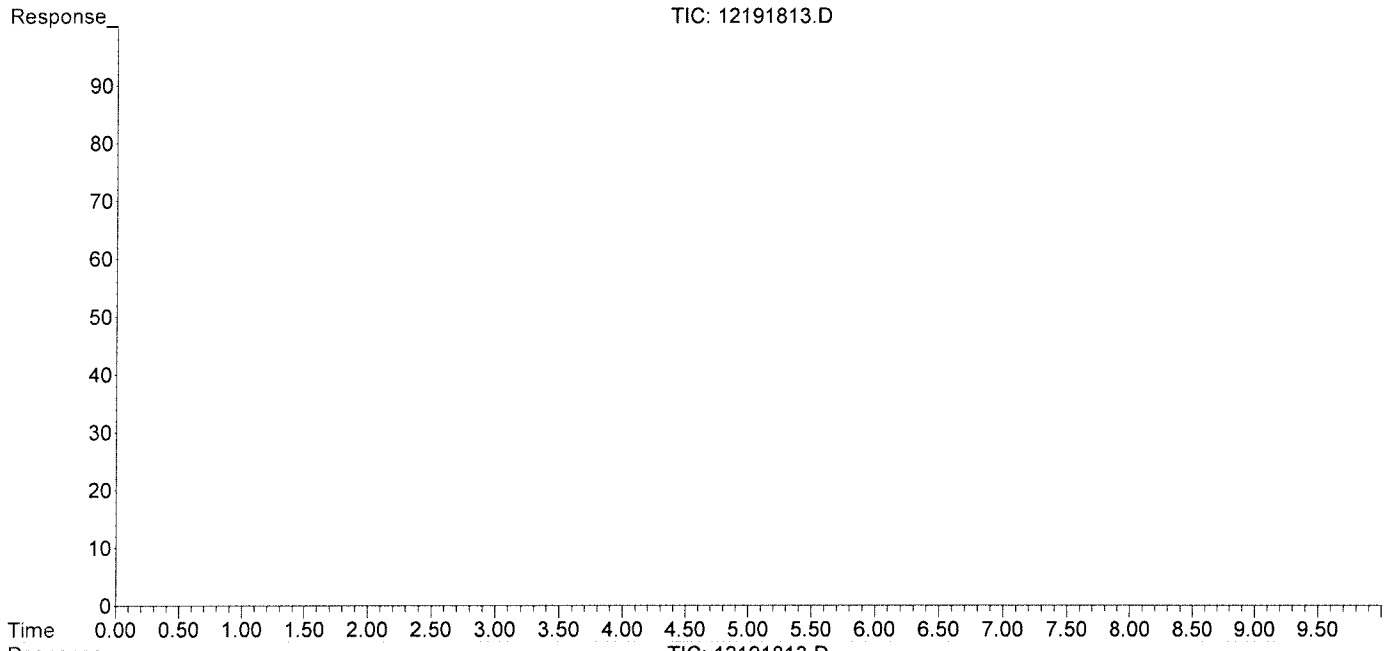
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.115 | 13669 | 1.507 | ppm |
| 7) | Ethylene | 1.673 | 24477 | 1.463 | ppm |
| 8) | Ethane | 1.935 | 24440 | 1.442 | ppm |
| 9) | Propylene | 4.315 | 34381 | 1.467 | ppm |
| 10) | Propane | 4.439 | 35574 | 1.430 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.654 | 44719 | 1.680 | ppm |
| 13) | n-Butane | 6.654 | 44719 | 1.680 | ppm |

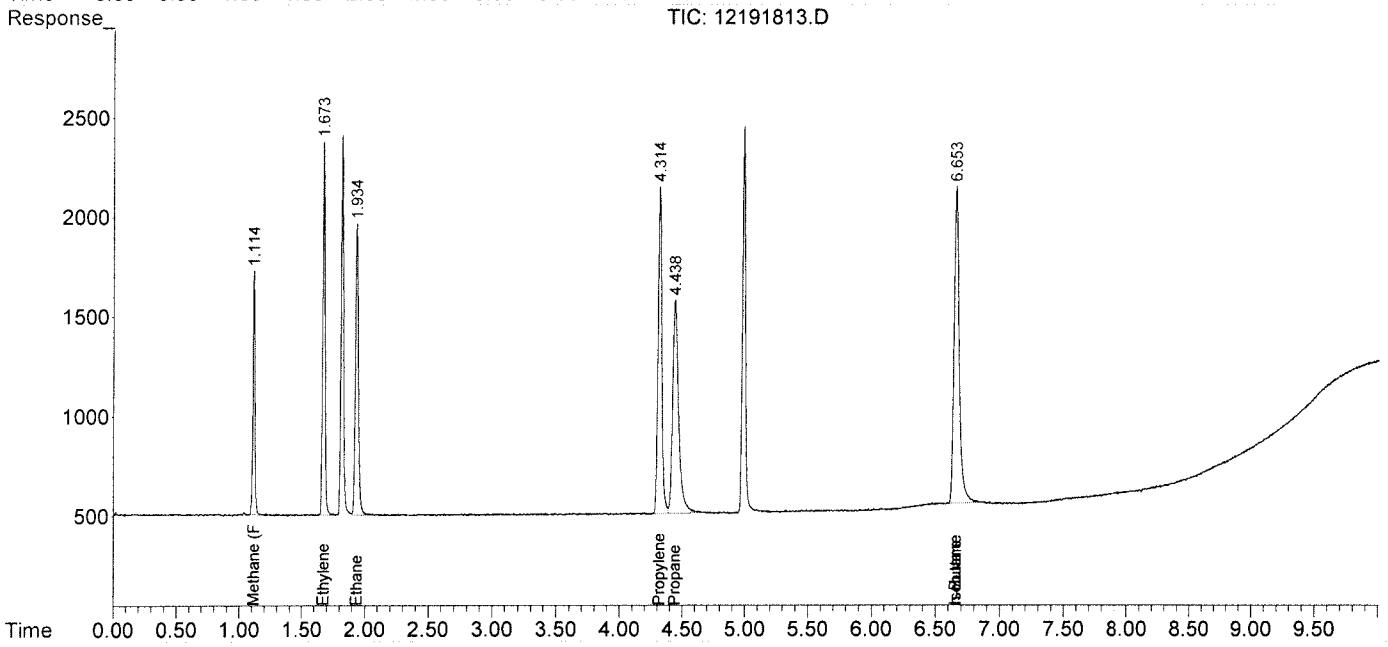
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:22:31
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 14:35:00 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



# Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 12-Sep-17, 08:38:08 | 09121701.D | test | | MC | RSKBOTH.M | |
| 2 | 12-Sep-17, 10:52:40 | 09121702.D | 0.151ppm 0.250ml s32-09121702 | | MC | RSKBOTH.M | Curve |
| 3 | 12-Sep-17, 11:05:49 | 09121703.D | 0.302ppm 0.5ml s32-09121702 | | MC | RSKBOTH.M | Curve |
| 4 | 12-Sep-17, 11:45:34 | 09121704.D | 1.51ppm 0.1ml s32-09051701 | | MC | RSKBOTH.M | Curve |
| 5 | 12-Sep-17, 12:09:33 | 09121705.D | 4.53ppm 0.3ml s32-09051701 | | MC | RSKBOTH.M | Curve |
| 6 | 12-Sep-17, 12:30:23 | 09121706.D | 10.57ppm 0.7ml s32-09051701 | | MC | RSKBOTH.M | Curve |
| 7 | 12-Sep-17, 12:47:18 | 09121707.D | 200ppm 0.1ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 8 | 12-Sep-17, 13:00:22 | 09121708.D | 600ppm 0.3ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 9 | 12-Sep-17, 13:47:48 | 09121709.D | 1000ppm 0.5ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 10 | 12-Sep-17, 14:07:58 | 09121710.D | 2000ppm 1ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 11 | 12-Sep-17, 14:48:48 | 09121711.D | 4000ppm 0.1ml s32-08231701 | | MC | RSKBOTH.M | Curve |
| 12 | 12-Sep-17, 15:21:51 | 09121712.D | 20000ppm 0.5ml s32-08231701 | | MC | RSKBOTH.M | Curve |
| 13 | 12-Sep-17, 15:38:59 | 09121713.D | mb 0.5ml | | MC | RSKBOTH.M | Pass |
| 14 | 12-Sep-17, 15:55:35 | 09121714.D | mb 0.1ml | | MC | RSKBOTH.M | Pass |
| 15 | 12-Sep-17, 16:15:26 | 09121715.D | icv s30-05241604 | | MC | RSKBOTH.M | Pass |

# Injection Log

Directory: I:\GC10\DATA\RSK_FID\2018_12\19\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 19-Dec-18, 10:38:40 | 12191801.D | std s32-07231801 | | MR | RSKBOTH.M | pass |
| 2 | 19-Dec-18, 10:54:48 | 12191802.D | rb 0.1ml | | MR | RSKBOTH.M | pass |
| 3 | 19-Dec-18, 11:13:15 | 12191803.D | mcs 0.1ml | | MR | RSKBOTH.M | pass |
| 4 | 19-Dec-18, 11:29:51 | 12191804.D | fid lcs s30-05241604 | | MR | RSKBOTH.M | pass |
| 5 | 19-Dec-18, 11:45:28 | 12191805.D | fid lcsd s30-05241604 | | MR | RSKBOTH.M | pass |
| 6 | 19-Dec-18, 12:02:09 | 12191806.D | P1806863-001 0.1ml | | MR | RSKBOTH.M | |
| 7 | 19-Dec-18, 12:51:33 | 12191807.D | P1806863-002 0.1ml | | MR | RSKBOTH.M | |
| 8 | 19-Dec-18, 13:05:45 | 12191808.D | P1806863-003 0.1ml | | MR | RSKBOTH.M | |
| 9 | 19-Dec-18, 13:23:14 | 12191809.D | P1806865-001 0.1 | | MR | RSKBOTH.M | |
| 10 | 19-Dec-18, 13:38:42 | 12191810.D | P1806865-002 0.1 | | MR | RSKBOTH.M | |
| 11 | 19-Dec-18, 13:52:18 | 12191811.D | P1806865-003 0.1 | | MR | RSKBOTH.M | |
| 12 | 19-Dec-18, 14:09:10 | 12191812.D | P1806865-004 0.1 | | MR | RSKBOTH.M | |
| 13 | 19-Dec-18, 14:22:31 | 12191813.D | std s32-07231801 | | MR | RSKBOTH.M | pass |

# How to Retrieve and Use Estimated Percentile Ranks from the Microbial Insights Database

## The MI Database

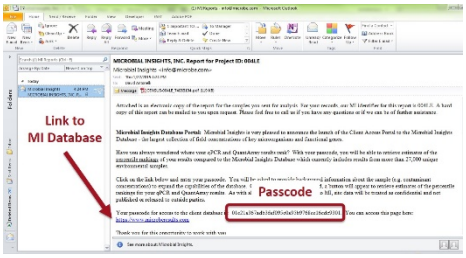
The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 40,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

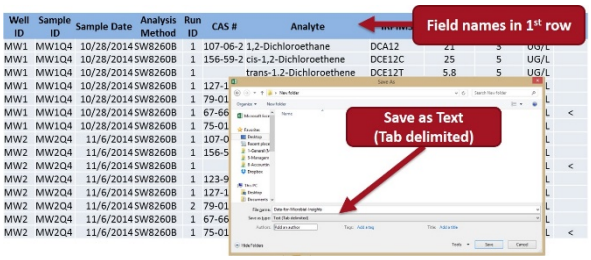
## Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The estimated percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

## Retrieving Estimated Percentile Ranks

With your report, you were emailed a passcode and link enabling you to login to the Client Portal. Just enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations and you can retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge.



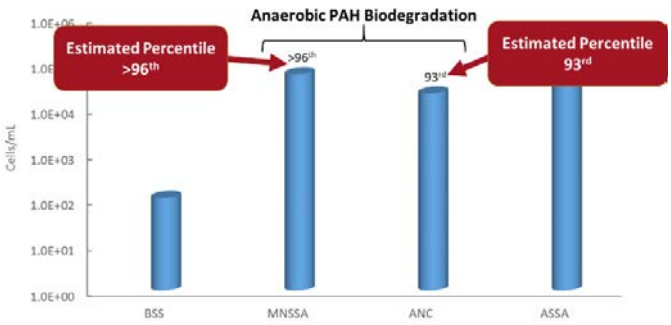

All site specific data will be treated as confidential and uploading is easy.

You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

## Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at concentrations "far better than average" based on the estimated percentile ranks.
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



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**Client:** RJ Modashia
ALS Laboratory Group
10450 Stancliff Rd
Suite 210
Houston, TX 77040

**Phone:** 281-575-2279

**Fax:**

**Identifier:** 052PL **Date Rec:** 12/13/2018 **Report Date:** 12/19/2018

**Client Project #:** NW01312.0150 **Client Project Name:** LHAAP-58

**Purchase Order #:**

**Analysis Requested:** CENSUS

**Reviewed By:**

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

**MICROBIAL INSIGHTS, INC.**

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

**CENSUS**

**Client:** **ALS Laboratory Group**
Project: LHAAP-58

**MI Project Number:** **052PL**
Date Received: 12/13/2018

## Sample Information

| **Client Sample ID:** | | **03WW01_121218** | **35AWW08_121218** | **35AWW10_121218** |
|---|---|---|---|---|
| Sample Date: | | 12/12/2018 | 12/12/2018 | 12/12/2018 |
| Units: | | cells/mL | cells/mL | cells/mL |
| Analyst/Reviewer: | | JS | JS | JS |

## Dechlorinating Bacteria

| | | | | |
|---|---|---|---|---|
| *Dehalococcoides* | *DHC* | **1.01E+04** | **1.20E+06** | **1.58E+01** |
| tceA Reductase | TCE | **6.20E+00** | **3.13E+05** | **1.10E+00** |
| BAV1 Vinyl Chloride Reductase | BVC | <8.00E-01 | <3.10E+00 | <8.00E-01 |
| Vinyl Chloride Reductase | VCR | **2.44E+04** | **3.66E+05** | **1.52E+01** |
| *Dehalobacter spp.* | *DHBt* | **5.99E+02** | **1.73E+05** | **1.36E+01** |

**Legend:**
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

## Quality Assurance/Quality Control Data

**Samples Received** **12/13/2018**

| Component | Date Prepared | Date Analyzed | Arrival Temperature | Positive Control | Extraction Blank | Negative Control |
|---|---|---|---|---|---|---|
| DHC | 12/13/2018 | 12/19/2018 | 0 °C | 108% | non-detect | non-detect |
| BVC | 12/13/2018 | 12/19/2018 | 0 °C | 101% | non-detect | non-detect |
| DHBt | 12/13/2018 | 12/19/2018 | 0 °C | 103% | non-detect | non-detect |
| TCE | 12/13/2018 | 12/19/2018 | 0 °C | 101% | non-detect | non-detect |
| VCR | 12/13/2018 | 12/19/2018 | 0 °C | 98% | non-detect | non-detect |

# How to Use Estimated Percentile Ranks from the Microbial Insights Database

## The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

## Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

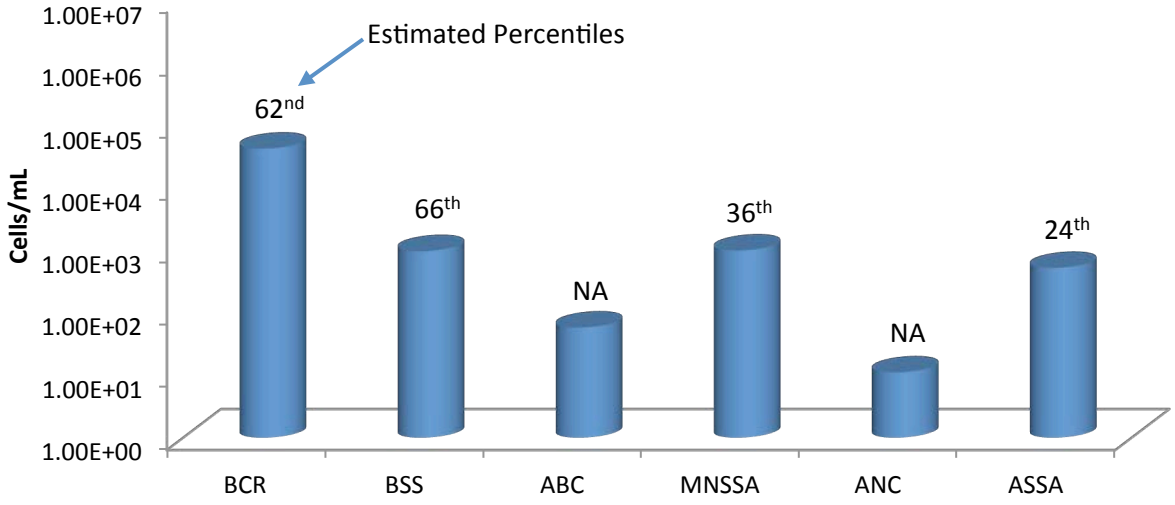
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

## Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

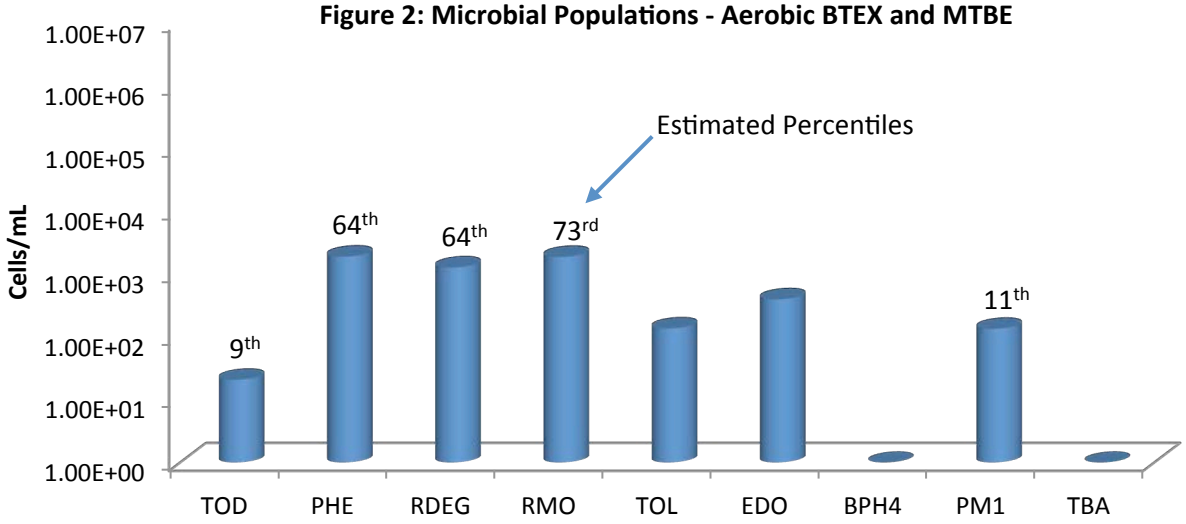
**Figure 1: Microbial Populations - Anaerobic BTEX and PAHs**



Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly $10^3$ cells/mL indicating the presence of a substantial population ($66^{th}$ percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of $36^{th}$.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

**Figure 2: Microbial Populations - Aerobic BTEX and MTBE**



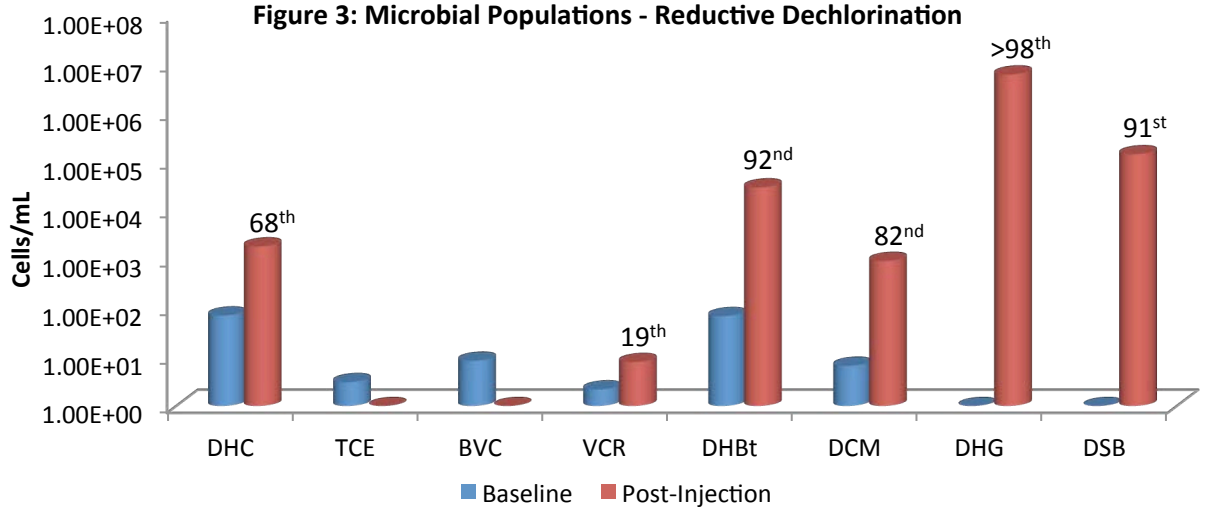

Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64$^{th}$ to 73$^{rd}$ percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

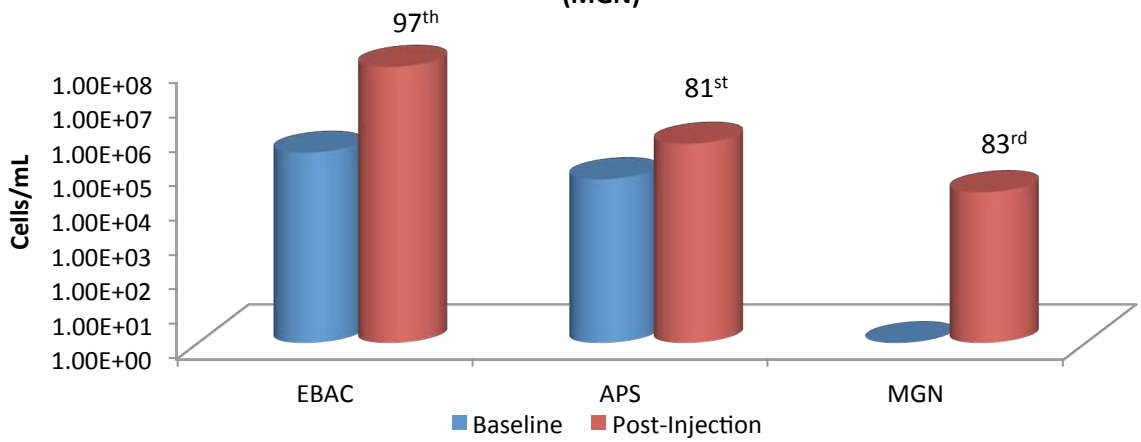
**Figure 3: Microbial Populations - Reductive Dechlorination**




- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the $10^4$ cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than $10^4$ cells/mL ($92^{nd}$ percentile).
    - *Dehalogenimonas* ($10^6$ cells/mL) and *Desulfitobacterium* ($10^5$ cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over $10^3$ cells/mL ($68^{th}$ percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the $10^4$ cells/mL threshold and vinyl chloride reductase gene copies were low ($19^{th}$ percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the $10^4$ cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate ($10^4$ cells/mL; 63$^{rd}$ percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81$^{st}$ percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83$^{rd}$ percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the $10^4$ *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

**Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)**



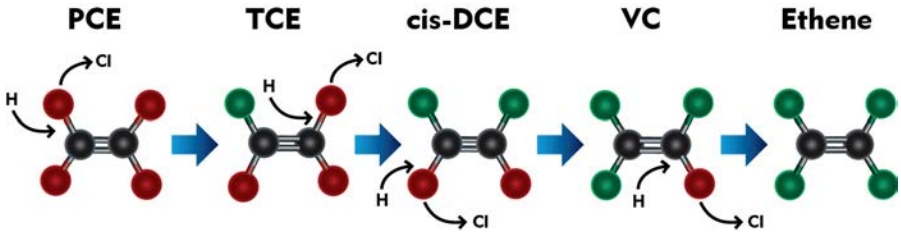

## References

Lu, X., J.T. Wilson, and D.H. Kampbell. 2006. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* 40 no. 16: 3131-3140.

# DHC Interpretation

### *Dehalococcoides* 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).




While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

| Status | *Dehalococcoides spp.* | Observation |
|---|---|---|
| | **≥ $10^4$** (cells/mL) | Lu et al. proposed that a concentration of 1 x $10^4$ DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10).<br><br>Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to $10^4$ DHC cells/mL. |
| | **$10^1$ to < $10^4$** (cells/mL) | When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations.<br><br>When the DHC population is below the $10^4$ cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation. |
| | **< $10^1$** (cells/mL) | DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered. |



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# DHC Interpretation

## DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

| Functional Gene | Observation |
|---|---|
| **TCE Reductase** | |
| ***tce*A gene** | The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*.<br><br>Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*).<br><br>Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE. |
| **Vinyl Chloride Reductase** | |
| ***bvc*A gene** | The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16).<br><br>Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene.<br><br>Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate.<br><br>An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to $10^4$ cells/mL. The *bvc*A gene was detected in over 50% of these samples.<br><br>Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites.<br><br>Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination. |
| ***vcr*A gene** | The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14).<br><br>Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene.<br><br>Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate.<br><br>As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17). |



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# DHC Interpretation

## Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

**Microbial Insights, Inc.**

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**CENSUS**

**Client:** Company Name
Project: Your Project Name

**MI Project Number:** Unique Laboratory Identifier
Date Received: Date Samples Arrived

**Sample Information**

| **Client Sample ID:** | | Sample A | Sample B | Sample C |
|---|---|---|---|---|
| Sample Date: | | 00/00/0000 | 00/00/0000 | 00/00/0000 |
| Units: | | cells/mL | cells/mL | cells/mL |
| Analyst: | | Intials | Intials | Intials |
| Dechlorinating Bacteria | | | | |
| *Dehalococcoides spp.* | DHC | **1.84E+05** | **2.76E+02** | **2.28E+01 (J)** |
| Functional Genes | | | | |
| tceA Reductase | TCE | **6.00E+01** | **3.23E+01** | <4.00E-01 |
| bvcA Reductase | BVC | **1.17E+04** | **1.81E+01** | <4.00E-01 |
| vcrA Reducatase | VCR | **8.42E+04** | **1.74E+02** | <4.00E-01 |

**"J" value**
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

**< value**
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

**"I" value**
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.



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# DHC Interpretation

## Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

| QA/QC | Description |
|---|---|
| **Date of Extraction** | DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis. |
| **Laboratory Method Blanks** | An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report. |
| **Laboratory Control Samples (LCS)** | A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check. |
| **Negative Controls** | A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis. |

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Project No.: NW01312.0150

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Please Check One:
☐ More samples to follow
☒ No Additional Samples

Report Type: ☐ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (30%)

EDD type: ☐ Microbial Insights Standard (default) ☐ All other available EDDs (5% surcharge) Specify EDD Type:

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

| Sample Information | | | | | Analyses | | | | | CENSUS: Please select the target organism/gene | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MI ID (Laboratory Use Only) | Sample Name | Date Sampled | Time Sampled | Matrix | PLFA | DGGE+3ID | DGGE+5ID | QuantArray Chlor | QuantArray Petro | DHC (Dehalococcoides) | DHC Functional genes (bvc, tca, vcr) | DHBI (Dehalobacter) | DSM (Desulfuromonas) | DSB (Desulfitobacterium) | EBAC (Total) | SRB (Sulfate Reducing Bacteria-APS) | MGN (Methanogens) | MOB (Methanotrophs) | SMMO | DNF (Denitrifiers-nirS and nirK) | AOB (ammonia oxidizing bacteria) | PM1 (MTBE aerobic) | RMO (Toluene Monooxygenase) | RDEG (Toluene Monooxygenase) | PHE (Phenol Hydroxylase) | NAH (Napthalene-aerobic) | BSSA (Toluene/Xylene-Anaerobic) | add. qPCR: | add. qPCR: | RNA Expression Option)* | Other: | Other: | Other: |
| 052PL1 | 03WW01-121218 | 12/12/18 | 0820 | WG | | | | | | X | | X | | | | | | | | | | | | | | | | | | | | | |
| 2 | 35AWW08-121218 | 12/12/18 | 0910 | WG | | | | | | X | | X | | | | | | | | | | | | | | | | | | | | | |
| 3 | 35AWW10-121218 | 12/12/18 | 1030 | WG | | | | | | X | | X | | | | | | | | | | | | | | | | | | | | | |

Relinquished by: [signature] 12/12/18 1430
Received by: [signature] Date 12/13/18 1240

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

# HS18120736  8260 Raw Data

ALS WO# HS18120736

# MSVOA09 -Logbook

**Batch:** 34002
**Date:** 12-21-2018
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 12-21-2018 01:25 pm | 1.00 | 50 mL | 50 mL | U122101.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD00.25 | ICAL1 | 12-21-2018 01:49 pm | 1.00 | 50 mL | 50 mL | U122102.D | Liquid | Y | NA |
| | *0.25 uL cal std/250 mL DI* | | | | | | | | | |
| 3 | VSTD00.5 | ICAL2 | 12-21-2018 02:14 pm | 1.00 | 50 mL | 50 mL | U122103.D | Liquid | Y | NA |
| | *0.5 uL cal std/250 mL DI* | | | | | | | | | |
| 4 | VSTD001 | ICAL3 | 12-21-2018 03:03 pm | 1.00 | 50 mL | 50 mL | U122104.D | Liquid | Y | NA |
| | *1 uL cal std/250 mL DI* | | | | | | | | | |
| 5 | VSTD002 | ICAL4 | 12-21-2018 03:28 pm | 1.00 | 50 mL | 50 mL | U122105.D | Liquid | Y | NA |
| | *2 uL cal std/250 mL DI* | | | | | | | | | |
| 6 | VSTD005 | ICAL5 | 12-21-2018 03:52 pm | 1.00 | 50 mL | 50 mL | U122106.D | Liquid | Y | NA |
| | *5 uL cal std/250 mL DI* | | | | | | | | | |
| 7 | VSTD020 | ICAL6 | 12-21-2018 04:17 pm | 1.00 | 50 mL | 50 mL | U122107.D | Liquid | Y | NA |
| | *4 uL cal std/50 mL DI* | | | | | | | | | |
| 8 | VSTD050 | ICAL7 | 12-21-2018 04:41 pm | 1.00 | 50 mL | 50 mL | U122108.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 9 | VSTD100 | ICAL8 | 12-21-2018 05:06 pm | 1.00 | 50 mL | 50 mL | U122109.D | Liquid | Y | NA |
| | *20 uL cal std/50 mL DI* | | | | | | | | | |
| 10 | VSTD150 | ICAL9 | 12-21-2018 05:31 pm | 1.00 | 50 mL | 50 mL | U122110.D | Liquid | Y | NA |
| | *30 uL cal std/50 mL DI* | | | | | | | | | |
| 11 | VSTD200 | ICAL | 12-21-2018 05:55 pm | 1.00 | 50 mL | 50 mL | U122111.D | Liquid | Y | NA |
| | *40 uL cal std/50 mL DI* | | | | | | | | | |
| 12 | BLANK | SAMP | 12-21-2018 06:20 pm | 1.00 | 50 mL | 50 mL | U122112.D | Liquid | Y | NA |
| | *Cleanup blk* | | | | | | | | | |
| 13 | VSTD050 | ICV | 12-21-2018 06:45 pm | 1.00 | 50 mL | 50 mL | U122113.D | Liquid | Y | NA |
| | *10 uL ICV std/50 mL DI* | | | | | | | | | |
| 14 | BLANK | SAMP | 12-21-2018 07:09 pm | 1.00 | 50 mL | 50 mL | U122114.D | Liquid | Y | NA |
| 15 | VLCSW-1812021 | LCS | 12-21-2018 07:34 pm | 1.00 | 50 mL | 50 mL | U122115.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 16 | BLANK | SAMP | 12-21-2018 07:59 pm | 1.00 | 50 mL | 50 mL | U122116.D | Liquid | Y | NA |
| 17 | VBLKW-181221 | MBLK | 12-21-2018 08:24 pm | 1.00 | 50 mL | 50 mL | U122117.D | Liquid | Y | NA |
| 18 | HS18120782-01 | SAMP | 12-21-2018 08:48 pm | 1.00 | 50 mL | 50 mL | U122118.D | Liquid | Y | <2 |
| 19 | HS18121172-01 | SAMP | 12-21-2018 09:13 pm | 1.00 | 50 mL | 50 mL | U122119.D | Liquid | Y | <2 |
| 20 | HS18120947-01 | SAMP | 12-21-2018 09:38 pm | 10.00 | 5 mL | 50 mL | U122120.D | Liquid | Y | <2 |
| 21 | HS18121172-01MS | MS | 12-21-2018 10:03 pm | 1.00 | 50 mL | 50 mL | U122121.D | Liquid | Y | <2 |
| | *3.5 uL cal std/40 mL Sample* | | | | | | | | | |
| 22 | HS18121172-01MSD | MSD | 12-21-2018 10:27 pm | 1.00 | 50 mL | 50 mL | U122122.D | Liquid | Y | <2 |
| | *3.5 uL cal std/40 mL Sample* | | | | | | | | | |
| 23 | HS18121172-02 | SAMP | 12-21-2018 10:52 pm | 1.00 | 50 mL | 50 mL | U122123.D | Liquid | Y | <2 |
| 24 | HS18121172-03 | SAMP | 12-21-2018 11:17 pm | 1.00 | 50 mL | 50 mL | U122124.D | Liquid | Y | <2 |
| 25 | HS18121172-04 | SAMP | 12-21-2018 11:42 pm | 1.00 | 50 mL | 50 mL | U122125.D | Liquid | Y | <2 |
| 26 | HS18121172-05 | SAMP | 12-22-2018 12:06 am | 1.00 | 50 mL | 50 mL | U122126.D | Liquid | Y | <2 |
| 27 | HS18121172-06 | SAMP | 12-22-2018 12:31 am | 1.00 | 50 mL | 50 mL | U122127.D | Liquid | Y | <2 |

# MSVOA09 -Logbook

| Chemical | Value |
|---|---|
| SURR SPK ID | 30502-52-03 |
| IS ID | 30502-52-04 |
| ICV STD ID | 30603-46-01 |
| LCS/MS ID | 30603-46-01 |
| CAL STD ID | 30502-56-01/02 |
| BFB ID | 30502-52-03 |

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 50.00 | 48.91 | 98 | 80-120 |
| trans-1,3-Dichloroprope | 50.00 | 48.93 | 98 | 80-120 |
| 1,3-Dichlorobenzene | 50.00 | 48.27 | 96 | 80-120 |
| 2,2-Dichloropropane | 50.00 | 53.09 | 106 | 80-120 |
| 1,1-Dichloropropene | 50.00 | 47.46 | 95 | 80-120 |
| Dibromomethane | 50.00 | 50.89 | 102 | 80-120 |
| 1,2-Dibromoethane | 50.00 | 51.16 | 102 | 80-120 |
| trans-1,2-Dichloroethen | 50.00 | 48.02 | 96 | 80-120 |
| 1,1,1,2-Tetrachloroetha | 50.00 | 48.43 | 97 | 80-120 |
| 1,1,1-Trichloroethane | 50.00 | 49.36 | 99 | 80-120 |
| 1,1,2,2-Tetrachloroetha | 50.00 | 49.55 | 99 | 80-120 |
| Freon TF | 50.00 | 45.07 | 90 | 80-120 |
| 1,1,2-Trichloroethane | 50.00 | 49.30 | 99 | 80-120 |
| 1,1-Dichloroethane | 50.00 | 47.96 | 96 | 80-120 |
| 1,1-Dichloroethene | 50.00 | 45.82 | 92 | 80-120 |
| Trichlorofluoromethane | 50.00 | 45.85 | 92 | 80-120 |
| 1,2,3-Trichlorobenzene | 50.00 | 47.80 | 96 | 80-120 |
| Toluene | 50.00 | 49.27 | 98 | 80-120 |
| 1,2,4-Trichlorobenzene | 50.00 | 50.37 | 101 | 80-120 |
| 1,2,4-Trimethylbenzene | 50.00 | 50.13 | 100 | 80-120 |
| Tetrachloroethene | 50.00 | 45.93 | 92 | 80-120 |
| Trichloroethene | 50.00 | 48.84 | 98 | 80-120 |
| 1,2-Dichlorobenzene | 50.00 | 48.36 | 97 | 80-120 |
| 1,2-Dichloroethane | 50.00 | 50.35 | 101 | 80-120 |
| 1,2-Dichloropropane | 50.00 | 49.19 | 98 | 80-120 |
| 1,3,5-Trimethylbenzene | 50.00 | 50.06 | 100 | 80-120 |
| 1,3-Dichloropropane | 50.00 | 49.40 | 99 | 80-120 |
| 1,4-Dichlorobenzene | 50.00 | 47.08 | 94 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 2-Butanone | 100.00 | 104.35 | 104 | 80-120 |
| 2-Chlorotoluene | 50.00 | 49.32 | 99 | 80-120 |
| 2-Hexanone | 100.00 | 109.16 | 109 | 80-120 |
| 4-Chlorotoluene | 50.00 | 49.71 | 99 | 80-120 |
| tert-Butylbenzene | 50.00 | 47.93 | 96 | 80-120 |
| 4-Methyl-2-Pentanone | 100.00 | 106.57 | 106 | 80-120 |
| Acetone | 100.00 | 114.45 | 114 | 80-120 |
| Benzene | 50.00 | 48.82 | 98 | 80-120 |
| Bromobenzene | 50.00 | 49.77 | 100 | 80-120 |
| Bromochloromethane | 50.00 | 56.76 | 114 | 80-120 |
| Bromodichloromethane | 50.00 | 52.06 | 104 | 80-120 |
| Bromoform | 50.00 | 47.92 | 96 | 80-120 |
| Bromomethane | 50.00 | 54.05 | 108 | 80-120 |
| Carbon Disulfide | 100.00 | 96.00 | 96 | 80-120 |
| Carbon Tetrachloride | 50.00 | 44.88 | 90 | 80-120 |
| Chlorobenzene | 50.00 | 48.25 | 96 | 80-120 |
| Chloroethane | 50.00 | 46.15 | 92 | 80-120 |
| Chloroform | 50.00 | 48.45 | 97 | 80-120 |
| Chloromethane | 50.00 | 48.96 | 98 | 80-120 |
| cis-1,2-Dichloroethene | 50.00 | 48.93 | 98 | 80-120 |
| Dibromochloromethane | 50.00 | 48.57 | 97 | 80-120 |
| Dichlorodifluoromethane | 50.00 | 46.21 | 92 | 80-120 |
| Ethylbenzene | 50.00 | 49.30 | 99 | 80-120 |
| Hexachlorobutadiene | 50.00 | 46.17 | 92 | 80-120 |
| Isopropylbenzene | 50.00 | 49.07 | 98 | 80-120 |
| m,p-Xylenes | 100.00 | 99.88 | 100 | 80-120 |
| Methylene Chloride | 50.00 | 49.75 | 100 | 80-120 |
| n-Butylbenzene | 50.00 | 46.94 | 94 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| n-Propylbenzene | 50.00 | 49.11 | 98 | 80-120 |
| Naphthalene | 50.00 | 49.46 | 99 | 80-120 |
| o-Xylene | 50.00 | 49.89 | 100 | 80-120 |
| sec-Butylbenzene | 50.00 | 47.69 | 95 | 80-120 |
| Styrene | 50.00 | 52.73 | 105 | 80-120 |
| Vinyl Chloride | 50.00 | 46.02 | 92 | 80-120 |
| 1,2,3-Trichloropropane | 50.00 | 53.26 | 106 | 80-120 |
| p-Isopropyltoluene | 50.00 | 49.19 | 98 | 80-120 |
| 1,2-Dibromo-3-Chloropro | 50.00 | 49.92 | 100 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Lab File ID: U122101  BFB Injection Date: 12/21/18

Instrument ID: VOA9  BFB Injection Time: 1325

GC Column: DB624  ID: 0.25 (mm)  Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 19.6 |
| 75 | 30.0 - 60.0% of mass 95 | 50.4 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.0 |
| 173 | Less than 2.0% of mass 174 | 0.5 ( 0.8)1 |
| 174 | Greater than 50.0% of mass 95 | 66.8 |
| 175 | 5.0 - 9.0% of mass 174 | 5.1 ( 7.7)1 |
| 176 | 95.0 - 101.0% of mass 174 | 63.8 ( 95.6)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 ( 7.0)2 |

1-Value is % mass 174  2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD00.25 | VSTD00.25 | U122102 | 12/21/18 | 1349 |
| 02 | VSTD00.5 | VSTD00.5 | U122103 | 12/21/18 | 1414 |
| 03 | VSTD001 | VSTD001 | U122104 | 12/21/18 | 1503 |
| 04 | VSTD002 | VSTD002 | U122105 | 12/21/18 | 1528 |
| 05 | VSTD005 | VSTD005 | U122106 | 12/21/18 | 1552 |
| 06 | VSTD020 | VSTD020 | U122107 | 12/21/18 | 1617 |
| 07 | VSTD050 | VSTD050 | U122108 | 12/21/18 | 1641 |
| 08 | VSTD100 | VSTD100 | U122109 | 12/21/18 | 1706 |
| 09 | VSTD150 | VSTD150 | U122110 | 12/21/18 | 1731 |
| 10 | VSTD200 | VSTD200 | U122111 | 12/21/18 | 1755 |
| 11 | VSTD050 | VSTD050 | U122113 | 12/21/18 | 1845 |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | | 2152 | 7273 | 13732 | 38403 | 162454 |
| trans-1,3-Dichloropropene | | 1633 | 5668 | 10646 | 30725 | 135347 |
| 1,3-Dichlorobenzene | | 1.191 | 1.700 | 1.605 | 1.568 | 1.456 |
| 2,2-Dichloropropane | | 0.485 | 0.763 | 0.625 | 0.645 | 0.634 |
| 1,1-Dichloropropene | | 0.322 | 0.521 | 0.477 | 0.458 | 0.439 |
| Dibromomethane | | 0.143 | 0.229 | 0.212 | 0.217 | 0.208 |
| 1,2-Dibromoethane | | 0.251 | 0.393 | 0.345 | 0.364 | 0.358 |
| trans-1,2-Dichloroethene | | 0.432 | 0.724 | 0.620 | 0.614 | 0.598 |
| 1,1,1,2-Tetrachloroethane | | 1272 | 4208 | 8522 | 21878 | 89389 |
| 1,1,1-Trichloroethane | | 0.521 | 0.866 | 0.775 | 0.824 | 0.806 |
| 1,1,2,2-Tetrachloroethane | | 0.818 | 1.359 | 1.245 | 1.216 | 1.139 |
| Freon TF | | 0.306 | 0.503 | 0.450 | 0.439 | 0.408 |
| 1,1,2-Trichloroethane | | 0.224 | 0.351 | 0.317 | 0.320 | 0.302 |
| 1,1-Dichloroethane | | 0.726 | 1.305 | 1.174 | 1.154 | 1.100 |
| 1,1-Dichloroethene | | 0.403 | 0.563 | 0.526 | 0.486 | 0.447 |
| Trichlorofluoromethane | | 1919 | 7922 | 14026 | 37144 | 130957 |
| 1,2,3-Trichlorobenzene | | 1324 | 6631 | 12385 | 31113 | 126752 |
| Toluene | | 1.131 | 1.662 | 1.581 | 1.624 | 1.525 |
| 1,2,4-Trichlorobenzene | | 0.721 | 1.015 | 0.905 | 0.905 | 0.901 |
| 1,2,4-Trimethylbenzene | | 1.826 | 2.823 | 2.656 | 2.819 | 2.701 |
| Tetrachloroethene | | 0.219 | 0.326 | 0.277 | 0.272 | 0.254 |
| Trichloroethene | | 0.245 | 0.382 | 0.322 | 0.344 | 0.317 |
| 1,2-Dichlorobenzene | | 1.166 | 1.777 | 1.606 | 1.586 | 1.444 |
| 1,2-Dichloroethane | | 2385 | 8970 | 15708 | 41415 | 149131 |
| 1,2-Dichloropropane | | 0.265 | 0.415 | 0.367 | 0.371 | 0.353 |
| 1,3,5-Trimethylbenzene | | 1.672 | 2.689 | 2.445 | 2.682 | 2.616 |
| 1,3-Dichloropropane | | 0.478 | 0.748 | 0.679 | 0.708 | 0.655 |
| 1,4-Dichlorobenzene | | 1.357 | 1.906 | 1.683 | 1.662 | 1.508 |
| 2-Butanone | | 2109 | 6369 | 11299 | 29605 | 119433 |
| 2-Chlorotoluene | | 1.700 | 2.636 | 2.392 | 2.490 | 2.333 |
| 2-Hexanone | | 0.182 | 0.278 | 0.270 | 0.285 | 0.300 |
| 4-Chlorotoluene | | 1.938 | 2.990 | 2.793 | 2.876 | 2.698 |
| tert-Butylbenzene | | 1.429 | 2.338 | 2.197 | 2.340 | 2.218 |
| 4-Methyl-2-Pentanone | | 0.264 | 0.428 | 0.396 | 0.407 | 0.423 |
| Acetone | | 3366 | 5582 | 8219 | 19230 | 73380 |
| Benzene | | 0.975 | 1.562 | 1.399 | 1.435 | 1.337 |
| Bromobenzene | | 0.564 | 0.890 | 0.814 | 0.813 | 0.765 |
| Bromochloromethane | | 773 | 2865 | 5148 | 13786 | 51515 |
| Bromodichloromethane | | 0.250 | 0.393 | 0.362 | 0.383 | 0.380 |
| Bromoform | | 762 | 2343 | 4574 | 12962 | 53922 |
| Bromomethane | | 822 | 2293 | 4588 | 12245 | 47148 |
| Carbon Disulfide | | 1.468 | 2.043 | 1.806 | 1.808 | 1.714 |
| Carbon Tetrachloride | | 1510 | 5463 | 10077 | 26439 | 104210 |
| Chlorobenzene | | 0.762 | 1.142 | 1.012 | 1.020 | 0.962 |

# FORM 6
# VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF0.25: U122102  RF0.5: U122103  RF1: U122104
RF2: U122105  RF5: U122106  RF20: U122107

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| Chloroethane | | 2753 | 3213 | 8179 | 22172 | 73150 |
| Chloroform | | 0.705 | 1.253 | 1.110 | 1.148 | 1.060 |
| Chloromethane | | 1695 | 4689 | 8693 | 20682 | 79075 |
| cis-1,2-Dichloroethene | | 0.459 | 0.806 | 0.684 | 0.699 | 0.678 |
| Dibromochloromethane | | 1194 | 4051 | 7740 | 20846 | 89836 |
| Dichlorodifluoromethane | | 2033 | 6583 | 11371 | 26580 | 98486 |
| Ethylbenzene | | 0.353 | 0.556 | 0.512 | 0.523 | 0.497 |
| Hexachlorobutadiene | | 0.453 | 0.398 | 0.322 | 0.324 | 0.310 |
| Isopropylbenzene | | 0.918 | 1.542 | 1.455 | 1.530 | 1.485 |
| m,p-Xylenes | | 0.432 | 0.668 | 0.621 | 0.648 | 0.629 |
| Methylene Chloride | | 3346 | 8113 | 13726 | 31487 | 109403 |
| n-Butylbenzene | | 1.993 | 2.818 | 2.596 | 2.666 | 2.520 |
| n-Propylbenzene | | 2.596 | 4.144 | 3.755 | 4.032 | 3.835 |
| Naphthalene | | 5535 | 16505 | 32897 | 91300 | 413229 |
| o-Xylene | | 0.413 | 0.703 | 0.613 | 0.642 | 0.637 |
| sec-Butylbenzene | | 2.047 | 3.385 | 3.201 | 3.334 | 3.199 |
| Styrene | | 0.640 | 1.035 | 0.996 | 1.084 | 1.092 |
| Vinyl Chloride | | 1815 | 6308 | 12656 | 29272 | 111713 |
| 1,2,3-Trichloropropane | | 0.777 | 1.295 | 1.203 | 1.184 | 1.156 |
| p-Isopropyltoluene | | 1.912 | 2.733 | 2.516 | 2.786 | 2.704 |
| 1,2-Dibromo-3-Chloropropane | | 272 | 861 | 1910 | 4931 | 22196 |
| 1,2-Dichloroethane-d4 | | 8601 | 10907 | 17881 | 38943 | 131494 |
| Dibromofluoromethane | | 6036 | 8005 | 12720 | 28568 | 98984 |
| Toluene-d8 | | 27052 | 32175 | 54444 | 117010 | 408521 |
| 4-Bromofluorobenzene | | 9627 | 12547 | 20092 | 42900 | 153183 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF50: U122108  RF100: U122109  RF150: U122110
RF200: U122111

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 449225 | 944095 | 1468956 | 1986544 |
| trans-1,3-Dichloropropene | 381258 | 811224 | 1271771 | 1721394 |
| 1,3-Dichlorobenzene | 1.440 | 1.476 | 1.485 | 1.441 |
| 2,2-Dichloropropane | 0.635 | 0.683 | 0.695 | 0.673 |
| 1,1-Dichloropropene | 0.427 | 0.455 | 0.457 | 0.448 |
| Dibromomethane | 0.207 | 0.207 | 0.205 | 0.205 |
| 1,2-Dibromoethane | 0.349 | 0.345 | 0.342 | 0.340 |
| trans-1,2-Dichloroethene | 0.564 | 0.579 | 0.576 | 0.559 |
| 1,1,1,2-Tetrachloroethane | 235446 | 493177 | 766622 | 1032567 |
| 1,1,1-Trichloroethane | 0.788 | 0.846 | 0.852 | 0.826 |
| 1,1,2,2-Tetrachloroethane | 1.127 | 1.090 | 1.080 | 1.060 |
| Freon TF | 0.397 | 0.445 | 0.445 | 0.434 |
| 1,1,2-Trichloroethane | 0.296 | 0.295 | 0.290 | 0.286 |
| 1,1-Dichloroethane | 1.058 | 1.079 | 1.066 | 1.028 |
| 1,1-Dichloroethene | 0.441 | 0.480 | 0.472 | 0.461 |
| Trichlorofluoromethane | 330010 | 753769 | 1146930 | 1561606 |
| 1,2,3-Trichlorobenzene | 334600 | 694931 | 1085027 | 1453309 |
| Toluene | 1.488 | 1.490 | 1.464 | 1.421 |
| 1,2,4-Trichlorobenzene | 0.926 | 0.982 | 1.001 | 0.974 |
| 1,2,4-Trimethylbenzene | 2.661 | 2.738 | 2.712 | 2.610 |
| Tetrachloroethene | 0.243 | 0.257 | 0.257 | 0.251 |
| Trichloroethene | 0.311 | 0.321 | 0.328 | 0.321 |
| 1,2-Dichlorobenzene | 1.442 | 1.463 | 1.459 | 1.417 |
| 1,2-Dichloroethane | 376591 | 747337 | 1129116 | 1504782 |
| 1,2-Dichloropropane | 0.350 | 0.357 | 0.353 | 0.348 |
| 1,3,5-Trimethylbenzene | 2.579 | 2.685 | 2.665 | 2.582 |
| 1,3-Dichloropropane | 0.642 | 0.630 | 0.620 | 0.613 |
| 1,4-Dichlorobenzene | 1.482 | 1.511 | 1.509 | 1.472 |
| 2-Butanone | 304044 | 587152 | 880878 | 1199902 |
| 2-Chlorotoluene | 2.295 | 2.323 | 2.315 | 2.248 |
| 2-Hexanone | 0.302 | 0.295 | 0.297 | 0.293 |
| 4-Chlorotoluene | 2.665 | 2.704 | 2.694 | 2.601 |
| tert-Butylbenzene | 2.197 | 2.301 | 2.300 | 2.225 |
| 4-Methyl-2-Pentanone | 0.427 | 0.421 | 0.419 | 0.415 |
| Acetone | 187964 | 331678 | 520533 | 723113 |
| Benzene | 1.319 | 1.335 | 1.317 | 1.294 |
| Bromobenzene | 0.765 | 0.778 | 0.792 | 0.773 |
| Bromochloromethane | 129496 | 244429 | 348533 | 453685 |
| Bromodichloromethane | 0.388 | 0.406 | 0.411 | 0.408 |
| Bromoform | 154855 | 331336 | 522892 | 718878 |
| Bromomethane | 117780 | 281859 | 444174 | 585856 |
| Carbon Disulfide | 1.656 | 1.742 | 1.730 | 1.622 |
| Carbon Tetrachloride | 274507 | 601960 | 939611 | 1268610 |
| Chlorobenzene | 0.940 | 0.949 | 0.943 | 0.916 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF50: U122108  RF100: U122109  RF150: U122110
RF200: U122111

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| Chloroethane | 179707 | 384958 | 684109 | 859472 |
| Chloroform | 1.027 | 1.035 | 1.016 | 0.978 |
| Chloromethane | 197328 | 441603 | 746873 | 1095269 |
| cis-1,2-Dichloroethene | 0.650 | 0.655 | 0.653 | 0.630 |
| Dibromochloromethane | 242061 | 512845 | 791728 | 1081017 |
| Dichlorodifluoromethane | 248322 | 553841 | 873891 | 1151588 |
| Ethylbenzene | 0.490 | 0.504 | 0.504 | 0.495 |
| Hexachlorobutadiene | 0.324 | 0.352 | 0.356 | |
| Isopropylbenzene | 1.450 | 1.506 | 1.482 | 1.428 |
| m,p-Xylenes | 0.612 | 0.626 | 0.616 | 0.600 |
| Methylene Chloride | 274258 | 554902 | 841220 | 1131189 |
| n-Butylbenzene | 2.535 | 2.661 | 2.637 | |
| n-Propylbenzene | 3.794 | 3.919 | 3.867 | 3.682 |
| Naphthalene | 1107938 | 2231968 | 3430934 | 4589381 |
| o-Xylene | 0.622 | 0.631 | 0.627 | 0.612 |
| sec-Butylbenzene | 3.182 | 3.378 | 3.341 | 3.190 |
| Styrene | 1.084 | 1.087 | 1.074 | 1.044 |
| Vinyl Chloride | 283791 | 629175 | 1000865 | 1348117 |
| 1,2,3-Trichloropropane | 1.210 | 1.222 | 1.246 | 1.245 |
| p-Isopropyltoluene | 2.733 | 2.856 | 2.837 | 2.735 |
| 1,2-Dibromo-3-Chloropropane | 61793 | 125814 | 200384 | 274280 |
| 1,2-Dichloroethane-d4 | 320796 | 635081 | 949266 | 1274051 |
| Dibromofluoromethane | 245007 | 495628 | 745399 | 1006329 |
| Toluene-d8 | 1010127 | 2029223 | 3016887 | 4010125 |
| 4-Bromofluorobenzene | 382581 | 764798 | 1153874 | 1540801 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | LINR | 2.529e-002 | 1.70725996 | | 0.9997580 | 0.9900000 |
| trans-1,3-Dichloropropene | LINR | 3.3e-002 | 1.96902158 | | 0.9995927 | 0.9900000 |
| 1,3-Dichlorobenzene | AVRG | | 1.48472992 | | 9.494 | 20.000 |
| 2,2-Dichloropropane | AVRG | | 0.64891526 | | 11.509 | 20.000 |
| 1,1-Dichloropropene | AVRG | | 0.44488137 | | 11.968 | 20.000 |
| Dibromomethane | AVRG | | 0.20390294 | | 11.744 | 20.000 |
| 1,2-Dibromoethane | AVRG | | 0.34310644 | | 11.102 | 20.000 |
| trans-1,2-Dichloroethene | AVRG | | 0.58526565 | | 12.993 | 20.000 |
| 1,1,1,2-Tetrachloroethane | LINR | 1.17e-002 | 3.11489679 | | 0.9998991 | 0.9900000 |
| 1,1,1-Trichloroethane | AVRG | | 0.78949465 | | 13.294 | 20.000 |
| 1,1,2,2-Tetrachloroethane | AVRG | | 1.12601556 | | 13.302 | 20.000 |
| Freon TF | AVRG | | 0.42507305 | | 12.611 | 20.000 |
| 1,1,2-Trichloroethane | AVRG | | 0.29788801 | | 11.475 | 20.000 |
| 1,1-Dichloroethane | AVRG | | 1.07678494 | | 14.456 | 20.000 |
| 1,1-Dichloroethene | AVRG | | 0.47540572 | | 9.911 | 20.000 |
| Trichlorofluoromethane | LINR | 1.25e-002 | 1.19826122 | | 0.9992799 | 0.9900000 |
| 1,2,3-Trichlorobenzene | LINR | 1.266e-002 | 1.04791842 | | 0.9997493 | 0.9900000 |
| Toluene | AVRG | | 1.48733738 | | 10.393 | 20.000 |
| 1,2,4-Trichlorobenzene | AVRG | | 0.92571167 | | 9.562 | 20.000 |
| 1,2,4-Trimethylbenzene | AVRG | | 2.61651384 | | 11.645 | 20.000 |
| Tetrachloroethene | AVRG | | 0.26176272 | | 11.269 | 20.000 |
| Trichloroethene | AVRG | | 0.32119921 | | 11.118 | 20.000 |
| 1,2-Dichlorobenzene | AVRG | | 1.48461871 | | 11.211 | 20.000 |
| 1,2-Dichloroethane | LINR | -1.47e-002 | 2.25247271 | | 0.9997943 | 0.9900000 |
| 1,2-Dichloropropane | AVRG | | 0.35329723 | | 11.023 | 20.000 |
| 1,3,5-Trimethylbenzene | AVRG | | 2.51283681 | | 12.919 | 20.000 |
| 1,3-Dichloropropane | AVRG | | 0.64163858 | | 11.739 | 20.000 |
| 1,4-Dichlorobenzene | AVRG | | 1.56545234 | | 10.298 | 20.000 |
| 2-Butanone | LINR | -4.87e-002 | 3.13274512 | | 0.9994657 | 0.9900000 |
| 2-Chlorotoluene | AVRG | | 2.30373097 | | 11.091 | 20.000 |
| 2-Hexanone | AVRG | | 0.27803053 | | 13.505 | 20.000 |
| 4-Chlorotoluene | AVRG | | 2.66220268 | | 11.134 | 20.000 |
| tert-Butylbenzene | AVRG | | 2.17187412 | | 13.092 | 20.000 |
| 4-Methyl-2-Pentanone | AVRG | | 0.40004668 | | 13.000 | 20.000 |
| Acetone | LINR | -6.05e-002 | 5.27806885 | | 0.9991782 | 0.9900000 |
| Benzene | AVRG | | 1.33049482 | | 11.804 | 20.000 |
| Bromobenzene | AVRG | | 0.77253354 | | 11.330 | 20.000 |
| Bromochloromethane | LINR | -6.22e-002 | 4.05290698 | | 0.9951390 | 0.9900000 |
| Bromodichloromethane | AVRG | | 0.37570006 | | 13.249 | 20.000 |
| Bromoform | LINR | 3.523e-002 | 4.49538839 | | 0.9994690 | 0.9900000 |
| Bromomethane | LINR | 2.677e-002 | 3.15194291 | | 0.9981331 | 0.9900000 |
| Carbon Disulfide | AVRG | | 1.73224763 | | 9.031 | 20.000 |
| Carbon Tetrachloride | LINR | 2.798e-002 | 2.67309140 | | 0.9994430 | 0.9900000 |
| Chlorobenzene | AVRG | | 0.96069061 | | 10.497 | 20.000 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| Chloroethane | 2ORDR | 9.363e-003 | 2.27118996 | -8.34e-002 | 0.9953360 | 0.9900000 |
| Chloroform | AVRG | | 1.03699562 | | 14.439 | 20.000 |
| Chloromethane | LINR | 6.638e-002 | 1.75757606 | | 0.9946541 | 0.9900000 |
| cis-1,2-Dichloroethene | AVRG | | 0.65721728 | | 13.730 | 20.000 |
| Dibromochloromethane | LINR | 1.95e-002 | 2.98429229 | | 0.9998675 | 0.9900000 |
| Dichlorodifluoromethane | LINR | 9.706e-003 | 1.60963706 | | 0.9988360 | 0.9900000 |
| Ethylbenzene | AVRG | | 0.49273054 | | 11.389 | 20.000 |
| Hexachlorobutadiene | AVRG | | 0.35465839 | | 13.679 | 20.000 |
| Isopropylbenzene | AVRG | | 1.42182513 | | 13.532 | 20.000 |
| m,p-Xylenes | AVRG | | 0.60575037 | | 11.285 | 20.000 |
| Methylene Chloride | LINR | -2.41e-002 | 1.65721813 | | 0.9996145 | 0.9900000 |
| n-Butylbenzene | AVRG | | 2.55335964 | | 9.575 | 20.000 |
| n-Propylbenzene | AVRG | | 3.73602785 | | 12.044 | 20.000 |
| Naphthalene | 2ORDR | 1.313e-002 | 0.32140252 | 9.017e-004 | 0.9999007 | 0.9900000 |
| o-Xylene | AVRG | | 0.61109521 | | 12.917 | 20.000 |
| sec-Butylbenzene | AVRG | | 3.13985879 | | 13.327 | 20.000 |
| Styrene | AVRG | | 1.01526757 | | 14.203 | 20.000 |
| Vinyl Chloride | LINR | 1.938e-002 | 1.38661185 | | 0.9992348 | 0.9900000 |
| 1,2,3-Trichloropropane | AVRG | | 1.17088717 | | 13.058 | 20.000 |
| p-Isopropyltoluene | AVRG | | 2.64580193 | | 11.042 | 20.000 |
| 1,2-Dibromo-3-Chloropropane | LINR | 2.904e-002 | 5.59224209 | | 0.9995363 | 0.9900000 |
| 1,2-Dichloroethane-d4 | LINR | -4.34e-002 | 1.47435424 | | 0.9993295 | 0.9900000 |
| Dibromofluoromethane | LINR | -3.06e-002 | 1.86777807 | | 0.9996249 | 0.9900000 |
| Toluene-d8 | LINR | -3.57e-002 | 0.80216996 | | 0.9994439 | 0.9900000 |
| 4-Bromofluorobenzene | LINR | -2.86e-002 | 2.09274699 | | 0.9997553 | 0.9900000 |

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

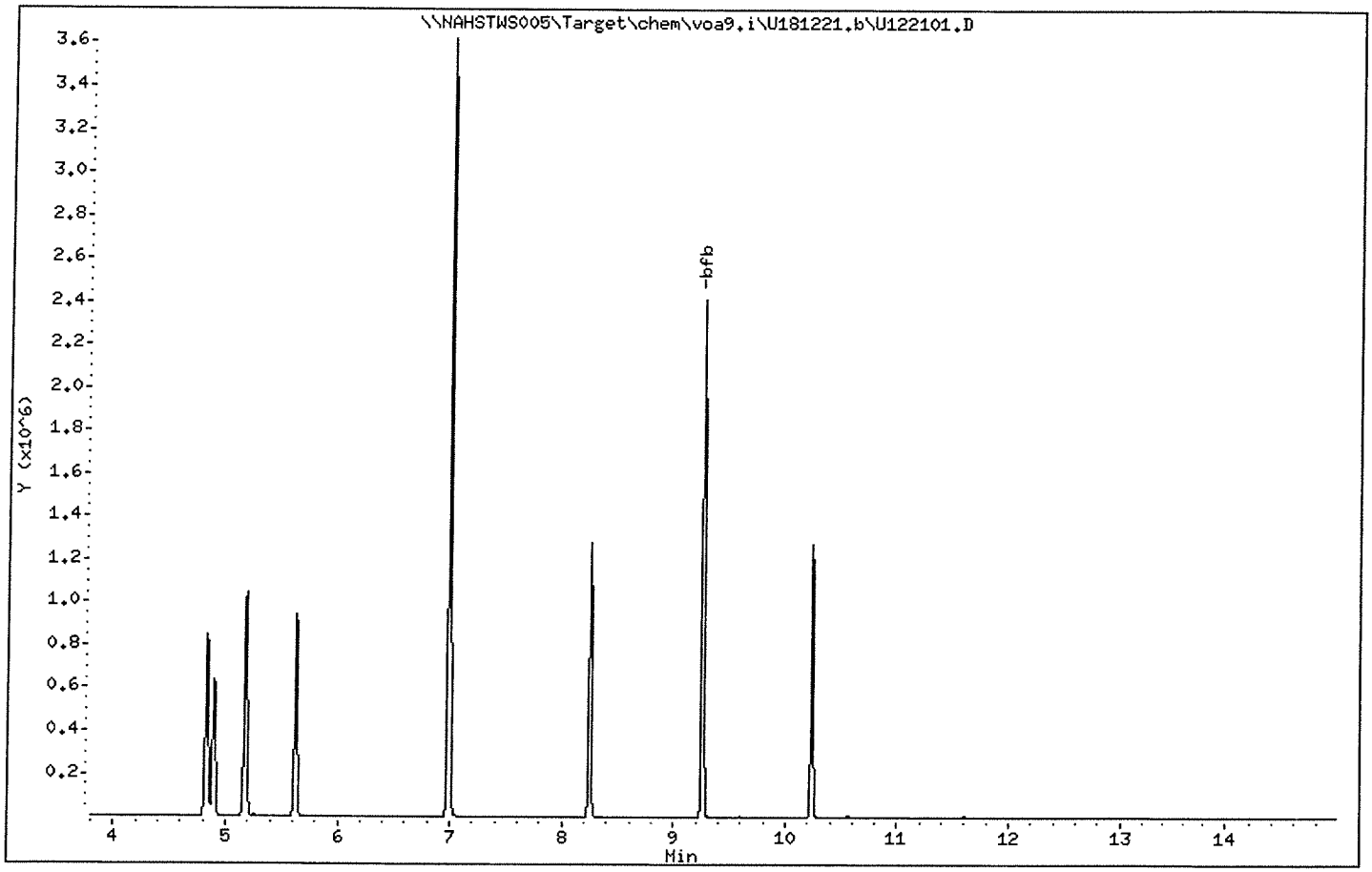
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

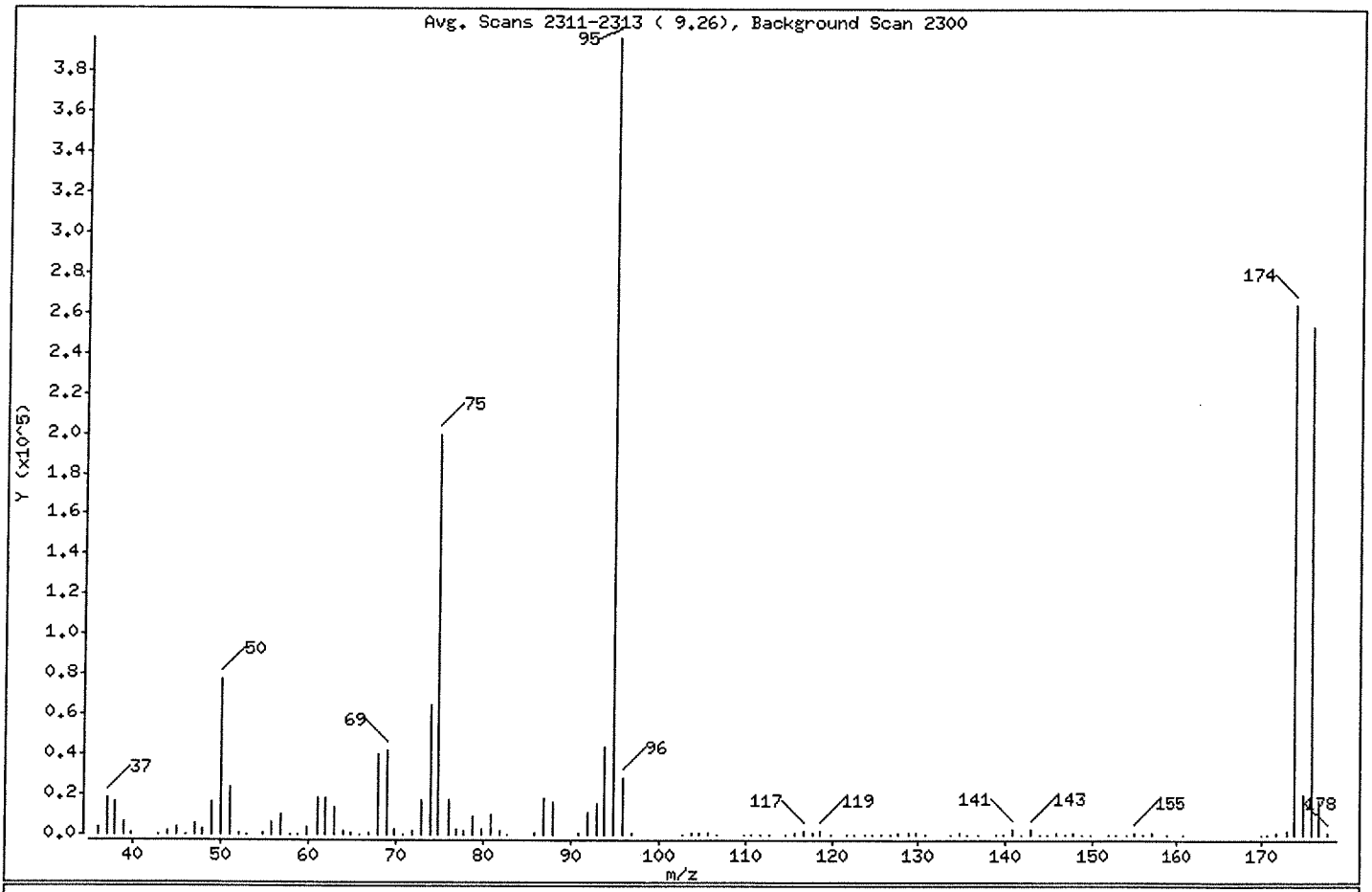
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 19.64 |
| 75 | 30.00 - 60.00% of mass 95 | 50.36 |
| 96 | 5.00 - 9.00% of mass 95 | 7.02 |
| 173 | Less than 2.00% of mass 174 | 0.53 ( 0.79) |
| 174 | Greater than 50.00% of mass 95 | 66.76 |
| 175 | 5.00 - 9.00% of mass 174 | 5.12 ( 7.67) |
| 176 | 95.00 - 101.00% of mass 174 | 63.79 ( 95.55) |
| 177 | 5.00 - 9.00% of mass 176 | 4.47 ( 7.01) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122101.D

Spectrum: Avg. Scans 2311-2313 ( 9.26), Background Scan 2300

Location of Maximum: 94.95

Number of points: 113

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 3522 | 67.90 | 40024 | 105.80 | 1268 | 141.70 | 302 |
| 37.00 | 18528 | 68.90 | 41568 | 106.80 | 285 | 142.80 | 2909 |
| 38.00 | 16159 | 69.90 | 3074 | 109.80 | 127 | 143.80 | 180 |
| 39.00 | 6598 | 70.90 | 134 | 110.70 | 307 | 144.70 | 380 |
| 39.90 | 601 | 71.90 | 2102 | 111.70 | 156 | 145.70 | 457 |
| 42.90 | 115 | 73.00 | 17344 | 112.80 | 260 | 146.70 | 229 |
| 43.90 | 2066 | 73.90 | 64968 | 114.70 | 321 | 147.70 | 676 |
| 45.00 | 3408 | 74.90 | 199680 | 115.70 | 1039 | 148.60 | 185 |
| 46.10 | 284 | 76.00 | 17352 | 116.80 | 1890 | 149.70 | 381 |
| 47.00 | 5059 | 76.90 | 2402 | 117.70 | 1164 | 151.70 | 195 |
| 47.90 | 2352 | 77.80 | 1696 | 118.70 | 1600 | 152.70 | 221 |
| 49.00 | 16317 | 78.90 | 8933 | 119.80 | 55 | 153.80 | 245 |
| 50.00 | 77856 | 79.90 | 2552 | 121.70 | 99 | 154.70 | 869 |
| 51.00 | 23912 | 80.90 | 9833 | 122.70 | 71 | 155.70 | 141 |
| 52.00 | 1198 | 81.90 | 1903 | 123.80 | 148 | 156.70 | 599 |
| 52.90 | 102 | 82.80 | 214 | 124.70 | 101 | 158.60 | 297 |
| 54.90 | 806 | 85.90 | 533 | 125.70 | 152 | 160.70 | 273 |
| 55.90 | 6021 | 86.90 | 18088 | 126.70 | 123 | 169.90 | 51 |
| 56.90 | 10148 | 87.90 | 16848 | 127.70 | 1127 | 170.60 | 105 |
| 57.90 | 434 | 90.80 | 1233 | 128.80 | 534 | 171.70 | 1051 |
| 58.70 | 68 | 91.90 | 10521 | 129.70 | 1152 | 172.80 | 2098 |
| 59.90 | 3925 | 92.90 | 15269 | 130.70 | 419 | 173.70 | 264704 |
| 61.00 | 18160 | 93.90 | 43328 | 133.70 | 53 | 174.70 | 20304 |
| 61.90 | 18216 | 94.90 | 396480 | 134.70 | 496 | 175.70 | 252928 |
| 63.00 | 13327 | 95.90 | 27824 | 135.60 | 96 | 176.70 | 17720 |
| 64.00 | 1507 | 96.90 | 709 | 136.70 | 369 | 177.70 | 520 |
| 64.90 | 816 | 102.80 | 137 | 138.90 | 62 | | |
| 65.80 | 130 | 103.80 | 1364 | 139.70 | 200 | | |
| 67.00 | 910 | 104.70 | 463 | 140.80 | 2707 | | |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 1
Report Date: 28-Jan-2019 11:36

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Lab Smp Id: VSTD00.25 Client Smp ID: VSTD00.25
Inj Date : 21-DEC-2018 13:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.25;VSTD00.25;1;1;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

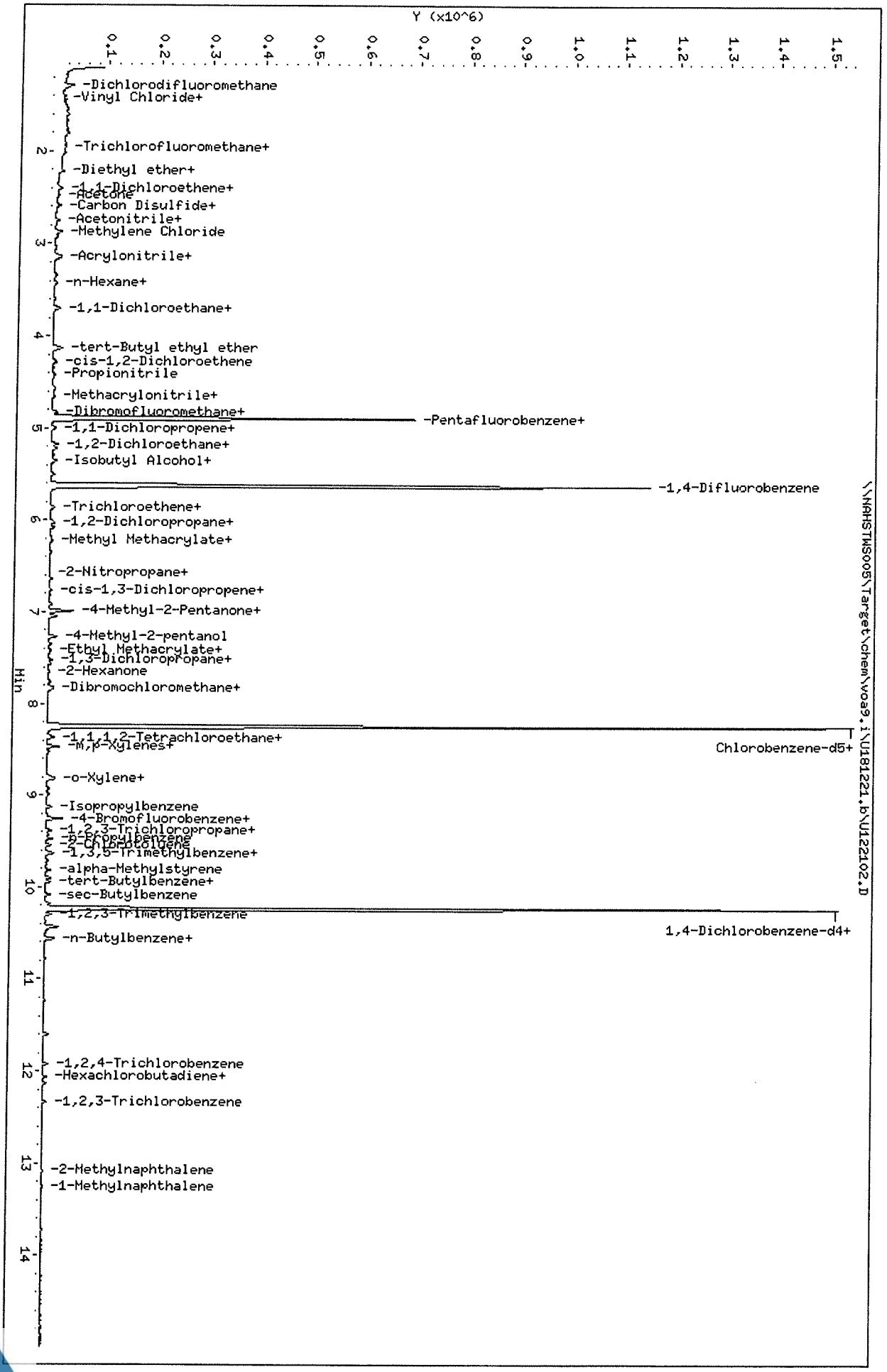
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.894 | 4.890 | (1.000) | 428138 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 818709 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 747851 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 340535 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.987) | 4885 | 0.25000 | (a) |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 7874 | 0.25000 | (a) |
| $ | 48 Toluene-d8 | 98 | 6.986 | 6.989 | (0.847) | 25629 | 0.25000 | (a) |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 9480 | 0.25000 | (a) |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1214 | 0.25000 | 0.83(a) |
| | 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 2037 | 0.25000 | 0.30(a) |
| | 138 Freon TF | 101 | 2.401 | 2.394 | (0.491) | 1292 | 0.25000 | 0.35(a) |
| | 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 1492 | 0.25000 | 0.33(a) |
| | 22 1,1-Dichloroethane | 63 | 3.601 | 3.597 | (0.736) | 2808 | 0.25000 | 0.30(Ta) |
| | 11 1,1-Dichloroethene | 96 | 2.397 | 2.394 | (0.490) | 1606 | 0.25000 | 0.39(a) |
| | 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 2559 | 0.25000 | 0.35(a) |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 2119 | 0.25000 | 0.95(a) |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.430 | (0.921) | 2311 | 0.25000 | 0.28(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.926 | (1.165) | 1867 | 0.25000 | 0.29(a) |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.940 | 9.943 | (0.971) | 5702 | 0.25000 | 0.31(a) |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1463 | 0.25000 | 0.28(a) |
| | 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 3604 | 0.25000 | 0.35(a) |
| | 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 2468 | 0.25000 | (a) |
| | 42 1,2-Dichloropropane | 63 | 6.079 | 6.078 | (1.081) | 1752 | 0.25000 | 0.30(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 2
Report Date: 28-Jan-2019 11:36

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.628 | (0.940) | 5173 | 0.25000 | 0.30(a) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 3530 | 0.25000 | 0.34(a) |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 3033 | 0.25000 | 0.31(a) |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.258 | (1.002) | 4184 | 0.25000 | 0.39(a) |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.550 | (0.933) | 5370 | 0.25000 | 0.34(a) |
| 52 2-Hexanone | 43 | 7.649 | 7.653 | (0.927) | 2221 | 0.50000 | 0.53(a) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 6065 | 0.25000 | 0.33(a) |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.213 | (0.997) | 5637 | 0.25000 | 0.31(a) |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 3388 | 0.50000 | 0.56(a) |
| 10 Acetone | 43 | 2.480 | 2.476 | (0.507) | 3620 | 0.50000 | (a) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 7659 | 0.25000 | 0.35(a) |
| 74 Bromobenzene | 156 | 9.381 | 9.385 | (0.917) | 1549 | 0.25000 | 0.29(a) |
| 19 Carbon Disulfide | 76 | 2.588 | 2.585 | (0.529) | 12805 | 0.50000 | 0.86(a) |
| 34 Carbon Tetrachloride | 117 | 4.988 | 4.991 | (0.887) | 1501 | 0.25000 | 1.64(a) |
| 59 Chlorobenzene | 112 | 8.272 | 8.275 | (1.003) | 5314 | 0.25000 | 0.36(a) |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 3005 | 0.25000 | 0.33(a) |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 1960 | 0.25000 | 0.34(a) |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 2017 | 0.25000 | 1.47(a) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1084 | 0.25000 | 1.19(a) |
| 2 Dichlorodifluoromethane | 85 | 1.201 | 1.198 | (0.246) | 2264 | 0.25000 | 0.91(a) |
| 61 Ethylbenzene | 106 | 8.369 | 8.373 | (1.015) | 2474 | 0.25000 | 0.33(a) |
| 91 Hexachlorobutadiene | 225 | 12.061 | 12.065 | (1.178) | 1019 | 0.25000 | 0.42(a) |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 6811 | 0.25000 | 0.32(a) |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 5829 | 0.50000 | 0.64(a) |
| 17 Methylene Chloride | 84 | 2.870 | 2.866 | (0.586) | 3269 | 0.25000 | (a) |
| 87 n-Butylbenzene | 91 | 10.554 | 10.558 | (1.031) | 6526 | 0.25000 | 0.37(a) |
| 73 n-Propylbenzene | 91 | 9.475 | 9.479 | (0.926) | 8427 | 0.25000 | 0.33(a) |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 4657 | 0.25000 | 0.87(a) |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 2975 | 0.25000 | 0.32(a) |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.090 | (0.985) | 6928 | 0.25000 | 0.32(a) |
| 64 Styrene | 104 | 8.823 | 8.826 | (1.070) | 4467 | 0.25000 | 0.29(a) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 4611 | 0.25000 | 0.31(a) |
| 56 Tetrachloroethene | 164 | 7.522 | 7.525 | (0.912) | 1622 | 0.25000 | 0.41(a) |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 7336 | 0.25000 | 0.32(a) |
| 20 trans-1,2-Dichloroethene | 96 | 3.136 | 3.136 | (0.641) | 1833 | 0.25000 | 0.36(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 2028 | 0.25000 | 0.38(a) |
| 8 Trichlorofluoromethane | 101 | 1.955 | 1.944 | (0.400) | 2465 | 0.25000 | 0.97(a) |
| 5 Vinyl Chloride | 62 | 1.419 | 1.415 | (0.290) | 2098 | 0.25000 | 1.30(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
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Client ID: VSTD00.25
Sample Info: VSTD00.25;VSTD00.25;1;1;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 21-DEC-2018 14:14
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

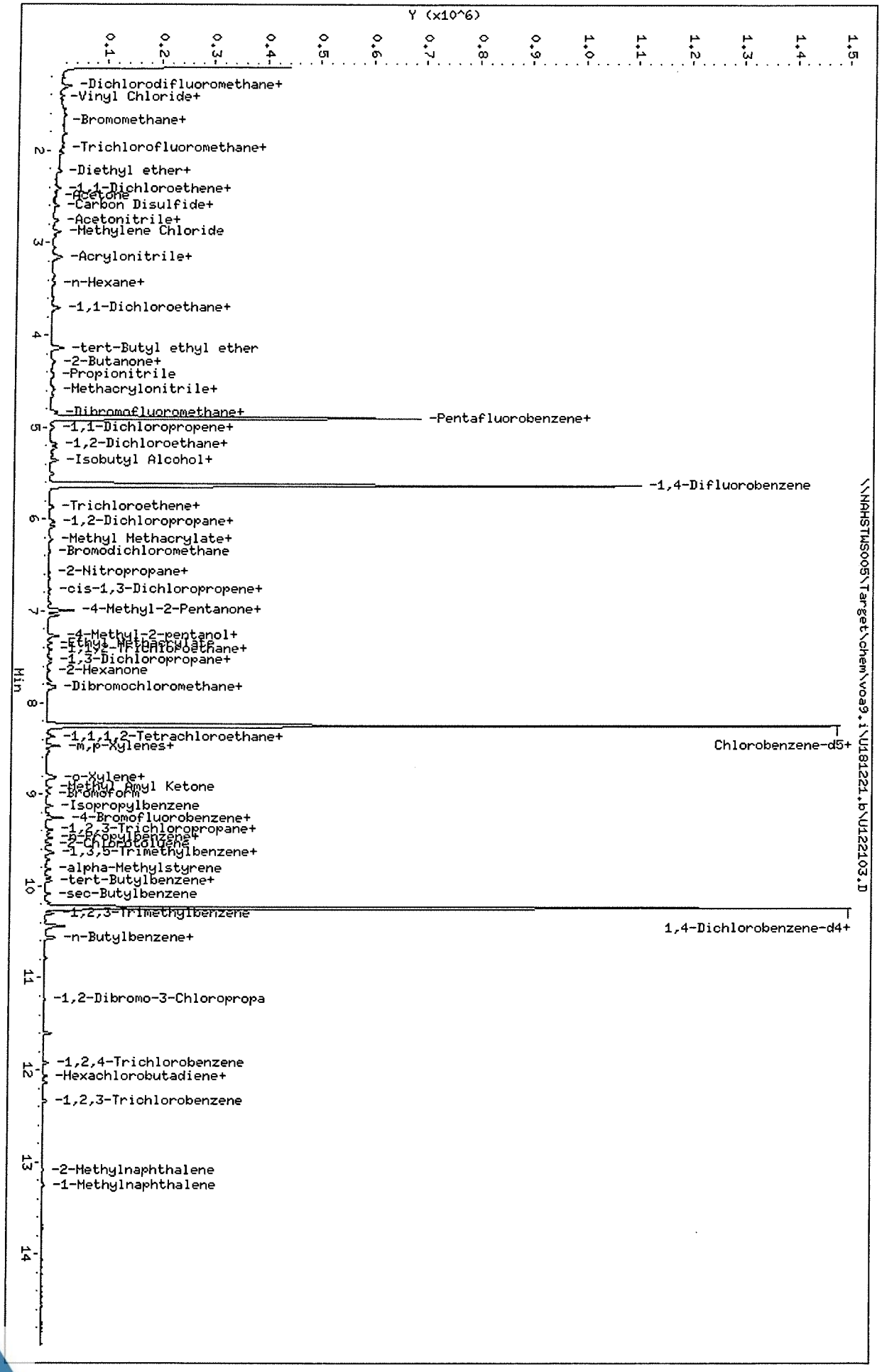
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 422356 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 796827 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 725774 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 333300 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 6036 | 0.50000 | (a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 8601 | 0.50000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 27052 | 0.50000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 9627 | 0.50000 | (a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1272 | 0.50000 | 0.85(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 2201 | 0.50000 | 0.33(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 2725 | 0.50000 | 0.36(aM) |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.493) | 1292 | 0.50000 | 0.35(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 1629 | 0.50000 | 0.37(a) |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 3066 | 0.50000 | 0.33(Ta) |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.492) | 1703 | 0.50000 | 0.42(a) |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 2565 | 0.50000 | 0.36(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1324 | 0.50000 | 0.84(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 2591 | 0.50000 | 0.33(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 2402 | 0.50000 | 0.38(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 6088 | 0.50000 | 0.34(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 272 | 0.50000 | 1.68(aM) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1825 | 0.50000 | 0.36(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 3885 | 0.50000 | 0.39(a) |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 2385 | 0.50000 | (a) |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 2114 | 0.50000 | 0.37(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 5574 | 0.50000 | 0.33(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 3970 | 0.50000 | 0.40(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 3471 | 0.50000 | 0.37(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 4522 | 0.50000 | 0.43(a) |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 2050 | 0.50000 | 0.37(aM) |
| 24 | 2-Butanone | 43 | 4.354 | 4.354 | (0.889) | 2109 | 1.00000 | (a) |
| 76 | 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 5666 | 0.50000 | 0.36(a) |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 2639 | 1.00000 | 0.65(a) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 6459 | 0.50000 | 0.36(a) |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 6372 | 0.50000 | 0.36(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 3831 | 1.00000 | 0.65(a) |
| 10 | Acetone | 43 | 2.491 | 2.491 | (0.509) | 3366 | 1.00000 | (a) |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 7772 | 0.50000 | 0.36(a) |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 1879 | 0.50000 | 0.36(a) |
| 29 | Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 773 | 0.50000 | (a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 1990 | 0.50000 | 0.33(aM) |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 762 | 0.50000 | 1.99(aM) |
| 6 | Bromomethane | 94 | 1.681 | 1.681 | (0.343) | 822 | 0.50000 | 1.64(a) |
| 19 | Carbon Disulfide | 76 | 2.596 | 2.596 | (0.530) | 12403 | 1.00000 | 0.84(a) |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 1510 | 0.50000 | 1.65(a) |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 5533 | 0.50000 | 0.39(a) |
| 7 | Chloroethane | 64 | 1.764 | 1.764 | (0.360) | 2753 | 0.50000 | 1.20(aM) |
| 28 | Chloroform | 83 | 4.662 | 4.662 | (0.952) | 2977 | 0.50000 | 0.33(a) |
| 3 | Chloromethane | 50 | 1.348 | 1.348 | (0.275) | 1695 | 0.50000 | 3.67(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.877) | 1939 | 0.50000 | 0.34(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 2152 | 0.50000 | 1.49(a) |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1194 | 0.50000 | 1.22(a) |
| 44 | Dibromomethane | 93 | 6.195 | 6.195 | (1.101) | 1143 | 0.50000 | 0.35(aM) |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.213 | (0.248) | 2033 | 0.50000 | 0.87(aM) |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 2560 | 0.50000 | 0.35(a) |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 1509 | 0.50000 | 0.63(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 6665 | 0.50000 | 0.32(a) |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 6264 | 1.00000 | 0.71(a) |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 3346 | 0.50000 | (a) |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 6644 | 0.50000 | 0.39(a) |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 8654 | 0.50000 | 0.34(a) |
| 92 | Naphthalene | 128 | 12.136 | 12.136 | (1.186) | 5535 | 0.50000 | 0.92(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 3001 | 0.50000 | 0.33(a) |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 6823 | 0.50000 | 0.32(a) |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 4646 | 0.50000 | 0.31(a) |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 4764 | 0.50000 | 0.32(a) |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 1587 | 0.50000 | 0.41(a) |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 8207 | 0.50000 | 0.38(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.151 | 3.151 | (0.643) | 1825 | 0.50000 | 0.36(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 1633 | 0.50000 | 1.85(aM) |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 1953 | 0.50000 | 0.38(a) |
| 8 | Trichlorofluoromethane | 101 | 1.966 | 1.966 | (0.402) | 1919 | 0.50000 | 0.89(a) |
| 5 | Vinyl Chloride | 62 | 1.430 | 1.430 | (0.292) | 1815 | 0.50000 | 1.26(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

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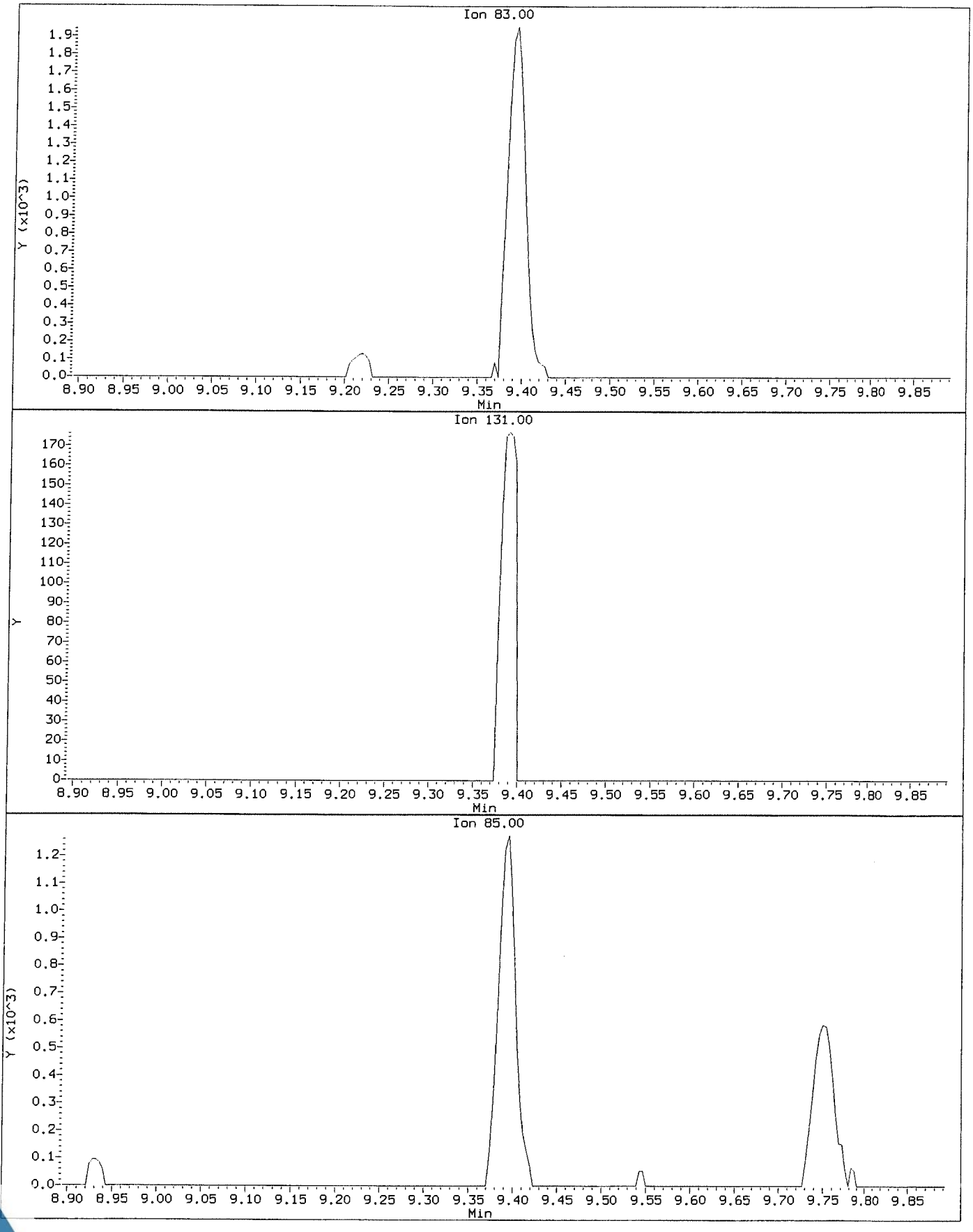
Sample Info: VSTD00.5;VSTD00.5;1;2;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D

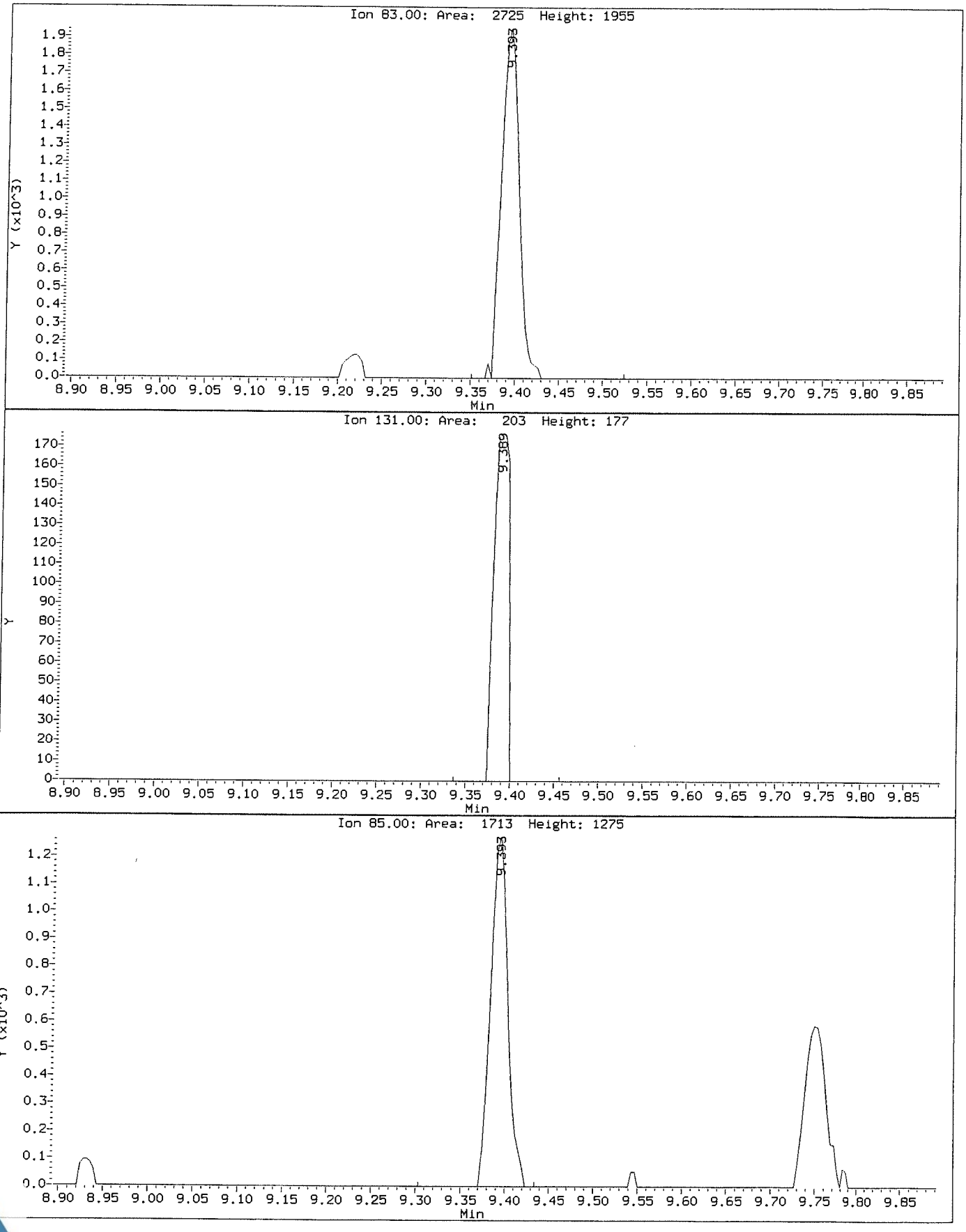
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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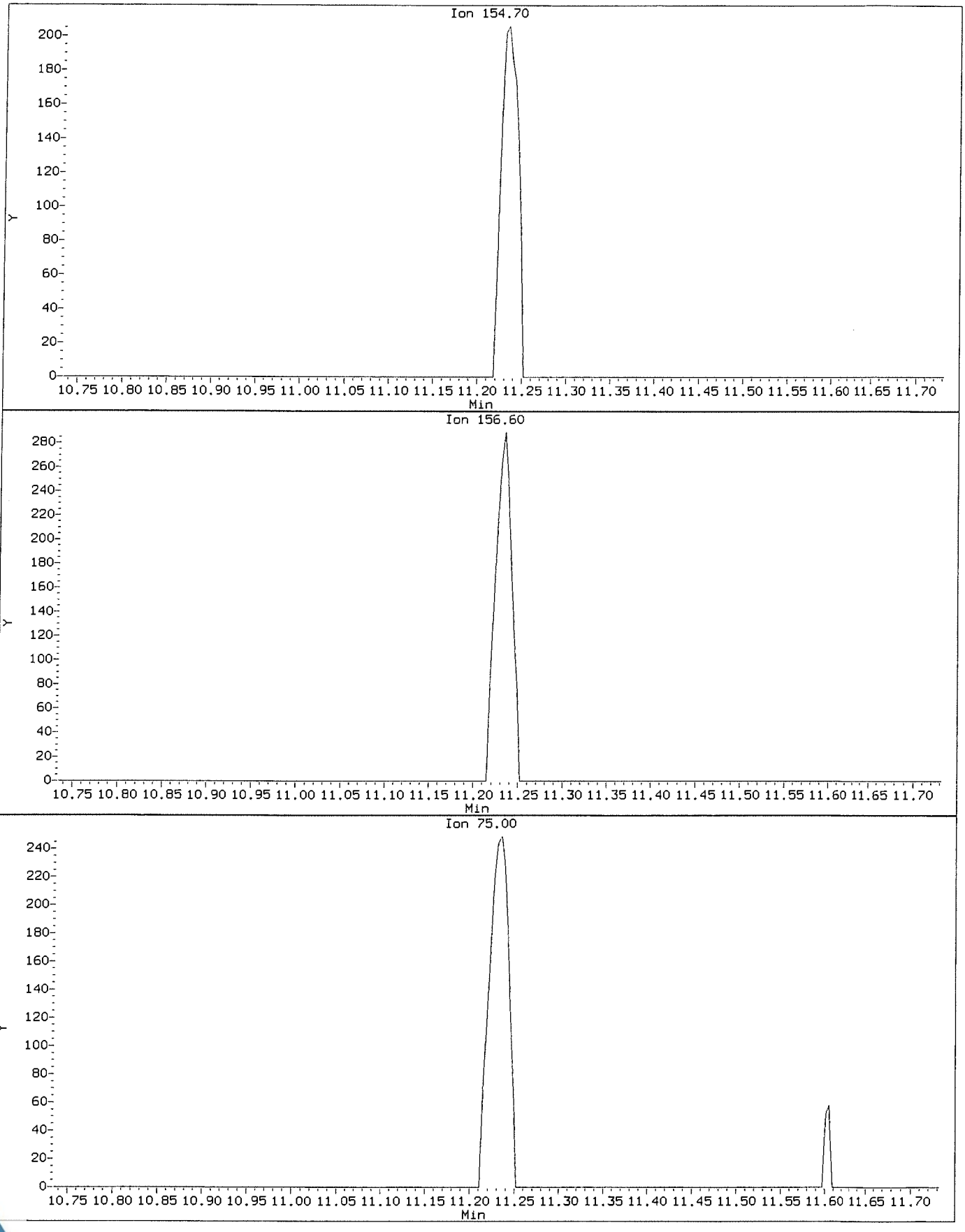
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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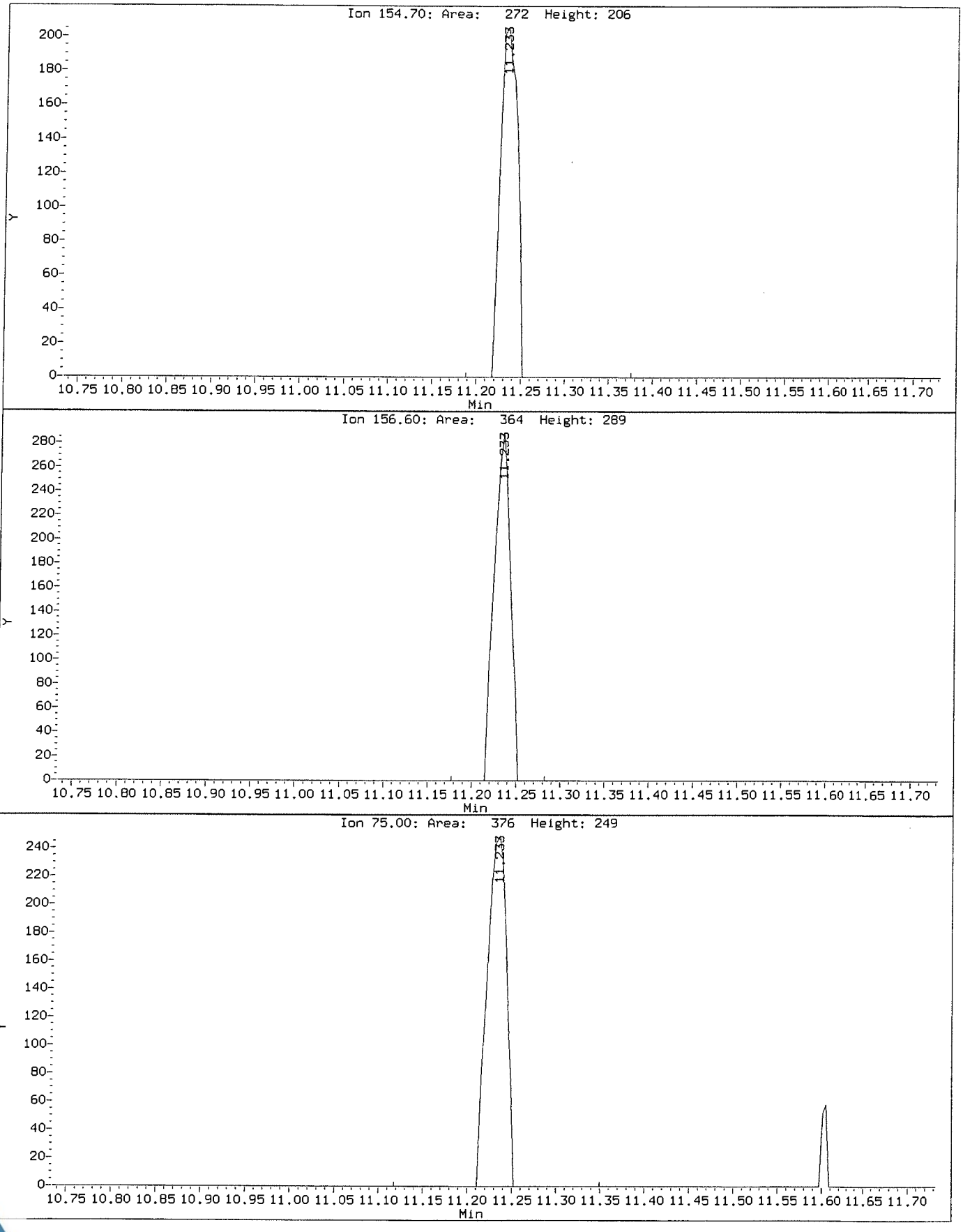
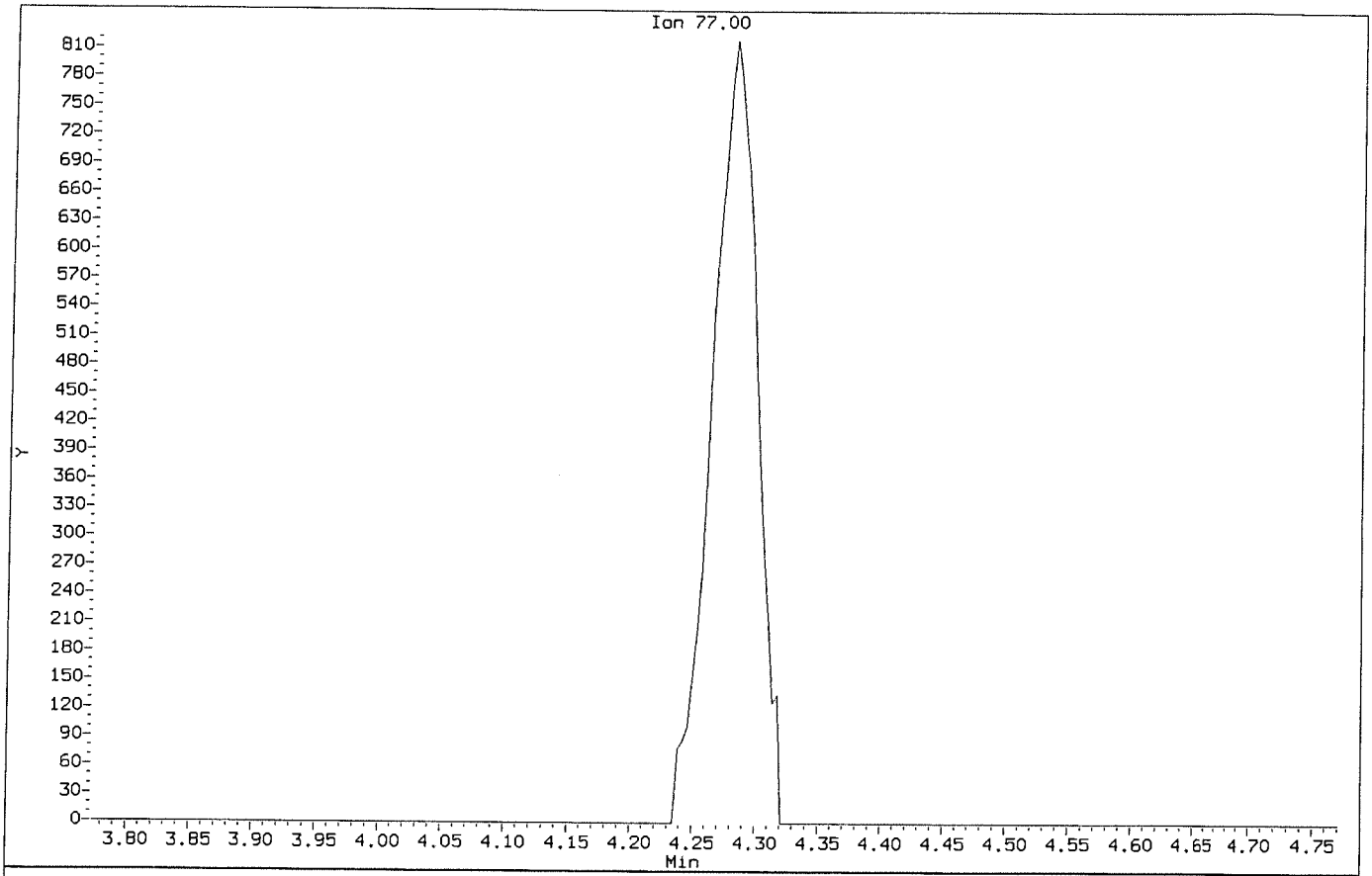
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

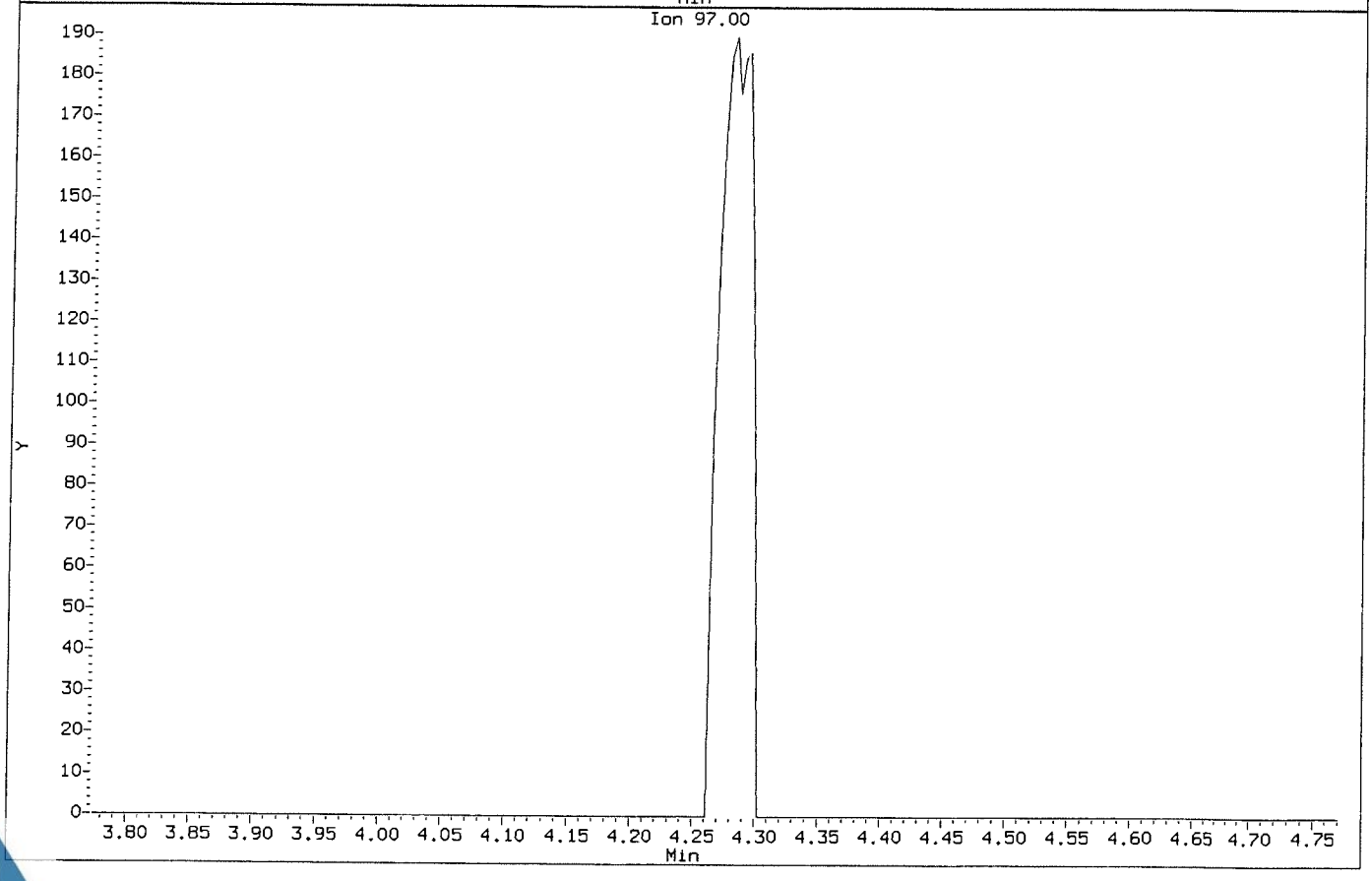
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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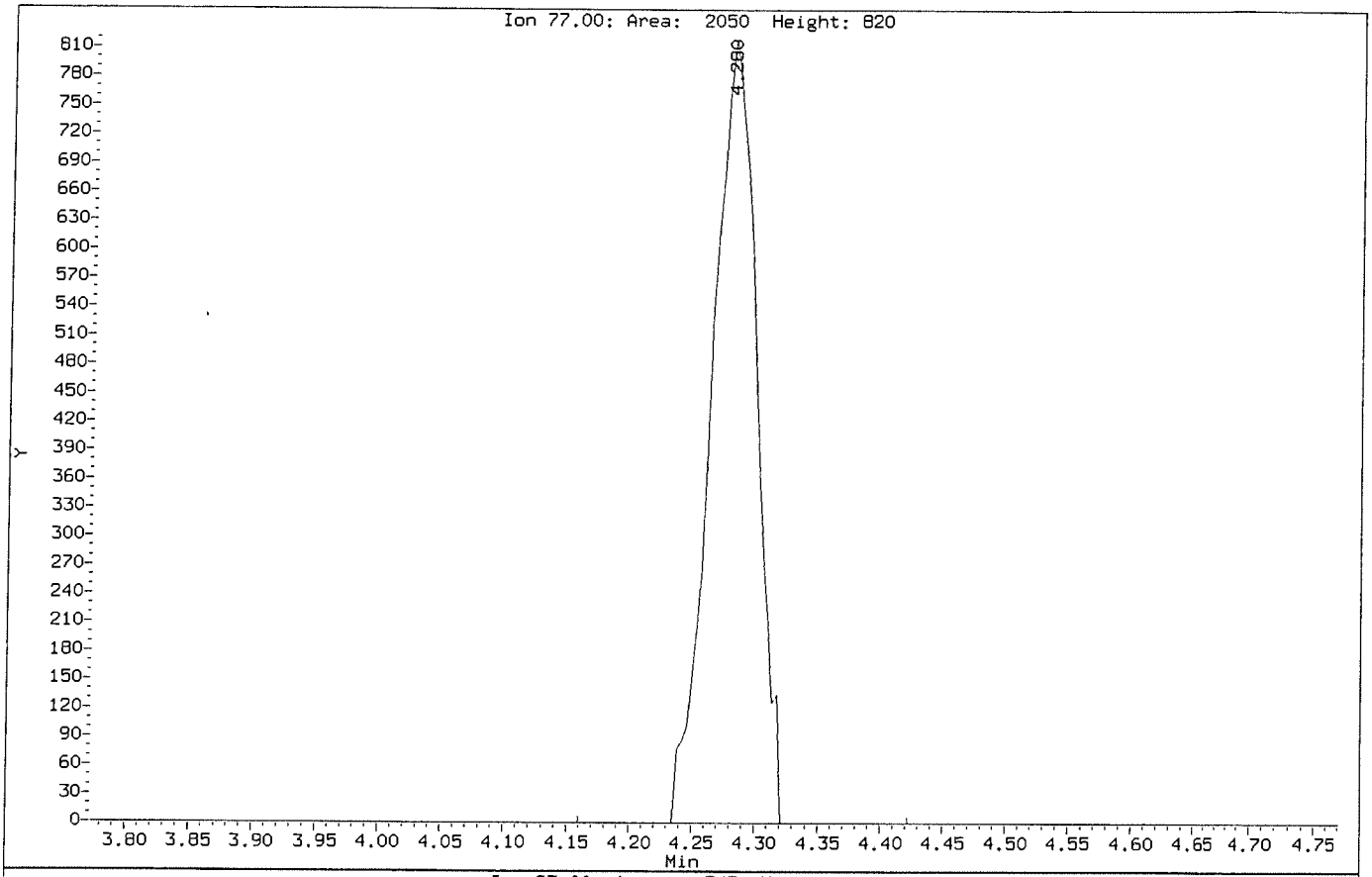
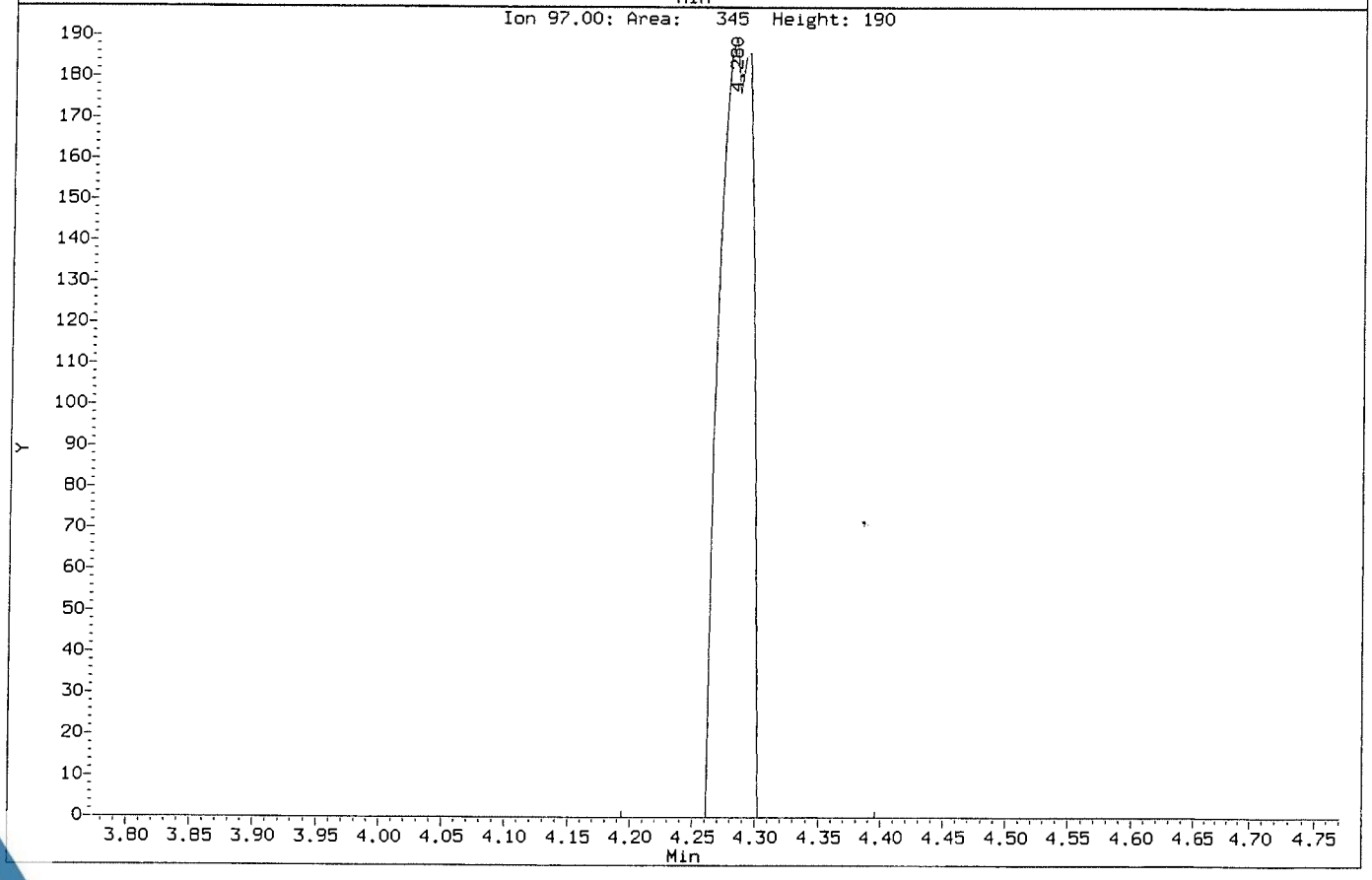
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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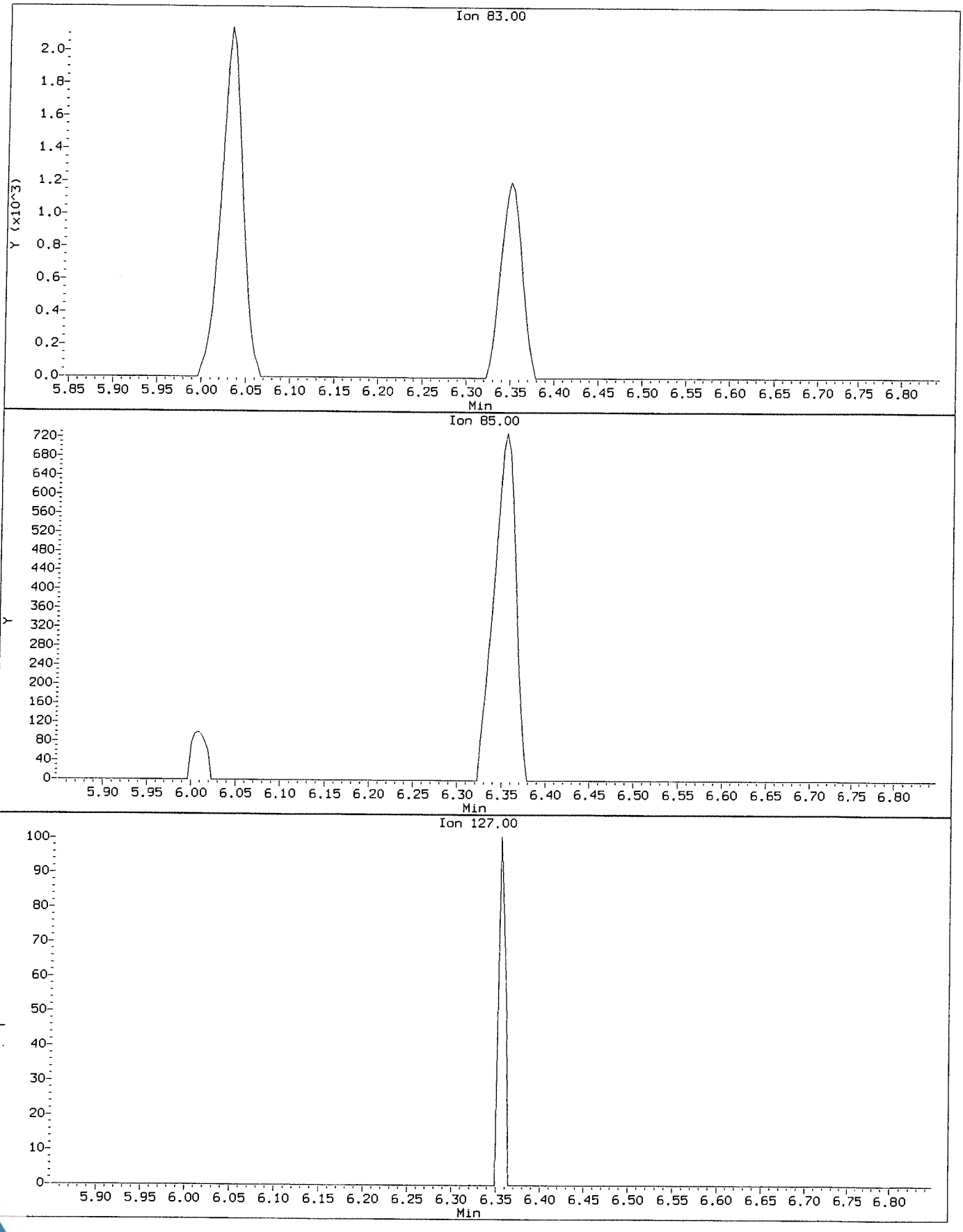
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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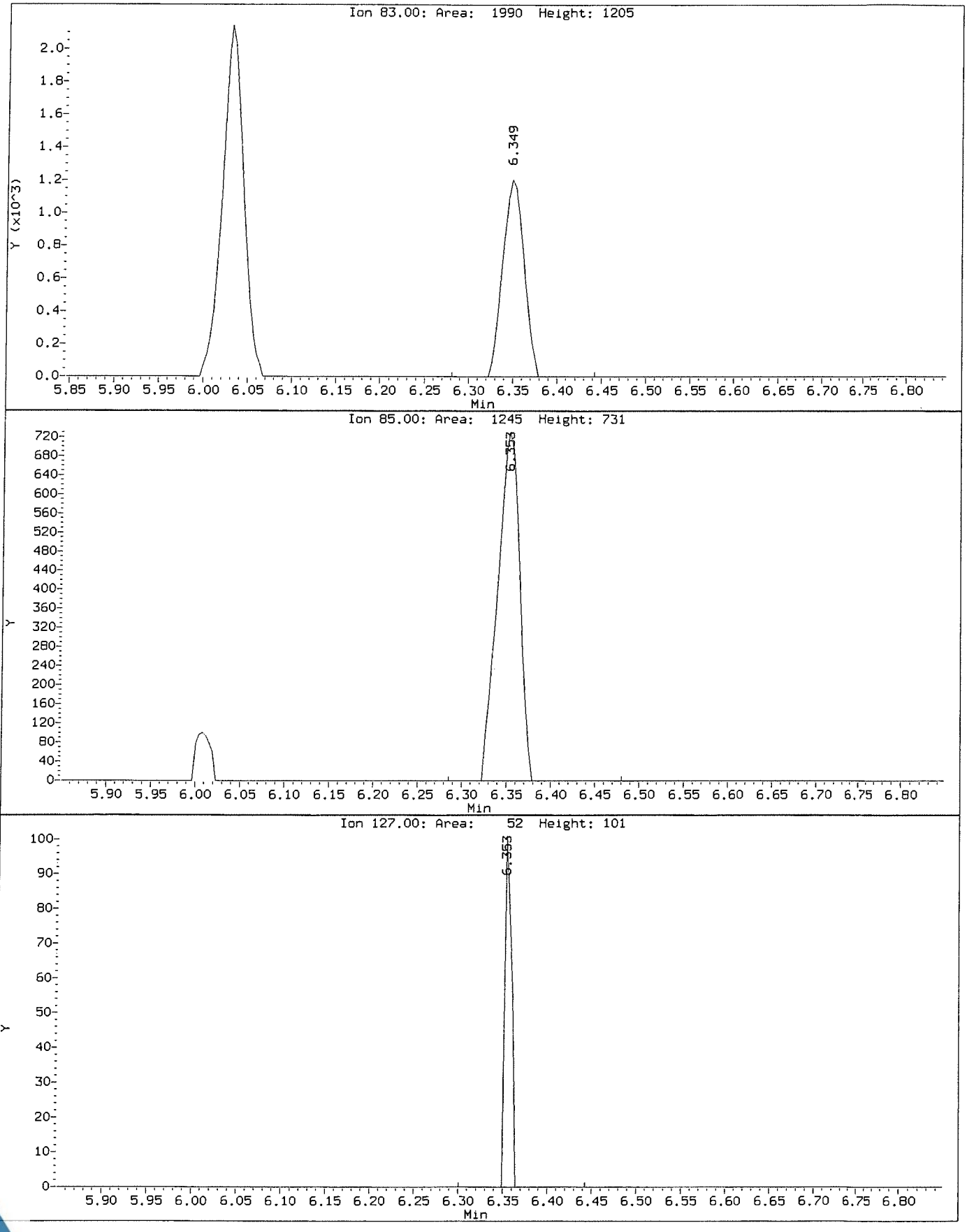
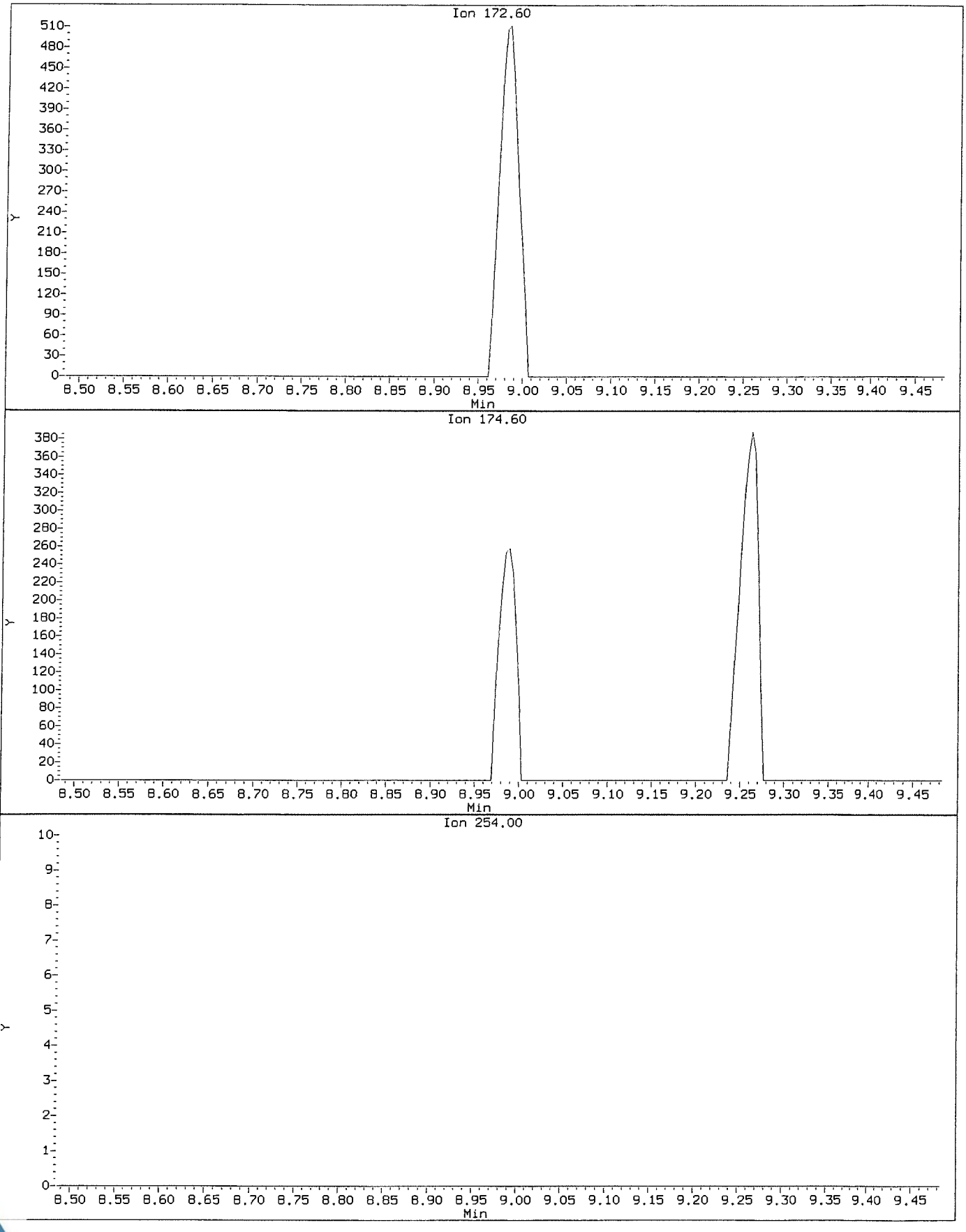
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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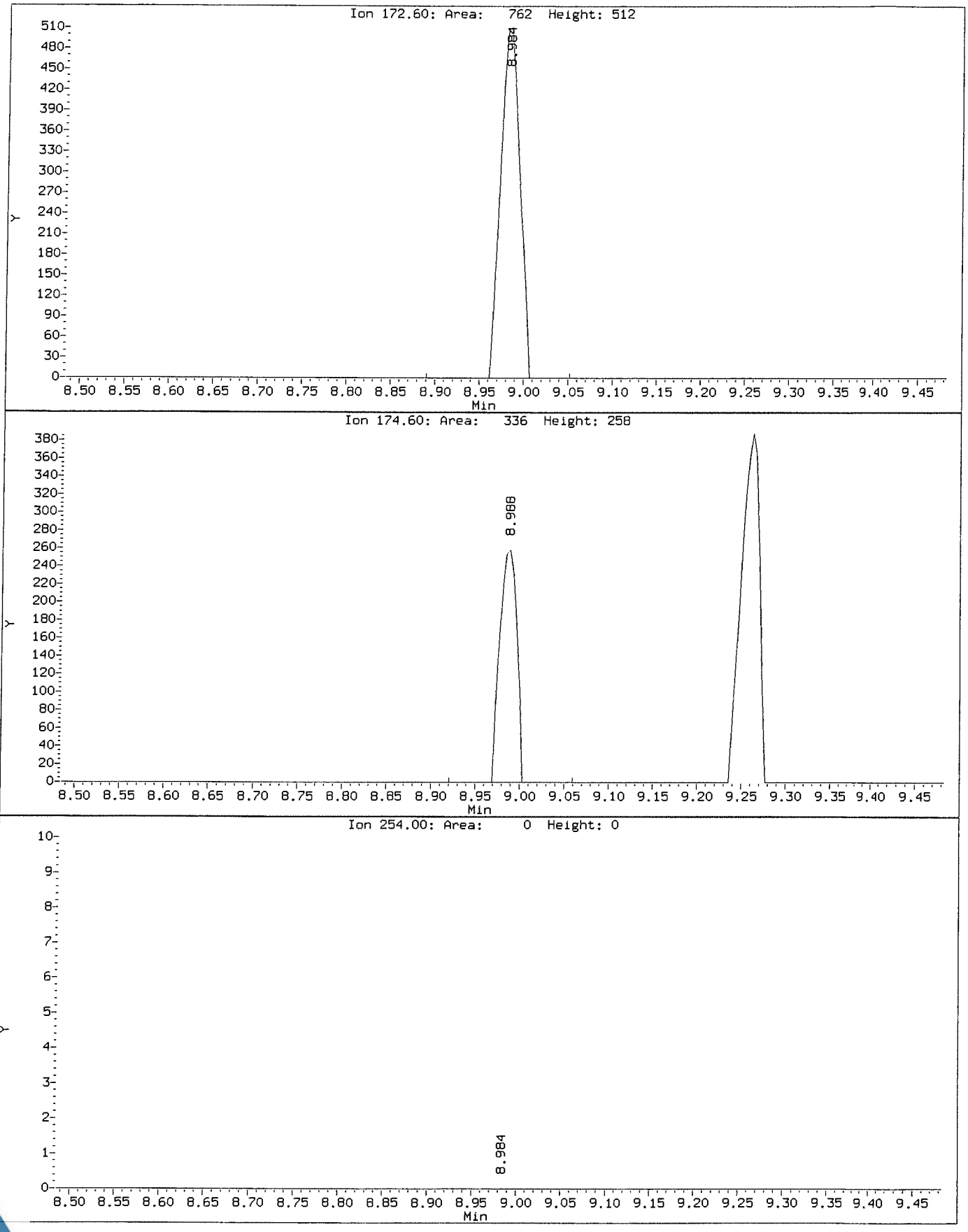
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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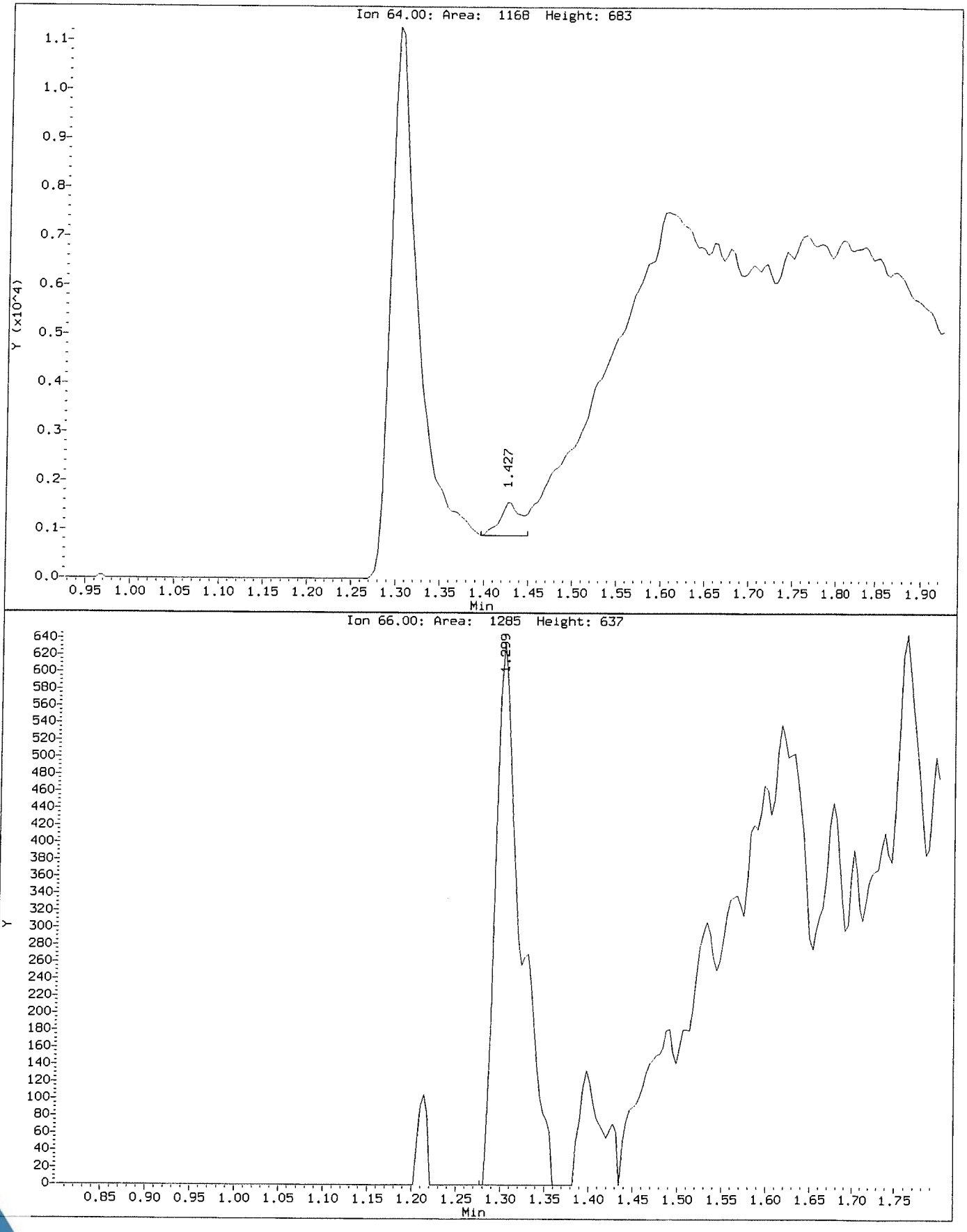
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3



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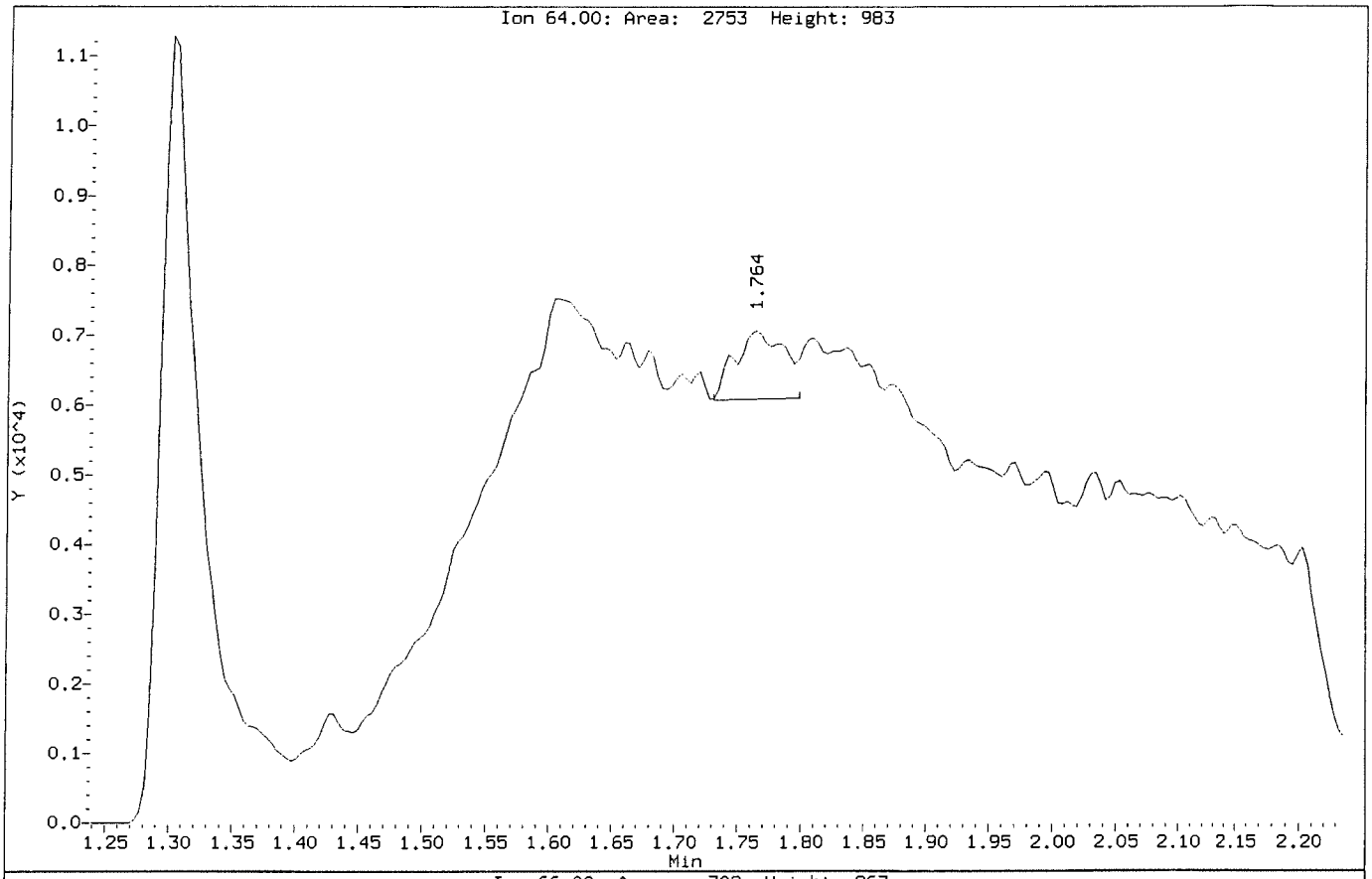
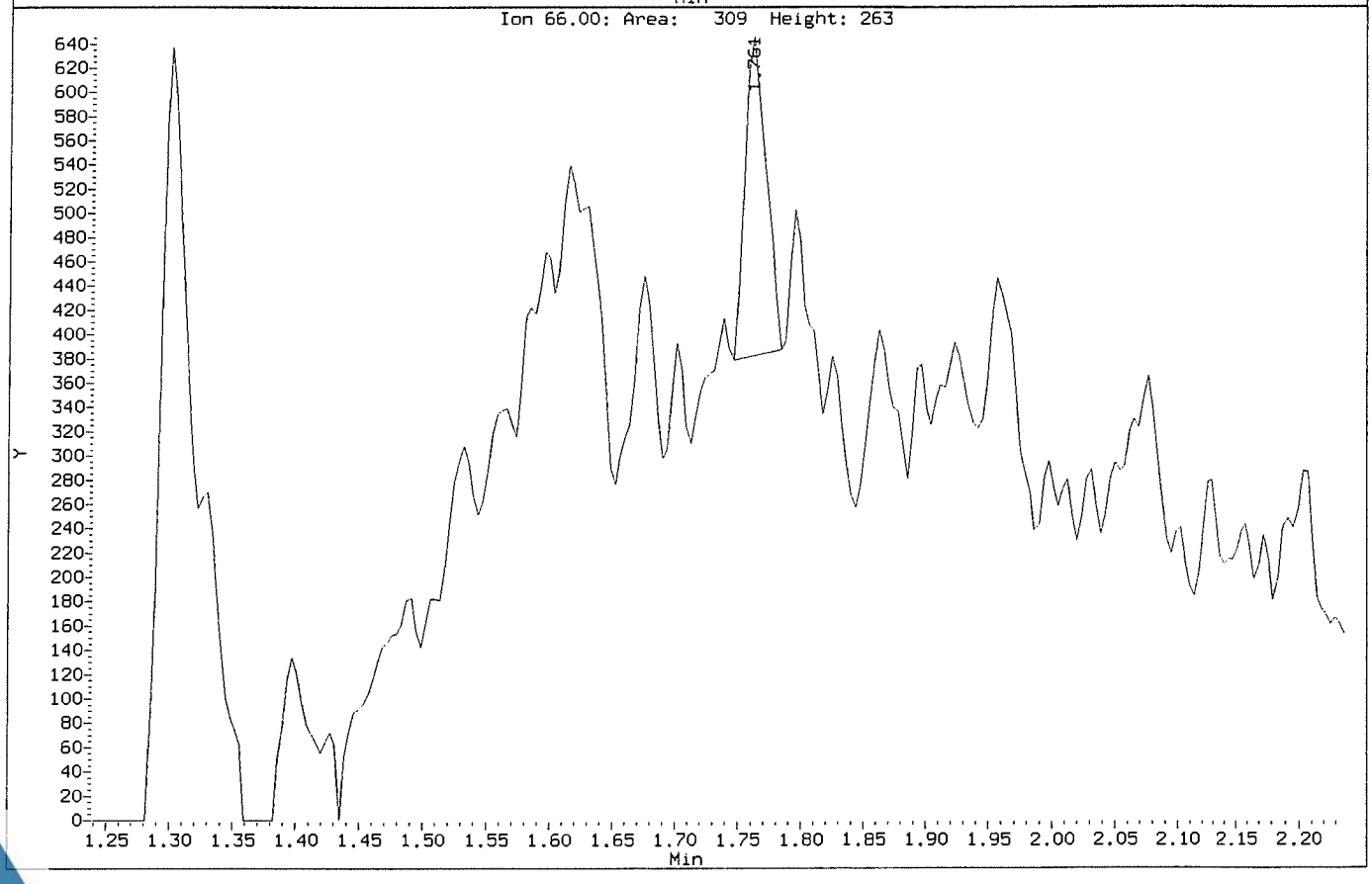
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

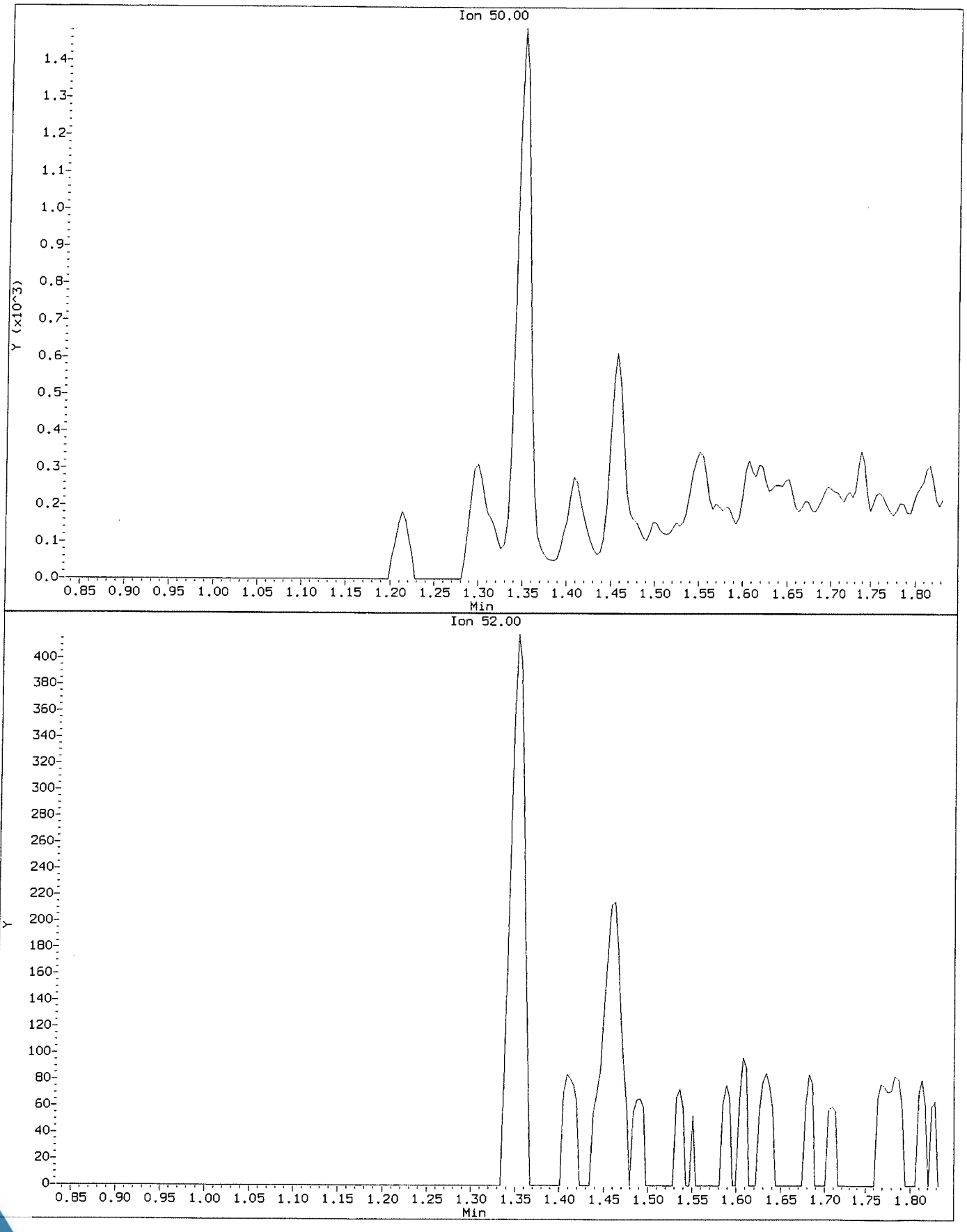
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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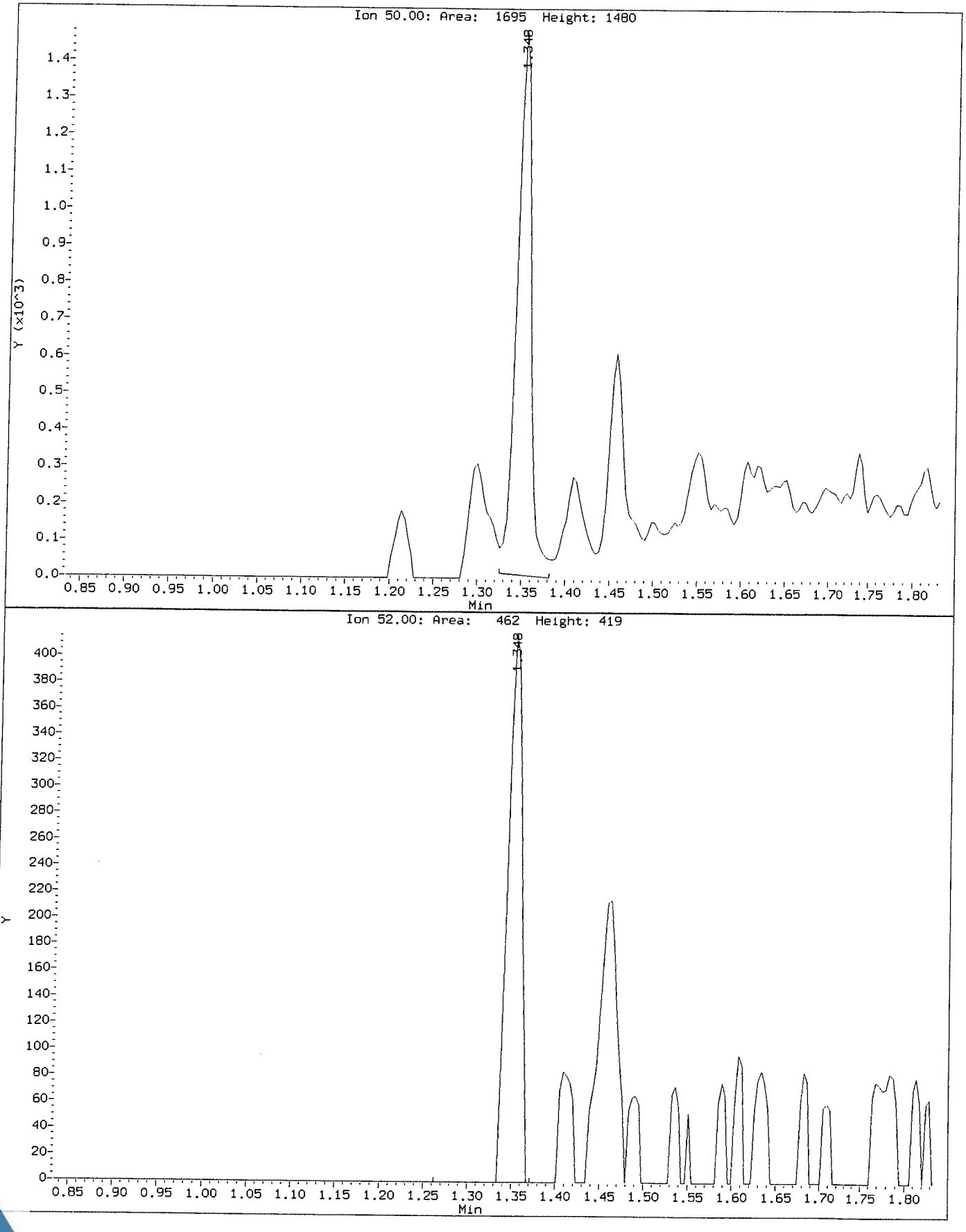
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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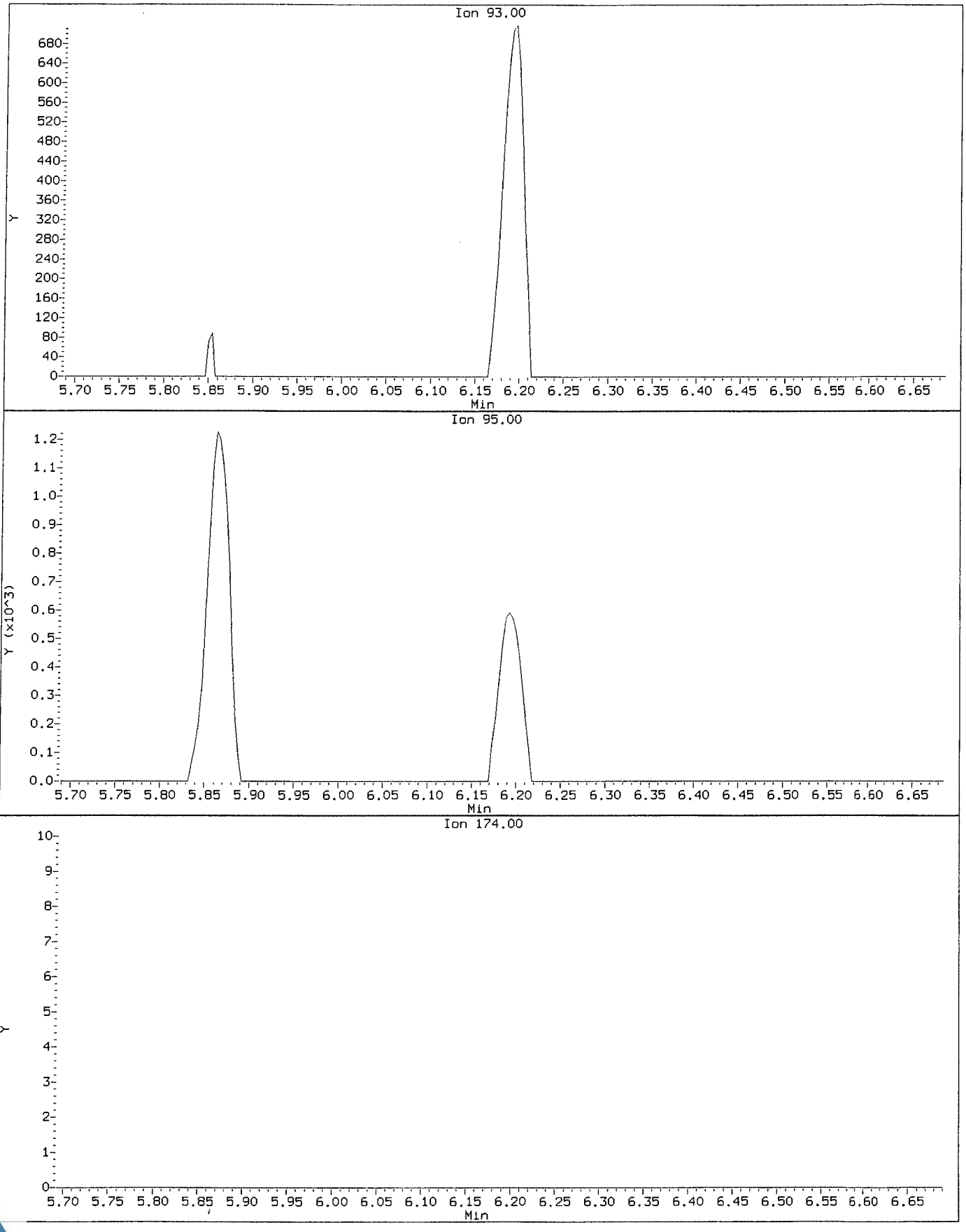
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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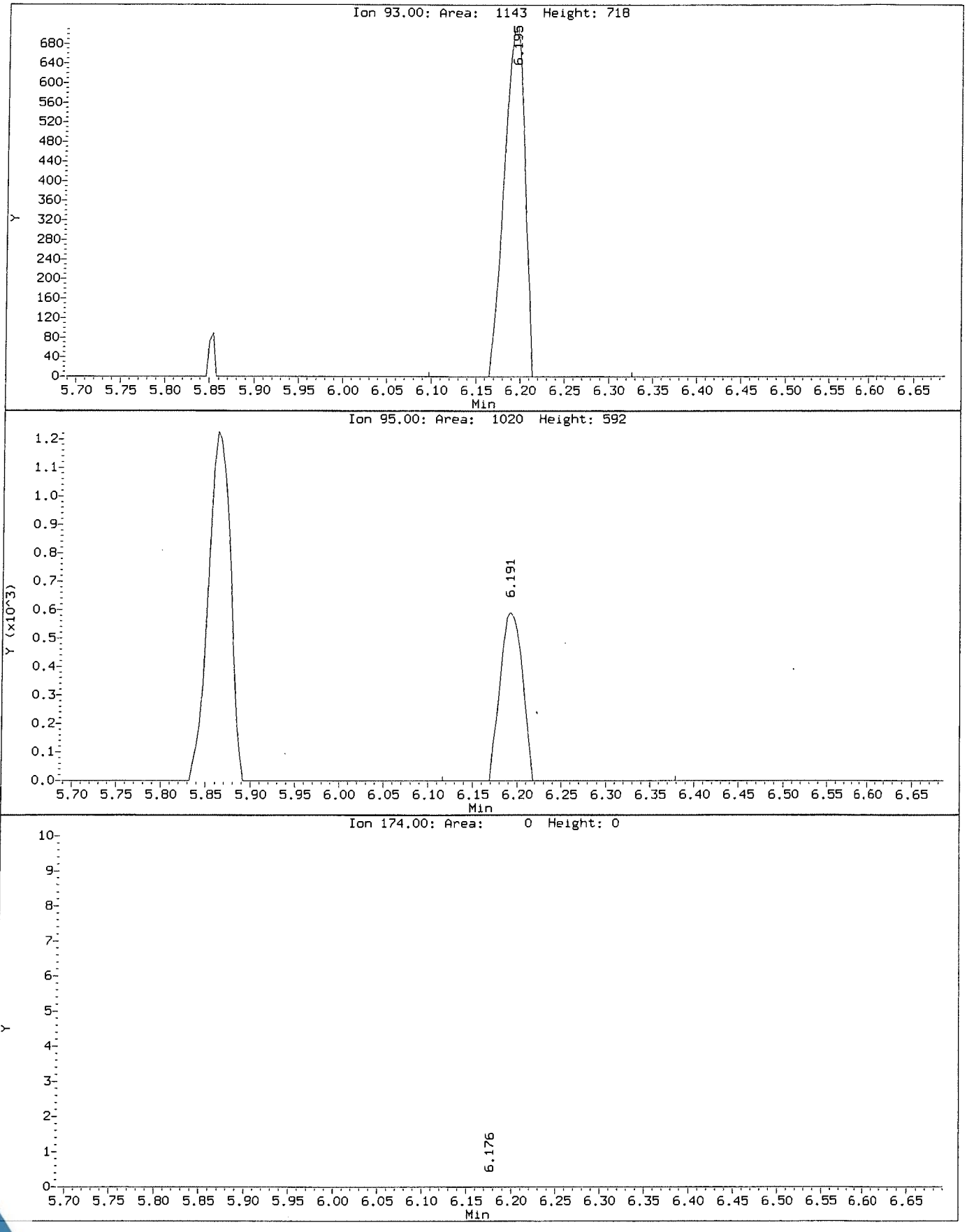
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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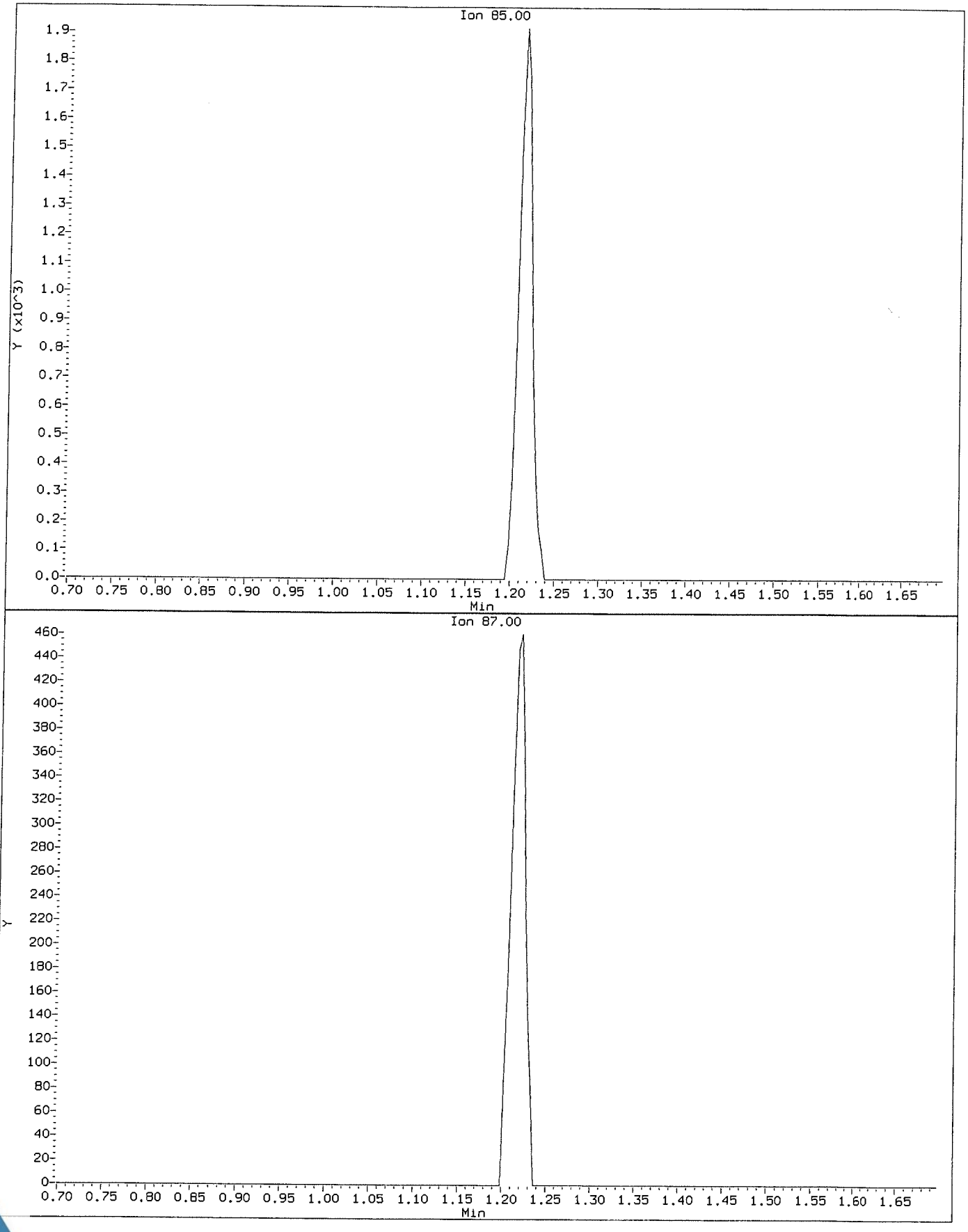
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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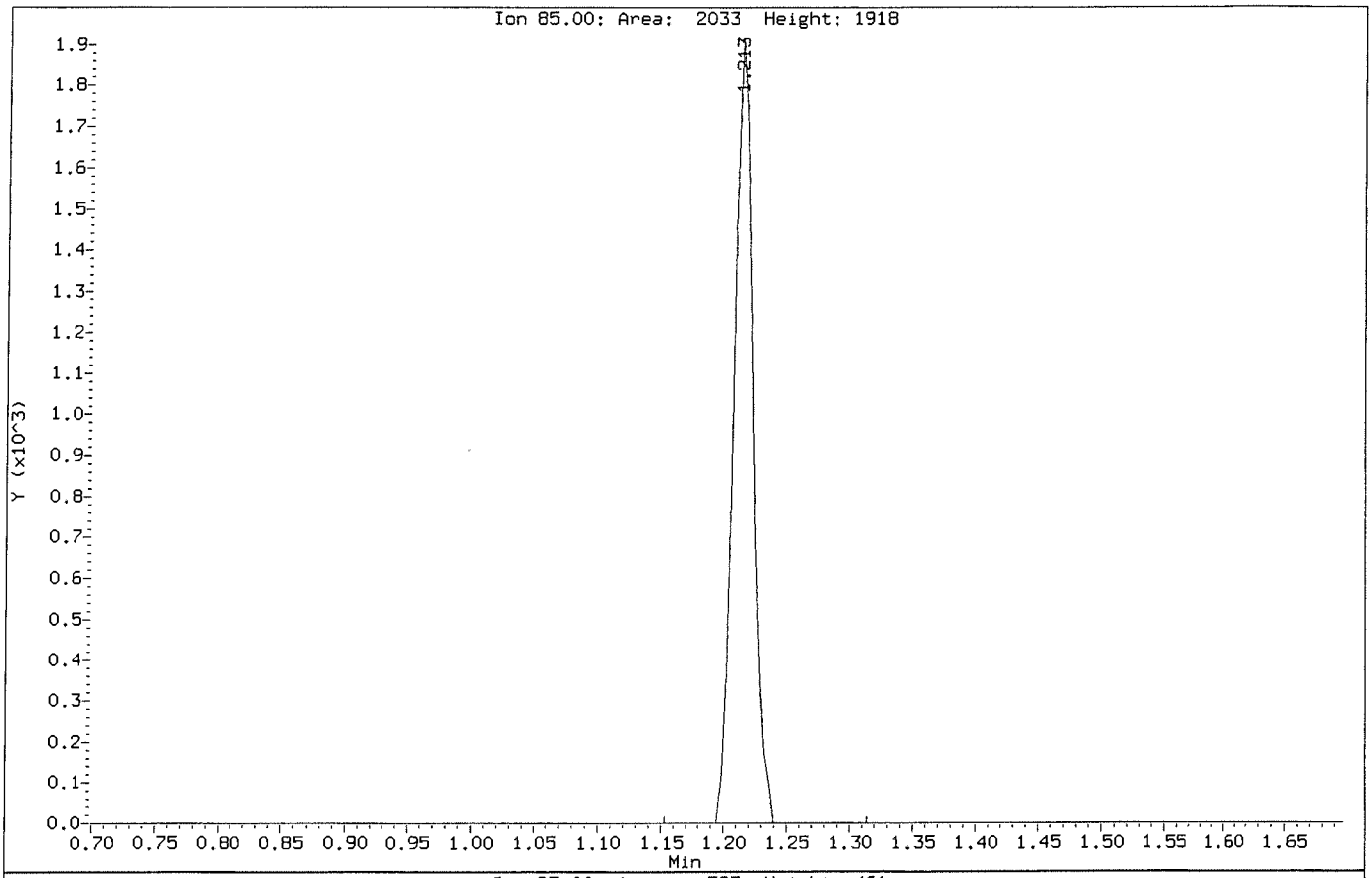
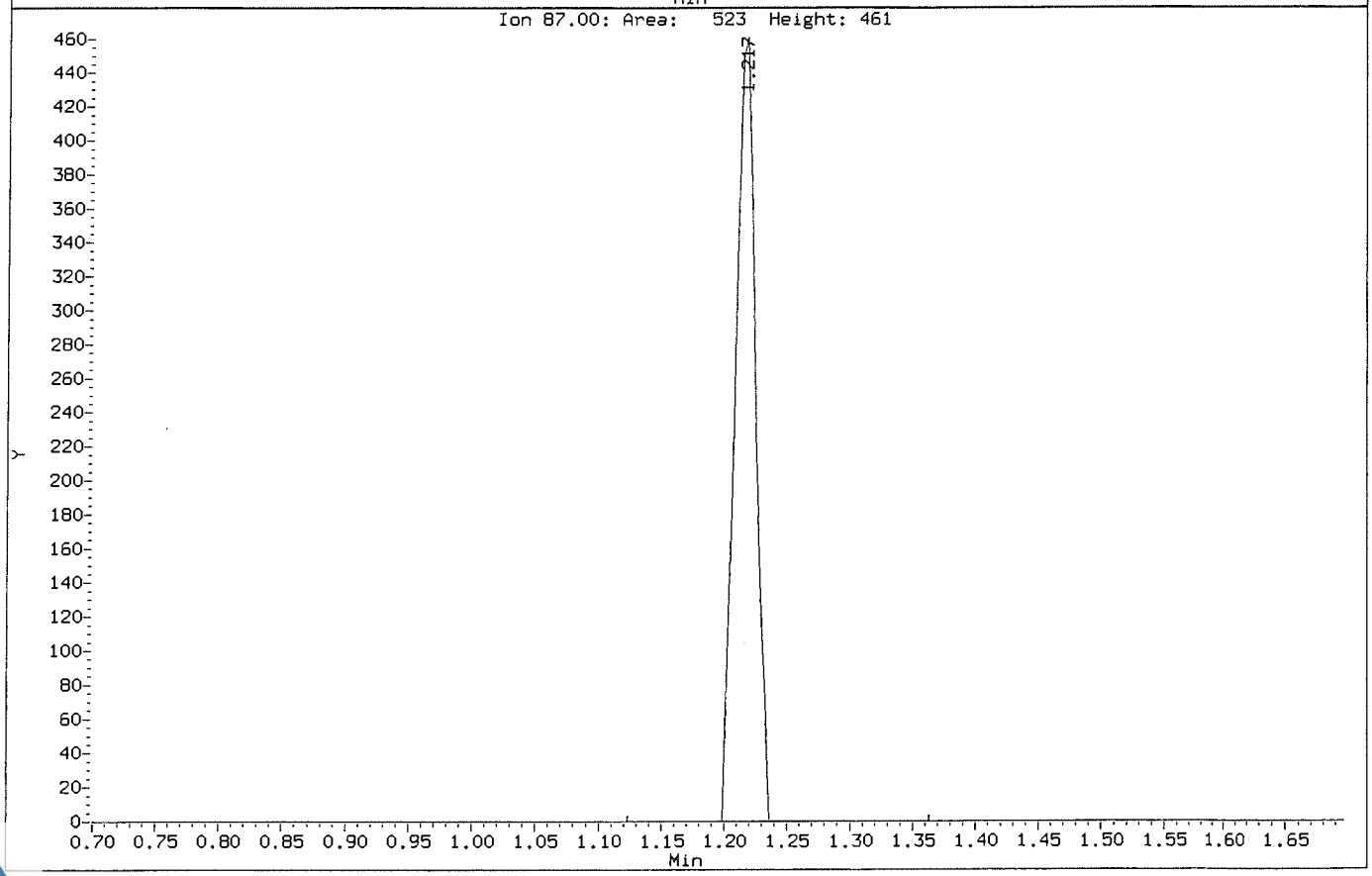
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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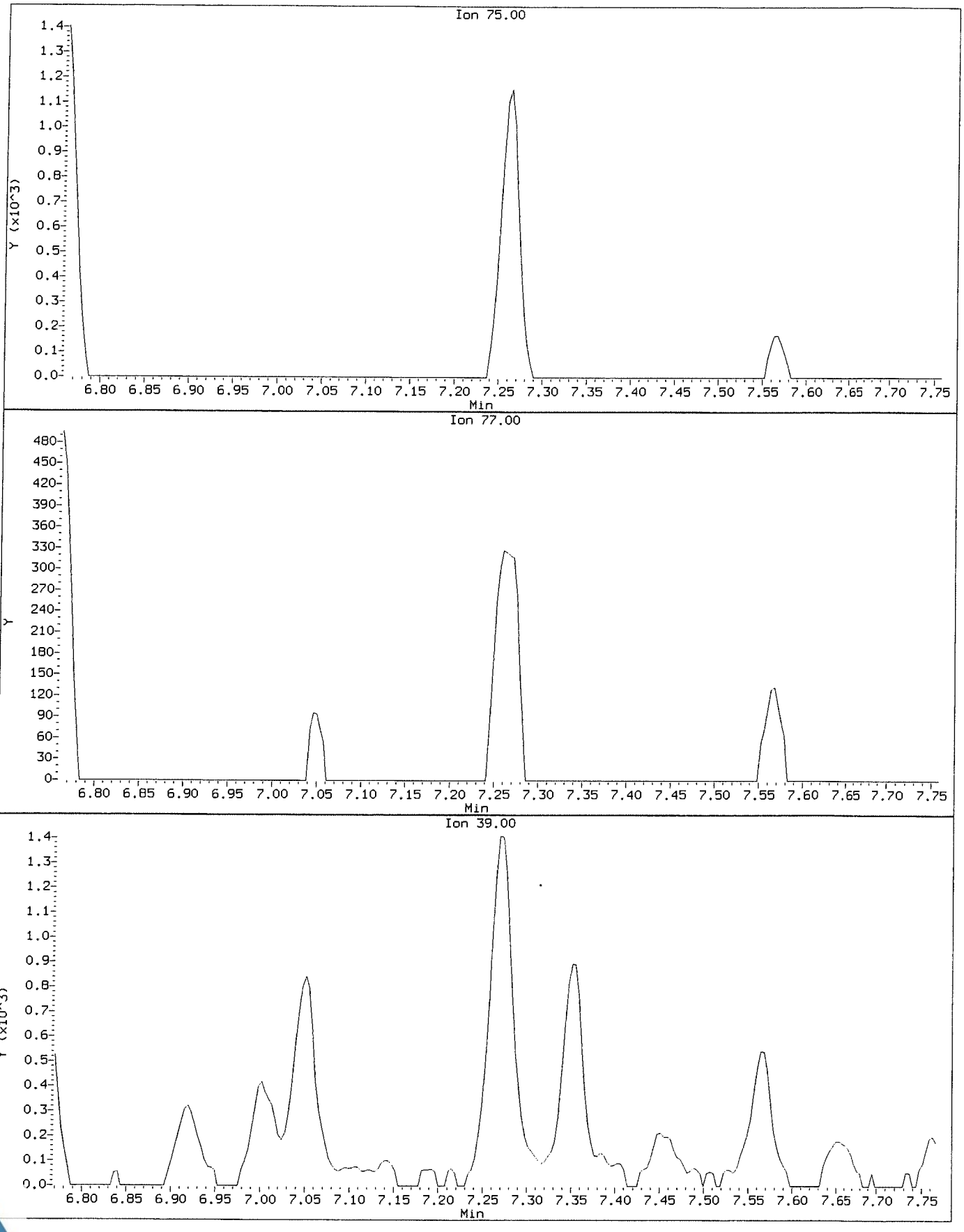
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



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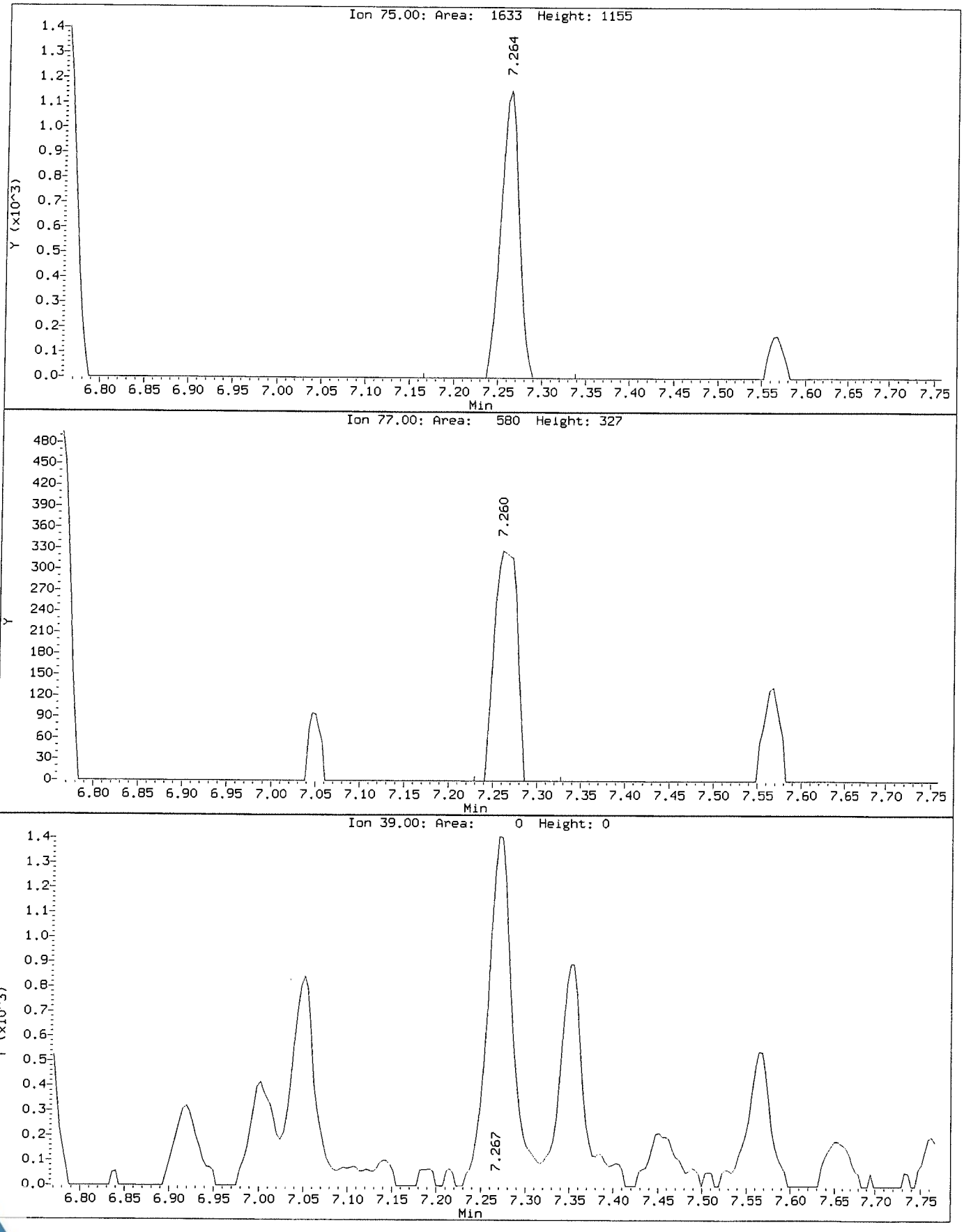
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 21-DEC-2018 15:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 14:14 Cal File: U122103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

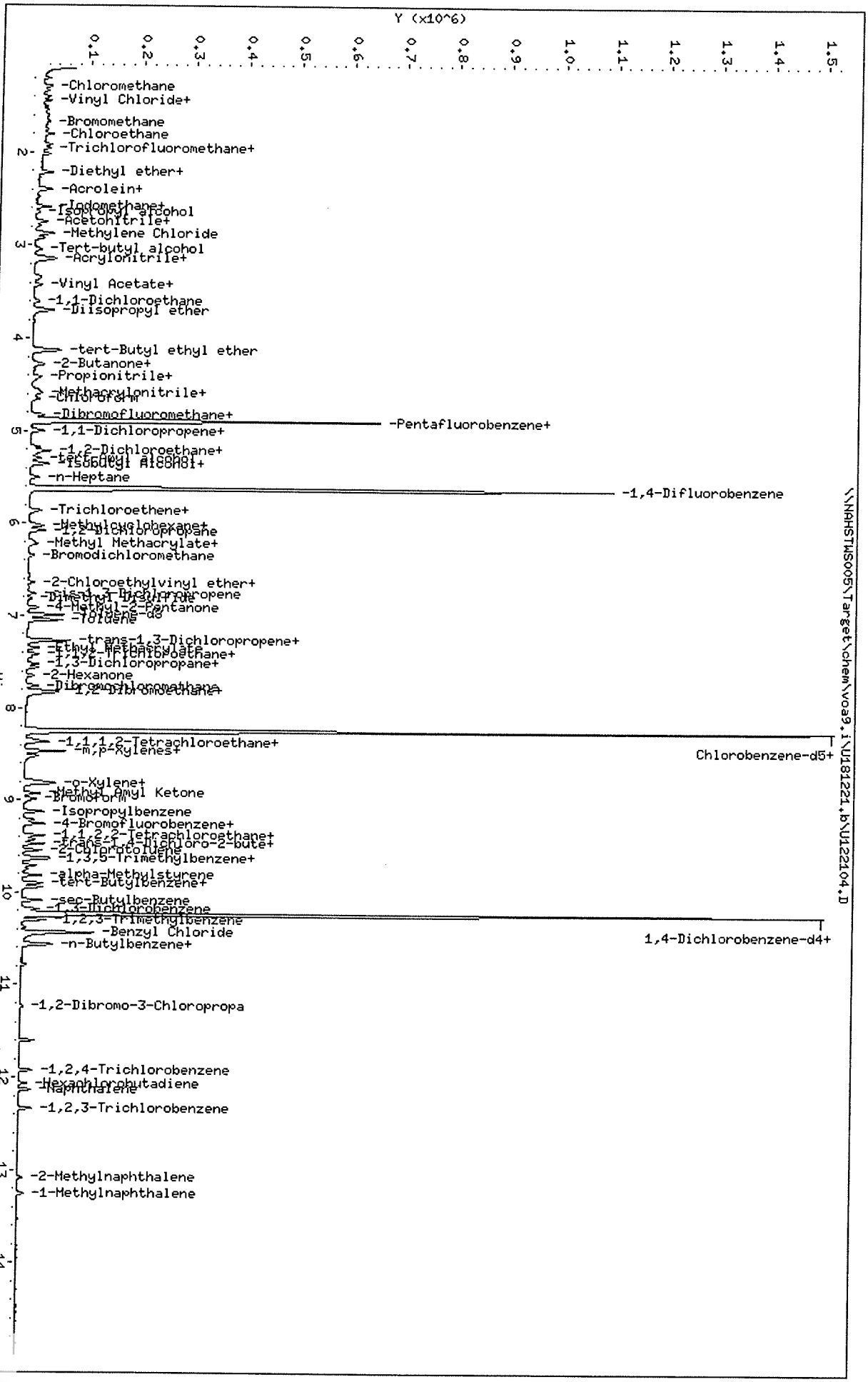
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 408613 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 790484 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 731112 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 336061 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.986) | 8005 | 1.00000 | 0.30(a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 10907 | 1.00000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 32175 | 1.00000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 12547 | 1.00000 | 0.36(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 4208 | 1.00000 | 1.48(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 7082 | 1.00000 | 1.09(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 9134 | 1.00000 | 1.20(a) |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 4108 | 1.00000 | 1.18(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 5137 | 1.00000 | 1.17(a) |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 10662 | 1.00000 | 1.21(a) |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 4598 | 1.00000 | 1.18(a) |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 8232 | 1.00000 | 1.17(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 6631 | 1.00000 | 1.66(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 8706 | 1.00000 | 1.10(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 6820 | 1.00000 | 1.09(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 18977 | 1.00000 | 1.07(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 861 | 1.00000 | 2.16(a) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 5748 | 1.00000 | 1.14(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 11945 | 1.00000 | 1.19(a) |
| 33 | 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 8970 | 1.00000 | 0.54(a) |
| 42 | 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 6565 | 1.00000 | 1.17(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 18075 | 1.00000 | 1.07(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 11430 | 1.00000 | 1.14(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 10939 | 1.00000 | 1.16(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 12811 | 1.00000 | 1.21(a) |
| 26 | 2,2-Dichloropropane | 77 | 4.272 | 4.272 | (0.873) | 6236 | 1.00000 | 1.17(a) |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 6369 | 2.00000 | 0.00(a) |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 17719 | 1.00000 | 1.14(a) |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 8136 | 2.00000 | 2.00(a) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 20099 | 1.00000 | 1.12(a) |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 18371 | 1.00000 | 1.03(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 12526 | 2.00000 | 2.14(a) |
| 10 | Acetone | 43 | 2.480 | 2.480 | (0.507) | 5582 | 2.00000 | 0.58(a) |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 24701 | 1.00000 | 1.17(a) |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 5982 | 1.00000 | 1.15(a) |
| 29 | Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 2865 | 1.00000 | (a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 6221 | 1.00000 | 1.04(aM) |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 2343 | 1.00000 | 2.48(Ta) |
| 6 | Bromomethane | 94 | 1.670 | 1.670 | (0.341) | 2293 | 1.00000 | 2.22(a) |
| 19 | Carbon Disulfide | 76 | 2.585 | 2.585 | (0.528) | 33391 | 2.00000 | 2.35(a) |
| 34 | Carbon Tetrachloride | 117 | 4.991 | 4.991 | (0.887) | 5463 | 1.00000 | 2.32(a) |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 16703 | 1.00000 | 1.18(a) |
| 7 | Chloroethane | 64 | 1.749 | 1.749 | (0.357) | 3213 | 1.00000 | 1.36(aM) |
| 28 | Chloroform | 83 | 4.654 | 4.654 | (0.951) | 10242 | 1.00000 | 1.20(a) |
| 3 | Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 4689 | 1.00000 | 4.32(a) |
| 27 | cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 6586 | 1.00000 | 1.22(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 7273 | 1.00000 | 2.04(a) |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 4051 | 1.00000 | 1.80(a) |
| 44 | Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 3627 | 1.00000 | 1.12(aM) |
| 2 | Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 6583 | 1.00000 | 1.78(a) |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 8132 | 1.00000 | 1.12(a) |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 2672 | 1.00000 | 1.12(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 22547 | 1.00000 | 1.08(a) |
| 62 | m,p-Xylenes | 106 | 8.470 | 8.470 | (1.027) | 19538 | 2.00000 | 2.20(a) |
| 17 | Methylene Chloride | 84 | 2.866 | 2.866 | (0.586) | 8113 | 1.00000 | 0.44(a) |
| 87 | n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 18944 | 1.00000 | 1.10(a) |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 27852 | 1.00000 | 1.10(a) |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 16505 | 1.00000 | 1.44(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 10277 | 1.00000 | 1.15(a) |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 22753 | 1.00000 | 1.07(a) |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 15133 | 1.00000 | 1.01(a) |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 15715 | 1.00000 | 1.07(a) |
| 56 | Tetrachloroethene | 164 | 7.522 | 7.522 | (0.912) | 4775 | 1.00000 | 1.24(a) |
| 50 | Toluene | 91 | 7.046 | 7.046 | (0.854) | 24298 | 1.00000 | 1.11(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 5920 | 1.00000 | 1.23(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 5668 | 1.00000 | 2.35(a) |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 6040 | 1.00000 | 1.18(a) |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 7922 | 1.00000 | 1.78(a) |
| 5 | Vinyl Chloride | 62 | 1.415 | 1.415 | (0.289) | 6308 | 1.00000 | 2.03(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



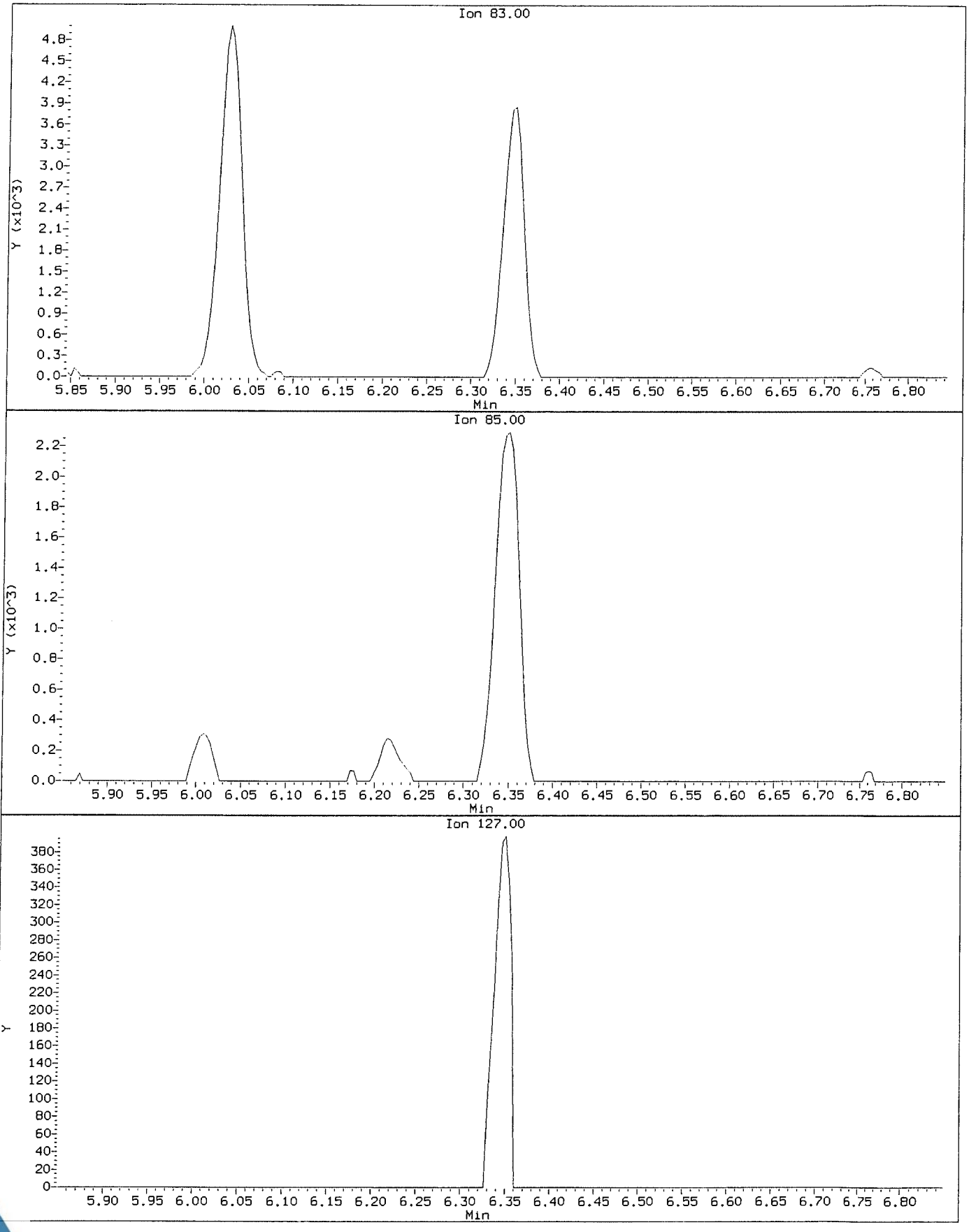

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Date : 21-DEC-2018 15:03
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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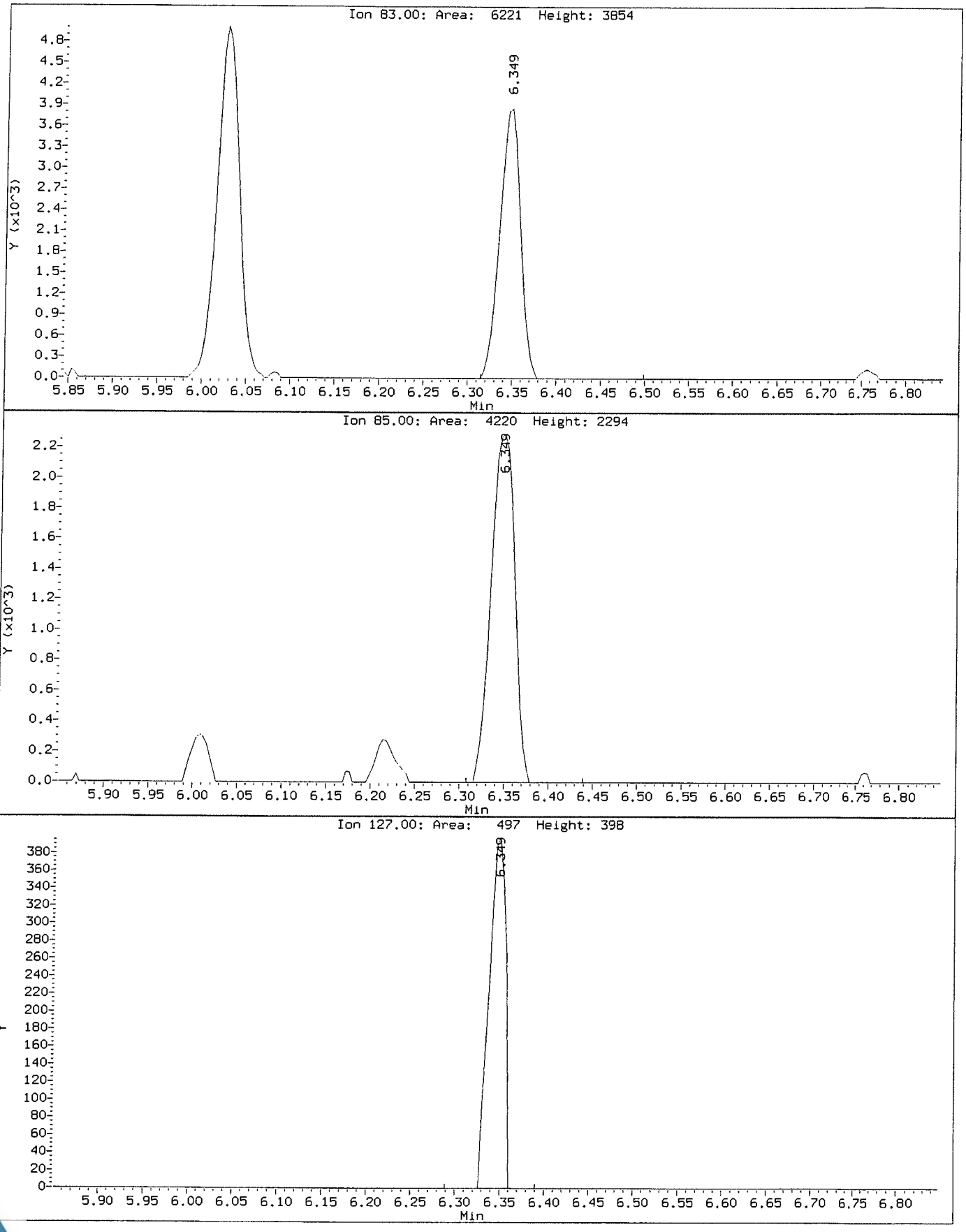
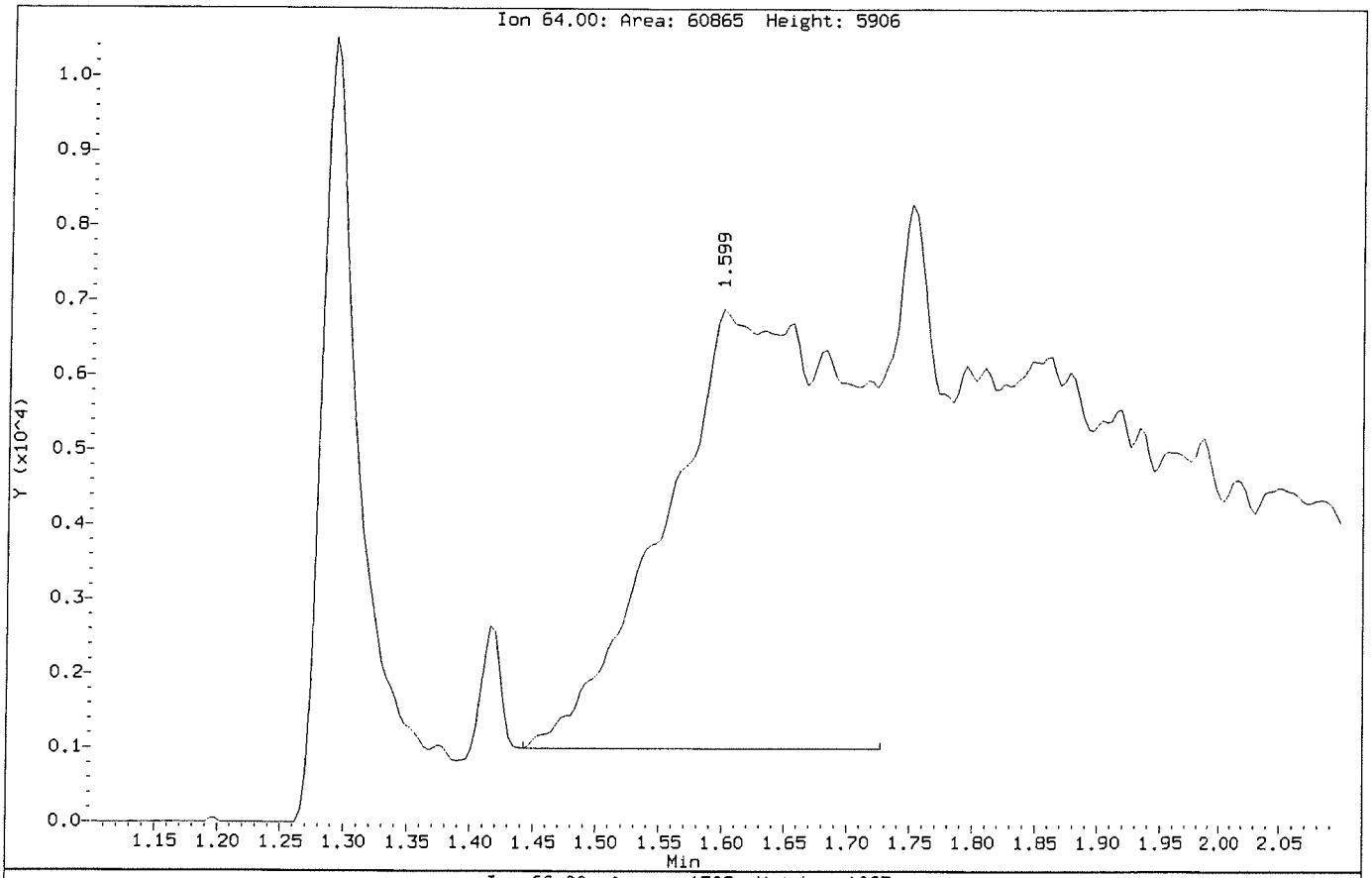
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

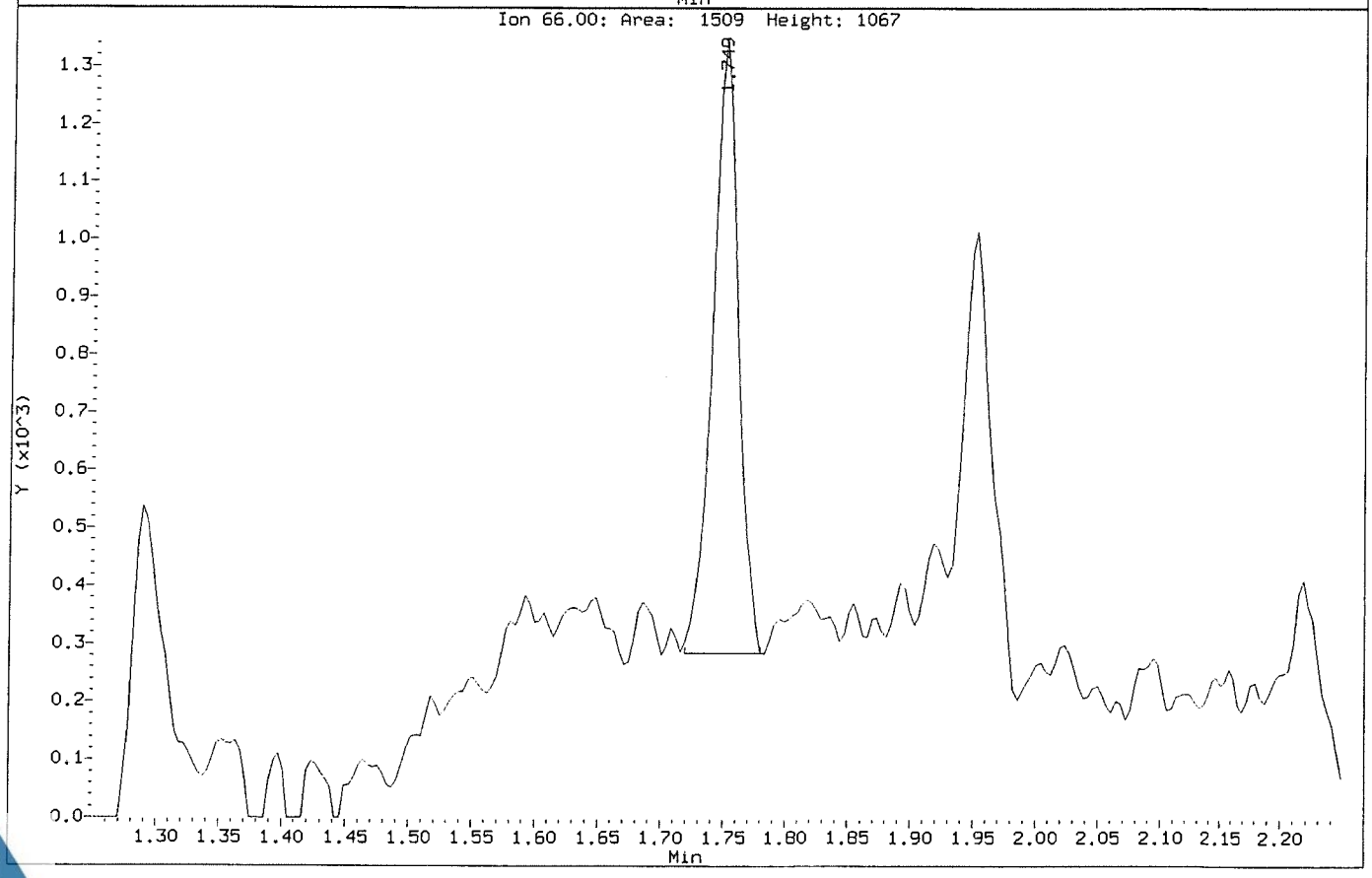
Compound: Bromodichloromethane
CAS Number: 75-27-4



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

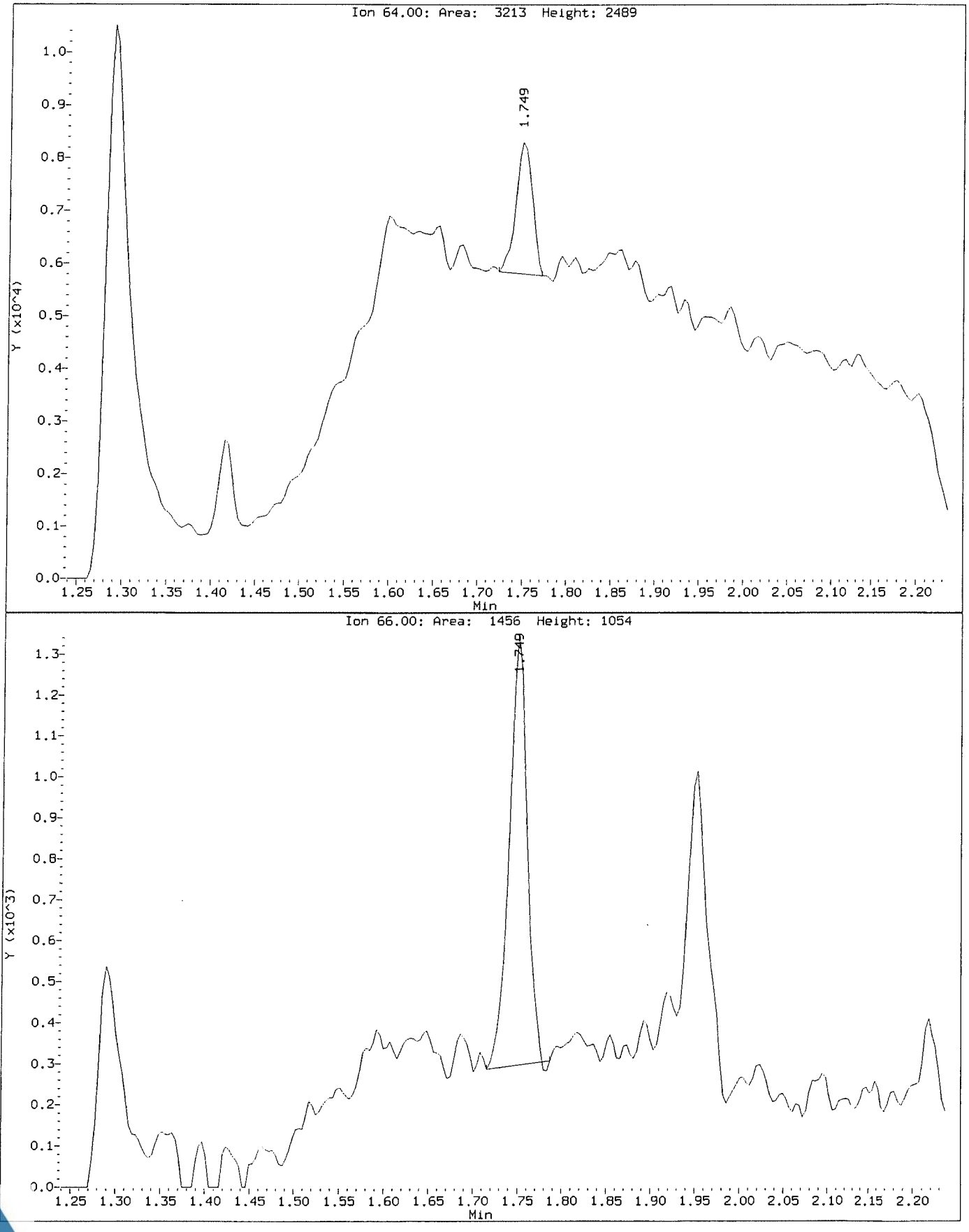
Compound: Chloroethane
CAS Number: 75-00-3



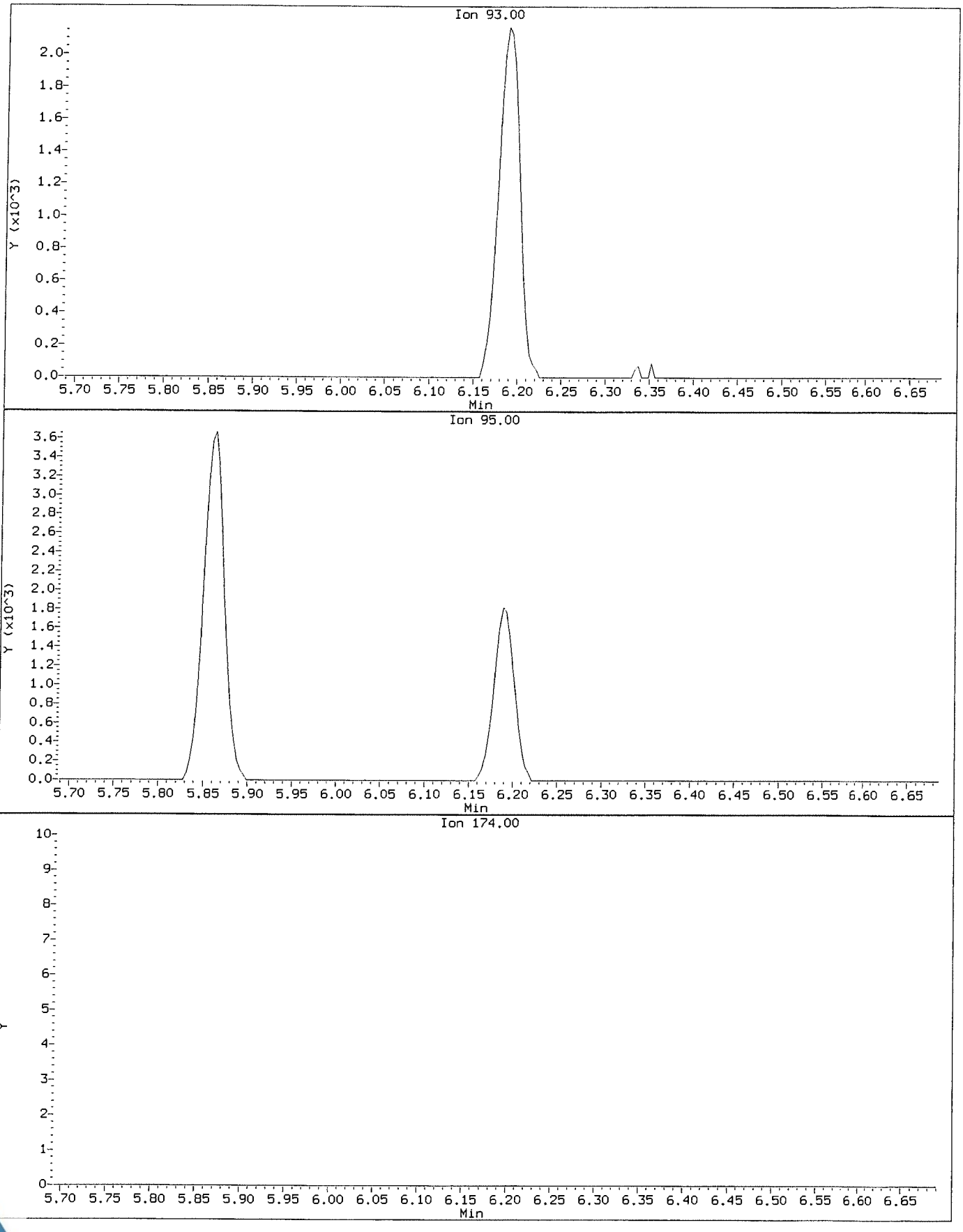
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



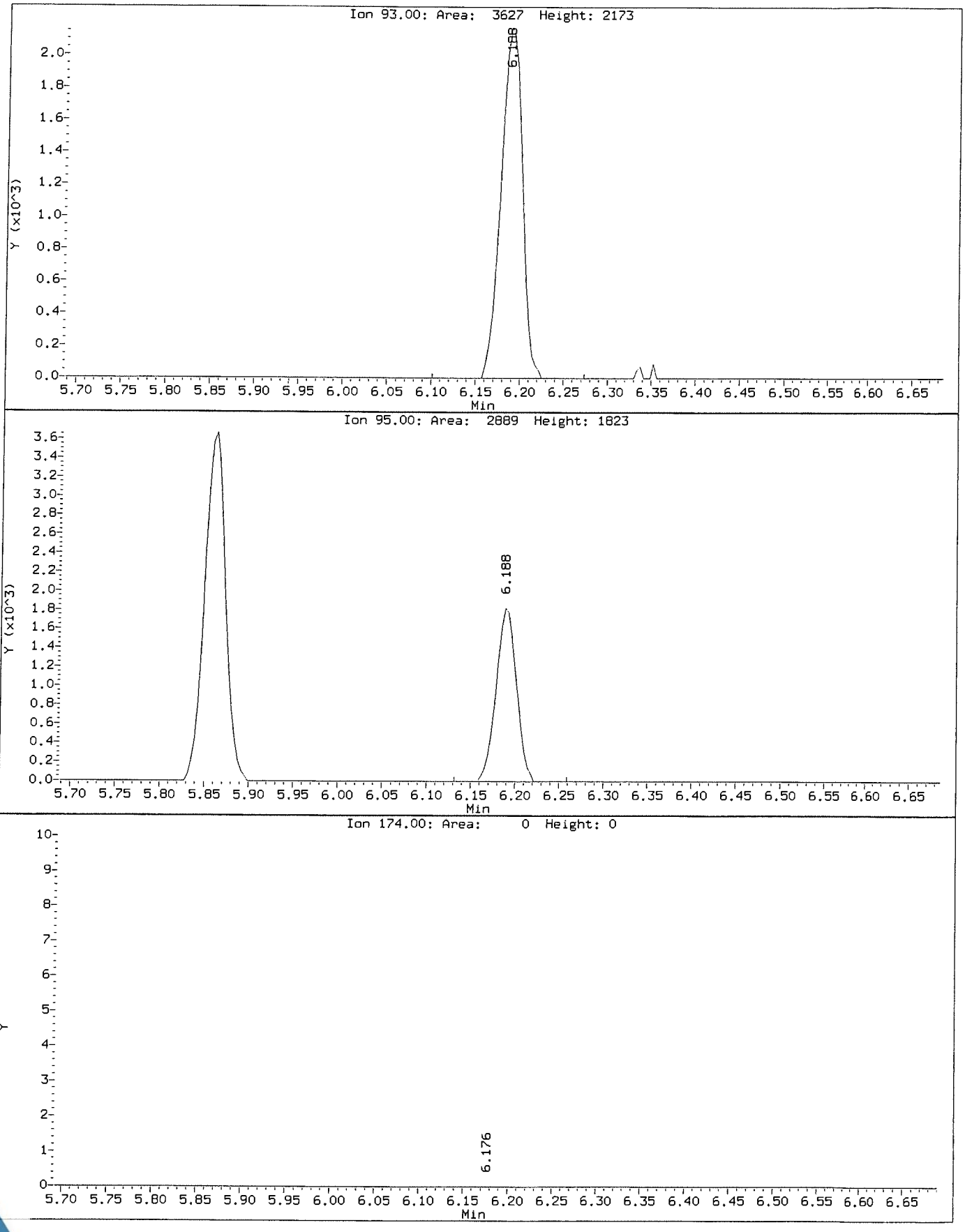
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 21-DEC-2018 15:28
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:03 Cal File: U122104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

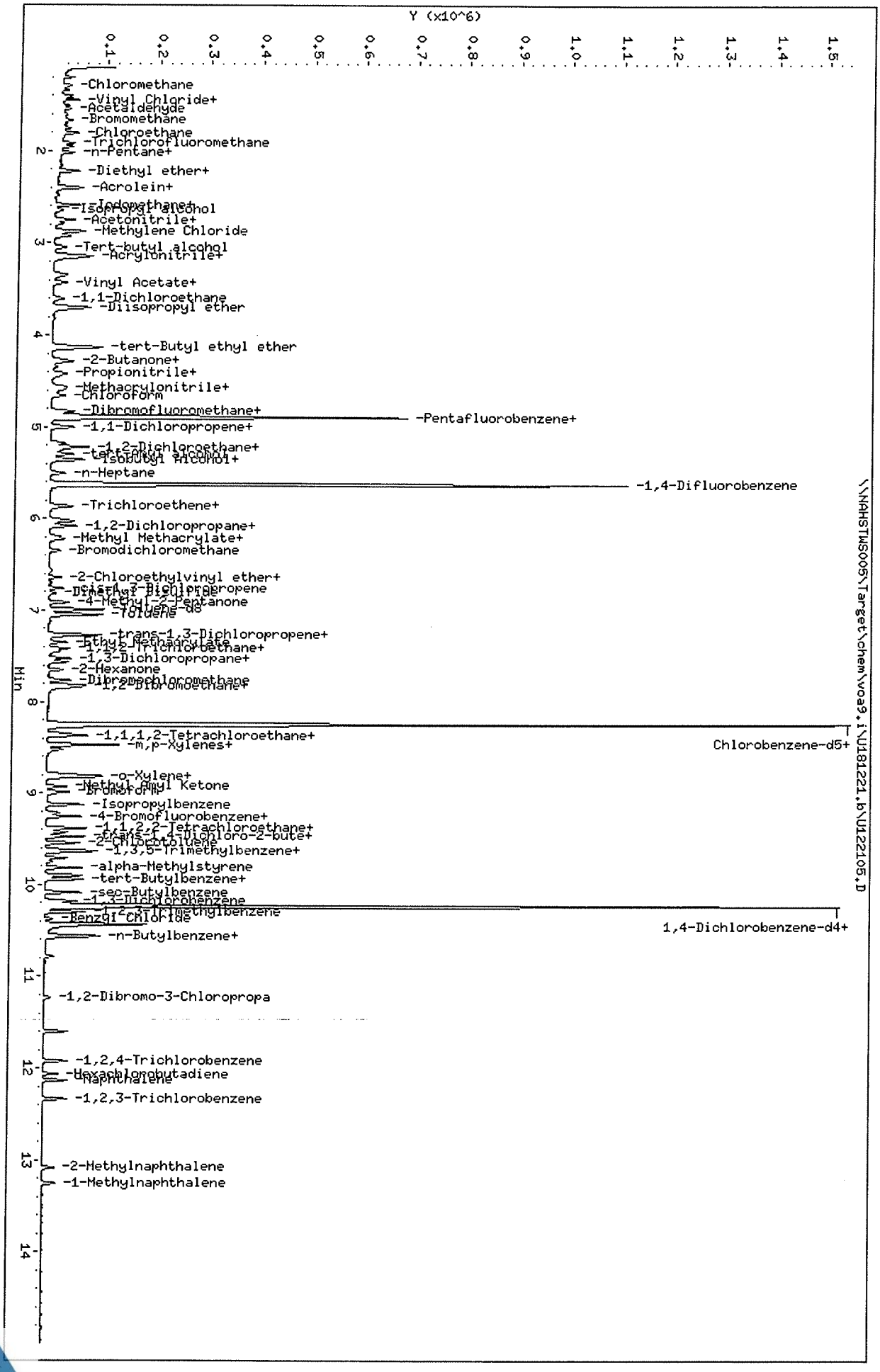
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 416245 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 790380 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 728875 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 340088 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 12720 | 2.00000 | 1.32(a) |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 17881 | 2.00000 | 0.99(a) |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 54444 | 2.00000 | 1.21(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 20092 | 2.00000 | 1.45(a) |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.347 | 8.347 | (1.012) | 8522 | 2.00000 | 2.40(a) |
| | 31 1,1,1-Trichloroethane | 97 | 4.827 | 4.827 | (0.986) | 12904 | 2.00000 | 1.96(a) |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 16933 | 2.00000 | 2.21(a) |
| | 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 7489 | 2.00000 | 2.11(a) |
| | 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 9254 | 2.00000 | 2.13(a) |
| | 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 19553 | 2.00000 | 2.18(a) |
| | 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.491) | 8761 | 2.00000 | 2.21(a) |
| | 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 15087 | 2.00000 | 2.14(a) |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 12385 | 2.00000 | 2.54(a) |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 16368 | 2.00000 | 2.05(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 12313 | 2.00000 | 1.95(a) |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 36129 | 2.00000 | 2.03(a) |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 1910 | 2.00000 | 3.02(a) |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 10069 | 2.00000 | 2.01(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 21852 | 2.00000 | 2.16(a) |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 15708 | 2.00000 | 1.50(a) |
| 42 | 1,2-Dichloropropane | 63 | 6.079 | 6.079 | (1.081) | 11593 | 2.00000 | 2.07(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 33264 | 2.00000 | 1.94(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 21833 | 2.00000 | 2.16(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 19804 | 2.00000 | 2.11(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 22897 | 2.00000 | 2.15(a) |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 10414 | 2.00000 | 1.92(a) |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 11299 | 4.00000 | 1.81(a) |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 32538 | 2.00000 | 2.07(a) |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 15773 | 4.00000 | 3.89(a) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 38000 | 2.00000 | 2.09(a) |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 34224 | 2.00000 | 1.90(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.915 | 6.915 | (0.838) | 23124 | 4.00000 | 3.96(a) |
| 10 | Acetone | 43 | 2.484 | 2.484 | (0.508) | 8219 | 4.00000 | 2.18(a) |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.928) | 44238 | 2.00000 | 2.10(a) |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 11074 | 2.00000 | 2.10(a) |
| 29 | Bromochloromethane | 128 | 4.557 | 4.557 | (0.931) | 5148 | 2.00000 | (a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 11433 | 2.00000 | 1.92(a) |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 4574 | 2.00000 | 3.17(Ta) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 4588 | 2.00000 | 3.07(a) |
| 19 | Carbon Disulfide | 76 | 2.589 | 2.589 | (0.529) | 60138 | 4.00000 | 4.17(a) |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 10077 | 2.00000 | 3.10(a) |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 29501 | 2.00000 | 2.10(a) |
| 7 | Chloroethane | 64 | 1.753 | 1.753 | (0.358) | 8179 | 2.00000 | 2.69(aM) |
| 28 | Chloroform | 83 | 4.658 | 4.658 | (0.952) | 18482 | 2.00000 | 2.14(a) |
| 3 | Chloromethane | 50 | 1.340 | 1.340 | (0.274) | 8693 | 2.00000 | 5.15 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 11391 | 2.00000 | 2.08(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 13732 | 2.00000 | 2.74(a) |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 7740 | 2.00000 | 2.55(a) |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 6690 | 2.00000 | 2.07(aM) |
| 2 | Dichlorodifluoromethane | 85 | 1.205 | 1.205 | (0.246) | 11371 | 2.00000 | 2.68(a) |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 14915 | 2.00000 | 2.07(a) |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 4376 | 2.00000 | 1.81(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 42416 | 2.00000 | 2.04(a) |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 36211 | 4.00000 | 4.10(a) |
| 17 | Methylene Chloride | 84 | 2.873 | 2.873 | (0.587) | 13726 | 2.00000 | 1.52(a) |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 35309 | 2.00000 | 2.03(a) |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 51078 | 2.00000 | 2.01(a) |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 32897 | 2.00000 | 2.21(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 17863 | 2.00000 | 2.00(a) |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 43551 | 2.00000 | 2.03(a) |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 29048 | 2.00000 | 1.96(a) |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 29889 | 2.00000 | 2.02(a) |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 8071 | 2.00000 | 2.11(a) |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 46092 | 2.00000 | 2.12(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.143 | 3.143 | (0.642) | 10325 | 2.00000 | 2.11(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 10646 | 2.00000 | 2.97(a) |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 10169 | 2.00000 | 2.00(a) |
| 8 | Trichlorofluoromethane | 101 | 1.955 | 1.955 | (0.400) | 14026 | 2.00000 | 2.64(a) |
| 5 | Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 12656 | 2.00000 | 3.07(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

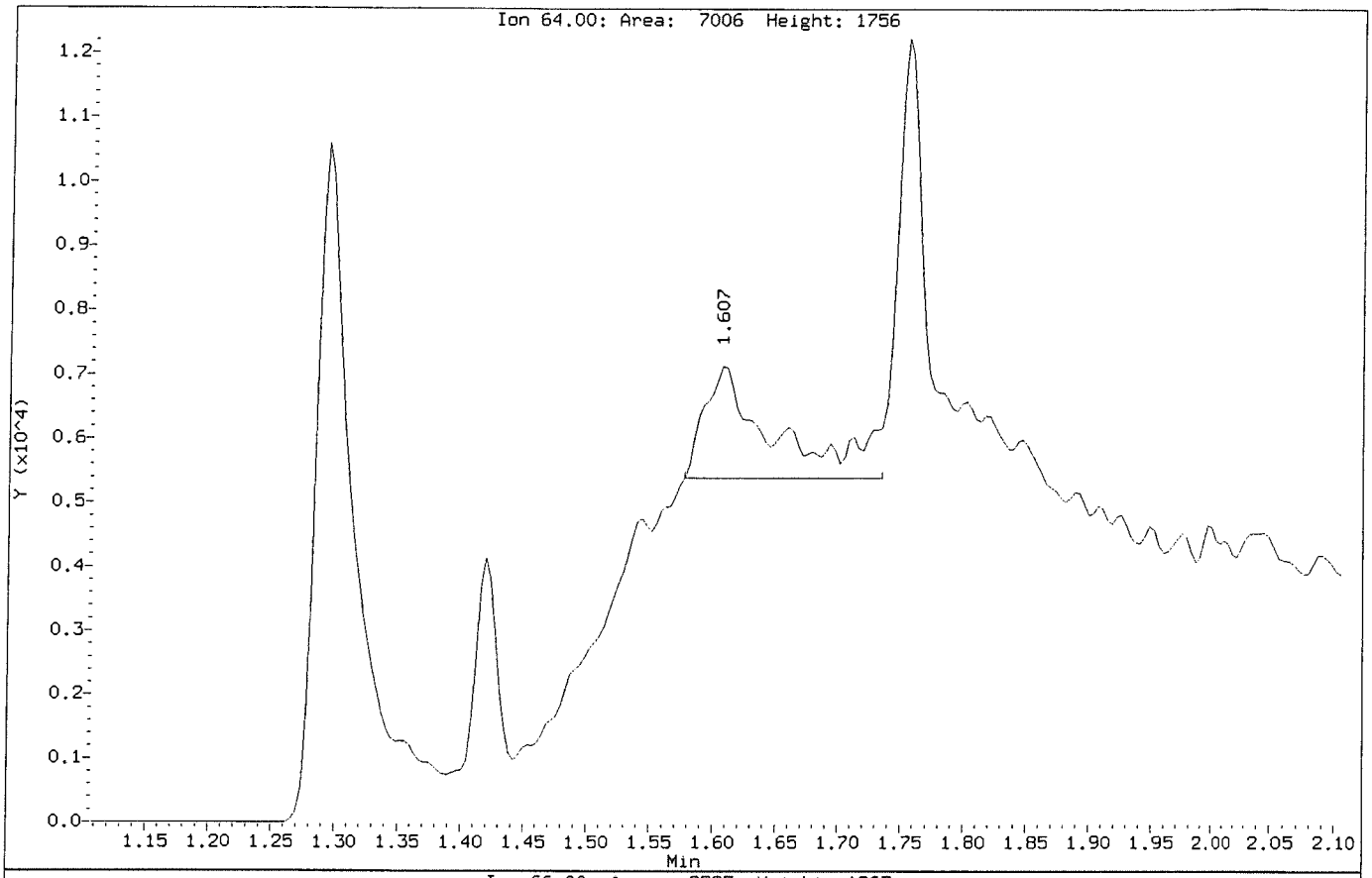


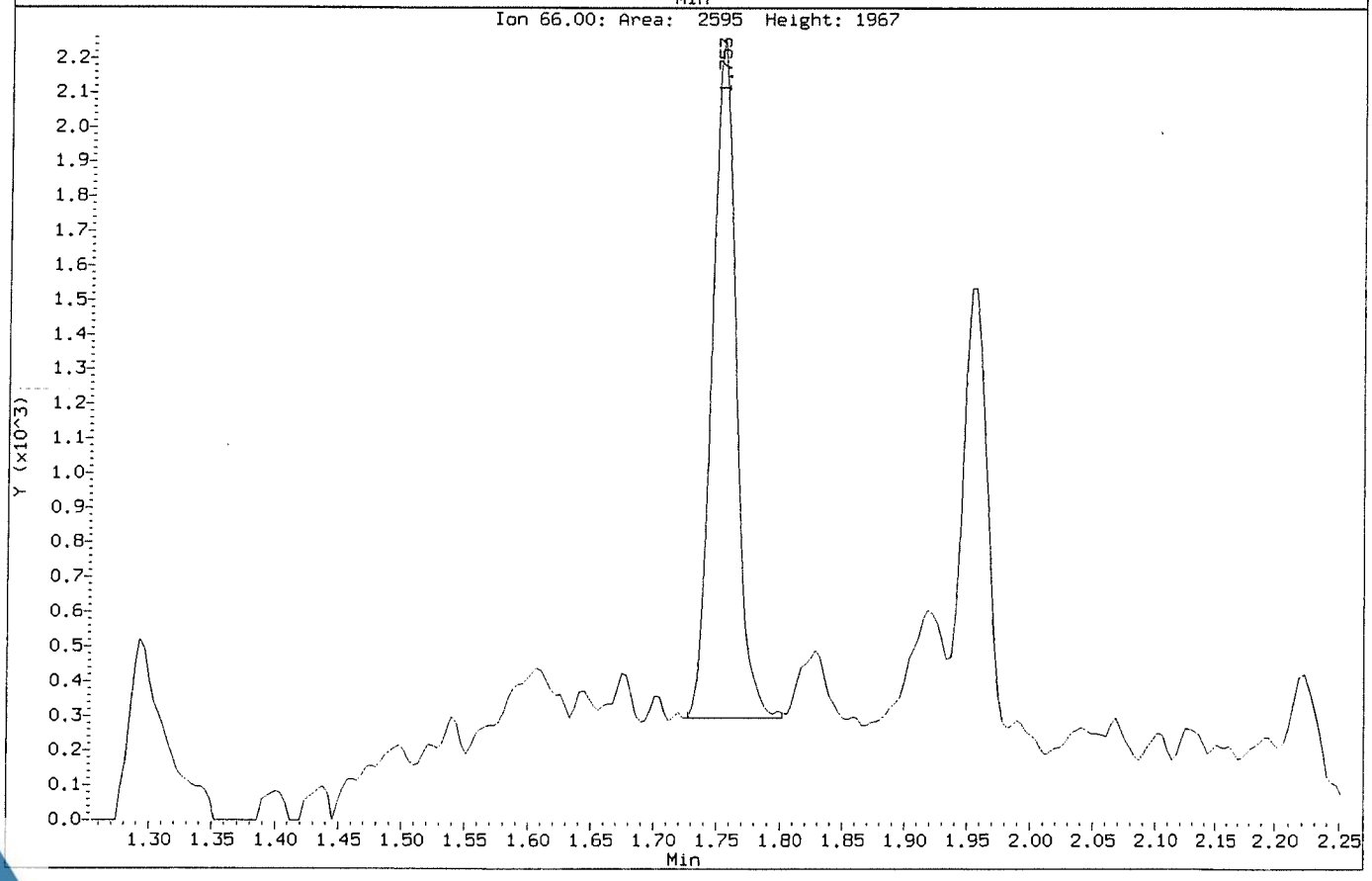

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Date : 21-DEC-2018 15:28
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

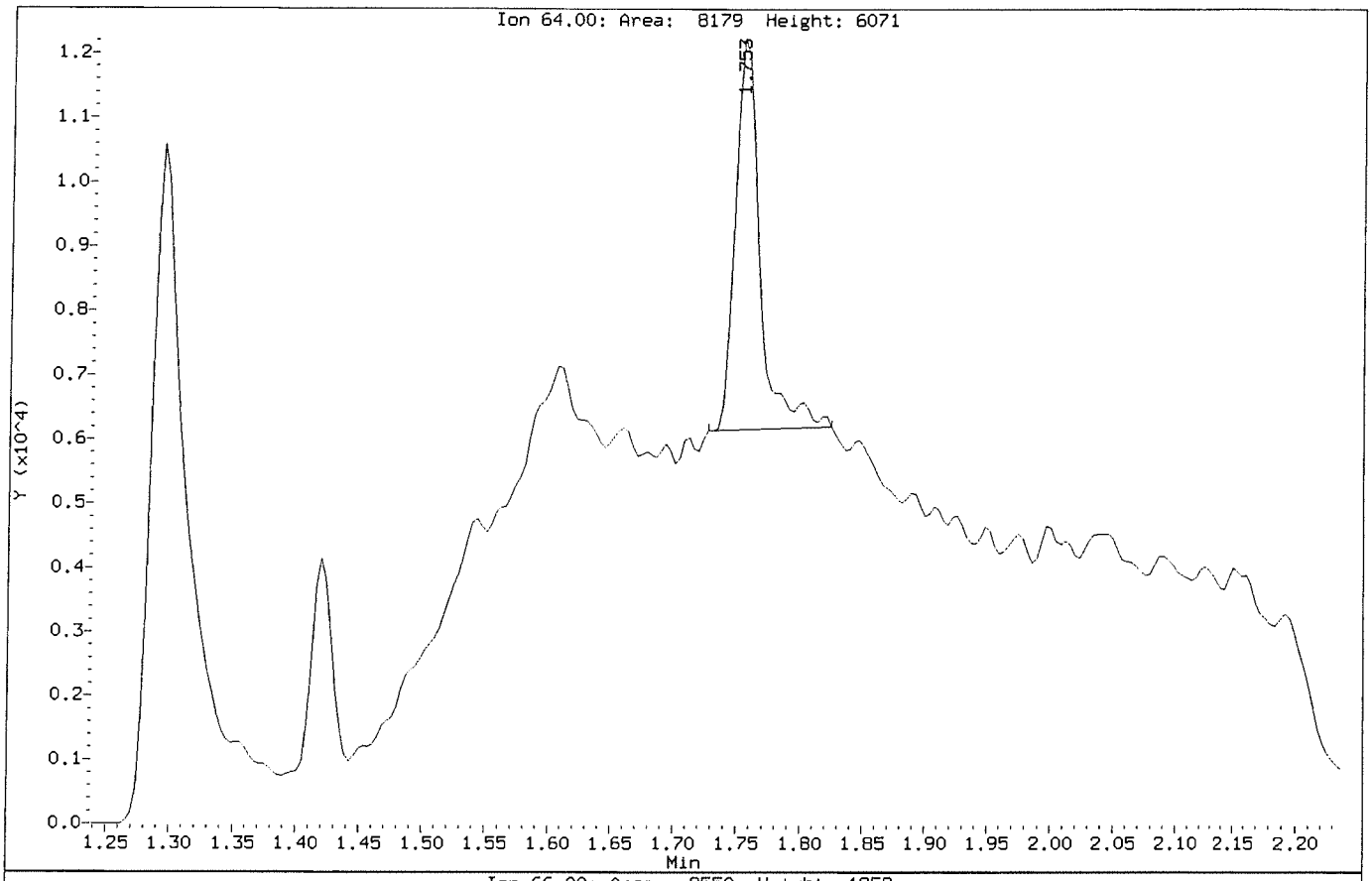
Compound: Chloroethane
CAS Number: 75-00-3

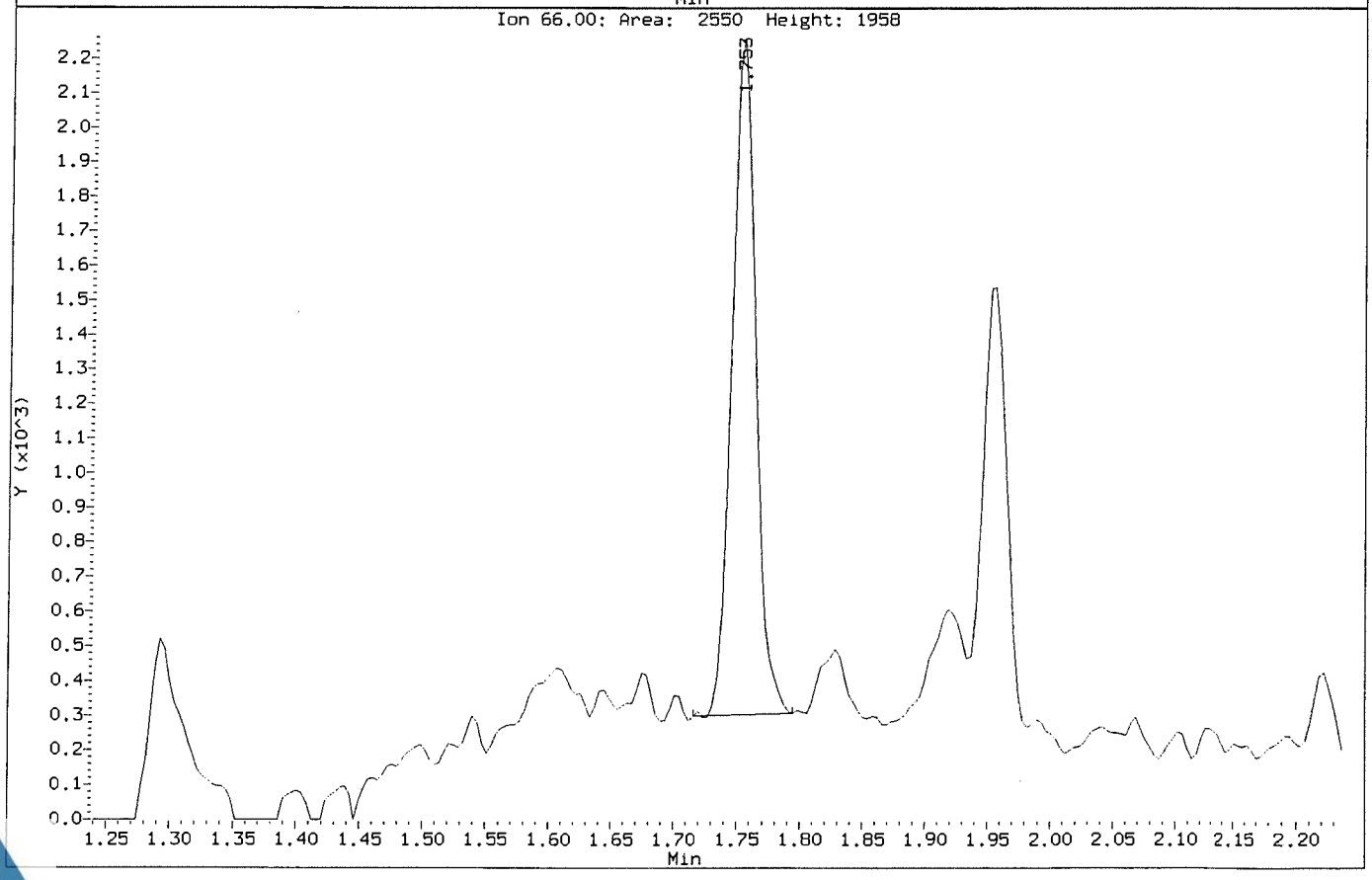


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

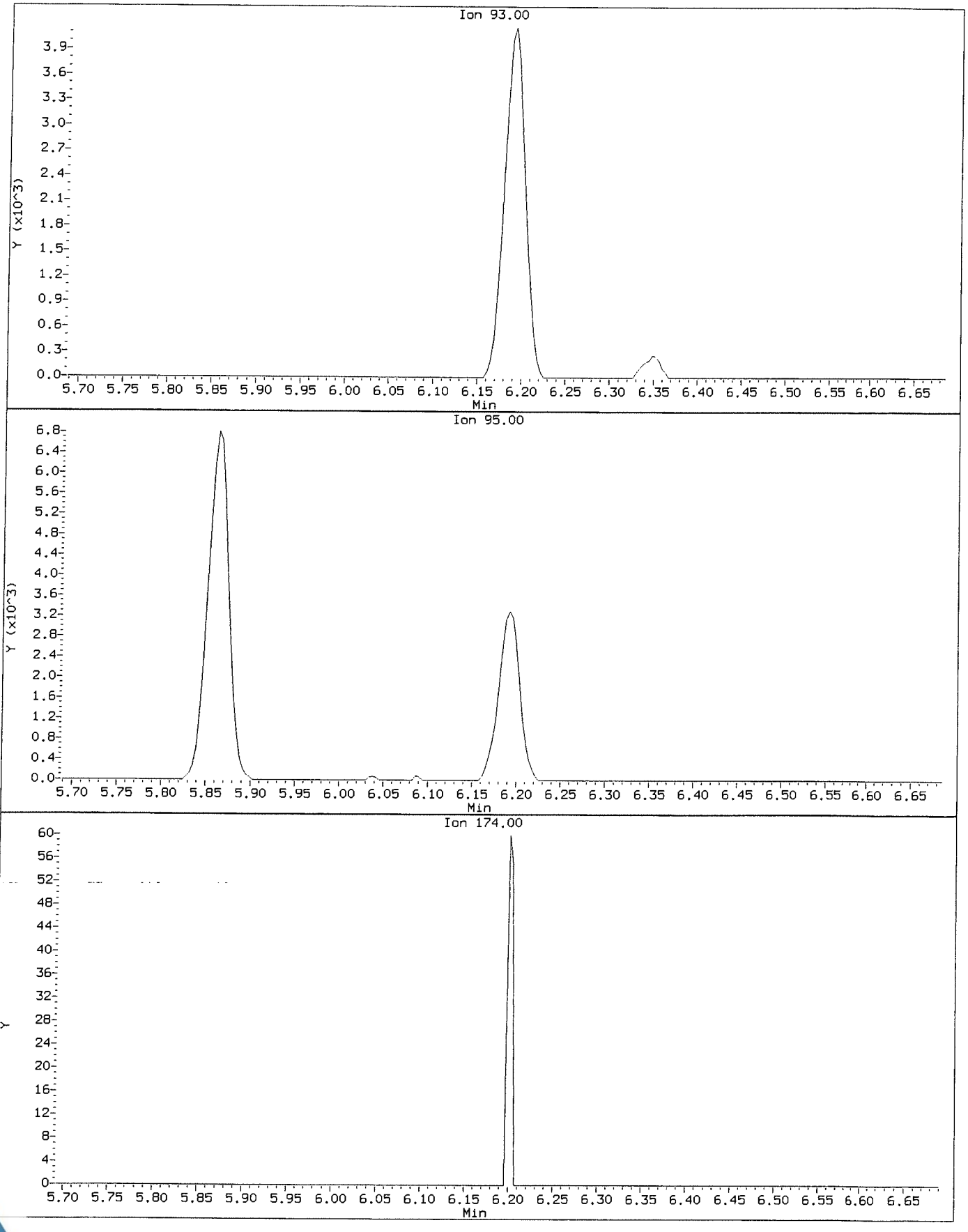
Compound: Chloroethane
CAS Number: 75-00-3



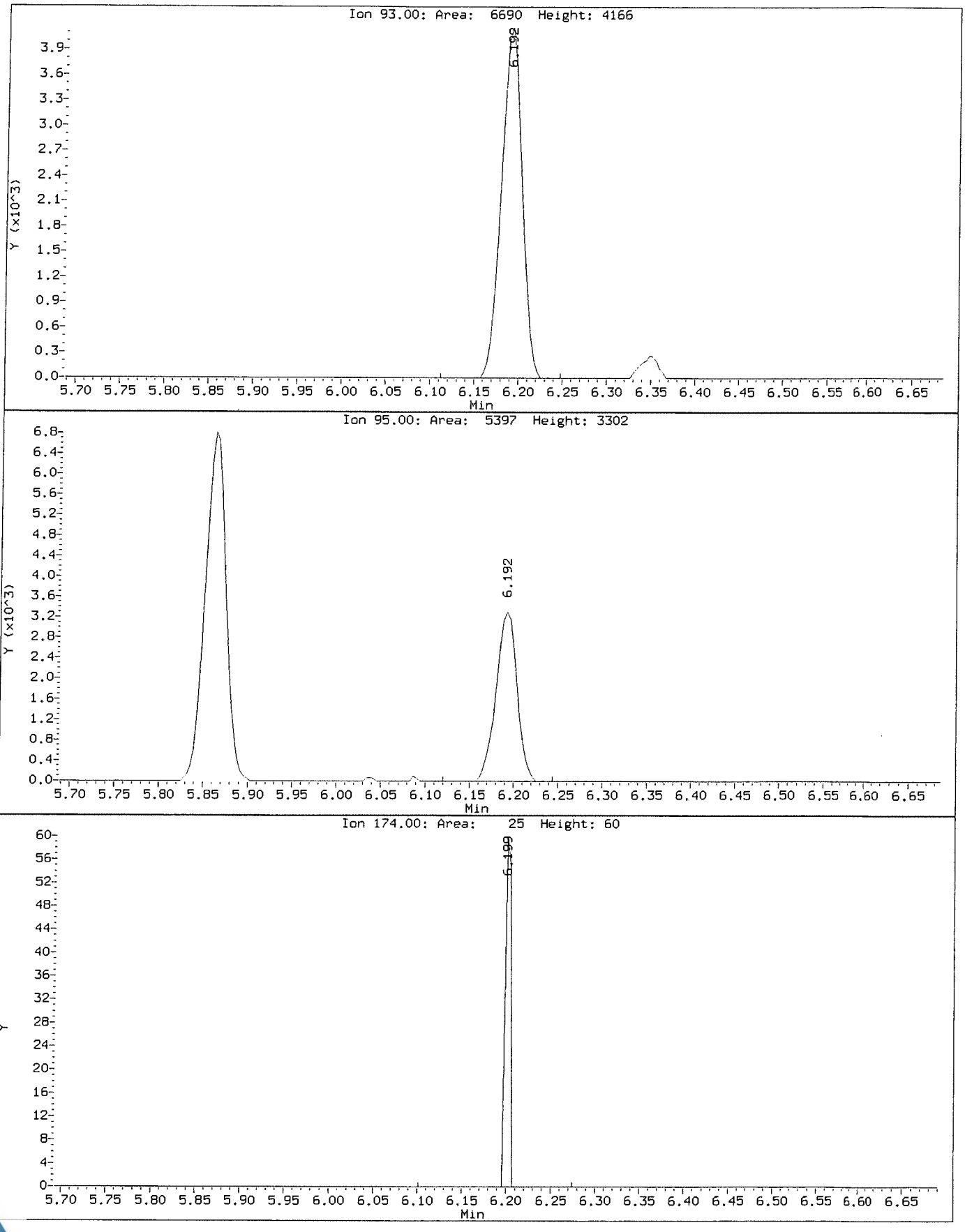
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 1
Report Date: 28-Jan-2019 11:25

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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 21-DEC-2018 15:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:28 Cal File: U122105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

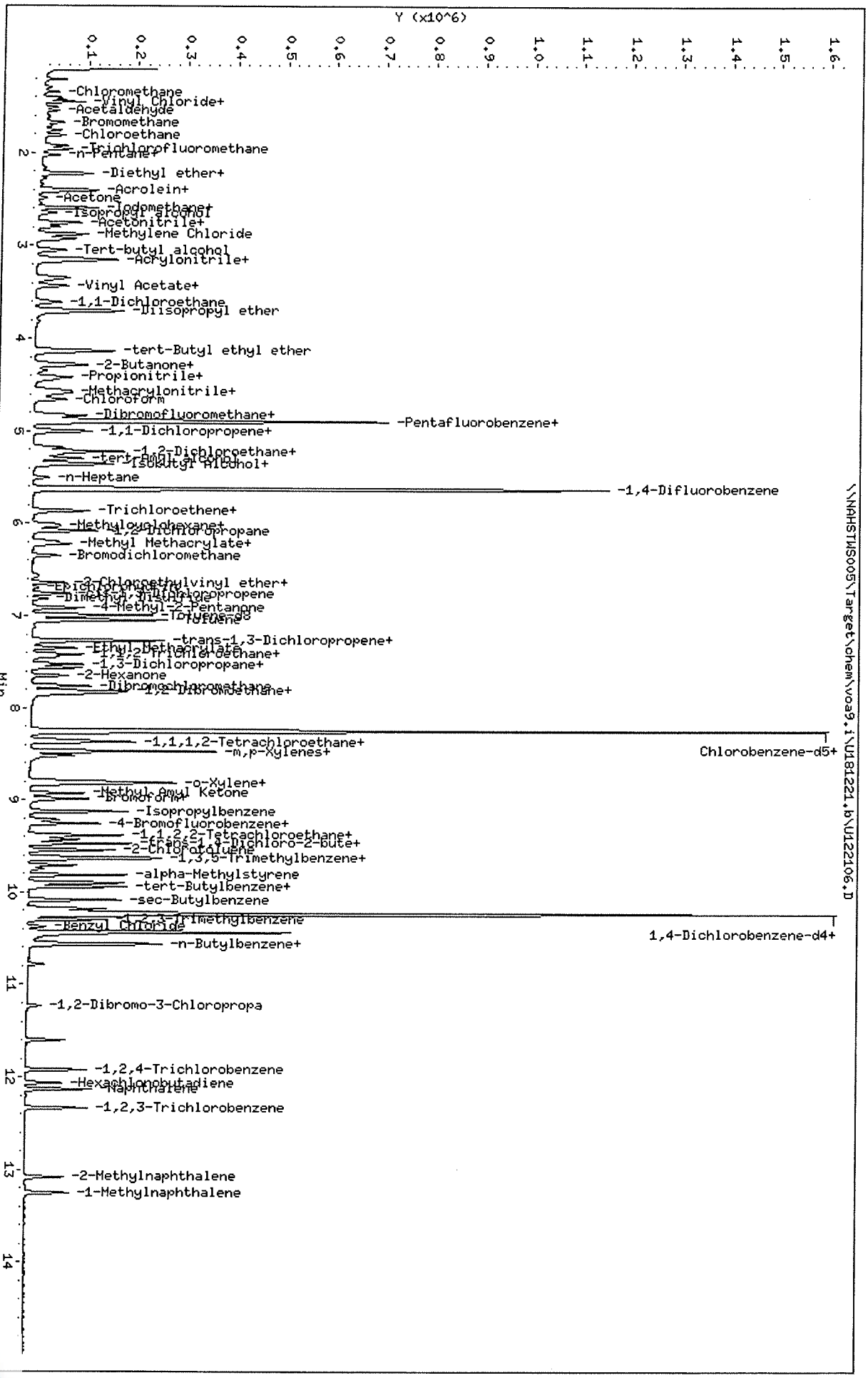
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.897 | (1.000) | 423551 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 811321 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 744062 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 348718 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.986) | 28568 | 5.00000 | 4.77(a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 38943 | 5.00000 | 4.60(a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 117010 | 5.00000 | 4.52(a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 42900 | 5.00000 | 4.60(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 21878 | 5.00000 | 5.16 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 34906 | 5.00000 | 5.21 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 42397 | 5.00000 | 5.39 |
| 138 Freon TF | 101 | 2.408 | 2.408 | (0.492) | 18593 | 5.00000 | 5.16 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 23788 | 5.00000 | 5.36 |
| 22 1,1-Dichloroethane | 63 | 3.608 | 3.608 | (0.737) | 48869 | 5.00000 | 5.35 |
| 11 1,1-Dichloroethene | 96 | 2.405 | 2.405 | (0.491) | 20607 | 5.00000 | 5.11 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 37139 | 5.00000 | 5.14 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 31113 | 5.00000 | 5.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 41282 | 5.00000 | 5.05 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 31564 | 5.00000 | 4.88(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 98307 | 5.00000 | 5.38 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 4931 | 5.00000 | 5.40 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 27067 | 5.00000 | 5.30 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 55324 | 5.00000 | 5.34 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 41415 | 5.00000 | 5.01 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 30107 | 5.00000 | 5.25 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 93516 | 5.00000 | 5.33 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 54677 | 5.00000 | 5.28 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 52651 | 5.00000 | 5.51 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 57942 | 5.00000 | 5.30 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.873) | 27335 | 5.00000 | 4.97(a) |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 29605 | 10.0000 | 8.51 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 86842 | 5.00000 | 5.40 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 42401 | 10.0000 | 10.24 |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 100274 | 5.00000 | 5.40 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 97160 | 5.00000 | 5.26 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 60636 | 10.0000 | 10.18 |
| 10 | Acetone | 43 | 2.487 | 2.487 | (0.508) | 19230 | 10.0000 | 8.95 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.928) | 116462 | 5.00000 | 5.39 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 28350 | 5.00000 | 5.26 |
| 29 | Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 13786 | 5.00000 | 3.48(a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 31104 | 5.00000 | 5.10 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 12962 | 5.00000 | 5.67(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 12245 | 5.00000 | 5.89 |
| 19 | Carbon Disulfide | 76 | 2.592 | 2.592 | (0.529) | 153199 | 10.0000 | 10.44 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.889) | 26439 | 5.00000 | 5.75 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 75901 | 5.00000 | 5.30 |
| 7 | Chloroethane | 64 | 1.756 | 1.756 | (0.359) | 22172 | 5.00000 | 6.40(M) |
| 28 | Chloroform | 83 | 4.657 | 4.657 | (0.951) | 48639 | 5.00000 | 5.53 |
| 3 | Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 20682 | 5.00000 | 7.61 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 29626 | 5.00000 | 5.32 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.760 | 6.760 | (1.202) | 38403 | 5.00000 | 5.30 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 20846 | 5.00000 | 5.15 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 17610 | 5.00000 | 5.32(M) |
| 2 | Dichlorodifluoromethane | 85 | 1.209 | 1.209 | (0.247) | 26580 | 5.00000 | 5.53 |
| 61 | Ethylbenzene | 106 | 8.372 | 8.372 | (1.015) | 38926 | 5.00000 | 5.30 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 11286 | 5.00000 | 4.56(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 113805 | 5.00000 | 5.37 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 96419 | 10.0000 | 10.69 |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 31487 | 5.00000 | 4.95(a) |
| 87 | n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 92969 | 5.00000 | 5.22 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 140607 | 5.00000 | 5.39 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 91300 | 5.00000 | 4.86(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 47745 | 5.00000 | 5.25 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 116270 | 5.00000 | 5.30 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 80690 | 5.00000 | 5.34 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 81608 | 5.00000 | 5.38 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 20249 | 5.00000 | 5.19 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 120808 | 5.00000 | 5.45 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 25998 | 5.00000 | 5.24 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 30725 | 5.00000 | 5.37 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.043) | 27950 | 5.00000 | 5.36 |
| 8 | Trichlorofluoromethane | 101 | 1.958 | 1.958 | (0.400) | 37144 | 5.00000 | 5.87 |
| 5 | Vinyl Chloride | 62 | 1.422 | 1.422 | (0.291) | 29272 | 5.00000 | 5.76 |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

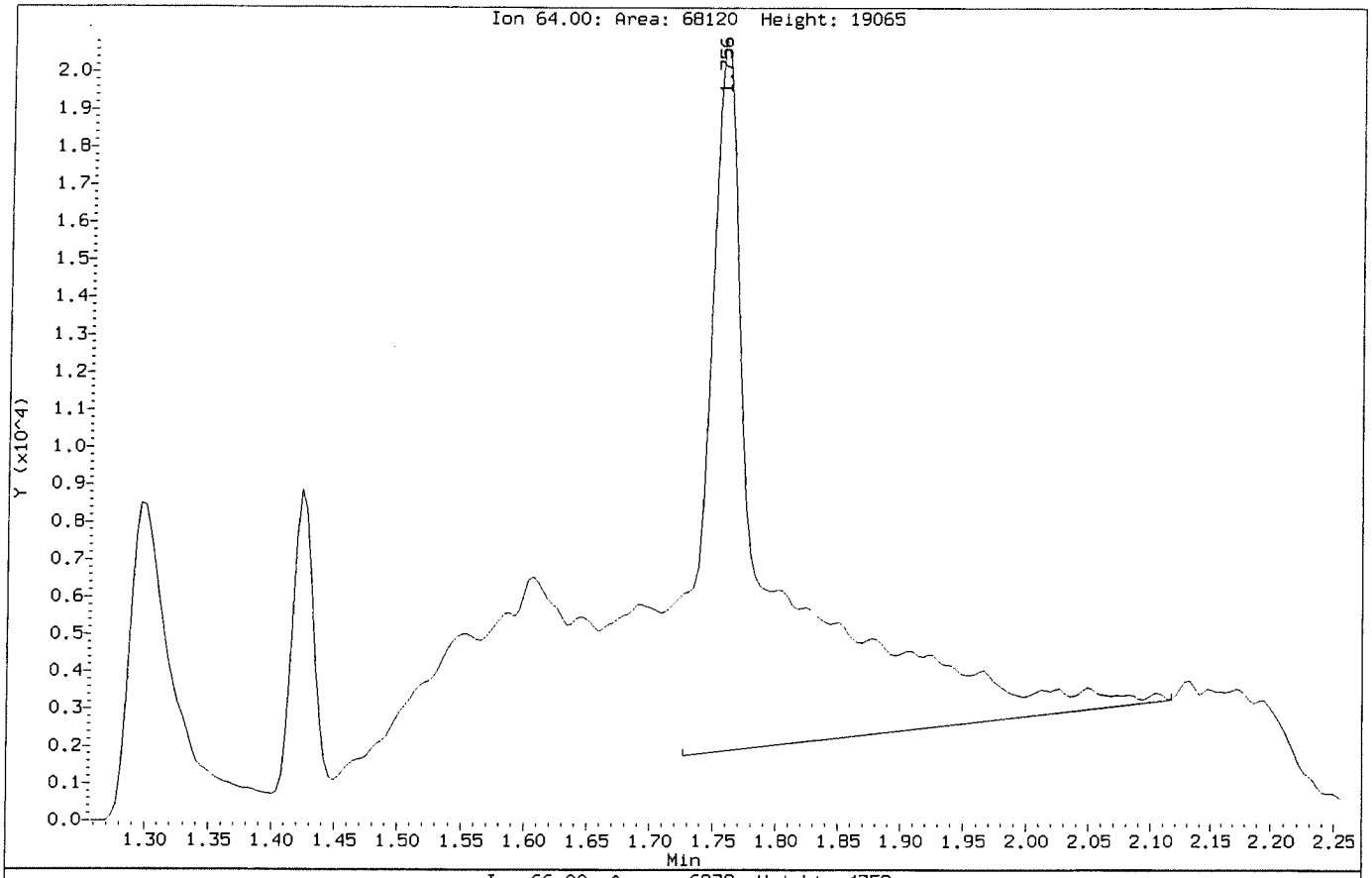


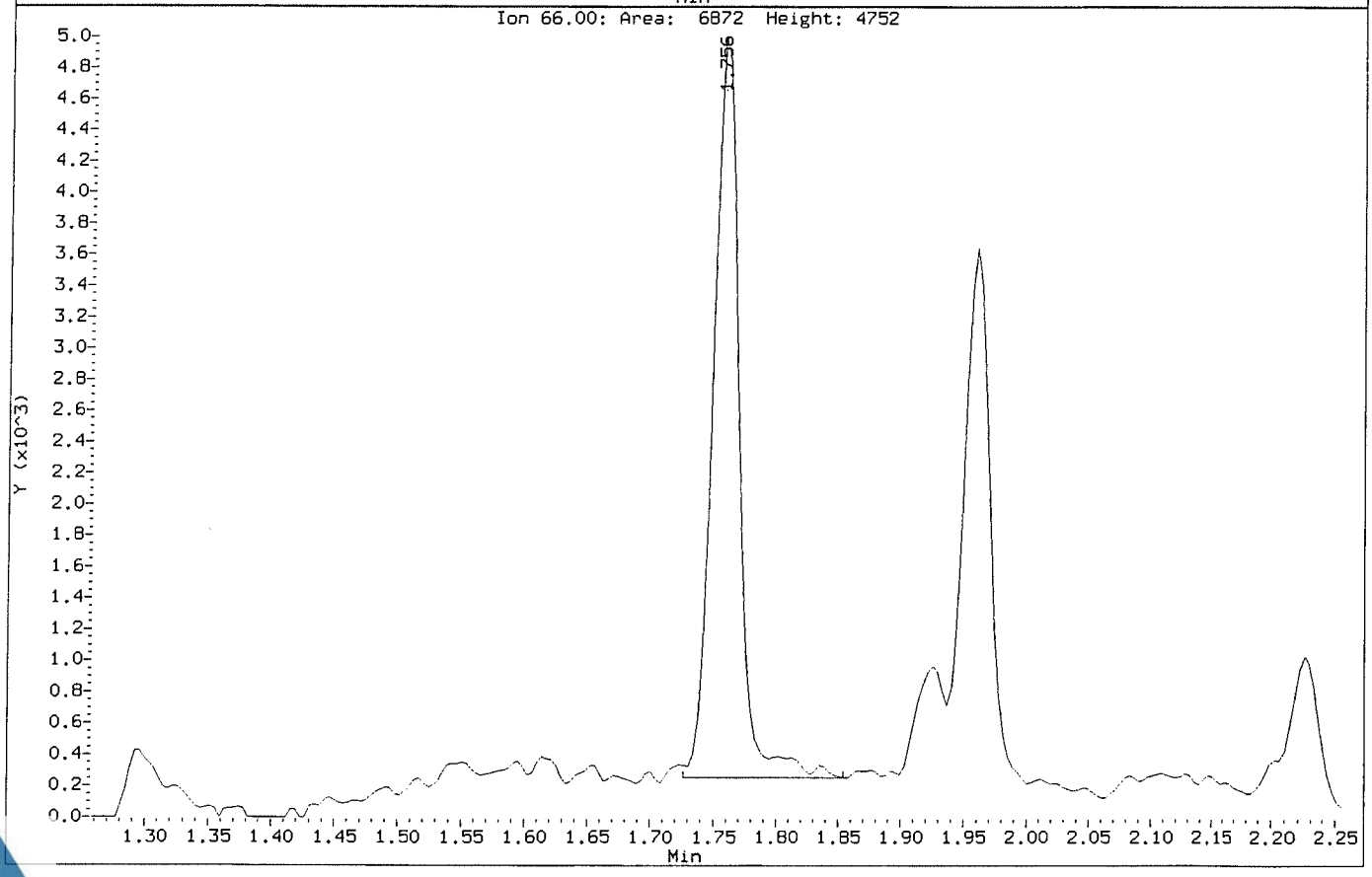

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Date : 21-DEC-2018 15:52
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

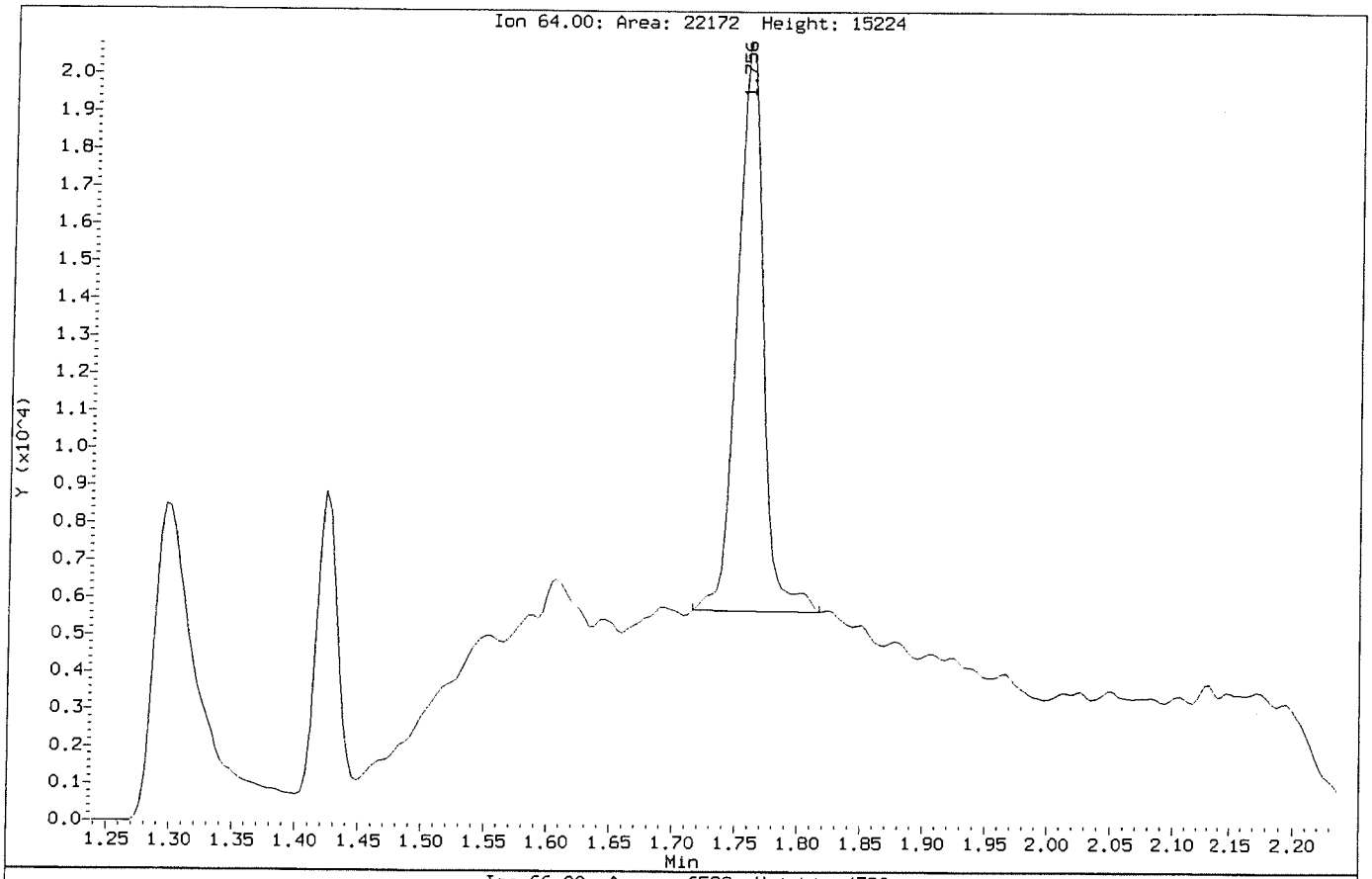
Compound: Chloroethane
CAS Number: 75-00-3

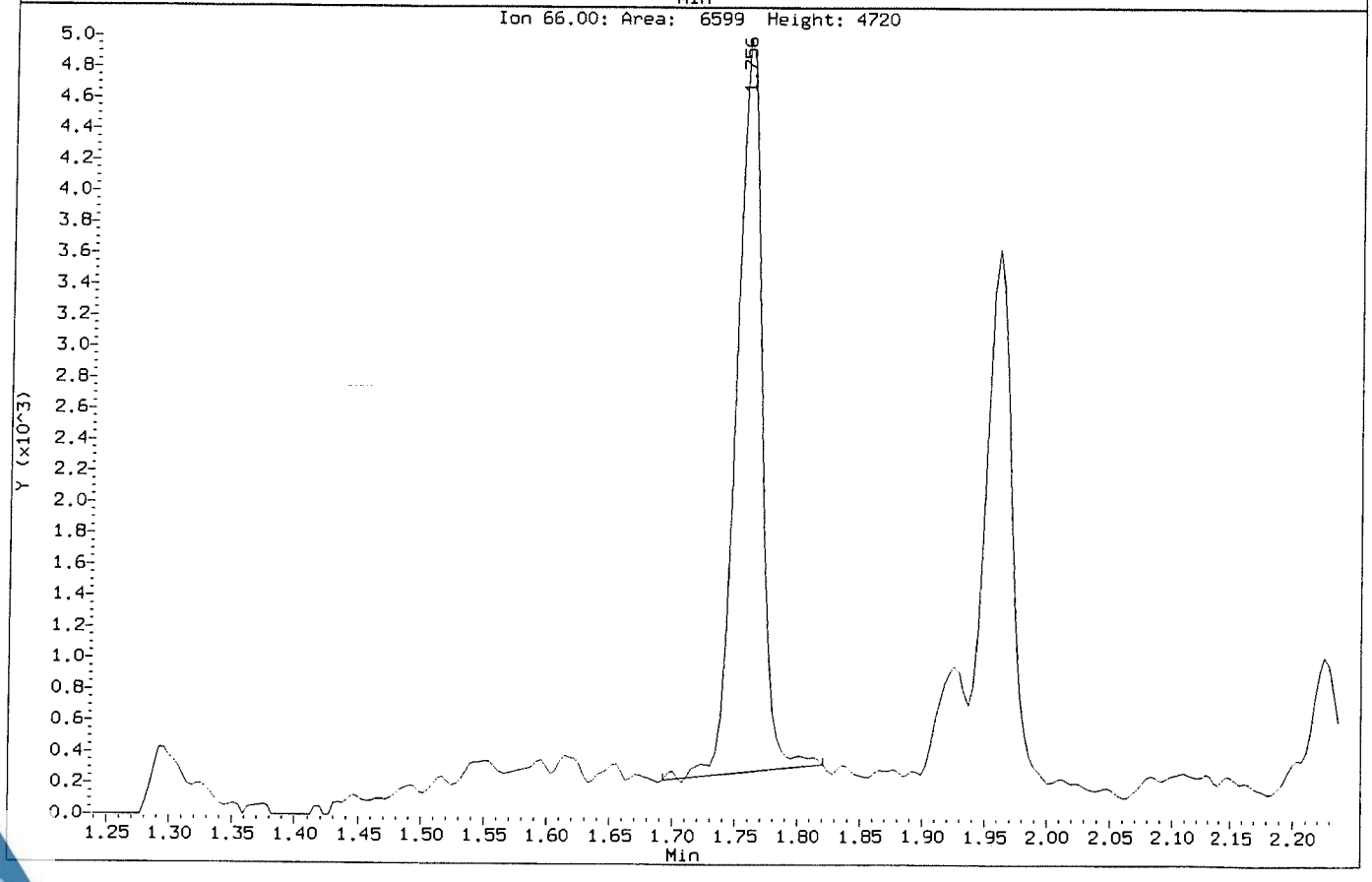


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

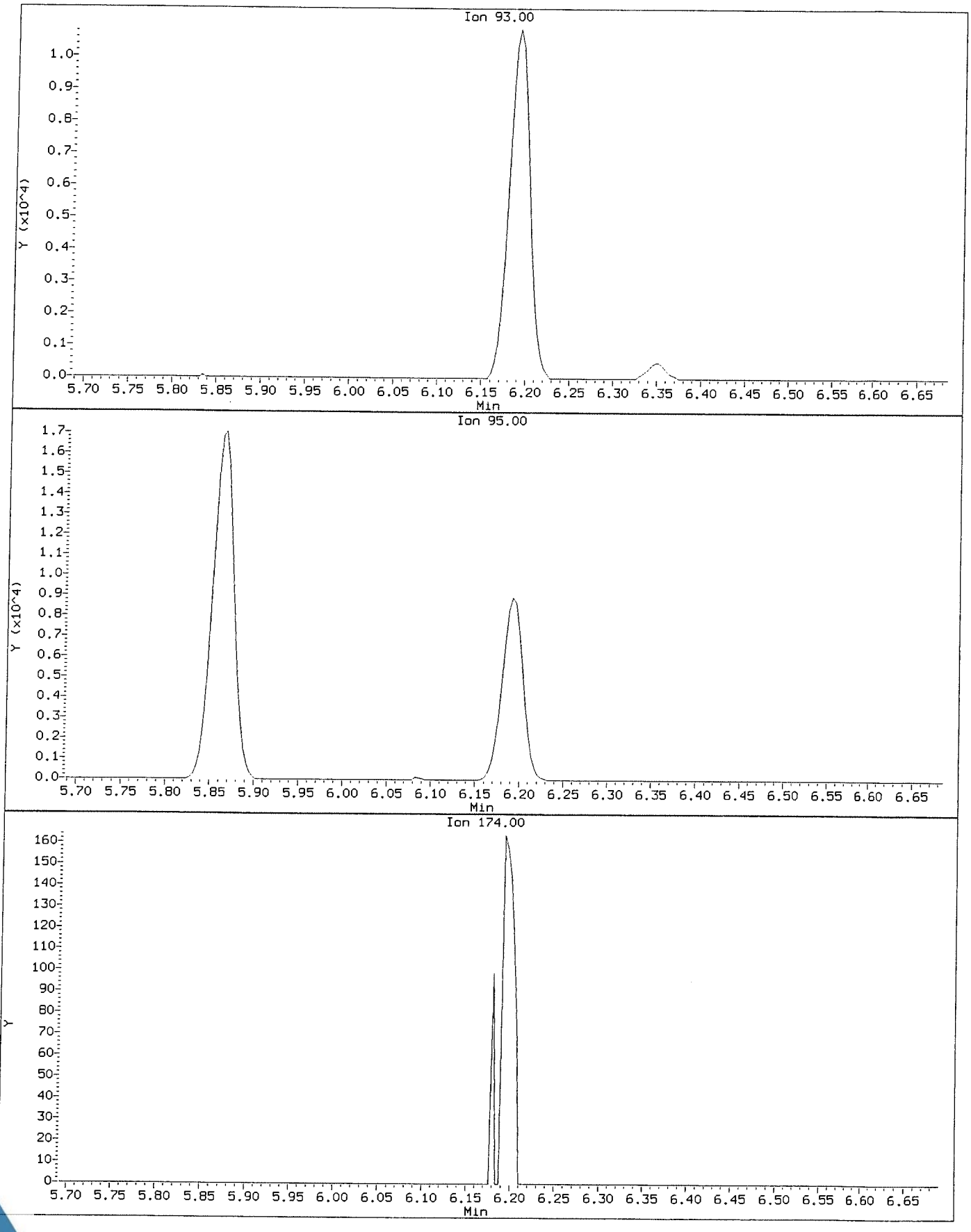
Compound: Chloroethane
CAS Number: 75-00-3



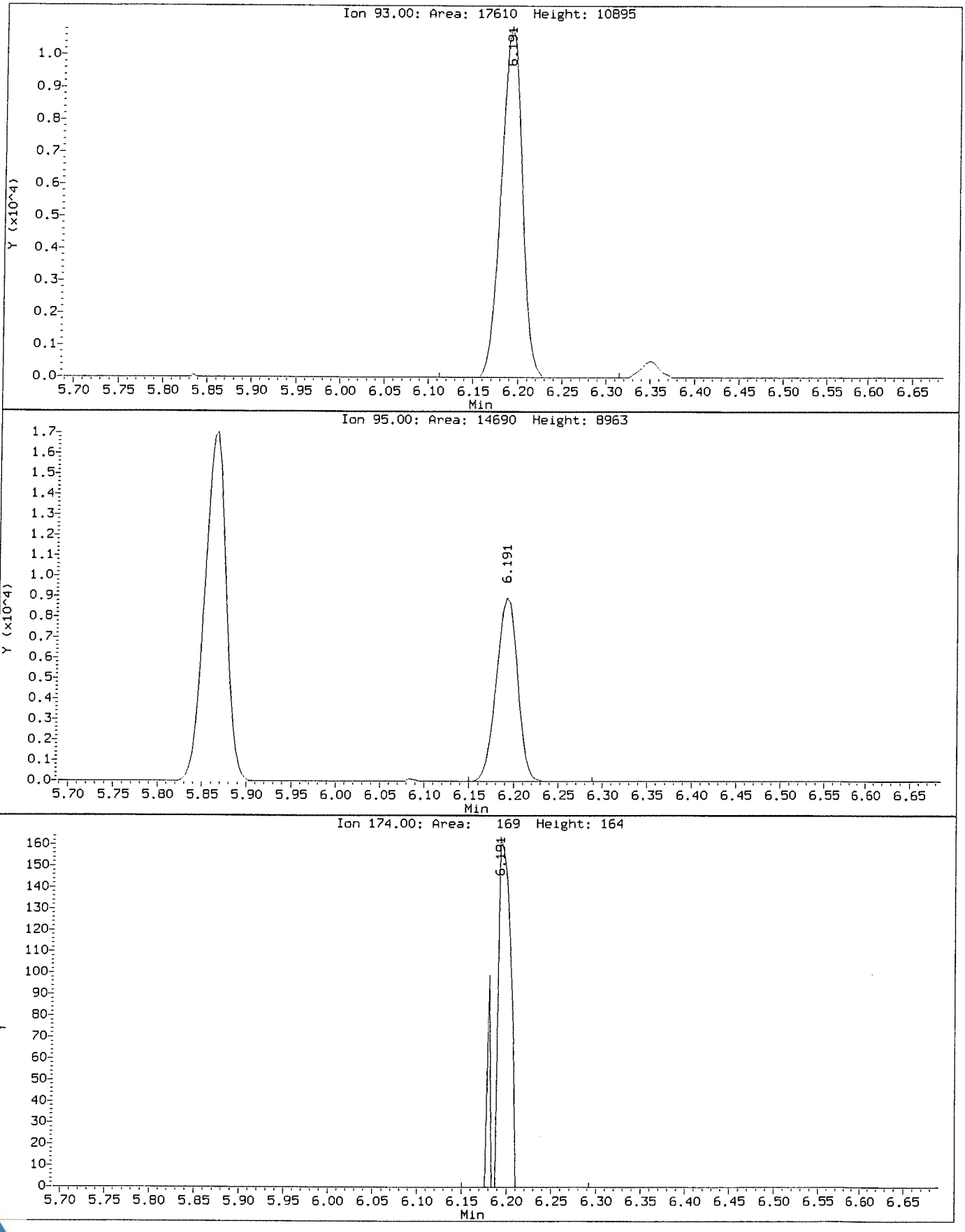
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 21-DEC-2018 16:17
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:52 Cal File: U122106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

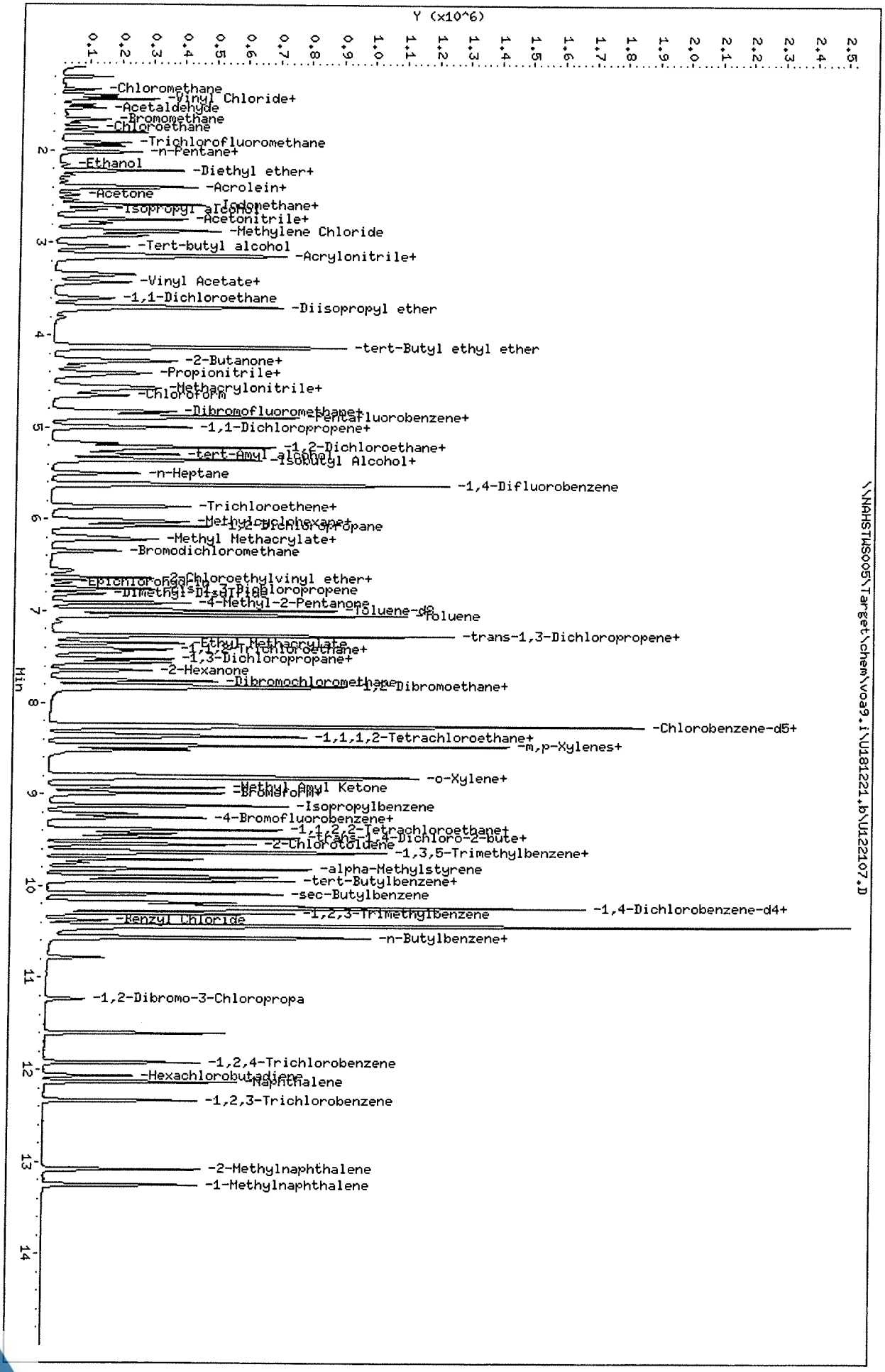
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 420221 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 802033 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 739775 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 359235 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 98984 | 20.0000 | 20.47 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 131494 | 20.0000 | 20.89 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 408521 | 20.0000 | 20.36 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 153183 | 20.0000 | 20.23 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 89389 | 20.0000 | 19.40 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 135496 | 20.0000 | 20.42 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 163701 | 20.0000 | 20.23 |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 68573 | 20.0000 | 19.19 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 89267 | 20.0000 | 20.25 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 184998 | 20.0000 | 20.44 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 75169 | 20.0000 | 18.81 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 140960 | 20.0000 | 19.75 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 126752 | 20.0000 | 19.12 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 166045 | 20.0000 | 19.73 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 129526 | 20.0000 | 19.47 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 388189 | 20.0000 | 20.64 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 22196 | 20.0000 | 18.72 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 105981 | 20.0000 | 20.87 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 207507 | 20.0000 | 19.45 |
| 33 | 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 149131 | 20.0000 | 20.20 |
| 42 | 1,2-Dichloropropane | 63 | 6.079 | 6.079 | (1.081) | 113309 | 20.0000 | 19.99 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 375852 | 20.0000 | 20.81 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 209196 | 20.0000 | 19.61 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 193920 | 20.0000 | 20.42 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 216649 | 20.0000 | 19.26 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 106667 | 20.0000 | 19.55 |
| 24 | 2-Butanone | 43 | 4.339 | 4.339 | (0.887) | 119433 | 40.0000 | 42.08 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 335289 | 20.0000 | 20.25 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 177404 | 40.0000 | 43.12 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 387760 | 20.0000 | 20.27 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 388512 | 20.0000 | 20.43 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 250121 | 40.0000 | 42.25 |
| 10 | Acetone | 43 | 2.480 | 2.480 | (0.507) | 73380 | 40.0000 | 43.05 |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 428833 | 20.0000 | 20.09 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 109892 | 20.0000 | 19.79 |
| 29 | Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 51515 | 20.0000 | 21.73 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 121760 | 20.0000 | 20.20 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 53922 | 20.0000 | 18.14(T) |
| 6 | Bromomethane | 94 | 1.666 | 1.666 | (0.341) | 47148 | 20.0000 | 19.02 |
| 19 | Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 576362 | 40.0000 | 39.58 |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 104210 | 20.0000 | 18.76 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 284621 | 20.0000 | 20.02 |
| 7 | Chloroethane | 64 | 1.749 | 1.749 | (0.357) | 73150 | 20.0000 | 20.10(M) |
| 28 | Chloroform | 83 | 4.654 | 4.654 | (0.951) | 178122 | 20.0000 | 20.43 |
| 3 | Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 79075 | 20.0000 | 19.85 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 114056 | 20.0000 | 20.64 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 162454 | 20.0000 | 18.55 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 89836 | 20.0000 | 19.09 |
| 44 | Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 66878 | 20.0000 | 20.44 |
| 2 | Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 98486 | 20.0000 | 19.34 |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 147187 | 20.0000 | 20.18 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 44482 | 20.0000 | 17.45 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 439477 | 20.0000 | 20.89 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 372108 | 40.0000 | 41.51 |
| 17 | Methylene Chloride | 84 | 2.870 | 2.870 | (0.586) | 109403 | 20.0000 | 20.36 |
| 87 | n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 362066 | 20.0000 | 19.73 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 551133 | 20.0000 | 20.53 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 413229 | 20.0000 | 19.20 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 188442 | 20.0000 | 20.84 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 459645 | 20.0000 | 20.37 |
| 64 | Styrene | 104 | 8.823 | 8.823 | (1.070) | 323232 | 20.0000 | 21.51 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 318726 | 20.0000 | 20.42 |
| 56 | Tetrachloroethene | 164 | 7.522 | 7.522 | (0.912) | 75128 | 20.0000 | 19.39 |
| 50 | Toluene | 91 | 7.046 | 7.046 | (0.854) | 451178 | 20.0000 | 20.50 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 100515 | 20.0000 | 20.43 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 135347 | 20.0000 | 18.26 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 101824 | 20.0000 | 19.76 |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 130957 | 20.0000 | 19.29 |
| 5 | Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 111713 | 20.0000 | 19.39 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

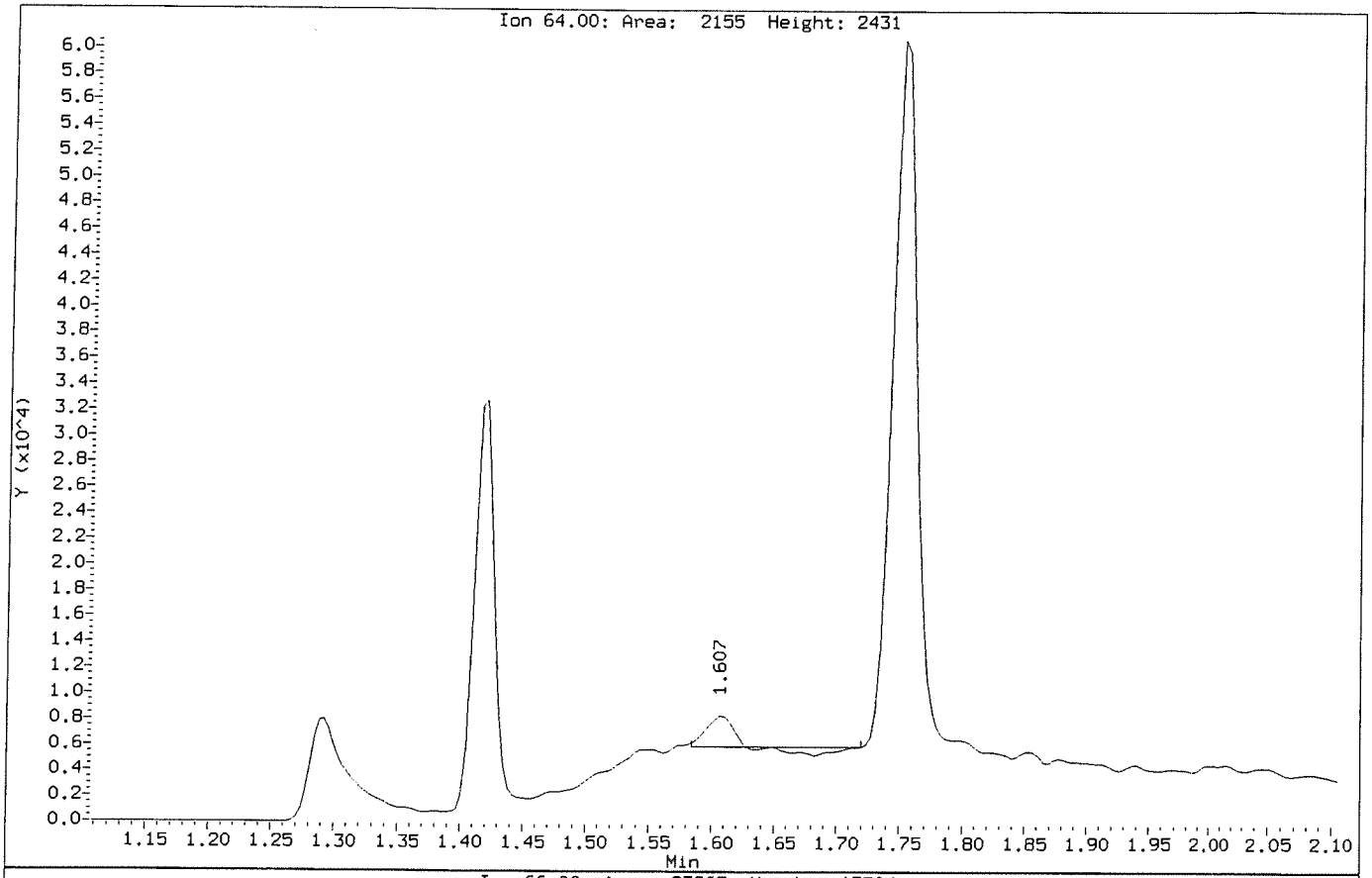


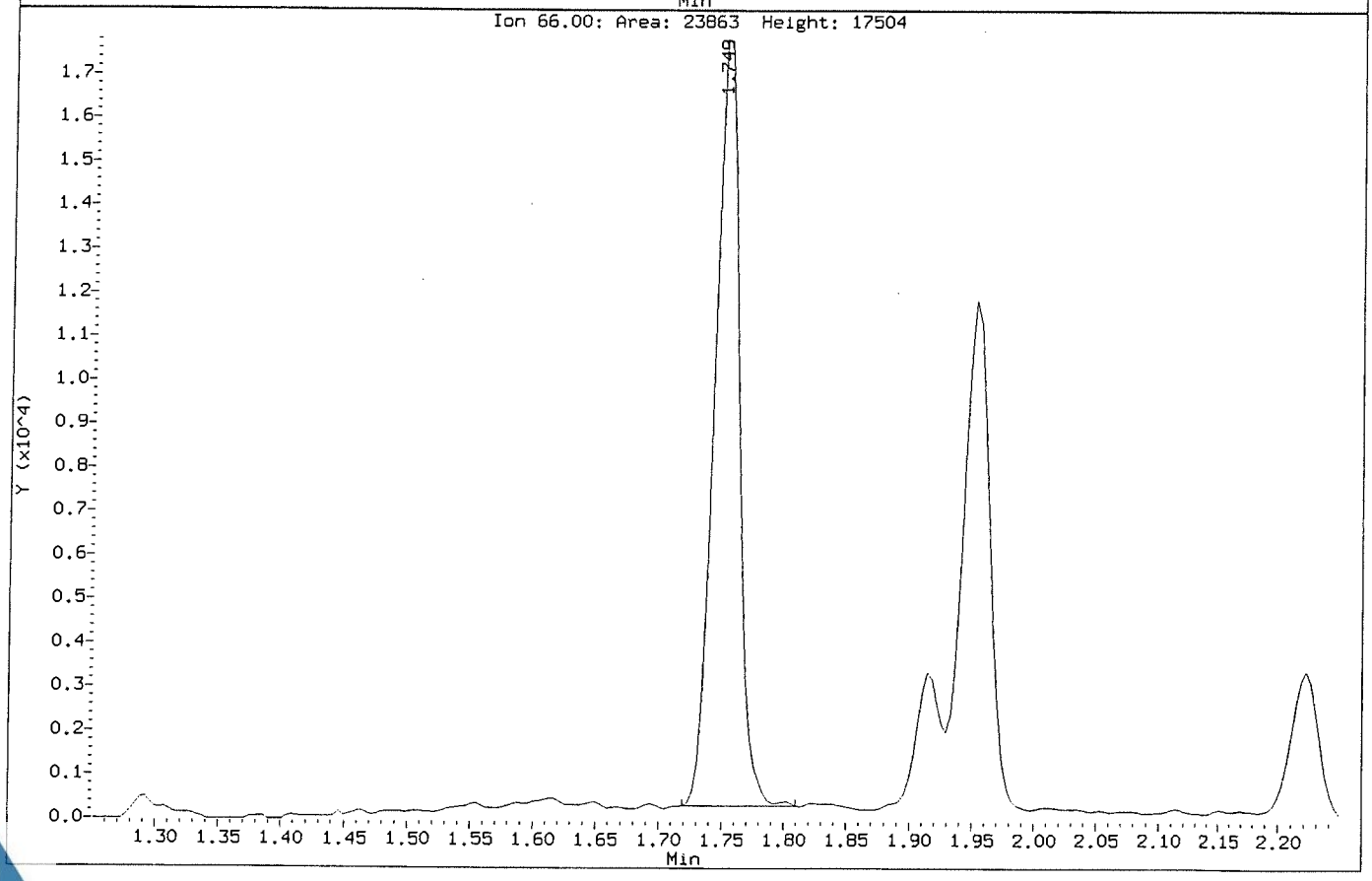

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Date : 21-DEC-2018 16:17
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

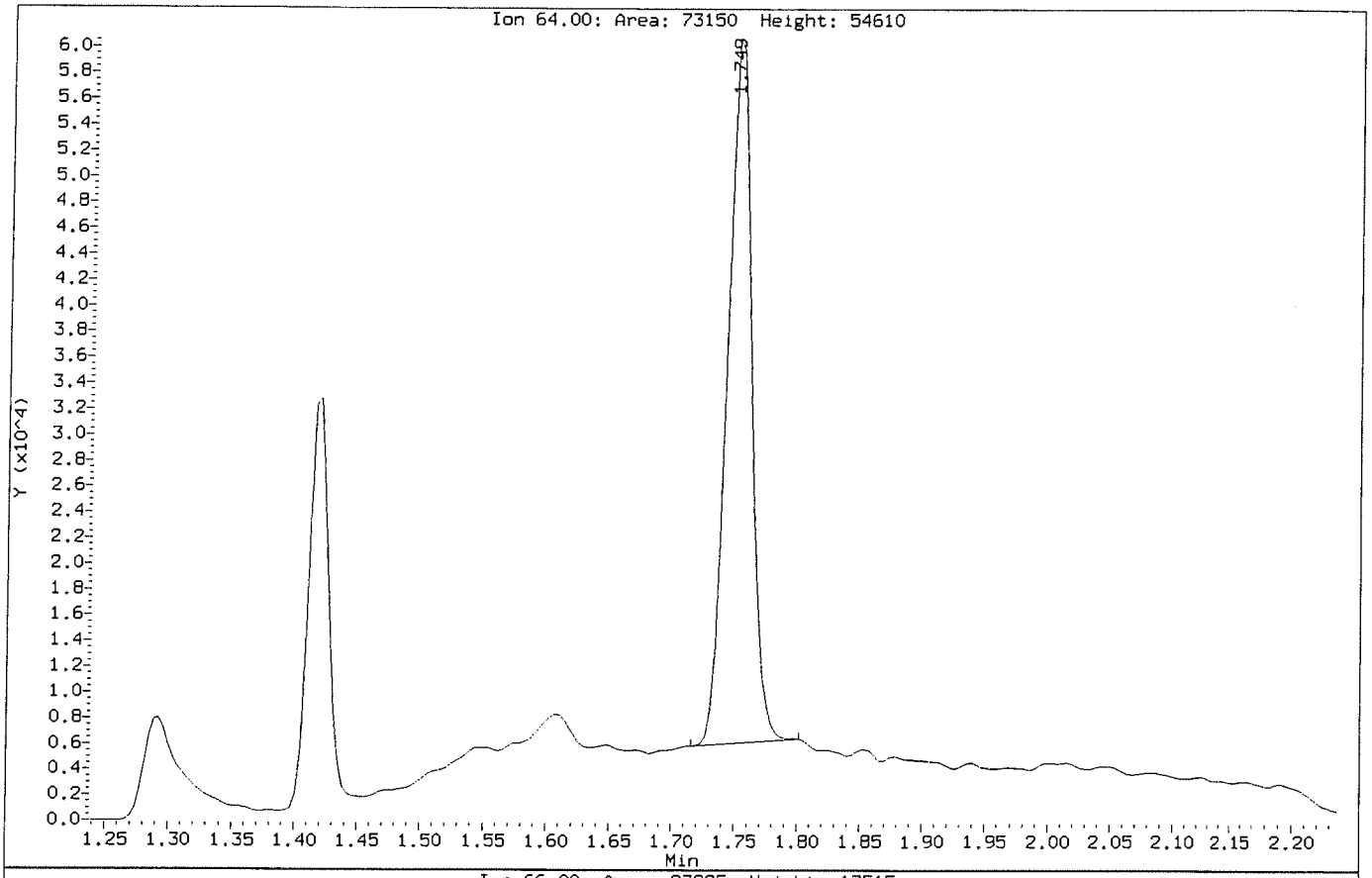
Compound: Chloroethane
CAS Number: 75-00-3

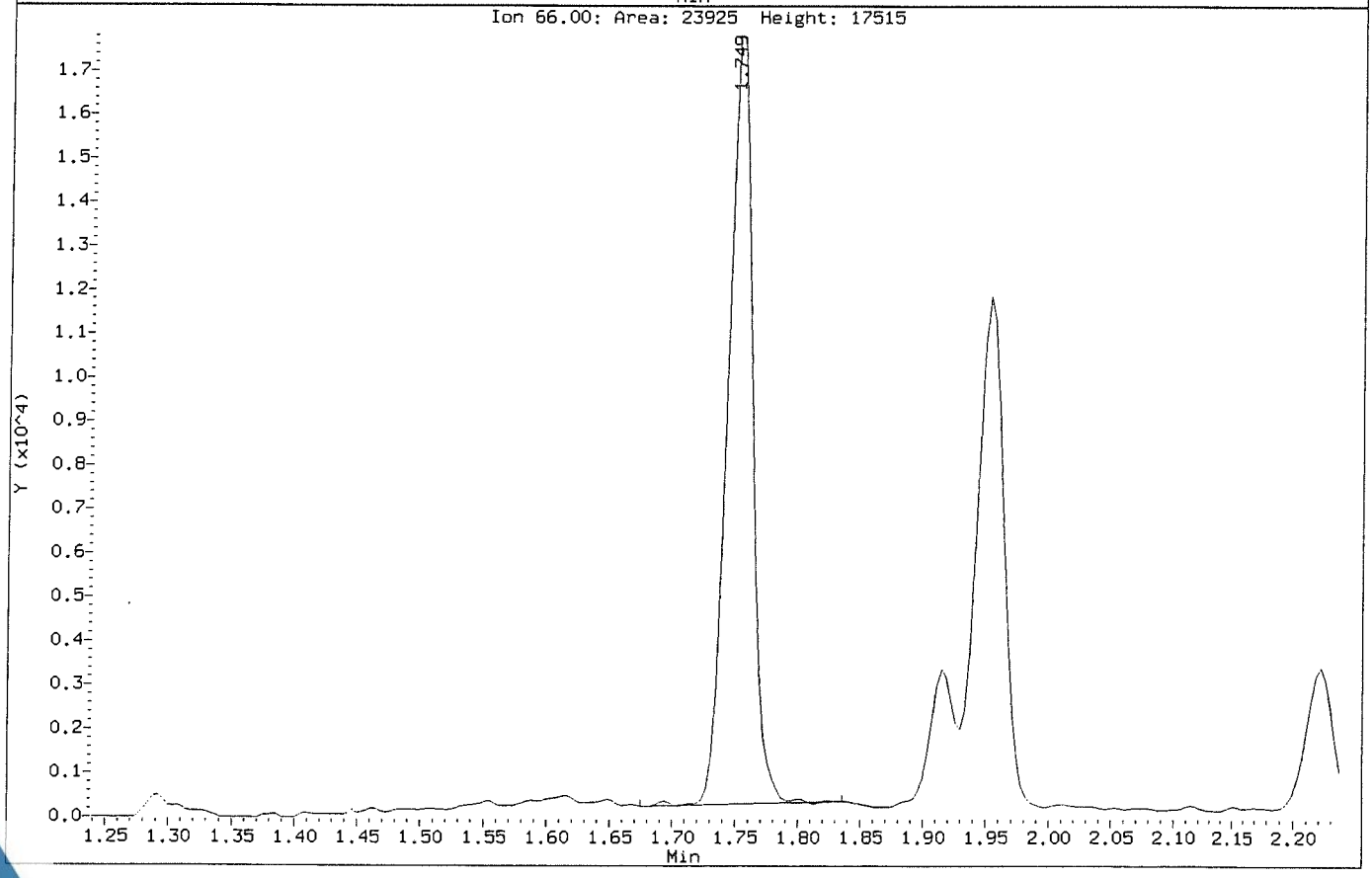


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 16:41
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:17 Cal File: U122107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

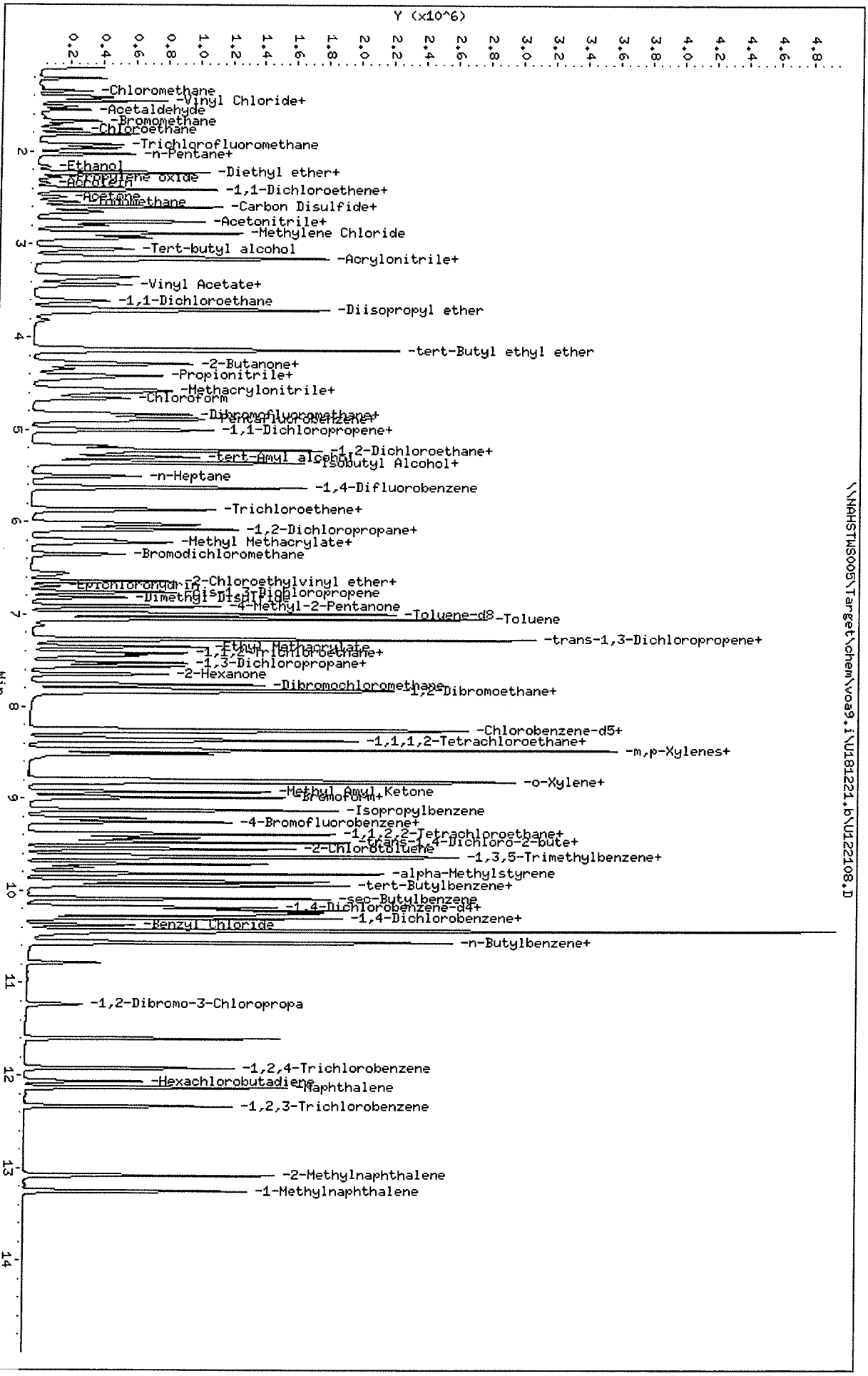
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 441118 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 822734 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 764792 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 367345 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 245007 | 50.0000 | 50.34 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 320796 | 50.0000 | 51.44 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 1010127 | 50.0000 | 51.19 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 382581 | 50.0000 | 50.91 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 235446 | 50.0000 | 48.53 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 347757 | 50.0000 | 49.92 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 414173 | 50.0000 | 50.06 |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.493) | 175022 | 50.0000 | 46.67 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 226615 | 50.0000 | 49.73 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 466899 | 50.0000 | 49.14 |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.492) | 194403 | 50.0000 | 46.35 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 351519 | 50.0000 | 48.01 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 334600 | 50.0000 | 48.35 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 444407 | 50.0000 | 51.66 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 340316 | 50.0000 | 50.03 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 977610 | 50.0000 | 50.85 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 61793 | 50.0000 | 48.48 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 266705 | 50.0000 | 50.81 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 529898 | 50.0000 | 48.58 |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 376591 | 50.0000 | 50.81 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 287570 | 50.0000 | 49.46 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 947470 | 50.0000 | 51.32 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 529098 | 50.0000 | 48.50 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 491255 | 50.0000 | 50.05 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 544274 | 50.0000 | 47.32 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 280126 | 50.0000 | 48.93 |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 304044 | 100.000 | 105.52 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 843166 | 50.0000 | 49.81 |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 461299 | 100.000 | 108.47 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 978873 | 50.0000 | 50.04 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 1003937 | 50.0000 | 51.64 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 653234 | 100.000 | 106.75 |
| 10 | Acetone | 43 | 2.487 | 2.487 | (0.508) | 187964 | 100.000 | 109.42 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 1084861 | 50.0000 | 49.55 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 280874 | 50.0000 | 49.48 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.560 | (0.931) | 129496 | 50.0000 | 56.37 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 319701 | 50.0000 | 51.71 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 154855 | 50.0000 | 47.27(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 117780 | 50.0000 | 43.41 |
| 19 | Carbon Disulfide | 76 | 2.600 | 2.600 | (0.531) | 1460668 | 100.000 | 95.57 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 274507 | 50.0000 | 45.99 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 718560 | 50.0000 | 48.89 |
| 7 | Chloroethane | 64 | 1.760 | 1.760 | (0.359) | 179707 | 50.0000 | 46.03(M) |
| 28 | Chloroform | 83 | 4.661 | 4.661 | (0.952) | 453061 | 50.0000 | 49.52 |
| 3 | Chloromethane | 50 | 1.348 | 1.348 | (0.275) | 197328 | 50.0000 | 42.63 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 286659 | 50.0000 | 49.43 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 449225 | 50.0000 | 47.87 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 242061 | 50.0000 | 48.20 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.100) | 170556 | 50.0000 | 50.83 |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.213 | (0.248) | 248322 | 50.0000 | 45.79 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 374921 | 50.0000 | 49.74 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 119140 | 50.0000 | 45.72 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1109213 | 50.0000 | 51.00 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 936911 | 100.000 | 101.11 |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 274258 | 50.0000 | 50.31 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 931396 | 50.0000 | 49.64 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1393780 | 50.0000 | 50.77 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 1107938 | 50.0000 | 49.53 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 475748 | 50.0000 | 50.89 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1169025 | 50.0000 | 50.67 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 828798 | 50.0000 | 53.36 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 807157 | 50.0000 | 50.58 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 186057 | 50.0000 | 46.46 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 1138194 | 50.0000 | 50.03 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 248845 | 50.0000 | 48.19 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 381258 | 50.0000 | 47.27 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 255628 | 50.0000 | 48.36 |
| 8 | Trichlorofluoromethane | 101 | 1.962 | 1.962 | (0.401) | 330010 | 50.0000 | 45.44 |
| 5 | Vinyl Chloride | 62 | 1.426 | 1.426 | (0.291) | 283791 | 50.0000 | 45.57 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Date : 21-DEC-2018 16:41
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

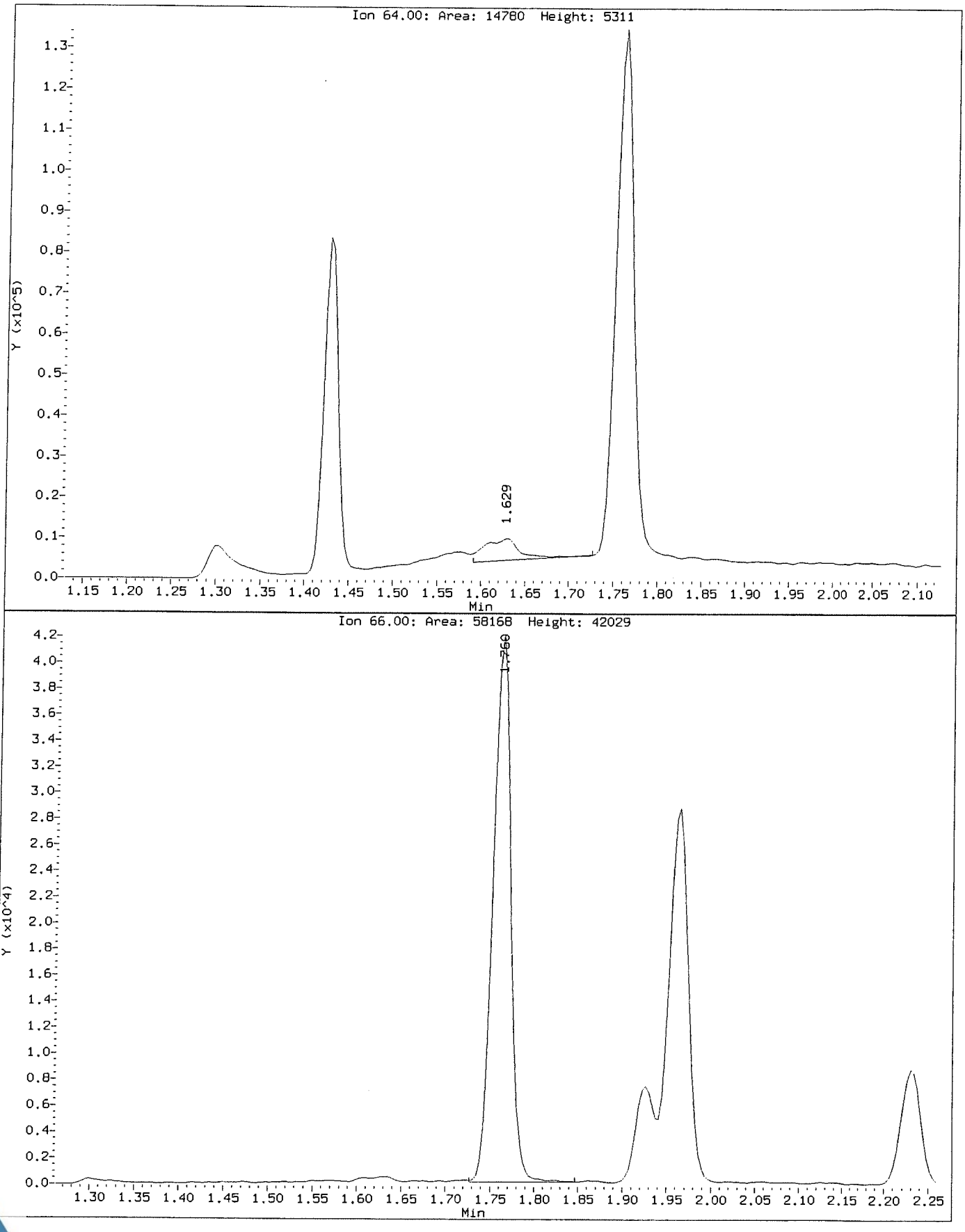
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Page 4

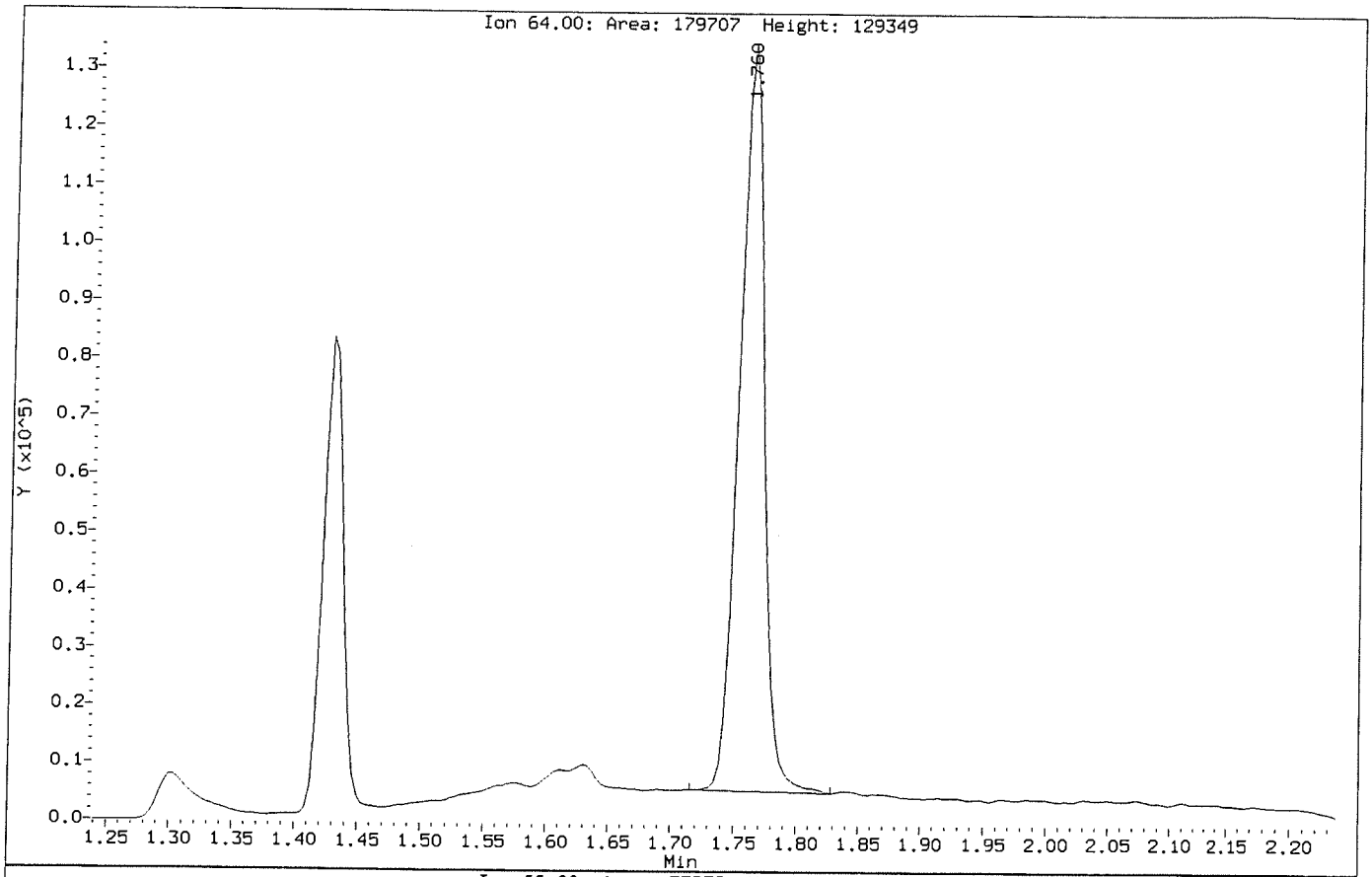
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122108.D
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

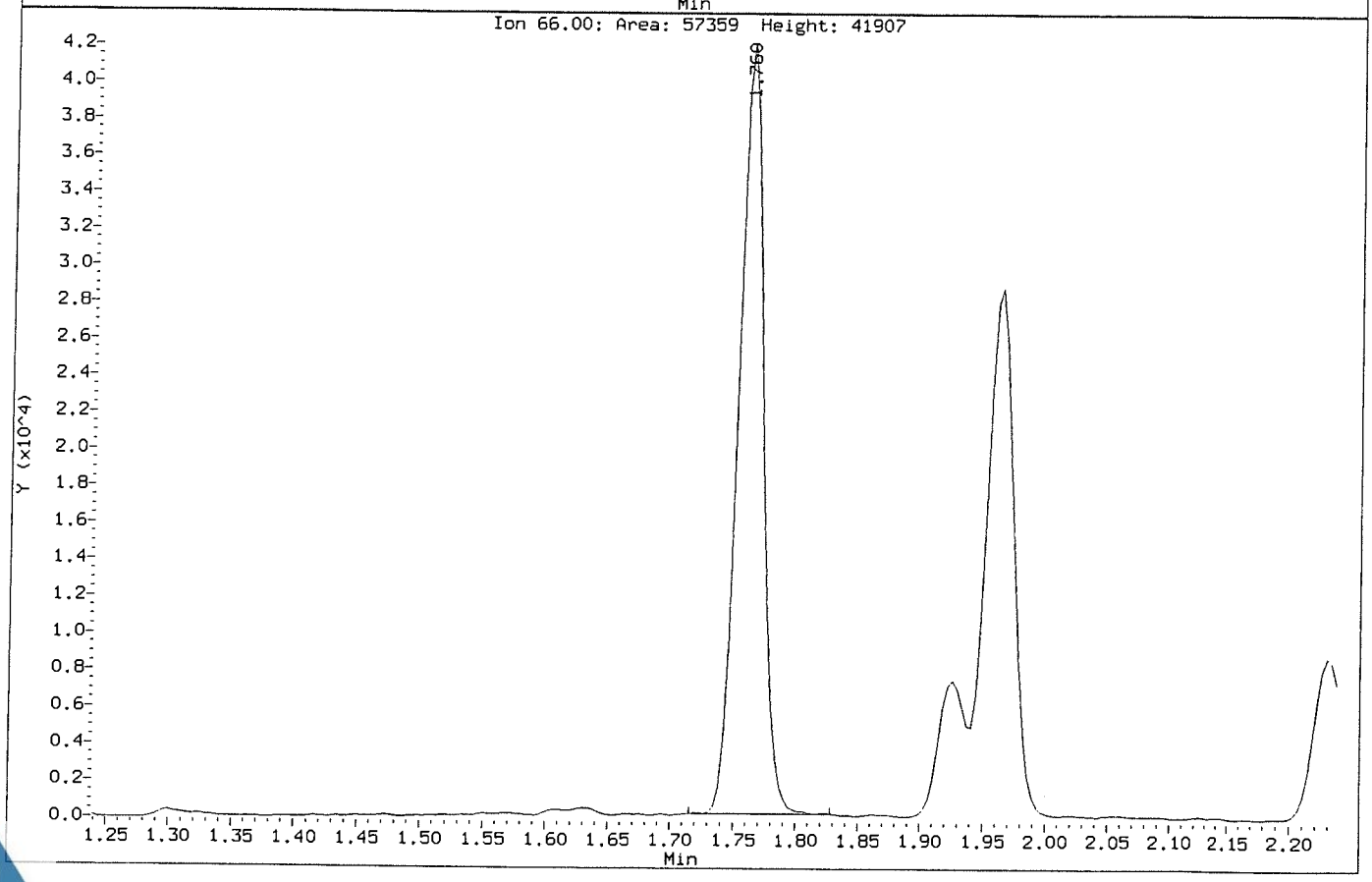
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 21-DEC-2018 17:06
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

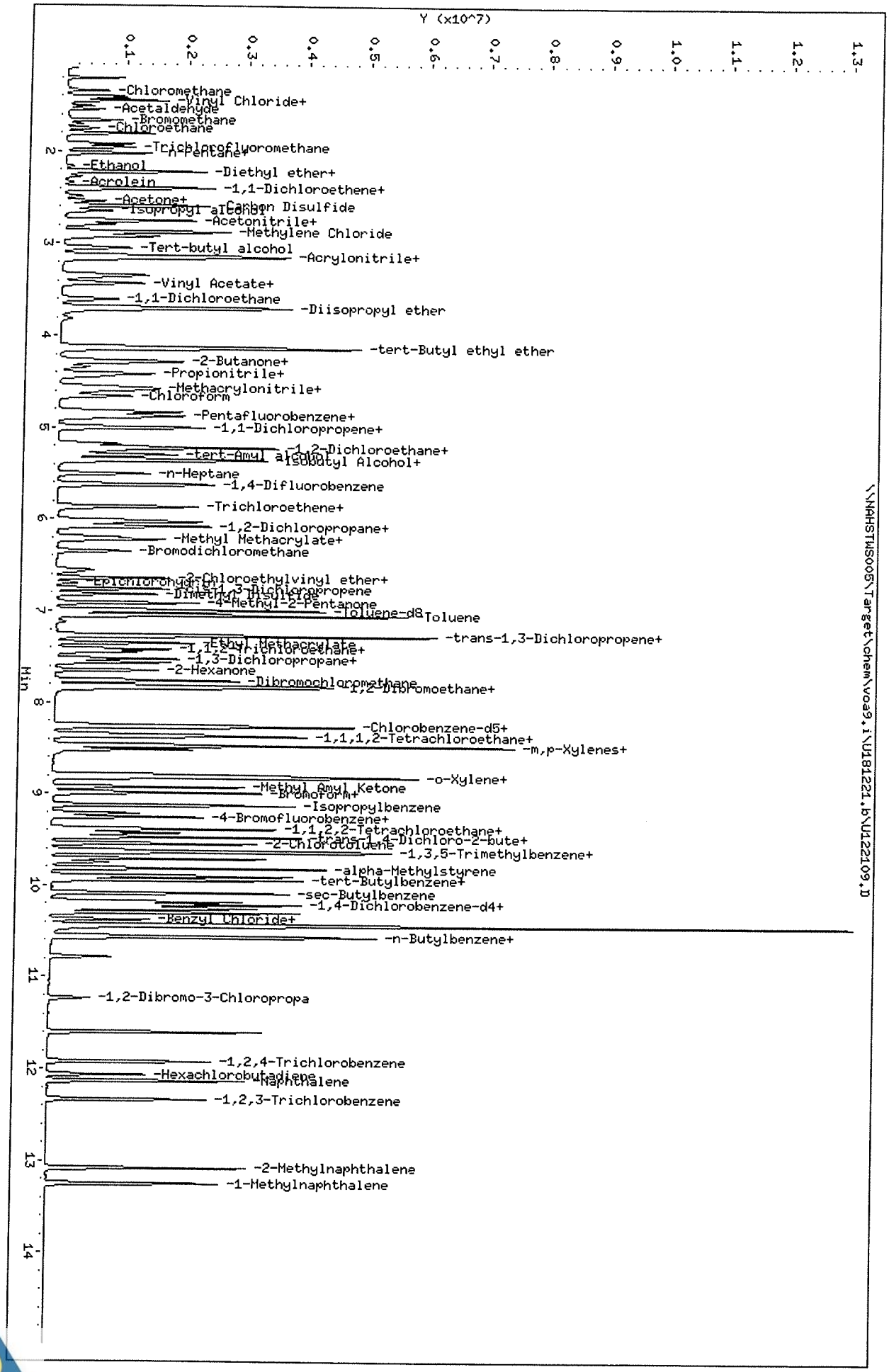
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.897 | 4.897 | (1.000) | 443466 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 822102 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.252 | 8.252 | (1.000) | 772888 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 368944 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.986) | 495628 | 100.000 | 102.84 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 635081 | 100.000 | 103.40 |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 2029223 | 100.000 | 103.52 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 764798 | 100.000 | 102.11 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 493177 | 100.000 | 99.96 |
| | 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 750490 | 100.000 | 107.17 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 804056 | 100.000 | 96.77 |
| | 138 Freon TF | 101 | 2.404 | 2.404 | (0.491) | 394668 | 100.000 | 104.68 |
| | 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.899) | 455612 | 100.000 | 98.94 |
| | 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.736) | 956686 | 100.000 | 100.17 |
| | 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.490) | 425292 | 100.000 | 100.86 |
| | 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 748488 | 100.000 | 102.32 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 694931 | 100.000 | 99.32 |
| | 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 901833 | 100.000 | 104.38 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.926 | 11.926 | (1.165) | 724973 | 100.000 | 106.13 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 2020622 | 100.000 | 104.65 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 125814 | 100.000 | 96.80 |
| | 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.951) | 533692 | 100.000 | 100.62 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 1079683 | 100.000 | 98.55 |
| 33 1,2-Dichloroethane | 62 | 5.253 | 5.253 | (0.934) | 747337 | 100.000 | 101.64 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 587293 | 100.000 | 101.10 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.628 | 9.628 | (0.941) | 1981203 | 100.000 | 106.84 |
| 83 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 1088889 | 100.000 | 99.39 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.916) | 974518 | 100.000 | 98.25 |
| 84 1,4-Dichlorobenzene | 146 | 10.258 | 10.258 | (1.002) | 1115296 | 100.000 | 96.55 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.873) | 606051 | 100.000 | 105.30 |
| 24 2-Butanone | 43 | 4.339 | 4.339 | (0.886) | 587152 | 200.000 | 204.95(A) |
| 76 2-Chlorotoluene | 91 | 9.549 | 9.549 | (0.933) | 1714248 | 100.000 | 100.84 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 912444 | 200.000 | 212.30(A) |
| 77 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 1995109 | 100.000 | 101.56 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 2107729 | 100.000 | 107.96 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 1301011 | 200.000 | 210.38(A) |
| 10 Acetone | 43 | 2.483 | 2.483 | (0.507) | 331678 | 200.000 | 194.35 |
| 37 Benzene | 78 | 5.220 | 5.220 | (0.928) | 2195227 | 100.000 | 100.34 |
| 74 Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 573954 | 100.000 | 100.68 |
| 29 Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 244429 | 100.000 | 108.58 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 667511 | 100.000 | 108.05 |
| 66 Bromoform | 173 | 8.983 | 8.983 | (1.089) | 331336 | 100.000 | 98.11(T) |
| 6 Bromomethane | 94 | 1.666 | 1.666 | (0.340) | 281859 | 100.000 | 101.50 |
| 19 Carbon Disulfide | 76 | 2.592 | 2.592 | (0.529) | 3090544 | 200.000 | 201.15(A) |
| 34 Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.889) | 601960 | 100.000 | 99.26 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 1466929 | 100.000 | 98.78 |
| 7 Chloroethane | 64 | 1.752 | 1.752 | (0.358) | 384958 | 100.000 | 95.90(M) |
| 28 Chloroform | 83 | 4.657 | 4.657 | (0.951) | 918394 | 100.000 | 99.85 |
| 3 Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 441603 | 100.000 | 90.82 |
| 27 cis-1,2-Dichloroethene | 96 | 4.286 | 4.286 | (0.875) | 580958 | 100.000 | 99.66 |
| 46 cis-1,3-Dichloropropene | 75 | 6.760 | 6.760 | (1.202) | 944095 | 100.000 | 99.29 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 512845 | 100.000 | 99.98 |
| 44 Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 341140 | 100.000 | 101.75 |
| 2 Dichlorodifluoromethane | 85 | 1.209 | 1.209 | (0.247) | 553841 | 100.000 | 100.99 |
| 61 Ethylbenzene | 106 | 8.372 | 8.372 | (1.015) | 779796 | 100.000 | 102.38 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 259405 | 100.000 | 99.12 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 2327627 | 100.000 | 105.90 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 1935465 | 200.000 | 206.70(A) |
| 17 Methylene Chloride | 84 | 2.873 | 2.873 | (0.587) | 554902 | 100.000 | 102.47 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 1963594 | 100.000 | 104.21 |
| 73 n-Propylbenzene | 91 | 9.478 | 9.478 | (0.926) | 2891517 | 100.000 | 104.88 |
| 92 Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 2231968 | 100.000 | 99.52 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 975544 | 100.000 | 103.27 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 2492415 | 100.000 | 107.57 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.069) | 1680613 | 100.000 | 107.08 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 1698031 | 100.000 | 105.95 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 397169 | 100.000 | 98.15 |
| 50 Toluene | 91 | 7.049 | 7.049 | (0.854) | 2304015 | 100.000 | 100.21 |
| 20 trans-1,2-Dichloroethene | 96 | 3.143 | 3.143 | (0.642) | 513822 | 100.000 | 98.98 |
| 51 trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.291) | 811224 | 100.000 | 98.79 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 528149 | 100.000 | 100.00 |
| 8 Trichlorofluoromethane | 101 | 1.955 | 1.955 | (0.399) | 753769 | 100.000 | 102.46 |
| 5 Vinyl Chloride | 62 | 1.422 | 1.422 | (0.290) | 629175 | 100.000 | 99.33 |

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

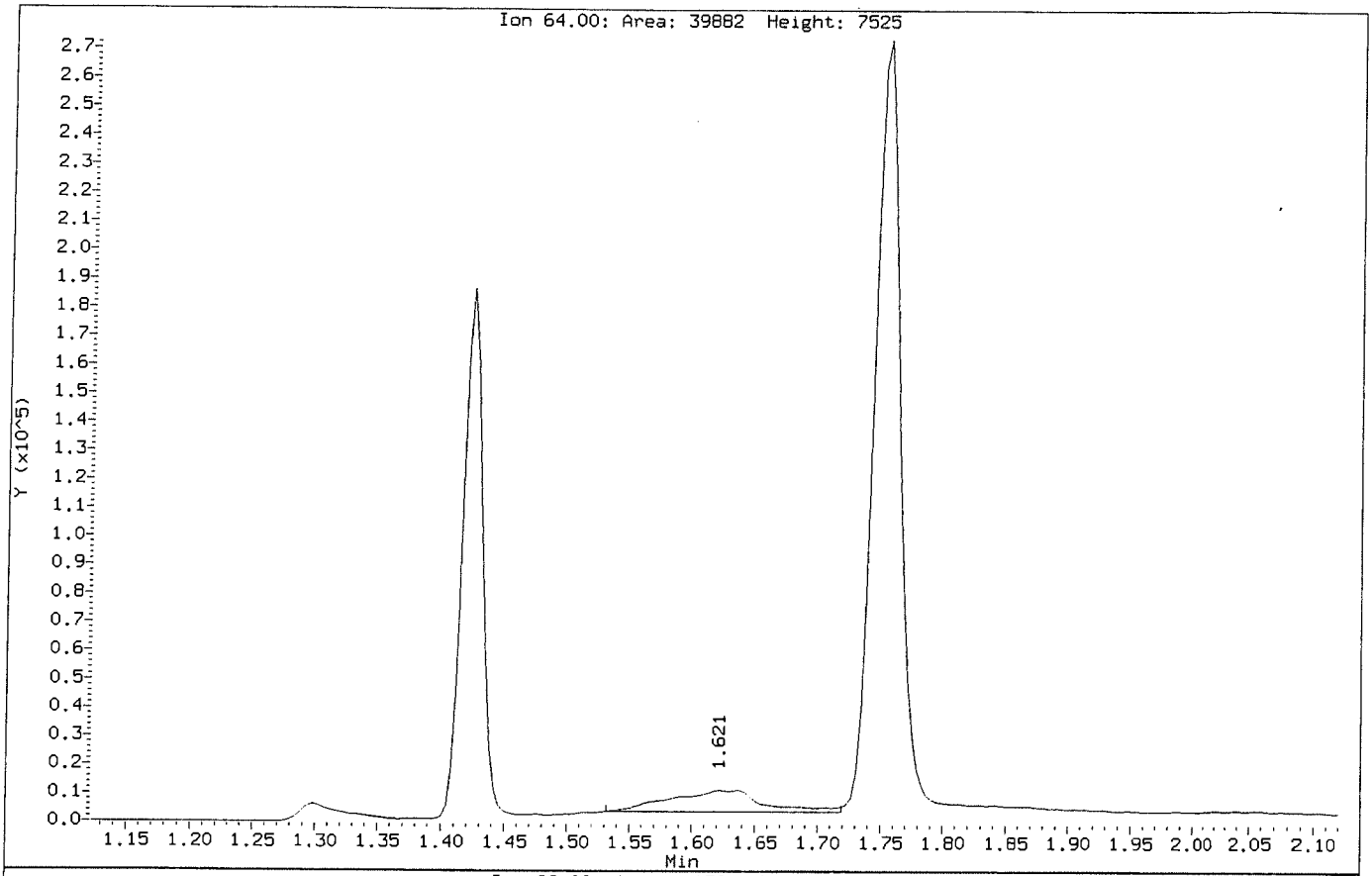


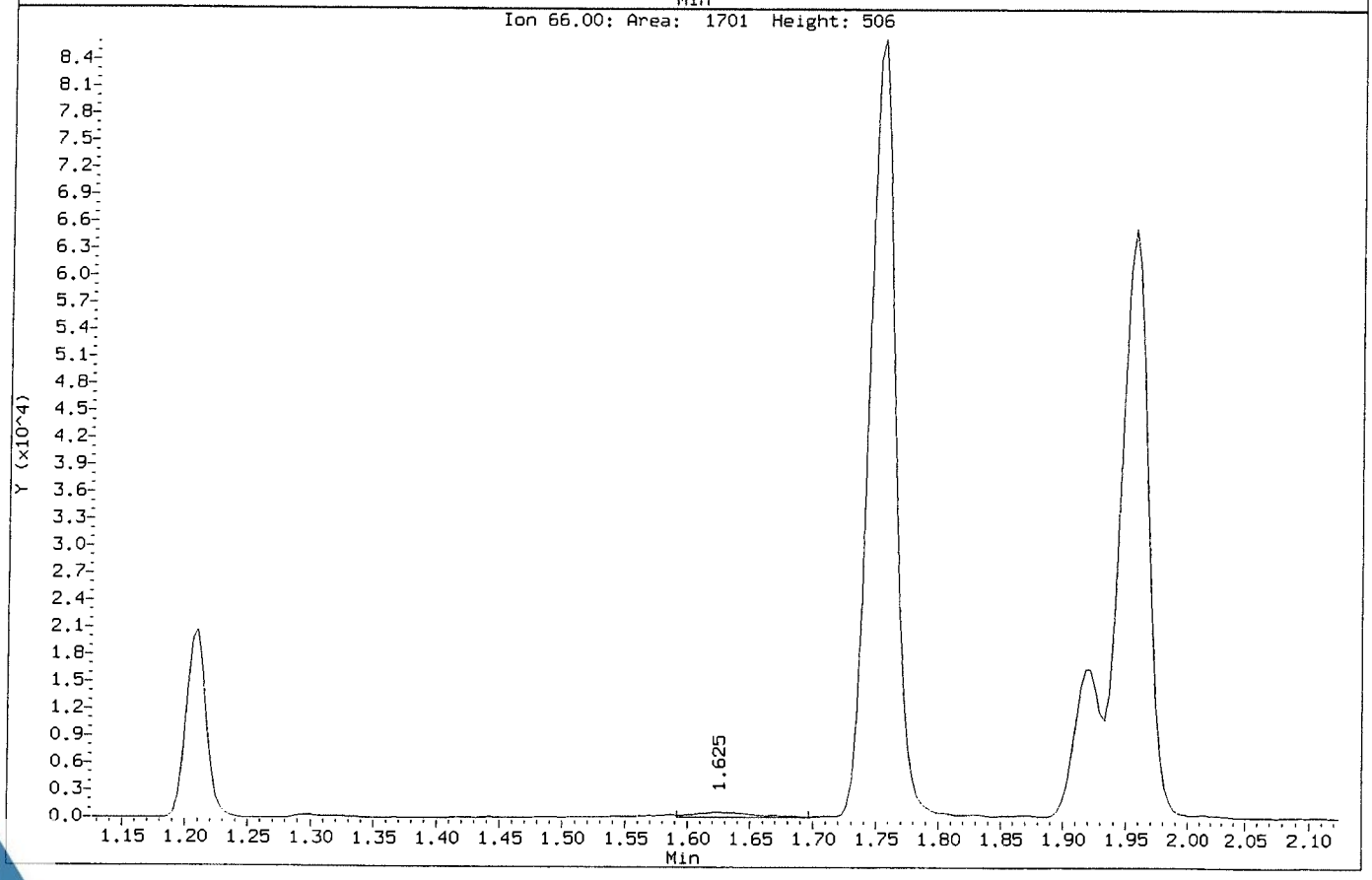

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181221,b\U122109,D
Date : 21-DEC-2018 17:06
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
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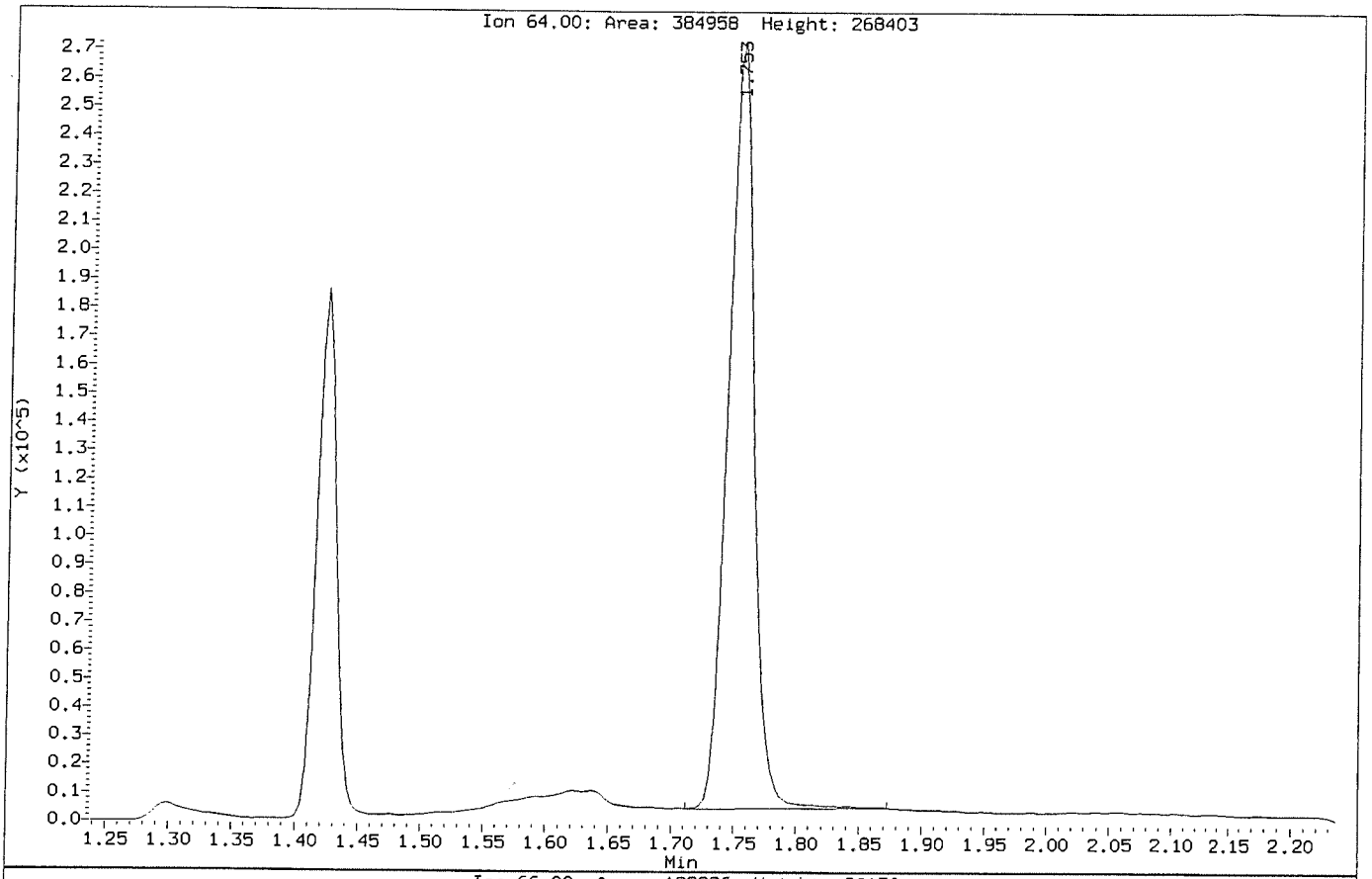
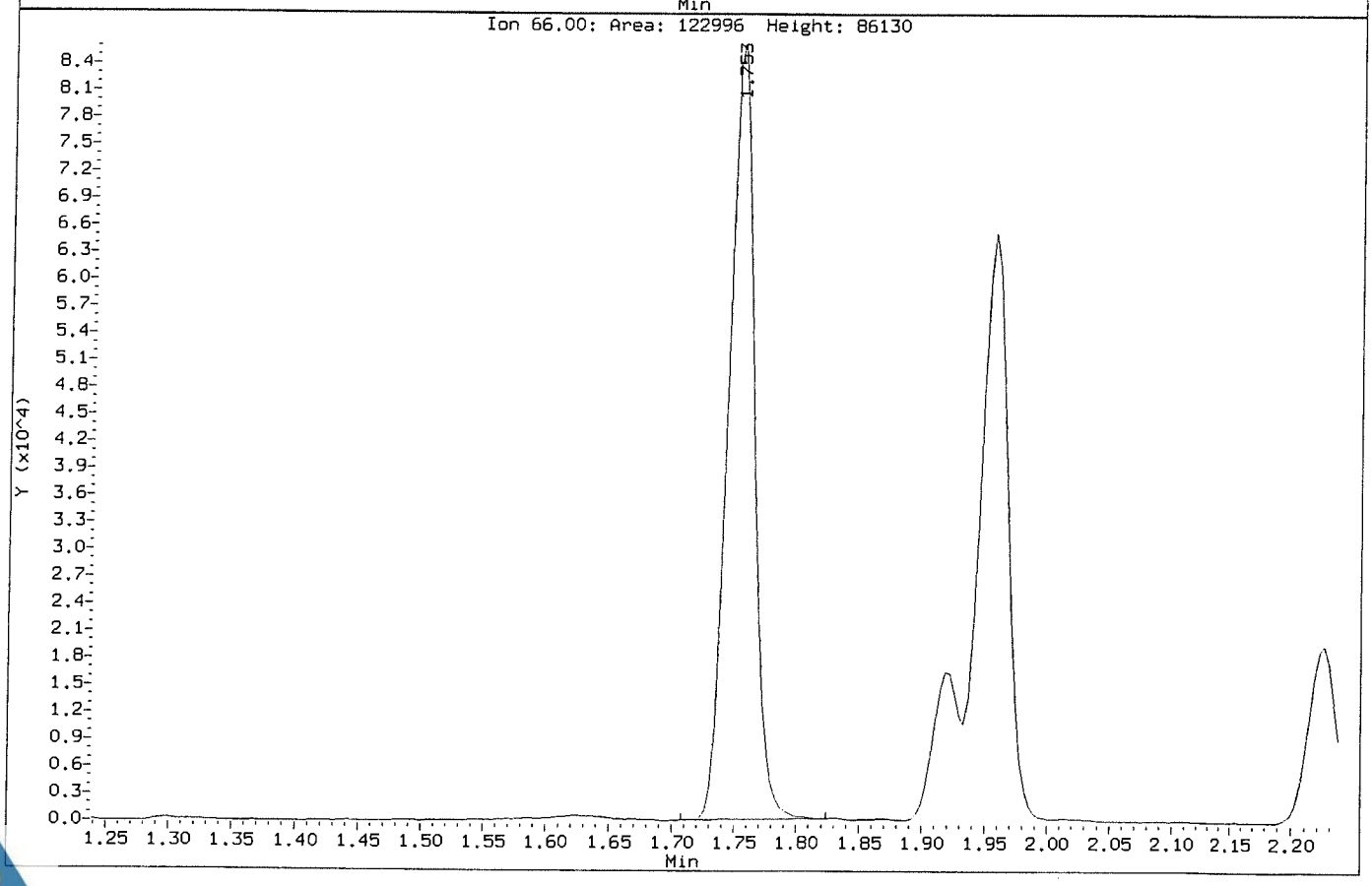
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 21-DEC-2018 17:31
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:06 Cal File: U122109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

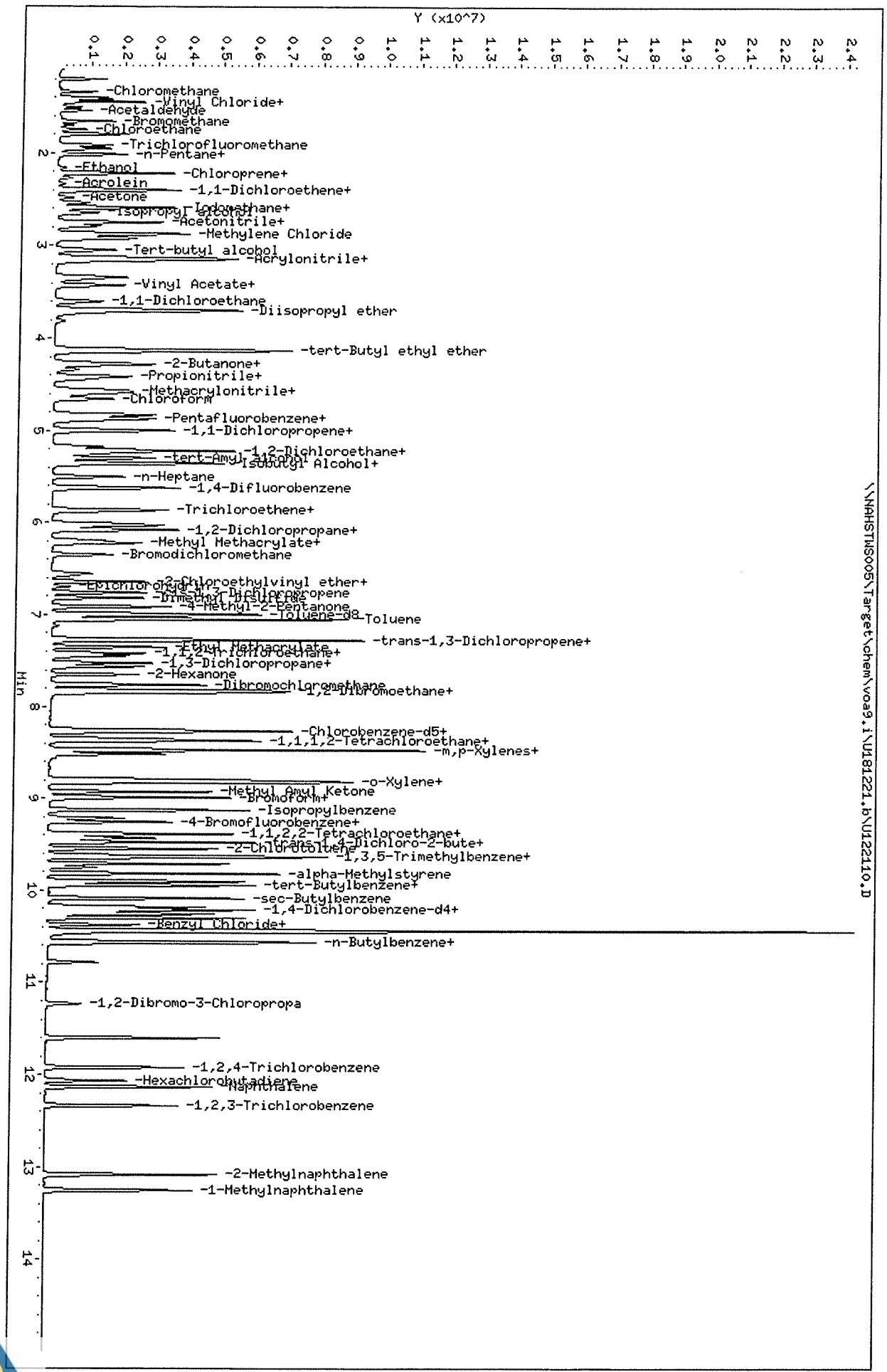
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 456327 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 837974 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 793198 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 374825 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 745399 | 150.000 | 151.02 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 949266 | 150.000 | 151.18 |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 3016887 | 150.000 | 150.76 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 1153874 | 150.000 | 150.78 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 766622 | 150.000 | 151.11 |
| | 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 1166981 | 150.000 | 161.96 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 1214939 | 150.000 | 143.93 |
| | 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 609198 | 150.000 | 157.03 |
| | 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 689788 | 150.000 | 145.96 |
| | 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 1459691 | 150.000 | 148.53 |
| | 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 645721 | 150.000 | 148.82 |
| | 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 1147997 | 150.000 | 153.96 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1085027 | 150.000 | 152.30 |
| | 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 1401190 | 150.000 | 159.63 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 1126029 | 150.000 | 162.26 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 3050007 | 150.000 | 155.49 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 200384 | 150.000 | 150.93 |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 815175 | 150.000 | 149.76 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 1640210 | 150.000 | 147.37 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 1129116 | 150.000 | 151.01 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 888346 | 150.000 | 150.03 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 2996671 | 150.000 | 159.08 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 1669910 | 150.000 | 150.03 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 1476732 | 150.000 | 145.07 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 1696761 | 150.000 | 144.58 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 951402 | 150.000 | 160.64 |
| 24 | 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 880878 | 300.000 | 299.93(A) |
| 76 | 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 2603345 | 150.000 | 150.74 |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 1413890 | 300.000 | 320.56(A) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 3029757 | 150.000 | 151.81 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 3190047 | 150.000 | 160.83 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 1993190 | 300.000 | 314.06(A) |
| 10 | Acetone | 43 | 2.480 | 2.480 | (0.507) | 520533 | 300.000 | 298.01(A) |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 3311929 | 150.000 | 148.52 |
| 74 | Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 890701 | 150.000 | 153.79 |
| 29 | Bromochloromethane | 128 | 4.557 | 4.557 | (0.931) | 348533 | 150.000 | 151.66 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 1032680 | 150.000 | 164.00 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 522892 | 150.000 | 149.93 |
| 6 | Bromomethane | 94 | 1.659 | 1.659 | (0.339) | 444174 | 150.000 | 154.73 |
| 19 | Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 4735575 | 300.000 | 299.54(A) |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 939611 | 150.000 | 151.26 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 2244427 | 150.000 | 147.26 |
| 7 | Chloroethane | 64 | 1.745 | 1.745 | (0.357) | 684109 | 150.000 | 161.33 |
| 28 | Chloroform | 83 | 4.658 | 4.658 | (0.952) | 1391091 | 150.000 | 146.98 |
| 3 | Chloromethane | 50 | 1.340 | 1.340 | (0.274) | 746873 | 150.000 | 147.15 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 893807 | 150.000 | 149.01 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 1468956 | 150.000 | 150.90 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 791728 | 150.000 | 149.91 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 516406 | 150.000 | 151.11 |
| 2 | Dichlorodifluoromethane | 85 | 1.205 | 1.205 | (0.246) | 873891 | 150.000 | 154.61 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 1198529 | 150.000 | 153.33 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 400552 | 150.000 | 150.65 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 3526393 | 150.000 | 156.34 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 2933161 | 300.000 | 305.23(A) |
| 17 | Methylene Chloride | 84 | 2.870 | 2.870 | (0.586) | 841220 | 150.000 | 151.54 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 2965307 | 150.000 | 154.91 |
| 73 | n-Propylbenzene | 91 | 9.479 | 9.479 | (0.926) | 4348220 | 150.000 | 155.25 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 3430934 | 150.000 | 151.53 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 1492877 | 150.000 | 153.99 |
| 81 | sec-Butylbenzene | 105 | 10.090 | 10.090 | (0.986) | 3757107 | 150.000 | 159.61 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 2556162 | 150.000 | 158.70 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 2586354 | 150.000 | 158.85 |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 610669 | 150.000 | 147.05 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 3483930 | 150.000 | 147.65 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 789348 | 150.000 | 147.77 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.291) | 1271771 | 150.000 | 151.06 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 823329 | 150.000 | 152.94 |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 1146930 | 150.000 | 151.21 |
| 5 | Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 1000865 | 150.000 | 153.03 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Date : 21-DEC-2018 17:31
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 21-DEC-2018 17:55
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:31 Cal File: U122110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

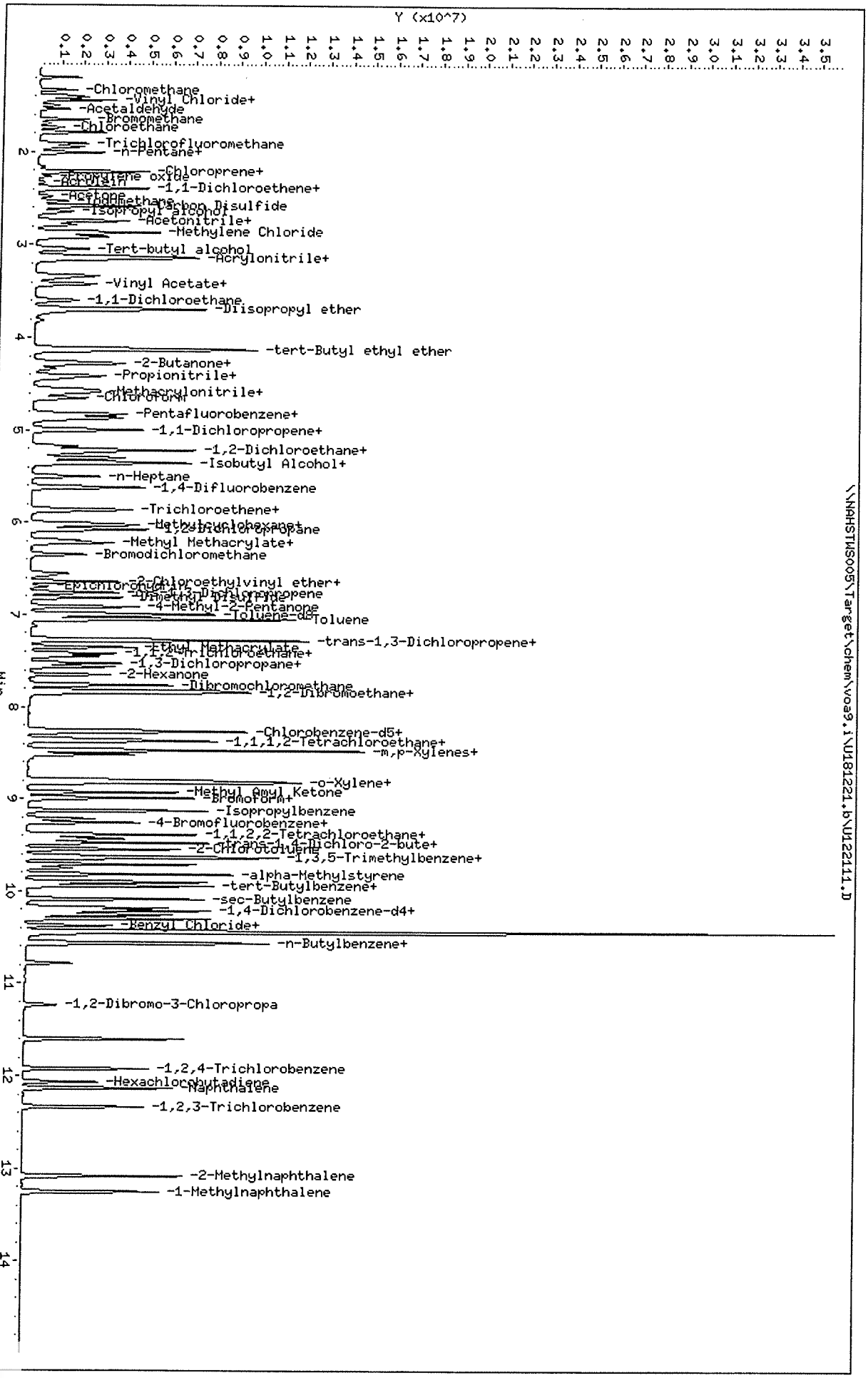
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.890 | 4.890 | (1.000) | 471928 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 852109 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 808162 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 383807 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.987) | 1006329 | 200.000 | 197.61 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.171 | (1.057) | 1274051 | 200.000 | 196.84 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 4010125 | 200.000 | 197.23 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 1540801 | 200.000 | 198.06 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1032567 | 200.000 | 199.57 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.987) | 1558350 | 200.000 | 209.12(A) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 1627647 | 200.000 | 188.30 |
| 138 Freon TF | 101 | 2.394 | 2.394 | (0.490) | 818502 | 200.000 | 204.00(A) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 922969 | 200.000 | 191.69 |
| 22 1,1-Dichloroethane | 63 | 3.597 | 3.597 | (0.736) | 1941260 | 200.000 | 191.00 |
| 11 1,1-Dichloroethene | 96 | 2.394 | 2.394 | (0.490) | 870210 | 200.000 | 193.93 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 1526453 | 200.000 | 201.33(A) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1453309 | 200.000 | 199.03 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 1910859 | 200.000 | 212.60(A) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.926 | 11.926 | (1.165) | 1495400 | 200.000 | 210.44(A) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 4007083 | 200.000 | 199.50 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 274280 | 200.000 | 201.27(A) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1097675 | 200.000 | 197.93 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 2176108 | 200.000 | 190.95 |
| 33 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 1504782 | 200.000 | 198.15 |
| 42 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 1186343 | 200.000 | 197.03 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.628 | 9.628 | (0.941) | 3964216 | 200.000 | 205.51(A) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 2212350 | 200.000 | 194.11 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 1981022 | 200.000 | 191.01 |
| 84 1,4-Dichlorobenzene | 146 | 10.258 | 10.258 | (1.002) | 2259523 | 200.000 | 188.03 |
| 26 2,2-Dichloropropane | 77 | 4.272 | 4.272 | (0.874) | 1270502 | 200.000 | 207.43(A) |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.887) | 1199902 | 400.000 | 395.82(A) |
| 76 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 3451393 | 200.000 | 195.17 |
| 52 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 1896004 | 400.000 | 421.90(A) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 3993483 | 200.000 | 195.41 |
| 82 p-Isopropyltoluene | 119 | 10.213 | 10.213 | (0.998) | 4198944 | 200.000 | 206.74(A) |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 2681840 | 400.000 | 414.75(A) |
| 10 Acetone | 43 | 2.476 | 2.476 | (0.506) | 723113 | 400.000 | 401.34(A) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 4410809 | 200.000 | 194.52 |
| 74 Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 1186255 | 200.000 | 200.04(A) |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.931) | 453685 | 200.000 | 191.69 |
| 39 Bromodichloromethane | 83 | 6.345 | 6.345 | (1.128) | 1391257 | 200.000 | 217.29(A) |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 718878 | 200.000 | 201.69(A) |
| 6 Bromomethane | 94 | 1.651 | 1.651 | (0.338) | 585856 | 200.000 | 196.98 |
| 19 Carbon Disulfide | 76 | 2.585 | 2.585 | (0.529) | 6125723 | 400.000 | 374.66(A) |
| 34 Carbon Tetrachloride | 117 | 4.991 | 4.991 | (0.887) | 1268610 | 200.000 | 200.38(A) |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 2961137 | 200.000 | 190.69 |
| 7 Chloroethane | 64 | 1.737 | 1.737 | (0.355) | 859472 | 200.000 | 193.44 |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.952) | 1846267 | 200.000 | 188.63 |
| 3 Chloromethane | 50 | 1.333 | 1.333 | (0.273) | 1095269 | 200.000 | 207.27(A) |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.876) | 1189323 | 200.000 | 191.72 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 1986544 | 200.000 | 200.27(A) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1081017 | 200.000 | 200.56(A) |
| 44 Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 698521 | 200.000 | 201.01(A) |
| 2 Dichlorodifluoromethane | 85 | 1.198 | 1.198 | (0.245) | 1151588 | 200.000 | 196.87 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 1600834 | 200.000 | 201.00(A) |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 534175 | 200.000 | 196.21 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 4617933 | 200.000 | 200.94(A) |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 3876248 | 400.000 | 395.90(A) |
| 17 Methylene Chloride | 84 | 2.866 | 2.866 | (0.586) | 1131189 | 200.000 | 197.41 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 3856663 | 200.000 | 196.76 |
| 73 n-Propylbenzene | 91 | 9.479 | 9.479 | (0.926) | 5652456 | 200.000 | 197.09 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 4589381 | 200.000 | 199.26 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 1977764 | 200.000 | 200.23(A) |
| 81 sec-Butylbenzene | 105 | 10.090 | 10.090 | (0.986) | 4898290 | 200.000 | 203.23(A) |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 3375201 | 200.000 | 205.67(A) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 3416506 | 200.000 | 204.92(A) |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 811202 | 200.000 | 191.73 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 4594912 | 200.000 | 191.13 |
| 20 trans-1,2-Dichloroethene | 96 | 3.136 | 3.136 | (0.641) | 1055077 | 200.000 | 190.99 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 1721394 | 200.000 | 200.53(A) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 1093007 | 200.000 | 199.67 |
| 8 Trichlorofluoromethane | 101 | 1.944 | 1.944 | (0.398) | 1561606 | 200.000 | 198.87 |
| 5 Vinyl Chloride | 62 | 1.415 | 1.415 | (0.289) | 1348117 | 200.000 | 199.01 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Date : 21-DEC-2018 17:55
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 18:45
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:55 Cal File: U122111.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

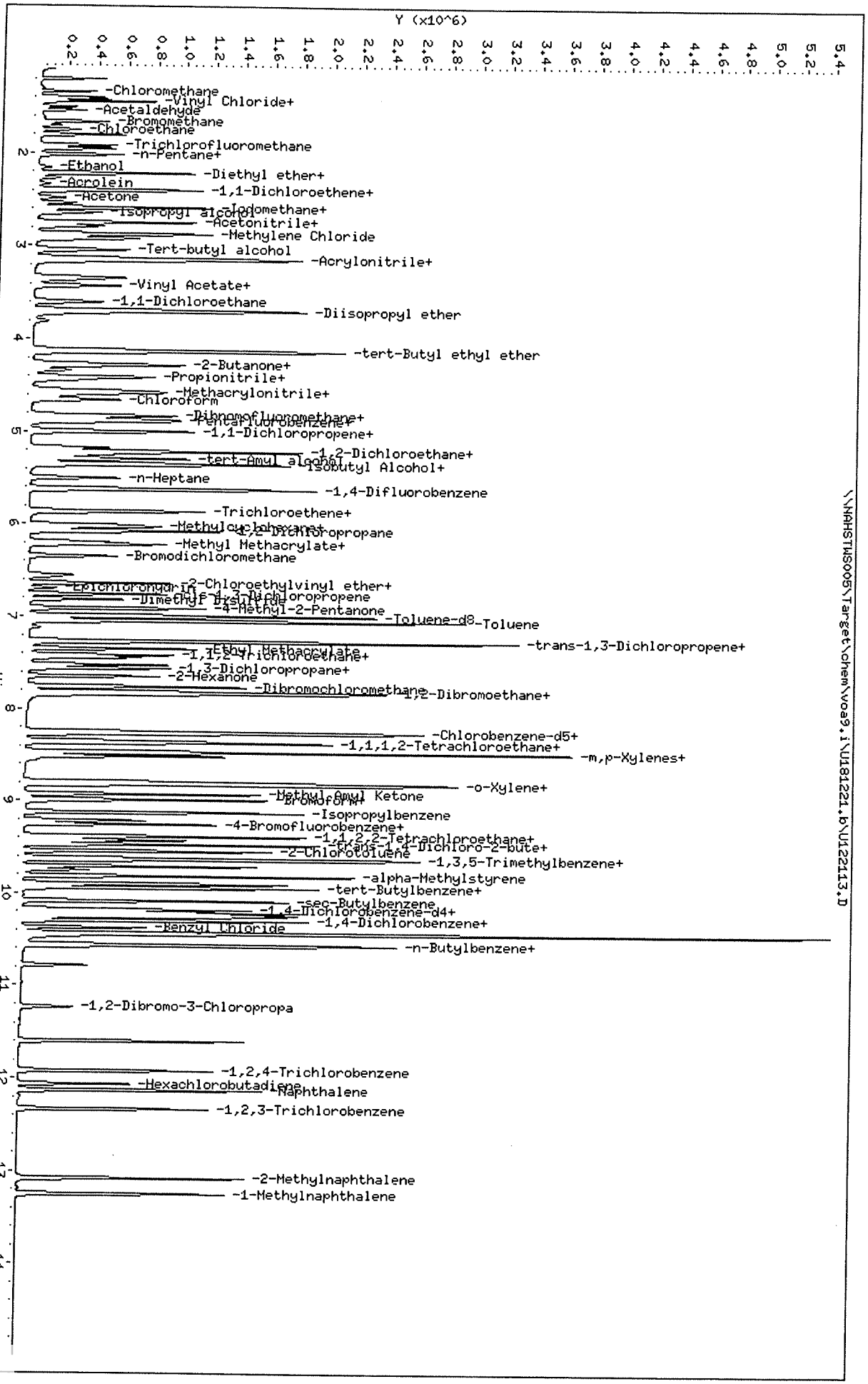
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.890 | (1.000) | 454236 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 837452 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 785431 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 375418 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.987) | 255609 | 51.0245 | 51.02 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 329809 | 51.3551 | 51.35 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 1045729 | 51.6161 | 51.61 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 396478 | 51.3902 | 51.39 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 241293 | 48.4317 | 48.43 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 354032 | 49.3608 | 49.36 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 418971 | 49.5558 | 49.55 |
| 138 Freon TF | 101 | 2.401 | 2.394 | (0.491) | 174050 | 45.0712 | 45.07 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.421 | (0.900) | 230741 | 49.3099 | 49.30 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.597 | (0.737) | 469167 | 47.9609 | 47.96 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.394 | (0.490) | 197920 | 45.8262 | 45.82 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 353683 | 47.4657 | 47.46 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 338004 | 47.8072 | 47.80 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.430 | (0.921) | 468241 | 53.2610 | 53.26 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.926 | (1.165) | 350114 | 50.3719 | 50.37 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 985013 | 50.1388 | 50.13 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 65081 | 49.9244 | 49.92 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 275792 | 51.1699 | 51.16 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 539129 | 48.3652 | 48.36 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 379863 | 50.3501 | 50.35 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 291083 | 49.1911 | 49.19 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.628 | (0.940) | 944583 | 50.0646 | 50.06 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 538150 | 48.2737 | 48.27 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 498006 | 49.4090 | 49.40 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.258 | (1.002) | 553425 | 47.0841 | 47.08 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.272 | (0.874) | 312995 | 53.0931 | 53.09 |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 309683 | 104.354 | 104.35 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.550 | (0.933) | 853147 | 49.3227 | 49.32 |
| 52 2-Hexanone | 43 | 7.649 | 7.653 | (0.927) | 476780 | 109.166 | 109.16 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 993815 | 49.7187 | 49.71 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.213 | (0.997) | 977284 | 49.1947 | 49.19 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 669743 | 106.576 | 106.57 |
| 10 Acetone | 43 | 2.480 | 2.476 | (0.507) | 202203 | 114.452 | 114.45 |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 1087936 | 48.8203 | 48.82 |
| 74 Bromobenzene | 156 | 9.381 | 9.385 | (0.917) | 288693 | 49.7707 | 49.77 |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 134219 | 56.7663 | 56.76 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.345 | (1.129) | 327631 | 52.0660 | 52.06 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 161326 | 47.9288 | 47.92(T) |
| 6 Bromomethane | 94 | 1.666 | 1.651 | (0.341) | 151955 | 54.0592 | 54.05 |
| 19 Carbon Disulfide | 76 | 2.588 | 2.585 | (0.529) | 1510901 | 96.0096 | 96.00 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.991 | (0.888) | 272477 | 44.8853 | 44.88 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 728193 | 48.2531 | 48.25 |
| 7 Chloroethane | 64 | 1.752 | 1.737 | (0.358) | 185529 | 46.1546 | 46.15(M) |
| 28 Chloroform | 83 | 4.658 | 4.654 | (0.952) | 456472 | 48.4536 | 48.45 |
| 3 Chloromethane | 50 | 1.340 | 1.333 | (0.274) | 235959 | 48.9688 | 48.96 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.283 | (0.876) | 292150 | 48.9311 | 48.93 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 467498 | 48.9175 | 48.91 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 250542 | 48.5723 | 48.57 |
| 44 Dibromomethane | 93 | 6.191 | 6.187 | (1.101) | 173822 | 50.8969 | 50.89 |
| 2 Dichlorodifluoromethane | 85 | 1.205 | 1.198 | (0.246) | 258081 | 46.2123 | 46.21 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 381593 | 49.3007 | 49.30 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 122959 | 46.1748 | 46.17 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1096015 | 49.0718 | 49.07 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 950452 | 99.8846 | 99.88 |
| 17 Methylene Chloride | 84 | 2.870 | 2.866 | (0.586) | 279368 | 49.7584 | 49.75 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 900081 | 46.9488 | 46.94 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.479 | (0.926) | 1377655 | 49.1117 | 49.11 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 1130612 | 49.4621 | 49.46 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 478939 | 49.8923 | 49.89 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.090 | (0.985) | 1124348 | 47.6920 | 47.69 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 841070 | 52.7368 | 52.73 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 781669 | 47.9339 | 47.93 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 188872 | 45.9327 | 45.93 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 1151259 | 49.2749 | 49.27 |
| 20 trans-1,2-Dichloroethene | 96 | 3.139 | 3.136 | (0.642) | 255368 | 48.0288 | 48.02 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 402226 | 48.9357 | 48.93 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 262761 | 48.8423 | 48.84 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.944 | (0.399) | 342884 | 45.8511 | 45.85 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.415 | (0.290) | 295169 | 46.0208 | 46.02 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



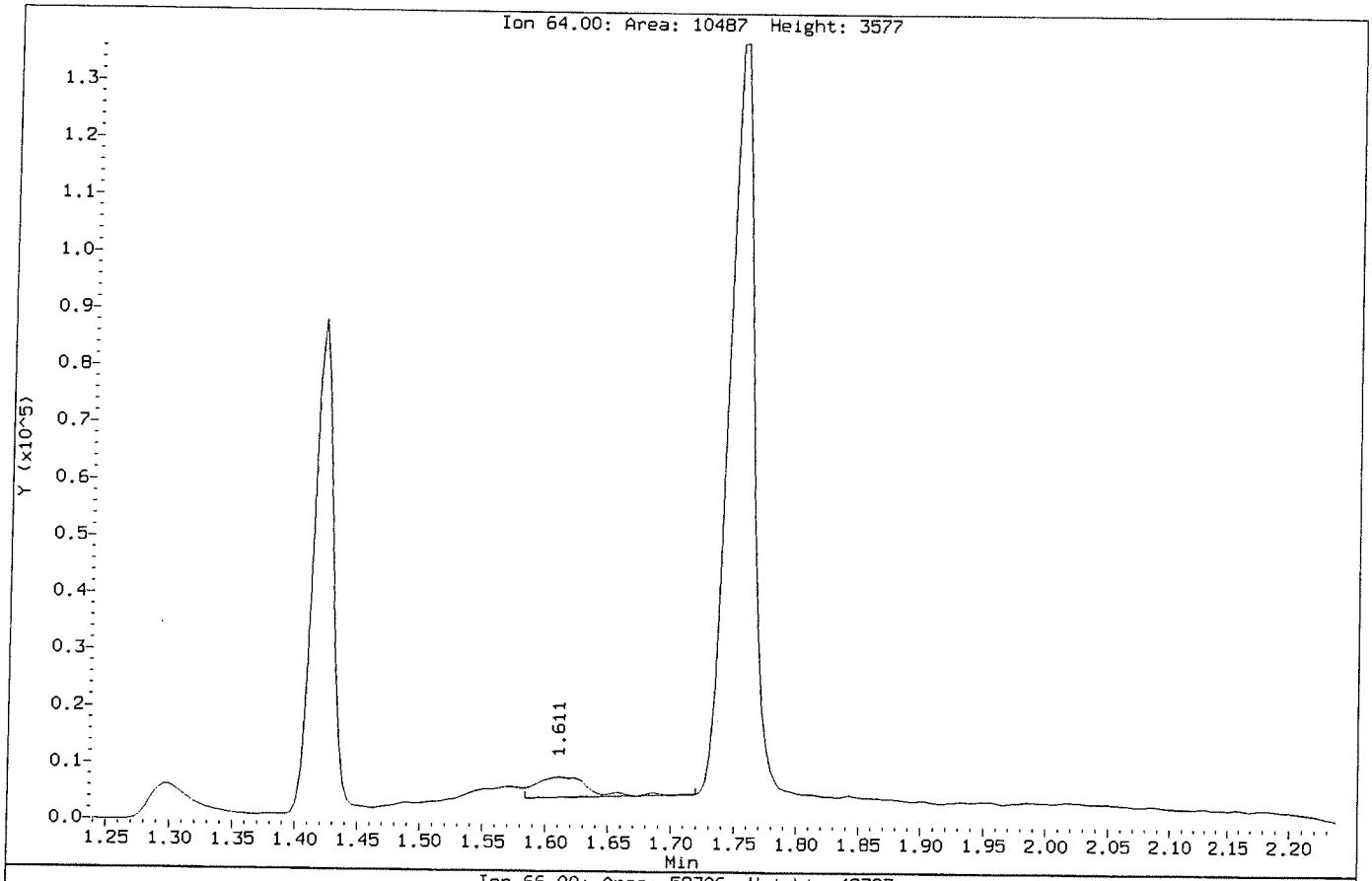

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Date : 21-DEC-2018 18:45
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624

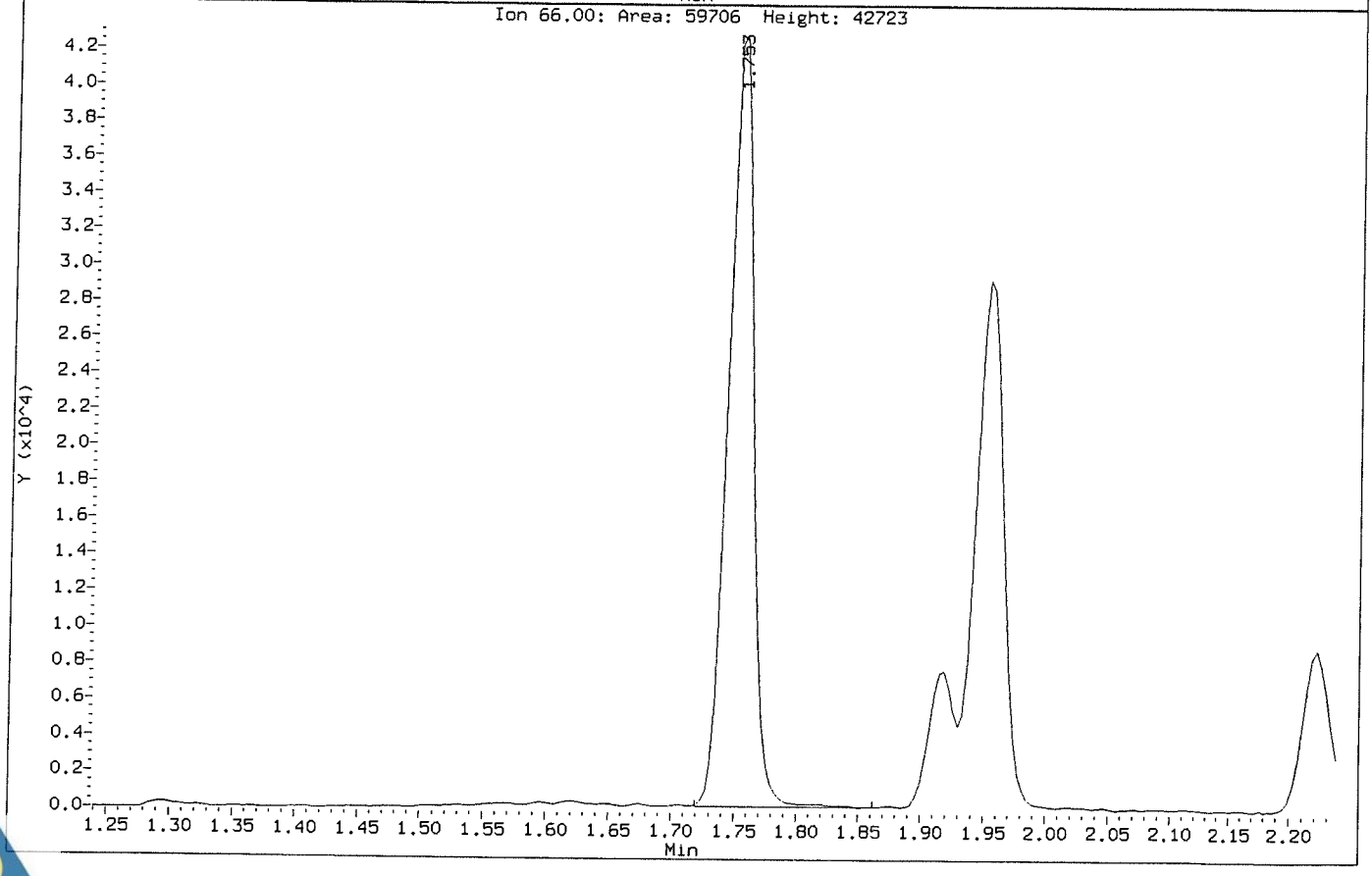
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

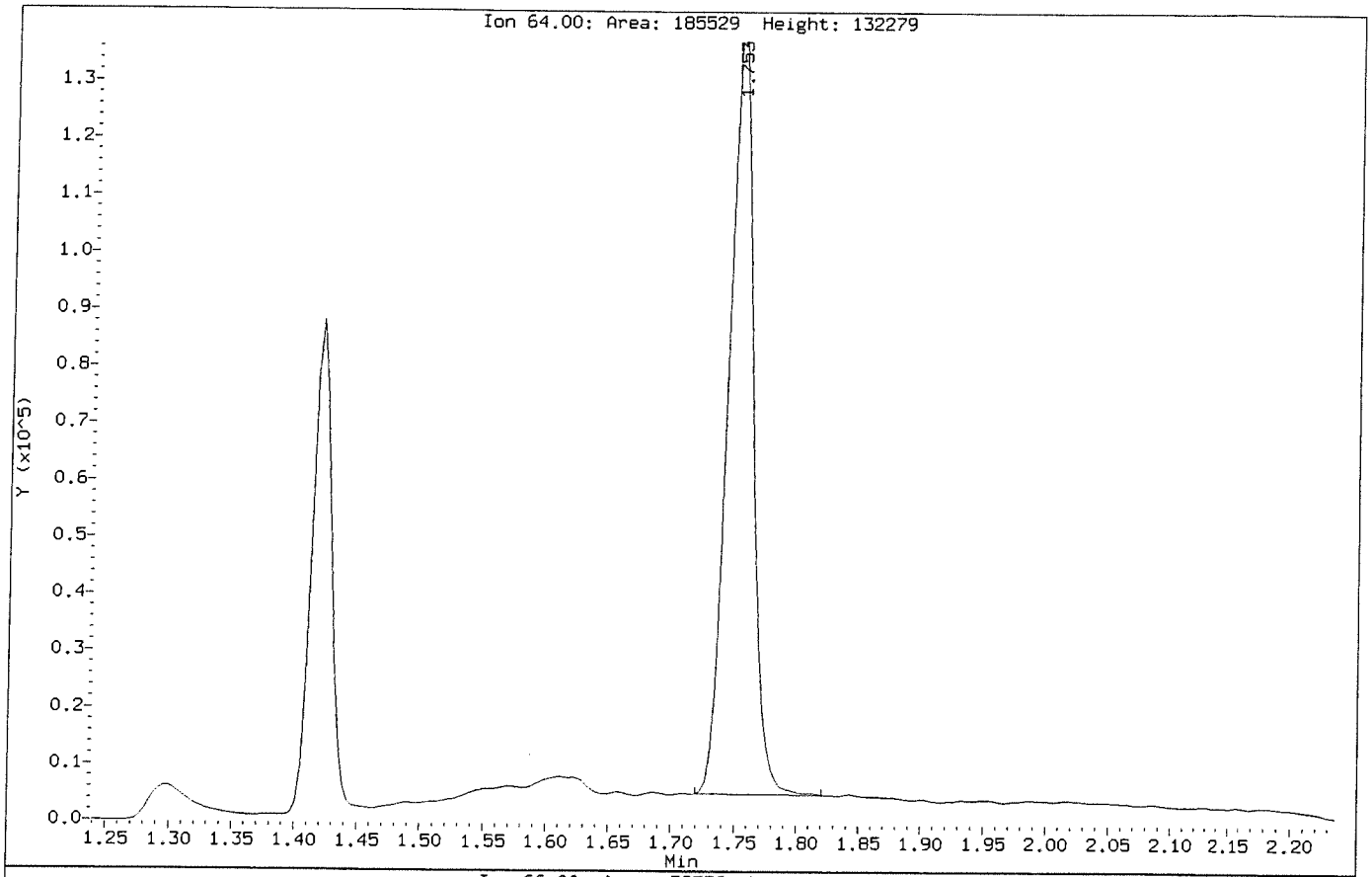
Compound: Chloroethane
CAS Number: 75-00-3

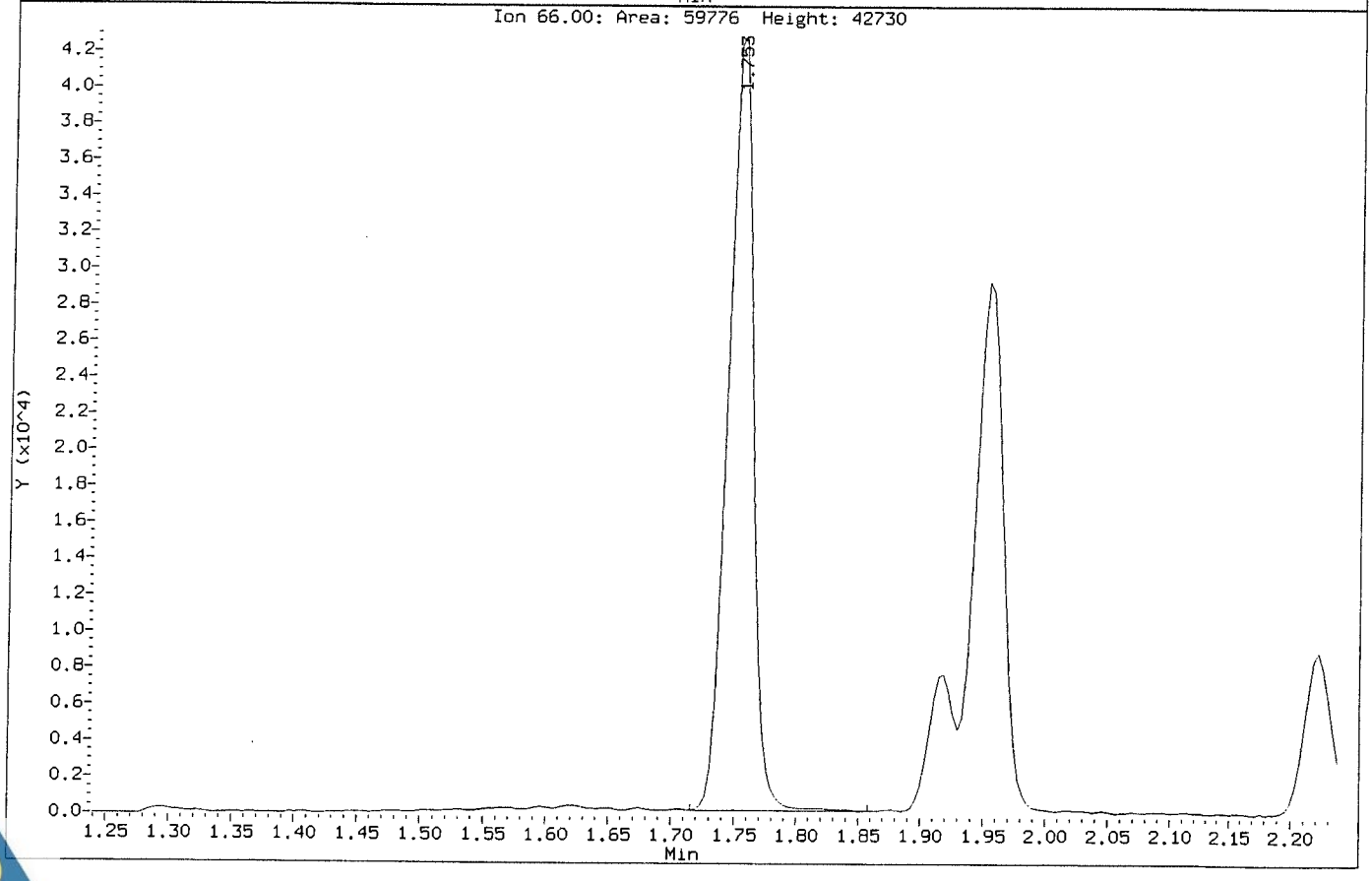


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



# MSVOA09 -Logbook

**Batch:** 34003
**Date:** 12-22-2018
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 12-22-2018 10:39 am | 1.00 | 50 mL | 50 mL | U122201.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD050 | CCV | 12-22-2018 11:03 am | 1.00 | 50 mL | 50 mL | U122202.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | VLCSW-1812022 | LCS | 12-22-2018 11:28 am | 1.00 | 50 mL | 50 mL | U122203.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 4 | BLANK | SAMP | 12-22-2018 11:53 am | 1.00 | 50 mL | 50 mL | U122204.D | Liquid | Y | NA |
| | *Cleanup blk* | | | | | | | | | |
| 5 | VBLKW-181222 | MBLK | 12-22-2018 12:18 pm | 1.00 | 50 mL | 50 mL | U122205.D | Liquid | Y | NA |
| 6 | HS18120927-05 | SAMP | 12-22-2018 12:43 pm | 1.00 | 50 mL | 50 mL | U122206.D | Liquid | Y | <2 |
| 7 | HS18120642-01 | SAMP | 12-22-2018 01:07 pm | 1.00 | 50 mL | 50 mL | U122207.D | Liquid | Y | <2 |
| 8 | HS18120642-03 | SAMP | 12-22-2018 01:32 pm | 1.00 | 50 mL | 50 mL | U122208.D | Liquid | Y | <2 |
| 9 | HS18120927-05MS | MS | 12-22-2018 01:57 pm | 1.00 | 50 mL | 50 mL | U122209.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 10 | HS18120927-05MSD | MSD | 12-22-2018 02:22 pm | 1.00 | 50 mL | 50 mL | U122210.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 11 | HS18120642-03 | SAMP | 12-22-2018 02:46 pm | 10.00 | 5 mL | 50 mL | U122211.D | Liquid | Y | <2 |
| 12 | HS18120927-02 | SAMP | 12-22-2018 03:11 pm | 1.00 | 50 mL | 50 mL | U122212.D | Liquid | Y | <2 |
| 13 | HS18120927-09 | SAMP | 12-22-2018 03:36 pm | 1.00 | 50 mL | 50 mL | U122213.D | Liquid | Y | <2 |
| 14 | HS18120642-05 | SAMP | 12-22-2018 04:01 pm | 1.00 | 50 mL | 50 mL | U122214.D | Liquid | Y | <2 |
| 15 | HS18120927-01 | SAMP | 12-22-2018 04:26 pm | 1.00 | 50 mL | 50 mL | U122215.D | Liquid | Y | <2 |
| 16 | HS18120927-03 | SAMP | 12-22-2018 04:50 pm | 1.00 | 50 mL | 50 mL | U122216.D | Liquid | Y | <2 |
| 17 | HS18120927-04 | SAMP | 12-22-2018 05:15 pm | 1.00 | 50 mL | 50 mL | U122217.D | Liquid | Y | <2 |
| 18 | HS18120927-06 | SAMP | 12-22-2018 05:40 pm | 1.00 | 50 mL | 50 mL | U122218.D | Liquid | Y | <2 |
| 19 | HS18120927-07 | SAMP | 12-22-2018 06:05 pm | 1.00 | 50 mL | 50 mL | U122219.D | Liquid | Y | <2 |
| 20 | HS18120927-08 | SAMP | 12-22-2018 06:30 pm | 1.00 | 50 mL | 50 mL | U122220.D | Liquid | Y | <2 |
| 21 | HS18120642-02 | SAMP | 12-22-2018 06:54 pm | 1.00 | 50 mL | 50 mL | U122221.D | Liquid | Y | <2 |
| 22 | HS18120642-04 | SAMP | 12-22-2018 07:19 pm | 1.00 | 50 mL | 50 mL | U122222.D | Liquid | Y | <2 |
| 23 | HS18120736-02 | SAMP | 12-22-2018 07:44 pm | 10.00 | 5 mL | 50 mL | U122223.D | Liquid | Y | <2 |
| 24 | HS18120736-01 | SAMP | 12-22-2018 08:09 pm | 1.00 | 50 mL | 50 mL | U122224.D | Liquid | Y | <2 |
| 25 | HS18120736-03 | SAMP | 12-22-2018 08:33 pm | 1.00 | 50 mL | 50 mL | U122225.D | Liquid | Y | <2 |
| 26 | HS18120736-04 | SAMP | 12-22-2018 08:58 pm | 1.00 | 50 mL | 50 mL | U122226.D | Liquid | Y | <2 |
| 27 | HS18120642-01 | SAMP | 12-22-2018 09:23 pm | 5.00 | 10 mL | 50 mL | U122227.D | Liquid | Y | <2 |
| 28 | VSTD050-END | CCV | 12-22-2018 09:47 pm | 1.00 | 50 mL | 50 mL | U122228.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 29 | BFB | TUNE | 12-22-2018 10:12 pm | 1.00 | 50 mL | 50 mL | V122201.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 30 | VSTD050 | CCV | 12-22-2018 10:37 pm | 1.00 | 50 mL | 50 mL | V122202.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 31 | CCB | SAMP | 12-22-2018 11:02 pm | 1.00 | 50 mL | 50 mL | V122203.D | Liquid | Y | NA |
| | *CCB* | | | | | | | | | |
| 32 | VLCSW-1812022 | LCS | 12-22-2018 11:26 pm | 1.00 | 50 mL | 50 mL | V122204.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 33 | BLANK | SAMP | 12-22-2018 11:51 pm | 1.00 | 50 mL | 50 mL | V122205.D | Liquid | Y | NA |
| | *Cleanup blk* | | | | | | | | | |
| 34 | VBLKW-181222 | MBLK | 12-23-2018 12:16 am | 1.00 | 50 mL | 50 mL | V122206.D | Liquid | Y | NA |
| 35 | HS18120646-13 | SAMP | 12-23-2018 12:41 am | 1.00 | 50 mL | 50 mL | V122207.D | Liquid | Y | <2 |

# MSVOA09 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 36 | HS18120646-03 | SAMP | 12-23-2018 01:05 am | 1.00 | 50 mL | 50 mL | V122208.D | Liquid | Y | <2 |
| 37 | HS18120646-03MS | MS | 12-23-2018 01:30 am | 1.00 | 50 mL | 50 mL | V122209.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 38 | HS18120646-03MSD | MSD | 12-23-2018 01:55 am | 1.00 | 50 mL | 50 mL | V122210.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 39 | HS18120704-05 | SAMP | 12-23-2018 02:20 am | 25.00 | 2 mL | 50 mL | V122211.D | Liquid | Y | <2 |
| 40 | HS18120704-06 | SAMP | 12-23-2018 02:45 am | 25.00 | 2 mL | 50 mL | V122212.D | Liquid | Y | <2 |
| 41 | HS18120646-04 | SAMP | 12-23-2018 03:09 am | 1.00 | 50 mL | 50 mL | V122213.D | Liquid | Y | <2 |
| 42 | HS18120646-07 | SAMP | 12-23-2018 03:34 am | 1.00 | 50 mL | 50 mL | V122214.D | Liquid | Y | <2 |
| 43 | HS18120646-08 | SAMP | 12-23-2018 03:59 am | 1.00 | 50 mL | 50 mL | V122215.D | Liquid | Y | <2 |
| 44 | HS18120646-09 | SAMP | 12-23-2018 04:24 am | 1.00 | 50 mL | 50 mL | V122216.D | Liquid | Y | <2 |
| 45 | HS18120646-11 | SAMP | 12-23-2018 04:49 am | 1.00 | 50 mL | 50 mL | V122217.D | Liquid | Y | <2 |
| 46 | HS18120646-01 | SAMP | 12-23-2018 05:14 am | 5.00 | 10 mL | 50 mL | V122218.D | Liquid | Y | <2 |
| 47 | HS18120646-02 | SAMP | 12-23-2018 05:39 am | 10.00 | 5 mL | 50 mL | V122219.D | Liquid | Y | <2 |
| 48 | HS18120646-05 | SAMP | 12-23-2018 06:04 am | 1.00 | 50 mL | 50 mL | V122220.D | Liquid | Y | <2 |
| 49 | HS18120646-05 | SAMP | 12-23-2018 06:29 am | 10.00 | 5 mL | 50 mL | V122221.D | Liquid | Y | <2 |
| 50 | HS18120646-06 | SAMP | 12-23-2018 06:54 am | 10.00 | 5 mL | 50 mL | V122222.D | Liquid | Y | <2 |
| 51 | HS18120646-10 | SAMP | 12-23-2018 07:19 am | 1.00 | 50 mL | 50 mL | V122223.D | Liquid | Y | <2 |
| 52 | HS18120646-10 | SAMP | 12-23-2018 07:45 am | 10.00 | 5 mL | 50 mL | V122224.D | Liquid | Y | <2 |
| 53 | HS18120646-12 | SAMP | 12-23-2018 08:10 am | 10.00 | 5 mL | 50 mL | V122225.D | Liquid | Y | <2 |
| 54 | HS18120704-01 | SAMP | 12-23-2018 08:35 am | 1.00 | 50 mL | 50 mL | V122226.D | Liquid | Y | <2 |
| 55 | HS18120704-02 | SAMP | 12-23-2018 09:00 am | 1.00 | 50 mL | 50 mL | V122227.D | Liquid | Y | <2 |
| 56 | HS18120704-03 | SAMP | 12-23-2018 09:25 am | 1.00 | 50 mL | 50 mL | V122228.D | Liquid | Y | <2 |

| Chemical | Value |
|---|---|
| SURR SPK ID | 30502-52-03 |
| IS ID | 30502-52-04 |
| LCS/MS ID | 30603-46-01 |
| CAL STD ID | 30502-56-01/02 |
| BFB ID | 30502-52-03 |

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

| | CLIENT SAMPLE NO. | SMC1 (DCE)# | SMC2 # | SMC3 (TOL)# | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-181222 | 106 | 103 | 102 | 102 | 0 |
| 02 | VBLKW-181222 | 93 | 87 | 105 | 98 | 0 |
| 03 | HS18120927-0 | 91 | 90 | 105 | 102 | 0 |
| 04 | HS18120927-0 | 92 | 89 | 106 | 104 | 0 |
| 05 | HS18120736-0 | 95 | 92 | 104 | 97 | 0 |
| 06 | HS18120736-0 | 95 | 90 | 106 | 99 | 0 |
| 07 | HS18120736-0 | 97 | 92 | 105 | 97 | 0 |
| 08 | HS18120736-0 | 96 | 91 | 105 | 97 | 0 |
| 09 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
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| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | ( 0-130) |
| SMC2 | = Dibromofluoromethane | ( 0-130) |
| SMC3 (TOL) | = Toluene-d8 | ( 0-130) |
| OTHER | = 4-Bromofluorobenzene | ( 0-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181222

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID: U122205 Lab Sample ID: VBLKW-181222

Date Analyzed: 12/22/18 Time Analyzed: 1218

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

| | SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VLCSW-181222 | VLCSW-1812022 | U122203 | 1128 |
| 02 | HS18120927-0 | HS18120927-05M | U122209 | 1357 |
| 03 | HS18120927-0 | HS18120927-05M | U122210 | 1422 |
| 04 | HS18120736-0 | HS18120736-02 | U122223 | 1944 |
| 05 | HS18120736-0 | HS18120736-01 | U122224 | 2009 |
| 06 | HS18120736-0 | HS18120736-03 | U122225 | 2033 |
| 07 | HS18120736-0 | HS18120736-04 | U122226 | 2058 |
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COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Lab File ID: U122201  BFB Injection Date: 12/22/18

Instrument ID: VOA9  BFB Injection Time: 1039

GC Column: DB624  ID: 0.25 (mm)  Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 19.2 |
| 75 | 30.0 - 60.0% of mass 95 | 50.3 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.1 |
| 173 | Less than 2.0% of mass 174 | 0.6 ( 0.9)1 |
| 174 | Greater than 50.0% of mass 95 | 67.4 |
| 175 | 5.0 - 9.0% of mass 174 | 5.1 ( 7.6)1 |
| 176 | 95.0 - 101.0% of mass 174 | 65.0 ( 96.4)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.3 ( 6.6)2 |

1-Value is % mass 174  2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 | U122202 | 12/22/18 | 1103 |
| 02 | VLCSW-181222 | VLCSW-1812022 | U122203 | 12/22/18 | 1128 |
| 03 | VBLKW-181222 | VBLKW-181222 | U122205 | 12/22/18 | 1218 |
| 04 | HS18120927-0 | HS18120927-05M | U122209 | 12/22/18 | 1357 |
| 05 | HS18120927-0 | HS18120927-05M | U122210 | 12/22/18 | 1422 |
| 06 | HS18120736-0 | HS18120736-02 | U122223 | 12/22/18 | 1944 |
| 07 | HS18120736-0 | HS18120736-01 | U122224 | 12/22/18 | 2009 |
| 08 | HS18120736-0 | HS18120736-03 | U122225 | 12/22/18 | 2033 |
| 09 | HS18120736-0 | HS18120736-04 | U122226 | 12/22/18 | 2058 |
| 10 | VSTD050-END | VSTD050-END | U122228 | 12/22/18 | 2147 |
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FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Instrument ID: VOA9  Calibration Date: 12/22/18  Time: 1103

Lab File ID: U122202  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times:  1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 48.764951 | 50.000000 | 0.5277837 | 0.2 | 2.47 | 20.00 | LINR |
| trans-1,3-Dichloropropene | 48.330215 | 50.000000 | 0.4524389 | 0.1 | 3.34 | 20.00 | LINR |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4390608 | 1.4390608 | 0.6 | 3.09 | 20.00 | AVRG |
| 2,2-Dichloropropane | 0.6490000 | 0.5274239 | 0.5274239 | 0.1 | 18.73 | 20.00 | AVRG |
| 1,1-Dichloropropene | 0.4450000 | 0.4255397 | 0.4255397 | 0.1 | 4.37 | 20.00 | AVRG |
| Dibromomethane | 0.2040000 | 0.2102588 | 0.2102588 | 0.1 | -3.07 | 20.00 | AVRG |
| 1,2-Dibromoethane | 0.3430000 | 0.3596375 | 0.3596375 | 0.1 | -4.85 | 20.00 | AVRG |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5756573 | 0.5756573 | 0.1 | 1.60 | 20.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 48.888847 | 50.000000 | 0.3074071 | 0.1 | 2.22 | 20.00 | LINR |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7953628 | 0.7953628 | 0.1 | -0.81 | 20.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1459592 | 1.1459592 | 0.3 | -1.77 | 20.00 | AVRG |
| Freon TF | 0.4250000 | 0.3885645 | 0.3885645 | 0.1 | 8.57 | 20.00 | AVRG |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3049414 | 0.3049414 | 0.1 | -2.33 | 20.00 | AVRG |
| 1,1-Dichloroethane | 1.0770000 | 1.0657707 | 1.0657707 | 0.2 | 1.04 | 20.00 | AVRG |
| 1,1-Dichloroethene | 0.4750000 | 0.4572196 | 0.4572196 | 0.1 | 3.74 | 20.00 | AVRG |
| Trichlorofluoromethane | 50.804434 | 50.000000 | 0.7968663 | 0.1 | -1.61 | 20.00 | LINR |
| 1,2,3-Trichlorobenzene | 47.722858 | 50.000000 | 0.9049339 | 0.1 | 4.55 | 20.00 | LINR |
| Toluene | 1.4870000 | 1.4923025 | 1.4923025 | 0.4 | -0.36 | 20.00 | AVRG |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9161280 | 0.9161280 | 0.2 | 1.07 | 20.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6459268 | 2.6459268 | 0.1 | -1.14 | 20.00 | AVRG |
| Tetrachloroethene | 0.2620000 | 0.2355687 | 0.2355687 | 0.2 | 10.09 | 20.00 | AVRG |
| Trichloroethene | 0.3210000 | 0.3088790 | 0.3088790 | 0.2 | 3.78 | 20.00 | AVRG |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4508495 | 1.4508495 | 0.4 | 2.23 | 20.00 | AVRG |
| 1,2-Dichloroethane | 51.153481 | 50.000000 | 0.4649868 | 0.1 | -2.31 | 20.00 | LINR |
| 1,2-Dichloropropane | 0.3530000 | 0.3509230 | 0.3509230 | 0.1 | 0.59 | 20.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5151502 | 2.5151502 | 0.1 | -0.08 | 20.00 | AVRG |
| 1,3-Dichloropropane | 0.6410000 | 0.6561811 | 0.6561811 | 0.1 | -2.37 | 20.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4842464 | 1.4842464 | 0.4 | 5.22 | 20.00 | AVRG |
| 2-Butanone | 100.05221 | 100.00000 | 0.3462225 | 0.1 | -0.05 | 20.00 | LINR |
| 2-Chlorotoluene | 2.3040000 | 2.2780427 | 2.2780427 | 0.1 | 1.13 | 20.00 | AVRG |
| 2-Hexanone | 0.2780000 | 0.3092444 | 0.3092444 | 0.1 | -11.24 | 20.00 | AVRG |
| 4-Chlorotoluene | 2.6620000 | 2.6521022 | 2.6521022 | 0.1 | 0.37 | 20.00 | AVRG |
| tert-Butylbenzene | 2.1720000 | 2.1285396 | 2.1285396 | 0.1 | 2.00 | 20.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4316568 | 0.4316568 | 0.1 | -7.91 | 20.00 | AVRG |
| Acetone | 104.18702 | 100.00000 | 0.2452801 | 0.1 | -4.19 | 20.00 | LINR |
| Benzene | 1.3300000 | 1.3215973 | 1.3215973 | 0.5 | 0.63 | 20.00 | AVRG |
| Bromobenzene | 0.7730000 | 0.7756938 | 0.7756938 | 0.1 | -0.35 | 20.00 | AVRG |
| Bromochloromethane | 58.115547 | 50.000000 | 0.2998792 | 0.1 | -16.23 | 20.00 | LINR |
| Bromodichloromethane | 0.3760000 | 0.3920147 | 0.3920147 | 0.2 | -4.26 | 20.00 | AVRG |
| Bromoform | 48.045782 | 50.000000 | 0.2040281 | 0.1 | 3.91 | 20.00 | LINR |
| Bromomethane | 50.484275 | 50.000000 | 0.1972688 | 0.1 | -0.97 | 20.00 | LINR |
| Carbon Disulfide | 1.7320000 | 1.6858883 | 1.6858883 | 0.1 | 2.66 | 20.00 | AVRG |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date: 12/22/18  Time: 1103

Lab File ID: U122202  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 48.386486 | 50.000000 | 0.3302381 | 0.1 | 3.23 | 20.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9453081 | 0.9453081 | 0.5 | 1.63 | 20.00 | AVRG |
| Chloroethane | 48.626371 | 50.000000 | 0.4227912 | 0.1 | 2.75 | 20.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0359967 | 1.0359967 | 0.2 | 0.10 | 20.00 | AVRG |
| Chloromethane | 49.758168 | 50.000000 | 0.4333563 | 0.1 | 0.48 | 20.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6580261 | 0.6580261 | 0.1 | -0.16 | 20.00 | AVRG |
| Dibromochloromethane | 48.766356 | 50.000000 | 0.3261819 | 0.1 | 2.47 | 20.00 | LINR |
| Dichlorodifluoromethane | 49.534880 | 50.000000 | 0.5519381 | 0.1 | 0.93 | 20.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4828480 | 0.4828480 | 0.1 | 2.06 | 20.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.2979790 | 0.2979790 | 0.1 | 16.06 | 20.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4082826 | 1.4082826 | 0.1 | 0.96 | 20.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6004248 | 0.6004248 | 0.1 | 0.92 | 20.00 | AVRG |
| Methylene Chloride | 51.585216 | 50.000000 | 0.6349337 | 0.1 | -3.17 | 20.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.3941048 | 2.3941048 | 0.5 | 6.22 | 20.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.6918689 | 3.6918689 | 0.1 | 1.18 | 20.00 | AVRG |
| Naphthalene | 48.387582 | 50.000000 | 3.0564916 | 0.2 | 3.22 | 20.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6136959 | 0.6136959 | 0.3 | -0.44 | 20.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.0685275 | 3.0685275 | 0.1 | 2.28 | 20.00 | AVRG |
| Styrene | 1.0150000 | 1.0735114 | 1.0735114 | 0.3 | -5.76 | 20.00 | AVRG |
| Vinyl Chloride | 49.231582 | 50.000000 | 0.6535542 | 0.1 | 1.54 | 20.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2279091 | 1.2279091 | 0.1 | -4.86 | 20.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6046501 | 2.6046501 | 0.1 | 1.56 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 46.724517 | 50.000000 | 0.1676998 | 0.05 | 6.55 | 20.00 | LINR |
| 1,2-Dichloroethane-d4 | 51.432208 | 50.000000 | 0.7432890 | 0.1 | -2.86 | 20.00 | LINR |
| Dibromofluoromethane | 51.809400 | 50.000000 | 0.5693840 | 0.1 | -3.62 | 20.00 | LINR |
| Toluene-d8 | 51.230451 | 50.000000 | 1.3489865 | 0.1 | -2.46 | 20.00 | LINR |
| 4-Bromofluorobenzene | 51.316453 | 50.000000 | 0.5096516 | 0.1 | -2.63 | 20.00 | LINR |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Instrument ID: VOA9  Calibration Date: 12/22/18  Time: 2147

Lab File ID: U122228  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 46.317778 | 50.000000 | 0.5277837 | 0.2 | 7.36 | 50.00 | LINR |
| trans-1,3-Dichloropropene | 46.193050 | 50.000000 | 0.4524389 | 0.1 | 7.61 | 50.00 | LINR |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4390608 | 1.4390608 | 0.6 | 3.09 | 50.00 | AVRG |
| 2,2-Dichloropropane | 0.6490000 | 0.5274239 | 0.5274239 | 0.1 | 18.73 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.4450000 | 0.4255397 | 0.4255397 | 0.1 | 4.37 | 50.00 | AVRG |
| Dibromomethane | 0.2040000 | 0.2102588 | 0.2102588 | 0.1 | -3.07 | 50.00 | AVRG |
| 1,2-Dibromoethane | 0.3430000 | 0.3596375 | 0.3596375 | 0.1 | -4.85 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5756573 | 0.5756573 | 0.1 | 1.60 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 48.462204 | 50.000000 | 0.3074071 | 0.1 | 3.08 | 50.00 | LINR |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7953628 | 0.7953628 | 0.1 | -0.81 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1459592 | 1.1459592 | 0.3 | -1.77 | 50.00 | AVRG |
| Freon TF | 0.4250000 | 0.3885645 | 0.3885645 | 0.1 | 8.57 | 50.00 | AVRG |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3049414 | 0.3049414 | 0.1 | -2.33 | 50.00 | AVRG |
| 1,1-Dichloroethane | 1.0770000 | 1.0657707 | 1.0657707 | 0.2 | 1.04 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.4750000 | 0.4572196 | 0.4572196 | 0.1 | 3.74 | 50.00 | AVRG |
| Trichlorofluoromethane | 48.367931 | 50.000000 | 0.7968663 | 0.1 | 3.26 | 50.00 | LINR |
| 1,2,3-Trichlorobenzene | 48.047881 | 50.000000 | 0.9049339 | 0.1 | 3.90 | 50.00 | LINR |
| Toluene | 1.4870000 | 1.4923025 | 1.4923025 | 0.4 | -0.36 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9161280 | 0.9161280 | 0.2 | 1.07 | 50.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6459268 | 2.6459268 | 0.1 | -1.14 | 50.00 | AVRG |
| Tetrachloroethene | 0.2620000 | 0.2355687 | 0.2355687 | 0.2 | 10.09 | 50.00 | AVRG |
| Trichloroethene | 0.3210000 | 0.3088790 | 0.3088790 | 0.2 | 3.78 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4508495 | 1.4508495 | 0.4 | 2.23 | 50.00 | AVRG |
| 1,2-Dichloroethane | 51.633261 | 50.000000 | 0.4649868 | 0.1 | -3.27 | 50.00 | LINR |
| 1,2-Dichloropropane | 0.3530000 | 0.3509230 | 0.3509230 | 0.1 | 0.59 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5151502 | 2.5151502 | 0.1 | -0.08 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.6410000 | 0.6561811 | 0.6561811 | 0.1 | -2.37 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4842464 | 1.4842464 | 0.4 | 5.22 | 50.00 | AVRG |
| 2-Butanone | 106.02705 | 100.00000 | 0.3462225 | 0.1 | -6.03 | 50.00 | LINR |
| 2-Chlorotoluene | 2.3040000 | 2.2780427 | 2.2780427 | 0.1 | 1.13 | 50.00 | AVRG |
| 2-Hexanone | 0.2780000 | 0.3092444 | 0.3092444 | 0.1 | -11.24 | 50.00 | AVRG |
| 4-Chlorotoluene | 2.6620000 | 2.6521022 | 2.6521022 | 0.1 | 0.37 | 50.00 | AVRG |
| tert-Butylbenzene | 2.1720000 | 2.1285396 | 2.1285396 | 0.1 | 2.00 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4316568 | 0.4316568 | 0.1 | -7.91 | 50.00 | AVRG |
| Acetone | 126.43639 | 100.00000 | 0.2452801 | 0.1 | -26.44 | 50.00 | LINR |
| Benzene | 1.3300000 | 1.3215973 | 1.3215973 | 0.5 | 0.63 | 50.00 | AVRG |
| Bromobenzene | 0.7730000 | 0.7756938 | 0.7756938 | 0.1 | -0.35 | 50.00 | AVRG |
| Bromochloromethane | 57.657205 | 50.000000 | 0.2998792 | 0.1 | -15.31 | 50.00 | LINR |
| Bromodichloromethane | 0.3760000 | 0.3920147 | 0.3920147 | 0.2 | -4.26 | 50.00 | AVRG |
| Bromoform | 47.620905 | 50.000000 | 0.2040281 | 0.1 | 4.76 | 50.00 | LINR |
| Bromomethane | 32.427445 | 50.000000 | 0.1972688 | 0.1 | 35.14 | 50.00 | LINR |
| Carbon Disulfide | 1.7320000 | 1.6858883 | 1.6858883 | 0.1 | 2.66 | 50.00 | AVRG |



FORM VII VOA

# FORM 7B
# VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date: 12/22/18  Time: 2147

Lab File ID: U122228  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 45.536719 | 50.000000 | 0.3302381 | 0.1 | 8.93 | 50.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9453081 | 0.9453081 | 0.5 | 1.63 | 50.00 | AVRG |
| Chloroethane | 47.734383 | 50.000000 | 0.4227912 | 0.1 | 4.53 | 50.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0359967 | 1.0359967 | 0.2 | 0.10 | 50.00 | AVRG |
| Chloromethane | 41.401789 | 50.000000 | 0.4333563 | 0.1 | 17.20 | 50.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6580261 | 0.6580261 | 0.1 | -0.16 | 50.00 | AVRG |
| Dibromochloromethane | 49.645964 | 50.000000 | 0.3261819 | 0.1 | 0.71 | 50.00 | LINR |
| Dichlorodifluoromethane | 44.906322 | 50.000000 | 0.5519381 | 0.1 | 10.19 | 50.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4828480 | 0.4828480 | 0.1 | 2.06 | 50.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.2979790 | 0.2979790 | 0.1 | 16.06 | 50.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4082826 | 1.4082826 | 0.1 | 0.96 | 50.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6004248 | 0.6004248 | 0.1 | 0.92 | 50.00 | AVRG |
| Methylene Chloride | 51.407764 | 50.000000 | 0.6349337 | 0.1 | -2.82 | 50.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.3941048 | 2.3941048 | 0.5 | 6.22 | 50.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.6918689 | 3.6918689 | 0.1 | 1.18 | 50.00 | AVRG |
| Naphthalene | 50.195677 | 50.000000 | 3.0564916 | 0.2 | -0.39 | 50.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6136959 | 0.6136959 | 0.3 | -0.44 | 50.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.0685275 | 3.0685275 | 0.1 | 2.28 | 50.00 | AVRG |
| Styrene | 1.0150000 | 1.0735114 | 1.0735114 | 0.3 | -5.76 | 50.00 | AVRG |
| Vinyl Chloride | 46.280143 | 50.000000 | 0.6535542 | 0.1 | 7.44 | 50.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2279091 | 1.2279091 | 0.1 | -4.86 | 50.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6046501 | 2.6046501 | 0.1 | 1.56 | 50.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 48.342831 | 50.000000 | 0.1676998 | 0.05 | 3.31 | 50.00 | LINR |
| 1,2-Dichloroethane-d4 | 52.624152 | 50.000000 | 0.7432890 | 0.1 | -5.25 | 50.00 | LINR |
| Dibromofluoromethane | 51.646605 | 50.000000 | 0.5693840 | 0.1 | -3.29 | 50.00 | LINR |
| Toluene-d8 | 52.321114 | 50.000000 | 1.3489865 | 0.1 | -4.64 | 50.00 | LINR |
| 4-Bromofluorobenzene | 51.898862 | 50.000000 | 0.5096516 | 0.1 | -3.80 | 50.00 | LINR |

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Lab File ID (Standard): U122202  Date Analyzed: 12/22/18

Instrument ID: VOA9  Time Analyzed: 1103

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS1(DCB) AREA # | IS1(DCB) RT # | IS2(CBZ) AREA # | IS2(CBZ) RT # | IS3(DFB) AREA # | IS3(DFB) RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 368700 | 10.24 | 765245 | 8.25 | 822201 | 5.63 |
| | UPPER LIMIT | 737400 | 10.74 | 1530490 | 8.75 | 1644402 | 6.13 |
| | LOWER LIMIT | 184350 | 9.74 | 382623 | 7.75 | 411101 | 5.13 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181222 | 366132 | 10.24 | 755224 | 8.25 | 814375 | 5.63 |
| 02 | VBLKW-181222 | 284398 | 10.24 | 615766 | 8.25 | 677477 | 5.63 |
| 03 | HS18120927-0 | 295823 | 10.24 | 616476 | 8.25 | 673318 | 5.63 |
| 04 | HS18120927-0 | 298917 | 10.24 | 614956 | 8.25 | 673270 | 5.63 |
| 05 | HS18120736-0 | 263483 | 10.24 | 578447 | 8.25 | 637768 | 5.63 |
| 06 | HS18120736-0 | 278883 | 10.24 | 593620 | 8.25 | 663881 | 5.63 |
| 07 | HS18120736-0 | 267846 | 10.24 | 592573 | 8.25 | 650451 | 5.63 |
| 08 | HS18120736-0 | 260663 | 10.24 | 572649 | 8.25 | 636669 | 5.63 |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Lab File ID (Standard): U122202  Date Analyzed: 12/22/18

Instrument ID: VOA9  Time Analyzed: 1103

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 439937 | 4.90 | | | | |
| | UPPER LIMIT | 879874 | 5.40 | | | | |
| | LOWER LIMIT | 219969 | 4.40 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181222 | 431862 | 4.90 | | | | |
| 02 | VBLKW-181222 | 393752 | 4.89 | | | | |
| 03 | HS18120927-0 | 395043 | 4.89 | | | | |
| 04 | HS18120927-0 | 396082 | 4.90 | | | | |
| 05 | HS18120736-0 | 363207 | 4.90 | | | | |
| 06 | HS18120736-0 | 376694 | 4.90 | | | | |
| 07 | HS18120736-0 | 369842 | 4.89 | | | | |
| 08 | HS18120736-0 | 362538 | 4.90 | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122201.D



Date : 22-DEC-2018 10:39

Client ID: BFB

Instrument: VOA9.i

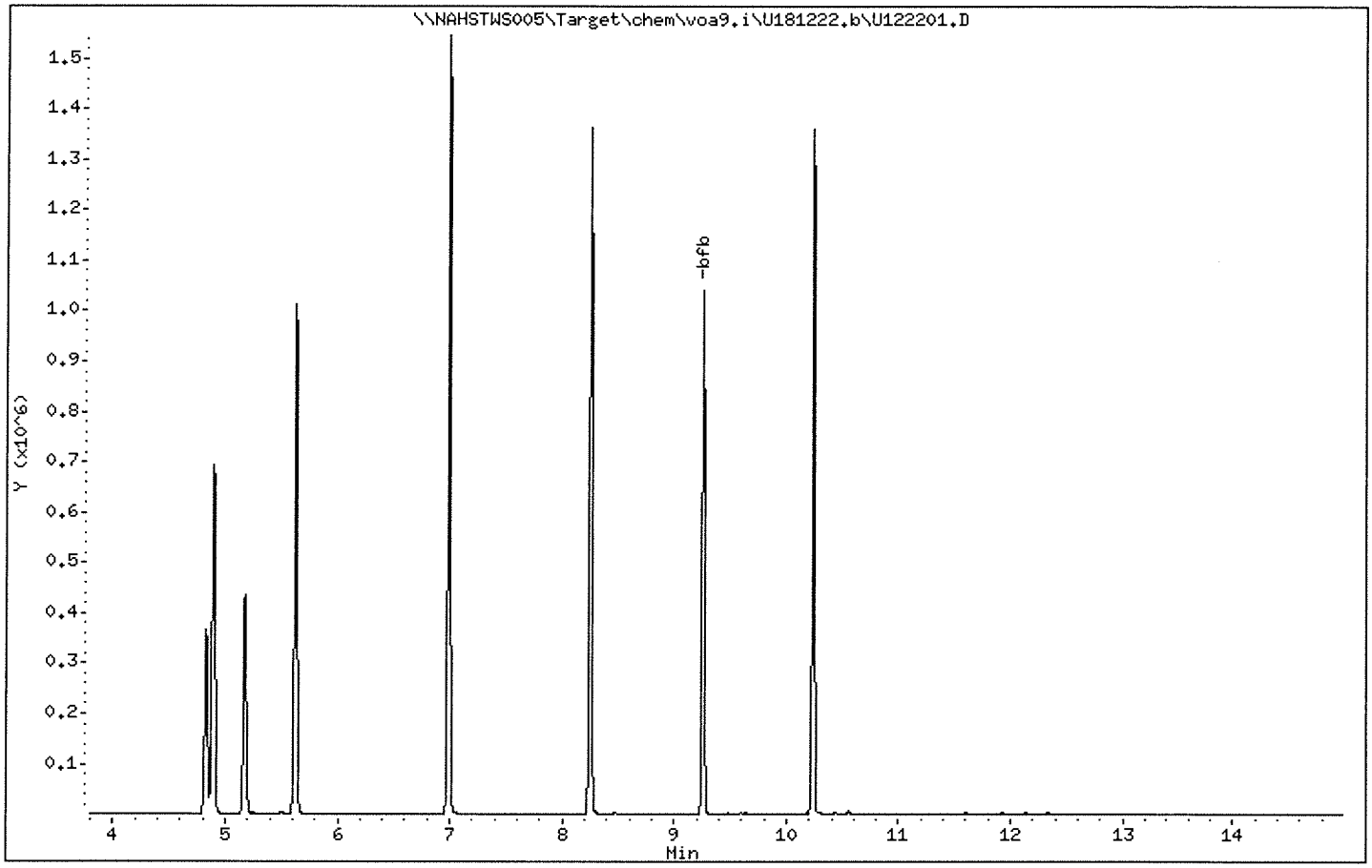
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122201.D Page 2

Date : 22-DEC-2018 10:39

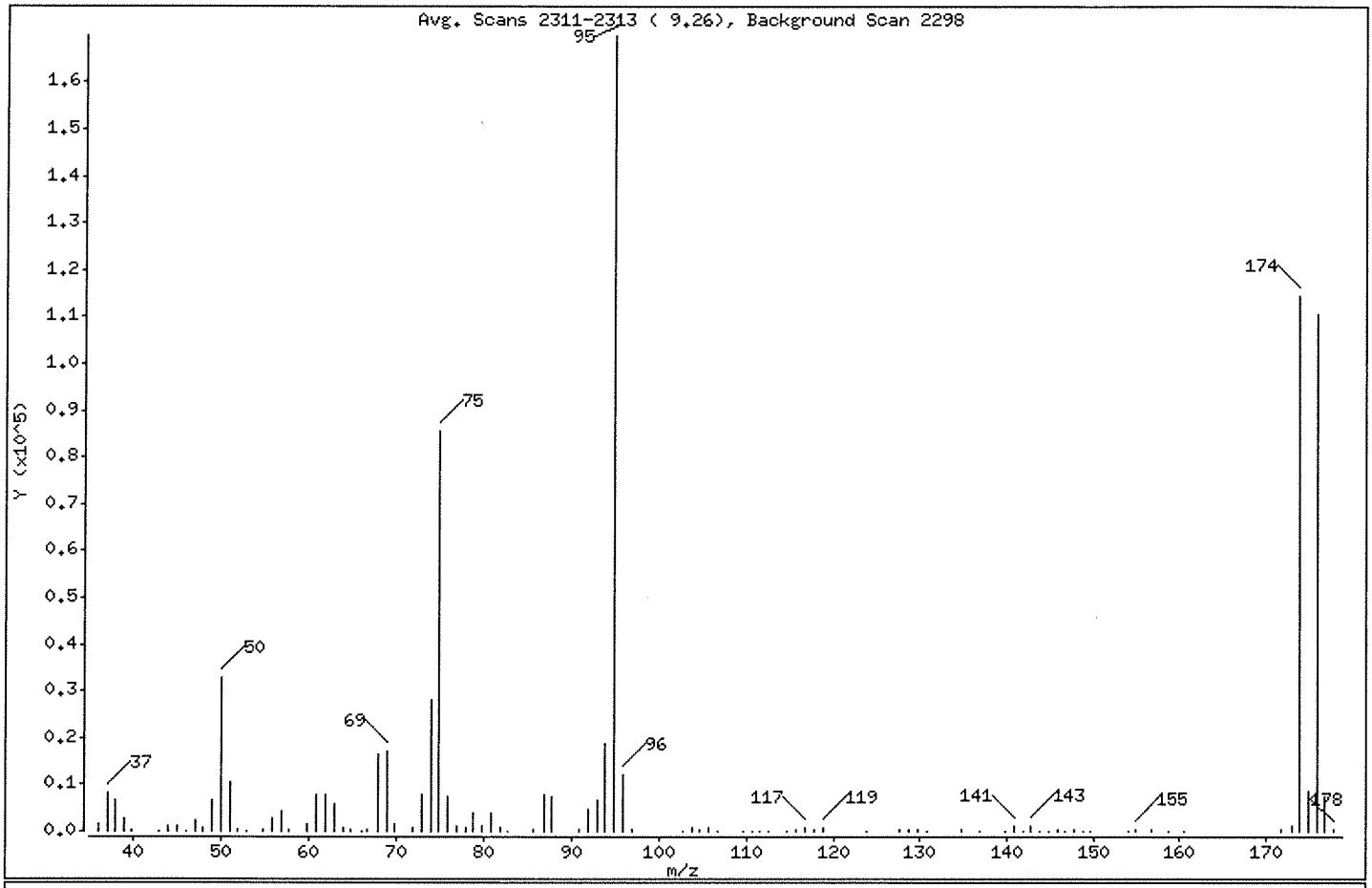
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 19.23 |
| 75 | 30.00 - 60.00% of mass 95 | 50.31 |
| 96 | 5.00 - 9.00% of mass 95 | 7.08 |
| 173 | Less than 2.00% of mass 174 | 0.60 ( 0.89) |
| 174 | Greater than 50.00% of mass 95 | 67.35 |
| 175 | 5.00 - 9.00% of mass 174 | 5.09 ( 7.56) |
| 176 | 95.00 - 101.00% of mass 174 | 64.96 ( 96.45) |
| 177 | 5.00 - 9.00% of mass 176 | 4.26 ( 6.57) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122201.D



Date : 22-DEC-2018 10:39

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122201.D
Spectrum: Avg. Scans 2311-2313 ( 9.26), Background Scan 2298
Location of Maximum: 94.95
Number of points: 97

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1436 | 64.90 | 473 | 94.90 | 169920 | 140.80 | 1142 |
| 37.00 | 8335 | 66.00 | 65 | 95.90 | 12036 | 141.80 | 190 |
| 38.00 | 6727 | 66.80 | 360 | 96.90 | 334 | 142.70 | 1124 |
| 39.00 | 2833 | 67.90 | 16488 | 102.70 | 61 | 143.60 | 73 |
| 39.90 | 481 | 68.90 | 17088 | 103.80 | 640 | 144.60 | 132 |
| 43.00 | 60 | 69.90 | 1514 | 104.70 | 221 | 145.70 | 201 |
| 44.00 | 1090 | 71.90 | 926 | 105.70 | 599 | 146.60 | 118 |
| 45.00 | 1308 | 72.90 | 7652 | 106.70 | 135 | 147.60 | 290 |
| 46.00 | 147 | 73.90 | 28112 | 109.70 | 74 | 148.70 | 73 |
| 47.00 | 2212 | 74.90 | 85488 | 110.70 | 129 | 149.60 | 127 |
| 47.90 | 971 | 75.90 | 7517 | 111.60 | 55 | 153.80 | 66 |
| 49.00 | 6786 | 76.90 | 1131 | 112.60 | 99 | 154.80 | 311 |
| 50.00 | 32672 | 77.90 | 730 | 114.70 | 104 | 156.60 | 265 |
| 51.00 | 10467 | 78.80 | 3950 | 115.80 | 539 | 158.70 | 146 |
| 51.90 | 456 | 79.90 | 1163 | 116.80 | 938 | 160.60 | 149 |
| 52.90 | 88 | 80.80 | 4033 | 117.80 | 500 | 171.70 | 501 |
| 54.90 | 440 | 81.90 | 901 | 118.80 | 628 | 172.80 | 1014 |
| 55.90 | 2592 | 82.80 | 72 | 123.90 | 64 | 173.70 | 114448 |
| 56.90 | 4484 | 85.70 | 203 | 127.70 | 526 | 174.70 | 8654 |
| 57.80 | 218 | 86.90 | 7752 | 128.70 | 236 | 175.70 | 110384 |
| 59.90 | 1552 | 87.80 | 7334 | 129.70 | 465 | 176.70 | 7247 |
| 60.90 | 7770 | 90.80 | 576 | 130.80 | 191 | 177.70 | 247 |
| 62.00 | 7739 | 91.90 | 4523 | 134.70 | 239 | | |
| 63.00 | 5671 | 92.90 | 6720 | 136.70 | 158 | | |
| 63.90 | 616 | 93.90 | 18800 | 139.60 | 57 | | |

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122202.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 22-DEC-2018 11:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

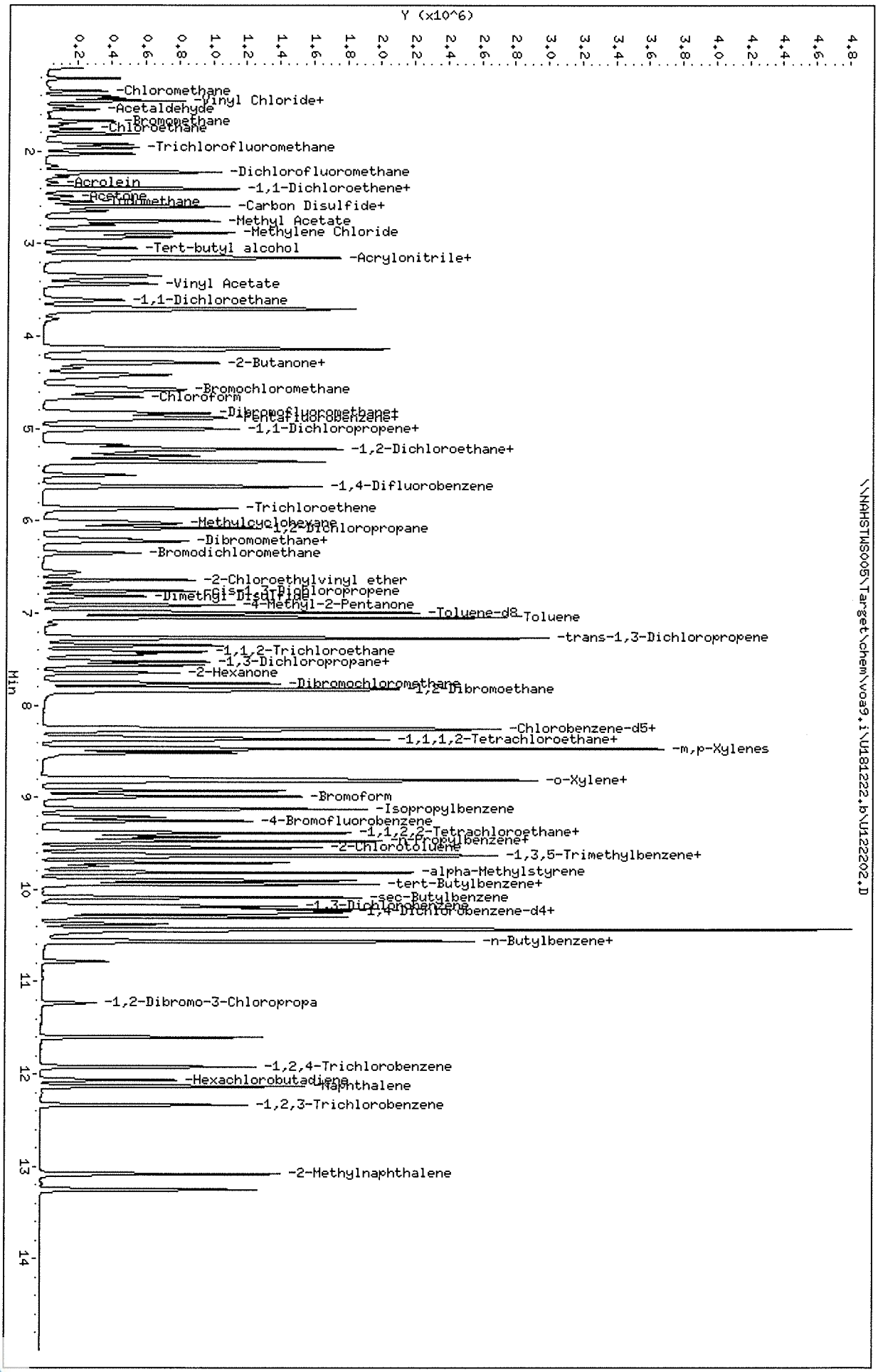
| | | | | | | AMOUNTS | |
|---|---|---|---|---|---|---|---|
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CAL-AMT ( ug/l) | ON-COL ( ug/l) |
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.897 | (1.000) | 439937 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.628 | (1.000) | 822201 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 765245 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 368700 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 251260 | 50.0000 | 51.80 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 319887 | 50.0000 | 51.43 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 1011496 | 50.0000 | 51.23 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 385749 | 50.0000 | 51.31 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 237338 | 50.0000 | 48.88 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 365717 | 50.0000 | 52.64 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 399095 | 50.0000 | 48.06 |
| 138 Freon TF | 101 | 2.408 | 2.408 | (0.492) | 192741 | 50.0000 | 51.53 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 226319 | 50.0000 | 49.64 |
| 22 1,1-Dichloroethane | 63 | 3.608 | 3.608 | (0.737) | 473232 | 50.0000 | 49.94 |
| 11 1,1-Dichloroethene | 96 | 2.405 | 2.405 | (0.491) | 206895 | 50.0000 | 49.46 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.889) | 368445 | 50.0000 | 50.36 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 331362 | 50.0000 | 47.72 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 443705 | 50.0000 | 51.38 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 339651 | 50.0000 | 49.75 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 988374 | 50.0000 | 51.22 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 59697 | 50.0000 | 46.72 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 267661 | 50.0000 | 50.97 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122202.D Page 2
Report Date: 28-Jan-2019 13:52

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 527850 | 50.0000 | 48.21 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.933) | 378810 | 50.0000 | 51.15 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 289116 | 50.0000 | 49.76 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 958319 | 50.0000 | 51.71 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 533290 | 50.0000 | 48.70 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 489297 | 50.0000 | 49.82 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 547075 | 50.0000 | 47.39 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 317585 | 50.0000 | 55.62 |
| 24 | 2-Butanone | 43 | 4.339 | 4.339 | (0.886) | 287851 | 100.000 | 100.05 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 850436 | 50.0000 | 50.06 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 437511 | 100.000 | 102.81 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 987531 | 50.0000 | 50.30 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 1008118 | 50.0000 | 51.67 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 624635 | 100.000 | 102.01 |
| 10 | Acetone | 43 | 2.483 | 2.483 | (0.507) | 178725 | 100.000 | 104.18 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 1095158 | 50.0000 | 50.05 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 283071 | 50.0000 | 49.69 |
| 29 | Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 132923 | 50.0000 | 58.11 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 328321 | 50.0000 | 53.14 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 157578 | 50.0000 | 48.04(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 137192 | 50.0000 | 50.48 |
| 19 | Carbon Disulfide | 76 | 2.596 | 2.596 | (0.530) | 1379459 | 100.000 | 90.50 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 289053 | 50.0000 | 48.38 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 729755 | 50.0000 | 49.63 |
| 7 | Chloroethane | 64 | 1.756 | 1.756 | (0.359) | 189569 | 50.0000 | 48.62(M) |
| 28 | Chloroform | 83 | 4.661 | 4.661 | (0.952) | 458505 | 50.0000 | 50.25 |
| 3 | Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 232483 | 50.0000 | 49.75 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 293348 | 50.0000 | 50.72 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 457515 | 50.0000 | 48.76 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 245098 | 50.0000 | 48.76 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.100) | 170275 | 50.0000 | 50.78 |
| 2 | Dichlorodifluoromethane | 85 | 1.209 | 1.209 | (0.247) | 268119 | 50.0000 | 49.53 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 381042 | 50.0000 | 50.52 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 130497 | 50.0000 | 49.89 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1129055 | 50.0000 | 51.88 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 946477 | 100.000 | 102.09 |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 280273 | 50.0000 | 51.58 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 951357 | 50.0000 | 50.52 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1414293 | 50.0000 | 51.33 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 1086132 | 50.0000 | 48.38 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 476832 | 50.0000 | 50.98 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1189748 | 50.0000 | 51.38 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 832029 | 50.0000 | 53.54 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 807069 | 50.0000 | 50.39 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 192069 | 50.0000 | 47.94 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 1153238 | 50.0000 | 50.66 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 258990 | 50.0000 | 50.29 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 389844 | 50.0000 | 48.33 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 265713 | 50.0000 | 50.30 |
| 8 | Trichlorofluoromethane | 101 | 1.959 | 1.959 | (0.400) | 368462 | 50.0000 | 50.80 |
| 5 | Vinyl Chloride | 62 | 1.426 | 1.426 | (0.291) | 306251 | 50.0000 | 49.23 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

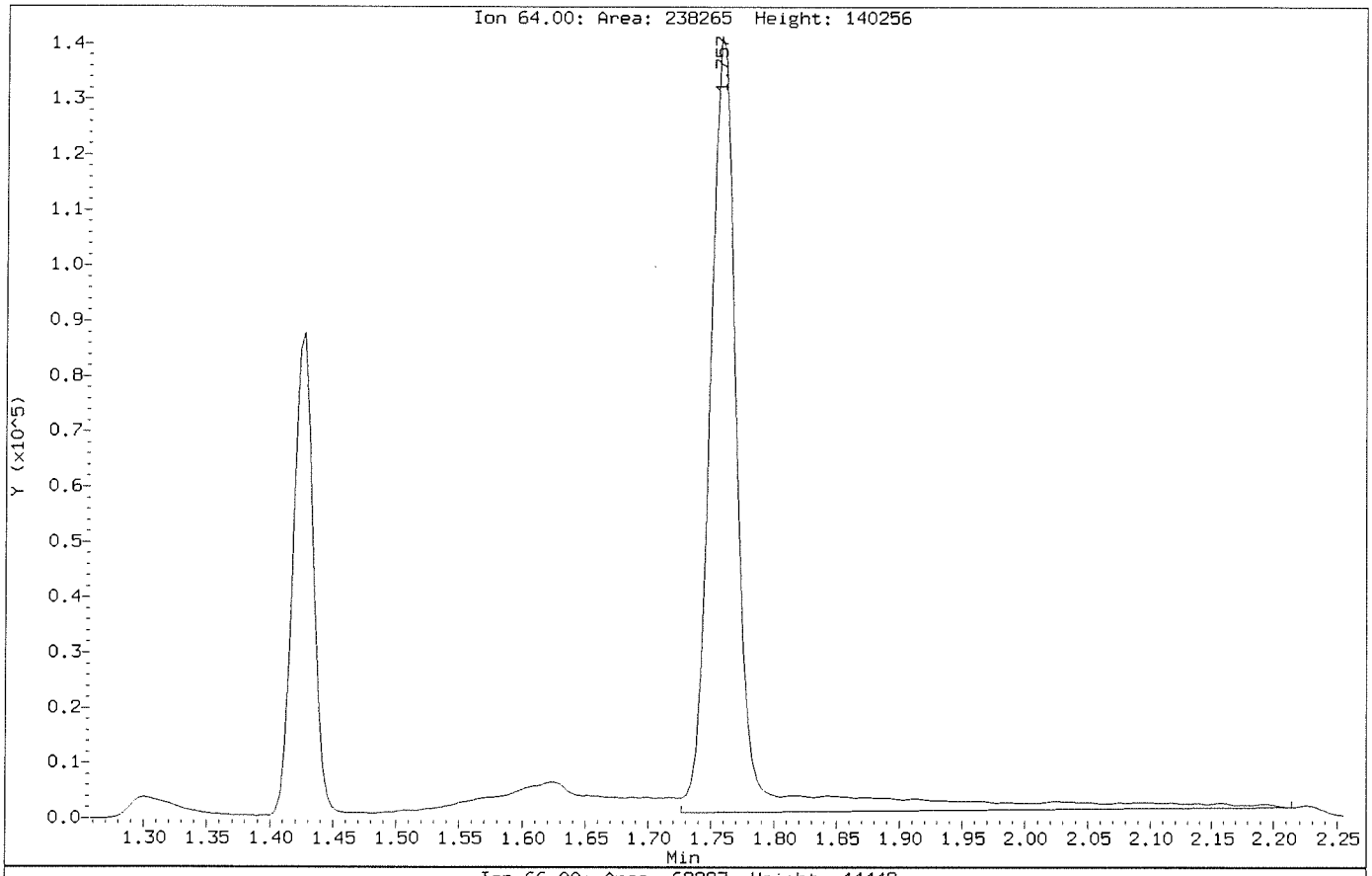


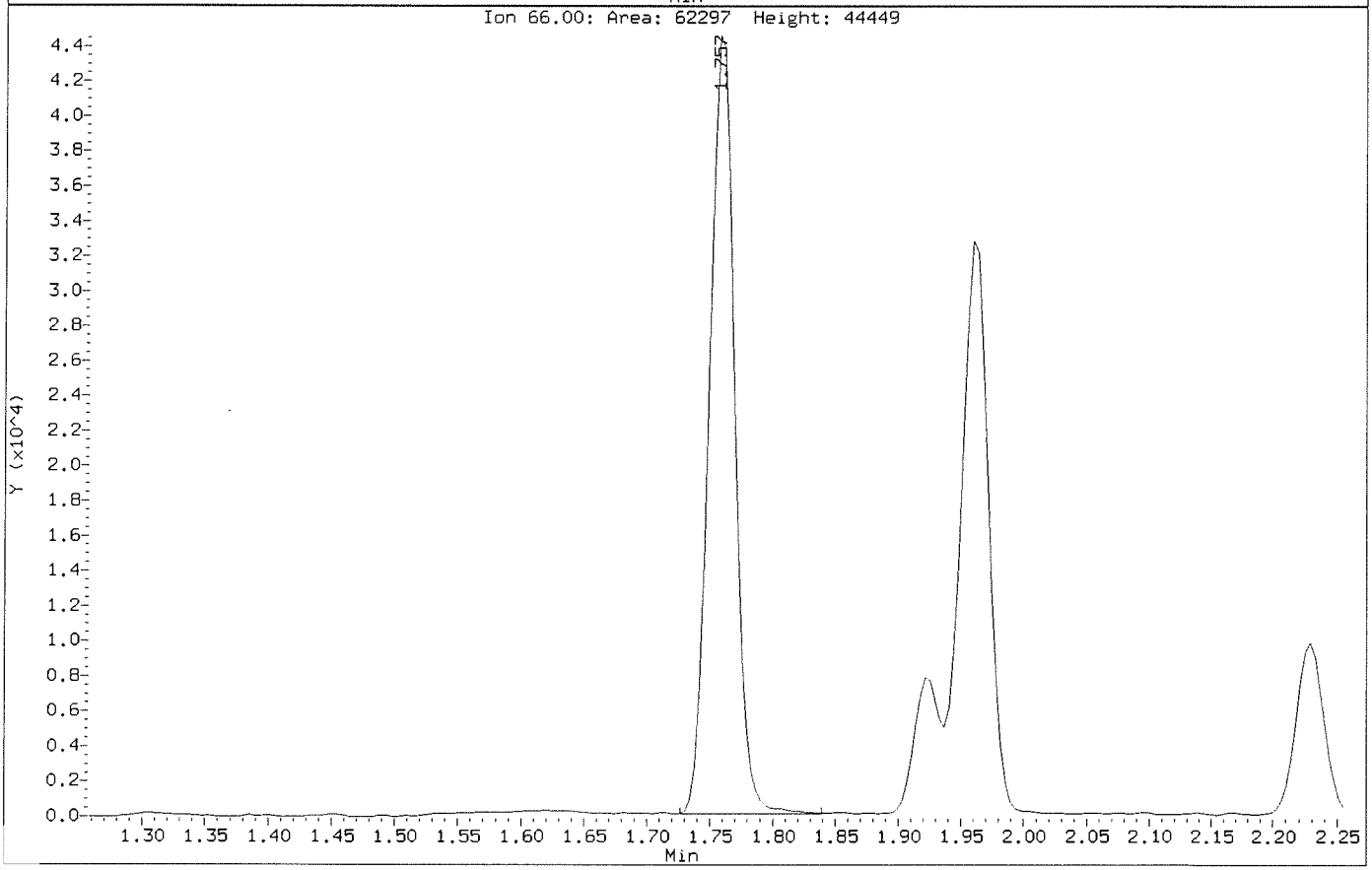

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122202,D
Date : 22-DEC-2018 11:03
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122202.D
Injection Date: 22-DEC-2018 11:03
Instrument: VOA9.i
Client Sample ID: VSTD050

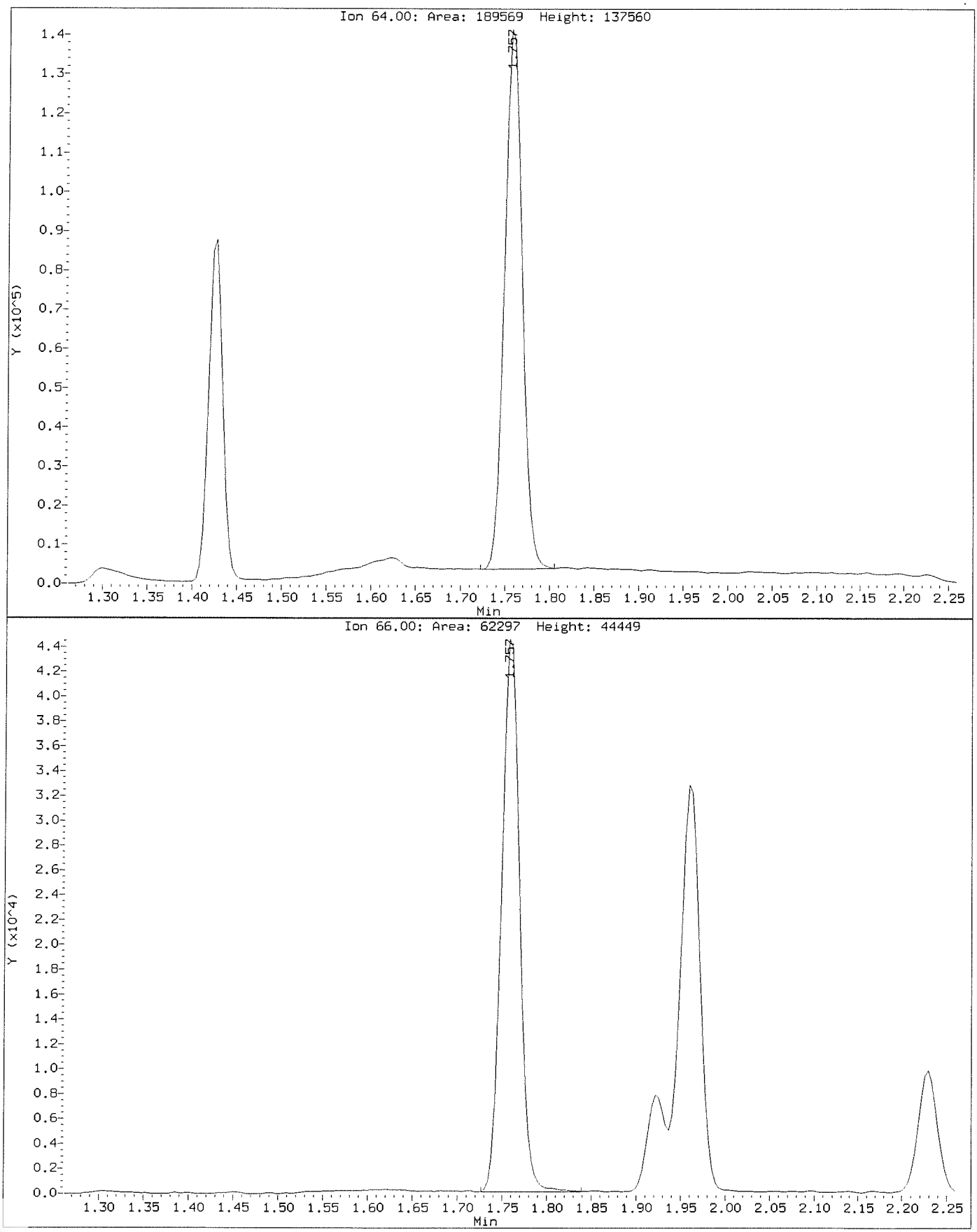
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122202.D
Injection Date: 22-DEC-2018 11:03
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122203.D Page 1
Report Date: 28-Jan-2019 13:52

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122203.D
Lab Smp Id: VLCSW-1812022 Client Smp ID: VLCSW-181222
Inj Date : 22-DEC-2018 11:28
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812022;VLCSW-181222;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

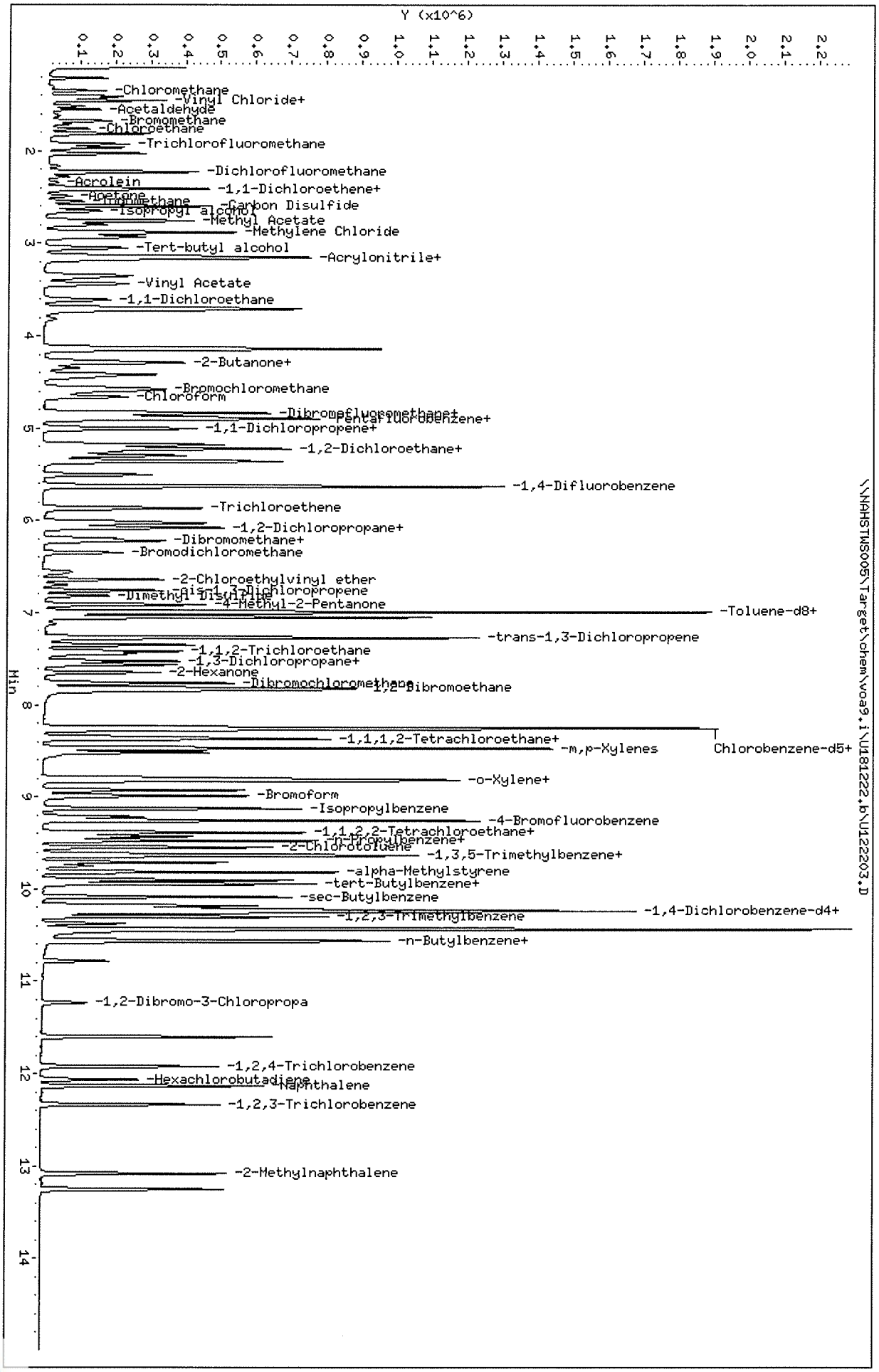
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.897 | (1.000) | 431862 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.628 | (1.000) | 814375 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 755224 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 366132 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 245304 | 51.5187 | 51.51 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 323042 | 52.9730 | 52.97 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.989 | (0.847) | 997232 | 51.1764 | 51.17 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 380376 | 51.2719 | 51.27 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 93491 | 19.8652 | 19.86 |
| 31 1,1,1-Trichloroethane | 97 | 4.834 | 4.830 | (0.987) | 136533 | 20.0223 | 20.02 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 164920 | 20.0014 | 20.00 |
| 138 Freon TF | 101 | 2.412 | 2.408 | (0.493) | 71338 | 19.4304 | 19.43 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.420 | (0.900) | 91176 | 20.2638 | 20.26 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.608 | (0.737) | 187326 | 20.1416 | 20.14 |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.405 | (0.492) | 80193 | 19.5298 | 19.52 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.006 | (0.890) | 141547 | 19.5345 | 19.53 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 133430 | 19.7278 | 19.72 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 173074 | 20.1859 | 20.18 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 134480 | 19.8387 | 19.83 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 391337 | 20.4249 | 20.42 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 23150 | 19.1314 | 19.13 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 108939 | 21.0208 | 21.02 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122203.D Page 2
Report Date: 28-Jan-2019 13:52

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 212027 | 19.5033 | 19.50 |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.254 | (0.934) | 153542 | 20.4988 | 20.49 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 115717 | 20.1096 | 20.10 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 370755 | 20.1491 | 20.14 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.179 | (0.995) | 212305 | 19.5274 | 19.52 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 198073 | 20.4376 | 20.43 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.254 | (1.002) | 219281 | 19.1291 | 19.12 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 117240 | 20.9176 | 20.91 |
| 24 | 2-Butanone | 43 | 4.343 | 4.339 | (0.887) | 122250 | 41.9047 | 41.90 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 335307 | 19.8766 | 19.87 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 184006 | 43.8161 | 43.81 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 394300 | 20.2264 | 20.22 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.209 | (0.997) | 382155 | 19.7249 | 19.72 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.915 | 6.914 | (0.838) | 257059 | 42.5418 | 42.54 |
| 10 | Acetone | 43 | 2.487 | 2.483 | (0.508) | 76735 | 43.8673 | 43.86 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 435013 | 20.0740 | 20.07 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 112974 | 19.9707 | 19.97 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.556 | (0.931) | 53467 | 21.9767 | 21.97 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 124748 | 20.3863 | 20.38 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 57750 | 18.9492 | 18.94 |
| 6 | Bromomethane | 94 | 1.678 | 1.674 | (0.343) | 58636 | 22.7362 | 22.73 |
| 19 | Carbon Disulfide | 76 | 2.596 | 2.596 | (0.530) | 591894 | 39.5602 | 39.56 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 105981 | 18.7924 | 18.79 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 289484 | 19.9496 | 19.94 |
| 7 | Chloroethane | 64 | 1.760 | 1.756 | (0.359) | 75533 | 20.2022 | 20.20(M) |
| 28 | Chloroform | 83 | 4.662 | 4.661 | (0.952) | 180784 | 20.1840 | 20.18 |
| 3 | Chloromethane | 50 | 1.348 | 1.344 | (0.275) | 98573 | 23.3774 | 23.37 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 116853 | 20.5852 | 20.58 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 173404 | 19.4408 | 19.44 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 93036 | 19.3566 | 19.35 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.100) | 67867 | 20.4353 | 20.43 |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.209 | (0.248) | 102972 | 19.6752 | 19.67 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 149559 | 20.0954 | 20.09 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 44289 | 17.0537 | 17.05 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 436840 | 20.3409 | 20.34 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 370799 | 40.5265 | 40.52 |
| 17 | Methylene Chloride | 84 | 2.881 | 2.877 | (0.588) | 112181 | 20.3206 | 20.32 |
| 87 | n-Butylbenzene | 91 | 10.555 | 10.558 | (1.031) | 352487 | 18.8523 | 18.85 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 546860 | 19.9893 | 19.98 |
| 92 | Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 435664 | 19.8421 | 19.84 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 190318 | 20.6189 | 20.61 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 439895 | 19.1325 | 19.13 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 328837 | 21.4434 | 21.44 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 311840 | 19.6078 | 19.60 |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.525 | (0.912) | 74662 | 18.8837 | 18.88 |
| 50 | Toluene | 91 | 7.050 | 7.049 | (0.855) | 457817 | 20.3787 | 20.37 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.151 | 3.147 | (0.643) | 102347 | 20.2464 | 20.24 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 144791 | 19.1540 | 19.15 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 103906 | 19.8615 | 19.86 |
| 8 | Trichlorofluoromethane | 101 | 1.963 | 1.959 | (0.401) | 141045 | 20.1927 | 20.19 |
| 5 | Vinyl Chloride | 62 | 1.426 | 1.426 | (0.291) | 121201 | 20.4263 | 20.42 |

QC Flag Legend

M - Compound response manually integrated.

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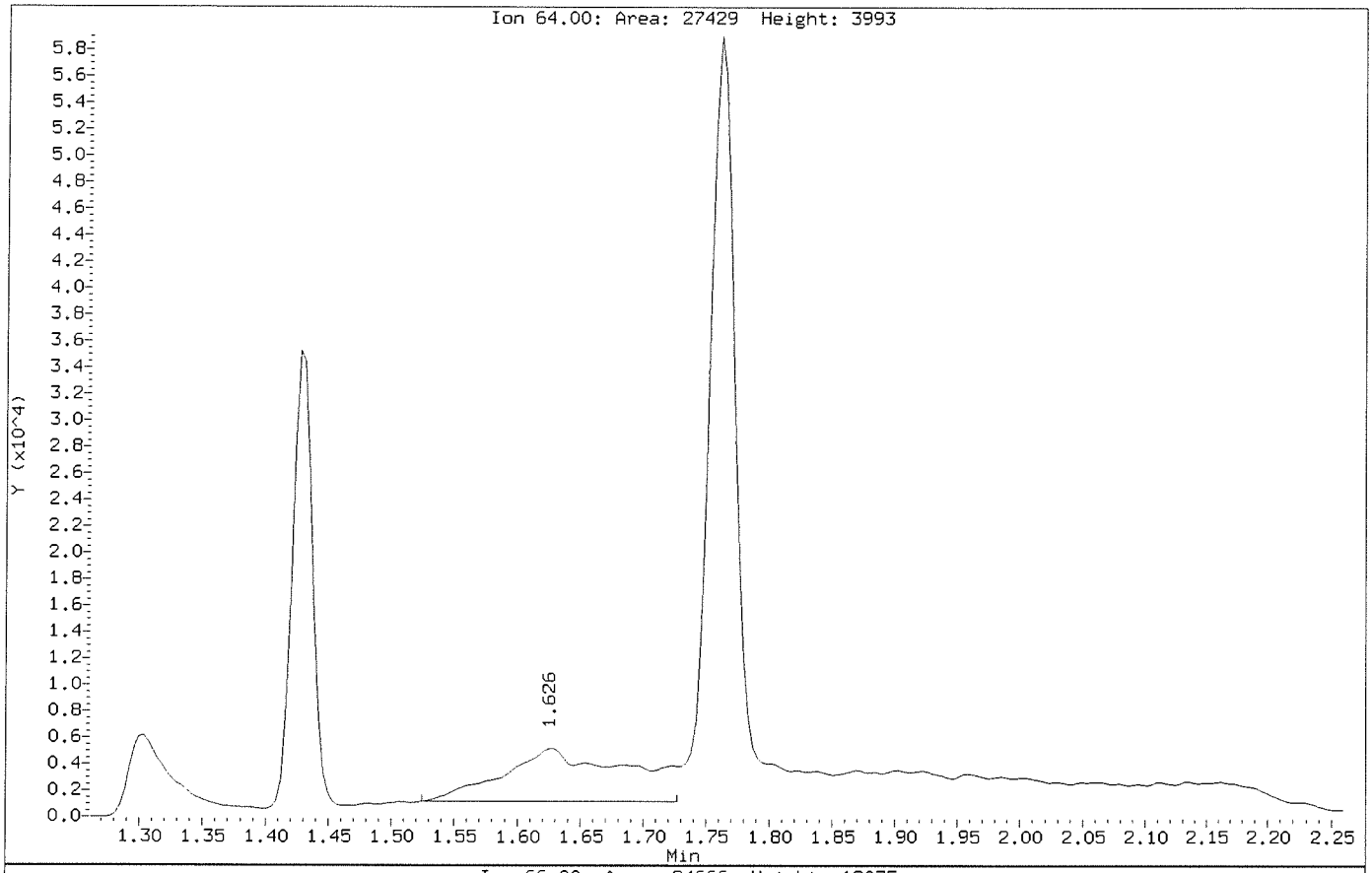
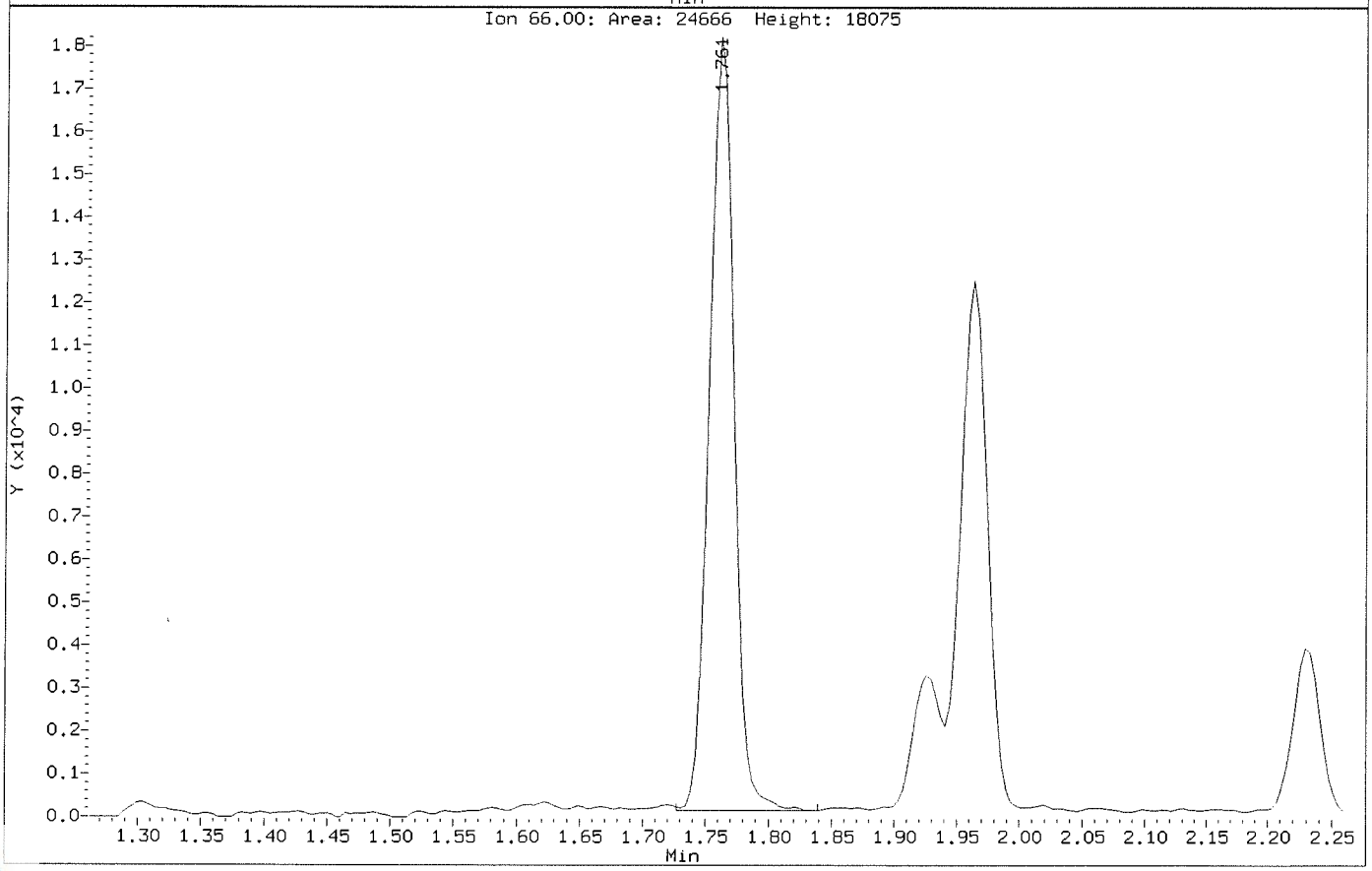
Date : 22-DEC-2018 11:28
Client ID: VLCSW-181222
Sample Info: VLCSW-1812022;VLCSW-181222;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122203.D
Injection Date: 22-DEC-2018 11:28
Instrument: VOA9.i
Client Sample ID: VLCSW-181222

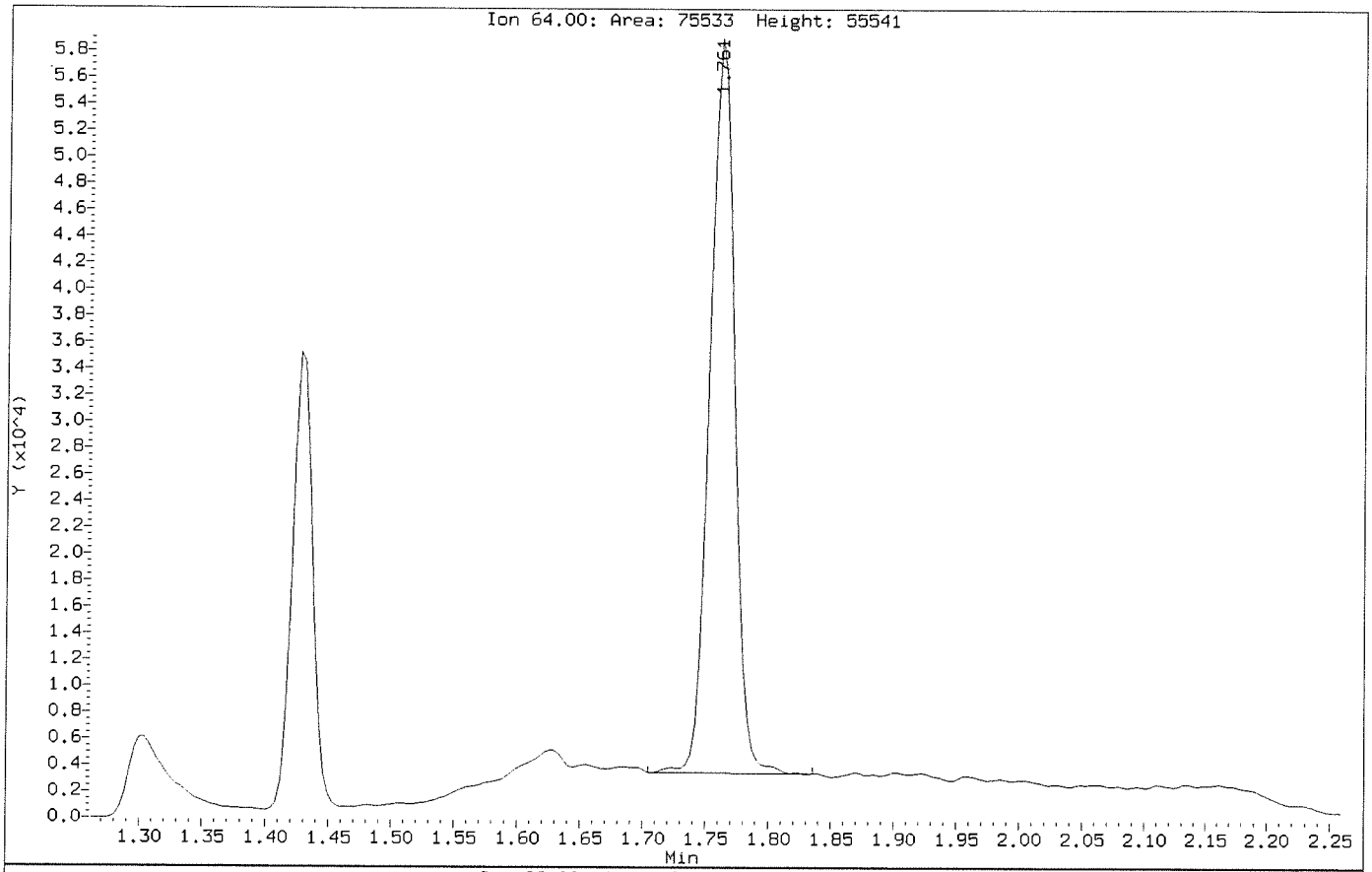
Compound: Chloroethane
CAS Number: 75-00-3

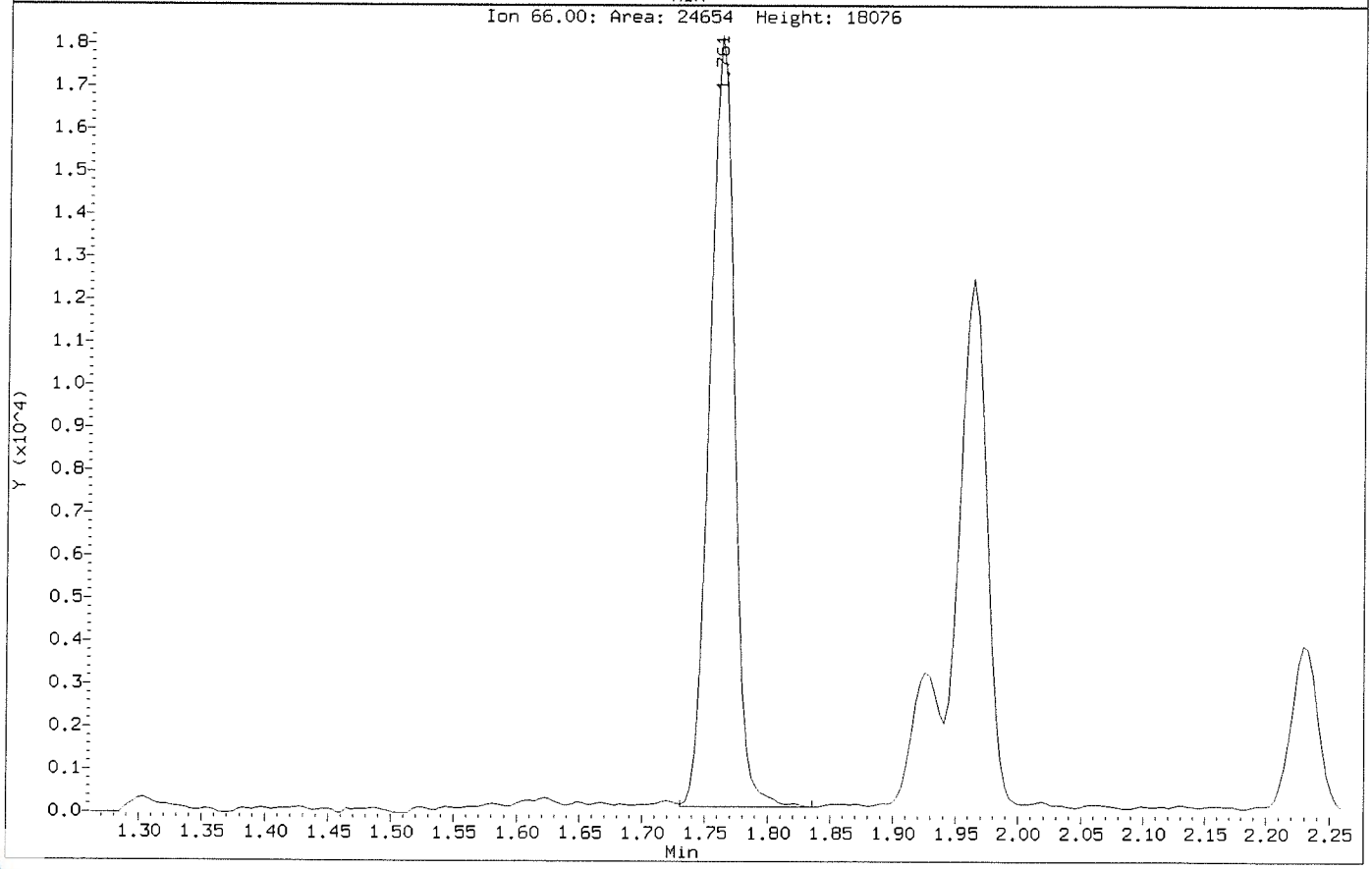


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122203.D
Injection Date: 22-DEC-2018 11:28
Instrument: VOA9.i
Client Sample ID: VLCSW-181222

Compound: Chloroethane
CAS Number: 75-00-3



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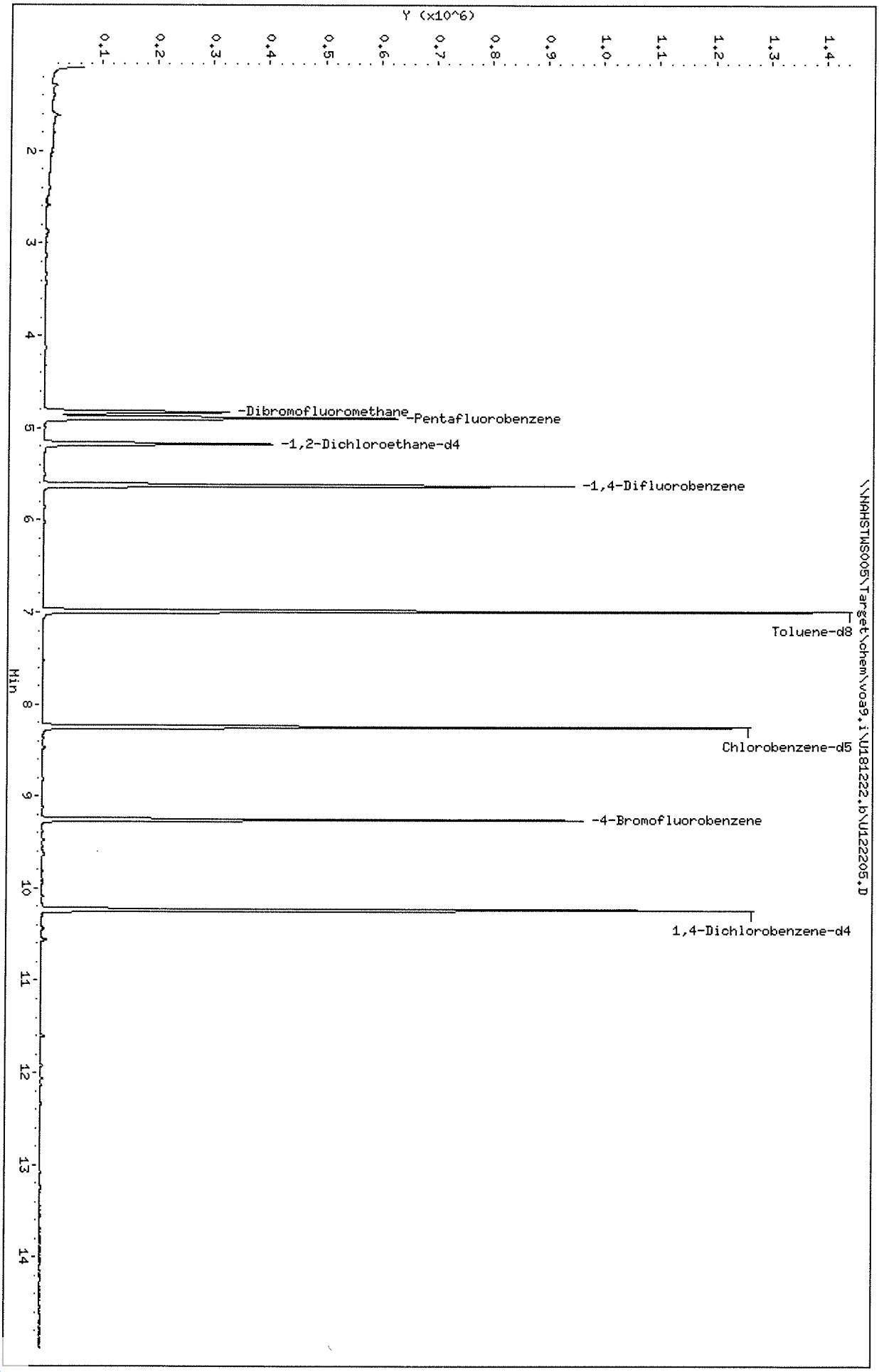
Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122205.D
Lab Smp Id: VBLKW-181222 Client Smp ID: VBLKW-181222
Inj Date : 22-DEC-2018 12:18
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-181222;VBLKW-181222;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.897 | (1.000) | 393752 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.628 | (1.000) | 677477 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 615766 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 284398 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.987) | 189791 | 43.4865 | 43.48 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 259716 | 46.4543 | 46.45 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 830845 | 52.3332 | 52.33 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 298252 | 49.2523 | 49.25 |




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122205,D
Date : 22-DEC-2018 12:18
Client ID: VBLKW-181222
Sample Info: VBLKW-181222;VBLKW-181222;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122209.D Page 1
Report Date: 28-Jan-2019 13:52

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122209.D
Lab Smp Id: HS18120927-05MS Client Smp ID: HS18120927-05MS
Inj Date : 22-DEC-2018 13:57
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120927-05MS;HS18120927-05MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 9 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

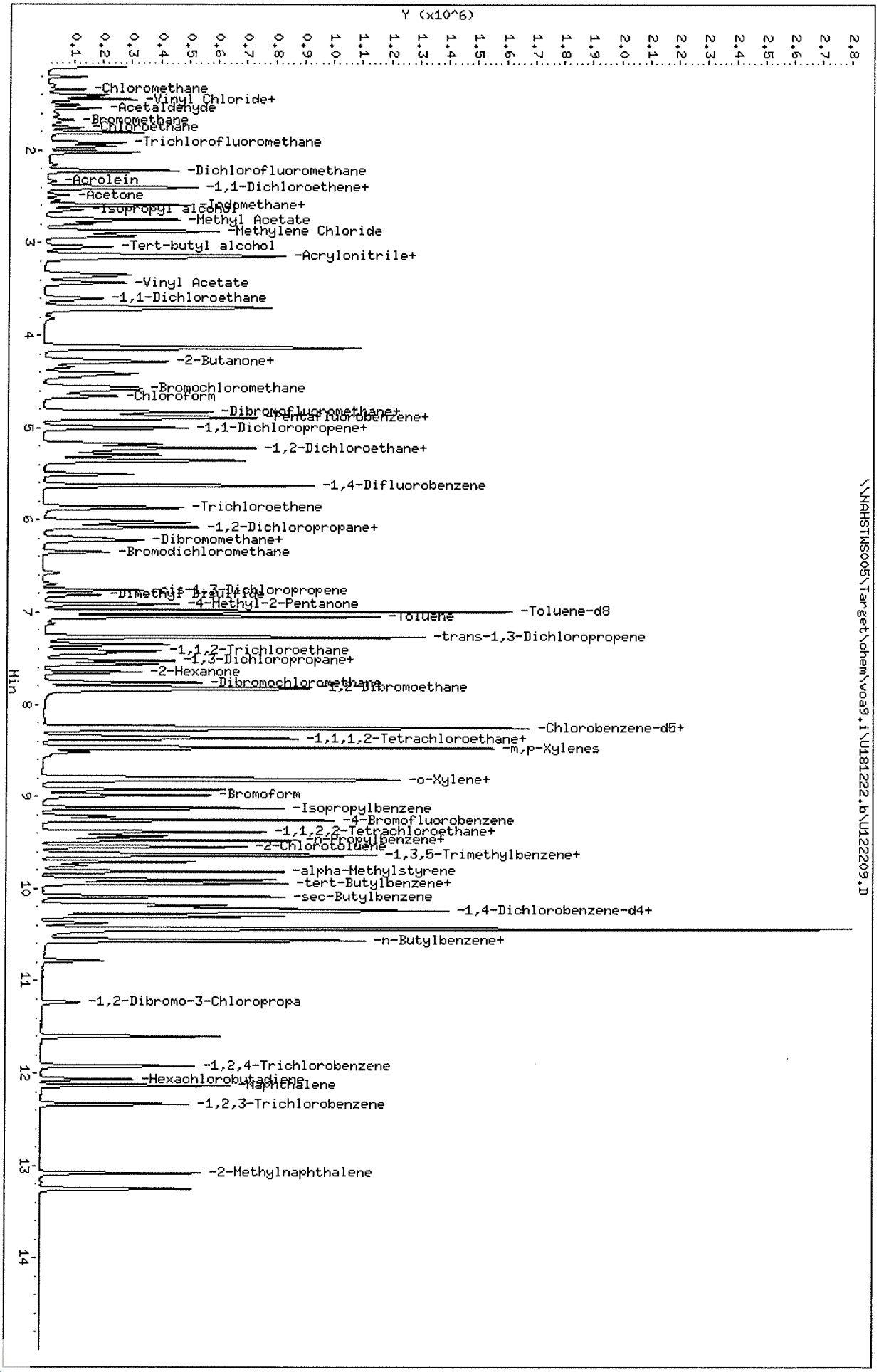
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.894 | 4.897 | (1.000) | 395043 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.628 | (1.000) | 673318 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 616476 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 295823 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.987) | 197217 | 45.0949 | 45.09 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 255507 | 45.5099 | 45.50 |
| $ | 48 Toluene-d8 | 98 | 6.990 | 6.989 | (0.847) | 837428 | 52.6991 | 52.69 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 309963 | 51.1817 | 51.18 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 96400 | 24.9394 | 24.93 |
| | 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.987) | 153870 | 24.6678 | 24.66 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 169884 | 25.5004 | 25.50 |
| | 138 Freon TF | 101 | 2.405 | 2.408 | (0.491) | 81914 | 24.3905 | 24.39 |
| | 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.420 | (0.900) | 93860 | 25.5553 | 25.55 |
| | 22 1,1-Dichloroethane | 63 | 3.604 | 3.608 | (0.737) | 199426 | 23.4411 | 23.44 |
| | 11 1,1-Dichloroethene | 96 | 2.401 | 2.405 | (0.491) | 88030 | 23.4365 | 23.43 |
| | 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 158413 | 26.4421 | 26.44 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 137176 | 24.9295 | 24.92 |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 173142 | 24.9934 | 24.99 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 139963 | 25.5550 | 25.55 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 423271 | 27.3422 | 27.34 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 23723 | 23.8749 | 23.87 |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 110349 | 26.0852 | 26.08 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122209.D Page 2
Report Date: 28-Jan-2019 13:52

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.570 | 10.573 | (1.033) | 222204 | 25.2973 | 25.29 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 159097 | 25.8764 | 25.87 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 121295 | 25.4948 | 25.49 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 411319 | 27.6664 | 27.66 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.179 | (0.995) | 221980 | 25.2700 | 25.26 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 204914 | 25.9021 | 25.90 |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.254 | (1.002) | 228594 | 24.6810 | 24.68 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.279 | (0.874) | 126637 | 24.7001 | 24.70 |
| 24 2-Butanone | 43 | 4.339 | 4.339 | (0.887) | 119784 | 45.0595 | 45.05 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 360986 | 26.4848 | 26.48 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 187061 | 54.5688 | 54.56 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 417862 | 26.5295 | 26.52 |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.209 | (0.997) | 435284 | 27.8070 | 27.80 |
| 45 4-Methyl-2-Pentanone | 43 | 6.915 | 6.914 | (0.838) | 265897 | 53.9084 | 53.90 |
| 10 Acetone | 43 | 2.484 | 2.483 | (0.508) | 82459 | 52.0616 | 52.06 |
| 37 Benzene | 78 | 5.220 | 5.220 | (0.928) | 461755 | 25.7720 | 25.77 |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 117540 | 25.7162 | 25.71 |
| 29 Bromochloromethane | 128 | 4.557 | 4.556 | (0.931) | 54645 | 24.9193 | 24.91 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 129090 | 25.5153 | 25.51 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 59485 | 23.4501 | 23.45 |
| 6 Bromomethane | 94 | 1.670 | 1.674 | (0.341) | 37684 | 16.3720 | 16.37 |
| 19 Carbon Disulfide | 76 | 2.592 | 2.596 | (0.530) | 625517 | 45.7041 | 45.70 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.999 | (0.888) | 122132 | 25.6423 | 25.64 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 306691 | 25.8923 | 25.89 |
| 7 Chloroethane | 64 | 1.753 | 1.756 | (0.358) | 75911 | 22.1356 | 22.13(M) |
| 28 Chloroform | 83 | 4.658 | 4.661 | (0.952) | 191874 | 23.4188 | 23.41 |
| 3 Chloromethane | 50 | 1.340 | 1.344 | (0.274) | 77519 | 20.5633 | 20.56 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.290 | (0.876) | 122082 | 23.5108 | 23.51 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.761 | (1.201) | 174282 | 23.3600 | 23.35 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 94915 | 23.9485 | 23.94 |
| 44 Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 70026 | 25.5027 | 25.50 |
| 2 Dichlorodifluoromethane | 85 | 1.205 | 1.209 | (0.246) | 80320 | 16.8489 | 16.84 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 165585 | 27.2562 | 27.25 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 50558 | 24.0945 | 24.09 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 490568 | 27.9838 | 27.98 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 402773 | 53.9288 | 53.92 |
| 17 Methylene Chloride | 84 | 2.873 | 2.877 | (0.587) | 115889 | 23.1045 | 23.10 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 413416 | 27.3661 | 27.36 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 615543 | 27.8475 | 27.84 |
| 92 Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 448465 | 25.1220 | 25.12 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 202541 | 26.8818 | 26.88 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 520848 | 28.0375 | 28.03 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 345860 | 27.6295 | 27.62 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 357243 | 27.8014 | 27.80 |
| 56 Tetrachloroethene | 164 | 7.526 | 7.525 | (0.912) | 90769 | 28.1244 | 28.12 |
| 50 Toluene | 91 | 7.049 | 7.049 | (0.855) | 489824 | 26.7106 | 26.71 |
| 20 trans-1,2-Dichloroethene | 96 | 3.143 | 3.147 | (0.642) | 109492 | 23.6785 | 23.67 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.263 | (1.291) | 149003 | 23.4368 | 23.43 |
| 38 Trichloroethene | 130 | 5.861 | 5.865 | (1.042) | 112525 | 26.0150 | 26.01 |
| 8 Trichlorofluoromethane | 101 | 1.955 | 1.959 | (0.400) | 155554 | 24.2169 | 24.21 |
| 5 Vinyl Chloride | 62 | 1.423 | 1.426 | (0.291) | 112308 | 20.6791 | 20.67 |

QC Flag Legend

M - Compound response manually integrated.

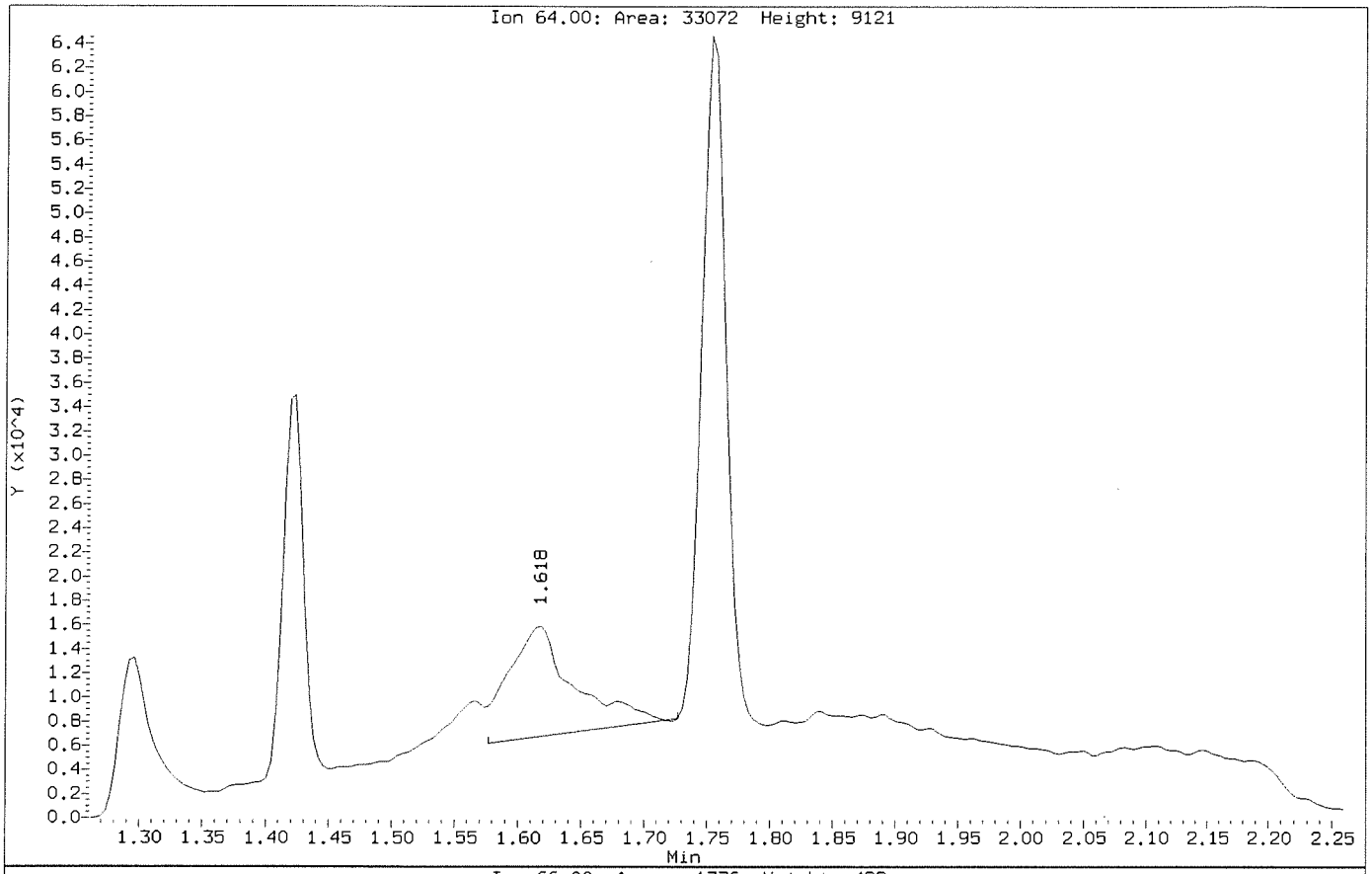


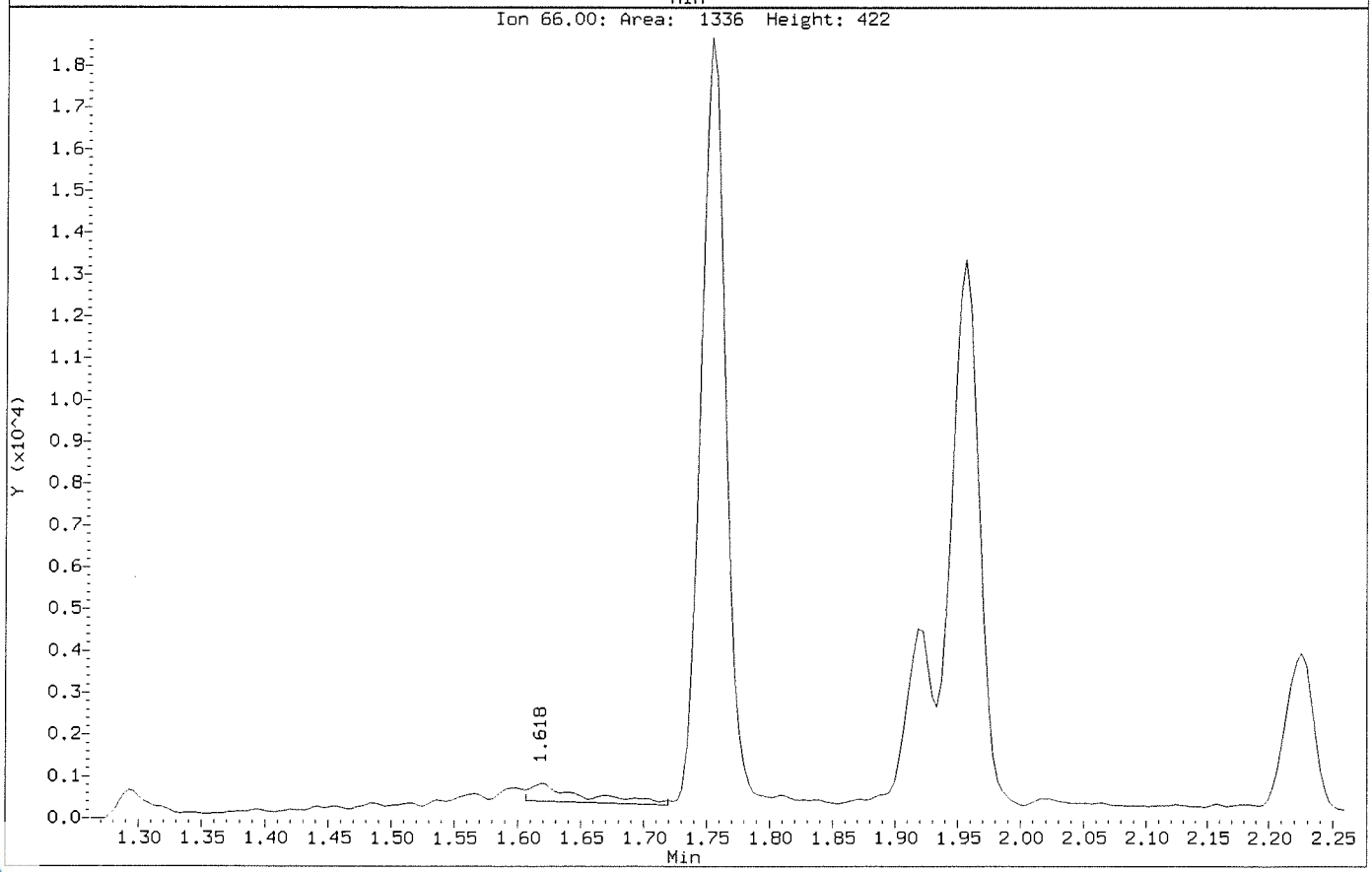

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122209.D
Date : 22-DEC-2018 13:57
Client ID: HS18120927-05MS
Sample Info: HS18120927-05MS;HS18120927-05MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122209.D
Injection Date: 22-DEC-2018 13:57
Instrument: VOA9.i
Client Sample ID: HS18120927-05MS

Compound: Chloroethane
CAS Number: 75-00-3



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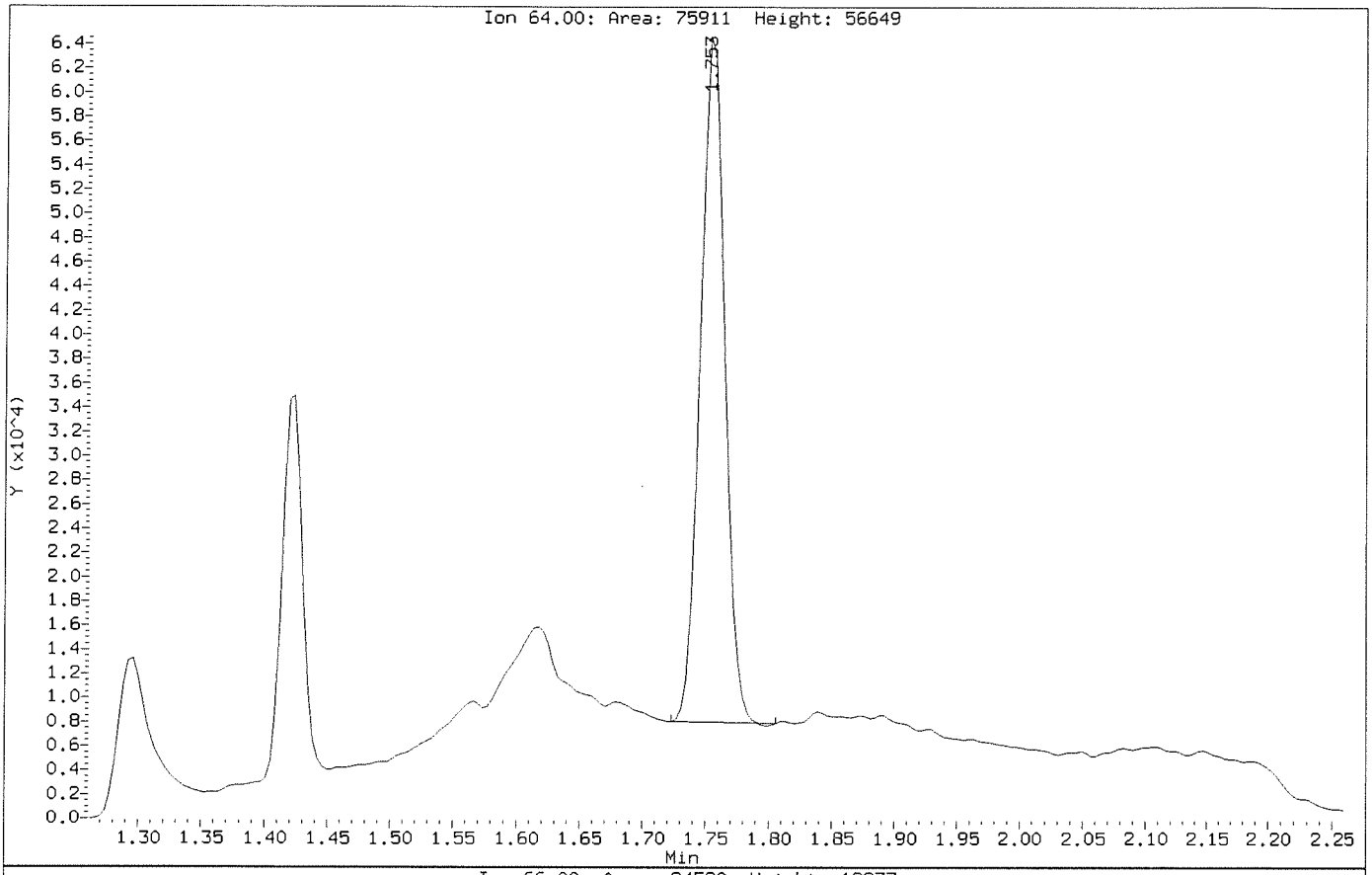
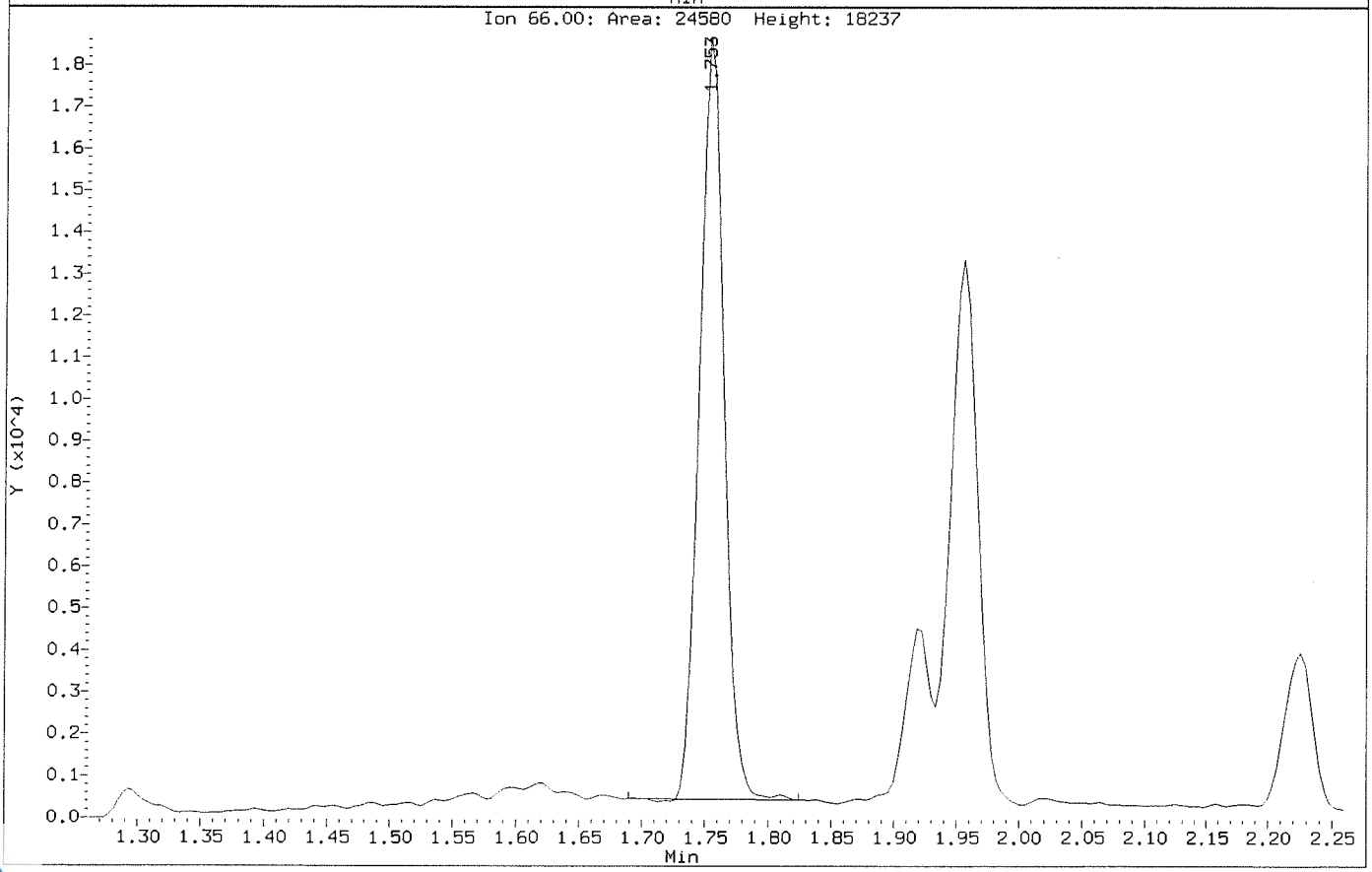
Injection Date: 22-DEC-2018 13:57
Instrument: VOA9.i
Client Sample ID: HS18120927-05MS

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D Page 1
Report Date: 28-Jan-2019 13:52

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D
Lab Smp Id: HS18120927-05MSD Client Smp ID: HS18120927-05MSD
Inj Date : 22-DEC-2018 14:22
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120927-05MSD;HS18120927-05MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 9 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

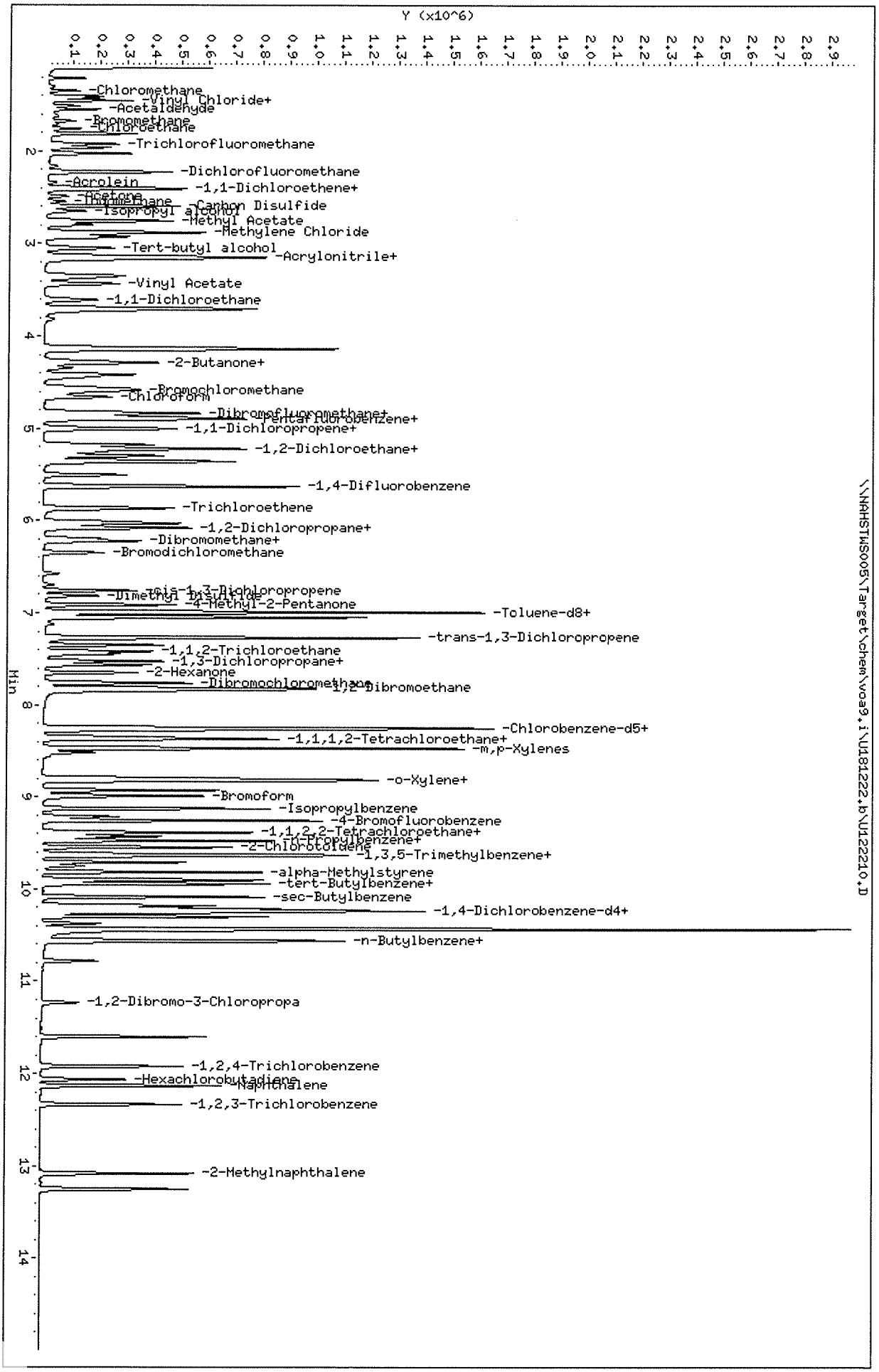
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.898 | 4.897 | (1.000) | 396082 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.629 | 5.628 | (1.000) | 673270 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 614956 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 298917 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 195450 | 44.5560 | 44.55 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 257591 | 45.7727 | 45.77 |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 839449 | 52.9656 | 52.96 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 312851 | 51.8032 | 51.80 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 95635 | 24.8058 | 24.80 |
| | 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 151476 | 24.2203 | 24.22 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 169057 | 25.1136 | 25.11 |
| | 138 Freon TF | 101 | 2.408 | 2.408 | (0.492) | 79969 | 23.7489 | 23.74 |
| | 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 94280 | 25.7331 | 25.73 |
| | 22 1,1-Dichloroethane | 63 | 3.608 | 3.608 | (0.737) | 195548 | 22.9250 | 22.92 |
| | 11 1,1-Dichloroethene | 96 | 2.405 | 2.405 | (0.491) | 86817 | 23.0529 | 23.05 |
| | 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.889) | 156191 | 26.0731 | 26.07 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 138315 | 24.8777 | 24.87 |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 179033 | 25.5763 | 25.57 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.926 | 11.923 | (1.165) | 140555 | 25.3974 | 25.39 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 420780 | 26.8999 | 26.89 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 24448 | 24.3210 | 24.32 |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 110313 | 26.1411 | 26.14 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D Page 2
Report Date: 28-Jan-2019 13:52

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.573 | (1.033) | 221340 | 24.9382 | 24.93 |
| 33 | 1,2-Dichloroethane | 62 | 5.257 | 5.254 | (0.934) | 159054 | 25.8711 | 25.87 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 119026 | 25.0197 | 25.01 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 402960 | 26.8236 | 26.82 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 224610 | 25.3047 | 25.30 |
| 54 | 1,3-Dichloropropane | 76 | 7.567 | 7.563 | (0.917) | 205652 | 26.0596 | 26.05 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 227646 | 24.3243 | 24.32 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 122497 | 23.8299 | 23.82 |
| 24 | 2-Butanone | 43 | 4.343 | 4.339 | (0.887) | 124945 | 46.9760 | 46.97 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 355895 | 25.8410 | 25.84 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 193394 | 56.5557 | 56.55 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 414630 | 26.0519 | 26.05 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 431943 | 27.3079 | 27.30 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 273284 | 55.5430 | 55.54 |
| 10 | Acetone | 43 | 2.487 | 2.483 | (0.508) | 83751 | 52.7779 | 52.77 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 457942 | 25.5610 | 25.56 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 116968 | 25.3261 | 25.32 |
| 29 | Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 54271 | 24.6545 | 24.65 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 127329 | 25.1690 | 25.16 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 60219 | 23.7720 | 23.77 |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 42989 | 18.4433 | 18.44 |
| 19 | Carbon Disulfide | 76 | 2.596 | 2.596 | (0.530) | 612139 | 44.6093 | 44.60 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 119367 | 25.0951 | 25.09 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 302740 | 25.6220 | 25.62 |
| 7 | Chloroethane | 64 | 1.756 | 1.756 | (0.359) | 75620 | 21.9969 | 21.99(M) |
| 28 | Chloroform | 83 | 4.661 | 4.661 | (0.952) | 190164 | 23.1492 | 23.14 |
| 3 | Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 73942 | 19.7245 | 19.72 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 120115 | 23.0714 | 23.07 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 173421 | 23.2524 | 23.25 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 96569 | 24.4066 | 24.40 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.100) | 69470 | 25.3020 | 25.30 |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.209 | (0.248) | 78502 | 16.4365 | 16.43 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 160257 | 26.4444 | 26.44 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 50808 | 23.9630 | 23.96 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 480775 | 27.4930 | 27.49 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 398688 | 53.5138 | 53.51 |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 114736 | 22.7995 | 22.79 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 405459 | 26.5616 | 26.56 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 605284 | 27.0999 | 27.09 |
| 92 | Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 456703 | 25.3144 | 25.31 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 199299 | 26.5169 | 26.51 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 511179 | 27.2322 | 27.23 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 339873 | 27.2184 | 27.21 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 354232 | 27.2818 | 27.28 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 86000 | 26.7126 | 26.71 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 486207 | 26.5789 | 26.57 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 106792 | 23.0341 | 23.03 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 147380 | 23.2011 | 23.20 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 110236 | 25.4876 | 25.48 |
| 8 | Trichlorofluoromethane | 101 | 1.959 | 1.959 | (0.400) | 147862 | 22.9915 | 22.99 |
| 5 | Vinyl Chloride | 62 | 1.426 | 1.426 | (0.291) | 113420 | 20.8220 | 20.82 |

QC Flag Legend

M - Compound response manually integrated.

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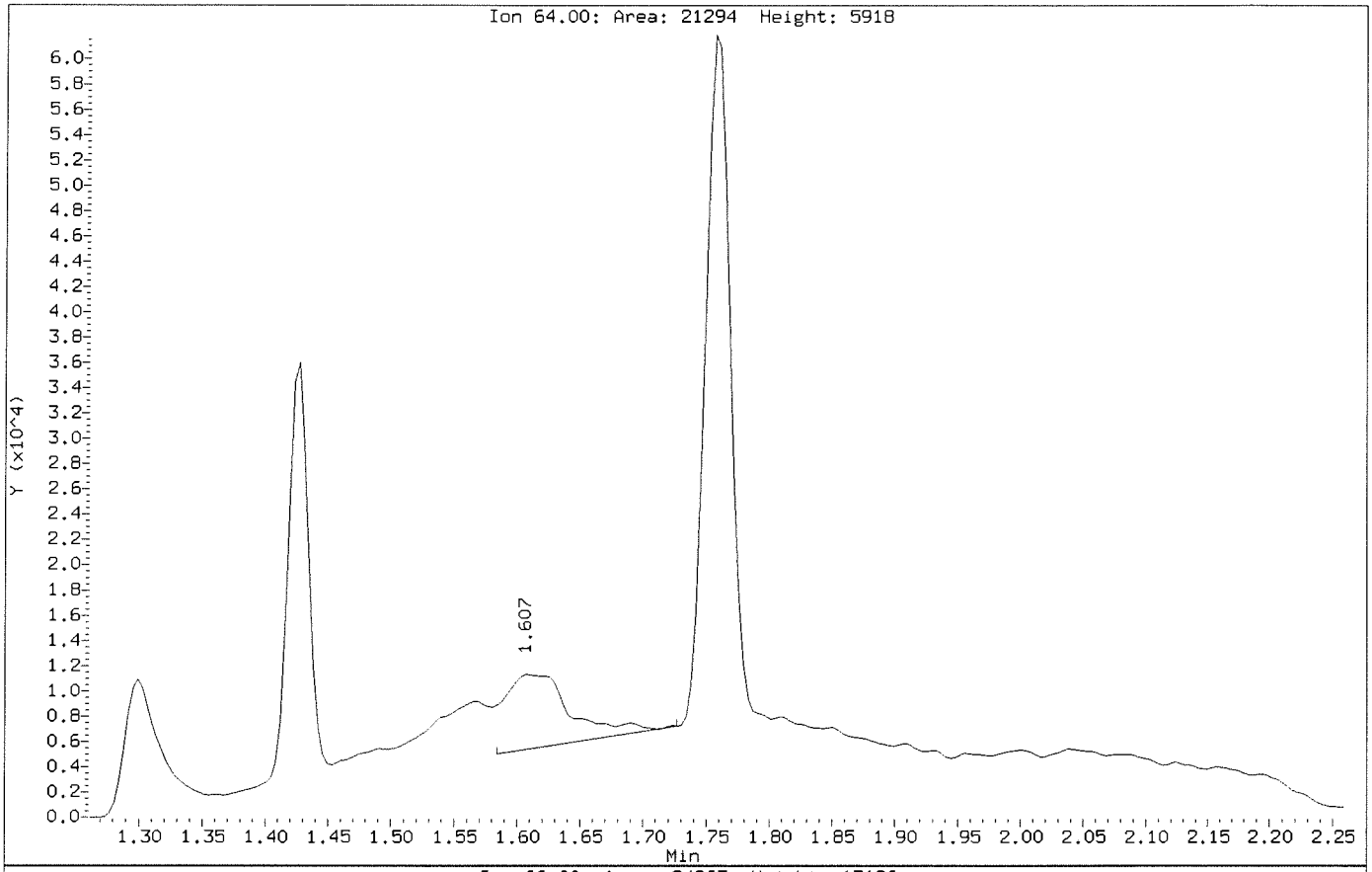
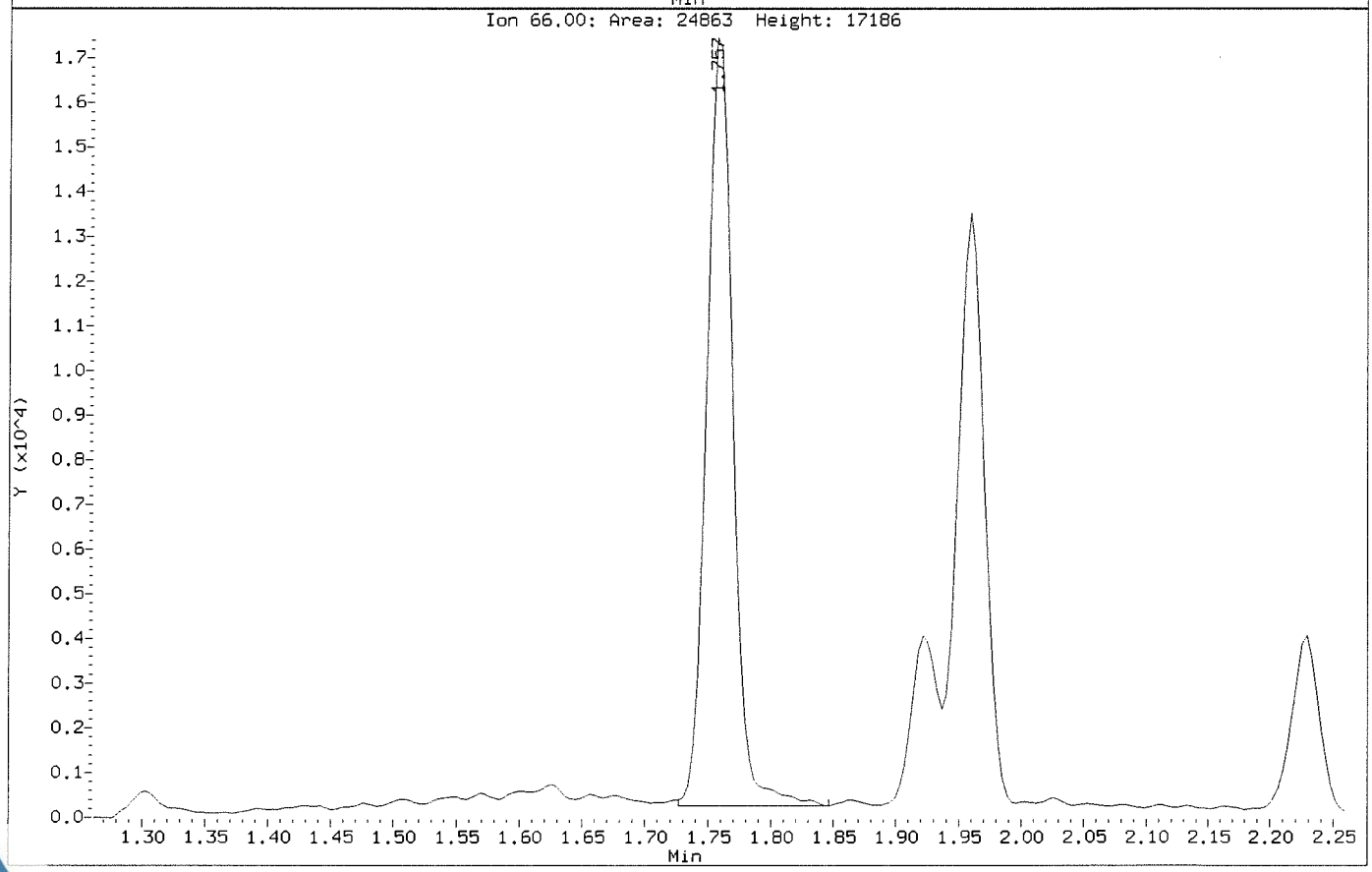
Date : 22-DEC-2018 14:22
Client ID: HS181120927-05MSD
Sample Info: HS181120927-05MSD;HS181120927-05MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122210.D
Injection Date: 22-DEC-2018 14:22
Instrument: VOA9.i
Client Sample ID: HS18120927-05MSD

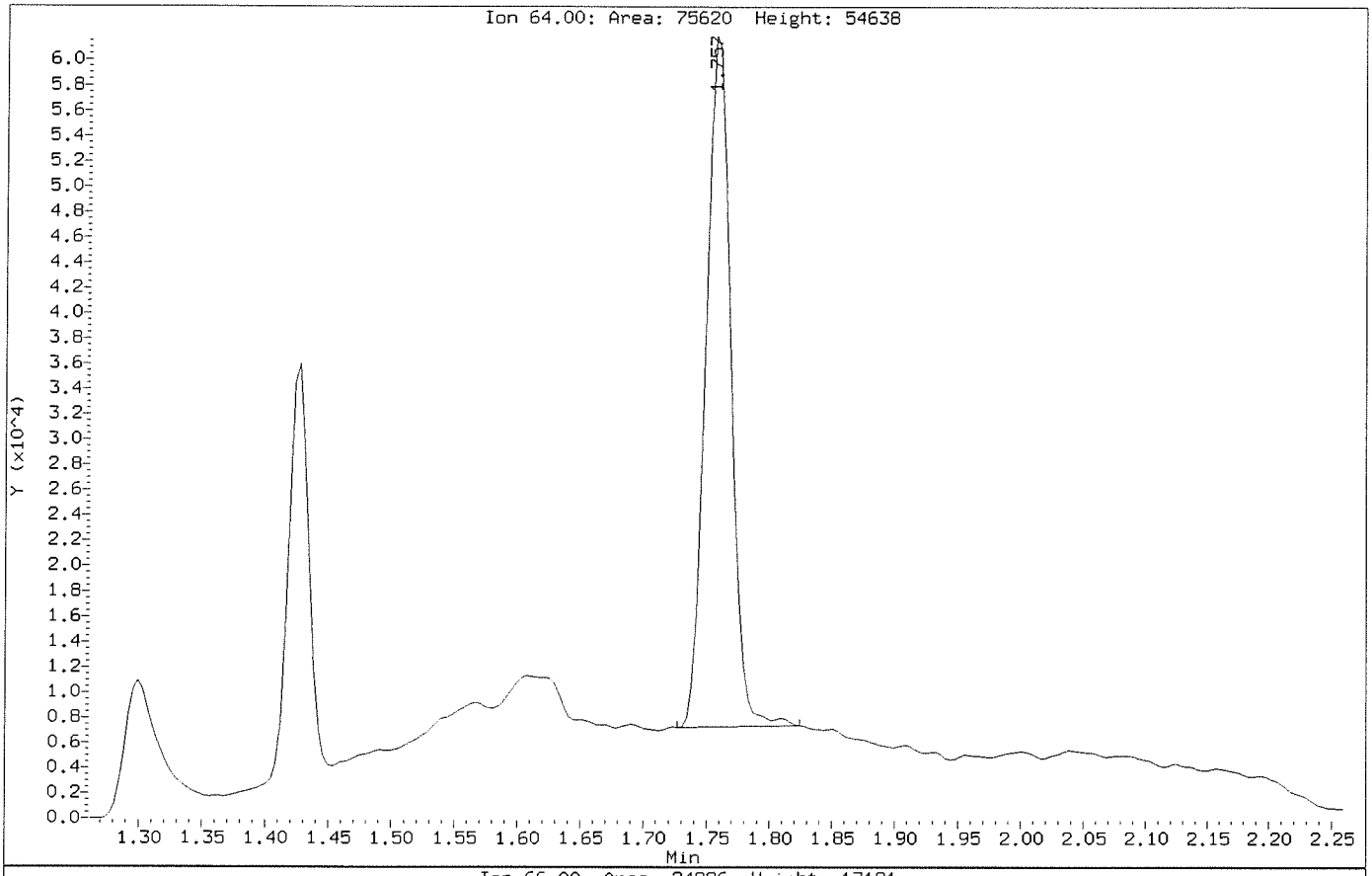
Compound: Chloroethane
CAS Number: 75-00-3

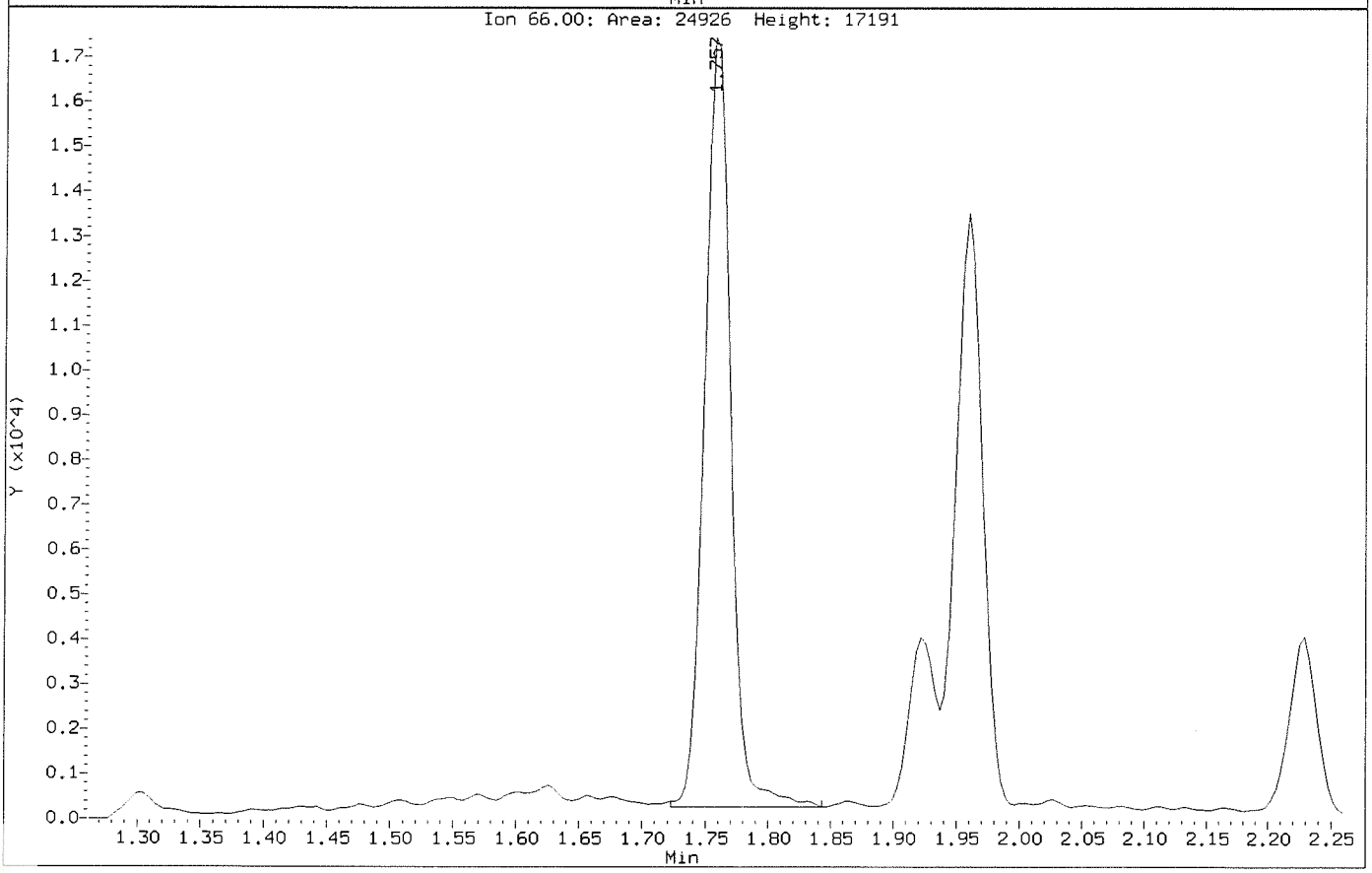


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D
Injection Date: 22-DEC-2018 14:22
Instrument: VOA9.i
Client Sample ID: HS18120927-05MSD

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D Page 1
Report Date: 28-Jan-2019 14:04

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D
Lab Smp Id: HS18120736-02 Client Smp ID: HS18120736-02
Inj Date : 22-DEC-2018 19:44
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-02;HS18120736-02;;;
Misc Info : 180315V9;WATER;0;10;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 22
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

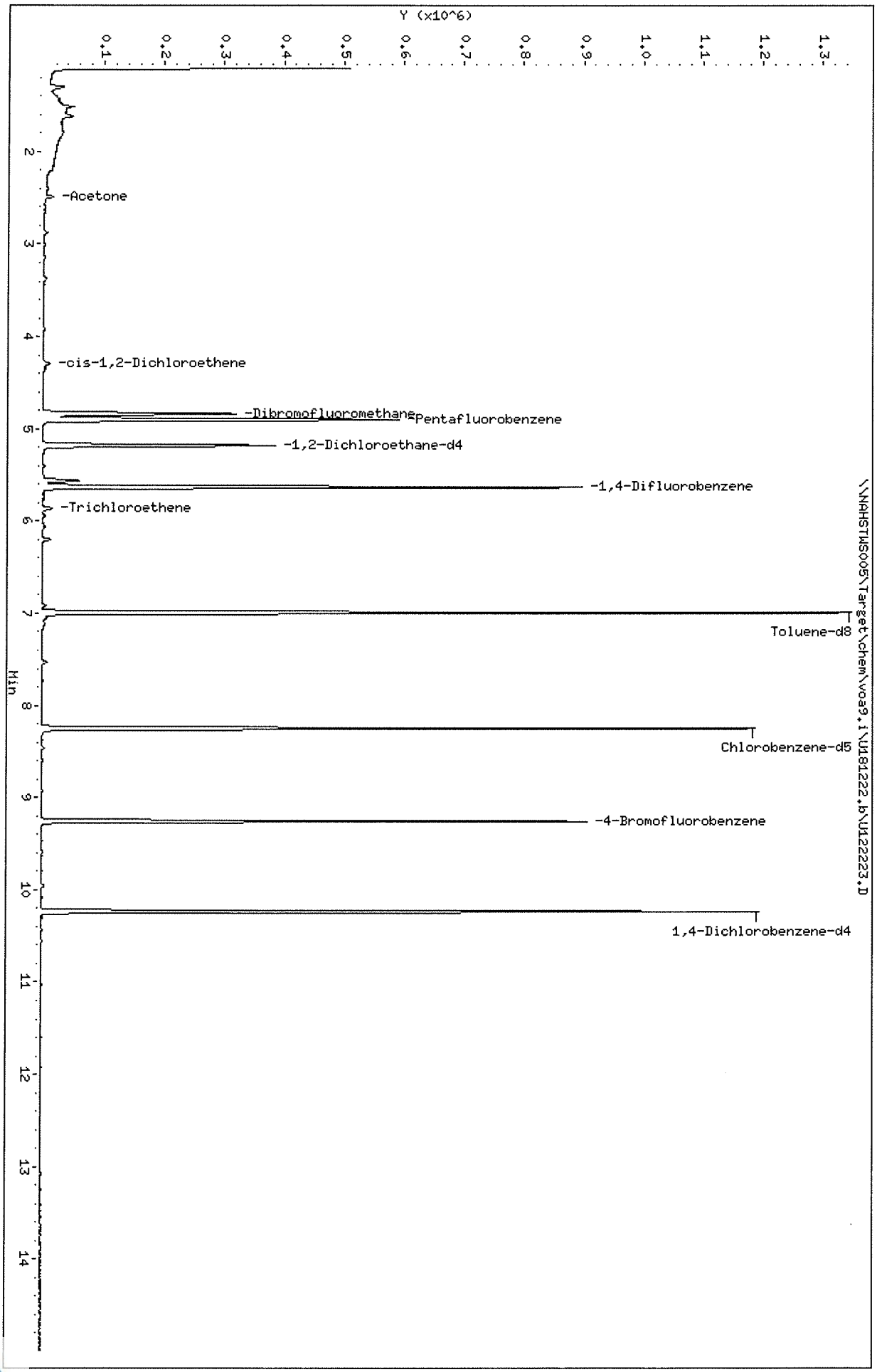
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 10.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 363207 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 637768 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 578447 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 263483 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 183997 | 45.7823 | 45.78 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 245610 | 47.6804 | 47.68 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 776544 | 52.0595 | 52.05 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 277108 | 48.6973 | 48.69 |
| 10 Acetone | 43 | 2.491 | 2.491 | (0.509) | 14587 | 7.57470 | 75.74 |
| 27 cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.877) | 4258 | 0.89189 | 8.91(a) |
| 38 Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 4791 | 1.16939 | 11.69(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122223,D
Date : 22-DEC-2018 19:44
Client ID: HS18120736-02
Sample Info: HS18120736-02;HS18120736-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D



Date : 22-DEC-2018 19:44

Client ID: HS18120736-02

Instrument: VOA9.i

Sample Info: HS18120736-02;HS18120736-02;;;

Purge Volume: 5.0

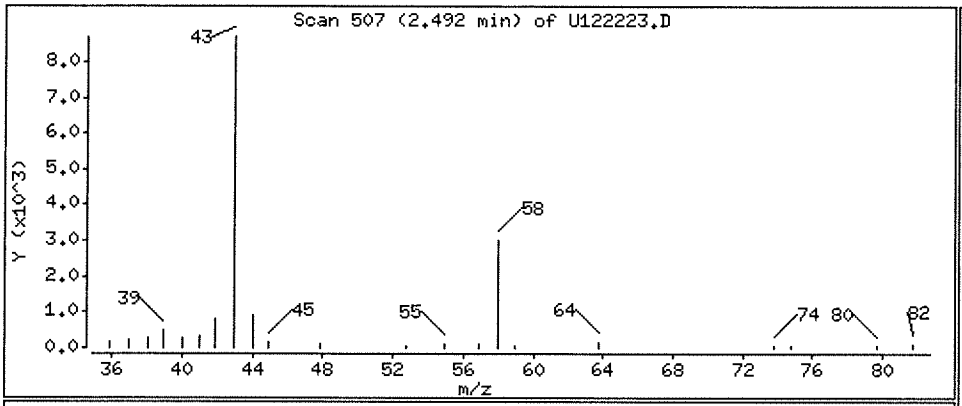
Operator: PC

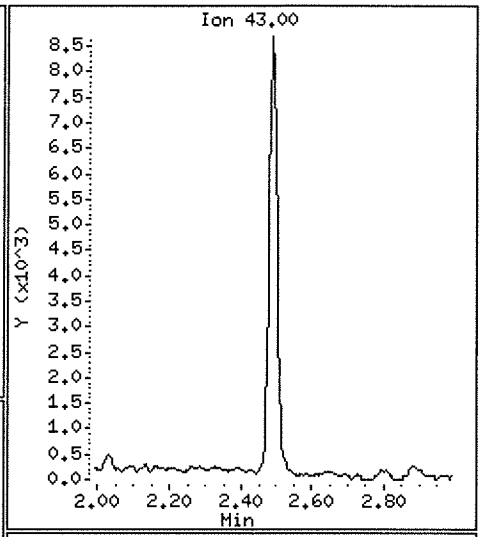
Column phase: DB624

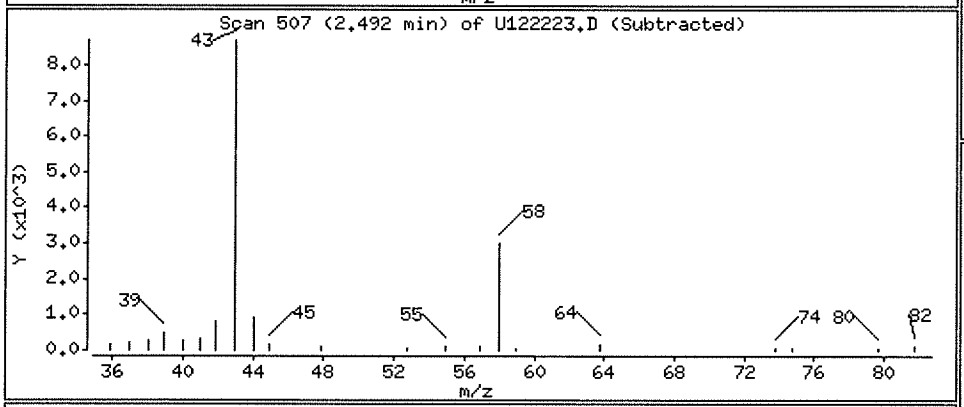
Column diameter: 0.18

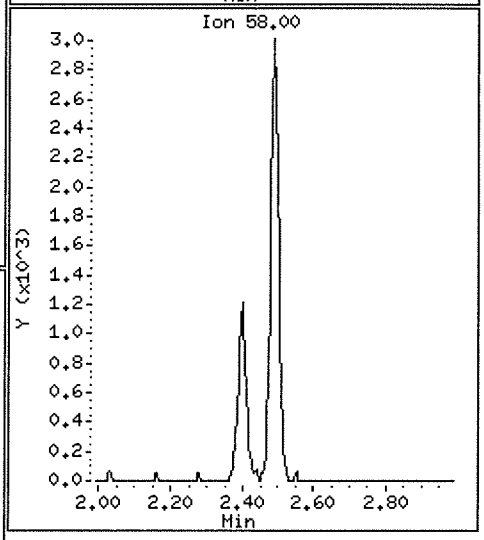
10 Acetone

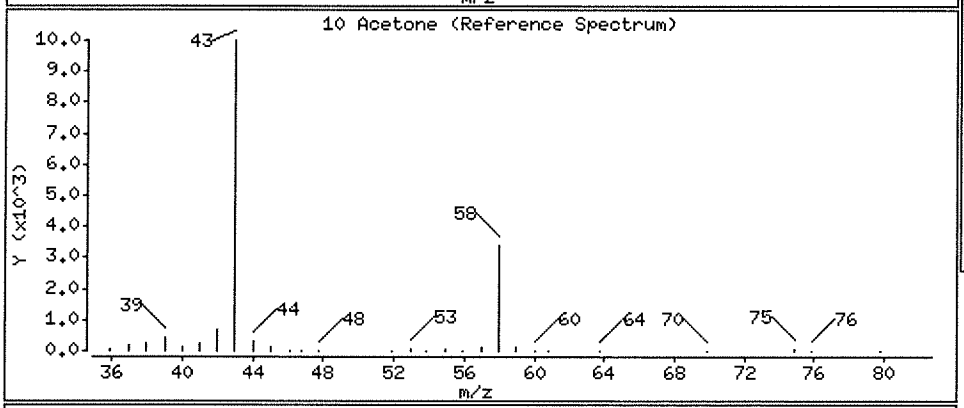
Concentration: 75.74 ug/l

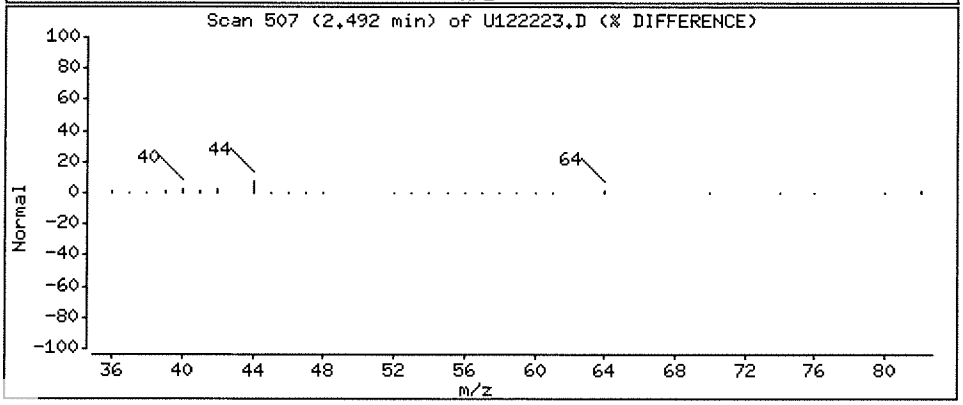


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D



Date : 22-DEC-2018 19:44

Client ID: HS18120736-02

Instrument: VOA9.i

Sample Info: HS18120736-02;HS18120736-02;;;

Purge Volume: 5.0

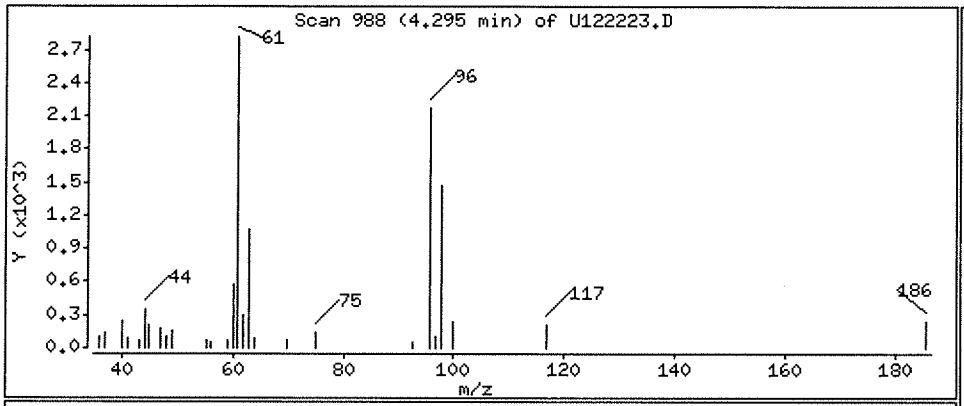
Operator: PC

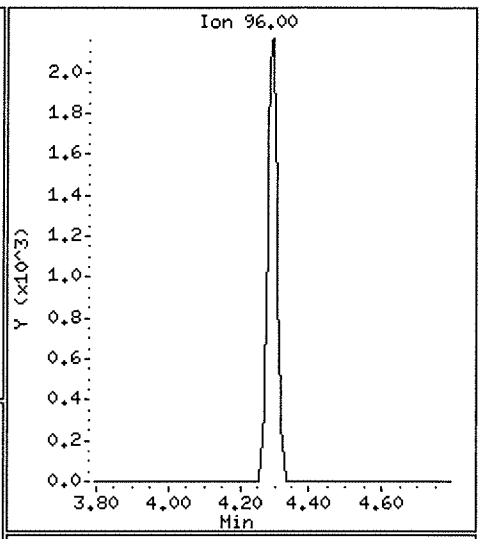
Column phase: DB624

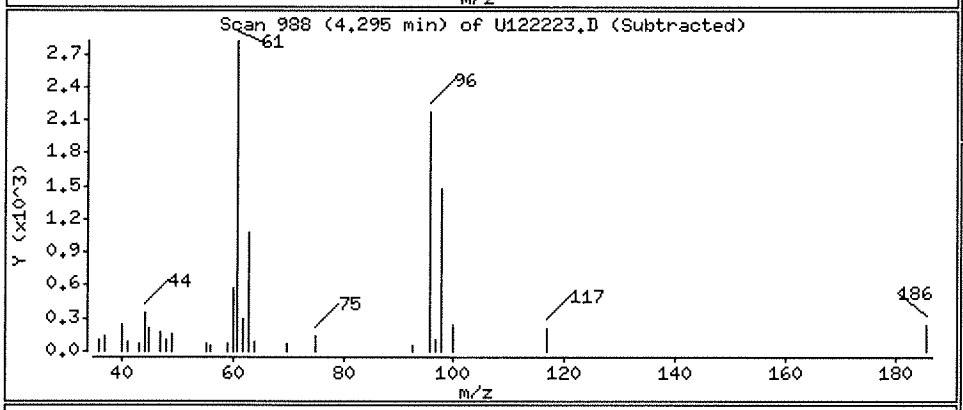
Column diameter: 0.18

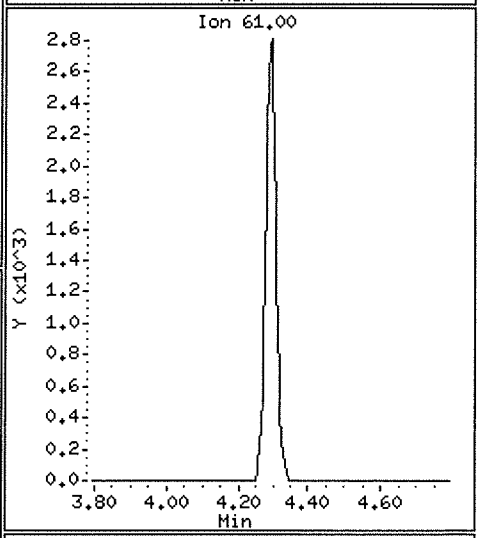
27 cis-1,2-Dichloroethene

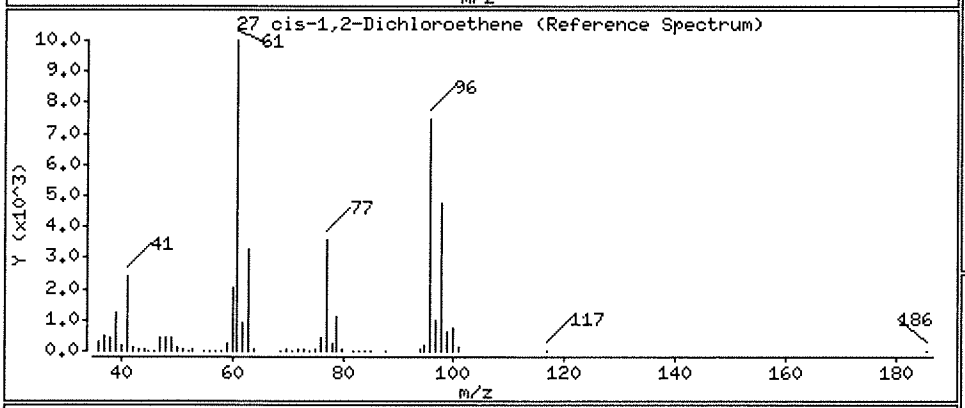
Concentration: 8.91 ug/l

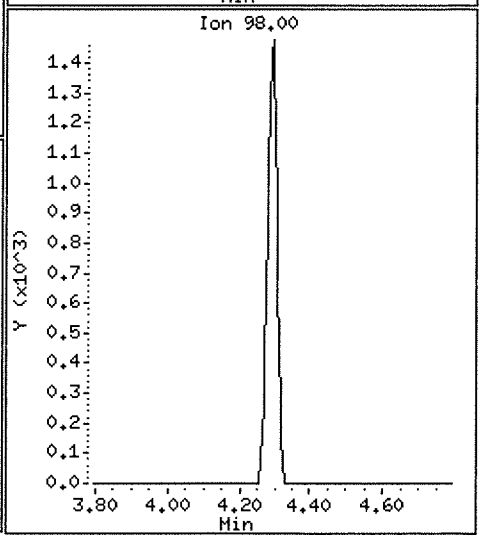


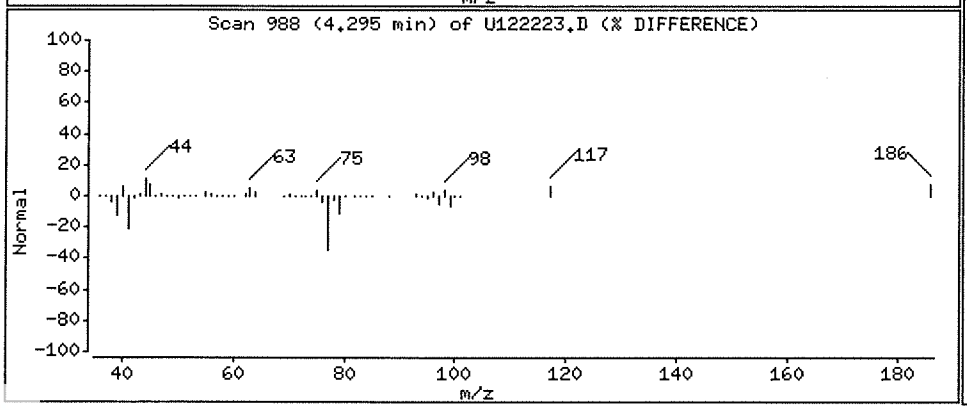



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D



Date : 22-DEC-2018 19:44

Client ID: HS18120736-02

Instrument: VOA9.i

Sample Info: HS18120736-02;HS18120736-02;;;

Purge Volume: 5.0

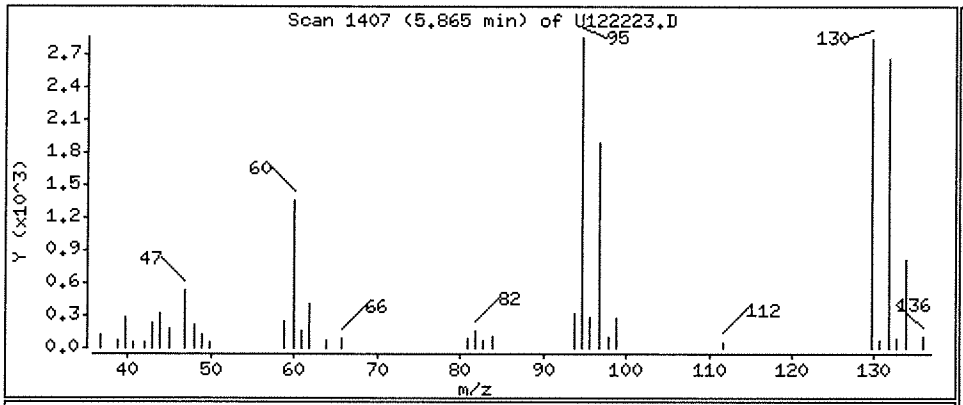
Operator: PC

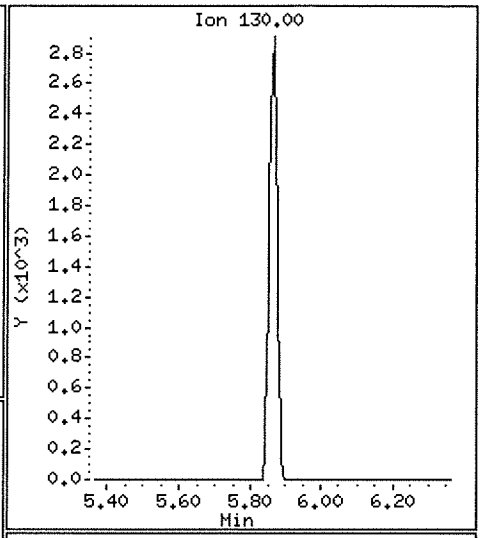
Column phase: DB624

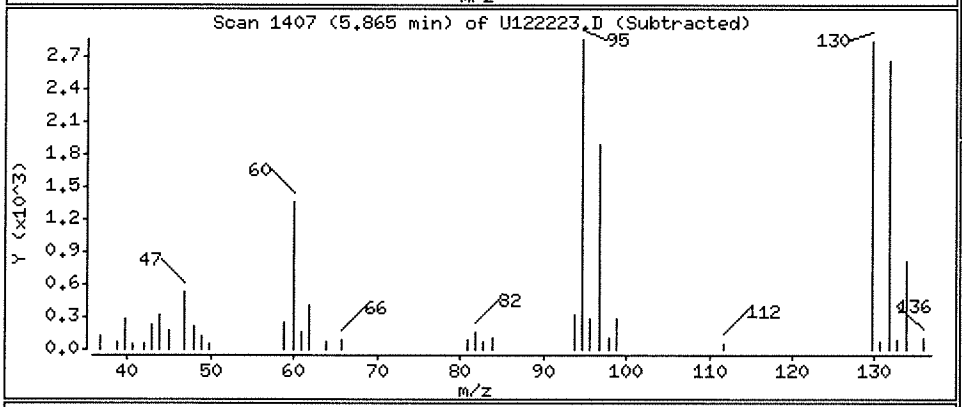
Column diameter: 0.18

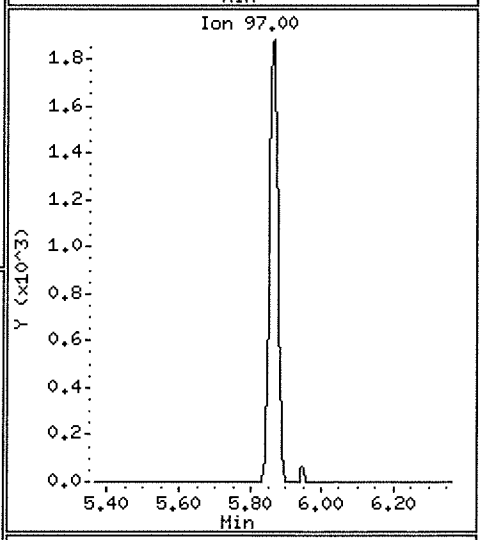
38 Trichloroethene

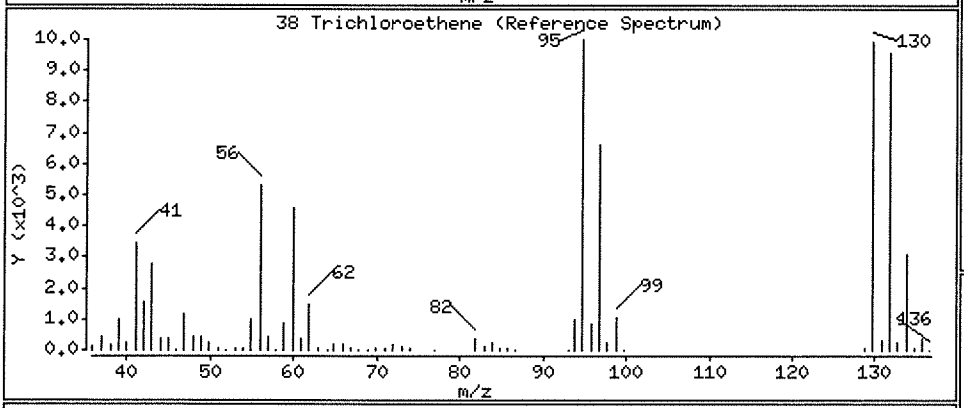
Concentration: 11.69 ug/l

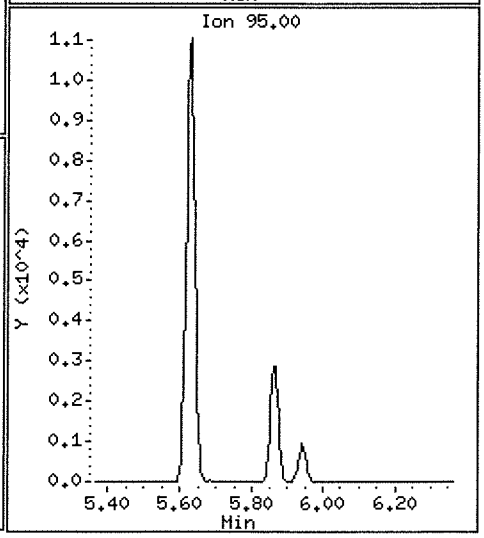


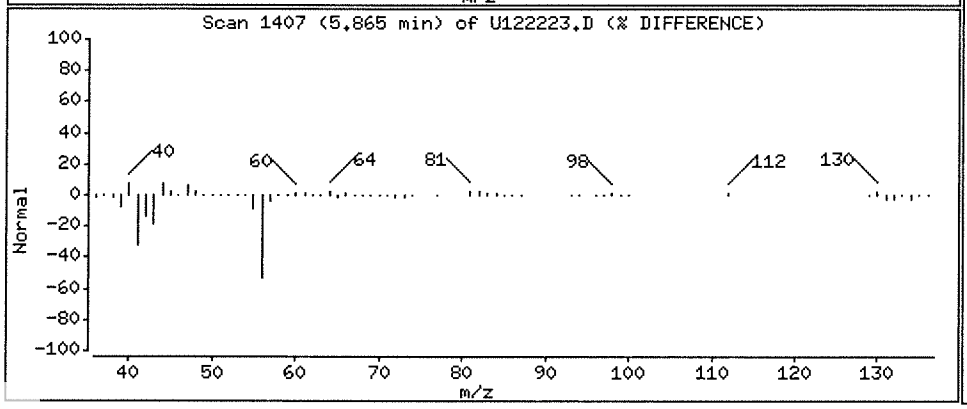



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D Page 1
Report Date: 28-Jan-2019 14:04

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D
Lab Smp Id: HS18120736-01 Client Smp ID: HS18120736-01
Inj Date : 22-DEC-2018 20:09
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-01;HS18120736-01;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

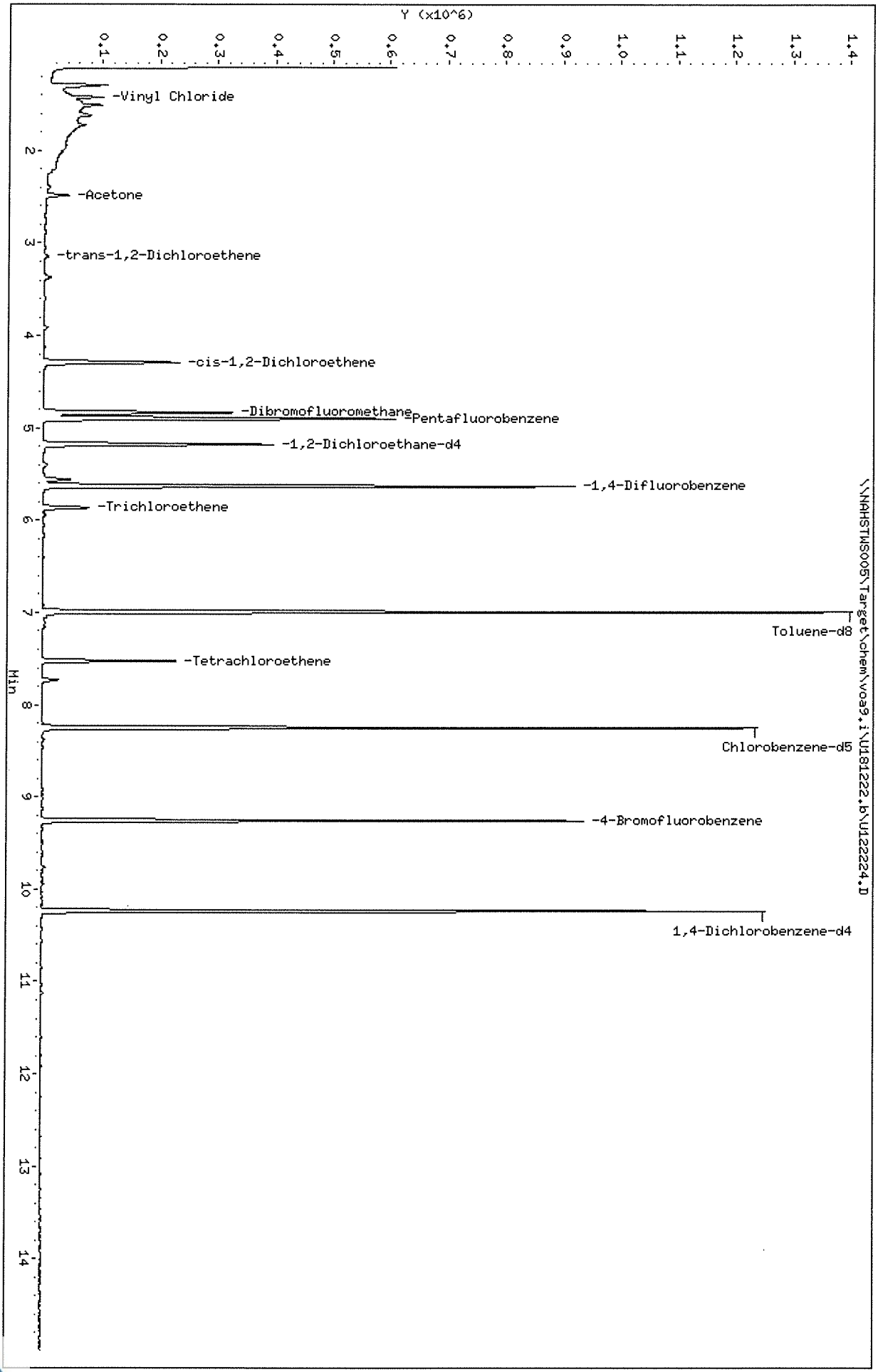
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 376694 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 663881 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 593620 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 278883 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.986) | 188094 | 45.1042 | 45.10 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 253428 | 47.4256 | 47.42 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.989 | (0.847) | 808907 | 52.8699 | 52.86 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.257 | (1.122) | 288951 | 49.5036 | 49.50 |
| 10 Acetone | 43 | 2.484 | 2.491 | (0.507) | 39662 | 24.7622 | 24.76 |
| 27 cis-1,2-Dichloroethene | 96 | 4.291 | 4.294 | (0.876) | 110154 | 22.2471 | 22.24 |
| 56 Tetrachloroethene | 164 | 7.526 | 7.525 | (0.912) | 45779 | 14.7306 | 14.73 |
| 20 trans-1,2-Dichloroethene | 96 | 3.147 | 3.151 | (0.643) | 2716 | 0.61597 | 0.61(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.865 | (1.042) | 24120 | 5.65565 | 5.65 |
| 5 Vinyl Chloride | 62 | 1.423 | 1.426 | (0.291) | 35771 | 7.55250 | 7.55 |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222.b\U122224.D
Date : 22-DEC-2018 20:09
Client ID: HS18120736-01
Sample Info: HS18120736-01;HS18120736-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D



Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

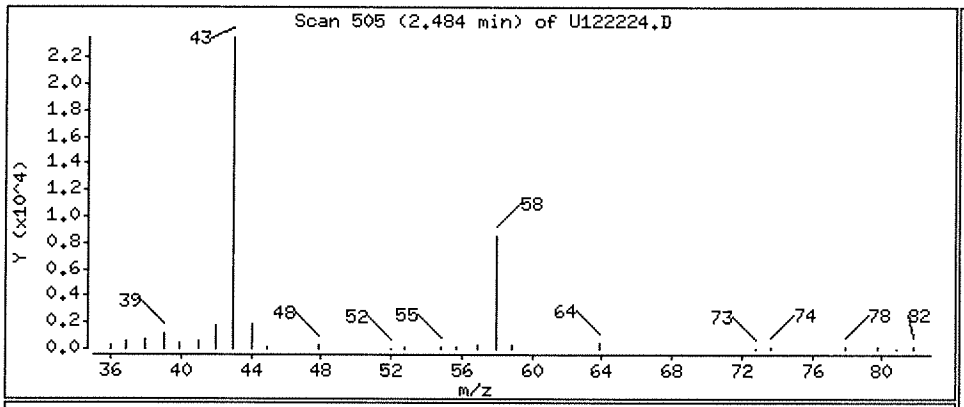
Operator: PC

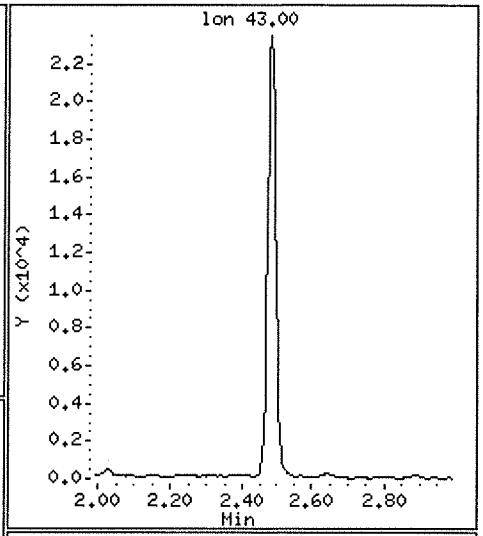
Column phase: DB624

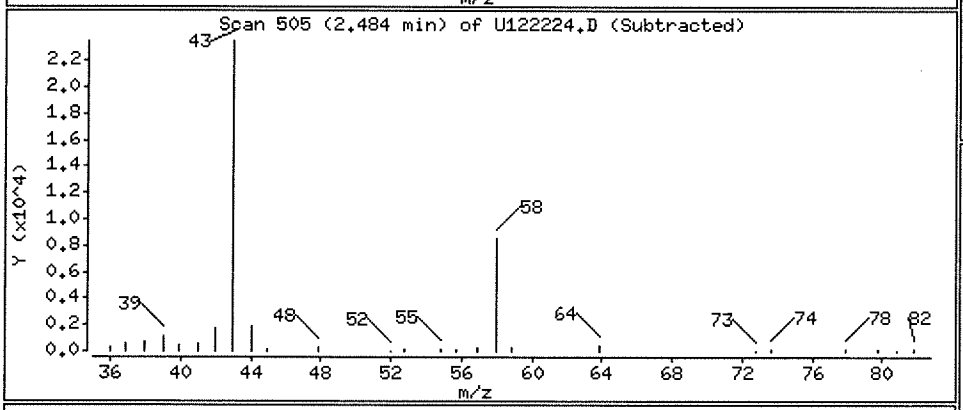
Column diameter: 0.18

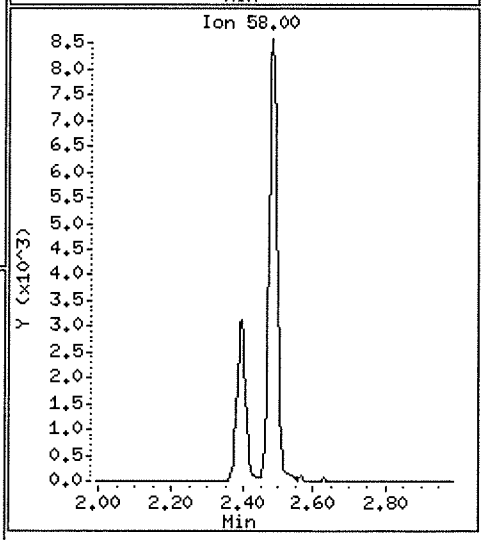
10 Acetone

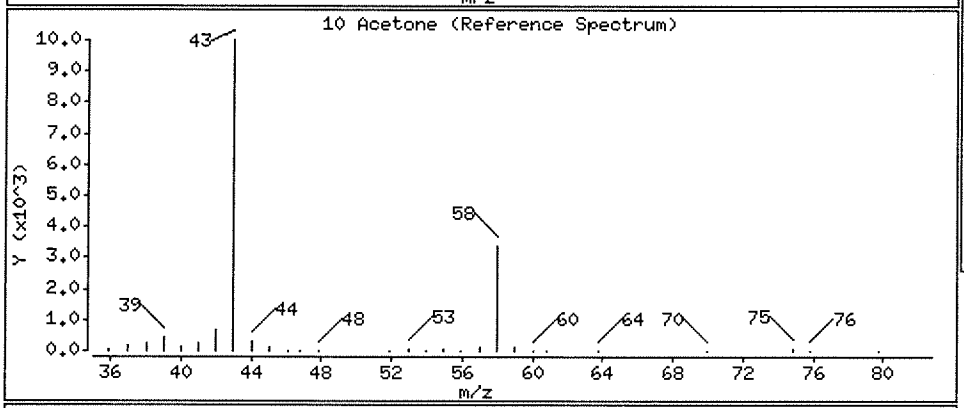
Concentration: 24.76 ug/l

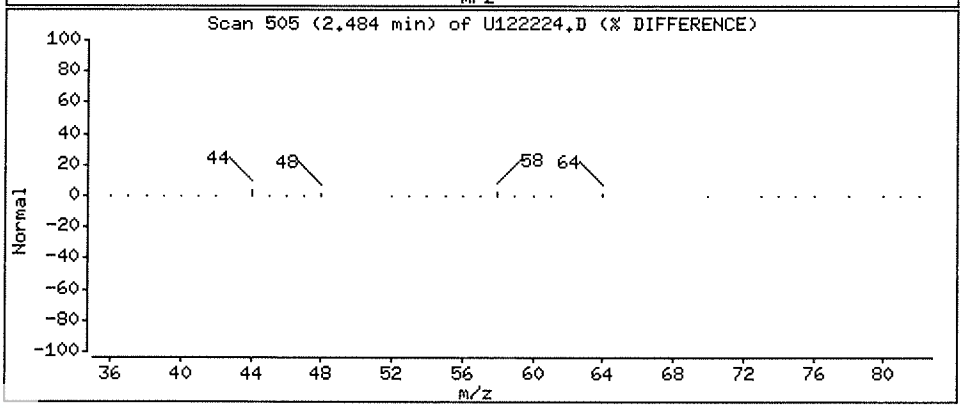


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D



Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

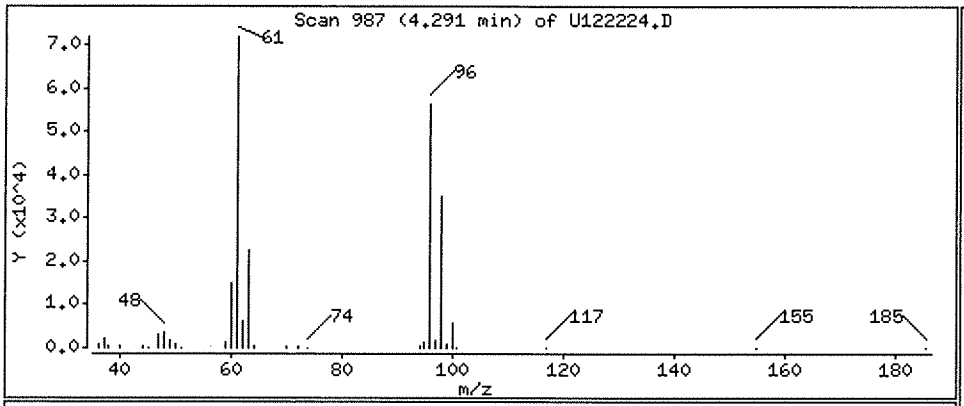
Operator: PC

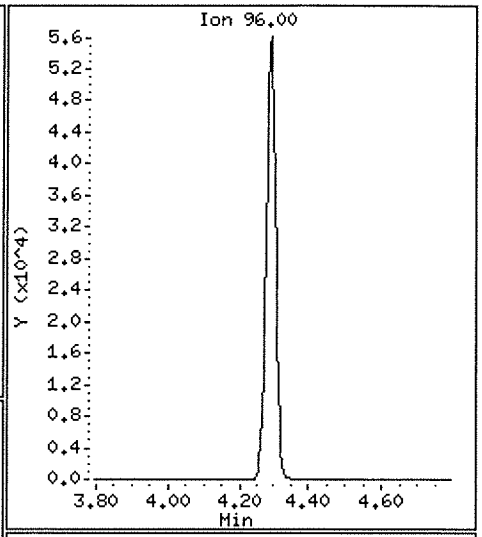
Column phase: DB624

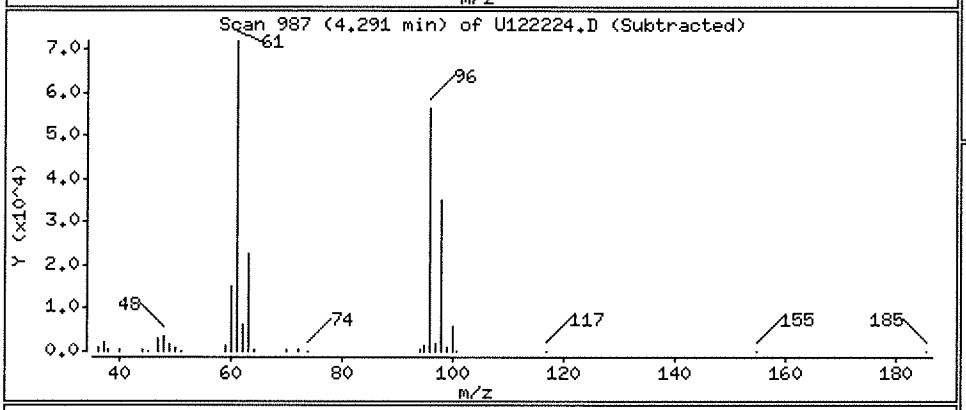
Column diameter: 0.18

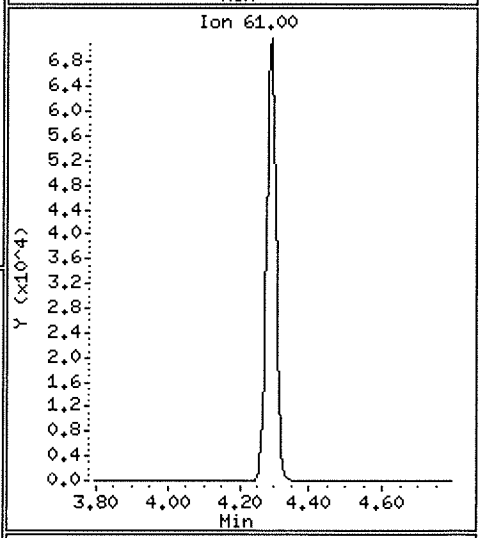
27 cis-1,2-Dichloroethene

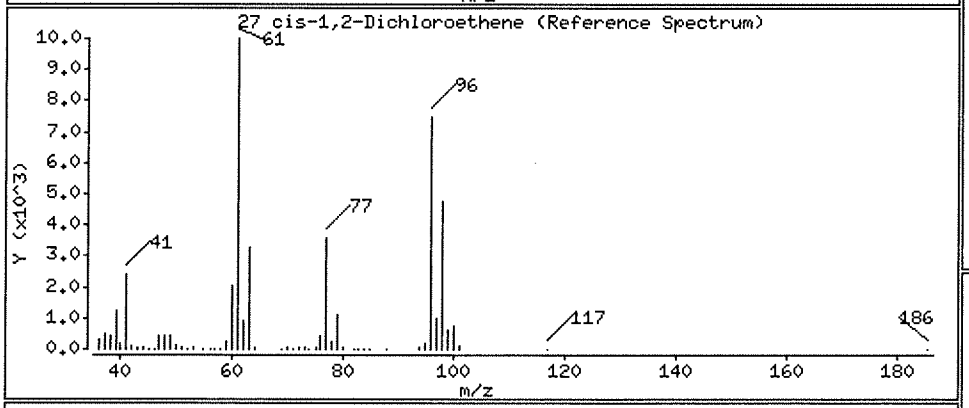
Concentration: 22.24 ug/l

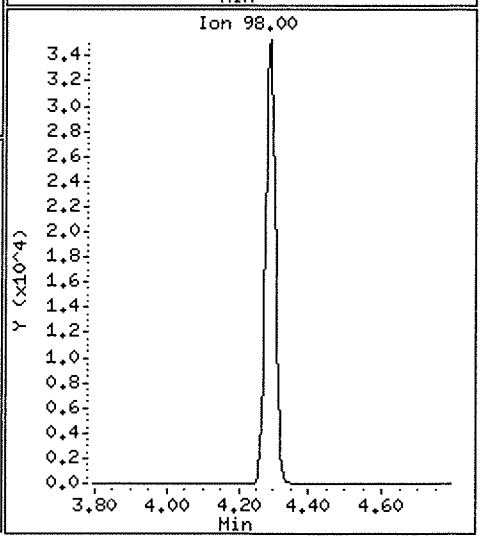


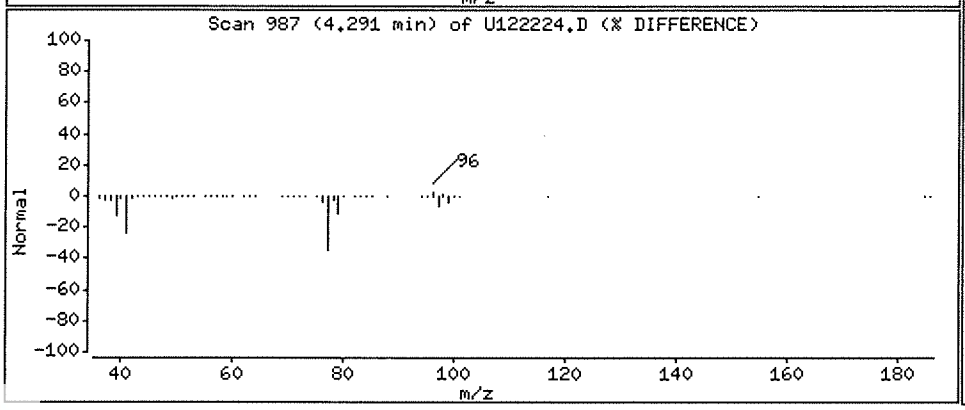



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D



Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

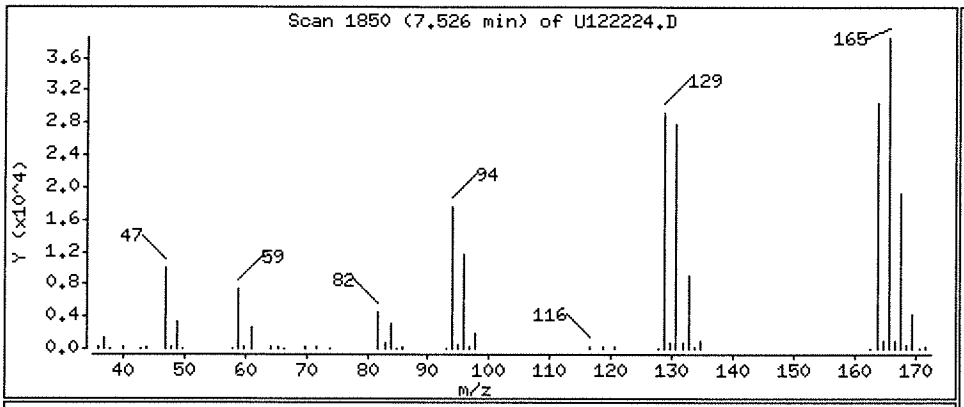
Operator: PC

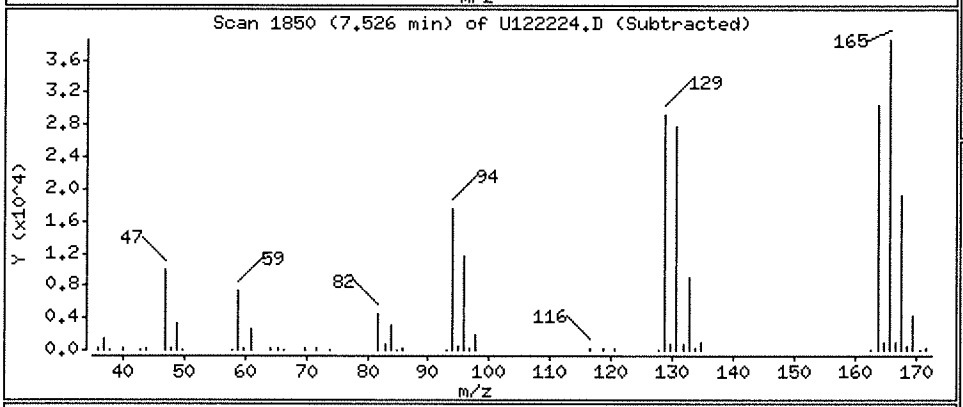
Column phase: DB624

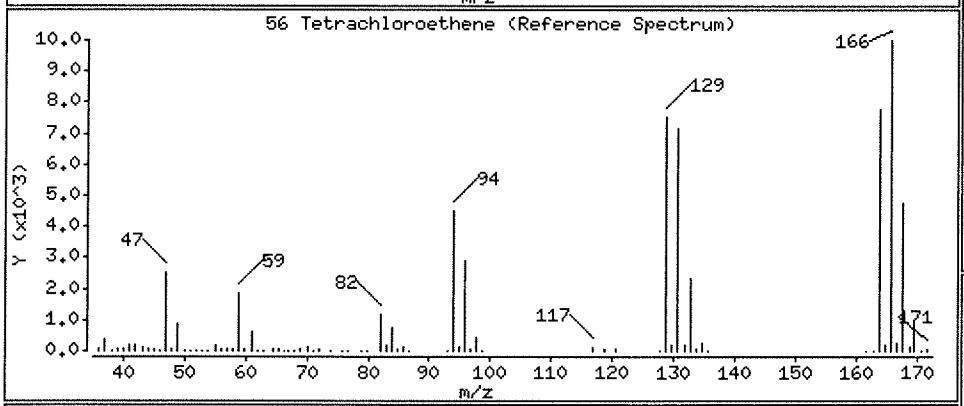
Column diameter: 0.18

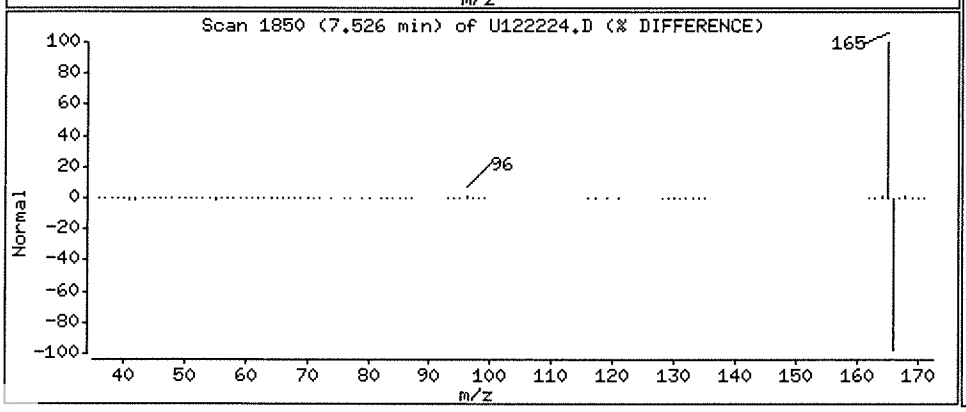
56 Tetrachloroethene

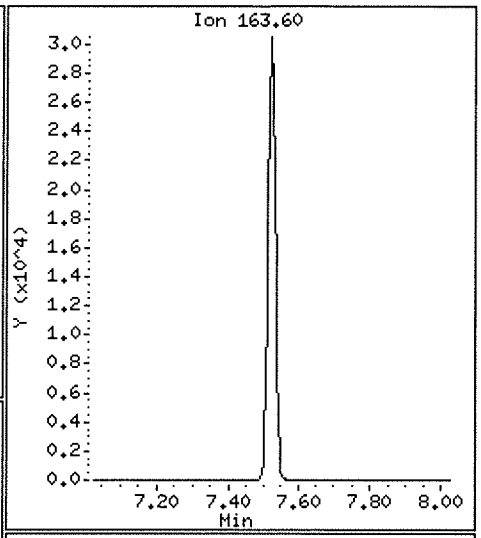
Concentration: 14.73 ug/l

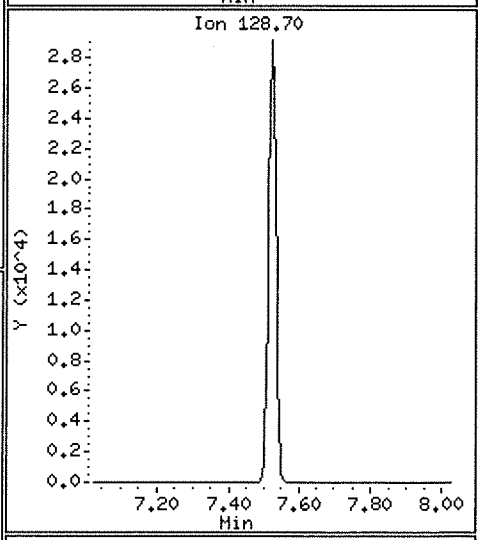


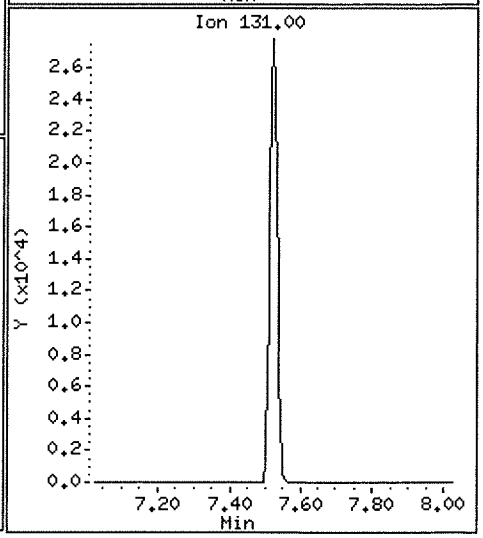



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D



Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

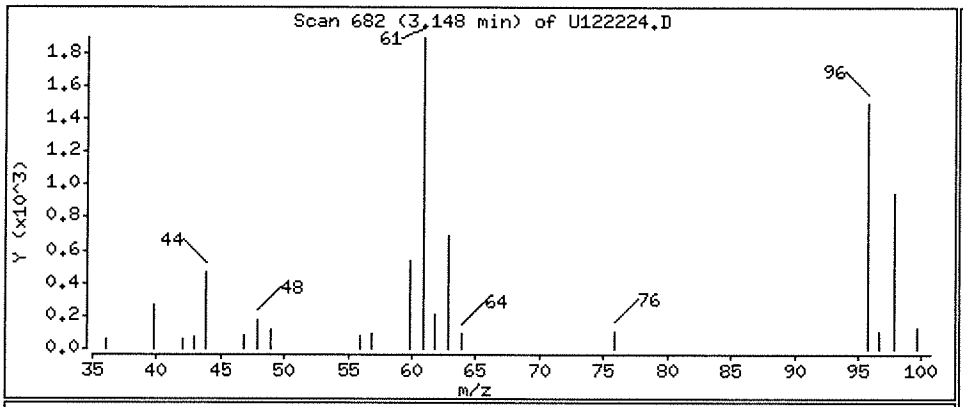
Operator: PC

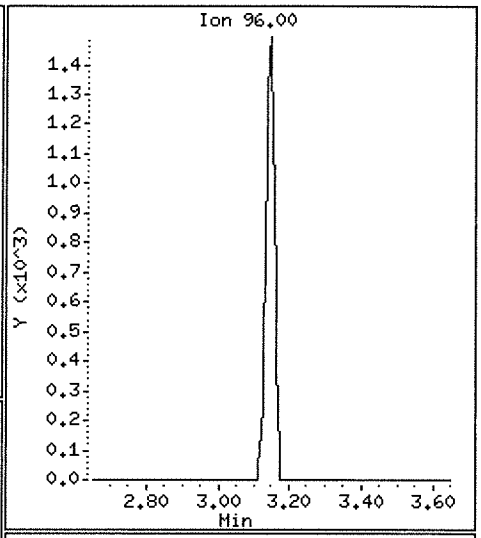
Column phase: DB624

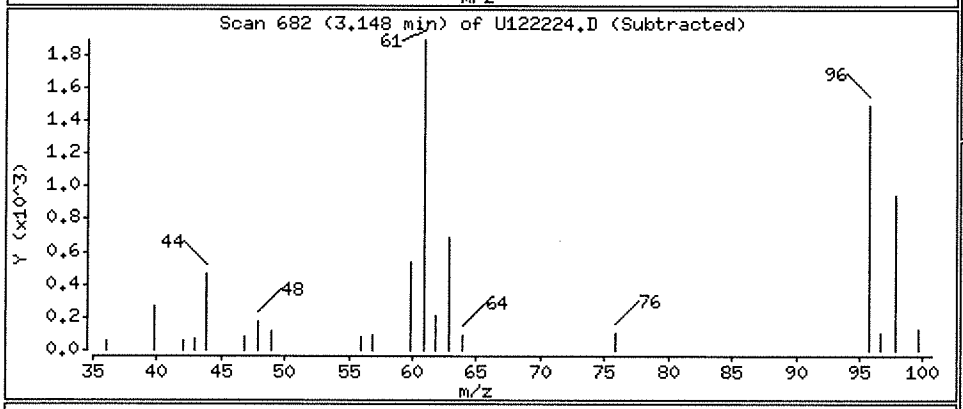
Column diameter: 0.18

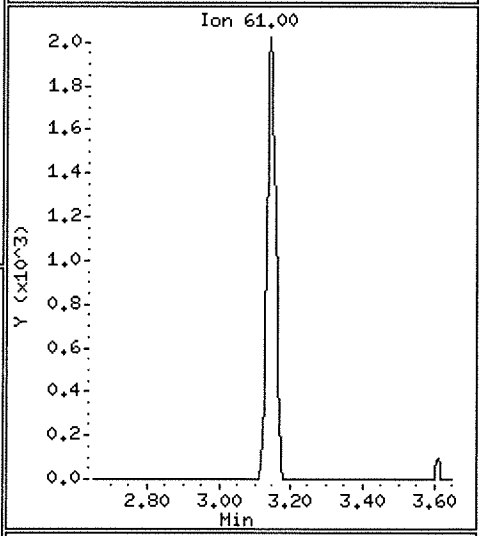
20 trans-1,2-Dichloroethene

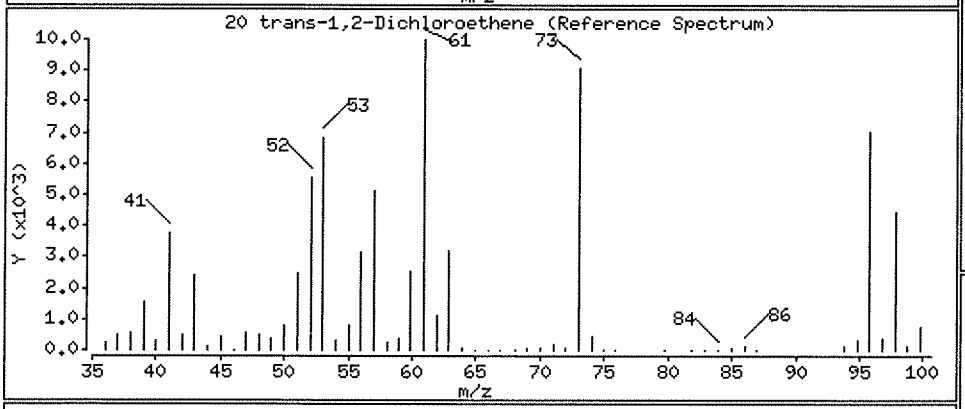
Concentration: 0.61 ug/l

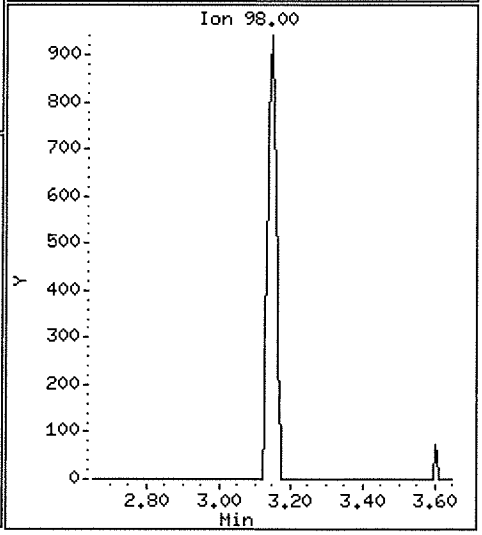


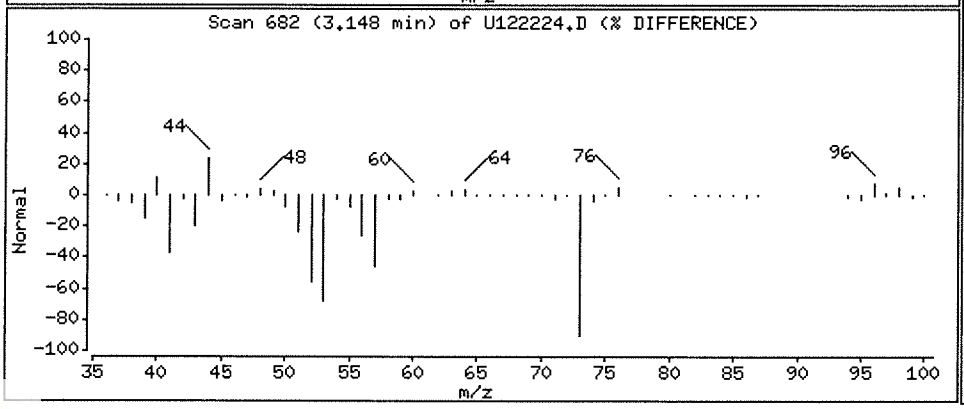



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D



Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

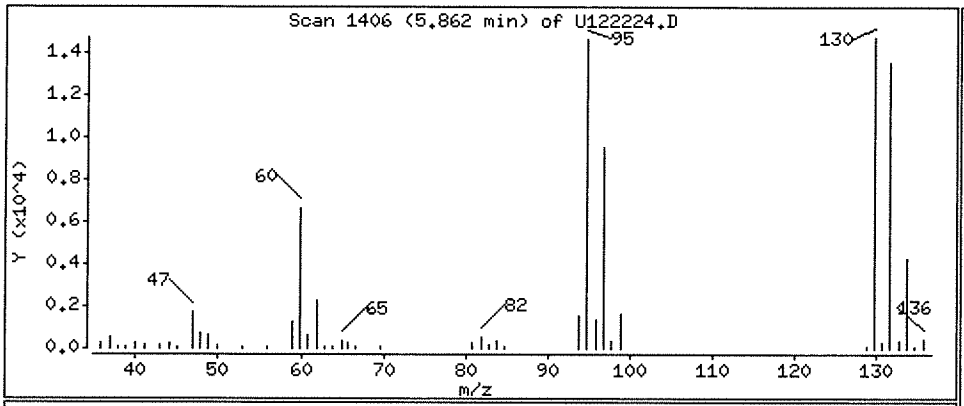
Operator: PC

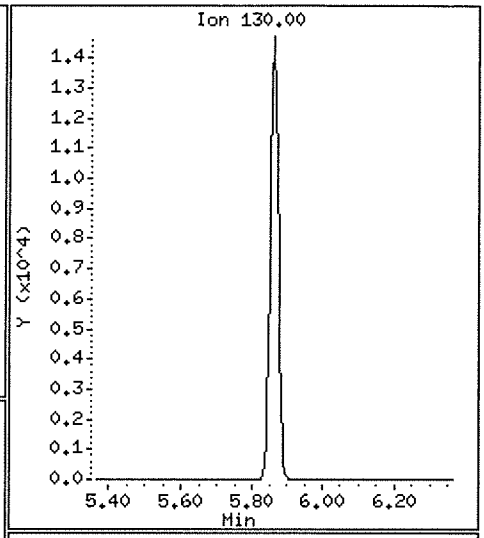
Column phase: DB624

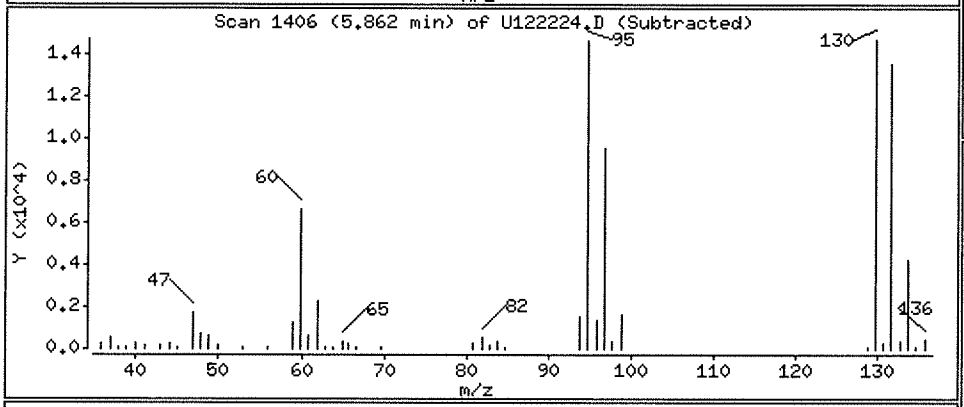
Column diameter: 0.18

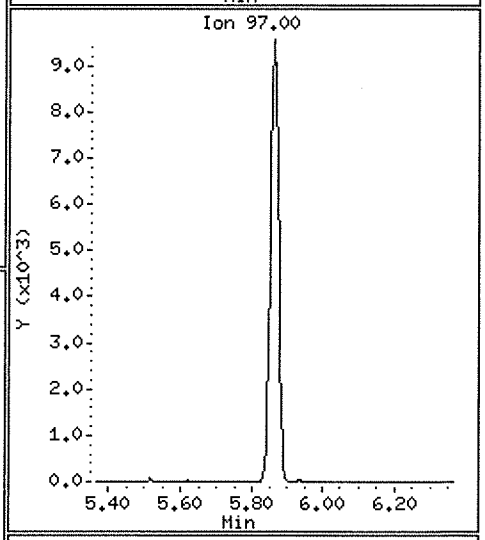
38 Trichloroethene

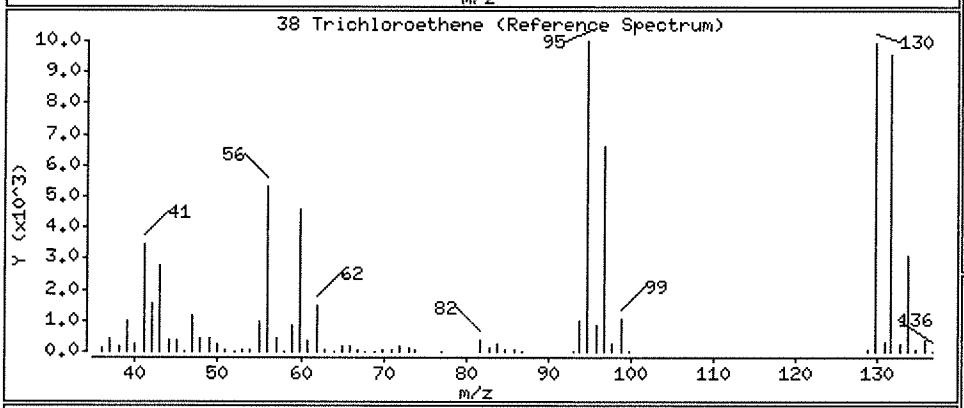
Concentration: 5.65 ug/l

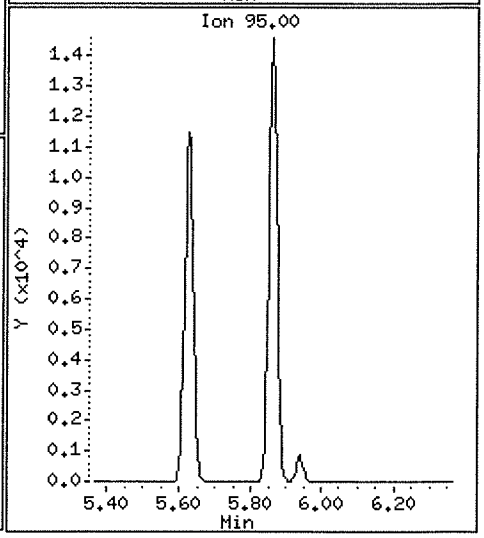


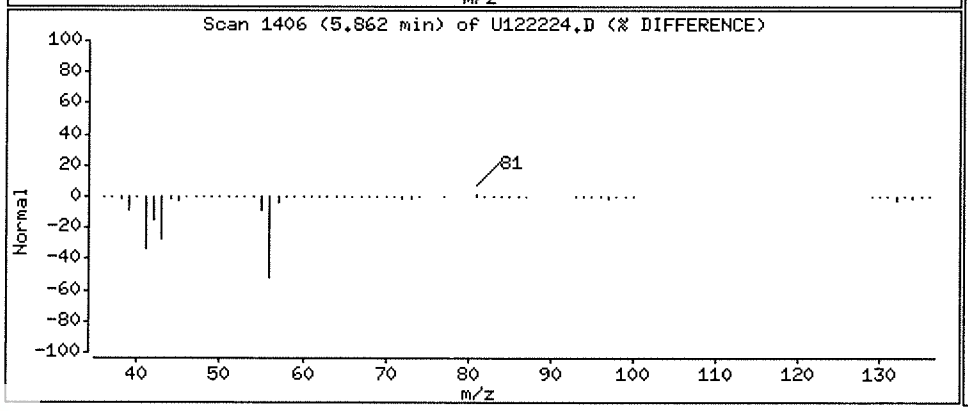



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D



Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

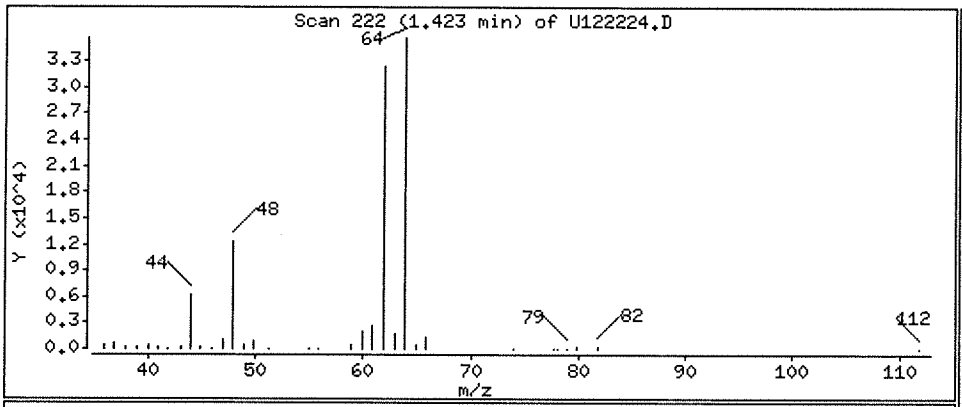
Operator: PC

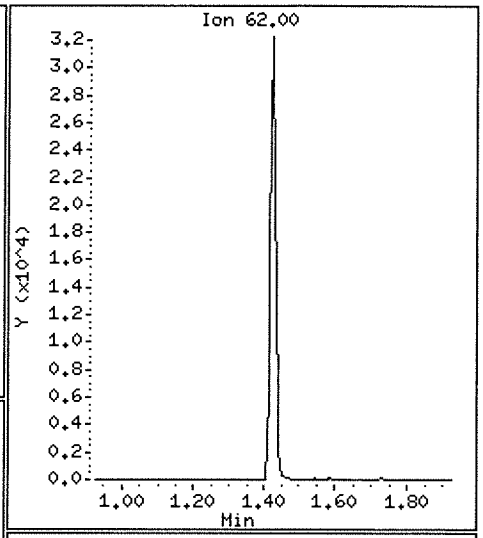
Column phase: DB624

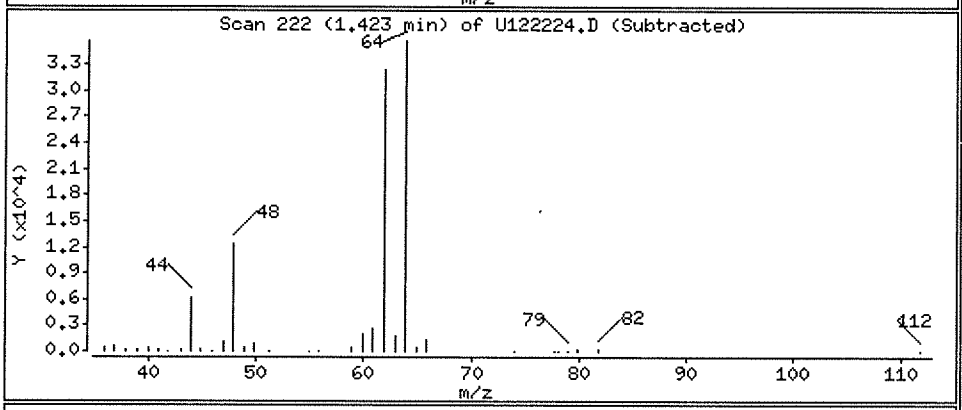
Column diameter: 0.18

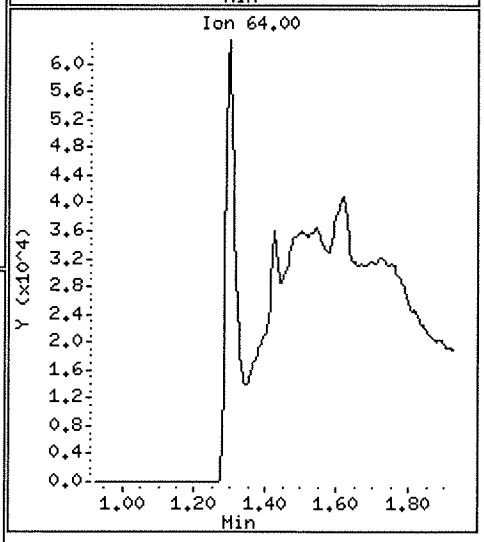
5 Vinyl Chloride

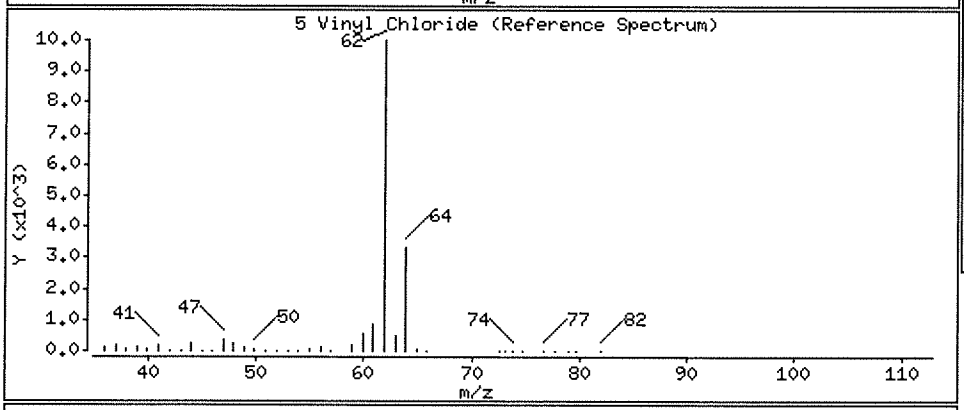
Concentration: 7.55 ug/l

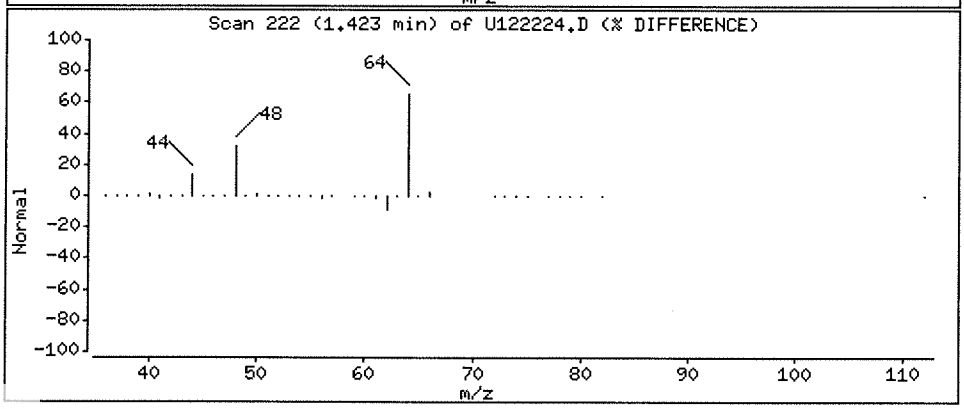


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122225.D Page 1
Report Date: 28-Jan-2019 14:04

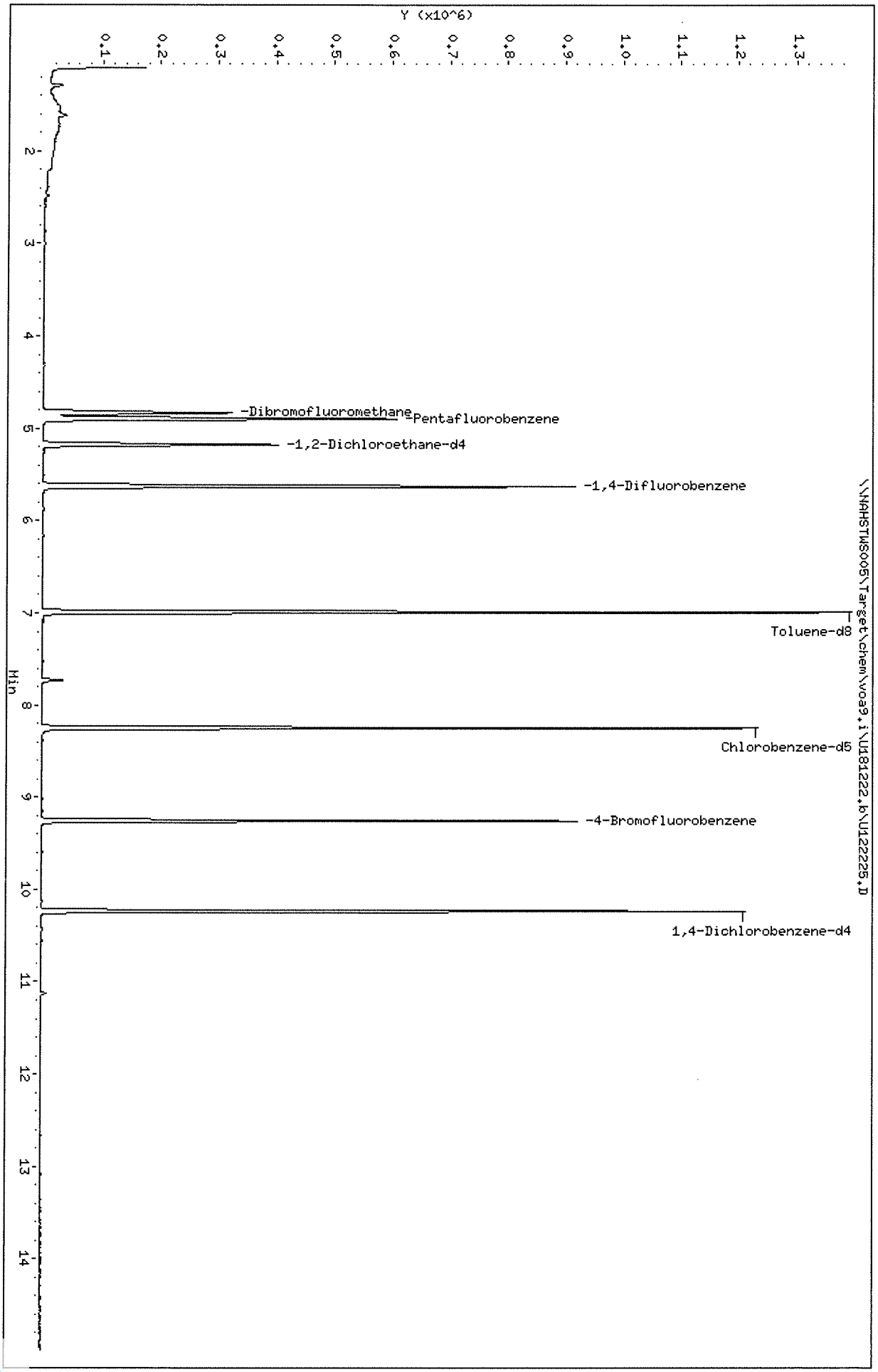
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122225.D
Lab Smp Id: HS18120736-03 Client Smp ID: HS18120736-03
Inj Date : 22-DEC-2018 20:33
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-03;HS18120736-03;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.898 | (1.000) | 369842 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 650451 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 592573 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 267846 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.987) | 189135 | 46.2310 | 46.23 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 255427 | 48.7428 | 48.74 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 799511 | 52.3305 | 52.33 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 283058 | 48.5530 | 48.55 |




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122225.D
Date : 22-DEC-2018 20:33
Client ID: HS18120736-03
Sample Info: HS18120736-03;HS18120736-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122226.D
Lab Smp Id: HS18120736-04 Client Smp ID: HS18120736-04
Inj Date : 22-DEC-2018 20:58
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-04;HS18120736-04;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

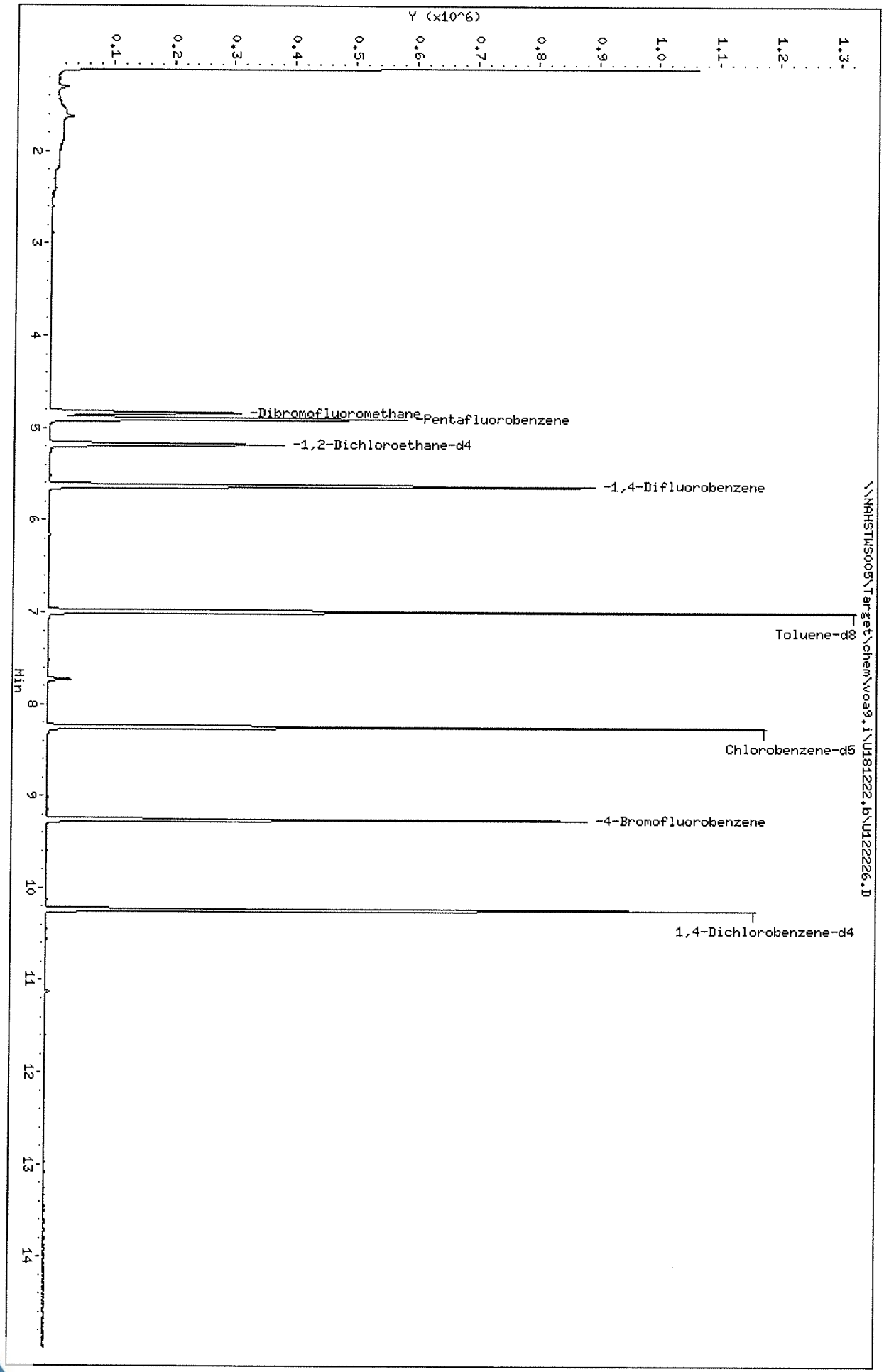
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.901 | 4.898 | (1.000) | 362538 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.629 | (1.000) | 636669 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.252 | 8.249 | (1.000) | 572649 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.236 | (1.000) | 260663 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.837 | 4.834 | (0.987) | 183482 | 45.7370 | 45.73 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.178 | 5.179 | (1.057) | 247469 | 48.1504 | 48.15 |
| $ 48 Toluene-d8 | 98 | 6.993 | 6.989 | (0.847) | 775748 | 52.5489 | 52.54 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 273759 | 48.5929 | 48.59 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122226.D
Date : 22-DEC-2018 20:58
Client ID: HS18120736-04
Sample Info: HS18120736-04;HS18120736-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122228.D Page 1
Report Date: 28-Jan-2019 13:53

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122228.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 22-DEC-2018 21:47
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:53 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

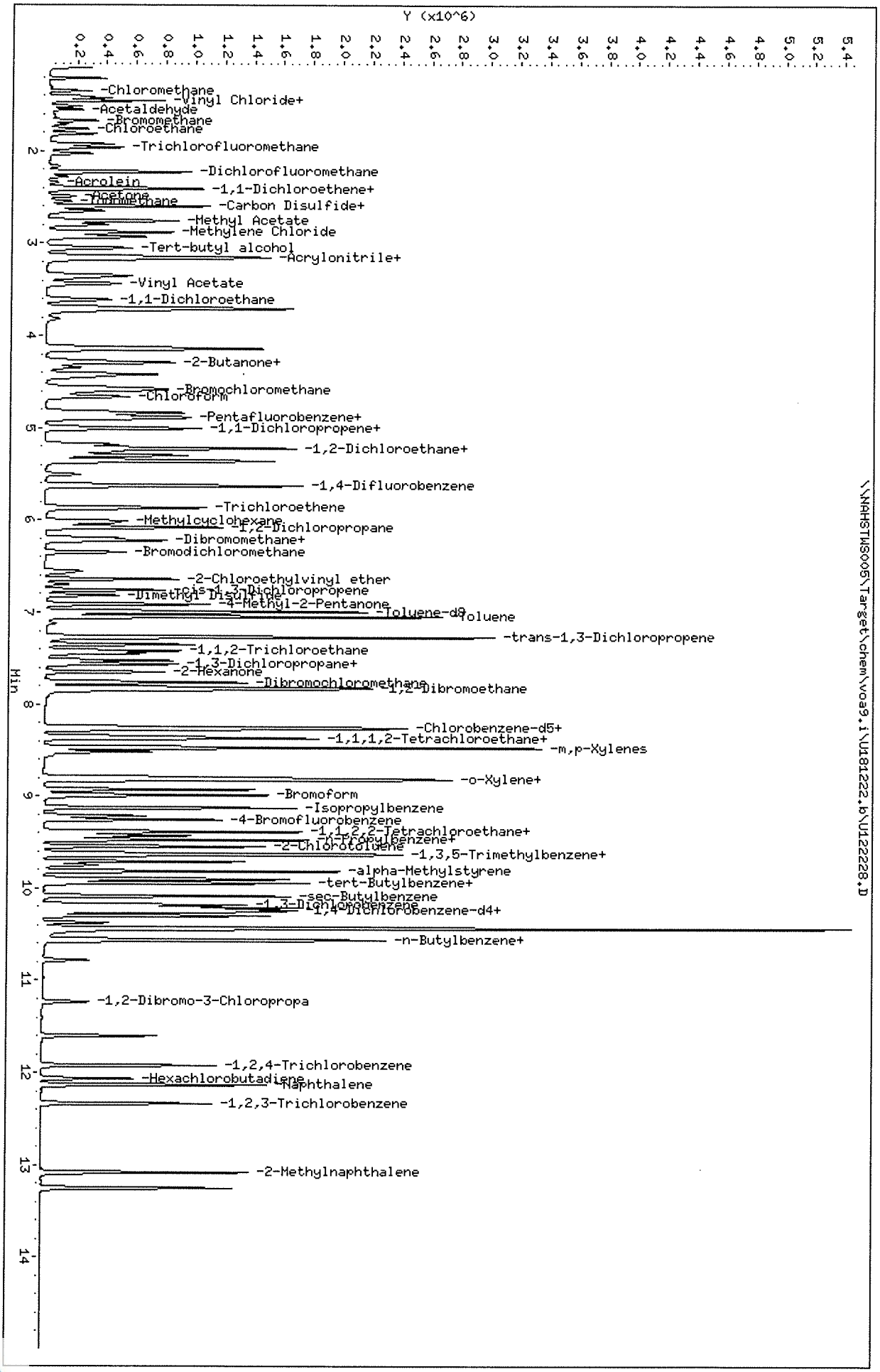
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 416371 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 780134 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 715426 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 339732 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 237075 | 50.0000 | 51.64 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 309484 | 50.0000 | 52.62 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 965100 | 50.0000 | 52.32 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 364618 | 50.0000 | 51.89 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 219927 | 50.0000 | 48.46 |
| 31 1,1,1-Trichloroethane | 97 | 4.834 | 4.834 | (0.987) | 331166 | 50.0000 | 50.37 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 389319 | 50.0000 | 50.88 |
| 138 Freon TF | 101 | 2.408 | 2.408 | (0.492) | 161787 | 50.0000 | 45.70 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 218163 | 50.0000 | 51.18 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 443756 | 50.0000 | 49.48 |
| 11 1,1-Dichloroethene | 96 | 2.408 | 2.408 | (0.492) | 190373 | 50.0000 | 48.08 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 331978 | 50.0000 | 47.82 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 307435 | 50.0000 | 48.04 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 417160 | 50.0000 | 52.43 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 311238 | 50.0000 | 49.48 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 898906 | 50.0000 | 50.56 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 56973 | 50.0000 | 48.34 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 257294 | 50.0000 | 52.40 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122228.D Page 2
Report Date: 28-Jan-2019 13:53

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 492900 | 50.0000 | 48.86 |
| 33 | 1,2-Dichloroethane | 62 | 5.257 | 5.257 | (0.934) | 362752 | 50.0000 | 51.63 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 273767 | 50.0000 | 49.66 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 854477 | 50.0000 | 50.04 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 488895 | 50.0000 | 48.46 |
| 54 | 1,3-Dichloropropane | 76 | 7.567 | 7.567 | (0.917) | 469449 | 50.0000 | 51.13 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 504246 | 50.0000 | 47.40 |
| 26 | 2,2-Dichloropropane | 77 | 4.283 | 4.283 | (0.874) | 219604 | 50.0000 | 40.63 |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 288314 | 100.000 | 106.02 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 773924 | 50.0000 | 49.44 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 442483 | 100.000 | 111.22 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 901004 | 50.0000 | 49.81 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 884883 | 50.0000 | 49.22 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 617637 | 100.000 | 107.90 |
| 10 | Acetone | 43 | 2.491 | 2.491 | (0.509) | 204255 | 100.000 | 126.43 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 1031023 | 50.0000 | 49.66 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 263528 | 50.0000 | 50.20 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.560 | (0.931) | 124861 | 50.0000 | 57.65 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 305824 | 50.0000 | 52.17 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 145967 | 50.0000 | 47.62(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 82137 | 50.0000 | 32.42 |
| 19 | Carbon Disulfide | 76 | 2.600 | 2.600 | (0.531) | 1403910 | 100.000 | 97.32 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 257630 | 50.0000 | 45.53 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 676298 | 50.0000 | 49.19 |
| 7 | Chloroethane | 64 | 1.760 | 1.760 | (0.359) | 176038 | 50.0000 | 47.73(M) |
| 28 | Chloroform | 83 | 4.661 | 4.661 | (0.952) | 431359 | 50.0000 | 49.95 |
| 3 | Chloromethane | 50 | 1.348 | 1.348 | (0.275) | 180437 | 50.0000 | 41.40 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.877) | 273983 | 50.0000 | 50.06 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 411742 | 50.0000 | 46.31 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 233359 | 50.0000 | 49.64 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.100) | 164030 | 50.0000 | 51.55 |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.213 | (0.248) | 229811 | 50.0000 | 44.90 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 345442 | 50.0000 | 48.99 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 101233 | 50.0000 | 42.00 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1007522 | 50.0000 | 49.52 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 859119 | 100.000 | 99.12 |
| 17 | Methylene Chloride | 84 | 2.881 | 2.881 | (0.588) | 264368 | 50.0000 | 51.40 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 813354 | 50.0000 | 46.88 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1254246 | 50.0000 | 49.40 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 1038388 | 50.0000 | 50.19 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 439054 | 50.0000 | 50.21 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1042477 | 50.0000 | 48.86 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 768018 | 50.0000 | 52.86 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 723133 | 50.0000 | 49.00 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 168532 | 50.0000 | 44.99 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 1067632 | 50.0000 | 50.16 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.151 | 3.151 | (0.643) | 239687 | 50.0000 | 49.17 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 352963 | 50.0000 | 46.19 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 240967 | 50.0000 | 48.08 |
| 8 | Trichlorofluoromethane | 101 | 1.962 | 1.962 | (0.401) | 331792 | 50.0000 | 48.36 |
| 5 | Vinyl Chloride | 62 | 1.426 | 1.426 | (0.291) | 272121 | 50.0000 | 46.28 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

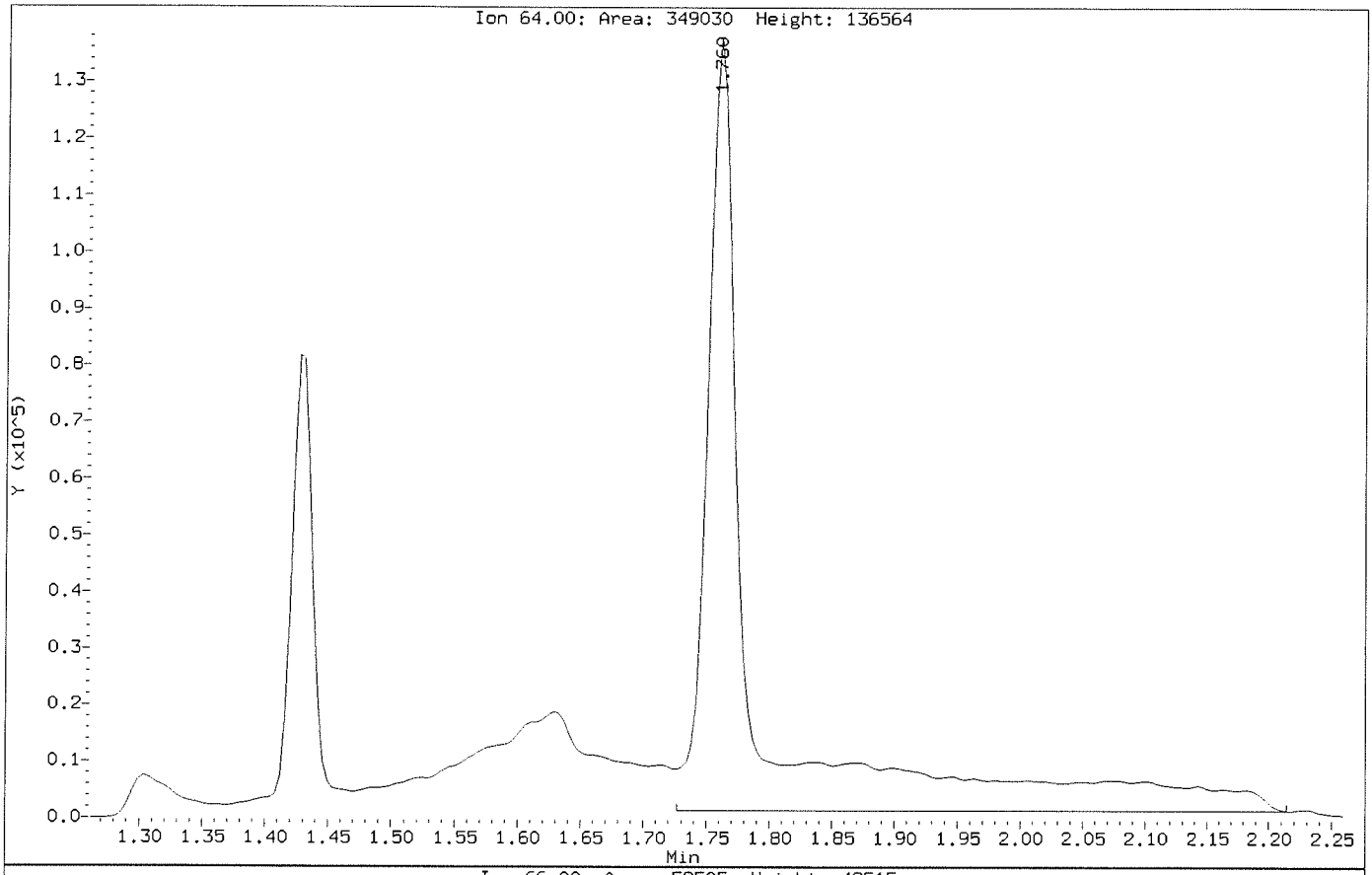


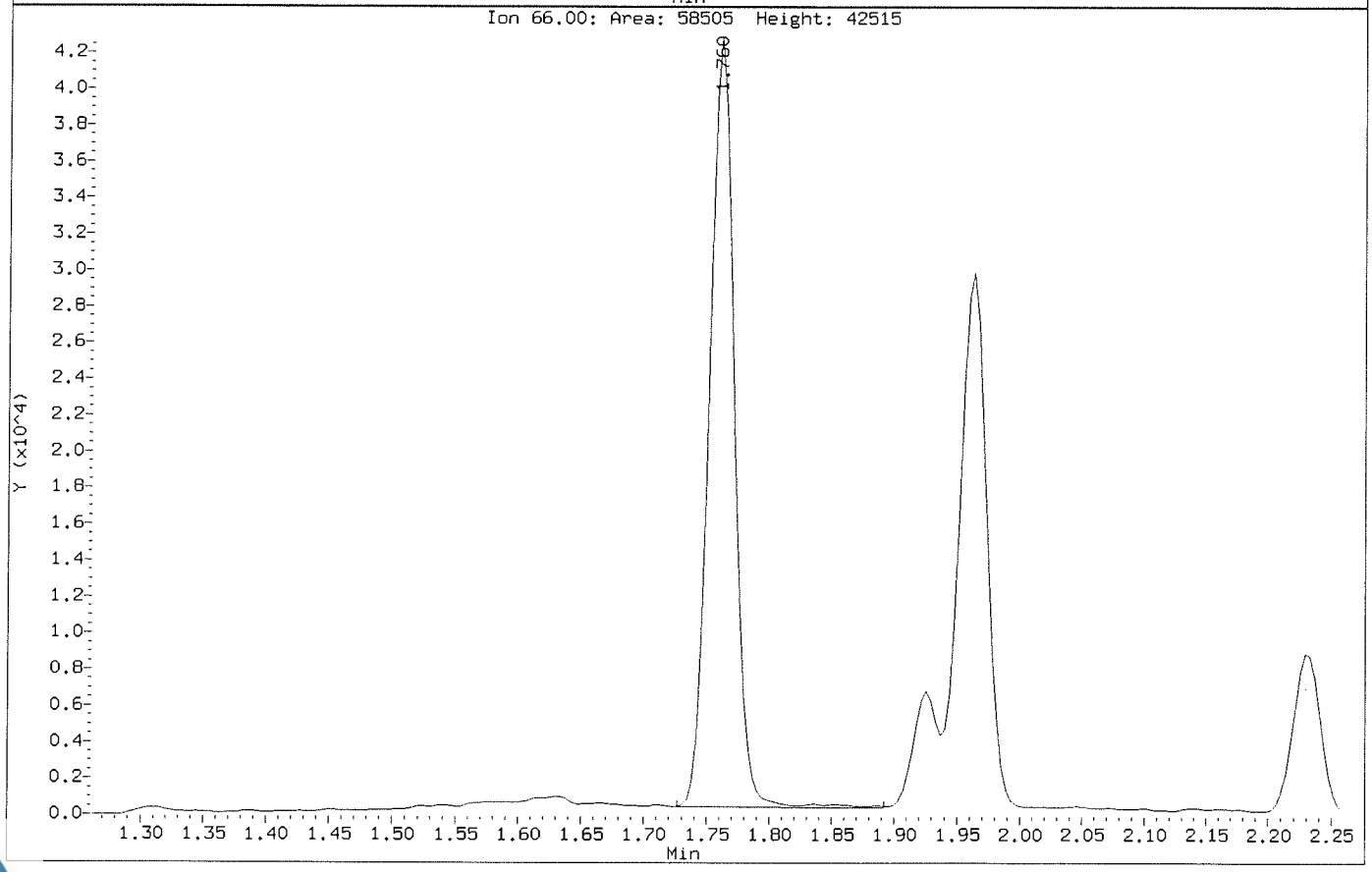

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122228,D
Date : 22-DEC-2018 21:47
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122228.D
Injection Date: 22-DEC-2018 21:47
Instrument: VOA9.i
Client Sample ID: VSTD050-END

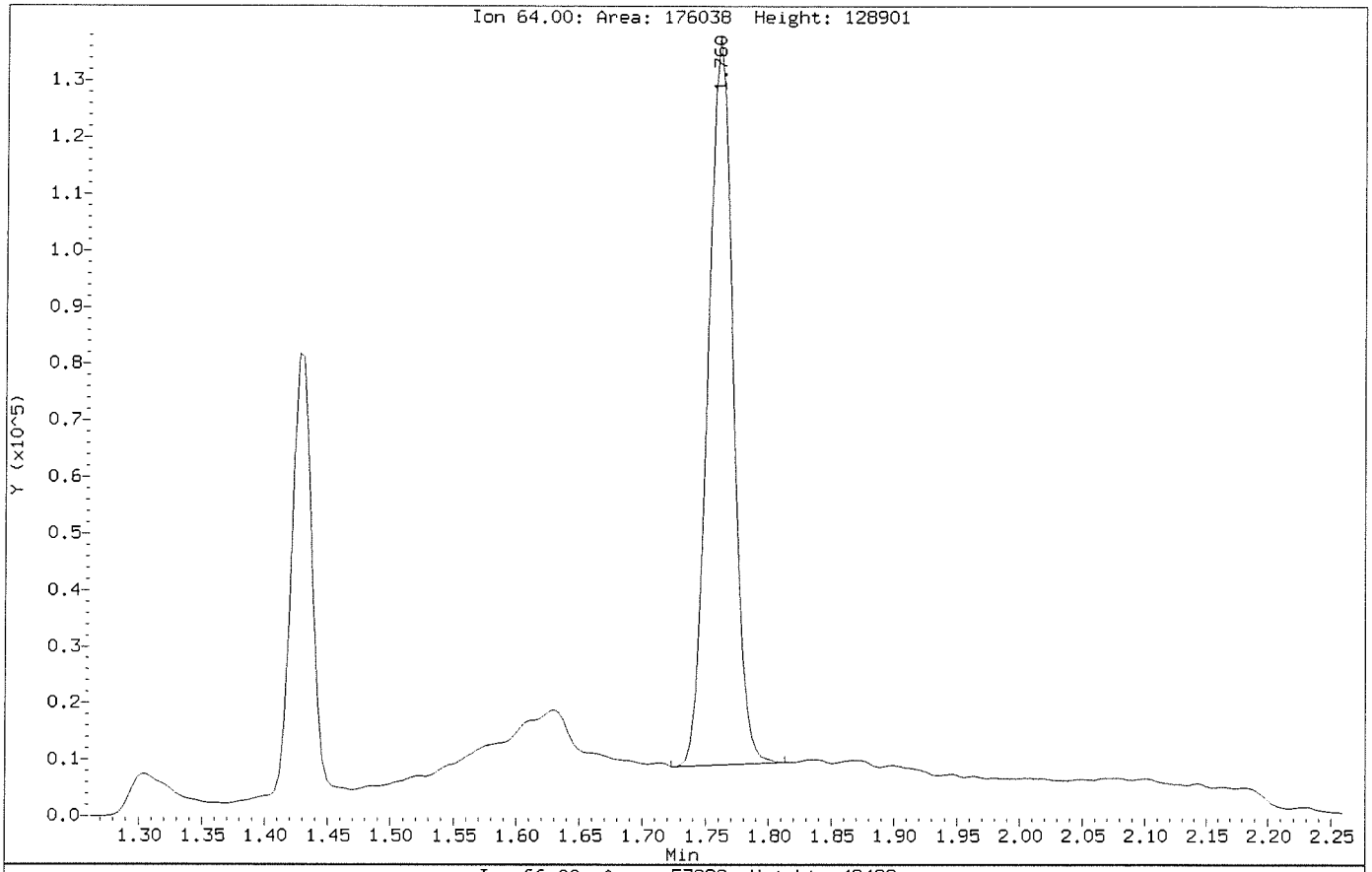
Compound: Chloroethane
CAS Number: 75-00-3

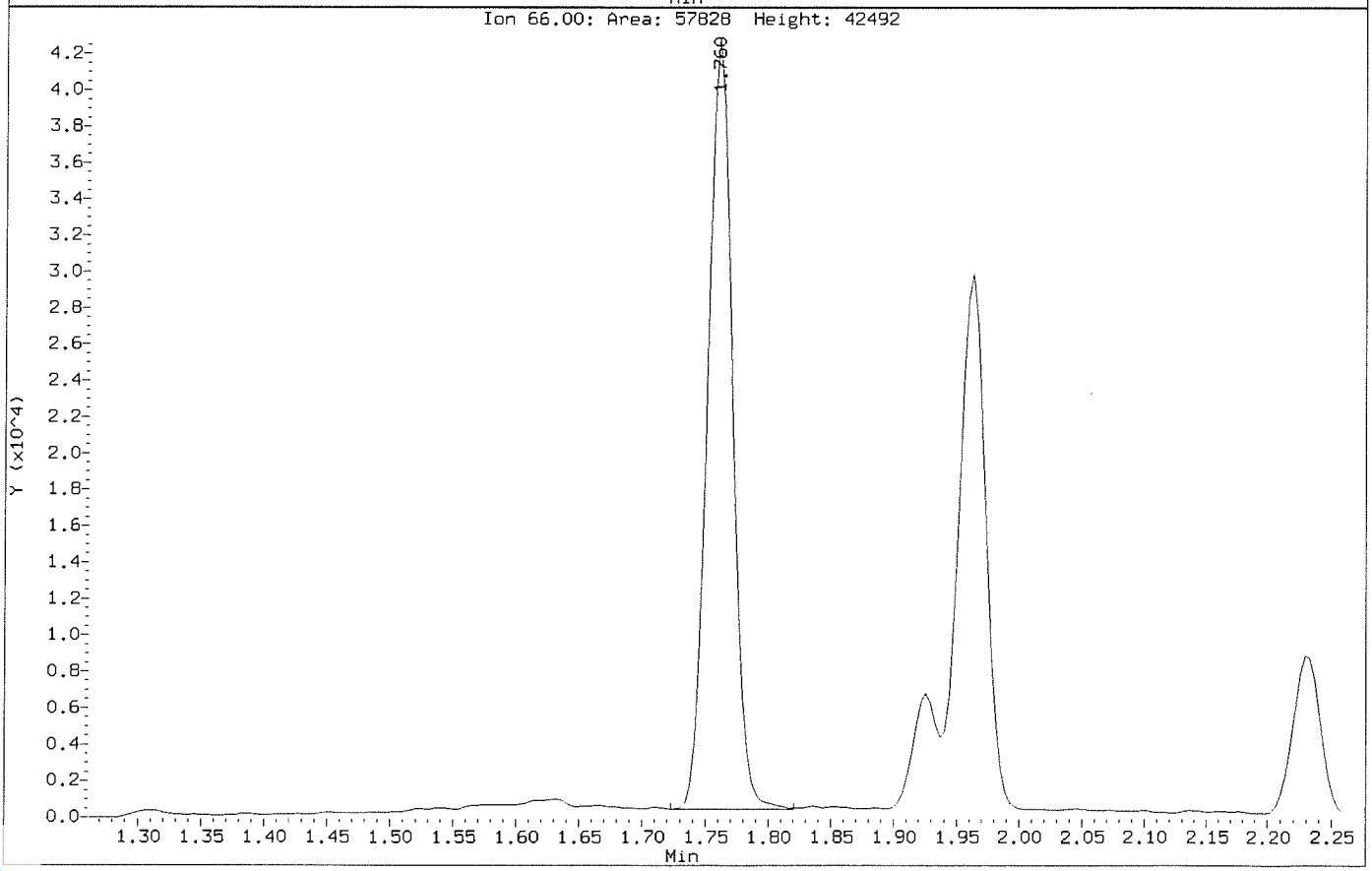


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122228.D
Injection Date: 22-DEC-2018 21:47
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3



# MSVOA09 -Logbook

**Batch:** 34004
**Date:** 12-24-2018
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 12-24-2018 09:28 am | 1.00 | 50 mL | 50 mL | U122401.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD050 | CCV | 12-24-2018 09:52 am | 1.00 | 50 mL | 50 mL | U122402.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | VLCSW-1812024 | LCS | 12-24-2018 10:17 am | 1.00 | 50 mL | 50 mL | U122403.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 4 | BLANK | SAMP | 12-24-2018 10:41 am | 1.00 | 50 mL | 50 mL | U122404.D | Liquid | Y | NA |
| 5 | VBLKW-181224 | MBLK | 12-24-2018 11:06 am | 1.00 | 50 mL | 50 mL | U122405.D | Liquid | Y | NA |
| 6 | HS18120736-09 | SAMP | 12-24-2018 11:31 am | 1.00 | 50 mL | 50 mL | U122406.D | Liquid | Y | <2 |
| 7 | HS18120913-03 | SAMP | 12-24-2018 11:55 am | 1.00 | 50 mL | 50 mL | U122407.D | Liquid | Y | <2 |
| 8 | HS18120736-05 | SAMP | 12-24-2018 12:20 pm | 1.00 | 50 mL | 50 mL | U122408.D | Liquid | Y | <2 |
| 9 | HS18120736-06 | SAMP | 12-24-2018 12:45 pm | 1.00 | 50 mL | 50 mL | U122409.D | Liquid | Y | <2 |
| 10 | HS18120736-07 | SAMP | 12-24-2018 01:10 pm | 1.00 | 50 mL | 50 mL | U122410.D | Liquid | Y | <2 |
| 11 | HS18121093-02 | SAMP | 12-24-2018 01:35 pm | 1.00 | 50 mL | 50 mL | U122411.D | Liquid | Y | <2 |
| 12 | HS18120913-01 | SAMP | 12-24-2018 01:59 pm | 1.00 | 50 mL | 50 mL | U122412.D | Liquid | Y | <2 |
| 13 | HS18120913-02 | SAMP | 12-24-2018 02:24 pm | 1.00 | 50 mL | 50 mL | U122413.D | Liquid | Y | <2 |
| 14 | HS18121093-01 | SAMP | 12-24-2018 02:49 pm | 5.00 | 10 mL | 50 mL | U122414.D | Liquid | Y | <2 |
| 15 | HS18120913-03MS | MS | 12-24-2018 03:14 pm | 1.00 | 50 mL | 50 mL | U122415.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 16 | HS18120913-03MSD | MSD | 12-24-2018 03:39 pm | 1.00 | 50 mL | 50 mL | U122416.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 17 | HS18121093-01 | SAMP | 12-24-2018 04:03 pm | 50.00 | 1 mL | 50 mL | U122417.D | Liquid | Y | <2 |
| 18 | HS18120913-08 | SAMP | 12-24-2018 04:28 pm | 1.00 | 50 mL | 50 mL | U122418.D | Liquid | Y | <2 |
| 19 | HS18121030-05 | SAMP | 12-24-2018 04:53 pm | 1.00 | 50 mL | 50 mL | U122419.D | Liquid | Y | <2 |
| 20 | HS18120913-04 | SAMP | 12-24-2018 05:18 pm | 1.00 | 50 mL | 50 mL | U122420.D | Liquid | Y | <2 |
| 21 | HS18120913-05 | SAMP | 12-24-2018 05:43 pm | 1.00 | 50 mL | 50 mL | U122421.D | Liquid | Y | <2 |
| 22 | HS18120913-06 | SAMP | 12-24-2018 06:08 pm | 1.00 | 50 mL | 50 mL | U122422.D | Liquid | Y | <2 |
| 23 | HS18120913-07 | SAMP | 12-24-2018 06:32 pm | 1.00 | 50 mL | 50 mL | U122423.D | Liquid | Y | <2 |
| 24 | HS18121030-01 | SAMP | 12-24-2018 06:57 pm | 1.00 | 50 mL | 50 mL | U122424.D | Liquid | Y | <2 |
| 25 | HS18121030-02 | SAMP | 12-24-2018 07:22 pm | 1.00 | 50 mL | 50 mL | U122425.D | Liquid | Y | <2 |
| 26 | HS18121030-03 | SAMP | 12-24-2018 07:47 pm | 1.00 | 50 mL | 50 mL | U122426.D | Liquid | Y | <2 |
| 27 | HS18121030-04 | SAMP | 12-24-2018 08:12 pm | 1.00 | 50 mL | 50 mL | U122427.D | Liquid | Y | <2 |
| 28 | VSTD050-END | CCV | 12-24-2018 08:37 pm | 1.00 | 50 mL | 50 mL | U122428.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 29 | BFB | TUNE | 12-24-2018 09:01 pm | 1.00 | 50 mL | 50 mL | V122401.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 30 | VSTD050 | CCV | 12-24-2018 09:26 pm | 1.00 | 50 mL | 50 mL | V122402.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 31 | BLANK | SAMP | 12-24-2018 09:51 pm | 1.00 | 50 mL | 50 mL | V122403.D | Liquid | Y | NA |
| 32 | CCB | SAMP | 12-24-2018 10:16 pm | 1.00 | 50 mL | 50 mL | V122404.D | Liquid | Y | NA |
| | *CCB* | | | | | | | | | |
| 33 | VLCSW-1812024 | LCS | 12-24-2018 10:40 pm | 1.00 | 50 mL | 50 mL | V122405.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 34 | BLANK | SAMP | 12-24-2018 11:05 pm | 1.00 | 50 mL | 50 mL | V122406.D | Liquid | Y | NA |
| 35 | VBLKW-181224 | MBLK | 12-24-2018 11:30 pm | 1.00 | 50 mL | 50 mL | V122407.D | Liquid | Y | NA |
| 36 | HS18120845-05 | SAMP | 12-24-2018 11:55 pm | 1.00 | 50 mL | 50 mL | V122408.D | Liquid | Y | <2 |

# MSVOA09 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 37 | HS18120845-06 | SAMP | 12-25-2018 12:20 am | 1.00 | 50 mL | 50 mL | V122409.D | Liquid | Y | <2 |
| 38 | HS18121097-07 | SAMP | 12-25-2018 12:45 am | 1.00 | 50 mL | 50 mL | V122410.D | Liquid | Y | <2 |
| 39 | HS18121097-08 | SAMP | 12-25-2018 01:09 am | 1.00 | 50 mL | 50 mL | V122411.D | Liquid | Y | <2 |
| 40 | HS18121097-09 | SAMP | 12-25-2018 01:34 am | 1.00 | 50 mL | 50 mL | V122412.D | Liquid | Y | <2 |
| 41 | HS18121098-01 | SAMP | 12-25-2018 01:59 am | 1.00 | 50 mL | 50 mL | V122413.D | Liquid | Y | <2 |
| 42 | HS18121098-02 | SAMP | 12-25-2018 02:24 am | 1.00 | 50 mL | 50 mL | V122414.D | Liquid | Y | <2 |
| 43 | HS18121098-08 | SAMP | 12-25-2018 02:49 am | 1.00 | 50 mL | 50 mL | V122415.D | Liquid | Y | <2 |
| 44 | HS18121098-03 | SAMP | 12-25-2018 03:14 am | 1.00 | 50 mL | 50 mL | V122416.D | Liquid | Y | <2 |
| 45 | HS18121098-03MS | MS | 12-25-2018 03:38 am | 1.00 | 50 mL | 50 mL | V122417.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 46 | HS18121098-03MSD | MSD | 12-25-2018 04:03 am | 1.00 | 50 mL | 50 mL | V122418.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 47 | HS18121068-09 | SAMP | 12-25-2018 04:28 am | 1.00 | 50 mL | 50 mL | V122419.D | Liquid | Y | <2 |
| 48 | HS18121097-01 | SAMP | 12-25-2018 04:53 am | 1.00 | 50 mL | 50 mL | V122420.D | Liquid | Y | <2 |
| 49 | HS18121097-02 | SAMP | 12-25-2018 05:18 am | 1.00 | 50 mL | 50 mL | V122421.D | Liquid | Y | <2 |
| 50 | HS18121097-03 | SAMP | 12-25-2018 05:43 am | 1.00 | 50 mL | 50 mL | V122422.D | Liquid | Y | <2 |
| 51 | HS18121097-04 | SAMP | 12-25-2018 06:07 am | 1.00 | 50 mL | 50 mL | V122423.D | Liquid | Y | <2 |
| 52 | HS18121097-05 | SAMP | 12-25-2018 06:32 am | 1.00 | 50 mL | 50 mL | V122424.D | Liquid | Y | <2 |
| 53 | HS18121097-06 | SAMP | 12-25-2018 06:57 am | 1.00 | 50 mL | 50 mL | V122425.D | Liquid | Y | <2 |
| 54 | HS18121098-04 | SAMP | 12-25-2018 07:22 am | 1.00 | 50 mL | 50 mL | V122426.D | Liquid | Y | <2 |
| 55 | HS18121098-05 | SAMP | 12-25-2018 07:47 am | 1.00 | 50 mL | 50 mL | V122427.D | Liquid | Y | <2 |
| 56 | HS18121098-06 | SAMP | 12-25-2018 08:11 am | 1.00 | 50 mL | 50 mL | V122428.D | Liquid | Y | <2 |
| 57 | HS18121098-07 | SAMP | 12-25-2018 08:36 am | 1.00 | 50 mL | 50 mL | V122429.D | Liquid | Y | <2 |

| Chemical | Value |
|---|---|
| SURR SPK ID | 30502-52-03 |
| IS ID | 30502-52-04 |
| ICV STD ID | 30603-46-01 |
| LCS/MS ID | 30603-46-01 |
| CAL STD ID | 30502-57-01/02 |
| BFB ID | 30502-52-03 |

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

| | CLIENT SAMPLE NO. | SMC1 (DCE)# | SMC2 # | SMC3 (TOL)# | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-181224 | 104 | 102 | 102 | 104 | 0 |
| 02 | VBLKW-181224 | 95 | 89 | 104 | 96 | 0 |
| 03 | HS18120736-0 | 96 | 90 | 106 | 99 | 0 |
| 04 | HS18120736-0 | 97 | 90 | 105 | 98 | 0 |
| 05 | HS18120736-0 | 96 | 91 | 106 | 99 | 0 |
| 06 | HS18120736-0 | 96 | 90 | 106 | 98 | 0 |
| 07 | HS18120913-0 | 94 | 91 | 106 | 103 | 0 |
| 08 | HS18120913-0 | 95 | 92 | 106 | 104 | 0 |
| 09 | | | | | | |
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| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | ( 0-130) |
| SMC2 | = Dibromofluoromethane | ( 0-130) |
| SMC3 (TOL) | = Toluene-d8 | ( 0-130) |
| OTHER | = 4-Bromofluorobenzene | ( 0-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181224

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID: U122405 Lab Sample ID: VBLKW-181224

Date Analyzed: 12/24/18 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

| | SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VLCSW-181224 | VLCSW-1812024 | U122403 | 1017 |
| 02 | HS18120736-0 | HS18120736-09 | U122406 | 1131 |
| 03 | HS18120736-0 | HS18120736-05 | U122408 | 1220 |
| 04 | HS18120736-0 | HS18120736-06 | U122409 | 1245 |
| 05 | HS18120736-0 | HS18120736-07 | U122410 | 1310 |
| 06 | HS18120913-0 | HS18120913-03M | U122415 | 1514 |
| 07 | HS18120913-0 | HS18120913-03M | U122416 | 1539 |
| 08 | | | | |
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COMMENTS:

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Lab File ID: U122401  BFB Injection Date: 12/24/18

Instrument ID: VOA9  BFB Injection Time: 0928

GC Column: DB624  ID: 0.25 (mm)  Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 19.5 |
| 75 | 30.0 - 60.0% of mass 95 | 50.9 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.1 |
| 173 | Less than 2.0% of mass 174 | 0.7 ( 1.0)1 |
| 174 | Greater than 50.0% of mass 95 | 66.6 |
| 175 | 5.0 - 9.0% of mass 174 | 4.9 ( 7.4)1 |
| 176 | 95.0 - 101.0% of mass 174 | 64.4 ( 96.7)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.4 ( 6.8)2 |

1-Value is % mass 174  2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 | U122402 | 12/24/18 | 0952 |
| 02 | VLCSW-181224 | VLCSW-1812024 | U122403 | 12/24/18 | 1017 |
| 03 | VBLKW-181224 | VBLKW-181224 | U122405 | 12/24/18 | 1106 |
| 04 | HS18120736-0 | HS18120736-09 | U122406 | 12/24/18 | 1131 |
| 05 | HS18120736-0 | HS18120736-05 | U122408 | 12/24/18 | 1220 |
| 06 | HS18120736-0 | HS18120736-06 | U122409 | 12/24/18 | 1245 |
| 07 | HS18120736-0 | HS18120736-07 | U122410 | 12/24/18 | 1310 |
| 08 | HS18120913-0 | HS18120913-03M | U122415 | 12/24/18 | 1514 |
| 09 | HS18120913-0 | HS18120913-03M | U122416 | 12/24/18 | 1539 |
| 10 | VSTD050-END | VSTD050-END | U122428 | 12/24/18 | 2037 |
| 11 | | | | | |
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FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 0952

Lab File ID: U122402  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times:  1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE | |
|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 46.969001 | 50.000000 | 0.5381928 | 0.2 | 6.06 | 20.00 | LINR | |
| trans-1,3-Dichloropropene | 46.115718 | 50.000000 | 0.4606842 | 0.1 | 7.77 | 20.00 | LINR | |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4492226 | 1.4492226 | 0.6 | 2.41 | 20.00 | AVRG | |
| 2,2-Dichloropropane | 0.6490000 | 0.5663916 | 0.5663916 | 0.1 | 12.73 | 20.00 | AVRG | |
| 1,1-Dichloropropene | 0.4450000 | 0.4256150 | 0.4256150 | 0.1 | 4.36 | 20.00 | AVRG | |
| Dibromomethane | 0.2040000 | 0.2144626 | 0.2144626 | 0.1 | -5.13 | 20.00 | AVRG | |
| 1,2-Dibromoethane | 0.3430000 | 0.3597016 | 0.3597016 | 0.1 | -4.87 | 20.00 | AVRG | |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5850593 | 0.5850593 | 0.1 | -0.01 | 20.00 | AVRG | |
| 1,1,1,2-Tetrachloroethane | 46.940910 | 50.000000 | 0.3043937 | 0.1 | 6.12 | 20.00 | LINR | |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7935465 | 0.7935465 | 0.1 | -0.58 | 20.00 | AVRG | |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1917002 | 1.1917002 | 0.3 | -5.83 | 20.00 | AVRG | |
| Freon TF | 0.4250000 | 0.3989719 | 0.3989719 | 0.1 | 6.12 | 20.00 | AVRG | |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3097296 | 0.3097296 | 0.1 | -3.94 | 20.00 | AVRG | |
| 1,1-Dichloroethane | 1.0770000 | 1.0983183 | 1.0983183 | 0.2 | -1.98 | 20.00 | AVRG | |
| 1,1-Dichloroethene | 0.4750000 | 0.4595711 | 0.4595711 | 0.1 | 3.25 | 20.00 | AVRG | |
| Trichlorofluoromethane | 44.085746 | 50.000000 | 0.7886797 | 0.1 | 11.83 | 20.00 | LINR | |
| 1,2,3-Trichlorobenzene | 43.749299 | 50.000000 | 0.9004990 | 0.1 | 12.50 | 20.00 | LINR | |
| Toluene | 1.4870000 | 1.4890724 | 1.4890724 | 0.4 | -0.14 | 20.00 | AVRG | |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9128821 | 0.9128821 | 0.2 | 1.42 | 20.00 | AVRG | |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6703840 | 2.6703840 | 0.1 | -2.08 | 20.00 | AVRG | |
| Tetrachloroethene | 0.2620000 | 0.2343416 | 0.2343416 | 0.2 | 10.56 | 20.00 | AVRG | |
| Trichloroethene | 0.3210000 | 0.3111153 | 0.3111153 | 0.2 | 3.08 | 20.00 | AVRG | |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4720949 | 1.4720949 | 0.4 | 0.80 | 20.00 | AVRG | |
| 1,2-Dichloroethane | 49.720294 | 50.000000 | 0.4762008 | 0.1 | 0.56 | 20.00 | LINR | |
| 1,2-Dichloropropane | 0.3530000 | 0.3595027 | 0.3595027 | 0.1 | -1.84 | 20.00 | AVRG | |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5708391 | 2.5708391 | 0.1 | -2.30 | 20.00 | AVRG | |
| 1,3-Dichloropropane | 0.6410000 | 0.6628423 | 0.6628423 | 0.1 | -3.41 | 20.00 | AVRG | |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4828544 | 1.4828544 | 0.4 | 5.31 | 20.00 | AVRG | |
| 2-Butanone | 87.524774 | 100.00000 | 0.3885447 | 0.1 | 12.48 | 20.00 | LINR | |
| 2-Chlorotoluene | 2.3040000 | 2.2915781 | 2.2915781 | 0.1 | 0.54 | 20.00 | AVRG | |
| 2-Hexanone | 0.2780000 | 0.3355379 | 0.3355379 | 0.1 | -20.70 | 20.00 | AVRG | <- |
| 4-Chlorotoluene | 2.6620000 | 2.6823399 | 2.6823399 | 0.1 | -0.76 | 20.00 | AVRG | |
| tert-Butylbenzene | 2.1720000 | 2.1680208 | 2.1680208 | 0.1 | 0.18 | 20.00 | AVRG | |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4671265 | 0.4671265 | 0.1 | -16.78 | 20.00 | AVRG | |
| Acetone | 88.945078 | 100.00000 | 0.2567717 | 0.1 | 11.05 | 20.00 | LINR | |
| Benzene | 1.3300000 | 1.3327330 | 1.3327330 | 0.5 | -0.20 | 20.00 | AVRG | |
| Bromobenzene | 0.7730000 | 0.7689868 | 0.7689868 | 0.1 | 0.52 | 20.00 | AVRG | |
| Bromochloromethane | 54.738270 | 50.000000 | 0.2995106 | 0.1 | -9.48 | 20.00 | LINR | |
| Bromodichloromethane | 0.3760000 | 0.3919790 | 0.3919790 | 0.2 | -4.25 | 20.00 | AVRG | |
| Bromoform | 43.625632 | 50.000000 | 0.2006203 | 0.1 | 12.75 | 20.00 | LINR | |
| Bromomethane | 48.433994 | 50.000000 | 0.3215455 | 0.1 | 3.13 | 20.00 | LINR | |
| Carbon Disulfide | 1.7320000 | 1.6738989 | 1.6738989 | 0.1 | 3.35 | 20.00 | AVRG | |

# FORM 7B
# VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 0952

Lab File ID: U122402  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 42.908085 | 50.000000 | 0.3206431 | 0.1 | 14.18 | 20.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9517026 | 0.9517026 | 0.5 | 0.97 | 20.00 | AVRG |
| Chloroethane | 48.651727 | 50.000000 | 0.4376382 | 0.1 | 2.70 | 20.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0750225 | 1.0750225 | 0.2 | -3.67 | 20.00 | AVRG |
| Chloromethane | 48.105273 | 50.000000 | 0.5006841 | 0.1 | 3.79 | 20.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6738882 | 0.6738882 | 0.1 | -2.57 | 20.00 | AVRG |
| Dibromochloromethane | 46.378243 | 50.000000 | 0.3131343 | 0.1 | 7.24 | 20.00 | LINR |
| Dichlorodifluoromethane | 41.832474 | 50.000000 | 0.5469699 | 0.1 | 16.34 | 20.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4907710 | 0.4907710 | 0.1 | 0.45 | 20.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.3075225 | 0.3075225 | 0.1 | 13.37 | 20.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4345733 | 1.4345733 | 0.1 | -0.88 | 20.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6065328 | 0.6065328 | 0.1 | -0.09 | 20.00 | AVRG |
| Methylene Chloride | 49.161284 | 50.000000 | 0.6598726 | 0.1 | 1.68 | 20.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.4878949 | 2.4878949 | 0.5 | 2.55 | 20.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.7675955 | 3.7675955 | 0.1 | -0.84 | 20.00 | AVRG |
| Naphthalene | 42.625569 | 50.000000 | 3.1185011 | 0.2 | 14.75 | 20.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6247110 | 0.6247110 | 0.3 | -2.24 | 20.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.1149837 | 3.1149837 | 0.1 | 0.80 | 20.00 | AVRG |
| Styrene | 1.0150000 | 1.0920948 | 1.0920948 | 0.3 | -7.60 | 20.00 | AVRG |
| Vinyl Chloride | 44.382144 | 50.000000 | 0.6938894 | 0.1 | 11.24 | 20.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2984150 | 1.2984150 | 0.1 | -10.88 | 20.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6489186 | 2.6489186 | 0.1 | -0.11 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 40.205727 | 50.000000 | 0.1753790 | 0.05 | 19.59 | 20.00 | LINR |
| 1,2-Dichloroethane-d4 | 50.883328 | 50.000000 | 0.7752248 | 0.1 | -1.77 | 20.00 | LINR |
| Dibromofluoromethane | 51.294758 | 50.000000 | 0.5865296 | 0.1 | -2.59 | 20.00 | LINR |
| Toluene-d8 | 51.601871 | 50.000000 | 1.3137645 | 0.1 | -3.20 | 20.00 | LINR |
| 4-Bromofluorobenzene | 51.802881 | 50.000000 | 0.5048850 | 0.1 | -3.60 | 20.00 | LINR |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 2037

Lab File ID: U122428  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times:  1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 47.206327 | 50.000000 | 0.5381928 | 0.2 | 5.59 | 50.00 | LINR |
| trans-1,3-Dichloropropene | 47.004802 | 50.000000 | 0.4606842 | 0.1 | 5.99 | 50.00 | LINR |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4492226 | 1.4492226 | 0.6 | 2.41 | 50.00 | AVRG |
| 2,2-Dichloropropane | 0.6490000 | 0.5663916 | 0.5663916 | 0.1 | 12.73 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.4450000 | 0.4256150 | 0.4256150 | 0.1 | 4.36 | 50.00 | AVRG |
| Dibromomethane | 0.2040000 | 0.2144626 | 0.2144626 | 0.1 | -5.13 | 50.00 | AVRG |
| 1,2-Dibromoethane | 0.3430000 | 0.3597016 | 0.3597016 | 0.1 | -4.87 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5850593 | 0.5850593 | 0.1 | -0.01 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 47.992888 | 50.000000 | 0.3043937 | 0.1 | 4.01 | 50.00 | LINR |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7935465 | 0.7935465 | 0.1 | -0.58 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1917002 | 1.1917002 | 0.3 | -5.83 | 50.00 | AVRG |
| Freon TF | 0.4250000 | 0.3989719 | 0.3989719 | 0.1 | 6.12 | 50.00 | AVRG |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3097296 | 0.3097296 | 0.1 | -3.94 | 50.00 | AVRG |
| 1,1-Dichloroethane | 1.0770000 | 1.0983183 | 1.0983183 | 0.2 | -1.98 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.4750000 | 0.4595711 | 0.4595711 | 0.1 | 3.25 | 50.00 | AVRG |
| Trichlorofluoromethane | 47.877448 | 50.000000 | 0.7886797 | 0.1 | 4.24 | 50.00 | LINR |
| 1,2,3-Trichlorobenzene | 47.815512 | 50.000000 | 0.9004990 | 0.1 | 4.37 | 50.00 | LINR |
| Toluene | 1.4870000 | 1.4890724 | 1.4890724 | 0.4 | -0.14 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9128821 | 0.9128821 | 0.2 | 1.42 | 50.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6703840 | 2.6703840 | 0.1 | -2.08 | 50.00 | AVRG |
| Tetrachloroethene | 0.2620000 | 0.2343416 | 0.2343416 | 0.2 | 10.56 | 50.00 | AVRG |
| Trichloroethene | 0.3210000 | 0.3111153 | 0.3111153 | 0.2 | 3.08 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4720949 | 1.4720949 | 0.4 | 0.80 | 50.00 | AVRG |
| 1,2-Dichloroethane | 52.896221 | 50.000000 | 0.4762008 | 0.1 | -5.79 | 50.00 | LINR |
| 1,2-Dichloropropane | 0.3530000 | 0.3595027 | 0.3595027 | 0.1 | -1.84 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5708391 | 2.5708391 | 0.1 | -2.30 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.6410000 | 0.6628423 | 0.6628423 | 0.1 | -3.41 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4828544 | 1.4828544 | 0.4 | 5.31 | 50.00 | AVRG |
| 2-Butanone | 119.28553 | 100.00000 | 0.3885447 | 0.1 | -19.28 | 50.00 | LINR |
| 2-Chlorotoluene | 2.3040000 | 2.2915781 | 2.2915781 | 0.1 | 0.54 | 50.00 | AVRG |
| 2-Hexanone | 0.2780000 | 0.3355379 | 0.3355379 | 0.1 | -20.70 | 50.00 | AVRG |
| 4-Chlorotoluene | 2.6620000 | 2.6823399 | 2.6823399 | 0.1 | -0.76 | 50.00 | AVRG |
| tert-Butylbenzene | 2.1720000 | 2.1680208 | 2.1680208 | 0.1 | 0.18 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4671265 | 0.4671265 | 0.1 | -16.78 | 50.00 | AVRG |
| Acetone | 132.50176 | 100.00000 | 0.2567717 | 0.1 | -32.50 | 50.00 | LINR |
| Benzene | 1.3300000 | 1.3327330 | 1.3327330 | 0.5 | -0.20 | 50.00 | AVRG |
| Bromobenzene | 0.7730000 | 0.7689868 | 0.7689868 | 0.1 | 0.52 | 50.00 | AVRG |
| Bromochloromethane | 57.582518 | 50.000000 | 0.2995106 | 0.1 | -15.16 | 50.00 | LINR |
| Bromodichloromethane | 0.3760000 | 0.3919790 | 0.3919790 | 0.2 | -4.25 | 50.00 | AVRG |
| Bromoform | 46.854942 | 50.000000 | 0.2006203 | 0.1 | 6.29 | 50.00 | LINR |
| Bromomethane | 52.013096 | 50.000000 | 0.3215455 | 0.1 | -4.03 | 50.00 | LINR |
| Carbon Disulfide | 1.7320000 | 1.6738989 | 1.6738989 | 0.1 | 3.35 | 50.00 | AVRG |



FORM VII VOA

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract: .

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812091

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 2037

Lab File ID: U122428  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times:  1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 44.254301 | 50.000000 | 0.3206431 | 0.1 | 11.49 | 50.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9517026 | 0.9517026 | 0.5 | 0.97 | 50.00 | AVRG |
| Chloroethane | 49.367103 | 50.000000 | 0.4376382 | 0.1 | 1.26 | 50.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0750225 | 1.0750225 | 0.2 | -3.67 | 50.00 | AVRG |
| Chloromethane | 47.318479 | 50.000000 | 0.5006841 | 0.1 | 5.36 | 50.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6738882 | 0.6738882 | 0.1 | -2.57 | 50.00 | AVRG |
| Dibromochloromethane | 47.699067 | 50.000000 | 0.3131343 | 0.1 | 4.60 | 50.00 | LINR |
| Dichlorodifluoromethane | 44.506477 | 50.000000 | 0.5469699 | 0.1 | 10.99 | 50.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4907710 | 0.4907710 | 0.1 | 0.45 | 50.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.3075225 | 0.3075225 | 0.1 | 13.37 | 50.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4345733 | 1.4345733 | 0.1 | -0.88 | 50.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6065328 | 0.6065328 | 0.1 | -0.09 | 50.00 | AVRG |
| Methylene Chloride | 53.474221 | 50.000000 | 0.6598726 | 0.1 | -6.95 | 50.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.4878949 | 2.4878949 | 0.5 | 2.55 | 50.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.7675955 | 3.7675955 | 0.1 | -0.84 | 50.00 | AVRG |
| Naphthalene | 51.209442 | 50.000000 | 3.1185011 | 0.2 | -2.42 | 50.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6247110 | 0.6247110 | 0.3 | -2.24 | 50.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.1149837 | 3.1149837 | 0.1 | 0.80 | 50.00 | AVRG |
| Styrene | 1.0150000 | 1.0920948 | 1.0920948 | 0.3 | -7.60 | 50.00 | AVRG |
| Vinyl Chloride | 49.076608 | 50.000000 | 0.6938894 | 0.1 | 1.85 | 50.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2984150 | 1.2984150 | 0.1 | -10.88 | 50.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6489186 | 2.6489186 | 0.1 | -0.11 | 50.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 50.490014 | 50.000000 | 0.1753790 | 0.05 | -0.98 | 50.00 | LINR |
| 1,2-Dichloroethane-d4 | 54.978385 | 50.000000 | 0.7752248 | 0.1 | -9.96 | 50.00 | LINR |
| Dibromofluoromethane | 53.247810 | 50.000000 | 0.5865296 | 0.1 | -6.50 | 50.00 | LINR |
| Toluene-d8 | 50.908412 | 50.000000 | 1.3137645 | 0.1 | -1.82 | 50.00 | LINR |
| 4-Bromofluorobenzene | 51.400094 | 50.000000 | 0.5048850 | 0.1 | -2.80 | 50.00 | LINR |



FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Lab File ID (Standard): U122402  Date Analyzed: 12/24/18

Instrument ID: VOA9  Time Analyzed: 0952

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS1(DCB) AREA # | RT # | IS2(CBZ) AREA # | RT # | IS3(DFB) AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 352991 | 10.24 | 724498 | 8.25 | 785837 | 5.63 |
| | UPPER LIMIT | 705982 | 10.74 | 1448996 | 8.75 | 1571674 | 6.13 |
| | LOWER LIMIT | 176496 | 9.74 | 362249 | 7.75 | 392919 | 5.13 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181224 | 339524 | 10.24 | 703027 | 8.25 | 758509 | 5.63 |
| 02 | VBLKW-181224 | 263882 | 10.24 | 571876 | 8.25 | 632508 | 5.63 |
| 03 | HS18120736-0 | 258873 | 10.24 | 554587 | 8.25 | 618164 | 5.63 |
| 04 | HS18120736-0 | 248682 | 10.24 | 540374 | 8.25 | 598859 | 5.63 |
| 05 | HS18120736-0 | 252851 | 10.24 | 542430 | 8.25 | 600894 | 5.63 |
| 06 | HS18120736-0 | 239875 | 10.24 | 527117 | 8.25 | 586697 | 5.63 |
| 07 | HS18120913-0 | 266360 | 10.24 | 543870 | 8.25 | 594715 | 5.63 |
| 08 | HS18120913-0 | 254873 | 10.24 | 529623 | 8.25 | 576248 | 5.63 |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Lab File ID (Standard): U122402  Date Analyzed: 12/24/18

Instrument ID: VOA9  Time Analyzed: 0952

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 423354 | 4.89 | | | | |
| | UPPER LIMIT | 846708 | 5.39 | | | | |
| | LOWER LIMIT | 211677 | 4.39 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181224 | 406772 | 4.90 | | | | |
| 02 | VBLKW-181224 | 360724 | 4.90 | | | | |
| 03 | HS18120736-0 | 353433 | 4.90 | | | | |
| 04 | HS18120736-0 | 339418 | 4.90 | | | | |
| 05 | HS18120736-0 | 343602 | 4.90 | | | | |
| 06 | HS18120736-0 | 335037 | 4.90 | | | | |
| 07 | HS18120913-0 | 345000 | 4.90 | | | | |
| 08 | HS18120913-0 | 331424 | 4.89 | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

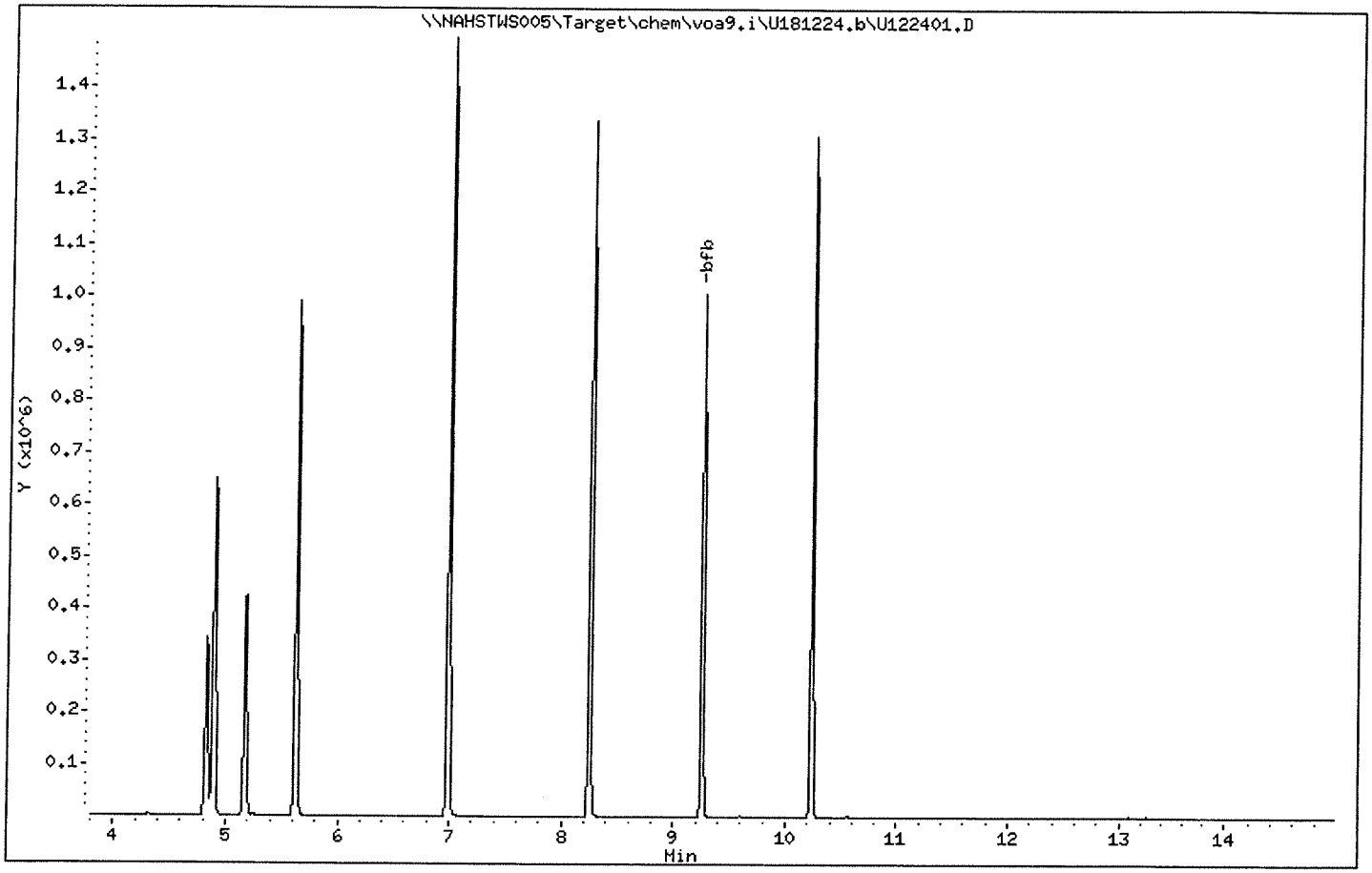
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

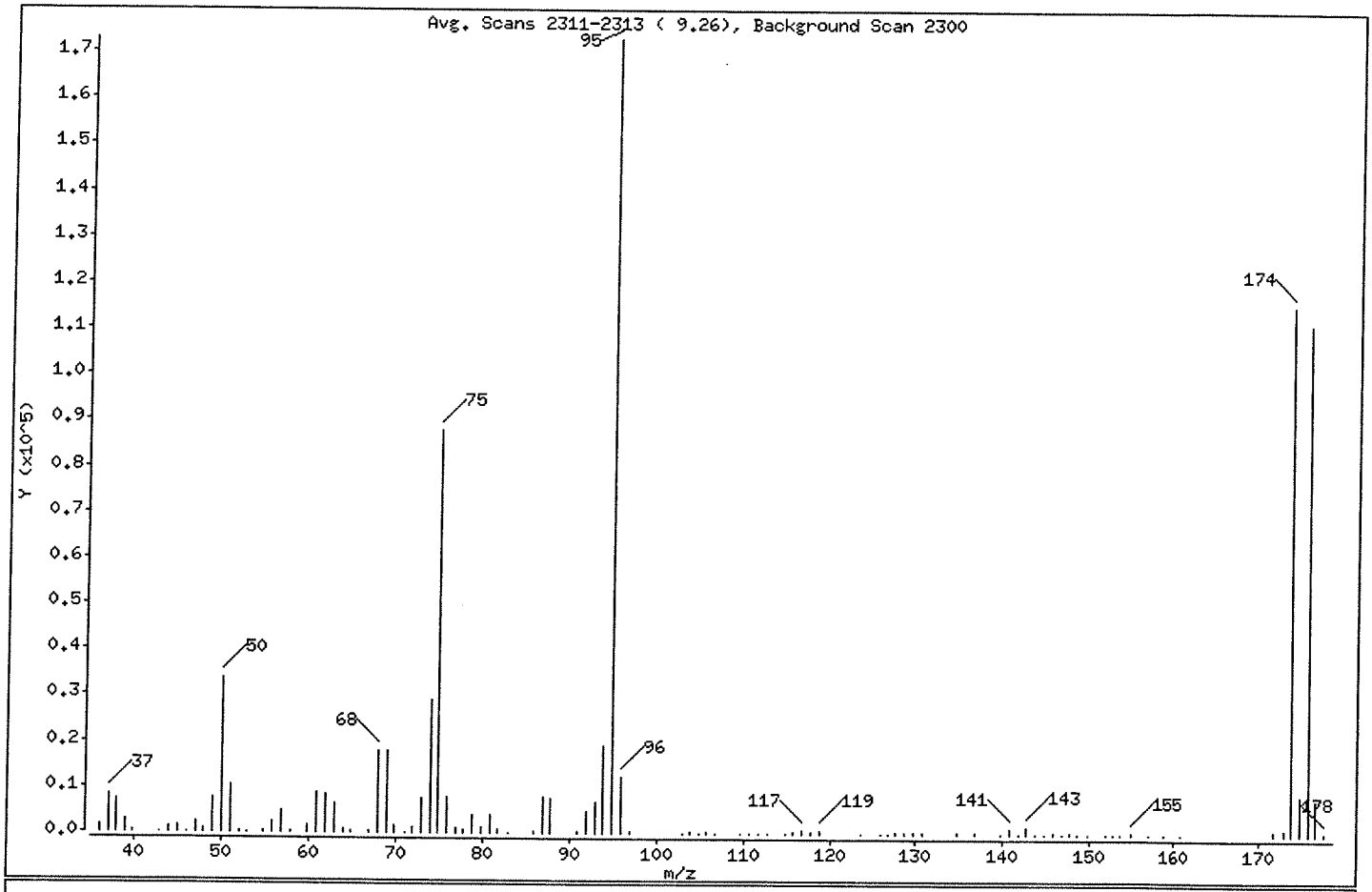
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 19.51 |
| 75 | 30.00 - 60.00% of mass 95 | 50.89 |
| 96 | 5.00 - 9.00% of mass 95 | 7.08 |
| 173 | Less than 2.00% of mass 174 | 0.66 ( 0.98) |
| 174 | Greater than 50.00% of mass 95 | 66.63 |
| 175 | 5.00 - 9.00% of mass 174 | 4.91 ( 7.37) |
| 176 | 95.00 - 101.00% of mass 174 | 64.42 ( 96.68) |
| 177 | 5.00 - 9.00% of mass 176 | 4.35 ( 6.75) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122401.D
Spectrum: Avg. Scans 2311-2313 ( 9.26), Background Scan 2300
Location of Maximum: 94.90
Number of points: 101

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1458 | 66.90 | 489 | 96.90 | 358 | 141.70 | 125 |
| 37.00 | 8306 | 67.90 | 17736 | 102.90 | 83 | 142.70 | 1432 |
| 38.00 | 7224 | 68.90 | 17704 | 103.80 | 566 | 143.70 | 92 |
| 39.00 | 2852 | 69.90 | 1399 | 104.80 | 198 | 144.80 | 130 |
| 39.90 | 515 | 71.00 | 55 | 105.70 | 571 | 145.70 | 211 |
| 42.90 | 58 | 71.90 | 1002 | 106.70 | 150 | 146.80 | 93 |
| 43.90 | 1149 | 72.90 | 7684 | 109.70 | 67 | 147.60 | 307 |
| 45.00 | 1416 | 73.90 | 28936 | 110.70 | 106 | 148.50 | 71 |
| 46.00 | 144 | 74.90 | 87944 | 111.80 | 127 | 149.70 | 118 |
| 47.00 | 2331 | 75.90 | 7853 | 112.80 | 101 | 151.70 | 104 |
| 47.90 | 988 | 76.90 | 1152 | 114.80 | 164 | 152.70 | 119 |
| 48.90 | 7413 | 77.80 | 691 | 115.80 | 498 | 153.50 | 62 |
| 50.00 | 33712 | 78.90 | 3904 | 116.70 | 773 | 154.80 | 440 |
| 51.00 | 10257 | 79.90 | 1262 | 117.80 | 575 | 156.70 | 197 |
| 52.00 | 516 | 80.80 | 4127 | 118.80 | 642 | 158.60 | 130 |
| 52.90 | 79 | 81.80 | 955 | 123.70 | 117 | 160.70 | 97 |
| 54.90 | 360 | 83.00 | 125 | 125.90 | 58 | 171.70 | 672 |
| 55.90 | 2572 | 85.90 | 201 | 126.70 | 59 | 172.80 | 1133 |
| 57.00 | 4669 | 86.90 | 7827 | 127.70 | 540 | 173.70 | 115136 |
| 58.00 | 207 | 87.80 | 7508 | 128.70 | 266 | 174.70 | 8487 |
| 59.90 | 1649 | 90.80 | 470 | 129.70 | 553 | 175.70 | 111312 |
| 60.90 | 8598 | 91.90 | 4648 | 130.70 | 230 | 176.70 | 7518 |
| 61.90 | 8257 | 92.90 | 6773 | 134.70 | 224 | 177.70 | 226 |
| 62.90 | 6370 | 93.90 | 19208 | 136.80 | 276 | | |
| 63.90 | 787 | 94.90 | 172800 | 139.70 | 105 | | |
| 64.90 | 503 | 95.90 | 12233 | 140.70 | 1161 | | |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-DEC-2018 09:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

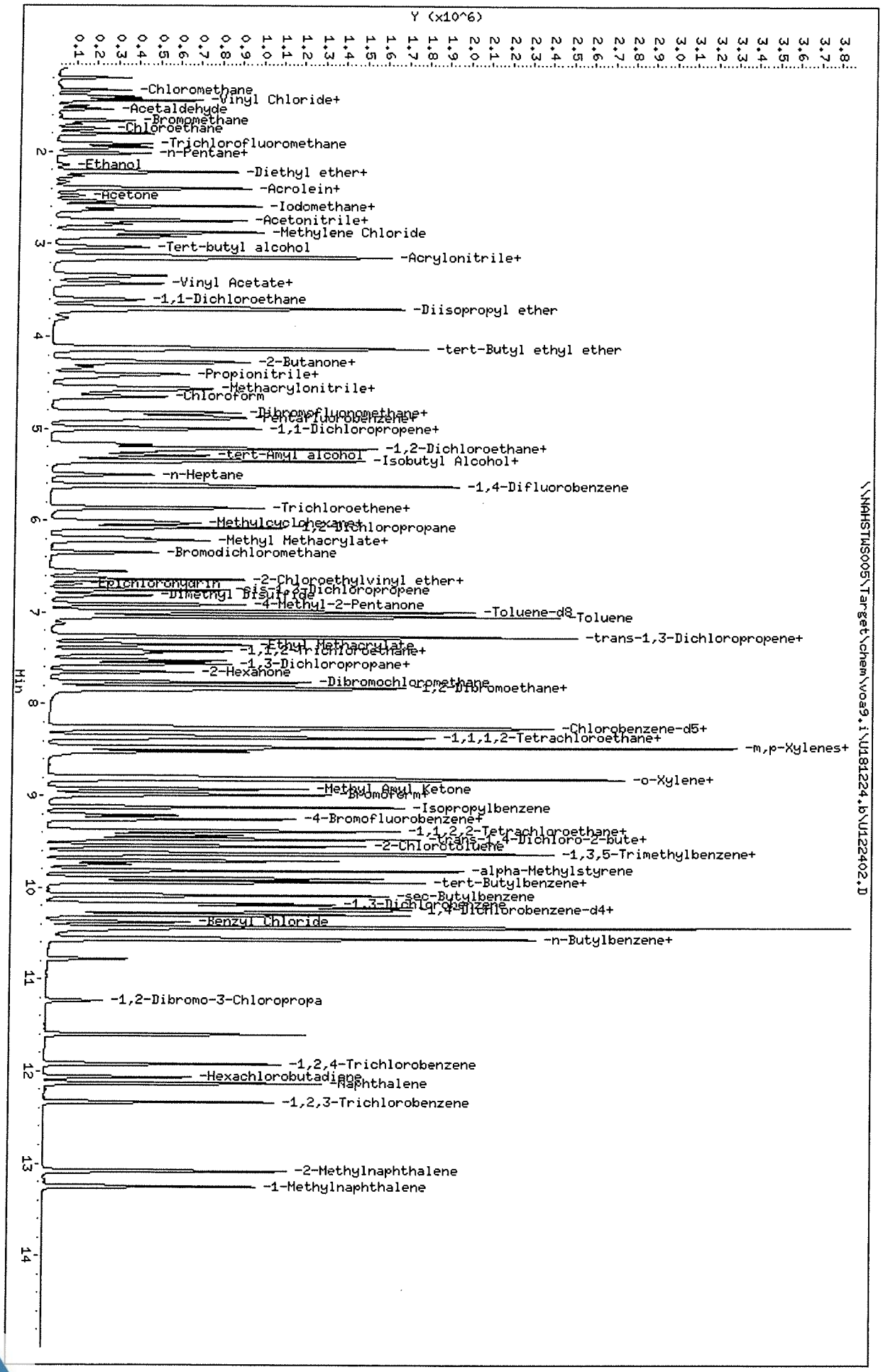
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 423354 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 785837 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 724498 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 352991 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.986) | 239456 | 50.0000 | 51.29 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.171 | (1.057) | 304677 | 50.0000 | 50.88 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 964346 | 50.0000 | 51.60 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 368577 | 50.0000 | 51.80 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 215639 | 50.0000 | 46.94 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 316440 | 50.0000 | 47.33 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 355332 | 50.0000 | 44.69 |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 153951 | 50.0000 | 42.77 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 207577 | 50.0000 | 48.09 |
| 22 1,1-Dichloroethane | 63 | 3.600 | 3.600 | (0.736) | 433057 | 50.0000 | 47.49 |
| 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.491) | 181293 | 50.0000 | 45.03 |
| 32 1,1-Dichloropropene | 75 | 5.002 | 5.002 | (0.889) | 323333 | 50.0000 | 46.24 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 290474 | 50.0000 | 43.74 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 390574 | 50.0000 | 47.24 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 305143 | 50.0000 | 46.69 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 893982 | 50.0000 | 48.39 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 48924 | 50.0000 | 40.20 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 242501 | 50.0000 | 48.77 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 2
Report Date: 28-Jan-2019 14:34

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 486970 | 50.0000 | 46.46 |
| 33 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 352056 | 50.0000 | 49.72 |
| 42 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 267418 | 50.0000 | 48.16 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 854241 | 50.0000 | 48.15 |
| 83 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 487011 | 50.0000 | 46.46 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 448896 | 50.0000 | 48.28 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 501619 | 50.0000 | 45.38 |
| 26 2,2-Dichloropropane | 77 | 4.271 | 4.271 | (0.873) | 274613 | 50.0000 | 49.98 |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 243142 | 100.000 | 87.52 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 777485 | 50.0000 | 47.80 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 368317 | 100.000 | 91.42 |
| 77 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 907472 | 50.0000 | 48.28 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 884191 | 50.0000 | 47.33 |
| 45 4-Methyl-2-Pentanone | 43 | 6.910 | 6.910 | (0.838) | 534634 | 100.000 | 92.23 |
| 10 Acetone | 43 | 2.476 | 2.476 | (0.506) | 147537 | 100.000 | 88.94 |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 1004828 | 50.0000 | 48.05 |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 258984 | 50.0000 | 47.48 |
| 29 Bromochloromethane | 128 | 4.552 | 4.552 | (0.930) | 120857 | 50.0000 | 54.73 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 296500 | 50.0000 | 50.21 |
| 66 Bromoform | 173 | 8.983 | 8.983 | (1.089) | 134940 | 50.0000 | 43.62(T) |
| 6 Bromomethane | 94 | 1.666 | 1.666 | (0.341) | 126513 | 50.0000 | 48.43 |
| 19 Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 1200523 | 100.000 | 81.85 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 244058 | 50.0000 | 42.90 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 671654 | 50.0000 | 48.24 |
| 7 Chloroethane | 64 | 1.748 | 1.748 | (0.357) | 182521 | 50.0000 | 48.65 |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 423382 | 50.0000 | 48.21 |
| 3 Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 215757 | 50.0000 | 48.10 |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 268280 | 50.0000 | 48.21 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 420747 | 50.0000 | 46.96 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 220452 | 50.0000 | 46.37 |
| 44 Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 155992 | 50.0000 | 48.67 |
| 2 Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 217496 | 50.0000 | 41.83 |
| 61 Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 346487 | 50.0000 | 48.53 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 111829 | 50.0000 | 44.66 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 987775 | 50.0000 | 47.94 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 860607 | 100.000 | 98.04 |
| 17 Methylene Chloride | 84 | 2.869 | 2.869 | (0.586) | 257324 | 50.0000 | 49.16 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 832522 | 50.0000 | 46.18 |
| 73 n-Propylbenzene | 91 | 9.474 | 9.474 | (0.926) | 1249543 | 50.0000 | 47.37 |
| 92 Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 915226 | 50.0000 | 42.62 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 438615 | 50.0000 | 49.53 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1017399 | 50.0000 | 45.89 |
| 64 Styrene | 104 | 8.822 | 8.822 | (1.070) | 765253 | 50.0000 | 52.01 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 704838 | 50.0000 | 45.96 |
| 56 Tetrachloroethene | 164 | 7.521 | 7.521 | (0.912) | 165998 | 50.0000 | 43.76 |
| 50 Toluene | 91 | 7.045 | 7.045 | (0.854) | 1057144 | 50.0000 | 49.05 |
| 20 trans-1,2-Dichloroethene | 96 | 3.139 | 3.139 | (0.642) | 235322 | 50.0000 | 47.48 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 354926 | 50.0000 | 46.11 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 235763 | 50.0000 | 46.70 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 307098 | 50.0000 | 44.08 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 265095 | 50.0000 | 44.38 |

QC Flag Legend

T - Target compound detected outside RT window.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Date : 24-DEC-2018 09:52
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Lab Smp Id: VLCSW-1812024 Client Smp ID: VLCSW-181224
Inj Date : 24-DEC-2018 10:17
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812024;VLCSW-181224;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

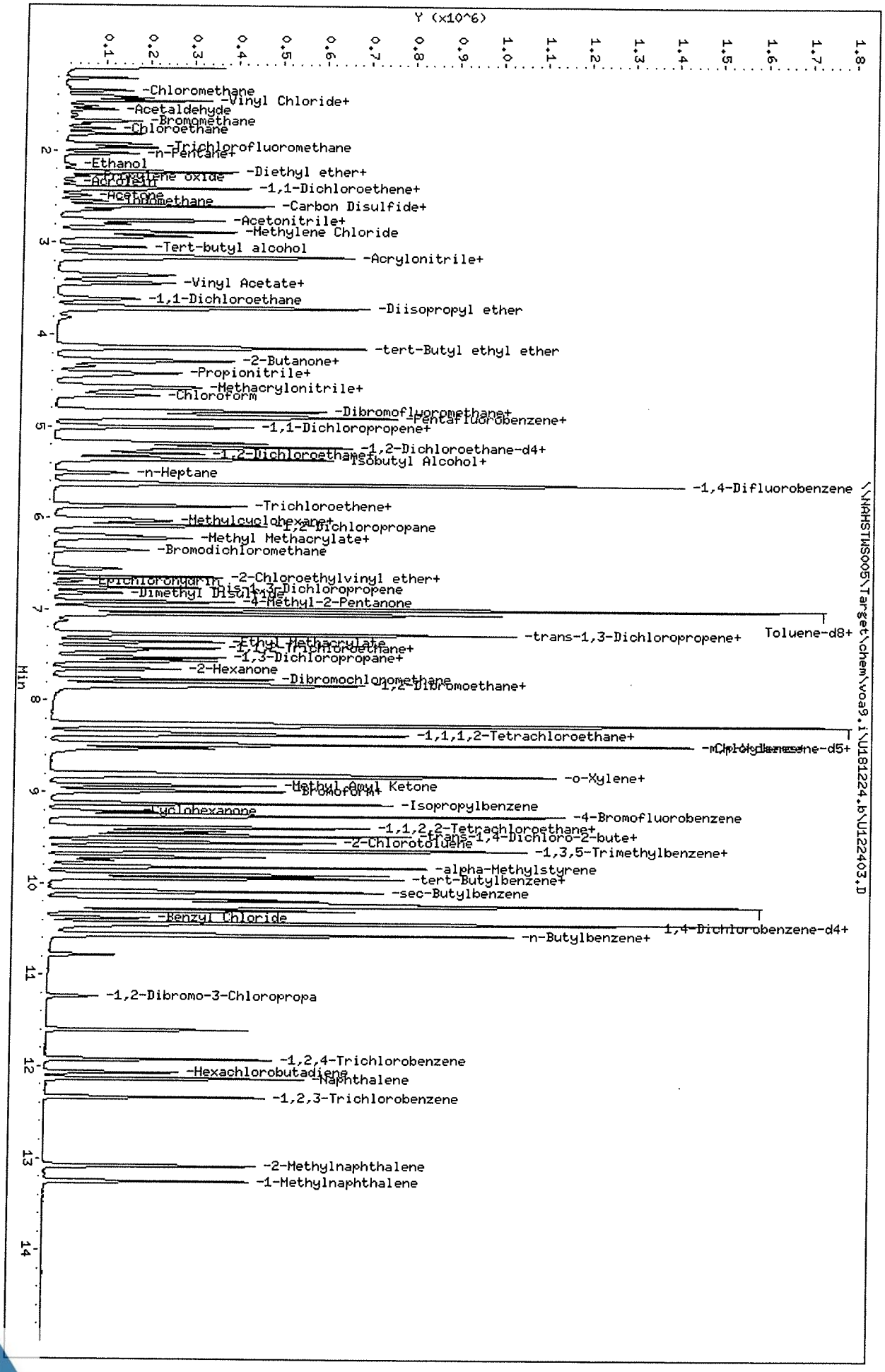
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.894 | (1.000) | 406772 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.625 | (1.000) | 758509 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 703027 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 339524 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.826 | (0.987) | 227871 | 50.7883 | 50.78 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.178 | 5.171 | (1.057) | 299407 | 52.0910 | 52.09 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 921570 | 50.7919 | 50.79 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 357826 | 51.8285 | 51.82 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 88375 | 20.1633 | 20.16 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.826 | (0.986) | 135603 | 21.1125 | 21.11 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 153489 | 20.0739 | 20.07 |
| 138 Freon TF | 101 | 2.412 | 2.401 | (0.493) | 72333 | 20.9166 | 20.91 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 88710 | 21.1796 | 21.17 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.600 | (0.737) | 184709 | 21.0852 | 21.08 |
| 11 1,1-Dichloroethene | 96 | 2.408 | 2.401 | (0.492) | 78960 | 20.4156 | 20.41 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.002 | (0.890) | 141680 | 20.9930 | 20.99 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 127493 | 20.3080 | 20.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 160947 | 20.2426 | 20.24 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 133328 | 21.2102 | 21.21 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 396053 | 22.2910 | 22.29 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 20393 | 18.2464 | 18.24 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 102168 | 21.1780 | 21.17 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 2
Report Date: 28-Jan-2019 14:34

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 207631 | 20.5957 | 20.59 |
| 33 1,2-Dichloroethane | 62 | 5.257 | 5.250 | (0.934) | 150051 | 21.5444 | 21.54 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 111360 | 20.7777 | 20.77 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 377636 | 22.1314 | 22.13 |
| 83 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 211456 | 20.9736 | 20.97 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 190232 | 21.0858 | 21.08 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 215686 | 20.2900 | 20.28 |
| 26 2,2-Dichloropropane | 77 | 4.279 | 4.271 | (0.874) | 116146 | 22.0006 | 22.00 |
| 24 2-Butanone | 43 | 4.343 | 4.335 | (0.887) | 107059 | 38.7900 | 38.78 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 335605 | 21.4534 | 21.45 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 158802 | 40.6220 | 40.62 |
| 77 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 393315 | 21.7570 | 21.75 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 401121 | 22.3263 | 22.32 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.910 | (0.838) | 230112 | 40.9097 | 40.90 |
| 10 Acetone | 43 | 2.487 | 2.476 | (0.508) | 66585 | 40.1746 | 40.17 |
| 37 Benzene | 78 | 5.223 | 5.216 | (0.928) | 426379 | 21.1248 | 21.12 |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 109171 | 20.8108 | 20.81 |
| 29 Bromochloromethane | 128 | 4.560 | 4.552 | (0.931) | 50277 | 21.9350 | 21.93 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 120773 | 21.1903 | 21.19 |
| 66 Bromoform | 173 | 8.983 | 8.983 | (1.089) | 52936 | 18.6861 | 18.68 |
| 6 Bromomethane | 94 | 1.681 | 1.666 | (0.343) | 57771 | 23.7209 | 23.72 |
| 19 Carbon Disulfide | 76 | 2.599 | 2.588 | (0.531) | 587803 | 41.7101 | 41.71 |
| 34 Carbon Tetrachloride | 117 | 4.999 | 4.995 | (0.888) | 106164 | 20.1057 | 20.10 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 283627 | 20.9972 | 20.99 |
| 7 Chloroethane | 64 | 1.763 | 1.748 | (0.360) | 75051 | 21.2783 | 21.27(M) |
| 28 Chloroform | 83 | 4.661 | 4.654 | (0.952) | 177187 | 21.0026 | 21.00 |
| 3 Chloromethane | 50 | 1.347 | 1.336 | (0.275) | 95716 | 23.9974 | 23.99 |
| 27 cis-1,2-Dichloroethene | 96 | 4.290 | 4.283 | (0.876) | 112668 | 21.0722 | 21.07 |
| 46 cis-1,3-Dichloropropene | 75 | 6.760 | 6.757 | (1.201) | 165133 | 19.8487 | 19.84 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 86605 | 19.3564 | 19.35 |
| 44 Dibromomethane | 93 | 6.191 | 6.187 | (1.100) | 66144 | 21.3834 | 21.38 |
| 2 Dichlorodifluoromethane | 85 | 1.212 | 1.201 | (0.248) | 99637 | 20.1990 | 20.19 |
| 61 Ethylbenzene | 106 | 8.372 | 8.369 | (1.015) | 150022 | 21.6543 | 21.65 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 46864 | 19.4594 | 19.45 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 444629 | 22.2408 | 22.24 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 373925 | 43.9025 | 43.90 |
| 17 Methylene Chloride | 84 | 2.881 | 2.869 | (0.588) | 110110 | 21.2264 | 21.22 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 382218 | 22.0444 | 22.04 |
| 73 n-Propylbenzene | 91 | 9.474 | 9.474 | (0.926) | 566860 | 22.3442 | 22.34 |
| 92 Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 398777 | 19.5931 | 19.59 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 188789 | 21.9718 | 21.97 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 470724 | 22.0778 | 22.07 |
| 64 Styrene | 104 | 8.826 | 8.822 | (1.070) | 319620 | 22.3899 | 22.38 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 326809 | 22.1594 | 22.15 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.521 | (0.912) | 74823 | 20.3294 | 20.32 |
| 50 Toluene | 91 | 7.049 | 7.045 | (0.855) | 451266 | 21.5785 | 21.57 |
| 20 trans-1,2-Dichloroethene | 96 | 3.150 | 3.139 | (0.643) | 100128 | 21.0291 | 21.02 |
| 51 trans-1,3-Dichloropropene | 75 | 7.263 | 7.259 | (1.290) | 137974 | 19.5584 | 19.55 |
| 38 Trichloroethene | 130 | 5.864 | 5.861 | (1.042) | 101926 | 20.9180 | 20.91 |
| 8 Trichlorofluoromethane | 101 | 1.966 | 1.951 | (0.401) | 138983 | 21.0959 | 21.09 |
| 5 Vinyl Chloride | 62 | 1.430 | 1.419 | (0.292) | 121149 | 21.6176 | 21.61 |

QC Flag Legend

M - Compound response manually integrated.



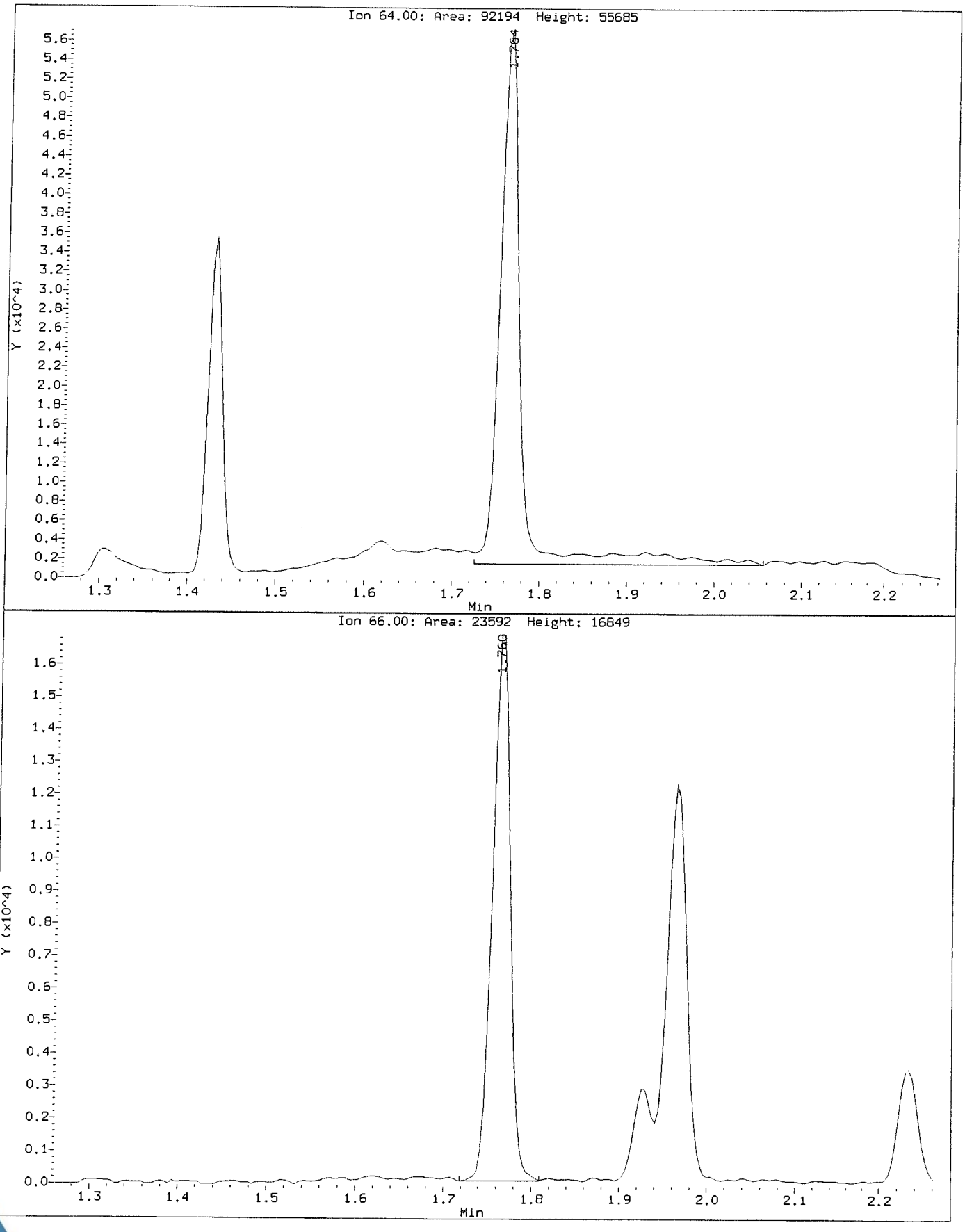

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Date : 24-DEC-2018 10:17
Client ID: VLCSW-181224
Sample Info: VLCSW-1812024;VLCSW-181224;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D

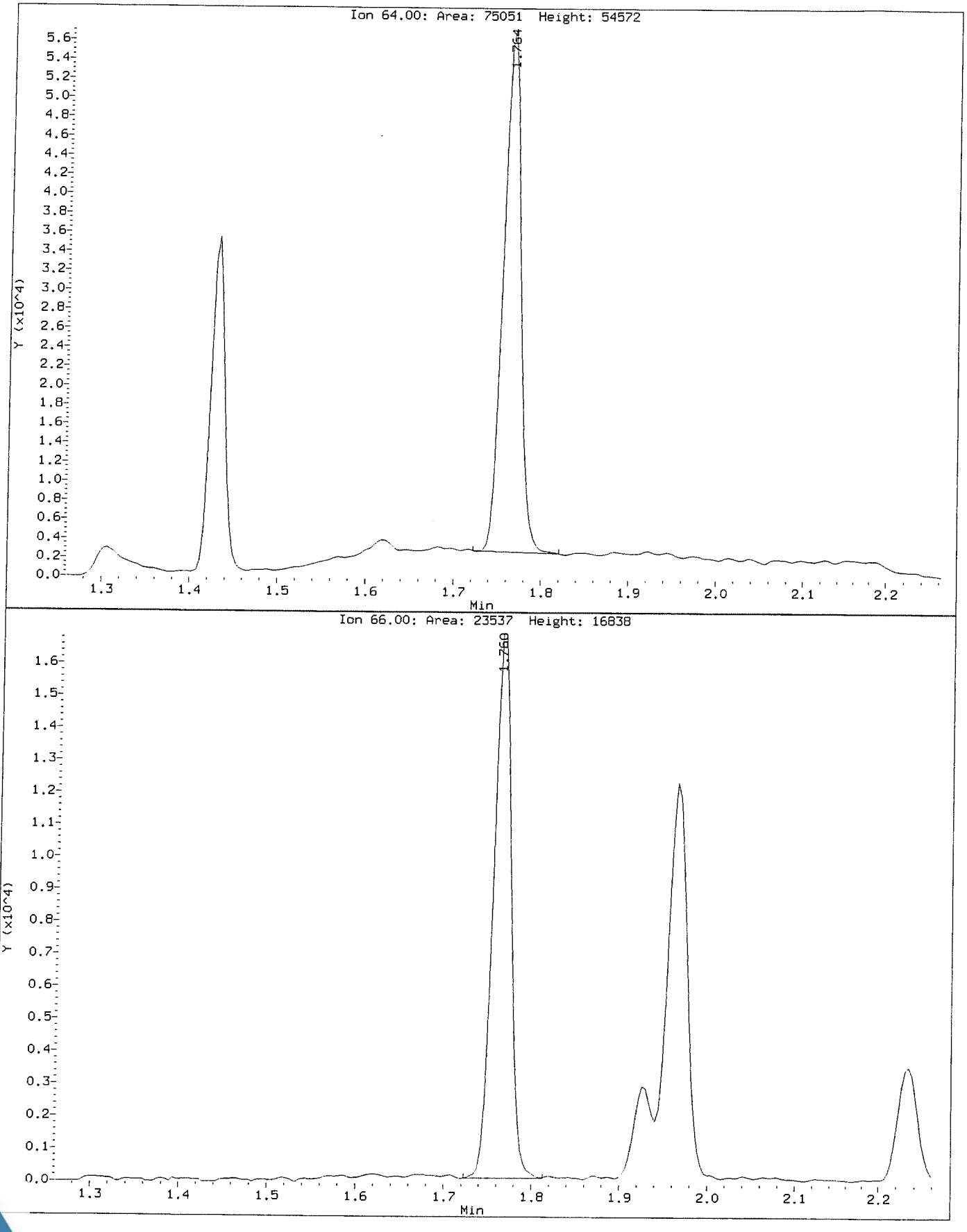
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



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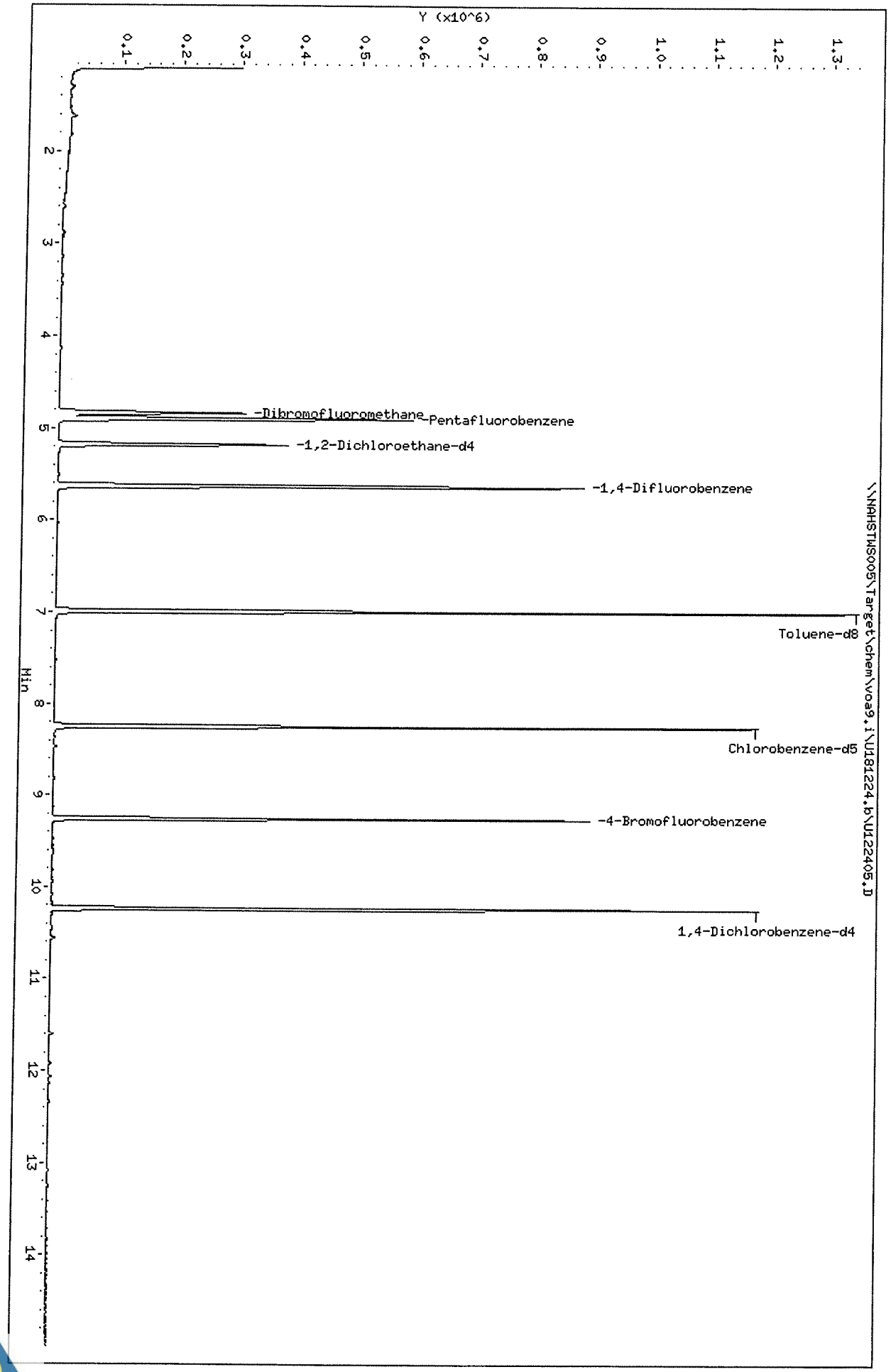
Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Lab Smp Id: VBLKW-181224 Client Smp ID: VBLKW-181224
Inj Date : 24-DEC-2018 11:06
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-181224;VBLKW-181224;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.894 | (1.000) | 360724 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.625 | (1.000) | 632508 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 571876 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 263882 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.826 | (0.987) | 177273 | 44.3672 | 44.36 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.171 | (1.057) | 242561 | 47.4005 | 47.40 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 770698 | 52.2682 | 52.26 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 271263 | 48.2038 | 48.20 |




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Date : 24-DEC-2018 11:06
Client ID: VBLKW-181224
Sample Info: VBLKW-181224;VBLKW-181224;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122406.D Page 1
Report Date: 28-Jan-2019 14:41

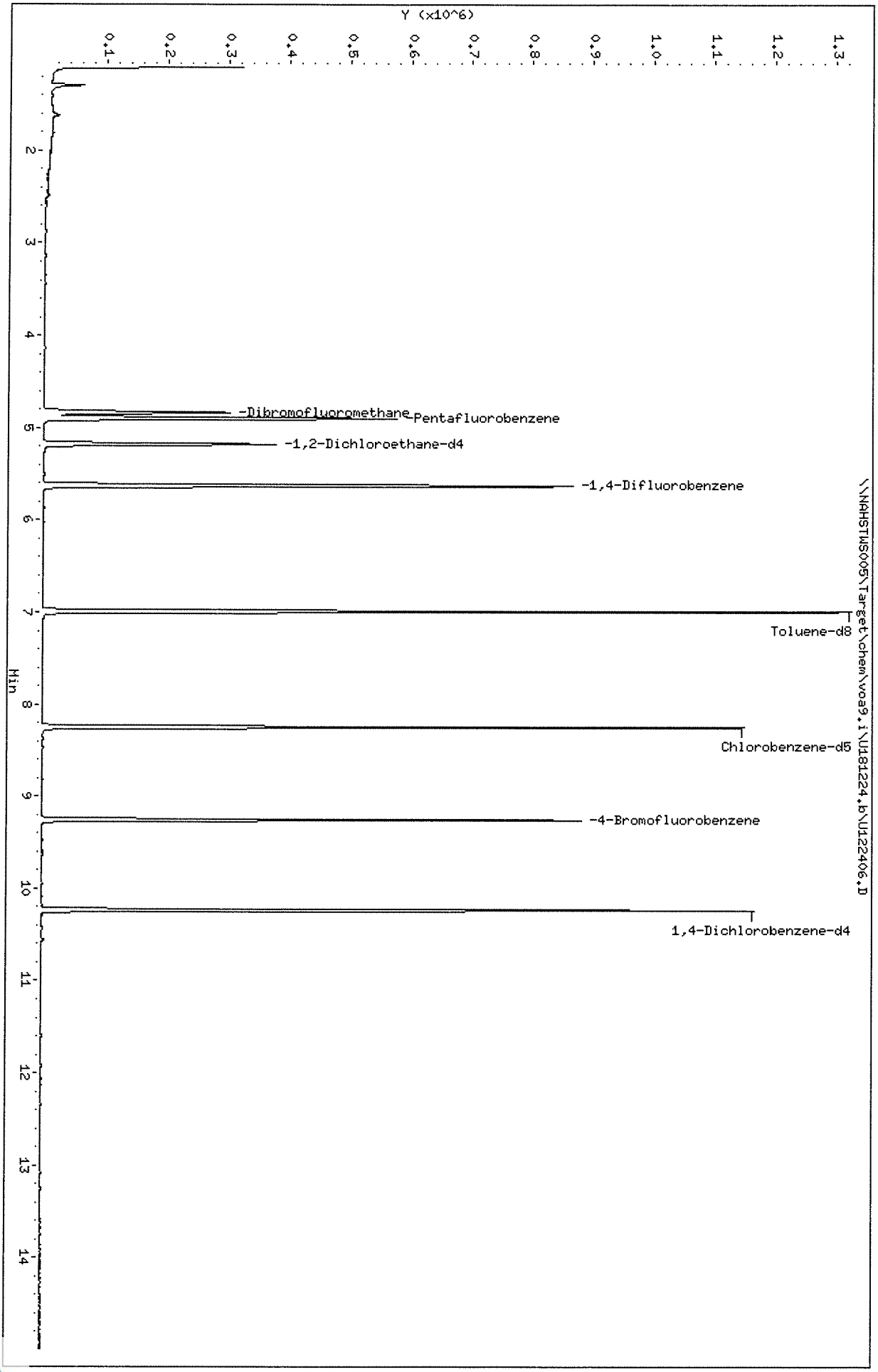
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122406.D
Lab Smp Id: HS18120736-09 Client Smp ID: HS18120736-09
Inj Date : 24-DEC-2018 11:31
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-09;HS18120736-09;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.902 | (1.000) | 353433 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.629 | (1.000) | 618164 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.252 | 8.253 | (1.000) | 554587 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.236 | (1.000) | 258873 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 175914 | 44.9549 | 44.95 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 239865 | 47.8607 | 47.86 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 757456 | 52.9956 | 52.99 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 269160 | 49.3543 | 49.35 |




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122406.D
Date : 24-DEC-2018 11:31
Client ID: HS18120736-09
Sample Info: HS18120736-09;HS18120736-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122408.D Page 1
Report Date: 28-Jan-2019 14:41

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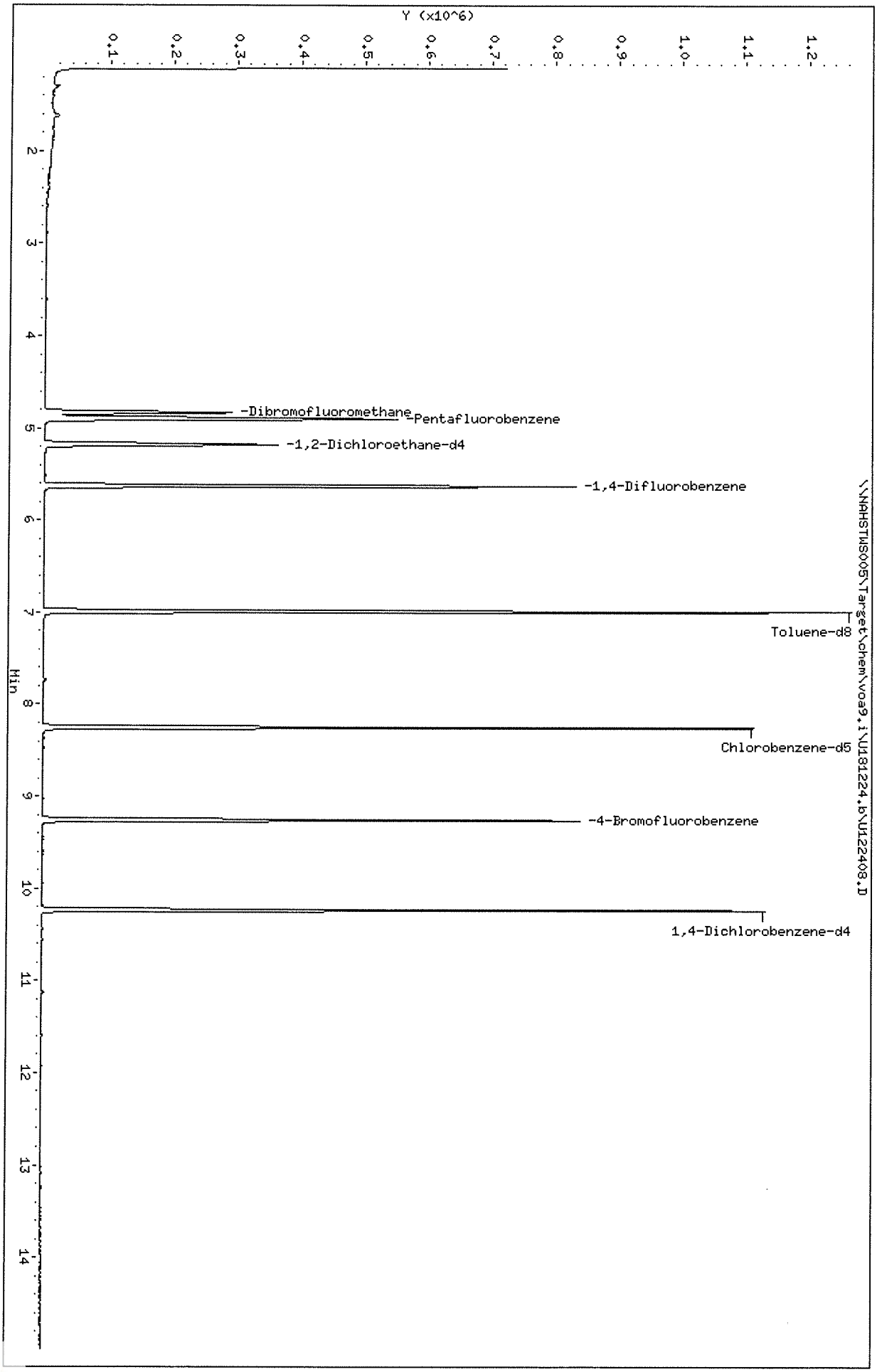
Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122408.D
Lab Smp Id: HS18120736-05 Client Smp ID: HS18120736-05
Inj Date : 24-DEC-2018 12:20
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-05;HS18120736-05;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.902 | (1.000) | 339418 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.629 | (1.000) | 598859 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.252 | 8.253 | (1.000) | 540374 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 248682 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 168863 | 44.9341 | 44.93 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 232468 | 48.3200 | 48.31 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 731493 | 52.5093 | 52.50 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 259806 | 48.8788 | 48.87 |




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122408.D
Date : 24-DEC-2018 12:20
Client ID: HS18120736-05
Sample Info: HS18120736-05;HS18120736-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122409.D Page 1
Report Date: 28-Jan-2019 14:41

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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122409.D
Lab Smp Id: HS18120736-06 Client Smp ID: HS18120736-06
Inj Date : 24-DEC-2018 12:45
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-06;HS18120736-06;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

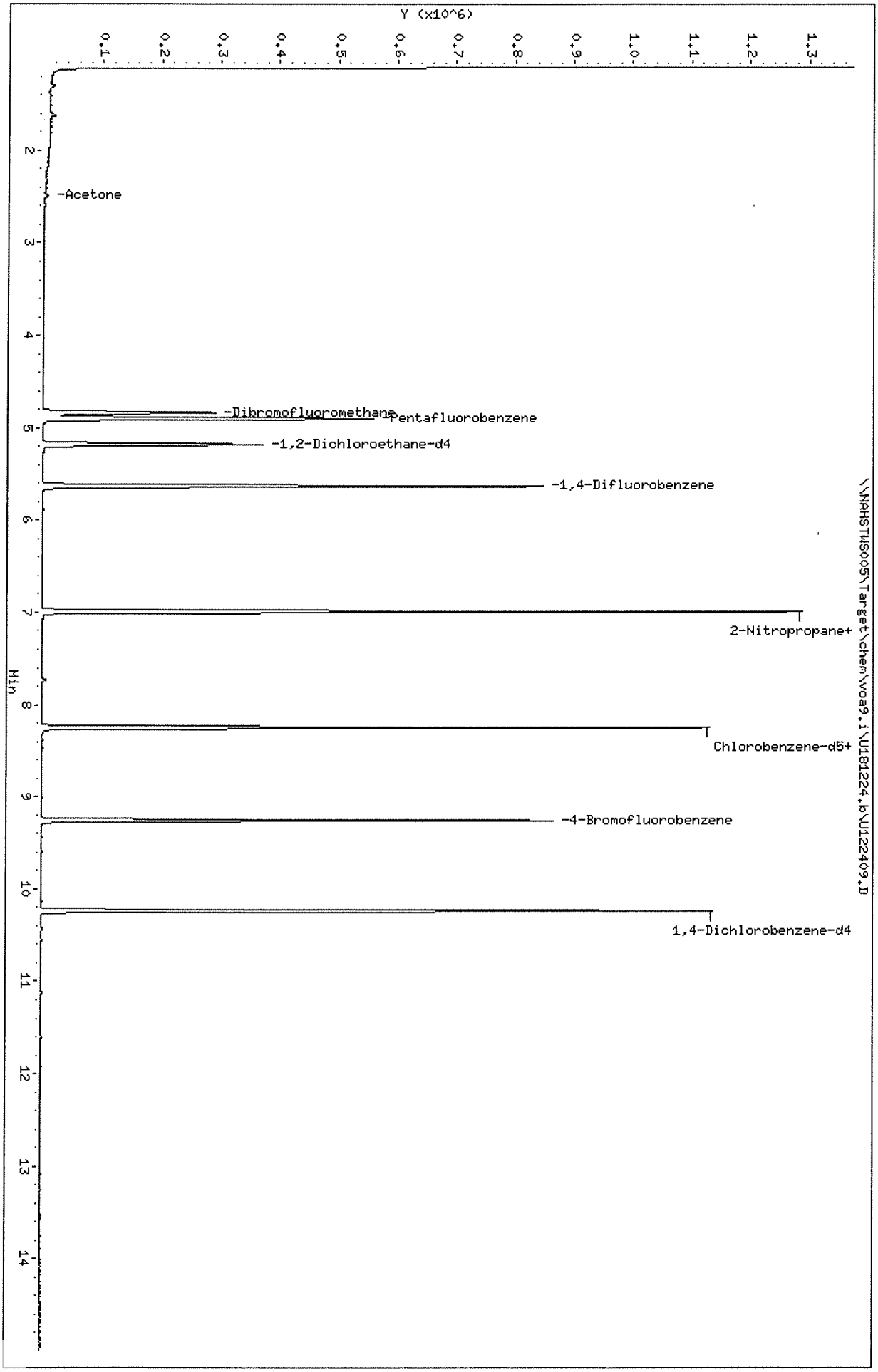
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.902 | (1.000) | 343602 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 600894 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 542430 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 252851 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 172338 | 45.3129 | 45.31 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 235150 | 48.2806 | 48.28 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 740653 | 52.9808 | 52.98 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 263083 | 49.3202 | 49.32 |
| 10 Acetone | 43 | 2.491 | 2.491 | (0.509) | 6366 | 1.86530 | 1.86(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122409.D
Date : 24-DEC-2018 12:45
Client ID: HS18120736-06
Sample Info: HS18120736-06;HS18120736-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122409.D



Date : 24-DEC-2018 12:45

Client ID: HS18120736-06

Instrument: VOA9.i

Sample Info: HS18120736-06;HS18120736-06;;;

Purge Volume: 5.0

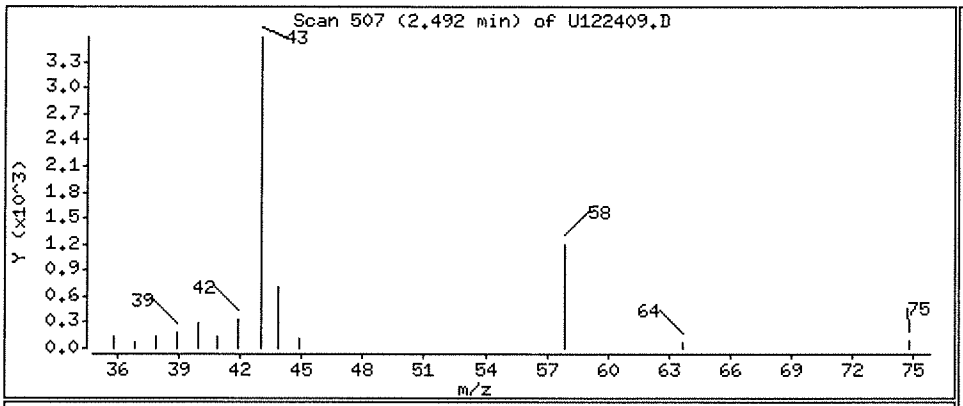
Operator: PC

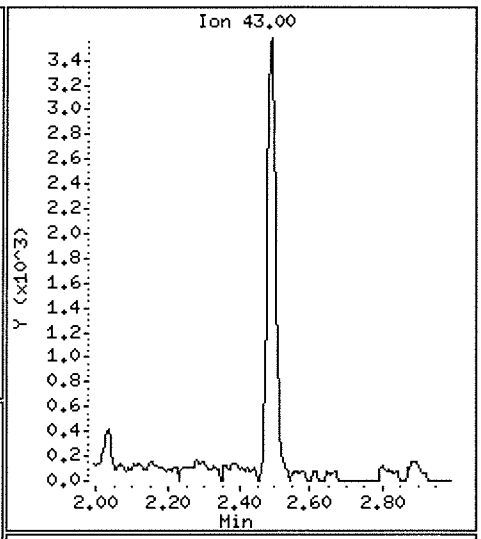
Column phase: DB624

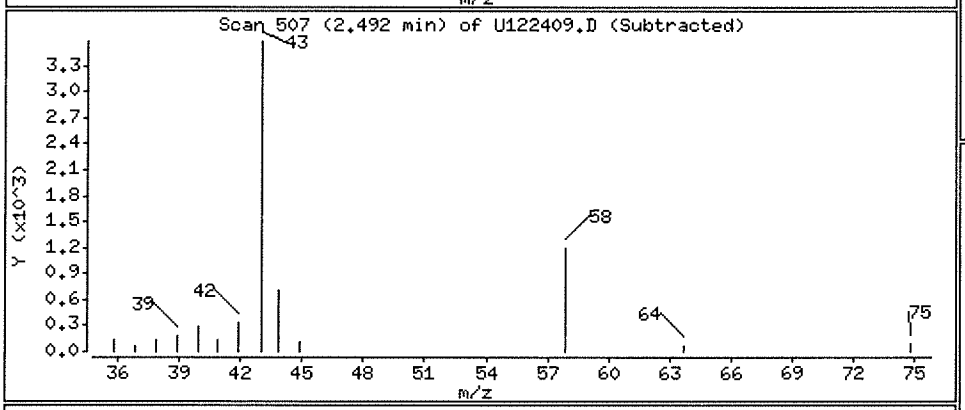
Column diameter: 0.18

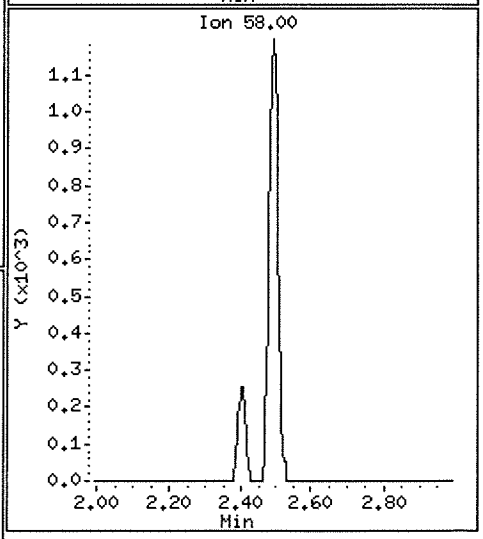
10 Acetone

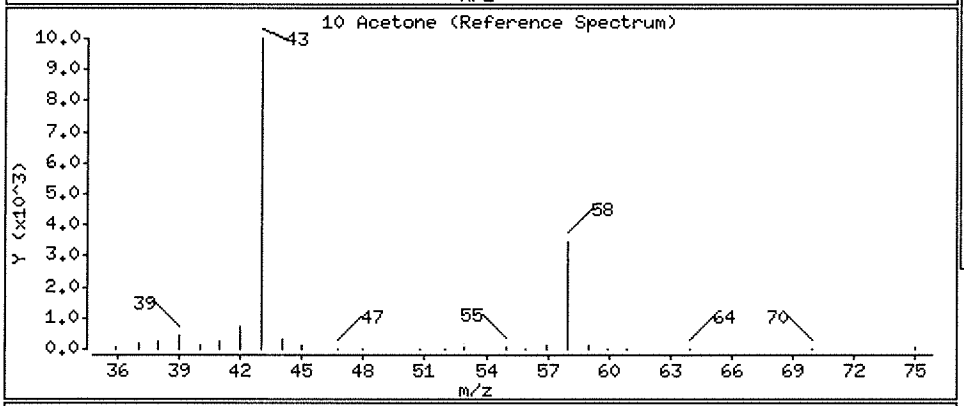
Concentration: 1.86 ug/l

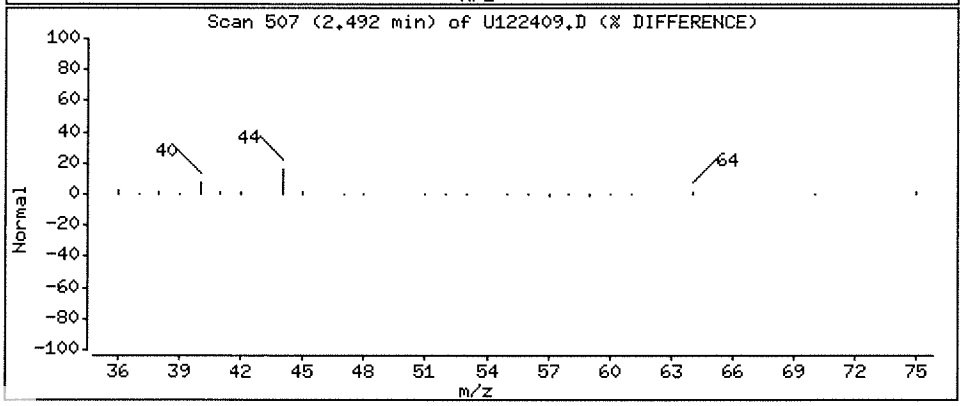


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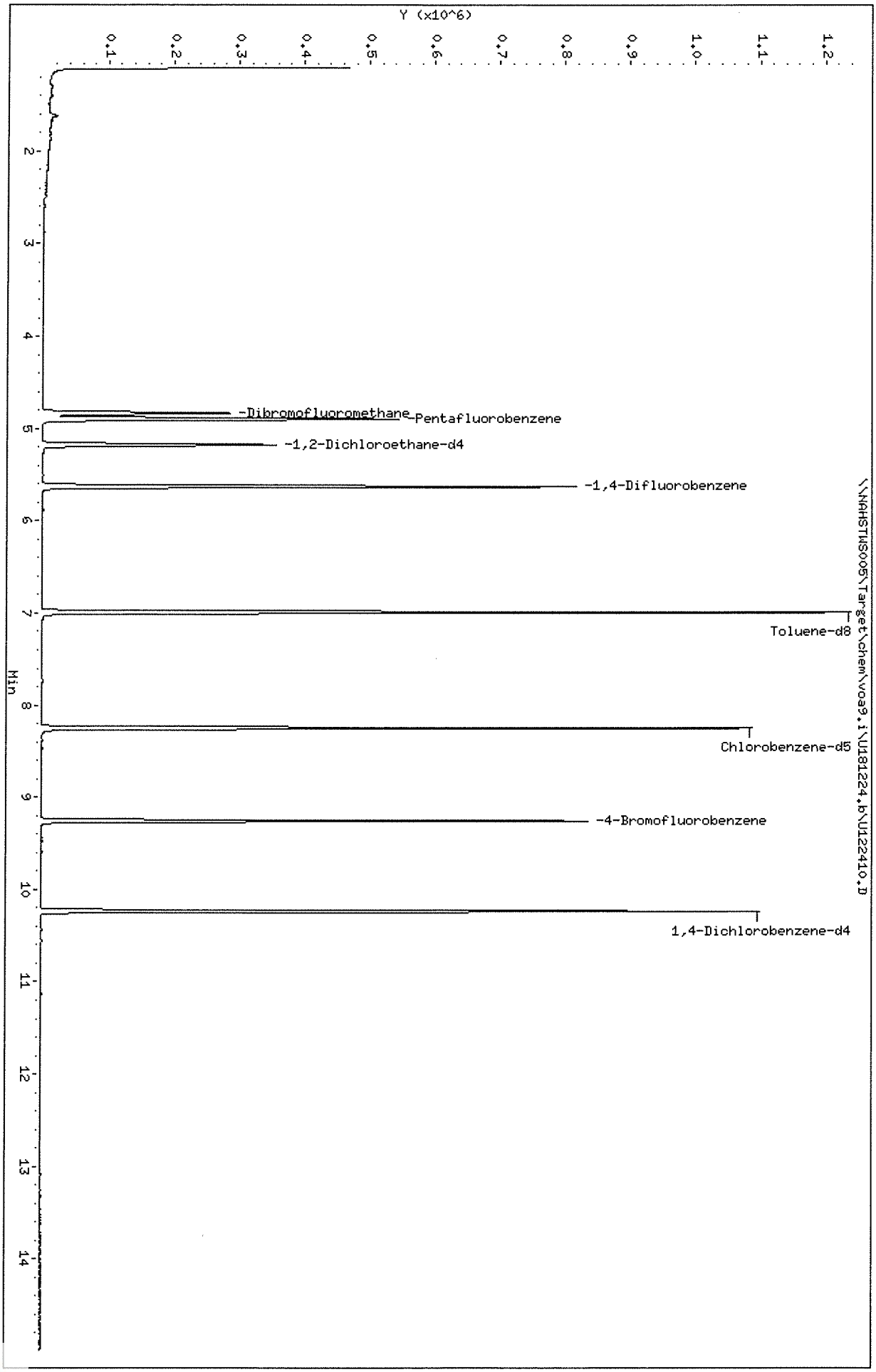
Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122410.D
Lab Smp Id: HS18120736-07 Client Smp ID: HS18120736-07
Inj Date : 24-DEC-2018 13:10
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-07;HS18120736-07;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.902 | (1.000) | 335037 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 586697 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 527117 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 239875 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 166268 | 44.8183 | 44.81 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 227005 | 47.7782 | 47.77 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 719120 | 52.9334 | 52.93 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.258 | (1.122) | 254214 | 49.0340 | 49.03 |




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122410.D
Date : 24-DEC-2018 13:10
Client ID: HS18120736-07
Sample Info: HS18120736-07;HS18120736-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Lab Smp Id: HS18120913-03MS Client Smp ID: HS18120913-03MS
Inj Date : 24-DEC-2018 15:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MS;HS18120913-03MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

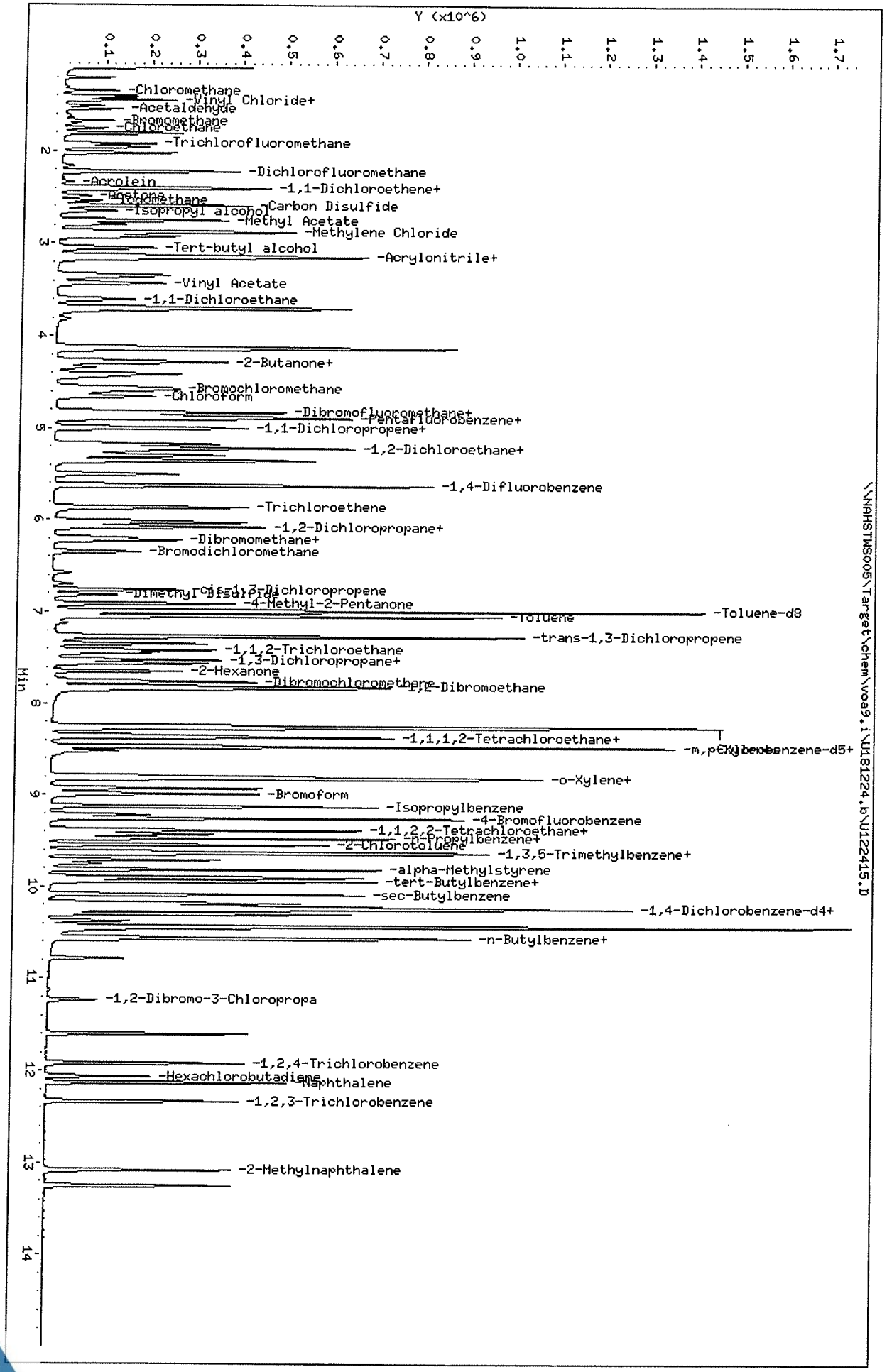
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.894 | (1.000) | 345000 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.625 | (1.000) | 594715 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 543870 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.235 | (1.000) | 266360 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.986) | 174630 | 45.7435 | 45.74 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.171 | (1.057) | 230784 | 47.1432 | 47.14 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 746782 | 53.2878 | 53.28 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 276028 | 51.6764 | 51.67 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 79024 | 23.2148 | 23.21 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.826 | (0.986) | 124996 | 22.9455 | 22.94 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 145185 | 24.2035 | 24.20 |
| 138 Freon TF | 101 | 2.405 | 2.401 | (0.491) | 73723 | 25.1357 | 25.13 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 81989 | 25.3033 | 25.30 |
| 22 1,1-Dichloroethane | 63 | 3.608 | 3.600 | (0.737) | 168755 | 22.7132 | 22.71 |
| 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.490) | 75592 | 23.0442 | 23.04 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.002 | (0.889) | 134692 | 25.4542 | 25.45 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 109130 | 22.1001 | 22.10 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 145667 | 23.3532 | 23.35 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.922 | (1.165) | 110324 | 22.3715 | 22.37 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 351572 | 25.2227 | 25.22 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 18444 | 20.8136 | 20.81 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 94955 | 25.4427 | 25.44 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 2
Report Date: 28-Jan-2019 14:34

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 187882 | 23.7559 | 23.75 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.933) | 138450 | 25.4836 | 25.48 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 104134 | 24.7807 | 24.78 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.624 | (0.940) | 342429 | 25.5804 | 25.58 |
| 83 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 184561 | 23.3342 | 23.33 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 174086 | 24.9430 | 24.94 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 194001 | 23.2630 | 23.26 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.271 | (0.873) | 102083 | 22.7990 | 22.79 |
| 24 2-Butanone | 43 | 4.343 | 4.335 | (0.887) | 105483 | 45.4559 | 45.45 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 306257 | 24.9549 | 24.95 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 159855 | 52.8577 | 52.85 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.639 | (0.942) | 356306 | 25.1237 | 25.12 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 355401 | 25.2152 | 25.21 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.910 | (0.838) | 223482 | 51.3578 | 51.35 |
| 10 Acetone | 43 | 2.487 | 2.476 | (0.508) | 70952 | 51.2497 | 51.24 |
| 37 Benzene | 78 | 5.220 | 5.216 | (0.927) | 397101 | 25.0928 | 25.09 |
| 74 Bromobenzene | 156 | 9.385 | 9.381 | (0.917) | 97879 | 23.7834 | 23.78 |
| 29 Bromochloromethane | 128 | 4.556 | 4.552 | (0.930) | 46188 | 24.0179 | 24.01 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 109342 | 24.4685 | 24.46 |
| 66 Bromoform | 173 | 8.984 | 8.983 | (1.089) | 47381 | 21.3431 | 21.34 |
| 6 Bromomethane | 94 | 1.670 | 1.666 | (0.341) | 51729 | 24.9684 | 24.96 |
| 19 Carbon Disulfide | 76 | 2.592 | 2.588 | (0.529) | 516135 | 43.1821 | 43.18 |
| 34 Carbon Tetrachloride | 117 | 4.999 | 4.995 | (0.888) | 99519 | 23.7645 | 23.76 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 261122 | 24.9882 | 24.98 |
| 7 Chloroethane | 64 | 1.756 | 1.748 | (0.359) | 65153 | 21.7650 | 21.76(M) |
| 28 Chloroform | 83 | 4.658 | 4.654 | (0.951) | 164251 | 22.9552 | 22.95 |
| 3 Chloromethane | 50 | 1.344 | 1.336 | (0.274) | 73734 | 22.1006 | 22.10 |
| 27 cis-1,2-Dichloroethene | 96 | 4.290 | 4.283 | (0.876) | 110116 | 24.2824 | 24.28 |
| 46 cis-1,3-Dichloropropene | 75 | 6.761 | 6.757 | (1.201) | 142392 | 21.7030 | 21.70 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 77822 | 22.3259 | 22.32 |
| 44 Dibromomethane | 93 | 6.191 | 6.187 | (1.100) | 60796 | 25.0676 | 25.06 |
| 2 Dichlorodifluoromethane | 85 | 1.209 | 1.201 | (0.247) | 60996 | 14.7145 | 14.71 |
| 61 Ethylbenzene | 106 | 8.373 | 8.369 | (1.015) | 137460 | 25.6473 | 25.64 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 36483 | 19.3100 | 19.30 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 409452 | 26.4747 | 26.47 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 342200 | 51.9351 | 51.93 |
| 17 Methylene Chloride | 84 | 2.873 | 2.869 | (0.587) | 100414 | 22.9137 | 22.91 |
| 87 n-Butylbenzene | 91 | 10.554 | 10.558 | (1.031) | 332695 | 24.4588 | 24.45 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.474 | (0.926) | 515682 | 25.9103 | 25.91 |
| 92 Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 359474 | 22.4263 | 22.42 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 170427 | 25.6392 | 25.63 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 425090 | 25.4139 | 25.41 |
| 64 Styrene | 104 | 8.826 | 8.822 | (1.070) | 290415 | 26.2974 | 26.29 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 293816 | 25.3946 | 25.39 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.521 | (0.912) | 68956 | 24.2180 | 24.21 |
| 50 Toluene | 91 | 7.049 | 7.045 | (0.855) | 422501 | 26.1152 | 26.11 |
| 20 trans-1,2-Dichloroethene | 96 | 3.143 | 3.139 | (0.642) | 93150 | 23.0664 | 23.06 |
| 51 trans-1,3-Dichloropropene | 75 | 7.263 | 7.259 | (1.290) | 119186 | 21.3804 | 21.38 |
| 38 Trichloroethene | 130 | 5.865 | 5.861 | (1.042) | 100047 | 26.1873 | 26.18 |
| 8 Trichlorofluoromethane | 101 | 1.959 | 1.951 | (0.400) | 125967 | 22.5008 | 22.50 |
| 5 Vinyl Chloride | 62 | 1.423 | 1.419 | (0.291) | 101003 | 21.2662 | 21.26 |

QC Flag Legend

M - Compound response manually integrated.

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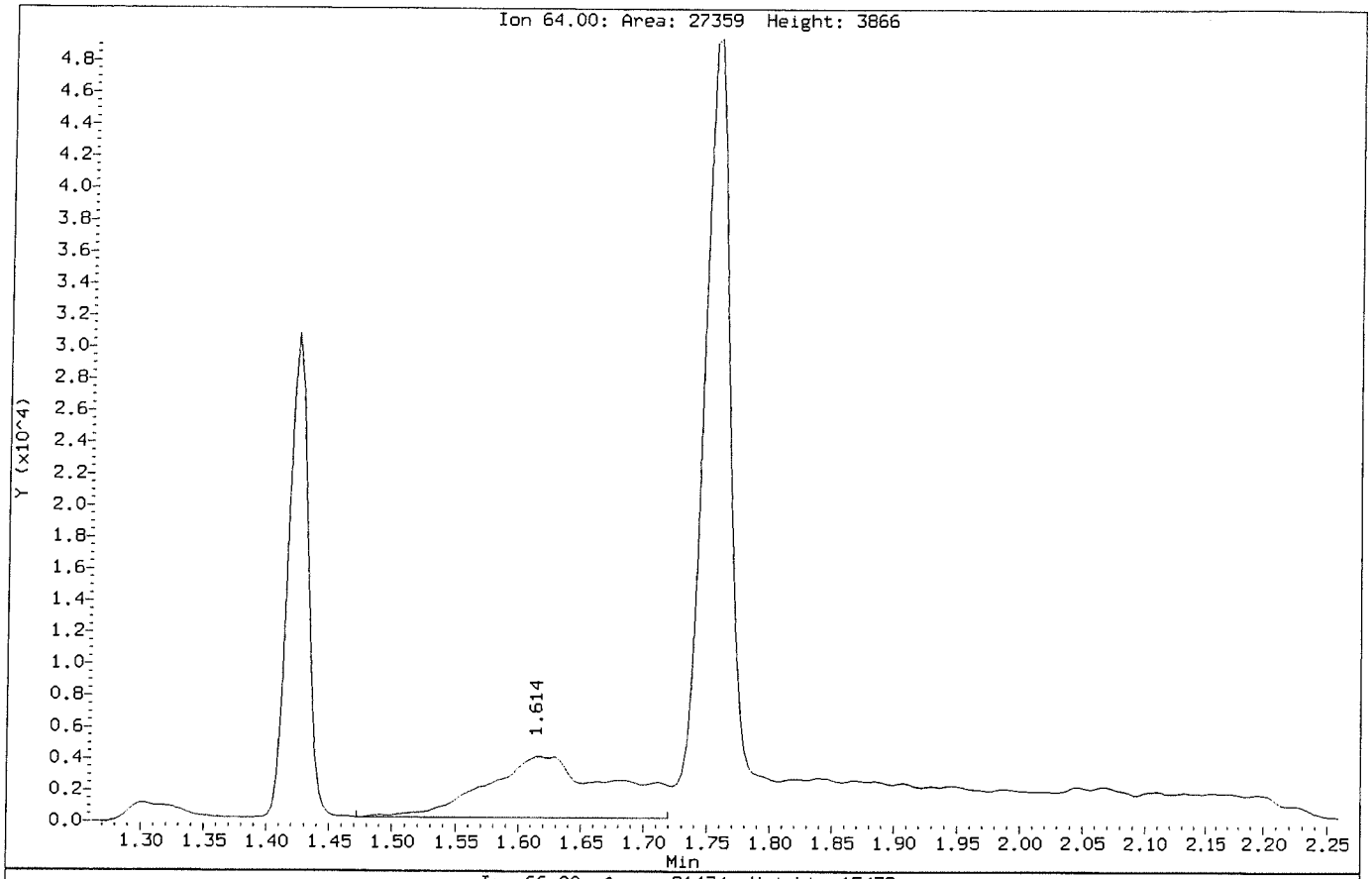
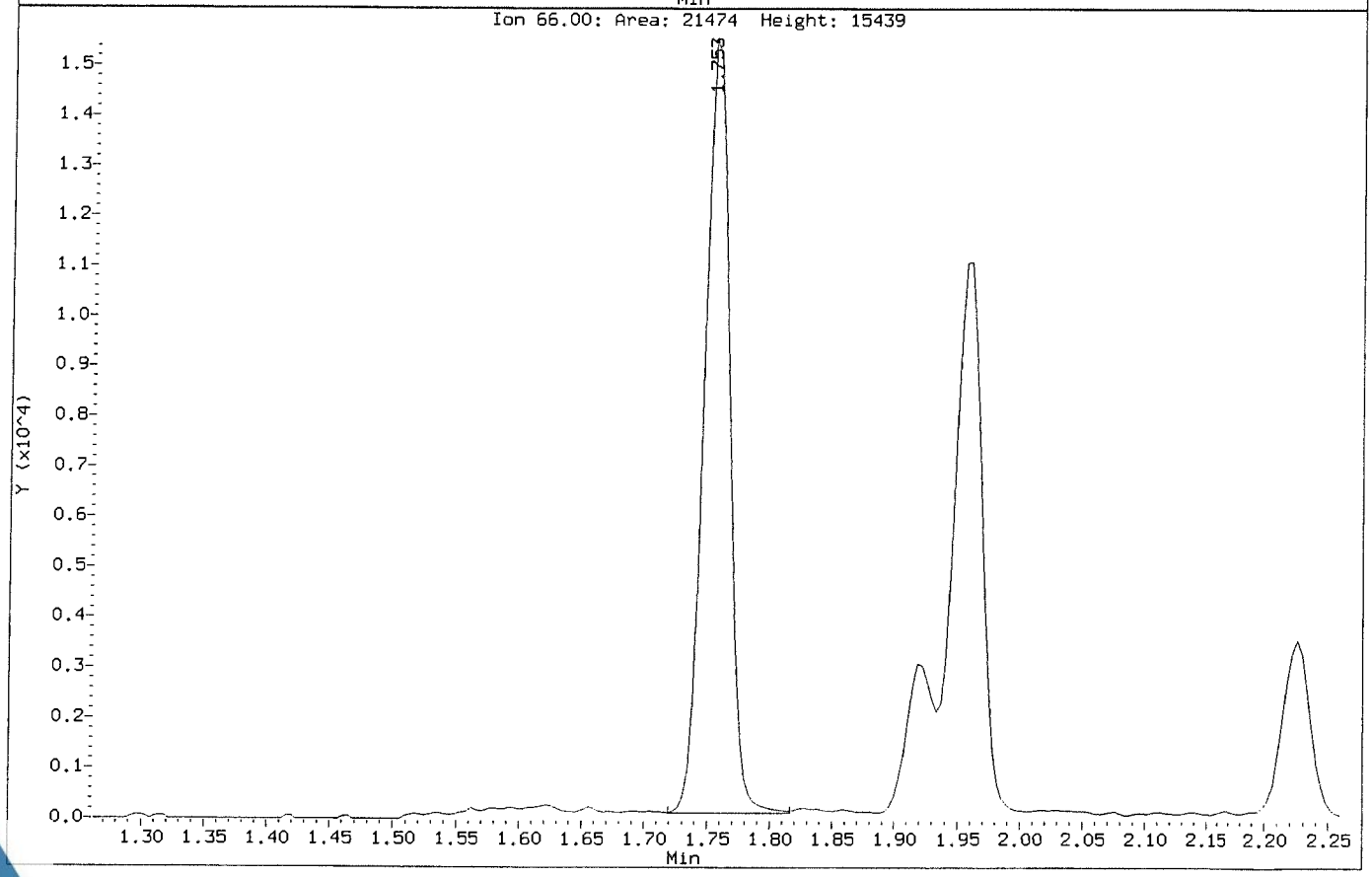
Sample Info: HS18120913-03MS;HS18120913-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122415.D
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

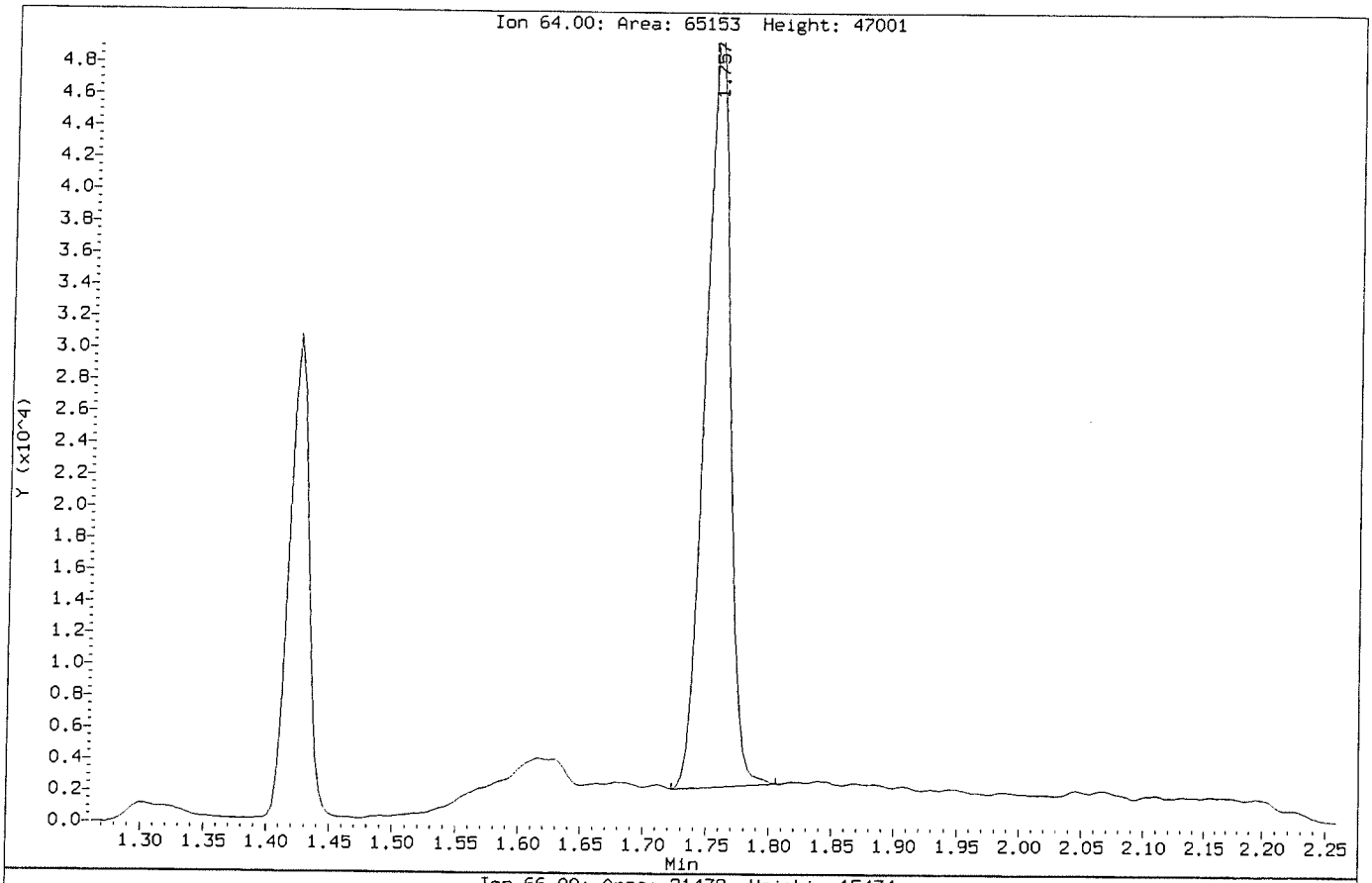
Compound: Chloroethane
CAS Number: 75-00-3

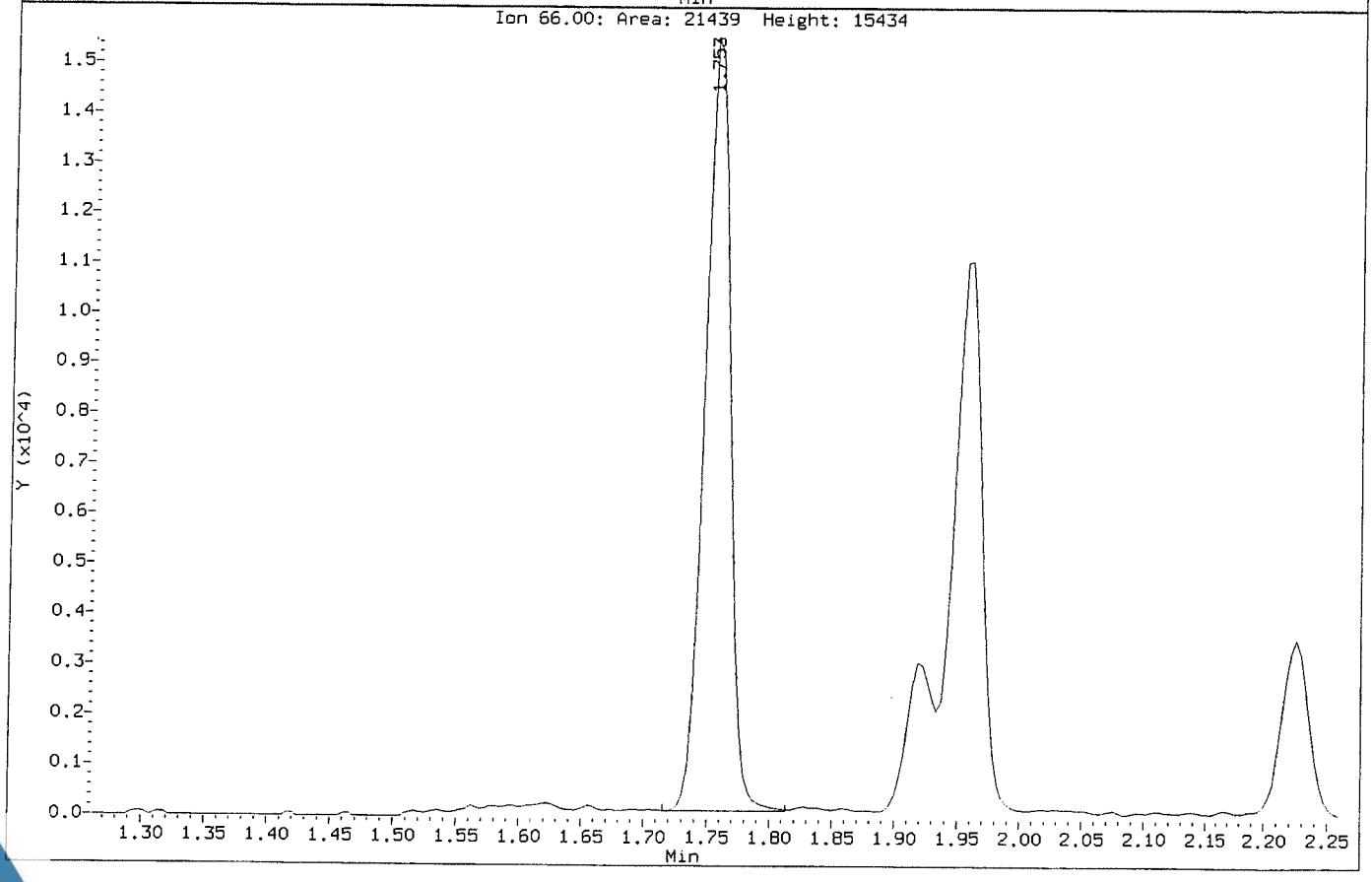


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Lab Smp Id: HS18120913-03MSD Client Smp ID: HS18120913-03MSD
Inj Date : 24-DEC-2018 15:39
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MSD;HS18120913-03MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

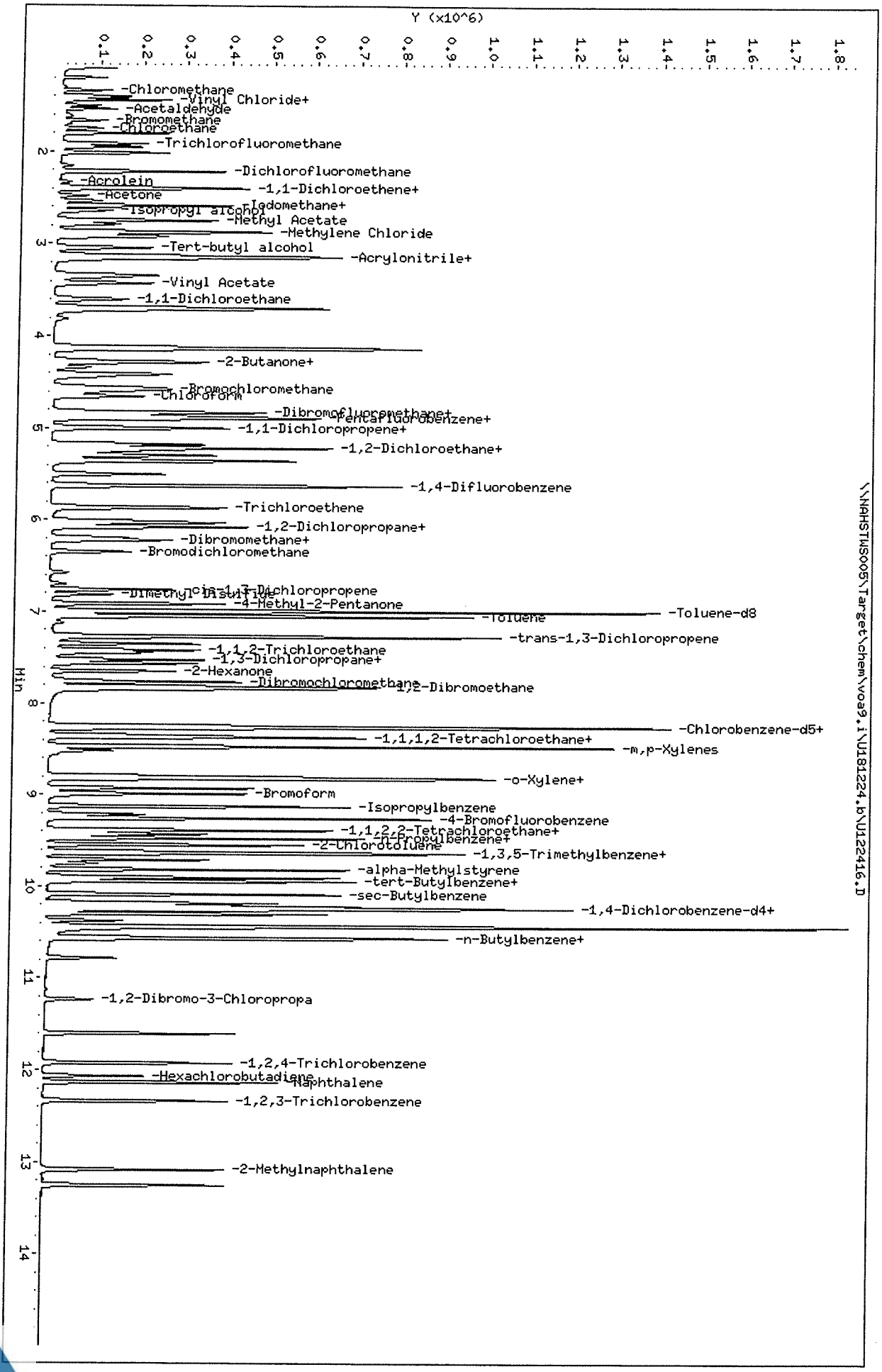
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 331424 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 576248 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 529623 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.235 | (1.000) | 254873 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.827 | 4.826 | (0.986) | 168144 | 45.8522 | 45.85 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 222561 | 47.3342 | 47.33 |
| $ | 48 Toluene-d8 | 98 | 6.990 | 6.989 | (0.847) | 724188 | 53.0583 | 53.05 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.258 | 9.257 | (1.122) | 269198 | 51.7556 | 51.75 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 77847 | 23.4774 | 23.47 |
| | 31 1,1,1-Trichloroethane | 97 | 4.827 | 4.826 | (0.986) | 124807 | 23.8493 | 23.84 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 146512 | 25.5255 | 25.52 |
| | 138 Freon TF | 101 | 2.397 | 2.401 | (0.490) | 69274 | 24.5863 | 24.58 |
| | 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.420 | (0.900) | 79929 | 25.3311 | 25.33 |
| | 22 1,1-Dichloroethane | 63 | 3.601 | 3.600 | (0.736) | 165784 | 23.2274 | 23.22 |
| | 11 1,1-Dichloroethene | 96 | 2.397 | 2.401 | (0.490) | 72848 | 23.1174 | 23.11 |
| | 32 1,1-Dichloropropene | 75 | 5.003 | 5.002 | (0.889) | 129339 | 25.2259 | 25.22 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 110289 | 23.3059 | 23.30 |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 147392 | 24.6948 | 24.69 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.922 | (1.165) | 111669 | 23.6648 | 23.66 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.944 | 9.943 | (0.971) | 350216 | 26.2578 | 26.25 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 19134 | 22.4432 | 22.44 |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 93013 | 25.5928 | 25.59 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 2
Report Date: 28-Jan-2019 14:34

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.570 | 10.569 | (1.033) | 186214 | 24.6061 | 24.60 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 135491 | 25.7455 | 25.74 |
| 42 1,2-Dichloropropane | 63 | 6.079 | 6.078 | (1.081) | 100756 | 24.7452 | 24.74 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.624 | (0.940) | 337155 | 26.3216 | 26.32 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.179 | (0.995) | 184469 | 24.3737 | 24.37 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 173022 | 25.4574 | 25.45 |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.254 | (1.002) | 190330 | 23.8514 | 23.85 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.271 | (0.874) | 97599 | 22.6905 | 22.69 |
| 24 2-Butanone | 43 | 4.339 | 4.335 | (0.887) | 107198 | 48.2282 | 48.22 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 300561 | 25.5945 | 25.59 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 159891 | 54.2919 | 54.29 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.639 | (0.942) | 351762 | 25.9211 | 25.92 |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.209 | (0.997) | 352635 | 26.1465 | 26.14 |
| 45 4-Methyl-2-Pentanone | 43 | 6.915 | 6.910 | (0.838) | 226082 | 53.3530 | 53.35 |
| 10 Acetone | 43 | 2.480 | 2.476 | (0.507) | 74295 | 56.1349 | 56.13 |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 391973 | 25.5625 | 25.56 |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 97267 | 24.6999 | 24.69 |
| 29 Bromochloromethane | 128 | 4.553 | 4.552 | (0.930) | 45259 | 24.5612 | 24.56 |
| 39 Bromodichloromethane | 83 | 6.349 | 6.348 | (1.129) | 107054 | 24.7242 | 24.72 |
| 66 Bromoform | 173 | 8.984 | 8.983 | (1.089) | 47071 | 21.7383 | 21.73 |
| 6 Bromomethane | 94 | 1.663 | 1.666 | (0.340) | 49208 | 24.7376 | 24.73 |
| 19 Carbon Disulfide | 76 | 2.585 | 2.588 | (0.528) | 503010 | 43.8079 | 43.80 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 96698 | 23.8270 | 23.82 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 255742 | 25.1317 | 25.13 |
| 7 Chloroethane | 64 | 1.749 | 1.748 | (0.357) | 64023 | 22.2494 | 22.24(M) |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 161546 | 23.5020 | 23.50 |
| 3 Chloromethane | 50 | 1.337 | 1.336 | (0.273) | 73406 | 22.7829 | 22.78 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.283 | (0.876) | 103515 | 23.7619 | 23.76 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 141799 | 22.2701 | 22.27 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 77586 | 22.8337 | 22.83 |
| 44 Dibromomethane | 93 | 6.191 | 6.187 | (1.101) | 59570 | 25.3492 | 25.34 |
| 2 Dichlorodifluoromethane | 85 | 1.202 | 1.201 | (0.246) | 61834 | 15.5009 | 15.50 |
| 61 Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 134489 | 25.7680 | 25.76 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 35933 | 19.8760 | 19.87 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 402846 | 26.7483 | 26.74 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 335947 | 52.3577 | 52.35 |
| 17 Methylene Chloride | 84 | 2.870 | 2.869 | (0.586) | 98201 | 23.3483 | 23.34 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 331532 | 25.4718 | 25.47 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.474 | (0.926) | 504768 | 26.5050 | 26.50 |
| 92 Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 367426 | 23.9167 | 23.91 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 168940 | 26.0992 | 26.09 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 419576 | 26.2148 | 26.21 |
| 64 Styrene | 104 | 8.826 | 8.822 | (1.070) | 285317 | 26.5308 | 26.53 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 289715 | 26.1687 | 26.16 |
| 56 Tetrachloroethene | 164 | 7.522 | 7.521 | (0.912) | 67478 | 24.3365 | 24.33 |
| 50 Toluene | 91 | 7.046 | 7.045 | (0.854) | 407430 | 25.8611 | 25.86 |
| 20 trans-1,2-Dichloroethene | 96 | 3.140 | 3.139 | (0.642) | 89909 | 23.1759 | 23.17 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 118283 | 21.8584 | 21.85 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 95016 | 25.6675 | 25.66 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 122329 | 22.7392 | 22.73 |
| 5 Vinyl Chloride | 62 | 1.415 | 1.419 | (0.289) | 98964 | 21.6711 | 21.67 |

QC Flag Legend

M - Compound response manually integrated.

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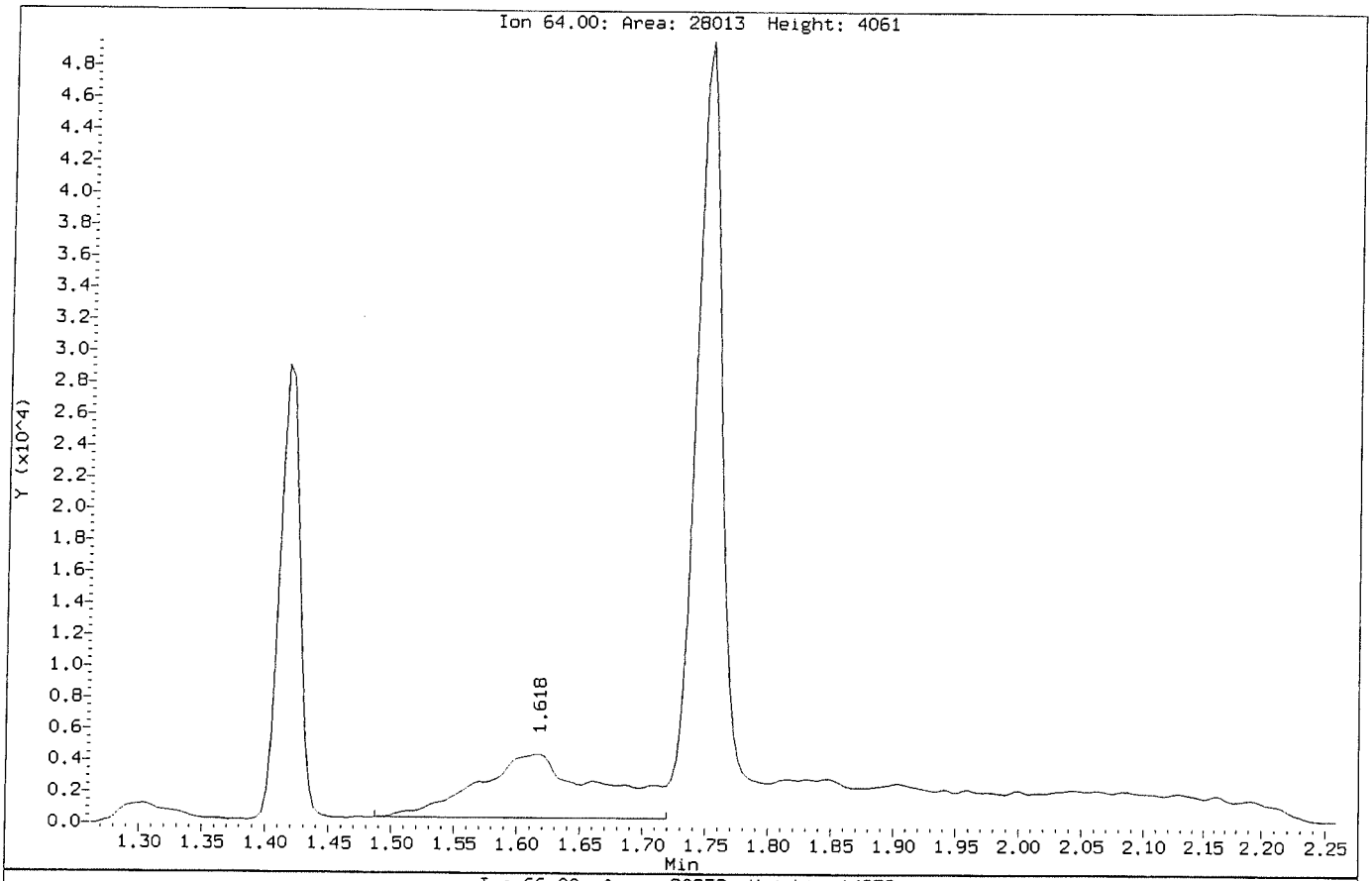
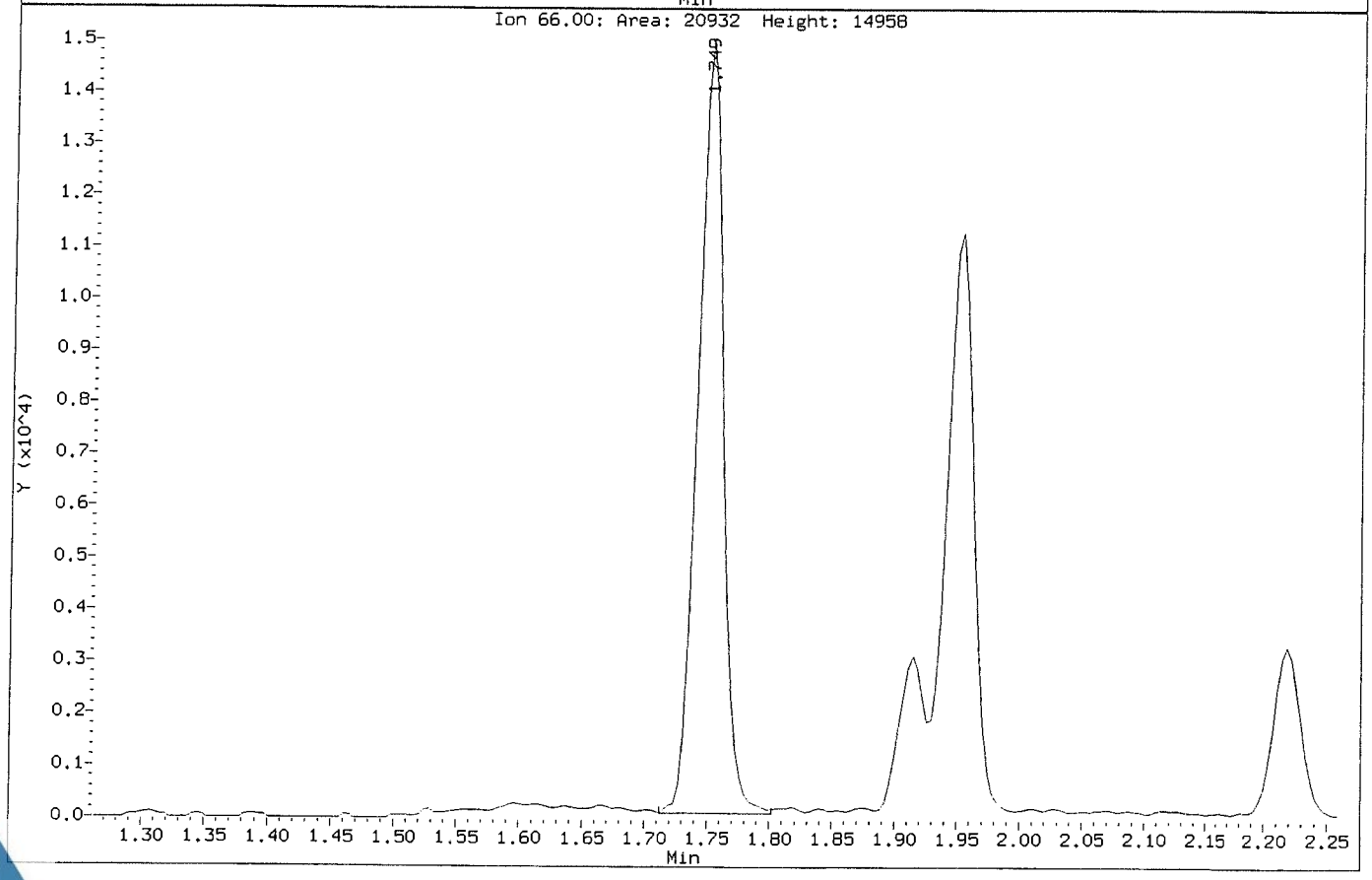
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122416.D
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

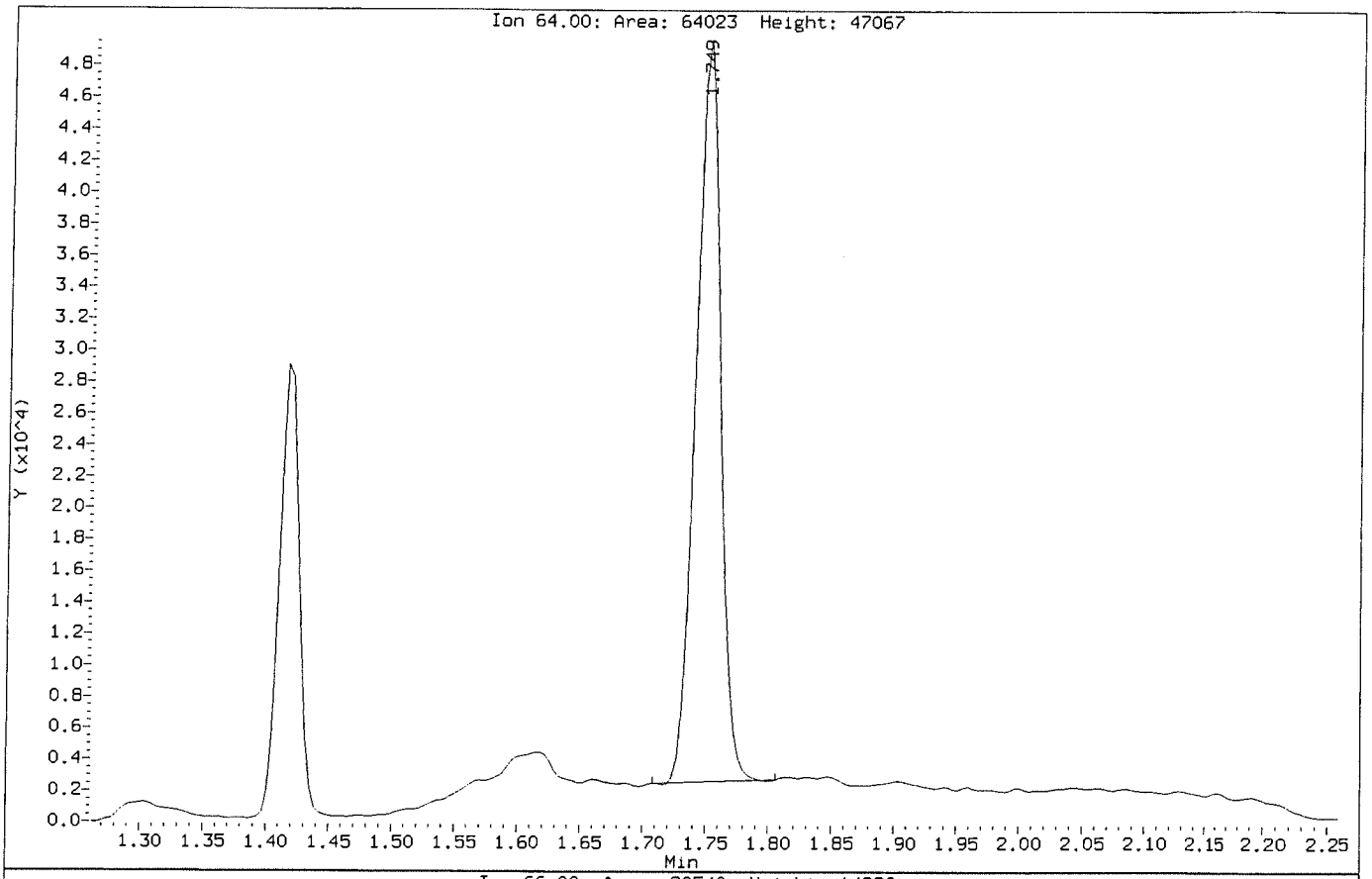
Compound: Chloroethane
CAS Number: 75-00-3

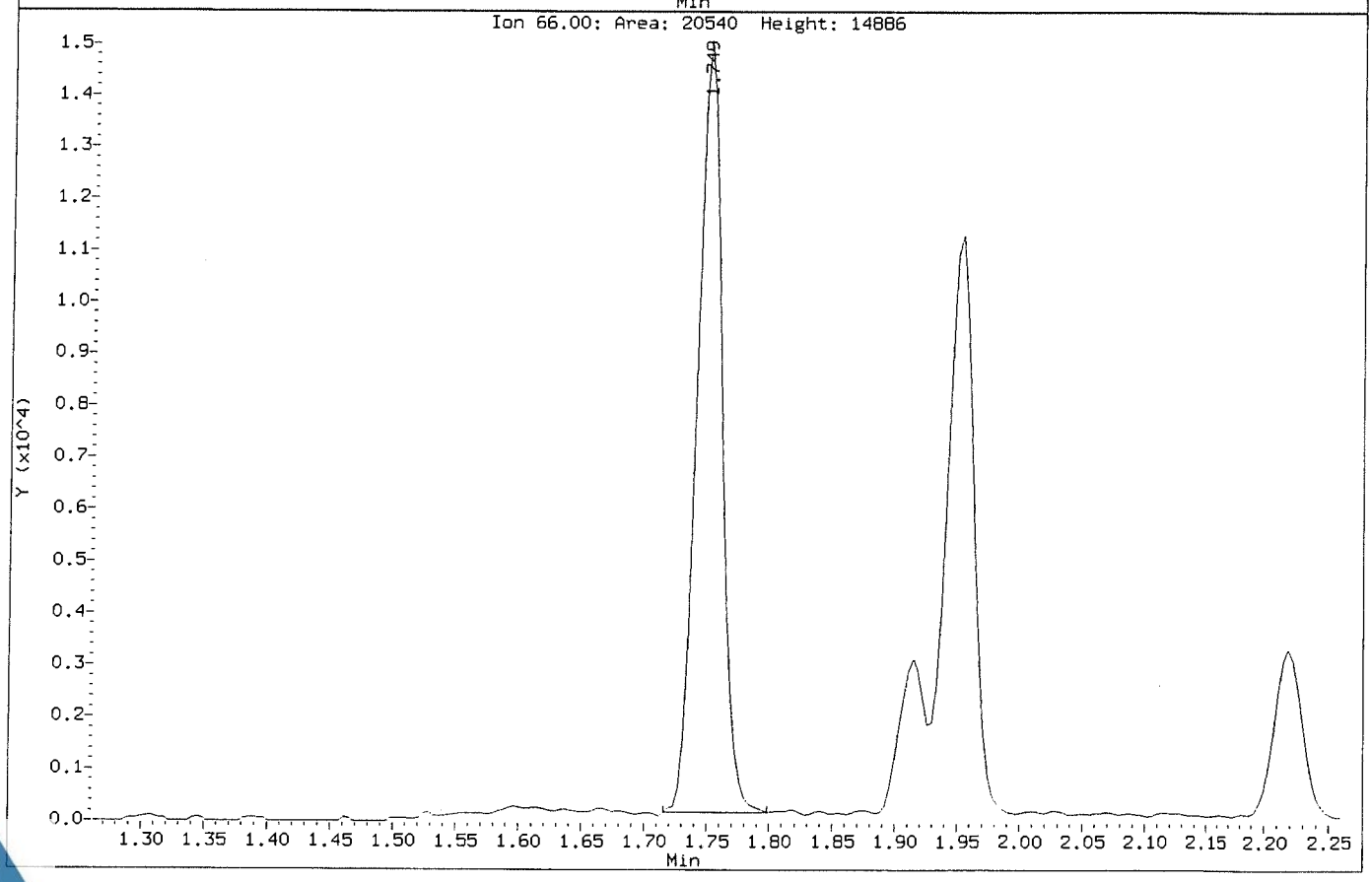


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 24-DEC-2018 20:37
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.902 | 4.902 | (1.000) | 372728 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 712334 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.253 | 8.253 | (1.000) | 666433 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 318419 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.986) | 218616 | 50.0000 | 53.24 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 288948 | 50.0000 | 54.97 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 875536 | 50.0000 | 50.90 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.258 | (1.122) | 336472 | 50.0000 | 51.40 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 202858 | 50.0000 | 47.99 |
| 31 1,1,1-Trichloroethane | 97 | 4.834 | 4.834 | (0.986) | 295777 | 50.0000 | 50.25 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 379460 | 50.0000 | 52.91 |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.492) | 148708 | 50.0000 | 46.92 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.899) | 206414 | 50.0000 | 51.98 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 409374 | 50.0000 | 50.99 |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.491) | 171295 | 50.0000 | 48.33 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 303180 | 50.0000 | 47.83 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 286736 | 50.0000 | 47.81 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 413440 | 50.0000 | 55.44 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 290679 | 50.0000 | 49.30 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.944 | 9.944 | (0.971) | 850301 | 50.0000 | 51.02 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 55844 | 50.0000 | 50.49 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.951) | 239717 | 50.0000 | 52.41 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D Page 2
Report Date: 28-Jan-2019 14:34

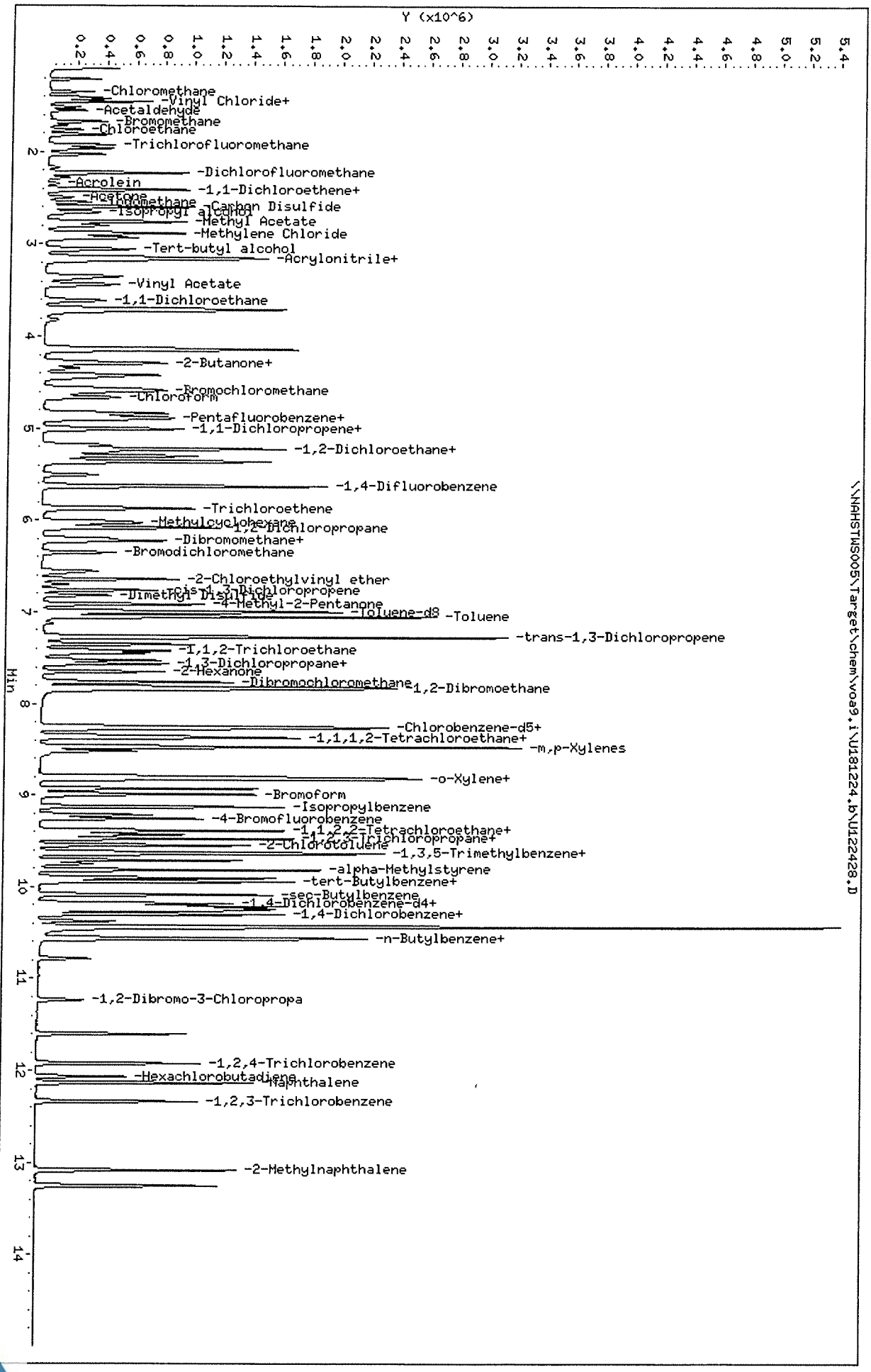
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.570 | 10.570 | (1.033) | 468743 | 50.0000 | 49.57 |
| 33 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 339214 | 50.0000 | 52.89 |
| 42 1,2-Dichloropropane | 63 | 6.086 | 6.086 | (1.081) | 256086 | 50.0000 | 50.87 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 818604 | 50.0000 | 51.15 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 461460 | 50.0000 | 48.80 |
| 54 1,3-Dichloropropane | 76 | 7.567 | 7.567 | (0.917) | 441740 | 50.0000 | 51.65 |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 472169 | 50.0000 | 47.36 |
| 26 2,2-Dichloropropane | 77 | 4.283 | 4.283 | (0.874) | 211110 | 50.0000 | 43.64 |
| 24 2-Butanone | 43 | 4.347 | 4.347 | (0.887) | 289643 | 100.000 | 119.28 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 729682 | 50.0000 | 49.73 |
| 52 2-Hexanone | 43 | 7.653 | 7.653 | (0.927) | 447227 | 100.000 | 120.68 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 854108 | 50.0000 | 50.37 |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 843466 | 50.0000 | 50.05 |
| 45 4-Methyl-2-Pentanone | 43 | 6.915 | 6.915 | (0.838) | 622617 | 100.000 | 116.76 |
| 10 Acetone | 43 | 2.491 | 2.491 | (0.508) | 191412 | 100.000 | 132.50 |
| 37 Benzene | 78 | 5.224 | 5.224 | (0.928) | 949351 | 50.0000 | 50.08 |
| 74 Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 244860 | 50.0000 | 49.77 |
| 29 Bromochloromethane | 128 | 4.560 | 4.560 | (0.930) | 111636 | 50.0000 | 57.58 |
| 39 Bromodichloromethane | 83 | 6.352 | 6.352 | (1.129) | 279220 | 50.0000 | 52.16 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 133700 | 50.0000 | 46.85(T) |
| 6 Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 119849 | 50.0000 | 52.01 |
| 19 Carbon Disulfide | 76 | 2.600 | 2.600 | (0.530) | 1247818 | 100.000 | 96.63 |
| 34 Carbon Tetrachloride | 117 | 5.003 | 5.003 | (0.889) | 228405 | 50.0000 | 44.25 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 634246 | 50.0000 | 49.53 |
| 7 Chloroethane | 64 | 1.760 | 1.760 | (0.359) | 163120 | 50.0000 | 49.36(M) |
| 28 Chloroform | 83 | 4.665 | 4.665 | (0.952) | 400691 | 50.0000 | 51.83 |
| 3 Chloromethane | 50 | 1.352 | 1.352 | (0.276) | 186619 | 50.0000 | 47.31 |
| 27 cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.876) | 251177 | 50.0000 | 51.26 |
| 46 cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 383373 | 50.0000 | 47.20 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 208683 | 50.0000 | 47.69 |
| 44 Dibromomethane | 93 | 6.195 | 6.195 | (1.101) | 152769 | 50.0000 | 52.58 |
| 2 Dichlorodifluoromethane | 85 | 1.217 | 1.217 | (0.248) | 203871 | 50.0000 | 44.50 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 327066 | 50.0000 | 49.80 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 97921 | 50.0000 | 43.35 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 956047 | 50.0000 | 50.44 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 808427 | 100.000 | 100.12 |
| 17 Methylene Chloride | 84 | 2.881 | 2.881 | (0.588) | 245953 | 50.0000 | 53.47 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 792193 | 50.0000 | 48.71 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1199674 | 50.0000 | 50.42 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 992990 | 50.0000 | 51.20 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 416328 | 50.0000 | 51.11 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 991870 | 50.0000 | 49.60 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.069) | 727808 | 50.0000 | 53.78 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 690339 | 50.0000 | 49.91 |
| 56 Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 156173 | 50.0000 | 44.76 |
| 50 Toluene | 91 | 7.050 | 7.050 | (0.854) | 992367 | 50.0000 | 50.05 |
| 20 trans-1,2-Dichloroethene | 96 | 3.151 | 3.151 | (0.643) | 218068 | 50.0000 | 49.98 |
| 51 trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 328161 | 50.0000 | 47.00 |
| 38 Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 221618 | 50.0000 | 48.43 |
| 8 Trichlorofluoromethane | 101 | 1.963 | 1.963 | (0.400) | 293963 | 50.0000 | 47.87 |
| 5 Vinyl Chloride | 62 | 1.430 | 1.430 | (0.292) | 258632 | 50.0000 | 49.07 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

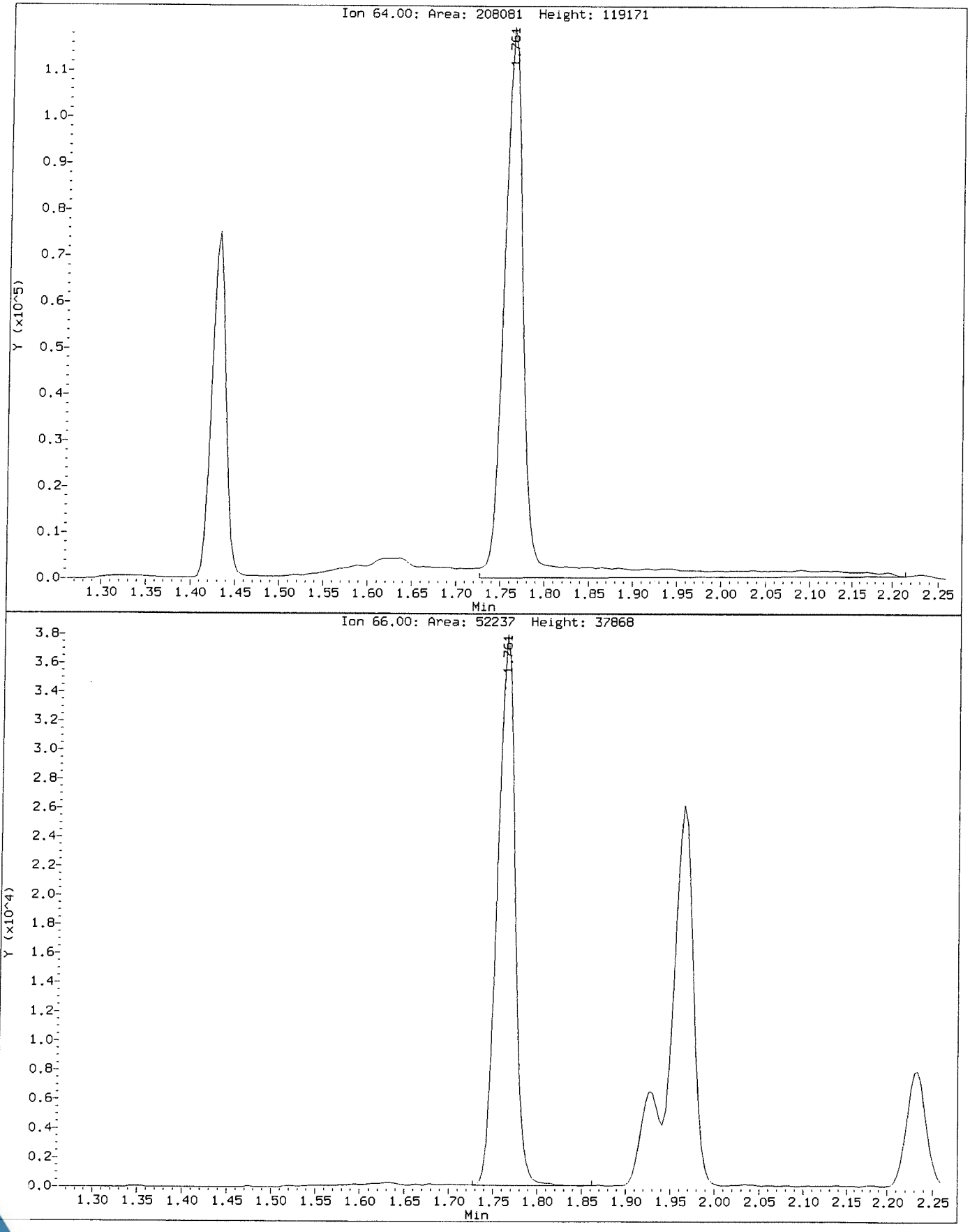
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Date : 24-DEC-2018 20:37
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



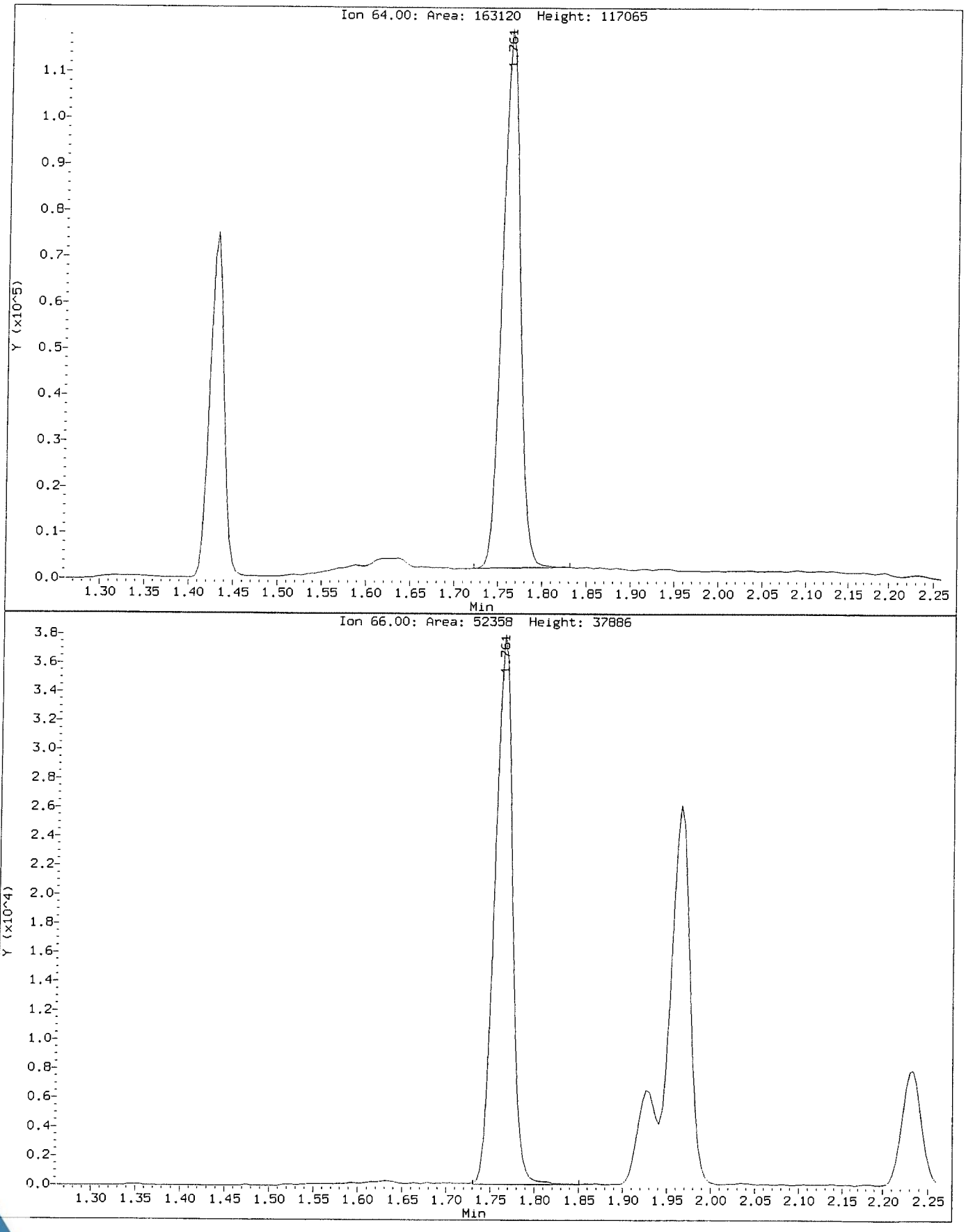
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3



# HS18120736 LHAAP58

ALS WO# HS18120736

**ALS Houston, US**

Date: 10-Jan-19

## Form 11 - INTERNAL STANDARD ASSOCIATION

**Client:** Bhate Environmental Associates, Inc.

**Project:** LHAAP-58

**WorkOrder:** HS18120736

Instrument:ICPMS04

| Mass | Analyte | Assoc Int Standard 1 | Assoc Int Standard 2 | Mode |
|---|---|---|---|---|
| 9 | Beryllium | Lithium | | Ar |
| 11 | Boron | Lithium | | Ar |
| 23 | Sodium | Germanium | | Ar |
| 24 | Magnesium | Germanium | | Ar |
| 27 | Aluminum | Germanium | | Ar |
| 39 | Potassium | Germanium | | Ar |
| 44 | Calcium | Germanium | | ArHe |
| 47 | Titanium | Germanium | | Ar |
| 51 | Vanadium | Germanium | | ArHe |
| 52 | Chromium | Germanium | | ArHe |
| 55 | Manganese | Germanium | | ArHe |
| 56 | Iron | Germanium | | ArHe |
| 59 | Cobalt | Germanium | | ArHe |
| 60 | Nickel | Germanium | | ArHe |
| 63 | Copper | Germanium | | ArHe |
| 66 | Zinc | Germanium | | ArHe |
| 75 | Arsenic | Germanium | | ArHe |
| 78 | Selenium | Germanium | | ArHe |
| 88 | Strontium | Germanium | | Ar |
| 95 | Molybdenum | Germanium | | Ar |
| 105 | Palladium | Germanium | | Ar |
| 107 | Silver | Germanium | | Ar |
| 111 | Cadmium | Indium | | Ar |
| 118 | Tin | Germanium | | Ar |
| 121 | Antimony | Germanium | | ArHe |
| 135 | Barium | Indium | | Ar |
| 203 | Thallium | Bismuth | | Ar |
| 208 | Lead | Bismuth | | Ar |

## Form 11 - INTERNAL STANDARD ASSOCIATION

**Client:** Bhate Environmental Associates, Inc. Instrument:ICPMS05

**Project:** LHAAP-58

**WorkOrder:** HS18120736

| Mass | Analyte | Assoc Int Standard 1 | Assoc Int Standard 2 | Mode |
|---|---|---|---|---|
| 9 | Beryllium | Lithium | | Ar |
| 11 | Boron | Lithium | | Ar |
| 23 | Sodium | Germanium | | Ar |
| 24 | Magnesium | Germanium | | Ar |
| 27 | Aluminum | Germanium | | Ar |
| 39 | Potassium | Germanium | | Ar |
| 44 | Calcium | Germanium | | Ar |
| 47 | Titanium | Germanium | | Ar |
| 51 | Vanadium | Germanium | | ArHe |
| 52 | Chromium | Germanium | | ArHe |
| 55 | Manganese | Germanium | | ArHe |
| 56 | Iron | Germanium | | ArHe |
| 59 | Cobalt | Germanium | | ArHe |
| 60 | Nickel | Germanium | | ArHe |
| 63 | Copper | Germanium | | ArHe |
| 66 | Zinc | Germanium | | ArHe |
| 75 | Arsenic | Germanium | | ArHe |
| 78 | Selenium | Germanium | | ArHe |
| 88 | Strontium | Germanium | | Ar |
| 95 | Molybdenum | Germanium | | Ar |
| 105 | Palladium | Germanium | | Ar |
| 107 | Silver | Germanium | | Ar |
| 114 | Cadmium | Indium | | Ar |
| 118 | Tin | Germanium | | Ar |
| 121 | Antimony | Germanium | | ArHe |
| 137 | Barium | Indium | | Ar |
| 205 | Thallium | Bismuth | | Ar |
| 208 | Lead | Bismuth | | Ar |

# FORM 12 - PREPARATION LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736
Start Date: 19-Dec-2018 13:00 End Date: 19-Dec-2018 17:00

Batch ID: 135804
Prep Code: 3010A
Method: SW3010A
Technician:

| SampID | ClientID | Matrix | Init Wt | Init Vol | FinalVol (mL) | PrepFac |
|---|---|---|---|---|---|---|
| HS18120736-01 | 03WW01_121218 | Groundwater | | 10 | 10 | 1 |
| HS18120736-02 | 35AWW08_121218 | Groundwater | | 10 | 10 | 1 |
| HS18120736-03 | 35AWW10_121218 | Groundwater | | 10 | 10 | 1 |
| HS18120736-04 | 35AWW10_121218_a | Groundwater | | 10 | 10 | 1 |
| HS18120736-08 | 35AWW09_121118 | Water | | 10 | 10 | 1 |
| HS18120913-04MS | | | | 10 | 10 | 1 |
| HS18120913-04MSD | | | | 10 | 10 | 1 |
| HS18120913-04PDS | | | | 10 | 10 | 1 |
| HS18120913-04SD | | | | 10 | 10 | 1 |
| LCS-135804 | | | | 10 | 10 | 1 |
| MBLK-135804 | | | | 10 | 10 | 1 |

## FORM 12 - PREPARATION LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736
Start Date: 19-Dec-2018 13:00 End Date: 19-Dec-2018 17:00

Batch ID: 135805
Prep Code: 3010A Diss
Method: SW3010A
Technician:

| SampID | ClientID | Matrix | Init Wt | Init Vol | FinalVol (mL) | PrepFac |
|---|---|---|---|---|---|---|
| HS18120736-01 | 03WW01_121218 | Groundwater | | 10 | 10 | 1 |
| HS18120736-02 | 35AWW08_121218 | Groundwater | | 10 | 10 | 1 |
| HS18120736-03 | 35AWW10_121218 | Groundwater | | 10 | 10 | 1 |
| HS18120736-04 | 35AWW10_121218_a | Groundwater | | 10 | 10 | 1 |
| HS18120927-08MS | | | | 10 | 10 | 1 |
| HS18120927-08MSD | | | | 10 | 10 | 1 |
| HS18120927-08PDS | | | | 10 | 10 | 1 |
| HS18120927-08SD | | | | 10 | 10 | 1 |
| LCS-135805 | | | | 10 | 10 | 1 |
| MBLK-135805 | | | | 10 | 10 | 1 |

## FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:SW6020

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| CAL BLK | 1 | 21-Dec-2018 12:57 | 014CALB.d_4877193 | AS FE MN |
| 2/10/200 | 1 | 21-Dec-2018 12:59 | 015CALS.d_4877194 | AS FE MN |
| 5/25/500 | 1 | 21-Dec-2018 13:01 | 016CALS.d_4877195 | AS FE MN |
| 10/50/1000 | 1 | 21-Dec-2018 13:03 | 017CALS.d_4877196 | AS FE MN |
| 100/500/10K | 1 | 21-Dec-2018 13:06 | 018CALS.d_4877197 | AS FE MN |
| 200/1000/20K | 1 | 21-Dec-2018 13:08 | 019CALS.d_4877198 | AS FE MN |
| ICV | 1 | 21-Dec-2018 13:12 | 021_ICV.d_4877200 | AS FE MN |
| LLICV2 | 1 | 21-Dec-2018 13:14 | 022SMPL.d_4877201 | AS FE MN |
| LLICV5 | 1 | 21-Dec-2018 13:17 | 023LICV.d_4877202 | AS FE MN |
| ICB | 1 | 21-Dec-2018 13:19 | 024_ICB.d_4877203 | AS FE MN |
| ICSA | 1 | 21-Dec-2018 13:36 | 025ICSA.d_4877204 | AS FE MN |
| ICSAB | 1 | 21-Dec-2018 13:38 | 026ICSB.d_4877205 | AS FE MN |
| CCV 1 | 1 | 21-Dec-2018 14:07 | 038_CCV.d_4877419 | AS FE MN |
| CCB 1 | 1 | 21-Dec-2018 14:09 | 039_CCB.d_4877420 | AS FE MN |
| CCB 2 | 1 | 21-Dec-2018 14:47 | 051_CCB.d_4877517 | AS FE MN |
| CCV 2 | 1 | 21-Dec-2018 15:12 | 053_CCV.d_4877562 | AS FE MN |
| CCB 3 | 1 | 21-Dec-2018 15:45 | 064_CCB.d_4877606 | AS FE MN |
| CCV 3 | 1 | 21-Dec-2018 15:57 | 066_CCV.d_4877806 | AS FE MN |
| CCV 4 | 1 | 21-Dec-2018 16:59 | 076_CCV.d_4877824 | AS FE MN |
| CCB 4 | 1 | 21-Dec-2018 17:01 | 077_CCB.d_4877825 | AS FE MN |
| CCV 5 | 1 | 21-Dec-2018 17:32 | 088_CCV.d_4877944 | AS FE MN |
| CCB 5 | 1 | 21-Dec-2018 17:34 | 089_CCB.d_4877945 | AS FE MN |
| CCV 6 | 1 | 21-Dec-2018 18:09 | 093_CCV.d_4878002 | AS FE MN |
| CCB 6 | 1 | 21-Dec-2018 18:11 | 094_CCB.d_4878003 | AS FE MN |
| CCV 7 | 1 | 21-Dec-2018 18:44 | 105_CCV.d_4878027 | AS FE MN |
| CCB 7 | 1 | 21-Dec-2018 18:46 | 106_CCB.d_4878028 | AS FE MN |
| CCV 8 | 1 | 21-Dec-2018 19:16 | 117_CCV.d_4878173 | AS FE MN |
| CCB 8 | 1 | 21-Dec-2018 19:18 | 118_CCB.d_4878174 | AS FE MN |
| CCV 9 | 1 | 21-Dec-2018 19:51 | 129_CCV.d_4878188 | AS FE MN |
| CCB 9 | 1 | 21-Dec-2018 19:53 | 130_CCB.d_4878189 | AS FE MN |
| CCV 10 | 1 | 21-Dec-2018 20:23 | 141_CCV.d_4878292 | AS FE MN |
| CCB 10 | 1 | 21-Dec-2018 20:25 | 142_CCB.d_4878293 | AS FE MN |
| CCV 11 | 1 | 21-Dec-2018 20:40 | 148_CCV.d_4878299 | AS FE MN |
| CCB 11 | 1 | 21-Dec-2018 20:42 | 149_CCB.d_4878300 | AS FE MN |
| MBLK-135804 | 1 | 21-Dec-2018 21:07 | 151SMPL.d_4879116 | AS FE MN |
| LCS-135804 | 1 | 21-Dec-2018 21:10 | 152SMPL.d_4879117 | AS FE MN |
| CCV 12 | 1 | 21-Dec-2018 21:28 | 160_CCV.d_4879125 | AS FE MN |
| CCB 12 | 1 | 21-Dec-2018 21:30 | 161_CCB.d_4879126 | AS FE MN |
| 03WW01_121218 | 1 | 21-Dec-2018 21:37 | 164SMPL.d_4879129 | FE |
| 35AWW08_121218 | 10 | 21-Dec-2018 21:39 | 165SMPL.d_4879130 | AS FE MN |
| 35AWW10_121218 | 1 | 21-Dec-2018 21:41 | 166SMPL.d_4879131 | FE MN |
| 35AWW10_121218_a | 1 | 21-Dec-2018 21:44 | 167SMPL.d_4879132 | FE MN |
| 35AWW09_121118 | 1 | 21-Dec-2018 21:46 | 168SMPL.d_4879133 | AS |
| CCV 13 | 1 | 21-Dec-2018 21:55 | 172_CCV.d_4879137 | AS FE MN |
| CCB 13 | 1 | 21-Dec-2018 21:57 | 173_CCB.d_4879138 | AS FE MN |
| ZZZZZZSD | 5 | 21-Dec-2018 22:10 | 176SMPL.d_4879141 | AS FE MN |
| ZZZZZZMS | 1 | 21-Dec-2018 22:12 | 177SMPL.d_4879142 | AS FE MN |
| ZZZZZZMSD | 1 | 21-Dec-2018 22:14 | 178SMPL.d_4879143 | AS FE MN |
| ZZZZZZPDS | 1 | 21-Dec-2018 22:17 | 179SMPL.d_4879144 | AS FE MN |
| CCV 14 | 1 | 21-Dec-2018 22:21 | 181_CCV.d_4879146 | AS FE MN |
| CCB 14 | 1 | 21-Dec-2018 22:23 | 182_CCB.d_4879147 | AS FE MN |

# FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:SW6020

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| CAL BLK | 1 | 21-Dec-2018 22:57 | 193CALB.d_4879261 | AS FE MN |
| 2/10/200 | 1 | 21-Dec-2018 22:59 | 194CALS.d_4879262 | AS FE MN |
| 5/25/500 | 1 | 21-Dec-2018 23:01 | 195CALS.d_4879263 | AS FE MN |
| 10/50/1000 | 1 | 21-Dec-2018 23:03 | 196CALS.d_4879264 | AS FE MN |
| 100/500/10K | 1 | 21-Dec-2018 23:06 | 197CALS.d_4879265 | AS FE MN |
| 200/1000/20K | 1 | 21-Dec-2018 23:08 | 198CALS.d_4879269 | AS FE MN |
| ICCV 15 | 1 | 21-Dec-2018 23:12 | 200_ICV.d_4879271 | AS FE MN |
| LLCCV2 | 1 | 21-Dec-2018 23:15 | 201SMPL.d_4879272 | AS FE MN |
| LLCCV5 | 1 | 21-Dec-2018 23:17 | 202LICV.d_4879273 | AS FE MN |
| ICCB 15 | 1 | 21-Dec-2018 23:19 | 203_ICB.d_4879274 | AS FE MN |
| MBLK-135805 | 1 | 21-Dec-2018 23:24 | 205SMPL.d_4879287 | FE MN |
| LCS-135805 | 1 | 21-Dec-2018 23:26 | 206SMPL.d_4879288 | FE MN |
| CCV 16 | 1 | 21-Dec-2018 23:42 | 213_CCV.d_4879295 | AS FE MN |
| CCB 16 | 1 | 21-Dec-2018 23:44 | 214_CCB.d_4879296 | AS FE MN |
| 03WW01_121218 | 1 | 21-Dec-2018 23:51 | 217SMPL.d_4879299 | FE |
| 35AWW08_121218 | 10 | 21-Dec-2018 23:53 | 218SMPL.d_4879300 | FE MN |
| 35AWW10_121218 | 1 | 21-Dec-2018 23:55 | 219SMPL.d_4879301 | FE MN |
| 35AWW10_121218_a | 1 | 21-Dec-2018 23:58 | 220SMPL.d_4879302 | FE MN |
| CCV 17 | 1 | 22-Dec-2018 00:02 | 222_CCV.d_4879304 | AS FE MN |
| CCB 17 | 1 | 22-Dec-2018 00:04 | 223_CCB.d_4879305 | AS FE MN |
| CCV 18 | 1 | 22-Dec-2018 00:36 | 231_CCV.d_4879319 | AS FE MN |
| CCB 18 | 1 | 22-Dec-2018 00:38 | 232_CCB.d_4879320 | AS FE MN |
| ZZZZZZSD | 50 | 22-Dec-2018 00:43 | 234SMPL.d_4879322 | FE MN |
| ZZZZZZMS | 10 | 22-Dec-2018 00:45 | 235SMPL.d_4879323 | FE MN |
| ZZZZZZMSD | 10 | 22-Dec-2018 00:47 | 236SMPL.d_4879324 | FE MN |
| ZZZZZZPDS | 10 | 22-Dec-2018 00:50 | 237SMPL.d_4879325 | FE MN |
| CCV 19 | 1 | 22-Dec-2018 00:56 | 240_CCV.d_4879328 | AS FE MN |
| CCB 19 | 1 | 22-Dec-2018 00:59 | 241_CCB.d_4879329 | AS FE MN |
| LLICV2 | 1 | 22-Dec-2018 01:01 | 242SMPL.d_4879330 | AS FE MN |
| LLICV5 | 1 | 22-Dec-2018 01:03 | 243LICV.d_4879331 | AS FE MN |
| ICSA | 1 | 22-Dec-2018 01:05 | 244ICSA.d_4879332 | AS FE MN |
| ICSAB | 1 | 22-Dec-2018 01:08 | 245ICSB.d_4879333 | AS FE MN |

# FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736
Start Date: 24-Dec-2018 End Date: 25-Dec-2018

Run ID:ICPMS05_329812
Instrument:ICPMS05
Method:

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| ICPMS05_329812_Tune | 1 | 24-Dec-2018 00:00 | ICPMS05_329812_Tune_1 | |
| CAL BLK | 1 | 24-Dec-2018 11:33 | 013CALB.d_4879781 | MN |
| 2/10/200 | 1 | 24-Dec-2018 11:35 | 014CALS.d_4879782 | MN |
| 5/25/500 | 1 | 24-Dec-2018 11:37 | 015CALS.d_4879783 | MN |
| 10/50/1000 | 1 | 24-Dec-2018 11:39 | 016CALS.d_4879784 | MN |
| 100/500/10K | 1 | 24-Dec-2018 11:41 | 017CALS.d_4879785 | MN |
| 200/1000/20K | 1 | 24-Dec-2018 11:43 | 018CALS.d_4879786 | MN |
| LLICV2 | 1 | 24-Dec-2018 11:49 | 021SMPL.d_4879789 | MN |
| LLICV5 | 1 | 24-Dec-2018 11:51 | 022LICV.d_4879790 | MN |
| ICB | 1 | 24-Dec-2018 11:53 | 023_ICB.d_4879791 | AS FE MN |
| ICV | 1 | 24-Dec-2018 12:13 | 025_ICV.d_4879793 | AS FE MN |
| ICSA | 1 | 24-Dec-2018 12:27 | 026ICSA.d_4879794 | MN |
| ICSAB | 1 | 24-Dec-2018 12:29 | 027ICSB.d_4879795 | MN |
| CCV 1 | 1 | 24-Dec-2018 13:12 | 039_CCV.d_4879947 | AS FE MN |
| CCB 1 | 1 | 24-Dec-2018 13:14 | 040_CCB.d_4879948 | AS FE MN |
| 03WW01_121218 | 50 | 24-Dec-2018 13:38 | 049SMPL.d_4880208 | MN |
| CCV 2 | 1 | 24-Dec-2018 13:42 | 051_CCV.d_4880210 | AS FE MN |
| CCB 2 | 1 | 24-Dec-2018 13:44 | 052_CCB.d_4880211 | AS FE MN |
| CCV 3 | 1 | 24-Dec-2018 13:46 | 053_CCV.d_4880212 | AS FE MN |
| CCB 3 | 1 | 24-Dec-2018 13:48 | 054_CCB.d_4880213 | AS FE MN |
| 03WW01_121218 | 50 | 24-Dec-2018 14:02 | 061SMPL.d_4880262 | MN |
| CCV 4 | 1 | 24-Dec-2018 14:10 | 065_CCV.d_4880266 | AS FE MN |
| CCB 4 | 1 | 24-Dec-2018 14:12 | 066_CCB.d_4880267 | AS FE MN |
| CCV 5 | 1 | 24-Dec-2018 14:20 | 070_CCV.d_4880594 | AS FE MN |
| CCB 5 | 1 | 24-Dec-2018 14:22 | 071_CCB.d_4880595 | AS FE MN |
| CCB 6 | 1 | 24-Dec-2018 17:00 | 083_CCB.d_4880607 | AS FE MN |
| CCV 6 | 1 | 24-Dec-2018 17:05 | 084_CCV.d_4880608 | AS FE MN |
| CCB 7 | 1 | 24-Dec-2018 17:24 | 092_CCB.d_4880616 | AS FE MN |
| CCV 7 | 1 | 24-Dec-2018 17:32 | 094_CCV.d_4880618 | AS FE MN |
| CCV 8 | 1 | 24-Dec-2018 17:50 | 103_CCV.d_4880669 | AS FE MN |
| CCB 8 | 1 | 24-Dec-2018 17:52 | 104_CCB.d_4880670 | AS FE MN |
| CCV 9 | 1 | 24-Dec-2018 18:33 | 113_CCV.d_4880729 | AS FE MN |
| CCB 9 | 1 | 24-Dec-2018 18:35 | 114_CCB.d_4880730 | AS FE MN |
| CCV 10 | 1 | 24-Dec-2018 18:49 | 118_CCV.d_4880734 | AS FE MN |
| CCB 10 | 1 | 24-Dec-2018 18:51 | 119_CCB.d_4880735 | AS FE MN |
| CAL BLK | 1 | 24-Dec-2018 18:59 | 123CALB.d_4881006 | MN |
| 2/10/200 | 1 | 24-Dec-2018 19:01 | 124CALS.d_4881007 | MN |
| 5/25/500 | 1 | 24-Dec-2018 19:03 | 125CALS.d_4881008 | MN |
| 10/50/1000 | 1 | 24-Dec-2018 19:05 | 126CALS.d_4881009 | MN |
| 100/500/10K | 1 | 24-Dec-2018 19:07 | 127CALS.d_4881010 | MN |
| 200/1000/20K | 1 | 24-Dec-2018 19:09 | 128CALS.d_4881011 | MN |
| ICCV 11 | 1 | 24-Dec-2018 19:11 | 129_ICV.d_4881012 | AS FE MN |
| LLCCV5 | 1 | 24-Dec-2018 19:15 | 131LICV.d_4881014 | MN |
| ICCB 11 | 1 | 24-Dec-2018 19:17 | 132_ICB.d_4881015 | AS FE MN |
| LLCCV2 | 1 | 24-Dec-2018 19:19 | 133SMPL.d_4881016 | MN |
| CCB 12 | 1 | 24-Dec-2018 19:33 | 138_CCB.d_4881048 | AS FE MN |
| CCV 12 | 1 | 24-Dec-2018 19:41 | 141_CCV.d_4881051 | AS FE MN |
| CCV 13 | 1 | 24-Dec-2018 19:53 | 147_CCV.d_4881057 | AS FE MN |
| CCB 13 | 1 | 24-Dec-2018 19:55 | 148_CCB.d_4881058 | AS FE MN |
| CCV 14 | 1 | 24-Dec-2018 20:17 | 159_CCV.d_4881069 | AS FE MN |
| CCB 14 | 1 | 24-Dec-2018 20:19 | 160_CCB.d_4881070 | AS FE MN |

# FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736
Start Date: 24-Dec-2018 End Date: 25-Dec-2018

Run ID:ICPMS05_329812
Instrument:ICPMS05
Method:

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| CCV 15 | 1 | 24-Dec-2018 20:34 | 168_CCV.d_4881078 | AS FE MN |
| CCB 15 | 1 | 24-Dec-2018 20:36 | 169_CCB.d_4881079 | AS FE MN |
| CCV 16 | 1 | 24-Dec-2018 20:54 | 178_CCV.d_4881088 | AS FE MN |
| CCB 16 | 1 | 24-Dec-2018 20:56 | 179_CCB.d_4881089 | AS FE MN |
| CCV 17 | 1 | 24-Dec-2018 21:18 | 190_CCV.d_4881167 | AS FE MN |
| CCB 17 | 1 | 24-Dec-2018 21:20 | 191_CCB.d_4881168 | AS FE MN |
| CCV 18 | 1 | 24-Dec-2018 21:36 | 199_CCV.d_4881176 | AS FE MN |
| CCB 18 | 1 | 24-Dec-2018 21:38 | 200_CCB.d_4881177 | AS FE MN |
| CCV 19 | 1 | 24-Dec-2018 22:00 | 211_CCV.d_4881188 | AS FE MN |
| CCB 19 | 1 | 24-Dec-2018 22:02 | 212_CCB.d_4881189 | AS FE MN |
| CCV 20 | 1 | 24-Dec-2018 22:23 | 223_CCV.d_4881200 | AS FE MN |
| CCB 20 | 1 | 24-Dec-2018 22:25 | 224_CCB.d_4881201 | AS FE MN |
| CAL BLK | 1 | 24-Dec-2018 22:39 | 231CALB.d_4881324 | MN |
| 2/10/200 | 1 | 24-Dec-2018 22:41 | 232CALS.d_4881325 | MN |
| 5/25/500 | 1 | 24-Dec-2018 22:43 | 233CALS.d_4881326 | MN |
| 10/50/1000 | 1 | 24-Dec-2018 22:45 | 234CALS.d_4881327 | MN |
| 100/500/10K | 1 | 24-Dec-2018 22:47 | 235CALS.d_4881328 | MN |
| 200/1000/20K | 1 | 24-Dec-2018 22:49 | 236CALS.d_4881329 | MN |
| ICCV 21 | 1 | 24-Dec-2018 22:51 | 237_ICV.d_4881330 | AS FE MN |
| LLCCV2 | 1 | 24-Dec-2018 22:53 | 238SMPL.d_4881331 | MN |
| LLCCV5 | 1 | 24-Dec-2018 22:55 | 239LICV.d_4881332 | MN |
| ICCB 21 | 1 | 24-Dec-2018 22:57 | 240_ICB.d_4881333 | AS FE MN |
| CCV 22 | 1 | 24-Dec-2018 23:21 | 252_CCV.d_4881399 | AS FE MN |
| CCB 22 | 1 | 24-Dec-2018 23:23 | 253_CCB.d_4881400 | AS FE MN |
| CCV 23 | 1 | 24-Dec-2018 23:45 | 264_CCV.d_4881411 | AS FE MN |
| CCB 23 | 1 | 24-Dec-2018 23:47 | 265_CCB.d_4881412 | AS FE MN |
| CCV 24 | 1 | 24-Dec-2018 23:53 | 268_CCV.d_4881415 | AS FE MN |
| CCB 24 | 1 | 24-Dec-2018 23:55 | 269_CCB.d_4881416 | AS FE MN |
| LLCCV5 | 1 | 24-Dec-2018 23:57 | 270LICV.d_4881417 | MN |
| LLCCV2 | 1 | 24-Dec-2018 23:59 | 271SMPL.d_4881418 | MN |
| ICSA | 1 | 25-Dec-2018 00:01 | 272ICSA.d_4881419 | MN |
| ICSAB | 1 | 25-Dec-2018 00:03 | 273ICSB.d_4881420 | MN |

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

ICV Date: 21-Dec-2018 13:12 Seq: 4877200 ICV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 102.764 | 103 | 90-110 | |
| Iron | 10000 | 10574.02 | 106 | 90-110 | |
| Manganese | 100 | 103.623 | 104 | 90-110 | |

CCV1 Date: 21-Dec-2018 14:07 Seq: 4877419 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 104.385 | 104 | 90-110 | |
| Iron | 10000 | 10839.127 | 108 | 90-110 | |
| Manganese | 100 | 103.031 | 103 | 90-110 | |

CCV2 Date: 21-Dec-2018 15:12 Seq: 4877562 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 103.155 | 103 | 90-110 | |
| Iron | 10000 | 10556.643 | 106 | 90-110 | |
| Manganese | 100 | 103.792 | 104 | 90-110 | |

CCV3 Date: 21-Dec-2018 15:57 Seq: 4877806 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 102.165 | 102 | 90-110 | |
| Iron | 10000 | 10257.711 | 103 | 90-110 | |
| Manganese | 100 | 101.308 | 101 | 90-110 | |

CCV4 Date: 21-Dec-2018 16:59 Seq: 4877824 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 98.559 | 99 | 90-110 | |
| Iron | 10000 | 10046.499 | 100 | 90-110 | |
| Manganese | 100 | 96.481 | 97 | 90-110 | |

CCV5 Date: 21-Dec-2018 17:32 Seq: 4877944 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 96.562 | 97 | 90-110 | |
| Iron | 10000 | 9882.79 | 99 | 90-110 | |
| Manganese | 100 | 95.811 | 96 | 90-110 | |

CCV6 Date: 21-Dec-2018 18:09 Seq: 4878002 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 99.666 | 100 | 90-110 | |
| Iron | 10000 | 10409.029 | 104 | 90-110 | |
| Manganese | 100 | 96.201 | 96 | 90-110 | |

CCV7 Date: 21-Dec-2018 18:44 Seq: 4878027 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 104.615 | 105 | 90-110 | |
| Iron | 10000 | 10070.795 | 101 | 90-110 | |
| Manganese | 100 | 100.473 | 100 | 90-110 | |

CCV8 Date: 21-Dec-2018 19:16 Seq: 4878173 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 101.432 | 101 | 90-110 | |
| Iron | 10000 | 10124.033 | 101 | 90-110 | |
| Manganese | 100 | 94.326 | 94 | 90-110 | |

CCV9 Date: 21-Dec-2018 19:51 Seq: 4878188 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 103.291 | 103 | 90-110 | |

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| CCV9 | Date: 21-Dec-2018 19:51 | | Seq: 4878188 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Iron | 10000 | 10071.437 | 101 | 90-110 | |
| Manganese | 100 | 99.427 | 99 | 90-110 | |

| CCV10 | Date: 21-Dec-2018 20:23 | | Seq: 4878292 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 101.201 | 101 | 90-110 | |
| Iron | 10000 | 9853.148 | 99 | 90-110 | |
| Manganese | 100 | 94.9 | 95 | 90-110 | |

| CCV11 | Date: 21-Dec-2018 20:40 | | Seq: 4878299 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 101.088 | 101 | 90-110 | |
| Iron | 10000 | 10376.441 | 104 | 90-110 | |
| Manganese | 100 | 92.065 | 92 | 90-110 | |

| CCV12 | Date: 21-Dec-2018 21:28 | | Seq: 4879125 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 102.789 | 103 | 90-110 | |
| Iron | 10000 | 10422.832 | 104 | 90-110 | |
| Manganese | 100 | 98.617 | 99 | 90-110 | |

| CCV13 | Date: 21-Dec-2018 21:55 | | Seq: 4879137 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 99.083 | 99 | 90-110 | |
| Iron | 10000 | 9696.836 | 97 | 90-110 | |
| Manganese | 100 | 93.952 | 94 | 90-110 | |

| CCV14 | Date: 21-Dec-2018 22:21 | | Seq: 4879146 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 102.89 | 103 | 90-110 | |
| Iron | 10000 | 9974.439 | 100 | 90-110 | |
| Manganese | 100 | 94.062 | 94 | 90-110 | |

| ICCV15 | Date: 21-Dec-2018 23:12 | | Seq: 4879271 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 101.778 | 102 | 90-110 | |
| Iron | 10000 | 9759.1 | 98 | 90-110 | |
| Manganese | 100 | 103.783 | 104 | 90-110 | |

| CCV16 | Date: 21-Dec-2018 23:42 | | Seq: 4879295 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 98.381 | 98 | 90-110 | |
| Iron | 10000 | 10276.043 | 103 | 90-110 | |
| Manganese | 100 | 97.859 | 98 | 90-110 | |

| CCV17 | Date: 22-Dec-2018 00:02 | | Seq: 4879304 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 103.546 | 104 | 90-110 | |
| Iron | 10000 | 9312.665 | 93 | 90-110 | |
| Manganese | 100 | 102.304 | 102 | 90-110 | |

| CCV18 | Date: 22-Dec-2018 00:36 | | Seq: 4879319 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 97.362 | 97 | 90-110 | |
| Iron | 10000 | 9837.847 | 98 | 90-110 | |

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

CCV18 Date: 22-Dec-2018 00:36 Seq: 4879319 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Manganese | 100 | 100.804 | 101 | 90-110 | |

CCV19 Date: 22-Dec-2018 00:56 Seq: 4879328 CCV Units: ug/L

| Analyte | True | Found | %R | Control Limits | Flag |
|---|---|---|---|---|---|
| Arsenic | 100 | 98.182 | 98 | 90-110 | |
| Iron | 10000 | 9418.586 | 94 | 90-110 | |
| Manganese | 100 | 98.991 | 99 | 90-110 | |

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

| ICV | Date: 24-Dec-2018 12:13 | | Seq: 4879793 | ICV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 99.824 | 100 | 90-110 | |

| CCV1 | Date: 24-Dec-2018 13:12 | | Seq: 4879947 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 93.055 | 93 | 90-110 | |

| CCV2 | Date: 24-Dec-2018 13:42 | | Seq: 4880210 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 94.979 | 95 | 90-110 | |

| CCV3 | Date: 24-Dec-2018 13:46 | | Seq: 4880212 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 93.043 | 93 | 90-110 | |

| CCV4 | Date: 24-Dec-2018 14:10 | | Seq: 4880266 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 94.844 | 95 | 90-110 | |

| CCV5 | Date: 24-Dec-2018 14:20 | | Seq: 4880594 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 93.871 | 94 | 90-110 | |

| CCV6 | Date: 24-Dec-2018 17:05 | | Seq: 4880608 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 98.304 | 98 | 90-110 | |

| CCV7 | Date: 24-Dec-2018 17:32 | | Seq: 4880618 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 98.278 | 98 | 90-110 | |

| CCV8 | Date: 24-Dec-2018 17:50 | | Seq: 4880669 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 98.614 | 99 | 90-110 | |

| CCV9 | Date: 24-Dec-2018 18:33 | | Seq: 4880729 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 97.733 | 98 | 90-110 | |

| CCV10 | Date: 24-Dec-2018 18:49 | | Seq: 4880734 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 96.382 | 96 | 90-110 | |

| ICCV11 | Date: 24-Dec-2018 19:11 | | Seq: 4881012 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 99.04 | 99 | 90-110 | |

| CCV12 | Date: 24-Dec-2018 19:41 | | Seq: 4881051 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 102.015 | 102 | 90-110 | |

| CCV13 | Date: 24-Dec-2018 19:53 | | Seq: 4881057 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 99.325 | 99 | 90-110 | |

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

| CCV14 | Date: 24-Dec-2018 20:17 | | Seq: 4881069 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 101.031 | 101 | 90-110 | |

| CCV15 | Date: 24-Dec-2018 20:34 | | Seq: 4881078 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 101.139 | 101 | 90-110 | |

| CCV16 | Date: 24-Dec-2018 20:54 | | Seq: 4881088 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 99.897 | 100 | 90-110 | |

| CCV17 | Date: 24-Dec-2018 21:18 | | Seq: 4881167 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 98.277 | 98 | 90-110 | |

| CCV18 | Date: 24-Dec-2018 21:36 | | Seq: 4881176 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 98.544 | 99 | 90-110 | |

| CCV19 | Date: 24-Dec-2018 22:00 | | Seq: 4881188 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 98.793 | 99 | 90-110 | |

| CCV20 | Date: 24-Dec-2018 22:23 | | Seq: 4881200 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 97.133 | 97 | 90-110 | |

| ICCV21 | Date: 24-Dec-2018 22:51 | | Seq: 4881330 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 96.404 | 96 | 90-110 | |

| CCV22 | Date: 24-Dec-2018 23:21 | | Seq: 4881399 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 99.414 | 99 | 90-110 | |

| CCV23 | Date: 24-Dec-2018 23:45 | | Seq: 4881411 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 99.399 | 99 | 90-110 | |

| CCV24 | Date: 24-Dec-2018 23:53 | | Seq: 4881415 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Manganese | 100 | 100.691 | 101 | 90-110 | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| ICB | Date: 21-Dec-2018 13:19 | | Seq: 4877203 | ICB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB1 | Date: 21-Dec-2018 14:09 | | Seq: 4877420 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB2 | Date: 21-Dec-2018 14:47 | | Seq: 4877517 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB3 | Date: 21-Dec-2018 15:45 | | Seq: 4877606 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB4 | Date: 21-Dec-2018 17:01 | | Seq: 4877825 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB5 | Date: 21-Dec-2018 17:34 | | Seq: 4877945 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB6 | Date: 21-Dec-2018 18:11 | | Seq: 4878003 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB7 | Date: 21-Dec-2018 18:46 | | Seq: 4878028 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 0.884 | 0.7 | 5 | J | |

| CCB8 | Date: 21-Dec-2018 19:18 | | Seq: 4878174 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB9 | Date: 21-Dec-2018 19:53 | | Seq: 4878189 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| CCB9 | Date: 21-Dec-2018 19:53 | | Seq: 4878189 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB10 | Date: 21-Dec-2018 20:25 | | Seq: 4878293 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB11 | Date: 21-Dec-2018 20:42 | | Seq: 4878300 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| MBLK-135804 | Date: 21-Dec-2018 21:07 | | Seq: 4879116 | MBLK | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB12 | Date: 21-Dec-2018 21:30 | | Seq: 4879126 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB13 | Date: 21-Dec-2018 21:57 | | Seq: 4879138 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB14 | Date: 21-Dec-2018 22:23 | | Seq: 4879147 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| ICCB15 | Date: 21-Dec-2018 23:19 | | Seq: 4879274 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| MBLK-135805 | Date: 21-Dec-2018 23:24 | | Seq: 4879287 | MBLK | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Iron | 200 | 12 | 200 | U | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB16 | Date: 21-Dec-2018 23:44 | | Seq: 4879296 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 23.09 | 12 | 200 | J | |
| Manganese | 5 | 0.7 | 5 | U | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| CCB17 | Date: 22-Dec-2018 00:04 | | Seq: 4879305 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 12.66 | 12 | 200 | J | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB18 | Date: 22-Dec-2018 00:38 | | Seq: 4879320 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 25.87 | 12 | 200 | J | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB19 | Date: 22-Dec-2018 00:59 | | Seq: 4879329 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |
| Iron | 17.81 | 12 | 200 | J | |
| Manganese | 5 | 0.7 | 5 | U | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

| | | | | | |
|---|---|---|---|---|---|
| ICB | Date: 24-Dec-2018 11:53 | | Seq: 4879791 | ICB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB1 | Date: 24-Dec-2018 13:14 | | Seq: 4879948 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB2 | Date: 24-Dec-2018 13:44 | | Seq: 4880211 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB3 | Date: 24-Dec-2018 13:48 | | Seq: 4880213 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB4 | Date: 24-Dec-2018 14:12 | | Seq: 4880267 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB5 | Date: 24-Dec-2018 14:22 | | Seq: 4880595 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB6 | Date: 24-Dec-2018 17:00 | | Seq: 4880607 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB7 | Date: 24-Dec-2018 17:24 | | Seq: 4880616 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB8 | Date: 24-Dec-2018 17:52 | | Seq: 4880670 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB9 | Date: 24-Dec-2018 18:35 | | Seq: 4880730 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB10 | Date: 24-Dec-2018 18:51 | | Seq: 4880735 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| ICCB11 | Date: 24-Dec-2018 19:17 | | Seq: 4881015 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |
| CCB12 | Date: 24-Dec-2018 19:33 | | Seq: 4881048 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.853 | 0.7 | 5 | J | |
| CCB13 | Date: 24-Dec-2018 19:55 | | Seq: 4881058 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.84 | 0.7 | 5 | J | |
| CCB14 | Date: 24-Dec-2018 20:19 | | Seq: 4881070 | CCB | Units: ug/L |
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.761 | 0.7 | 5 | J | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

| CCB15 | Date: 24-Dec-2018 20:36 | | Seq: 4881079 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.884 | 0.7 | 5 | J | |

| CCB16 | Date: 24-Dec-2018 20:56 | | Seq: 4881089 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.829 | 0.7 | 5 | J | |

| CCB17 | Date: 24-Dec-2018 21:20 | | Seq: 4881168 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.804 | 0.7 | 5 | J | |

| CCB18 | Date: 24-Dec-2018 21:38 | | Seq: 4881177 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.909 | 0.7 | 5 | J | |

| CCB19 | Date: 24-Dec-2018 22:02 | | Seq: 4881189 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.897 | 0.7 | 5 | J | |

| CCB20 | Date: 24-Dec-2018 22:25 | | Seq: 4881201 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.803 | 0.7 | 5 | J | |

| ICCB21 | Date: 24-Dec-2018 22:57 | | Seq: 4881333 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 5 | 0.7 | 5 | U | |

| CCB22 | Date: 24-Dec-2018 23:23 | | Seq: 4881400 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 0.956 | 0.7 | 5 | J | |

| CCB23 | Date: 24-Dec-2018 23:47 | | Seq: 4881412 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 1.068 | 0.7 | 5 | J | |

| CCB24 | Date: 24-Dec-2018 23:55 | | Seq: 4881416 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Manganese | 1.056 | 0.7 | 5 | J | |

## Form 4 - ICP Interference Check Sample

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| ICSA | Date: 21-Dec-2018 13:36 | Seq: 4877204 | ICSA | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | | 0.156 | 0 | |
| Iron | 100000 | 106000 | 106 | |
| Manganese | | 0.99 | 0 | |

| ICSAB | Date: 21-Dec-2018 13:38 | Seq: 4877205 | ICSAB | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | 100 | 114.4 | 114 | |
| Iron | 110000 | 111700 | 102 | |
| Manganese | 100 | 111.4 | 111 | |

| ICSA | Date: 22-Dec-2018 01:05 | Seq: 4879332 | ICSA | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | | 0.16 | 0 | |
| Iron | 100000 | 95310 | 95.3 | |
| Manganese | | 0.473 | 0 | |

| ICSAB | Date: 22-Dec-2018 01:08 | Seq: 4879333 | ICSAB | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | 100 | 109.6 | 110 | |
| Iron | 110000 | 111000 | 101 | |
| Manganese | 100 | 105.3 | 105 | |

## Form 4 - ICP Interference Check Sample

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

| ICSA | Date: 24-Dec-2018 12:27 | Seq: 4879794 | ICSA | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Manganese | | 0.675 | 0 | |

| ICSAB | Date: 24-Dec-2018 12:29 | Seq: 4879795 | ICSAB | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Manganese | 100 | 107.8 | 108 | |

| ICSA | Date: 25-Dec-2018 00:01 | Seq: 4881419 | ICSA | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Manganese | | 0.748 | 0 | |

| ICSAB | Date: 25-Dec-2018 00:03 | Seq: 4881420 | ICSAB | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Manganese | 100 | 109.5 | 109 | |

**Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery**

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Date Analyzed: 21-Dec-2018 22:14
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Matrix Spike: HS18120913-04MS — Analysis Method: SW6020
Client Sample ID:

| Analyte | Sample Result | MS Result | Spike Amount | % Rec | MSD Result | Spike Amount | % Rec | % Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 2.000 | 50.79 | 50.00 | 101 | 48.89 | 50.00 | 97.7 | 80-120 | 3.81 | 20 |
| Iron | 10760 | 15560 | 5000 | 96.0 | 15340 | 5000 | 91.6 | 80-120 | 1.43 | 20 |
| Manganese | 65.87 | 113.5 | 50.00 | 95.3 | 108.4 | 50.00 | 85.0 | 80-120 | 4.65 | 20 |

Matrix Spike: HS18120927-08MS — Analysis Method: SW6020
Client Sample ID:

| Analyte | Sample Result | MS Result | Spike Amount | % Rec | MSD Result | Spike Amount | % Rec | % Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2000 | 4965 | 5000 | 97.3 | 4346 | 5000 | 84.9 | 75-125 | 13.3 | 20 |
| Manganese | 50.00 | 41.04 | 50.00 | 72.1 | 35.26 | 50.00 | 60.5 | 75-125 | 0 | 20 |

## Form 5B - Post Digest Sample Recovery

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Date Analyzed: 21-Dec-2018 22:17
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04PDS
Client Sample ID:
Analysis Method: SW6020

| Analyte | Sample Result | PDS Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Arsenic | 0 | 107.4 | 100 | 107 | 75-125 |
| Iron | 10760 | 22170 | 10000 | 114 | 75-125 |
| Manganese | 65.87 | 163.2 | 100 | 97 | 75-125 |

Lab Sample ID: HS18120927-08PDS
Client Sample ID:
Analysis Method: SW6020

| Analyte | Sample Result | PDS Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Iron | 0 | 99190 | 100000 | 99 | 75-125 |
| Manganese | 0 | 1104 | 1000 | 110 | 75-125 |

**Form 7 - Laboratory Control Sample**

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Date Analyzed: 21-Dec-2018 21:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: LCS-135804 Analysis Method: SW6020

| Analyte | Spike Amount | LCS Result | % Rec | % Rec Limits |
|---|---|---|---|---|
| Arsenic | 50 | 49.62 | 99 | 80-120 |
| Iron | 5000 | 4811 | 96 | 80-120 |
| Manganese | 50 | 47.29 | 95 | 80-120 |

Lab Sample ID: LCS-135805 Analysis Method: SW6020

| Analyte | Spike Amount | LCS Result | % Rec | % Rec Limits |
|---|---|---|---|---|
| Iron | 5000 | 4612 | 92 | 80-120 |
| Manganese | 50 | 47.44 | 95 | 80-120 |

## Form 8 - ICP Serial Dilutions

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120736

Date Analyzed: 21-Dec-2018 22:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04SD
Client Sample ID:

Analysis Method: SW6020

| Analyte | Sample Result | C | SD Result | C | RPD | Q |
|---|---|---|---|---|---|---|
| Arsenic | 0 | U | 0 | U | 0 | |
| Iron | 10760 | | 11500 | | 7 | |
| Manganese | 65.87 | | 66.12 | | 0 | |

Lab Sample ID: HS18120927-08SD
Client Sample ID:

Analysis Method: SW6020

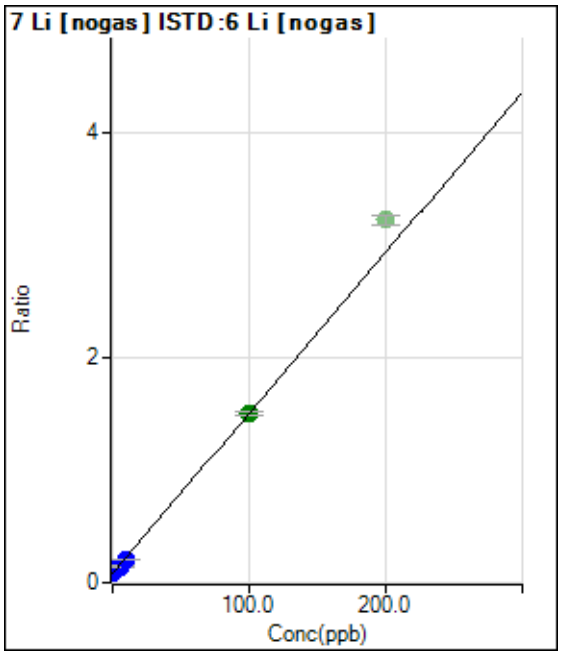
| Analyte | Sample Result | C | SD Result | C | RPD | Q |
|---|---|---|---|---|---|---|
| Iron | 0 | U | 620.1 | J | 514 | |
| Manganese | 0 | U | 0 | U | 0 | |

Calibration for 020_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122418A.b\
Analysis File: 122418A.batch.bin
DA Date-Time: 2018-12-24 19:19:15
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 013CALB.d | CAL BLK | 2018-12-24 11:33:27 |
| 2 | 014CALS.d | 2/10/200 | 2018-12-24 11:35:28 |
| 3 | 015CALS.d | 5/25/500 | 2018-12-24 11:37:27 |
| 4 | 016CALS.d | 10/50/1000 | 2018-12-24 11:39:27 |
| 5 | 017CALS.d | 100/500/10K | 2018-12-24 11:41:25 |
| 6 | 018CALS.d | 200/1000/20K | 2018-12-24 11:43:24 |
| 7 | | | |

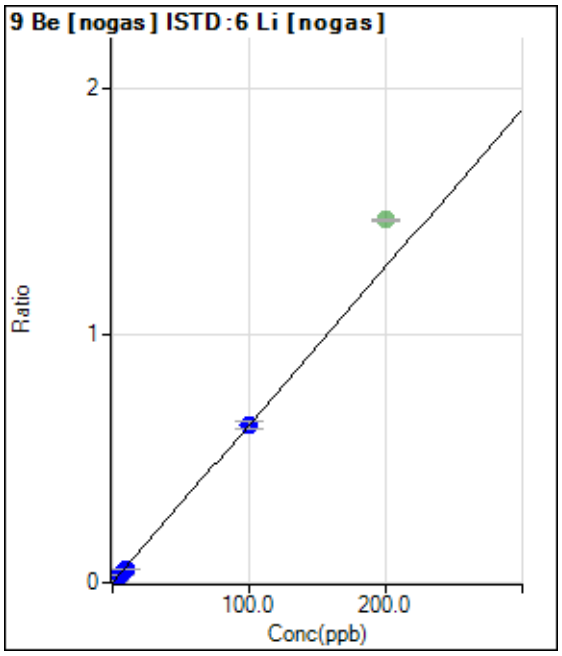
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 111277.55 | 0.0820 | P | 5.2 |
| 2 | ☐ | 2.000 | 2.088 | 150039.46 | 0.1118 | P | 5.6 |
| 3 | ☐ | 5.000 | 4.342 | 198349.20 | 0.1440 | P | 3.6 |
| 4 | ☐ | 10.000 | 8.841 | 280071.44 | 0.2082 | P | 0.7 |
| 5 | ☐ | 100.000 | 100.147 | 1883791.43 | 1.5117 | A | 2.5 |
| 6 | ☑ | 200.000 | | 3654384.84 | 3.2289 | A | 2.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0143 * x + 0.0820
R = 0.9999
DL = 0.8936
BEC = 5.741

Weight: <None>
Min Conc: <None>

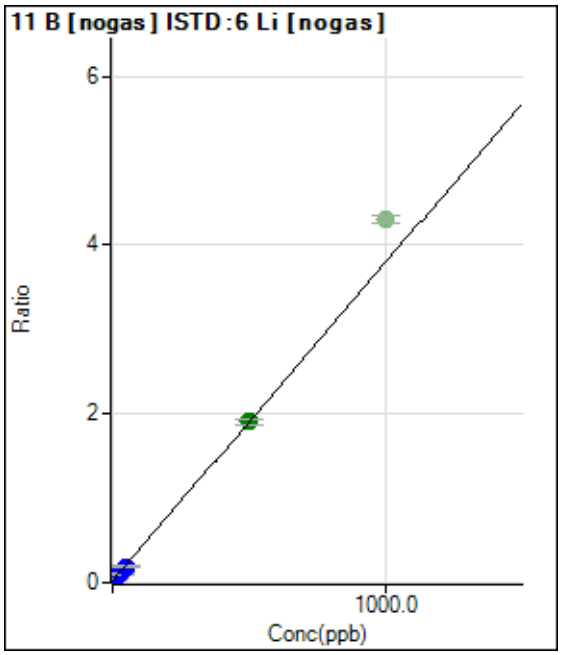



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56.67 | 0.0000 | P | 17. |
| 2 | ☐ | 2.000 | 1.830 | 15760.07 | 0.0117 | P | 2.6 |
| 3 | ☐ | 5.000 | 4.323 | 38124.79 | 0.0277 | P | 2.0 |
| 4 | ☐ | 10.000 | 8.875 | 76314.45 | 0.0567 | P | 2.9 |
| 5 | ☐ | 100.000 | 100.150 | 796335.72 | 0.6397 | P | 4.5 |
| 6 | ☑ | 200.000 | | 1661599.45 | 1.4681 | A | 0.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0064 * x + 4.1581E-005
R = 0.9999
DL = 0.003466
BEC = 0.00651

Weight: <None>
Min Conc: <None>

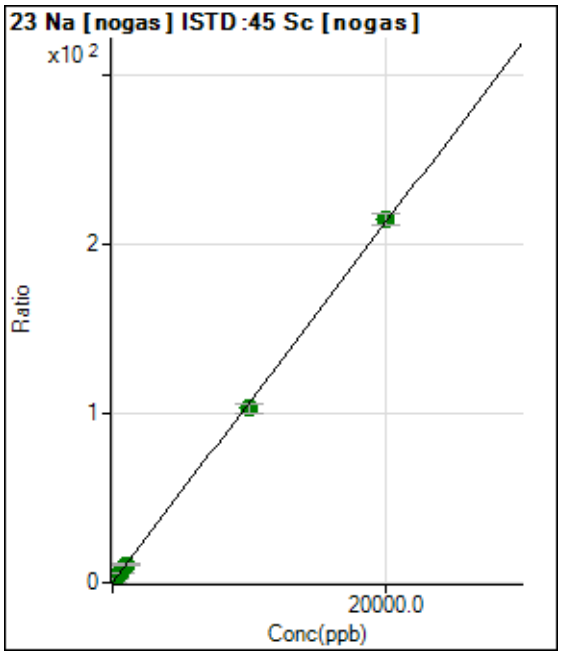
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 30501.10 | 0.0225 | P | 5.1 |
| 2 | ☐ | 10.000 | 8.961 | 75501.49 | 0.0563 | P | 5.3 |
| 3 | ☐ | 25.000 | 21.386 | 141990.64 | 0.1031 | P | 5.2 |
| 4 | ☐ | 50.000 | 45.152 | 259170.40 | 0.1927 | P | 3.8 |
| 5 | ☐ | 500.000 | 500.686 | 2379058.14 | 1.9105 | A | 3.4 |
| 6 | ☑ | 1000.000 | | 4863367.74 | 4.2970 | A | 2.1 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0038 * x + 0.0225
R = 1.0000
DL = 0.9088
BEC = 5.958

Weight: <None>
Min Conc: <None>

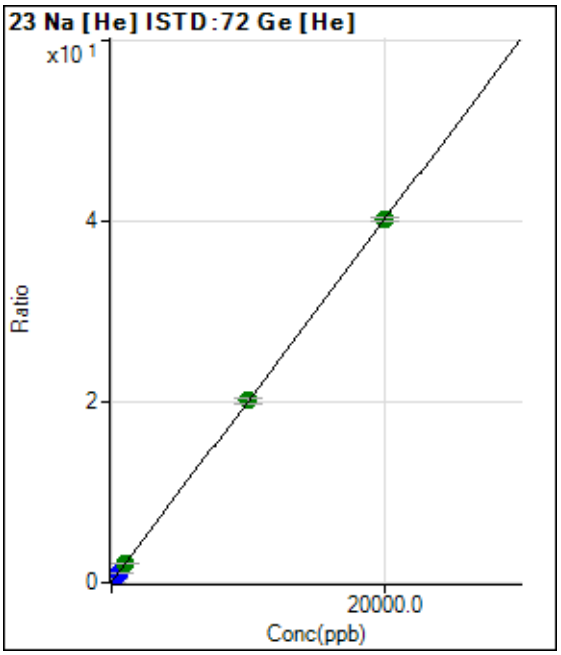



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 417456.77 | 0.1780 | P | 5.2 |
| 2 | ☐ | 200.000 | 197.753 | 5379648.04 | 2.2781 | A | 2.2 |
| 3 | ☐ | 500.000 | 497.504 | 12786651.07 | 5.4614 | A | 3.7 |
| 4 | ☐ | 1000.000 | 975.070 | 24675953.16 | 10.5330 | A | 7.1 |
| 5 | ☐ | 10000.00 | 9678.099 | 242452630.4 | 102.957 | A | 5.0 |
| 6 | ☐ | 20000.00 | 20162.282 | 494803094.4 | 214.296 | A | 3.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0106 * x + 0.1780
R = 0.9998
DL = 2.637
BEC = 16.76

Weight: <None>
Min Conc: <None>

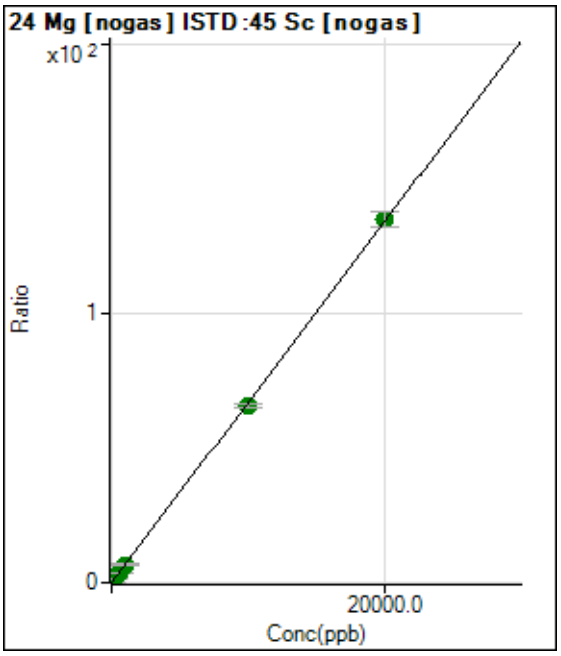
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 54678.81 | 0.0697 | P | 3.3 |
| 2 | ☐ | 200.000 | 189.988 | 360618.21 | 0.4508 | P | 2.2 |
| 3 | ☐ | 500.000 | 493.692 | 816355.53 | 1.0601 | P | 2.8 |
| 4 | ☐ | 1000.000 | 994.952 | 1592790.03 | 2.0657 | A | 3.1 |
| 5 | ☐ | 10000.00 | 10016.109 | 15131845.61 | 20.1637 | A | 2.6 |
| 6 | ☐ | 20000.00 | 19992.456 | 29835737.89 | 40.1780 | A | 1.2 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0020 * x + 0.0697
R = 1.0000
DL = 3.479
BEC = 34.73

Weight: <None>
Min Conc: <None>

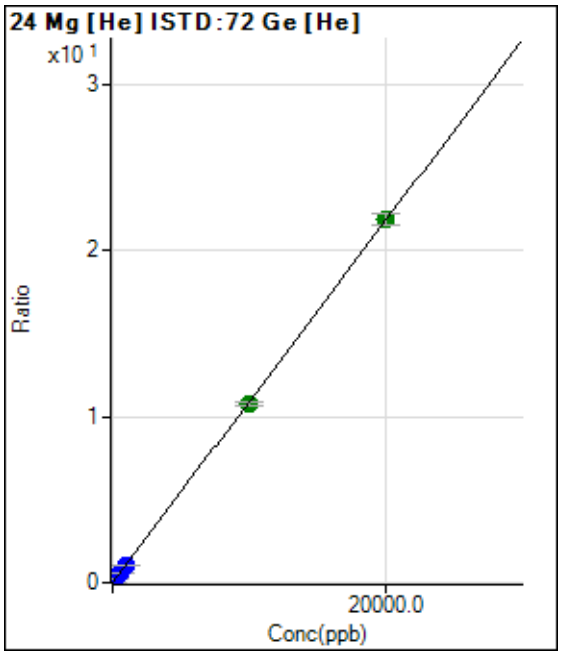



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 5901.75 | 0.0025 | P | 6.9 |
| 2 | ☐ | 200.000 | 206.073 | 3271575.14 | 1.3859 | A | 5.2 |
| 3 | ☐ | 500.000 | 504.053 | 7926348.09 | 3.3863 | A | 4.9 |
| 4 | ☐ | 1000.000 | 994.333 | 15657513.37 | 6.6776 | A | 5.3 |
| 5 | ☐ | 10000.00 | 9795.789 | 154983028.4 | 65.7631 | A | 2.5 |
| 6 | ☐ | 20000.00 | 20102.227 | 311533323.6 | 134.951 | A | 4.3 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0067 * x + 0.0025
R = 0.9999
DL = 0.07734
BEC = 0.3751

Weight: <None>
Min Conc: <None>

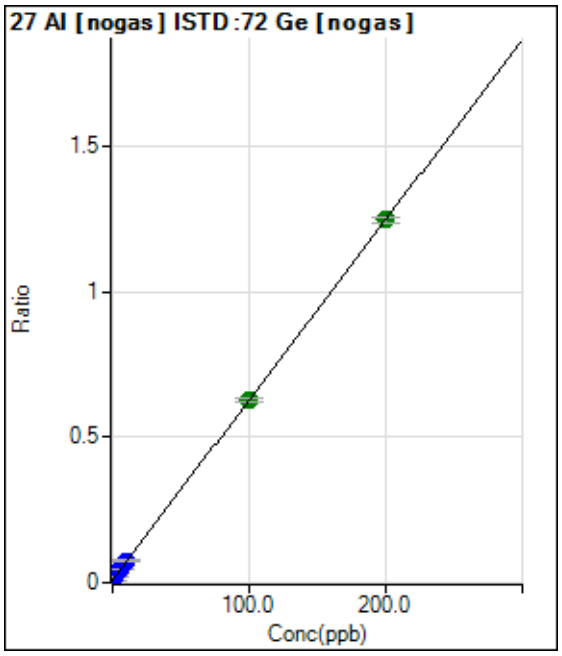
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 453.34 | 0.0006 | P | 18. |
| 2 | ☐ | 200.000 | 193.705 | 169302.41 | 0.2116 | P | 0.5 |
| 3 | ☐ | 500.000 | 501.933 | 421390.51 | 0.5474 | P | 5.2 |
| 4 | ☐ | 1000.000 | 971.240 | 816215.90 | 1.0587 | P | 3.5 |
| 5 | ☐ | 10000.00 | 9892.844 | 8087589.05 | 10.7782 | A | 3.0 |
| 6 | ☐ | 20000.00 | 20055.031 | 16222332.26 | 21.8492 | A | 3.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0011 * x + 5.7837E-004
R = 1.0000
DL = 0.3001
BEC = 0.5309

Weight: <None>
Min Conc: <None>

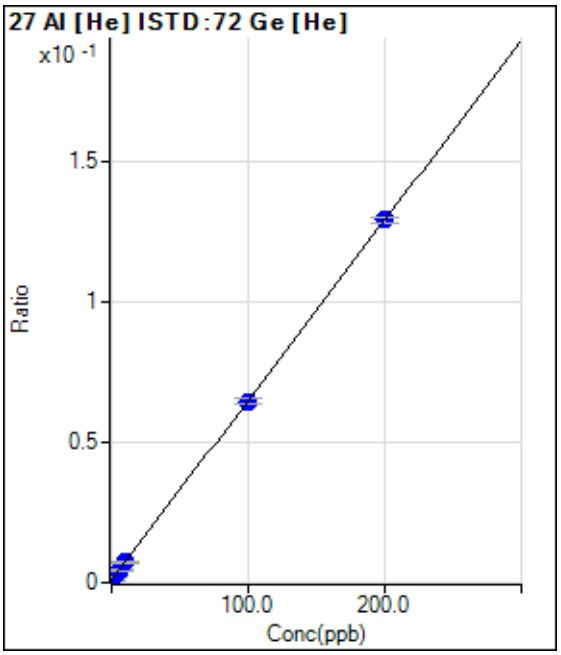



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 27887.50 | 0.0089 | P | 3.7 |
| 2 | ☐ | 2.000 | 1.973 | 67747.78 | 0.0211 | P | 2.7 |
| 3 | ☐ | 5.000 | 6.059 | 146244.49 | 0.0464 | P | 1.3 |
| 4 | ☐ | 10.000 | 10.753 | 238007.68 | 0.0754 | P | 2.9 |
| 5 | ☐ | 100.000 | 99.846 | 1956520.08 | 0.6268 | A | 2.1 |
| 6 | ☐ | 200.000 | 200.013 | 3801721.92 | 1.2467 | A | 1.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0062 * x + 0.0089
R = 1.0000
DL = 0.1587
BEC = 1.433

Weight: <None>
Min Conc: <None>

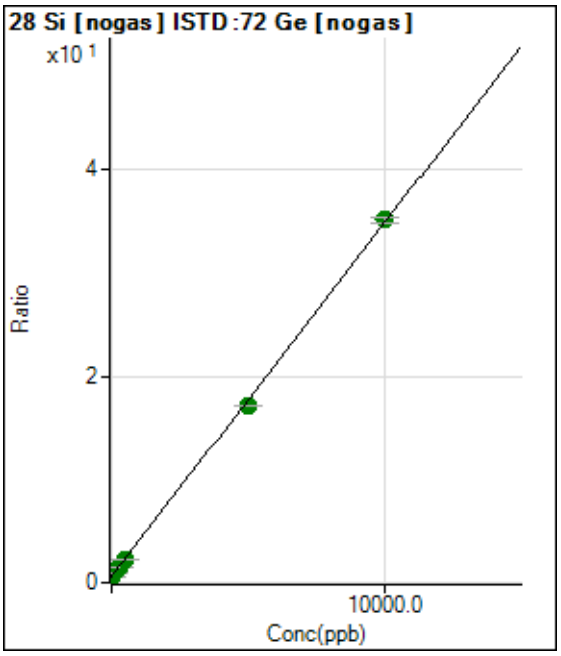
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.178 | 643.35 | 0.0008 | P | 9.4 |
| 2 | ☐ | 2.000 | 1.992 | 1766.78 | 0.0022 | P | 11. |
| 3 | ☐ | 5.000 | 5.326 | 3350.35 | 0.0043 | P | 8.4 |
| 4 | ☐ | 10.000 | 10.204 | 5757.64 | 0.0075 | P | 9.5 |
| 5 | ☐ | 100.000 | 99.349 | 48475.43 | 0.0646 | P | 3.6 |
| 6 | ☐ | 200.000 | 200.307 | 96018.78 | 0.1293 | P | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.4090E-004 * x + 9.3424E-004
R = 1.0000
DL = 0.3609
BEC = 1.458

Weight: <None>
Min Conc: <None>

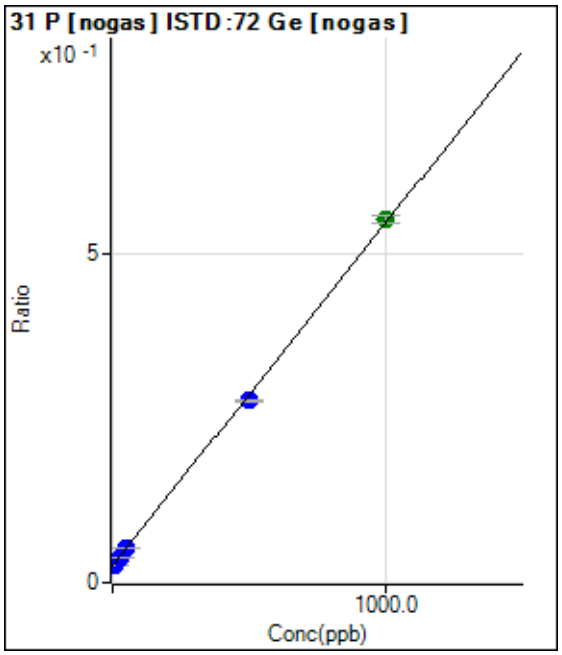



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1941965.44 | 0.6175 | A | 1.0 |
| 2 | ☐ | 100.000 | 90.473 | 2979669.96 | 0.9273 | A | 0.6 |
| 3 | ☐ | 250.000 | 241.405 | 4555456.60 | 1.4442 | A | 1.6 |
| 4 | ☐ | 500.000 | 477.424 | 7109444.47 | 2.2525 | A | 2.0 |
| 5 | ☐ | 5000.000 | 4831.629 | 53576002.53 | 17.1639 | A | 0.6 |
| 6 | ☐ | 10000.00 | 10085.624 | 107207228.4 | 35.1567 | A | 1.6 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0034 * x + 0.6175
R = 0.9998
DL = 5.362
BEC = 180.3

Weight: <None>
Min Conc: <None>

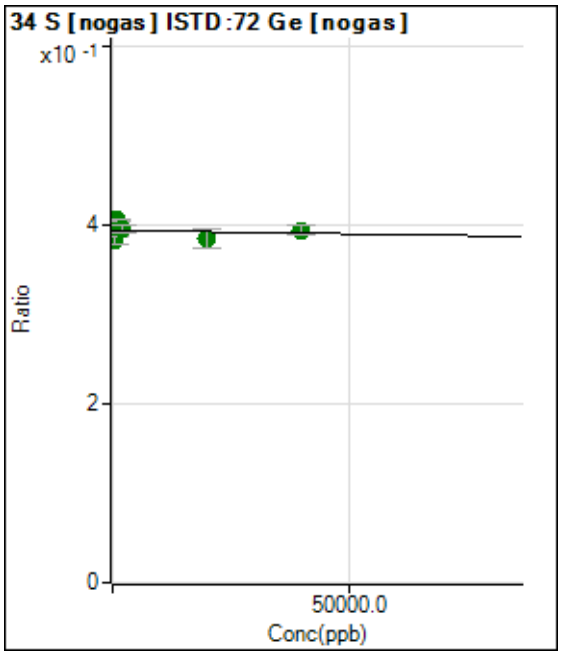
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 81129.62 | 0.0258 | P | 1.7 |
| 2 | ☐ | 10.000 | -0.335 | 82335.14 | 0.0256 | P | 1.8 |
| 3 | ☐ | 25.000 | 25.323 | 122878.83 | 0.0390 | P | 2.1 |
| 4 | ☐ | 50.000 | 51.846 | 166448.38 | 0.0527 | P | 2.1 |
| 5 | ☐ | 500.000 | 481.240 | 861073.53 | 0.2759 | P | 0.5 |
| 6 | ☐ | 1000.000 | 1009.383 | 1677933.41 | 0.5503 | A | 2.2 |
| 7 | ☐ | 5.000 | | | | | |

y = 5.1962E-004 * x + 0.0258
R = 0.9997
DL = 2.532
BEC = 49.65

Weight: <None>
Min Conc: <None>

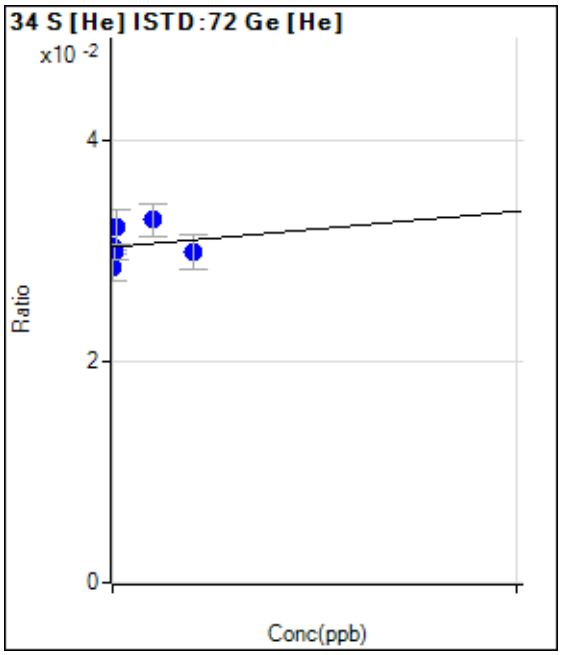



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1240192.18 | 0.3944 | A | 2.2 |
| 2 | ☐ | 400.000 | 139725.830 | 1231135.18 | 0.3832 | A | 1.8 |
| 3 | ☐ | 1000.000 | -144160.379 | 1280446.25 | 0.4059 | A | 0.8 |
| 4 | ☐ | 2000.000 | -18556.861 | 1249745.83 | 0.3959 | A | 1.8 |
| 5 | ☐ | 20000.00 | 111238.432 | 1203226.78 | 0.3855 | A | 5.4 |
| 6 | ☐ | 40000.00 | -2355.622 | 1202967.12 | 0.3946 | A | 3.1 |
| 7 | ☐ | 100.000 | | | | | |

y = -8.0160E-008 * x + 0.3944
R = -0.1320
DL = -3.312E+05
BEC = -4.92E+06

Weight: <None>
Min Conc: <None>

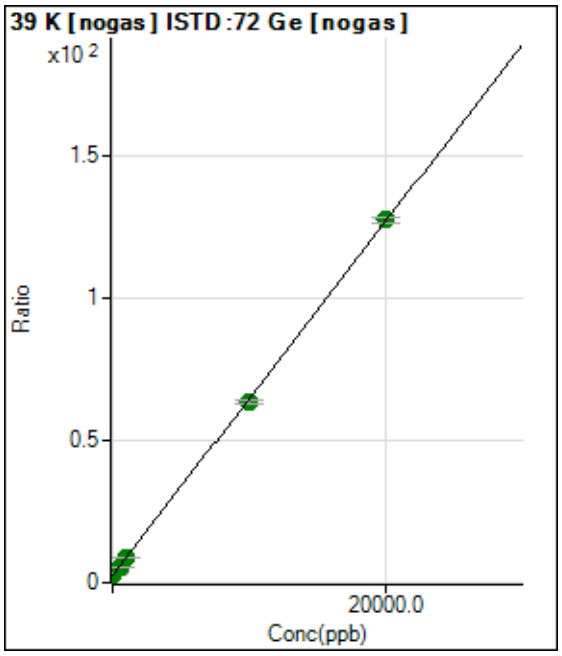
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 23818.47 | 0.0303 | P | 1.4 |
| 2 | ☐ | 400.000 | -113916.726 | 22785.07 | 0.0285 | P | 8.1 |
| 3 | ☐ | 1000.000 | -22461.142 | 23084.41 | 0.0300 | P | 4.6 |
| 4 | ☐ | 2000.000 | 115974.513 | 24821.47 | 0.0322 | P | 9.8 |
| 5 | ☐ | 20000.00 | 151642.131 | 24620.58 | 0.0328 | P | 8.8 |
| 6 | ☐ | 40000.00 | -29790.095 | 22184.52 | 0.0299 | P | 10. |
| 7 | ☐ | 100.000 | | | | | |

y = 1.6193E-008 * x + 0.0303
R = 0.1153
DL = 8.051E+04
BEC = 1.874E+06

Weight: <None>
Min Conc: <None>

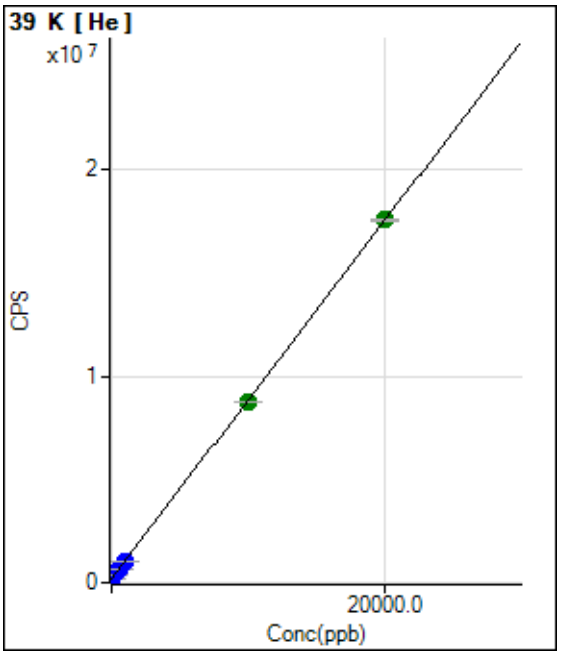



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7950833.77 | 2.5282 | A | 1.6 |
| 2 | ☐ | 200.000 | 192.139 | 11954391.93 | 3.7205 | A | 1.3 |
| 3 | ☐ | 500.000 | 497.868 | 17719817.06 | 5.6176 | A | 1.2 |
| 4 | ☐ | 1000.000 | 983.290 | 27236219.36 | 8.6297 | A | 2.3 |
| 5 | ☐ | 10000.00 | 9805.112 | 197795387.7 | 63.3700 | A | 2.1 |
| 6 | ☐ | 20000.00 | 20098.411 | 388084200.3 | 127.241 | A | 1.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0062 * x + 2.5282
R = 0.9999
DL = 19.9
BEC = 407.4

Weight: <None>
Min Conc: <None>

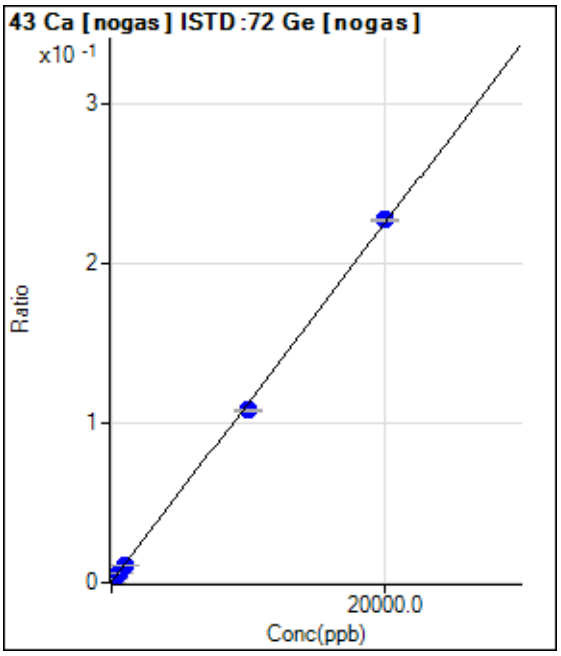
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 191802.98 | | P | 0.2 |
| 2 | ☐ | 200.000 | 205.494 | 370064.71 | | P | 0.3 |
| 3 | ☐ | 500.000 | 502.285 | 627524.74 | | P | 1.3 |
| 4 | ☐ | 1000.000 | 998.569 | 1058041.36 | | P | 1.0 |
| 5 | ☐ | 10000.00 | 9891.039 | 8772076.33 | | A | 0.5 |
| 6 | ☐ | 20000.00 | 20054.440 | 17588618.49 | | A | 0.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 867.4795 * x + 191802.9833
R = 1.0000
DL = 1.119
BEC = 221.1

Weight: <None>
Min Conc: <None>

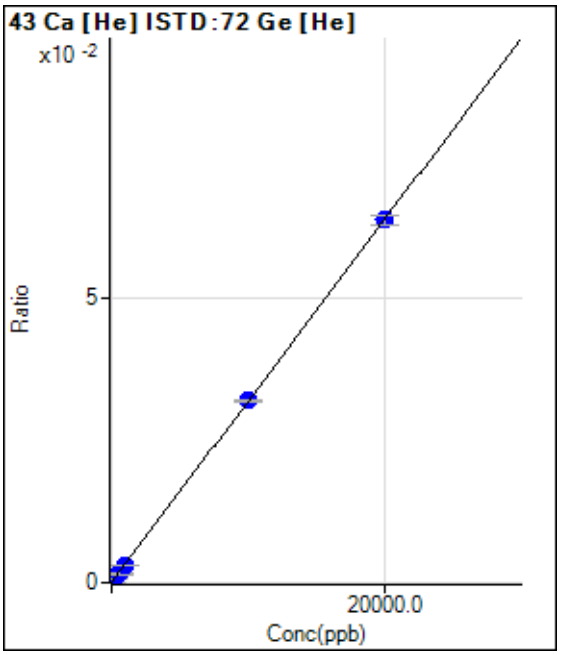



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1386.74 | 0.0004 | P | 3.5 |
| 2 | ☐ | 200.000 | 190.602 | 8301.99 | 0.0026 | P | 6.1 |
| 3 | ☐ | 500.000 | 486.445 | 18639.59 | 0.0059 | P | 1.8 |
| 4 | ☐ | 1000.000 | 957.601 | 35377.28 | 0.0112 | P | 3.0 |
| 5 | ☐ | 10000.00 | 9577.352 | 337418.86 | 0.1081 | P | 1.4 |
| 6 | ☐ | 20000.00 | 20213.877 | 694444.26 | 0.2277 | P | 0.4 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.1241E-005 * x + 4.4103E-004
R = 0.9997
DL = 4.09
BEC = 39.23

Weight: <None>
Min Conc: <None>

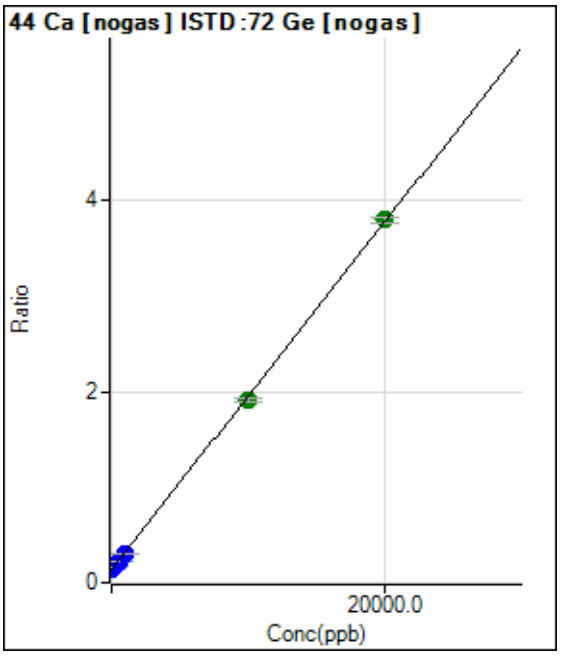
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 36.67 | 0.0000 | P | 14. |
| 2 | ☐ | 200.000 | 185.924 | 510.01 | 0.0006 | P | 16. |
| 3 | ☐ | 500.000 | 476.126 | 1203.39 | 0.0016 | P | 12. |
| 4 | ☐ | 1000.000 | 950.440 | 2363.52 | 0.0031 | P | 5.9 |
| 5 | ☐ | 10000.00 | 10022.864 | 23949.08 | 0.0319 | P | 1.4 |
| 6 | ☐ | 20000.00 | 19991.784 | 47213.18 | 0.0636 | P | 2.3 |
| 7 | ☐ | 100.000 | | | | | |

y = 3.1775E-006 * x + 4.6654E-005
R = 1.0000
DL = 6.448
BEC = 14.68

Weight: <None>
Min Conc: <None>

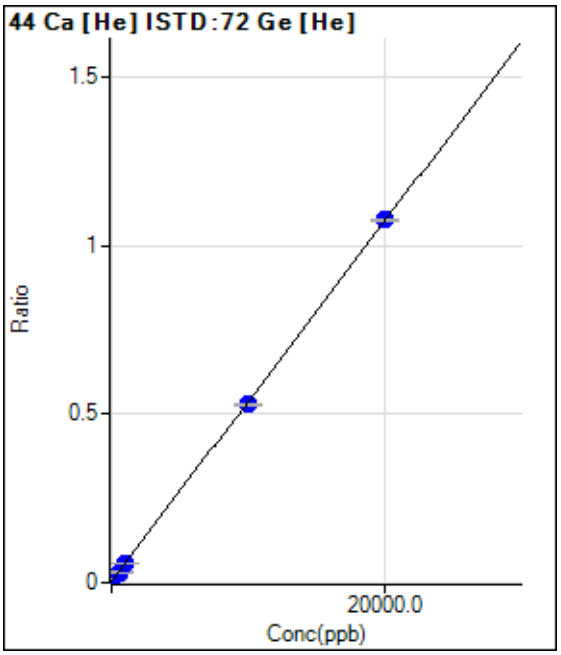



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 427469.51 | 0.1359 | P | 1.1 |
| 2 | ☐ | 200.000 | 145.767 | 521914.18 | 0.1624 | P | 1.1 |
| 3 | ☐ | 500.000 | 440.032 | 681186.71 | 0.2159 | P | 0.9 |
| 4 | ☐ | 1000.000 | 887.572 | 938664.86 | 0.2973 | P | 0.3 |
| 5 | ☐ | 10000.00 | 9755.300 | 5961691.37 | 1.9101 | A | 2.2 |
| 6 | ☐ | 20000.00 | 20130.013 | 11581260.24 | 3.7969 | A | 1.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.8187E-004 * x + 0.1359
R = 0.9999
DL = 23.94
BEC = 747.4

Weight: <None>
Min Conc: <None>

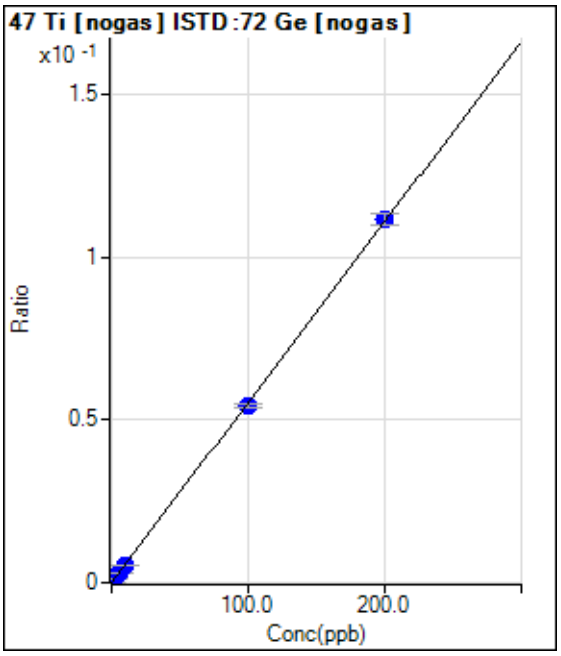
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 3250.34 | 0.0041 | P | 6.5 |
| 2 | ☐ | 200.000 | 191.057 | 11456.99 | 0.0143 | P | 2.6 |
| 3 | ☐ | 500.000 | 510.029 | 24112.53 | 0.0313 | P | 6.8 |
| 4 | ☐ | 1000.000 | 961.502 | 42709.23 | 0.0554 | P | 4.3 |
| 5 | ☐ | 10000.00 | 9817.224 | 395860.85 | 0.5274 | P | 1.4 |
| 6 | ☐ | 20000.00 | 20093.152 | 798401.45 | 1.0752 | P | 0.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 5.3303E-005 * x + 0.0041
R = 0.9999
DL = 15.08
BEC = 77.64

Weight: <None>
Min Conc: <None>

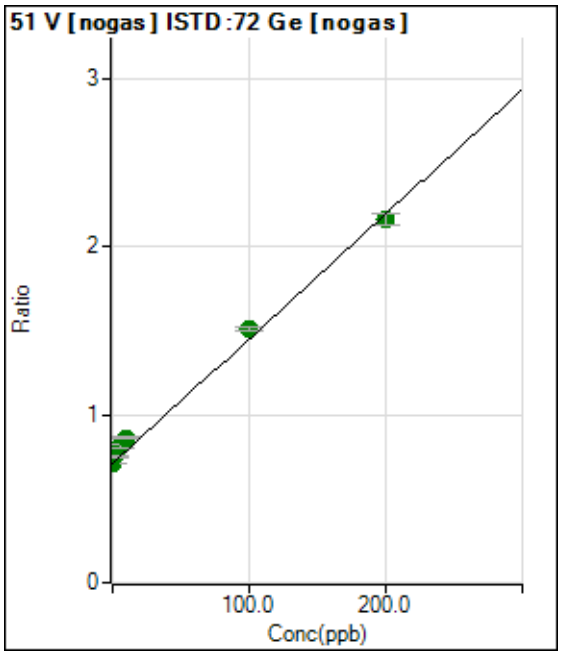



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 293.34 | 0.0001 | P | 5.9 |
| 2 | ☐ | 2.000 | 1.989 | 3840.46 | 0.0012 | P | 3.7 |
| 3 | ☐ | 5.000 | 4.721 | 8542.09 | 0.0027 | P | 3.0 |
| 4 | ☐ | 10.000 | 9.795 | 17421.72 | 0.0055 | P | 0.5 |
| 5 | ☐ | 100.000 | 97.753 | 169280.73 | 0.0542 | P | 2.4 |
| 6 | ☐ | 200.000 | 201.141 | 339933.58 | 0.1115 | P | 3.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.5385E-004 * x + 9.3297E-005
R = 0.9999
DL = 0.02997
BEC = 0.1685

Weight: <None>
Min Conc: <None>

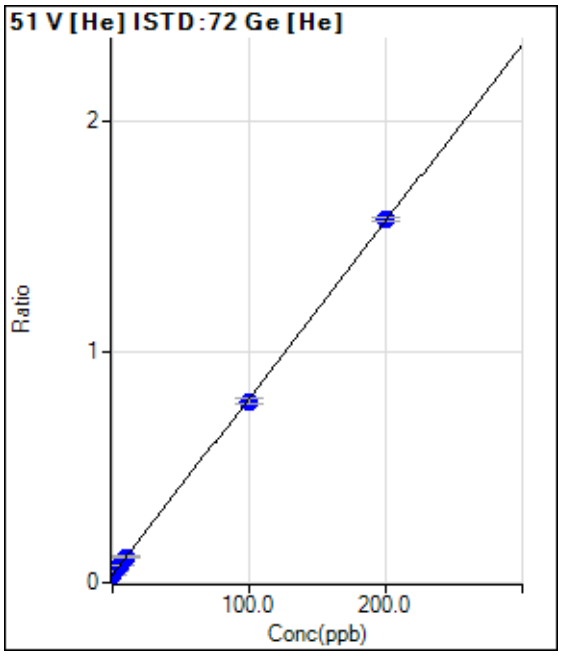
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2231666.65 | 0.7096 | A | 0.7 |
| 2 | ☐ | 2.000 | 5.461 | 2409766.40 | 0.7500 | A | 2.4 |
| 3 | ☐ | 5.000 | 14.093 | 2567511.26 | 0.8140 | A | 3.4 |
| 4 | ☐ | 10.000 | 20.640 | 2722696.22 | 0.8625 | A | 0.9 |
| 5 | ☐ | 100.000 | 107.667 | 4705398.80 | 1.5075 | A | 1.5 |
| 6 | ☐ | 200.000 | 195.372 | 6578225.28 | 2.1576 | A | 3.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0074 * x + 0.7096
R = 0.9981
DL = 2.021
BEC = 95.74

Weight: <None>
Min Conc: <None>

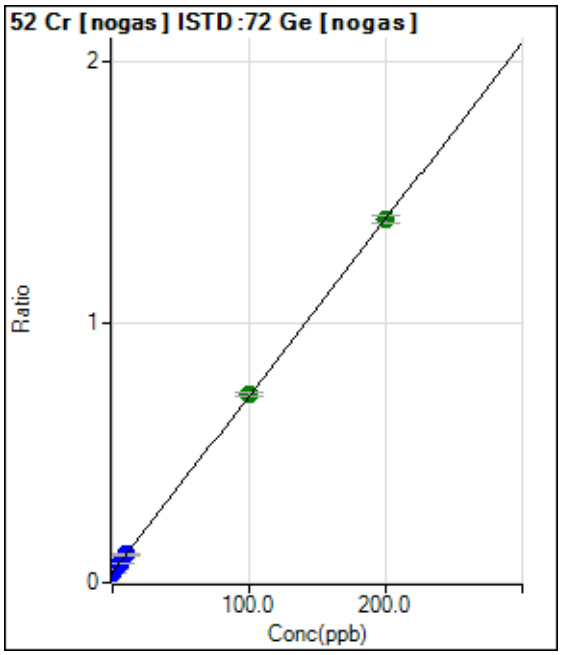



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.065 | 27333.93 | 0.0348 | P | 1.9 |
| 2 | ☐ | 2.000 | 2.198 | 40946.02 | 0.0512 | P | 2.3 |
| 3 | ☐ | 5.000 | 5.491 | 58867.50 | 0.0764 | P | 2.6 |
| 4 | ☐ | 10.000 | 10.166 | 86588.64 | 0.1123 | P | 2.1 |
| 5 | ☐ | 100.000 | 98.206 | 590835.87 | 0.7874 | P | 3.3 |
| 6 | ☐ | 200.000 | 200.874 | 1169324.83 | 1.5747 | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0077 * x + 0.0343
R = 0.9999
DL = 0.2614
BEC = 4.477

Weight: <None>
Min Conc: <None>

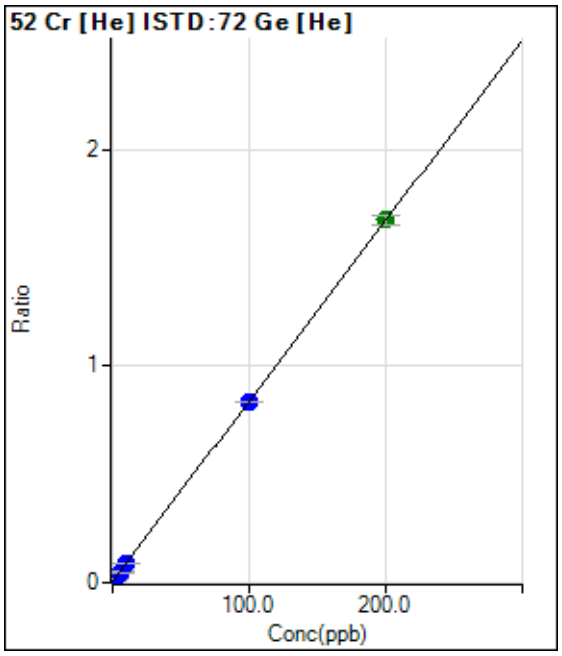
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 123313.64 | 0.0392 | P | 1.4 |
| 2 | ☐ | 2.000 | 1.981 | 169203.60 | 0.0527 | P | 0.8 |
| 3 | ☐ | 5.000 | 5.431 | 240004.07 | 0.0761 | P | 0.4 |
| 4 | ☐ | 10.000 | 10.342 | 345311.34 | 0.1094 | P | 4.6 |
| 5 | ☐ | 100.000 | 100.722 | 2257468.30 | 0.7233 | A | 1.8 |
| 6 | ☐ | 200.000 | 199.612 | 4253262.23 | 1.3949 | A | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0068 * x + 0.0392
R = 1.0000
DL = 0.2509
BEC = 5.772

Weight: <None>
Min Conc: <None>

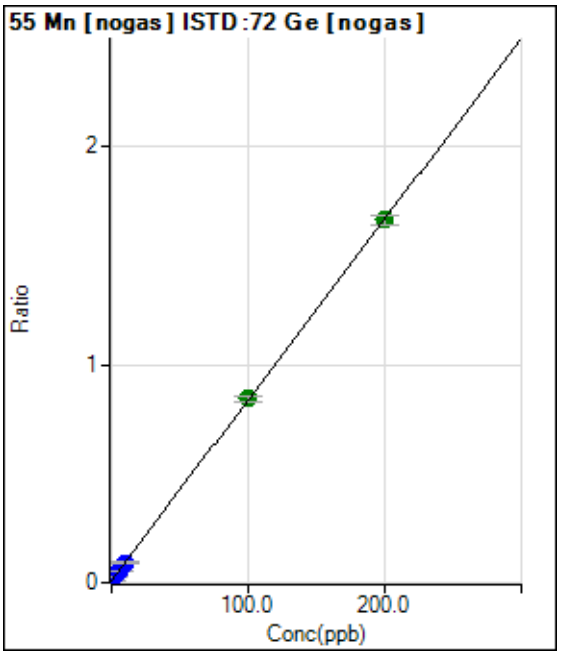



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 5294.16 | 0.0067 | P | 6.5 |
| 2 | ☐ | 2.000 | 1.855 | 17758.77 | 0.0222 | P | 1.7 |
| 3 | ☐ | 5.000 | 4.962 | 37013.70 | 0.0481 | P | 4.6 |
| 4 | ☐ | 10.000 | 9.636 | 67101.71 | 0.0870 | P | 1.9 |
| 5 | ☐ | 100.000 | 99.333 | 626074.49 | 0.8341 | P | 0.8 |
| 6 | ☐ | 200.000 | 200.354 | 1244109.96 | 1.6754 | A | 2.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0083 * x + 0.0067
R = 1.0000
DL = 0.1586
BEC = 0.8104

Weight: <None>
Min Conc: <None>

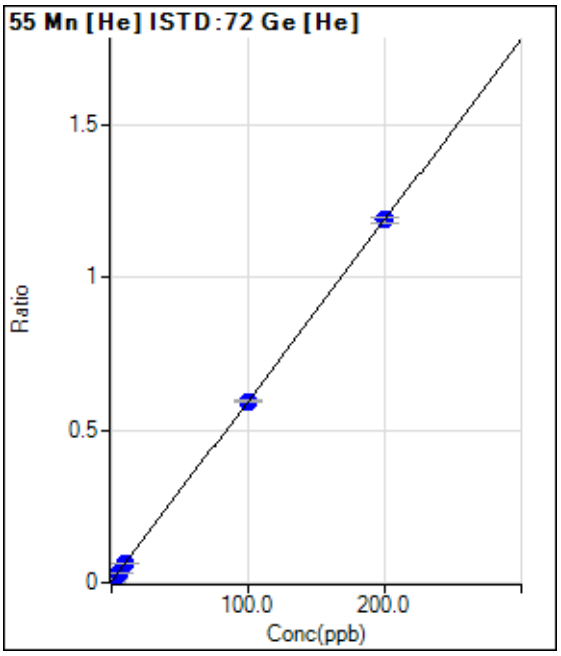
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 30719.02 | 0.0098 | P | 1.4 |
| 2 | ☐ | 2.000 | 1.759 | 78208.66 | 0.0243 | P | 1.6 |
| 3 | ☐ | 5.000 | 5.046 | 162683.94 | 0.0516 | P | 1.3 |
| 4 | ☐ | 10.000 | 9.952 | 291039.40 | 0.0922 | P | 3.5 |
| 5 | ☐ | 100.000 | 100.608 | 2632425.54 | 0.8434 | A | 3.6 |
| 6 | ☐ | 200.000 | 199.700 | 5075225.45 | 1.6644 | A | 2.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0083 * x + 0.0098
R = 1.0000
DL = 0.04863
BEC = 1.179

Weight: <None>
Min Conc: <None>

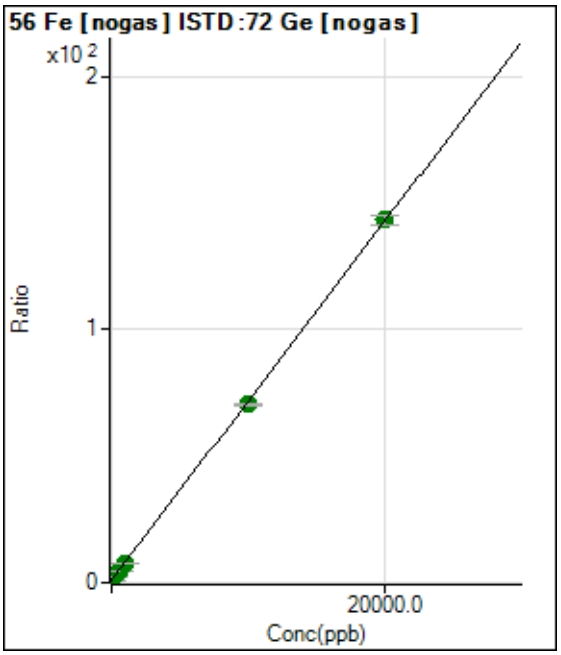



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2523.54 | 0.0032 | P | 10. |
| 2 | ☐ | 2.000 | 1.713 | 10696.63 | 0.0134 | P | 6.3 |
| 3 | ☐ | 5.000 | 4.970 | 25187.41 | 0.0327 | P | 3.3 |
| 4 | ☐ | 10.000 | 10.024 | 48353.55 | 0.0627 | P | 1.1 |
| 5 | ☐ | 100.000 | 99.851 | 447094.04 | 0.5956 | P | 1.1 |
| 6 | ☐ | 200.000 | 200.077 | 883838.08 | 1.1903 | P | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0059 * x + 0.0032
R = 1.0000
DL = 0.1694
BEC = 0.5425

Weight: <None>
Min Conc: <None>

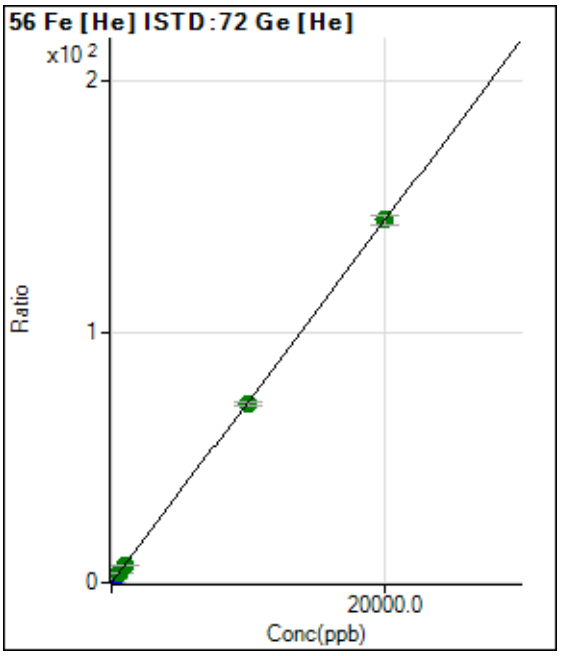
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 3039831.91 | 0.9667 | A | 2.8 |
| 2 | ☐ | 200.000 | 193.286 | 7507901.21 | 2.3368 | A | 2.8 |
| 3 | ☐ | 500.000 | 497.123 | 14164128.44 | 4.4904 | A | 1.5 |
| 4 | ☐ | 1000.000 | 962.034 | 24575025.55 | 7.7858 | A | 1.9 |
| 5 | ☐ | 10000.00 | 9813.214 | 220141371.5 | 70.5249 | A | 0.8 |
| 6 | ☐ | 20000.00 | 20095.430 | 437250959.7 | 143.407 | A | 2.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0071 * x + 0.9667
R = 0.9999
DL = 11.33
BEC = 136.4

Weight: <None>
Min Conc: <None>

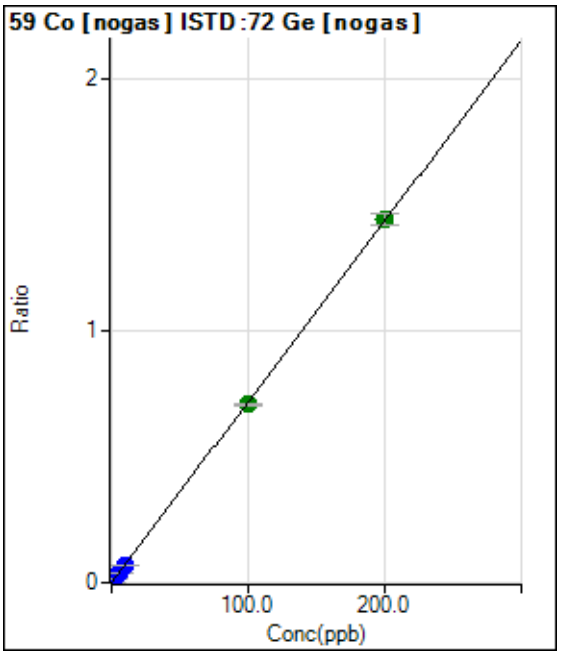



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 12284.25 | 0.0157 | P | 6.4 |
| 2 | ☐ | 200.000 | 189.314 | 1104282.98 | 1.3807 | P | 3.4 |
| 3 | ☐ | 500.000 | 495.508 | 2763312.04 | 3.5886 | A | 3.5 |
| 4 | ☐ | 1000.000 | 984.058 | 5485164.71 | 7.1113 | A | 0.5 |
| 5 | ☐ | 10000.00 | 9895.238 | 53558117.53 | 71.3659 | A | 2.2 |
| 6 | ☐ | 20000.00 | 20053.397 | 107380421.7 | 144.612 | A | 2.6 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0072 * x + 0.0157
R = 1.0000
DL = 0.4138
BEC = 2.172

Weight: <None>
Min Conc: <None>

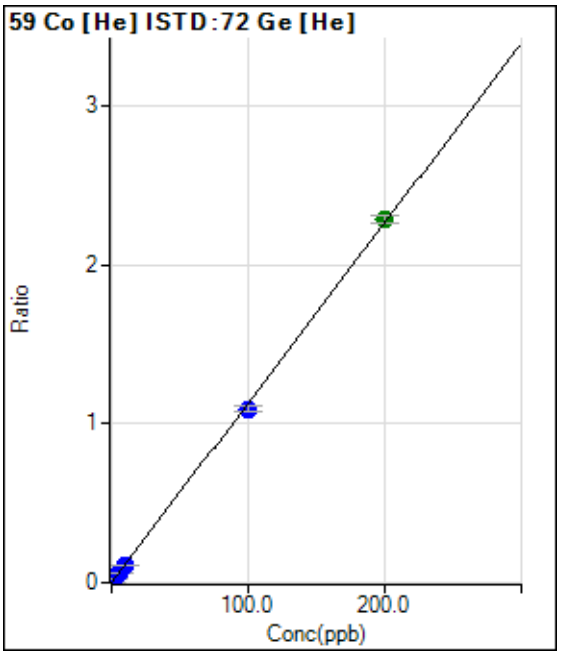
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1063.38 | 0.0003 | P | 9.6 |
| 2 | ☐ | 2.000 | 1.963 | 46295.30 | 0.0144 | P | 2.8 |
| 3 | ☐ | 5.000 | 4.909 | 112057.49 | 0.0355 | P | 2.3 |
| 4 | ☐ | 10.000 | 9.648 | 219439.60 | 0.0695 | P | 1.4 |
| 5 | ☐ | 100.000 | 98.584 | 2207038.56 | 0.7070 | A | 0.6 |
| 6 | ☐ | 200.000 | 200.728 | 4388040.25 | 1.4393 | A | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0072 * x + 3.3794E-004
R = 1.0000
DL = 0.01354
BEC = 0.04714

Weight: <None>
Min Conc: <None>

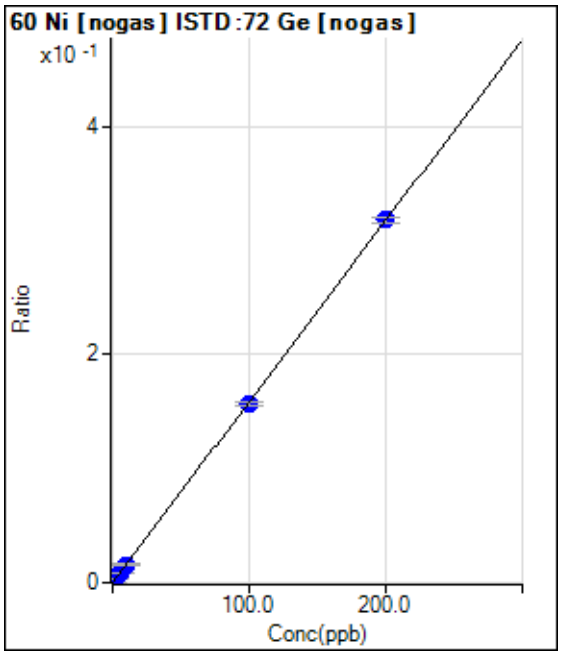



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 396.68 | 0.0005 | P | 13. |
| 2 | ☐ | 2.000 | 1.896 | 17575.26 | 0.0220 | P | 3.9 |
| 3 | ☐ | 5.000 | 4.914 | 43214.33 | 0.0561 | P | 3.1 |
| 4 | ☐ | 10.000 | 9.689 | 84932.28 | 0.1102 | P | 3.8 |
| 5 | ☐ | 100.000 | 96.494 | 819857.80 | 1.0926 | P | 3.0 |
| 6 | ☐ | 200.000 | 201.772 | 1696000.70 | 2.2841 | A | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0113 * x + 5.0594E-004
R = 0.9998
DL = 0.01755
BEC = 0.0447

Weight: <None>
Min Conc: <None>

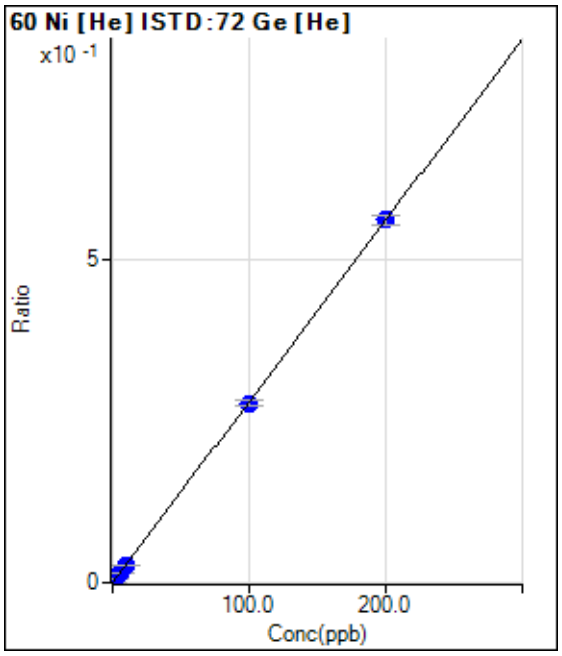
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.119 | 450.01 | 0.0001 | P | 5.5 |
| 2 | ☐ | 2.000 | 2.148 | 10796.68 | 0.0034 | P | 4.4 |
| 3 | ☐ | 5.000 | 5.248 | 26108.79 | 0.0083 | P | 1.5 |
| 4 | ☐ | 10.000 | 10.077 | 50315.75 | 0.0159 | P | 2.2 |
| 5 | ☐ | 100.000 | 98.837 | 489050.58 | 0.1567 | P | 2.1 |
| 6 | ☐ | 200.000 | 200.570 | 969721.60 | 0.3180 | P | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0016 * x - 4.5824E-005
R = 1.0000
DL = 0.0148
BEC = -0.0289

Weight: <None>
Min Conc: <None>

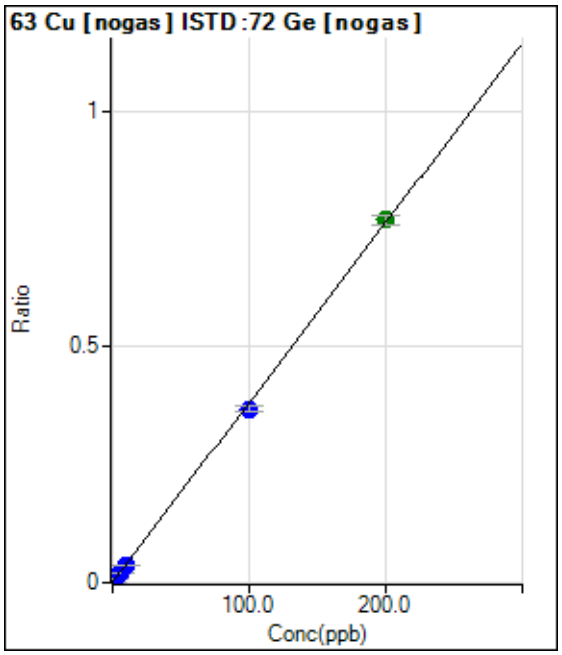



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.122 | 133.33 | 0.0002 | P | 22. |
| 2 | ☐ | 2.000 | 2.063 | 4480.62 | 0.0056 | P | 6.2 |
| 3 | ☐ | 5.000 | 5.168 | 10996.76 | 0.0143 | P | 5.8 |
| 4 | ☐ | 10.000 | 10.004 | 21439.45 | 0.0278 | P | 2.5 |
| 5 | ☐ | 100.000 | 99.298 | 208204.37 | 0.2775 | P | 3.9 |
| 6 | ☐ | 200.000 | 200.346 | 415855.75 | 0.5601 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0028 * x - 1.7175E-004
R = 1.0000
DL = 0.04022
BEC = -0.06142

Weight: <None>
Min Conc: <None>

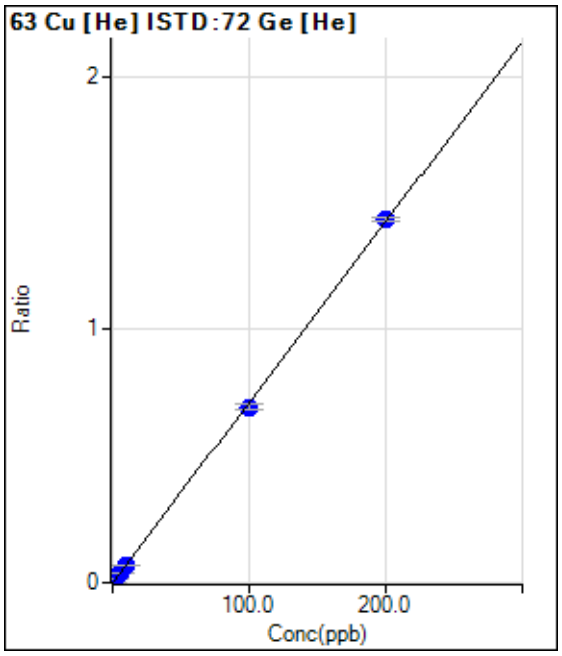
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2390.19 | 0.0008 | P | 2.8 |
| 2 | ☐ | 2.000 | 1.902 | 25731.69 | 0.0080 | P | 1.6 |
| 3 | ☐ | 5.000 | 4.966 | 62088.55 | 0.0197 | P | 0.4 |
| 4 | ☐ | 10.000 | 9.747 | 119631.74 | 0.0379 | P | 2.0 |
| 5 | ☐ | 100.000 | 96.589 | 1151186.75 | 0.3688 | P | 2.9 |
| 6 | ☐ | 200.000 | 201.720 | 2346111.74 | 0.7695 | A | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0038 * x + 7.5978E-004
R = 0.9998
DL = 0.01703
BEC = 0.1994

Weight: <None>
Min Conc: <None>

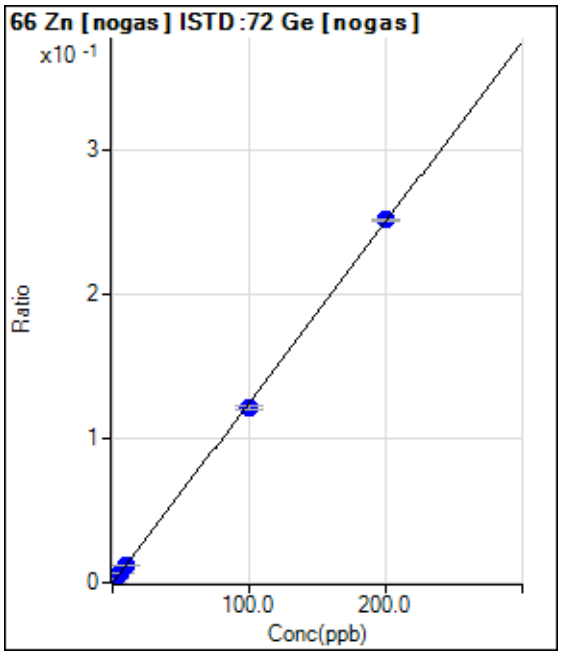



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.407 | 933.37 | 0.0012 | P | 0.9 |
| 2 | ☐ | 2.000 | 2.343 | 11984.10 | 0.0150 | P | 5.3 |
| 3 | ☐ | 5.000 | 5.452 | 28602.68 | 0.0372 | P | 4.4 |
| 4 | ☐ | 10.000 | 9.987 | 53571.57 | 0.0695 | P | 3.3 |
| 5 | ☐ | 100.000 | 97.651 | 521094.98 | 0.6944 | P | 2.6 |
| 6 | ☐ | 200.000 | 201.160 | 1063553.26 | 1.4323 | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0071 * x - 0.0017
R = 0.9999
DL = 0.004517
BEC = -0.2403

Weight: <None>
Min Conc: <None>

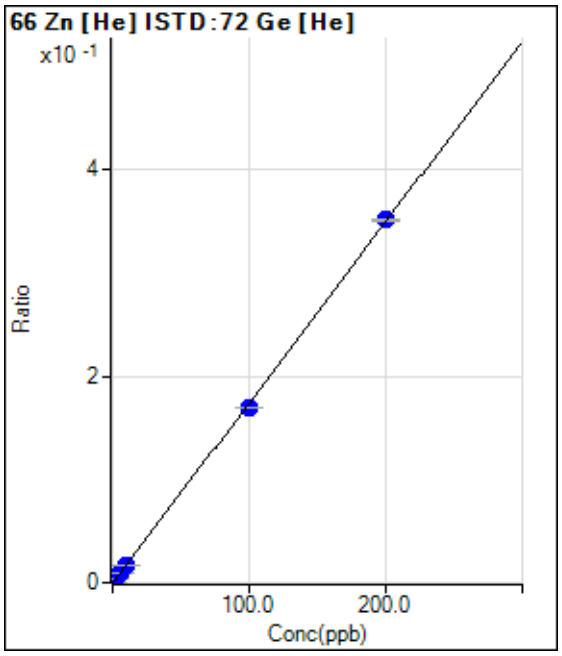
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.302 | 416.68 | 0.0001 | P | 19. |
| 2 | ☐ | 2.000 | 2.291 | 8425.42 | 0.0026 | P | 3.0 |
| 3 | ☐ | 5.000 | 5.555 | 21159.06 | 0.0067 | P | 4.1 |
| 4 | ☐ | 10.000 | 10.247 | 39713.40 | 0.0126 | P | 1.4 |
| 5 | ☐ | 100.000 | 97.268 | 379268.48 | 0.1215 | P | 2.2 |
| 6 | ☐ | 200.000 | 201.337 | 767982.31 | 0.2518 | P | 0.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0013 * x - 2.4569E-004
R = 0.9999
DL = 0.06107
BEC = -0.1963

Weight: <None>
Min Conc: <None>

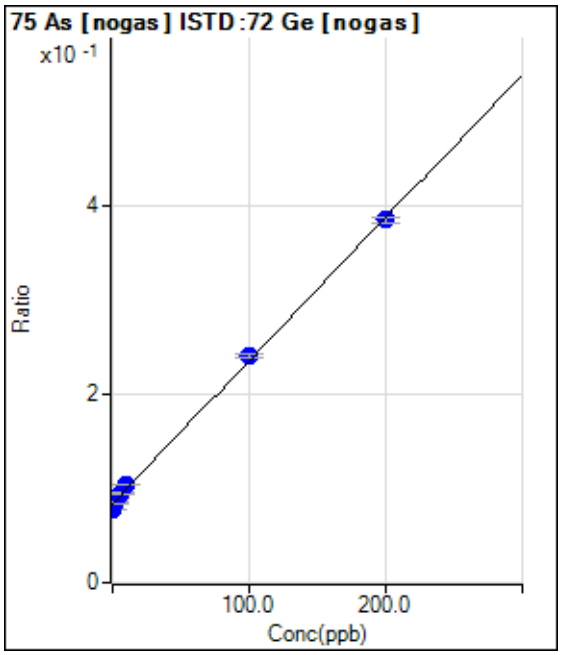



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.494 | 150.00 | 0.0002 | P | 4.9 |
| 2 | ☐ | 2.000 | 2.296 | 2676.90 | 0.0033 | P | 3.0 |
| 3 | ☐ | 5.000 | 5.573 | 6991.44 | 0.0091 | P | 2.1 |
| 4 | ☐ | 10.000 | 10.014 | 13001.43 | 0.0168 | P | 2.3 |
| 5 | ☐ | 100.000 | 97.283 | 127289.02 | 0.1696 | P | 0.8 |
| 6 | ☐ | 200.000 | 201.341 | 261124.72 | 0.3516 | P | 0.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x - 6.7339E-004
R = 0.9999
DL = 0.01604
BEC = -0.3848

Weight: <None>
Min Conc: <None>

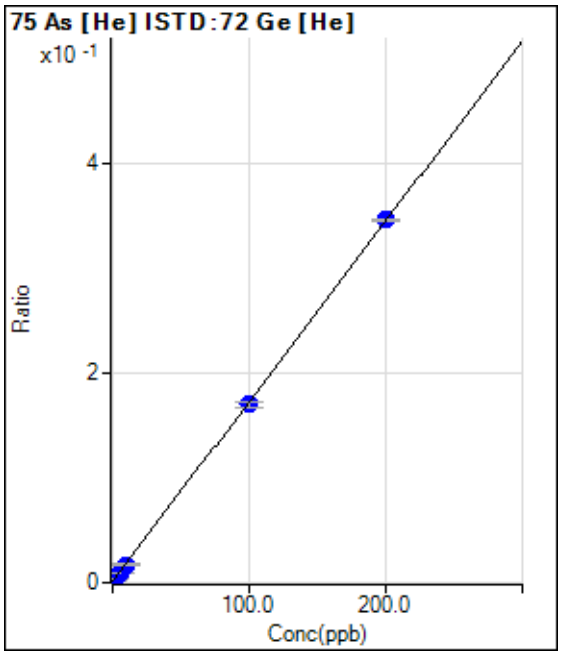
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -4.482 | 242660.55 | 0.0772 | P | 1.4 |
| 2 | ☐ | 2.000 | 0.356 | 271444.50 | 0.0845 | P | 2.7 |
| 3 | ☐ | 5.000 | 6.863 | 297594.35 | 0.0943 | P | 2.0 |
| 4 | ☐ | 10.000 | 12.876 | 326589.32 | 0.1035 | P | 0.9 |
| 5 | ☐ | 100.000 | 103.121 | 749783.24 | 0.2402 | P | 1.5 |
| 6 | ☐ | 200.000 | 198.265 | 1172252.04 | 0.3844 | P | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 0.0839
R = 0.9993
DL = 2.109
BEC = 55.4

Weight: <None>
Min Conc: <None>

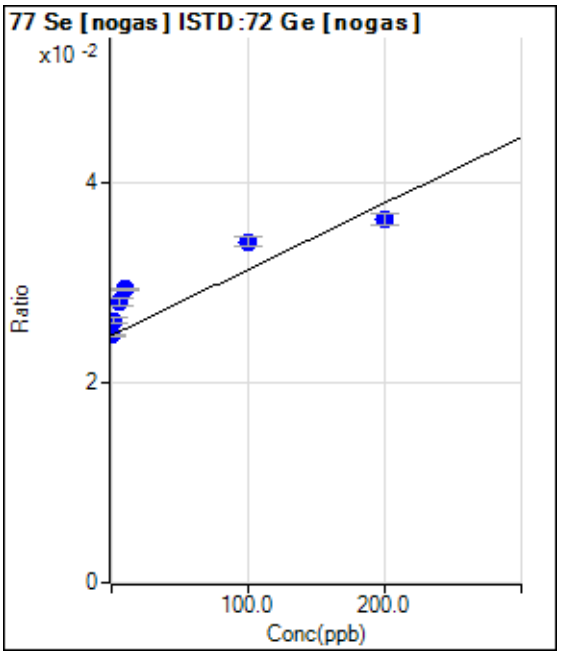



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 812.25 | 0.0010 | P | 7.7 |
| 2 | ☐ | 2.000 | 1.958 | 3524.80 | 0.0044 | P | 4.2 |
| 3 | ☐ | 5.000 | 4.915 | 7310.38 | 0.0095 | P | 3.3 |
| 4 | ☐ | 10.000 | 9.422 | 13301.54 | 0.0173 | P | 3.5 |
| 5 | ☐ | 100.000 | 98.477 | 127952.24 | 0.1705 | P | 2.9 |
| 6 | ☐ | 200.000 | 200.793 | 257379.97 | 0.3466 | P | 0.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x + 0.0010
R = 1.0000
DL = 0.1392
BEC = 0.6017

Weight: <None>
Min Conc: <None>

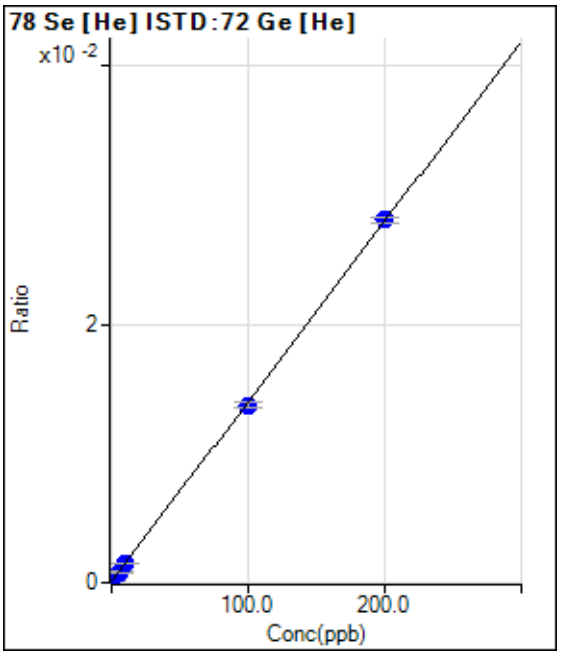
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 77721.89 | 0.0247 | P | 0.7 |
| 2 | ☐ | 2.000 | 22.658 | 84207.17 | 0.0262 | P | 2.2 |
| 3 | ☐ | 5.000 | 49.849 | 88340.38 | 0.0280 | P | 2.9 |
| 4 | ☐ | 10.000 | 70.838 | 92788.44 | 0.0294 | P | 0.7 |
| 5 | ☐ | 100.000 | 142.006 | 106428.92 | 0.0341 | P | 2.8 |
| 6 | ☐ | 200.000 | 174.627 | 110539.49 | 0.0363 | P | 3.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.6121E-005 * x + 0.0247
R = 0.9238
DL = 7.935
BEC = 373.7

Weight: <None>
Min Conc: <None>

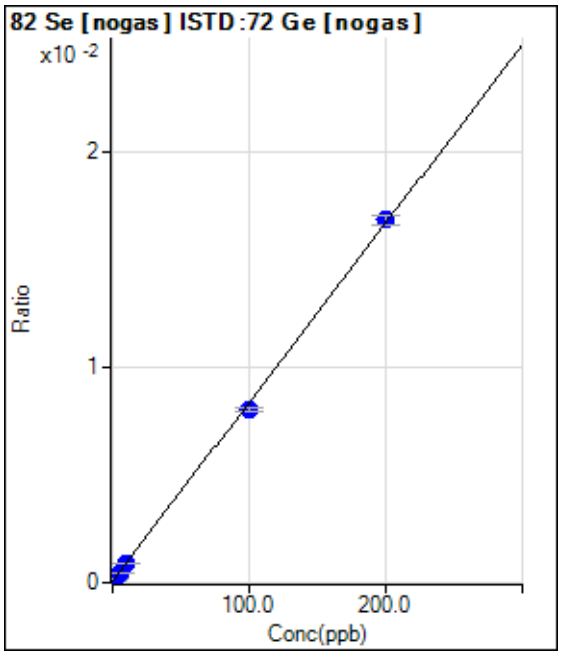



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.637 | 142.00 | 0.0002 | P | 7.4 |
| 2 | ☐ | 2.000 | 2.392 | 340.00 | 0.0004 | P | 10. |
| 3 | ☐ | 5.000 | 5.150 | 622.68 | 0.0008 | P | 11. |
| 4 | ☐ | 10.000 | 9.773 | 1120.04 | 0.0015 | P | 3.4 |
| 5 | ☐ | 100.000 | 98.089 | 10317.60 | 0.0137 | P | 2.4 |
| 6 | ☐ | 200.000 | 200.959 | 20841.90 | 0.0281 | P | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.3921E-004 * x + 9.2096E-005
R = 0.9999
DL = 0.2872
BEC = 0.6615

Weight: <None>
Min Conc: <None>

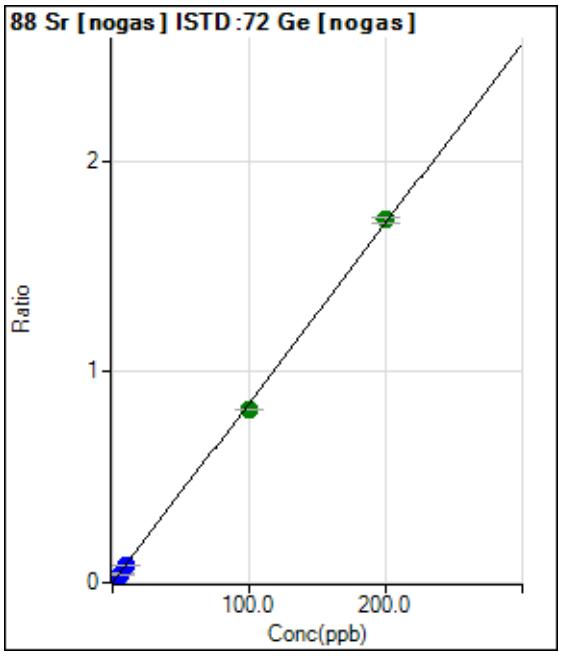
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 240.01 | 0.0001 | P | 34. |
| 2 | ☐ | 2.000 | 1.669 | 690.02 | 0.0002 | P | 22. |
| 3 | ☐ | 5.000 | 4.245 | 1353.41 | 0.0004 | P | 7.0 |
| 4 | ☐ | 10.000 | 9.600 | 2756.91 | 0.0009 | P | 3.1 |
| 5 | ☐ | 100.000 | 96.048 | 25131.04 | 0.0081 | P | 1.5 |
| 6 | ☐ | 200.000 | 202.018 | 51393.05 | 0.0169 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 8.3033E-005 * x + 7.6479E-005
R = 0.9997
DL = 0.9411
BEC = 0.9211

Weight: <None>
Min Conc: <None>

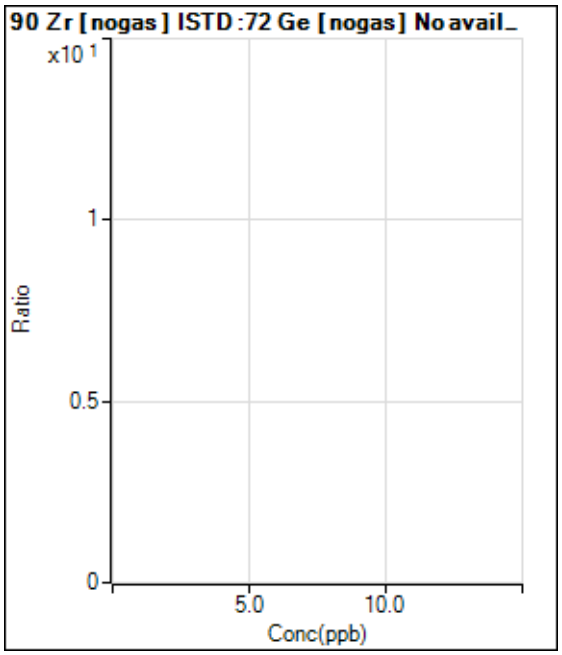



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 810.03 | 0.0003 | P | 3.9 |
| 2 | ☐ | 2.000 | 1.922 | 53470.05 | 0.0166 | P | 4.2 |
| 3 | ☐ | 5.000 | 4.773 | 129199.14 | 0.0410 | P | 2.6 |
| 4 | ☐ | 10.000 | 9.392 | 253599.04 | 0.0803 | P | 1.3 |
| 5 | ☐ | 100.000 | 96.277 | 2563408.66 | 0.8212 | A | 0.6 |
| 6 | ☐ | 200.000 | 201.898 | 5250985.44 | 1.7219 | A | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

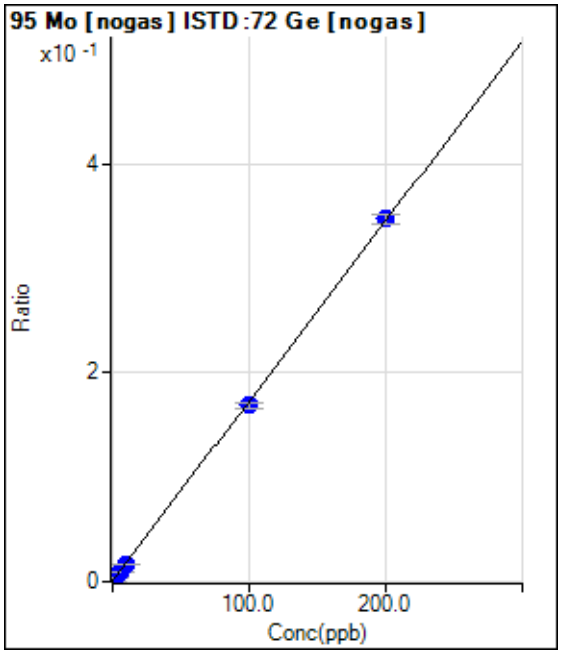
y = 0.0085 * x + 2.5760E-004
R = 0.9998
DL = 0.003553
BEC = 0.03021

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

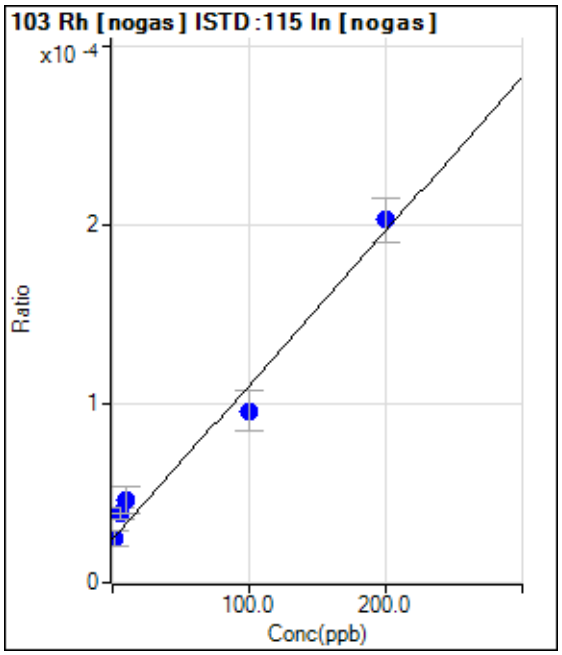



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2346.86 | 0.0007 | P | 8.4 |
| 2 | ☐ | 2.000 | 1.858 | 12691.37 | 0.0039 | P | 0.6 |
| 3 | ☐ | 5.000 | 4.830 | 28616.63 | 0.0091 | P | 3.7 |
| 4 | ☐ | 10.000 | 9.509 | 54099.29 | 0.0171 | P | 2.0 |
| 5 | ☐ | 100.000 | 97.437 | 526515.83 | 0.1687 | P | 2.3 |
| 6 | ☐ | 200.000 | 201.312 | 1060404.51 | 0.3477 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x + 7.4666E-004
R = 0.9999
DL = 0.1091
BEC = 0.4332

Weight: <None>
Min Conc: <None>

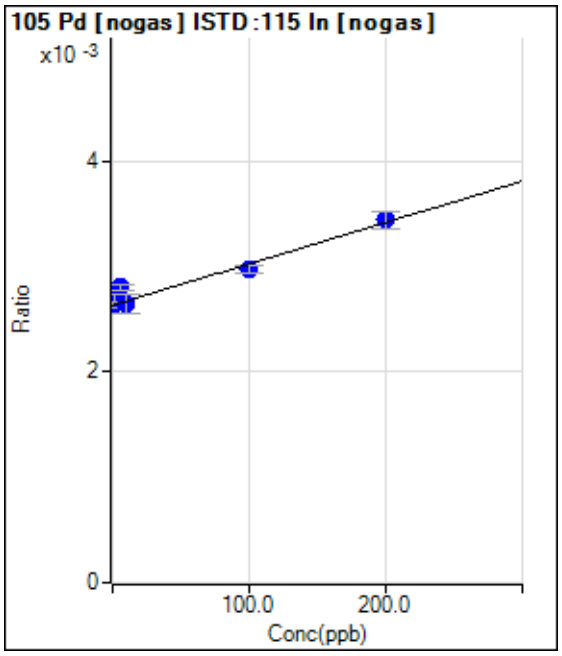
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 66.67 | 0.0000 | P | 35. |
| 2 | ☐ | 2.000 | 0.528 | 70.00 | 0.0000 | P | 33. |
| 3 | ☐ | 5.000 | 17.218 | 110.00 | 0.0000 | P | 16. |
| 4 | ☐ | 10.000 | 25.475 | 126.67 | 0.0000 | P | 33. |
| 5 | ☐ | 100.000 | 83.468 | 266.67 | 0.0001 | P | 23. |
| 6 | ☐ | 200.000 | 207.201 | 536.68 | 0.0002 | P | 12. |
| 7 | ☐ | 1.000 | | | | | |

y = 8.6114E-007 * x + 2.4223E-005
R = 0.9900
DL = 30.06
BEC = 28.13

Weight: <None>
Min Conc: <None>

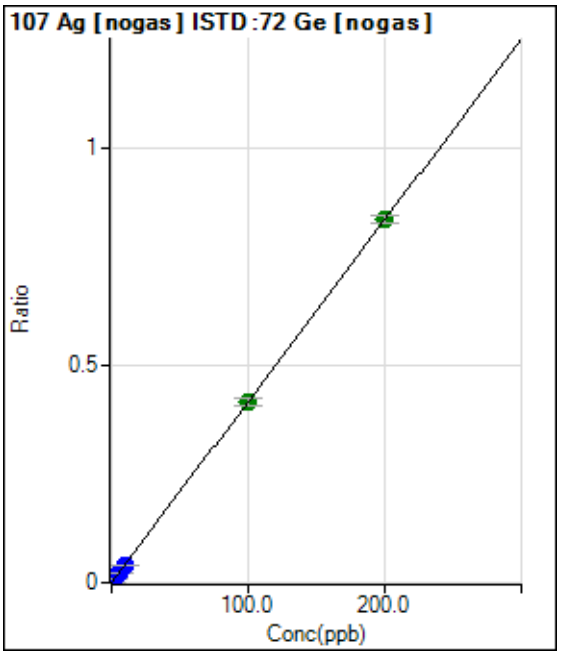



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7274.94 | 0.0026 | P | 1.9 |
| 2 | ☐ | 2.000 | 25.052 | 7825.18 | 0.0027 | P | 4.8 |
| 3 | ☐ | 5.000 | 42.617 | 7895.25 | 0.0028 | P | 1.8 |
| 4 | ☐ | 10.000 | 1.560 | 7281.63 | 0.0026 | P | 6.9 |
| 5 | ☐ | 100.000 | 86.483 | 8272.06 | 0.0030 | P | 2.7 |
| 6 | ☐ | 200.000 | 206.009 | 9092.51 | 0.0034 | P | 4.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 3.9266E-006 * x + 0.0026
R = 0.9712
DL = 37.3
BEC = 670.8

Weight: <None>
Min Conc: <None>

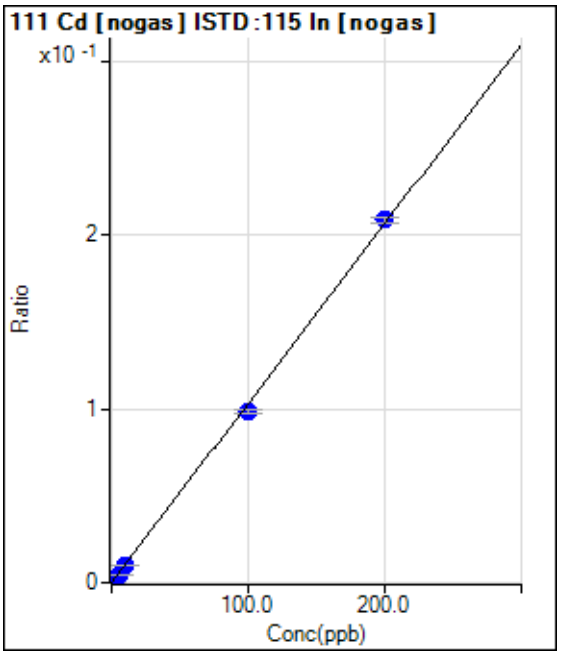
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 313.34 | 0.0001 | P | 18. |
| 2 | ☐ | 2.000 | 1.993 | 27057.61 | 0.0084 | P | 2.1 |
| 3 | ☐ | 5.000 | 4.847 | 64139.82 | 0.0203 | P | 1.8 |
| 4 | ☐ | 10.000 | 9.691 | 127992.66 | 0.0406 | P | 2.9 |
| 5 | ☐ | 100.000 | 99.590 | 1297879.88 | 0.4158 | A | 4.7 |
| 6 | ☐ | 200.000 | 200.224 | 2548997.25 | 0.8360 | A | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0042 * x + 9.9494E-005
R = 1.0000
DL = 0.01299
BEC = 0.02383

Weight: <None>
Min Conc: <None>

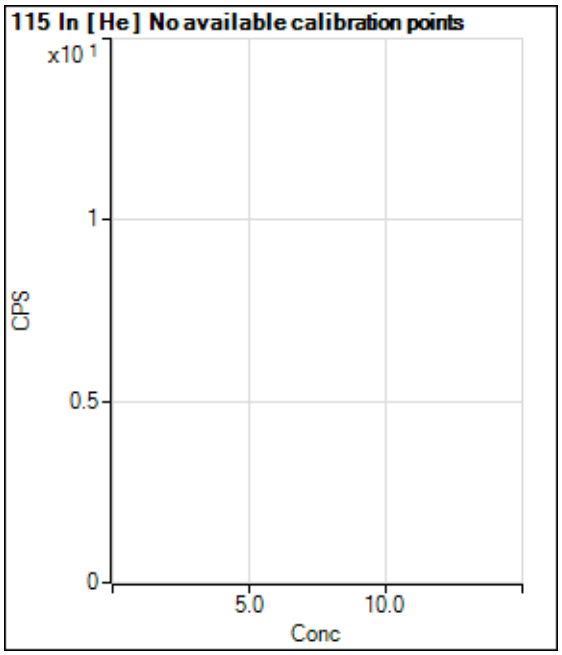



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 16.67 | 0.0000 | P | 36. |
| 2 | ☐ | 2.000 | 1.913 | 5661.00 | 0.0020 | P | 9.1 |
| 3 | ☐ | 5.000 | 4.673 | 13618.78 | 0.0048 | P | 0.8 |
| 4 | ☐ | 10.000 | 9.523 | 27167.91 | 0.0098 | P | 0.3 |
| 5 | ☐ | 100.000 | 95.439 | 273998.84 | 0.0985 | P | 1.7 |
| 6 | ☐ | 200.000 | 202.314 | 551807.61 | 0.2089 | P | 1.9 |
| 7 | ☐ | 1.000 | | | | | |

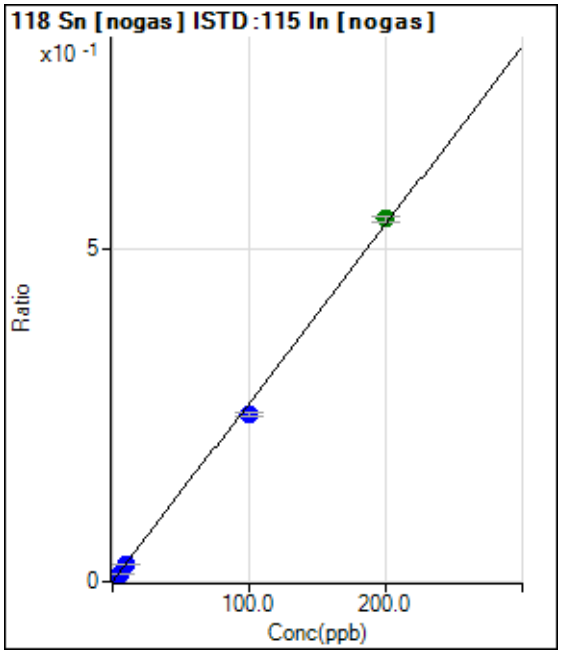
y = 0.0010 * x + 6.0777E-006
R = 0.9996
DL = 0.00647
BEC = 0.005887

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 929411.46 | | P | 0.5 |
| 2 | ☐ | | | 963801.71 | | P | 1.7 |
| 3 | ☐ | | | 912139.59 | | P | 2.3 |
| 4 | ☐ | | | 935971.63 | | P | 0.6 |
| 5 | ☐ | | | 884579.95 | | P | 1.9 |
| 6 | ☐ | | | 894182.83 | | P | 1.3 |
| 7 | ☐ | | | | | | |

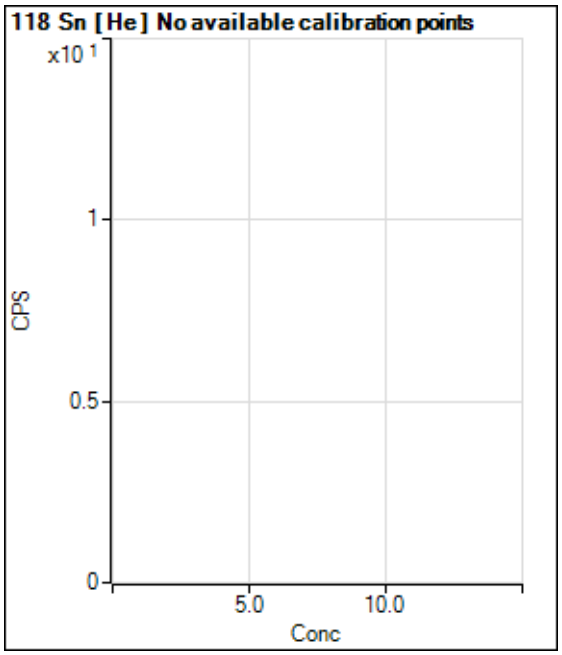



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 900.04 | 0.0003 | P | 22. |
| 2 | ☐ | 2.000 | 1.789 | 14713.08 | 0.0051 | P | 1.3 |
| 3 | ☐ | 5.000 | 4.547 | 35382.89 | 0.0126 | P | 3.0 |
| 4 | ☐ | 10.000 | 9.435 | 70960.99 | 0.0257 | P | 1.0 |
| 5 | ☐ | 100.000 | 93.586 | 700595.80 | 0.2520 | P | 2.3 |
| 6 | ☐ | 200.000 | 203.248 | 1444717.17 | 0.5468 | A | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

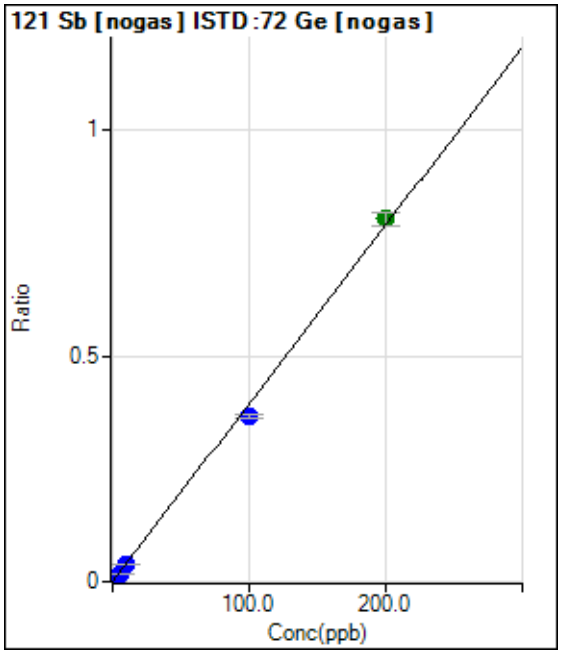
y = 0.0027 * x + 3.2733E-004
R = 0.9993
DL = 0.08178
BEC = 0.1217

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 346.68 | | P | 31. |
| 2 | ☐ | | | 5827.72 | | P | 1.5 |
| 3 | ☐ | | | 14075.82 | | P | 4.8 |
| 4 | ☐ | | | 27051.31 | | P | 2.0 |
| 5 | ☐ | | | 269593.39 | | P | 1.8 |
| 6 | ☐ | | | 551640.48 | | P | 0.7 |
| 7 | ☐ | | | | | | |

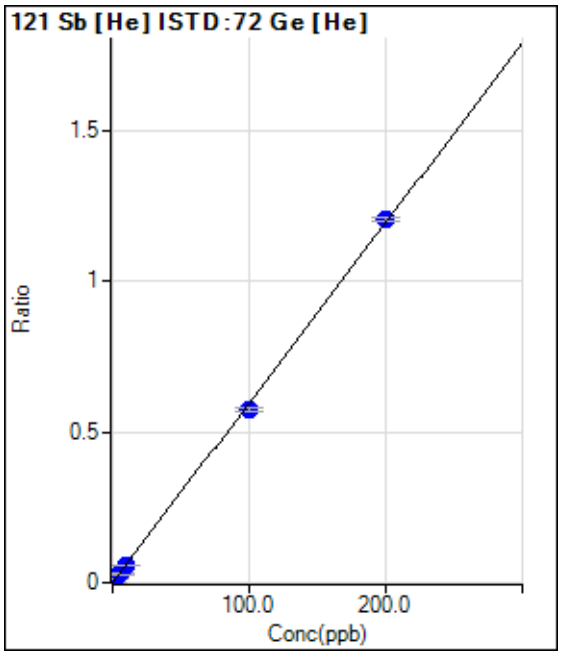



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 220.00 | 0.0001 | P | 5.0 |
| 2 | ☐ | 2.000 | 1.854 | 23726.40 | 0.0074 | P | 2.2 |
| 3 | ☐ | 5.000 | 4.748 | 59290.80 | 0.0188 | P | 2.8 |
| 4 | ☐ | 10.000 | 9.562 | 119295.20 | 0.0378 | P | 1.3 |
| 5 | ☐ | 100.000 | 92.731 | 1141841.70 | 0.3659 | P | 3.1 |
| 6 | ☐ | 200.000 | 203.664 | 2449177.36 | 0.8034 | A | 4.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0039 * x + 6.9961E-005
R = 0.9991
DL = 0.002662
BEC = 0.01774

Weight: <None>
Min Conc: <None>

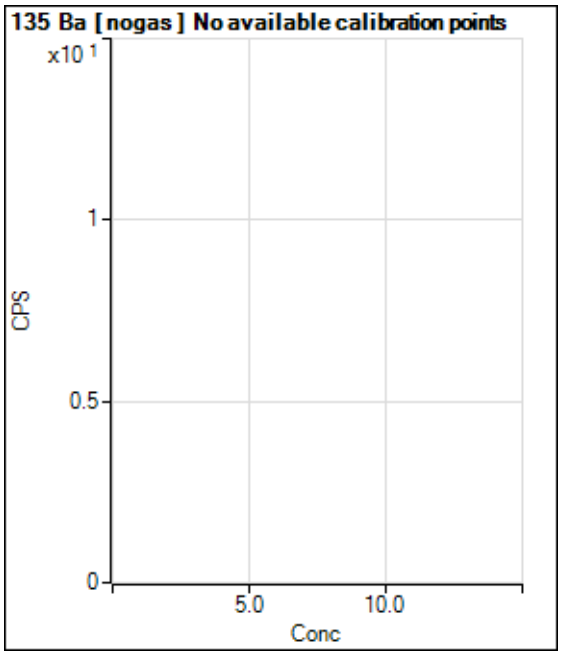
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 93.33 | 0.0001 | P | 33. |
| 2 | ☐ | 2.000 | 1.839 | 8885.72 | 0.0111 | P | 3.3 |
| 3 | ☐ | 5.000 | 4.805 | 22200.94 | 0.0288 | P | 2.4 |
| 4 | ☐ | 10.000 | 9.649 | 44553.84 | 0.0578 | P | 2.3 |
| 5 | ☐ | 100.000 | 96.563 | 433078.86 | 0.5771 | P | 2.1 |
| 6 | ☐ | 200.000 | 201.742 | 895149.57 | 1.2055 | P | 1.0 |
| 7 | ☐ | 1.000 | | | | | |

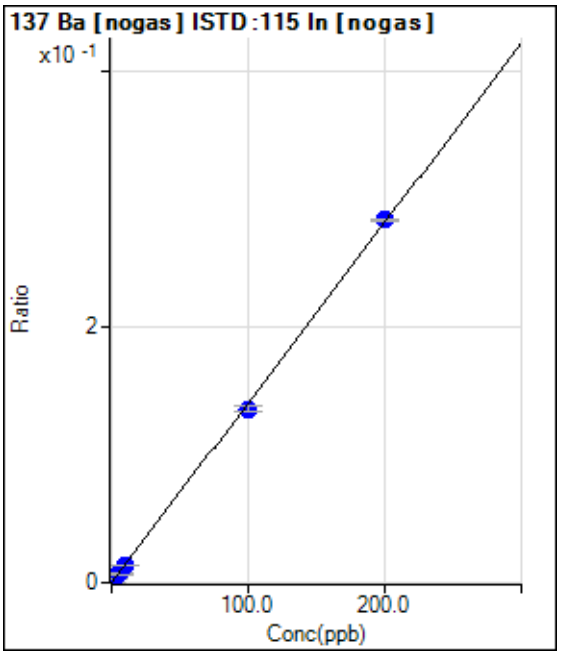
y = 0.0060 * x + 1.1896E-004
R = 0.9998
DL = 0.01984
BEC = 0.01991

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 50.00 | | P | 0.0 |
| 2 | ☐ | | | 4527.33 | | P | 5.2 |
| 3 | ☐ | | | 11167.10 | | P | 0.4 |
| 4 | ☐ | | | 22127.70 | | P | 1.3 |
| 5 | ☐ | | | 219963.50 | | P | 2.6 |
| 6 | ☐ | | | 443919.46 | | P | 0.7 |
| 7 | ☐ | | | | | | |

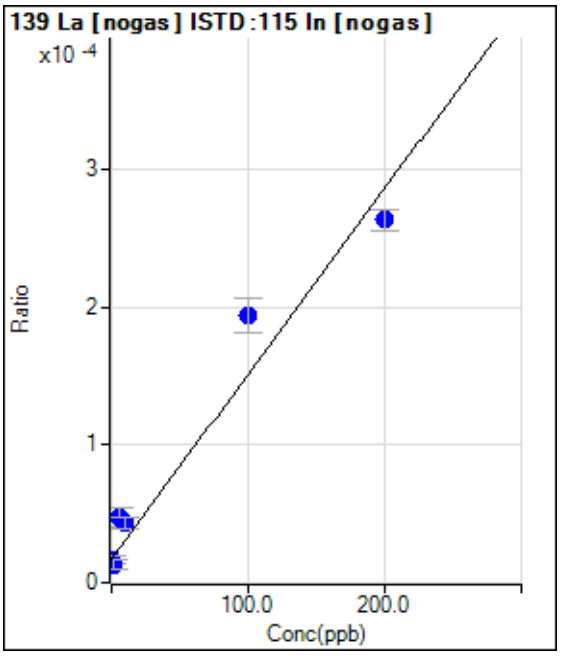
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 50.00 | 0.0000 | P | 58. |
| 2 | ☐ | 2.000 | 1.835 | 7428.38 | 0.0026 | P | 4.8 |
| 3 | ☐ | 5.000 | 4.801 | 19077.54 | 0.0068 | P | 3.2 |
| 4 | ☐ | 10.000 | 9.553 | 37116.85 | 0.0134 | P | 4.5 |
| 5 | ☐ | 100.000 | 96.668 | 377867.18 | 0.1359 | P | 3.2 |
| 6 | ☐ | 200.000 | 201.695 | 749343.66 | 0.2836 | P | 0.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 1.8059E-005
R = 0.9998
DL = 0.02242
BEC = 0.01285

Weight: <None>
Min Conc: <None>

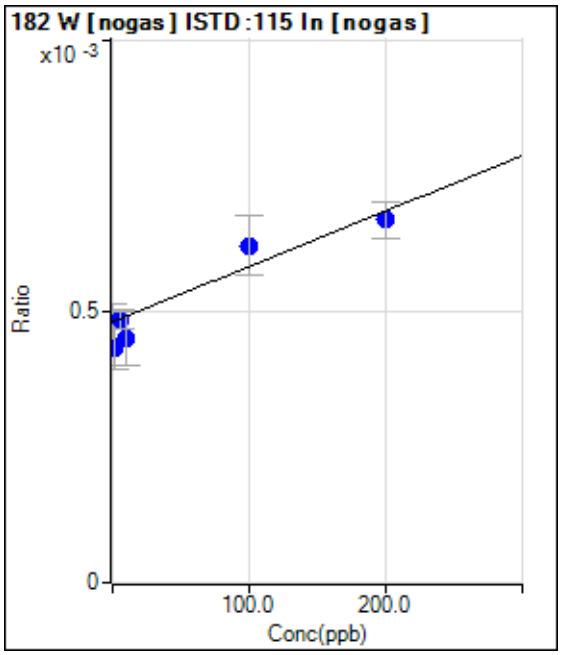



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 46.67 | 0.0000 | P | 35. |
| 2 | ☐ | 2.000 | -3.147 | 36.67 | 0.0000 | P | 54. |
| 3 | ☐ | 5.000 | 22.464 | 133.33 | 0.0000 | P | 30. |
| 4 | ☐ | 10.000 | 19.781 | 120.00 | 0.0000 | P | 19. |
| 5 | ☐ | 100.000 | 131.828 | 540.02 | 0.0002 | P | 13. |
| 6 | ☐ | 200.000 | 183.212 | 696.69 | 0.0003 | P | 6.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.3460E-006 * x + 1.6995E-005
R = 0.9775
DL = 13.32
BEC = 12.63

Weight: <None>
Min Conc: <None>

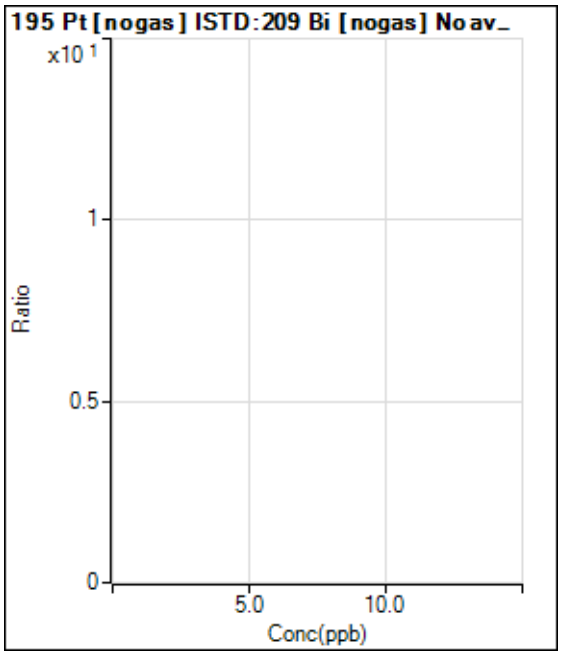
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1323.41 | 0.0005 | P | 13. |
| 2 | ☐ | 2.000 | -46.758 | 1233.40 | 0.0004 | P | 19. |
| 3 | ☐ | 5.000 | 5.083 | 1370.08 | 0.0005 | P | 7.6 |
| 4 | ☐ | 10.000 | -30.301 | 1236.73 | 0.0004 | P | 22. |
| 5 | ☐ | 100.000 | 137.403 | 1726.86 | 0.0006 | P | 17. |
| 6 | ☐ | 200.000 | 183.799 | 1766.78 | 0.0007 | P | 10. |
| 7 | ☐ | 1.000 | | | | | |

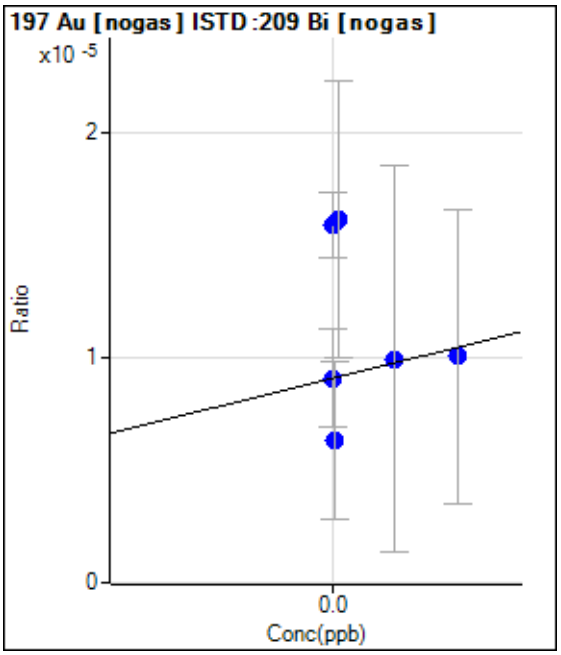
y = 1.0216E-006 * x + 4.8084E-004
R = 0.9490
DL = 189.8
BEC = 470.7

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

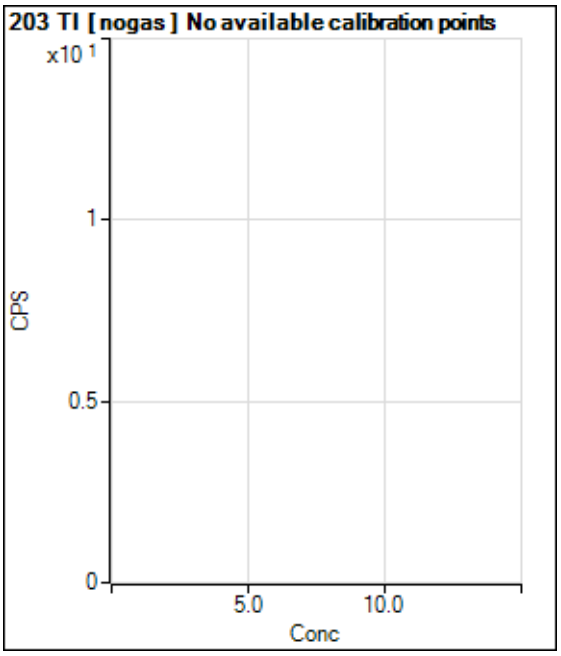
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 20.00 | 0.0000 | P | 48. |
| 2 | ☐ | 2.000 | 984.237 | 33.33 | 0.0000 | P | 18. |
| 3 | ☐ | 5.000 | -400.848 | 13.33 | 0.0000 | P | 111 |
| 4 | ☐ | 10.000 | 1013.815 | 33.33 | 0.0000 | P | 76. |
| 5 | ☐ | 100.000 | 122.077 | 20.00 | 0.0000 | P | 173 |
| 6 | ☐ | 200.000 | 139.095 | 20.00 | 0.0000 | P | 130 |
| 7 | ☐ | 1.000 | | | | | |

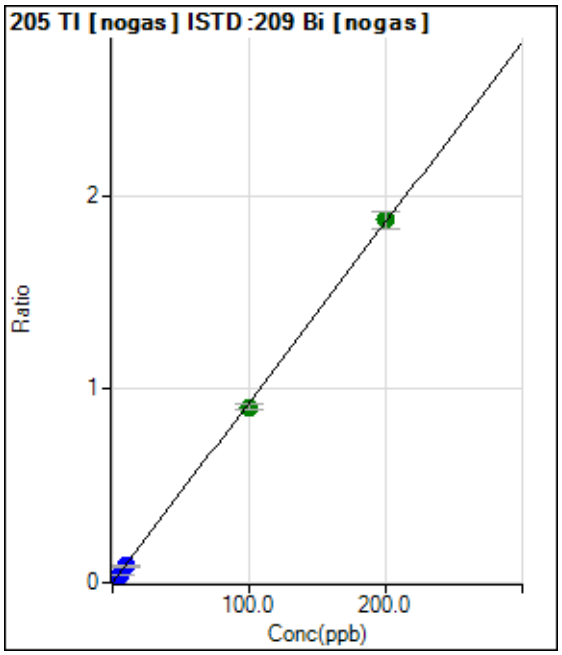
y = 6.9401E-009 * x + 9.0850E-006
R = -0.2069
DL = 1901
BEC = 1309

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 396.68 | | P | 6.3 |
| 2 | ☐ | | | 15177.28 | | P | 1.9 |
| 3 | ☐ | | | 37206.19 | | P | 2.6 |
| 4 | ☐ | | | 74657.31 | | P | 2.8 |
| 5 | ☐ | | | 754513.63 | | P | 0.6 |
| 6 | ☐ | | | 1615787.06 | | A | 4.1 |
| 7 | ☐ | | | | | | |

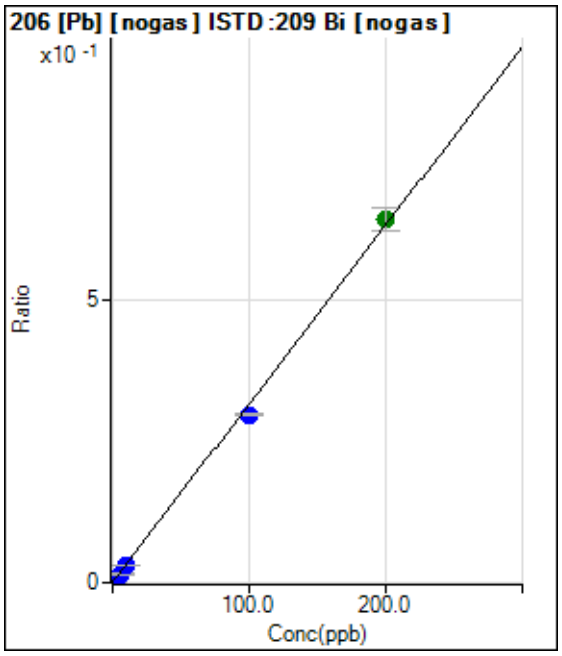
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 950.04 | 0.0004 | P | 26. |
| 2 | ☐ | 2.000 | 1.846 | 36978.93 | 0.0176 | P | 5.3 |
| 3 | ☐ | 5.000 | 4.650 | 90889.89 | 0.0438 | P | 3.6 |
| 4 | ☐ | 10.000 | 9.123 | 177386.68 | 0.0855 | P | 3.5 |
| 5 | ☐ | 100.000 | 97.375 | 1871198.98 | 0.9080 | A | 3.2 |
| 6 | ☐ | 200.000 | 201.366 | 3729505.46 | 1.8773 | A | 5.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0093 * x + 4.3290E-004
R = 0.9999
DL = 0.03734
BEC = 0.04645

Weight: <None>
Min Conc: <None>

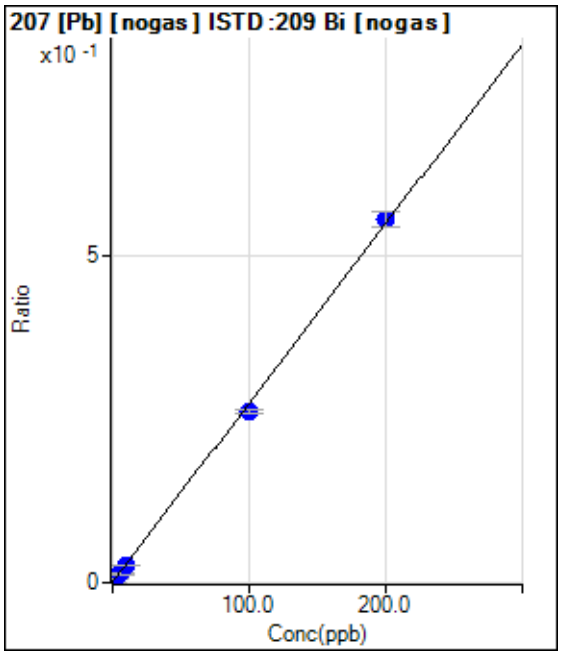



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1443.42 | 0.0007 | P | 2.7 |
| 2 | ☐ | 2.000 | 1.898 | 13959.54 | 0.0067 | P | 2.6 |
| 3 | ☐ | 5.000 | 4.594 | 31470.82 | 0.0152 | P | 8.4 |
| 4 | ☐ | 10.000 | 9.218 | 61834.71 | 0.0298 | P | 3.3 |
| 5 | ☐ | 100.000 | 93.880 | 612633.70 | 0.2974 | P | 1.3 |
| 6 | ☐ | 200.000 | 203.110 | 1276227.35 | 0.6426 | A | 6.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0032 * x + 6.5882E-004
R = 0.9994
DL = 0.01697
BEC = 0.2084

Weight: <None>
Min Conc: <None>

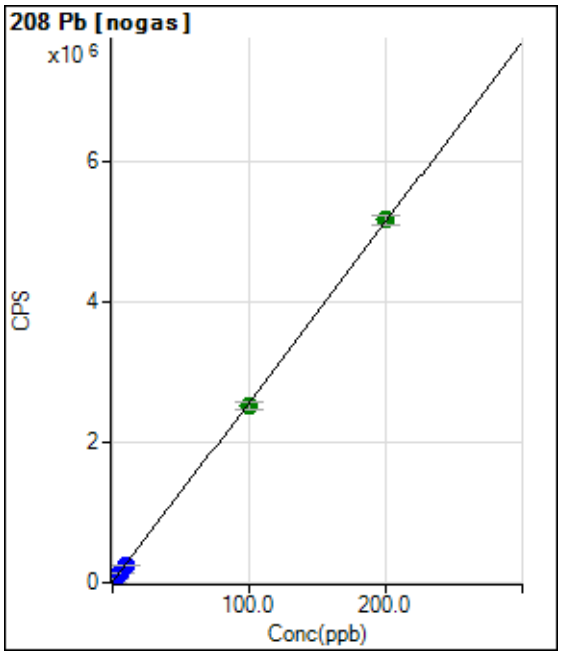
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1286.74 | 0.0006 | P | 10. |
| 2 | ☐ | 2.000 | 1.901 | 12171.41 | 0.0058 | P | 1.7 |
| 3 | ☐ | 5.000 | 4.736 | 28181.32 | 0.0136 | P | 5.2 |
| 4 | ☐ | 10.000 | 9.431 | 54919.53 | 0.0265 | P | 3.7 |
| 5 | ☐ | 100.000 | 95.639 | 541907.69 | 0.2630 | P | 2.5 |
| 6 | ☐ | 200.000 | 202.216 | 1103714.62 | 0.5554 | P | 4.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0027 * x + 5.8827E-004
R = 0.9997
DL = 0.06788
BEC = 0.2144

Weight: <None>
Min Conc: <None>

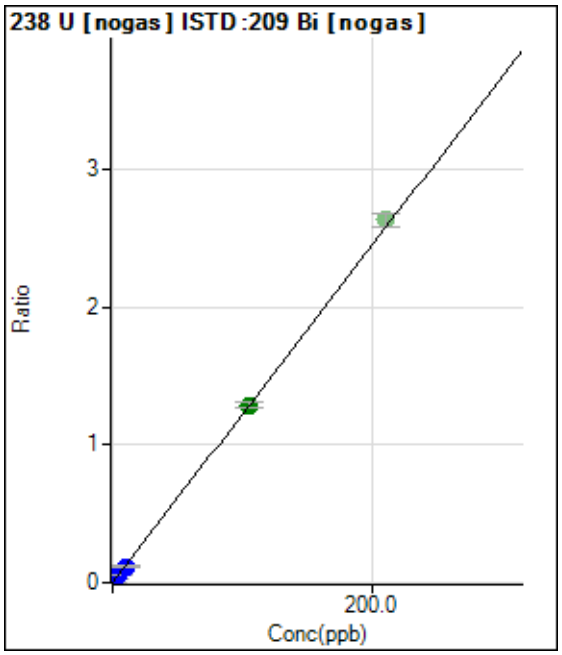



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 5600.46 | | P | 3.4 |
| 2 | ☐ | 2.000 | 1.947 | 55658.05 | | P | 1.7 |
| 3 | ☐ | 5.000 | 4.775 | 128327.18 | | P | 0.4 |
| 4 | ☐ | 10.000 | 9.450 | 248511.29 | | P | 1.3 |
| 5 | ☐ | 100.000 | 97.744 | 2517963.92 | | A | 4.1 |
| 6 | ☐ | 200.000 | 201.162 | 5176179.64 | | A | 2.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 25703.5855 * x + 5600.4633
R = 0.9999
DL = 0.02227
BEC = 0.2179

Weight: <None>
Min Conc: <None>

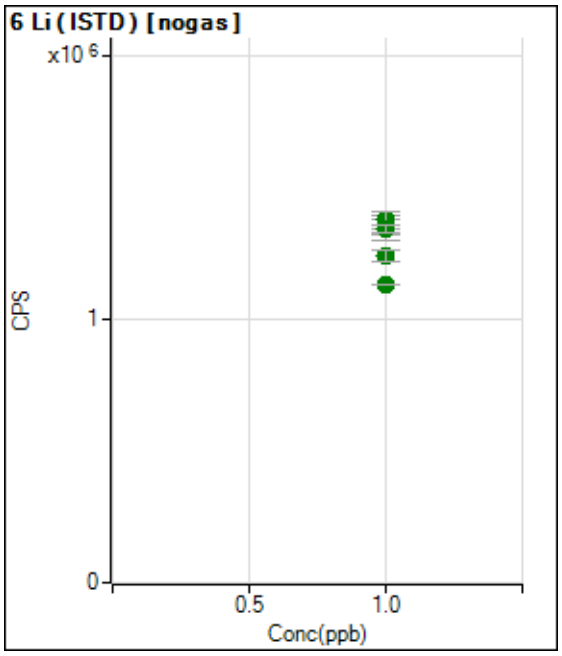
Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 63.33 | 0.0000 | P | 22. |
| 2 | ☐ | 2.000 | 1.905 | 49056.52 | 0.0234 | P | 1.0 |
| 3 | ☐ | 5.000 | 4.872 | 124200.91 | 0.0598 | P | 1.6 |
| 4 | ☐ | 10.000 | 9.631 | 245233.03 | 0.1181 | P | 1.8 |
| 5 | ☐ | 105.000 | 105.043 | 2655341.11 | 1.2884 | A | 2.6 |
| 6 | ☑ | 210.000 | | 5233637.32 | 2.6334 | A | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

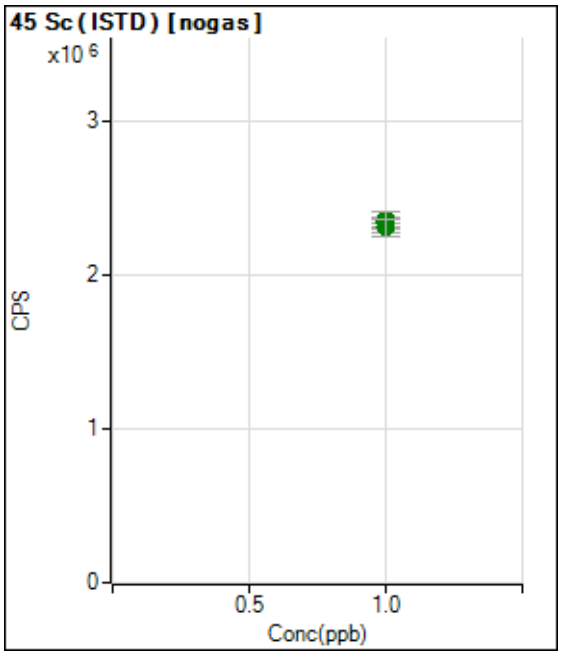
y = 0.0123 * x + 2.8842E-005
R = 1.0000
DL = 0.001568
BEC = 0.002352

Weight: <None>
Min Conc: <None>

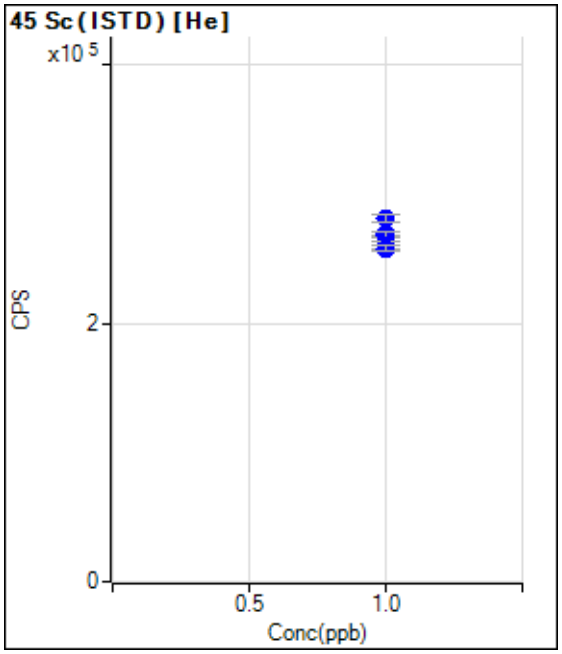



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1359891.36 | | A | 4.9 |
| 2 | ☐ | 1.000 | | 1344970.86 | | A | 6.0 |
| 3 | ☐ | 1.000 | | 1379508.00 | | A | 5.0 |
| 4 | ☐ | 1.000 | | 1345500.42 | | A | 2.3 |
| 5 | ☐ | 1.000 | | 1246083.87 | | A | 3.4 |
| 6 | ☐ | 1.000 | | 1131773.55 | | A | 0.1 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 020_ICV.d

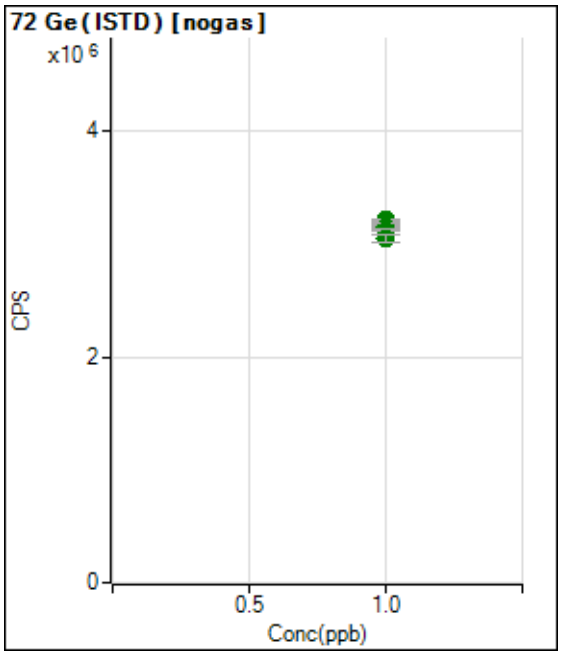



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2346055.54 | | A | 2.6 |
| 2 | ☐ | 1.000 | | 2362147.52 | | A | 1.9 |
| 3 | ☐ | 1.000 | | 2342697.83 | | A | 2.7 |
| 4 | ☐ | 1.000 | | 2348832.83 | | A | 5.5 |
| 5 | ☐ | 1.000 | | 2358413.77 | | A | 4.5 |
| 6 | ☐ | 1.000 | | 2311042.67 | | A | 4.5 |
| 7 | ☐ | 1.000 | | | | | |

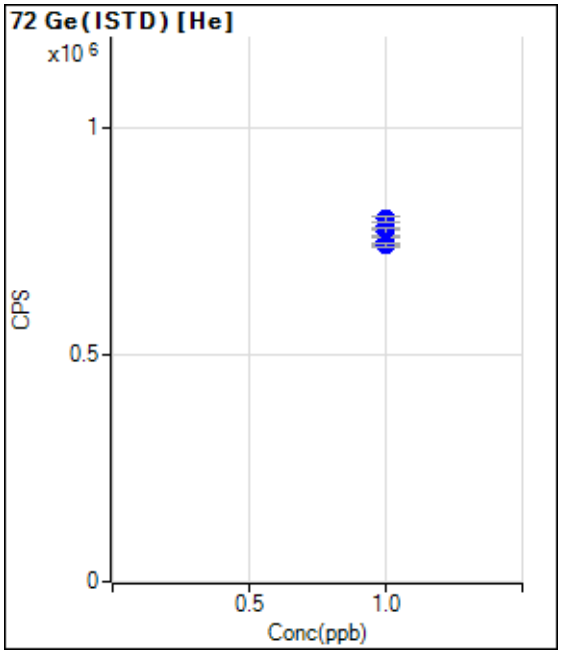



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 268993.35 | | P | 1.0 |
| 2 | ☐ | 1.000 | | 280693.89 | | P | 2.1 |
| 3 | ☐ | 1.000 | | 266646.73 | | P | 0.5 |
| 4 | ☐ | 1.000 | | 267248.55 | | P | 2.8 |
| 5 | ☐ | 1.000 | | 260197.88 | | P | 2.3 |
| 6 | ☐ | 1.000 | | 257615.65 | | P | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 020_ICV.d

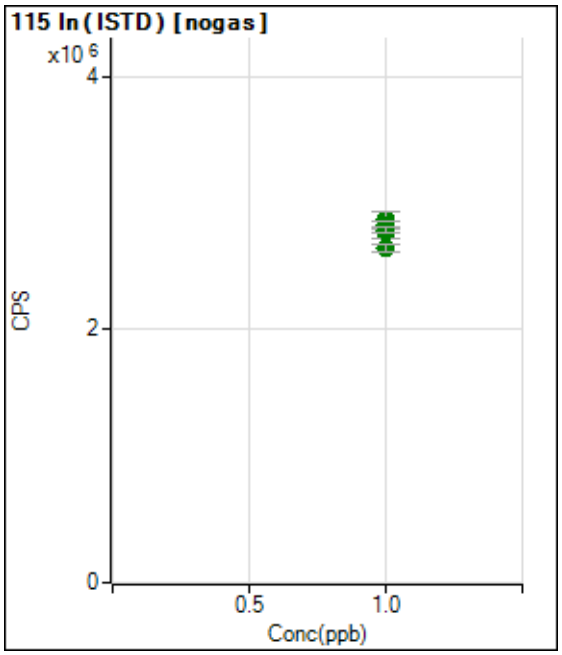



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 3145209.43 | | A | 1.2 |
| 2 | ☐ | 1.000 | | 3213340.79 | | A | 0.9 |
| 3 | ☐ | 1.000 | | 3154457.97 | | A | 0.5 |
| 4 | ☐ | 1.000 | | 3156956.72 | | A | 1.8 |
| 5 | ☐ | 1.000 | | 3121481.00 | | A | 0.8 |
| 6 | ☐ | 1.000 | | 3050026.83 | | A | 2.0 |
| 7 | ☐ | 1.000 | | | | | |

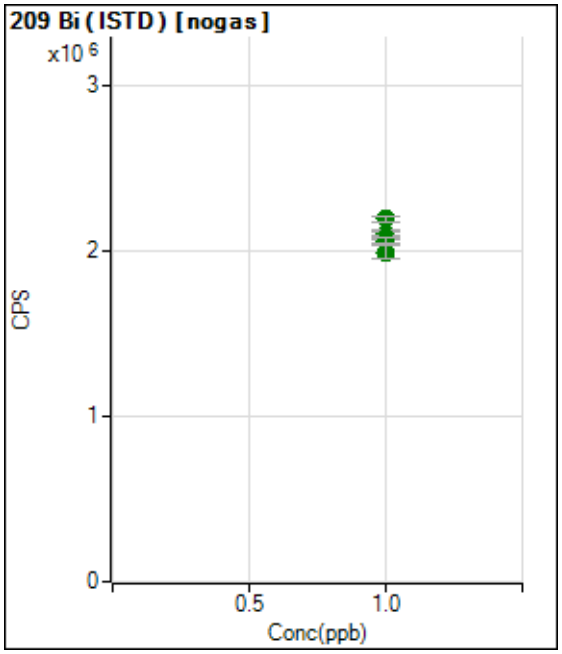



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 785019.94 | | P | 1.9 |
| 2 | ☐ | 1.000 | | 800121.60 | | P | 1.9 |
| 3 | ☐ | 1.000 | | 770398.48 | | P | 2.3 |
| 4 | ☐ | 1.000 | | 771369.03 | | P | 2.2 |
| 5 | ☐ | 1.000 | | 750724.47 | | P | 2.4 |
| 6 | ☐ | 1.000 | | 742606.29 | | P | 0.9 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 020_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2761163.82 | | A | 3.7 |
| 2 | ☐ | 1.000 | | 2864140.74 | | A | 4.8 |
| 3 | ☐ | 1.000 | | 2819102.61 | | A | 2.0 |
| 4 | ☐ | 1.000 | | 2761826.92 | | A | 3.1 |
| 5 | ☐ | 1.000 | | 2781244.33 | | A | 1.7 |
| 6 | ☐ | 1.000 | | 2642789.96 | | A | 2.6 |
| 7 | ☐ | 1.000 | | | | | |



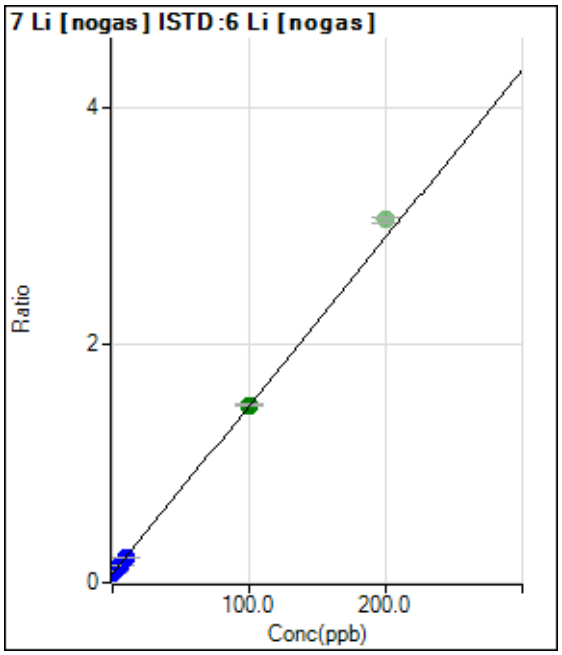

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2190176.74 | | A | 1.9 |
| 2 | ☐ | 1.000 | | 2096933.25 | | A | 1.0 |
| 3 | ☐ | 1.000 | | 2078205.39 | | A | 4.3 |
| 4 | ☐ | 1.000 | | 2075763.61 | | A | 0.8 |
| 5 | ☐ | 1.000 | | 2060332.52 | | A | 2.0 |
| 6 | ☐ | 1.000 | | 1989046.90 | | A | 3.9 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122418A.b\
Analysis File: 122418A.batch.bin
DA Date-Time: 2018-12-24 19:19:15
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 123CALB.d | CAL BLK | 2018-12-24 18:59:56 |
| 2 | 124CALS.d | 2/10/200 | 2018-12-24 19:01:55 |
| 3 | 125CALS.d | 5/25/500 | 2018-12-24 19:03:54 |
| 4 | 126CALS.d | 10/50/1000 | 2018-12-24 19:05:53 |
| 5 | 127CALS.d | 100/500/10K | 2018-12-24 19:07:51 |
| 6 | 128CALS.d | 200/1000/20K | 2018-12-24 19:09:49 |
| 7 | | | |

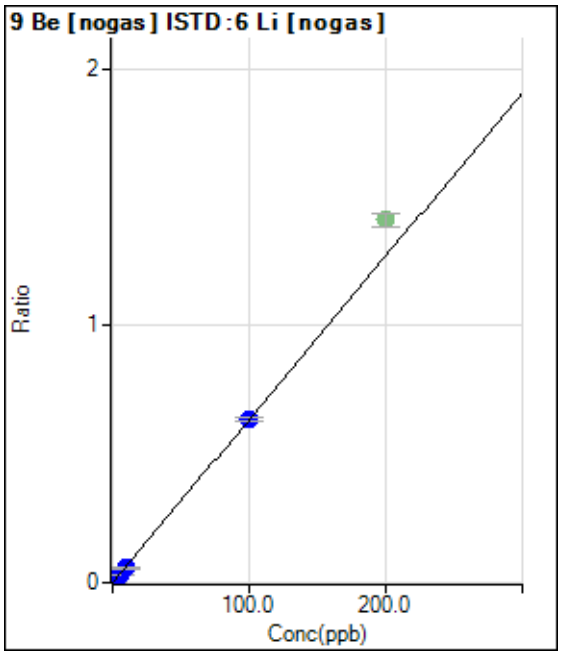
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 109987.48 | 0.0761 | P | 4.0 |
| 2 | ☐ | 2.000 | 2.015 | 144042.98 | 0.1046 | P | 3.7 |
| 3 | ☐ | 5.000 | 5.051 | 196257.95 | 0.1475 | P | 4.2 |
| 4 | ☐ | 10.000 | 9.293 | 278269.37 | 0.2074 | P | 4.0 |
| 5 | ☐ | 100.000 | 100.068 | 1809426.95 | 1.4908 | A | 1.3 |
| 6 | ☑ | 200.000 | | 3539333.70 | 3.0537 | A | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0141 * x + 0.0761
R = 1.0000
DL = 0.6449
BEC = 5.38

Weight: <None>
Min Conc: <None>

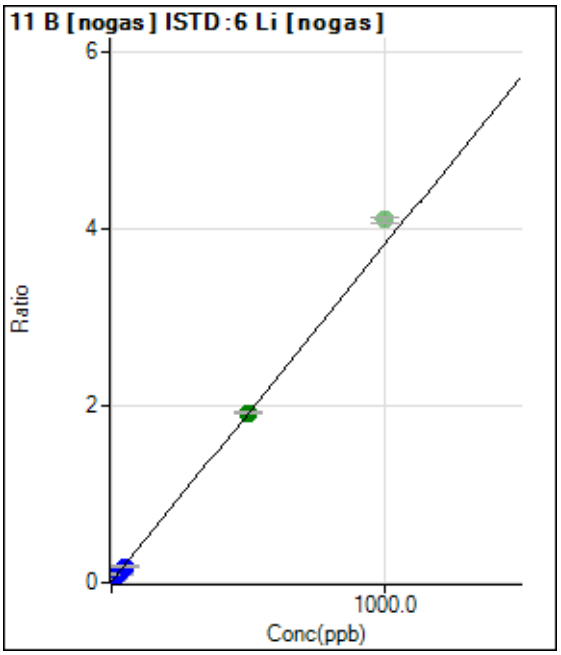



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 70.00 | 0.0000 | P | 37. |
| 2 | ☐ | 2.000 | 1.825 | 16016.87 | 0.0116 | P | 5.3 |
| 3 | ☐ | 5.000 | 4.751 | 40216.01 | 0.0302 | P | 3.1 |
| 4 | ☐ | 10.000 | 9.062 | 77147.95 | 0.0576 | P | 6.7 |
| 5 | ☐ | 100.000 | 100.110 | 770857.12 | 0.6353 | P | 1.3 |
| 6 | ☑ | 200.000 | | 1635048.00 | 1.4106 | A | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0063 * x + 4.8377E-005
R = 1.0000
DL = 0.008578
BEC = 0.007624

Weight: <None>
Min Conc: <None>

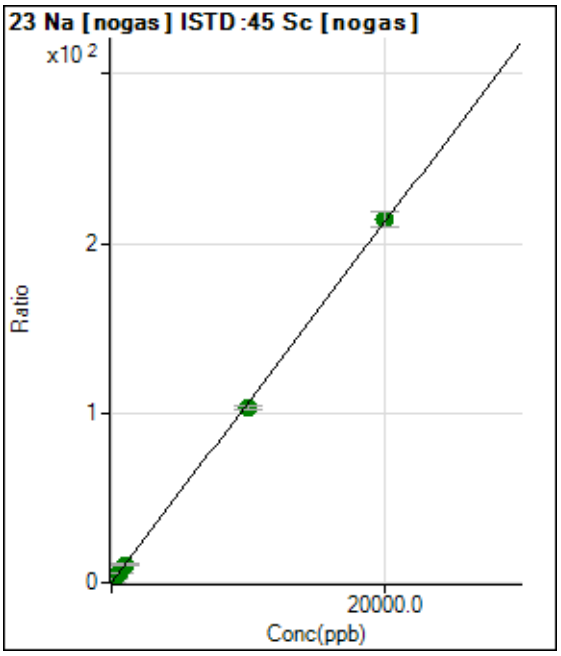
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 18916.23 | 0.0131 | P | 2.2 |
| 2 | ☐ | 10.000 | 8.712 | 63562.20 | 0.0462 | P | 6.2 |
| 3 | ☐ | 25.000 | 22.388 | 130645.87 | 0.0982 | P | 3.7 |
| 4 | ☐ | 50.000 | 44.565 | 244624.14 | 0.1824 | P | 5.6 |
| 5 | ☐ | 500.000 | 500.700 | 2325500.28 | 1.9158 | A | 1.0 |
| 6 | ☑ | 1000.000 | | 4747091.91 | 4.0959 | A | 1.8 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0038 * x + 0.0131
R = 1.0000
DL = 0.2234
BEC = 3.442

Weight: <None>
Min Conc: <None>

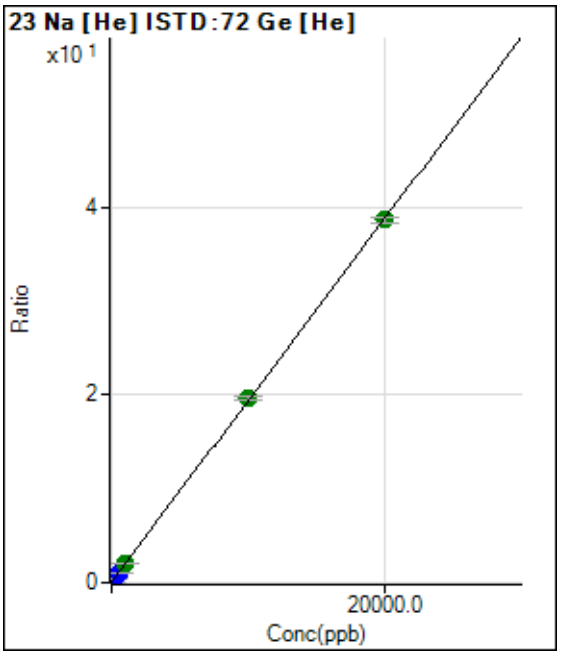



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 400648.68 | 0.1735 | P | 0.5 |
| 2 | ☐ | 200.000 | 196.654 | 5490362.49 | 2.2612 | A | 3.5 |
| 3 | ☐ | 500.000 | 506.361 | 12844224.25 | 5.5491 | A | 3.5 |
| 4 | ☐ | 1000.000 | 993.358 | 25250872.44 | 10.7190 | A | 2.4 |
| 5 | ☐ | 10000.00 | 9722.634 | 242498655.4 | 103.389 | A | 1.5 |
| 6 | ☐ | 20000.00 | 20138.890 | 487938144.2 | 213.968 | A | 4.4 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0106 * x + 0.1735
R = 0.9999
DL = 0.2609
BEC = 16.34

Weight: <None>
Min Conc: <None>

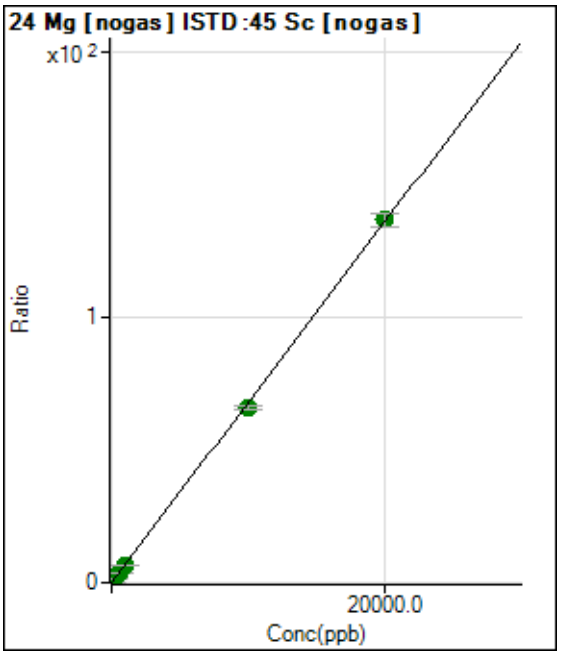
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 45584.69 | 0.0604 | P | 3.2 |
| 2 | ☐ | 200.000 | 199.795 | 338996.83 | 0.4467 | P | 2.9 |
| 3 | ☐ | 500.000 | 478.901 | 782019.52 | 0.9862 | P | 1.4 |
| 4 | ☐ | 1000.000 | 1043.104 | 1603255.50 | 2.0769 | A | 3.7 |
| 5 | ☐ | 10000.00 | 10100.867 | 14697812.28 | 19.5869 | A | 1.8 |
| 6 | ☐ | 20000.00 | 19947.941 | 28670344.57 | 38.6227 | A | 1.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0019 * x + 0.0604
R = 1.0000
DL = 3.039
BEC = 31.26

Weight: <None>
Min Conc: <None>

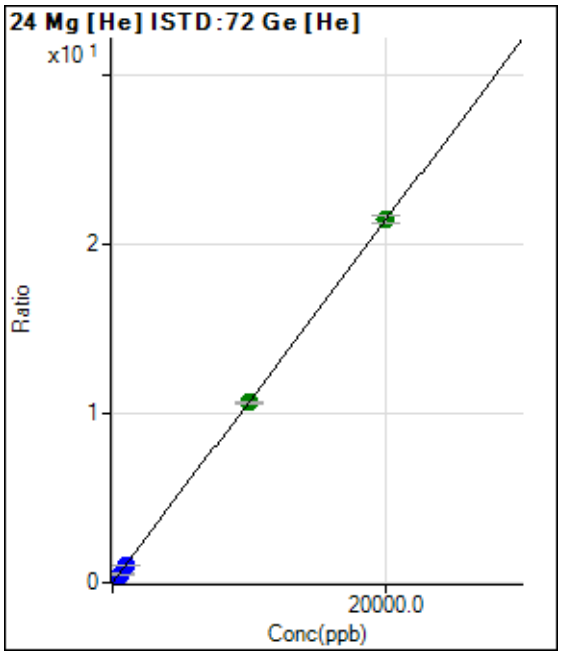



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 8169.72 | 0.0035 | P | 17. |
| 2 | ☐ | 200.000 | 207.727 | 3430175.73 | 1.4130 | A | 5.2 |
| 3 | ☐ | 500.000 | 509.339 | 8008672.58 | 3.4594 | A | 2.3 |
| 4 | ☐ | 1000.000 | 990.209 | 15834309.73 | 6.7222 | A | 2.5 |
| 5 | ☐ | 10000.00 | 9731.414 | 154874207.6 | 66.0318 | A | 2.7 |
| 6 | ☐ | 20000.00 | 20134.472 | 311599648.6 | 136.617 | A | 3.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0068 * x + 0.0035
R = 0.9999
DL = 0.276
BEC = 0.5222

Weight: <None>
Min Conc: <None>

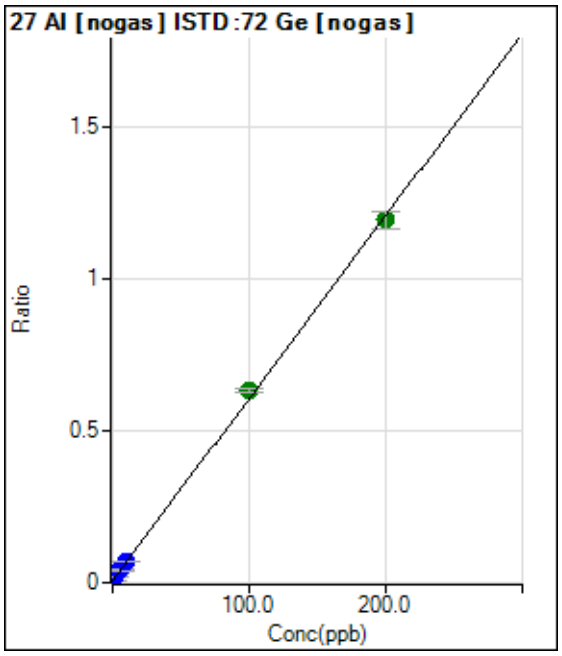
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 583.35 | 0.0008 | P | 14. |
| 2 | ☐ | 200.000 | 200.524 | 163587.70 | 0.2155 | P | 2.7 |
| 3 | ☐ | 500.000 | 475.935 | 404818.80 | 0.5105 | P | 1.2 |
| 4 | ☐ | 1000.000 | 985.076 | 815125.67 | 1.0558 | P | 2.7 |
| 5 | ☐ | 10000.00 | 9942.707 | 7992093.84 | 10.6500 | A | 0.8 |
| 6 | ☐ | 20000.00 | 20029.989 | 15925250.18 | 21.4541 | A | 2.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0011 * x + 7.7207E-004
R = 1.0000
DL = 0.303
BEC = 0.7208

Weight: <None>
Min Conc: <None>

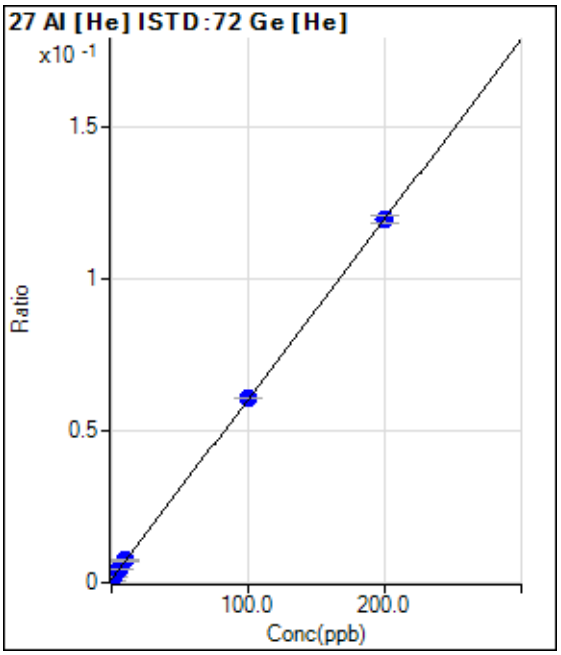



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 21442.36 | 0.0067 | P | 4.3 |
| 2 | ☐ | 2.000 | 2.061 | 62001.74 | 0.0190 | P | 3.2 |
| 3 | ☐ | 5.000 | 5.801 | 140606.19 | 0.0415 | P | 3.0 |
| 4 | ☐ | 10.000 | 10.560 | 232007.90 | 0.0700 | P | 0.4 |
| 5 | ☐ | 100.000 | 104.066 | 1990080.39 | 0.6309 | A | 2.4 |
| 6 | ☐ | 200.000 | 197.918 | 3720618.90 | 1.1938 | A | 5.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0060 * x + 0.0067
R = 0.9997
DL = 0.144
BEC = 1.115

Weight: <None>
Min Conc: <None>

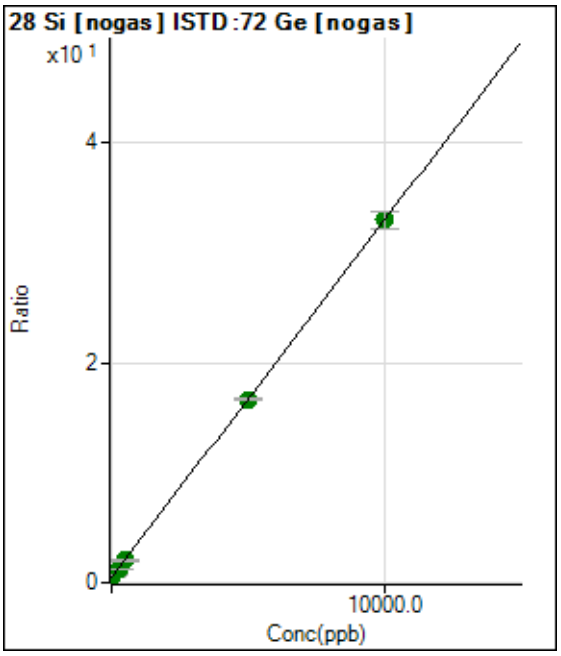
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.865 | 436.68 | 0.0006 | P | 18. |
| 2 | ☐ | 2.000 | 1.605 | 1553.42 | 0.0020 | P | 8.1 |
| 3 | ☐ | 5.000 | 5.532 | 3467.04 | 0.0044 | P | 1.9 |
| 4 | ☐ | 10.000 | 10.454 | 5627.60 | 0.0073 | P | 5.8 |
| 5 | ☐ | 100.000 | 100.613 | 45588.36 | 0.0607 | P | 0.6 |
| 6 | ☐ | 200.000 | 199.662 | 88686.85 | 0.1195 | P | 2.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.9290E-004 * x + 0.0011
R = 1.0000
DL = 0.5335
BEC = 1.843

Weight: <None>
Min Conc: <None>

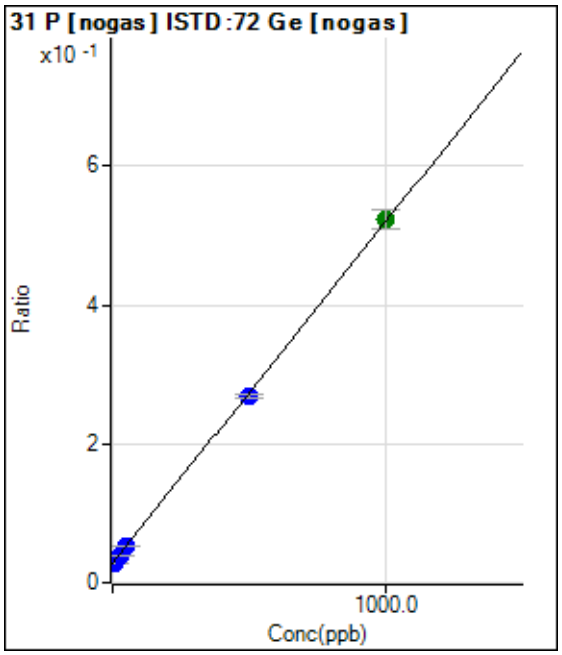



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1541531.96 | 0.4807 | A | 2.8 |
| 2 | ☐ | 100.000 | 95.072 | 2570600.17 | 0.7897 | A | 3.4 |
| 3 | ☐ | 250.000 | 231.577 | 4181612.54 | 1.2334 | A | 1.6 |
| 4 | ☐ | 500.000 | 471.512 | 6670116.15 | 2.0133 | A | 0.5 |
| 5 | ☐ | 5000.000 | 4990.719 | 52692804.22 | 16.7021 | A | 1.9 |
| 6 | ☐ | 10000.00 | 10006.575 | 102886088.4 | 33.0051 | A | 4.6 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0033 * x + 0.4807
R = 1.0000
DL = 12.53
BEC = 147.9

Weight: <None>
Min Conc: <None>

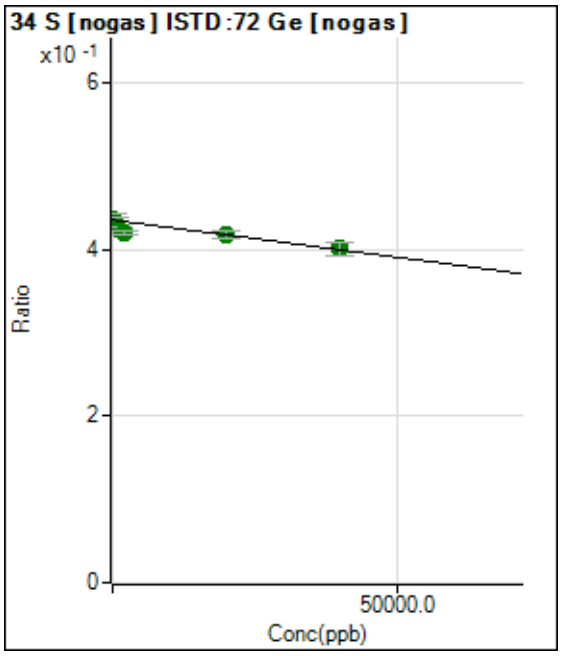
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 90461.85 | 0.0282 | P | 1.7 |
| 2 | ☐ | 10.000 | -2.420 | 87959.88 | 0.0270 | P | 3.0 |
| 3 | ☐ | 25.000 | 21.272 | 131059.88 | 0.0387 | P | 3.5 |
| 4 | ☐ | 50.000 | 49.693 | 174335.07 | 0.0526 | P | 2.4 |
| 5 | ☐ | 500.000 | 488.610 | 846504.44 | 0.2683 | P | 2.4 |
| 6 | ☐ | 1000.000 | 1005.928 | 1628622.27 | 0.5226 | A | 5.4 |
| 7 | ☐ | 5.000 | | | | | |

y = 4.9145E-004 * x + 0.0282
R = 0.9999
DL = 2.983
BEC = 57.4

Weight: <None>
Min Conc: <None>

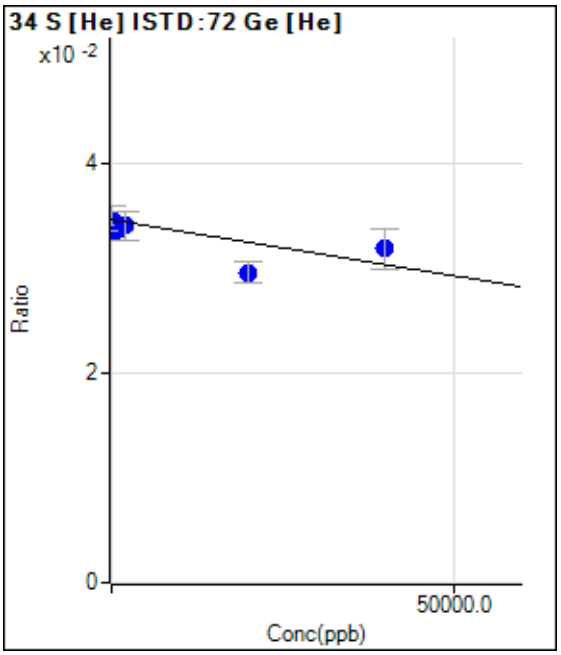



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1396824.77 | 0.4356 | A | 3.9 |
| 2 | ☐ | 400.000 | 3152.730 | 1408824.22 | 0.4328 | A | 2.8 |
| 3 | ☐ | 1000.000 | 13056.907 | 1437071.29 | 0.4239 | A | 1.5 |
| 4 | ☐ | 2000.000 | 17104.652 | 1392253.03 | 0.4203 | A | 1.1 |
| 5 | ☐ | 20000.00 | 19982.618 | 1317836.85 | 0.4177 | A | 1.8 |
| 6 | ☐ | 40000.00 | 38924.509 | 1249132.51 | 0.4007 | A | 4.4 |
| 7 | ☐ | 100.000 | | | | | |

y = -8.9599E-007 * x + 0.4356
R = -0.9057
DL = -5.671E+04
BEC = -4.862E+05

Weight: <None>
Min Conc: <None>

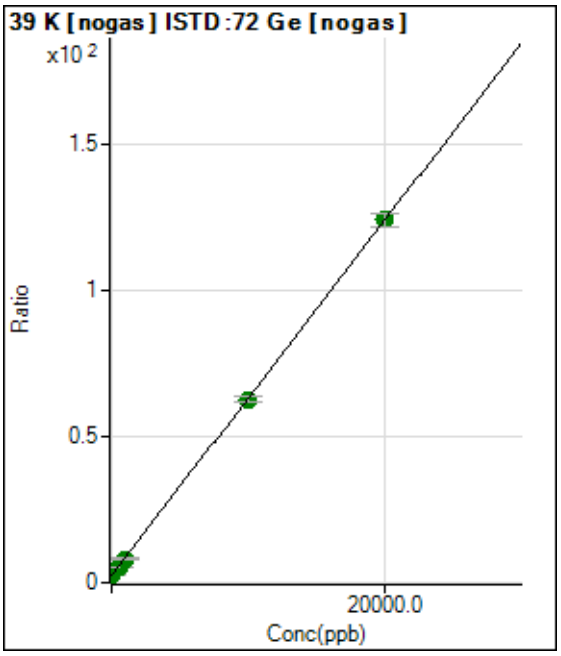
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 26123.34 | 0.0346 | P | 7.8 |
| 2 | ☐ | 400.000 | 11341.660 | 25388.79 | 0.0334 | P | 0.6 |
| 3 | ☐ | 1000.000 | 7300.970 | 26857.01 | 0.0339 | P | 1.5 |
| 4 | ☐ | 2000.000 | 5032.600 | 26322.65 | 0.0341 | P | 8.1 |
| 5 | ☐ | 20000.00 | 46969.867 | 22250.35 | 0.0296 | P | 6.8 |
| 6 | ☐ | 40000.00 | 26096.495 | 23652.87 | 0.0319 | P | 11. |
| 7 | ☐ | 100.000 | | | | | |

y = -1.0641E-007 * x + 0.0346
R = -0.6867
DL = -7.658E+04
BEC = -3.256E+05

Weight: <None>
Min Conc: <None>

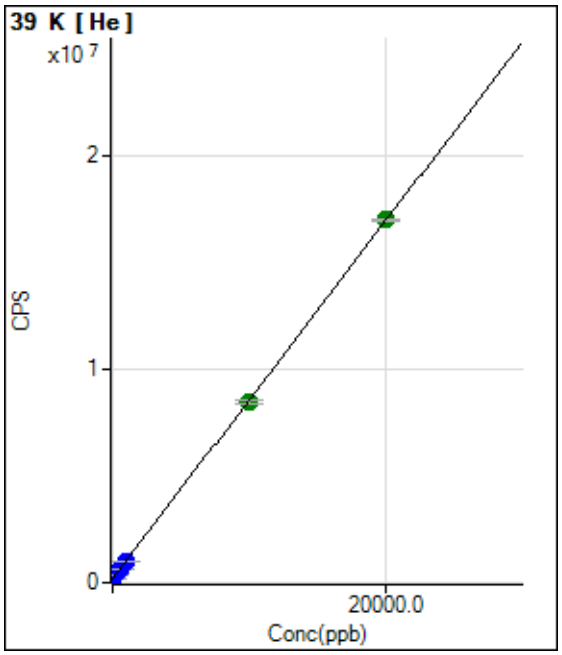



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7853188.46 | 2.4490 | A | 0.9 |
| 2 | ☐ | 200.000 | 201.119 | 11948323.96 | 3.6702 | A | 2.3 |
| 3 | ☐ | 500.000 | 465.004 | 17872185.82 | 5.2724 | A | 2.8 |
| 4 | ☐ | 1000.000 | 947.779 | 27175798.52 | 8.2036 | A | 1.5 |
| 5 | ☐ | 10000.00 | 9928.145 | 197878504.4 | 62.7298 | A | 3.1 |
| 6 | ☐ | 20000.00 | 20039.402 | 387013200.3 | 124.122 | A | 3.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0061 * x + 2.4490
R = 1.0000
DL = 10.79
BEC = 403.3

Weight: <None>
Min Conc: <None>

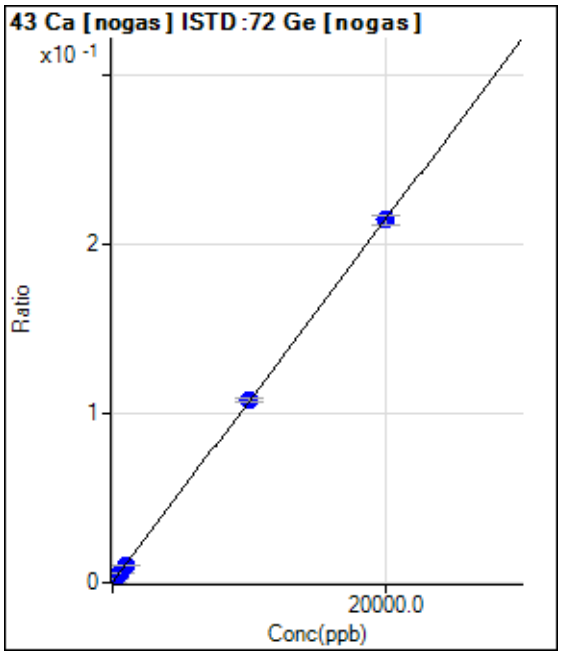
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 181917.03 | | P | 1.6 |
| 2 | ☐ | 200.000 | 200.744 | 350063.77 | | P | 0.8 |
| 3 | ☐ | 500.000 | 496.267 | 597599.06 | | P | 0.8 |
| 4 | ☐ | 1000.000 | 976.799 | 1000101.37 | | P | 0.3 |
| 5 | ☐ | 10000.00 | 9873.819 | 8452403.42 | | A | 1.7 |
| 6 | ☐ | 20000.00 | 20064.336 | 16988162.25 | | A | 0.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 837.6178 * x + 181917.0300
R = 1.0000
DL = 10.5
BEC = 217.2

Weight: <None>
Min Conc: <None>

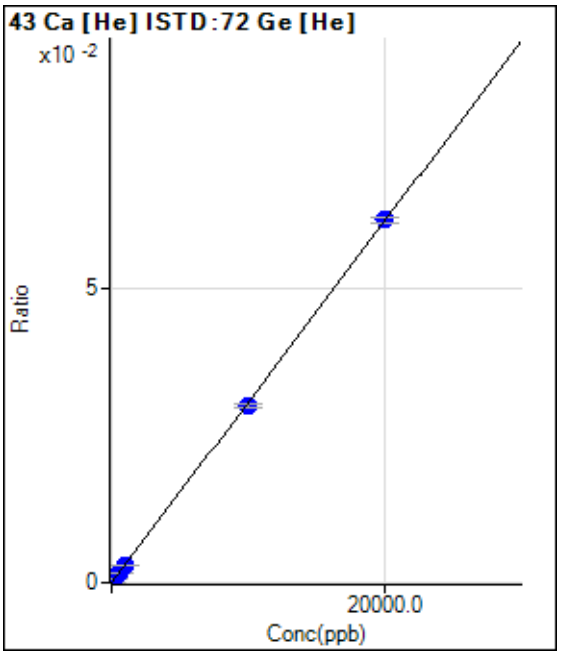



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 563.35 | 0.0002 | P | 15. |
| 2 | ☐ | 200.000 | 205.812 | 7758.39 | 0.0024 | P | 5.1 |
| 3 | ☐ | 500.000 | 483.954 | 18202.48 | 0.0054 | P | 1.1 |
| 4 | ☐ | 1000.000 | 968.960 | 35026.59 | 0.0106 | P | 0.9 |
| 5 | ☐ | 10000.00 | 10035.124 | 340305.98 | 0.1079 | P | 1.5 |
| 6 | ☐ | 20000.00 | 19984.333 | 669374.60 | 0.2146 | P | 2.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.0730E-005 * x + 1.7572E-004
R = 1.0000
DL = 7.357
BEC = 16.38

Weight: <None>
Min Conc: <None>

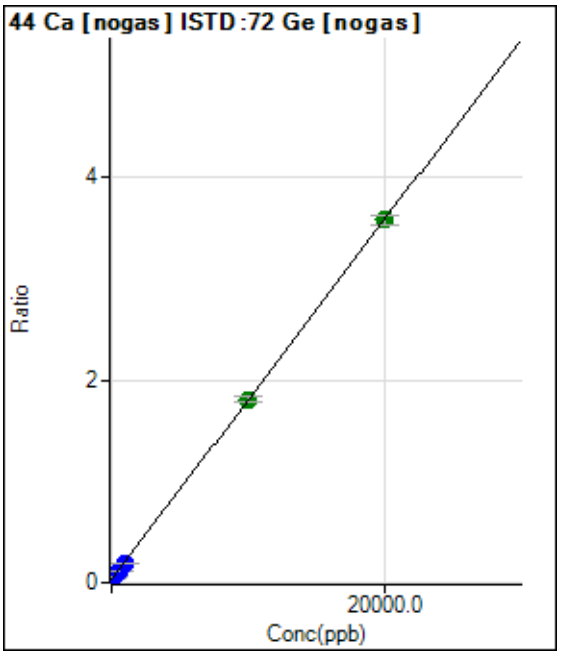
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10.00 | 0.0000 | P | 173 |
| 2 | ☐ | 200.000 | 211.627 | 503.35 | 0.0007 | P | 12. |
| 3 | ☐ | 500.000 | 532.767 | 1306.73 | 0.0016 | P | 9.8 |
| 4 | ☐ | 1000.000 | 976.133 | 2323.51 | 0.0030 | P | 3.7 |
| 5 | ☐ | 10000.00 | 9819.239 | 22630.66 | 0.0302 | P | 2.4 |
| 6 | ☐ | 20000.00 | 20090.638 | 45786.34 | 0.0617 | P | 1.5 |
| 7 | ☐ | 100.000 | | | | | |

y = 3.0694E-006 * x + 1.3487E-005
R = 0.9999
DL = 22.83
BEC = 4.394

Weight: <None>
Min Conc: <None>

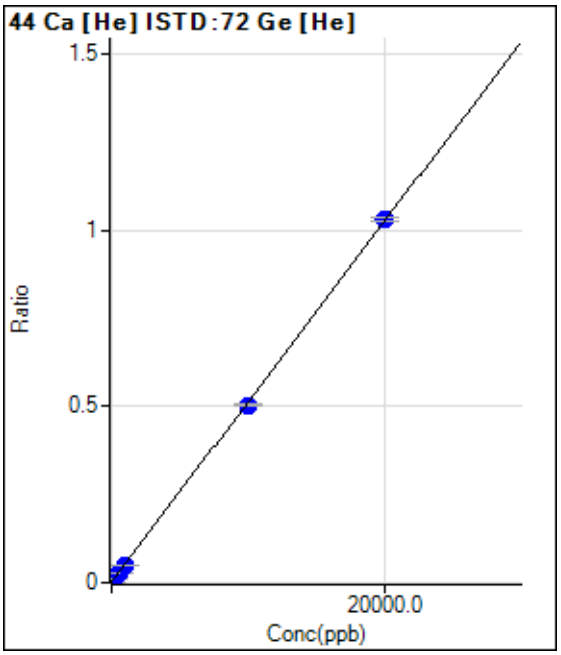



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 95927.98 | 0.0299 | P | 1.3 |
| 2 | ☐ | 200.000 | 183.548 | 203606.75 | 0.0625 | P | 2.9 |
| 3 | ☐ | 500.000 | 453.515 | 374776.73 | 0.1105 | P | 1.3 |
| 4 | ☐ | 1000.000 | 921.185 | 641708.45 | 0.1937 | P | 1.0 |
| 5 | ☐ | 10000.00 | 10030.191 | 5719862.00 | 1.8132 | A | 2.3 |
| 6 | ☐ | 20000.00 | 19990.172 | 11178437.75 | 3.5839 | A | 2.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.7779E-004 * x + 0.0299
R = 1.0000
DL = 6.327
BEC = 168.3

Weight: <None>
Min Conc: <None>

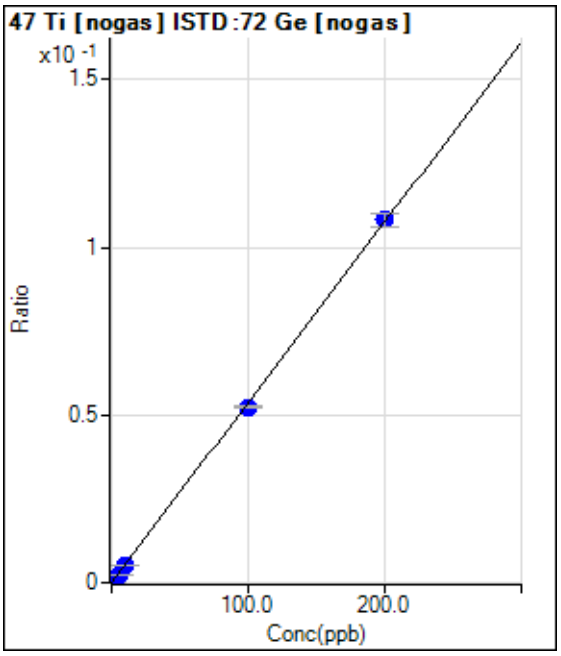
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1076.71 | 0.0014 | P | 3.7 |
| 2 | ☐ | 200.000 | 201.046 | 8882.24 | 0.0117 | P | 2.3 |
| 3 | ☐ | 500.000 | 472.581 | 20271.27 | 0.0256 | P | 5.3 |
| 4 | ☐ | 1000.000 | 960.055 | 38974.26 | 0.0505 | P | 0.6 |
| 5 | ☐ | 10000.00 | 9808.540 | 377152.79 | 0.5025 | P | 0.9 |
| 6 | ☐ | 20000.00 | 20098.402 | 763233.06 | 1.0282 | P | 1.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 5.1089E-005 * x + 0.0014
R = 0.9999
DL = 3.109
BEC = 27.94

Weight: <None>
Min Conc: <None>

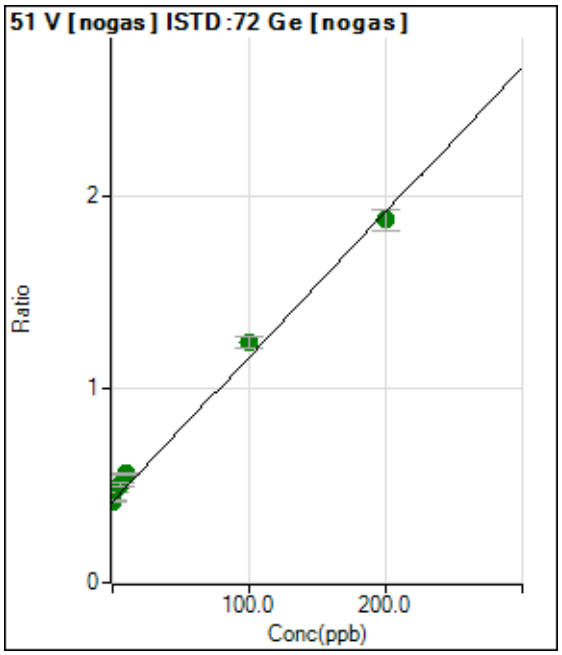



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 236.67 | 0.0001 | P | 26. |
| 2 | ☐ | 2.000 | 1.976 | 3690.42 | 0.0011 | P | 10. |
| 3 | ☐ | 5.000 | 4.628 | 8675.50 | 0.0026 | P | 1.6 |
| 4 | ☐ | 10.000 | 9.227 | 16657.76 | 0.0050 | P | 3.2 |
| 5 | ☐ | 100.000 | 97.395 | 165245.99 | 0.0524 | P | 0.9 |
| 6 | ☐ | 200.000 | 201.351 | 337306.81 | 0.1082 | P | 3.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.3690E-004 * x + 7.3776E-005
R = 0.9999
DL = 0.111
BEC = 0.1374

Weight: <None>
Min Conc: <None>

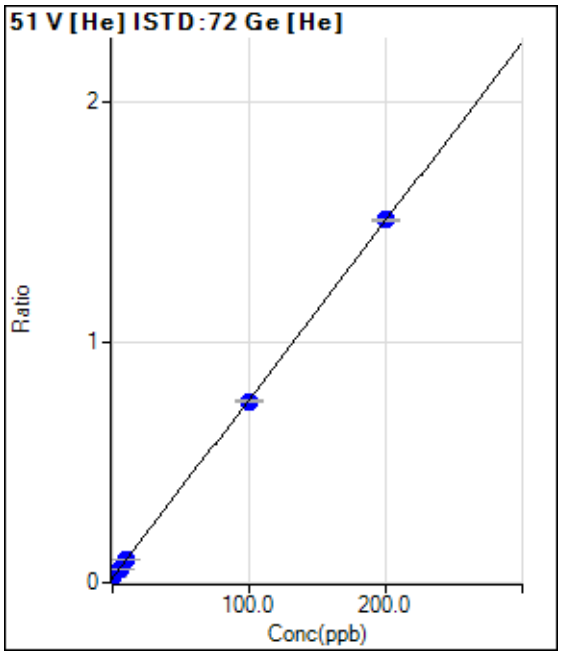
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1345869.72 | 0.4197 | A | 1.7 |
| 2 | ☐ | 2.000 | 7.600 | 1551444.86 | 0.4766 | A | 4.6 |
| 3 | ☐ | 5.000 | 11.570 | 1716980.12 | 0.5064 | A | 2.6 |
| 4 | ☐ | 10.000 | 19.280 | 1868880.05 | 0.5641 | A | 1.6 |
| 5 | ☐ | 100.000 | 109.718 | 3915445.92 | 1.2417 | A | 4.3 |
| 6 | ☐ | 200.000 | 194.457 | 5847591.93 | 1.8765 | A | 5.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0075 * x + 0.4197
R = 0.9980
DL = 2.823
BEC = 56.03

Weight: <None>
Min Conc: <None>

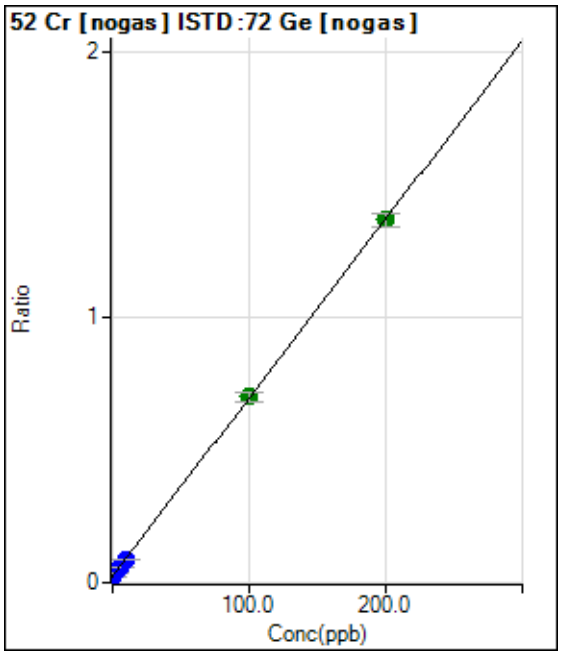



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.142 | 15473.08 | 0.0205 | P | 1.2 |
| 2 | ☐ | 2.000 | 2.262 | 27507.52 | 0.0362 | P | 0.3 |
| 3 | ☐ | 5.000 | 5.039 | 45060.12 | 0.0568 | P | 1.1 |
| 4 | ☐ | 10.000 | 10.104 | 72880.65 | 0.0944 | P | 0.7 |
| 5 | ☐ | 100.000 | 98.926 | 565139.19 | 0.7531 | P | 1.2 |
| 6 | ☐ | 200.000 | 200.528 | 1118348.42 | 1.5066 | P | 0.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0074 * x + 0.0195
R = 1.0000
DL = 0.09877
BEC = 2.624

Weight: <None>
Min Conc: <None>

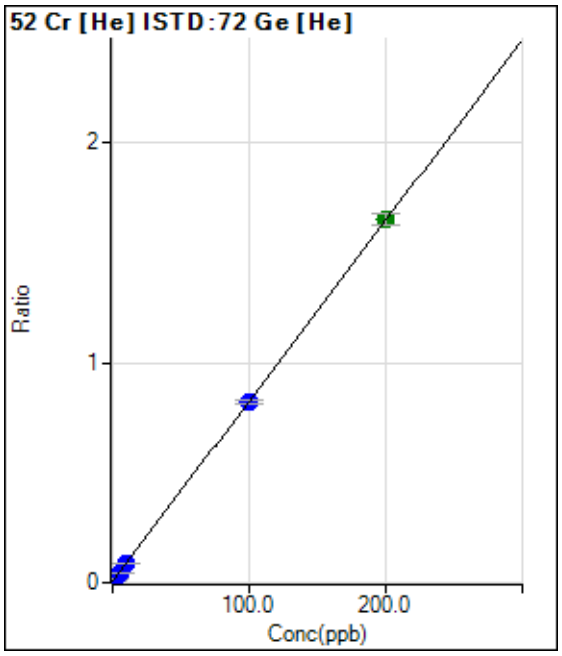
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 77474.30 | 0.0242 | P | 1.4 |
| 2 | ☐ | 2.000 | 1.994 | 122256.54 | 0.0376 | P | 4.7 |
| 3 | ☐ | 5.000 | 4.791 | 191121.94 | 0.0564 | P | 0.4 |
| 4 | ☐ | 10.000 | 9.499 | 291583.32 | 0.0880 | P | 2.4 |
| 5 | ☐ | 100.000 | 100.766 | 2212533.61 | 0.7017 | A | 5.0 |
| 6 | ☐ | 200.000 | 199.647 | 4260513.48 | 1.3665 | A | 4.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0067 * x + 0.0242
R = 1.0000
DL = 0.1503
BEC = 3.593

Weight: <None>
Min Conc: <None>

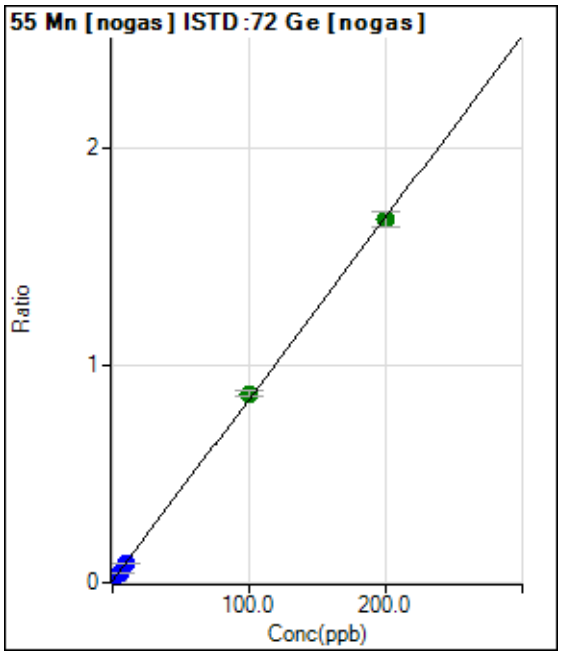



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4597.30 | 0.0061 | P | 3.4 |
| 2 | ☐ | 2.000 | 1.867 | 16257.30 | 0.0214 | P | 3.3 |
| 3 | ☐ | 5.000 | 4.784 | 35978.61 | 0.0454 | P | 1.3 |
| 4 | ☐ | 10.000 | 9.709 | 66251.86 | 0.0858 | P | 1.5 |
| 5 | ☐ | 100.000 | 99.373 | 616895.43 | 0.8220 | P | 1.4 |
| 6 | ☐ | 200.000 | 200.335 | 1225420.61 | 1.6509 | A | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0082 * x + 0.0061
R = 1.0000
DL = 0.07617
BEC = 0.7421

Weight: <None>
Min Conc: <None>

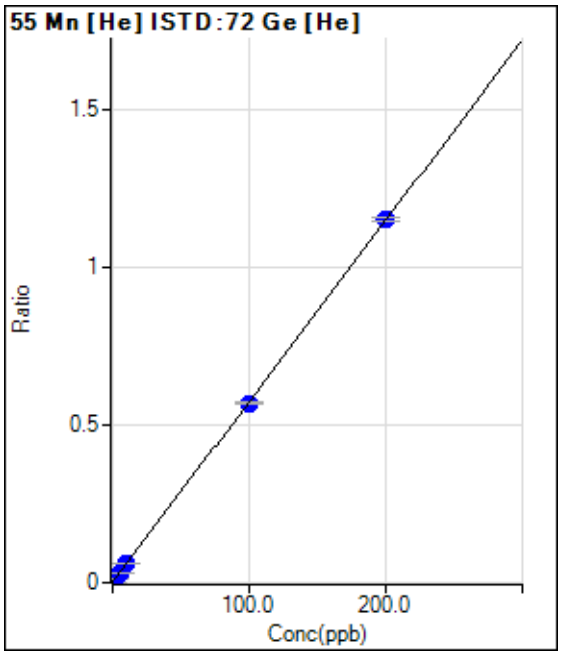
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 27807.86 | 0.0087 | P | 0.8 |
| 2 | ☐ | 2.000 | 1.686 | 74188.43 | 0.0228 | P | 1.7 |
| 3 | ☐ | 5.000 | 4.699 | 162791.83 | 0.0480 | P | 1.1 |
| 4 | ☐ | 10.000 | 9.328 | 287456.10 | 0.0868 | P | 3.8 |
| 5 | ☐ | 100.000 | 102.828 | 2743316.41 | 0.8696 | A | 2.8 |
| 6 | ☐ | 200.000 | 198.630 | 5212488.15 | 1.6718 | A | 4.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0084 * x + 0.0087
R = 0.9998
DL = 0.02612
BEC = 1.036

Weight: <None>
Min Conc: <None>

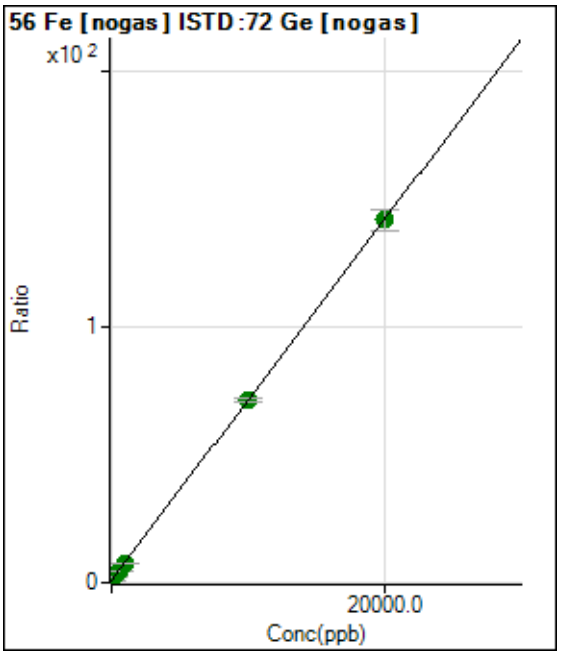



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1256.73 | 0.0017 | P | 3.9 |
| 2 | ☐ | 2.000 | 1.970 | 9842.76 | 0.0130 | P | 1.3 |
| 3 | ☐ | 5.000 | 4.923 | 23715.60 | 0.0299 | P | 0.9 |
| 4 | ☐ | 10.000 | 9.988 | 45526.55 | 0.0590 | P | 2.2 |
| 5 | ☐ | 100.000 | 99.099 | 427894.37 | 0.5701 | P | 1.7 |
| 6 | ☐ | 200.000 | 200.454 | 854743.11 | 1.1515 | P | 1.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0057 * x + 0.0017
R = 1.0000
DL = 0.03398
BEC = 0.2903

Weight: <None>
Min Conc: <None>

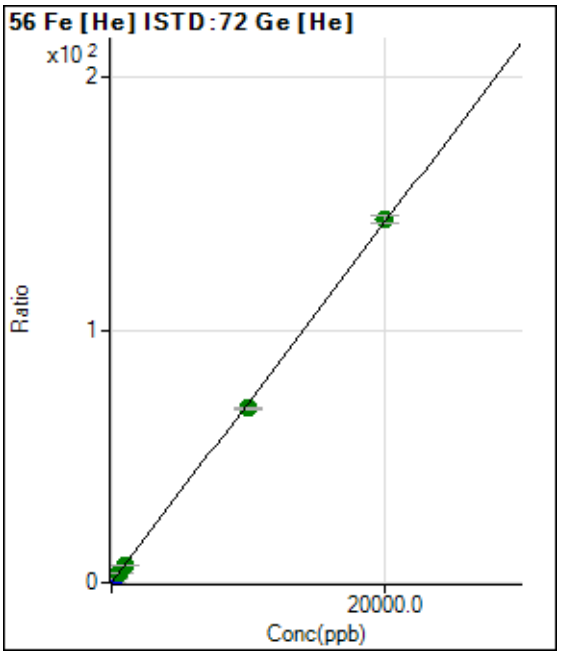
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2809088.74 | 0.8760 | A | 0.7 |
| 2 | ☐ | 200.000 | 189.203 | 7193806.41 | 2.2096 | A | 2.1 |
| 3 | ☐ | 500.000 | 473.883 | 14293152.92 | 4.2160 | A | 1.5 |
| 4 | ☐ | 1000.000 | 958.960 | 25285242.23 | 7.6350 | A | 4.1 |
| 5 | ☐ | 10000.00 | 10026.192 | 225714363.3 | 71.5426 | A | 1.7 |
| 6 | ☐ | 20000.00 | 19989.717 | 441805293.2 | 141.767 | A | 5.6 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0070 * x + 0.8760
R = 1.0000
DL = 2.691
BEC = 124.3

Weight: <None>
Min Conc: <None>

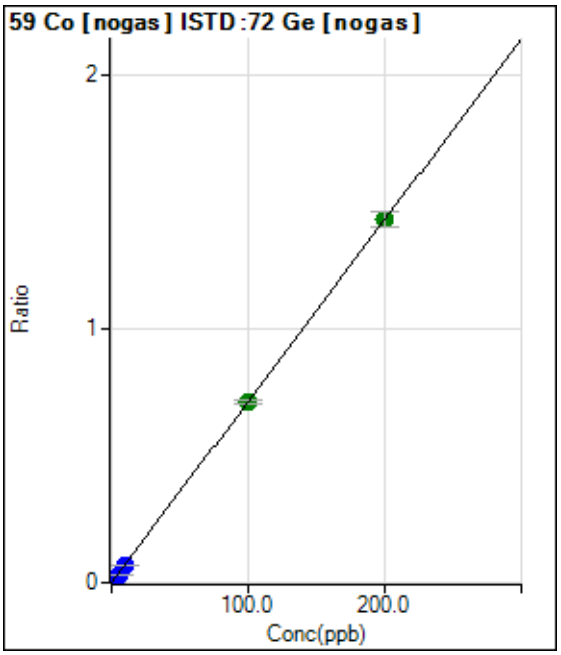



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 11797.23 | 0.0156 | P | 2.6 |
| 2 | ☐ | 200.000 | 199.295 | 1088582.51 | 1.4341 | P | 1.4 |
| 3 | ☐ | 500.000 | 495.867 | 2811433.19 | 3.5449 | A | 3.8 |
| 4 | ☐ | 1000.000 | 984.982 | 5424213.25 | 7.0261 | A | 3.1 |
| 5 | ☐ | 10000.00 | 9671.886 | 51671207.56 | 68.8543 | A | 1.5 |
| 6 | ☐ | 20000.00 | 20164.918 | 106540595.0 | 143.537 | A | 2.2 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0071 * x + 0.0156
R = 0.9998
DL = 0.1681
BEC = 2.196

Weight: <None>
Min Conc: <None>

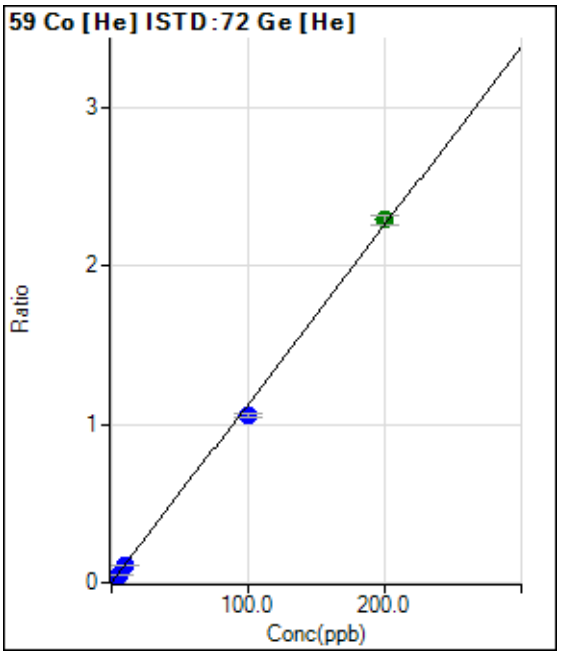
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 823.36 | 0.0003 | P | 13. |
| 2 | ☐ | 2.000 | 1.931 | 45800.60 | 0.0141 | P | 2.3 |
| 3 | ☐ | 5.000 | 4.541 | 111007.64 | 0.0327 | P | 2.7 |
| 4 | ☐ | 10.000 | 9.334 | 221975.59 | 0.0670 | P | 3.2 |
| 5 | ☐ | 100.000 | 99.830 | 2253591.58 | 0.7143 | A | 1.5 |
| 6 | ☐ | 200.000 | 200.131 | 4462955.14 | 1.4316 | A | 4.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0072 * x + 2.5681E-004
R = 1.0000
DL = 0.01409
BEC = 0.03591

Weight: <None>
Min Conc: <None>

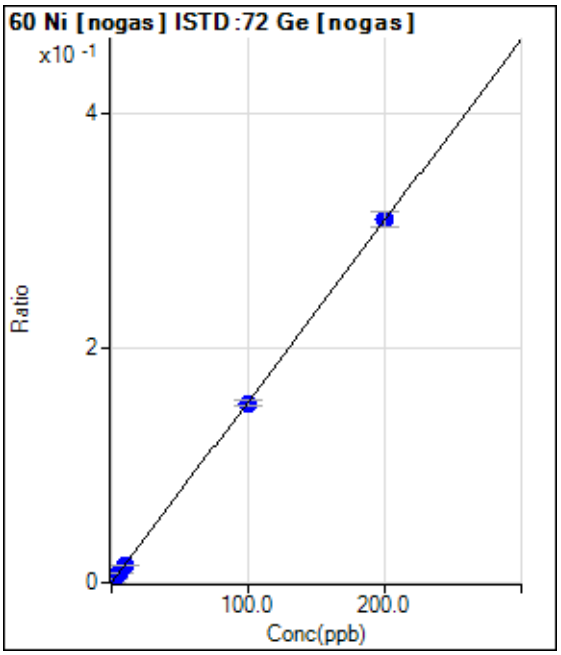



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 303.34 | 0.0004 | P | 34. |
| 2 | ☐ | 2.000 | 2.008 | 17481.91 | 0.0230 | P | 3.6 |
| 3 | ☐ | 5.000 | 4.625 | 41647.48 | 0.0525 | P | 1.0 |
| 4 | ☐ | 10.000 | 9.577 | 83632.45 | 0.1083 | P | 4.2 |
| 5 | ☐ | 100.000 | 93.961 | 794999.44 | 1.0594 | P | 1.9 |
| 6 | ☐ | 200.000 | 203.050 | 1698959.71 | 2.2890 | A | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0113 * x + 4.0067E-004
R = 0.9994
DL = 0.03644
BEC = 0.03555

Weight: <None>
Min Conc: <None>

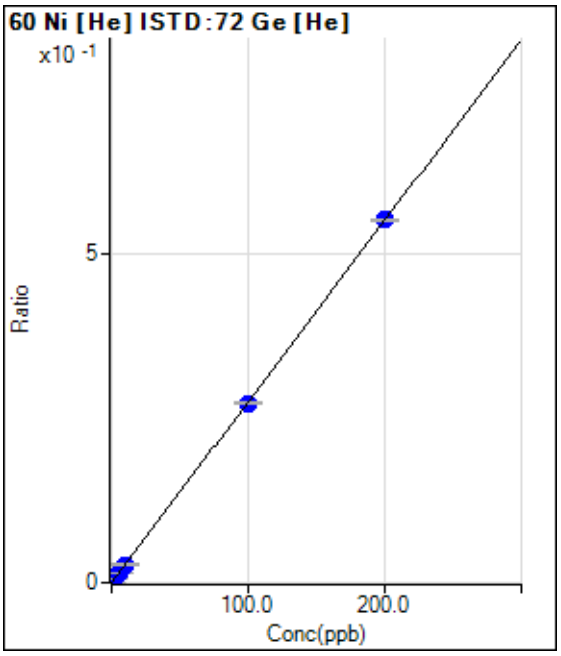
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.164 | 466.68 | 0.0001 | P | 14. |
| 2 | ☐ | 2.000 | 2.273 | 11060.15 | 0.0034 | P | 5.2 |
| 3 | ☐ | 5.000 | 5.045 | 26012.14 | 0.0077 | P | 4.6 |
| 4 | ☐ | 10.000 | 9.871 | 50081.84 | 0.0151 | P | 0.9 |
| 5 | ☐ | 100.000 | 99.287 | 482568.22 | 0.1530 | P | 3.1 |
| 6 | ☐ | 200.000 | 200.359 | 962911.47 | 0.3089 | P | 4.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x - 1.0791E-004
R = 1.0000
DL = 0.0401
BEC = -0.06998

Weight: <None>
Min Conc: <None>

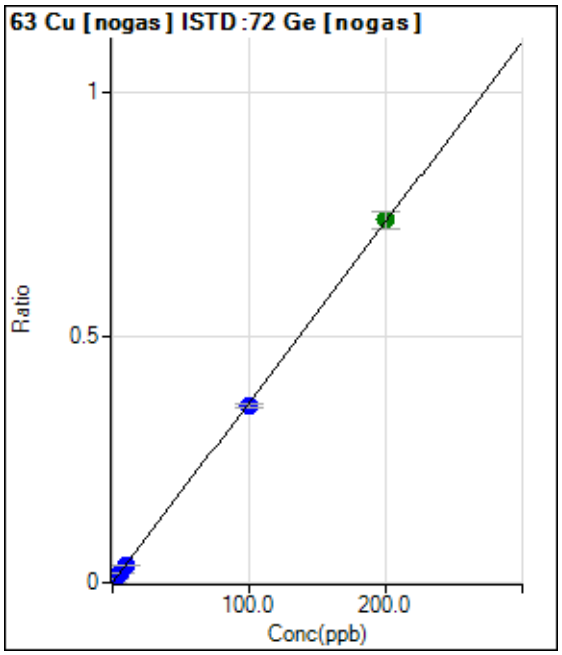



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.182 | 136.67 | 0.0002 | P | 27. |
| 2 | ☐ | 2.000 | 2.306 | 4577.31 | 0.0060 | P | 7.6 |
| 3 | ☐ | 5.000 | 5.035 | 10746.59 | 0.0136 | P | 0.3 |
| 4 | ☐ | 10.000 | 9.957 | 20928.95 | 0.0271 | P | 5.1 |
| 5 | ☐ | 100.000 | 99.044 | 204531.13 | 0.2726 | P | 1.1 |
| 6 | ☐ | 200.000 | 200.476 | 409741.28 | 0.5520 | P | 0.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0028 * x - 3.1895E-004
R = 1.0000
DL = 0.05336
BEC = -0.1158

Weight: <None>
Min Conc: <None>

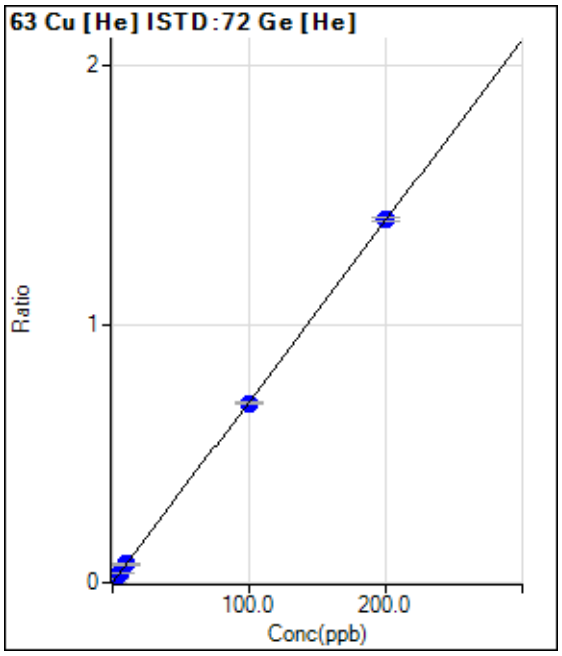
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1483.42 | 0.0005 | P | 6.5 |
| 2 | ☐ | 2.000 | 2.046 | 25972.06 | 0.0080 | P | 5.5 |
| 3 | ☐ | 5.000 | 4.903 | 62661.18 | 0.0185 | P | 0.9 |
| 4 | ☐ | 10.000 | 9.574 | 118091.77 | 0.0356 | P | 1.1 |
| 5 | ☐ | 100.000 | 97.756 | 1134783.24 | 0.3597 | P | 2.6 |
| 6 | ☐ | 200.000 | 201.145 | 2305482.72 | 0.7397 | A | 4.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0037 * x + 4.6260E-004
R = 0.9999
DL = 0.02447
BEC = 0.1259

Weight: <None>
Min Conc: <None>

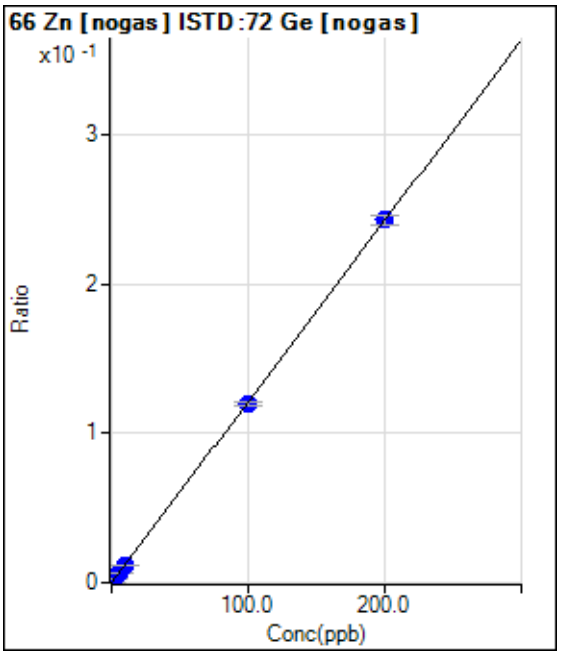



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.129 | 643.36 | 0.0009 | P | 13. |
| 2 | ☐ | 2.000 | 2.160 | 11443.73 | 0.0151 | P | 5.0 |
| 3 | ☐ | 5.000 | 5.021 | 27858.12 | 0.0351 | P | 2.7 |
| 4 | ☐ | 10.000 | 10.108 | 54648.24 | 0.0708 | P | 4.3 |
| 5 | ☐ | 100.000 | 99.179 | 521586.57 | 0.6950 | P | 0.6 |
| 6 | ☐ | 200.000 | 200.403 | 1042534.70 | 1.4045 | P | 1.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0070 * x - 5.1993E-005
R = 1.0000
DL = 0.04848
BEC = -0.007419

Weight: <None>
Min Conc: <None>

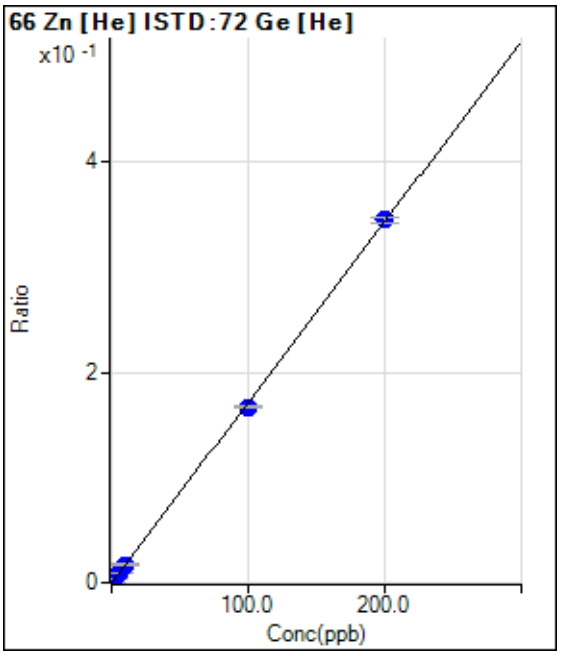
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.213 | 656.69 | 0.0002 | P | 1.1 |
| 2 | ☐ | 2.000 | 2.099 | 8108.57 | 0.0025 | P | 2.2 |
| 3 | ☐ | 5.000 | 5.451 | 22220.47 | 0.0066 | P | 1.9 |
| 4 | ☐ | 10.000 | 9.832 | 39309.16 | 0.0119 | P | 1.6 |
| 5 | ☐ | 100.000 | 98.817 | 377717.74 | 0.1197 | P | 2.3 |
| 6 | ☐ | 200.000 | 200.588 | 758180.98 | 0.2431 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0012 * x - 5.3672E-005
R = 1.0000
DL = 0.005603
BEC = -0.04428

Weight: <None>
Min Conc: <None>

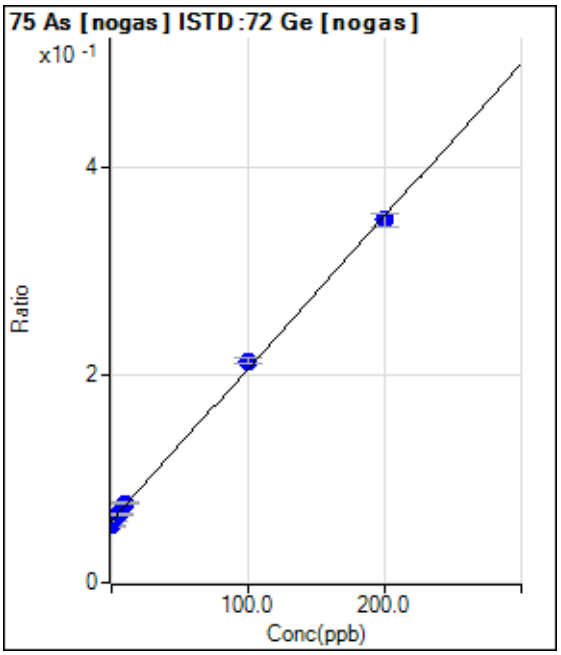



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.350 | 136.67 | 0.0002 | P | 5.1 |
| 2 | ☐ | 2.000 | 2.336 | 2726.91 | 0.0036 | P | 9.1 |
| 3 | ☐ | 5.000 | 5.428 | 7051.43 | 0.0089 | P | 0.9 |
| 4 | ☐ | 10.000 | 10.146 | 13118.21 | 0.0170 | P | 4.6 |
| 5 | ☐ | 100.000 | 97.522 | 125242.89 | 0.1669 | P | 1.5 |
| 6 | ☐ | 200.000 | 201.218 | 255917.88 | 0.3448 | P | 1.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x - 4.1943E-004
R = 0.9999
DL = 0.01621
BEC = -0.2445

Weight: <None>
Min Conc: <None>

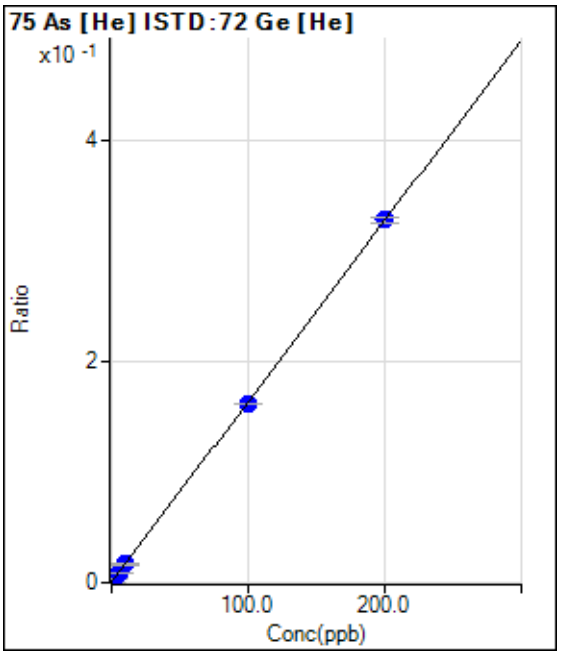
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -2.922 | 176956.50 | 0.0552 | P | 3.2 |
| 2 | ☐ | 2.000 | 1.313 | 199835.54 | 0.0614 | P | 4.7 |
| 3 | ☐ | 5.000 | 4.609 | 224623.49 | 0.0662 | P | 2.3 |
| 4 | ☐ | 10.000 | 11.544 | 253155.24 | 0.0764 | P | 3.3 |
| 5 | ☐ | 100.000 | 105.033 | 674391.92 | 0.2138 | P | 2.5 |
| 6 | ☐ | 200.000 | 197.423 | 1089834.52 | 0.3495 | P | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 0.0595
R = 0.9993
DL = 3.566
BEC = 40.48

Weight: <None>
Min Conc: <None>

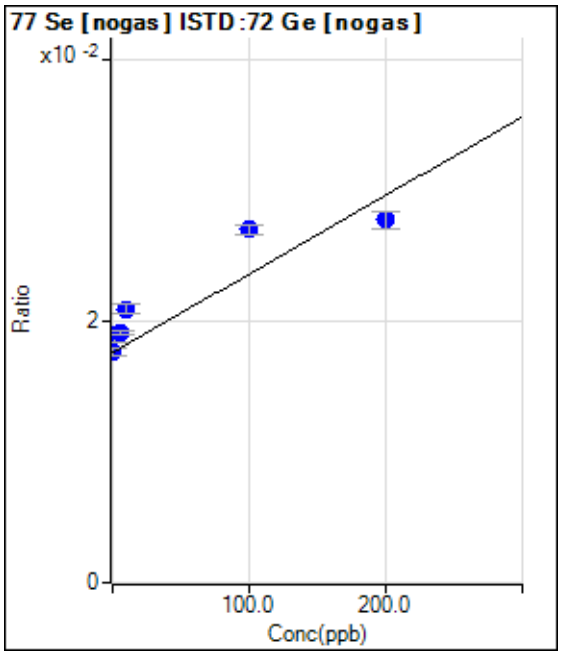



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 587.79 | 0.0008 | P | 12. |
| 2 | ☐ | 2.000 | 2.092 | 3179.19 | 0.0042 | P | 3.8 |
| 3 | ☐ | 5.000 | 4.757 | 6767.95 | 0.0085 | P | 1.0 |
| 4 | ☐ | 10.000 | 9.694 | 12804.53 | 0.0166 | P | 1.9 |
| 5 | ☐ | 100.000 | 98.743 | 121406.67 | 0.1618 | P | 0.5 |
| 6 | ☐ | 200.000 | 200.649 | 243420.94 | 0.3279 | P | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0016 * x + 7.7857E-004
R = 1.0000
DL = 0.1832
BEC = 0.4775

Weight: <None>
Min Conc: <None>

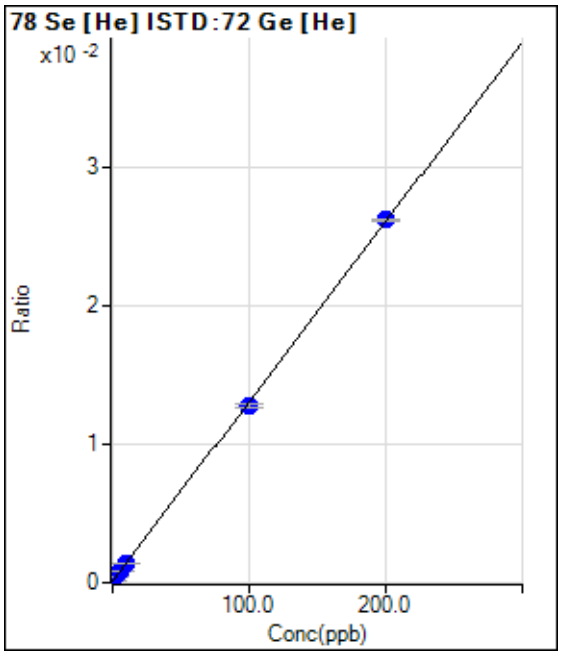
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56517.86 | 0.0176 | P | 3.6 |
| 2 | ☐ | 2.000 | 22.371 | 61734.53 | 0.0190 | P | 5.5 |
| 3 | ☐ | 5.000 | 24.659 | 64798.32 | 0.0191 | P | 1.3 |
| 4 | ☐ | 10.000 | 55.367 | 69418.67 | 0.0210 | P | 3.2 |
| 5 | ☐ | 100.000 | 156.673 | 85332.25 | 0.0271 | P | 2.7 |
| 6 | ☐ | 200.000 | 168.700 | 86585.12 | 0.0278 | P | 4.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.0169E-005 * x + 0.0176
R = 0.9224
DL = 31.38
BEC = 292.9

Weight: <None>
Min Conc: <None>

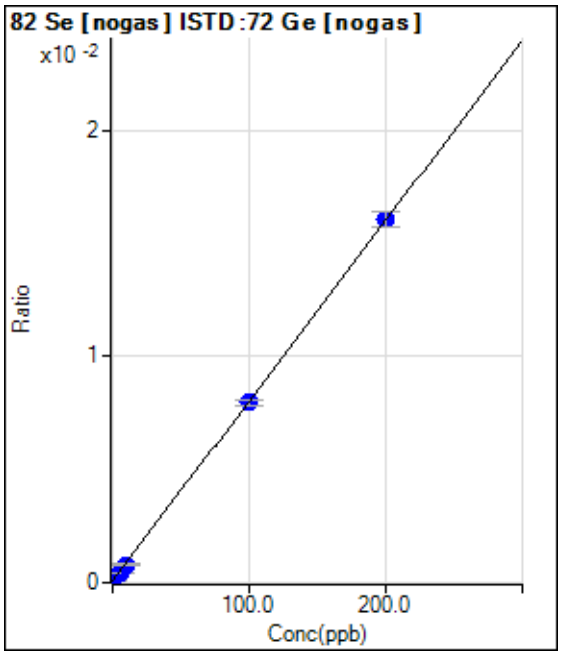



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.440 | 122.67 | 0.0002 | P | 5.6 |
| 2 | ☐ | 2.000 | 2.465 | 323.33 | 0.0004 | P | 8.1 |
| 3 | ☐ | 5.000 | 5.241 | 623.34 | 0.0008 | P | 0.8 |
| 4 | ☐ | 10.000 | 9.964 | 1080.70 | 0.0014 | P | 2.0 |
| 5 | ☐ | 100.000 | 97.799 | 9609.88 | 0.0128 | P | 1.9 |
| 6 | ☐ | 200.000 | 201.092 | 19463.03 | 0.0262 | P | 0.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.2987E-004 * x + 1.0549E-004
R = 0.9999
DL = 0.2113
BEC = 0.8123

Weight: <None>
Min Conc: <None>

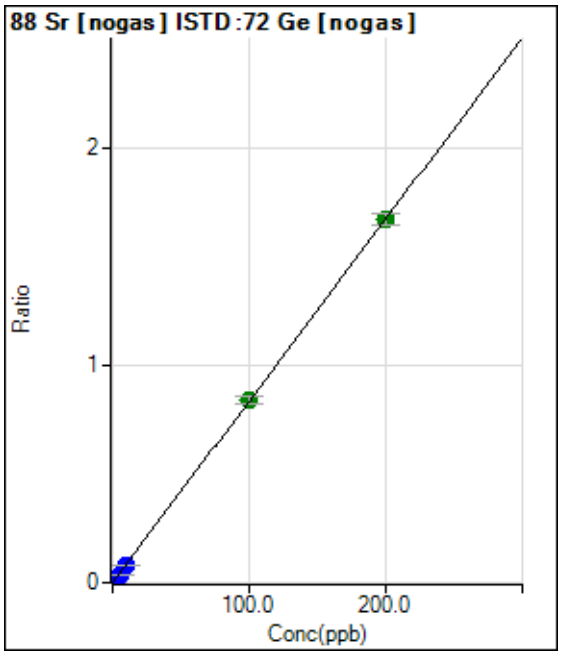
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 246.67 | 0.0001 | P | 26. |
| 2 | ☐ | 2.000 | 2.248 | 833.37 | 0.0003 | P | 14. |
| 3 | ☐ | 5.000 | 4.650 | 1516.75 | 0.0004 | P | 3.4 |
| 4 | ☐ | 10.000 | 9.068 | 2650.24 | 0.0008 | P | 3.9 |
| 5 | ☐ | 100.000 | 99.137 | 25164.51 | 0.0080 | P | 3.2 |
| 6 | ☐ | 200.000 | 200.485 | 50052.68 | 0.0161 | P | 4.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 7.9697E-005 * x + 7.6897E-005
R = 1.0000
DL = 0.7576
BEC = 0.9649

Weight: <None>
Min Conc: <None>

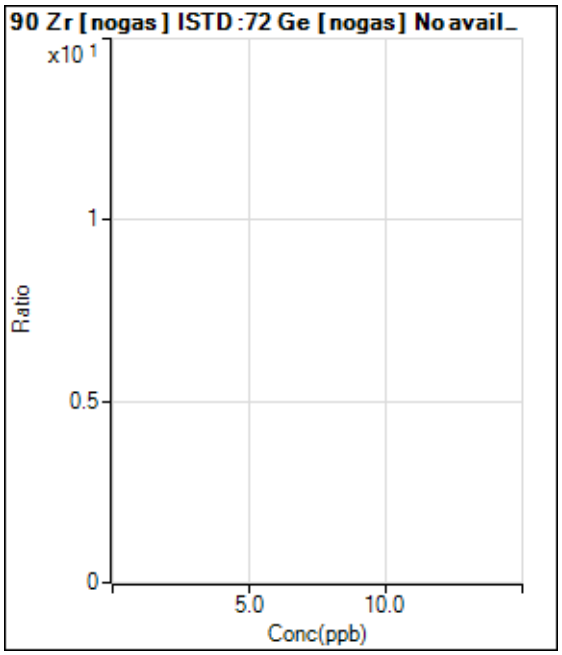



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 866.70 | 0.0003 | P | 11. |
| 2 | ☐ | 2.000 | 1.940 | 53710.75 | 0.0165 | P | 2.5 |
| 3 | ☐ | 5.000 | 4.609 | 131562.39 | 0.0388 | P | 3.3 |
| 4 | ☐ | 10.000 | 9.294 | 258306.50 | 0.0780 | P | 5.2 |
| 5 | ☐ | 100.000 | 100.673 | 2656690.90 | 0.8422 | A | 3.5 |
| 6 | ☐ | 200.000 | 199.709 | 5208977.74 | 1.6704 | A | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

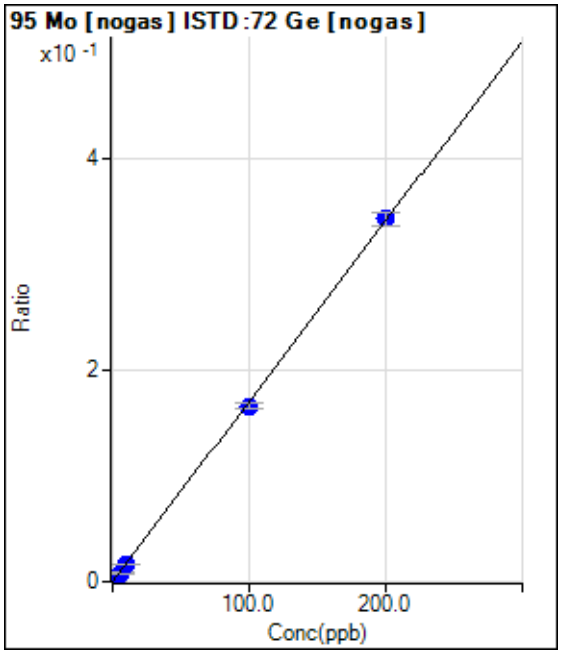
y = 0.0084 * x + 2.7023E-004
R = 1.0000
DL = 0.01099
BEC = 0.03231

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

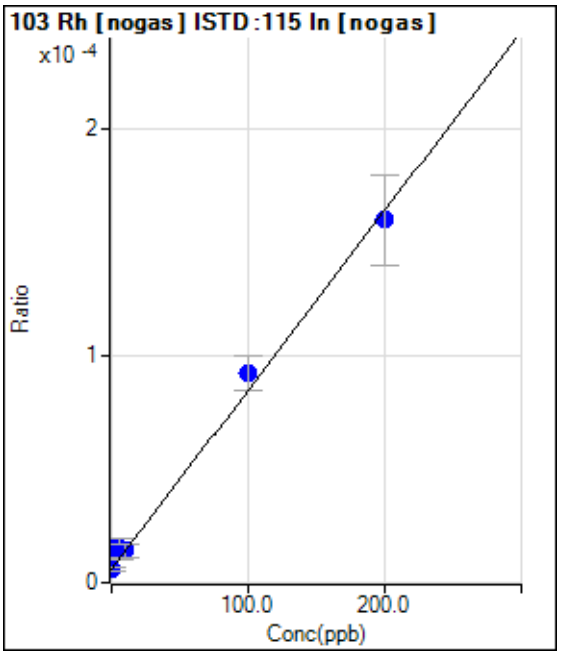



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 496.68 | 0.0002 | P | 11. |
| 2 | ☐ | 2.000 | 1.886 | 10960.19 | 0.0034 | P | 5.8 |
| 3 | ☐ | 5.000 | 4.668 | 27484.93 | 0.0081 | P | 3.7 |
| 4 | ☐ | 10.000 | 9.532 | 54296.62 | 0.0164 | P | 3.5 |
| 5 | ☐ | 100.000 | 97.436 | 523950.83 | 0.1661 | P | 3.7 |
| 6 | ☐ | 200.000 | 201.315 | 1069772.80 | 0.3431 | P | 3.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x + 1.5487E-004
R = 0.9999
DL = 0.03185
BEC = 0.09092

Weight: <None>
Min Conc: <None>

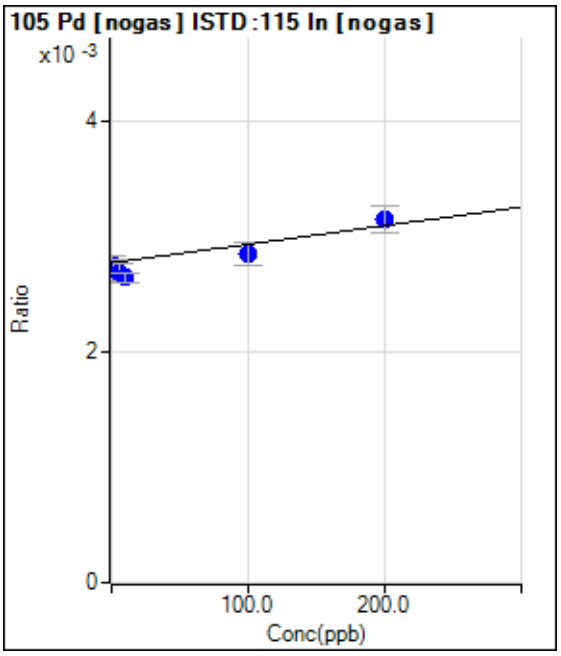
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 16.67 | 0.0000 | P | 33. |
| 2 | ☐ | 2.000 | 11.751 | 43.33 | 0.0000 | P | 13. |
| 3 | ☐ | 5.000 | 11.758 | 43.33 | 0.0000 | P | 60. |
| 4 | ☐ | 10.000 | 10.351 | 40.00 | 0.0000 | P | 45. |
| 5 | ☐ | 100.000 | 109.576 | 253.34 | 0.0001 | P | 16. |
| 6 | ☐ | 200.000 | 194.928 | 433.35 | 0.0002 | P | 25. |
| 7 | ☐ | 1.000 | | | | | |

y = 7.8982E-007 * x + 5.8977E-006
R = 0.9977
DL = 7.401
BEC = 7.467

Weight: <None>
Min Conc: <None>

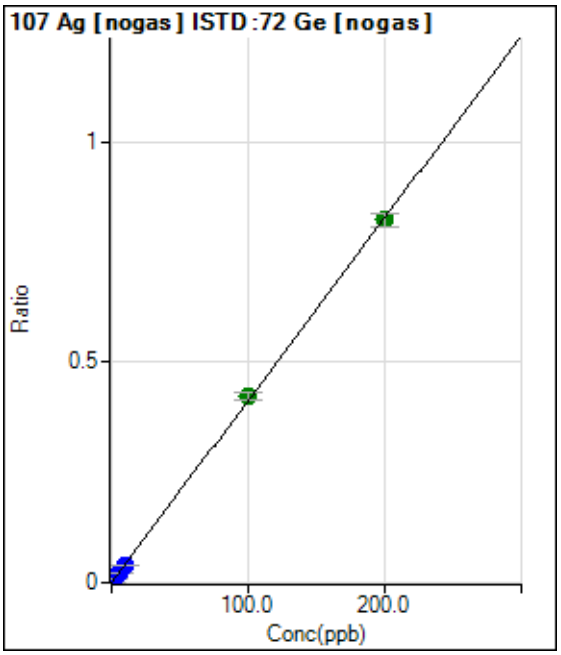



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7811.87 | 0.0028 | P | 4.0 |
| 2 | ☐ | 2.000 | -24.485 | 7818.53 | 0.0027 | P | 5.4 |
| 3 | ☐ | 5.000 | -50.386 | 7751.84 | 0.0027 | P | 5.9 |
| 4 | ☐ | 10.000 | -76.600 | 7601.77 | 0.0027 | P | 3.2 |
| 5 | ☐ | 100.000 | 50.731 | 7801.88 | 0.0029 | P | 7.1 |
| 6 | ☐ | 200.000 | 230.614 | 8575.56 | 0.0031 | P | 7.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.6147E-006 * x + 0.0028
R = 0.9515
DL = 207.7
BEC = 1720

Weight: <None>
Min Conc: <None>

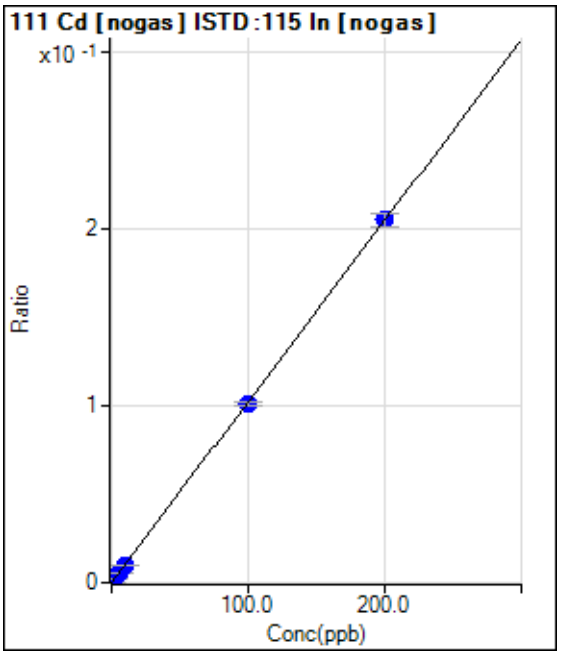
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 93.33 | 0.0000 | P | 32. |
| 2 | ☐ | 2.000 | 2.027 | 27351.63 | 0.0084 | P | 5.2 |
| 3 | ☐ | 5.000 | 4.797 | 67315.62 | 0.0199 | P | 1.4 |
| 4 | ☐ | 10.000 | 9.436 | 129290.62 | 0.0390 | P | 1.1 |
| 5 | ☐ | 100.000 | 101.924 | 1328341.75 | 0.4212 | A | 4.3 |
| 6 | ☐ | 200.000 | 199.071 | 2566118.56 | 0.8227 | A | 4.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0041 * x + 2.9096E-005
R = 0.9999
DL = 0.006881
BEC = 0.007041

Weight: <None>
Min Conc: <None>

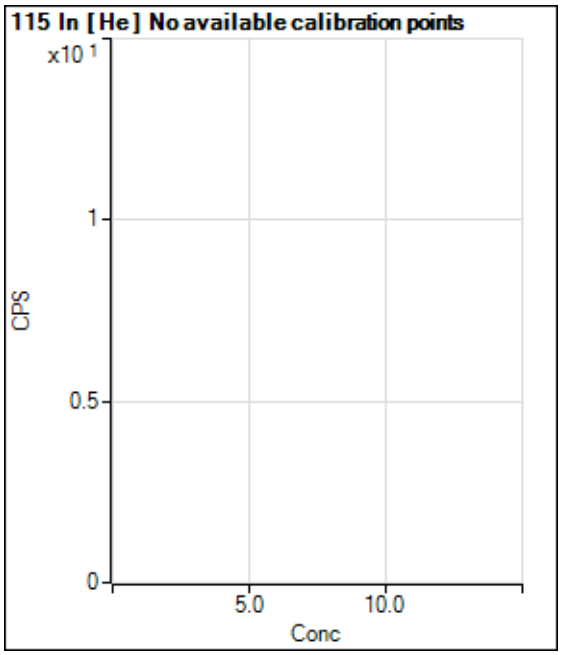



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 20.00 | 0.0000 | P | 2.8 |
| 2 | ☐ | 2.000 | 1.972 | 5784.38 | 0.0020 | P | 6.5 |
| 3 | ☐ | 5.000 | 4.899 | 14449.45 | 0.0050 | P | 3.9 |
| 4 | ☐ | 10.000 | 9.543 | 28029.17 | 0.0098 | P | 1.3 |
| 5 | ☐ | 100.000 | 99.088 | 277142.05 | 0.1015 | P | 2.4 |
| 6 | ☐ | 200.000 | 200.481 | 558850.07 | 0.2053 | P | 3.8 |
| 7 | ☐ | 1.000 | | | | | |

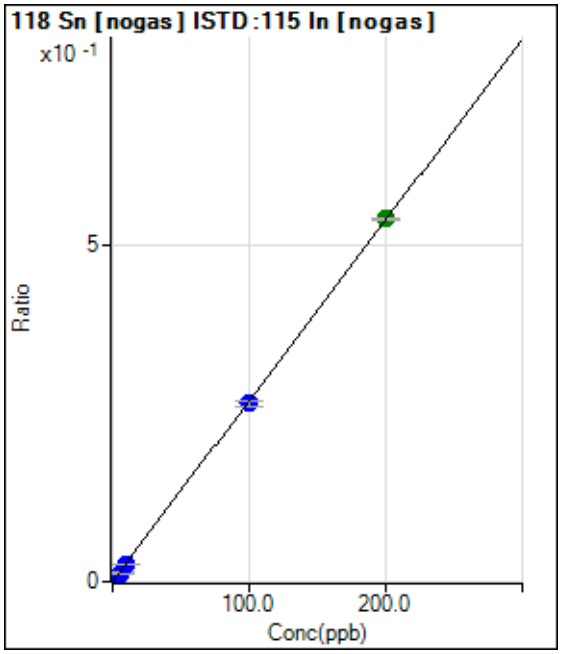
y = 0.0010 * x + 7.1151E-006
R = 1.0000
DL = 0.0005885
BEC = 0.006947

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 924588.48 | | P | 2.6 |
| 2 | ☐ | | | 938696.40 | | P | 1.2 |
| 3 | ☐ | | | 932803.78 | | P | 0.6 |
| 4 | ☐ | | | 927555.38 | | P | 1.4 |
| 5 | ☐ | | | 896048.56 | | P | 2.1 |
| 6 | ☐ | | | 876757.50 | | P | 1.0 |
| 7 | ☐ | | | | | | |

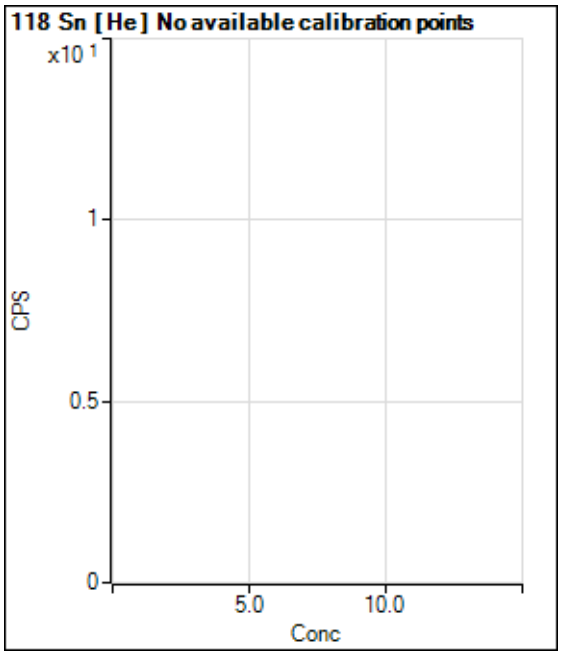



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1126.72 | 0.0004 | P | 3.4 |
| 2 | ☐ | 2.000 | 1.825 | 15113.47 | 0.0053 | P | 3.9 |
| 3 | ☐ | 5.000 | 4.625 | 36809.40 | 0.0128 | P | 1.8 |
| 4 | ☐ | 10.000 | 9.399 | 73307.27 | 0.0256 | P | 2.1 |
| 5 | ☐ | 100.000 | 98.638 | 722784.34 | 0.2647 | P | 3.4 |
| 6 | ☐ | 200.000 | 200.722 | 1465774.77 | 0.5383 | A | 0.8 |
| 7 | ☐ | 1.000 | | | | | |

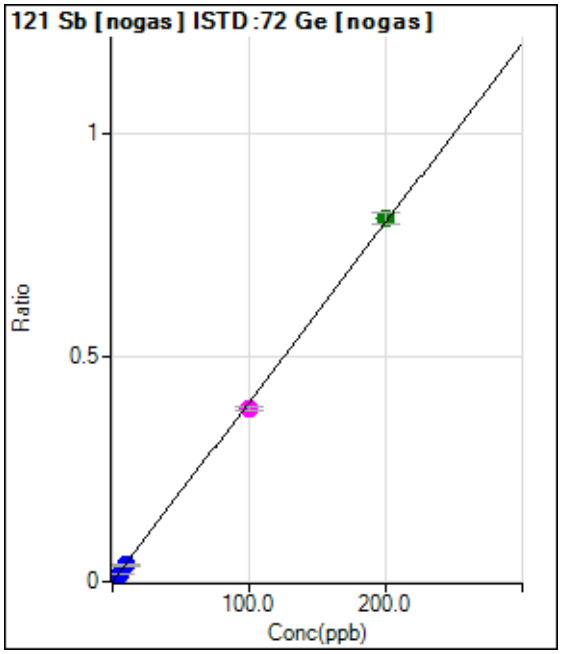
y = 0.0027 * x + 4.0036E-004
R = 1.0000
DL = 0.0152
BEC = 0.1494

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 373.34 | | P | 17. |
| 2 | ☐ | | | 5847.76 | | P | 3.3 |
| 3 | ☐ | | | 14269.29 | | P | 0.8 |
| 4 | ☐ | | | 27832.47 | | P | 1.0 |
| 5 | ☐ | | | 265444.29 | | P | 1.5 |
| 6 | ☐ | | | 543348.95 | | P | 1.8 |
| 7 | ☐ | | | | | | |

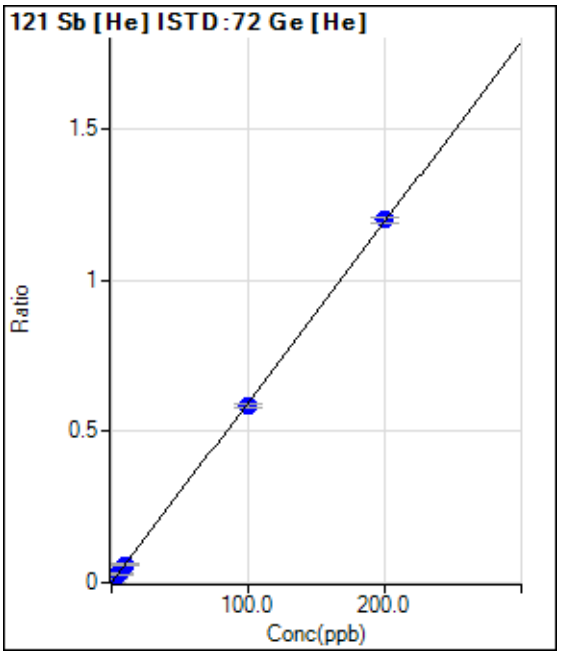



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1043.38 | 0.0003 | P | 15. |
| 2 | ☐ | 2.000 | 1.857 | 25245.26 | 0.0078 | P | 4.7 |
| 3 | ☐ | 5.000 | 4.597 | 63499.05 | 0.0187 | P | 0.4 |
| 4 | ☐ | 10.000 | 9.115 | 121934.04 | 0.0368 | P | 2.6 |
| 5 | ☐ | 100.000 | 95.907 | 1212061.60 | 0.3842 | M | 2.4 |
| 6 | ☐ | 200.000 | 202.102 | 2523836.73 | 0.8093 | A | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0040 * x + 3.2531E-004
R = 0.9997
DL = 0.03833
BEC = 0.08127

Weight: <None>
Min Conc: <None>

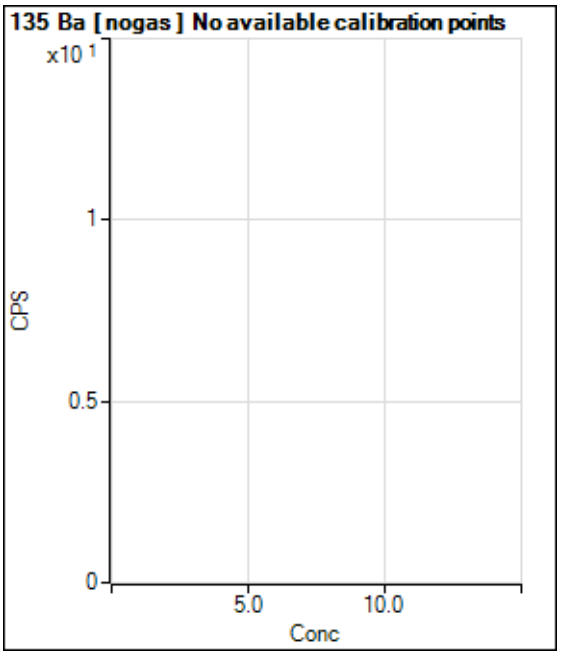
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 476.68 | 0.0006 | P | 17. |
| 2 | ☐ | 2.000 | 1.995 | 9522.71 | 0.0125 | P | 3.1 |
| 3 | ☐ | 5.000 | 4.727 | 22875.24 | 0.0288 | P | 3.6 |
| 4 | ☐ | 10.000 | 9.774 | 45516.07 | 0.0590 | P | 5.2 |
| 5 | ☐ | 100.000 | 97.885 | 438848.72 | 0.5848 | P | 2.3 |
| 6 | ☐ | 200.000 | 201.076 | 891259.91 | 1.2007 | P | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

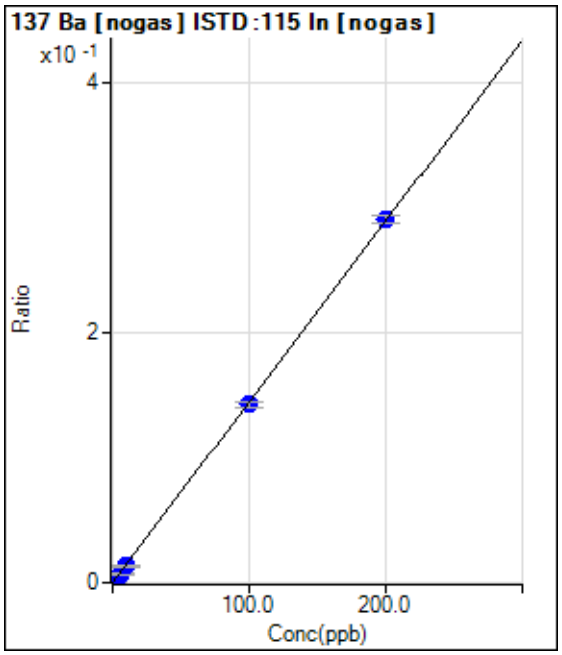
y = 0.0060 * x + 6.3200E-004
R = 0.9999
DL = 0.05422
BEC = 0.1059

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 63.33 | | P | 32. |
| 2 | ☐ | | | 4587.34 | | P | 9.2 |
| 3 | ☐ | | | 11730.85 | | P | 3.5 |
| 4 | ☐ | | | 22027.74 | | P | 1.8 |
| 5 | ☐ | | | 228028.79 | | P | 0.9 |
| 6 | ☐ | | | 456665.88 | | P | 0.2 |
| 7 | ☐ | | | | | | |

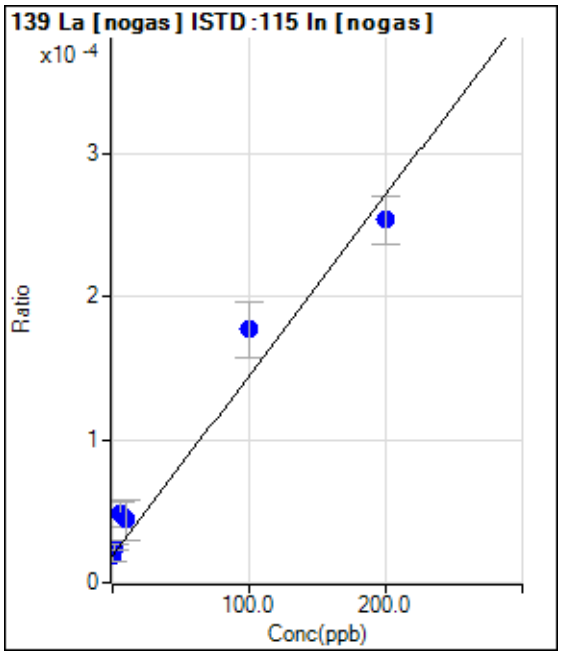
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 113.33 | 0.0000 | P | 24. |
| 2 | ☐ | 2.000 | 2.023 | 8465.55 | 0.0030 | P | 4.3 |
| 3 | ☐ | 5.000 | 4.754 | 19901.80 | 0.0069 | P | 2.0 |
| 4 | ☐ | 10.000 | 9.158 | 38019.18 | 0.0133 | P | 5.6 |
| 5 | ☐ | 100.000 | 98.556 | 389153.08 | 0.1425 | P | 3.0 |
| 6 | ☐ | 200.000 | 200.770 | 790275.46 | 0.2903 | P | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 4.0122E-005
R = 1.0000
DL = 0.02041
BEC = 0.02775

Weight: <None>
Min Conc: <None>

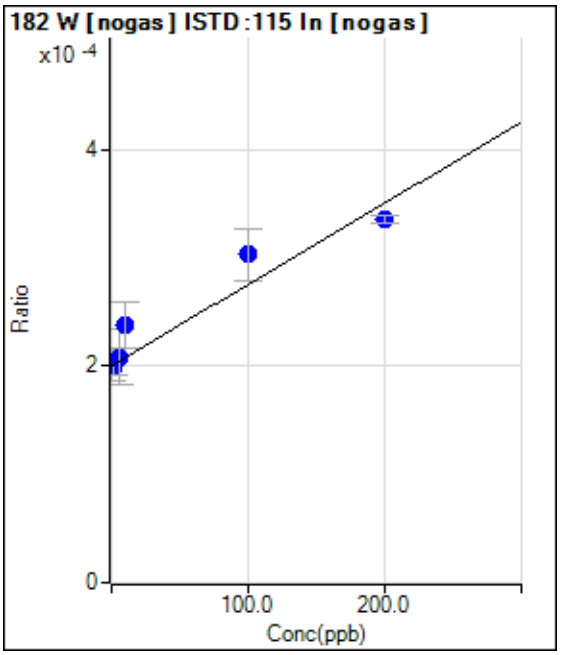



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 53.33 | 0.0000 | P | 38. |
| 2 | ☐ | 2.000 | 4.455 | 70.00 | 0.0000 | P | 15. |
| 3 | ☐ | 5.000 | 22.918 | 136.67 | 0.0000 | P | 37. |
| 4 | ☐ | 10.000 | 19.984 | 126.67 | 0.0000 | P | 63. |
| 5 | ☐ | 100.000 | 125.352 | 483.35 | 0.0002 | P | 21. |
| 6 | ☐ | 200.000 | 186.352 | 690.02 | 0.0003 | P | 13. |
| 7 | ☐ | 1.000 | | | | | |

y = 1.2589E-006 * x + 1.8927E-005
R = 0.9863
DL = 17.18
BEC = 15.03

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 563.35 | 0.0002 | P | 13. |
| 2 | ☐ | 2.000 | -2.765 | 566.69 | 0.0002 | P | 6.3 |
| 3 | ☐ | 5.000 | 10.883 | 600.02 | 0.0002 | P | 23. |
| 4 | ☐ | 10.000 | 50.125 | 680.03 | 0.0002 | P | 18. |
| 5 | ☐ | 100.000 | 137.124 | 826.70 | 0.0003 | P | 15. |
| 6 | ☐ | 200.000 | 179.332 | 913.37 | 0.0003 | P | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 7.5110E-007 * x + 2.0057E-004

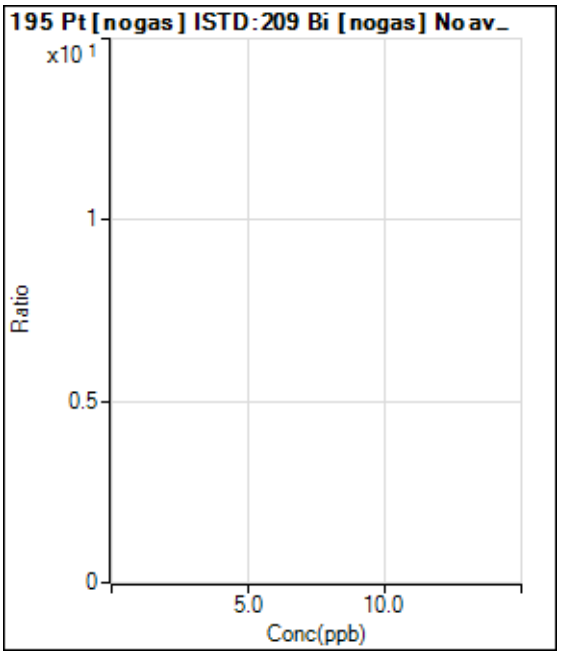
R = 0.9553

DL = 111

BEC = 267

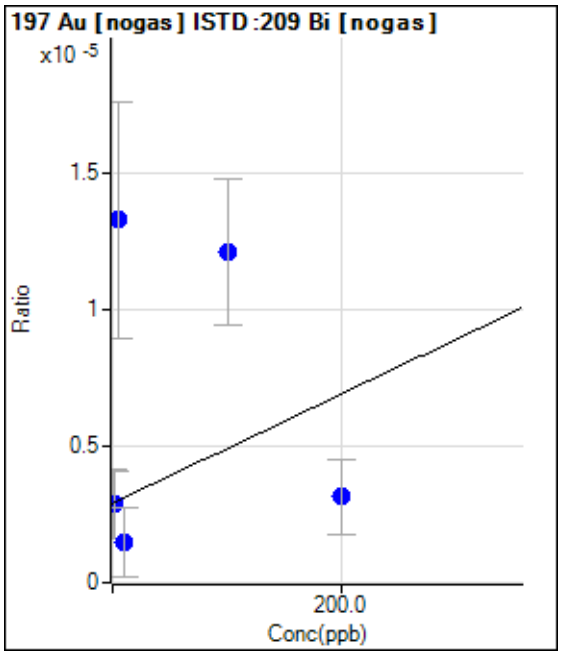
Weight: <None>

Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

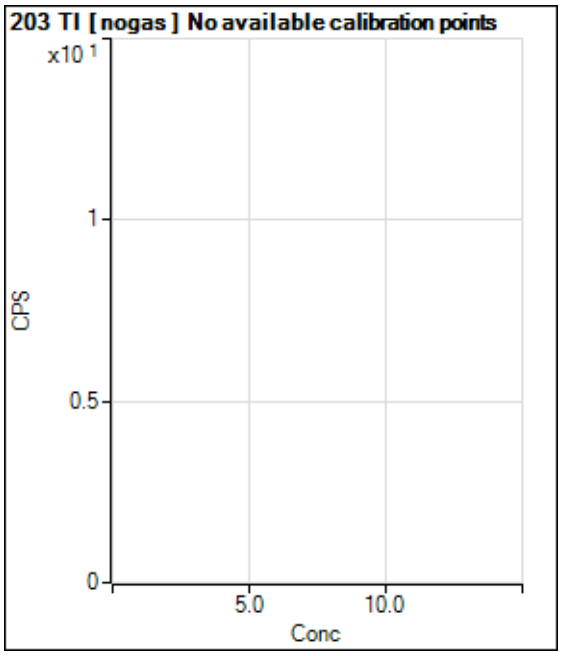
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6.67 | 0.0000 | P | 86. |
| 2 | ☐ | 2.000 | -2.739 | 6.67 | 0.0000 | P | 86. |
| 3 | ☐ | 5.000 | 517.822 | 30.00 | 0.0000 | P | 65. |
| 4 | ☐ | 10.000 | -72.509 | 3.33 | 0.0000 | P | 173 |
| 5 | ☐ | 100.000 | 458.676 | 26.67 | 0.0000 | P | 44. |
| 6 | ☐ | 200.000 | 12.014 | 6.67 | 0.0000 | P | 86. |
| 7 | ☐ | 1.000 | | | | | |

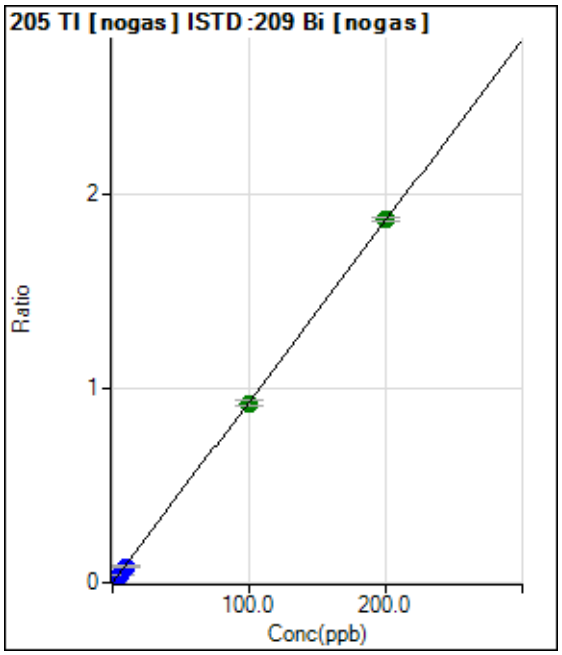
y = 2.0072E-008 * x + 2.9169E-006
R = 0.0175
DL = 377.8
BEC = 145.3

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 206.67 | | P | 22. |
| 2 | ☐ | | | 15477.57 | | P | 3.1 |
| 3 | ☐ | | | 40122.92 | | P | 3.0 |
| 4 | ☐ | | | 78697.21 | | P | 2.4 |
| 5 | ☐ | | | 807880.77 | | P | 1.0 |
| 6 | ☐ | | | 1654189.30 | | A | 2.6 |
| 7 | ☐ | | | | | | |

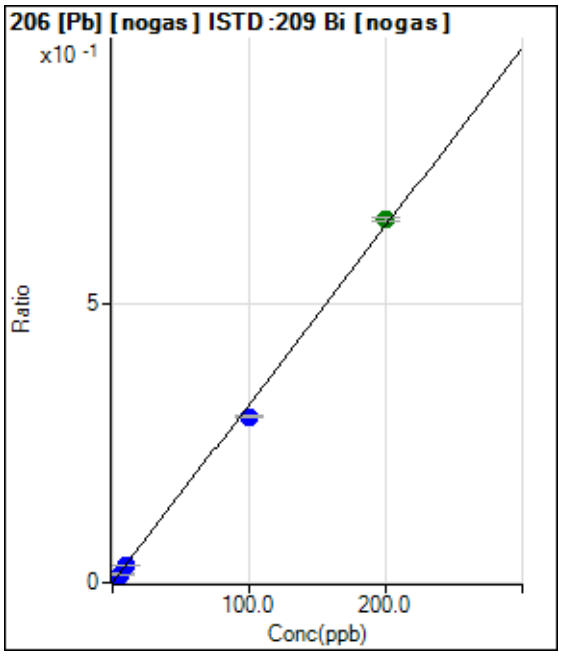
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 563.36 | 0.0002 | P | 11. |
| 2 | ☐ | 2.000 | 1.731 | 37546.73 | 0.0164 | P | 4.4 |
| 3 | ☐ | 5.000 | 4.545 | 95807.61 | 0.0426 | P | 6.4 |
| 4 | ☐ | 10.000 | 9.002 | 187552.39 | 0.0841 | P | 3.4 |
| 5 | ☐ | 100.000 | 99.263 | 2038051.48 | 0.9248 | A | 2.8 |
| 6 | ☐ | 200.000 | 200.432 | 3971253.48 | 1.8672 | A | 1.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0093 * x + 2.4203E-004
R = 1.0000
DL = 0.008693
BEC = 0.02598

Weight: <None>
Min Conc: <None>

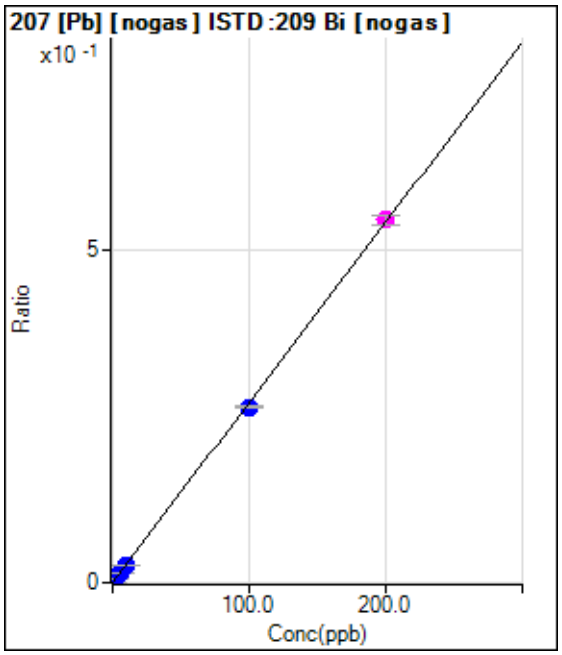



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 433.35 | 0.0002 | P | 4.9 |
| 2 | ☐ | 2.000 | 1.855 | 13999.62 | 0.0061 | P | 2.9 |
| 3 | ☐ | 5.000 | 4.743 | 34453.53 | 0.0153 | P | 5.5 |
| 4 | ☐ | 10.000 | 9.241 | 66161.27 | 0.0297 | P | 2.3 |
| 5 | ☐ | 100.000 | 93.101 | 654697.63 | 0.2971 | P | 1.6 |
| 6 | ☐ | 200.000 | 203.495 | 1380705.40 | 0.6491 | A | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0032 * x + 1.8642E-004
R = 0.9992
DL = 0.008565
BEC = 0.05846

Weight: <None>
Min Conc: <None>

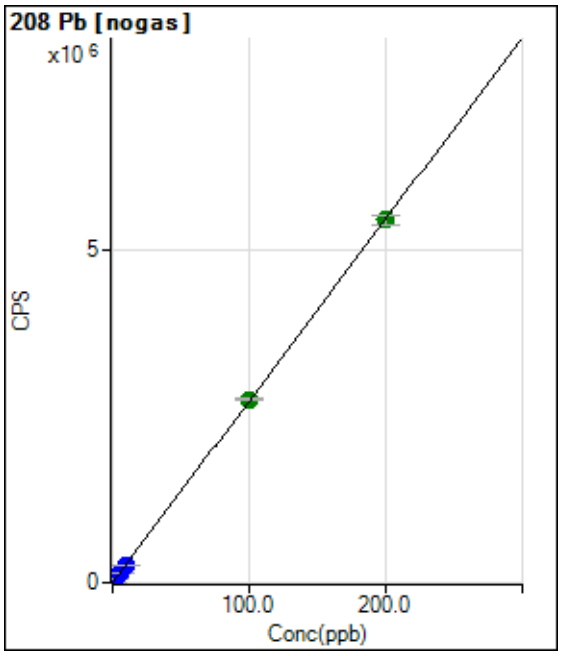
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 330.01 | 0.0001 | P | 34. |
| 2 | ☐ | 2.000 | 1.923 | 12281.46 | 0.0053 | P | 0.3 |
| 3 | ☐ | 5.000 | 4.813 | 29667.48 | 0.0132 | P | 1.3 |
| 4 | ☐ | 10.000 | 9.462 | 57468.60 | 0.0258 | P | 2.5 |
| 5 | ☐ | 100.000 | 97.255 | 580556.16 | 0.2634 | P | 1.3 |
| 6 | ☐ | 200.000 | 201.405 | 1160139.85 | 0.5454 | M | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0027 * x + 1.4312E-004
R = 0.9999
DL = 0.05483
BEC = 0.05287

Weight: <None>
Min Conc: <None>

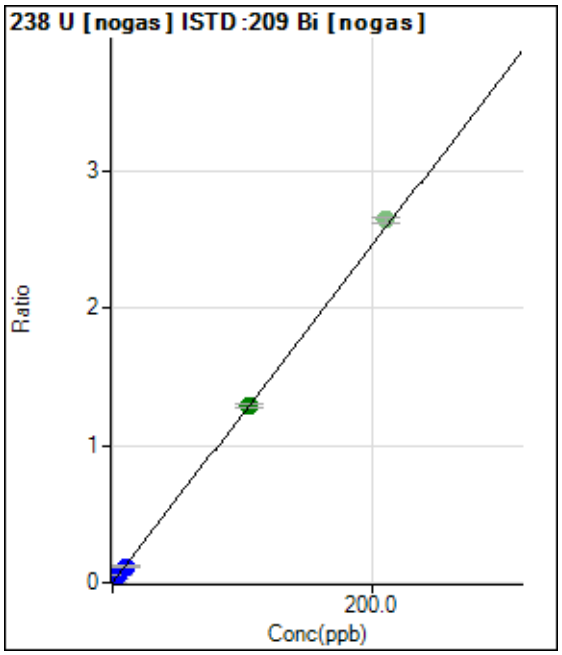



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1573.39 | | P | 15. |
| 2 | ☐ | 2.000 | 1.958 | 55103.58 | | P | 1.3 |
| 3 | ☐ | 5.000 | 4.922 | 136140.68 | | P | 1.0 |
| 4 | ☐ | 10.000 | 9.620 | 264590.69 | | P | 1.6 |
| 5 | ☐ | 100.000 | 100.698 | 2754631.90 | | A | 1.1 |
| 6 | ☐ | 200.000 | 199.672 | 5460578.44 | | A | 2.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 27339.8019 * x + 1573.3867
R = 1.0000
DL = 0.02693
BEC = 0.05755

Weight: <None>
Min Conc: <None>

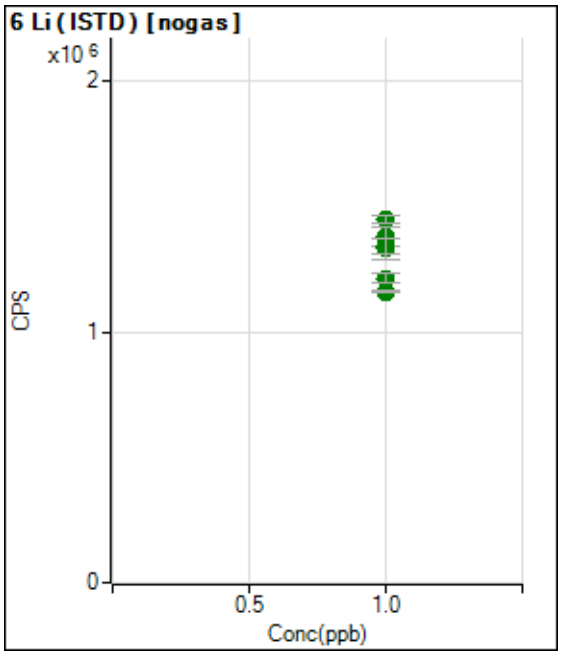
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 103.33 | 0.0000 | P | 19. |
| 2 | ☐ | 2.000 | 1.902 | 53848.33 | 0.0235 | P | 1.9 |
| 3 | ☐ | 5.000 | 4.838 | 134181.11 | 0.0596 | P | 4.2 |
| 4 | ☐ | 10.000 | 9.609 | 263964.47 | 0.1184 | P | 4.9 |
| 5 | ☐ | 105.000 | 105.047 | 2850735.37 | 1.2936 | A | 1.7 |
| 6 | ☑ | 210.000 | | 5626737.83 | 2.6457 | A | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

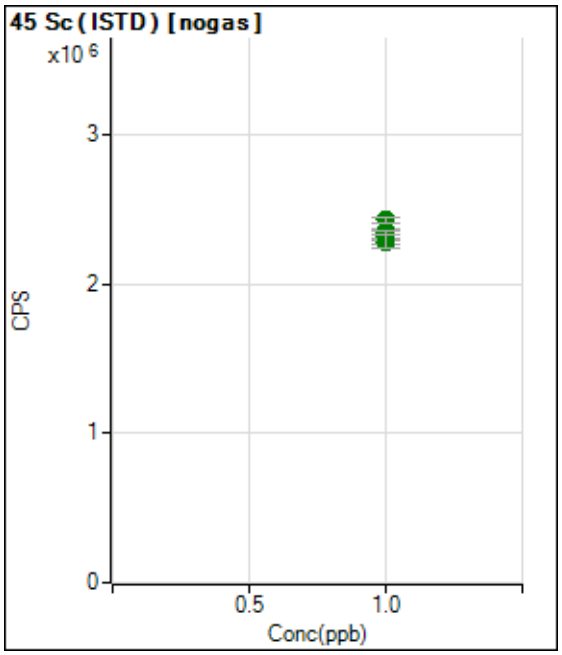
y = 0.0123 * x + 4.4356E-005
R = 1.0000
DL = 0.002109
BEC = 0.003602

Weight: <None>
Min Conc: <None>

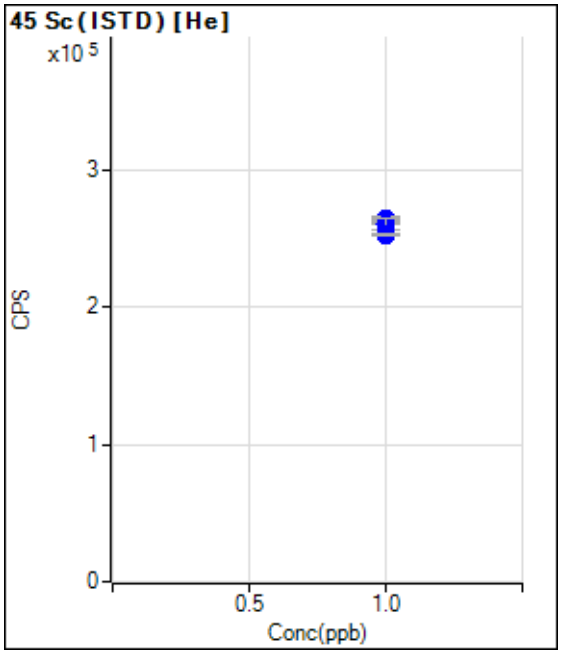



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1446752.57 | | A | 2.1 |
| 2 | ☐ | 1.000 | | 1379209.18 | | A | 5.2 |
| 3 | ☐ | 1.000 | | 1333091.36 | | A | 6.3 |
| 4 | ☐ | 1.000 | | 1343071.92 | | A | 4.5 |
| 5 | ☐ | 1.000 | | 1213625.72 | | A | 3.2 |
| 6 | ☐ | 1.000 | | 1159034.25 | | A | 0.5 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d

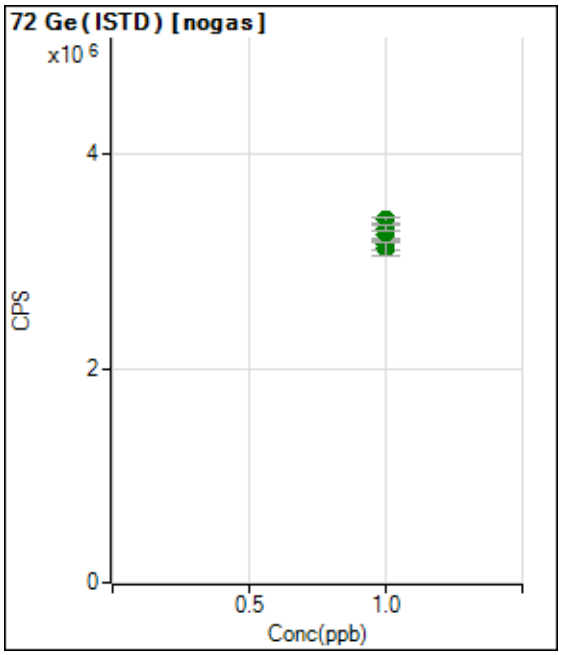



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2309011.32 | | A | 1.7 |
| 2 | ☐ | 1.000 | | 2428765.17 | | A | 1.4 |
| 3 | ☐ | 1.000 | | 2316466.74 | | A | 4.2 |
| 4 | ☐ | 1.000 | | 2357261.94 | | A | 4.3 |
| 5 | ☐ | 1.000 | | 2345627.52 | | A | 1.3 |
| 6 | ☐ | 1.000 | | 2282837.62 | | A | 3.8 |
| 7 | ☐ | 1.000 | | | | | |

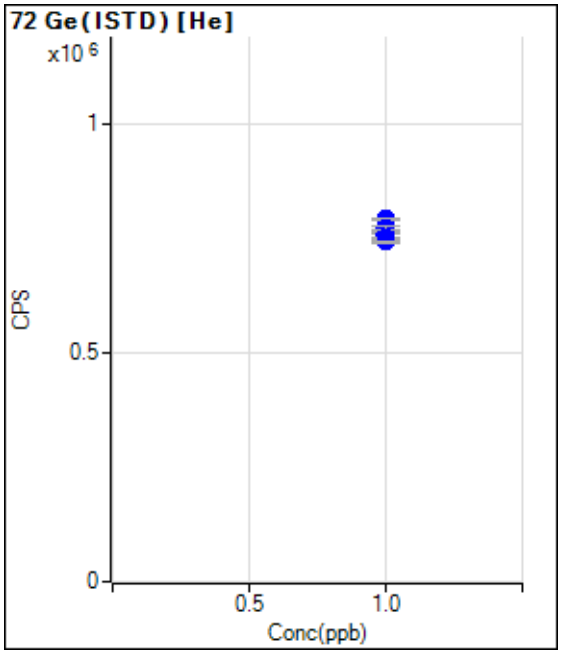



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 262357.18 | | P | 0.7 |
| 2 | ☐ | 1.000 | | 264294.63 | | P | 1.9 |
| 3 | ☐ | 1.000 | | 264479.17 | | P | 1.0 |
| 4 | ☐ | 1.000 | | 261102.73 | | P | 3.0 |
| 5 | ☐ | 1.000 | | 253211.31 | | P | 0.8 |
| 6 | ☐ | 1.000 | | 252623.69 | | P | 0.7 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d

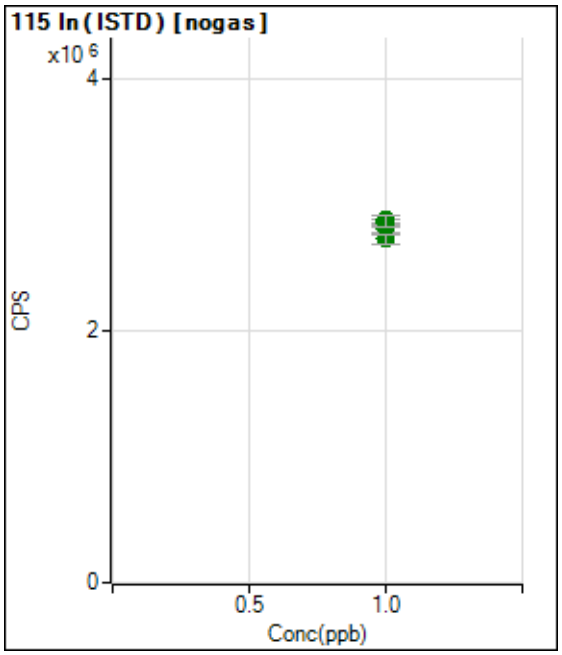



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 3206703.70 | | A | 0.2 |
| 2 | ☐ | 1.000 | | 3256494.54 | | A | 2.1 |
| 3 | ☐ | 1.000 | | 3390666.51 | | A | 1.4 |
| 4 | ☐ | 1.000 | | 3313199.85 | | A | 1.7 |
| 5 | ☐ | 1.000 | | 3155984.95 | | A | 2.9 |
| 6 | ☐ | 1.000 | | 3121229.43 | | A | 4.3 |
| 7 | ☐ | 1.000 | | | | | |

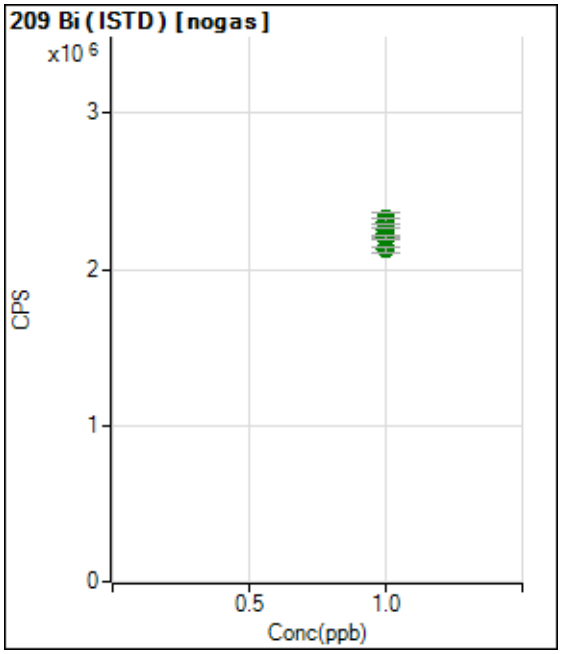



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 754516.31 | | P | 1.5 |
| 2 | ☐ | 1.000 | | 759218.17 | | P | 2.0 |
| 3 | ☐ | 1.000 | | 792957.05 | | P | 0.8 |
| 4 | ☐ | 1.000 | | 772137.67 | | P | 1.0 |
| 5 | ☐ | 1.000 | | 750459.39 | | P | 0.8 |
| 6 | ☐ | 1.000 | | 742295.35 | | P | 0.5 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2812441.48 | | A | 2.8 |
| 2 | ☐ | 1.000 | | 2856142.23 | | A | 1.5 |
| 3 | ☐ | 1.000 | | 2877773.69 | | A | 3.0 |
| 4 | ☐ | 1.000 | | 2866425.42 | | A | 3.5 |
| 5 | ☐ | 1.000 | | 2731957.65 | | A | 3.1 |
| 6 | ☐ | 1.000 | | 2723277.97 | | A | 2.9 |
| 7 | ☐ | 1.000 | | | | | |



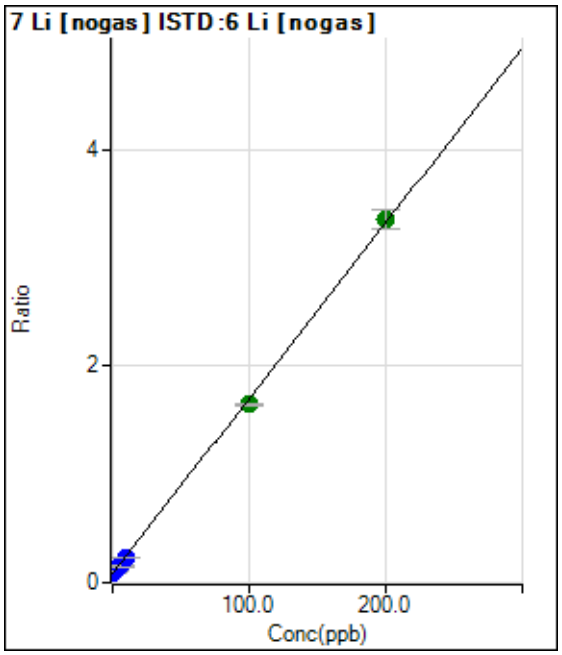

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2322159.81 | | A | 3.3 |
| 2 | ☐ | 1.000 | | 2295873.82 | | A | 2.7 |
| 3 | ☐ | 1.000 | | 2252571.94 | | A | 2.9 |
| 4 | ☐ | 1.000 | | 2231631.69 | | A | 2.4 |
| 5 | ☐ | 1.000 | | 2203864.45 | | A | 0.7 |
| 6 | ☐ | 1.000 | | 2126871.01 | | A | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 237_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122418A.b\
Analysis File: 122418A.batch.bin
DA Date-Time: 2018-12-24 22:52:36
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 231CALB.d | CAL BLK | 2018-12-24 22:39:46 |
| 2 | 232CALS.d | 2/10/200 | 2018-12-24 22:41:46 |
| 3 | 233CALS.d | 5/25/500 | 2018-12-24 22:43:44 |
| 4 | 234CALS.d | 10/50/1000 | 2018-12-24 22:45:43 |
| 5 | 235CALS.d | 100/500/10K | 2018-12-24 22:47:41 |
| 6 | 236CALS.d | 200/1000/20K | 2018-12-24 22:49:41 |
| 7 | | | |

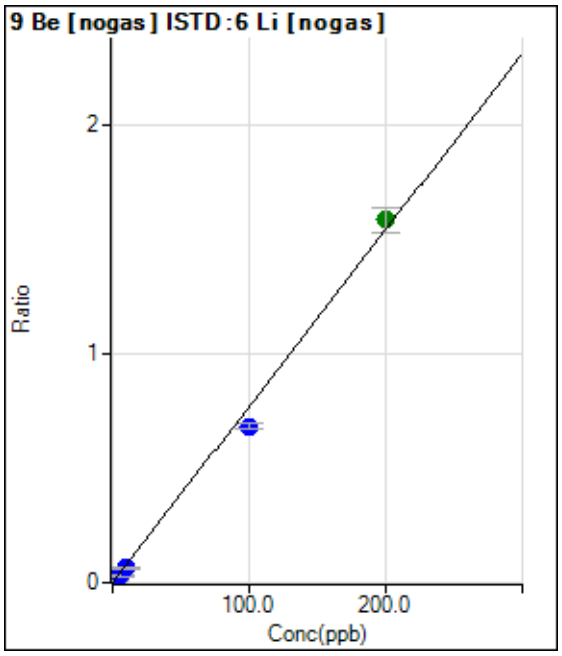
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 100282.20 | 0.0839 | P | 2.8 |
| 2 | ☐ | 2.000 | 1.791 | 131914.44 | 0.1129 | P | 2.8 |
| 3 | ☐ | 5.000 | 4.401 | 178581.34 | 0.1552 | P | 11. |
| 4 | ☐ | 10.000 | 8.924 | 258322.35 | 0.2284 | P | 4.7 |
| 5 | ☐ | 100.000 | 96.401 | 1745197.84 | 1.6449 | A | 2.0 |
| 6 | ☐ | 200.000 | 201.871 | 3462610.88 | 3.3528 | A | 5.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0162 * x + 0.0839
R = 0.9998
DL = 0.4311
BEC = 5.182

Weight: <None>
Min Conc: <None>

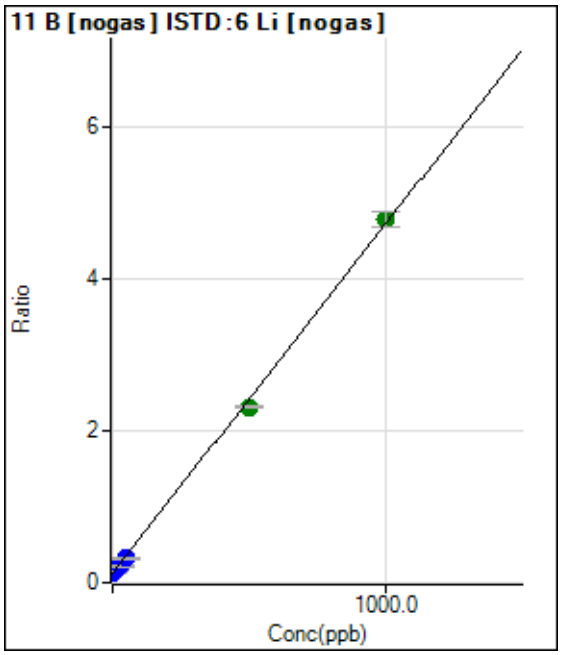



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 86.67 | 0.0001 | P | 30. |
| 2 | ☐ | 2.000 | 1.617 | 14652.45 | 0.0125 | P | 3.6 |
| 3 | ☐ | 5.000 | 4.042 | 35793.66 | 0.0313 | P | 15. |
| 4 | ☐ | 10.000 | 8.270 | 72216.09 | 0.0639 | P | 5.5 |
| 5 | ☐ | 100.000 | 88.782 | 726394.57 | 0.6849 | P | 3.7 |
| 6 | ☐ | 200.000 | 205.723 | 1638982.79 | 1.5870 | A | 7.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0077 * x + 7.2804E-005
R = 0.9979
DL = 0.008732
BEC = 0.009438

Weight: <None>
Min Conc: <None>

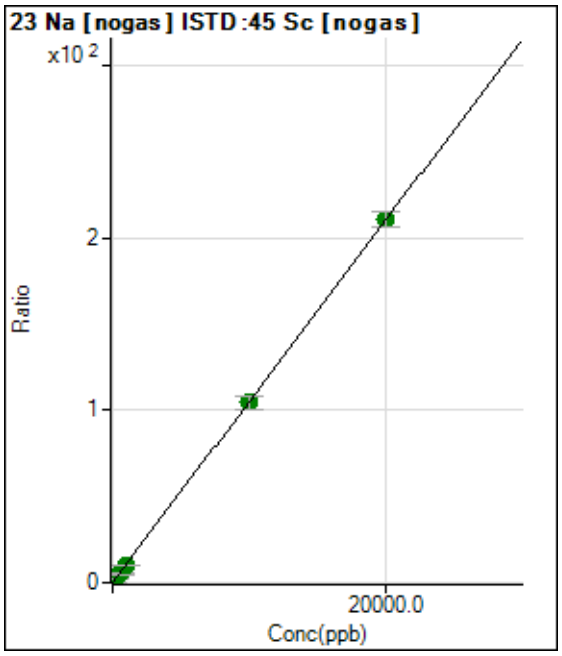
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 146565.61 | 0.1226 | P | 1.5 |
| 2 | ☐ | 10.000 | 7.909 | 185683.78 | 0.1590 | P | 3.3 |
| 3 | ☐ | 25.000 | 21.823 | 255437.83 | 0.2230 | P | 15. |
| 4 | ☐ | 50.000 | 42.817 | 361363.28 | 0.3195 | P | 4.5 |
| 5 | ☐ | 500.000 | 476.507 | 2454033.14 | 2.3135 | A | 1.9 |
| 6 | ☐ | 1000.000 | 1012.206 | 4934583.05 | 4.7765 | A | 4.1 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0046 * x + 0.1226
R = 0.9996
DL = 1.191
BEC = 26.67

Weight: <None>
Min Conc: <None>

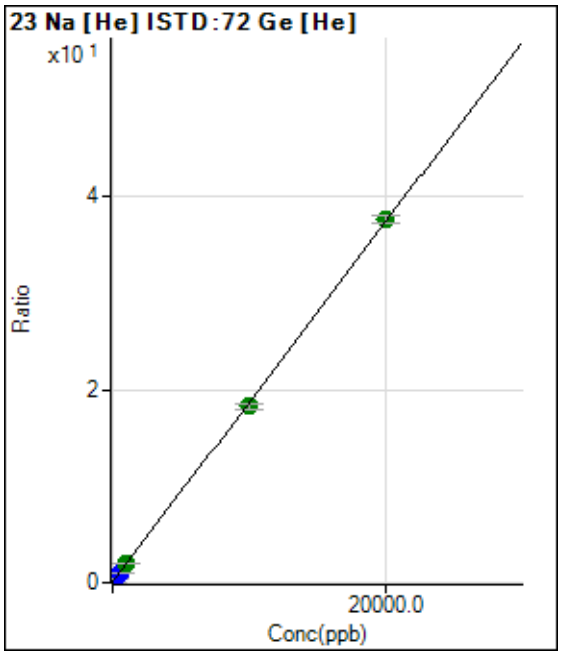



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 331428.93 | 0.1292 | P | 4.5 |
| 2 | ☐ | 200.000 | 193.251 | 5578139.71 | 2.1574 | A | 5.7 |
| 3 | ☐ | 500.000 | 477.044 | 13289388.58 | 5.1360 | A | 10. |
| 4 | ☐ | 1000.000 | 960.287 | 26451403.72 | 10.2078 | A | 6.3 |
| 5 | ☐ | 10000.00 | 9941.907 | 259402164.1 | 104.473 | A | 7.3 |
| 6 | ☐ | 20000.00 | 20031.674 | 528973661.8 | 210.370 | A | 4.2 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0105 * x + 0.1292
R = 1.0000
DL = 1.657
BEC = 12.31

Weight: <None>
Min Conc: <None>

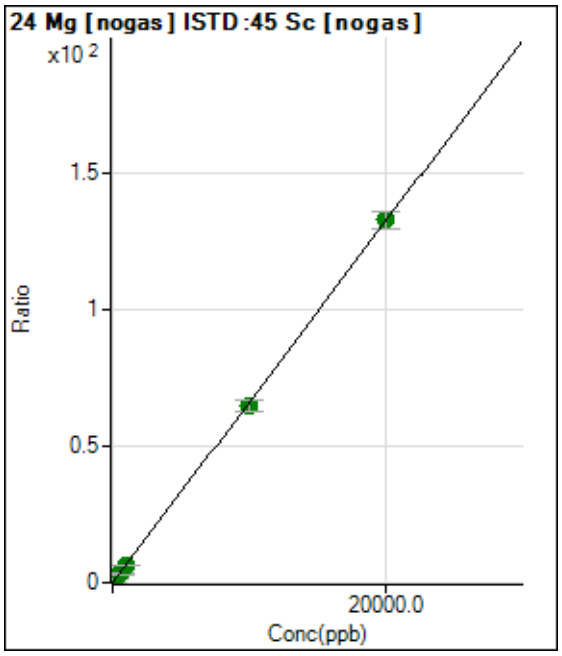
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 41901.40 | 0.0500 | P | 4.8 |
| 2 | ☐ | 200.000 | 191.960 | 342970.00 | 0.4085 | P | 2.5 |
| 3 | ☐ | 500.000 | 486.986 | 795148.82 | 0.9595 | P | 1.9 |
| 4 | ☐ | 1000.000 | 1035.445 | 1638657.99 | 1.9837 | A | 4.2 |
| 5 | ☐ | 10000.00 | 9749.808 | 15297982.69 | 18.2576 | A | 3.9 |
| 6 | ☐ | 20000.00 | 20123.729 | 30809609.54 | 37.6308 | A | 2.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0019 * x + 0.0500
R = 0.9999
DL = 3.853
BEC = 26.8

Weight: <None>
Min Conc: <None>

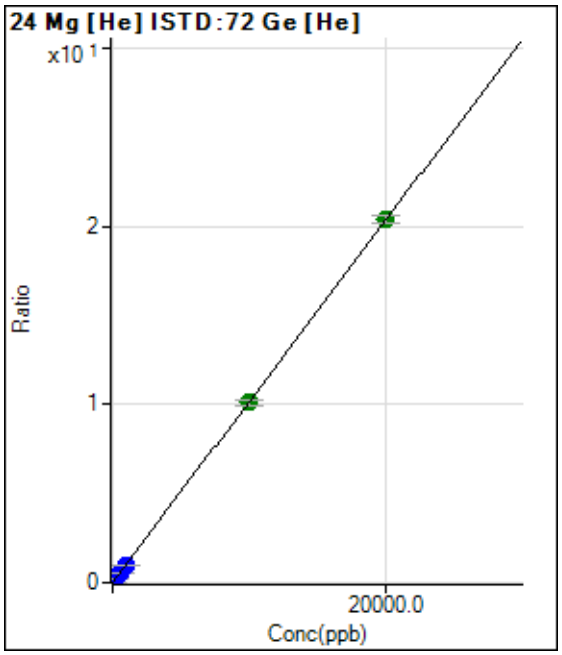



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 30464.54 | 0.0119 | P | 7.1 |
| 2 | ☐ | 200.000 | 196.489 | 3393444.87 | 1.3123 | A | 5.4 |
| 3 | ☐ | 500.000 | 487.773 | 8405434.04 | 3.2400 | A | 5.0 |
| 4 | ☐ | 1000.000 | 971.147 | 16702194.13 | 6.4391 | A | 3.5 |
| 5 | ☐ | 10000.00 | 9812.306 | 161352099.4 | 64.9513 | A | 6.8 |
| 6 | ☐ | 20000.00 | 20095.630 | 334413790.8 | 133.008 | A | 4.6 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0066 * x + 0.0119
R = 0.9999
DL = 0.383
BEC = 1.794

Weight: <None>
Min Conc: <None>

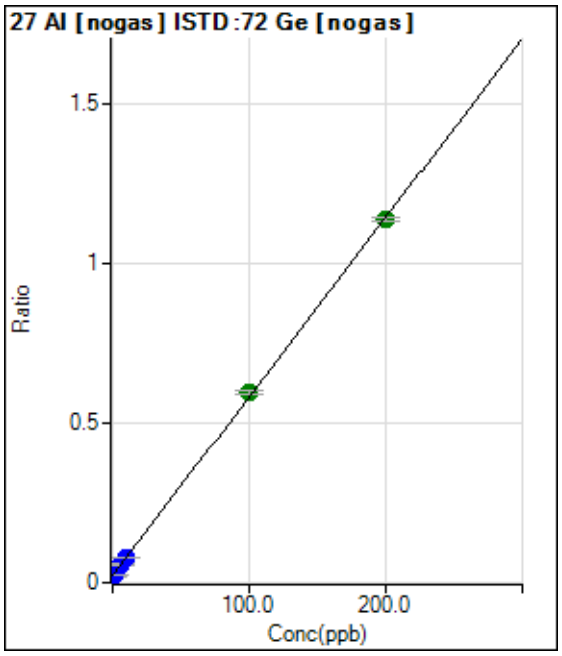
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1586.76 | 0.0019 | P | 11. |
| 2 | ☐ | 200.000 | 194.116 | 167203.86 | 0.1992 | P | 2.3 |
| 3 | ☐ | 500.000 | 494.618 | 418151.05 | 0.5045 | P | 1.4 |
| 4 | ☐ | 1000.000 | 975.086 | 820275.85 | 0.9928 | P | 2.6 |
| 5 | ☐ | 10000.00 | 9930.966 | 8458521.33 | 10.0942 | A | 2.6 |
| 6 | ☐ | 20000.00 | 20035.956 | 16672742.25 | 20.3634 | A | 2.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0010 * x + 0.0019
R = 1.0000
DL = 0.6604
BEC = 1.863

Weight: <None>
Min Conc: <None>

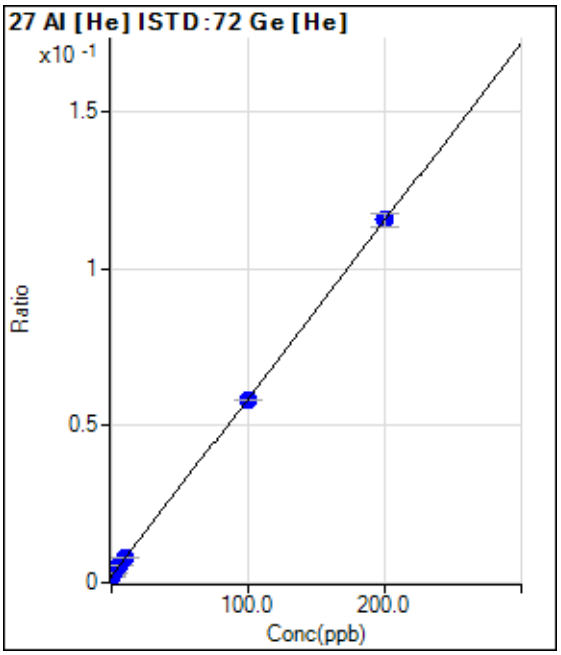



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 77457.87 | 0.0218 | P | 8.6 |
| 2 | ☐ | 2.000 | 0.667 | 91527.10 | 0.0256 | P | 3.3 |
| 3 | ☐ | 5.000 | 6.204 | 201937.25 | 0.0566 | P | 4.7 |
| 4 | ☐ | 10.000 | 10.379 | 287698.43 | 0.0800 | P | 1.7 |
| 5 | ☐ | 100.000 | 102.274 | 2058982.05 | 0.5953 | A | 1.9 |
| 6 | ☐ | 200.000 | 198.827 | 4165751.08 | 1.1368 | A | 1.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0056 * x + 0.0218
R = 0.9999
DL = 0.9989
BEC = 3.894

Weight: <None>
Min Conc: <None>

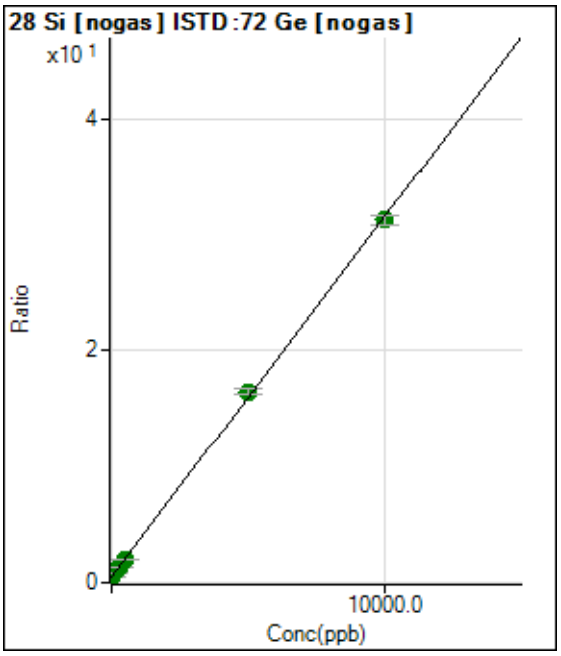
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.003 | 1763.45 | 0.0021 | P | 9.4 |
| 2 | ☐ | 2.000 | 1.485 | 2476.87 | 0.0029 | P | 11. |
| 3 | ☐ | 5.000 | 5.705 | 4423.92 | 0.0053 | P | 4.2 |
| 4 | ☐ | 10.000 | 10.339 | 6584.58 | 0.0080 | P | 7.5 |
| 5 | ☐ | 100.000 | 99.007 | 48759.78 | 0.0582 | P | 0.7 |
| 6 | ☐ | 200.000 | 200.467 | 94669.15 | 0.1157 | P | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.6640E-004 * x + 0.0021
R = 1.0000
DL = 1.053
BEC = 3.72

Weight: <None>
Min Conc: <None>

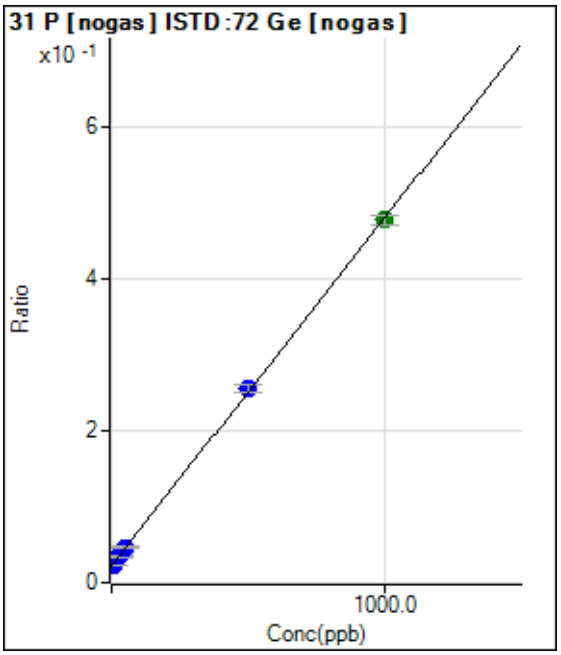



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1786795.86 | 0.5033 | A | 3.0 |
| 2 | ☐ | 100.000 | 87.831 | 2777141.21 | 0.7758 | A | 2.1 |
| 3 | ☐ | 250.000 | 254.258 | 4591023.16 | 1.2922 | A | 5.5 |
| 4 | ☐ | 500.000 | 487.963 | 7250697.18 | 2.0173 | A | 2.7 |
| 5 | ☐ | 5000.000 | 5153.189 | 57019467.49 | 16.4923 | A | 2.9 |
| 6 | ☐ | 10000.00 | 9924.022 | 114625554.9 | 31.2949 | A | 2.7 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0031 * x + 0.5033
R = 0.9998
DL = 14.44
BEC = 162.2

Weight: <None>
Min Conc: <None>

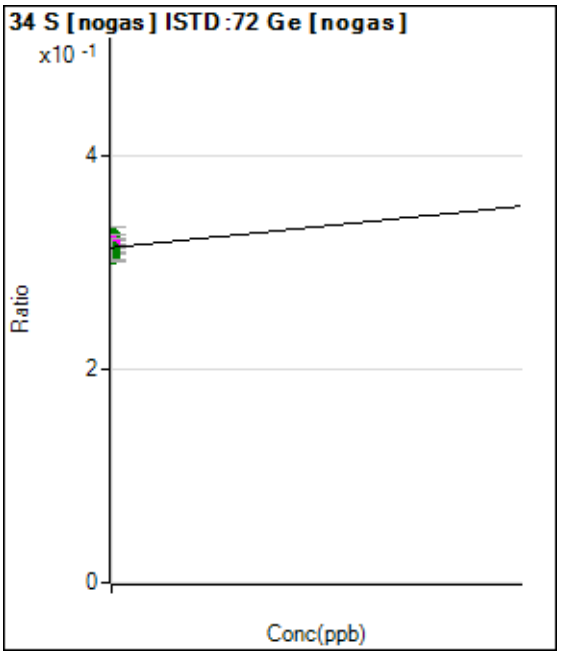
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 80236.18 | 0.0226 | P | 3.4 |
| 2 | ☐ | 10.000 | -0.139 | 80633.97 | 0.0225 | P | 4.1 |
| 3 | ☐ | 25.000 | 26.987 | 123922.83 | 0.0349 | P | 9.8 |
| 4 | ☐ | 50.000 | 52.754 | 167931.26 | 0.0467 | P | 3.5 |
| 5 | ☐ | 500.000 | 509.447 | 883777.23 | 0.2557 | P | 3.3 |
| 6 | ☐ | 1000.000 | 995.190 | 1750887.01 | 0.4779 | A | 2.3 |
| 7 | ☐ | 5.000 | | | | | |

y = 4.5752E-004 * x + 0.0226
R = 0.9999
DL = 4.974
BEC = 49.4

Weight: <None>
Min Conc: <None>

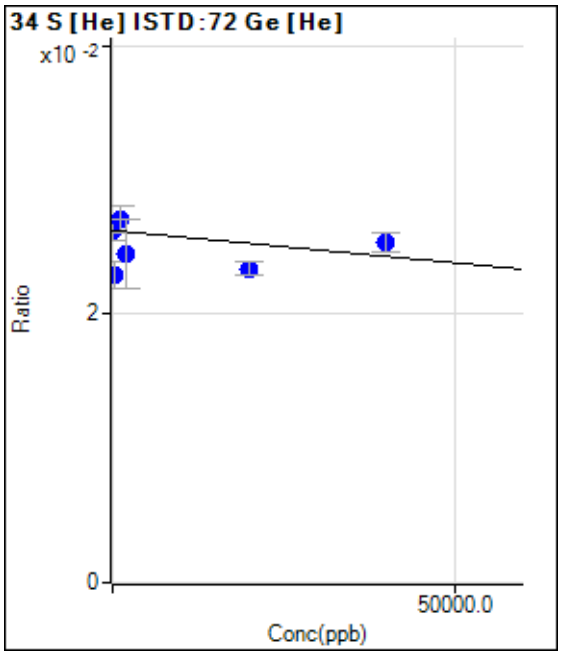



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1113053.57 | 0.3134 | M | 3.8 |
| 2 | ☐ | 400.000 | -27825656.57 | 1097233.46 | 0.3063 | A | 2.5 |
| 3 | ☐ | 1000.000 | 41489022.92 | 1152275.19 | 0.3242 | A | 5.3 |
| 4 | ☐ | 2000.000 | 36090880.65 | 1161027.37 | 0.3228 | A | 1.3 |
| 5 | ☐ | 20000.00 | 14108207.03 | 1096116.82 | 0.3171 | M | 2.9 |
| 6 | ☐ | 40000.00 | -9567487.560 | 1138341.66 | 0.3110 | A | 6.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 2.5821E-010 * x + 0.3134
R = -0.2609
DL = 1.375E+08
BEC = 1.214E+09

Weight: <None>
Min Conc: <None>

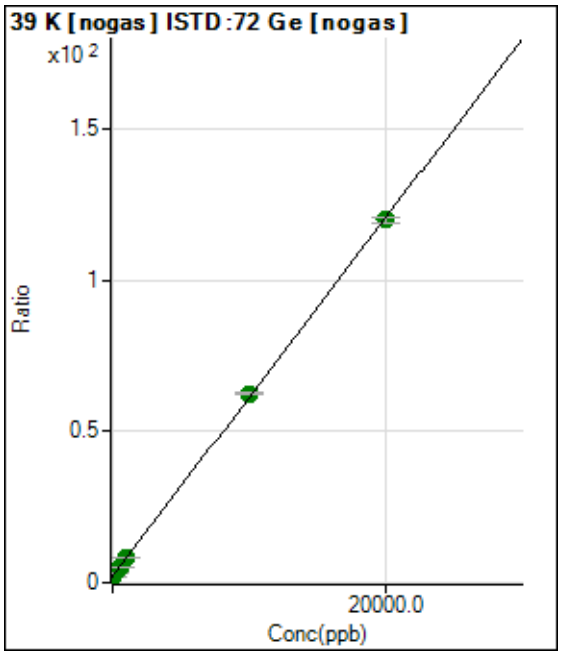
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 21950.22 | 0.0262 | P | 5.6 |
| 2 | ☐ | 400.000 | 68262.296 | 19246.23 | 0.0229 | P | 8.6 |
| 3 | ☐ | 1000.000 | -16293.142 | 22384.11 | 0.0270 | P | 7.5 |
| 4 | ☐ | 2000.000 | 37018.140 | 20148.30 | 0.0244 | P | 20. |
| 5 | ☐ | 20000.00 | 59369.552 | 19580.39 | 0.0234 | P | 4.5 |
| 6 | ☐ | 40000.00 | 18318.022 | 20748.34 | 0.0253 | P | 6.0 |
| 7 | ☐ | 100.000 | | | | | |

y = -4.8102E-008 * x + 0.0262
R = -0.0898
DL = -9.232E+04
BEC = -5.45E+05

Weight: <None>
Min Conc: <None>

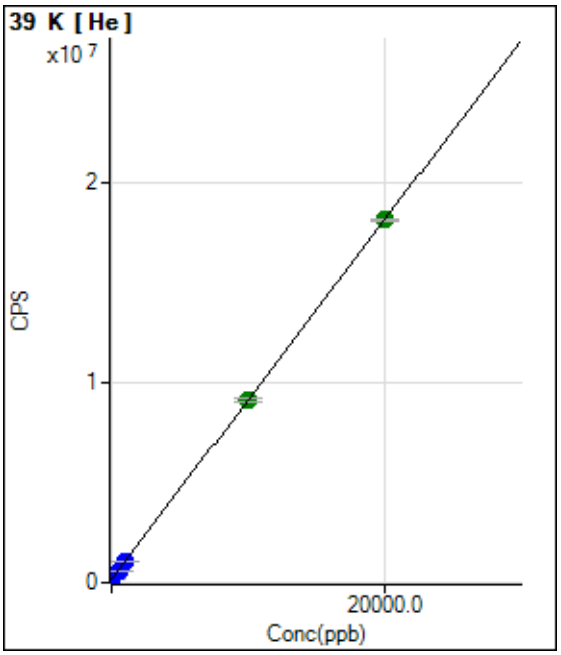



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7580101.73 | 2.1349 | A | 2.4 |
| 2 | ☐ | 200.000 | 202.537 | 11936197.14 | 3.3352 | A | 2.9 |
| 3 | ☐ | 500.000 | 510.936 | 18312033.74 | 5.1630 | A | 9.1 |
| 4 | ☐ | 1000.000 | 1011.498 | 29212752.74 | 8.1297 | A | 3.2 |
| 5 | ☐ | 10000.00 | 10207.707 | 216604788.1 | 62.6332 | A | 1.3 |
| 6 | ☐ | 20000.00 | 19895.273 | 439767909.8 | 120.048 | A | 1.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0059 * x + 2.1349
R = 0.9999
DL = 26.13
BEC = 360.2

Weight: <None>
Min Conc: <None>

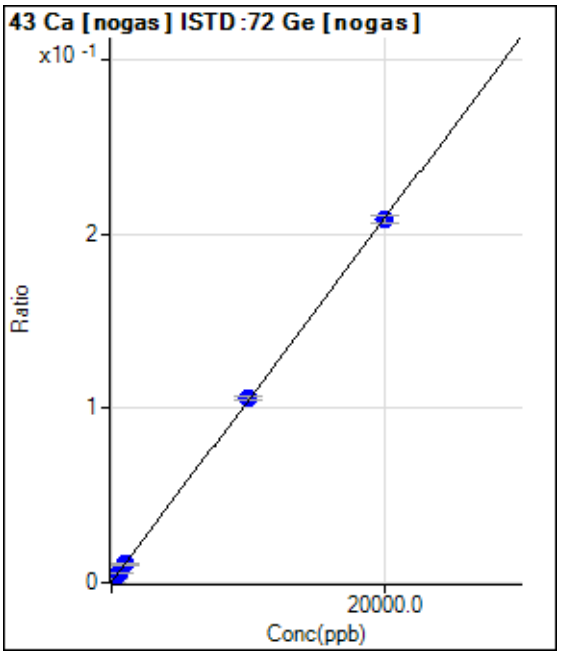
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 170285.97 | | P | 0.3 |
| 2 | ☐ | 200.000 | 201.047 | 350759.06 | | P | 0.7 |
| 3 | ☐ | 500.000 | 492.010 | 611946.24 | | P | 1.1 |
| 4 | ☐ | 1000.000 | 968.975 | 1040100.25 | | P | 0.7 |
| 5 | ☐ | 10000.00 | 9989.647 | 9137636.95 | | A | 1.7 |
| 6 | ☐ | 20000.00 | 20006.917 | 18129783.90 | | A | 0.5 |
| 7 | ☐ | 100.000 | | | | | |

y = 897.6644 * x + 170285.9667
R = 1.0000
DL = 1.483
BEC = 189.7

Weight: <None>
Min Conc: <None>

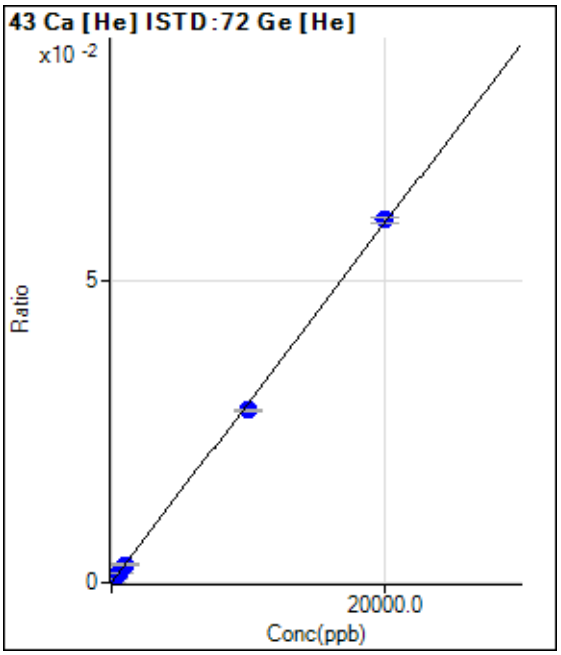



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 823.37 | 0.0002 | P | 11. |
| 2 | ☐ | 200.000 | 198.398 | 8231.93 | 0.0023 | P | 2.7 |
| 3 | ☐ | 500.000 | 499.213 | 19320.28 | 0.0054 | P | 4.6 |
| 4 | ☐ | 1000.000 | 990.750 | 37928.98 | 0.0106 | P | 4.5 |
| 5 | ☐ | 10000.00 | 10146.229 | 366611.83 | 0.1060 | P | 1.4 |
| 6 | ☐ | 20000.00 | 19927.384 | 761679.34 | 0.2079 | P | 2.3 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.0423E-005 * x + 2.3215E-004
R = 1.0000
DL = 7.682
BEC = 22.27

Weight: <None>
Min Conc: <None>

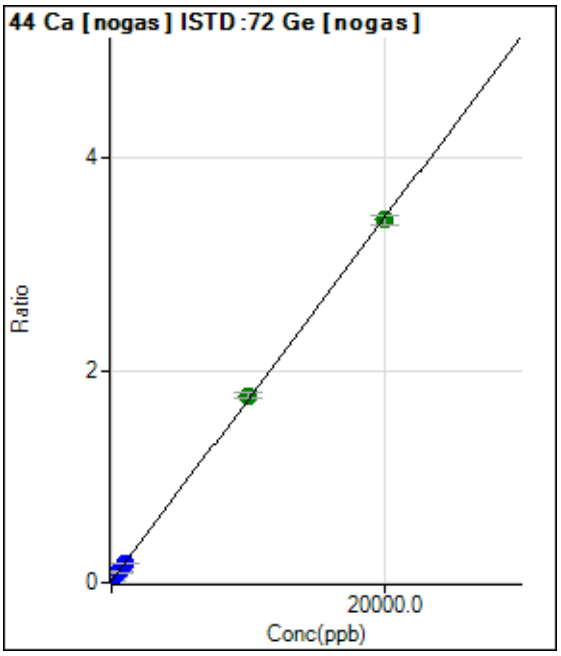
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 36.67 | 0.0000 | P | 78. |
| 2 | ☐ | 200.000 | 176.102 | 476.68 | 0.0006 | P | 3.8 |
| 3 | ☐ | 500.000 | 506.136 | 1283.40 | 0.0015 | P | 9.9 |
| 4 | ☐ | 1000.000 | 993.585 | 2476.87 | 0.0030 | P | 9.6 |
| 5 | ☐ | 10000.00 | 9588.297 | 23948.89 | 0.0286 | P | 1.6 |
| 6 | ☐ | 20000.00 | 20206.258 | 49271.69 | 0.0602 | P | 1.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 2.9757E-006 * x + 4.3619E-005
R = 0.9997
DL = 34.29
BEC = 14.66

Weight: <None>
Min Conc: <None>

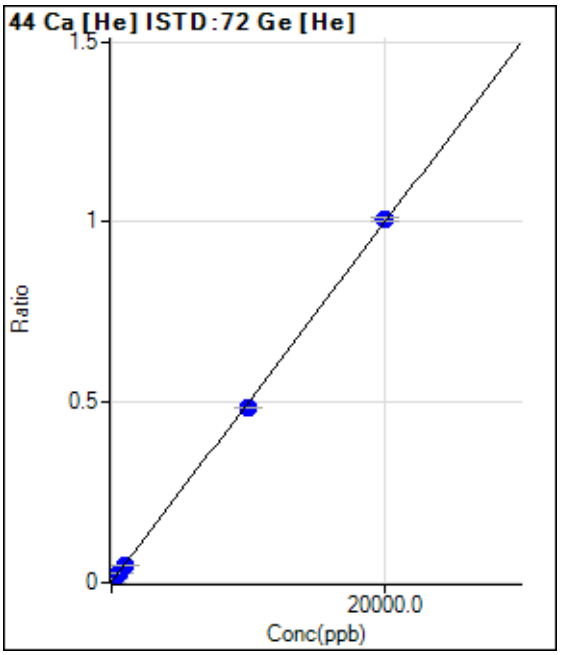



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 54583.02 | 0.0154 | P | 4.3 |
| 2 | ☐ | 200.000 | 191.137 | 172085.82 | 0.0481 | P | 2.7 |
| 3 | ☐ | 500.000 | 495.058 | 354984.02 | 0.1001 | P | 8.9 |
| 4 | ☐ | 1000.000 | 970.672 | 652308.58 | 0.1814 | P | 1.2 |
| 5 | ☐ | 10000.00 | 10226.911 | 6101094.91 | 1.7650 | A | 3.3 |
| 6 | ☐ | 20000.00 | 19888.223 | 12519365.23 | 3.4179 | A | 3.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.7108E-004 * x + 0.0154
R = 0.9999
DL = 11.57
BEC = 89.89

Weight: <None>
Min Conc: <None>

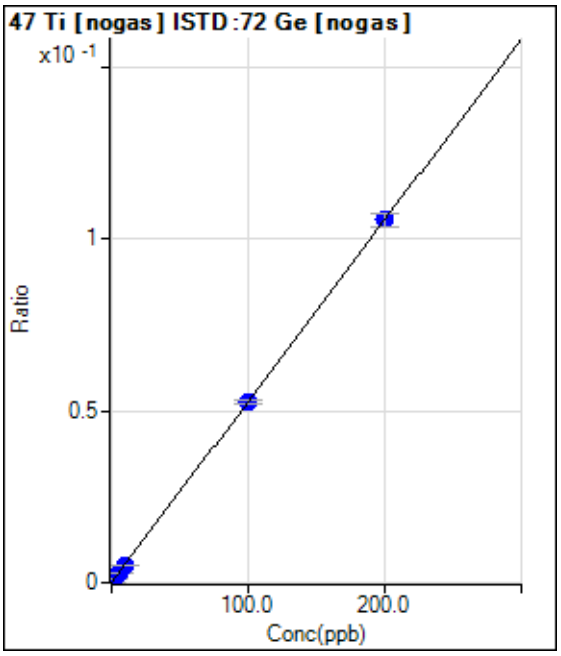
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 916.71 | 0.0011 | P | 13. |
| 2 | ☐ | 200.000 | 195.242 | 9095.68 | 0.0108 | P | 1.7 |
| 3 | ☐ | 500.000 | 489.347 | 21132.21 | 0.0255 | P | 3.2 |
| 4 | ☐ | 1000.000 | 962.277 | 40547.68 | 0.0491 | P | 4.8 |
| 5 | ☐ | 10000.00 | 9714.364 | 406952.36 | 0.4856 | P | 0.9 |
| 6 | ☐ | 20000.00 | 20145.018 | 823613.63 | 1.0058 | P | 1.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 4.9875E-005 * x + 0.0011
R = 0.9999
DL = 9.082
BEC = 21.96

Weight: <None>
Min Conc: <None>

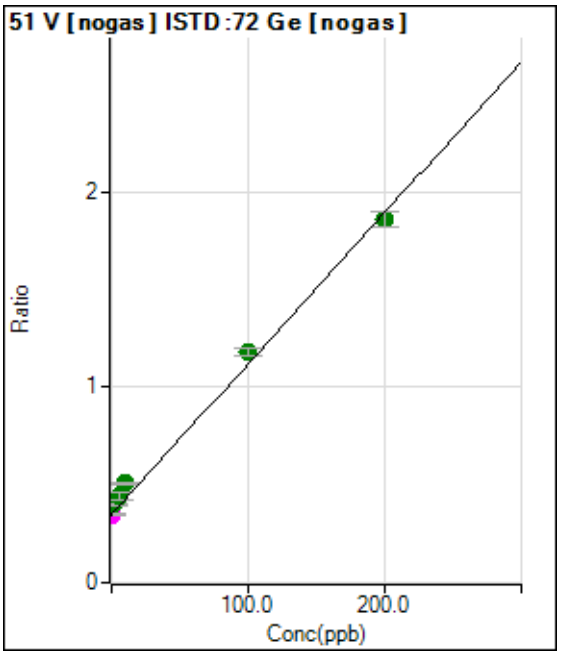



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 283.34 | 0.0001 | P | 41. |
| 2 | ☐ | 2.000 | 1.783 | 3643.75 | 0.0010 | P | 10. |
| 3 | ☐ | 5.000 | 4.942 | 9529.26 | 0.0027 | P | 7.9 |
| 4 | ☐ | 10.000 | 9.421 | 18139.09 | 0.0050 | P | 2.1 |
| 5 | ☐ | 100.000 | 99.521 | 181696.77 | 0.0525 | P | 2.2 |
| 6 | ☐ | 200.000 | 200.272 | 386985.39 | 0.1057 | P | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.2719E-004 * x + 7.9746E-005
R = 1.0000
DL = 0.1862
BEC = 0.1513

Weight: <None>
Min Conc: <None>

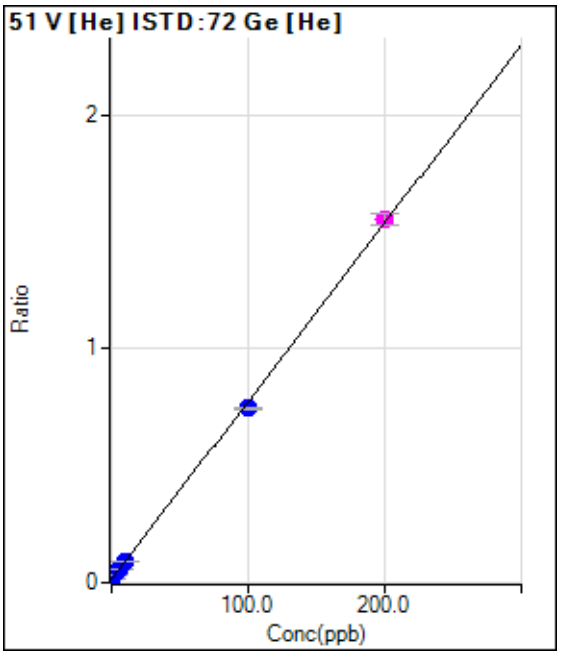
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1238421.94 | 0.3488 | M | 4.1 |
| 2 | ☐ | 2.000 | 6.452 | 1427472.62 | 0.3985 | A | 1.0 |
| 3 | ☐ | 5.000 | 12.441 | 1577439.88 | 0.4447 | A | 9.0 |
| 4 | ☐ | 10.000 | 20.625 | 1826105.38 | 0.5078 | A | 2.4 |
| 5 | ☐ | 100.000 | 107.948 | 4082141.63 | 1.1811 | A | 3.5 |
| 6 | ☐ | 200.000 | 195.264 | 6790929.32 | 1.8542 | A | 4.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0077 * x + 0.3488
R = 0.9982
DL = 5.552
BEC = 45.24

Weight: <None>
Min Conc: <None>

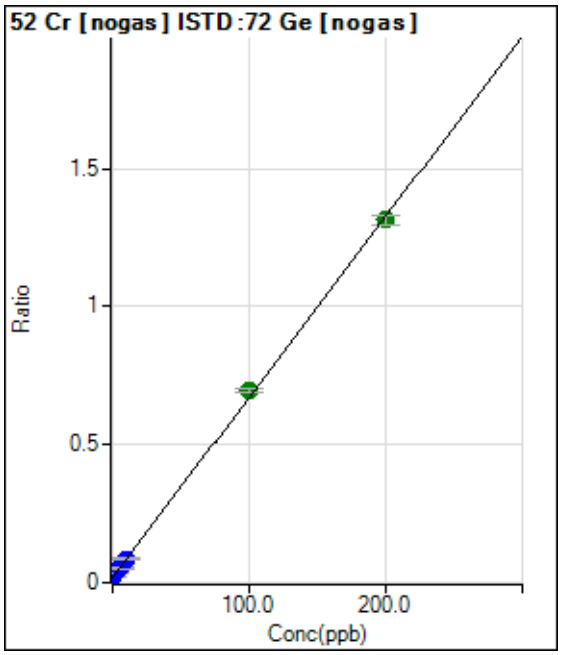



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.474 | 14259.45 | 0.0170 | P | 1.5 |
| 2 | ☐ | 2.000 | 2.475 | 27090.25 | 0.0323 | P | 0.5 |
| 3 | ☐ | 5.000 | 5.536 | 46057.91 | 0.0556 | P | 1.5 |
| 4 | ☐ | 10.000 | 10.508 | 77214.15 | 0.0934 | P | 1.3 |
| 5 | ☐ | 100.000 | 96.102 | 624534.88 | 0.7453 | P | 1.1 |
| 6 | ☐ | 200.000 | 201.905 | 1270034.29 | 1.5510 | M | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0076 * x + 0.0134
R = 0.9997
DL = 0.1009
BEC = 1.762

Weight: <None>
Min Conc: <None>

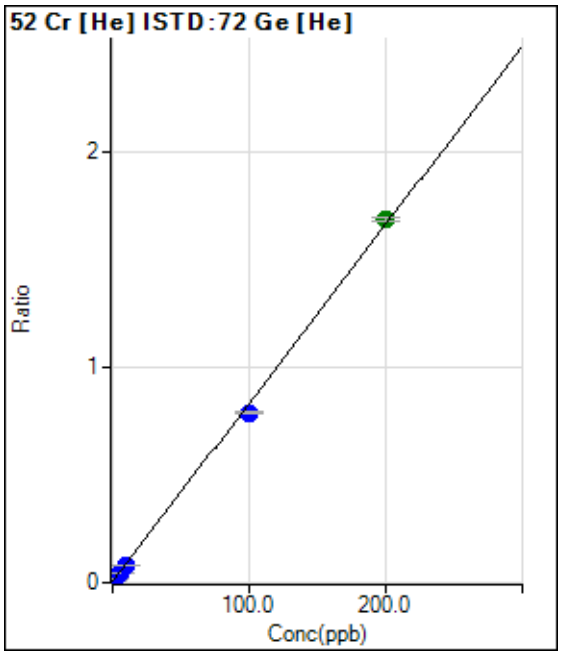
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 68853.87 | 0.0194 | P | 1.9 |
| 2 | ☐ | 2.000 | 1.992 | 115869.71 | 0.0324 | P | 5.1 |
| 3 | ☐ | 5.000 | 5.184 | 189061.97 | 0.0532 | P | 6.3 |
| 4 | ☐ | 10.000 | 10.108 | 306749.05 | 0.0854 | P | 3.9 |
| 5 | ☐ | 100.000 | 103.412 | 2401368.77 | 0.6945 | A | 2.3 |
| 6 | ☐ | 200.000 | 198.284 | 4813022.43 | 1.3139 | A | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0065 * x + 0.0194
R = 0.9998
DL = 0.1677
BEC = 2.97

Weight: <None>
Min Conc: <None>

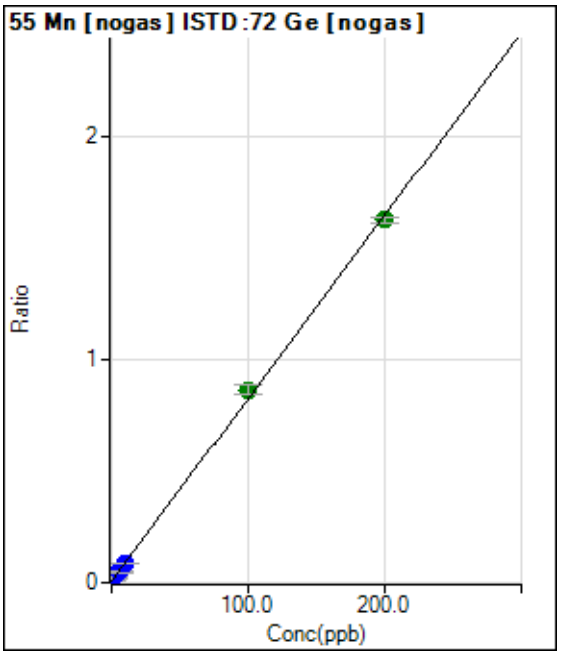



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4123.86 | 0.0049 | P | 7.9 |
| 2 | ☐ | 2.000 | 1.841 | 16961.33 | 0.0202 | P | 4.4 |
| 3 | ☐ | 5.000 | 4.823 | 37254.53 | 0.0450 | P | 1.4 |
| 4 | ☐ | 10.000 | 9.406 | 68580.62 | 0.0830 | P | 0.5 |
| 5 | ☐ | 100.000 | 94.594 | 661999.05 | 0.7900 | P | 0.9 |
| 6 | ☐ | 200.000 | 202.739 | 1381847.06 | 1.6874 | A | 1.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0083 * x + 0.0049
R = 0.9995
DL = 0.1411
BEC = 0.5935

Weight: <None>
Min Conc: <None>

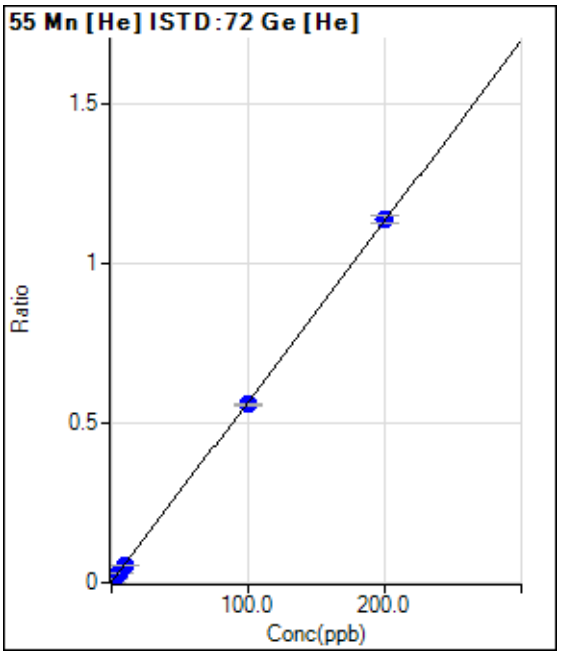
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 23391.62 | 0.0066 | P | 2.2 |
| 2 | ☐ | 2.000 | 1.830 | 77277.42 | 0.0216 | P | 4.2 |
| 3 | ☐ | 5.000 | 5.053 | 170429.78 | 0.0480 | P | 9.0 |
| 4 | ☐ | 10.000 | 9.837 | 313711.41 | 0.0873 | P | 2.9 |
| 5 | ☐ | 100.000 | 104.638 | 2988634.12 | 0.8650 | A | 4.7 |
| 6 | ☐ | 200.000 | 197.689 | 5965128.45 | 1.6283 | A | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0082 * x + 0.0066
R = 0.9996
DL = 0.05259
BEC = 0.8029

Weight: <None>
Min Conc: <None>

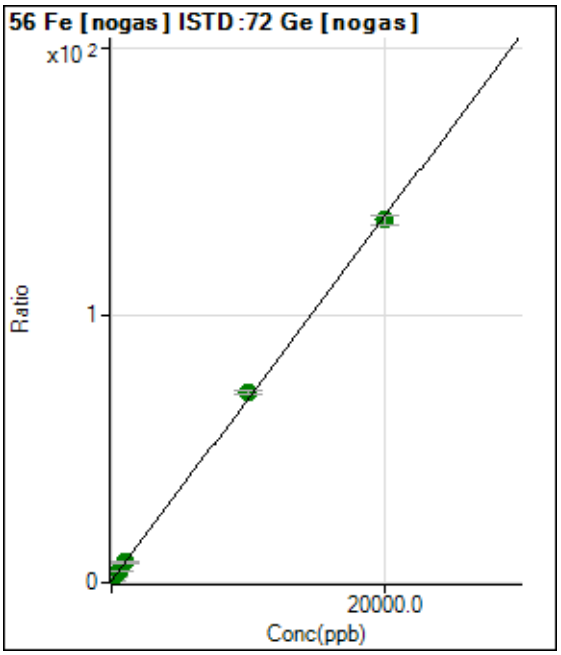



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1073.38 | 0.0013 | P | 1.3 |
| 2 | ☐ | 2.000 | 1.903 | 10109.54 | 0.0120 | P | 1.8 |
| 3 | ☐ | 5.000 | 5.007 | 24523.30 | 0.0296 | P | 2.3 |
| 4 | ☐ | 10.000 | 9.795 | 46836.19 | 0.0567 | P | 1.7 |
| 5 | ☐ | 100.000 | 98.581 | 468165.88 | 0.5586 | P | 1.0 |
| 6 | ☐ | 200.000 | 200.721 | 930186.86 | 1.1361 | P | 2.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0057 * x + 0.0013
R = 1.0000
DL = 0.00862
BEC = 0.2267

Weight: <None>
Min Conc: <None>

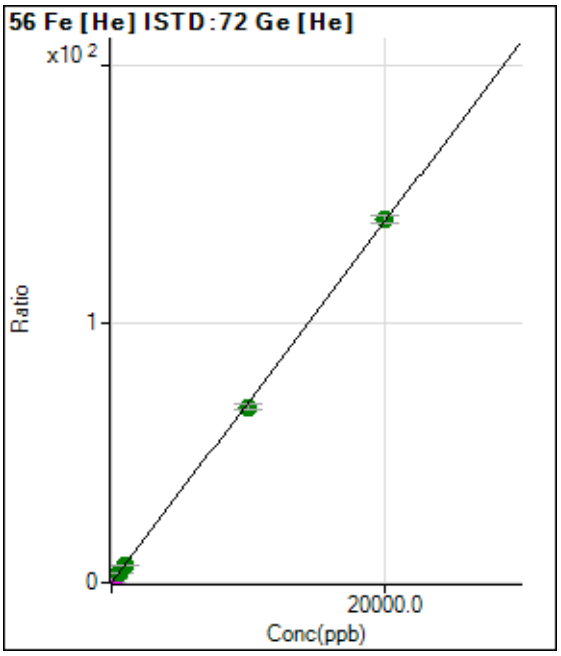
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2564814.12 | 0.7225 | A | 3.4 |
| 2 | ☐ | 200.000 | 202.138 | 7515341.57 | 2.1001 | A | 3.7 |
| 3 | ☐ | 500.000 | 502.916 | 14726538.35 | 4.1501 | A | 8.1 |
| 4 | ☐ | 1000.000 | 1003.383 | 27184109.98 | 7.5610 | A | 3.4 |
| 5 | ☐ | 10000.00 | 10349.989 | 246346363.8 | 71.2630 | A | 2.9 |
| 6 | ☐ | 20000.00 | 19824.742 | 497565694.4 | 135.838 | A | 2.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0068 * x + 0.7225
R = 0.9998
DL = 10.95
BEC = 106

Weight: <None>
Min Conc: <None>

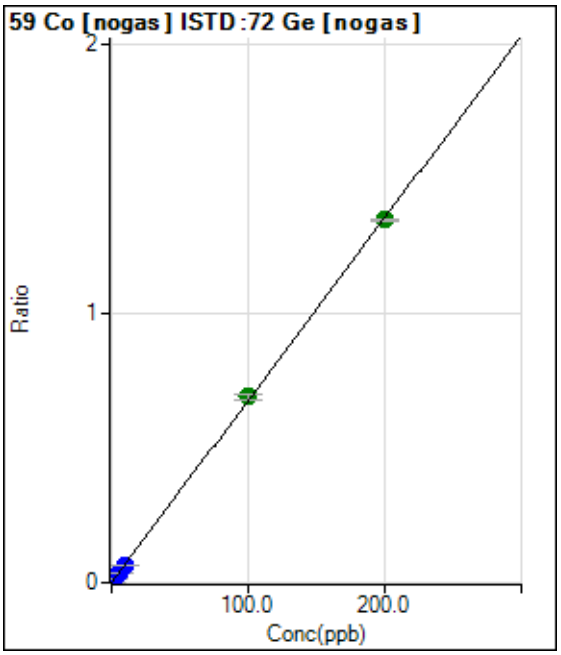



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 26058.62 | 0.0311 | P | 2.7 |
| 2 | ☐ | 200.000 | 195.537 | 1169440.84 | 1.3926 | M | 3.6 |
| 3 | ☐ | 500.000 | 506.315 | 2947197.25 | 3.5564 | A | 2.8 |
| 4 | ☐ | 1000.000 | 997.225 | 5763138.04 | 6.9744 | A | 1.4 |
| 5 | ☐ | 10000.00 | 9750.429 | 56918027.49 | 67.9201 | A | 2.9 |
| 6 | ☐ | 20000.00 | 20124.811 | 114749171.6 | 140.153 | A | 1.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0070 * x + 0.0311
R = 0.9999
DL = 0.3597
BEC = 4.468

Weight: <None>
Min Conc: <None>

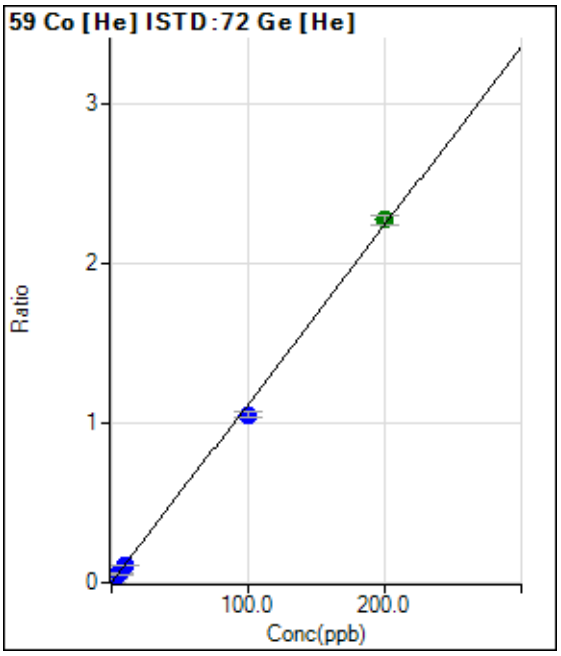
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 833.37 | 0.0002 | P | 23. |
| 2 | ☐ | 2.000 | 1.968 | 48547.84 | 0.0136 | P | 3.8 |
| 3 | ☐ | 5.000 | 5.035 | 121849.42 | 0.0343 | P | 8.8 |
| 4 | ☐ | 10.000 | 9.823 | 240024.07 | 0.0668 | P | 2.5 |
| 5 | ☐ | 100.000 | 101.857 | 2385751.06 | 0.6902 | A | 3.3 |
| 6 | ☐ | 200.000 | 199.080 | 4942486.70 | 1.3488 | A | 0.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0068 * x + 2.3546E-004
R = 0.9999
DL = 0.0246
BEC = 0.03476

Weight: <None>
Min Conc: <None>

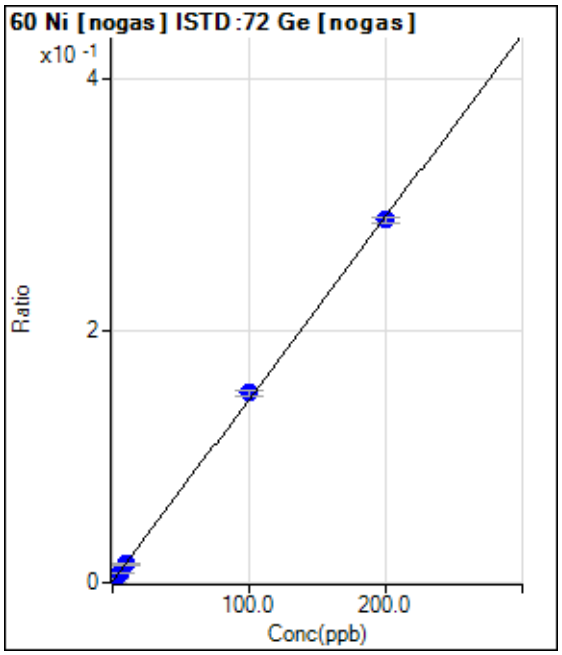



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 200.00 | 0.0002 | P | 19. |
| 2 | ☐ | 2.000 | 1.909 | 18122.51 | 0.0216 | P | 3.9 |
| 3 | ☐ | 5.000 | 4.826 | 44908.45 | 0.0542 | P | 3.9 |
| 4 | ☐ | 10.000 | 9.659 | 89413.80 | 0.1082 | P | 2.9 |
| 5 | ☐ | 100.000 | 93.892 | 879775.77 | 1.0499 | P | 3.1 |
| 6 | ☐ | 200.000 | 203.076 | 1859116.69 | 2.2705 | A | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0112 * x + 2.3910E-004
R = 0.9994
DL = 0.01221
BEC = 0.02139

Weight: <None>
Min Conc: <None>

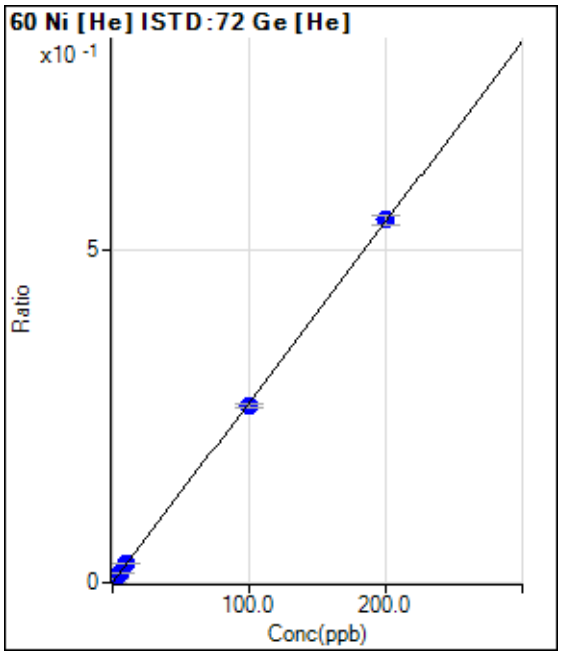
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.567 | 323.34 | 0.0001 | P | 33. |
| 2 | ☐ | 2.000 | 1.559 | 11323.63 | 0.0032 | P | 2.8 |
| 3 | ☐ | 5.000 | 4.714 | 27387.42 | 0.0077 | P | 9.8 |
| 4 | ☐ | 10.000 | 9.584 | 53023.58 | 0.0148 | P | 5.1 |
| 5 | ☐ | 100.000 | 103.354 | 519375.60 | 0.1503 | P | 3.8 |
| 6 | ☐ | 200.000 | 198.355 | 1053570.63 | 0.2876 | P | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 9.1050E-004
R = 0.9998
DL = 0.06411
BEC = 0.63

Weight: <None>
Min Conc: <None>

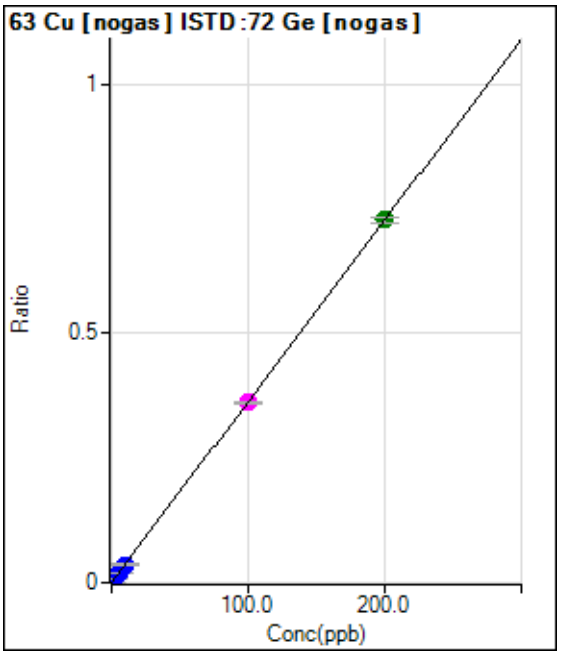



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.161 | 136.67 | 0.0002 | P | 41. |
| 2 | ☐ | 2.000 | 2.157 | 4694.00 | 0.0056 | P | 4.9 |
| 3 | ☐ | 5.000 | 5.286 | 11683.86 | 0.0141 | P | 2.0 |
| 4 | ☐ | 10.000 | 10.568 | 23505.24 | 0.0285 | P | 5.5 |
| 5 | ☐ | 100.000 | 97.733 | 222439.34 | 0.2654 | P | 2.3 |
| 6 | ☐ | 200.000 | 201.096 | 447375.24 | 0.5465 | P | 2.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0027 * x - 2.7316E-004
R = 0.9999
DL = 0.07395
BEC = -0.1005

Weight: <None>
Min Conc: <None>

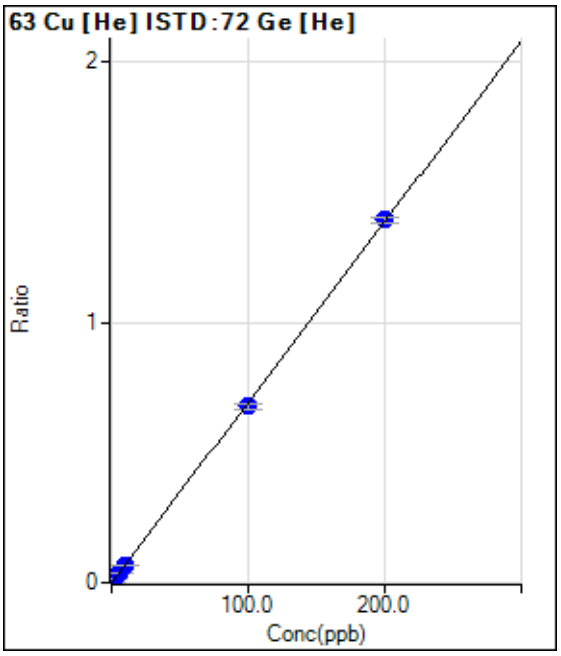
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1536.76 | 0.0004 | P | 7.2 |
| 2 | ☐ | 2.000 | 1.980 | 27267.28 | 0.0076 | P | 6.3 |
| 3 | ☐ | 5.000 | 5.096 | 67119.88 | 0.0189 | P | 9.8 |
| 4 | ☐ | 10.000 | 9.859 | 130176.97 | 0.0362 | P | 2.6 |
| 5 | ☐ | 100.000 | 99.382 | 1249207.25 | 0.3612 | M | 1.4 |
| 6 | ☐ | 200.000 | 200.314 | 2665951.31 | 0.7276 | A | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0036 * x + 4.3227E-004
R = 1.0000
DL = 0.02555
BEC = 0.1191

Weight: <None>
Min Conc: <None>

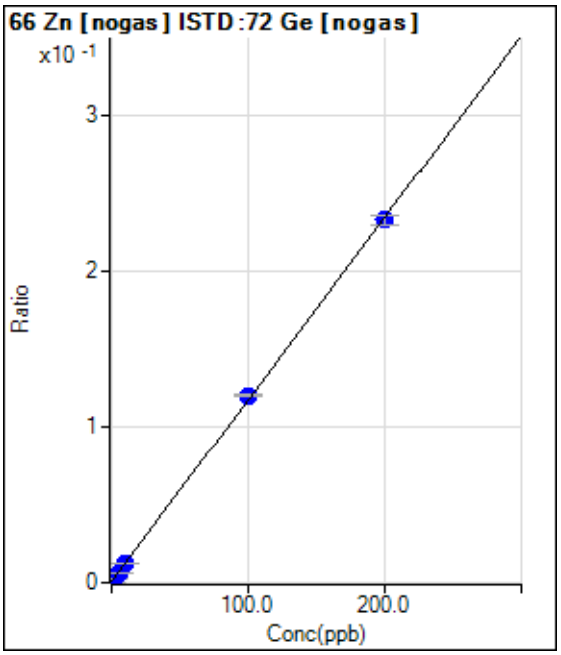



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.354 | 663.35 | 0.0008 | P | 6.9 |
| 2 | ☐ | 2.000 | 2.253 | 11717.23 | 0.0140 | P | 2.5 |
| 3 | ☐ | 5.000 | 5.415 | 29744.31 | 0.0359 | P | 1.2 |
| 4 | ☐ | 10.000 | 10.145 | 56751.49 | 0.0687 | P | 1.6 |
| 5 | ☐ | 100.000 | 97.706 | 566330.52 | 0.6758 | P | 2.3 |
| 6 | ☐ | 200.000 | 201.127 | 1140693.89 | 1.3930 | P | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0069 * x - 0.0017
R = 0.9999
DL = 0.02375
BEC = -0.24

Weight: <None>
Min Conc: <None>

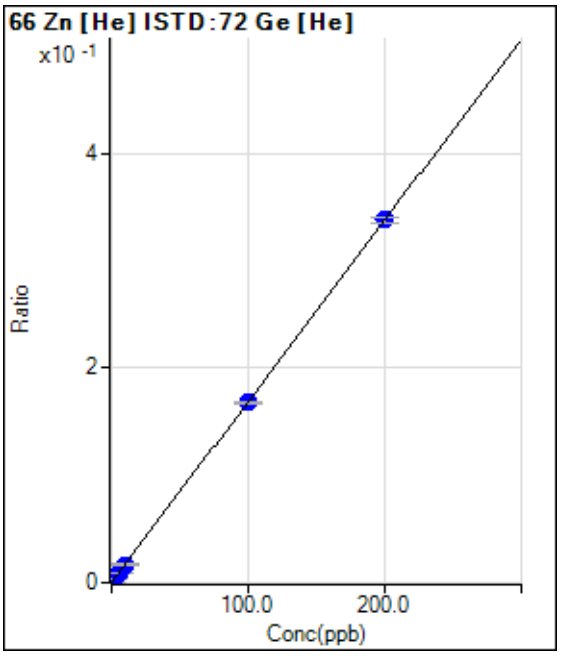
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.358 | 940.04 | 0.0003 | P | 11. |
| 2 | ☐ | 2.000 | 1.539 | 8885.64 | 0.0025 | P | 2.6 |
| 3 | ☐ | 5.000 | 4.957 | 22994.75 | 0.0065 | P | 6.3 |
| 4 | ☐ | 10.000 | 9.742 | 43381.86 | 0.0121 | P | 1.5 |
| 5 | ☐ | 100.000 | 102.201 | 415264.80 | 0.1201 | P | 1.2 |
| 6 | ☐ | 200.000 | 198.918 | 853679.49 | 0.2331 | P | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0012 * x + 6.8307E-004
R = 0.9999
DL = 0.07476
BEC = 0.5847

Weight: <None>
Min Conc: <None>

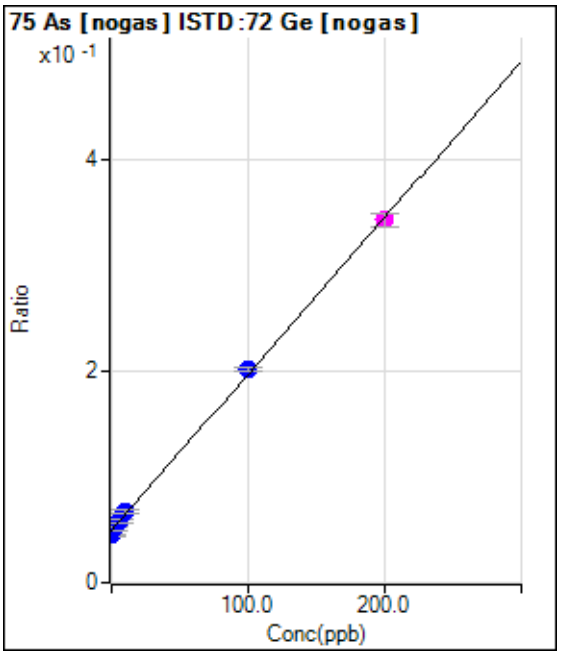



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.098 | 293.34 | 0.0004 | P | 8.1 |
| 2 | ☐ | 2.000 | 2.070 | 3083.65 | 0.0037 | P | 8.9 |
| 3 | ☐ | 5.000 | 5.272 | 7518.32 | 0.0091 | P | 0.8 |
| 4 | ☐ | 10.000 | 9.888 | 13932.20 | 0.0169 | P | 5.0 |
| 5 | ☐ | 100.000 | 99.347 | 140491.93 | 0.1676 | P | 1.7 |
| 6 | ☐ | 200.000 | 200.325 | 276667.38 | 0.3379 | P | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x + 1.8448E-004
R = 1.0000
DL = 0.0504
BEC = 0.1094

Weight: <None>
Min Conc: <None>

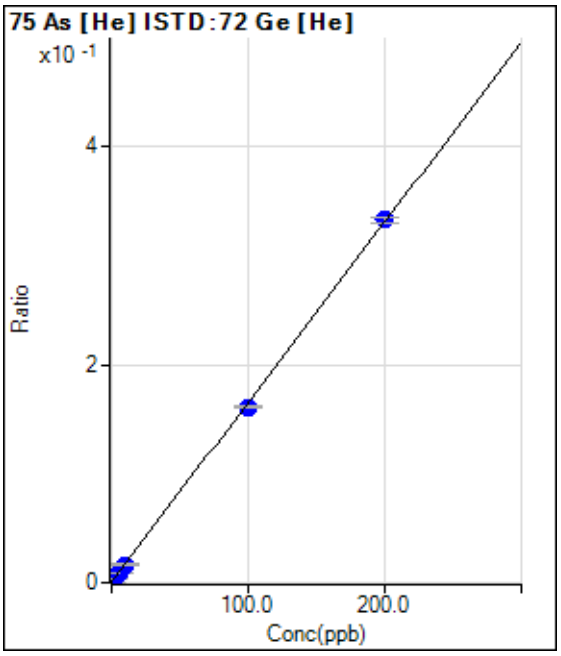
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -2.979 | 160545.89 | 0.0452 | P | 3.6 |
| 2 | ☐ | 2.000 | 0.732 | 181430.39 | 0.0507 | P | 5.6 |
| 3 | ☐ | 5.000 | 6.124 | 208319.85 | 0.0587 | P | 7.6 |
| 4 | ☐ | 10.000 | 11.865 | 241432.28 | 0.0672 | P | 3.9 |
| 5 | ☐ | 100.000 | 102.732 | 697353.22 | 0.2017 | P | 1.9 |
| 6 | ☐ | 200.000 | 198.525 | 1258438.00 | 0.3434 | M | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 0.0496
R = 0.9996
DL = 3.285
BEC = 33.53

Weight: <None>
Min Conc: <None>

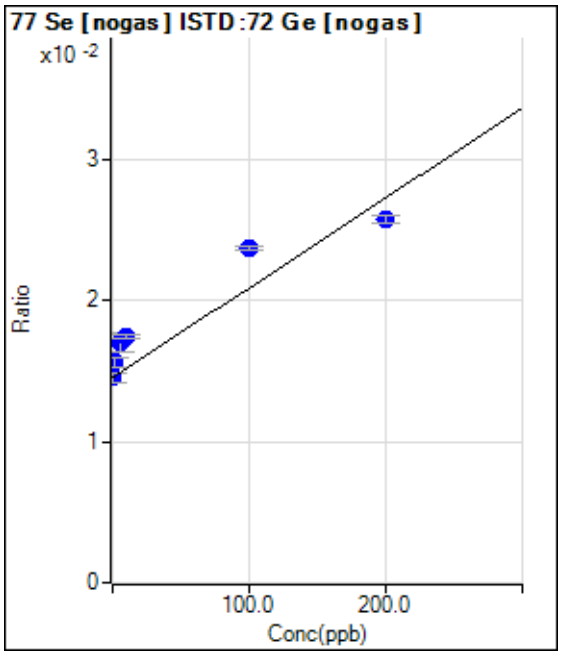



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 517.79 | 0.0006 | P | 4.1 |
| 2 | ☐ | 2.000 | 1.974 | 3250.30 | 0.0039 | P | 3.8 |
| 3 | ☐ | 5.000 | 4.759 | 7013.60 | 0.0085 | P | 1.1 |
| 4 | ☐ | 10.000 | 9.753 | 13794.13 | 0.0167 | P | 1.7 |
| 5 | ☐ | 100.000 | 97.310 | 134927.85 | 0.1610 | P | 1.5 |
| 6 | ☐ | 200.000 | 201.364 | 272270.03 | 0.3325 | P | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0016 * x + 6.1815E-004
R = 0.9999
DL = 0.0466
BEC = 0.375

Weight: <None>
Min Conc: <None>

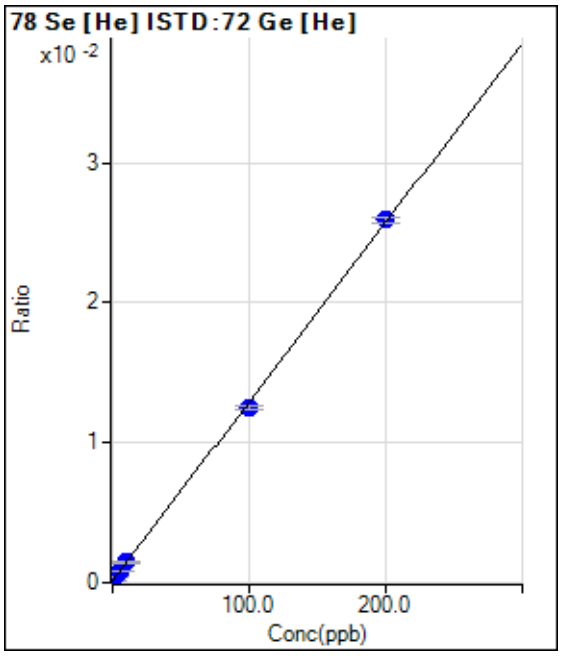
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 51536.35 | 0.0145 | P | 4.4 |
| 2 | ☐ | 2.000 | 17.552 | 55932.62 | 0.0156 | P | 4.5 |
| 3 | ☐ | 5.000 | 40.226 | 60607.48 | 0.0171 | P | 8.1 |
| 4 | ☐ | 10.000 | 45.725 | 62674.42 | 0.0174 | P | 1.1 |
| 5 | ☐ | 100.000 | 143.713 | 81930.11 | 0.0237 | P | 1.3 |
| 6 | ☐ | 200.000 | 175.321 | 94138.40 | 0.0257 | P | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.3804E-005 * x + 0.0145
R = 0.9502
DL = 30.25
BEC = 227.5

Weight: <None>
Min Conc: <None>

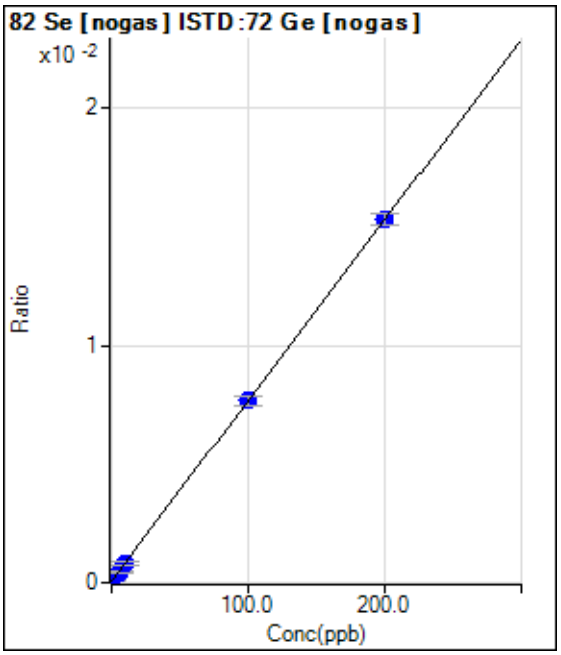



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.465 | 160.67 | 0.0002 | P | 11. |
| 2 | ☐ | 2.000 | 2.298 | 358.00 | 0.0004 | P | 7.1 |
| 3 | ☐ | 5.000 | 5.553 | 698.68 | 0.0008 | P | 5.4 |
| 4 | ☐ | 10.000 | 10.265 | 1194.71 | 0.0014 | P | 2.0 |
| 5 | ☐ | 100.000 | 96.897 | 10495.03 | 0.0125 | P | 2.7 |
| 6 | ☐ | 200.000 | 201.522 | 21213.01 | 0.0259 | P | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.2789E-004 * x + 1.3247E-004
R = 0.9998
DL = 0.5215
BEC = 1.036

Weight: <None>
Min Conc: <None>

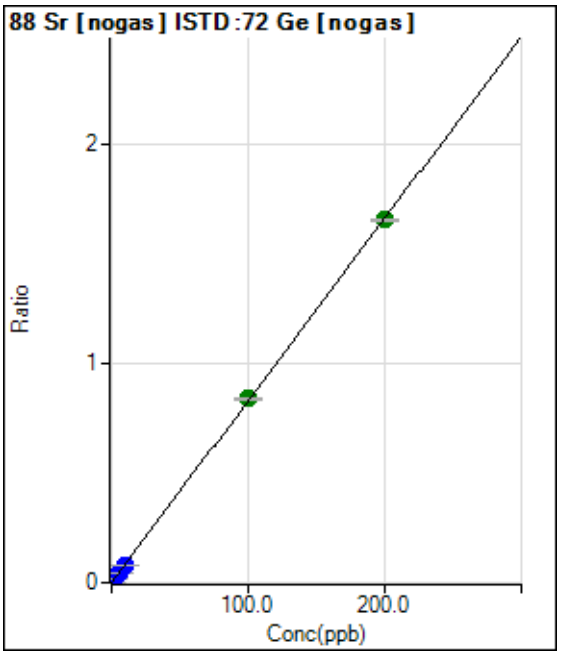
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 233.34 | 0.0001 | P | 31. |
| 2 | ☐ | 2.000 | 1.895 | 753.36 | 0.0002 | P | 4.8 |
| 3 | ☐ | 5.000 | 4.759 | 1516.75 | 0.0004 | P | 10. |
| 4 | ☐ | 10.000 | 9.753 | 2903.61 | 0.0008 | P | 12. |
| 5 | ☐ | 100.000 | 99.844 | 26466.36 | 0.0077 | P | 5.1 |
| 6 | ☐ | 200.000 | 200.097 | 55986.64 | 0.0153 | P | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 7.6063E-005 * x + 6.5945E-005
R = 1.0000
DL = 0.8149
BEC = 0.867

Weight: <None>
Min Conc: <None>

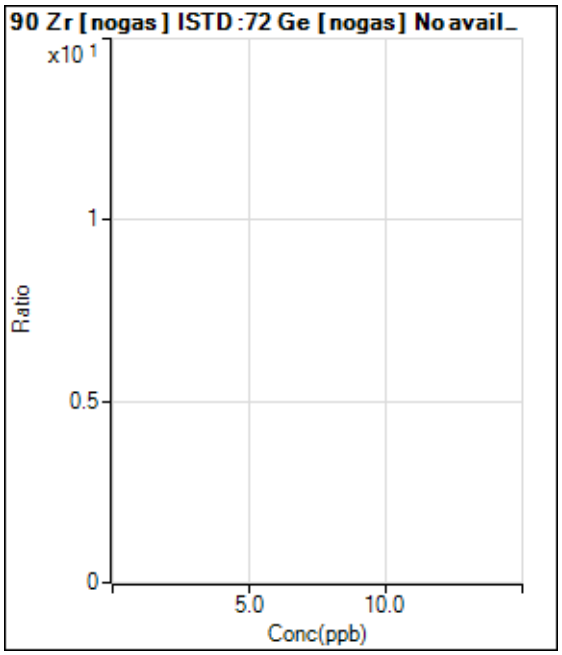



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1203.39 | 0.0003 | P | 12. |
| 2 | ☐ | 2.000 | 1.967 | 59542.57 | 0.0166 | P | 3.6 |
| 3 | ☐ | 5.000 | 4.960 | 147098.93 | 0.0414 | P | 7.5 |
| 4 | ☐ | 10.000 | 9.678 | 289603.17 | 0.0805 | P | 3.4 |
| 5 | ☐ | 100.000 | 101.327 | 2905616.62 | 0.8401 | A | 1.0 |
| 6 | ☐ | 200.000 | 199.354 | 6055608.04 | 1.6525 | A | 0.5 |
| 7 | ☐ | 1.000 | | | | | |

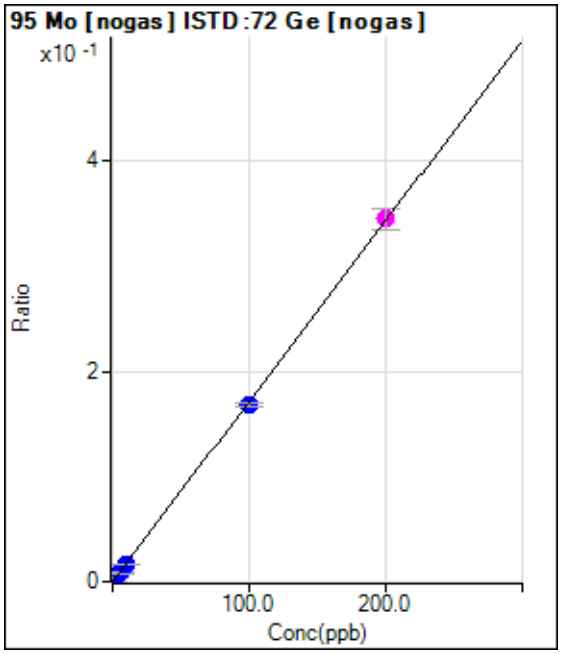
y = 0.0083 * x + 3.3852E-004
R = 1.0000
DL = 0.0149
BEC = 0.04085

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

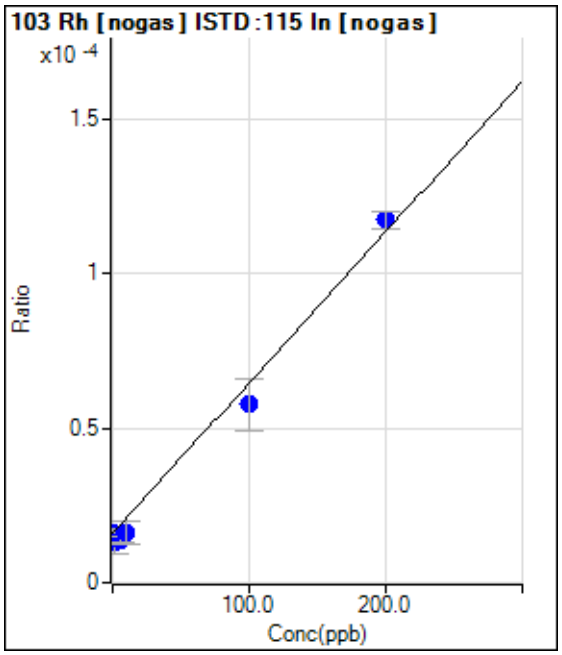



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 366.68 | 0.0001 | P | 11. |
| 2 | ☐ | 2.000 | 1.897 | 12030.90 | 0.0034 | P | 1.0 |
| 3 | ☐ | 5.000 | 4.829 | 29718.45 | 0.0084 | P | 12. |
| 4 | ☐ | 10.000 | 9.496 | 58958.25 | 0.0164 | P | 1.4 |
| 5 | ☐ | 100.000 | 97.915 | 581340.93 | 0.1681 | P | 2.3 |
| 6 | ☐ | 200.000 | 201.073 | 1263968.29 | 0.3452 | M | 5.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x + 1.0310E-004
R = 0.9999
DL = 0.02143
BEC = 0.06007

Weight: <None>
Min Conc: <None>

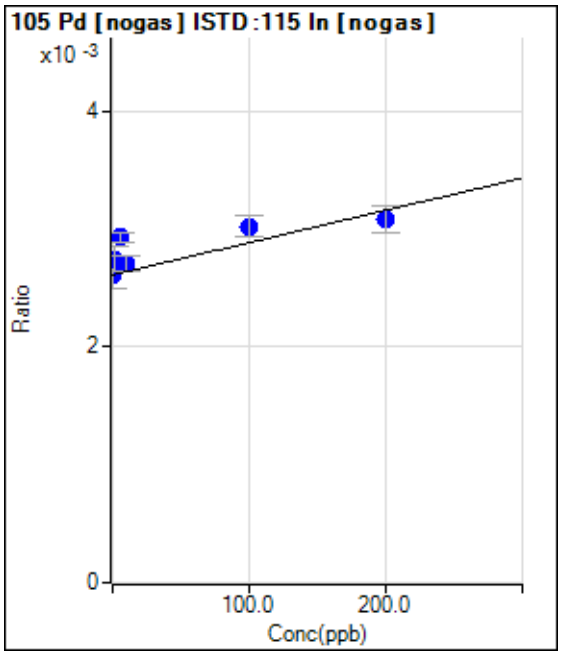
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 50.00 | 0.0000 | P | 18. |
| 2 | ☐ | 2.000 | -6.375 | 40.00 | 0.0000 | P | 53. |
| 3 | ☐ | 5.000 | -4.110 | 43.33 | 0.0000 | P | 16. |
| 4 | ☐ | 10.000 | 0.625 | 50.00 | 0.0000 | P | 44. |
| 5 | ☐ | 100.000 | 85.526 | 166.67 | 0.0001 | P | 29. |
| 6 | ☐ | 200.000 | 208.017 | 370.01 | 0.0001 | P | 4.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 4.8684E-007 * x + 1.5924E-005
R = 0.9968
DL = 18.05
BEC = 32.71

Weight: <None>
Min Conc: <None>

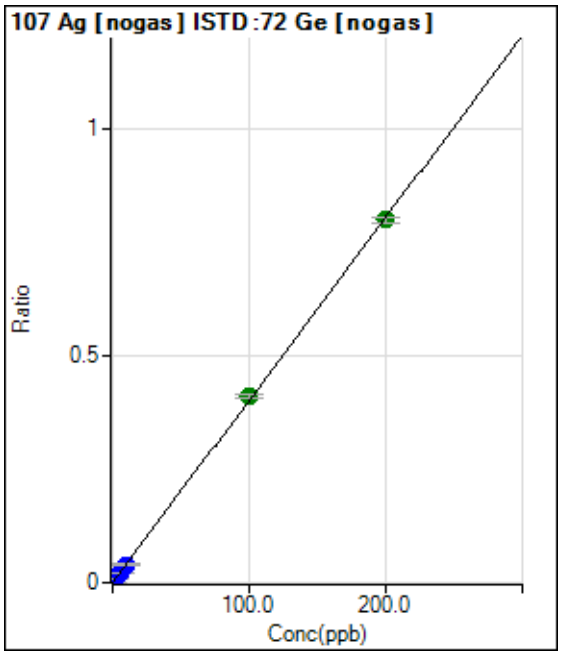



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 8185.39 | 0.0026 | P | 8.5 |
| 2 | ☐ | 2.000 | 49.327 | 8632.26 | 0.0027 | P | 7.7 |
| 3 | ☐ | 5.000 | 115.584 | 9175.86 | 0.0029 | P | 2.6 |
| 4 | ☐ | 10.000 | 34.068 | 8422.14 | 0.0027 | P | 4.8 |
| 5 | ☐ | 100.000 | 150.972 | 8842.37 | 0.0030 | P | 6.4 |
| 6 | ☐ | 200.000 | 170.073 | 9722.85 | 0.0031 | P | 7.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 2.7432E-006 * x + 0.0026
R = 0.8071
DL = 244
BEC = 952.3

Weight: <None>
Min Conc: <None>

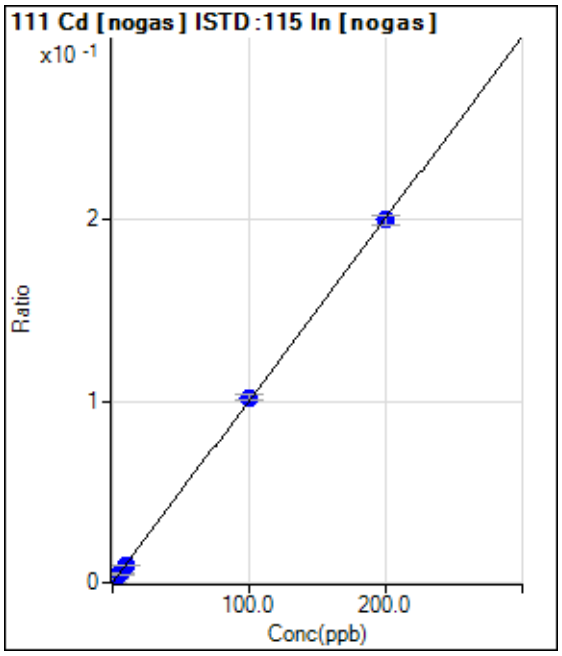
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 106.67 | 0.0000 | P | 26. |
| 2 | ☐ | 2.000 | 1.969 | 28470.00 | 0.0080 | P | 4.9 |
| 3 | ☐ | 5.000 | 5.007 | 71682.94 | 0.0202 | P | 7.7 |
| 4 | ☐ | 10.000 | 9.955 | 144161.09 | 0.0401 | P | 3.6 |
| 5 | ☐ | 100.000 | 102.200 | 1423334.30 | 0.4116 | A | 2.3 |
| 6 | ☐ | 200.000 | 198.903 | 2935946.62 | 0.8011 | A | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0040 * x + 3.0181E-005
R = 0.9999
DL = 0.005888
BEC = 0.007494

Weight: <None>
Min Conc: <None>

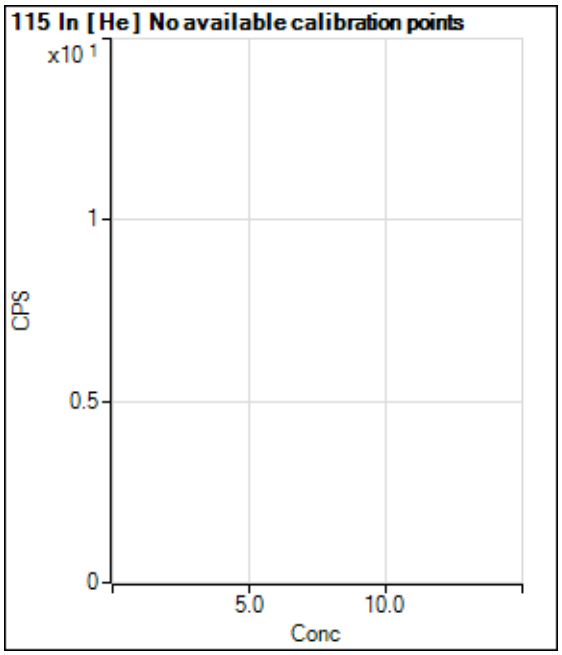



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 30.00 | 0.0000 | P | 34. |
| 2 | ☐ | 2.000 | 1.955 | 6194.56 | 0.0020 | P | 5.4 |
| 3 | ☐ | 5.000 | 4.899 | 15313.56 | 0.0049 | P | 12. |
| 4 | ☐ | 10.000 | 9.562 | 29909.14 | 0.0096 | P | 0.8 |
| 5 | ☐ | 100.000 | 101.672 | 298090.90 | 0.1020 | P | 3.6 |
| 6 | ☐ | 200.000 | 199.189 | 630632.96 | 0.1998 | P | 2.9 |
| 7 | ☐ | 1.000 | | | | | |

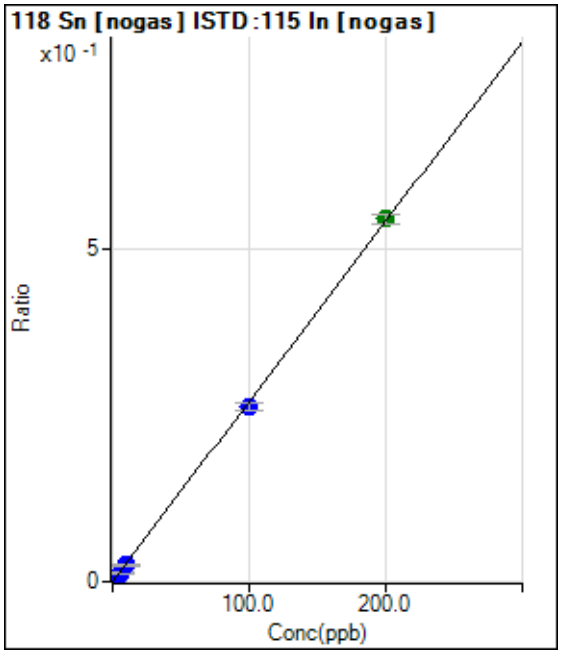
y = 0.0010 * x + 9.5819E-006
R = 0.9999
DL = 0.009776
BEC = 0.009553

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 971469.59 | | P | 0.4 |
| 2 | ☐ | | | 996597.28 | | P | 1.5 |
| 3 | ☐ | | | 978413.97 | | P | 1.3 |
| 4 | ☐ | | | 968391.47 | | P | 1.3 |
| 5 | ☐ | | | 972463.34 | | P | 1.3 |
| 6 | ☐ | | | 957539.97 | | P | 1.9 |
| 7 | ☐ | | | | | | |

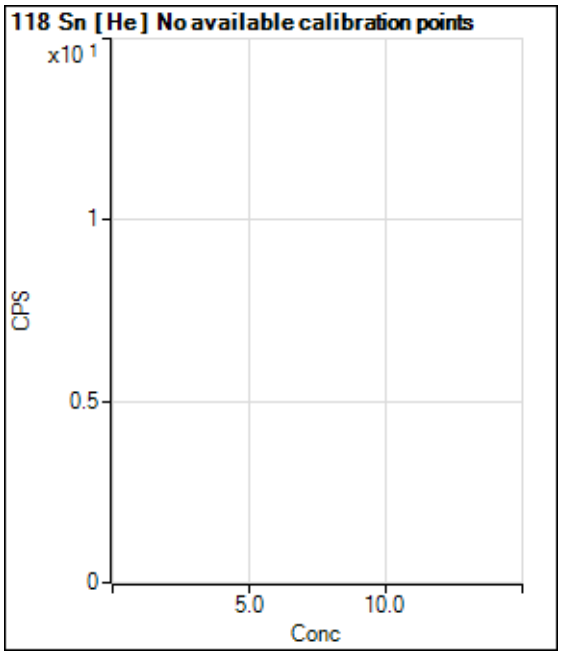



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1396.74 | 0.0004 | P | 4.8 |
| 2 | ☐ | 2.000 | 1.789 | 16651.44 | 0.0053 | P | 2.9 |
| 3 | ☐ | 5.000 | 4.591 | 40106.35 | 0.0129 | P | 10. |
| 4 | ☐ | 10.000 | 9.120 | 78295.66 | 0.0252 | P | 4.4 |
| 5 | ☐ | 100.000 | 96.994 | 769397.70 | 0.2633 | P | 4.3 |
| 6 | ☐ | 200.000 | 201.559 | 1726992.22 | 0.5467 | A | 2.7 |
| 7 | ☐ | 1.000 | | | | | |

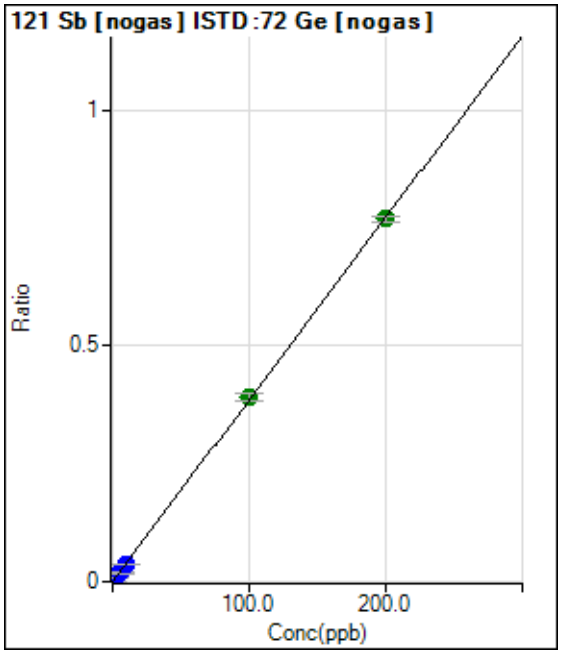
y = 0.0027 * x + 4.4587E-004
R = 0.9998
DL = 0.02353
BEC = 0.1645

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 463.35 | | P | 21. |
| 2 | ☐ | | | 6037.80 | | P | 1.6 |
| 3 | ☐ | | | 15483.77 | | P | 3.0 |
| 4 | ☐ | | | 29081.10 | | P | 2.2 |
| 5 | ☐ | | | 294483.25 | | P | 1.4 |
| 6 | ☐ | | | 595594.91 | | P | 0.5 |
| 7 | ☐ | | | | | | |

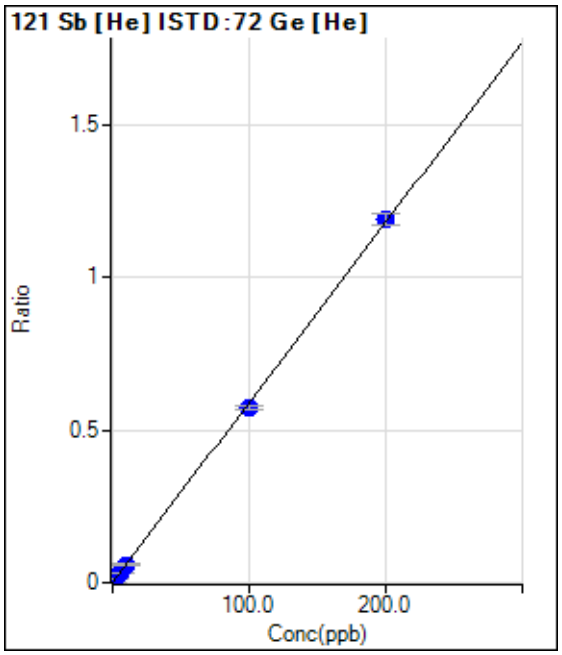



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 286.68 | 0.0001 | P | 4.7 |
| 2 | ☐ | 2.000 | 2.018 | 28126.33 | 0.0079 | P | 3.5 |
| 3 | ☐ | 5.000 | 4.909 | 67460.12 | 0.0190 | P | 7.6 |
| 4 | ☐ | 10.000 | 9.774 | 135630.07 | 0.0378 | P | 4.7 |
| 5 | ☐ | 100.000 | 101.191 | 1348371.80 | 0.3901 | A | 4.0 |
| 6 | ☐ | 200.000 | 199.418 | 2816753.71 | 0.7687 | A | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0039 * x + 8.0707E-005
R = 1.0000
DL = 0.002945
BEC = 0.02094

Weight: <None>
Min Conc: <None>

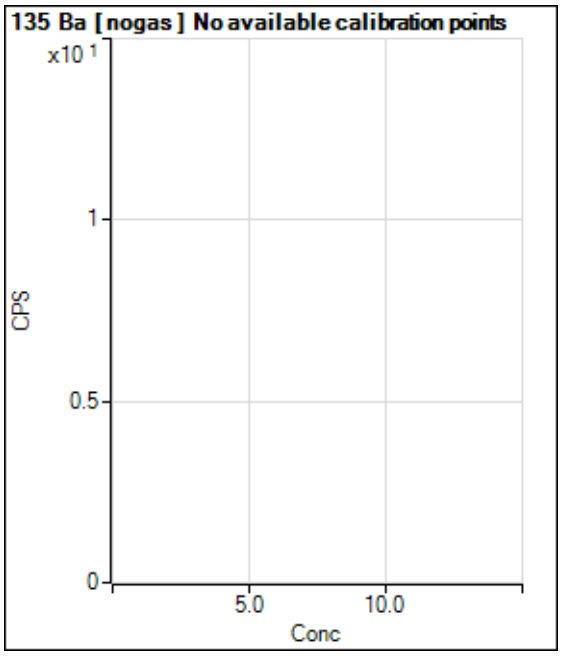
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 96.67 | 0.0001 | P | 47. |
| 2 | ☐ | 2.000 | 1.920 | 9612.77 | 0.0114 | P | 0.6 |
| 3 | ☐ | 5.000 | 4.924 | 24190.25 | 0.0292 | P | 1.4 |
| 4 | ☐ | 10.000 | 10.064 | 49185.62 | 0.0595 | P | 3.5 |
| 5 | ☐ | 100.000 | 96.999 | 479992.53 | 0.5728 | P | 2.3 |
| 6 | ☐ | 200.000 | 201.500 | 974034.72 | 1.1898 | P | 3.0 |
| 7 | ☐ | 1.000 | | | | | |

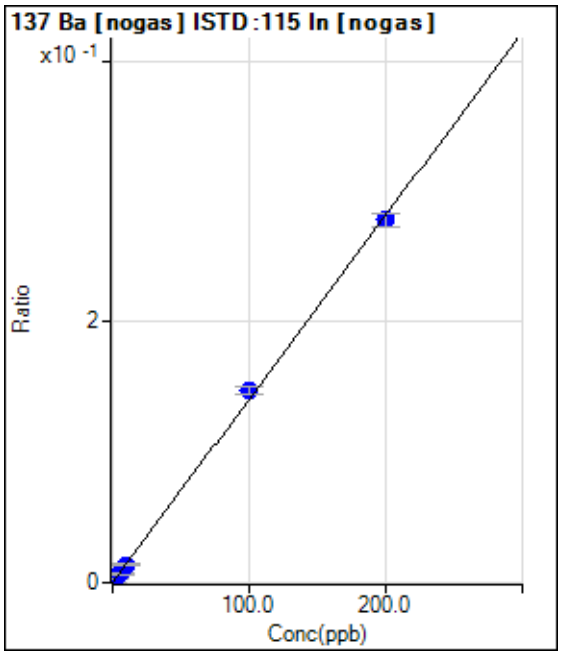
y = 0.0059 * x + 1.1517E-004
R = 0.9998
DL = 0.02749
BEC = 0.01951

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 133.33 | | P | 11. |
| 2 | ☐ | | | 5024.13 | | P | 6.5 |
| 3 | ☐ | | | 12828.29 | | P | 4.7 |
| 4 | ☐ | | | 24280.82 | | P | 4.1 |
| 5 | ☐ | | | 249783.18 | | P | 1.8 |
| 6 | ☐ | | | 511235.85 | | P | 0.8 |
| 7 | ☐ | | | | | | |

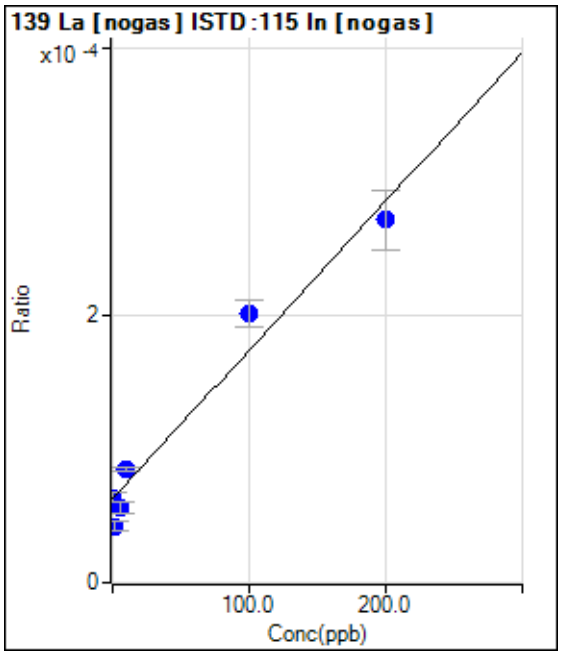
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 200.00 | 0.0001 | P | 31. |
| 2 | ☐ | 2.000 | 1.970 | 8915.78 | 0.0028 | P | 3.0 |
| 3 | ☐ | 5.000 | 4.773 | 21053.14 | 0.0068 | P | 12. |
| 4 | ☐ | 10.000 | 9.866 | 43341.16 | 0.0139 | P | 6.2 |
| 5 | ☐ | 100.000 | 104.606 | 429972.42 | 0.1471 | P | 4.0 |
| 6 | ☐ | 200.000 | 197.710 | 877489.42 | 0.2780 | P | 3.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 6.3940E-005
R = 0.9996
DL = 0.04272
BEC = 0.04548

Weight: <None>
Min Conc: <None>

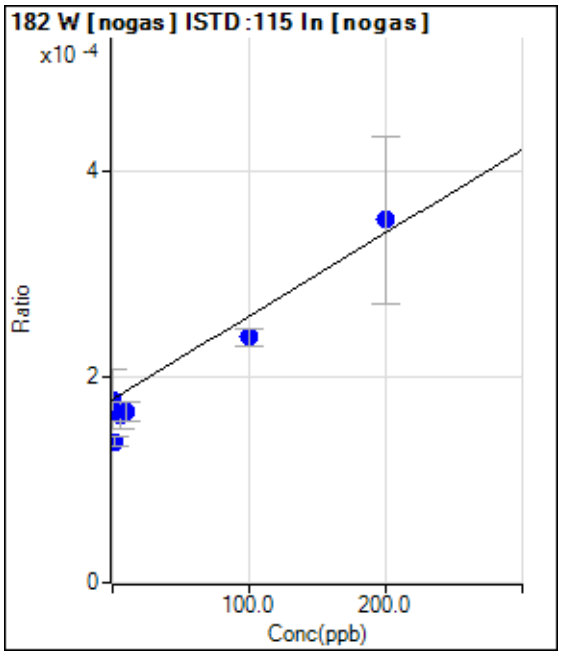



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 196.67 | 0.0001 | P | 13. |
| 2 | ☐ | 2.000 | -18.561 | 133.33 | 0.0000 | P | 18. |
| 3 | ☐ | 5.000 | -6.340 | 173.33 | 0.0001 | P | 15. |
| 4 | ☐ | 10.000 | 19.422 | 263.34 | 0.0001 | P | 3.0 |
| 5 | ☐ | 100.000 | 125.119 | 590.02 | 0.0002 | P | 10. |
| 6 | ☐ | 200.000 | 187.458 | 856.70 | 0.0003 | P | 16. |
| 7 | ☐ | 1.000 | | | | | |

y = 1.1149E-006 * x + 6.2864E-005
R = 0.9802
DL = 22.99
BEC = 56.39

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 560.06 | 0.0002 | P | 32. |
| 2 | ☐ | 2.000 | -50.727 | 433.34 | 0.0001 | P | 7.4 |
| 3 | ☐ | 5.000 | -19.118 | 516.68 | 0.0002 | P | 16. |
| 4 | ☐ | 10.000 | -15.695 | 516.68 | 0.0002 | P | 11. |
| 5 | ☐ | 100.000 | 74.191 | 696.69 | 0.0002 | P | 7.6 |
| 6 | ☐ | 200.000 | 215.320 | 1123.86 | 0.0004 | P | 46. |
| 7 | ☐ | 1.000 | | | | | |

y = 8.1069E-007 * x + 1.7857E-004

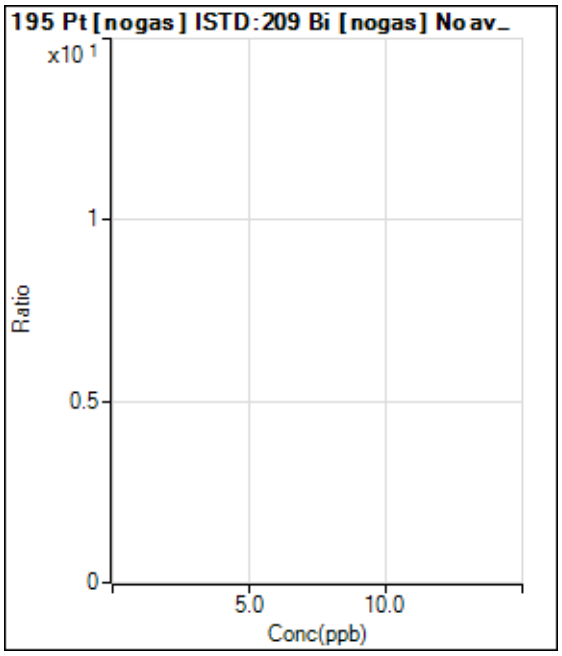
R = 0.9819

DL = 216.1

BEC = 220.3

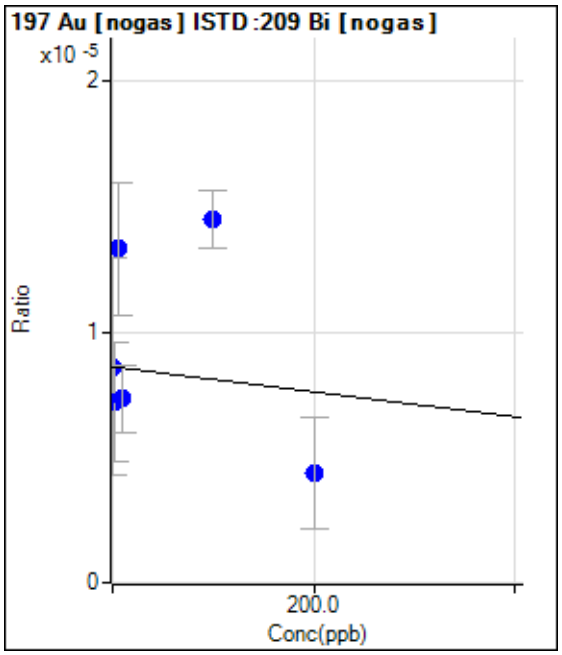
Weight: <None>

Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

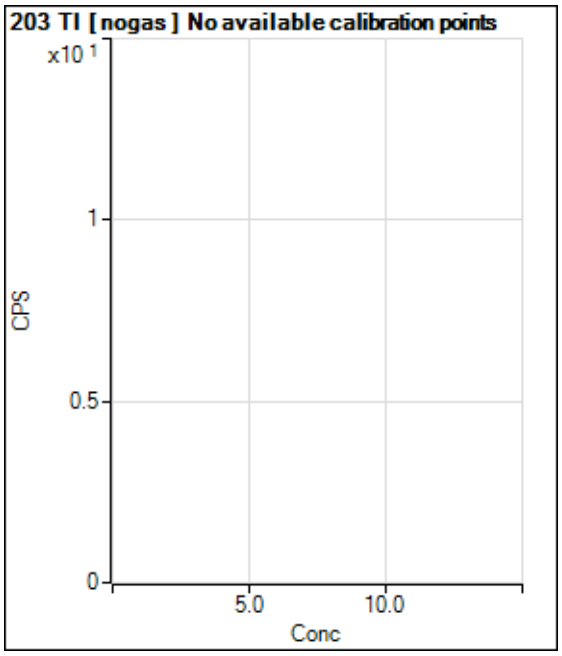
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 20.00 | 0.0000 | P | 100 |
| 2 | ☐ | 2.000 | 286.194 | 16.67 | 0.0000 | P | 66. |
| 3 | ☐ | 5.000 | -948.969 | 30.00 | 0.0000 | P | 39. |
| 4 | ☐ | 10.000 | 257.538 | 16.67 | 0.0000 | P | 36. |
| 5 | ☐ | 100.000 | -1176.891 | 33.33 | 0.0000 | P | 16. |
| 6 | ☐ | 200.000 | 847.076 | 10.00 | 0.0000 | P | 101 |
| 7 | ☐ | 1.000 | | | | | |

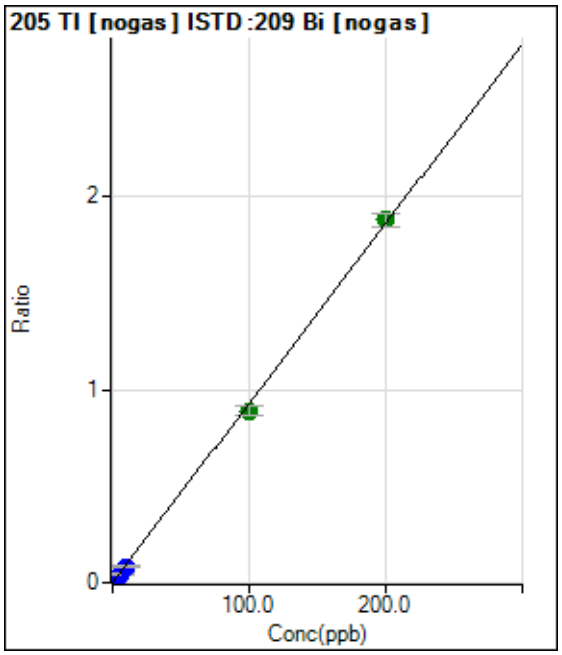
y = -4.9793E-009 * x + 8.6093E-006
R = -0.2783
DL = -5221
BEC = -1729

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 213.34 | | P | 29. |
| 2 | ☐ | | | 16331.70 | | P | 5.6 |
| 3 | ☐ | | | 40684.41 | | P | 5.7 |
| 4 | ☐ | | | 80267.70 | | P | 0.2 |
| 5 | ☐ | | | 819156.65 | | P | 1.2 |
| 6 | ☐ | | | 1844820.39 | | A | 2.8 |
| 7 | ☐ | | | | | | |

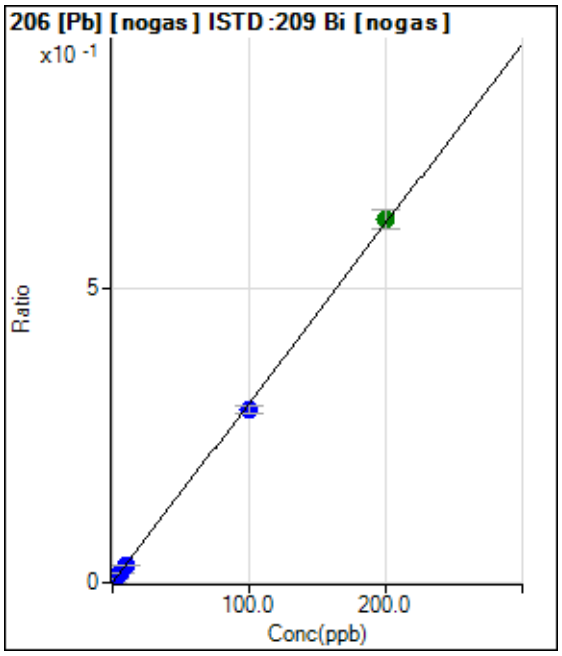
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 380.01 | 0.0002 | P | 38. |
| 2 | ☐ | 2.000 | 1.830 | 39274.31 | 0.0172 | P | 7.1 |
| 3 | ☐ | 5.000 | 4.641 | 98185.70 | 0.0433 | P | 12. |
| 4 | ☐ | 10.000 | 9.085 | 193554.71 | 0.0846 | P | 6.1 |
| 5 | ☐ | 100.000 | 95.704 | 2045124.29 | 0.8893 | A | 5.5 |
| 6 | ☐ | 200.000 | 202.204 | 4279644.73 | 1.8787 | A | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0093 * x + 1.6261E-004
R = 0.9997
DL = 0.02021
BEC = 0.0175

Weight: <None>
Min Conc: <None>

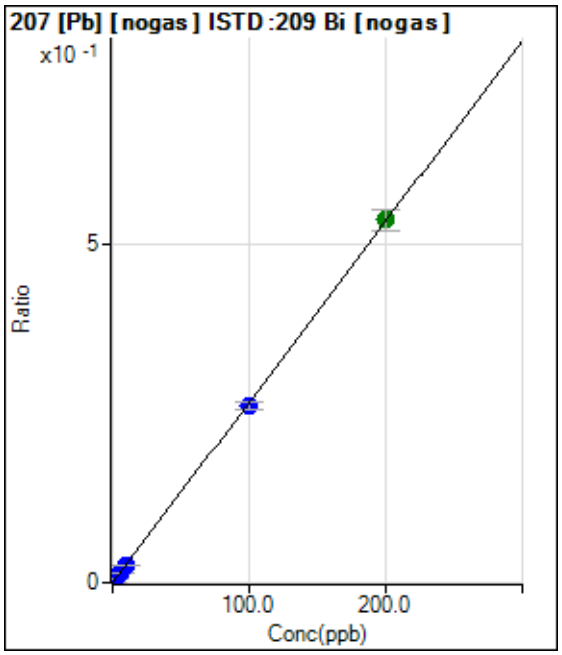



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 336.68 | 0.0001 | P | 3.5 |
| 2 | ☐ | 2.000 | 1.988 | 14209.77 | 0.0062 | P | 6.1 |
| 3 | ☐ | 5.000 | 5.119 | 35776.53 | 0.0158 | P | 10. |
| 4 | ☐ | 10.000 | 9.725 | 68239.95 | 0.0298 | P | 5.3 |
| 5 | ☐ | 100.000 | 95.882 | 672926.50 | 0.2926 | P | 4.4 |
| 6 | ☐ | 200.000 | 202.070 | 1403975.03 | 0.6165 | A | 5.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0031 * x + 1.4405E-004
R = 0.9997
DL = 0.004993
BEC = 0.04723

Weight: <None>
Min Conc: <None>

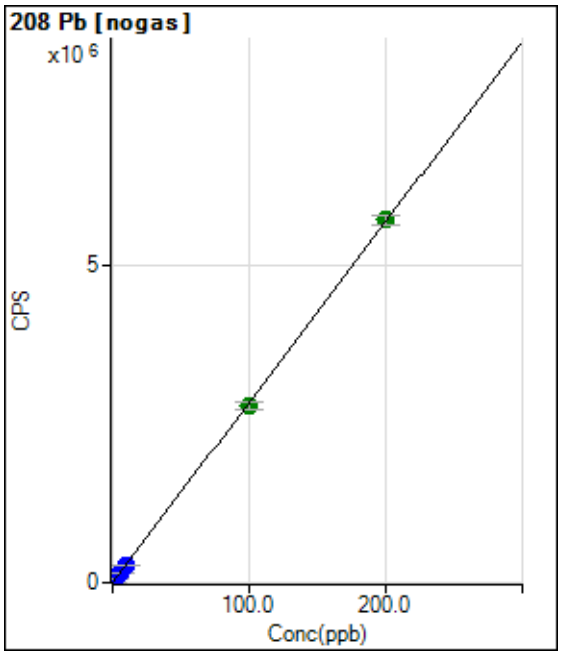
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 266.67 | 0.0001 | P | 12. |
| 2 | ☐ | 2.000 | 1.941 | 12074.65 | 0.0053 | P | 5.6 |
| 3 | ☐ | 5.000 | 5.059 | 30829.73 | 0.0136 | P | 8.9 |
| 4 | ☐ | 10.000 | 9.759 | 59689.44 | 0.0261 | P | 3.6 |
| 5 | ☐ | 100.000 | 98.015 | 599558.95 | 0.2607 | P | 3.9 |
| 6 | ☐ | 200.000 | 201.004 | 1218131.49 | 0.5345 | A | 5.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0027 * x + 1.1419E-004
R = 0.9999
DL = 0.01632
BEC = 0.04295

Weight: <None>
Min Conc: <None>

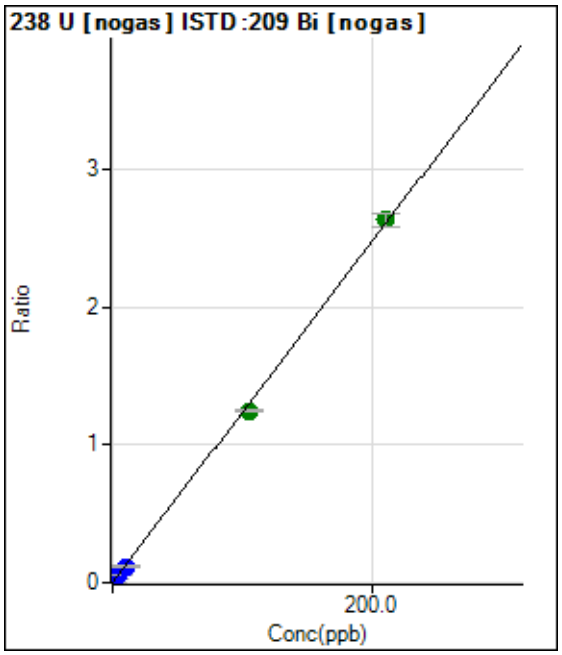



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1156.70 | | P | 4.9 |
| 2 | ☐ | 2.000 | 1.929 | 55911.63 | | P | 1.7 |
| 3 | ☐ | 5.000 | 4.909 | 140517.76 | | P | 2.2 |
| 4 | ☐ | 10.000 | 9.642 | 274873.43 | | P | 0.8 |
| 5 | ☐ | 100.000 | 97.879 | 2779809.90 | | A | 3.6 |
| 6 | ☐ | 200.000 | 201.081 | 5709558.25 | | A | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 28388.5398 * x + 1156.7000
R = 0.9999
DL = 0.006009
BEC = 0.04075

Weight: <None>
Min Conc: <None>

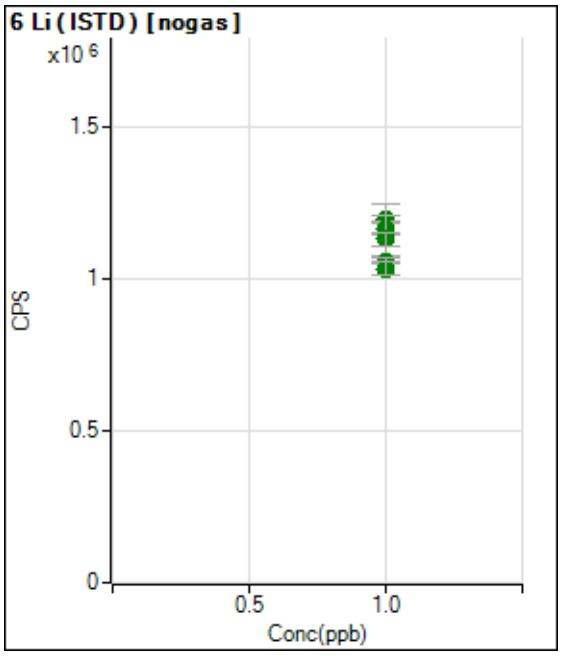
Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 113.33 | 0.0000 | P | 33. |
| 2 | ☐ | 2.000 | 1.908 | 54252.90 | 0.0237 | P | 4.5 |
| 3 | ☐ | 5.000 | 4.681 | 131925.35 | 0.0581 | P | 10. |
| 4 | ☐ | 10.000 | 9.479 | 269102.50 | 0.1175 | P | 4.8 |
| 5 | ☐ | 105.000 | 100.536 | 2866775.68 | 1.2461 | A | 1.4 |
| 6 | ☐ | 210.000 | 212.265 | 5994404.08 | 2.6309 | A | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

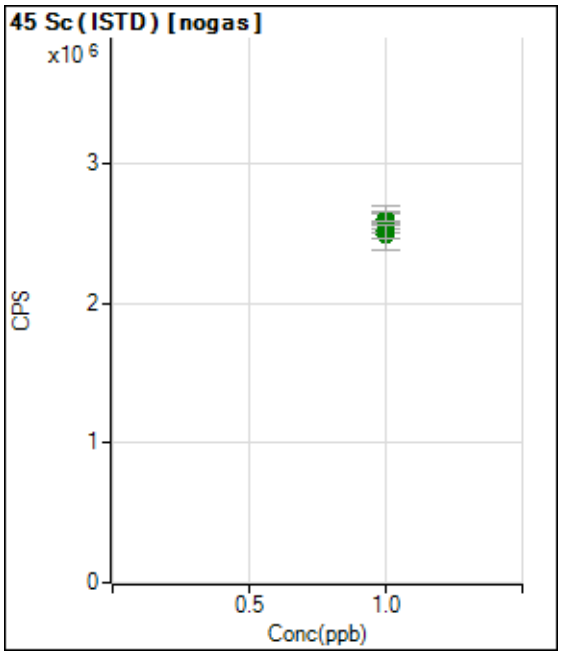
y = 0.0124 * x + 4.8561E-005
R = 0.9997
DL = 0.003965
BEC = 0.003918

Weight: <None>
Min Conc: <None>

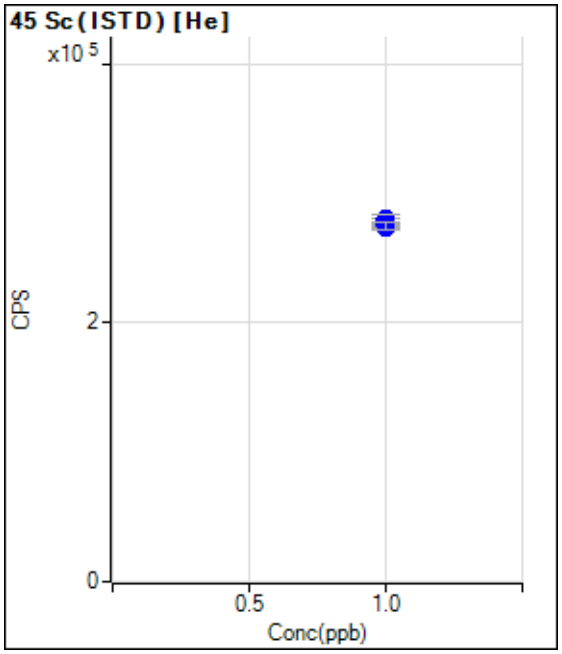



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1195275.88 | | A | 2.0 |
| 2 | ☐ | 1.000 | | 1168683.46 | | A | 3.7 |
| 3 | ☐ | 1.000 | | 1163476.39 | | A | 14. |
| 4 | ☐ | 1.000 | | 1132234.16 | | A | 3.7 |
| 5 | ☐ | 1.000 | | 1060926.36 | | A | 1.5 |
| 6 | ☐ | 1.000 | | 1034178.70 | | A | 4.0 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 237_ICV.d

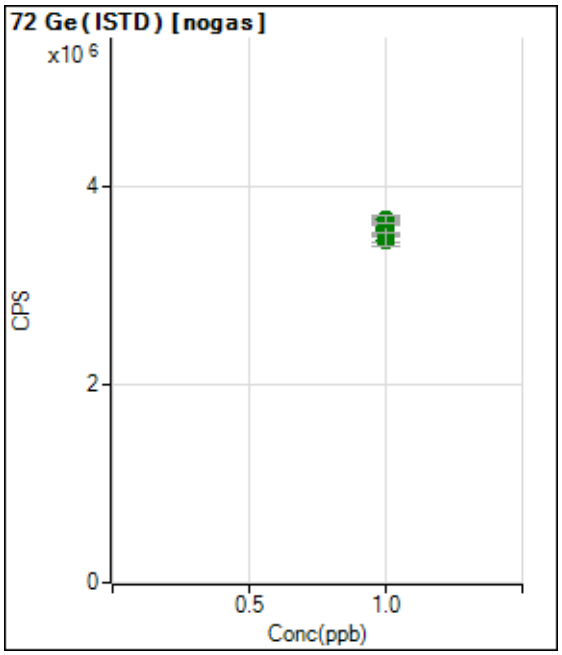



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2566071.68 | | A | 0.7 |
| 2 | ☐ | 1.000 | | 2589550.74 | | A | 4.1 |
| 3 | ☐ | 1.000 | | 2599959.86 | | A | 7.4 |
| 4 | ☐ | 1.000 | | 2596425.69 | | A | 4.8 |
| 5 | ☐ | 1.000 | | 2492914.81 | | A | 8.3 |
| 6 | ☐ | 1.000 | | 2517040.22 | | A | 3.7 |
| 7 | ☐ | 1.000 | | | | | |

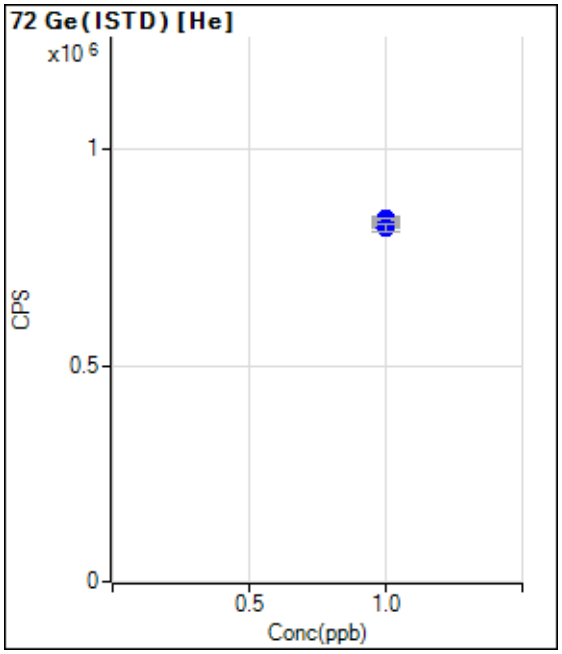



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 279368.62 | | P | 1.3 |
| 2 | ☐ | 1.000 | | 280028.35 | | P | 2.6 |
| 3 | ☐ | 1.000 | | 275242.97 | | P | 1.8 |
| 4 | ☐ | 1.000 | | 272484.55 | | P | 0.7 |
| 5 | ☐ | 1.000 | | 276038.34 | | P | 1.1 |
| 6 | ☐ | 1.000 | | 274476.28 | | P | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 237_ICV.d

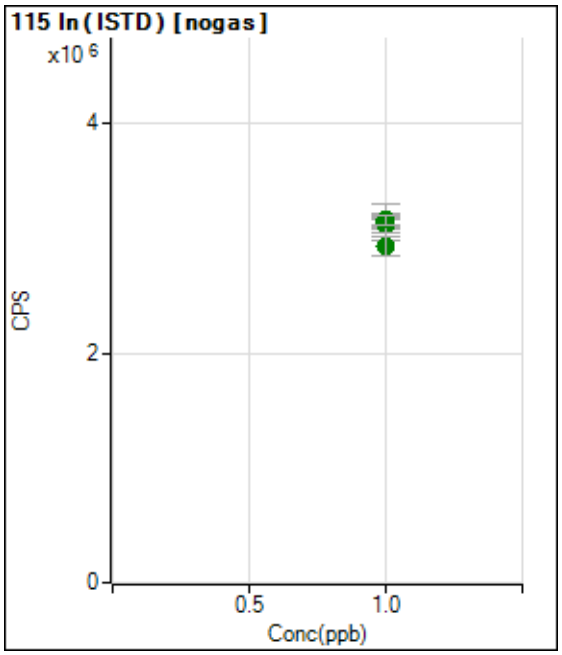



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 3552236.82 | | A | 2.9 |
| 2 | ☐ | 1.000 | | 3581534.84 | | A | 4.0 |
| 3 | ☐ | 1.000 | | 3561727.86 | | A | 6.9 |
| 4 | ☐ | 1.000 | | 3596075.88 | | A | 3.7 |
| 5 | ☐ | 1.000 | | 3459543.90 | | A | 4.0 |
| 6 | ☐ | 1.000 | | 3664189.63 | | A | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

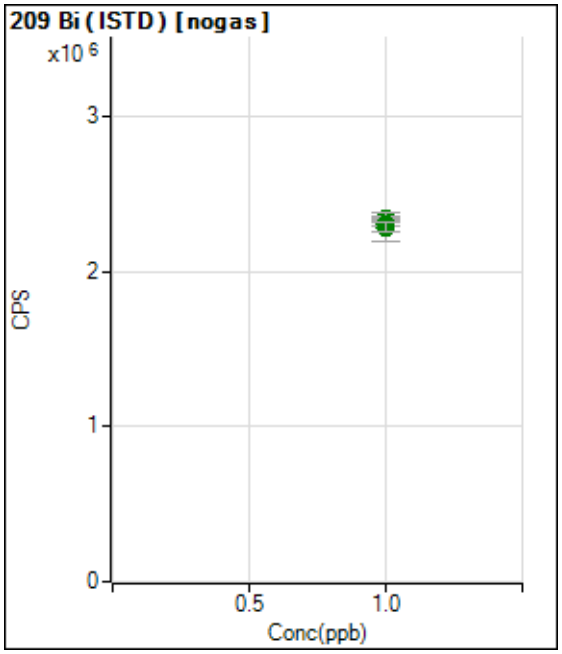



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 837497.54 | | P | 1.0 |
| 2 | ☐ | 1.000 | | 839654.65 | | P | 0.9 |
| 3 | ☐ | 1.000 | | 828863.79 | | P | 1.3 |
| 4 | ☐ | 1.000 | | 826445.74 | | P | 1.7 |
| 5 | ☐ | 1.000 | | 838051.13 | | P | 0.7 |
| 6 | ☐ | 1.000 | | 818977.98 | | P | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 237_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 3134247.07 | | A | 2.1 |
| 2 | ☐ | 1.000 | | 3148097.36 | | A | 4.4 |
| 3 | ☐ | 1.000 | | 3134209.51 | | A | 10. |
| 4 | ☐ | 1.000 | | 3115479.65 | | A | 4.6 |
| 5 | ☐ | 1.000 | | 2926930.47 | | A | 5.9 |
| 6 | ☐ | 1.000 | | 3158107.90 | | A | 2.9 |
| 7 | ☐ | 1.000 | | | | | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2336630.64 | | A | 1.1 |
| 2 | ☐ | 1.000 | | 2292528.61 | | A | 3.8 |
| 3 | ☐ | 1.000 | | 2284348.25 | | A | 8.3 |
| 4 | ☐ | 1.000 | | 2292360.33 | | A | 3.7 |
| 5 | ☐ | 1.000 | | 2300731.79 | | A | 1.3 |
| 6 | ☐ | 1.000 | | 2279274.91 | | A | 2.7 |
| 7 | ☐ | 1.000 | | | | | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 013CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:33:27-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 57 | 35.96 |
| Na | 23 | 1 | nogas | 417457 | 0.00 |
| Mg | 24 | 1 | nogas | 5902 | 0.09 |
| Al | 27 | 1 | nogas | 27888 | 0.01 |
| K | 39 | 1 | nogas | 7950834 | 0.00 |
| Ti | 47 | 1 | nogas | 293 | 1.78 |
| V | 51 | 1 | nogas | 2231667 | 0.00 |
| Cr | 52 | 1 | nogas | 123314 | 0.00 |
| Mn | 55 | 1 | nogas | 30719 | 0.00 |
| Co | 59 | 1 | nogas | 1063 | 0.97 |
| Ni | 60 | 1 | nogas | 450 | 1.31 |
| Cu | 63 | 1 | nogas | 2390 | 0.17 |
| Zn | 66 | 1 | nogas | 417 | 4.36 |
| As | 75 | 1 | nogas | 242661 | 0.00 |
| Sr | 88 | 1 | nogas | 810 | 0.40 |
| Ag | 107 | 1 | nogas | 313 | 6.14 |
| Cd | 111 | 1 | nogas | 17 | 207.85 |
| Sb | 121 | 1 | nogas | 220 | 2.07 |
| Tl | 205 | 1 | nogas | 950 | 2.93 |
| Pb | 208 | 1 | nogas | 5600 | 0.06 |
| [Pb] | 206 | 1 | nogas | 1443 | 0.32 |
| [Pb] | 207 | 1 | nogas | 1287 | 0.69 |
| Na | 23 | 2 | He | 54679 | 0.00 |
| Mg | 24 | 2 | He | 453 | 3.93 |
| Al | 27 | 2 | He | 643 | 1.33 |
| K | 39 | 2 | He | 191803 | 0.00 |
| Ca | 43 | 2 | He | 37 | 42.94 |
| Ca | 44 | 2 | He | 3250 | 0.24 |
| V | 51 | 2 | He | 27334 | 0.00 |
| Cr | 52 | 2 | He | 5294 | 0.09 |
| Mn | 55 | 2 | He | 2524 | 0.34 |
| Fe | 56 | 2 | He | 12284 | 0.04 |
| Co | 59 | 2 | He | 397 | 2.94 |
| Ni | 60 | 2 | He | 133 | 18.08 |
| Cu | 63 | 2 | He | 933 | 0.29 |
| Zn | 66 | 2 | He | 150 | 4.44 |
| As | 75 | 2 | He | 812 | 0.76 |
| Se | 78 | 2 | He | 142 | 6.50 |
| B | 11 | 1 | nogas | 30501 | 0.00 |
| Si | 28 | 1 | nogas | 1941965 | 0.00 |
| Ca | 43 | 1 | nogas | 1387 | 0.17 |
| Ca | 44 | 1 | nogas | 427470 | 0.00 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 3039832 | 0.00 |
| Se | 77 | 1 | nogas | 77722 | 0.00 |
| Se | 82 | 1 | nogas | 240 | 13.78 |
| Mo | 95 | 1 | nogas | 2347 | 0.31 |
| Sn | 118 | 1 | nogas | 900 | 2.16 |
| Ba | 137 | 1 | nogas | 50 | 120.00 |
| Sb | 121 | 2 | He | 93 | 35.07 |
| Li | 7 | 1 | nogas | 111278 | 0.00 |
| P | 31 | 1 | nogas | 81130 | 0.00 |
| La | 139 | 1 | nogas | 47 | 70.14 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1359891 | 4.87 |
| Ge | 72 | 1 | nogas | 3145209 | 1.18 |
| In | 115 | 1 | nogas | 2761164 | 3.66 |
| Bi | 209 | 1 | nogas | 2190177 | 1.88 |
| Ge | 72 | 2 | He | 785020 | 1.85 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 014CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:35:28-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 15760 | 0.02 |
| Na | 23 | 1 | nogas | 5379648 | 0.00 |
| Mg | 24 | 1 | nogas | 3271575 | 0.00 |
| Al | 27 | 1 | nogas | 67748 | 0.01 |
| K | 39 | 1 | nogas | 11954392 | 0.00 |
| Ti | 47 | 1 | nogas | 3840 | 0.11 |
| V | 51 | 1 | nogas | 2409766 | 0.00 |
| Cr | 52 | 1 | nogas | 169204 | 0.00 |
| Mn | 55 | 1 | nogas | 78209 | 0.00 |
| Co | 59 | 1 | nogas | 46295 | 0.00 |
| Ni | 60 | 1 | nogas | 10797 | 0.03 |
| Cu | 63 | 1 | nogas | 25732 | 0.01 |
| Zn | 66 | 1 | nogas | 8425 | 0.04 |
| As | 75 | 1 | nogas | 271445 | 0.00 |
| Sr | 88 | 1 | nogas | 53470 | 0.01 |
| Ag | 107 | 1 | nogas | 27058 | 0.01 |
| Cd | 111 | 1 | nogas | 5661 | 0.11 |
| Sb | 121 | 1 | nogas | 23726 | 0.01 |
| Tl | 205 | 1 | nogas | 36979 | 0.01 |
| Pb | 208 | 1 | nogas | 55658 | 0.00 |
| [Pb] | 206 | 1 | nogas | 13960 | 0.01 |
| [Pb] | 207 | 1 | nogas | 12171 | 0.02 |
| Na | 23 | 2 | He | 360618 | 0.00 |
| Mg | 24 | 2 | He | 169302 | 0.00 |
| Al | 27 | 2 | He | 1767 | 0.53 |
| K | 39 | 2 | He | 370065 | 0.00 |
| Ca | 43 | 2 | He | 510 | 3.15 |
| Ca | 44 | 2 | He | 11457 | 0.02 |
| V | 51 | 2 | He | 40946 | 0.00 |
| Cr | 52 | 2 | He | 17759 | 0.00 |
| Mn | 55 | 2 | He | 10697 | 0.04 |
| Fe | 56 | 2 | He | 1104283 | 0.00 |
| Co | 59 | 2 | He | 17575 | 0.03 |
| Ni | 60 | 2 | He | 4481 | 0.17 |
| Cu | 63 | 2 | He | 11984 | 0.03 |
| Zn | 66 | 2 | He | 2677 | 0.17 |
| As | 75 | 2 | He | 3525 | 0.14 |
| Se | 78 | 2 | He | 340 | 3.06 |
| B | 11 | 1 | nogas | 75501 | 0.00 |
| Si | 28 | 1 | nogas | 2979670 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 8302 | 0.07 |
| Ca | 44 | 1 | nogas | 521914 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 7507901 | 0.00 |
| Se | 77 | 1 | nogas | 84207 | 0.00 |
| Se | 82 | 1 | nogas | 690 | 3.18 |
| Mo | 95 | 1 | nogas | 12691 | 0.01 |
| Sn | 118 | 1 | nogas | 14713 | 0.03 |
| Ba | 137 | 1 | nogas | 7428 | 0.01 |
| Sb | 121 | 2 | He | 8886 | 0.03 |
| P | 31 | 1 | nogas | 82335 | 0.00 |
| La | 139 | 1 | nogas | 37 | 154.83 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1344971 | 6.02 | 1359891 | 98.90 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3213341 | 0.87 | 3145209 | 102.17 | 70 | 125 | |
| In | 115 | 1 | nogas | 2864141 | 4.82 | 2761164 | 103.73 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2096933 | 1.01 | 2190177 | 95.74 | 70 | 125 | |
| Ge | 72 | 2 | He | 800122 | 1.86 | 785020 | 101.92 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 015CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:37:27-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 38125 | 0.01 |
| Na | 23 | 1 | nogas | 12786651 | 0.00 |
| Mg | 24 | 1 | nogas | 7926348 | 0.00 |
| Al | 27 | 1 | nogas | 146244 | 0.00 |
| K | 39 | 1 | nogas | 17719817 | 0.00 |
| Ti | 47 | 1 | nogas | 8542 | 0.04 |
| V | 51 | 1 | nogas | 2567511 | 0.00 |
| Cr | 52 | 1 | nogas | 240004 | 0.00 |
| Mn | 55 | 1 | nogas | 162684 | 0.00 |
| Co | 59 | 1 | nogas | 112057 | 0.00 |
| Ni | 60 | 1 | nogas | 26109 | 0.01 |
| Cu | 63 | 1 | nogas | 62089 | 0.00 |
| Zn | 66 | 1 | nogas | 21159 | 0.02 |
| As | 75 | 1 | nogas | 297594 | 0.00 |
| Sr | 88 | 1 | nogas | 129199 | 0.00 |
| Ag | 107 | 1 | nogas | 64140 | 0.00 |
| Cd | 111 | 1 | nogas | 13619 | 0.02 |
| Sb | 121 | 1 | nogas | 59291 | 0.00 |
| Tl | 205 | 1 | nogas | 90890 | 0.00 |
| Pb | 208 | 1 | nogas | 128327 | 0.00 |
| [Pb] | 206 | 1 | nogas | 31471 | 0.01 |
| [Pb] | 207 | 1 | nogas | 28181 | 0.00 |
| Na | 23 | 2 | He | 816356 | 0.00 |
| Mg | 24 | 2 | He | 421391 | 0.00 |
| Al | 27 | 2 | He | 3350 | 0.27 |
| K | 39 | 2 | He | 627525 | 0.00 |
| Ca | 43 | 2 | He | 1203 | 1.16 |
| Ca | 44 | 2 | He | 24113 | 0.02 |
| V | 51 | 2 | He | 58867 | 0.00 |
| Cr | 52 | 2 | He | 37014 | 0.01 |
| Mn | 55 | 2 | He | 25187 | 0.01 |
| Fe | 56 | 2 | He | 2763312 | 0.00 |
| Co | 59 | 2 | He | 43214 | 0.00 |
| Ni | 60 | 2 | He | 10997 | 0.05 |
| Cu | 63 | 2 | He | 28603 | 0.01 |
| Zn | 66 | 2 | He | 6991 | 0.02 |
| As | 75 | 2 | He | 7310 | 0.02 |
| Se | 78 | 2 | He | 623 | 1.62 |
| B | 11 | 1 | nogas | 141991 | 0.00 |
| Si | 28 | 1 | nogas | 4555457 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 18640 | 0.01 |
| Ca | 44 | 1 | nogas | 681187 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 14164128 | 0.00 |
| Se | 77 | 1 | nogas | 88340 | 0.00 |
| Se | 82 | 1 | nogas | 1353 | 0.55 |
| Mo | 95 | 1 | nogas | 28617 | 0.01 |
| Sn | 118 | 1 | nogas | 35383 | 0.01 |
| Ba | 137 | 1 | nogas | 19078 | 0.02 |
| Sb | 121 | 2 | He | 22201 | 0.00 |
| P | 31 | 1 | nogas | 122879 | 0.00 |
| La | 139 | 1 | nogas | 133 | 22.73 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1379508 | 5.03 | 1359891 | 101.44 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3154458 | 0.48 | 3145209 | 100.29 | 70 | 125 | |
| In | 115 | 1 | nogas | 2819103 | 1.99 | 2761164 | 102.10 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2078205 | 4.29 | 2190177 | 94.89 | 70 | 125 | |
| Ge | 72 | 2 | He | 770398 | 2.31 | 785020 | 98.14 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 016CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:39:27-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 76314 | 0.00 |
| Na | 23 | 1 | nogas | 24675953 | 0.00 |
| Mg | 24 | 1 | nogas | 15657513 | 0.00 |
| Al | 27 | 1 | nogas | 238008 | 0.00 |
| K | 39 | 1 | nogas | 27236219 | 0.00 |
| Ti | 47 | 1 | nogas | 17422 | 0.01 |
| V | 51 | 1 | nogas | 2722696 | 0.00 |
| Cr | 52 | 1 | nogas | 345311 | 0.00 |
| Mn | 55 | 1 | nogas | 291039 | 0.00 |
| Co | 59 | 1 | nogas | 219440 | 0.00 |
| Ni | 60 | 1 | nogas | 50316 | 0.01 |
| Cu | 63 | 1 | nogas | 119632 | 0.00 |
| Zn | 66 | 1 | nogas | 39713 | 0.00 |
| As | 75 | 1 | nogas | 326589 | 0.00 |
| Sr | 88 | 1 | nogas | 253599 | 0.00 |
| Ag | 107 | 1 | nogas | 127993 | 0.00 |
| Cd | 111 | 1 | nogas | 27168 | 0.01 |
| Sb | 121 | 1 | nogas | 119295 | 0.00 |
| Tl | 205 | 1 | nogas | 177387 | 0.00 |
| Pb | 208 | 1 | nogas | 248511 | 0.00 |
| [Pb] | 206 | 1 | nogas | 61835 | 0.00 |
| [Pb] | 207 | 1 | nogas | 54920 | 0.01 |
| Na | 23 | 2 | He | 1592790 | 0.00 |
| Mg | 24 | 2 | He | 816216 | 0.00 |
| Al | 27 | 2 | He | 5758 | 0.13 |
| K | 39 | 2 | He | 1058041 | 0.00 |
| Ca | 43 | 2 | He | 2364 | 0.15 |
| Ca | 44 | 2 | He | 42709 | 0.01 |
| V | 51 | 2 | He | 86589 | 0.00 |
| Cr | 52 | 2 | He | 67102 | 0.00 |
| Mn | 55 | 2 | He | 48354 | 0.00 |
| Fe | 56 | 2 | He | 5485165 | 0.00 |
| Co | 59 | 2 | He | 84932 | 0.00 |
| Ni | 60 | 2 | He | 21439 | 0.01 |
| Cu | 63 | 2 | He | 53572 | 0.00 |
| Zn | 66 | 2 | He | 13001 | 0.03 |
| As | 75 | 2 | He | 13302 | 0.02 |
| Se | 78 | 2 | He | 1120 | 0.12 |
| B | 11 | 1 | nogas | 259170 | 0.00 |
| Si | 28 | 1 | nogas | 7109444 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 35377 | 0.01 |
| Ca | 44 | 1 | nogas | 938665 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 24575026 | 0.00 |
| Se | 77 | 1 | nogas | 92788 | 0.00 |
| Se | 82 | 1 | nogas | 2757 | 0.05 |
| Mo | 95 | 1 | nogas | 54099 | 0.01 |
| Sn | 118 | 1 | nogas | 70961 | 0.00 |
| Ba | 137 | 1 | nogas | 37117 | 0.01 |
| Sb | 121 | 2 | He | 44554 | 0.01 |
| P | 31 | 1 | nogas | 166448 | 0.00 |
| La | 139 | 1 | nogas | 120 | 13.89 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1345500 | 2.35 | 1359891 | 98.94 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3156957 | 1.79 | 3145209 | 100.37 | 70 | 125 | |
| In | 115 | 1 | nogas | 2761827 | 3.07 | 2761164 | 100.02 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2075764 | 0.81 | 2190177 | 94.78 | 70 | 125 | |
| Ge | 72 | 2 | He | 771369 | 2.21 | 785020 | 98.26 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 017CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:41:25-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 796336 | 0.00 |
| Na | 23 | 1 | nogas | 242452630 | 0.00 |
| Mg | 24 | 1 | nogas | 154983028 | 0.00 |
| Al | 27 | 1 | nogas | 1956520 | 0.00 |
| K | 39 | 1 | nogas | 197795388 | 0.00 |
| Ti | 47 | 1 | nogas | 169281 | 0.00 |
| V | 51 | 1 | nogas | 4705399 | 0.00 |
| Cr | 52 | 1 | nogas | 2257468 | 0.00 |
| Mn | 55 | 1 | nogas | 2632426 | 0.00 |
| Co | 59 | 1 | nogas | 2207039 | 0.00 |
| Ni | 60 | 1 | nogas | 489051 | 0.00 |
| Cu | 63 | 1 | nogas | 1151187 | 0.00 |
| Zn | 66 | 1 | nogas | 379268 | 0.00 |
| As | 75 | 1 | nogas | 749783 | 0.00 |
| Sr | 88 | 1 | nogas | 2563409 | 0.00 |
| Ag | 107 | 1 | nogas | 1297880 | 0.00 |
| Cd | 111 | 1 | nogas | 273999 | 0.00 |
| Sb | 121 | 1 | nogas | 1141842 | 0.00 |
| Tl | 205 | 1 | nogas | 1871199 | 0.00 |
| Pb | 208 | 1 | nogas | 2517964 | 0.00 |
| [Pb] | 206 | 1 | nogas | 612634 | 0.00 |
| [Pb] | 207 | 1 | nogas | 541908 | 0.00 |
| Na | 23 | 2 | He | 15131846 | 0.00 |
| Mg | 24 | 2 | He | 8087589 | 0.00 |
| Al | 27 | 2 | He | 48475 | 0.00 |
| K | 39 | 2 | He | 8772076 | 0.00 |
| Ca | 43 | 2 | He | 23949 | 0.02 |
| Ca | 44 | 2 | He | 395861 | 0.00 |
| V | 51 | 2 | He | 590836 | 0.00 |
| Cr | 52 | 2 | He | 626074 | 0.00 |
| Mn | 55 | 2 | He | 447094 | 0.00 |
| Fe | 56 | 2 | He | 53558118 | 0.00 |
| Co | 59 | 2 | He | 819858 | 0.00 |
| Ni | 60 | 2 | He | 208204 | 0.00 |
| Cu | 63 | 2 | He | 521095 | 0.00 |
| Zn | 66 | 2 | He | 127289 | 0.00 |
| As | 75 | 2 | He | 127952 | 0.00 |
| Se | 78 | 2 | He | 10318 | 0.02 |
| B | 11 | 1 | nogas | 2379058 | 0.00 |
| Si | 28 | 1 | nogas | 53576003 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 337419 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 5961691 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 220141372 | 0.00 |
| Se | 77 | 1 | nogas | 106429 | 0.00 |
| Se | 82 | 1 | nogas | 25131 | 0.00 |
| Mo | 95 | 1 | nogas | 526516 | 0.00 |
| Sn | 118 | 1 | nogas | 700596 | 0.00 |
| Ba | 137 | 1 | nogas | 377867 | 0.00 |
| Sb | 121 | 2 | He | 433079 | 0.00 |
| P | 31 | 1 | nogas | 861074 | 0.00 |
| La | 139 | 1 | nogas | 540 | 2.14 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1246084 | 3.43 | 1359891 | 91.63 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3121481 | 0.75 | 3145209 | 99.25 | 70 | 125 | |
| In | 115 | 1 | nogas | 2781244 | 1.71 | 2761164 | 100.73 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2060333 | 1.98 | 2190177 | 94.07 | 70 | 125 | |
| Ge | 72 | 2 | He | 750724 | 2.40 | 785020 | 95.63 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 018CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:43:24-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1661599 | 0.00 |
| Na | 23 | 1 | nogas | 494803094 | 0.00 |
| Mg | 24 | 1 | nogas | 311533324 | 0.00 |
| Al | 27 | 1 | nogas | 3801722 | 0.00 |
| K | 39 | 1 | nogas | 388084200 | 0.00 |
| Ti | 47 | 1 | nogas | 339934 | 0.00 |
| V | 51 | 1 | nogas | 6578225 | 0.00 |
| Cr | 52 | 1 | nogas | 4253262 | 0.00 |
| Mn | 55 | 1 | nogas | 5075225 | 0.00 |
| Co | 59 | 1 | nogas | 4388040 | 0.00 |
| Ni | 60 | 1 | nogas | 969722 | 0.00 |
| Cu | 63 | 1 | nogas | 2346112 | 0.00 |
| Zn | 66 | 1 | nogas | 767982 | 0.00 |
| As | 75 | 1 | nogas | 1172252 | 0.00 |
| Sr | 88 | 1 | nogas | 5250985 | 0.00 |
| Ag | 107 | 1 | nogas | 2548997 | 0.00 |
| Cd | 111 | 1 | nogas | 551808 | 0.00 |
| Sb | 121 | 1 | nogas | 2449177 | 0.00 |
| Tl | 205 | 1 | nogas | 3729505 | 0.00 |
| Pb | 208 | 1 | nogas | 5176180 | 0.00 |
| [Pb] | 206 | 1 | nogas | 1276227 | 0.00 |
| [Pb] | 207 | 1 | nogas | 1103715 | 0.00 |
| Na | 23 | 2 | He | 29835738 | 0.00 |
| Mg | 24 | 2 | He | 16222332 | 0.00 |
| Al | 27 | 2 | He | 96019 | 0.00 |
| K | 39 | 2 | He | 17588618 | 0.00 |
| Ca | 43 | 2 | He | 47213 | 0.01 |
| Ca | 44 | 2 | He | 798401 | 0.00 |
| V | 51 | 2 | He | 1169325 | 0.00 |
| Cr | 52 | 2 | He | 1244110 | 0.00 |
| Mn | 55 | 2 | He | 883838 | 0.00 |
| Fe | 56 | 2 | He | 107380422 | 0.00 |
| Co | 59 | 2 | He | 1696001 | 0.00 |
| Ni | 60 | 2 | He | 415856 | 0.00 |
| Cu | 63 | 2 | He | 1063553 | 0.00 |
| Zn | 66 | 2 | He | 261125 | 0.00 |
| As | 75 | 2 | He | 257380 | 0.00 |
| Se | 78 | 2 | He | 20842 | 0.00 |
| B | 11 | 1 | nogas | 4863368 | 0.00 |
| Si | 28 | 1 | nogas | 107207228 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 694444 | 0.00 |
| Ca | 44 | 1 | nogas | 11581260 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 437250960 | 0.00 |
| Se | 77 | 1 | nogas | 110539 | 0.00 |
| Se | 82 | 1 | nogas | 51393 | 0.01 |
| Mo | 95 | 1 | nogas | 1060405 | 0.00 |
| Sn | 118 | 1 | nogas | 1444717 | 0.00 |
| Ba | 137 | 1 | nogas | 749344 | 0.00 |
| Sb | 121 | 2 | He | 895150 | 0.00 |
| P | 31 | 1 | nogas | 1677933 | 0.00 |
| La | 139 | 1 | nogas | 697 | 0.97 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1131774 | 0.15 | 1359891 | 83.23 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3050027 | 2.04 | 3145209 | 96.97 | 70 | 125 | |
| In | 115 | 1 | nogas | 2642790 | 2.60 | 2761164 | 95.71 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1989047 | 3.85 | 2190177 | 90.82 | 70 | 125 | |
| Ge | 72 | 2 | He | 742606 | 0.91 | 785020 | 94.60 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV2 |
| Data File Name | 021SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:49:21-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 013CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.709 | 1.709 | 0.77 | 16974 | 0.01 | 2000 | |
| Na | 23 | 1 | nogas | 212.815 | 212.815 | 2.06 | 5737076 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 217.117 | 217.117 | 3.32 | 3435474 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 2.163 | 2.163 | 4.03 | 70217 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 212.202 | 212.202 | 1.03 | 12132281 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 2.136 | 2.136 | 6.14 | 4027 | 0.05 | 2000 | |
| V | 51 | 1 | nogas | -22.939 | -22.939 | -6.95 | 1702410 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 1.180 | 1.180 | 4.92 | 148996 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 1.900 | 1.900 | 3.88 | 80502 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 2.113 | 2.113 | 2.34 | 48858 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 2.341 | 2.341 | 2.84 | 11570 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 2.050 | 2.050 | 5.25 | 27044 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 2.332 | 2.332 | 2.35 | 8435 | 0.03 | 2000 | |
| As | 75 | 1 | nogas | -8.548 | -8.548 | -19.04 | 224000 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.044 | 2.044 | 2.28 | 55807 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 2.039 | 2.039 | 5.42 | 27171 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 1.991 | 1.991 | 1.97 | 5764 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 2.412 | 2.412 | 3.30 | 30236 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 2.311 | 2.311 | 5.73 | 46584 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 2.090 | 2.090 | 2.21 | 59317 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 2.108 | 2.108 | 2.47 | 55825 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 2.000 | 2.000 | 2.90 | 14784 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 1.990 | 1.990 | 2.18 | 12809 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 203.646 | 203.646 | 2.15 | 364998 | 0.06 | 200000 | |
| Mg | 24 | 2 | He | 210.488 | 210.488 | 2.36 | 175457 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 2.046 | 2.046 | 16.52 | 1713 | 0.12 | 2000 | |
| K | 39 | 2 | He | 201.924 | 201.924 | 0.63 | 366968 | 0.06 | 200000 | |
| Ca | 43 | 2 | He | 199.726 | 199.726 | 1.90 | 520 | 38.41 | 200000 | |
| Ca | 44 | 2 | He | 188.018 | 188.018 | 5.48 | 10807 | 1.74 | 200000 | |
| V | 51 | 2 | He | 0.962 | 0.962 | 5.49 | 31838 | 0.00 | 2000 | |
| Cr | 52 | 2 | He | 1.873 | 1.873 | 1.97 | 17058 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 1.886 | 1.886 | 1.80 | 10997 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 201.929 | 201.929 | 1.72 | 1123251 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 1.980 | 1.980 | 4.47 | 17485 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 2.226 | 2.226 | 2.51 | 4621 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | 2.495 | 2.495 | 0.24 | 12271 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 2.589 | 2.589 | 2.65 | 2944 | 0.09 | 2000 | |
| As | 75 | 2 | He | 2.038 | 2.038 | 1.69 | 3468 | 0.06 | 2000 | |
| Se | 78 | 2 | He | 2.568 | 2.568 | 11.00 | 343 | 0.75 | 2000 | |
| B | 11 | 1 | nogas | 17.275 | 17.275 | 9.31 | 130770 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 87.540 | 87.540 | 2.96 | 2894276 | 0.00 | 2000 | |
| Ca | 43 | 1 | nogas | 195.960 | 195.960 | 6.85 | 8342 | 2.35 | 200000 | |
| Ca | 44 | 1 | nogas | 77.831 | 77.831 | 2.17 | 473544 | 0.02 | 200000 | |
| Fe | 56 | 1 | nogas | 179.878 | 179.878 | 5.86 | 7073659 | 0.00 | 200000 | |
| Se | 77 | 1 | nogas | -45.564 | -45.564 | -21.51 | 68462 | -0.07 | 2000 | |
| Se | 82 | 1 | nogas | 2.031 | 2.031 | 16.98 | 773 | 0.26 | 2000 | |

# Sample Report

| Mo | 95 | 1 | nogas | 2.236 | 2.236 | 8.08 | 14519 | 0.02 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 2.173 | 2.173 | 4.14 | 17239 | 0.01 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ba | 137 | 1 | nogas | 2.000 | 2.000 | 0.72 | 7909 | 0.03 | 2000 | |
| Sb | 121 | 2 | He | 2.461 | 2.461 | 3.19 | 11314 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | -5.469 | -5.469 | -76.91 | 27 | -20.51 | 2000 | |
| Au | 197 | 1 | nogas | -178.475 | -178.475 | -213.63 | 17 | -1070.85 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1384555 | 2.53 | 1359891 | 101.81 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3155369 | 0.15 | 3145209 | 100.32 | 70 | 125 | |
| In | 115 | 1 | nogas | 2795560 | 2.50 | 2761164 | 101.25 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2118182 | 2.58 | 2190177 | 96.71 | 70 | 125 | |
| Ge | 72 | 2 | He | 763289 | 0.78 | 785020 | 97.23 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV5 |
| Data File Name | 022LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:51:21-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.174 | 5.114 | 39164 | 1.77 | 5 | 83.5 | 70 | 130 | |
| Na | 23 | 1 | nogas | 502.599 | 3.335 | 12874329 | 1.41 | 500 | 100.5 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 515.793 | 5.643 | 8083463 | 2.35 | 500 | 103.2 | 70 | 130 | |
| Al | 27 | 1 | nogas | 5.858 | 0.840 | 142554 | 0.64 | 5 | 117.2 | 70 | 130 | |
| K | 39 | 1 | nogas | 486.190 | 1.901 | 17519631 | 1.39 | 500 | 97.2 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 4.747 | 1.098 | 8602 | 1.54 | 5 | 94.9 | 70 | 130 | |
| V | 51 | 1 | nogas | -10.788 | -16.663 | 1989136 | 2.11 | 5 | -215.8 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 4.480 | 1.108 | 219990 | 0.61 | 5 | 89.6 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.069 | 0.947 | 163563 | 1.05 | 5 | 101.4 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.844 | 1.674 | 110777 | 2.13 | 5 | 96.9 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 5.184 | 2.566 | 25828 | 3.06 | 5 | 103.7 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 4.849 | 0.870 | 60778 | 0.97 | 5 | 97.0 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 5.494 | 0.955 | 20952 | 1.45 | 5 | 109.9 | 70 | 130 | |
| As | 75 | 1 | nogas | -0.852 | -109.424 | 261150 | 2.05 | 5 | -17.0 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 4.723 | 1.482 | 128075 | 1.93 | 5 | 94.5 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 4.897 | 0.505 | 64906 | 0.69 | 5 | 97.9 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 4.969 | 1.811 | 14096 | 4.13 | 5 | 99.4 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.157 | 1.099 | 64489 | 1.36 | 5 | 103.1 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.422 | 6.055 | 89677 | 4.69 | 5 | 88.4 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 4.828 | 1.428 | 129689 | 1.37 | 5 | 96.6 | 70 | 130 | |
| U | 238 | 1 | nogas | 4.681 | 0.969 | 125966 | 0.61 | 5 | 93.6 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 4.476 | 3.061 | 31892 | 1.50 | 5 | 89.5 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 4.612 | 4.941 | 28515 | 3.35 | 5 | 92.2 | 70 | 130 | |
| Na | 23 | 2 | He | 500.362 | 1.325 | 813261 | 0.86 | 500 | 100.1 | 70 | 130 | |
| Mg | 24 | 2 | He | 510.748 | 3.130 | 421959 | 2.75 | 500 | 102.1 | 70 | 130 | |
| Al | 27 | 2 | He | 5.806 | 5.547 | 3527 | 4.54 | 5 | 116.1 | 70 | 130 | |
| K | 39 | 2 | He | 490.951 | 1.710 | 617693 | 1.18 | 500 | 98.2 | 70 | 130 | |
| Ca | 43 | 2 | He | 526.842 | 8.206 | 1303 | 7.68 | 500 | 105.4 | 70 | 130 | |
| Ca | 44 | 2 | He | 494.135 | 3.933 | 23088 | 3.07 | 500 | 98.8 | 70 | 130 | |
| V | 51 | 2 | He | 4.347 | 0.999 | 51267 | 0.45 | 5 | 86.9 | 70 | 130 | |
| Cr | 52 | 2 | He | 5.155 | 1.199 | 37638 | 0.96 | 5 | 103.1 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.082 | 4.065 | 25281 | 3.51 | 5 | 101.6 | 70 | 130 | |
| Fe | 56 | 2 | He | 508.044 | 0.726 | 2787234 | 0.98 | 500 | 101.6 | 70 | 130 | |
| Co | 59 | 2 | He | 4.962 | 4.127 | 42924 | 3.81 | 5 | 99.2 | 70 | 130 | |
| Ni | 60 | 2 | He | 5.463 | 1.332 | 11444 | 1.58 | 5 | 109.3 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.589 | 1.492 | 28886 | 1.86 | 5 | 111.8 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.922 | 2.434 | 7342 | 2.95 | 5 | 118.4 | 70 | 130 | |
| As | 75 | 2 | He | 4.836 | 1.427 | 7090 | 0.90 | 5 | 96.7 | 70 | 130 | |
| Se | 78 | 2 | He | 5.116 | 3.340 | 609 | 2.67 | 5 | 102.3 | 70 | 130 | |
| B | 11 | 1 | nogas | 26.535 | 2.752 | 174722 | 1.55 | 25 | 106.1 | 70 | 130 | |
| Si | 28 | 1 | nogas | 233.175 | 0.868 | 4473684 | 0.37 | 25 | 932.7 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 486.797 | 1.493 | 18683 | 1.71 | 500 | 97.4 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 338.868 | 1.385 | 624135 | 0.15 | 500 | 67.8 | 70 | 130 | LLICV Main CR1 Failed |
| Fe | 56 | 1 | nogas | 469.057 | 1.663 | 13558763 | 1.53 | 500 | 93.8 | 70 | 130 | |
| Se | 77 | 1 | nogas | -10.436 | -122.028 | 75898 | 3.96 | 5 | -208.7 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 5.040 | 13.068 | 1563 | 10.82 | 5 | 100.8 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.898 | 0.911 | 29034 | 0.93 | 5 | 98.0 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.733 | 5.029 | 35784 | 1.66 | 5 | 94.7 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 4.889 | 4.426 | 18891 | 1.38 | 5 | 97.8 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.369 | 2.593 | 24394 | 2.74 | 5 | 107.4 | 70 | 130 | |
| Li | 7 | 1 | nogas | 4.454 | 6.655 | 197703 | 0.37 | 5 | 89.1 | 70 | 130 | |
| P | 31 | 1 | nogas | 25.940 | 2.751 | 124087 | 0.54 | 25 | 103.8 | 70 | 130 | |
| La | 139 | 1 | nogas | 10.918 | 64.626 | 87 | 29.04 | 5 | 218.4 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 717.052 | 283.933 | 30 | 100.00 | 5 | 14341.0 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1312445 | 3.32 | 1359891 | 96.51 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3159412 | 0.48 | 3145209 | 100.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 2744168 | 3.20 | 2761164 | 99.38 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2154629 | 1.46 | 2190177 | 98.38 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 757610 | 0.38 | 785020 | 96.51 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICB |
| Data File Name | 023_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T11:53:21-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.022 | 7.4 | 253 | 4.6 | 1 | |
| Na | 23 | 1 | nogas | 2.816 | 3.2 | 475313 | 3.4 | 100 | |
| Mg | 24 | 1 | nogas | 2.476 | 5.1 | 43758 | 5.8 | 100 | |
| Al | 27 | 1 | nogas | 0.947 | 2.0 | 45147 | 0.7 | 5 | |
| K | 39 | 1 | nogas | 6.201 | 106.6 | 7865893 | 0.7 | 100 | |
| Ti | 47 | 1 | nogas | 0.053 | 11.9 | 377 | 3.1 | 2.5 | |
| V | 51 | 1 | nogas | -7.345 | -13.6 | 2007772 | 1.1 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.092 | -130.4 | 118247 | 2.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.041 | 42.4 | 30973 | 0.7 | 2.5 | |
| Co | 59 | 1 | nogas | 0.021 | 17.9 | 1490 | 6.5 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.194 | 9.2 | 803 | 11.8 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.019 | 25.2 | 2547 | 1.9 | 1 | |
| Zn | 66 | 1 | nogas | 0.438 | 5.7 | 927 | 10.6 | 2.5 | |
| As | 75 | 1 | nogas | -4.560 | -15.8 | 236122 | 2.2 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.039 | 4.5 | 1803 | 2.3 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.027 | 14.2 | 653 | 7.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.024 | 47.8 | 80 | 37.5 | 1 | |
| Sb | 121 | 1 | nogas | 0.275 | 2.6 | 3544 | 1.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.065 | 37.0 | 2127 | 18.6 | 1 | |
| Pb | 208 | 1 | nogas | -0.018 | -52.6 | 5127 | 4.9 | 2.5 | |
| U | 238 | 1 | nogas | 0.028 | 19.8 | 787 | 16.9 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.001 | 2718.3 | 1363 | 8.5 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.028 | -72.3 | 1053 | 6.7 | 2.5 | |
| Na | 23 | 2 | He | 2.852 | 33.1 | 56674 | 1.8 | 100 | |
| Mg | 24 | 2 | He | 2.219 | 2.9 | 2254 | 5.1 | 100 | |
| Al | 27 | 2 | He | 0.954 | 52.0 | 1157 | 17.5 | 5 | |
| K | 39 | 2 | He | -4.431 | -46.2 | 187959 | 0.9 | 100 | |
| Ca | 43 | 2 | He | 7.639 | 84.5 | 53 | 28.6 | 100 | |
| Ca | 44 | 2 | He | -1.300 | -80.5 | 3060 | 4.1 | 100 | |
| V | 51 | 2 | He | -0.218 | -65.3 | 24546 | 1.5 | 2.5 | |
| Cr | 52 | 2 | He | 0.023 | 12.7 | 5221 | 3.7 | 2.5 | |
| Mn | 55 | 2 | He | 0.068 | 15.0 | 2724 | 1.8 | 2.5 | |
| Fe | 56 | 2 | He | 2.075 | 5.1 | 23031 | 4.8 | 100 | |
| Co | 59 | 2 | He | 0.001 | 603.8 | 390 | 16.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.169 | 26.4 | 227 | 40.0 | 2.5 | |
| Cu | 63 | 2 | He | 0.424 | 6.1 | 990 | 17.5 | 1 | |
| Zn | 66 | 2 | He | 0.625 | 5.8 | 317 | 16.2 | 2.5 | |
| As | 75 | 2 | He | 0.028 | 86.7 | 814 | 2.1 | 2.5 | |
| Se | 78 | 2 | He | 0.623 | 17.4 | 135 | 11.3 | 1 | |
| B | 11 | 1 | nogas | 4.387 | 20.4 | 52104 | 1.7 | 10 | |
| Si | 28 | 1 | nogas | -5.570 | -118.8 | 1833433 | 2.4 | 5 | |
| Ca | 43 | 1 | nogas | 4.686 | 33.2 | 1513 | 4.4 | 100 | |
| Ca | 44 | 1 | nogas | -136.192 | -5.0 | 340644 | 0.3 | 100 | |
| Fe | 56 | 1 | nogas | -15.384 | -14.5 | 2628266 | 0.7 | 100 | |
| Se | 77 | 1 | nogas | 2.132 | 10.8 | 76169 | 1.4 | 2.5 | |
| Se | 82 | 1 | nogas | 0.272 | 66.4 | 303 | 13.7 | 1 | |

# Initial Calibration Blank (ICB) Report

| Mo | 95 | 1 | nogas | -0.020 | -202.1 | 2180 | 8.4 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.051 | 35.8 | 1213 | 8.1 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.043 | 36.5 | 207 | 28.4 | 2.5 | |
| Sb | 121 | 2 | He | 0.265 | 14.9 | 1277 | 12.5 | 2.5 | |
| P | 31 | 1 | nogas | 0.916 | 129.3 | 80524 | 2.4 | 10 | |
| La | 139 | 1 | nogas | 9.998 | 73.9 | 80 | 33.1 | 2.5 | ICB Main CR1 Failed |
| Au | 197 | 1 | nogas | 554.422 | 198.1 | 27 | 57.3 | 2.5 | ICB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1284061 | 7.78 | 1359891 | 94.42 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3065001 | 1.44 | 3145209 | 97.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 2622503 | 2.58 | 2761164 | 94.98 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2067529 | 4.45 | 2190177 | 94.40 | 70 | 125 | |
| Ge | 72 | 2 | He | 752035 | 3.44 | 785020 | 95.80 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICV |
| Data File Name | 025_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T12:13:20-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 86.278 | 7.101 | 788269 | 0.87 | 100 | 86.3 | 90 | 110 | ICV Main CR1 Failed |
| Na | 23 | 1 | nogas | 9835.947 | 3.389 | 247382022 | 5.53 | 10000 | 98.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9774.600 | 2.568 | 155052749 | 2.65 | 10000 | 97.7 | 90 | 110 | |
| Al | 27 | 1 | nogas | 99.512 | 2.704 | 1946605 | 3.69 | 100 | 99.5 | 90 | 110 | |
| K | 39 | 1 | nogas | 9915.206 | 4.341 | 199452296 | 1.52 | 10000 | 99.2 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 98.680 | 2.638 | 170521 | 0.48 | 100 | 98.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 109.991 | 5.857 | 4748856 | 1.02 | 100 | 110.0 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 102.420 | 5.132 | 2287925 | 2.73 | 100 | 102.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 103.177 | 4.151 | 2692605 | 2.03 | 100 | 103.2 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.431 | 2.905 | 2221032 | 0.32 | 100 | 99.4 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.326 | 2.563 | 480569 | 0.31 | 100 | 97.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 95.347 | 1.804 | 1134262 | 1.33 | 100 | 95.3 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.877 | 1.385 | 384862 | 1.91 | 100 | 98.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 104.155 | 3.535 | 753131 | 0.64 | 100 | 104.2 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 98.158 | 1.102 | 2608702 | 2.01 | 100 | 98.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 97.958 | 2.606 | 1274157 | 1.81 | 100 | 98.0 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.514 | 1.365 | 270878 | 0.99 | 100 | 96.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 92.612 | 2.792 | 1138283 | 2.68 | 100 | 92.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 95.528 | 3.474 | 1857320 | 2.88 | 100 | 95.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 98.619 | 1.214 | 2540456 | 1.21 | 100 | 98.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 100.972 | 1.695 | 2628695 | 1.84 | 100 | 101.0 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 92.352 | 3.212 | 610013 | 3.04 | 100 | 92.4 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 94.744 | 3.567 | 543016 | 0.91 | 100 | 94.7 | 90 | 110 | |
| Na | 23 | 2 | He | 10051.013 | 1.491 | 15112106 | 0.53 | 10000 | 100.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 10214.835 | 3.764 | 8310797 | 2.82 | 10000 | 102.1 | 90 | 110 | |
| Al | 27 | 2 | He | 99.157 | 1.120 | 48165 | 1.13 | 100 | 99.2 | 90 | 110 | |
| K | 39 | 2 | He | 9937.260 | 0.822 | 8812172 | 0.80 | 10000 | 99.4 | 90 | 110 | |
| Ca | 43 | 2 | He | 9668.727 | 3.205 | 22984 | 3.62 | 10000 | 96.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 9774.487 | 0.757 | 392242 | 0.67 | 10000 | 97.7 | 90 | 110 | |
| V | 51 | 2 | He | 99.204 | 1.198 | 593851 | 0.87 | 100 | 99.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 98.054 | 0.491 | 615025 | 0.71 | 100 | 98.1 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.824 | 1.199 | 444759 | 0.25 | 100 | 99.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 9975.439 | 0.848 | 53735766 | 0.36 | 10000 | 99.8 | 90 | 110 | |
| Co | 59 | 2 | He | 97.805 | 2.181 | 827079 | 1.06 | 100 | 97.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 100.737 | 2.217 | 210262 | 1.17 | 100 | 100.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 98.771 | 1.892 | 524582 | 0.74 | 100 | 98.8 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.943 | 1.344 | 127503 | 0.81 | 100 | 97.9 | 90 | 110 | |
| As | 75 | 2 | He | 97.414 | 1.577 | 125990 | 1.02 | 100 | 97.4 | 90 | 110 | |
| Se | 78 | 2 | He | 97.012 | 0.971 | 10156 | 0.61 | 100 | 97.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 450.167 | 8.096 | 2428887 | 2.24 | 500 | 90.0 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4947.472 | 2.024 | 54719164 | 3.13 | 5000 | 98.9 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9776.353 | 3.579 | 343708 | 2.99 | 10000 | 97.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9751.848 | 3.584 | 5947167 | 1.71 | 10000 | 97.5 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9935.397 | 4.796 | 222306388 | 2.90 | 10000 | 99.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 146.148 | 3.350 | 107103 | 2.24 | 100 | 146.1 | 90 | 110 | ICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 98.113 | 2.380 | 25615 | 1.44 | 100 | 98.1 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 99.123 | 1.162 | 534676 | 2.38 | 100 | 99.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 95.187 | 0.718 | 696674 | 0.90 | 100 | 95.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 98.937 | 1.792 | 378120 | 0.25 | 100 | 98.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 96.957 | 1.005 | 432768 | 0.54 | 100 | 97.0 | 90 | 110 | |
| Li | 7 | 1 | nogas | 89.962 | 6.707 | 1880704 | 0.43 | 100 | 90.0 | 90 | 110 | ICV Main CR1 Failed |
| P | 31 | 1 | nogas | 487.791 | 1.616 | 870045 | 1.80 | 500 | 97.6 | 90 | 110 | |
| La | 139 | 1 | nogas | 112.367 | 21.626 | 457 | 18.23 | 100 | 112.4 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 1024.820 | 164.588 | 33 | 69.28 | 100 | 1024.8 | 90 | 110 | ICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1281982 | 6.39 | 1359891 | 94.27 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3116223 | 2.81 | 3145209 | 99.08 | 70 | 125 | |
| In | 115 | 1 | nogas | 2718798 | 1.59 | 2761164 | 98.47 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2085992 | 3.21 | 2190177 | 95.24 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 746958 | 1.19 | 785020 | 95.15 | 70 | 125 | |

# Interference Check Solution A (ICS-A) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSA |
| Data File Name | 026ICSA.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T12:27:37-06:00 |
| Sample Type | ICSA |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | -0.003 | -45.4 | 27 | 43.3 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 1 | nogas | 99772.419 | 2.6 | 2268122384 | 1.6 | 0 | |
| Mg | 24 | 1 | nogas | 98284.273 | 1.1 | 1412465198 | 2.0 | 0 | |
| Al | 27 | 1 | nogas | 91269.915 | 3.0 | 1627286056 | 2.1 | 0 | |
| K | 39 | 1 | nogas | 100855.122 | 2.2 | 1810364040 | 1.4 | 0 | |
| Ti | 47 | 1 | nogas | 2111.723 | 1.2 | 3370309 | 1.1 | 0 | |
| V | 51 | 1 | nogas | -35.932 | -0.7 | 1277173 | 0.7 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 1 | nogas | -0.515 | -9.4 | 102886 | 1.4 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 1 | nogas | 0.883 | 6.0 | 49239 | 3.5 | 0 | ICSA Main CR1 Failed |
| Co | 59 | 1 | nogas | 0.478 | 0.6 | 10850 | 1.3 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 1 | nogas | 1.509 | 0.4 | 6765 | 1.0 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 1 | nogas | 1.054 | 5.0 | 13765 | 4.2 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 1 | nogas | 3.426 | 3.1 | 11647 | 2.5 | 0 | ICSA Main CR1 Failed |
| As | 75 | 1 | nogas | -14.028 | -10.0 | 180601 | 2.5 | 0 | ICSA Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.845 | 1.9 | 21513 | 1.6 | 0 | ICSA Main CR1 Failed |
| Ag | 107 | 1 | nogas | 0.037 | 26.3 | 727 | 16.8 | 0 | ICSA Main CR1 Failed |
| Cd | 111 | 1 | nogas | 1.887 | 5.1 | 4861 | 3.3 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 1 | nogas | 1.289 | 11.4 | 14867 | 12.1 | 0 | ICSA Main CR1 Failed |
| Tl | 205 | 1 | nogas | 0.050 | 83.5 | 1894 | 51.3 | 0 | ICSA Main CR1 Failed |
| Pb | 208 | 1 | nogas | 0.111 | 38.4 | 8444 | 12.9 | 0 | ICSA Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 0.131 | 26.0 | 2210 | 14.7 | 0 | ICSA Main CR1 Failed |
| [Pb] | 207 | 1 | nogas | 0.091 | 30.5 | 1727 | 13.7 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 2 | He | 97693.153 | 1.3 | 141335218 | 1.7 | 0 | |
| Mg | 24 | 2 | He | 97265.766 | 1.4 | 76387947 | 1.7 | 0 | |
| Al | 27 | 2 | He | 91579.752 | 0.5 | 42312337 | 1.4 | 0 | |
| K | 39 | 2 | He | 94564.302 | 1.0 | 82224395 | 1.0 | 0 | |
| Ca | 43 | 2 | He | 93346.096 | 2.9 | 213857 | 3.2 | 0 | |
| Ca | 44 | 2 | He | 97704.215 | 1.5 | 3757513 | 2.3 | 0 | |
| V | 51 | 2 | He | -1.531 | -3.7 | 16283 | 1.8 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 2 | He | 0.266 | 25.5 | 6465 | 6.1 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 2 | He | 0.675 | 7.2 | 5207 | 3.6 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 2 | He | 96155.471 | 0.6 | 499799473 | 0.3 | 0 | |
| Co | 59 | 2 | He | 0.246 | 9.4 | 2367 | 7.1 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 2 | He | 0.719 | 9.9 | 1327 | 11.3 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 2 | He | 0.752 | 3.0 | 2630 | 5.0 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 2 | He | 2.156 | 1.0 | 2234 | 0.5 | 0 | ICSA Main CR1 Failed |
| As | 75 | 2 | He | 0.041 | 68.5 | 798 | 5.2 | 0 | ICSA Main CR1 Failed |
| Se | 78 | 2 | He | 0.700 | 21.0 | 137 | 11.1 | 0 | ICSA Main CR1 Failed |
| B | 11 | 1 | nogas | 1.423 | 38.1 | 37567 | 4.5 | 0 | ICSA Main CR1 Failed |
| Si | 28 | 1 | nogas | 71.978 | 8.3 | 2489176 | 1.5 | 0 | |
| Ca | 43 | 1 | nogas | 95597.549 | 1.5 | 3098104 | 2.3 | 0 | |
| Ca | 44 | 1 | nogas | 96363.689 | 1.0 | 50888596 | 0.2 | 0 | |
| Fe | 56 | 1 | nogas | 98346.164 | 2.0 | 2011258512 | 1.2 | 0 | |
| Se | 77 | 1 | nogas | -70.143 | -13.1 | 57829 | 2.2 | 0 | ICSA Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.278 | 59.1 | 287 | 13.2 | 0 | ICSA Main CR1 Failed |
| Mo | 95 | 1 | nogas | 1966.748 | 2.1 | 9770045 | 2.0 | 0 | |
| Sn | 118 | 1 | nogas | 0.195 | 15.8 | 2123 | 11.8 | 0 | ICSA Main CR1 Failed |
| Ba | 137 | 1 | nogas | 0.238 | 14.5 | 880 | 15.9 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 2 | He | 0.939 | 3.9 | 4131 | 3.4 | 0 | ICSA Main CR1 Failed |

# Interference Check Solution A (ICS-A) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P | 31 | 1 | nogas | 95539.734 | 1.6 | 143110505 | 0.7 | 0 | |
| La | 139 | 1 | nogas | 66.059 | 13.3 | 263 | 9.6 | 0 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1325005 | 3.60 | 1359891 | 97.43 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 2881516 | 0.91 | 3145209 | 91.62 | 70 | 125 | |
| In | 115 | 1 | nogas | 2489400 | 2.22 | 2761164 | 90.16 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2056783 | 8.29 | 2190177 | 93.91 | 70 | 125 | |
| Ge | 72 | 2 | He | 720869 | 0.83 | 785020 | 91.83 | 70 | 125 | |

# Interference Check Solution AB (ICS-AB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSAB |
| Data File Name | 027ICSB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T12:29:40-06:00 |
| Sample Type | ICSB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 88.896 | 7.631 | 826908 | 0.53 | 100 | 88.9 | 80 | 120 | |
| Na | 23 | 1 | nogas | 107475.280 | 6.996 | 2496804056 | 0.21 | 100 | 107475.3 | 80 | 120 | ICSB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 104767.308 | 8.522 | 1537287468 | 1.60 | 100 | 104767.3 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 1 | nogas | 89501.065 | 6.489 | 1635600669 | 0.84 | 100 | 89501.1 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 1 | nogas | 106208.920 | 6.969 | 1953231644 | 0.86 | 100 | 106208.9 | 80 | 120 | ICSB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 2184.702 | 5.537 | 3575601 | 2.72 | 100 | 2184.7 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 1 | nogas | 84.153 | 10.178 | 3940234 | 2.22 | 100 | 84.2 | 80 | 120 | ICSB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 106.120 | 2.684 | 2248532 | 4.98 | 100 | 106.1 | 80 | 120 | |
| Mn | 55 | 1 | nogas | 109.119 | 1.679 | 2706396 | 6.77 | 100 | 109.1 | 80 | 120 | |
| Co | 59 | 1 | nogas | 108.027 | 2.536 | 2291703 | 4.04 | 100 | 108.0 | 80 | 120 | |
| Ni | 60 | 1 | nogas | 106.971 | 6.590 | 500763 | 0.83 | 100 | 107.0 | 80 | 120 | |
| Cu | 63 | 1 | nogas | 103.370 | 6.564 | 1165497 | 1.32 | 100 | 103.4 | 80 | 120 | |
| Zn | 66 | 1 | nogas | 110.844 | 6.542 | 409045 | 1.71 | 100 | 110.8 | 80 | 120 | |
| As | 75 | 1 | nogas | 99.913 | 10.639 | 694935 | 1.33 | 100 | 99.9 | 80 | 120 | |
| Sr | 88 | 1 | nogas | 106.906 | 2.308 | 2699990 | 6.74 | 100 | 106.9 | 80 | 120 | |
| Ag | 107 | 1 | nogas | 99.024 | 6.987 | 1220737 | 0.49 | 100 | 99.0 | 80 | 120 | |
| Cd | 111 | 1 | nogas | 108.286 | 3.933 | 284388 | 2.08 | 100 | 108.3 | 80 | 120 | |
| Sb | 121 | 1 | nogas | 104.806 | 5.416 | 1221638 | 1.76 | 100 | 104.8 | 80 | 120 | |
| Tl | 205 | 1 | nogas | 107.582 | 3.091 | 1847373 | 6.61 | 100 | 107.6 | 80 | 120 | |
| Pb | 208 | 1 | nogas | 96.871 | 6.416 | 2495535 | 6.40 | 100 | 96.9 | 80 | 120 | |
| U | 238 | 1 | nogas | 117.360 | 4.268 | 2694410 | 2.99 | 100 | 117.4 | 80 | 120 | |
| [Pb] | 206 | 1 | nogas | 106.892 | 7.419 | 621587 | 1.38 | 100 | 106.9 | 80 | 120 | |
| [Pb] | 207 | 1 | nogas | 107.937 | 7.726 | 544763 | 1.53 | 100 | 107.9 | 80 | 120 | |
| Na | 23 | 2 | He | 106806.913 | 2.230 | 155707248 | 2.06 | 100 | 106806.9 | 80 | 120 | |
| Mg | 24 | 2 | He | 105680.566 | 1.366 | 83634235 | 0.36 | 100 | 105680.6 | 80 | 120 | |
| Al | 27 | 2 | He | 89413.345 | 0.471 | 41631124 | 0.85 | 100 | 89413.3 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 2 | He | 105046.267 | 0.664 | 91317285 | 0.66 | 100 | 105046.3 | 80 | 120 | |
| Ca | 43 | 2 | He | 102464.222 | 0.437 | 236569 | 1.37 | 100 | 102464.2 | 80 | 120 | |
| Ca | 44 | 2 | He | 107334.985 | 1.617 | 4159308 | 1.74 | 100 | 107335.0 | 80 | 120 | |
| V | 51 | 2 | He | 104.576 | 0.666 | 607511 | 0.47 | 100 | 104.6 | 80 | 120 | |
| Cr | 52 | 2 | He | 104.304 | 0.708 | 636023 | 1.58 | 100 | 104.3 | 80 | 120 | |
| Mn | 55 | 2 | He | 107.790 | 1.529 | 466980 | 2.40 | 100 | 107.8 | 80 | 120 | |
| Fe | 56 | 2 | He | 106340.940 | 0.882 | 557089938 | 1.81 | 100 | 106340.9 | 80 | 120 | |
| Co | 59 | 2 | He | 104.046 | 0.847 | 855814 | 0.19 | 100 | 104.0 | 80 | 120 | |
| Ni | 60 | 2 | He | 106.452 | 2.151 | 216120 | 1.64 | 100 | 106.5 | 80 | 120 | |
| Cu | 63 | 2 | He | 103.551 | 1.564 | 535015 | 1.59 | 100 | 103.6 | 80 | 120 | |
| Zn | 66 | 2 | He | 107.351 | 1.635 | 135978 | 1.87 | 100 | 107.4 | 80 | 120 | |
| As | 75 | 2 | He | 105.233 | 0.241 | 132323 | 0.82 | 100 | 105.2 | 80 | 120 | |
| Se | 78 | 2 | He | 106.610 | 1.027 | 10850 | 2.02 | 100 | 106.6 | 80 | 120 | |
| B | 11 | 1 | nogas | 449.643 | 7.894 | 2470720 | 1.63 | 100 | 449.6 | 80 | 120 | |
| Si | 28 | 1 | nogas | 5381.151 | 7.053 | 56232369 | 0.34 | 100 | 5381.2 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 105287.348 | 8.179 | 3493725 | 1.60 | 100 | 105287.3 | 80 | 120 | |
| Ca | 44 | 1 | nogas | 105851.660 | 6.889 | 57243939 | 1.32 | 100 | 105851.7 | 80 | 120 | |
| Fe | 56 | 1 | nogas | 105420.584 | 4.862 | 2211100116 | 2.18 | 100 | 105420.6 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 77 | 1 | nogas | 59.857 | 56.308 | 84609 | 1.29 | 100 | 59.9 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 82 | 1 | nogas | 107.720 | 5.571 | 26650 | 1.61 | 100 | 107.7 | 80 | 120 | |
| Mo | 95 | 1 | nogas | 2069.610 | 5.399 | 10541086 | 1.18 | 100 | 2069.6 | 80 | 120 | |
| Sn | 118 | 1 | nogas | 104.910 | 4.972 | 718104 | 1.49 | 100 | 104.9 | 80 | 120 | |
| Ba | 137 | 1 | nogas | 109.134 | 4.275 | 390261 | 1.76 | 100 | 109.1 | 80 | 120 | |
| Sb | 121 | 2 | He | 107.148 | 1.025 | 465148 | 0.83 | 100 | 107.1 | 80 | 120 | |
| La | 139 | 1 | nogas | 240.588 | 6.523 | 867 | 4.05 | 100 | 240.6 | 80 | 120 | ICSB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1305981 | 7.06 | 1359891 | 96.04 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 2961308 | 6.55 | 3145209 | 94.15 | 70 | 125 | |
| In | 115 | 1 | nogas | 2547892 | 6.13 | 2761164 | 92.28 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1842791 | 7.32 | 2190177 | 84.14 | 70 | 125 | |
| Ge | 72 | 2 | He | 726482 | 1.00 | 785020 | 92.54 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 039_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T13:12:56-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 82.581 | 4.416 | 731555 | 0.94 | 100 | 82.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 9534.220 | 0.951 | 233218130 | 1.31 | 10000 | 95.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9729.392 | 1.174 | 150187274 | 1.59 | 10000 | 97.3 | 90 | 110 | |
| Al | 27 | 1 | nogas | 114.025 | 1.651 | 2272225 | 1.51 | 100 | 114.0 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9403.535 | 4.665 | 193492221 | 1.80 | 10000 | 94.0 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 94.023 | 2.202 | 165882 | 1.13 | 100 | 94.0 | 90 | 110 | |
| V | 51 | 1 | nogas | 88.641 | 9.067 | 4343756 | 2.37 | 100 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 94.363 | 2.955 | 2162226 | 0.85 | 100 | 94.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 96.837 | 4.544 | 2581103 | 1.37 | 100 | 96.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 93.619 | 4.322 | 2134156 | 1.48 | 100 | 93.6 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 92.348 | 2.509 | 465475 | 0.99 | 100 | 92.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 90.028 | 4.450 | 1092858 | 2.11 | 100 | 90.0 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 93.492 | 2.903 | 371300 | 0.41 | 100 | 93.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 85.298 | 2.877 | 678016 | 1.50 | 100 | 85.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 96.941 | 1.717 | 2629593 | 1.51 | 100 | 96.9 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 95.934 | 1.678 | 1273939 | 1.81 | 100 | 95.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.242 | 1.367 | 273977 | 0.58 | 100 | 96.2 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 89.518 | 2.825 | 1122878 | 0.73 | 100 | 89.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 205 | 1 | nogas | 96.005 | 0.857 | 1912662 | 1.77 | 100 | 96.0 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.695 | 2.651 | 2516717 | 2.64 | 100 | 97.7 | 90 | 110 | |
| U | 238 | 1 | nogas | 98.363 | 3.842 | 2622706 | 2.63 | 100 | 98.4 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 90.186 | 2.464 | 610277 | 1.74 | 100 | 90.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 91.278 | 3.329 | 536100 | 2.19 | 100 | 91.3 | 90 | 110 | |
| Na | 23 | 2 | He | 9623.064 | 3.235 | 14415564 | 1.68 | 10000 | 96.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 9540.055 | 1.642 | 7734491 | 0.19 | 10000 | 95.4 | 90 | 110 | |
| Al | 27 | 2 | He | 107.256 | 1.192 | 51865 | 2.95 | 100 | 107.3 | 90 | 110 | |
| K | 39 | 2 | He | 9322.177 | 1.535 | 8278600 | 1.50 | 10000 | 93.2 | 90 | 110 | |
| Ca | 43 | 2 | He | 9498.496 | 2.213 | 22494 | 1.34 | 10000 | 95.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 9331.236 | 2.330 | 373183 | 1.11 | 10000 | 93.3 | 90 | 110 | |
| V | 51 | 2 | He | 93.345 | 2.417 | 558196 | 1.25 | 100 | 93.3 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.422 | 2.820 | 590140 | 1.03 | 100 | 94.4 | 90 | 110 | |
| Mn | 55 | 2 | He | 93.055 | 1.725 | 413235 | 0.34 | 100 | 93.1 | 90 | 110 | |
| Fe | 56 | 2 | He | 9491.722 | 1.050 | 50950106 | 1.93 | 10000 | 94.9 | 90 | 110 | |
| Co | 59 | 2 | He | 93.403 | 0.242 | 787182 | 1.78 | 100 | 93.4 | 90 | 110 | |
| Ni | 60 | 2 | He | 95.865 | 0.471 | 199406 | 1.94 | 100 | 95.9 | 90 | 110 | |
| Cu | 63 | 2 | He | 95.724 | 2.377 | 506501 | 1.50 | 100 | 95.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.179 | 1.678 | 123436 | 0.78 | 100 | 95.2 | 90 | 110 | |
| As | 75 | 2 | He | 92.664 | 0.757 | 119458 | 1.12 | 100 | 92.7 | 90 | 110 | |
| Se | 78 | 2 | He | 93.170 | 1.117 | 9721 | 0.93 | 100 | 93.2 | 90 | 110 | |
| B | 11 | 1 | nogas | 433.350 | 1.839 | 2270764 | 3.33 | 500 | 86.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 4547.796 | 1.635 | 51492616 | 1.59 | 5000 | 91.0 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9148.026 | 4.787 | 328218 | 1.64 | 10000 | 91.5 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 8874.170 | 5.333 | 5560960 | 1.88 | 10000 | 88.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Fe | 56 | 1 | nogas | 9453.672 | 1.340 | 216186963 | 1.85 | 10000 | 94.5 | 90 | 110 | |
| Se | 77 | 1 | nogas | 52.203 | 33.980 | 89512 | 1.23 | 100 | 52.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 93.835 | 4.194 | 25008 | 1.16 | 100 | 93.8 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 94.673 | 3.017 | 521161 | 0.18 | 100 | 94.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 91.988 | 1.885 | 682853 | 0.71 | 100 | 92.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.340 | 1.964 | 373465 | 0.74 | 100 | 96.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 93.010 | 2.014 | 413602 | 0.60 | 100 | 93.0 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.477 | 3.818 | 1809007 | 1.98 | 100 | 96.5 | 90 | 110 | |
| P | 31 | 1 | nogas | 444.547 | 2.197 | 816596 | 1.56 | 500 | 88.9 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 156.420 | 17.540 | 627 | 15.17 | 100 | 156.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 271.125 | 292.305 | 23 | 49.49 | 100 | 271.1 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1241092 | 5.04 | 1359891 | 91.26 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3181162 | 3.09 | 3145209 | 101.14 | 70 | 125 | |
| In | 115 | 1 | nogas | 2757635 | 1.24 | 2761164 | 99.87 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2136405 | 1.24 | 2190177 | 97.54 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 744285 | 1.78 | 785020 | 94.81 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 040_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T13:14:54-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.029 | 56.4 | 330 | 47.6 | 1 | |
| Na | 23 | 1 | nogas | 8.110 | 23.9 | 628294 | 5.8 | 100 | |
| Mg | 24 | 1 | nogas | 5.524 | 31.5 | 93958 | 27.5 | 100 | |
| Al | 27 | 1 | nogas | 19.975 | 4.0 | 426475 | 2.1 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -14.388 | -133.8 | 7847500 | 0.6 | 100 | |
| Ti | 47 | 1 | nogas | 0.095 | 72.4 | 467 | 21.5 | 2.5 | |
| V | 51 | 1 | nogas | -7.112 | -37.1 | 2114627 | 1.5 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.421 | -13.5 | 95109 | 2.0 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.153 | 50.7 | 35494 | 1.8 | 2.5 | |
| Co | 59 | 1 | nogas | 0.031 | 40.6 | 1790 | 11.7 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.201 | 17.1 | 873 | 15.9 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.012 | 171.5 | 2584 | 5.1 | 2 | |
| Zn | 66 | 1 | nogas | 0.603 | 9.8 | 1633 | 10.0 | 2.5 | |
| As | 75 | 1 | nogas | -8.727 | -15.2 | 227700 | 2.0 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.375 | 9.7 | 11104 | 5.9 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.016 | 53.9 | 537 | 17.3 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.042 | 88.7 | 143 | 76.9 | 1 | |
| Sb | 121 | 1 | nogas | 1.928 | 27.7 | 24528 | 22.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.115 | 71.1 | 3254 | 51.0 | 1 | |
| Pb | 208 | 1 | nogas | -0.011 | -357.9 | 5327 | 18.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.133 | 64.9 | 3634 | 64.2 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.002 | -803.1 | 1403 | 9.0 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.010 | -442.3 | 1210 | 21.4 | 2.5 | |
| Na | 23 | 2 | He | 7.836 | 7.2 | 64051 | 1.3 | 100 | |
| Mg | 24 | 2 | He | 3.613 | 7.8 | 3387 | 7.5 | 100 | |
| Al | 27 | 2 | He | 20.645 | 2.6 | 10623 | 1.1 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -13.863 | -15.0 | 179777 | 1.0 | 100 | |
| Ca | 43 | 2 | He | 71.958 | 42.3 | 207 | 35.7 | 100 | |
| Ca | 44 | 2 | He | 57.380 | 4.1 | 5398 | 1.0 | 100 | |
| V | 51 | 2 | He | -0.066 | -94.6 | 25371 | 0.7 | 2.5 | |
| Cr | 52 | 2 | He | -0.017 | -214.6 | 4957 | 3.9 | 2.5 | |
| Mn | 55 | 2 | He | 0.070 | 34.4 | 2724 | 3.9 | 2.5 | |
| Fe | 56 | 2 | He | 3.397 | 5.2 | 30125 | 4.1 | 100 | |
| Co | 59 | 2 | He | 0.002 | 425.2 | 393 | 15.5 | 2.5 | |
| Ni | 60 | 2 | He | 0.176 | 12.9 | 240 | 20.8 | 2.5 | |
| Cu | 63 | 2 | He | 0.443 | 10.7 | 1083 | 22.2 | 2 | |
| Zn | 66 | 2 | He | 0.766 | 5.6 | 500 | 10.0 | 2.5 | |
| As | 75 | 2 | He | 0.060 | 101.2 | 853 | 8.7 | 2.5 | |
| Se | 78 | 2 | He | 0.629 | 19.5 | 135 | 8.4 | 2 | |
| B | 11 | 1 | nogas | 4.069 | 8.9 | 52001 | 3.5 | 10 | |
| Si | 28 | 1 | nogas | -28.516 | -29.5 | 1672283 | 1.5 | 5 | |
| Ca | 43 | 1 | nogas | 77.086 | 15.6 | 4201 | 5.9 | 100 | |
| Ca | 44 | 1 | nogas | -316.270 | -4.0 | 252410 | 1.6 | 100 | |
| Fe | 56 | 1 | nogas | -18.838 | -54.1 | 2677824 | 4.2 | 100 | |
| Se | 77 | 1 | nogas | -35.408 | -40.2 | 71999 | 2.1 | 2.5 | |
| Se | 82 | 1 | nogas | 0.073 | 283.3 | 267 | 22.6 | 2 | |
| Mo | 95 | 1 | nogas | 0.156 | 123.5 | 3240 | 28.1 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.207 | 31.9 | 2567 | 19.3 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.262 | 13.6 | 1123 | 12.2 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 1.229 | 9.8 | 5601 | 10.8 | 2.5 | |
| P | 31 | 1 | nogas | -1.781 | -74.9 | 80079 | 1.8 | 10 | |
| La | 139 | 1 | nogas | 70.702 | 17.2 | 327 | 15.4 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 477.217 | 324.2 | 27 | 86.6 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1318699 | 2.38 | 1359891 | 96.97 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3222207 | 4.42 | 3145209 | 102.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 2910199 | 0.94 | 2761164 | 105.40 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2155319 | 0.75 | 2190177 | 98.41 | 70 | 125 | |
| Ge | 72 | 2 | He | 750098 | 1.35 | 785020 | 95.55 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120736-01 |
| Data File Name | 049SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T13:38:36-06:00 |
| Sample Type | Sample |
| Dilution | 50 |
| Comment | TW135804Mn |
| ISTD Ref FileName | 013CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.002 | 0.113 | 251.99 | 73 | 0.00 | 2000 | |
| Na | 23 | 1 | nogas | 14850.284 | 742514.224 | 2.02 | 372255283 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 2087.080 | 104354.003 | 3.81 | 33023050 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 1.374 | 68.687 | 32.08 | 54626 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 2.463 | 123.175 | 543.42 | 8017623 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 0.377 | 18.829 | 13.51 | 953 | 0.04 | 2000 | |
| V | 51 | 1 | nogas | 2.368 | 118.414 | 127.52 | 2292262 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | -1.306 | -65.322 | -11.84 | 95602 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 102.011 | 5100.569 | 4.47 | 2694784 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 0.146 | 7.317 | 4.30 | 4374 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 0.351 | 17.552 | 6.68 | 1613 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 0.040 | 1.986 | 23.78 | 2874 | 0.00 | 2000 | |
| Zn | 66 | 1 | nogas | 0.535 | 26.756 | 2.81 | 1337 | 0.04 | 2000 | |
| As | 75 | 1 | nogas | -8.461 | -423.070 | -6.90 | 224333 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 65.753 | 3287.645 | 2.81 | 1768892 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | -0.012 | -0.623 | -31.29 | 150 | -0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 0.002 | 0.096 | 190.24 | 23 | 0.01 | 2000 | |
| Sb | 121 | 1 | nogas | 0.071 | 3.552 | 13.27 | 1107 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | -0.018 | -0.922 | -19.82 | 560 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | -0.106 | -5.298 | -2.24 | 2877 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 0.014 | 0.700 | 20.27 | 437 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | -0.096 | -4.786 | -12.11 | 767 | -0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | -0.118 | -5.907 | -11.35 | 567 | -0.02 | 2000 | |
| Na | 23 | 2 | He | 15110.358 | 755517.914 | 2.72 | 22555186 | 0.07 | 200000 | |
| Mg | 24 | 2 | He | 2172.375 | 108618.766 | 1.04 | 1757875 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 1.073 | 53.654 | 25.81 | 1203 | 0.09 | 2000 | |
| K | 39 | 2 | He | -3.551 | -177.574 | -47.03 | 188722 | 0.00 | 200000 | |
| Ca | 43 | 2 | He | 3093.337 | 154666.843 | 2.73 | 7332 | 42.19 | 200000 | |
| Ca | 44 | 2 | He | 3174.667 | 158733.332 | 0.64 | 128718 | 2.47 | 200000 | |
| V | 51 | 2 | He | 0.693 | 34.665 | 12.80 | 29436 | 0.00 | 2000 | |
| Cr | 52 | 2 | He | 0.031 | 1.565 | 202.81 | 5201 | 0.00 | 2000 | |
| Mn | 55 | 2 | He | 96.484 | 4824.185 | 1.53 | 427394 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 668.868 | 33443.406 | 2.44 | 3591885 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 0.140 | 6.978 | 12.79 | 1550 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 0.227 | 11.338 | 15.02 | 343 | 0.07 | 2000 | |
| Cu | 63 | 2 | He | 0.428 | 21.401 | 1.86 | 993 | 0.04 | 2000 | |
| Zn | 66 | 2 | He | 0.626 | 31.303 | 4.47 | 313 | 0.20 | 2000 | |
| As | 75 | 2 | He | 0.196 | 9.821 | 3.40 | 1020 | 0.02 | 2000 | |
| Se | 78 | 2 | He | 0.756 | 37.810 | 19.16 | 147 | 0.52 | 2000 | |
| B | 11 | 1 | nogas | 0.072 | 3.582 | 372.94 | 29346 | 0.00 | 2000 | |
| Si | 28 | 1 | nogas | 427.945 | 21397.242 | 4.06 | 6566841 | 0.01 | 2000 | |
| Ca | 43 | 1 | nogas | 3172.904 | 158645.208 | 1.83 | 113890 | 2.79 | 200000 | |
| Ca | 44 | 1 | nogas | 2887.517 | 144375.831 | 2.22 | 2084540 | 0.14 | 200000 | |
| Fe | 56 | 1 | nogas | 672.852 | 33642.622 | 3.30 | 18082593 | 0.00 | 200000 | |
| Se | 77 | 1 | nogas | -30.020 | -1501.022 | -16.44 | 71660 | -0.04 | 2000 | |
| Se | 82 | 1 | nogas | -0.119 | -5.952 | -206.79 | 210 | -0.06 | 2000 | |

# Sample Report

| Mo | 95 | 1 | nogas | -0.074 | -3.714 | -59.56 | 1947 | 0.00 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | -0.009 | -0.426 | -100.70 | 867 | 0.00 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ba | 137 | 1 | nogas | 3.252 | 162.605 | 6.02 | 13082 | 0.02 | 2000 | |
| Sb | 121 | 2 | He | 0.060 | 2.994 | 24.82 | 353 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | 3.864 | 193.188 | 98.43 | 63 | 6.10 | 2000 | |
| Au | 197 | 1 | nogas | -855.801 | -42790.040 | -45.88 | 7 | -12837.01 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1290800 | 4.06 | 1359891 | 94.92 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3154059 | 2.82 | 3145209 | 100.28 | 70 | 125 | |
| In | 115 | 1 | nogas | 2853837 | 4.86 | 2761164 | 103.36 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2149612 | 2.83 | 2190177 | 98.15 | 70 | 125 | |
| Ge | 72 | 2 | He | 742560 | 1.83 | 785020 | 94.59 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 051_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T13:42:32-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 85.242 | 6.233 | 746063 | 1.73 | 100 | 85.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10106.138 | 2.238 | 246517314 | 3.04 | 10000 | 101.1 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9753.154 | 0.324 | 150136603 | 1.50 | 10000 | 97.5 | 90 | 110 | |
| Al | 27 | 1 | nogas | 115.336 | 0.376 | 2224526 | 2.15 | 100 | 115.3 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9662.862 | 0.870 | 192340267 | 1.47 | 10000 | 96.6 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 95.923 | 2.146 | 163795 | 1.48 | 100 | 95.9 | 90 | 110 | |
| V | 51 | 1 | nogas | 89.335 | 8.821 | 4220449 | 2.78 | 100 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 98.016 | 2.515 | 2170398 | 4.15 | 100 | 98.0 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 99.358 | 2.694 | 2564559 | 3.81 | 100 | 99.4 | 90 | 110 | |
| Co | 59 | 1 | nogas | 97.725 | 1.543 | 2157428 | 2.10 | 100 | 97.7 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 95.974 | 2.462 | 468269 | 2.20 | 100 | 96.0 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 93.300 | 2.775 | 1096403 | 0.78 | 100 | 93.3 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 95.730 | 3.590 | 367953 | 1.40 | 100 | 95.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 87.720 | 2.643 | 667491 | 0.75 | 100 | 87.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 95.720 | 3.206 | 2512412 | 1.60 | 100 | 95.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 95.939 | 5.097 | 1232494 | 3.63 | 100 | 95.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 94.231 | 4.648 | 268218 | 1.23 | 100 | 94.2 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 95.509 | 0.887 | 1159997 | 2.50 | 100 | 95.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.225 | 1.215 | 1894554 | 1.38 | 100 | 97.2 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 99.053 | 2.991 | 2551610 | 2.98 | 100 | 99.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 101.132 | 1.514 | 2638473 | 1.86 | 100 | 101.1 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 94.107 | 2.097 | 622917 | 2.20 | 100 | 94.1 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 95.903 | 1.744 | 551041 | 2.01 | 100 | 95.9 | 90 | 110 | |
| Na | 23 | 2 | He | 9649.507 | 2.347 | 14165282 | 1.26 | 10000 | 96.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9691.734 | 1.730 | 7699047 | 0.65 | 10000 | 96.9 | 90 | 110 | |
| Al | 27 | 2 | He | 110.540 | 1.509 | 52339 | 0.84 | 100 | 110.5 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9295.201 | 2.150 | 8255199 | 2.10 | 10000 | 93.0 | 90 | 110 | |
| Ca | 43 | 2 | He | 9536.295 | 0.885 | 22130 | 0.82 | 10000 | 95.4 | 90 | 110 | |
| Ca | 44 | 2 | He | 9331.597 | 1.256 | 365726 | 1.35 | 10000 | 93.3 | 90 | 110 | |
| V | 51 | 2 | He | 93.814 | 1.456 | 549598 | 0.05 | 100 | 93.8 | 90 | 110 | |
| Cr | 52 | 2 | He | 96.799 | 0.973 | 592797 | 0.61 | 100 | 96.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 94.979 | 1.041 | 413254 | 0.70 | 100 | 95.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 9516.557 | 0.942 | 50048763 | 0.84 | 10000 | 95.2 | 90 | 110 | |
| Co | 59 | 2 | He | 94.625 | 0.357 | 781346 | 1.15 | 100 | 94.6 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.902 | 0.511 | 201557 | 0.87 | 100 | 98.9 | 90 | 110 | |
| Cu | 63 | 2 | He | 98.270 | 1.498 | 509545 | 0.32 | 100 | 98.3 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.432 | 1.086 | 121289 | 1.93 | 100 | 95.4 | 90 | 110 | |
| As | 75 | 2 | He | 92.654 | 0.852 | 117034 | 0.85 | 100 | 92.7 | 90 | 110 | |
| Se | 78 | 2 | He | 91.542 | 1.101 | 9360 | 0.32 | 100 | 91.5 | 90 | 110 | |
| B | 11 | 1 | nogas | 446.060 | 3.907 | 2308220 | 1.49 | 500 | 89.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 4691.460 | 1.641 | 51348961 | 0.99 | 5000 | 93.8 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9441.217 | 1.581 | 328041 | 2.05 | 10000 | 94.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9164.330 | 1.999 | 5548196 | 1.65 | 10000 | 91.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9769.863 | 2.054 | 216224221 | 4.24 | 10000 | 97.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | 61.316 | 19.398 | 88514 | 0.58 | 100 | 61.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 91.927 | 4.064 | 23719 | 1.89 | 100 | 91.9 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.679 | 1.848 | 509849 | 0.74 | 100 | 95.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.453 | 1.993 | 694199 | 2.66 | 100 | 93.5 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 95.989 | 6.293 | 371905 | 2.14 | 100 | 96.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 94.319 | 1.364 | 410995 | 0.68 | 100 | 94.3 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.753 | 5.390 | 1792971 | 3.83 | 100 | 96.8 | 90 | 110 | |
| P | 31 | 1 | nogas | 459.962 | 2.074 | 814948 | 0.37 | 500 | 92.0 | 90 | 110 | |
| La | 139 | 1 | nogas | 147.731 | 23.151 | 593 | 18.49 | 100 | 147.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 65.504 | 1805.300 | 20 | 86.60 | 100 | 65.5 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1226650 | 4.46 | 1359891 | 90.20 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3078432 | 2.24 | 3145209 | 97.88 | 70 | 125 | |
| In | 115 | 1 | nogas | 2760799 | 4.57 | 2761164 | 99.99 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2089691 | 0.60 | 2190177 | 95.41 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 729245 | 1.34 | 785020 | 92.90 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 052_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T13:44:32-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.030 | 17.8 | 337 | 17.4 | 1 | |
| Na | 23 | 1 | nogas | 7.972 | 14.5 | 620749 | 3.9 | 100 | |
| Mg | 24 | 1 | nogas | 5.200 | 27.3 | 88363 | 24.7 | 100 | |
| Al | 27 | 1 | nogas | 19.442 | 2.2 | 419698 | 0.8 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -21.004 | -43.6 | 7789812 | 0.6 | 100 | |
| Ti | 47 | 1 | nogas | 0.026 | 200.0 | 350 | 25.7 | 2.5 | |
| V | 51 | 1 | nogas | -17.572 | -12.9 | 1882430 | 3.3 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.778 | -7.0 | 88145 | 3.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.061 | 58.0 | 33360 | 1.3 | 2.5 | |
| Co | 59 | 1 | nogas | 0.020 | 99.1 | 1557 | 27.6 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.209 | 20.9 | 927 | 22.2 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.015 | 293.7 | 2647 | 18.6 | 2 | |
| Zn | 66 | 1 | nogas | 0.600 | 14.3 | 1637 | 19.3 | 2.5 | |
| As | 75 | 1 | nogas | -12.684 | -4.5 | 210322 | 2.2 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.382 | 8.9 | 11410 | 7.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.017 | 45.0 | 557 | 17.3 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.032 | 89.5 | 107 | 71.6 | 1 | |
| Sb | 121 | 1 | nogas | 1.801 | 22.1 | 23263 | 20.2 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.113 | 62.1 | 3337 | 46.7 | 1 | |
| Pb | 208 | 1 | nogas | -0.036 | -74.3 | 4684 | 14.5 | 2.5 | |
| U | 238 | 1 | nogas | 0.114 | 65.8 | 3254 | 67.2 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.032 | -35.2 | 1240 | 9.3 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.058 | -40.4 | 957 | 17.5 | 2.5 | |
| Na | 23 | 2 | He | 6.831 | 14.1 | 61138 | 1.6 | 100 | |
| Mg | 24 | 2 | He | 3.616 | 10.1 | 3314 | 9.2 | 100 | |
| Al | 27 | 2 | He | 19.200 | 6.6 | 9709 | 6.1 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -13.503 | -31.0 | 180090 | 2.0 | 100 | |
| Ca | 43 | 2 | He | 71.055 | 14.4 | 200 | 13.2 | 100 | |
| Ca | 44 | 2 | He | 57.537 | 2.2 | 5284 | 2.1 | 100 | |
| V | 51 | 2 | He | -0.521 | -18.8 | 22241 | 0.6 | 2.5 | |
| Cr | 52 | 2 | He | -0.042 | -96.7 | 4689 | 3.9 | 2.5 | |
| Mn | 55 | 2 | He | -0.019 | -144.0 | 2277 | 3.2 | 2.5 | |
| Fe | 56 | 2 | He | 3.107 | 6.5 | 27931 | 5.9 | 100 | |
| Co | 59 | 2 | He | -0.003 | -116.6 | 347 | 6.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.179 | 21.1 | 240 | 31.5 | 2.5 | |
| Cu | 63 | 2 | He | 0.415 | 3.4 | 913 | 8.4 | 2 | |
| Zn | 66 | 2 | He | 0.761 | 12.1 | 480 | 21.9 | 2.5 | |
| As | 75 | 2 | He | 0.026 | 278.1 | 791 | 9.1 | 2.5 | |
| Se | 78 | 2 | He | 0.672 | 30.2 | 136 | 14.2 | 2 | |
| B | 11 | 1 | nogas | 4.318 | 6.4 | 52489 | 3.7 | 10 | |
| Si | 28 | 1 | nogas | -35.874 | -15.5 | 1608009 | 5.6 | 5 | |
| Ca | 43 | 1 | nogas | 66.822 | 12.9 | 3870 | 6.4 | 100 | |
| Ca | 44 | 1 | nogas | -359.633 | -1.8 | 229096 | 0.6 | 100 | |
| Fe | 56 | 1 | nogas | -20.693 | -33.4 | 2662709 | 4.1 | 100 | |
| Se | 77 | 1 | nogas | -52.315 | -16.9 | 69037 | 1.7 | 2.5 | |
| Se | 82 | 1 | nogas | 0.158 | 206.3 | 290 | 28.2 | 2 | |
| Mo | 95 | 1 | nogas | 0.132 | 171.8 | 3150 | 38.2 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.226 | 26.2 | 2607 | 12.5 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.258 | 1.9 | 1067 | 4.6 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 1.217 | 6.1 | 5421 | 7.4 | 2.5 | |
| P | 31 | 1 | nogas | -1.912 | -45.0 | 80584 | 0.6 | 10 | |
| La | 139 | 1 | nogas | 85.569 | 17.8 | 370 | 16.4 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | -27.213 | -4753.9 | 20 | 100.0 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1296977 | 4.14 | 1359891 | 95.37 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3249536 | 1.87 | 3145209 | 103.32 | 70 | 125 | |
| In | 115 | 1 | nogas | 2798792 | 4.43 | 2761164 | 101.36 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2223599 | 3.08 | 2190177 | 101.53 | 70 | 125 | |
| Ge | 72 | 2 | He | 733533 | 3.03 | 785020 | 93.44 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 053_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T13:46:30-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 90.368 | 9.962 | 747571 | 0.68 | 100 | 90.4 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9593.978 | 3.767 | 237573905 | 2.25 | 10000 | 95.9 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9547.284 | 3.352 | 149194324 | 1.46 | 10000 | 95.5 | 90 | 110 | |
| Al | 27 | 1 | nogas | 119.921 | 1.852 | 2275102 | 2.27 | 100 | 119.9 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9873.448 | 5.090 | 193108779 | 1.59 | 10000 | 98.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 97.014 | 2.439 | 163023 | 1.21 | 100 | 97.0 | 90 | 110 | |
| V | 51 | 1 | nogas | 88.584 | 7.816 | 4136299 | 0.26 | 100 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 99.085 | 4.473 | 2156617 | 2.95 | 100 | 99.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.306 | 2.333 | 2547094 | 1.96 | 100 | 100.3 | 90 | 110 | |
| Co | 59 | 1 | nogas | 97.255 | 2.302 | 2112769 | 1.60 | 100 | 97.3 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 95.594 | 3.860 | 458860 | 1.30 | 100 | 95.6 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 93.901 | 2.337 | 1086155 | 1.61 | 100 | 93.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 97.100 | 2.322 | 367427 | 1.60 | 100 | 97.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 89.380 | 5.368 | 664359 | 0.38 | 100 | 89.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 96.583 | 1.486 | 2496956 | 4.26 | 100 | 96.6 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 96.700 | 2.042 | 1223158 | 2.00 | 100 | 96.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.072 | 3.712 | 267828 | 1.14 | 100 | 96.1 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 94.466 | 1.051 | 1129440 | 3.64 | 100 | 94.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 96.544 | 5.096 | 1926371 | 3.06 | 100 | 96.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.485 | 1.404 | 2588429 | 1.40 | 100 | 100.5 | 90 | 110 | |
| U | 238 | 1 | nogas | 99.352 | 3.108 | 2657124 | 5.23 | 100 | 99.4 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 90.818 | 3.030 | 615788 | 1.16 | 100 | 90.8 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 94.072 | 2.743 | 553673 | 0.86 | 100 | 94.1 | 90 | 110 | |
| Na | 23 | 2 | He | 9578.242 | 0.745 | 14197159 | 1.46 | 10000 | 95.8 | 90 | 110 | |
| Mg | 24 | 2 | He | 9508.536 | 2.207 | 7625536 | 1.84 | 10000 | 95.1 | 90 | 110 | |
| Al | 27 | 2 | He | 111.041 | 2.937 | 53071 | 2.45 | 100 | 111.0 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9329.340 | 2.402 | 8284814 | 2.35 | 10000 | 93.3 | 90 | 110 | |
| Ca | 43 | 2 | He | 8980.647 | 1.061 | 21042 | 1.78 | 10000 | 89.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 9378.342 | 0.787 | 371025 | 0.51 | 10000 | 93.8 | 90 | 110 | |
| V | 51 | 2 | He | 92.449 | 1.718 | 547116 | 1.01 | 100 | 92.4 | 90 | 110 | |
| Cr | 52 | 2 | He | 95.230 | 1.886 | 588773 | 1.20 | 100 | 95.2 | 90 | 110 | |
| Mn | 55 | 2 | He | 93.043 | 0.444 | 408731 | 0.29 | 100 | 93.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 9558.381 | 0.181 | 50747584 | 0.89 | 10000 | 95.6 | 90 | 110 | |
| Co | 59 | 2 | He | 92.916 | 0.430 | 774495 | 0.45 | 100 | 92.9 | 90 | 110 | |
| Ni | 60 | 2 | He | 95.727 | 0.981 | 196944 | 1.70 | 100 | 95.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 96.187 | 1.838 | 503452 | 1.13 | 100 | 96.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 94.123 | 2.979 | 120729 | 2.28 | 100 | 94.1 | 90 | 110 | |
| As | 75 | 2 | He | 92.640 | 0.339 | 118128 | 0.59 | 100 | 92.6 | 90 | 110 | |
| Se | 78 | 2 | He | 91.354 | 4.538 | 9428 | 3.78 | 100 | 91.4 | 90 | 110 | |
| B | 11 | 1 | nogas | 465.693 | 8.979 | 2276480 | 1.53 | 500 | 93.1 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4733.570 | 2.114 | 50974519 | 1.73 | 5000 | 94.7 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9536.096 | 4.468 | 325862 | 1.11 | 10000 | 95.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9637.238 | 5.332 | 5718126 | 2.90 | 10000 | 96.4 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9813.913 | 5.086 | 213491396 | 1.71 | 10000 | 98.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 51.381 | 26.338 | 85118 | 0.74 | 100 | 51.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 95.239 | 0.974 | 24193 | 2.94 | 100 | 95.2 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 97.206 | 2.345 | 509775 | 1.88 | 100 | 97.2 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 95.603 | 3.005 | 695156 | 1.93 | 100 | 95.6 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 97.031 | 3.832 | 368365 | 1.06 | 100 | 97.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 93.344 | 0.406 | 410632 | 0.38 | 100 | 93.3 | 90 | 110 | |
| Li | 7 | 1 | nogas | 98.575 | 6.181 | 1730151 | 7.36 | 100 | 98.6 | 90 | 110 | |
| P | 31 | 1 | nogas | 470.188 | 3.669 | 817951 | 0.47 | 500 | 94.0 | 90 | 110 | |
| La | 139 | 1 | nogas | 186.390 | 13.941 | 727 | 16.99 | 100 | 186.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -640.567 | -102.870 | 10 | 100.00 | 100 | -640.6 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1164707 | 9.61 | 1359891 | 85.65 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3030619 | 3.70 | 3145209 | 96.36 | 70 | 125 | |
| In | 115 | 1 | nogas | 2703077 | 4.34 | 2761164 | 97.90 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2141308 | 2.17 | 2190177 | 97.77 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 736138 | 0.73 | 785020 | 93.77 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 054_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T13:48:28-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.043 | 48.6 | 457 | 41.0 | 1 | |
| Na | 23 | 1 | nogas | 8.160 | 31.2 | 619447 | 6.9 | 100 | |
| Mg | 24 | 1 | nogas | 5.870 | 27.3 | 97810 | 22.4 | 100 | |
| Al | 27 | 1 | nogas | 20.026 | 1.6 | 419687 | 1.7 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -10.580 | -12.6 | 7782219 | 0.5 | 100 | |
| Ti | 47 | 1 | nogas | 0.112 | 44.7 | 490 | 17.4 | 2.5 | |
| V | 51 | 1 | nogas | -17.498 | -11.2 | 1832599 | 2.9 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.633 | -4.6 | 88842 | 2.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.088 | 21.6 | 33163 | 1.5 | 2.5 | |
| Co | 59 | 1 | nogas | 0.027 | 42.2 | 1673 | 15.0 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.222 | 4.3 | 967 | 5.3 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.012 | 157.2 | 2544 | 8.7 | 2 | |
| Zn | 66 | 1 | nogas | 0.612 | 9.0 | 1643 | 13.0 | 2.5 | |
| As | 75 | 1 | nogas | -11.362 | -8.0 | 210875 | 2.1 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.395 | 1.0 | 11467 | 0.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.023 | 53.3 | 623 | 26.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.043 | 49.4 | 147 | 45.4 | 1 | |
| Sb | 121 | 1 | nogas | 1.918 | 21.3 | 24121 | 20.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.140 | 68.8 | 3831 | 50.7 | 1 | |
| Pb | 208 | 1 | nogas | -0.027 | -156.0 | 4894 | 22.5 | 2.5 | |
| U | 238 | 1 | nogas | 0.141 | 66.3 | 3951 | 64.4 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.026 | -119.4 | 1273 | 16.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.063 | -57.6 | 920 | 22.8 | 2.5 | |
| Na | 23 | 2 | He | 6.332 | 17.8 | 60402 | 2.2 | 100 | |
| Mg | 24 | 2 | He | 4.097 | 3.9 | 3697 | 3.7 | 100 | |
| Al | 27 | 2 | He | 19.422 | 7.0 | 9813 | 6.4 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -15.256 | -15.2 | 178569 | 1.1 | 100 | |
| Ca | 43 | 2 | He | 86.999 | 32.6 | 237 | 27.2 | 100 | |
| Ca | 44 | 2 | He | 55.840 | 0.3 | 5217 | 1.4 | 100 | |
| V | 51 | 2 | He | -0.676 | -10.5 | 21374 | 0.7 | 2.5 | |
| Cr | 52 | 2 | He | -0.007 | -674.8 | 4904 | 4.7 | 2.5 | |
| Mn | 55 | 2 | He | 0.021 | 130.1 | 2450 | 3.7 | 2.5 | |
| Fe | 56 | 2 | He | 3.581 | 3.4 | 30425 | 3.3 | 100 | |
| Co | 59 | 2 | He | 0.004 | 79.1 | 403 | 5.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.144 | 8.5 | 170 | 15.6 | 2.5 | |
| Cu | 63 | 2 | He | 0.410 | 6.8 | 890 | 17.3 | 2 | |
| Zn | 66 | 2 | He | 0.746 | 3.7 | 463 | 7.6 | 2.5 | |
| As | 75 | 2 | He | 0.026 | 238.6 | 791 | 8.6 | 2.5 | |
| Se | 78 | 2 | He | 0.749 | 23.6 | 144 | 12.7 | 2 | |
| B | 11 | 1 | nogas | 5.665 | 13.8 | 60813 | 4.1 | 10 | |
| Si | 28 | 1 | nogas | -33.448 | -15.6 | 1589172 | 3.1 | 5 | |
| Ca | 43 | 1 | nogas | 74.227 | 6.8 | 4030 | 4.3 | 100 | |
| Ca | 44 | 1 | nogas | -348.767 | -0.5 | 229086 | 0.7 | 100 | |
| Fe | 56 | 1 | nogas | -18.613 | -20.5 | 2637835 | 2.9 | 100 | |
| Se | 77 | 1 | nogas | -47.999 | -14.2 | 68061 | 2.3 | 2.5 | |
| Se | 82 | 1 | nogas | 0.184 | 165.8 | 290 | 27.6 | 2 | |
| Mo | 95 | 1 | nogas | 0.138 | 121.0 | 3107 | 28.9 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.214 | 14.3 | 2577 | 9.2 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.255 | 11.0 | 1073 | 7.8 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 1.376 | 1.7 | 6118 | 2.9 | 2.5 | |
| P | 31 | 1 | nogas | -0.298 | -148.5 | 81036 | 1.0 | 10 | |
| La | 139 | 1 | nogas | 98.010 | 16.0 | 427 | 17.6 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | -442.743 | -224.9 | 13 | 114.6 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1320998 | 3.17 | 1359891 | 97.14 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3160184 | 0.43 | 3145209 | 100.48 | 70 | 125 | |
| In | 115 | 1 | nogas | 2855874 | 3.49 | 2761164 | 103.43 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2212615 | 0.95 | 2190177 | 101.02 | 70 | 125 | |
| Ge | 72 | 2 | He | 733334 | 1.27 | 785020 | 93.42 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120736-01 |
| Data File Name | 061SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T14:02:20-06:00 |
| Sample Type | Sample |
| Dilution | 50 |
| Comment | Diss135805Mn |
| ISTD Ref FileName | 013CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.001 | 0.073 | 261.07 | 70 | 0.00 | 2000 | |
| Na | 23 | 1 | nogas | 13011.526 | 650576.315 | 3.48 | 318618215 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 1815.332 | 90766.606 | 4.65 | 28062768 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 1.341 | 67.045 | 2.37 | 54278 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 2.096 | 104.792 | 303.07 | 8033542 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 0.359 | 17.959 | 10.42 | 923 | 0.04 | 2000 | |
| V | 51 | 1 | nogas | -4.175 | -208.736 | -22.17 | 2145379 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | -1.447 | -72.373 | -3.65 | 92871 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 89.786 | 4489.318 | 2.92 | 2382672 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 0.121 | 6.064 | 2.31 | 3817 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 0.304 | 15.175 | 8.55 | 1377 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 0.024 | 1.199 | 40.85 | 2690 | 0.00 | 2000 | |
| Zn | 66 | 1 | nogas | 0.450 | 22.524 | 10.33 | 1007 | 0.04 | 2000 | |
| As | 75 | 1 | nogas | -9.579 | -478.975 | -2.34 | 219514 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 58.453 | 2922.633 | 1.58 | 1576540 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | -0.015 | -0.736 | -16.10 | 120 | -0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 0.001 | 0.043 | 36.09 | 20 | 0.00 | 2000 | |
| Sb | 121 | 1 | nogas | 0.113 | 5.652 | 6.37 | 1630 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | -0.018 | -0.879 | -22.08 | 577 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | -0.120 | -6.012 | -8.41 | 2510 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 0.014 | 0.675 | 5.96 | 423 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | -0.106 | -5.303 | -6.44 | 693 | -0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | -0.126 | -6.298 | -2.04 | 520 | -0.02 | 2000 | |
| Na | 23 | 2 | He | 13017.222 | 650861.103 | 3.28 | 19386562 | 0.07 | 200000 | |
| Mg | 24 | 2 | He | 1900.621 | 95031.058 | 5.54 | 1533250 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 1.173 | 58.630 | 43.12 | 1250 | 0.09 | 2000 | |
| K | 39 | 2 | He | -3.636 | -181.824 | -28.03 | 188648 | 0.00 | 200000 | |
| Ca | 43 | 2 | He | 2692.207 | 134610.369 | 5.06 | 6368 | 42.28 | 200000 | |
| Ca | 44 | 2 | He | 2736.379 | 136818.955 | 2.35 | 111063 | 2.46 | 200000 | |
| V | 51 | 2 | He | 0.195 | 9.752 | 50.22 | 26529 | 0.00 | 2000 | |
| Cr | 52 | 2 | He | 0.000 | -0.022 | -11520.72 | 4994 | 0.00 | 2000 | |
| Mn | 55 | 2 | He | 84.418 | 4220.905 | 1.27 | 373275 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 604.869 | 30243.429 | 3.13 | 3241176 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 0.107 | 5.363 | 16.74 | 1273 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 0.224 | 11.198 | 17.31 | 337 | 0.07 | 2000 | |
| Cu | 63 | 2 | He | 0.426 | 21.298 | 0.96 | 980 | 0.04 | 2000 | |
| Zn | 66 | 2 | He | 0.676 | 33.776 | 0.71 | 377 | 0.18 | 2000 | |
| As | 75 | 2 | He | 0.166 | 8.293 | 36.31 | 979 | 0.02 | 2000 | |
| Se | 78 | 2 | He | 0.574 | 28.691 | 19.41 | 127 | 0.45 | 2000 | |
| B | 11 | 1 | nogas | -0.116 | -5.798 | -225.30 | 29597 | 0.00 | 2000 | |
| Si | 28 | 1 | nogas | 367.031 | 18351.575 | 1.74 | 5926124 | 0.01 | 2000 | |
| Ca | 43 | 1 | nogas | 2614.549 | 130727.431 | 4.09 | 94291 | 2.77 | 200000 | |
| Ca | 44 | 1 | nogas | 2330.625 | 116531.252 | 4.09 | 1769399 | 0.13 | 200000 | |
| Fe | 56 | 1 | nogas | 597.564 | 29878.203 | 0.76 | 16446765 | 0.00 | 200000 | |
| Se | 77 | 1 | nogas | -39.044 | -1952.199 | -8.93 | 69961 | -0.06 | 2000 | |
| Se | 82 | 1 | nogas | 0.134 | 6.716 | 284.41 | 277 | 0.05 | 2000 | |

# Sample Report

| Mo | 95 | 1 | nogas | -0.198 | -9.898 | -21.38 | 1280 | -0.02 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | -0.023 | -1.146 | -29.00 | 763 | 0.00 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ba | 137 | 1 | nogas | 2.960 | 148.010 | 4.64 | 12001 | 0.02 | 2000 | |
| Sb | 121 | 2 | He | 0.117 | 5.859 | 9.05 | 607 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | 0.090 | 4.483 | 9880.20 | 50 | 0.18 | 2000 | |
| Au | 197 | 1 | nogas | -854.323 | -42716.131 | -46.10 | 7 | -12814.84 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1347612 | 2.72 | 1359891 | 99.10 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3161555 | 1.22 | 3145209 | 100.52 | 70 | 125 | |
| In | 115 | 1 | nogas | 2875182 | 4.48 | 2761164 | 104.13 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2141836 | 2.62 | 2190177 | 97.79 | 70 | 125 | |
| Ge | 72 | 2 | He | 740581 | 1.23 | 785020 | 94.34 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 065_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T14:10:18-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 84.030 | 2.983 | 747275 | 0.89 | 100 | 84.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 9718.500 | 6.889 | 241232972 | 3.35 | 10000 | 97.2 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9486.793 | 5.035 | 148666299 | 0.20 | 10000 | 94.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 111.770 | 2.280 | 2181116 | 1.59 | 100 | 111.8 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9672.968 | 0.905 | 194755579 | 0.46 | 10000 | 96.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 93.669 | 0.797 | 161834 | 1.70 | 100 | 93.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 86.759 | 4.931 | 4211268 | 2.02 | 100 | 86.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 96.546 | 2.836 | 2164102 | 3.60 | 100 | 96.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.714 | 3.108 | 2628924 | 3.46 | 100 | 100.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 97.628 | 0.888 | 2180229 | 1.28 | 100 | 97.6 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 94.674 | 0.744 | 467342 | 1.65 | 100 | 94.7 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 93.612 | 0.465 | 1113153 | 1.39 | 100 | 93.6 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 96.061 | 0.900 | 373651 | 0.82 | 100 | 96.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 86.737 | 2.376 | 670605 | 0.56 | 100 | 86.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 96.629 | 0.720 | 2566521 | 1.45 | 100 | 96.6 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 99.873 | 3.595 | 1298716 | 4.27 | 100 | 99.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 94.779 | 1.881 | 270017 | 1.38 | 100 | 94.8 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 93.547 | 1.738 | 1149140 | 1.66 | 100 | 93.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 90.605 | 1.718 | 1882106 | 3.13 | 100 | 90.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 101.662 | 2.801 | 2618675 | 2.79 | 100 | 101.7 | 90 | 110 | |
| U | 238 | 1 | nogas | 99.708 | 2.569 | 2772504 | 3.01 | 100 | 99.7 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 88.164 | 1.064 | 622059 | 1.54 | 100 | 88.2 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 207 | 1 | nogas | 90.351 | 1.226 | 553360 | 1.73 | 100 | 90.4 | 90 | 110 | |
| Na | 23 | 2 | He | 9678.006 | 0.923 | 14225419 | 1.52 | 10000 | 96.8 | 90 | 110 | |
| Mg | 24 | 2 | He | 9682.787 | 1.259 | 7700863 | 0.46 | 10000 | 96.8 | 90 | 110 | |
| Al | 27 | 2 | He | 115.023 | 2.521 | 54489 | 1.22 | 100 | 115.0 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9402.050 | 1.601 | 8347889 | 1.56 | 10000 | 94.0 | 90 | 110 | |
| Ca | 43 | 2 | He | 9448.418 | 0.457 | 21953 | 1.71 | 10000 | 94.5 | 90 | 110 | |
| Ca | 44 | 2 | He | 9395.441 | 1.469 | 368594 | 0.58 | 10000 | 94.0 | 90 | 110 | |
| V | 51 | 2 | He | 93.613 | 1.116 | 549110 | 0.80 | 100 | 93.6 | 90 | 110 | |
| Cr | 52 | 2 | He | 95.528 | 1.579 | 585756 | 1.81 | 100 | 95.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 94.844 | 2.185 | 413157 | 2.41 | 100 | 94.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 9712.651 | 2.126 | 51132256 | 1.26 | 10000 | 97.1 | 90 | 110 | |
| Co | 59 | 2 | He | 94.268 | 1.256 | 779197 | 0.31 | 100 | 94.3 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.527 | 2.499 | 198954 | 1.81 | 100 | 97.5 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.719 | 2.490 | 507224 | 1.64 | 100 | 97.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.237 | 1.444 | 121158 | 0.70 | 100 | 95.2 | 90 | 110 | |
| As | 75 | 2 | He | 93.352 | 1.473 | 118033 | 0.34 | 100 | 93.4 | 90 | 110 | |
| Se | 78 | 2 | He | 90.869 | 3.548 | 9300 | 2.12 | 100 | 90.9 | 90 | 110 | |
| B | 11 | 1 | nogas | 437.566 | 5.335 | 2298706 | 3.21 | 500 | 87.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 4671.641 | 0.437 | 51739239 | 1.34 | 5000 | 93.4 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9428.537 | 1.984 | 331375 | 1.67 | 10000 | 94.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9088.714 | 2.844 | 5569923 | 2.62 | 10000 | 90.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9642.451 | 1.451 | 215844896 | 2.31 | 10000 | 96.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 45.031 | 23.558 | 86203 | 1.97 | 100 | 45.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 93.429 | 3.075 | 24393 | 3.12 | 100 | 93.4 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 94.456 | 0.962 | 509287 | 1.72 | 100 | 94.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 91.618 | 1.203 | 680731 | 1.74 | 100 | 91.6 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.287 | 4.067 | 373403 | 1.32 | 100 | 96.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 94.704 | 2.273 | 413182 | 2.65 | 100 | 94.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 95.337 | 4.565 | 1794920 | 2.40 | 100 | 95.3 | 90 | 110 | |
| P | 31 | 1 | nogas | 456.604 | 0.863 | 819121 | 1.60 | 500 | 91.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 181.158 | 11.806 | 720 | 11.37 | 100 | 181.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 833.064 | 111.744 | 33 | 45.83 | 100 | 833.1 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1244588 | 2.12 | 1359891 | 91.52 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3113742 | 0.92 | 3145209 | 99.00 | 70 | 125 | |
| In | 115 | 1 | nogas | 2760370 | 2.91 | 2761164 | 99.97 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2227461 | 2.33 | 2190177 | 101.70 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 730077 | 1.55 | 785020 | 93.00 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 066_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T14:12:17-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.039 | 37.2 | 443 | 29.0 | 1 | |
| Na | 23 | 1 | nogas | 10.866 | 13.4 | 670765 | 5.3 | 100 | |
| Mg | 24 | 1 | nogas | 6.202 | 18.3 | 100961 | 17.3 | 100 | |
| Al | 27 | 1 | nogas | 19.828 | 1.3 | 424873 | 2.4 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -14.951 | -45.9 | 7862592 | 0.7 | 100 | |
| Ti | 47 | 1 | nogas | 0.087 | 54.6 | 457 | 17.6 | 2.5 | |
| V | 51 | 1 | nogas | -21.480 | -5.6 | 1777174 | 2.8 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.796 | -3.1 | 87190 | 1.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.060 | 30.3 | 33150 | 0.7 | 2.5 | |
| Co | 59 | 1 | nogas | 0.033 | 55.4 | 1857 | 21.8 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.237 | 20.4 | 1063 | 22.1 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.020 | 48.5 | 2694 | 3.2 | 2 | |
| Zn | 66 | 1 | nogas | 0.581 | 6.6 | 1553 | 8.7 | 2.5 | |
| As | 75 | 1 | nogas | -13.362 | -4.7 | 205660 | 1.7 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.387 | 3.5 | 11490 | 3.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.028 | 30.6 | 703 | 15.7 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.049 | 23.0 | 157 | 18.4 | 1 | |
| Sb | 121 | 1 | nogas | 1.657 | 21.7 | 21290 | 20.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.129 | 66.5 | 3727 | 46.5 | 1 | |
| Pb | 208 | 1 | nogas | -0.044 | -76.8 | 4474 | 19.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.116 | 60.2 | 3351 | 56.7 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.055 | -32.8 | 1107 | 11.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.062 | -61.6 | 953 | 22.4 | 2.5 | |
| Na | 23 | 2 | He | 6.386 | 19.8 | 61563 | 2.1 | 100 | |
| Mg | 24 | 2 | He | 4.313 | 4.6 | 3940 | 5.3 | 100 | |
| Al | 27 | 2 | He | 20.018 | 3.4 | 10273 | 2.7 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -11.824 | -18.0 | 181546 | 1.0 | 100 | |
| Ca | 43 | 2 | He | 91.911 | 40.7 | 253 | 35.8 | 100 | |
| Ca | 44 | 2 | He | 48.128 | 5.0 | 5004 | 2.2 | 100 | |
| V | 51 | 2 | He | -0.802 | -4.2 | 21038 | 0.6 | 2.5 | |
| Cr | 52 | 2 | He | -0.093 | -16.4 | 4457 | 1.0 | 2.5 | |
| Mn | 55 | 2 | He | -0.055 | -65.4 | 2157 | 6.9 | 2.5 | |
| Fe | 56 | 2 | He | 3.633 | 11.3 | 31237 | 6.7 | 100 | |
| Co | 59 | 2 | He | 0.004 | 132.8 | 413 | 12.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.178 | 14.7 | 243 | 23.7 | 2.5 | |
| Cu | 63 | 2 | He | 0.433 | 1.2 | 1027 | 3.7 | 2 | |
| Zn | 66 | 2 | He | 0.775 | 6.7 | 510 | 14.1 | 2.5 | |
| As | 75 | 2 | He | 0.055 | 69.6 | 843 | 6.4 | 2.5 | |
| Se | 78 | 2 | He | 0.731 | 22.2 | 145 | 11.2 | 2 | |
| B | 11 | 1 | nogas | 3.822 | 23.2 | 53324 | 5.8 | 10 | |
| Si | 28 | 1 | nogas | -40.245 | -30.6 | 1547600 | 7.6 | 5 | |
| Ca | 43 | 1 | nogas | 68.120 | 13.8 | 3894 | 7.5 | 100 | |
| Ca | 44 | 1 | nogas | -376.219 | -1.5 | 217915 | 0.6 | 100 | |
| Fe | 56 | 1 | nogas | -19.758 | -29.7 | 2668004 | 3.8 | 100 | |
| Se | 77 | 1 | nogas | -60.697 | -5.8 | 66826 | 1.6 | 2.5 | |
| Se | 82 | 1 | nogas | 0.111 | 8.6 | 277 | 2.1 | 2 | |
| Mo | 95 | 1 | nogas | 0.142 | 120.1 | 3194 | 28.5 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.226 | 36.8 | 2577 | 24.8 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.286 | 20.3 | 1157 | 19.8 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 1.048 | 6.0 | 4764 | 6.3 | 2.5 | |
| P | 31 | 1 | nogas | 0.875 | 99.8 | 84752 | 0.8 | 10 | |
| La | 139 | 1 | nogas | 80.810 | 23.2 | 347 | 22.0 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 576.966 | 109.1 | 30 | 33.3 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1391875 | 4.52 | 1359891 | 102.35 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3228810 | 1.21 | 3145209 | 102.66 | 70 | 125 | |
| In | 115 | 1 | nogas | 2749225 | 2.08 | 2761164 | 99.57 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2289745 | 3.47 | 2190177 | 104.55 | 70 | 125 | |
| Ge | 72 | 2 | He | 746487 | 1.15 | 785020 | 95.09 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 070_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T14:20:17-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 80.564 | 2.167 | 752794 | 2.03 | 100 | 80.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 9714.897 | 4.961 | 236686914 | 2.88 | 10000 | 97.1 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9640.629 | 2.894 | 148266416 | 0.30 | 10000 | 96.4 | 90 | 110 | |
| Al | 27 | 1 | nogas | 112.601 | 2.304 | 2225662 | 2.10 | 100 | 112.6 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9403.085 | 1.183 | 191997288 | 1.30 | 10000 | 94.0 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 92.590 | 3.648 | 162026 | 3.56 | 100 | 92.6 | 90 | 110 | |
| V | 51 | 1 | nogas | 80.346 | 0.517 | 4116000 | 0.47 | 100 | 80.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 93.742 | 3.282 | 2131691 | 3.35 | 100 | 93.7 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 99.328 | 0.944 | 2626399 | 0.56 | 100 | 99.3 | 90 | 110 | |
| Co | 59 | 1 | nogas | 95.818 | 0.646 | 2167381 | 0.34 | 100 | 95.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 92.440 | 1.729 | 462169 | 1.60 | 100 | 92.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 90.086 | 1.177 | 1085073 | 0.80 | 100 | 90.1 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 92.984 | 0.366 | 366334 | 0.63 | 100 | 93.0 | 90 | 110 | |
| As | 75 | 1 | nogas | 84.341 | 1.186 | 667880 | 1.08 | 100 | 84.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 96.137 | 3.476 | 2586363 | 3.52 | 100 | 96.1 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 94.903 | 2.712 | 1249808 | 2.59 | 100 | 94.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 92.505 | 1.356 | 274151 | 3.29 | 100 | 92.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 91.000 | 1.547 | 1132366 | 1.92 | 100 | 91.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 100.910 | 0.449 | 1981863 | 2.53 | 100 | 100.9 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 98.472 | 1.531 | 2536672 | 1.53 | 100 | 98.5 | 90 | 110 | |
| U | 238 | 1 | nogas | 100.679 | 0.931 | 2647304 | 2.52 | 100 | 100.7 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 93.253 | 1.744 | 621983 | 0.84 | 100 | 93.3 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 93.192 | 0.878 | 539636 | 1.42 | 100 | 93.2 | 90 | 110 | |
| Na | 23 | 2 | He | 9667.026 | 1.478 | 14308121 | 1.56 | 10000 | 96.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 9758.610 | 1.904 | 7817162 | 3.00 | 10000 | 97.6 | 90 | 110 | |
| Al | 27 | 2 | He | 109.756 | 1.745 | 52406 | 2.85 | 100 | 109.8 | 90 | 110 | |
| K | 39 | 2 | He | 9292.220 | 1.049 | 8252613 | 1.02 | 10000 | 92.9 | 90 | 110 | |
| Ca | 43 | 2 | He | 9503.449 | 2.367 | 22230 | 1.22 | 10000 | 95.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 9426.638 | 2.543 | 372367 | 1.58 | 10000 | 94.3 | 90 | 110 | |
| V | 51 | 2 | He | 93.157 | 2.020 | 550333 | 0.82 | 100 | 93.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.328 | 1.652 | 582440 | 0.50 | 100 | 94.3 | 90 | 110 | |
| Mn | 55 | 2 | He | 93.871 | 0.984 | 411786 | 1.01 | 100 | 93.9 | 90 | 110 | |
| Fe | 56 | 2 | He | 9567.227 | 2.513 | 50720341 | 2.04 | 10000 | 95.7 | 90 | 110 | |
| Co | 59 | 2 | He | 93.193 | 0.974 | 775730 | 0.63 | 100 | 93.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 96.856 | 1.983 | 198977 | 1.61 | 100 | 96.9 | 90 | 110 | |
| Cu | 63 | 2 | He | 96.255 | 2.054 | 503204 | 2.64 | 100 | 96.3 | 90 | 110 | |
| Zn | 66 | 2 | He | 94.657 | 1.738 | 121285 | 2.78 | 100 | 94.7 | 90 | 110 | |
| As | 75 | 2 | He | 92.483 | 1.913 | 117758 | 1.02 | 100 | 92.5 | 90 | 110 | |
| Se | 78 | 2 | He | 91.203 | 1.732 | 9401 | 1.37 | 100 | 91.2 | 90 | 110 | |
| B | 11 | 1 | nogas | 412.178 | 2.969 | 2277104 | 1.12 | 500 | 82.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 4567.310 | 1.793 | 51276331 | 1.36 | 5000 | 91.3 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9087.777 | 1.291 | 323596 | 1.52 | 10000 | 90.9 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 8582.125 | 0.448 | 5351323 | 0.27 | 10000 | 85.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Fe | 56 | 1 | nogas | 9623.248 | 2.423 | 218189247 | 2.61 | 10000 | 96.2 | 90 | 110 | |
| Se | 77 | 1 | nogas | 39.883 | 22.838 | 86247 | 1.86 | 100 | 39.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 91.485 | 3.283 | 24200 | 3.37 | 100 | 91.5 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 94.326 | 1.851 | 515121 | 1.70 | 100 | 94.3 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 89.591 | 2.164 | 692288 | 2.82 | 100 | 89.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 137 | 1 | nogas | 92.430 | 3.651 | 372780 | 1.13 | 100 | 92.4 | 90 | 110 | |
| Sb | 121 | 2 | He | 94.228 | 2.753 | 413889 | 1.76 | 100 | 94.2 | 90 | 110 | |
| Li | 7 | 1 | nogas | 93.017 | 0.539 | 1843280 | 2.17 | 100 | 93.0 | 90 | 110 | |
| P | 31 | 1 | nogas | 453.830 | 1.181 | 825104 | 0.98 | 500 | 90.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 170.533 | 21.702 | 710 | 22.67 | 100 | 170.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -172.412 | -221.503 | 17 | 34.64 | 100 | -172.4 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1307344 | 1.83 | 1359891 | 96.14 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3153911 | 0.38 | 3145209 | 100.28 | 70 | 125 | |
| In | 115 | 1 | nogas | 2871676 | 4.53 | 2761164 | 104.00 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2106084 | 2.09 | 2190177 | 96.16 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 735155 | 1.17 | 785020 | 93.65 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 071_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T14:22:16-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.043 | 26.3 | 467 | 23.7 | 1 | |
| Na | 23 | 1 | nogas | 8.090 | 18.8 | 623864 | 4.8 | 100 | |
| Mg | 24 | 1 | nogas | 6.083 | 22.4 | 102329 | 19.3 | 100 | |
| Al | 27 | 1 | nogas | 20.074 | 5.9 | 422190 | 1.3 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -6.602 | -328.0 | 7889992 | 0.4 | 100 | |
| Ti | 47 | 1 | nogas | 0.082 | 99.2 | 437 | 28.3 | 2.5 | |
| V | 51 | 1 | nogas | -19.277 | -20.8 | 1798084 | 2.8 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.629 | -9.3 | 89320 | 1.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.068 | 179.1 | 32736 | 4.9 | 2.5 | |
| Co | 59 | 1 | nogas | 0.032 | 60.4 | 1787 | 19.6 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.208 | 1.7 | 903 | 5.5 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.017 | 178.7 | 2614 | 11.3 | 2 | |
| Zn | 66 | 1 | nogas | 0.576 | 8.4 | 1503 | 7.7 | 2.5 | |
| As | 75 | 1 | nogas | -11.229 | -22.7 | 212323 | 2.7 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.391 | 18.6 | 11337 | 12.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.025 | 61.0 | 643 | 27.4 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.047 | 64.7 | 160 | 60.3 | 1 | |
| Sb | 121 | 1 | nogas | 1.710 | 27.0 | 21514 | 22.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.138 | 67.0 | 3814 | 49.0 | 1 | |
| Pb | 208 | 1 | nogas | -0.052 | -35.5 | 4260 | 11.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.128 | 64.2 | 3597 | 61.8 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.045 | -51.0 | 1143 | 12.8 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.065 | -51.2 | 910 | 23.2 | 2.5 | |
| Na | 23 | 2 | He | 6.399 | 18.0 | 60894 | 2.4 | 100 | |
| Mg | 24 | 2 | He | 4.420 | 4.8 | 3980 | 3.9 | 100 | |
| Al | 27 | 2 | He | 20.254 | 5.7 | 10266 | 4.1 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -11.944 | -15.9 | 181442 | 0.9 | 100 | |
| Ca | 43 | 2 | He | 94.450 | 39.7 | 257 | 35.4 | 100 | |
| Ca | 44 | 2 | He | 42.765 | 8.2 | 4737 | 3.7 | 100 | |
| V | 51 | 2 | He | -0.695 | -9.2 | 21404 | 0.7 | 2.5 | |
| Cr | 52 | 2 | He | -0.078 | -43.0 | 4504 | 5.3 | 2.5 | |
| Mn | 55 | 2 | He | -0.098 | -15.3 | 1947 | 2.6 | 2.5 | |
| Fe | 56 | 2 | He | 3.790 | 3.9 | 31734 | 3.4 | 100 | |
| Co | 59 | 2 | He | 0.006 | 145.6 | 420 | 16.5 | 2.5 | |
| Ni | 60 | 2 | He | 0.194 | 19.5 | 273 | 29.6 | 2.5 | |
| Cu | 63 | 2 | He | 0.430 | 3.8 | 1000 | 7.8 | 2 | |
| Zn | 66 | 2 | He | 0.757 | 11.9 | 480 | 24.0 | 2.5 | |
| As | 75 | 2 | He | 0.027 | 212.6 | 798 | 8.1 | 2.5 | |
| Se | 78 | 2 | He | 0.611 | 32.5 | 131 | 15.3 | 2 | |
| B | 11 | 1 | nogas | 4.695 | 11.8 | 56504 | 5.2 | 10 | |
| Si | 28 | 1 | nogas | -29.824 | -33.1 | 1634119 | 1.6 | 5 | |
| Ca | 43 | 1 | nogas | 66.223 | 25.2 | 3747 | 10.8 | 100 | |
| Ca | 44 | 1 | nogas | -379.380 | -4.5 | 212348 | 0.6 | 100 | |
| Fe | 56 | 1 | nogas | -19.939 | -42.5 | 2616656 | 2.4 | 100 | |
| Se | 77 | 1 | nogas | -46.556 | -47.4 | 68619 | 4.2 | 2.5 | |
| Se | 82 | 1 | nogas | -0.093 | -270.2 | 217 | 27.0 | 2 | |
| Mo | 95 | 1 | nogas | 0.001 | 10528.5 | 2360 | 24.5 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.216 | 27.3 | 2627 | 19.9 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.249 | 12.6 | 1063 | 14.6 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 1.166 | 6.6 | 5231 | 7.6 | 2.5 | |
| P | 31 | 1 | nogas | 1.432 | 175.6 | 84207 | 0.2 | 10 | |
| La | 139 | 1 | nogas | 67.892 | 13.9 | 313 | 14.4 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | -438.731 | -229.4 | 13 | 114.6 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1343762 | 1.49 | 1359891 | 98.81 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3177961 | 5.10 | 3145209 | 101.04 | 70 | 125 | |
| In | 115 | 1 | nogas | 2885254 | 2.71 | 2761164 | 104.49 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2222796 | 1.44 | 2190177 | 101.49 | 70 | 125 | |
| Ge | 72 | 2 | He | 738075 | 1.27 | 785020 | 94.02 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 083_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T17:00:51-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.062 | 13.3 | 667 | 10.6 | 1 | |
| Na | 23 | 1 | nogas | 29.264 | 8.1 | 1122579 | 3.9 | 100 | |
| Mg | 24 | 1 | nogas | 9.489 | 16.7 | 151945 | 14.8 | 100 | |
| Al | 27 | 1 | nogas | 20.159 | 1.3 | 421847 | 1.9 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | 12.688 | 126.2 | 8225653 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.079 | 12.5 | 433 | 3.5 | 2.5 | |
| V | 51 | 1 | nogas | -31.887 | -3.8 | 1494711 | 4.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -2.062 | -4.0 | 79556 | 2.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.190 | 39.9 | 35775 | 2.3 | 2.5 | |
| Co | 59 | 1 | nogas | 0.061 | 16.7 | 2444 | 6.9 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.312 | 14.3 | 1413 | 12.8 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.079 | 24.9 | 3347 | 5.8 | 2 | |
| Zn | 66 | 1 | nogas | 0.618 | 11.1 | 1663 | 13.2 | 2.5 | |
| As | 75 | 1 | nogas | -17.069 | -5.2 | 183322 | 1.5 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.441 | 5.3 | 12671 | 2.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.042 | 29.6 | 863 | 15.8 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.068 | 65.8 | 210 | 60.8 | 1 | |
| Sb | 121 | 1 | nogas | 0.137 | 10.0 | 1927 | 6.4 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.605 | 65.1 | 13157 | 61.9 | 1 | |
| Pb | 208 | 1 | nogas | -0.014 | -271.3 | 5230 | 19.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.151 | 47.9 | 4161 | 48.6 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.020 | -170.2 | 1287 | 19.1 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.023 | -253.8 | 1137 | 31.3 | 2.5 | |
| Na | 23 | 2 | He | 22.508 | 6.4 | 85383 | 1.5 | 100 | |
| Mg | 24 | 2 | He | 7.584 | 2.9 | 6575 | 2.8 | 100 | |
| Al | 27 | 2 | He | 20.943 | 3.8 | 10680 | 4.7 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -0.969 | -121.0 | 190963 | 0.5 | 100 | |
| Ca | 43 | 2 | He | 85.578 | 19.9 | 237 | 16.0 | 100 | |
| Ca | 44 | 2 | He | 49.281 | 6.5 | 5031 | 2.4 | 100 | |
| V | 51 | 2 | He | -1.386 | -2.5 | 17631 | 1.9 | 2.5 | |
| Cr | 52 | 2 | He | -0.004 | -703.5 | 4994 | 3.5 | 2.5 | |
| Mn | 55 | 2 | He | 0.063 | 59.0 | 2670 | 5.0 | 2.5 | |
| Fe | 56 | 2 | He | 6.469 | 9.8 | 46312 | 6.3 | 100 | |
| Co | 59 | 2 | He | 0.039 | 33.2 | 703 | 15.7 | 2.5 | |
| Ni | 60 | 2 | He | 0.222 | 12.3 | 333 | 16.5 | 2.5 | |
| Cu | 63 | 2 | He | 0.443 | 4.4 | 1073 | 10.0 | 2 | |
| Zn | 66 | 2 | He | 0.738 | 8.7 | 460 | 19.0 | 2.5 | |
| As | 75 | 2 | He | -0.050 | -52.6 | 707 | 5.9 | 2.5 | |
| Se | 78 | 2 | He | 0.685 | 19.4 | 139 | 8.8 | 2 | |
| B | 11 | 1 | nogas | 5.836 | 16.4 | 64883 | 7.2 | 10 | |
| Si | 28 | 1 | nogas | -29.597 | -22.2 | 1628314 | 1.6 | 5 | |
| Ca | 43 | 1 | nogas | 70.202 | 14.5 | 3877 | 6.1 | 100 | |
| Ca | 44 | 1 | nogas | -445.331 | -2.2 | 173334 | 0.4 | 100 | |
| Fe | 56 | 1 | nogas | -25.754 | -29.0 | 2472802 | 3.8 | 100 | |
| Se | 77 | 1 | nogas | -92.997 | -5.9 | 58594 | 2.2 | 2.5 | |
| Se | 82 | 1 | nogas | -0.040 | -413.7 | 230 | 15.7 | 2 | |
| Mo | 95 | 1 | nogas | 0.106 | 179.4 | 2914 | 31.8 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.282 | 26.7 | 2970 | 19.6 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.286 | 2.5 | 1150 | 4.6 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.097 | 3.0 | 520 | 1.9 | 2.5 | |
| P | 31 | 1 | nogas | 3.794 | 53.6 | 87618 | 0.9 | 10 | |
| La | 139 | 1 | nogas | 75.823 | 24.1 | 327 | 23.0 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | -414.995 | -97.2 | 13 | 43.3 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1387049 | 1.70 | 1359891 | 102.00 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3157720 | 3.12 | 3145209 | 100.40 | 70 | 125 | |
| In | 115 | 1 | nogas | 2734738 | 2.44 | 2761164 | 99.04 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2159308 | 1.77 | 2190177 | 98.59 | 70 | 125 | |
| Ge | 72 | 2 | He | 743688 | 1.13 | 785020 | 94.73 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 084_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T17:05:07-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 87.005 | 2.572 | 788394 | 0.81 | 100 | 87.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10296.773 | 2.910 | 246228039 | 1.10 | 10000 | 103.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10191.867 | 3.440 | 153829612 | 2.56 | 10000 | 101.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 105.822 | 2.917 | 2002895 | 2.86 | 100 | 105.8 | 90 | 110 | |
| K | 39 | 1 | nogas | 10155.845 | 1.701 | 197801621 | 2.14 | 10000 | 101.6 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 99.853 | 0.541 | 167185 | 2.08 | 100 | 99.9 | 90 | 110 | |
| V | 51 | 1 | nogas | 89.502 | 1.209 | 4143023 | 1.38 | 100 | 89.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 100.068 | 1.068 | 2169045 | 0.89 | 100 | 100.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 103.134 | 1.587 | 2608311 | 2.31 | 100 | 103.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 103.791 | 4.936 | 2245161 | 3.36 | 100 | 103.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.669 | 1.517 | 481547 | 0.88 | 100 | 100.7 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 97.030 | 1.734 | 1118259 | 2.98 | 100 | 97.0 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.709 | 0.799 | 372121 | 0.94 | 100 | 98.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 94.568 | 1.778 | 685814 | 1.97 | 100 | 94.6 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 100.231 | 1.806 | 2580061 | 2.39 | 100 | 100.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 102.514 | 1.086 | 1291949 | 2.74 | 100 | 102.5 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.592 | 2.501 | 272319 | 2.04 | 100 | 96.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 98.042 | 2.093 | 1167213 | 2.20 | 100 | 98.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 93.424 | 4.118 | 1921521 | 1.37 | 100 | 93.4 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 101.230 | 0.944 | 2607582 | 0.94 | 100 | 101.2 | 90 | 110 | |
| U | 238 | 1 | nogas | 99.630 | 4.033 | 2743538 | 1.56 | 100 | 99.6 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 90.731 | 4.667 | 633819 | 0.55 | 100 | 90.7 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 93.241 | 5.895 | 565175 | 1.60 | 100 | 93.2 | 90 | 110 | |
| Na | 23 | 2 | He | 9924.085 | 2.070 | 14715864 | 0.86 | 10000 | 99.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 9966.378 | 2.759 | 7997483 | 1.70 | 10000 | 99.7 | 90 | 110 | |
| Al | 27 | 2 | He | 99.103 | 2.451 | 47470 | 1.18 | 100 | 99.1 | 90 | 110 | |
| K | 39 | 2 | He | 9765.013 | 2.729 | 8662752 | 2.67 | 10000 | 97.7 | 90 | 110 | |
| Ca | 43 | 2 | He | 9603.067 | 0.264 | 22514 | 1.38 | 10000 | 96.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 9655.031 | 2.478 | 382114 | 1.63 | 10000 | 96.6 | 90 | 110 | |
| V | 51 | 2 | He | 96.015 | 0.378 | 567727 | 1.63 | 100 | 96.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 96.700 | 0.510 | 598260 | 0.76 | 100 | 96.7 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.304 | 1.621 | 432010 | 1.51 | 100 | 98.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 9988.294 | 2.063 | 53060028 | 0.98 | 10000 | 99.9 | 90 | 110 | |
| Co | 59 | 2 | He | 96.671 | 1.323 | 806305 | 0.18 | 100 | 96.7 | 90 | 110 | |
| Ni | 60 | 2 | He | 100.002 | 2.173 | 205854 | 1.11 | 100 | 100.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 98.261 | 1.807 | 514685 | 0.58 | 100 | 98.3 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.198 | 1.292 | 126078 | 0.77 | 100 | 98.2 | 90 | 110 | |
| As | 75 | 2 | He | 94.497 | 1.441 | 120559 | 0.64 | 100 | 94.5 | 90 | 110 | |
| Se | 78 | 2 | He | 96.980 | 2.171 | 10013 | 1.63 | 100 | 97.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 450.809 | 2.865 | 2414011 | 3.71 | 500 | 90.2 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4893.989 | 1.882 | 52433873 | 1.19 | 5000 | 97.9 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9823.491 | 0.859 | 334599 | 2.17 | 10000 | 98.2 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9456.412 | 1.025 | 5599707 | 0.69 | 10000 | 94.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10091.338 | 2.819 | 218752097 | 2.55 | 10000 | 100.9 | 90 | 110 | |
| Se | 77 | 1 | nogas | 79.226 | 4.945 | 90376 | 1.52 | 100 | 79.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 96.442 | 5.038 | 24394 | 4.81 | 100 | 96.4 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 99.697 | 1.940 | 520942 | 3.52 | 100 | 99.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 95.477 | 2.127 | 701880 | 1.08 | 100 | 95.5 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.459 | 1.676 | 381903 | 2.08 | 100 | 99.5 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.420 | 2.372 | 428802 | 1.19 | 100 | 97.4 | 90 | 110 | |
| Li | 7 | 1 | nogas | 99.324 | 3.702 | 1901974 | 3.91 | 100 | 99.3 | 90 | 110 | |
| P | 31 | 1 | nogas | 485.793 | 0.832 | 839560 | 0.93 | 500 | 97.2 | 90 | 110 | |
| La | 139 | 1 | nogas | 115.400 | 17.925 | 470 | 14.89 | 100 | 115.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -21.764 | -2731.739 | 20 | 50.00 | 100 | -21.8 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1268052 | 1.93 | 1359891 | 93.25 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3017813 | 1.65 | 3145209 | 95.95 | 70 | 125 | |
| In | 115 | 1 | nogas | 2731094 | 1.33 | 2761164 | 98.91 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2208247 | 4.50 | 2190177 | 100.83 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 736688 | 1.26 | 785020 | 93.84 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 092_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T17:24:05-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.064 | 13.4 | 697 | 6.8 | 1 | |
| Na | 23 | 1 | nogas | 26.644 | 8.7 | 1046678 | 3.5 | 100 | |
| Mg | 24 | 1 | nogas | 10.031 | 3.8 | 158718 | 3.9 | 100 | |
| Al | 27 | 1 | nogas | 20.471 | 1.5 | 427281 | 1.1 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | 0.301 | 773.7 | 7975381 | 0.3 | 100 | |
| Ti | 47 | 1 | nogas | 0.101 | 23.8 | 470 | 9.3 | 2.5 | |
| V | 51 | 1 | nogas | -45.862 | -1.2 | 1165180 | 1.2 | 2.5 | |
| Cr | 52 | 1 | nogas | -2.525 | -2.9 | 69523 | 1.9 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.120 | 21.3 | 33935 | 2.2 | 2.5 | |
| Co | 59 | 1 | nogas | 0.071 | 17.1 | 2667 | 10.7 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.293 | 5.9 | 1320 | 6.2 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.097 | 10.0 | 3560 | 3.7 | 2 | |
| Zn | 66 | 1 | nogas | 0.621 | 3.2 | 1677 | 4.3 | 2.5 | |
| As | 75 | 1 | nogas | -22.700 | -4.2 | 156173 | 2.7 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.438 | 5.5 | 12588 | 5.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.038 | 37.5 | 810 | 23.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.071 | 29.0 | 220 | 25.3 | 1 | |
| Sb | 121 | 1 | nogas | 1.346 | 14.6 | 16959 | 14.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.317 | 54.8 | 7759 | 47.8 | 1 | |
| Pb | 208 | 1 | nogas | -0.037 | -55.4 | 4637 | 11.5 | 2.5 | |
| U | 238 | 1 | nogas | 0.137 | 43.0 | 3981 | 42.2 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.054 | -13.1 | 1120 | 4.7 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.044 | -94.9 | 1070 | 24.5 | 2.5 | |
| Na | 23 | 2 | He | 17.268 | 8.0 | 78220 | 1.6 | 100 | |
| Mg | 24 | 2 | He | 8.083 | 12.2 | 7031 | 10.3 | 100 | |
| Al | 27 | 2 | He | 20.831 | 4.3 | 10713 | 4.3 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -6.792 | -26.1 | 185911 | 0.8 | 100 | |
| Ca | 43 | 2 | He | 81.927 | 15.0 | 230 | 11.5 | 100 | |
| Ca | 44 | 2 | He | 55.245 | 10.5 | 5311 | 3.8 | 100 | |
| V | 51 | 2 | He | -2.077 | -1.5 | 13802 | 0.6 | 2.5 | |
| Cr | 52 | 2 | He | -0.090 | -54.5 | 4504 | 7.9 | 2.5 | |
| Mn | 55 | 2 | He | 0.064 | 64.2 | 2700 | 6.4 | 2.5 | |
| Fe | 56 | 2 | He | 7.218 | 7.7 | 50753 | 4.7 | 100 | |
| Co | 59 | 2 | He | 0.039 | 13.3 | 713 | 5.3 | 2.5 | |
| Ni | 60 | 2 | He | 0.213 | 10.0 | 317 | 13.1 | 2.5 | |
| Cu | 63 | 2 | He | 0.492 | 6.4 | 1343 | 11.6 | 2 | |
| Zn | 66 | 2 | He | 0.758 | 5.6 | 490 | 10.8 | 2.5 | |
| As | 75 | 2 | He | -0.074 | -54.6 | 681 | 6.5 | 2.5 | |
| Se | 78 | 2 | He | 0.602 | 13.2 | 132 | 6.9 | 2 | |
| B | 11 | 1 | nogas | 12.116 | 13.1 | 101926 | 3.6 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | -23.283 | -9.8 | 1695065 | 1.5 | 5 | |
| Ca | 43 | 1 | nogas | 78.734 | 6.4 | 4181 | 4.6 | 100 | |
| Ca | 44 | 1 | nogas | -443.355 | -0.2 | 174281 | 0.2 | 100 | |
| Fe | 56 | 1 | nogas | -23.142 | -11.4 | 2530181 | 2.4 | 100 | |
| Se | 77 | 1 | nogas | -131.096 | -4.3 | 50567 | 2.2 | 2.5 | |
| Se | 82 | 1 | nogas | 0.149 | 42.4 | 280 | 6.2 | 2 | |
| Mo | 95 | 1 | nogas | 0.089 | 98.7 | 2837 | 17.0 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.286 | 16.8 | 3057 | 9.4 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.293 | 12.1 | 1197 | 8.4 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.984 | 4.9 | 4497 | 4.4 | 2.5 | |
| P | 31 | 1 | nogas | 4.647 | 13.6 | 88928 | 0.8 | 10 | |
| La | 139 | 1 | nogas | 75.934 | 12.5 | 333 | 12.1 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 156.515 | 231.1 | 23 | 24.7 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1400382 | 5.40 | 1359891 | 102.98 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3152228 | 0.41 | 3145209 | 100.22 | 70 | 125 | |
| In | 115 | 1 | nogas | 2794576 | 3.28 | 2761164 | 101.21 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2293933 | 0.96 | 2190177 | 104.74 | 70 | 125 | |
| Ge | 72 | 2 | He | 749964 | 1.19 | 785020 | 95.53 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 094_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T17:32:55-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 86.504 | 1.884 | 796478 | 0.71 | 100 | 86.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10259.893 | 5.486 | 247743922 | 1.35 | 10000 | 102.6 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10099.943 | 3.412 | 154007349 | 0.83 | 10000 | 101.0 | 90 | 110 | |
| Al | 27 | 1 | nogas | 99.187 | 2.071 | 1940040 | 1.03 | 100 | 99.2 | 90 | 110 | |
| K | 39 | 1 | nogas | 9853.819 | 1.023 | 198393971 | 0.75 | 10000 | 98.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.371 | 0.395 | 166610 | 1.34 | 100 | 96.4 | 90 | 110 | |
| V | 51 | 1 | nogas | 79.821 | 4.509 | 4053736 | 0.47 | 100 | 79.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 99.499 | 1.900 | 2227928 | 2.44 | 100 | 99.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 103.552 | 2.976 | 2704690 | 4.20 | 100 | 103.6 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.211 | 1.083 | 2239355 | 0.50 | 100 | 100.2 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.807 | 0.073 | 483162 | 1.51 | 100 | 97.8 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.175 | 2.072 | 1144177 | 0.61 | 100 | 96.2 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.307 | 1.759 | 382645 | 0.22 | 100 | 98.3 | 90 | 110 | |
| As | 75 | 1 | nogas | 89.158 | 1.166 | 682573 | 0.99 | 100 | 89.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 99.198 | 3.198 | 2635843 | 1.61 | 100 | 99.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 98.635 | 1.507 | 1283579 | 2.82 | 100 | 98.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 97.136 | 2.691 | 276426 | 1.69 | 100 | 97.1 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 98.556 | 0.871 | 1211543 | 0.71 | 100 | 98.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.897 | 2.974 | 1973409 | 2.54 | 100 | 98.9 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.057 | 1.048 | 2654527 | 1.05 | 100 | 103.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 104.005 | 0.832 | 2778699 | 0.23 | 100 | 104.0 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 95.112 | 2.910 | 644661 | 2.27 | 100 | 95.1 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 96.435 | 2.356 | 567386 | 1.74 | 100 | 96.4 | 90 | 110 | |
| Na | 23 | 2 | He | 9906.302 | 0.339 | 14581438 | 1.59 | 10000 | 99.1 | 90 | 110 | |
| Mg | 24 | 2 | He | 10042.396 | 0.538 | 7999488 | 1.65 | 10000 | 100.4 | 90 | 110 | |
| Al | 27 | 2 | He | 97.329 | 3.466 | 46283 | 3.13 | 100 | 97.3 | 90 | 110 | |
| K | 39 | 2 | He | 9533.132 | 0.309 | 8461600 | 0.30 | 10000 | 95.3 | 90 | 110 | |
| Ca | 43 | 2 | He | 9656.450 | 2.663 | 22470 | 3.57 | 10000 | 96.6 | 90 | 110 | |
| Ca | 44 | 2 | He | 9653.701 | 1.469 | 379200 | 0.92 | 10000 | 96.5 | 90 | 110 | |
| V | 51 | 2 | He | 97.466 | 2.411 | 571449 | 1.22 | 100 | 97.5 | 90 | 110 | |
| Cr | 52 | 2 | He | 98.356 | 1.209 | 603798 | 0.75 | 100 | 98.4 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.278 | 1.103 | 428635 | 1.00 | 100 | 98.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 10050.643 | 1.571 | 52989324 | 0.39 | 10000 | 100.5 | 90 | 110 | |
| Co | 59 | 2 | He | 97.125 | 1.270 | 804018 | 1.41 | 100 | 97.1 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.039 | 2.010 | 202330 | 0.75 | 100 | 99.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 100.560 | 2.882 | 522754 | 2.06 | 100 | 100.6 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.996 | 2.318 | 124859 | 1.59 | 100 | 98.0 | 90 | 110 | |
| As | 75 | 2 | He | 96.478 | 0.750 | 122153 | 1.43 | 100 | 96.5 | 90 | 110 | |
| Se | 78 | 2 | He | 94.329 | 1.565 | 9668 | 1.62 | 100 | 94.3 | 90 | 110 | |
| B | 11 | 1 | nogas | 446.875 | 2.776 | 2430521 | 1.00 | 500 | 89.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 4755.042 | 1.807 | 52658589 | 0.22 | 5000 | 95.1 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9500.408 | 3.657 | 334045 | 2.08 | 10000 | 95.0 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9098.566 | 2.526 | 5578895 | 1.43 | 10000 | 91.0 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10018.598 | 1.135 | 224311588 | 2.18 | 10000 | 100.2 | 90 | 110 | |
| Se | 77 | 1 | nogas | 50.938 | 16.751 | 87479 | 0.64 | 100 | 50.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 94.211 | 3.149 | 24607 | 1.59 | 100 | 94.2 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 99.500 | 3.401 | 536595 | 2.27 | 100 | 99.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 95.774 | 0.295 | 710912 | 2.10 | 100 | 95.8 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 98.895 | 2.753 | 383224 | 0.61 | 100 | 98.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.801 | 1.915 | 440343 | 0.67 | 100 | 100.8 | 90 | 110 | |
| Li | 7 | 1 | nogas | 97.483 | 2.030 | 1898321 | 1.83 | 100 | 97.5 | 90 | 110 | |
| P | 31 | 1 | nogas | 474.614 | 2.324 | 848708 | 0.70 | 500 | 94.9 | 90 | 110 | |
| La | 139 | 1 | nogas | 107.163 | 21.532 | 443 | 16.93 | 100 | 107.2 | 90 | 110 | |
| Au | 197 | 1 | nogas | 487.563 | 81.155 | 27 | 21.65 | 100 | 487.6 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1288484 | 2.61 | 1359891 | 94.75 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3116163 | 1.57 | 3145209 | 99.08 | 70 | 125 | |
| In | 115 | 1 | nogas | 2757260 | 2.24 | 2761164 | 99.86 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2140093 | 0.68 | 2190177 | 97.71 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 731118 | 1.26 | 785020 | 93.13 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 103_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T17:50:44-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 87.309 | 5.651 | 779798 | 0.91 | 100 | 87.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10329.644 | 3.724 | 245290539 | 1.58 | 10000 | 103.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10029.838 | 3.837 | 150307858 | 1.15 | 10000 | 100.3 | 90 | 110 | |
| Al | 27 | 1 | nogas | 97.737 | 3.407 | 1913733 | 3.79 | 100 | 97.7 | 90 | 110 | |
| K | 39 | 1 | nogas | 9703.465 | 1.843 | 195612138 | 1.57 | 10000 | 97.0 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.222 | 1.672 | 166464 | 2.19 | 100 | 96.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 68.720 | 2.173 | 3800313 | 0.57 | 100 | 68.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 100.919 | 3.136 | 2259087 | 2.58 | 100 | 100.9 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 103.054 | 4.024 | 2692423 | 3.50 | 100 | 103.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.858 | 7.439 | 2254762 | 6.89 | 100 | 100.9 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 95.307 | 1.592 | 471062 | 1.19 | 100 | 95.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 94.051 | 0.868 | 1119859 | 1.13 | 100 | 94.1 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 96.728 | 1.202 | 376787 | 1.68 | 100 | 96.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 84.388 | 0.202 | 660476 | 0.56 | 100 | 84.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 98.189 | 4.588 | 2611103 | 4.22 | 100 | 98.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 105.294 | 5.805 | 1370589 | 5.33 | 100 | 105.3 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.101 | 1.755 | 276572 | 3.88 | 100 | 96.1 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 102.456 | 12.279 | 1259786 | 11.73 | 100 | 102.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.422 | 1.020 | 2040585 | 4.55 | 100 | 99.4 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 104.476 | 2.123 | 2691005 | 2.12 | 100 | 104.5 | 90 | 110 | |
| U | 238 | 1 | nogas | 101.358 | 5.926 | 2780217 | 1.10 | 100 | 101.4 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 91.979 | 6.448 | 640068 | 1.76 | 100 | 92.0 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 92.696 | 5.599 | 560135 | 1.72 | 100 | 92.7 | 90 | 110 | |
| Na | 23 | 2 | He | 9967.136 | 3.927 | 14529269 | 3.38 | 10000 | 99.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 10068.846 | 2.432 | 7943662 | 1.91 | 10000 | 100.7 | 90 | 110 | |
| Al | 27 | 2 | He | 97.743 | 1.753 | 46040 | 1.24 | 100 | 97.7 | 90 | 110 | |
| K | 39 | 2 | He | 9574.604 | 3.208 | 8497576 | 3.14 | 10000 | 95.7 | 90 | 110 | |
| Ca | 43 | 2 | He | 9783.857 | 0.729 | 22547 | 0.20 | 10000 | 97.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 9844.691 | 1.225 | 383001 | 0.74 | 10000 | 98.4 | 90 | 110 | |
| V | 51 | 2 | He | 96.682 | 0.370 | 561787 | 0.81 | 100 | 96.7 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.526 | 1.744 | 605153 | 1.38 | 100 | 99.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.614 | 1.806 | 426029 | 1.55 | 100 | 98.6 | 90 | 110 | |
| Fe | 56 | 2 | He | 10086.179 | 0.737 | 52679304 | 0.78 | 10000 | 100.9 | 90 | 110 | |
| Co | 59 | 2 | He | 97.794 | 3.497 | 801862 | 3.24 | 100 | 97.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 101.586 | 2.952 | 205593 | 2.69 | 100 | 101.6 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.691 | 1.890 | 513391 | 1.57 | 100 | 99.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.249 | 2.794 | 125286 | 3.01 | 100 | 99.2 | 90 | 110 | |
| As | 75 | 2 | He | 96.312 | 0.552 | 120786 | 0.29 | 100 | 96.3 | 90 | 110 | |
| Se | 78 | 2 | He | 95.610 | 1.922 | 9706 | 1.99 | 100 | 95.6 | 90 | 110 | |
| B | 11 | 1 | nogas | 450.315 | 2.284 | 2378365 | 2.41 | 500 | 90.1 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4731.874 | 1.988 | 52454666 | 2.44 | 5000 | 94.6 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9324.015 | 1.615 | 328174 | 1.49 | 10000 | 93.2 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 8880.845 | 1.185 | 5459733 | 1.17 | 10000 | 88.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Fe | 56 | 1 | nogas | 9658.433 | 2.421 | 216457447 | 1.96 | 10000 | 96.6 | 90 | 110 | |
| Se | 77 | 1 | nogas | 22.409 | 18.680 | 81662 | 0.53 | 100 | 22.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 93.338 | 3.578 | 24400 | 3.04 | 100 | 93.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.848 | 0.531 | 517431 | 0.26 | 100 | 95.8 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.308 | 4.250 | 699559 | 0.41 | 100 | 93.3 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 98.090 | 2.969 | 384208 | 1.67 | 100 | 98.1 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.481 | 2.411 | 439149 | 1.97 | 100 | 101.5 | 90 | 110 | |
| Li | 7 | 1 | nogas | 98.989 | 2.529 | 1870517 | 3.69 | 100 | 99.0 | 90 | 110 | |
| P | 31 | 1 | nogas | 463.793 | 0.578 | 831844 | 0.65 | 500 | 92.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 125.777 | 20.347 | 517 | 14.53 | 100 | 125.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 863.675 | 29.758 | 33 | 17.32 | 100 | 863.7 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1251628 | 4.61 | 1359891 | 92.04 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3117959 | 0.53 | 3145209 | 99.13 | 70 | 125 | |
| In | 115 | 1 | nogas | 2788278 | 4.47 | 2761164 | 100.98 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2201715 | 5.39 | 2190177 | 100.53 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 724192 | 0.53 | 785020 | 92.25 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 104_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T17:52:41-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.052 | 16.0 | 550 | 14.4 | 1 | |
| Na | 23 | 1 | nogas | 13.867 | 19.0 | 756707 | 6.0 | 100 | |
| Mg | 24 | 1 | nogas | 5.777 | 21.1 | 95896 | 17.2 | 100 | |
| Al | 27 | 1 | nogas | 0.102 | 23.6 | 29917 | 1.1 | 5 | |
| K | 39 | 1 | nogas | -8.733 | -139.3 | 7791166 | 0.7 | 100 | |
| Ti | 47 | 1 | nogas | 0.095 | 33.7 | 460 | 11.5 | 2.5 | |
| V | 51 | 1 | nogas | -42.275 | -3.1 | 1248831 | 4.7 | 2.5 | |
| Cr | 52 | 1 | nogas | -2.327 | -1.8 | 73723 | 2.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.036 | 61.9 | 31707 | 0.8 | 2.5 | |
| Co | 59 | 1 | nogas | 0.052 | 28.1 | 2237 | 12.4 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.236 | 8.4 | 1033 | 9.3 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.041 | 20.1 | 2890 | 3.3 | 2 | |
| Zn | 66 | 1 | nogas | 0.441 | 0.4 | 963 | 2.2 | 2.5 | |
| As | 75 | 1 | nogas | -20.238 | -3.1 | 167886 | 3.6 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.064 | 21.4 | 2527 | 13.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.028 | 25.9 | 687 | 12.4 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.055 | 59.7 | 170 | 56.7 | 1 | |
| Sb | 121 | 1 | nogas | 1.104 | 21.1 | 13902 | 18.4 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.282 | 70.2 | 6695 | 58.2 | 1 | |
| Pb | 208 | 1 | nogas | -0.076 | -36.6 | 3657 | 19.5 | 2.5 | |
| U | 238 | 1 | nogas | 0.126 | 51.7 | 3517 | 48.5 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.061 | -68.7 | 1023 | 25.5 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.087 | -21.7 | 770 | 11.7 | 2.5 | |
| Na | 23 | 2 | He | 9.830 | 12.5 | 66666 | 3.2 | 100 | |
| Mg | 24 | 2 | He | 3.951 | 1.4 | 3640 | 0.5 | 100 | |
| Al | 27 | 2 | He | 0.389 | 60.2 | 883 | 13.5 | 5 | |
| K | 39 | 2 | He | -15.581 | -23.5 | 178286 | 1.8 | 100 | |
| Ca | 43 | 2 | He | -3.462 | -183.3 | 27 | 57.3 | 100 | |
| Ca | 44 | 2 | He | -40.173 | -8.3 | 1490 | 10.0 | 100 | |
| V | 51 | 2 | He | -1.971 | -1.9 | 14331 | 0.7 | 2.5 | |
| Cr | 52 | 2 | He | -0.042 | -32.1 | 4774 | 1.2 | 2.5 | |
| Mn | 55 | 2 | He | -0.126 | -42.1 | 1843 | 11.8 | 2.5 | |
| Fe | 56 | 2 | He | 3.847 | 7.5 | 32359 | 4.7 | 100 | |
| Co | 59 | 2 | He | 0.020 | 116.2 | 547 | 35.5 | 2.5 | |
| Ni | 60 | 2 | He | 0.164 | 22.2 | 213 | 35.2 | 2.5 | |
| Cu | 63 | 2 | He | 0.434 | 4.1 | 1030 | 10.2 | 2 | |
| Zn | 66 | 2 | He | 0.640 | 6.0 | 333 | 15.1 | 2.5 | |
| As | 75 | 2 | He | -0.107 | -16.7 | 634 | 2.5 | 2.5 | |
| Se | 78 | 2 | He | 0.704 | 60.3 | 142 | 31.8 | 2 | |
| B | 11 | 1 | nogas | 4.662 | 16.5 | 53582 | 6.9 | 10 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Si | 28 | 1 | nogas | -30.138 | -34.4 | 1618622 | 4.8 | 5 | |
| Ca | 43 | 1 | nogas | -15.217 | -7.7 | 850 | 3.1 | 100 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ca | 44 | 1 | nogas | -547.123 | -0.9 | 114696 | 0.9 | 100 | |
| Fe | 56 | 1 | nogas | -25.414 | -22.4 | 2476263 | 2.9 | 100 | |
| Se | 77 | 1 | nogas | -112.280 | -4.7 | 54472 | 3.8 | 2.5 | |
| Se | 82 | 1 | nogas | -0.092 | -248.7 | 217 | 27.0 | 2 | |
| Mo | 95 | 1 | nogas | -0.037 | -406.7 | 2140 | 35.2 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.194 | 37.3 | 2287 | 22.3 | 5 | |
| Ba | 137 | 1 | nogas | 0.088 | 6.5 | 383 | 3.0 | 2.5 | |
| Sb | 121 | 2 | He | 0.758 | 2.3 | 3467 | 3.1 | 2.5 | |
| P | 31 | 1 | nogas | 8.229 | 12.2 | 94726 | 0.6 | 10 | |
| La | 139 | 1 | nogas | 0.352 | 2061.8 | 47 | 53.9 | 2.5 | |
| Au | 197 | 1 | nogas | -1086.852 | -35.4 | 3 | 173.2 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1339493 | 5.37 | 1359891 | 98.50 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3150615 | 2.28 | 3145209 | 100.17 | 70 | 125 | |
| In | 115 | 1 | nogas | 2700027 | 2.84 | 2761164 | 97.79 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2210528 | 3.82 | 2190177 | 100.93 | 70 | 125 | |
| Ge | 72 | 2 | He | 745712 | 1.16 | 785020 | 94.99 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 113_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T18:33:07-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 91.027 | 6.203 | 768390 | 1.98 | 100 | 91.0 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9911.914 | 5.260 | 237655589 | 1.63 | 10000 | 99.1 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10092.400 | 3.062 | 152806091 | 1.54 | 10000 | 100.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 100.703 | 2.355 | 1943447 | 3.08 | 100 | 100.7 | 90 | 110 | |
| K | 39 | 1 | nogas | 9756.080 | 4.952 | 193737971 | 0.30 | 10000 | 97.6 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.904 | 3.383 | 165240 | 1.87 | 100 | 96.9 | 90 | 110 | |
| V | 51 | 1 | nogas | 87.826 | 10.525 | 4179048 | 0.44 | 100 | 87.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 100.608 | 4.956 | 2219518 | 0.12 | 100 | 100.6 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.330 | 4.348 | 2609988 | 2.15 | 100 | 101.3 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.041 | 1.248 | 2206587 | 3.56 | 100 | 100.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 95.426 | 4.549 | 464897 | 3.19 | 100 | 95.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 92.995 | 5.368 | 1090864 | 1.89 | 100 | 93.0 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 97.644 | 4.234 | 374800 | 0.69 | 100 | 97.6 | 90 | 110 | |
| As | 75 | 1 | nogas | 93.195 | 6.840 | 691848 | 0.96 | 100 | 93.2 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 97.264 | 2.516 | 2550579 | 2.49 | 100 | 97.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 101.749 | 2.810 | 1307861 | 6.93 | 100 | 101.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 95.714 | 4.449 | 274579 | 1.26 | 100 | 95.7 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 96.183 | 4.570 | 1165792 | 0.53 | 100 | 96.2 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.000 | 4.405 | 1957504 | 3.33 | 100 | 97.0 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.281 | 0.704 | 2660287 | 0.70 | 100 | 103.3 | 90 | 110 | |
| U | 238 | 1 | nogas | 103.764 | 3.219 | 2803894 | 2.57 | 100 | 103.8 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 92.027 | 2.121 | 630964 | 0.65 | 100 | 92.0 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 95.788 | 2.523 | 570047 | 1.47 | 100 | 95.8 | 90 | 110 | |
| Na | 23 | 2 | He | 9822.871 | 1.990 | 14312438 | 2.07 | 10000 | 98.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 9964.856 | 1.302 | 7856922 | 0.95 | 10000 | 99.6 | 90 | 110 | |
| Al | 27 | 2 | He | 95.220 | 1.689 | 44840 | 1.18 | 100 | 95.2 | 90 | 110 | |
| K | 39 | 2 | He | 9463.572 | 0.664 | 8401258 | 0.65 | 10000 | 94.6 | 90 | 110 | |
| Ca | 43 | 2 | He | 9900.468 | 3.742 | 22804 | 4.24 | 10000 | 99.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 9620.873 | 1.056 | 374130 | 1.05 | 10000 | 96.2 | 90 | 110 | |
| V | 51 | 2 | He | 96.251 | 1.240 | 559037 | 1.44 | 100 | 96.3 | 90 | 110 | |
| Cr | 52 | 2 | He | 98.926 | 0.516 | 601168 | 0.51 | 100 | 98.9 | 90 | 110 | |
| Mn | 55 | 2 | He | 97.733 | 0.521 | 421992 | 1.01 | 100 | 97.7 | 90 | 110 | |
| Fe | 56 | 2 | He | 9859.495 | 0.456 | 51463333 | 0.95 | 10000 | 98.6 | 90 | 110 | |
| Co | 59 | 2 | He | 95.221 | 1.430 | 780325 | 1.53 | 100 | 95.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.869 | 1.045 | 197956 | 1.54 | 100 | 97.9 | 90 | 110 | |
| Cu | 63 | 2 | He | 98.652 | 0.882 | 507708 | 0.43 | 100 | 98.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.495 | 1.339 | 125507 | 0.92 | 100 | 99.5 | 90 | 110 | |
| As | 75 | 2 | He | 96.278 | 1.297 | 120669 | 1.46 | 100 | 96.3 | 90 | 110 | |
| Se | 78 | 2 | He | 93.595 | 0.727 | 9496 | 0.68 | 100 | 93.6 | 90 | 110 | |
| B | 11 | 1 | nogas | 459.256 | 5.877 | 2319083 | 2.98 | 500 | 91.9 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4669.768 | 3.971 | 51043859 | 1.84 | 5000 | 93.4 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9616.145 | 6.266 | 333292 | 2.13 | 10000 | 96.2 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9193.067 | 8.063 | 5550277 | 4.03 | 10000 | 91.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9699.768 | 4.199 | 214235096 | 1.55 | 10000 | 97.0 | 90 | 110 | |
| Se | 77 | 1 | nogas | 88.786 | 25.360 | 93941 | 0.17 | 100 | 88.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 94.156 | 1.305 | 24283 | 4.24 | 100 | 94.2 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.519 | 4.194 | 513456 | 0.67 | 100 | 96.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.515 | 4.532 | 699561 | 1.43 | 100 | 93.5 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.994 | 3.945 | 379121 | 3.62 | 100 | 97.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.280 | 1.346 | 433704 | 1.40 | 100 | 100.3 | 90 | 110 | |
| Li | 7 | 1 | nogas | 92.949 | 1.224 | 1865625 | 5.16 | 100 | 92.9 | 90 | 110 | |
| P | 31 | 1 | nogas | 466.033 | 3.663 | 823549 | 1.63 | 500 | 93.2 | 90 | 110 | |
| La | 139 | 1 | nogas | 88.870 | 18.808 | 380 | 17.26 | 100 | 88.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 233.999 | 422.642 | 23 | 65.47 | 100 | 234.0 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1324116 | 4.92 | 1359891 | 97.37 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3076636 | 4.77 | 3145209 | 97.82 | 70 | 125 | |
| In | 115 | 1 | nogas | 2781876 | 4.05 | 2761164 | 100.75 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2164882 | 1.51 | 2190177 | 98.85 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 723722 | 0.49 | 785020 | 92.19 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 114_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T18:35:05-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.054 | 32.2 | 527 | 29.4 | 1 | |
| Na | 23 | 1 | nogas | 10.349 | 32.0 | 641042 | 8.0 | 100 | |
| Mg | 24 | 1 | nogas | 6.276 | 39.6 | 98736 | 33.0 | 100 | |
| Al | 27 | 1 | nogas | 0.121 | 90.8 | 29697 | 3.2 | 5 | |
| K | 39 | 1 | nogas | -3.461 | -613.8 | 7745088 | 0.2 | 100 | |
| Ti | 47 | 1 | nogas | 0.062 | 89.3 | 393 | 20.7 | 2.5 | |
| V | 51 | 1 | nogas | -26.907 | -4.4 | 1579748 | 6.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.936 | -7.6 | 80558 | 2.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.170 | 56.9 | 34506 | 2.0 | 2.5 | |
| Co | 59 | 1 | nogas | 0.055 | 58.2 | 2237 | 26.0 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.225 | 14.5 | 957 | 12.2 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.035 | 141.3 | 2747 | 15.7 | 2 | |
| Zn | 66 | 1 | nogas | 0.460 | 9.8 | 1017 | 11.7 | 2.5 | |
| As | 75 | 1 | nogas | -13.783 | -10.3 | 194965 | 2.1 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.060 | 46.5 | 2350 | 25.8 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.023 | 40.2 | 603 | 14.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.059 | 45.8 | 180 | 38.9 | 1 | |
| Sb | 121 | 1 | nogas | 1.067 | 26.7 | 13132 | 21.1 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.321 | 62.7 | 7622 | 56.0 | 1 | |
| Pb | 208 | 1 | nogas | -0.070 | -54.0 | 3814 | 25.3 | 2.5 | |
| U | 238 | 1 | nogas | 0.151 | 55.0 | 4267 | 55.3 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.059 | -56.0 | 1050 | 23.3 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.078 | -44.9 | 833 | 26.5 | 2.5 | |
| Na | 23 | 2 | He | 5.203 | 5.7 | 58225 | 0.5 | 100 | |
| Mg | 24 | 2 | He | 3.067 | 10.5 | 2850 | 9.8 | 100 | |
| Al | 27 | 2 | He | -0.011 | -1357.9 | 673 | 9.7 | 5 | |
| K | 39 | 2 | He | -15.880 | -2.3 | 178027 | 0.2 | 100 | |
| Ca | 43 | 2 | He | -0.253 | -4943.6 | 33 | 86.6 | 100 | |
| Ca | 44 | 2 | He | -47.114 | -8.7 | 1183 | 14.4 | 100 | |
| V | 51 | 2 | He | -1.218 | -2.0 | 18163 | 0.5 | 2.5 | |
| Cr | 52 | 2 | He | -0.007 | -671.3 | 4861 | 5.7 | 2.5 | |
| Mn | 55 | 2 | He | -0.038 | -32.5 | 2173 | 2.2 | 2.5 | |
| Fe | 56 | 2 | He | 3.193 | 10.5 | 28122 | 6.8 | 100 | |
| Co | 59 | 2 | He | 0.021 | 61.5 | 540 | 20.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.170 | 5.5 | 220 | 9.1 | 2.5 | |
| Cu | 63 | 2 | He | 0.412 | 9.1 | 890 | 22.4 | 2 | |
| Zn | 66 | 2 | He | 0.574 | 2.9 | 240 | 8.3 | 2.5 | |
| As | 75 | 2 | He | 0.042 | 84.4 | 804 | 4.6 | 2.5 | |
| Se | 78 | 2 | He | 0.651 | 43.2 | 133 | 20.6 | 2 | |
| B | 11 | 1 | nogas | 3.162 | 26.8 | 46484 | 9.3 | 10 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Si | 28 | 1 | nogas | -27.354 | -33.1 | 1618000 | 0.8 | 5 | |
| Ca | 43 | 1 | nogas | -14.249 | -16.3 | 867 | 4.8 | 100 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ca | 44 | 1 | nogas | -571.267 | -2.3 | 98870 | 2.4 | 100 | |
| Fe | 56 | 1 | nogas | -16.559 | -36.0 | 2624823 | 2.4 | 100 | |
| Se | 77 | 1 | nogas | -65.256 | -15.8 | 63056 | 1.8 | 2.5 | |
| Se | 82 | 1 | nogas | -0.113 | -136.2 | 207 | 15.6 | 2 | |
| Mo | 95 | 1 | nogas | 0.006 | 3187.0 | 2310 | 36.5 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.210 | 46.7 | 2397 | 26.6 | 5 | |
| Ba | 137 | 1 | nogas | 0.103 | 39.8 | 437 | 32.6 | 2.5 | |
| Sb | 121 | 2 | He | 0.721 | 7.2 | 3220 | 7.8 | 2.5 | |
| P | 31 | 1 | nogas | 9.542 | 30.6 | 95037 | 0.8 | 10 | |
| La | 139 | 1 | nogas | 1.050 | 685.1 | 50 | 52.9 | 2.5 | |
| Au | 197 | 1 | nogas | -215.528 | -635.2 | 17 | 124.9 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1351813 | 1.88 | 1359891 | 99.41 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3095115 | 5.02 | 3145209 | 98.41 | 70 | 125 | |
| In | 115 | 1 | nogas | 2701826 | 3.73 | 2761164 | 97.85 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2216122 | 1.20 | 2190177 | 101.18 | 70 | 125 | |
| Ge | 72 | 2 | He | 726803 | 0.89 | 785020 | 92.58 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 118_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T18:49:57-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 96.700 | 1.963 | 783523 | 1.51 | 100 | 96.7 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10242.178 | 0.797 | 245346164 | 1.44 | 10000 | 102.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10305.105 | 3.127 | 155792799 | 3.29 | 10000 | 103.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 102.039 | 4.546 | 1984207 | 4.47 | 100 | 102.0 | 90 | 110 | |
| K | 39 | 1 | nogas | 9950.587 | 0.339 | 199167625 | 1.13 | 10000 | 99.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.005 | 1.189 | 165051 | 1.12 | 100 | 96.0 | 90 | 110 | |
| V | 51 | 1 | nogas | 68.817 | 6.619 | 3778913 | 2.42 | 100 | 68.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 96.501 | 2.313 | 2152149 | 1.58 | 100 | 96.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.903 | 3.423 | 2620537 | 2.70 | 100 | 100.9 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.319 | 1.312 | 2207195 | 1.17 | 100 | 99.3 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.208 | 1.591 | 477510 | 1.54 | 100 | 97.2 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 95.696 | 2.045 | 1132318 | 1.83 | 100 | 95.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.043 | 2.246 | 379508 | 1.57 | 100 | 98.0 | 90 | 110 | |
| As | 75 | 1 | nogas | 82.487 | 2.574 | 647425 | 0.77 | 100 | 82.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 98.743 | 1.141 | 2609811 | 0.56 | 100 | 98.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 99.093 | 1.880 | 1282341 | 2.85 | 100 | 99.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.404 | 2.945 | 273554 | 0.79 | 100 | 96.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 98.681 | 2.623 | 1206601 | 3.51 | 100 | 98.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.752 | 2.473 | 1940284 | 1.64 | 100 | 97.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 102.612 | 0.309 | 2643106 | 0.31 | 100 | 102.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 103.897 | 1.901 | 2761020 | 0.48 | 100 | 103.9 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 94.908 | 2.191 | 639894 | 1.00 | 100 | 94.9 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 96.355 | 1.781 | 563937 | 0.39 | 100 | 96.4 | 90 | 110 | |
| Na | 23 | 2 | He | 9647.815 | 0.905 | 14255185 | 0.72 | 10000 | 96.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9836.313 | 1.889 | 7864143 | 1.36 | 10000 | 98.4 | 90 | 110 | |
| Al | 27 | 2 | He | 94.018 | 2.366 | 44900 | 1.28 | 100 | 94.0 | 90 | 110 | |
| K | 39 | 2 | He | 9499.093 | 1.508 | 8432071 | 1.47 | 10000 | 95.0 | 90 | 110 | |
| Ca | 43 | 2 | He | 9571.467 | 1.817 | 22357 | 2.74 | 10000 | 95.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 9569.290 | 1.086 | 377374 | 1.46 | 10000 | 95.7 | 90 | 110 | |
| V | 51 | 2 | He | 94.641 | 1.360 | 557797 | 1.09 | 100 | 94.6 | 90 | 110 | |
| Cr | 52 | 2 | He | 96.962 | 0.731 | 597615 | 1.18 | 100 | 97.0 | 90 | 110 | |
| Mn | 55 | 2 | He | 96.382 | 0.891 | 422034 | 1.43 | 100 | 96.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9796.663 | 0.779 | 51850966 | 0.46 | 10000 | 98.0 | 90 | 110 | |
| Co | 59 | 2 | He | 95.268 | 0.393 | 791661 | 0.73 | 100 | 95.3 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.200 | 0.552 | 203460 | 0.87 | 100 | 99.2 | 90 | 110 | |
| Cu | 63 | 2 | He | 98.512 | 1.548 | 514082 | 0.97 | 100 | 98.5 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.601 | 1.086 | 124836 | 0.14 | 100 | 97.6 | 90 | 110 | |
| As | 75 | 2 | He | 93.580 | 0.540 | 118962 | 1.65 | 100 | 93.6 | 90 | 110 | |
| Se | 78 | 2 | He | 93.373 | 0.713 | 9607 | 0.91 | 100 | 93.4 | 90 | 110 | |
| B | 11 | 1 | nogas | 490.077 | 1.791 | 2372749 | 1.30 | 500 | 98.0 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4757.427 | 1.207 | 52398789 | 1.37 | 5000 | 95.1 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9638.702 | 1.251 | 337149 | 2.20 | 10000 | 96.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9130.681 | 1.808 | 5566356 | 0.73 | 10000 | 91.3 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9711.833 | 2.598 | 216284705 | 1.88 | 10000 | 97.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 10.413 | 49.457 | 78699 | 0.70 | 100 | 10.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 93.625 | 2.303 | 24323 | 1.42 | 100 | 93.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 98.133 | 1.527 | 526409 | 0.56 | 100 | 98.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 96.290 | 1.821 | 712646 | 1.60 | 100 | 96.3 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.573 | 3.117 | 384764 | 0.80 | 100 | 99.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 98.690 | 2.223 | 432759 | 1.09 | 100 | 98.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 97.880 | 3.544 | 1876630 | 3.27 | 100 | 97.9 | 90 | 110 | |
| P | 31 | 1 | nogas | 469.825 | 2.090 | 836365 | 1.35 | 500 | 94.0 | 90 | 110 | |
| La | 139 | 1 | nogas | 94.120 | 32.360 | 393 | 25.97 | 100 | 94.1 | 90 | 110 | |
| Au | 197 | 1 | nogas | -1083.363 | -36.082 | 3 | 173.21 | 100 | -1083.4 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1268610 | 0.50 | 1359891 | 93.29 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3098768 | 0.97 | 3145209 | 98.52 | 70 | 125 | |
| In | 115 | 1 | nogas | 2749695 | 2.33 | 2761164 | 99.58 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2128987 | 1.43 | 2190177 | 97.21 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 733900 | 1.12 | 785020 | 93.49 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 119_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T18:51:57-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 013CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.051 | 23.8 | 490 | 23.2 | 1 | |
| Na | 23 | 1 | nogas | 8.641 | 26.2 | 627778 | 3.4 | 100 | |
| Mg | 24 | 1 | nogas | 5.450 | 29.0 | 90333 | 20.5 | 100 | |
| Al | 27 | 1 | nogas | 0.155 | 39.0 | 30618 | 1.8 | 5 | |
| K | 39 | 1 | nogas | -1.661 | -569.5 | 7844785 | 0.5 | 100 | |
| Ti | 47 | 1 | nogas | 0.027 | 114.8 | 337 | 14.0 | 2.5 | |
| V | 51 | 1 | nogas | -43.373 | -4.0 | 1209871 | 4.9 | 2.5 | |
| Cr | 52 | 1 | nogas | -2.421 | -2.6 | 70938 | 3.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.110 | 27.1 | 33277 | 0.3 | 2.5 | |
| Co | 59 | 1 | nogas | 0.045 | 29.6 | 2043 | 12.3 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.217 | 4.1 | 930 | 3.2 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.020 | 137.8 | 2604 | 10.8 | 2 | |
| Zn | 66 | 1 | nogas | 0.460 | 17.8 | 1027 | 29.1 | 2.5 | |
| As | 75 | 1 | nogas | -21.878 | -3.1 | 158336 | 4.0 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.058 | 16.2 | 2354 | 9.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.025 | 46.0 | 630 | 21.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.043 | 53.3 | 143 | 44.9 | 1 | |
| Sb | 121 | 1 | nogas | 0.969 | 22.1 | 12091 | 19.6 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.382 | 48.1 | 9313 | 47.3 | 1 | |
| Pb | 208 | 1 | nogas | -0.087 | -36.9 | 3374 | 24.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.131 | 53.3 | 3904 | 56.9 | 2.5 | |
| [Pb] | 206 | 1 | nogas | -0.097 | -14.2 | 813 | 16.7 | 2.5 | |
| [Pb] | 207 | 1 | nogas | -0.109 | -15.7 | 670 | 20.9 | 2.5 | |
| Na | 23 | 2 | He | 3.600 | 38.9 | 58101 | 3.3 | 100 | |
| Mg | 24 | 2 | He | 3.296 | 10.5 | 3150 | 9.1 | 100 | |
| Al | 27 | 2 | He | 0.049 | 437.0 | 730 | 14.5 | 5 | |
| K | 39 | 2 | He | -12.854 | -13.1 | 180652 | 0.8 | 100 | |
| Ca | 43 | 2 | He | 6.125 | 65.8 | 50 | 20.0 | 100 | |
| Ca | 44 | 2 | He | -41.375 | -8.7 | 1460 | 9.5 | 100 | |
| V | 51 | 2 | He | -2.121 | -3.1 | 13657 | 3.5 | 2.5 | |
| Cr | 52 | 2 | He | -0.076 | -10.1 | 4624 | 1.4 | 2.5 | |
| Mn | 55 | 2 | He | -0.111 | -36.6 | 1937 | 9.7 | 2.5 | |
| Fe | 56 | 2 | He | 3.289 | 5.8 | 29748 | 3.0 | 100 | |
| Co | 59 | 2 | He | 0.009 | 58.0 | 460 | 9.5 | 2.5 | |
| Ni | 60 | 2 | He | 0.175 | 16.7 | 240 | 25.3 | 2.5 | |
| Cu | 63 | 2 | He | 0.407 | 4.5 | 900 | 11.8 | 2 | |
| Zn | 66 | 2 | He | 0.632 | 3.9 | 327 | 9.4 | 2.5 | |
| As | 75 | 2 | He | -0.115 | -48.5 | 632 | 10.8 | 2.5 | |
| Se | 78 | 2 | He | 0.365 | 5.6 | 108 | 1.9 | 2 | |
| B | 11 | 1 | nogas | 3.838 | 14.0 | 49337 | 7.3 | 10 | |
| Si | 28 | 1 | nogas | -33.061 | -4.6 | 1571735 | 3.1 | 5 | |
| Ca | 43 | 1 | nogas | -13.628 | -5.0 | 897 | 0.6 | 100 | |
| Ca | 44 | 1 | nogas | -561.325 | -0.9 | 105405 | 0.8 | 100 | |
| Fe | 56 | 1 | nogas | -17.110 | -14.3 | 2634236 | 1.5 | 100 | |
| Se | 77 | 1 | nogas | -126.878 | -3.1 | 50875 | 3.5 | 2.5 | |
| Se | 82 | 1 | nogas | -0.111 | -258.7 | 210 | 36.0 | 2 | |
| Mo | 95 | 1 | nogas | -0.034 | -334.6 | 2137 | 26.5 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.181 | 37.1 | 2320 | 17.5 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.149 | 44.6 | 657 | 44.1 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.632 | 8.4 | 2944 | 7.5 | 2.5 | |
| P | 31 | 1 | nogas | 9.320 | 17.4 | 95456 | 0.7 | 10 | |
| La | 139 | 1 | nogas | 52.151 | 184.6 | 257 | 149.6 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | -682.662 | -4.1 | 10 | 0.0 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1334937 | 2.40 | 1359891 | 98.16 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3116553 | 2.08 | 3145209 | 99.09 | 70 | 125 | |
| In | 115 | 1 | nogas | 2864732 | 4.32 | 2761164 | 103.75 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2303506 | 4.57 | 2190177 | 105.17 | 70 | 125 | |
| Ge | 72 | 2 | He | 755645 | 0.72 | 785020 | 96.26 | 70 | 125 | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 123CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T18:59:56-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 70 | 53.99 |
| Na | 23 | 1 | nogas | 400649 | 0.00 |
| Mg | 24 | 1 | nogas | 8170 | 0.20 |
| Al | 27 | 1 | nogas | 21442 | 0.02 |
| K | 39 | 1 | nogas | 7853188 | 0.00 |
| Ti | 47 | 1 | nogas | 237 | 11.48 |
| V | 51 | 1 | nogas | 1345870 | 0.00 |
| Cr | 52 | 1 | nogas | 77474 | 0.00 |
| Mn | 55 | 1 | nogas | 27808 | 0.00 |
| Co | 59 | 1 | nogas | 823 | 1.56 |
| Ni | 60 | 1 | nogas | 467 | 3.06 |
| Cu | 63 | 1 | nogas | 1483 | 0.44 |
| Zn | 66 | 1 | nogas | 657 | 0.13 |
| As | 75 | 1 | nogas | 176957 | 0.00 |
| Sr | 88 | 1 | nogas | 867 | 1.33 |
| Ag | 107 | 1 | nogas | 93 | 35.07 |
| Cd | 111 | 1 | nogas | 20 | 0.00 |
| Sb | 121 | 1 | nogas | 1043 | 1.53 |
| Tl | 205 | 1 | nogas | 563 | 2.55 |
| Pb | 208 | 1 | nogas | 1573 | 0.99 |
| [Pb] | 206 | 1 | nogas | 433 | 1.87 |
| [Pb] | 207 | 1 | nogas | 330 | 9.72 |
| Na | 23 | 2 | He | 45585 | 0.00 |
| Mg | 24 | 2 | He | 583 | 2.63 |
| Al | 27 | 2 | He | 437 | 3.79 |
| K | 39 | 2 | He | 181917 | 0.00 |
| Ca | 43 | 2 | He | 10 | 1732.05 |
| Ca | 44 | 2 | He | 1077 | 0.30 |
| V | 51 | 2 | He | 15473 | 0.01 |
| Cr | 52 | 2 | He | 4597 | 0.08 |
| Mn | 55 | 2 | He | 1257 | 0.41 |
| Fe | 56 | 2 | He | 11797 | 0.03 |
| Co | 59 | 2 | He | 303 | 11.62 |
| Ni | 60 | 2 | He | 137 | 18.80 |
| Cu | 63 | 2 | He | 643 | 1.97 |
| Zn | 66 | 2 | He | 137 | 3.09 |
| As | 75 | 2 | He | 588 | 2.31 |
| Se | 78 | 2 | He | 123 | 3.84 |
| B | 11 | 1 | nogas | 18916 | 0.01 |
| Si | 28 | 1 | nogas | 1541532 | 0.00 |
| Ca | 43 | 1 | nogas | 563 | 2.62 |
| Ca | 44 | 1 | nogas | 95928 | 0.00 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 2809089 | 0.00 |
| Se | 77 | 1 | nogas | 56518 | 0.01 |
| Se | 82 | 1 | nogas | 247 | 10.69 |
| Mo | 95 | 1 | nogas | 497 | 2.38 |
| Sn | 118 | 1 | nogas | 1127 | 0.55 |
| Ba | 137 | 1 | nogas | 113 | 23.78 |
| Sb | 121 | 2 | He | 477 | 3.56 |
| Li | 7 | 1 | nogas | 109987 | 0.00 |
| P | 31 | 1 | nogas | 90462 | 0.00 |
| La | 139 | 1 | nogas | 53 | 73.18 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1446753 | 2.09 |
| Ge | 72 | 1 | nogas | 3206704 | 0.23 |
| In | 115 | 1 | nogas | 2812441 | 2.84 |
| Bi | 209 | 1 | nogas | 2322160 | 3.31 |
| Ge | 72 | 2 | He | 754516 | 1.50 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 124CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:01:55-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 16017 | 0.01 |
| Na | 23 | 1 | nogas | 5490362 | 0.00 |
| Mg | 24 | 1 | nogas | 3430176 | 0.00 |
| Al | 27 | 1 | nogas | 62002 | 0.00 |
| K | 39 | 1 | nogas | 11948324 | 0.00 |
| Ti | 47 | 1 | nogas | 3690 | 0.22 |
| V | 51 | 1 | nogas | 1551445 | 0.00 |
| Cr | 52 | 1 | nogas | 122257 | 0.00 |
| Mn | 55 | 1 | nogas | 74188 | 0.00 |
| Co | 59 | 1 | nogas | 45801 | 0.00 |
| Ni | 60 | 1 | nogas | 11060 | 0.04 |
| Cu | 63 | 1 | nogas | 25972 | 0.01 |
| Zn | 66 | 1 | nogas | 8109 | 0.02 |
| As | 75 | 1 | nogas | 199836 | 0.00 |
| Sr | 88 | 1 | nogas | 53711 | 0.00 |
| Ag | 107 | 1 | nogas | 27352 | 0.01 |
| Cd | 111 | 1 | nogas | 5784 | 0.09 |
| Sb | 121 | 1 | nogas | 25245 | 0.01 |
| Tl | 205 | 1 | nogas | 37547 | 0.01 |
| Pb | 208 | 1 | nogas | 55104 | 0.00 |
| [Pb] | 206 | 1 | nogas | 14000 | 0.01 |
| [Pb] | 207 | 1 | nogas | 12281 | 0.02 |
| Na | 23 | 2 | He | 338997 | 0.00 |
| Mg | 24 | 2 | He | 163588 | 0.00 |
| Al | 27 | 2 | He | 1553 | 0.65 |
| K | 39 | 2 | He | 350064 | 0.00 |
| Ca | 43 | 2 | He | 503 | 2.54 |
| Ca | 44 | 2 | He | 8882 | 0.04 |
| V | 51 | 2 | He | 27508 | 0.01 |
| Cr | 52 | 2 | He | 16257 | 0.01 |
| Mn | 55 | 2 | He | 9843 | 0.03 |
| Fe | 56 | 2 | He | 1088583 | 0.00 |
| Co | 59 | 2 | He | 17482 | 0.01 |
| Ni | 60 | 2 | He | 4577 | 0.13 |
| Cu | 63 | 2 | He | 11444 | 0.03 |
| Zn | 66 | 2 | He | 2727 | 0.41 |
| As | 75 | 2 | He | 3179 | 0.07 |
| Se | 78 | 2 | He | 323 | 2.97 |
| B | 11 | 1 | nogas | 63562 | 0.00 |
| Si | 28 | 1 | nogas | 2570600 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 7758 | 0.04 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 203607 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 7193806 | 0.00 |
| Se | 77 | 1 | nogas | 61735 | 0.01 |
| Se | 82 | 1 | nogas | 833 | 1.72 |
| Mo | 95 | 1 | nogas | 10960 | 0.04 |
| Sn | 118 | 1 | nogas | 15113 | 0.02 |
| Ba | 137 | 1 | nogas | 8466 | 0.04 |
| Sb | 121 | 2 | He | 9523 | 0.05 |
| P | 31 | 1 | nogas | 87960 | 0.00 |
| La | 139 | 1 | nogas | 70 | 20.41 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1379209 | 5.18 | 1446753 | 95.33 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3256495 | 2.07 | 3206704 | 101.55 | 70 | 125 | |
| In | 115 | 1 | nogas | 2856142 | 1.49 | 2812441 | 101.55 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2295874 | 2.67 | 2322160 | 98.87 | 70 | 125 | |
| Ge | 72 | 2 | He | 759218 | 2.00 | 754516 | 100.62 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 125CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:03:54-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 40216 | 0.01 |
| Na | 23 | 1 | nogas | 12844224 | 0.00 |
| Mg | 24 | 1 | nogas | 8008673 | 0.00 |
| Al | 27 | 1 | nogas | 140606 | 0.00 |
| K | 39 | 1 | nogas | 17872186 | 0.00 |
| Ti | 47 | 1 | nogas | 8675 | 0.03 |
| V | 51 | 1 | nogas | 1716980 | 0.00 |
| Cr | 52 | 1 | nogas | 191122 | 0.00 |
| Mn | 55 | 1 | nogas | 162792 | 0.00 |
| Co | 59 | 1 | nogas | 111008 | 0.00 |
| Ni | 60 | 1 | nogas | 26012 | 0.02 |
| Cu | 63 | 1 | nogas | 62661 | 0.00 |
| Zn | 66 | 1 | nogas | 22220 | 0.00 |
| As | 75 | 1 | nogas | 224623 | 0.00 |
| Sr | 88 | 1 | nogas | 131562 | 0.00 |
| Ag | 107 | 1 | nogas | 67316 | 0.00 |
| Cd | 111 | 1 | nogas | 14449 | 0.02 |
| Sb | 121 | 1 | nogas | 63499 | 0.00 |
| Tl | 205 | 1 | nogas | 95808 | 0.00 |
| Pb | 208 | 1 | nogas | 136141 | 0.00 |
| [Pb] | 206 | 1 | nogas | 34454 | 0.01 |
| [Pb] | 207 | 1 | nogas | 29667 | 0.01 |
| Na | 23 | 2 | He | 782020 | 0.00 |
| Mg | 24 | 2 | He | 404819 | 0.00 |
| Al | 27 | 2 | He | 3467 | 0.06 |
| K | 39 | 2 | He | 597599 | 0.00 |
| Ca | 43 | 2 | He | 1307 | 0.69 |
| Ca | 44 | 2 | He | 20271 | 0.02 |
| V | 51 | 2 | He | 45060 | 0.00 |
| Cr | 52 | 2 | He | 35979 | 0.01 |
| Mn | 55 | 2 | He | 23716 | 0.01 |
| Fe | 56 | 2 | He | 2811433 | 0.00 |
| Co | 59 | 2 | He | 41647 | 0.00 |
| Ni | 60 | 2 | He | 10747 | 0.01 |
| Cu | 63 | 2 | He | 27858 | 0.01 |
| Zn | 66 | 2 | He | 7051 | 0.01 |
| As | 75 | 2 | He | 6768 | 0.02 |
| Se | 78 | 2 | He | 623 | 0.23 |
| B | 11 | 1 | nogas | 130646 | 0.00 |
| Si | 28 | 1 | nogas | 4181613 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 18202 | 0.01 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 374777 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 14293153 | 0.00 |
| Se | 77 | 1 | nogas | 64798 | 0.00 |
| Se | 82 | 1 | nogas | 1517 | 0.13 |
| Mo | 95 | 1 | nogas | 27485 | 0.01 |
| Sn | 118 | 1 | nogas | 36809 | 0.01 |
| Ba | 137 | 1 | nogas | 19902 | 0.03 |
| Sb | 121 | 2 | He | 22875 | 0.02 |
| P | 31 | 1 | nogas | 131060 | 0.00 |
| La | 139 | 1 | nogas | 137 | 26.41 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1333091 | 6.34 | 1446753 | 92.14 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3390667 | 1.43 | 3206704 | 105.74 | 70 | 125 | |
| In | 115 | 1 | nogas | 2877774 | 3.00 | 2812441 | 102.32 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2252572 | 2.89 | 2322160 | 97.00 | 70 | 125 | |
| Ge | 72 | 2 | He | 792957 | 0.80 | 754516 | 105.09 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 126CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:05:53-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 77148 | 0.00 |
| Na | 23 | 1 | nogas | 25250872 | 0.00 |
| Mg | 24 | 1 | nogas | 15834310 | 0.00 |
| Al | 27 | 1 | nogas | 232008 | 0.00 |
| K | 39 | 1 | nogas | 27175799 | 0.00 |
| Ti | 47 | 1 | nogas | 16658 | 0.02 |
| V | 51 | 1 | nogas | 1868880 | 0.00 |
| Cr | 52 | 1 | nogas | 291583 | 0.00 |
| Mn | 55 | 1 | nogas | 287456 | 0.00 |
| Co | 59 | 1 | nogas | 221976 | 0.00 |
| Ni | 60 | 1 | nogas | 50082 | 0.01 |
| Cu | 63 | 1 | nogas | 118092 | 0.00 |
| Zn | 66 | 1 | nogas | 39309 | 0.00 |
| As | 75 | 1 | nogas | 253155 | 0.00 |
| Sr | 88 | 1 | nogas | 258307 | 0.00 |
| Ag | 107 | 1 | nogas | 129291 | 0.00 |
| Cd | 111 | 1 | nogas | 28029 | 0.01 |
| Sb | 121 | 1 | nogas | 121934 | 0.00 |
| Tl | 205 | 1 | nogas | 187552 | 0.00 |
| Pb | 208 | 1 | nogas | 264591 | 0.00 |
| [Pb] | 206 | 1 | nogas | 66161 | 0.00 |
| [Pb] | 207 | 1 | nogas | 57469 | 0.00 |
| Na | 23 | 2 | He | 1603255 | 0.00 |
| Mg | 24 | 2 | He | 815126 | 0.00 |
| Al | 27 | 2 | He | 5628 | 0.09 |
| K | 39 | 2 | He | 1000101 | 0.00 |
| Ca | 43 | 2 | He | 2324 | 0.13 |
| Ca | 44 | 2 | He | 38974 | 0.00 |
| V | 51 | 2 | He | 72881 | 0.00 |
| Cr | 52 | 2 | He | 66252 | 0.00 |
| Mn | 55 | 2 | He | 45527 | 0.01 |
| Fe | 56 | 2 | He | 5424213 | 0.00 |
| Co | 59 | 2 | He | 83632 | 0.00 |
| Ni | 60 | 2 | He | 20929 | 0.02 |
| Cu | 63 | 2 | He | 54648 | 0.01 |
| Zn | 66 | 2 | He | 13118 | 0.04 |
| As | 75 | 2 | He | 12805 | 0.01 |
| Se | 78 | 2 | He | 1081 | 0.27 |
| B | 11 | 1 | nogas | 244624 | 0.00 |
| Si | 28 | 1 | nogas | 6670116 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 35027 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 641708 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 25285242 | 0.00 |
| Se | 77 | 1 | nogas | 69419 | 0.00 |
| Se | 82 | 1 | nogas | 2650 | 0.21 |
| Mo | 95 | 1 | nogas | 54297 | 0.01 |
| Sn | 118 | 1 | nogas | 73307 | 0.00 |
| Ba | 137 | 1 | nogas | 38019 | 0.01 |
| Sb | 121 | 2 | He | 45516 | 0.01 |
| P | 31 | 1 | nogas | 174335 | 0.00 |
| La | 139 | 1 | nogas | 127 | 50.38 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1343072 | 4.51 | 1446753 | 92.83 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3313200 | 1.72 | 3206704 | 103.32 | 70 | 125 | |
| In | 115 | 1 | nogas | 2866425 | 3.53 | 2812441 | 101.92 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2231632 | 2.44 | 2322160 | 96.10 | 70 | 125 | |
| Ge | 72 | 2 | He | 772138 | 1.02 | 754516 | 102.34 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 127CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:07:51-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 770857 | 0.00 |
| Na | 23 | 1 | nogas | 242498655 | 0.00 |
| Mg | 24 | 1 | nogas | 154874208 | 0.00 |
| Al | 27 | 1 | nogas | 1990080 | 0.00 |
| K | 39 | 1 | nogas | 197878504 | 0.00 |
| Ti | 47 | 1 | nogas | 165246 | 0.00 |
| V | 51 | 1 | nogas | 3915446 | 0.00 |
| Cr | 52 | 1 | nogas | 2212534 | 0.00 |
| Mn | 55 | 1 | nogas | 2743316 | 0.00 |
| Co | 59 | 1 | nogas | 2253592 | 0.00 |
| Ni | 60 | 1 | nogas | 482568 | 0.00 |
| Cu | 63 | 1 | nogas | 1134783 | 0.00 |
| Zn | 66 | 1 | nogas | 377718 | 0.00 |
| As | 75 | 1 | nogas | 674392 | 0.00 |
| Sr | 88 | 1 | nogas | 2656691 | 0.00 |
| Ag | 107 | 1 | nogas | 1328342 | 0.00 |
| Cd | 111 | 1 | nogas | 277142 | 0.00 |
| Sb | 121 | 1 | nogas | 1212062 | 0.00 |
| Tl | 205 | 1 | nogas | 2038051 | 0.00 |
| Pb | 208 | 1 | nogas | 2754632 | 0.00 |
| [Pb] | 206 | 1 | nogas | 654698 | 0.00 |
| [Pb] | 207 | 1 | nogas | 580556 | 0.00 |
| Na | 23 | 2 | He | 14697812 | 0.00 |
| Mg | 24 | 2 | He | 7992094 | 0.00 |
| Al | 27 | 2 | He | 45588 | 0.00 |
| K | 39 | 2 | He | 8452403 | 0.00 |
| Ca | 43 | 2 | He | 22631 | 0.01 |
| Ca | 44 | 2 | He | 377153 | 0.00 |
| V | 51 | 2 | He | 565139 | 0.00 |
| Cr | 52 | 2 | He | 616895 | 0.00 |
| Mn | 55 | 2 | He | 427894 | 0.00 |
| Fe | 56 | 2 | He | 51671208 | 0.00 |
| Co | 59 | 2 | He | 794999 | 0.00 |
| Ni | 60 | 2 | He | 204531 | 0.00 |
| Cu | 63 | 2 | He | 521587 | 0.00 |
| Zn | 66 | 2 | He | 125243 | 0.00 |
| As | 75 | 2 | He | 121407 | 0.00 |
| Se | 78 | 2 | He | 9610 | 0.02 |
| B | 11 | 1 | nogas | 2325500 | 0.00 |
| Si | 28 | 1 | nogas | 52692804 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 340306 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 5719862 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 225714363 | 0.00 |
| Se | 77 | 1 | nogas | 85332 | 0.00 |
| Se | 82 | 1 | nogas | 25165 | 0.01 |
| Mo | 95 | 1 | nogas | 523951 | 0.00 |
| Sn | 118 | 1 | nogas | 722784 | 0.00 |
| Ba | 137 | 1 | nogas | 389153 | 0.00 |
| Sb | 121 | 2 | He | 438849 | 0.00 |
| P | 31 | 1 | nogas | 846504 | 0.00 |
| La | 139 | 1 | nogas | 483 | 4.72 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1213626 | 3.21 | 1446753 | 83.89 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3155985 | 2.86 | 3206704 | 98.42 | 70 | 125 | |
| In | 115 | 1 | nogas | 2731958 | 3.08 | 2812441 | 97.14 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2203864 | 0.68 | 2322160 | 94.91 | 70 | 125 | |
| Ge | 72 | 2 | He | 750459 | 0.80 | 754516 | 99.46 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 128CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:09:49-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1635048 | 0.00 |
| Na | 23 | 1 | nogas | 487938144 | 0.00 |
| Mg | 24 | 1 | nogas | 311599649 | 0.00 |
| Al | 27 | 1 | nogas | 3720619 | 0.00 |
| K | 39 | 1 | nogas | 387013200 | 0.00 |
| Ti | 47 | 1 | nogas | 337307 | 0.00 |
| V | 51 | 1 | nogas | 5847592 | 0.00 |
| Cr | 52 | 1 | nogas | 4260513 | 0.00 |
| Mn | 55 | 1 | nogas | 5212488 | 0.00 |
| Co | 59 | 1 | nogas | 4462955 | 0.00 |
| Ni | 60 | 1 | nogas | 962911 | 0.00 |
| Cu | 63 | 1 | nogas | 2305483 | 0.00 |
| Zn | 66 | 1 | nogas | 758181 | 0.00 |
| As | 75 | 1 | nogas | 1089835 | 0.00 |
| Sr | 88 | 1 | nogas | 5208978 | 0.00 |
| Ag | 107 | 1 | nogas | 2566119 | 0.00 |
| Cd | 111 | 1 | nogas | 558850 | 0.00 |
| Sb | 121 | 1 | nogas | 2523837 | 0.00 |
| Tl | 205 | 1 | nogas | 3971253 | 0.00 |
| Pb | 208 | 1 | nogas | 5460578 | 0.00 |
| [Pb] | 206 | 1 | nogas | 1380705 | 0.00 |
| [Pb] | 207 | 1 | nogas | 1160140 | 0.00 |
| Na | 23 | 2 | He | 28670345 | 0.00 |
| Mg | 24 | 2 | He | 15925250 | 0.00 |
| Al | 27 | 2 | He | 88687 | 0.00 |
| K | 39 | 2 | He | 16988162 | 0.00 |
| Ca | 43 | 2 | He | 45786 | 0.00 |
| Ca | 44 | 2 | He | 763233 | 0.00 |
| V | 51 | 2 | He | 1118348 | 0.00 |
| Cr | 52 | 2 | He | 1225421 | 0.00 |
| Mn | 55 | 2 | He | 854743 | 0.00 |
| Fe | 56 | 2 | He | 106540595 | 0.00 |
| Co | 59 | 2 | He | 1698960 | 0.00 |
| Ni | 60 | 2 | He | 409741 | 0.00 |
| Cu | 63 | 2 | He | 1042535 | 0.00 |
| Zn | 66 | 2 | He | 255918 | 0.00 |
| As | 75 | 2 | He | 243421 | 0.00 |
| Se | 78 | 2 | He | 19463 | 0.00 |
| B | 11 | 1 | nogas | 4747092 | 0.00 |
| Si | 28 | 1 | nogas | 102886088 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 669375 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 11178438 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 441805293 | 0.00 |
| Se | 77 | 1 | nogas | 86585 | 0.00 |
| Se | 82 | 1 | nogas | 50053 | 0.00 |
| Mo | 95 | 1 | nogas | 1069773 | 0.00 |
| Sn | 118 | 1 | nogas | 1465775 | 0.00 |
| Ba | 137 | 1 | nogas | 790275 | 0.00 |
| Sb | 121 | 2 | He | 891260 | 0.00 |
| P | 31 | 1 | nogas | 1628622 | 0.00 |
| La | 139 | 1 | nogas | 690 | 1.87 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1159034 | 0.52 | 1446753 | 80.11 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3121229 | 4.29 | 3206704 | 97.33 | 70 | 125 | |
| In | 115 | 1 | nogas | 2723278 | 2.90 | 2812441 | 96.83 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2126871 | 1.71 | 2322160 | 91.59 | 70 | 125 | |
| Ge | 72 | 2 | He | 742295 | 0.54 | 754516 | 98.38 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCV |
| Data File Name | 129_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:11:49-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 90.301 | 4.598 | 786718 | 2.51 | 100 | 90.3 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10384.490 | 4.839 | 254714922 | 1.49 | 10000 | 103.8 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10216.194 | 4.105 | 159942195 | 1.00 | 10000 | 102.2 | 90 | 110 | |
| Al | 27 | 1 | nogas | 100.587 | 5.820 | 1978560 | 2.61 | 100 | 100.6 | 90 | 110 | |
| K | 39 | 1 | nogas | 10263.903 | 4.337 | 210149896 | 1.02 | 10000 | 102.6 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 100.515 | 5.206 | 175305 | 2.20 | 100 | 100.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 78.579 | 5.035 | 3273331 | 2.45 | 100 | 78.6 | 90 | 110 | ICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 95.915 | 0.426 | 2172786 | 3.25 | 100 | 95.9 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.108 | 3.002 | 2694291 | 1.34 | 100 | 98.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 97.795 | 2.315 | 2271185 | 0.95 | 100 | 97.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.599 | 4.497 | 487945 | 1.48 | 100 | 97.6 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.507 | 2.348 | 1152762 | 1.19 | 100 | 96.5 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.631 | 2.099 | 387944 | 1.34 | 100 | 98.6 | 90 | 110 | |
| As | 75 | 1 | nogas | 88.407 | 5.316 | 614466 | 0.51 | 100 | 88.4 | 90 | 110 | ICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 100.095 | 2.438 | 2717900 | 1.04 | 100 | 100.1 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 96.628 | 1.502 | 1296693 | 2.79 | 100 | 96.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 101.761 | 1.019 | 285954 | 1.10 | 100 | 101.8 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.652 | 0.288 | 1309455 | 3.17 | 100 | 100.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 100.746 | 4.261 | 2013533 | 4.36 | 100 | 100.7 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.632 | 2.193 | 2670818 | 2.19 | 100 | 97.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 89.697 | 1.525 | 2413131 | 1.56 | 100 | 89.7 | 90 | 110 | ICV Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 98.621 | 1.406 | 675010 | 0.65 | 100 | 98.6 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 96.898 | 1.884 | 562952 | 0.91 | 100 | 96.9 | 90 | 110 | |
| Na | 23 | 2 | He | 10474.107 | 2.100 | 15647264 | 0.58 | 10000 | 104.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 10151.008 | 1.080 | 8378945 | 1.49 | 10000 | 101.5 | 90 | 110 | |
| Al | 27 | 2 | He | 101.205 | 2.229 | 47076 | 1.36 | 100 | 101.2 | 90 | 110 | |
| K | 39 | 2 | He | 10491.084 | 0.429 | 8969435 | 0.42 | 10000 | 104.9 | 90 | 110 | |
| Ca | 43 | 2 | He | 10065.061 | 3.960 | 23815 | 3.76 | 10000 | 100.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 10033.963 | 2.027 | 396076 | 0.67 | 10000 | 100.3 | 90 | 110 | |
| V | 51 | 2 | He | 98.605 | 1.094 | 578483 | 0.64 | 100 | 98.6 | 90 | 110 | |
| Cr | 52 | 2 | He | 96.922 | 1.559 | 617857 | 0.49 | 100 | 96.9 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.040 | 1.904 | 439081 | 2.12 | 100 | 99.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 9957.403 | 2.767 | 54623416 | 2.72 | 10000 | 99.6 | 90 | 110 | |
| Co | 59 | 2 | He | 94.907 | 1.887 | 824547 | 1.17 | 100 | 94.9 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.154 | 2.596 | 210237 | 1.87 | 100 | 99.2 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.383 | 1.107 | 536715 | 1.70 | 100 | 99.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.604 | 1.440 | 130032 | 1.95 | 100 | 98.6 | 90 | 110 | |
| As | 75 | 2 | He | 99.804 | 2.341 | 125983 | 1.29 | 100 | 99.8 | 90 | 110 | |
| Se | 78 | 2 | He | 98.760 | 3.198 | 9962 | 1.69 | 100 | 98.8 | 90 | 110 | |
| B | 11 | 1 | nogas | 437.724 | 2.810 | 2239070 | 2.43 | 500 | 87.5 | 90 | 110 | ICV Main CR1 Failed |
| Si | 28 | 1 | nogas | 507.303 | 6.864 | 6908083 | 2.09 | 5000 | 10.1 | 90 | 110 | ICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 9993.413 | 4.144 | 348511 | 1.52 | 10000 | 99.9 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9827.861 | 3.325 | 5768005 | 1.71 | 10000 | 98.3 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9810.284 | 5.205 | 227146205 | 2.03 | 10000 | 98.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 28.175 | 49.147 | 62688 | 1.61 | 100 | 28.2 | 90 | 110 | ICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 95.569 | 5.992 | 24954 | 2.86 | 100 | 95.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.081 | 3.743 | 531609 | 1.03 | 100 | 96.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 102.400 | 1.837 | 753861 | 0.40 | 100 | 102.4 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.957 | 1.470 | 396552 | 0.55 | 100 | 100.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.772 | 0.899 | 468578 | 1.72 | 100 | 101.8 | 90 | 110 | |
| Li | 7 | 1 | nogas | 99.125 | 3.686 | 1937876 | 1.69 | 100 | 99.1 | 90 | 110 | |
| P | 31 | 1 | nogas | 445.692 | 5.088 | 802166 | 1.30 | 500 | 89.1 | 90 | 110 | ICV Main CR1 Failed |
| La | 139 | 1 | nogas | 139.329 | 16.802 | 533 | 15.61 | 100 | 139.3 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 238.391 | 200.378 | 17 | 124.90 | 100 | 238.4 | 90 | 110 | ICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1261564 | 2.14 | 1446753 | 87.20 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3247576 | 3.27 | 3206704 | 101.27 | 70 | 125 | |
| In | 115 | 1 | nogas | 2743656 | 1.57 | 2812441 | 97.55 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2145193 | 1.08 | 2322160 | 92.38 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 770652 | 1.61 | 754516 | 102.14 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 131LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:15:48-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.255 | 3.454 | 37998 | 2.70 | 5 | 85.1 | 70 | 130 | |
| Na | 23 | 1 | nogas | 499.242 | 2.195 | 12873645 | 2.74 | 500 | 99.8 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 512.335 | 3.599 | 8184982 | 4.27 | 500 | 102.5 | 70 | 130 | |
| Al | 27 | 1 | nogas | 6.095 | 2.904 | 141154 | 3.05 | 5 | 121.9 | 70 | 130 | |
| K | 39 | 1 | nogas | 486.238 | 5.330 | 17624482 | 1.33 | 500 | 97.2 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 5.232 | 7.021 | 9420 | 9.15 | 5 | 104.6 | 70 | 130 | |
| V | 51 | 1 | nogas | -6.283 | -22.118 | 1216227 | 2.87 | 5 | -125.7 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 4.473 | 0.892 | 177047 | 2.39 | 5 | 89.5 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.009 | 1.429 | 165200 | 1.51 | 5 | 100.2 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.733 | 4.242 | 111279 | 2.42 | 5 | 94.7 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 5.315 | 1.560 | 26396 | 0.80 | 5 | 106.3 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 5.045 | 2.503 | 62005 | 0.18 | 5 | 100.9 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 5.552 | 3.479 | 21783 | 1.98 | 5 | 111.0 | 70 | 130 | |
| As | 75 | 1 | nogas | -2.705 | -11.160 | 181175 | 2.69 | 5 | -54.1 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 4.780 | 1.920 | 131338 | 0.41 | 5 | 95.6 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 4.957 | 1.445 | 66943 | 0.84 | 5 | 99.1 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 4.876 | 5.119 | 14386 | 2.78 | 5 | 97.5 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.026 | 3.099 | 66704 | 1.22 | 5 | 100.5 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.611 | 3.786 | 96348 | 4.14 | 5 | 92.2 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 4.932 | 2.201 | 136423 | 2.18 | 5 | 98.6 | 70 | 130 | |
| U | 238 | 1 | nogas | 4.789 | 0.734 | 134083 | 2.16 | 5 | 95.8 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 4.732 | 2.820 | 34076 | 3.37 | 5 | 94.6 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 4.809 | 4.102 | 29343 | 2.62 | 5 | 96.2 | 70 | 130 | |
| Na | 23 | 2 | He | 498.970 | 4.063 | 792259 | 1.09 | 500 | 99.8 | 70 | 130 | |
| Mg | 24 | 2 | He | 494.997 | 4.875 | 410285 | 1.85 | 500 | 99.0 | 70 | 130 | |
| Al | 27 | 2 | He | 5.852 | 7.510 | 3527 | 5.25 | 5 | 117.0 | 70 | 130 | |
| K | 39 | 2 | He | 506.396 | 2.047 | 606084 | 1.43 | 500 | 101.3 | 70 | 130 | |
| Ca | 43 | 2 | He | 491.416 | 14.325 | 1173 | 10.52 | 500 | 98.3 | 70 | 130 | |
| Ca | 44 | 2 | He | 496.079 | 4.147 | 20692 | 0.88 | 500 | 99.2 | 70 | 130 | |
| V | 51 | 2 | He | 4.386 | 5.926 | 40180 | 0.32 | 5 | 87.7 | 70 | 130 | |
| Cr | 52 | 2 | He | 4.874 | 6.575 | 35625 | 2.28 | 5 | 97.5 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.090 | 5.175 | 23849 | 1.62 | 5 | 101.8 | 70 | 130 | |
| Fe | 56 | 2 | He | 504.862 | 2.218 | 2790513 | 1.75 | 500 | 101.0 | 70 | 130 | |
| Co | 59 | 2 | He | 4.795 | 3.819 | 42098 | 3.30 | 5 | 95.9 | 70 | 130 | |
| Ni | 60 | 2 | He | 5.348 | 1.558 | 11154 | 4.76 | 5 | 107.0 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.165 | 2.576 | 27965 | 4.78 | 5 | 103.3 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.473 | 6.880 | 6928 | 4.04 | 5 | 109.5 | 70 | 130 | |
| As | 75 | 2 | He | 4.975 | 3.427 | 6872 | 0.50 | 5 | 99.5 | 70 | 130 | |
| Se | 78 | 2 | He | 5.009 | 13.099 | 583 | 8.04 | 5 | 100.2 | 70 | 130 | |
| B | 11 | 1 | nogas | 30.841 | 3.806 | 177033 | 2.05 | 25 | 123.4 | 70 | 130 | |
| Si | 28 | 1 | nogas | 249.369 | 3.184 | 4214325 | 2.02 | 25 | 997.5 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 509.856 | 6.326 | 18416 | 4.14 | 500 | 102.0 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 474.314 | 2.975 | 372822 | 1.35 | 500 | 94.9 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 478.755 | 2.307 | 13872788 | 2.19 | 500 | 95.8 | 70 | 130 | |
| Se | 77 | 1 | nogas | -24.944 | -3.683 | 52633 | 2.27 | 5 | -498.9 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 4.839 | 17.649 | 1507 | 12.76 | 5 | 96.8 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.829 | 0.906 | 27351 | 1.49 | 5 | 96.6 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.772 | 2.072 | 37958 | 1.83 | 5 | 95.4 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 4.742 | 4.076 | 19838 | 1.91 | 5 | 94.8 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.265 | 4.079 | 24788 | 3.90 | 5 | 105.3 | 70 | 130 | |
| Li | 7 | 1 | nogas | 5.160 | 4.362 | 196270 | 2.54 | 5 | 103.2 | 70 | 130 | |
| P | 31 | 1 | nogas | 28.079 | 5.950 | 137092 | 0.42 | 25 | 112.3 | 70 | 130 | |
| La | 139 | 1 | nogas | 9.723 | 50.979 | 90 | 22.22 | 5 | 194.5 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 301.460 | 2.209 | 20 | 0.00 | 5 | 6029.2 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1290480 | 1.84 | 1446753 | 89.20 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3264303 | 2.29 | 3206704 | 101.80 | 70 | 125 | |
| In | 115 | 1 | nogas | 2878758 | 2.35 | 2812441 | 102.36 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2230517 | 1.48 | 2322160 | 96.05 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 773591 | 3.51 | 754516 | 102.53 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCB |
| Data File Name | 132_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:17:46-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.013 | 4.8 | 167 | 3.5 | 1 | |
| Na | 23 | 1 | nogas | 0.207 | 280.8 | 412239 | 2.5 | 100 | |
| Mg | 24 | 1 | nogas | 0.620 | 26.4 | 18112 | 8.7 | 100 | |
| Al | 27 | 1 | nogas | 2.320 | 102.5 | 69027 | 73.1 | 5 | |
| K | 39 | 1 | nogas | -8.421 | -138.7 | 7898197 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.021 | 141.8 | 280 | 16.4 | 2.5 | |
| V | 51 | 1 | nogas | -8.276 | -5.8 | 1179353 | 4.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.384 | -19.7 | 71092 | 2.4 | 2.5 | |
| Mn | 55 | 1 | nogas | -0.015 | -280.8 | 28148 | 3.7 | 2.5 | |
| Co | 59 | 1 | nogas | -0.006 | -51.6 | 700 | 14.3 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.181 | 2.3 | 563 | 7.4 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.037 | 16.8 | 1970 | 2.2 | 1 | |
| Zn | 66 | 1 | nogas | 0.269 | 5.7 | 897 | 7.6 | 2.5 | |
| As | 75 | 1 | nogas | -6.762 | -9.3 | 163234 | 2.5 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.022 | 24.7 | 1500 | 8.8 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.004 | 34.4 | 153 | 16.4 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.012 | 65.2 | 57 | 44.4 | 1 | |
| Sb | 121 | 1 | nogas | 0.157 | 9.7 | 3140 | 4.1 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.093 | 43.0 | 2510 | 36.4 | 1 | |
| Pb | 208 | 1 | nogas | 0.011 | 58.4 | 1863 | 9.1 | 2.5 | |
| U | 238 | 1 | nogas | 0.015 | 30.6 | 533 | 28.7 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.001 | 454.9 | 423 | 8.9 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.018 | 20.0 | 430 | 4.0 | 2.5 | |
| Na | 23 | 2 | He | -0.581 | -104.0 | 46597 | 1.6 | 100 | |
| Mg | 24 | 2 | He | 0.607 | 18.6 | 1117 | 7.6 | 100 | |
| Al | 27 | 2 | He | 0.447 | 31.4 | 1067 | 6.0 | 5 | |
| K | 39 | 2 | He | -2.860 | -88.1 | 179521 | 1.2 | 100 | |
| Ca | 43 | 2 | He | 12.124 | 117.0 | 40 | 86.6 | 100 | |
| Ca | 44 | 2 | He | 2.221 | 142.5 | 1210 | 9.9 | 100 | |
| V | 51 | 2 | He | -0.476 | -12.0 | 12512 | 2.3 | 2.5 | |
| Cr | 52 | 2 | He | -0.075 | -48.7 | 4301 | 4.6 | 2.5 | |
| Mn | 55 | 2 | He | 0.068 | 45.2 | 1617 | 9.0 | 2.5 | |
| Fe | 56 | 2 | He | 0.433 | 9.9 | 14706 | 2.5 | 100 | |
| Co | 59 | 2 | He | -0.008 | -47.9 | 243 | 13.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.220 | 17.7 | 227 | 38.0 | 2.5 | |
| Cu | 63 | 2 | He | 0.145 | 11.1 | 760 | 12.6 | 1 | |
| Zn | 66 | 2 | He | 0.435 | 4.0 | 257 | 9.0 | 2.5 | |
| As | 75 | 2 | He | -0.006 | -317.5 | 604 | 3.0 | 2.5 | |
| Se | 78 | 2 | He | 0.626 | 20.9 | 147 | 8.2 | 1 | |
| B | 11 | 1 | nogas | 6.668 | 5.8 | 49812 | 1.3 | 10 | |
| Si | 28 | 1 | nogas | 0.052 | 8967.4 | 1584000 | 1.4 | 5 | |
| Ca | 43 | 1 | nogas | 9.121 | 54.2 | 903 | 20.9 | 100 | |
| Ca | 44 | 1 | nogas | -0.468 | -1366.5 | 98243 | 0.7 | 100 | |
| Fe | 56 | 1 | nogas | -10.589 | -37.4 | 2639254 | 0.1 | 100 | |

# Initial Calibration Blank (ICB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Se | 77 | 1 | nogas | -30.346 | -17.1 | 52075 | 4.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.029 | -417.0 | 247 | 16.4 | 1 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Mo | 95 | 1 | nogas | 0.035 | 83.0 | 703 | 19.9 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.039 | 67.2 | 1420 | 9.9 | 5 | |
| Ba | 137 | 1 | nogas | 0.017 | 6.4 | 183 | 6.3 | 2.5 | |
| Sb | 121 | 2 | He | 0.123 | 27.9 | 1073 | 15.1 | 2.5 | |
| P | 31 | 1 | nogas | -0.016 | -5605.1 | 92937 | 2.9 | 10 | |
| La | 139 | 1 | nogas | 5.719 | 90.3 | 73 | 20.8 | 2.5 | ICB Main CR1 Failed |
| Au | 197 | 1 | nogas | 162.485 | 222.8 | 13 | 114.6 | 2.5 | ICB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1297781 | 3.56 | 1446753 | 89.70 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3296160 | 3.64 | 3206704 | 102.79 | 70 | 125 | |
| In | 115 | 1 | nogas | 2824301 | 3.91 | 2812441 | 100.42 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2246613 | 5.11 | 2322160 | 96.75 | 70 | 125 | |
| Ge | 72 | 2 | He | 785684 | 0.89 | 754516 | 104.13 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 133SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:19:46-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 123CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.882 | 1.882 | 5.62 | 15770 | 0.01 | 2000 | |
| Na | 23 | 1 | nogas | 201.336 | 201.336 | 2.88 | 5469477 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 205.217 | 205.217 | 3.10 | 3303223 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 1.933 | 1.933 | 3.87 | 61601 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 185.801 | 185.801 | 4.93 | 12054502 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 1.806 | 1.806 | 4.19 | 3517 | 0.05 | 2000 | |
| V | 51 | 1 | nogas | -6.160 | -6.160 | -14.00 | 1258913 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 1.455 | 1.455 | 10.77 | 114367 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 1.651 | 1.651 | 7.03 | 75799 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 1.840 | 1.840 | 4.00 | 45193 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 2.090 | 2.090 | 3.98 | 10500 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 1.917 | 1.917 | 3.45 | 25308 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 2.084 | 2.084 | 2.76 | 8335 | 0.03 | 2000 | |
| As | 75 | 1 | nogas | -4.977 | -4.977 | -26.69 | 175762 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 1.912 | 1.912 | 2.87 | 54784 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 1.965 | 1.965 | 4.33 | 27458 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 2.001 | 2.001 | 2.31 | 5994 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 1.906 | 1.906 | 2.02 | 26811 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 1.816 | 1.816 | 7.34 | 39168 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 1.957 | 1.957 | 1.65 | 55080 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 1.904 | 1.904 | 3.13 | 53621 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 1.863 | 1.863 | 2.76 | 13996 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 1.906 | 1.906 | 0.63 | 12111 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 196.462 | 196.462 | 0.70 | 349443 | 0.06 | 200000 | |
| Mg | 24 | 2 | He | 198.864 | 198.864 | 0.86 | 169682 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 1.431 | 1.431 | 18.44 | 1540 | 0.09 | 2000 | |
| K | 39 | 2 | He | 202.776 | 202.776 | 1.30 | 351766 | 0.06 | 200000 | |
| Ca | 43 | 2 | He | 246.074 | 246.074 | 21.96 | 610 | 40.34 | 200000 | |
| Ca | 44 | 2 | He | 191.830 | 191.830 | 1.03 | 8912 | 2.15 | 200000 | |
| V | 51 | 2 | He | 1.557 | 1.557 | 2.27 | 24613 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | 1.692 | 1.692 | 0.69 | 15864 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 1.873 | 1.873 | 3.83 | 9849 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 192.979 | 192.979 | 1.59 | 1102649 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 1.896 | 1.896 | 2.10 | 17282 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 2.085 | 2.085 | 6.24 | 4307 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | 2.038 | 2.038 | 2.10 | 11294 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 2.293 | 2.293 | 7.40 | 2790 | 0.08 | 2000 | |
| As | 75 | 2 | He | 1.932 | 1.932 | 1.48 | 3119 | 0.06 | 2000 | |
| Se | 78 | 2 | He | 2.240 | 2.240 | 2.71 | 315 | 0.71 | 2000 | |
| B | 11 | 1 | nogas | 13.939 | 13.939 | 6.27 | 86879 | 0.02 | 2000 | |
| Si | 28 | 1 | nogas | 90.823 | 90.823 | 5.09 | 2614779 | 0.00 | 2000 | |
| Ca | 43 | 1 | nogas | 188.371 | 188.371 | 2.11 | 7405 | 2.54 | 200000 | |

# Sample Report

| Ca | 44 | 1 | nogas | 170.299 | 170.299 | 2.45 | 202849 | 0.08 | 200000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 176.064 | 176.064 | 4.53 | 7133054 | 0.00 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Se | 77 | 1 | nogas | -26.984 | -26.984 | -2.66 | 53930 | -0.05 | 2000 | |
| Se | 82 | 1 | nogas | 1.877 | 1.877 | 0.88 | 763 | 0.25 | 2000 | |
| Mo | 95 | 1 | nogas | 1.909 | 1.909 | 2.06 | 11481 | 0.02 | 2000 | |
| Sn | 118 | 1 | nogas | 1.823 | 1.823 | 5.27 | 15400 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 1.970 | 1.970 | 7.76 | 8416 | 0.02 | 2000 | |
| Sb | 121 | 2 | He | 2.007 | 2.007 | 4.82 | 10006 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | -7.752 | -7.752 | -21.51 | 27 | -29.07 | 2000 | |
| Au | 197 | 1 | nogas | 437.229 | 437.229 | 29.88 | 27 | 1639.61 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1316939 | 3.63 | 1446753 | 91.03 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3370304 | 1.34 | 3206704 | 105.10 | 70 | 125 | |
| In | 115 | 1 | nogas | 2915299 | 1.61 | 2812441 | 103.66 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2283724 | 1.07 | 2322160 | 98.34 | 70 | 125 | |
| Ge | 72 | 2 | He | 793775 | 0.77 | 754516 | 105.20 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 138_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:33:43-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.034 | 32.1 | 357 | 26.1 | 1 | |
| Na | 23 | 1 | nogas | 8.695 | 38.6 | 619732 | 5.4 | 100 | |
| Mg | 24 | 1 | nogas | 4.329 | 35.2 | 76039 | 23.2 | 100 | |
| Al | 27 | 1 | nogas | 3.334 | 4.1 | 85623 | 1.7 | 5 | |
| K | 39 | 1 | nogas | 3.908 | 261.5 | 7935173 | 1.1 | 100 | |
| Ti | 47 | 1 | nogas | 0.071 | 50.4 | 360 | 18.2 | 2.5 | |
| V | 51 | 1 | nogas | -10.161 | -1.0 | 1103147 | 3.0 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.455 | -18.2 | 67716 | 1.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.835 | 5.9 | 50258 | 0.9 | 2.5 | |
| Co | 59 | 1 | nogas | 0.060 | 22.4 | 2197 | 11.1 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.274 | 4.3 | 1010 | 3.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.103 | 19.1 | 2697 | 8.5 | 2 | |
| Zn | 66 | 1 | nogas | 0.548 | 6.5 | 1957 | 5.5 | 2.5 | |
| As | 75 | 1 | nogas | -7.871 | -10.2 | 153746 | 0.7 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.049 | 28.1 | 2184 | 13.9 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.029 | 13.7 | 473 | 8.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.044 | 50.9 | 147 | 41.7 | 1 | |
| Sb | 121 | 1 | nogas | 0.977 | 27.0 | 13539 | 22.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.369 | 56.7 | 8410 | 56.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.051 | 52.5 | 2957 | 24.6 | 2.5 | |
| U | 238 | 1 | nogas | 0.139 | 61.5 | 4007 | 63.0 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.033 | 83.8 | 663 | 31.4 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.053 | 30.6 | 653 | 18.5 | 2.5 | |
| Na | 23 | 2 | He | 7.915 | 11.9 | 57831 | 2.4 | 100 | |
| Mg | 24 | 2 | He | 2.673 | 10.9 | 2777 | 9.5 | 100 | |
| Al | 27 | 2 | He | 2.569 | 8.4 | 1997 | 3.7 | 5 | |
| K | 39 | 2 | He | 1.563 | 161.5 | 183226 | 1.2 | 100 | |
| Ca | 43 | 2 | He | 6.977 | 34.8 | 27 | 21.7 | 100 | |
| Ca | 44 | 2 | He | 9.659 | 3.4 | 1467 | 1.4 | 100 | |
| V | 51 | 2 | He | -0.495 | -5.6 | 12053 | 0.5 | 2.5 | |
| Cr | 52 | 2 | He | -0.027 | -76.0 | 4481 | 2.5 | 2.5 | |
| Mn | 55 | 2 | He | 0.853 | 6.4 | 5007 | 4.8 | 2.5 | |
| Fe | 56 | 2 | He | 3.313 | 9.4 | 29938 | 5.1 | 100 | |
| Co | 59 | 2 | He | 0.032 | 37.7 | 580 | 16.6 | 2.5 | |
| Ni | 60 | 2 | He | 0.282 | 8.5 | 350 | 15.9 | 2.5 | |
| Cu | 63 | 2 | He | 0.213 | 8.5 | 1097 | 7.1 | 2 | |
| Zn | 66 | 2 | He | 0.727 | 7.7 | 633 | 12.9 | 2.5 | |
| As | 75 | 2 | He | 0.001 | 3616.8 | 596 | 6.0 | 2.5 | |
| Se | 78 | 2 | He | 0.554 | 61.2 | 135 | 24.0 | 2 | |
| B | 11 | 1 | nogas | 9.981 | 7.6 | 68838 | 6.0 | 10 | |
| Si | 28 | 1 | nogas | 5.313 | 30.7 | 1598930 | 3.4 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 15.667 | 5.1 | 1103 | 1.4 | 100 | |
| Ca | 44 | 1 | nogas | 2.448 | 207.5 | 97385 | 0.3 | 100 | |
| Fe | 56 | 1 | nogas | -17.295 | -46.9 | 2417812 | 4.9 | 100 | |
| Se | 77 | 1 | nogas | -39.790 | -11.7 | 48882 | 1.5 | 2.5 | |
| Se | 82 | 1 | nogas | -0.064 | -228.4 | 230 | 15.1 | 2 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.353 | 47.3 | 2410 | 34.5 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.243 | 40.4 | 2980 | 20.8 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.065 | 33.6 | 383 | 21.7 | 2.5 | |
| Sb | 121 | 2 | He | 0.692 | 9.4 | 3634 | 6.8 | 2.5 | |
| P | 31 | 1 | nogas | 6.323 | 34.3 | 100485 | 1.3 | 10 | |
| La | 139 | 1 | nogas | -3.812 | -85.5 | 40 | 25.0 | 2.5 | |
| Au | 197 | 1 | nogas | 227.151 | 208.2 | 17 | 124.9 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1349535 | 1.36 | 1446753 | 93.28 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3210634 | 3.09 | 3206704 | 100.12 | 70 | 125 | |
| In | 115 | 1 | nogas | 2854242 | 4.17 | 2812441 | 101.49 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2266004 | 3.07 | 2322160 | 97.58 | 70 | 125 | |
| Ge | 72 | 2 | He | 763674 | 1.80 | 754516 | 101.21 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 141_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:41:27-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 102.812 | 3.292 | 795235 | 2.22 | 100 | 102.8 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10340.483 | 2.172 | 255082981 | 1.86 | 10000 | 103.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10062.903 | 3.553 | 158367295 | 1.64 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 97.706 | 1.884 | 1888953 | 0.61 | 100 | 97.7 | 90 | 110 | |
| K | 39 | 1 | nogas | 10467.538 | 2.061 | 210404055 | 2.73 | 10000 | 104.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 100.690 | 1.427 | 172538 | 0.99 | 100 | 100.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 101.563 | 1.884 | 3762915 | 1.39 | 100 | 101.6 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 100.273 | 2.268 | 2225655 | 1.25 | 100 | 100.3 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.838 | 2.787 | 2718536 | 2.31 | 100 | 100.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 101.097 | 4.476 | 2304952 | 3.64 | 100 | 101.1 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 99.660 | 3.112 | 489389 | 2.00 | 100 | 99.7 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 97.470 | 1.514 | 1143128 | 0.23 | 100 | 97.5 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.054 | 0.756 | 386412 | 0.74 | 100 | 100.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 101.369 | 1.547 | 664239 | 0.99 | 100 | 101.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 103.326 | 4.120 | 2754507 | 3.42 | 100 | 103.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 102.557 | 3.834 | 1350925 | 3.74 | 100 | 102.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 98.383 | 0.869 | 288138 | 0.13 | 100 | 98.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 102.522 | 3.257 | 1308764 | 2.00 | 100 | 102.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.511 | 6.470 | 2132674 | 1.73 | 100 | 102.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.066 | 3.028 | 2737353 | 3.03 | 100 | 100.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 88.815 | 3.127 | 2445212 | 2.90 | 100 | 88.8 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 93.339 | 6.660 | 665109 | 2.58 | 100 | 93.3 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 92.365 | 4.473 | 559268 | 3.84 | 100 | 92.4 | 90 | 110 | |
| Na | 23 | 2 | He | 10540.257 | 2.502 | 15329537 | 1.74 | 10000 | 105.4 | 90 | 110 | |
| Mg | 24 | 2 | He | 10273.068 | 1.083 | 8254690 | 0.23 | 10000 | 102.7 | 90 | 110 | |
| Al | 27 | 2 | He | 101.254 | 3.206 | 45852 | 2.74 | 100 | 101.3 | 90 | 110 | |
| K | 39 | 2 | He | 10456.458 | 2.356 | 8940433 | 2.31 | 10000 | 104.6 | 90 | 110 | |
| Ca | 43 | 2 | He | 10208.892 | 1.111 | 23518 | 1.42 | 10000 | 102.1 | 90 | 110 | |
| Ca | 44 | 2 | He | 10384.631 | 0.455 | 399093 | 1.05 | 10000 | 103.8 | 90 | 110 | |
| V | 51 | 2 | He | 101.688 | 1.780 | 580312 | 1.15 | 100 | 101.7 | 90 | 110 | |
| Cr | 52 | 2 | He | 100.269 | 1.996 | 622205 | 2.44 | 100 | 100.3 | 90 | 110 | |
| Mn | 55 | 2 | He | 102.015 | 1.065 | 440245 | 0.79 | 100 | 102.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 10160.819 | 2.283 | 54259449 | 1.52 | 10000 | 101.6 | 90 | 110 | |
| Co | 59 | 2 | He | 96.621 | 2.055 | 817210 | 1.32 | 100 | 96.6 | 90 | 110 | |
| Ni | 60 | 2 | He | 101.382 | 3.156 | 209279 | 2.67 | 100 | 101.4 | 90 | 110 | |
| Cu | 63 | 2 | He | 102.238 | 1.594 | 537465 | 1.02 | 100 | 102.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.935 | 1.620 | 127001 | 0.77 | 100 | 98.9 | 90 | 110 | |
| As | 75 | 2 | He | 102.351 | 0.299 | 125785 | 1.14 | 100 | 102.4 | 90 | 110 | |
| Se | 78 | 2 | He | 102.187 | 1.326 | 10034 | 0.50 | 100 | 102.2 | 90 | 110 | |
| B | 11 | 1 | nogas | 457.541 | 4.746 | 2134011 | 0.91 | 500 | 91.5 | 90 | 110 | |
| Si | 28 | 1 | nogas | 485.486 | 0.407 | 6562317 | 1.60 | 5000 | 9.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10236.072 | 1.117 | 350670 | 1.98 | 10000 | 102.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10091.318 | 2.995 | 5813739 | 2.86 | 10000 | 100.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10039.854 | 2.717 | 228322572 | 2.28 | 10000 | 100.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 102.366 | 1.568 | 75810 | 1.09 | 100 | 102.4 | 90 | 110 | |
| Se | 82 | 1 | nogas | 98.580 | 1.539 | 25285 | 0.53 | 100 | 98.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.190 | 1.639 | 522713 | 0.58 | 100 | 96.2 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 98.748 | 2.361 | 757826 | 2.28 | 100 | 98.7 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.297 | 3.275 | 398138 | 2.29 | 100 | 96.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.639 | 1.280 | 455531 | 0.51 | 100 | 101.6 | 90 | 110 | |
| Li | 7 | 1 | nogas | 108.415 | 0.288 | 1962769 | 4.85 | 100 | 108.4 | 90 | 110 | |
| P | 31 | 1 | nogas | 459.663 | 0.076 | 809994 | 1.36 | 500 | 91.9 | 90 | 110 | |
| La | 139 | 1 | nogas | 112.708 | 8.028 | 460 | 7.84 | 100 | 112.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 156.141 | 167.682 | 13 | 86.60 | 100 | 156.1 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1220140 | 5.12 | 1446753 | 84.34 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3187513 | 1.29 | 3206704 | 99.40 | 70 | 125 | |
| In | 115 | 1 | nogas | 2859495 | 1.00 | 2812441 | 101.67 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2237658 | 4.90 | 2322160 | 96.36 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 750211 | 0.86 | 754516 | 99.43 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 147_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:53:20-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 100.098 | 6.666 | 777669 | 1.61 | 100 | 100.1 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10321.189 | 4.890 | 250356081 | 1.73 | 10000 | 103.2 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10223.789 | 3.802 | 158311658 | 1.97 | 10000 | 102.2 | 90 | 110 | |
| Al | 27 | 1 | nogas | 104.558 | 5.640 | 2023351 | 1.57 | 100 | 104.6 | 90 | 110 | |
| K | 39 | 1 | nogas | 10030.938 | 5.820 | 202260767 | 1.88 | 10000 | 100.3 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 102.108 | 3.332 | 175380 | 2.08 | 100 | 102.1 | 90 | 110 | |
| V | 51 | 1 | nogas | 86.769 | 3.694 | 3418815 | 3.03 | 100 | 86.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 97.861 | 1.319 | 2181601 | 5.20 | 100 | 97.9 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.906 | 1.603 | 2676280 | 5.34 | 100 | 98.9 | 90 | 110 | |
| Co | 59 | 1 | nogas | 98.935 | 4.108 | 2261816 | 3.82 | 100 | 98.9 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.546 | 3.540 | 480128 | 0.79 | 100 | 97.5 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.916 | 3.481 | 1139211 | 0.93 | 100 | 96.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.377 | 2.539 | 384762 | 2.22 | 100 | 99.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 93.103 | 4.874 | 626920 | 1.04 | 100 | 93.1 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 104.161 | 4.050 | 2783763 | 3.15 | 100 | 104.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 98.657 | 3.570 | 1302396 | 0.89 | 100 | 98.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 99.568 | 5.051 | 284769 | 1.96 | 100 | 99.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 99.088 | 7.094 | 1267428 | 5.04 | 100 | 99.1 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.826 | 6.816 | 2042064 | 7.56 | 100 | 102.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.148 | 1.113 | 2657590 | 1.11 | 100 | 97.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 92.603 | 1.618 | 2430110 | 2.21 | 100 | 92.6 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 98.972 | 1.824 | 672913 | 1.27 | 100 | 99.0 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 97.694 | 3.833 | 563696 | 2.45 | 100 | 97.7 | 90 | 110 | |
| Na | 23 | 2 | He | 10168.292 | 0.763 | 15099804 | 1.14 | 10000 | 101.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 10061.984 | 0.209 | 8253815 | 0.90 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 2 | He | 100.373 | 1.211 | 46414 | 1.91 | 100 | 100.4 | 90 | 110 | |
| K | 39 | 2 | He | 10252.470 | 0.212 | 8769568 | 0.21 | 10000 | 102.5 | 90 | 110 | |
| Ca | 43 | 2 | He | 10055.173 | 1.556 | 23645 | 1.31 | 10000 | 100.6 | 90 | 110 | |
| Ca | 44 | 2 | He | 10091.529 | 2.272 | 395879 | 1.52 | 10000 | 100.9 | 90 | 110 | |
| V | 51 | 2 | He | 99.097 | 1.138 | 577684 | 0.49 | 100 | 99.1 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.225 | 1.301 | 616010 | 1.93 | 100 | 97.2 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.325 | 0.637 | 437593 | 0.47 | 100 | 99.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 10032.096 | 0.710 | 54692263 | 0.81 | 10000 | 100.3 | 90 | 110 | |
| Co | 59 | 2 | He | 94.864 | 0.381 | 819129 | 0.74 | 100 | 94.9 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.541 | 1.725 | 209754 | 0.80 | 100 | 99.5 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.129 | 2.779 | 531913 | 1.88 | 100 | 99.1 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.982 | 1.482 | 128410 | 2.15 | 100 | 98.0 | 90 | 110 | |
| As | 75 | 2 | He | 100.041 | 0.871 | 125511 | 0.68 | 100 | 100.0 | 90 | 110 | |
| Se | 78 | 2 | He | 98.655 | 2.732 | 9891 | 1.73 | 100 | 98.7 | 90 | 110 | |
| B | 11 | 1 | nogas | 472.280 | 7.270 | 2212422 | 1.13 | 500 | 94.5 | 90 | 110 | |
| Si | 28 | 1 | nogas | 496.346 | 8.308 | 6683269 | 2.29 | 5000 | 9.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 9976.656 | 5.079 | 342356 | 0.93 | 10000 | 99.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9847.424 | 5.776 | 5686667 | 3.60 | 10000 | 98.5 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9901.329 | 2.506 | 225806405 | 2.54 | 10000 | 99.0 | 90 | 110 | |
| Se | 77 | 1 | nogas | 55.954 | 31.335 | 67023 | 0.91 | 100 | 56.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 95.577 | 2.944 | 24584 | 2.19 | 100 | 95.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 98.344 | 4.641 | 535433 | 0.49 | 100 | 98.3 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 99.238 | 4.175 | 743825 | 0.96 | 100 | 99.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 97.909 | 2.120 | 395716 | 3.03 | 100 | 97.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.105 | 1.590 | 462572 | 1.21 | 100 | 101.1 | 90 | 110 | |
| Li | 7 | 1 | nogas | 105.849 | 5.883 | 1926457 | 3.09 | 100 | 105.8 | 90 | 110 | |
| P | 31 | 1 | nogas | 448.209 | 4.482 | 793643 | 0.98 | 500 | 89.6 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 130.154 | 10.808 | 510 | 7.07 | 100 | 130.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 637.362 | 57.958 | 33 | 45.83 | 100 | 637.4 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1227694 | 6.59 | 1446753 | 84.86 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3197421 | 4.25 | 3206704 | 99.71 | 70 | 125 | |
| In | 115 | 1 | nogas | 2796582 | 5.01 | 2812441 | 99.44 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2131008 | 1.38 | 2322160 | 91.77 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 765831 | 1.10 | 754516 | 101.50 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 148_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T19:55:18-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.061 | 32.3 | 570 | 25.3 | 1 | |
| Na | 23 | 1 | nogas | 17.047 | 14.7 | 833421 | 3.8 | 100 | |
| Mg | 24 | 1 | nogas | 6.237 | 25.1 | 107433 | 19.5 | 100 | |
| Al | 27 | 1 | nogas | 3.314 | 5.0 | 86122 | 2.3 | 5 | |
| K | 39 | 1 | nogas | 8.210 | 234.2 | 8097944 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.104 | 16.0 | 420 | 6.3 | 2.5 | |
| V | 51 | 1 | nogas | -18.661 | -8.2 | 908686 | 6.9 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.764 | -8.8 | 61702 | 2.6 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.777 | 12.5 | 49179 | 1.5 | 2.5 | |
| Co | 59 | 1 | nogas | 0.069 | 30.2 | 2417 | 16.2 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.310 | 2.3 | 1200 | 4.2 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.120 | 36.7 | 2924 | 14.0 | 2 | |
| Zn | 66 | 1 | nogas | 0.556 | 2.1 | 2013 | 2.5 | 2.5 | |
| As | 75 | 1 | nogas | -11.844 | -4.3 | 136474 | 3.3 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.072 | 22.0 | 2824 | 11.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.039 | 32.1 | 617 | 23.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.056 | 12.9 | 183 | 12.6 | 1 | |
| Sb | 121 | 1 | nogas | 0.522 | 13.9 | 7809 | 8.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.769 | 62.7 | 16434 | 60.4 | 1 | |
| Pb | 208 | 1 | nogas | 0.060 | 47.7 | 3200 | 24.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.147 | 52.8 | 4114 | 51.3 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.051 | 77.8 | 777 | 36.1 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.079 | 52.3 | 790 | 31.2 | 2.5 | |
| Na | 23 | 2 | He | 15.472 | 17.0 | 68540 | 4.1 | 100 | |
| Mg | 24 | 2 | He | 4.287 | 3.7 | 4070 | 1.6 | 100 | |
| Al | 27 | 2 | He | 2.420 | 20.3 | 1917 | 10.3 | 5 | |
| K | 39 | 2 | He | 4.765 | 38.5 | 185909 | 0.8 | 100 | |
| Ca | 43 | 2 | He | 18.614 | 67.7 | 53 | 54.1 | 100 | |
| Ca | 44 | 2 | He | 17.171 | 14.8 | 1750 | 7.0 | 100 | |
| V | 51 | 2 | He | -0.722 | -2.8 | 10706 | 0.9 | 2.5 | |
| Cr | 52 | 2 | He | -0.001 | -3292.1 | 4621 | 3.5 | 2.5 | |
| Mn | 55 | 2 | He | 0.840 | 7.5 | 4924 | 6.7 | 2.5 | |
| Fe | 56 | 2 | He | 4.440 | 9.9 | 35828 | 5.1 | 100 | |
| Co | 59 | 2 | He | 0.045 | 21.9 | 687 | 10.9 | 2.5 | |
| Ni | 60 | 2 | He | 0.257 | 8.6 | 297 | 16.6 | 2.5 | |
| Cu | 63 | 2 | He | 0.213 | 9.2 | 1093 | 8.2 | 2 | |
| Zn | 66 | 2 | He | 0.639 | 7.8 | 513 | 11.4 | 2.5 | |
| As | 75 | 2 | He | -0.054 | -72.0 | 523 | 7.7 | 2.5 | |
| Se | 78 | 2 | He | 0.709 | 12.4 | 150 | 6.9 | 2 | |
| B | 11 | 1 | nogas | 12.149 | 18.7 | 78187 | 9.1 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 10.023 | 70.5 | 1663537 | 0.8 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 18.341 | 34.6 | 1203 | 14.5 | 100 | |
| Ca | 44 | 1 | nogas | 0.067 | 8720.5 | 97014 | 0.4 | 100 | |
| Fe | 56 | 1 | nogas | -13.397 | -66.0 | 2530743 | 4.1 | 100 | |
| Se | 77 | 1 | nogas | -67.312 | -2.8 | 44040 | 3.7 | 2.5 | |
| Se | 82 | 1 | nogas | 0.043 | 959.9 | 260 | 40.7 | 2 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.438 | 45.9 | 2897 | 34.2 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.298 | 30.6 | 3394 | 16.4 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.104 | 21.5 | 540 | 13.0 | 2.5 | |
| Sb | 121 | 2 | He | 0.431 | 5.0 | 2434 | 2.6 | 2.5 | |
| P | 31 | 1 | nogas | 5.293 | 34.0 | 99898 | 1.3 | 10 | |
| La | 139 | 1 | nogas | 1.838 | 303.1 | 60 | 28.9 | 2.5 | |
| Au | 197 | 1 | nogas | 601.050 | 77.1 | 33 | 62.4 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1326497 | 5.41 | 1446753 | 91.69 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3244478 | 3.79 | 3206704 | 101.18 | 70 | 125 | |
| In | 115 | 1 | nogas | 2847870 | 3.71 | 2812441 | 101.26 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2219885 | 0.68 | 2322160 | 95.60 | 70 | 125 | |
| Ge | 72 | 2 | He | 759079 | 1.55 | 754516 | 100.60 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 159_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T20:17:04-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 103.960 | 4.988 | 788231 | 1.56 | 100 | 104.0 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10259.326 | 1.218 | 254488314 | 0.96 | 10000 | 102.6 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10091.346 | 0.918 | 159772699 | 2.43 | 10000 | 100.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 100.470 | 5.061 | 1936392 | 1.37 | 100 | 100.5 | 90 | 110 | |
| K | 39 | 1 | nogas | 10728.759 | 3.033 | 214946438 | 1.96 | 10000 | 107.3 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 104.238 | 4.626 | 178113 | 0.46 | 100 | 104.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 100.850 | 8.654 | 3734390 | 1.46 | 100 | 100.8 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 101.197 | 6.665 | 2239156 | 4.14 | 100 | 101.2 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.045 | 4.345 | 2717178 | 1.93 | 100 | 101.0 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.371 | 2.298 | 2261453 | 2.62 | 100 | 99.4 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 99.278 | 4.998 | 486173 | 0.13 | 100 | 99.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 98.934 | 4.759 | 1157057 | 0.36 | 100 | 98.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.419 | 2.467 | 387014 | 2.65 | 100 | 100.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 100.819 | 5.137 | 660007 | 1.18 | 100 | 100.8 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 102.255 | 4.272 | 2719070 | 0.60 | 100 | 102.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.428 | 2.722 | 1320027 | 2.37 | 100 | 100.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 99.814 | 1.082 | 284692 | 2.23 | 100 | 99.8 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.435 | 5.354 | 1316899 | 2.40 | 100 | 103.4 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.427 | 5.989 | 2029796 | 5.71 | 100 | 98.4 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 99.002 | 0.800 | 2708274 | 0.80 | 100 | 99.0 | 90 | 110 | |
| U | 238 | 1 | nogas | 89.831 | 2.873 | 2448207 | 0.93 | 100 | 89.8 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 95.749 | 3.659 | 676152 | 2.11 | 100 | 95.7 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 94.536 | 1.635 | 566812 | 0.93 | 100 | 94.5 | 90 | 110 | |
| Na | 23 | 2 | He | 10575.884 | 3.846 | 15452084 | 1.59 | 10000 | 105.8 | 90 | 110 | |
| Mg | 24 | 2 | He | 10399.832 | 3.366 | 8395441 | 1.55 | 10000 | 104.0 | 90 | 110 | |
| Al | 27 | 2 | He | 102.480 | 2.501 | 46621 | 0.58 | 100 | 102.5 | 90 | 110 | |
| K | 39 | 2 | He | 10375.651 | 1.673 | 8872747 | 1.64 | 10000 | 103.8 | 90 | 110 | |
| Ca | 43 | 2 | He | 10182.161 | 1.280 | 23575 | 2.53 | 10000 | 101.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 10090.987 | 1.421 | 389758 | 1.98 | 10000 | 100.9 | 90 | 110 | |
| V | 51 | 2 | He | 101.702 | 2.362 | 583175 | 0.50 | 100 | 101.7 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.254 | 1.936 | 618866 | 0.52 | 100 | 99.3 | 90 | 110 | |
| Mn | 55 | 2 | He | 101.031 | 1.211 | 438179 | 1.57 | 100 | 101.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 10174.869 | 2.605 | 54598609 | 1.54 | 10000 | 101.7 | 90 | 110 | |
| Co | 59 | 2 | He | 97.431 | 2.860 | 827978 | 1.04 | 100 | 97.4 | 90 | 110 | |
| Ni | 60 | 2 | He | 101.725 | 4.799 | 210925 | 2.66 | 100 | 101.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 101.818 | 3.004 | 537764 | 0.75 | 100 | 101.8 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.810 | 1.792 | 128757 | 1.03 | 100 | 99.8 | 90 | 110 | |
| As | 75 | 2 | He | 101.203 | 1.848 | 124974 | 0.46 | 100 | 101.2 | 90 | 110 | |
| Se | 78 | 2 | He | 101.348 | 0.938 | 10002 | 1.35 | 100 | 101.3 | 90 | 110 | |
| B | 11 | 1 | nogas | 473.013 | 6.810 | 2161676 | 1.37 | 500 | 94.6 | 90 | 110 | |
| Si | 28 | 1 | nogas | 485.909 | 5.283 | 6549028 | 1.12 | 5000 | 9.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10239.294 | 4.633 | 349762 | 0.33 | 10000 | 102.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10005.055 | 5.446 | 5747401 | 0.58 | 10000 | 100.1 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10090.460 | 3.278 | 228930030 | 1.62 | 10000 | 100.9 | 90 | 110 | |
| Se | 77 | 1 | nogas | 98.227 | 16.644 | 74813 | 0.68 | 100 | 98.2 | 90 | 110 | |
| Se | 82 | 1 | nogas | 101.457 | 4.908 | 25942 | 0.33 | 100 | 101.5 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 97.445 | 5.423 | 527943 | 0.64 | 100 | 97.4 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 100.535 | 3.014 | 751069 | 1.35 | 100 | 100.5 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 100.286 | 2.008 | 403781 | 1.49 | 100 | 100.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.698 | 1.169 | 458067 | 1.46 | 100 | 101.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 105.962 | 4.516 | 1881192 | 2.15 | 100 | 106.0 | 90 | 110 | |
| P | 31 | 1 | nogas | 460.175 | 5.056 | 808506 | 0.78 | 500 | 92.0 | 90 | 110 | |
| La | 139 | 1 | nogas | 136.995 | 2.865 | 533 | 5.73 | 100 | 137.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 378.334 | 31.524 | 23 | 24.74 | 100 | 378.3 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1197250 | 6.32 | 1446753 | 82.75 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3183053 | 4.78 | 3206704 | 99.26 | 70 | 125 | |
| In | 115 | 1 | nogas | 2785286 | 3.29 | 2812441 | 99.03 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2214088 | 2.32 | 2322160 | 95.35 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 754009 | 2.28 | 754516 | 99.93 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 160_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T20:19:01-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.046 | 19.4 | 440 | 15.9 | 1 | |
| Na | 23 | 1 | nogas | 12.809 | 12.1 | 734140 | 3.0 | 100 | |
| Mg | 24 | 1 | nogas | 5.667 | 22.4 | 99378 | 18.2 | 100 | |
| Al | 27 | 1 | nogas | 3.408 | 2.8 | 86508 | 1.4 | 5 | |
| K | 39 | 1 | nogas | 13.562 | 60.0 | 8072156 | 0.6 | 100 | |
| Ti | 47 | 1 | nogas | 0.283 | 111.7 | 717 | 74.6 | 2.5 | |
| V | 51 | 1 | nogas | -11.423 | -14.0 | 1065497 | 2.9 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.373 | -2.8 | 69068 | 1.8 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.799 | 5.4 | 48992 | 1.1 | 2.5 | |
| Co | 59 | 1 | nogas | 0.068 | 24.4 | 2377 | 14.8 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.322 | 2.9 | 1240 | 2.9 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.097 | 12.4 | 2607 | 4.3 | 2 | |
| Zn | 66 | 1 | nogas | 0.555 | 5.1 | 1977 | 6.6 | 2.5 | |
| As | 75 | 1 | nogas | -8.138 | -11.6 | 151588 | 4.1 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.069 | 25.2 | 2704 | 15.9 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.035 | 30.9 | 553 | 24.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.053 | 82.8 | 173 | 68.8 | 1 | |
| Sb | 121 | 1 | nogas | 0.051 | 47.9 | 1690 | 17.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.731 | 59.1 | 15613 | 58.6 | 1 | |
| Pb | 208 | 1 | nogas | 0.059 | 38.5 | 3197 | 19.6 | 2.5 | |
| U | 238 | 1 | nogas | 0.137 | 56.7 | 3824 | 56.6 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.053 | 11.6 | 783 | 5.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.062 | 58.7 | 687 | 32.9 | 2.5 | |
| Na | 23 | 2 | He | 11.656 | 1.3 | 62526 | 0.3 | 100 | |
| Mg | 24 | 2 | He | 3.790 | 10.2 | 3640 | 8.4 | 100 | |
| Al | 27 | 2 | He | 2.805 | 12.4 | 2077 | 7.8 | 5 | |
| K | 39 | 2 | He | 4.445 | 165.4 | 185640 | 3.3 | 100 | |
| Ca | 43 | 2 | He | 25.848 | 57.6 | 70 | 49.5 | 100 | |
| Ca | 44 | 2 | He | 14.654 | 21.7 | 1640 | 7.8 | 100 | |
| V | 51 | 2 | He | -0.320 | -14.1 | 12877 | 1.7 | 2.5 | |
| Cr | 52 | 2 | He | 0.003 | 962.9 | 4611 | 4.3 | 2.5 | |
| Mn | 55 | 2 | He | 0.761 | 7.6 | 4544 | 5.7 | 2.5 | |
| Fe | 56 | 2 | He | 3.819 | 11.0 | 32262 | 7.0 | 100 | |
| Co | 59 | 2 | He | 0.045 | 16.1 | 687 | 9.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.272 | 7.4 | 323 | 12.5 | 2.5 | |
| Cu | 63 | 2 | He | 0.218 | 11.5 | 1110 | 11.5 | 2 | |
| Zn | 66 | 2 | He | 0.693 | 8.0 | 580 | 11.9 | 2.5 | |
| As | 75 | 2 | He | -0.027 | -30.1 | 553 | 1.6 | 2.5 | |
| Se | 78 | 2 | He | 0.598 | 31.5 | 138 | 12.9 | 2 | |
| B | 11 | 1 | nogas | 7.477 | 11.4 | 54104 | 8.0 | 10 | |
| Si | 28 | 1 | nogas | 8.191 | 18.2 | 1618137 | 1.5 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 17.426 | 5.5 | 1157 | 2.8 | 100 | |
| Ca | 44 | 1 | nogas | -7.461 | -33.7 | 91171 | 0.7 | 100 | |
| Fe | 56 | 1 | nogas | -13.329 | -64.3 | 2492840 | 6.6 | 100 | |
| Se | 77 | 1 | nogas | -34.875 | -12.5 | 49527 | 3.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.086 | -82.9 | 223 | 6.8 | 2 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.351 | 59.0 | 2394 | 45.8 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.238 | 41.6 | 2974 | 21.5 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.101 | 34.9 | 537 | 26.6 | 2.5 | |
| Sb | 121 | 2 | He | 0.001 | 1187.4 | 480 | 9.1 | 2.5 | |
| P | 31 | 1 | nogas | 6.704 | 25.2 | 100459 | 1.3 | 10 | |
| La | 139 | 1 | nogas | -3.930 | -186.9 | 40 | 66.1 | 2.5 | |
| Au | 197 | 1 | nogas | 153.406 | 221.1 | 13 | 114.6 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1304191 | 3.41 | 1446753 | 90.15 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3189465 | 1.47 | 3206704 | 99.46 | 70 | 125 | |
| In | 115 | 1 | nogas | 2884666 | 4.12 | 2812441 | 102.57 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2203694 | 1.44 | 2322160 | 94.90 | 70 | 125 | |
| Ge | 72 | 2 | He | 753619 | 0.46 | 754516 | 99.88 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 168_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T20:34:46-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 106.169 | 0.951 | 724460 | 0.90 | 100 | 106.2 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10222.546 | 4.778 | 262375206 | 2.88 | 10000 | 102.2 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9870.243 | 3.028 | 161697770 | 1.11 | 10000 | 98.7 | 90 | 110 | |
| Al | 27 | 1 | nogas | 101.644 | 0.520 | 2033078 | 0.44 | 100 | 101.6 | 90 | 110 | |
| K | 39 | 1 | nogas | 10367.424 | 0.700 | 215722096 | 0.27 | 10000 | 103.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 103.352 | 1.148 | 183279 | 0.31 | 100 | 103.4 | 90 | 110 | |
| V | 51 | 1 | nogas | 98.046 | 4.291 | 3806926 | 1.91 | 100 | 98.0 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 102.129 | 2.490 | 2344578 | 1.65 | 100 | 102.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.438 | 1.782 | 2830369 | 1.94 | 100 | 101.4 | 90 | 110 | |
| Co | 59 | 1 | nogas | 97.918 | 0.685 | 2310999 | 0.40 | 100 | 97.9 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.043 | 2.457 | 508493 | 1.92 | 100 | 100.0 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 100.676 | 2.390 | 1221929 | 1.84 | 100 | 100.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.553 | 1.939 | 401875 | 1.06 | 100 | 100.6 | 90 | 110 | |
| As | 75 | 1 | nogas | 98.412 | 2.259 | 673090 | 1.11 | 100 | 98.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 102.509 | 0.975 | 2828727 | 1.13 | 100 | 102.5 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 96.662 | 0.810 | 1317785 | 0.81 | 100 | 96.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 99.600 | 1.656 | 291656 | 1.46 | 100 | 99.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 104.611 | 1.966 | 1382247 | 1.04 | 100 | 104.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.529 | 3.337 | 1988130 | 1.89 | 100 | 102.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.054 | 1.593 | 2655018 | 1.59 | 100 | 97.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 93.161 | 3.899 | 2387296 | 1.59 | 100 | 93.2 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 98.846 | 4.652 | 656292 | 2.54 | 100 | 98.8 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 98.169 | 2.266 | 553492 | 1.39 | 100 | 98.2 | 90 | 110 | |
| Na | 23 | 2 | He | 10499.901 | 3.520 | 16016712 | 2.21 | 10000 | 105.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 10017.487 | 3.217 | 8442024 | 1.92 | 10000 | 100.2 | 90 | 110 | |
| Al | 27 | 2 | He | 98.983 | 0.373 | 47045 | 1.35 | 100 | 99.0 | 90 | 110 | |
| K | 39 | 2 | He | 11002.774 | 2.123 | 9398036 | 2.08 | 10000 | 110.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 10331.871 | 2.108 | 24967 | 2.17 | 10000 | 103.3 | 90 | 110 | |
| Ca | 44 | 2 | He | 10281.543 | 1.277 | 414482 | 1.25 | 10000 | 102.8 | 90 | 110 | |
| V | 51 | 2 | He | 101.396 | 2.517 | 606967 | 1.17 | 100 | 101.4 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.575 | 0.070 | 648186 | 1.26 | 100 | 99.6 | 90 | 110 | |
| Mn | 55 | 2 | He | 101.139 | 1.328 | 457924 | 2.40 | 100 | 101.1 | 90 | 110 | |
| Fe | 56 | 2 | He | 10121.089 | 0.603 | 56705459 | 1.82 | 10000 | 101.2 | 90 | 110 | |
| Co | 59 | 2 | He | 96.677 | 2.303 | 857683 | 1.04 | 100 | 96.7 | 90 | 110 | |
| Ni | 60 | 2 | He | 103.013 | 3.565 | 223031 | 2.27 | 100 | 103.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 101.587 | 3.055 | 560131 | 2.02 | 100 | 101.6 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.270 | 0.922 | 133682 | 0.71 | 100 | 99.3 | 90 | 110 | |
| As | 75 | 2 | He | 102.570 | 1.611 | 132212 | 0.65 | 100 | 102.6 | 90 | 110 | |
| Se | 78 | 2 | He | 100.516 | 3.385 | 10353 | 2.08 | 100 | 100.5 | 90 | 110 | |
| B | 11 | 1 | nogas | 2272.710 | 9.279 | 9296038 | 8.52 | 500 | 454.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 564.091 | 2.364 | 7633273 | 1.16 | 5000 | 11.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10633.821 | 1.299 | 376971 | 1.39 | 10000 | 106.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10292.644 | 1.412 | 6134662 | 0.46 | 10000 | 102.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10056.283 | 2.041 | 236678139 | 1.29 | 10000 | 100.6 | 90 | 110 | |
| Se | 77 | 1 | nogas | 95.294 | 2.454 | 77052 | 0.49 | 100 | 95.3 | 90 | 110 | |
| Se | 82 | 1 | nogas | 101.050 | 4.082 | 26813 | 3.14 | 100 | 101.1 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 101.746 | 1.461 | 572246 | 1.58 | 100 | 101.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 100.710 | 1.213 | 772788 | 1.83 | 100 | 100.7 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 97.276 | 0.585 | 402188 | 0.31 | 100 | 97.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.693 | 3.546 | 478004 | 2.37 | 100 | 101.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 111.250 | 2.256 | 1772833 | 1.65 | 100 | 111.3 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 449.201 | 1.190 | 821268 | 0.75 | 500 | 89.8 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 155.429 | 17.227 | 613 | 15.41 | 100 | 155.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 173.556 | 79.018 | 13 | 43.30 | 100 | 173.6 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1075314 | 1.37 | 1446753 | 74.33 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3298798 | 0.95 | 3206704 | 102.87 | 70 | 125 | |
| In | 115 | 1 | nogas | 2858972 | 0.65 | 2812441 | 101.65 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2082212 | 2.43 | 2322160 | 89.67 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 786980 | 1.30 | 754516 | 104.30 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 169_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T20:36:44-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.064 | 26.7 | 560 | 23.4 | 1 | |
| Na | 23 | 1 | nogas | 95.761 | 8.0 | 2912460 | 2.0 | 100 | |
| Mg | 24 | 1 | nogas | 8.433 | 18.3 | 148156 | 11.6 | 100 | |
| Al | 27 | 1 | nogas | 3.550 | 2.3 | 92429 | 0.7 | 5 | |
| K | 39 | 1 | nogas | 18.674 | 63.5 | 8463341 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.081 | 39.6 | 387 | 12.2 | 2.5 | |
| V | 51 | 1 | nogas | -5.729 | -47.7 | 1245510 | 6.8 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.142 | -22.7 | 76658 | 1.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.848 | 9.2 | 52080 | 1.7 | 2.5 | |
| Co | 59 | 1 | nogas | 0.082 | 37.6 | 2767 | 23.7 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.516 | 6.5 | 2270 | 5.8 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.242 | 13.7 | 4464 | 8.2 | 2 | |
| Zn | 66 | 1 | nogas | 0.600 | 7.6 | 2224 | 7.3 | 2.5 | |
| As | 75 | 1 | nogas | -5.087 | -10.6 | 171807 | 2.1 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.111 | 6.4 | 3951 | 5.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.041 | 32.8 | 650 | 25.3 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.063 | 17.6 | 213 | 16.5 | 1 | |
| Sb | 121 | 1 | nogas | 0.336 | 2.5 | 5518 | 2.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.659 | 63.2 | 14405 | 61.4 | 1 | |
| Pb | 208 | 1 | nogas | 0.052 | 69.5 | 3004 | 33.1 | 2.5 | |
| U | 238 | 1 | nogas | 0.139 | 59.4 | 3967 | 58.6 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.054 | 67.3 | 807 | 32.9 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.047 | 49.1 | 610 | 23.6 | 2.5 | |
| Na | 23 | 2 | He | 91.360 | 2.9 | 187800 | 1.1 | 100 | |
| Mg | 24 | 2 | He | 6.372 | 11.3 | 6014 | 8.9 | 100 | |
| Al | 27 | 2 | He | 2.756 | 4.2 | 2160 | 0.8 | 5 | |
| K | 39 | 2 | He | 16.515 | 16.5 | 195751 | 1.2 | 100 | |
| Ca | 43 | 2 | He | 55.164 | 110.6 | 143 | 101.0 | 100 | |
| Ca | 44 | 2 | He | 32.174 | 65.3 | 2425 | 33.2 | 100 | |
| V | 51 | 2 | He | -0.137 | -33.8 | 14614 | 0.9 | 2.5 | |
| Cr | 52 | 2 | He | 0.048 | 79.5 | 5141 | 3.2 | 2.5 | |
| Mn | 55 | 2 | He | 0.884 | 7.6 | 5341 | 6.9 | 2.5 | |
| Fe | 56 | 2 | He | 8.058 | 11.2 | 57839 | 9.3 | 100 | |
| Co | 59 | 2 | He | 0.044 | 3.6 | 707 | 0.8 | 2.5 | |
| Ni | 60 | 2 | He | 0.267 | 14.0 | 330 | 22.9 | 2.5 | |
| Cu | 63 | 2 | He | 0.253 | 14.8 | 1360 | 14.2 | 2 | |
| Zn | 66 | 2 | He | 0.694 | 6.7 | 610 | 8.7 | 2.5 | |
| As | 75 | 2 | He | 0.066 | 20.6 | 702 | 4.3 | 2.5 | |
| Se | 78 | 2 | He | 0.704 | 17.1 | 156 | 7.8 | 2 | |
| B | 11 | 1 | nogas | 981.451 | 4.1 | 4601279 | 5.2 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 29.712 | 27.3 | 1906442 | 2.9 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 168.723 | 5.5 | 6558 | 2.9 | 100 | CCB Main CR1 Failed |
| Ca | 44 | 1 | nogas | 21.978 | 17.0 | 111728 | 0.8 | 100 | |
| Fe | 56 | 1 | nogas | -13.578 | -69.5 | 2575101 | 6.2 | 100 | |
| Se | 77 | 1 | nogas | -16.693 | -8.2 | 54916 | 2.1 | 2.5 | |
| Se | 82 | 1 | nogas | 0.290 | 73.8 | 330 | 15.7 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 1.093 | 23.4 | 6645 | 19.5 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.307 | 41.2 | 3627 | 24.6 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.142 | 5.1 | 730 | 6.8 | 2.5 | |
| Sb | 121 | 2 | He | 0.236 | 16.9 | 1617 | 11.7 | 2.5 | |
| P | 31 | 1 | nogas | 1.680 | 138.6 | 95885 | 1.7 | 10 | |
| La | 139 | 1 | nogas | 13.289 | 40.9 | 107 | 21.7 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 147.764 | 226.8 | 13 | 114.6 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1229035 | 1.29 | 1446753 | 84.95 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3304307 | 2.36 | 3206704 | 103.04 | 70 | 125 | |
| In | 115 | 1 | nogas | 2980582 | 2.90 | 2812441 | 105.98 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2254777 | 0.70 | 2322160 | 97.10 | 70 | 125 | |
| Ge | 72 | 2 | He | 792420 | 1.80 | 754516 | 105.02 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 178_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T20:54:25-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 107.563 | 1.874 | 731375 | 0.78 | 100 | 107.6 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10091.516 | 0.731 | 260743664 | 1.33 | 10000 | 100.9 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9758.920 | 2.090 | 160878495 | 0.74 | 10000 | 97.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 102.746 | 2.679 | 2030892 | 2.38 | 100 | 102.7 | 90 | 110 | |
| K | 39 | 1 | nogas | 10652.651 | 0.698 | 218859955 | 0.30 | 10000 | 106.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 103.870 | 0.598 | 182065 | 0.92 | 100 | 103.9 | 90 | 110 | |
| V | 51 | 1 | nogas | 104.253 | 2.568 | 3914874 | 1.95 | 100 | 104.3 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 100.939 | 1.075 | 2291564 | 1.48 | 100 | 100.9 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 103.320 | 2.285 | 2848648 | 1.96 | 100 | 103.3 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.175 | 1.145 | 2336714 | 0.77 | 100 | 100.2 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 102.202 | 0.703 | 513469 | 0.38 | 100 | 102.2 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 103.891 | 2.398 | 1246437 | 2.86 | 100 | 103.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 102.510 | 1.426 | 404958 | 1.01 | 100 | 102.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 102.770 | 1.420 | 686151 | 0.56 | 100 | 102.8 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 108.083 | 1.782 | 2947668 | 1.40 | 100 | 108.1 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 103.517 | 2.732 | 1394860 | 2.86 | 100 | 103.5 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 97.827 | 0.879 | 298139 | 0.64 | 100 | 97.8 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.126 | 1.721 | 1346994 | 2.14 | 100 | 103.1 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 101.834 | 1.471 | 2045506 | 1.58 | 100 | 101.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 102.046 | 1.643 | 2791483 | 1.64 | 100 | 102.0 | 90 | 110 | |
| U | 238 | 1 | nogas | 90.107 | 5.690 | 2390700 | 3.54 | 100 | 90.1 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 99.942 | 0.183 | 687638 | 2.08 | 100 | 99.9 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 98.675 | 2.233 | 576131 | 0.84 | 100 | 98.7 | 90 | 110 | |
| Na | 23 | 2 | He | 10283.694 | 2.193 | 15614934 | 2.23 | 10000 | 102.8 | 90 | 110 | |
| Mg | 24 | 2 | He | 10020.446 | 1.158 | 8404626 | 0.27 | 10000 | 100.2 | 90 | 110 | |
| Al | 27 | 2 | He | 100.538 | 3.529 | 47537 | 3.68 | 100 | 100.5 | 90 | 110 | |
| K | 39 | 2 | He | 10879.850 | 1.576 | 9295073 | 1.55 | 10000 | 108.8 | 90 | 110 | |
| Ca | 43 | 2 | He | 9873.796 | 1.516 | 23745 | 2.23 | 10000 | 98.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 10090.920 | 3.848 | 404717 | 2.62 | 10000 | 100.9 | 90 | 110 | |
| V | 51 | 2 | He | 102.018 | 0.695 | 607699 | 0.74 | 100 | 102.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.598 | 1.446 | 645102 | 1.09 | 100 | 99.6 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.897 | 3.247 | 450007 | 2.86 | 100 | 99.9 | 90 | 110 | |
| Fe | 56 | 2 | He | 10198.383 | 4.302 | 56851709 | 4.21 | 10000 | 102.0 | 90 | 110 | |
| Co | 59 | 2 | He | 98.093 | 1.240 | 866092 | 1.16 | 100 | 98.1 | 90 | 110 | |
| Ni | 60 | 2 | He | 100.671 | 0.905 | 216949 | 1.38 | 100 | 100.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.370 | 0.937 | 545312 | 0.91 | 100 | 99.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.461 | 2.994 | 130586 | 2.55 | 100 | 97.5 | 90 | 110 | |
| As | 75 | 2 | He | 103.110 | 1.256 | 132257 | 0.51 | 100 | 103.1 | 90 | 110 | |
| Se | 78 | 2 | He | 99.399 | 3.113 | 10190 | 2.26 | 100 | 99.4 | 90 | 110 | |
| B | 11 | 1 | nogas | 698.239 | 2.424 | 2856827 | 1.36 | 500 | 139.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 519.893 | 1.828 | 7076587 | 1.26 | 5000 | 10.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10566.872 | 0.885 | 370240 | 0.75 | 10000 | 105.7 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10385.476 | 1.564 | 6117304 | 1.22 | 10000 | 103.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10390.176 | 1.720 | 241607114 | 1.27 | 10000 | 103.9 | 90 | 110 | |
| Se | 77 | 1 | nogas | 106.960 | 7.576 | 78442 | 1.63 | 100 | 107.0 | 90 | 110 | |
| Se | 82 | 1 | nogas | 102.641 | 2.201 | 26920 | 2.05 | 100 | 102.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 100.070 | 1.970 | 556244 | 1.53 | 100 | 100.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 99.066 | 1.294 | 791075 | 0.56 | 100 | 99.1 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 95.579 | 1.972 | 411299 | 2.38 | 100 | 95.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.744 | 1.074 | 471349 | 1.42 | 100 | 100.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 112.232 | 0.960 | 1781672 | 0.44 | 100 | 112.2 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 452.041 | 1.611 | 816269 | 1.24 | 500 | 90.4 | 90 | 110 | |
| La | 139 | 1 | nogas | 142.467 | 7.956 | 590 | 7.39 | 100 | 142.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 83.203 | 275.182 | 10 | 100.00 | 100 | 83.2 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1071602 | 1.27 | 1446753 | 74.07 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3260364 | 0.46 | 3206704 | 101.67 | 70 | 125 | |
| In | 115 | 1 | nogas | 2975481 | 0.93 | 2812441 | 105.80 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2156260 | 2.10 | 2322160 | 92.86 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 783119 | 1.25 | 754516 | 103.79 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 179_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T20:56:24-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.060 | 31.2 | 510 | 25.7 | 1 | |
| Na | 23 | 1 | nogas | 29.484 | 6.1 | 1207165 | 0.9 | 100 | |
| Mg | 24 | 1 | nogas | 6.131 | 25.3 | 111523 | 19.6 | 100 | |
| Al | 27 | 1 | nogas | 4.444 | 19.2 | 111108 | 13.8 | 5 | |
| K | 39 | 1 | nogas | 2.019 | 373.3 | 8212336 | 0.2 | 100 | |
| Ti | 47 | 1 | nogas | 0.097 | 20.4 | 420 | 7.1 | 2.5 | |
| V | 51 | 1 | nogas | -5.864 | -48.5 | 1254556 | 6.7 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.324 | -8.2 | 73361 | 1.8 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.744 | 7.5 | 49703 | 1.9 | 2.5 | |
| Co | 59 | 1 | nogas | 0.074 | 20.6 | 2614 | 11.9 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.364 | 9.5 | 1513 | 10.2 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.150 | 21.1 | 3377 | 9.5 | 2 | |
| Zn | 66 | 1 | nogas | 0.603 | 7.6 | 2260 | 6.5 | 2.5 | |
| As | 75 | 1 | nogas | -7.039 | -3.3 | 163963 | 1.5 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.080 | 14.9 | 3130 | 8.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.033 | 47.4 | 543 | 37.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.046 | 34.3 | 163 | 28.3 | 1 | |
| Sb | 121 | 1 | nogas | 0.030 | 79.1 | 1483 | 19.5 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.526 | 66.8 | 11486 | 63.7 | 1 | |
| Pb | 208 | 1 | nogas | 0.048 | 67.0 | 2880 | 30.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.132 | 60.8 | 3714 | 59.2 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.046 | 73.1 | 747 | 32.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.050 | 53.8 | 623 | 26.1 | 2.5 | |
| Na | 23 | 2 | He | 33.664 | 2.1 | 98526 | 0.6 | 100 | |
| Mg | 24 | 2 | He | 4.339 | 7.7 | 4257 | 7.9 | 100 | |
| Al | 27 | 2 | He | 3.529 | 2.3 | 2500 | 1.6 | 5 | |
| K | 39 | 2 | He | 10.734 | 28.1 | 190908 | 1.3 | 100 | |
| Ca | 43 | 2 | He | 25.970 | 79.3 | 73 | 68.6 | 100 | |
| Ca | 44 | 2 | He | 13.165 | 32.1 | 1647 | 8.6 | 100 | |
| V | 51 | 2 | He | -0.189 | -17.4 | 14177 | 1.5 | 2.5 | |
| Cr | 52 | 2 | He | -0.051 | -86.8 | 4454 | 5.8 | 2.5 | |
| Mn | 55 | 2 | He | 0.829 | 5.8 | 5037 | 3.4 | 2.5 | |
| Fe | 56 | 2 | He | 8.823 | 2.2 | 61579 | 3.1 | 100 | |
| Co | 59 | 2 | He | 0.037 | 36.4 | 637 | 17.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.288 | 5.7 | 373 | 11.2 | 2.5 | |
| Cu | 63 | 2 | He | 0.236 | 1.9 | 1260 | 2.9 | 2 | |
| Zn | 66 | 2 | He | 0.685 | 8.2 | 593 | 13.6 | 2.5 | |
| As | 75 | 2 | He | 0.059 | 45.4 | 687 | 6.3 | 2.5 | |
| Se | 78 | 2 | He | 0.704 | 23.2 | 155 | 11.1 | 2 | |
| B | 11 | 1 | nogas | 161.530 | 4.6 | 751912 | 1.0 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 19.410 | 38.2 | 1813970 | 2.7 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 39.055 | 19.5 | 1987 | 14.9 | 100 | |
| Ca | 44 | 1 | nogas | -22.749 | -11.3 | 86324 | 0.9 | 100 | |
| Fe | 56 | 1 | nogas | -12.847 | -83.4 | 2618170 | 7.7 | 100 | |
| Se | 77 | 1 | nogas | -33.786 | -6.6 | 52031 | 1.2 | 2.5 | |
| Se | 82 | 1 | nogas | -0.051 | -339.2 | 243 | 19.4 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.407 | 40.6 | 2817 | 31.3 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.226 | 49.4 | 3027 | 27.6 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.107 | 21.8 | 587 | 15.3 | 2.5 | |
| Sb | 121 | 2 | He | -0.012 | -248.6 | 440 | 31.2 | 2.5 | |
| P | 31 | 1 | nogas | -2.088 | -62.8 | 90706 | 1.7 | 10 | |
| La | 139 | 1 | nogas | 9.650 | 119.4 | 93 | 44.6 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 373.899 | 123.2 | 23 | 89.2 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1200688 | 3.57 | 1446753 | 82.99 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3337458 | 2.02 | 3206704 | 104.08 | 70 | 125 | |
| In | 115 | 1 | nogas | 3022626 | 2.14 | 2812441 | 107.47 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2235581 | 1.38 | 2322160 | 96.27 | 70 | 125 | |
| Ge | 72 | 2 | He | 785091 | 1.64 | 754516 | 104.05 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 190_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T21:18:13-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 109.023 | 2.722 | 730878 | 1.06 | 100 | 109.0 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10367.449 | 5.763 | 261920789 | 2.90 | 10000 | 103.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10062.041 | 5.296 | 162212699 | 0.78 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 100.829 | 3.912 | 2038320 | 1.49 | 100 | 100.8 | 90 | 110 | |
| K | 39 | 1 | nogas | 10130.921 | 2.768 | 213288846 | 1.89 | 10000 | 101.3 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 101.477 | 1.100 | 181982 | 2.54 | 100 | 101.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 102.685 | 4.161 | 3964509 | 1.15 | 100 | 102.7 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 99.385 | 2.866 | 2308572 | 0.35 | 100 | 99.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 102.809 | 2.847 | 2899057 | 0.63 | 100 | 102.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 98.385 | 4.190 | 2346470 | 1.52 | 100 | 98.4 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.197 | 2.923 | 499363 | 0.29 | 100 | 97.2 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.751 | 0.960 | 1187503 | 1.94 | 100 | 96.8 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.440 | 0.968 | 405914 | 1.81 | 100 | 100.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 100.479 | 2.185 | 690641 | 1.13 | 100 | 100.5 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 102.688 | 3.157 | 2864259 | 1.89 | 100 | 102.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 99.612 | 3.106 | 1372545 | 0.53 | 100 | 99.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 99.261 | 0.591 | 299874 | 0.64 | 100 | 99.3 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.664 | 1.220 | 1344952 | 1.43 | 100 | 100.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.316 | 1.549 | 2057284 | 2.97 | 100 | 98.3 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 101.634 | 2.080 | 2780240 | 2.08 | 100 | 101.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 87.541 | 2.788 | 2421032 | 3.56 | 100 | 87.5 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 96.546 | 1.000 | 691844 | 2.13 | 100 | 96.5 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 96.367 | 1.276 | 586194 | 2.41 | 100 | 96.4 | 90 | 110 | |
| Na | 23 | 2 | He | 10409.044 | 1.576 | 15560005 | 1.65 | 10000 | 104.1 | 90 | 110 | |
| Mg | 24 | 2 | He | 10091.378 | 1.236 | 8333714 | 1.60 | 10000 | 100.9 | 90 | 110 | |
| Al | 27 | 2 | He | 97.196 | 1.771 | 45271 | 1.86 | 100 | 97.2 | 90 | 110 | |
| K | 39 | 2 | He | 10478.139 | 0.889 | 8958593 | 0.87 | 10000 | 104.8 | 90 | 110 | |
| Ca | 43 | 2 | He | 9822.292 | 5.651 | 23241 | 4.06 | 10000 | 98.2 | 90 | 110 | |
| Ca | 44 | 2 | He | 9944.985 | 3.678 | 392674 | 1.78 | 10000 | 99.4 | 90 | 110 | |
| V | 51 | 2 | He | 101.819 | 1.895 | 597083 | 0.17 | 100 | 101.8 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.778 | 0.756 | 636383 | 2.43 | 100 | 99.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.277 | 1.800 | 435860 | 0.21 | 100 | 98.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 10138.108 | 2.685 | 55629329 | 0.76 | 10000 | 101.4 | 90 | 110 | |
| Co | 59 | 2 | He | 97.208 | 4.067 | 844655 | 2.11 | 100 | 97.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 102.509 | 4.064 | 217400 | 2.15 | 100 | 102.5 | 90 | 110 | |
| Cu | 63 | 2 | He | 103.094 | 3.117 | 556912 | 2.32 | 100 | 103.1 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.869 | 1.895 | 131775 | 2.63 | 100 | 99.9 | 90 | 110 | |
| As | 75 | 2 | He | 100.845 | 3.408 | 127327 | 1.45 | 100 | 100.8 | 90 | 110 | |
| Se | 78 | 2 | He | 99.664 | 2.288 | 10058 | 0.60 | 100 | 99.7 | 90 | 110 | |
| B | 11 | 1 | nogas | 602.997 | 2.113 | 2434612 | 0.67 | 500 | 120.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 474.841 | 4.818 | 6747808 | 1.16 | 5000 | 9.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10149.708 | 1.140 | 363812 | 1.52 | 10000 | 101.5 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10036.793 | 1.104 | 6053513 | 3.70 | 10000 | 100.4 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10332.408 | 2.934 | 245736380 | 0.94 | 10000 | 103.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 97.883 | 7.402 | 78415 | 0.88 | 100 | 97.9 | 90 | 110 | |
| Se | 82 | 1 | nogas | 100.102 | 4.347 | 26857 | 3.43 | 100 | 100.1 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.834 | 1.796 | 550639 | 1.80 | 100 | 96.8 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 99.773 | 1.889 | 789737 | 1.09 | 100 | 99.8 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.906 | 2.672 | 413293 | 1.82 | 100 | 96.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.343 | 1.911 | 466738 | 0.06 | 100 | 101.3 | 90 | 110 | |
| Li | 7 | 1 | nogas | 110.381 | 4.823 | 1728290 | 2.27 | 100 | 110.4 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 437.580 | 1.498 | 811292 | 1.36 | 500 | 87.5 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 160.095 | 27.901 | 650 | 25.19 | 100 | 160.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 297.717 | 128.449 | 20 | 86.60 | 100 | 297.7 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1056780 | 2.30 | 1446753 | 73.04 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3335844 | 2.63 | 3206704 | 104.03 | 70 | 125 | |
| In | 115 | 1 | nogas | 2949511 | 0.87 | 2812441 | 104.87 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2245617 | 1.48 | 2322160 | 96.70 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 771054 | 1.98 | 754516 | 102.19 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 191_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T21:20:13-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.068 | 28.4 | 543 | 19.9 | 1 | |
| Na | 23 | 1 | nogas | 22.778 | 21.6 | 942411 | 0.3 | 100 | |
| Mg | 24 | 1 | nogas | 6.263 | 27.1 | 103436 | 12.1 | 100 | |
| Al | 27 | 1 | nogas | 4.160 | 24.3 | 100207 | 9.3 | 5 | |
| K | 39 | 1 | nogas | 23.235 | 179.2 | 8251191 | 0.4 | 100 | |
| Ti | 47 | 1 | nogas | 0.097 | 39.6 | 400 | 6.6 | 2.5 | |
| V | 51 | 1 | nogas | -7.862 | -46.1 | 1151109 | 2.7 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.204 | -125.4 | 72695 | 2.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.851 | 21.4 | 50339 | 0.1 | 2.5 | |
| Co | 59 | 1 | nogas | 0.070 | 34.9 | 2387 | 14.0 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.326 | 15.5 | 1250 | 9.7 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.117 | 4.4 | 2857 | 9.2 | 2 | |
| Zn | 66 | 1 | nogas | 0.626 | 14.5 | 2240 | 8.6 | 2.5 | |
| As | 75 | 1 | nogas | -5.364 | -57.2 | 164488 | 2.7 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.072 | 33.4 | 2747 | 14.4 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.036 | 27.4 | 560 | 12.9 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.047 | 29.1 | 157 | 20.5 | 1 | |
| Sb | 121 | 1 | nogas | 0.134 | 13.1 | 2744 | 3.1 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.618 | 60.5 | 12393 | 51.4 | 1 | |
| Pb | 208 | 1 | nogas | 0.038 | 31.9 | 2600 | 12.6 | 2.5 | |
| U | 238 | 1 | nogas | 0.112 | 47.7 | 2960 | 38.9 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.039 | 40.7 | 657 | 9.9 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.042 | 26.9 | 543 | 11.2 | 2.5 | |
| Na | 23 | 2 | He | 23.165 | 7.1 | 82089 | 2.5 | 100 | |
| Mg | 24 | 2 | He | 4.422 | 6.6 | 4297 | 5.2 | 100 | |
| Al | 27 | 2 | He | 3.181 | 8.4 | 2324 | 4.2 | 5 | |
| K | 39 | 2 | He | 8.089 | 2.3 | 188692 | 0.1 | 100 | |
| Ca | 43 | 2 | He | 30.379 | 6.1 | 83 | 6.9 | 100 | |
| Ca | 44 | 2 | He | 11.850 | 6.5 | 1587 | 4.1 | 100 | |
| V | 51 | 2 | He | -0.329 | -4.2 | 13283 | 2.0 | 2.5 | |
| Cr | 52 | 2 | He | -0.007 | -373.8 | 4711 | 4.7 | 2.5 | |
| Mn | 55 | 2 | He | 0.804 | 4.1 | 4901 | 3.8 | 2.5 | |
| Fe | 56 | 2 | He | 6.254 | 3.4 | 46943 | 3.9 | 100 | |
| Co | 59 | 2 | He | 0.051 | 30.1 | 760 | 19.6 | 2.5 | |
| Ni | 60 | 2 | He | 0.274 | 6.3 | 340 | 12.8 | 2.5 | |
| Cu | 63 | 2 | He | 0.231 | 12.6 | 1223 | 14.7 | 2 | |
| Zn | 66 | 2 | He | 0.702 | 7.5 | 613 | 13.6 | 2.5 | |
| As | 75 | 2 | He | 0.055 | 20.5 | 678 | 4.0 | 2.5 | |
| Se | 78 | 2 | He | 0.859 | 8.6 | 169 | 3.8 | 2 | |
| B | 11 | 1 | nogas | 85.735 | 8.9 | 384397 | 0.6 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 15.803 | 117.2 | 1693468 | 1.7 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 30.922 | 6.8 | 1630 | 12.8 | 100 | |
| Ca | 44 | 1 | nogas | -23.212 | -72.3 | 82062 | 1.8 | 100 | |
| Fe | 56 | 1 | nogas | -13.469 | -94.8 | 2485607 | 1.8 | 100 | |
| Se | 77 | 1 | nogas | -18.032 | -70.8 | 52857 | 4.8 | 2.5 | |
| Se | 82 | 1 | nogas | 0.167 | 128.6 | 290 | 23.9 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.307 | 36.3 | 2134 | 17.7 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.248 | 34.2 | 2994 | 15.6 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.121 | 12.5 | 610 | 12.4 | 2.5 | |
| Sb | 121 | 2 | He | 0.103 | 28.2 | 973 | 15.7 | 2.5 | |
| P | 31 | 1 | nogas | 5.702 | 128.3 | 98685 | 1.9 | 10 | |
| La | 139 | 1 | nogas | 8.584 | 176.3 | 83 | 60.4 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 787.140 | 73.8 | 40 | 66.1 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1139544 | 8.09 | 1446753 | 78.77 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3204804 | 9.17 | 3206704 | 99.94 | 70 | 125 | |
| In | 115 | 1 | nogas | 2837543 | 5.85 | 2812441 | 100.89 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2119125 | 6.58 | 2322160 | 91.26 | 70 | 125 | |
| Ge | 72 | 2 | He | 780405 | 2.19 | 754516 | 103.43 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 199_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T21:36:11-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 105.963 | 3.667 | 758935 | 1.52 | 100 | 106.0 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10269.909 | 0.903 | 261157281 | 1.93 | 10000 | 102.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10214.768 | 2.077 | 165741112 | 1.82 | 10000 | 102.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 147.794 | 14.013 | 3010165 | 13.13 | 100 | 147.8 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9980.316 | 3.447 | 212558659 | 1.56 | 10000 | 99.8 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 103.105 | 2.480 | 186903 | 0.94 | 100 | 103.1 | 90 | 110 | |
| V | 51 | 1 | nogas | 69.979 | 2.880 | 3183140 | 0.16 | 100 | 70.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 97.160 | 1.615 | 2284563 | 1.58 | 100 | 97.2 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.145 | 4.230 | 2884150 | 2.44 | 100 | 101.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 96.933 | 1.079 | 2339080 | 1.81 | 100 | 96.9 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 98.631 | 0.971 | 512552 | 0.81 | 100 | 98.6 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 98.659 | 0.808 | 1224352 | 1.07 | 100 | 98.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 102.286 | 1.022 | 417998 | 1.60 | 100 | 102.3 | 90 | 110 | |
| As | 75 | 1 | nogas | 83.733 | 1.020 | 615458 | 1.23 | 100 | 83.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 103.404 | 0.893 | 2917198 | 1.07 | 100 | 103.4 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 101.238 | 1.703 | 1410937 | 1.09 | 100 | 101.2 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 100.529 | 2.738 | 309393 | 1.12 | 100 | 100.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 101.534 | 1.247 | 1371877 | 2.18 | 100 | 101.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.649 | 2.740 | 2164239 | 0.96 | 100 | 102.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.037 | 1.236 | 2818579 | 1.24 | 100 | 103.0 | 90 | 110 | |
| U | 238 | 1 | nogas | 90.297 | 3.543 | 2516131 | 1.84 | 100 | 90.3 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 99.166 | 0.621 | 716262 | 1.25 | 100 | 99.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 97.332 | 1.635 | 596704 | 1.17 | 100 | 97.3 | 90 | 110 | |
| Na | 23 | 2 | He | 9660.603 | 1.411 | 14967809 | 1.26 | 10000 | 96.6 | 90 | 110 | |
| Mg | 24 | 2 | He | 9533.278 | 0.241 | 8157990 | 0.46 | 10000 | 95.3 | 90 | 110 | |
| Al | 27 | 2 | He | 111.180 | 2.664 | 53536 | 2.72 | 100 | 111.2 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 10332.649 | 0.509 | 8836728 | 0.50 | 10000 | 103.3 | 90 | 110 | |
| Ca | 43 | 2 | He | 9629.485 | 4.266 | 23625 | 4.46 | 10000 | 96.3 | 90 | 110 | |
| Ca | 44 | 2 | He | 9775.627 | 1.211 | 400143 | 1.43 | 10000 | 97.8 | 90 | 110 | |
| V | 51 | 2 | He | 97.492 | 0.507 | 593159 | 0.29 | 100 | 97.5 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.910 | 1.108 | 647077 | 0.91 | 100 | 97.9 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.544 | 0.585 | 452933 | 0.80 | 100 | 98.5 | 90 | 110 | |
| Fe | 56 | 2 | He | 9802.638 | 1.186 | 55751918 | 1.35 | 10000 | 98.0 | 90 | 110 | |
| Co | 59 | 2 | He | 95.347 | 0.216 | 858874 | 0.41 | 100 | 95.3 | 90 | 110 | |
| Ni | 60 | 2 | He | 100.812 | 1.332 | 221637 | 1.42 | 100 | 100.8 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.351 | 0.688 | 556228 | 0.88 | 100 | 99.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.395 | 1.700 | 133147 | 1.85 | 100 | 97.4 | 90 | 110 | |
| As | 75 | 2 | He | 99.782 | 0.526 | 130600 | 0.61 | 100 | 99.8 | 90 | 110 | |
| Se | 78 | 2 | He | 96.907 | 2.853 | 10138 | 2.71 | 100 | 96.9 | 90 | 110 | |
| B | 11 | 1 | nogas | 563.851 | 4.596 | 2432269 | 1.17 | 500 | 112.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 513.383 | 2.972 | 7247443 | 0.73 | 5000 | 10.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10244.423 | 2.124 | 371288 | 1.82 | 10000 | 102.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10156.515 | 1.637 | 6190007 | 0.43 | 10000 | 101.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10067.602 | 2.284 | 242218597 | 0.70 | 10000 | 100.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | -26.637 | -9.837 | 54040 | 2.24 | 100 | -26.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 98.157 | 3.387 | 26633 | 1.62 | 100 | 98.2 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 97.475 | 1.344 | 560466 | 0.84 | 100 | 97.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 98.720 | 0.509 | 796502 | 2.94 | 100 | 98.7 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 100.285 | 3.962 | 435653 | 1.15 | 100 | 100.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.602 | 0.667 | 480185 | 0.77 | 100 | 100.6 | 90 | 110 | |
| Li | 7 | 1 | nogas | 109.838 | 2.422 | 1839051 | 2.26 | 100 | 109.8 | 90 | 110 | |
| P | 31 | 1 | nogas | 432.694 | 1.294 | 812283 | 1.22 | 500 | 86.5 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 420.605 | 28.930 | 1640 | 24.97 | 100 | 420.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 294.395 | 73.482 | 20 | 50.00 | 100 | 294.4 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1129481 | 3.55 | 1446753 | 78.07 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3372768 | 1.76 | 3206704 | 105.18 | 70 | 125 | |
| In | 115 | 1 | nogas | 3006134 | 2.86 | 2812441 | 106.89 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2263748 | 1.86 | 2322160 | 97.48 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 798901 | 0.22 | 754516 | 105.88 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 200_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T21:38:11-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.075 | 31.4 | 673 | 29.0 | 1 | |
| Na | 23 | 1 | nogas | 13.233 | 12.9 | 762480 | 4.7 | 100 | |
| Mg | 24 | 1 | nogas | 8.644 | 19.5 | 150903 | 17.2 | 100 | |
| Al | 27 | 1 | nogas | 13.670 | 53.6 | 304933 | 50.9 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -26.164 | -29.1 | 7843630 | 1.1 | 100 | |
| Ti | 47 | 1 | nogas | 0.173 | 17.9 | 570 | 9.3 | 2.5 | |
| V | 51 | 1 | nogas | -35.315 | -2.3 | 531389 | 3.5 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.598 | -3.3 | 45950 | 2.1 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.780 | 8.7 | 52060 | 3.3 | 2.5 | |
| Co | 59 | 1 | nogas | 0.080 | 23.9 | 2827 | 15.8 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.286 | 4.7 | 1140 | 7.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.162 | 13.1 | 3624 | 8.0 | 2 | |
| Zn | 66 | 1 | nogas | 0.581 | 3.9 | 2227 | 4.1 | 2.5 | |
| As | 75 | 1 | nogas | -21.639 | -3.4 | 94816 | 3.8 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.124 | 24.4 | 4477 | 19.1 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.045 | 44.4 | 743 | 38.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.060 | 24.2 | 200 | 18.0 | 1 | |
| Sb | 121 | 1 | nogas | 0.095 | 10.7 | 2417 | 6.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.738 | 64.0 | 16648 | 61.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.072 | 45.8 | 3540 | 25.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.128 | 54.2 | 3794 | 52.7 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.060 | 58.2 | 883 | 29.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.066 | 45.2 | 750 | 26.0 | 2.5 | |
| Na | 23 | 2 | He | 12.134 | 6.1 | 64077 | 2.2 | 100 | |
| Mg | 24 | 2 | He | 6.073 | 6.4 | 5558 | 5.9 | 100 | |
| Al | 27 | 2 | He | 6.244 | 11.6 | 3664 | 9.9 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -6.511 | -62.9 | 176463 | 1.9 | 100 | |
| Ca | 43 | 2 | He | 28.286 | 6.9 | 77 | 7.5 | 100 | |
| Ca | 44 | 2 | He | 23.419 | 16.1 | 2003 | 6.9 | 100 | |
| V | 51 | 2 | He | -1.536 | -2.6 | 6159 | 2.1 | 2.5 | |
| Cr | 52 | 2 | He | -0.098 | -25.9 | 4044 | 5.3 | 2.5 | |
| Mn | 55 | 2 | He | 0.909 | 2.9 | 5254 | 2.4 | 2.5 | |
| Fe | 56 | 2 | He | 7.753 | 11.4 | 54127 | 10.2 | 100 | |
| Co | 59 | 2 | He | 0.058 | 24.3 | 803 | 14.6 | 2.5 | |
| Ni | 60 | 2 | He | 0.292 | 12.9 | 370 | 21.6 | 2.5 | |
| Cu | 63 | 2 | He | 0.243 | 6.9 | 1260 | 5.5 | 2 | |
| Zn | 66 | 2 | He | 0.733 | 1.6 | 640 | 2.7 | 2.5 | |
| As | 75 | 2 | He | -0.128 | -23.6 | 436 | 8.5 | 2.5 | |
| Se | 78 | 2 | He | 0.723 | 35.4 | 152 | 15.2 | 2 | |
| B | 11 | 1 | nogas | 56.773 | 4.5 | 293036 | 2.9 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 1.130 | 198.9 | 1659430 | 2.6 | 5 | |
| Ca | 43 | 1 | nogas | 44.564 | 37.4 | 2240 | 27.2 | 100 | |
| Ca | 44 | 1 | nogas | -17.489 | -51.5 | 91804 | 5.6 | 100 | |
| Fe | 56 | 1 | nogas | -19.471 | -45.4 | 2530138 | 8.1 | 100 | |
| Se | 77 | 1 | nogas | -148.399 | -3.6 | 29785 | 3.7 | 2.5 | |
| Se | 82 | 1 | nogas | -0.025 | -380.3 | 257 | 9.8 | 2 | |
| Mo | 95 | 1 | nogas | 0.356 | 49.0 | 2604 | 38.6 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.223 | 37.6 | 2927 | 18.9 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.360 | 24.8 | 1647 | 19.6 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.042 | 57.6 | 677 | 17.8 | 2.5 | |
| P | 31 | 1 | nogas | -3.628 | -50.0 | 90509 | 2.7 | 10 | |
| La | 139 | 1 | nogas | 57.325 | 40.7 | 267 | 28.6 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 1.272 | 19964.0 | 7 | 173.2 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1281708 | 3.91 | 1446753 | 88.59 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3425422 | 1.18 | 3206704 | 106.82 | 70 | 125 | |
| In | 115 | 1 | nogas | 2951342 | 4.02 | 2812441 | 104.94 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2335081 | 3.02 | 2322160 | 100.56 | 70 | 125 | |
| Ge | 72 | 2 | He | 763822 | 1.60 | 754516 | 101.23 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 211_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:00:10-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 109.744 | 5.238 | 750975 | 1.07 | 100 | 109.7 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9941.517 | 2.735 | 269524356 | 1.65 | 10000 | 99.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9966.554 | 1.116 | 172462725 | 1.95 | 10000 | 99.7 | 90 | 110 | |
| Al | 27 | 1 | nogas | 175.118 | 16.945 | 3691247 | 16.47 | 100 | 175.1 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10405.391 | 3.191 | 229260372 | 1.95 | 10000 | 104.1 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 103.697 | 2.033 | 194761 | 0.63 | 100 | 103.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 94.203 | 0.230 | 3932631 | 1.72 | 100 | 94.2 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 101.226 | 0.268 | 2462680 | 1.71 | 100 | 101.2 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 103.473 | 2.204 | 3057270 | 1.86 | 100 | 103.5 | 90 | 110 | |
| Co | 59 | 1 | nogas | 101.423 | 3.421 | 2534721 | 1.83 | 100 | 101.4 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.360 | 2.018 | 540311 | 1.44 | 100 | 100.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 100.911 | 3.277 | 1297241 | 2.68 | 100 | 100.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.457 | 2.284 | 425270 | 1.77 | 100 | 100.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 95.915 | 1.090 | 700160 | 0.85 | 100 | 95.9 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 105.682 | 2.077 | 3088549 | 1.05 | 100 | 105.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.293 | 3.490 | 1447930 | 2.39 | 100 | 100.3 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 99.536 | 0.929 | 311655 | 1.77 | 100 | 99.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.581 | 1.974 | 1449791 | 1.85 | 100 | 103.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.035 | 4.190 | 2185705 | 2.11 | 100 | 102.0 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 105.727 | 2.997 | 2892122 | 3.00 | 100 | 105.7 | 90 | 110 | |
| U | 238 | 1 | nogas | 88.520 | 1.381 | 2507386 | 1.45 | 100 | 88.5 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 99.346 | 0.607 | 729264 | 2.16 | 100 | 99.3 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 97.375 | 0.964 | 606745 | 2.13 | 100 | 97.4 | 90 | 110 | |
| Na | 23 | 2 | He | 10004.291 | 1.384 | 16209107 | 1.19 | 10000 | 100.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 9887.381 | 1.562 | 8848515 | 1.15 | 10000 | 98.9 | 90 | 110 | |
| Al | 27 | 2 | He | 133.074 | 2.530 | 66839 | 2.74 | 100 | 133.1 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 11151.701 | 1.440 | 9522780 | 1.41 | 10000 | 111.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 9859.021 | 1.828 | 25297 | 2.33 | 10000 | 98.6 | 90 | 110 | |
| Ca | 44 | 2 | He | 9916.431 | 1.131 | 424503 | 1.46 | 10000 | 99.2 | 90 | 110 | |
| V | 51 | 2 | He | 100.996 | 0.790 | 642065 | 0.58 | 100 | 101.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.796 | 2.186 | 675959 | 2.05 | 100 | 97.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.793 | 1.520 | 474871 | 1.08 | 100 | 98.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 9843.026 | 1.947 | 58542711 | 1.19 | 10000 | 98.4 | 90 | 110 | |
| Co | 59 | 2 | He | 96.223 | 1.505 | 906489 | 1.36 | 100 | 96.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 100.879 | 2.759 | 231941 | 2.58 | 100 | 100.9 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.387 | 1.259 | 581946 | 1.43 | 100 | 99.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.549 | 0.965 | 136608 | 1.38 | 100 | 95.5 | 90 | 110 | |
| As | 75 | 2 | He | 101.844 | 1.493 | 139392 | 1.13 | 100 | 101.8 | 90 | 110 | |
| Se | 78 | 2 | He | 96.860 | 1.244 | 10598 | 0.75 | 100 | 96.9 | 90 | 110 | |
| B | 11 | 1 | nogas | 546.574 | 5.678 | 2253653 | 1.96 | 500 | 109.3 | 90 | 110 | |
| Si | 28 | 1 | nogas | 541.639 | 3.318 | 7829344 | 1.05 | 5000 | 10.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10233.898 | 2.228 | 384241 | 0.88 | 10000 | 102.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10063.326 | 1.843 | 6355161 | 0.51 | 10000 | 100.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10313.795 | 0.635 | 257063356 | 1.27 | 10000 | 103.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 64.207 | 12.220 | 75074 | 1.67 | 100 | 64.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 99.338 | 0.523 | 27932 | 1.37 | 100 | 99.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 98.867 | 2.457 | 588908 | 1.51 | 100 | 98.9 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 101.002 | 2.563 | 828429 | 1.24 | 100 | 101.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 100.090 | 1.352 | 442422 | 0.66 | 100 | 100.1 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.739 | 1.281 | 502866 | 0.79 | 100 | 100.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 117.533 | 5.590 | 1874442 | 3.54 | 100 | 117.5 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 436.458 | 1.719 | 848016 | 1.41 | 500 | 87.3 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 972.731 | 35.484 | 3787 | 33.44 | 100 | 972.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 509.576 | 86.184 | 30 | 66.67 | 100 | 509.6 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1080526 | 6.00 | 1446753 | 74.69 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3494299 | 1.59 | 3206704 | 108.97 | 70 | 125 | |
| In | 115 | 1 | nogas | 3057011 | 1.91 | 2812441 | 108.70 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2300762 | 2.77 | 2322160 | 99.08 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 835546 | 0.83 | 754516 | 110.74 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 212_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:02:11-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.052 | 37.2 | 460 | 31.4 | 1 | |
| Na | 23 | 1 | nogas | 10.373 | 14.1 | 714582 | 1.9 | 100 | |
| Mg | 24 | 1 | nogas | 7.940 | 22.2 | 144115 | 17.0 | 100 | |
| Al | 27 | 1 | nogas | 17.788 | 19.0 | 395476 | 17.1 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -39.486 | -25.4 | 7712879 | 2.1 | 100 | |
| Ti | 47 | 1 | nogas | 0.147 | 48.6 | 533 | 24.5 | 2.5 | |
| V | 51 | 1 | nogas | -16.718 | -2.5 | 1028212 | 1.7 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.773 | -5.0 | 66208 | 1.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.817 | 8.4 | 54139 | 2.8 | 2.5 | |
| Co | 59 | 1 | nogas | 0.071 | 36.6 | 2657 | 23.8 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.287 | 3.6 | 1167 | 4.1 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.119 | 17.5 | 3137 | 7.9 | 2 | |
| Zn | 66 | 1 | nogas | 0.613 | 5.2 | 2407 | 6.7 | 2.5 | |
| As | 75 | 1 | nogas | -12.193 | -3.8 | 145113 | 1.8 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.090 | 13.4 | 3570 | 9.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.033 | 11.9 | 580 | 9.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.034 | 16.6 | 130 | 15.4 | 1 | |
| Sb | 121 | 1 | nogas | 0.009 | 136.1 | 1260 | 12.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.604 | 60.3 | 14135 | 59.5 | 1 | |
| Pb | 208 | 1 | nogas | 0.061 | 43.9 | 3254 | 22.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.118 | 54.4 | 3607 | 54.6 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.056 | 53.1 | 873 | 27.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.059 | 27.4 | 723 | 15.5 | 2.5 | |
| Na | 23 | 2 | He | 7.665 | 13.8 | 62004 | 1.1 | 100 | |
| Mg | 24 | 2 | He | 5.507 | 5.0 | 5501 | 6.5 | 100 | |
| Al | 27 | 2 | He | 11.299 | 5.7 | 6425 | 6.3 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -5.417 | -39.0 | 177380 | 1.0 | 100 | |
| Ca | 43 | 2 | He | 37.591 | 42.4 | 107 | 39.0 | 100 | |
| Ca | 44 | 2 | He | 11.986 | 29.3 | 1680 | 7.9 | 100 | |
| V | 51 | 2 | He | -0.669 | -3.7 | 11947 | 2.5 | 2.5 | |
| Cr | 52 | 2 | He | -0.062 | -72.2 | 4601 | 4.4 | 2.5 | |
| Mn | 55 | 2 | He | 0.897 | 5.2 | 5614 | 3.8 | 2.5 | |
| Fe | 56 | 2 | He | 10.837 | 7.8 | 76526 | 8.6 | 100 | |
| Co | 59 | 2 | He | 0.030 | 14.1 | 613 | 7.4 | 2.5 | |
| Ni | 60 | 2 | He | 0.265 | 4.7 | 340 | 10.2 | 2.5 | |
| Cu | 63 | 2 | He | 0.211 | 6.7 | 1173 | 7.2 | 2 | |
| Zn | 66 | 2 | He | 0.756 | 7.2 | 723 | 10.0 | 2.5 | |
| As | 75 | 2 | He | -0.077 | -38.9 | 538 | 5.3 | 2.5 | |
| Se | 78 | 2 | He | 0.792 | 39.7 | 171 | 18.3 | 2 | |
| B | 11 | 1 | nogas | 44.680 | 3.2 | 221136 | 1.9 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 17.871 | 15.1 | 1881138 | 0.6 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 36.257 | 19.9 | 1970 | 12.8 | 100 | |
| Ca | 44 | 1 | nogas | -42.891 | -11.7 | 77808 | 3.0 | 100 | |
| Fe | 56 | 1 | nogas | -8.133 | -144.8 | 2857002 | 9.4 | 100 | |
| Se | 77 | 1 | nogas | -73.013 | -6.4 | 46205 | 3.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.232 | -142.7 | 203 | 44.6 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.302 | 56.4 | 2334 | 42.7 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.214 | 40.7 | 3014 | 21.5 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.245 | 9.5 | 1227 | 5.9 | 2.5 | |
| Sb | 121 | 2 | He | -0.024 | -21.4 | 403 | 7.6 | 2.5 | |
| P | 31 | 1 | nogas | -8.287 | -13.4 | 84280 | 2.5 | 10 | |
| La | 139 | 1 | nogas | 160.616 | 40.2 | 683 | 33.9 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 762.601 | 84.6 | 43 | 70.5 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1209527 | 1.10 | 1446753 | 83.60 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3491653 | 1.02 | 3206704 | 108.89 | 70 | 125 | |
| In | 115 | 1 | nogas | 3109819 | 2.59 | 2812441 | 110.57 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2395987 | 1.68 | 2322160 | 103.18 | 70 | 125 | |
| Ge | 72 | 2 | He | 824251 | 2.20 | 754516 | 109.24 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 223_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:23:51-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 109.517 | 1.837 | 736165 | 1.84 | 100 | 109.5 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9896.047 | 6.073 | 267727589 | 1.75 | 10000 | 99.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9805.076 | 4.940 | 169329179 | 0.99 | 10000 | 98.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 112.091 | 3.896 | 2404943 | 2.03 | 100 | 112.1 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10210.366 | 2.622 | 228314063 | 1.74 | 10000 | 102.1 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 100.016 | 3.134 | 190471 | 0.86 | 100 | 100.0 | 90 | 110 | |
| V | 51 | 1 | nogas | 86.262 | 5.846 | 3775697 | 1.73 | 100 | 86.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 96.626 | 2.441 | 2387298 | 1.45 | 100 | 96.6 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.721 | 3.456 | 2958562 | 1.35 | 100 | 98.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 96.998 | 5.126 | 2457285 | 2.11 | 100 | 97.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 99.358 | 3.028 | 542340 | 0.96 | 100 | 99.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 100.086 | 2.481 | 1305349 | 3.91 | 100 | 100.1 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.480 | 1.391 | 427184 | 2.85 | 100 | 99.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 89.884 | 4.559 | 678418 | 0.63 | 100 | 89.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 103.683 | 0.994 | 3074003 | 2.96 | 100 | 103.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.611 | 3.035 | 1472972 | 1.51 | 100 | 100.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 97.024 | 2.437 | 315550 | 0.46 | 100 | 97.0 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 99.390 | 2.071 | 1410760 | 1.82 | 100 | 99.4 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.566 | 3.635 | 2182623 | 1.49 | 100 | 102.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 104.133 | 0.674 | 2848545 | 0.67 | 100 | 104.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 88.553 | 2.854 | 2491021 | 0.74 | 100 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 97.822 | 3.439 | 712953 | 0.80 | 100 | 97.8 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 95.746 | 2.801 | 592417 | 0.43 | 100 | 95.7 | 90 | 110 | |
| Na | 23 | 2 | He | 9854.404 | 0.974 | 15942207 | 0.60 | 10000 | 98.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9607.042 | 1.302 | 8584426 | 0.97 | 10000 | 96.1 | 90 | 110 | |
| Al | 27 | 2 | He | 110.706 | 2.298 | 55669 | 2.36 | 100 | 110.7 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 11289.247 | 1.095 | 9637991 | 1.07 | 10000 | 112.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 10078.164 | 1.912 | 25818 | 2.08 | 10000 | 100.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 9901.816 | 0.514 | 423208 | 0.41 | 10000 | 99.0 | 90 | 110 | |
| V | 51 | 2 | He | 98.886 | 0.612 | 628011 | 0.22 | 100 | 98.9 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.003 | 2.682 | 669448 | 2.30 | 100 | 97.0 | 90 | 110 | |
| Mn | 55 | 2 | He | 97.133 | 0.874 | 466203 | 0.65 | 100 | 97.1 | 90 | 110 | |
| Fe | 56 | 2 | He | 9828.631 | 2.693 | 58370346 | 2.62 | 10000 | 98.3 | 90 | 110 | |
| Co | 59 | 2 | He | 96.227 | 1.600 | 905109 | 1.34 | 100 | 96.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 101.170 | 1.289 | 232252 | 0.96 | 100 | 101.2 | 90 | 110 | |
| Cu | 63 | 2 | He | 100.743 | 2.189 | 588970 | 2.26 | 100 | 100.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.736 | 2.059 | 138094 | 2.21 | 100 | 96.7 | 90 | 110 | |
| As | 75 | 2 | He | 100.474 | 0.625 | 137316 | 0.36 | 100 | 100.5 | 90 | 110 | |
| Se | 78 | 2 | He | 95.638 | 1.222 | 10449 | 0.87 | 100 | 95.6 | 90 | 110 | |
| B | 11 | 1 | nogas | 542.736 | 1.827 | 2198400 | 1.75 | 500 | 108.5 | 90 | 110 | |
| Si | 28 | 1 | nogas | 530.537 | 4.021 | 7811003 | 0.96 | 5000 | 10.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10207.701 | 4.270 | 388484 | 0.61 | 10000 | 102.1 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10020.231 | 5.748 | 6412303 | 2.08 | 10000 | 100.2 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9928.592 | 3.292 | 250975922 | 1.00 | 10000 | 99.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 33.897 | 31.117 | 69653 | 0.75 | 100 | 33.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 99.506 | 2.322 | 28376 | 3.10 | 100 | 99.5 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.748 | 2.254 | 578409 | 1.53 | 100 | 95.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 97.611 | 1.640 | 831954 | 0.81 | 100 | 97.6 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.139 | 1.639 | 441597 | 2.44 | 100 | 96.1 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.220 | 1.897 | 499501 | 1.62 | 100 | 100.2 | 90 | 110 | |
| Li | 7 | 1 | nogas | 113.125 | 3.062 | 1774552 | 2.83 | 100 | 113.1 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 422.612 | 3.770 | 835569 | 0.46 | 500 | 84.5 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 269.702 | 14.992 | 1137 | 12.51 | 100 | 269.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 80.215 | 486.985 | 10 | 173.21 | 100 | 80.2 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1059214 | 0.09 | 1446753 | 73.21 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3544923 | 3.75 | 3206704 | 110.55 | 70 | 125 | |
| In | 115 | 1 | nogas | 3176231 | 2.04 | 2812441 | 112.94 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2285557 | 2.90 | 2322160 | 98.42 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 834235 | 0.37 | 754516 | 110.57 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 224_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:25:50-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 123CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.074 | 15.2 | 600 | 12.0 | 1 | |
| Na | 23 | 1 | nogas | 7.733 | 19.4 | 665828 | 6.4 | 100 | |
| Mg | 24 | 1 | nogas | 6.928 | 21.8 | 131687 | 20.4 | 100 | |
| Al | 27 | 1 | nogas | 10.335 | 12.7 | 244304 | 9.0 | 5 | CCB Main CR1 Failed |
| K | 39 | 1 | nogas | -46.645 | -25.2 | 7714249 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.162 | 38.6 | 570 | 18.2 | 2.5 | |
| V | 51 | 1 | nogas | -19.527 | -5.4 | 974167 | 2.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.064 | -10.6 | 60569 | 2.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.658 | 7.5 | 50506 | 1.0 | 2.5 | |
| Co | 59 | 1 | nogas | 0.069 | 20.7 | 2660 | 13.1 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.260 | 14.2 | 1040 | 18.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.095 | 39.3 | 2889 | 15.1 | 2 | |
| Zn | 66 | 1 | nogas | 0.545 | 15.3 | 2160 | 16.1 | 2.5 | |
| As | 75 | 1 | nogas | -14.377 | -4.1 | 136630 | 0.8 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.088 | 9.2 | 3574 | 4.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.042 | 24.2 | 723 | 18.7 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.046 | 11.3 | 163 | 7.1 | 1 | |
| Sb | 121 | 1 | nogas | 0.013 | 186.0 | 1347 | 24.2 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.690 | 58.8 | 15513 | 57.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.076 | 45.3 | 3660 | 25.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.134 | 65.5 | 3957 | 65.1 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.087 | 20.6 | 1077 | 13.0 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.063 | 59.1 | 730 | 33.2 | 2.5 | |
| Na | 23 | 2 | He | 6.180 | 13.3 | 59242 | 0.8 | 100 | |
| Mg | 24 | 2 | He | 5.233 | 4.9 | 5217 | 1.4 | 100 | |
| Al | 27 | 2 | He | 9.400 | 8.5 | 5451 | 4.4 | 5 | CCB Main CR1 Failed |
| K | 39 | 2 | He | -6.621 | -24.8 | 176371 | 0.8 | 100 | |
| Ca | 43 | 2 | He | 23.308 | 57.7 | 70 | 49.5 | 100 | |
| Ca | 44 | 2 | He | 13.132 | 17.5 | 1717 | 4.1 | 100 | |
| V | 51 | 2 | He | -0.688 | -9.2 | 11752 | 2.0 | 2.5 | |
| Cr | 52 | 2 | He | -0.034 | -74.3 | 4761 | 4.5 | 2.5 | |
| Mn | 55 | 2 | He | 0.803 | 7.1 | 5131 | 2.7 | 2.5 | |
| Fe | 56 | 2 | He | 10.749 | 3.0 | 75407 | 0.6 | 100 | |
| Co | 59 | 2 | He | 0.047 | 13.8 | 763 | 5.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.257 | 4.5 | 320 | 11.3 | 2.5 | |
| Cu | 63 | 2 | He | 0.216 | 8.9 | 1193 | 7.8 | 2 | |
| Zn | 66 | 2 | He | 0.767 | 4.7 | 733 | 4.4 | 2.5 | |
| As | 75 | 2 | He | -0.101 | -40.3 | 502 | 8.9 | 2.5 | |
| Se | 78 | 2 | He | 1.081 | 17.1 | 201 | 10.3 | 2 | |
| B | 11 | 1 | nogas | 37.653 | 4.1 | 181958 | 3.3 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 16.297 | 29.1 | 1901084 | 0.6 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 29.809 | 3.7 | 1767 | 4.8 | 100 | |
| Ca | 44 | 1 | nogas | -58.924 | -8.1 | 69228 | 1.8 | 100 | |
| Fe | 56 | 1 | nogas | -10.844 | -127.1 | 2844146 | 9.7 | 100 | |
| Se | 77 | 1 | nogas | -89.430 | -7.4 | 43633 | 4.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.121 | -62.2 | 240 | 11.0 | 2 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.314 | 55.8 | 2440 | 40.7 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.270 | 40.1 | 3340 | 21.3 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.209 | 3.5 | 1023 | 1.1 | 2.5 | |
| Sb | 121 | 2 | He | -0.034 | -42.7 | 353 | 19.9 | 2.5 | |
| P | 31 | 1 | nogas | -8.395 | -19.9 | 85784 | 0.9 | 10 | |
| La | 139 | 1 | nogas | 110.528 | 30.5 | 470 | 22.2 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 213.916 | 59.6 | 17 | 34.6 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1165420 | 1.77 | 1446753 | 80.55 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3563819 | 2.52 | 3206704 | 111.14 | 70 | 125 | |
| In | 115 | 1 | nogas | 2995581 | 4.15 | 2812441 | 106.51 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2318074 | 1.43 | 2322160 | 99.82 | 70 | 125 | |
| Ge | 72 | 2 | He | 818849 | 3.07 | 754516 | 108.53 | 70 | 125 | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 231CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:39:46-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 87 | 33.51 |
| Na | 23 | 1 | nogas | 331429 | 0.00 |
| Mg | 24 | 1 | nogas | 30465 | 0.02 |
| Al | 27 | 1 | nogas | 77458 | 0.01 |
| K | 39 | 1 | nogas | 7580102 | 0.00 |
| Ti | 47 | 1 | nogas | 283 | 14.44 |
| V | 51 | 1 | nogas | 1238422 | 0.00 |
| Cr | 52 | 1 | nogas | 68854 | 0.00 |
| Mn | 55 | 1 | nogas | 23392 | 0.01 |
| Co | 59 | 1 | nogas | 833 | 2.61 |
| Ni | 60 | 1 | nogas | 323 | 9.63 |
| Cu | 63 | 1 | nogas | 1537 | 0.60 |
| Zn | 66 | 1 | nogas | 940 | 0.88 |
| As | 75 | 1 | nogas | 160546 | 0.00 |
| Sr | 88 | 1 | nogas | 1203 | 1.09 |
| Ag | 107 | 1 | nogas | 107 | 22.12 |
| Cd | 111 | 1 | nogas | 30 | 111.11 |
| Sb | 121 | 1 | nogas | 287 | 1.86 |
| Tl | 205 | 1 | nogas | 380 | 10.20 |
| Pb | 208 | 1 | nogas | 1157 | 0.42 |
| [Pb] | 206 | 1 | nogas | 337 | 1.35 |
| [Pb] | 207 | 1 | nogas | 267 | 4.52 |
| Na | 23 | 2 | He | 41901 | 0.01 |
| Mg | 24 | 2 | He | 1587 | 0.80 |
| Al | 27 | 2 | He | 1763 | 0.57 |
| K | 39 | 2 | He | 170286 | 0.00 |
| Ca | 43 | 2 | He | 37 | 214.72 |
| Ca | 44 | 2 | He | 917 | 1.43 |
| V | 51 | 2 | He | 14259 | 0.00 |
| Cr | 52 | 2 | He | 4124 | 0.18 |
| Mn | 55 | 2 | He | 1073 | 0.13 |
| Fe | 56 | 2 | He | 26059 | 0.01 |
| Co | 59 | 2 | He | 200 | 9.01 |
| Ni | 60 | 2 | He | 137 | 29.49 |
| Cu | 63 | 2 | He | 663 | 1.14 |
| Zn | 66 | 2 | He | 293 | 2.92 |
| As | 75 | 2 | He | 518 | 0.93 |
| Se | 78 | 2 | He | 161 | 6.59 |
| B | 11 | 1 | nogas | 146566 | 0.00 |
| Si | 28 | 1 | nogas | 1786796 | 0.00 |
| Ca | 43 | 1 | nogas | 823 | 1.19 |
| Ca | 44 | 1 | nogas | 54583 | 0.00 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 2564814 | 0.00 |
| Se | 77 | 1 | nogas | 51536 | 0.01 |
| Se | 82 | 1 | nogas | 233 | 12.50 |
| Mo | 95 | 1 | nogas | 367 | 3.67 |
| Sn | 118 | 1 | nogas | 1397 | 0.24 |
| Ba | 137 | 1 | nogas | 200 | 15.21 |
| Sb | 121 | 2 | He | 97 | 49.43 |
| Li | 7 | 1 | nogas | 100282 | 0.00 |
| P | 31 | 1 | nogas | 80236 | 0.00 |
| La | 139 | 1 | nogas | 197 | 5.97 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1195276 | 2.00 |
| Ge | 72 | 1 | nogas | 3552237 | 2.91 |
| In | 115 | 1 | nogas | 3134247 | 2.05 |
| Bi | 209 | 1 | nogas | 2336631 | 1.06 |
| Ge | 72 | 2 | He | 837498 | 0.96 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 232CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:41:46-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 14652 | 0.01 |
| Na | 23 | 1 | nogas | 5578140 | 0.00 |
| Mg | 24 | 1 | nogas | 3393445 | 0.00 |
| Al | 27 | 1 | nogas | 91527 | 0.00 |
| K | 39 | 1 | nogas | 11936197 | 0.00 |
| Ti | 47 | 1 | nogas | 3644 | 0.21 |
| V | 51 | 1 | nogas | 1427473 | 0.00 |
| Cr | 52 | 1 | nogas | 115870 | 0.00 |
| Mn | 55 | 1 | nogas | 77277 | 0.00 |
| Co | 59 | 1 | nogas | 48548 | 0.00 |
| Ni | 60 | 1 | nogas | 11324 | 0.02 |
| Cu | 63 | 1 | nogas | 27267 | 0.02 |
| Zn | 66 | 1 | nogas | 8886 | 0.05 |
| As | 75 | 1 | nogas | 181430 | 0.00 |
| Sr | 88 | 1 | nogas | 59543 | 0.00 |
| Ag | 107 | 1 | nogas | 28470 | 0.00 |
| Cd | 111 | 1 | nogas | 6195 | 0.04 |
| Sb | 121 | 1 | nogas | 28126 | 0.00 |
| Tl | 205 | 1 | nogas | 39274 | 0.01 |
| Pb | 208 | 1 | nogas | 55912 | 0.00 |
| [Pb] | 206 | 1 | nogas | 14210 | 0.02 |
| [Pb] | 207 | 1 | nogas | 12075 | 0.02 |
| Na | 23 | 2 | He | 342970 | 0.00 |
| Mg | 24 | 2 | He | 167204 | 0.00 |
| Al | 27 | 2 | He | 2477 | 0.49 |
| K | 39 | 2 | He | 350759 | 0.00 |
| Ca | 43 | 2 | He | 477 | 0.92 |
| Ca | 44 | 2 | He | 9096 | 0.02 |
| V | 51 | 2 | He | 27090 | 0.00 |
| Cr | 52 | 2 | He | 16961 | 0.02 |
| Mn | 55 | 2 | He | 10110 | 0.02 |
| Fe | 56 | 2 | He | 1169441 | 0.00 |
| Co | 59 | 2 | He | 18123 | 0.03 |
| Ni | 60 | 2 | He | 4694 | 0.10 |
| Cu | 63 | 2 | He | 11717 | 0.02 |
| Zn | 66 | 2 | He | 3084 | 0.27 |
| As | 75 | 2 | He | 3250 | 0.09 |
| Se | 78 | 2 | He | 358 | 1.95 |
| B | 11 | 1 | nogas | 185684 | 0.00 |
| Si | 28 | 1 | nogas | 2777141 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 8232 | 0.02 |
| Ca | 44 | 1 | nogas | 172086 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 7515342 | 0.00 |
| Se | 77 | 1 | nogas | 55933 | 0.00 |
| Se | 82 | 1 | nogas | 753 | 1.17 |
| Mo | 95 | 1 | nogas | 12031 | 0.04 |
| Sn | 118 | 1 | nogas | 16651 | 0.01 |
| Ba | 137 | 1 | nogas | 8916 | 0.03 |
| Sb | 121 | 2 | He | 9613 | 0.01 |
| P | 31 | 1 | nogas | 80634 | 0.00 |
| La | 139 | 1 | nogas | 133 | 16.24 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1168683 | 3.75 | 1195276 | 97.78 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3581535 | 3.98 | 3552237 | 100.82 | 70 | 125 | |
| In | 115 | 1 | nogas | 3148097 | 4.38 | 3134247 | 100.44 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2292529 | 3.78 | 2336631 | 98.11 | 70 | 125 | |
| Ge | 72 | 2 | He | 839655 | 0.93 | 837498 | 100.26 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 233CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:43:44-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 35794 | 0.01 |
| Na | 23 | 1 | nogas | 13289389 | 0.00 |
| Mg | 24 | 1 | nogas | 8405434 | 0.00 |
| Al | 27 | 1 | nogas | 201937 | 0.01 |
| K | 39 | 1 | nogas | 18312034 | 0.00 |
| Ti | 47 | 1 | nogas | 9529 | 0.01 |
| V | 51 | 1 | nogas | 1577440 | 0.00 |
| Cr | 52 | 1 | nogas | 189062 | 0.00 |
| Mn | 55 | 1 | nogas | 170430 | 0.00 |
| Co | 59 | 1 | nogas | 121849 | 0.00 |
| Ni | 60 | 1 | nogas | 27387 | 0.01 |
| Cu | 63 | 1 | nogas | 67120 | 0.00 |
| Zn | 66 | 1 | nogas | 22995 | 0.01 |
| As | 75 | 1 | nogas | 208320 | 0.00 |
| Sr | 88 | 1 | nogas | 147099 | 0.00 |
| Ag | 107 | 1 | nogas | 71683 | 0.00 |
| Cd | 111 | 1 | nogas | 15314 | 0.04 |
| Sb | 121 | 1 | nogas | 67460 | 0.00 |
| Tl | 205 | 1 | nogas | 98186 | 0.00 |
| Pb | 208 | 1 | nogas | 140518 | 0.00 |
| [Pb] | 206 | 1 | nogas | 35777 | 0.01 |
| [Pb] | 207 | 1 | nogas | 30830 | 0.00 |
| Na | 23 | 2 | He | 795149 | 0.00 |
| Mg | 24 | 2 | He | 418151 | 0.00 |
| Al | 27 | 2 | He | 4424 | 0.08 |
| K | 39 | 2 | He | 611946 | 0.00 |
| Ca | 43 | 2 | He | 1283 | 0.67 |
| Ca | 44 | 2 | He | 21132 | 0.01 |
| V | 51 | 2 | He | 46058 | 0.00 |
| Cr | 52 | 2 | He | 37255 | 0.00 |
| Mn | 55 | 2 | He | 24523 | 0.01 |
| Fe | 56 | 2 | He | 2947197 | 0.00 |
| Co | 59 | 2 | He | 44908 | 0.01 |
| Ni | 60 | 2 | He | 11684 | 0.01 |
| Cu | 63 | 2 | He | 29744 | 0.01 |
| Zn | 66 | 2 | He | 7518 | 0.01 |
| As | 75 | 2 | He | 7014 | 0.00 |
| Se | 78 | 2 | He | 699 | 0.91 |
| B | 11 | 1 | nogas | 255438 | 0.00 |
| Si | 28 | 1 | nogas | 4591023 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 19320 | 0.01 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 354984 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 14726538 | 0.00 |
| Se | 77 | 1 | nogas | 60607 | 0.00 |
| Se | 82 | 1 | nogas | 1517 | 0.25 |
| Mo | 95 | 1 | nogas | 29718 | 0.02 |
| Sn | 118 | 1 | nogas | 40106 | 0.01 |
| Ba | 137 | 1 | nogas | 21053 | 0.01 |
| Sb | 121 | 2 | He | 24190 | 0.00 |
| P | 31 | 1 | nogas | 123923 | 0.00 |
| La | 139 | 1 | nogas | 173 | 5.08 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1163476 | 14.78 | 1195276 | 97.34 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3561728 | 6.92 | 3552237 | 100.27 | 70 | 125 | |
| In | 115 | 1 | nogas | 3134210 | 10.14 | 3134247 | 100.00 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2284348 | 8.33 | 2336631 | 97.76 | 70 | 125 | |
| Ge | 72 | 2 | He | 828864 | 1.32 | 837498 | 98.97 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 234CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:45:43-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 72216 | 0.00 |
| Na | 23 | 1 | nogas | 26451404 | 0.00 |
| Mg | 24 | 1 | nogas | 16702194 | 0.00 |
| Al | 27 | 1 | nogas | 287698 | 0.00 |
| K | 39 | 1 | nogas | 29212753 | 0.00 |
| Ti | 47 | 1 | nogas | 18139 | 0.01 |
| V | 51 | 1 | nogas | 1826105 | 0.00 |
| Cr | 52 | 1 | nogas | 306749 | 0.00 |
| Mn | 55 | 1 | nogas | 313711 | 0.00 |
| Co | 59 | 1 | nogas | 240024 | 0.00 |
| Ni | 60 | 1 | nogas | 53024 | 0.00 |
| Cu | 63 | 1 | nogas | 130177 | 0.00 |
| Zn | 66 | 1 | nogas | 43382 | 0.01 |
| As | 75 | 1 | nogas | 241432 | 0.00 |
| Sr | 88 | 1 | nogas | 289603 | 0.00 |
| Ag | 107 | 1 | nogas | 144161 | 0.00 |
| Cd | 111 | 1 | nogas | 29909 | 0.02 |
| Sb | 121 | 1 | nogas | 135630 | 0.00 |
| Tl | 205 | 1 | nogas | 193555 | 0.00 |
| Pb | 208 | 1 | nogas | 274873 | 0.00 |
| [Pb] | 206 | 1 | nogas | 68240 | 0.00 |
| [Pb] | 207 | 1 | nogas | 59689 | 0.00 |
| Na | 23 | 2 | He | 1638658 | 0.00 |
| Mg | 24 | 2 | He | 820276 | 0.00 |
| Al | 27 | 2 | He | 6585 | 0.13 |
| K | 39 | 2 | He | 1040100 | 0.00 |
| Ca | 43 | 2 | He | 2477 | 0.32 |
| Ca | 44 | 2 | He | 40548 | 0.01 |
| V | 51 | 2 | He | 77214 | 0.00 |
| Cr | 52 | 2 | He | 68581 | 0.00 |
| Mn | 55 | 2 | He | 46836 | 0.01 |
| Fe | 56 | 2 | He | 5763138 | 0.00 |
| Co | 59 | 2 | He | 89414 | 0.00 |
| Ni | 60 | 2 | He | 23505 | 0.02 |
| Cu | 63 | 2 | He | 56751 | 0.00 |
| Zn | 66 | 2 | He | 13932 | 0.04 |
| As | 75 | 2 | He | 13794 | 0.01 |
| Se | 78 | 2 | He | 1195 | 0.31 |
| B | 11 | 1 | nogas | 361363 | 0.00 |
| Si | 28 | 1 | nogas | 7250697 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 37929 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 652309 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 27184110 | 0.00 |
| Se | 77 | 1 | nogas | 62674 | 0.01 |
| Se | 82 | 1 | nogas | 2904 | 0.43 |
| Mo | 95 | 1 | nogas | 58958 | 0.00 |
| Sn | 118 | 1 | nogas | 78296 | 0.00 |
| Ba | 137 | 1 | nogas | 43341 | 0.01 |
| Sb | 121 | 2 | He | 49186 | 0.00 |
| P | 31 | 1 | nogas | 167931 | 0.00 |
| La | 139 | 1 | nogas | 263 | 2.20 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1132234 | 3.66 | 1195276 | 94.73 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3596076 | 3.70 | 3552237 | 101.23 | 70 | 125 | |
| In | 115 | 1 | nogas | 3115480 | 4.58 | 3134247 | 99.40 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2292360 | 3.72 | 2336631 | 98.11 | 70 | 125 | |
| Ge | 72 | 2 | He | 826446 | 1.69 | 837498 | 98.68 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 235CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:47:41-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 726395 | 0.00 |
| Na | 23 | 1 | nogas | 259402164 | 0.00 |
| Mg | 24 | 1 | nogas | 161352099 | 0.00 |
| Al | 27 | 1 | nogas | 2058982 | 0.00 |
| K | 39 | 1 | nogas | 216604788 | 0.00 |
| Ti | 47 | 1 | nogas | 181697 | 0.00 |
| V | 51 | 1 | nogas | 4082142 | 0.00 |
| Cr | 52 | 1 | nogas | 2401369 | 0.00 |
| Mn | 55 | 1 | nogas | 2988634 | 0.00 |
| Co | 59 | 1 | nogas | 2385751 | 0.00 |
| Ni | 60 | 1 | nogas | 519376 | 0.00 |
| Cu | 63 | 1 | nogas | 1249207 | 0.00 |
| Zn | 66 | 1 | nogas | 415265 | 0.00 |
| As | 75 | 1 | nogas | 697353 | 0.00 |
| Sr | 88 | 1 | nogas | 2905617 | 0.00 |
| Ag | 107 | 1 | nogas | 1423334 | 0.00 |
| Cd | 111 | 1 | nogas | 298091 | 0.00 |
| Sb | 121 | 1 | nogas | 1348372 | 0.00 |
| Tl | 205 | 1 | nogas | 2045124 | 0.00 |
| Pb | 208 | 1 | nogas | 2779810 | 0.00 |
| [Pb] | 206 | 1 | nogas | 672927 | 0.00 |
| [Pb] | 207 | 1 | nogas | 599559 | 0.00 |
| Na | 23 | 2 | He | 15297983 | 0.00 |
| Mg | 24 | 2 | He | 8458521 | 0.00 |
| Al | 27 | 2 | He | 48760 | 0.00 |
| K | 39 | 2 | He | 9137637 | 0.00 |
| Ca | 43 | 2 | He | 23949 | 0.01 |
| Ca | 44 | 2 | He | 406952 | 0.00 |
| V | 51 | 2 | He | 624535 | 0.00 |
| Cr | 52 | 2 | He | 661999 | 0.00 |
| Mn | 55 | 2 | He | 468166 | 0.00 |
| Fe | 56 | 2 | He | 56918027 | 0.00 |
| Co | 59 | 2 | He | 879776 | 0.00 |
| Ni | 60 | 2 | He | 222439 | 0.00 |
| Cu | 63 | 2 | He | 566331 | 0.00 |
| Zn | 66 | 2 | He | 140492 | 0.00 |
| As | 75 | 2 | He | 134928 | 0.00 |
| Se | 78 | 2 | He | 10495 | 0.02 |
| B | 11 | 1 | nogas | 2454033 | 0.00 |
| Si | 28 | 1 | nogas | 57019467 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 366612 | 0.00 |
| Ca | 44 | 1 | nogas | 6101095 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 246346364 | 0.00 |
| Se | 77 | 1 | nogas | 81930 | 0.01 |
| Se | 82 | 1 | nogas | 26466 | 0.01 |
| Mo | 95 | 1 | nogas | 581341 | 0.00 |
| Sn | 118 | 1 | nogas | 769398 | 0.00 |
| Ba | 137 | 1 | nogas | 429972 | 0.00 |
| Sb | 121 | 2 | He | 479993 | 0.00 |
| P | 31 | 1 | nogas | 883777 | 0.00 |
| La | 139 | 1 | nogas | 590 | 0.76 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1060926 | 1.54 | 1195276 | 88.76 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3459544 | 4.03 | 3552237 | 97.39 | 70 | 125 | |
| In | 115 | 1 | nogas | 2926930 | 5.89 | 3134247 | 93.39 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2300732 | 1.28 | 2336631 | 98.46 | 70 | 125 | |
| Ge | 72 | 2 | He | 838051 | 0.73 | 837498 | 100.07 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 236CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:49:41-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1638983 | 0.00 |
| Na | 23 | 1 | nogas | 528973662 | 0.00 |
| Mg | 24 | 1 | nogas | 334413791 | 0.00 |
| Al | 27 | 1 | nogas | 4165751 | 0.00 |
| K | 39 | 1 | nogas | 439767910 | 0.00 |
| Ti | 47 | 1 | nogas | 386985 | 0.00 |
| V | 51 | 1 | nogas | 6790929 | 0.00 |
| Cr | 52 | 1 | nogas | 4813022 | 0.00 |
| Mn | 55 | 1 | nogas | 5965128 | 0.00 |
| Co | 59 | 1 | nogas | 4942487 | 0.00 |
| Ni | 60 | 1 | nogas | 1053571 | 0.00 |
| Cu | 63 | 1 | nogas | 2665951 | 0.00 |
| Zn | 66 | 1 | nogas | 853679 | 0.00 |
| As | 75 | 1 | nogas | 1258438 | 0.00 |
| Sr | 88 | 1 | nogas | 6055608 | 0.00 |
| Ag | 107 | 1 | nogas | 2935947 | 0.00 |
| Cd | 111 | 1 | nogas | 630633 | 0.00 |
| Sb | 121 | 1 | nogas | 2816754 | 0.00 |
| Tl | 205 | 1 | nogas | 4279645 | 0.00 |
| Pb | 208 | 1 | nogas | 5709558 | 0.00 |
| [Pb] | 206 | 1 | nogas | 1403975 | 0.00 |
| [Pb] | 207 | 1 | nogas | 1218131 | 0.00 |
| Na | 23 | 2 | He | 30809610 | 0.00 |
| Mg | 24 | 2 | He | 16672742 | 0.00 |
| Al | 27 | 2 | He | 94669 | 0.00 |
| K | 39 | 2 | He | 18129784 | 0.00 |
| Ca | 43 | 2 | He | 49272 | 0.00 |
| Ca | 44 | 2 | He | 823614 | 0.00 |
| V | 51 | 2 | He | 1270034 | 0.00 |
| Cr | 52 | 2 | He | 1381847 | 0.00 |
| Mn | 55 | 2 | He | 930187 | 0.00 |
| Fe | 56 | 2 | He | 114749172 | 0.00 |
| Co | 59 | 2 | He | 1859117 | 0.00 |
| Ni | 60 | 2 | He | 447375 | 0.00 |
| Cu | 63 | 2 | He | 1140694 | 0.00 |
| Zn | 66 | 2 | He | 276667 | 0.00 |
| As | 75 | 2 | He | 272270 | 0.00 |
| Se | 78 | 2 | He | 21213 | 0.01 |
| B | 11 | 1 | nogas | 4934583 | 0.00 |
| Si | 28 | 1 | nogas | 114625555 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 761679 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 12519365 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 497565694 | 0.00 |
| Se | 77 | 1 | nogas | 94138 | 0.00 |
| Se | 82 | 1 | nogas | 55987 | 0.00 |
| Mo | 95 | 1 | nogas | 1263968 | 0.00 |
| Sn | 118 | 1 | nogas | 1726992 | 0.00 |
| Ba | 137 | 1 | nogas | 877489 | 0.00 |
| Sb | 121 | 2 | He | 974035 | 0.00 |
| P | 31 | 1 | nogas | 1750887 | 0.00 |
| La | 139 | 1 | nogas | 857 | 1.70 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1034179 | 4.01 | 1195276 | 86.52 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3664190 | 2.17 | 3552237 | 103.15 | 70 | 125 | |
| In | 115 | 1 | nogas | 3158108 | 2.87 | 3134247 | 100.76 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2279275 | 2.70 | 2336631 | 97.55 | 70 | 125 | |
| Ge | 72 | 2 | He | 818978 | 2.26 | 837498 | 97.79 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCV |
| Data File Name | 237_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:51:40-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 83.848 | 0.814 | 744799 | 1.68 | 100 | 83.8 | 90 | 110 | ICV Main CR1 Failed |
| Na | 23 | 1 | nogas | 9473.067 | 5.158 | 257674256 | 1.59 | 10000 | 94.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9458.791 | 3.408 | 162157504 | 2.39 | 10000 | 94.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 123.163 | 6.727 | 2519908 | 2.50 | 100 | 123.2 | 90 | 110 | ICV Main CR1 Failed |
| K | 39 | 1 | nogas | 10070.174 | 5.002 | 218747330 | 1.47 | 10000 | 100.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 98.615 | 4.900 | 184262 | 2.22 | 100 | 98.6 | 90 | 110 | |
| V | 51 | 1 | nogas | 98.785 | 7.338 | 3929371 | 2.24 | 100 | 98.8 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 99.376 | 6.943 | 2363220 | 2.85 | 100 | 99.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 96.139 | 5.599 | 2813361 | 1.63 | 100 | 96.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 98.503 | 7.880 | 2360011 | 3.78 | 100 | 98.5 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.308 | 5.793 | 516068 | 1.85 | 100 | 100.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 97.046 | 4.866 | 1248080 | 0.78 | 100 | 97.0 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.904 | 3.042 | 415569 | 1.07 | 100 | 99.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 94.192 | 3.025 | 669338 | 1.83 | 100 | 94.2 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 98.328 | 5.314 | 2884457 | 1.68 | 100 | 98.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 99.452 | 3.828 | 1418022 | 2.48 | 100 | 99.5 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.549 | 1.316 | 298612 | 2.35 | 100 | 96.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 101.649 | 7.001 | 1385989 | 3.36 | 100 | 101.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 96.489 | 5.000 | 2071395 | 3.23 | 100 | 96.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.753 | 1.335 | 2776234 | 1.33 | 100 | 97.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 99.133 | 2.988 | 2839626 | 1.94 | 100 | 99.1 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 95.225 | 4.964 | 671276 | 2.54 | 100 | 95.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 97.381 | 2.566 | 598545 | 0.93 | 100 | 97.4 | 90 | 110 | |
| Na | 23 | 2 | He | 9545.903 | 2.850 | 14839266 | 0.64 | 10000 | 95.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9556.307 | 3.231 | 8062486 | 1.00 | 10000 | 95.6 | 90 | 110 | |
| Al | 27 | 2 | He | 115.494 | 1.159 | 56063 | 1.12 | 100 | 115.5 | 90 | 110 | ICV Main CR1 Failed |
| K | 39 | 2 | He | 9904.423 | 0.473 | 9061134 | 0.46 | 10000 | 99.0 | 90 | 110 | |
| Ca | 43 | 2 | He | 9659.751 | 3.386 | 23909 | 4.40 | 10000 | 96.6 | 90 | 110 | |
| Ca | 44 | 2 | He | 9743.988 | 1.700 | 404385 | 0.57 | 10000 | 97.4 | 90 | 110 | |
| V | 51 | 2 | He | 94.206 | 2.359 | 606696 | 0.37 | 100 | 94.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 93.363 | 2.651 | 647309 | 1.31 | 100 | 93.4 | 90 | 110 | |
| Mn | 55 | 2 | He | 96.404 | 1.324 | 453614 | 1.04 | 100 | 96.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9562.688 | 1.193 | 55312104 | 1.86 | 10000 | 95.6 | 90 | 110 | |
| Co | 59 | 2 | He | 93.457 | 2.764 | 867467 | 0.58 | 100 | 93.5 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.000 | 4.252 | 218644 | 2.03 | 100 | 97.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 95.689 | 4.025 | 549293 | 1.81 | 100 | 95.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 94.294 | 2.680 | 132120 | 2.57 | 100 | 94.3 | 90 | 110 | |
| As | 75 | 2 | He | 96.645 | 1.892 | 132758 | 0.41 | 100 | 96.6 | 90 | 110 | |
| Se | 78 | 2 | He | 95.670 | 3.454 | 10266 | 1.33 | 100 | 95.7 | 90 | 110 | |
| B | 11 | 1 | nogas | 449.770 | 1.233 | 2522051 | 1.40 | 500 | 90.0 | 90 | 110 | ICV Main CR1 Failed |
| Si | 28 | 1 | nogas | 5024.767 | 3.947 | 56961241 | 0.29 | 5000 | 100.5 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10068.410 | 3.841 | 372307 | 2.19 | 10000 | 100.7 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10091.344 | 3.500 | 6165577 | 0.74 | 10000 | 100.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9859.966 | 2.794 | 240470664 | 1.30 | 10000 | 98.6 | 90 | 110 | |
| Se | 77 | 1 | nogas | 90.576 | 11.463 | 71848 | 2.72 | 100 | 90.6 | 90 | 110 | |
| Se | 82 | 1 | nogas | 100.935 | 3.252 | 27411 | 1.03 | 100 | 100.9 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.675 | 3.362 | 581598 | 1.07 | 100 | 95.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.246 | 2.550 | 780269 | 1.00 | 100 | 93.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 98.047 | 2.279 | 425148 | 1.98 | 100 | 98.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 99.497 | 1.789 | 487836 | 1.57 | 100 | 99.5 | 90 | 110 | |
| Li | 7 | 1 | nogas | 93.698 | 4.466 | 1843806 | 4.90 | 100 | 93.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 503.287 | 4.209 | 895021 | 1.33 | 500 | 100.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 158.627 | 15.772 | 740 | 13.03 | 100 | 158.6 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 271.390 | 486.350 | 17 | 91.65 | 100 | 271.4 | 90 | 110 | ICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1151366 | 1.39 | 1195276 | 96.33 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3542945 | 4.01 | 3552237 | 99.74 | 70 | 125 | |
| In | 115 | 1 | nogas | 3084221 | 3.57 | 3134247 | 98.40 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2312209 | 3.10 | 2336631 | 98.95 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 830435 | 2.25 | 837498 | 99.16 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 238SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:53:38-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 231CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.628 | 1.628 | 11.47 | 16020 | 0.01 | 2000 | |
| Na | 23 | 1 | nogas | 207.294 | 207.294 | 2.13 | 6001586 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 205.541 | 205.541 | 3.69 | 3571595 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 0.431 | 0.431 | 25.46 | 88441 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 220.006 | 220.006 | 6.80 | 12540609 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 2.230 | 2.230 | 0.68 | 4581 | 0.05 | 2000 | |
| V | 51 | 1 | nogas | 8.852 | 8.852 | 25.57 | 1521333 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 2.253 | 2.253 | 6.07 | 124331 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 1.881 | 1.881 | 4.21 | 80287 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 2.103 | 2.103 | 3.00 | 52816 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 1.662 | 1.662 | 5.85 | 12077 | 0.01 | 2000 | |
| Cu | 63 | 1 | nogas | 2.078 | 2.078 | 3.04 | 29087 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 1.745 | 1.745 | 9.52 | 9916 | 0.02 | 2000 | |
| As | 75 | 1 | nogas | 1.863 | 1.863 | 32.54 | 191066 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.004 | 2.004 | 1.98 | 61817 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 2.072 | 2.072 | 1.01 | 30550 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 1.938 | 1.938 | 2.12 | 6408 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 3.159 | 3.159 | 5.57 | 44687 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 2.268 | 2.268 | 13.54 | 52492 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 2.139 | 2.139 | 1.55 | 61887 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 2.026 | 2.026 | 6.08 | 62203 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 1.993 | 1.993 | 6.96 | 15377 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 2.023 | 2.023 | 2.74 | 13589 | 0.01 | 2000 | |
| Na | 23 | 2 | He | 209.802 | 209.802 | 1.99 | 369617 | 0.06 | 200000 | |
| Mg | 24 | 2 | He | 213.119 | 213.119 | 0.65 | 182803 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 0.994 | 0.994 | 26.74 | 2234 | 0.04 | 2000 | |
| K | 39 | 2 | He | 219.547 | 219.547 | 0.46 | 367366 | 0.06 | 200000 | |
| Ca | 43 | 2 | He | 191.411 | 191.411 | 6.41 | 513 | 37.29 | 200000 | |
| Ca | 44 | 2 | He | 196.609 | 196.609 | 2.93 | 9122 | 2.16 | 200000 | |
| V | 51 | 2 | He | 2.918 | 2.918 | 2.97 | 29813 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | 1.961 | 1.961 | 3.50 | 17739 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 2.065 | 2.065 | 5.86 | 10843 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 210.766 | 210.766 | 3.42 | 1253761 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 2.048 | 2.048 | 4.05 | 19344 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 2.342 | 2.342 | 7.24 | 5097 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | 2.529 | 2.529 | 6.57 | 13268 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 2.087 | 2.087 | 1.06 | 3097 | 0.07 | 2000 | |
| As | 75 | 2 | He | 2.176 | 2.176 | 0.56 | 3518 | 0.06 | 2000 | |
| Se | 78 | 2 | He | 2.810 | 2.810 | 8.05 | 411 | 0.68 | 2000 | |
| B | 11 | 1 | nogas | 13.867 | 13.867 | 15.71 | 237077 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 99.677 | 99.677 | 14.63 | 2963510 | 0.00 | 2000 | |
| Ca | 43 | 1 | nogas | 208.155 | 208.155 | 2.27 | 8759 | 2.38 | 200000 | |

# Sample Report

| Ca | 44 | 1 | nogas | 197.239 | 197.239 | 2.30 | 179157 | 0.11 | 200000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 209.399 | 209.399 | 6.85 | 7837006 | 0.00 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Se | 77 | 1 | nogas | 26.571 | 26.571 | 46.96 | 59116 | 0.04 | 2000 | |
| Se | 82 | 1 | nogas | 2.370 | 2.370 | 15.23 | 897 | 0.26 | 2000 | |
| Mo | 95 | 1 | nogas | 2.253 | 2.253 | 8.30 | 14463 | 0.02 | 2000 | |
| Sn | 118 | 1 | nogas | 2.103 | 2.103 | 3.08 | 20172 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 1.981 | 1.981 | 3.96 | 9343 | 0.02 | 2000 | |
| Sb | 121 | 2 | He | 3.107 | 3.107 | 2.70 | 15444 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | -37.203 | -37.203 | -8.32 | 70 | -53.15 | 2000 | |
| Au | 197 | 1 | nogas | 649.630 | 649.630 | 186.19 | 13 | 4872.23 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1275207 | 7.51 | 1195276 | 106.69 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3647931 | 2.22 | 3552237 | 102.69 | 70 | 125 | |
| In | 115 | 1 | nogas | 3280686 | 2.68 | 3134247 | 104.67 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2475617 | 4.11 | 2336631 | 105.95 | 70 | 125 | |
| Ge | 72 | 2 | He | 836673 | 1.49 | 837498 | 99.90 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 239LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:55:37-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.530 | 9.453 | 37901 | 1.37 | 5 | 90.6 | 70 | 130 | |
| Na | 23 | 1 | nogas | 468.673 | 10.476 | 13683101 | 3.06 | 500 | 93.7 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 468.089 | 9.387 | 8433335 | 2.81 | 500 | 93.6 | 70 | 130 | |
| Al | 27 | 1 | nogas | 4.734 | 6.322 | 181334 | 3.53 | 5 | 94.7 | 70 | 130 | |
| K | 39 | 1 | nogas | 498.228 | 6.152 | 19061074 | 0.11 | 500 | 99.6 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 4.705 | 6.193 | 9586 | 2.65 | 5 | 94.1 | 70 | 130 | |
| V | 51 | 1 | nogas | 20.671 | 21.678 | 1906283 | 8.33 | 5 | 413.4 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 5.178 | 7.065 | 199255 | 0.95 | 5 | 103.6 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 4.808 | 4.378 | 172449 | 0.94 | 5 | 96.2 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.805 | 5.906 | 122761 | 2.66 | 5 | 96.1 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.684 | 7.140 | 28763 | 4.19 | 5 | 93.7 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 4.813 | 6.059 | 67046 | 3.27 | 5 | 96.3 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 4.743 | 6.717 | 23305 | 2.48 | 5 | 94.9 | 70 | 130 | |
| As | 75 | 1 | nogas | 6.789 | 34.112 | 223455 | 2.24 | 5 | 135.8 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 4.822 | 3.420 | 150992 | 0.61 | 5 | 96.4 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 4.879 | 2.723 | 73754 | 2.35 | 5 | 97.6 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 4.976 | 4.174 | 15921 | 0.57 | 5 | 99.5 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.342 | 4.712 | 77424 | 1.15 | 5 | 106.8 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.975 | 1.935 | 101479 | 1.48 | 5 | 99.5 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 5.034 | 2.373 | 144051 | 2.35 | 5 | 100.7 | 70 | 130 | |
| U | 238 | 1 | nogas | 5.139 | 2.329 | 139440 | 0.78 | 5 | 102.8 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 5.405 | 3.777 | 36381 | 3.16 | 5 | 108.1 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 5.370 | 4.884 | 31464 | 2.27 | 5 | 107.4 | 70 | 130 | |
| Na | 23 | 2 | He | 501.112 | 1.227 | 822290 | 1.00 | 500 | 100.2 | 70 | 130 | |
| Mg | 24 | 2 | He | 503.854 | 2.023 | 428633 | 1.30 | 500 | 100.8 | 70 | 130 | |
| Al | 27 | 2 | He | 4.762 | 16.015 | 4007 | 9.10 | 5 | 95.2 | 70 | 130 | |
| K | 39 | 2 | He | 508.721 | 0.350 | 626947 | 0.25 | 500 | 101.7 | 70 | 130 | |
| Ca | 43 | 2 | He | 463.254 | 10.843 | 1187 | 11.19 | 500 | 92.7 | 70 | 130 | |
| Ca | 44 | 2 | He | 509.433 | 0.991 | 22110 | 2.47 | 500 | 101.9 | 70 | 130 | |
| V | 51 | 2 | He | 5.915 | 2.841 | 48755 | 0.77 | 5 | 118.3 | 70 | 130 | |
| Cr | 52 | 2 | He | 4.903 | 2.277 | 38056 | 3.21 | 5 | 98.1 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.126 | 1.692 | 25241 | 1.38 | 5 | 102.5 | 70 | 130 | |
| Fe | 56 | 2 | He | 504.462 | 1.773 | 2955918 | 2.51 | 500 | 100.9 | 70 | 130 | |
| Co | 59 | 2 | He | 4.878 | 2.450 | 45684 | 2.41 | 5 | 97.6 | 70 | 130 | |
| Ni | 60 | 2 | He | 5.428 | 5.165 | 12081 | 5.17 | 5 | 108.6 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.413 | 2.735 | 29911 | 1.30 | 5 | 108.3 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.094 | 4.879 | 7315 | 4.52 | 5 | 101.9 | 70 | 130 | |
| As | 75 | 2 | He | 5.025 | 3.440 | 7425 | 4.15 | 5 | 100.5 | 70 | 130 | |
| Se | 78 | 2 | He | 6.027 | 3.636 | 753 | 2.41 | 5 | 120.5 | 70 | 130 | |
| B | 11 | 1 | nogas | 30.057 | 13.879 | 282626 | 0.67 | 25 | 120.2 | 70 | 130 | |
| Si | 28 | 1 | nogas | 240.868 | 14.210 | 4682363 | 6.32 | 25 | 963.5 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 487.462 | 5.687 | 19898 | 2.33 | 500 | 97.5 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 472.137 | 4.437 | 360231 | 0.67 | 500 | 94.4 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 491.450 | 4.324 | 15257974 | 2.17 | 500 | 98.3 | 70 | 130 | |
| Se | 77 | 1 | nogas | 47.180 | 32.878 | 65621 | 2.32 | 5 | 943.6 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 4.849 | 2.638 | 1630 | 4.02 | 5 | 97.0 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.673 | 5.813 | 30420 | 2.35 | 5 | 93.5 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.775 | 4.284 | 42625 | 2.59 | 5 | 95.5 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 4.915 | 3.456 | 22208 | 2.21 | 5 | 98.3 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.474 | 1.513 | 27051 | 1.07 | 5 | 109.5 | 70 | 130 | |
| Li | 7 | 1 | nogas | 5.564 | 17.680 | 188357 | 1.10 | 5 | 111.3 | 70 | 130 | |
| P | 31 | 1 | nogas | 27.947 | 14.489 | 132540 | 2.34 | 25 | 111.8 | 70 | 130 | |
| La | 139 | 1 | nogas | 6.001 | 342.949 | 220 | 29.81 | 5 | 120.0 | 70 | 130 | |
| Au | 197 | 1 | nogas | -91.200 | -949.432 | 20 | 50.00 | 5 | -1824.0 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1087629 | 7.70 | 1195276 | 90.99 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3749725 | 3.63 | 3552237 | 105.56 | 70 | 125 | |
| In | 115 | 1 | nogas | 3186690 | 3.57 | 3134247 | 101.67 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2188629 | 2.80 | 2336631 | 93.67 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 834160 | 1.58 | 837498 | 99.60 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCB |
| Data File Name | 240_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T22:57:35-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.022 | 33.5 | 287 | 26.2 | 1 | |
| Na | 23 | 1 | nogas | 3.189 | 35.7 | 384853 | 3.7 | 100 | |
| Mg | 24 | 1 | nogas | 1.016 | 38.6 | 43794 | 3.6 | 100 | |
| Al | 27 | 1 | nogas | -0.380 | -64.1 | 66457 | 1.2 | 5 | |
| K | 39 | 1 | nogas | 40.124 | 72.0 | 8002143 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.126 | 166.2 | 477 | 68.7 | 2.5 | |
| V | 51 | 1 | nogas | 17.152 | 29.5 | 1621827 | 1.6 | 2.5 | ICB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.858 | 25.9 | 84337 | 2.1 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.087 | 74.6 | 24610 | 1.3 | 2.5 | |
| Co | 59 | 1 | nogas | 0.001 | 834.3 | 807 | 11.1 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.510 | -1.6 | 587 | 1.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.057 | 22.9 | 2157 | 3.3 | 1 | |
| Zn | 66 | 1 | nogas | -0.349 | -6.0 | 927 | 1.6 | 2.5 | |
| As | 75 | 1 | nogas | 5.554 | 40.1 | 195257 | 2.3 | 2.5 | ICB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.020 | 40.0 | 1690 | 7.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.005 | 86.7 | 173 | 29.6 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.016 | 30.3 | 73 | 20.8 | 1 | |
| Sb | 121 | 1 | nogas | 0.257 | 3.4 | 3624 | 4.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.090 | 43.4 | 2144 | 30.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.003 | 125.1 | 1253 | 9.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.014 | 29.1 | 493 | 20.3 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.002 | 696.1 | 323 | 20.6 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.007 | 121.0 | 290 | 15.0 | 2.5 | |
| Na | 23 | 2 | He | 2.300 | 38.3 | 44729 | 3.2 | 100 | |
| Mg | 24 | 2 | He | 1.038 | 12.8 | 2427 | 5.0 | 100 | |
| Al | 27 | 2 | He | 0.191 | 277.8 | 1823 | 13.7 | 5 | |
| K | 39 | 2 | He | 15.090 | 13.3 | 183831 | 1.0 | 100 | |
| Ca | 43 | 2 | He | 8.488 | 74.2 | 57 | 27.0 | 100 | |
| Ca | 44 | 2 | He | 2.081 | 47.4 | 987 | 3.6 | 100 | |
| V | 51 | 2 | He | 1.200 | 2.2 | 18565 | 1.4 | 2.5 | |
| Cr | 52 | 2 | He | 0.058 | 17.0 | 4451 | 2.1 | 2.5 | |
| Mn | 55 | 2 | He | 0.068 | 23.2 | 1370 | 5.1 | 2.5 | |
| Fe | 56 | 2 | He | 0.104 | 486.7 | 26203 | 11.2 | 100 | |
| Co | 59 | 2 | He | 0.003 | 220.3 | 223 | 26.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.206 | 12.7 | 237 | 24.4 | 2.5 | |
| Cu | 63 | 2 | He | 0.395 | 3.7 | 887 | 9.7 | 1 | |
| Zn | 66 | 2 | He | 0.138 | 30.2 | 343 | 16.6 | 2.5 | |
| As | 75 | 2 | He | 0.086 | 65.7 | 626 | 12.0 | 2.5 | |
| Se | 78 | 2 | He | 0.762 | 26.3 | 189 | 11.6 | 1 | |
| B | 11 | 1 | nogas | 3.281 | 40.0 | 159852 | 2.6 | 10 | |
| Si | 28 | 1 | nogas | 7.551 | 152.6 | 1776849 | 1.2 | 5 | ICB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 6.277 | 19.1 | 1007 | 7.5 | 100 | |
| Ca | 44 | 1 | nogas | 6.129 | 106.2 | 55415 | 1.0 | 100 | |
| Fe | 56 | 1 | nogas | 8.009 | 125.4 | 2618680 | 2.3 | 100 | |

# Initial Calibration Blank (ICB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Se | 77 | 1 | nogas | 65.522 | 24.2 | 63119 | 3.5 | 2.5 | ICB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.025 | -217.1 | 217 | 9.6 | 1 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Mo | 95 | 1 | nogas | 0.031 | 32.7 | 527 | 12.4 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.013 | 178.8 | 1380 | 6.3 | 5 | |
| Ba | 137 | 1 | nogas | 0.029 | 76.7 | 297 | 22.4 | 2.5 | |
| Sb | 121 | 2 | He | 0.261 | 6.9 | 1363 | 6.1 | 2.5 | |
| P | 31 | 1 | nogas | 5.499 | 75.8 | 84699 | 0.4 | 10 | |
| La | 139 | 1 | nogas | -16.882 | -9.2 | 127 | 4.6 | 2.5 | |
| Au | 197 | 1 | nogas | 806.992 | 7.4 | 10 | 0.0 | 2.5 | ICB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1161998 | 4.83 | 1195276 | 97.22 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3385374 | 7.82 | 3552237 | 95.30 | 70 | 125 | |
| In | 115 | 1 | nogas | 2881253 | 7.72 | 3134247 | 91.93 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2184286 | 6.51 | 2336631 | 93.48 | 70 | 125 | |
| Ge | 72 | 2 | He | 823081 | 0.55 | 837498 | 98.28 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 252_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:21:23-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 86.986 | 4.957 | 747728 | 1.22 | 100 | 87.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10445.514 | 0.351 | 282560673 | 2.13 | 10000 | 104.5 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10115.302 | 1.611 | 172357862 | 2.17 | 10000 | 101.2 | 90 | 110 | |
| Al | 27 | 1 | nogas | 111.418 | 5.099 | 2251866 | 0.28 | 100 | 111.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10659.147 | 6.487 | 227342897 | 1.63 | 10000 | 106.6 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 101.182 | 5.359 | 186021 | 0.67 | 100 | 101.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 128.716 | 4.983 | 4672770 | 1.51 | 100 | 128.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 101.495 | 4.686 | 2378656 | 6.21 | 100 | 101.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.172 | 3.658 | 2919480 | 7.24 | 100 | 101.2 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.828 | 4.093 | 2356538 | 0.76 | 100 | 99.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 103.247 | 5.355 | 522772 | 0.79 | 100 | 103.2 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.636 | 7.627 | 1222207 | 3.14 | 100 | 96.6 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.708 | 4.093 | 412200 | 0.66 | 100 | 100.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 110.350 | 4.666 | 741953 | 1.52 | 100 | 110.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 101.161 | 3.714 | 2922477 | 2.12 | 100 | 101.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.143 | 4.117 | 1405201 | 1.66 | 100 | 100.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 98.636 | 2.864 | 295347 | 0.64 | 100 | 98.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.023 | 3.737 | 1343594 | 1.96 | 100 | 100.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.834 | 0.958 | 2010797 | 0.79 | 100 | 99.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 92.751 | 2.827 | 2634221 | 2.83 | 100 | 92.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 85.700 | 2.006 | 2302180 | 0.35 | 100 | 85.7 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 98.188 | 2.189 | 649389 | 0.96 | 100 | 98.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 94.486 | 5.172 | 544532 | 4.09 | 100 | 94.5 | 90 | 110 | |
| Na | 23 | 2 | He | 10801.288 | 0.275 | 16808372 | 1.67 | 10000 | 108.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 10287.141 | 0.348 | 8691425 | 1.71 | 10000 | 102.9 | 90 | 110 | |
| Al | 27 | 2 | He | 105.962 | 2.105 | 51628 | 0.65 | 100 | 106.0 | 90 | 110 | |
| K | 39 | 2 | He | 10644.298 | 0.776 | 9725294 | 0.76 | 10000 | 106.4 | 90 | 110 | |
| Ca | 43 | 2 | He | 10304.580 | 0.270 | 25524 | 1.64 | 10000 | 103.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 10363.457 | 1.309 | 430502 | 0.94 | 10000 | 103.6 | 90 | 110 | |
| V | 51 | 2 | He | 98.868 | 0.738 | 636938 | 0.97 | 100 | 98.9 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.391 | 0.966 | 655256 | 2.21 | 100 | 94.4 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.414 | 3.584 | 468126 | 2.41 | 100 | 99.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9761.148 | 1.914 | 56508889 | 1.09 | 10000 | 97.6 | 90 | 110 | |
| Co | 59 | 2 | He | 92.601 | 1.858 | 860524 | 0.47 | 100 | 92.6 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.011 | 2.593 | 218963 | 1.52 | 100 | 97.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 95.412 | 2.123 | 548444 | 1.14 | 100 | 95.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 93.814 | 0.662 | 131591 | 1.20 | 100 | 93.8 | 90 | 110 | |
| As | 75 | 2 | He | 97.803 | 1.873 | 134482 | 0.56 | 100 | 97.8 | 90 | 110 | |
| Se | 78 | 2 | He | 97.982 | 0.980 | 10526 | 1.45 | 100 | 98.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 619.414 | 4.036 | 3310898 | 1.20 | 500 | 123.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 555.125 | 5.911 | 7752419 | 1.23 | 5000 | 11.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10657.415 | 5.749 | 387586 | 1.64 | 10000 | 106.6 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10455.927 | 6.997 | 6279410 | 2.44 | 10000 | 104.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10238.822 | 3.934 | 245884455 | 5.65 | 10000 | 102.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 209.743 | 8.568 | 97174 | 0.61 | 100 | 209.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 99.319 | 5.519 | 26536 | 1.73 | 100 | 99.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 91.802 | 4.168 | 549206 | 1.33 | 100 | 91.8 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 95.955 | 0.702 | 777906 | 2.46 | 100 | 96.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.351 | 3.799 | 417102 | 1.93 | 100 | 99.4 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.913 | 1.343 | 480556 | 0.81 | 100 | 97.9 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.445 | 4.701 | 1834127 | 2.28 | 100 | 96.4 | 90 | 110 | |
| P | 31 | 1 | nogas | 473.343 | 5.372 | 832948 | 0.83 | 500 | 94.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 199.325 | 11.967 | 850 | 6.55 | 100 | 199.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -442.941 | -435.383 | 23 | 89.21 | 100 | -442.9 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1115999 | 4.98 | 1195276 | 93.37 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3488105 | 4.84 | 3552237 | 98.19 | 70 | 125 | |
| In | 115 | 1 | nogas | 2986720 | 2.93 | 3134247 | 95.29 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2167806 | 1.66 | 2336631 | 92.77 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 831202 | 1.41 | 837498 | 99.25 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 253_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:23:23-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.079 | 27.5 | 830 | 21.7 | 1 | |
| Na | 23 | 1 | nogas | 367.394 | 6.7 | 10106001 | 1.1 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 18.654 | 14.1 | 342464 | 7.6 | 100 | |
| Al | 27 | 1 | nogas | 2.756 | 1.6 | 126404 | 0.8 | 5 | |
| K | 39 | 1 | nogas | 73.620 | 5.1 | 8716121 | 1.2 | 100 | |
| Ti | 47 | 1 | nogas | 0.149 | 19.5 | 537 | 10.9 | 2.5 | |
| V | 51 | 1 | nogas | 17.404 | 21.0 | 1636644 | 4.8 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.424 | 17.8 | 75088 | 1.1 | 2.5 | |
| Mn | 55 | 1 | nogas | 1.104 | 3.4 | 53053 | 3.2 | 2.5 | |
| Co | 59 | 1 | nogas | 0.102 | 20.7 | 3140 | 16.6 | 2.5 | |
| Ni | 60 | 1 | nogas | 1.350 | 6.8 | 9696 | 3.4 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.643 | 0.7 | 9376 | 0.8 | 2 | |
| Zn | 66 | 1 | nogas | 0.499 | 9.0 | 4291 | 4.2 | 2.5 | |
| As | 75 | 1 | nogas | 4.398 | 40.8 | 190232 | 3.6 | 2.5 | CCB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.392 | 6.0 | 12174 | 6.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.072 | 17.9 | 1087 | 17.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.067 | 44.9 | 230 | 35.6 | 1 | |
| Sb | 121 | 1 | nogas | 0.134 | 21.7 | 2027 | 19.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.902 | 56.7 | 19384 | 55.7 | 1 | |
| Pb | 208 | 1 | nogas | 0.088 | 45.1 | 3644 | 30.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.171 | 48.3 | 4904 | 47.4 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.077 | 46.6 | 857 | 28.9 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.094 | 37.5 | 823 | 25.7 | 2.5 | |
| Na | 23 | 2 | He | 375.898 | 4.2 | 627445 | 2.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 21.051 | 11.1 | 19430 | 9.7 | 100 | |
| Al | 27 | 2 | He | 3.287 | 3.8 | 3314 | 3.7 | 5 | |
| K | 39 | 2 | He | 39.126 | 6.4 | 205408 | 1.1 | 100 | |
| Ca | 43 | 2 | He | 25.702 | 33.8 | 100 | 20.0 | 100 | |
| Ca | 44 | 2 | He | 31.599 | 4.2 | 2230 | 4.0 | 100 | |
| V | 51 | 2 | He | 1.368 | 3.4 | 19893 | 1.1 | 2.5 | |
| Cr | 52 | 2 | He | 0.101 | 36.7 | 4814 | 5.4 | 2.5 | |
| Mn | 55 | 2 | He | 0.956 | 8.8 | 5581 | 6.2 | 2.5 | |
| Fe | 56 | 2 | He | 7.398 | 7.7 | 68928 | 3.1 | 100 | |
| Co | 59 | 2 | He | 0.077 | 8.3 | 920 | 6.8 | 2.5 | |
| Ni | 60 | 2 | He | 0.340 | 8.5 | 543 | 10.8 | 2.5 | |
| Cu | 63 | 2 | He | 0.475 | 3.4 | 1360 | 5.8 | 2 | |
| Zn | 66 | 2 | He | 0.410 | 10.8 | 730 | 7.2 | 2.5 | |
| As | 75 | 2 | He | 0.170 | 17.3 | 749 | 4.0 | 2.5 | |
| Se | 78 | 2 | He | 0.895 | 19.1 | 206 | 7.6 | 2 | |
| B | 11 | 1 | nogas | 177.387 | 9.1 | 1141533 | 4.5 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 25.836 | 12.9 | 1977801 | 1.7 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 41.427 | 18.7 | 2250 | 12.0 | 100 | |
| Ca | 44 | 1 | nogas | 46.577 | 3.7 | 79157 | 2.6 | 100 | |
| Fe | 56 | 1 | nogas | 53.311 | 11.5 | 3681656 | 4.8 | 100 | |
| Se | 77 | 1 | nogas | 51.555 | 29.8 | 60340 | 5.1 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.026 | 546.4 | 230 | 15.1 | 2 | |
| Mo | 95 | 1 | nogas | 0.478 | 40.4 | 3140 | 36.8 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.256 | 31.3 | 3417 | 14.8 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.218 | 33.9 | 1107 | 23.2 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.124 | 23.1 | 707 | 18.8 | 2.5 | |
| P | 31 | 1 | nogas | 6.887 | 13.2 | 87294 | 1.0 | 10 | |
| La | 139 | 1 | nogas | -18.657 | -65.7 | 127 | 32.9 | 2.5 | |
| Au | 197 | 1 | nogas | 257.284 | 524.0 | 17 | 91.7 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1219280 | 4.78 | 1195276 | 102.01 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3390051 | 1.32 | 3552237 | 95.43 | 70 | 125 | |
| In | 115 | 1 | nogas | 3013427 | 4.53 | 3134247 | 96.15 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2268399 | 0.43 | 2336631 | 97.08 | 70 | 125 | |
| Ge | 72 | 2 | He | 834717 | 1.92 | 837498 | 99.67 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 264_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:45:19-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 87.096 | 2.669 | 753350 | 2.24 | 100 | 87.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10371.125 | 3.451 | 271943106 | 1.66 | 10000 | 103.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10167.893 | 2.619 | 167980516 | 1.76 | 10000 | 101.7 | 90 | 110 | |
| Al | 27 | 1 | nogas | 113.354 | 2.985 | 2182729 | 2.47 | 100 | 113.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 11358.738 | 1.619 | 230634547 | 2.63 | 10000 | 113.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ti | 47 | 1 | nogas | 107.627 | 3.818 | 188561 | 0.60 | 100 | 107.6 | 90 | 110 | |
| V | 51 | 1 | nogas | 117.291 | 5.274 | 4159320 | 2.58 | 100 | 117.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 106.520 | 3.833 | 2372744 | 2.52 | 100 | 106.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 108.748 | 6.502 | 2980584 | 3.29 | 100 | 108.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 107.085 | 3.898 | 2408282 | 1.86 | 100 | 107.1 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 106.648 | 4.511 | 514445 | 1.24 | 100 | 106.6 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 101.206 | 2.681 | 1220988 | 0.91 | 100 | 101.2 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 102.769 | 2.938 | 400777 | 1.54 | 100 | 102.8 | 90 | 110 | |
| As | 75 | 1 | nogas | 107.757 | 2.827 | 694201 | 1.25 | 100 | 107.8 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 107.660 | 2.283 | 2964268 | 3.51 | 100 | 107.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 105.883 | 3.397 | 1415401 | 0.11 | 100 | 105.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 99.511 | 2.244 | 292953 | 0.95 | 100 | 99.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.757 | 3.597 | 1327631 | 1.65 | 100 | 103.8 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.995 | 0.921 | 2031167 | 3.00 | 100 | 100.0 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 94.831 | 3.171 | 2693257 | 3.17 | 100 | 94.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 87.015 | 2.961 | 2356580 | 1.77 | 100 | 87.0 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 100.023 | 1.226 | 667069 | 1.58 | 100 | 100.0 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 94.940 | 1.831 | 551810 | 1.33 | 100 | 94.9 | 90 | 110 | |
| Na | 23 | 2 | He | 10468.489 | 1.550 | 16012758 | 2.26 | 10000 | 104.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 10459.216 | 0.611 | 8685904 | 2.20 | 10000 | 104.6 | 90 | 110 | |
| Al | 27 | 2 | He | 106.833 | 1.647 | 51149 | 0.83 | 100 | 106.8 | 90 | 110 | |
| K | 39 | 2 | He | 10673.170 | 2.487 | 9751211 | 2.44 | 10000 | 106.7 | 90 | 110 | |
| Ca | 43 | 2 | He | 10084.810 | 4.259 | 24540 | 2.17 | 10000 | 100.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 10216.425 | 2.719 | 417050 | 0.47 | 10000 | 102.2 | 90 | 110 | |
| V | 51 | 2 | He | 98.121 | 1.379 | 621371 | 1.26 | 100 | 98.1 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.468 | 2.442 | 644347 | 0.20 | 100 | 94.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.399 | 1.765 | 460098 | 0.50 | 100 | 99.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9940.074 | 0.475 | 56574426 | 2.48 | 10000 | 99.4 | 90 | 110 | |
| Co | 59 | 2 | He | 93.848 | 2.642 | 857549 | 4.15 | 100 | 93.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.691 | 2.132 | 218996 | 2.68 | 100 | 98.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.127 | 2.672 | 548715 | 1.17 | 100 | 97.1 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.184 | 1.489 | 132597 | 1.57 | 100 | 96.2 | 90 | 110 | |
| As | 75 | 2 | He | 97.008 | 1.879 | 131110 | 0.79 | 100 | 97.0 | 90 | 110 | |
| Se | 78 | 2 | He | 97.921 | 0.518 | 10340 | 1.76 | 100 | 97.9 | 90 | 110 | |
| B | 11 | 1 | nogas | 734.652 | 5.522 | 3922075 | 2.64 | 500 | 146.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 619.251 | 6.286 | 8044260 | 1.71 | 5000 | 12.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10818.810 | 3.150 | 375061 | 1.14 | 10000 | 108.2 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10814.241 | 3.490 | 6192753 | 2.60 | 10000 | 108.1 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10614.070 | 2.923 | 242517922 | 0.94 | 10000 | 106.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 156.226 | 7.427 | 81264 | 1.72 | 100 | 156.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 104.622 | 4.299 | 26630 | 2.63 | 100 | 104.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.099 | 2.410 | 547826 | 0.92 | 100 | 96.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 97.048 | 0.658 | 773423 | 2.47 | 100 | 97.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 101.742 | 2.322 | 419981 | 0.87 | 100 | 101.7 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.436 | 0.248 | 484615 | 2.53 | 100 | 100.4 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.803 | 3.712 | 1851175 | 1.98 | 100 | 96.8 | 90 | 110 | |
| P | 31 | 1 | nogas | 598.157 | 7.880 | 982856 | 5.22 | 500 | 119.6 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 209.530 | 15.389 | 870 | 11.95 | 100 | 209.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -1971.920 | -86.092 | 40 | 43.30 | 100 | -1971.9 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1122032 | 4.54 | 1195276 | 93.87 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3321355 | 3.34 | 3552237 | 93.50 | 70 | 125 | |
| In | 115 | 1 | nogas | 2936215 | 3.13 | 3134247 | 93.68 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2185904 | 2.54 | 2336631 | 93.55 | 70 | 125 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 817052 | 2.28 | 837498 | 97.56 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 265_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:47:18-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.076 | 33.1 | 793 | 25.5 | 1 | |
| Na | 23 | 1 | nogas | 125.336 | 9.2 | 3523086 | 2.6 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 13.816 | 25.1 | 250642 | 16.3 | 100 | |
| Al | 27 | 1 | nogas | 2.293 | 6.4 | 116198 | 1.6 | 5 | |
| K | 39 | 1 | nogas | 155.734 | 8.5 | 10240559 | 0.9 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.411 | 34.5 | 990 | 23.3 | 2.5 | |
| V | 51 | 1 | nogas | 6.074 | 45.7 | 1326165 | 7.1 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.663 | 5.1 | 79456 | 1.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 1.388 | 1.5 | 60191 | 1.0 | 2.5 | |
| Co | 59 | 1 | nogas | 0.147 | 11.8 | 4131 | 8.2 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.136 | -42.4 | 2390 | 9.9 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.300 | 14.4 | 5091 | 8.4 | 2 | |
| Zn | 66 | 1 | nogas | 0.200 | 42.0 | 3070 | 10.7 | 2.5 | |
| As | 75 | 1 | nogas | 1.294 | 62.1 | 172710 | 4.1 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.218 | 18.9 | 7182 | 14.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.070 | 9.5 | 1043 | 7.7 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.098 | 45.9 | 327 | 40.0 | 1 | |
| Sb | 121 | 1 | nogas | 0.288 | 10.5 | 3981 | 7.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.976 | 53.1 | 20573 | 54.9 | 1 | |
| Pb | 208 | 1 | nogas | 0.099 | 48.0 | 3970 | 34.0 | 2.5 | |
| U | 238 | 1 | nogas | 0.212 | 55.6 | 5971 | 57.4 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.087 | 51.5 | 913 | 36.1 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.099 | 54.8 | 840 | 41.2 | 2.5 | |
| Na | 23 | 2 | He | 121.939 | 6.9 | 229267 | 2.2 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 11.996 | 6.7 | 11630 | 4.3 | 100 | |
| Al | 27 | 2 | He | 2.535 | 31.6 | 2917 | 8.2 | 5 | |
| K | 39 | 2 | He | 103.286 | 1.1 | 263002 | 0.4 | 100 | CCB Main CR1 Failed |
| Ca | 43 | 2 | He | 31.876 | 58.4 | 113 | 36.7 | 100 | |
| Ca | 44 | 2 | He | 25.081 | 5.8 | 1940 | 6.2 | 100 | |
| V | 51 | 2 | He | 0.705 | 26.3 | 15496 | 2.7 | 2.5 | |
| Cr | 52 | 2 | He | 0.070 | 49.3 | 4547 | 1.9 | 2.5 | |
| Mn | 55 | 2 | He | 1.068 | 8.0 | 6038 | 2.1 | 2.5 | |
| Fe | 56 | 2 | He | 7.513 | 6.5 | 68896 | 2.2 | 100 | |
| Co | 59 | 2 | He | 0.119 | 15.4 | 1297 | 8.9 | 2.5 | |
| Ni | 60 | 2 | He | 0.314 | 0.7 | 480 | 5.5 | 2.5 | |
| Cu | 63 | 2 | He | 0.523 | 5.0 | 1623 | 10.3 | 2 | |
| Zn | 66 | 2 | He | 0.427 | 5.3 | 747 | 4.3 | 2.5 | |
| As | 75 | 2 | He | 0.109 | 54.0 | 658 | 10.1 | 2.5 | |
| Se | 78 | 2 | He | 1.138 | 38.9 | 229 | 18.8 | 2 | |
| B | 11 | 1 | nogas | 203.047 | 9.6 | 1278371 | 3.9 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 54.289 | 10.9 | 2249803 | 2.1 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 63.208 | 7.0 | 2984 | 4.4 | 100 | |
| Ca | 44 | 1 | nogas | 70.107 | 12.3 | 91637 | 3.5 | 100 | |
| Fe | 56 | 1 | nogas | 33.063 | 30.2 | 3172265 | 5.3 | 100 | |
| Se | 77 | 1 | nogas | 31.669 | 9.5 | 55394 | 2.9 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.573 | 19.5 | 367 | 6.3 | 2 | |
| Mo | 95 | 1 | nogas | 0.489 | 56.8 | 3137 | 48.7 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.319 | 37.1 | 3967 | 22.0 | 5 | |
| Ba | 137 | 1 | nogas | 0.222 | 24.4 | 1140 | 18.1 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sb | 121 | 2 | He | 0.237 | 6.4 | 1250 | 7.9 | 2.5 | |
| P | 31 | 1 | nogas | 21.447 | 16.2 | 108526 | 3.2 | 10 | CCB Main CR1 Failed |
| La | 139 | 1 | nogas | -24.976 | -16.3 | 107 | 14.3 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Au | 197 | 1 | nogas | -1627.090 | -89.8 | 37 | 41.7 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1213799 | 5.29 | 1195276 | 101.55 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3349960 | 1.85 | 3552237 | 94.31 | 70 | 125 | |
| In | 115 | 1 | nogas | 3042287 | 2.61 | 3134247 | 97.07 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2211162 | 2.71 | 2336631 | 94.63 | 70 | 125 | |
| Ge | 72 | 2 | He | 826869 | 5.10 | 837498 | 98.73 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 268_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:53:12-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 85.009 | 1.863 | 750986 | 0.84 | 100 | 85.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10337.709 | 5.012 | 263320848 | 2.07 | 10000 | 103.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10313.860 | 5.918 | 165426145 | 1.62 | 10000 | 103.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 112.635 | 5.285 | 2206420 | 3.53 | 100 | 112.6 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10814.002 | 1.682 | 223706480 | 0.68 | 10000 | 108.1 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 102.995 | 1.931 | 183688 | 1.48 | 100 | 103.0 | 90 | 110 | |
| V | 51 | 1 | nogas | 115.791 | 3.875 | 4193468 | 1.94 | 100 | 115.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 101.725 | 6.789 | 2308106 | 5.65 | 100 | 101.7 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.476 | 4.822 | 2834606 | 5.05 | 100 | 101.5 | 90 | 110 | |
| Co | 59 | 1 | nogas | 104.527 | 2.762 | 2392616 | 2.37 | 100 | 104.5 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 103.430 | 4.116 | 507860 | 2.32 | 100 | 103.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.530 | 3.615 | 1184854 | 1.74 | 100 | 96.5 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.495 | 2.826 | 394851 | 0.97 | 100 | 99.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 107.510 | 3.917 | 704994 | 1.12 | 100 | 107.5 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 104.558 | 3.506 | 2928233 | 3.11 | 100 | 104.6 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.290 | 2.748 | 1364376 | 1.68 | 100 | 100.3 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 100.266 | 5.016 | 294426 | 0.42 | 100 | 100.3 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 104.997 | 2.300 | 1367523 | 2.63 | 100 | 105.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.605 | 6.862 | 2030841 | 3.85 | 100 | 97.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 95.249 | 2.492 | 2705149 | 2.49 | 100 | 95.2 | 90 | 110 | |
| U | 238 | 1 | nogas | 86.383 | 6.105 | 2397543 | 2.02 | 100 | 86.4 | 90 | 110 | CCV Main CR1-2 Failed |
| [Pb] | 206 | 1 | nogas | 97.183 | 6.667 | 663985 | 2.98 | 100 | 97.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 93.605 | 5.934 | 557533 | 2.51 | 100 | 93.6 | 90 | 110 | |
| Na | 23 | 2 | He | 10341.013 | 1.460 | 15593669 | 1.02 | 10000 | 103.4 | 90 | 110 | |
| Mg | 24 | 2 | He | 10238.993 | 0.418 | 8382361 | 0.95 | 10000 | 102.4 | 90 | 110 | |
| Al | 27 | 2 | He | 109.057 | 3.064 | 51450 | 3.21 | 100 | 109.1 | 90 | 110 | |
| K | 39 | 2 | He | 10367.453 | 1.898 | 9476780 | 1.86 | 10000 | 103.7 | 90 | 110 | |
| Ca | 43 | 2 | He | 10272.065 | 3.196 | 24657 | 3.63 | 10000 | 102.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 10386.182 | 1.860 | 418069 | 1.14 | 10000 | 103.9 | 90 | 110 | |
| V | 51 | 2 | He | 98.618 | 0.991 | 615662 | 0.31 | 100 | 98.6 | 90 | 110 | |
| Cr | 52 | 2 | He | 95.481 | 1.076 | 642158 | 0.63 | 100 | 95.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 100.691 | 2.890 | 459468 | 1.68 | 100 | 100.7 | 90 | 110 | |
| Fe | 56 | 2 | He | 10080.647 | 4.451 | 56541154 | 3.51 | 10000 | 100.8 | 90 | 110 | |
| Co | 59 | 2 | He | 93.785 | 4.023 | 844400 | 2.88 | 100 | 93.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.145 | 2.449 | 214672 | 1.42 | 100 | 98.1 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.820 | 1.483 | 544972 | 1.55 | 100 | 97.8 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.810 | 0.821 | 131583 | 1.24 | 100 | 96.8 | 90 | 110 | |
| As | 75 | 2 | He | 97.878 | 1.460 | 130424 | 0.35 | 100 | 97.9 | 90 | 110 | |
| Se | 78 | 2 | He | 98.962 | 3.187 | 10298 | 1.97 | 100 | 99.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 647.088 | 2.781 | 3546885 | 1.13 | 500 | 129.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 565.946 | 5.461 | 7629022 | 2.36 | 5000 | 11.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10743.652 | 2.437 | 379006 | 0.55 | 10000 | 107.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10404.255 | 3.959 | 6062831 | 2.06 | 10000 | 104.0 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10292.923 | 3.531 | 239373672 | 2.49 | 10000 | 102.9 | 90 | 110 | |
| Se | 77 | 1 | nogas | 171.580 | 10.022 | 85979 | 2.76 | 100 | 171.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 101.285 | 3.948 | 26239 | 2.32 | 100 | 101.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 94.726 | 4.632 | 549331 | 3.27 | 100 | 94.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 97.670 | 3.862 | 776461 | 1.57 | 100 | 97.7 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.917 | 4.356 | 411573 | 2.46 | 100 | 99.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.004 | 1.530 | 475603 | 0.27 | 100 | 100.0 | 90 | 110 | |
| Li | 7 | 1 | nogas | 96.244 | 5.199 | 1880210 | 3.68 | 100 | 96.2 | 90 | 110 | |
| P | 31 | 1 | nogas | 501.467 | 2.762 | 851241 | 0.65 | 500 | 100.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 205.193 | 25.659 | 850 | 16.47 | 100 | 205.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -407.821 | -365.258 | 23 | 65.47 | 100 | -407.8 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1145347 | 2.03 | 1195276 | 95.82 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3378546 | 1.88 | 3552237 | 95.11 | 70 | 125 | |
| In | 115 | 1 | nogas | 2932676 | 5.39 | 3134247 | 93.57 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2243494 | 4.90 | 2336631 | 96.01 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 805459 | 1.26 | 837498 | 96.17 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 269_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:55:13-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.090 | 29.7 | 923 | 23.0 | 1 | |
| Na | 23 | 1 | nogas | 101.048 | 10.0 | 2904419 | 1.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 12.395 | 24.1 | 227940 | 13.3 | 100 | |
| Al | 27 | 1 | nogas | 2.256 | 6.5 | 114987 | 2.6 | 5 | |
| K | 39 | 1 | nogas | 132.225 | 18.0 | 9723561 | 0.9 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.405 | 8.9 | 977 | 5.2 | 2.5 | |
| V | 51 | 1 | nogas | 11.462 | 6.6 | 1458297 | 4.0 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.762 | 18.8 | 81186 | 0.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 1.296 | 5.9 | 57392 | 0.7 | 2.5 | |
| Co | 59 | 1 | nogas | 0.131 | 23.2 | 3737 | 14.2 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.206 | -1.7 | 2043 | 4.5 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.257 | 11.5 | 4551 | 5.0 | 2 | |
| Zn | 66 | 1 | nogas | 0.166 | 24.2 | 2924 | 2.5 | 2.5 | |
| As | 75 | 1 | nogas | 2.327 | 17.6 | 176991 | 3.0 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.191 | 21.3 | 6375 | 13.4 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.081 | 17.6 | 1180 | 12.3 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.070 | 23.7 | 230 | 19.0 | 1 | |
| Sb | 121 | 1 | nogas | 0.275 | 16.6 | 3784 | 11.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.941 | 57.8 | 20106 | 56.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.088 | 46.5 | 3664 | 31.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.192 | 56.0 | 5485 | 55.0 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.084 | 38.5 | 903 | 24.8 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.092 | 33.0 | 810 | 22.5 | 2.5 | |
| Na | 23 | 2 | He | 98.828 | 1.7 | 191978 | 1.3 | 100 | |
| Mg | 24 | 2 | He | 10.887 | 1.2 | 10603 | 1.6 | 100 | |
| Al | 27 | 2 | He | 2.287 | 14.7 | 2784 | 5.2 | 5 | |
| K | 39 | 2 | He | 82.690 | 3.9 | 244514 | 1.2 | 100 | |
| Ca | 43 | 2 | He | 9.888 | 120.5 | 60 | 50.0 | 100 | |
| Ca | 44 | 2 | He | 25.050 | 8.9 | 1920 | 6.8 | 100 | |
| V | 51 | 2 | He | 0.765 | 10.4 | 15741 | 1.0 | 2.5 | |
| Cr | 52 | 2 | He | 0.079 | 32.9 | 4564 | 2.4 | 2.5 | |
| Mn | 55 | 2 | He | 1.056 | 6.2 | 5934 | 3.8 | 2.5 | |
| Fe | 56 | 2 | He | 7.962 | 2.6 | 70846 | 3.7 | 100 | |
| Co | 59 | 2 | He | 0.110 | 17.3 | 1203 | 13.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.284 | 15.2 | 410 | 25.7 | 2.5 | |
| Cu | 63 | 2 | He | 0.520 | 1.0 | 1590 | 2.3 | 2 | |
| Zn | 66 | 2 | He | 0.432 | 14.8 | 747 | 10.8 | 2.5 | |
| As | 75 | 2 | He | 0.106 | 11.0 | 649 | 0.3 | 2.5 | |
| Se | 78 | 2 | He | 1.073 | 13.1 | 221 | 6.0 | 2 | |
| B | 11 | 1 | nogas | 206.061 | 8.5 | 1292034 | 3.2 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 47.064 | 25.5 | 2162808 | 1.7 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 76.383 | 14.4 | 3420 | 7.1 | 100 | |
| Ca | 44 | 1 | nogas | 70.318 | 11.8 | 91311 | 1.5 | 100 | |
| Fe | 56 | 1 | nogas | 28.541 | 54.7 | 3049600 | 7.4 | 100 | |
| Se | 77 | 1 | nogas | 42.324 | 2.1 | 57421 | 3.8 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.488 | 41.3 | 343 | 14.7 | 2 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.449 | 55.1 | 2877 | 44.3 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.346 | 58.5 | 3981 | 35.2 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.196 | 8.3 | 987 | 7.3 | 2.5 | |
| Sb | 121 | 2 | He | 0.245 | 6.2 | 1280 | 5.4 | 2.5 | |
| P | 31 | 1 | nogas | 17.011 | 22.0 | 101212 | 1.7 | 10 | CCB Main CR1 Failed |
| La | 139 | 1 | nogas | -19.369 | -31.6 | 120 | 16.7 | 2.5 | |
| Au | 197 | 1 | nogas | 540.846 | 95.1 | 13 | 43.3 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1210124 | 4.48 | 1195276 | 101.24 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3335904 | 3.95 | 3552237 | 93.91 | 70 | 125 | |
| In | 115 | 1 | nogas | 2910023 | 4.03 | 3134247 | 92.85 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2254062 | 1.90 | 2336631 | 96.47 | 70 | 125 | |
| Ge | 72 | 2 | He | 818433 | 2.16 | 837498 | 97.72 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 270LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:57:12-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 3.988 | 1.405 | 38051 | 3.80 | 5 | 79.8 | 70 | 130 | |
| Na | 23 | 1 | nogas | 594.913 | 5.530 | 15456887 | 1.82 | 500 | 119.0 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 526.157 | 7.033 | 8469084 | 1.92 | 500 | 105.2 | 70 | 130 | |
| Al | 27 | 1 | nogas | 4.462 | 2.630 | 159413 | 0.55 | 5 | 89.2 | 70 | 130 | |
| K | 39 | 1 | nogas | 607.413 | 2.925 | 19509654 | 0.69 | 500 | 121.5 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 5.346 | 5.596 | 9859 | 5.00 | 5 | 106.9 | 70 | 130 | |
| V | 51 | 1 | nogas | 22.839 | 5.014 | 1785758 | 1.27 | 5 | 456.8 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 5.918 | 1.817 | 197400 | 0.31 | 5 | 118.4 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.366 | 0.950 | 172180 | 0.91 | 5 | 107.3 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.965 | 2.448 | 115223 | 1.08 | 5 | 99.3 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.915 | 1.983 | 27264 | 0.49 | 5 | 98.3 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 5.106 | 0.927 | 64540 | 1.80 | 5 | 102.1 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 4.905 | 3.163 | 21820 | 2.80 | 5 | 98.1 | 70 | 130 | |
| As | 75 | 1 | nogas | 12.418 | 18.707 | 231295 | 3.86 | 5 | 248.4 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 5.070 | 2.405 | 144102 | 1.75 | 5 | 101.4 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 5.032 | 2.088 | 69051 | 0.84 | 5 | 100.6 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 5.012 | 7.904 | 14463 | 1.96 | 5 | 100.2 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.107 | 4.594 | 67229 | 3.58 | 5 | 102.1 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.530 | 4.526 | 93843 | 2.39 | 5 | 90.6 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 4.613 | 0.389 | 132102 | 0.39 | 5 | 92.3 | 70 | 130 | |
| U | 238 | 1 | nogas | 4.692 | 4.024 | 129317 | 2.30 | 5 | 93.8 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 4.958 | 3.388 | 33916 | 1.41 | 5 | 99.2 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 4.888 | 4.190 | 29120 | 1.97 | 5 | 97.8 | 70 | 130 | |
| Na | 23 | 2 | He | 570.944 | 1.790 | 917151 | 0.52 | 500 | 114.2 | 70 | 130 | |
| Mg | 24 | 2 | He | 498.123 | 2.687 | 417416 | 0.76 | 500 | 99.6 | 70 | 130 | |
| Al | 27 | 2 | He | 4.996 | 10.881 | 4054 | 4.33 | 5 | 99.9 | 70 | 130 | |
| K | 39 | 2 | He | 548.704 | 1.251 | 662838 | 0.93 | 500 | 109.7 | 70 | 130 | |
| Ca | 43 | 2 | He | 543.253 | 6.536 | 1363 | 4.88 | 500 | 108.7 | 70 | 130 | |
| Ca | 44 | 2 | He | 506.627 | 3.493 | 21660 | 2.64 | 500 | 101.3 | 70 | 130 | |
| V | 51 | 2 | He | 5.677 | 0.619 | 46554 | 1.60 | 5 | 113.5 | 70 | 130 | |
| Cr | 52 | 2 | He | 4.674 | 3.565 | 35912 | 1.39 | 5 | 93.5 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.292 | 6.357 | 25625 | 4.44 | 5 | 105.8 | 70 | 130 | |
| Fe | 56 | 2 | He | 478.635 | 1.276 | 2764151 | 2.05 | 500 | 95.7 | 70 | 130 | |
| Co | 59 | 2 | He | 4.705 | 2.222 | 43408 | 1.00 | 5 | 94.1 | 70 | 130 | |
| Ni | 60 | 2 | He | 4.968 | 6.141 | 10867 | 4.32 | 5 | 99.4 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.342 | 3.592 | 29060 | 2.11 | 5 | 106.8 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.013 | 4.908 | 7095 | 4.88 | 5 | 100.3 | 70 | 130 | |
| As | 75 | 2 | He | 4.716 | 1.755 | 6898 | 3.68 | 5 | 94.3 | 70 | 130 | |
| Se | 78 | 2 | He | 5.172 | 6.528 | 653 | 6.50 | 5 | 103.4 | 70 | 130 | |
| B | 11 | 1 | nogas | 189.859 | 5.575 | 1227276 | 2.35 | 25 | 759.4 | 70 | 130 | LLICV Main CR1 Failed |
| Si | 28 | 1 | nogas | 280.924 | 2.821 | 4677439 | 0.57 | 25 | 1123.7 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 577.336 | 1.450 | 21266 | 2.23 | 500 | 115.5 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 544.355 | 1.483 | 369174 | 1.12 | 500 | 108.9 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 522.506 | 1.198 | 14573826 | 0.77 | 500 | 104.5 | 70 | 130 | |
| Se | 77 | 1 | nogas | 84.076 | 14.586 | 67632 | 4.09 | 5 | 1681.5 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 5.019 | 6.081 | 1523 | 5.51 | 5 | 100.4 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.966 | 5.617 | 29341 | 4.83 | 5 | 99.3 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.958 | 2.748 | 39951 | 3.72 | 5 | 99.2 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 5.203 | 6.463 | 21200 | 1.09 | 5 | 104.1 | 70 | 130 | |
| Sb | 121 | 2 | He | 4.845 | 4.842 | 23616 | 6.91 | 5 | 96.9 | 70 | 130 | |
| Li | 7 | 1 | nogas | 4.068 | 5.193 | 184897 | 5.21 | 5 | 81.4 | 70 | 130 | |
| P | 31 | 1 | nogas | 35.966 | 3.044 | 132892 | 1.84 | 25 | 143.9 | 70 | 130 | LLICV Main CR1 Failed |
| La | 139 | 1 | nogas | -7.207 | -207.031 | 157 | 26.57 | 5 | -144.1 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 220.306 | 477.045 | 17 | 69.28 | 5 | 4406.1 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1233854 | 2.97 | 1195276 | 103.23 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3402500 | 1.38 | 3552237 | 95.78 | 70 | 125 | |
| In | 115 | 1 | nogas | 2880269 | 5.73 | 3134247 | 91.90 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2223022 | 2.65 | 2336631 | 95.14 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 821806 | 2.06 | 837498 | 98.13 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 271SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-24T23:59:10-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 231CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.627 | 1.627 | 2.50 | 15053 | 0.01 | 2000 | |
| Na | 23 | 1 | nogas | 249.638 | 249.638 | 1.88 | 7100862 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 194.388 | 194.388 | 1.40 | 3355377 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 0.248 | 0.248 | 103.00 | 80522 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | 279.208 | 279.208 | 7.34 | 13141152 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 2.243 | 2.243 | 7.31 | 4374 | 0.05 | 2000 | |
| V | 51 | 1 | nogas | 20.530 | 20.530 | 24.29 | 1756824 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 2.468 | 2.468 | 6.54 | 123119 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 2.075 | 2.075 | 5.47 | 81847 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 1.991 | 1.991 | 7.08 | 47552 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | 1.598 | 1.598 | 11.11 | 11157 | 0.01 | 2000 | |
| Cu | 63 | 1 | nogas | 2.083 | 2.083 | 5.08 | 27714 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 1.606 | 1.606 | 6.08 | 8879 | 0.02 | 2000 | |
| As | 75 | 1 | nogas | 8.032 | 8.032 | 26.08 | 213231 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.067 | 2.067 | 4.57 | 60572 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 1.968 | 1.968 | 4.01 | 27578 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 1.900 | 1.900 | 10.58 | 5941 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 2.038 | 2.038 | 1.65 | 27532 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 1.887 | 1.887 | 6.06 | 39756 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 1.874 | 1.874 | 3.12 | 54367 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 1.885 | 1.885 | 4.05 | 52621 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 1.901 | 1.901 | 4.65 | 13369 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 1.960 | 1.960 | 6.59 | 11961 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 266.634 | 266.634 | 1.00 | 450199 | 0.06 | 200000 | |
| Mg | 24 | 2 | He | 200.675 | 200.675 | 3.38 | 169105 | 0.12 | 200000 | |
| Al | 27 | 2 | He | 0.312 | 0.312 | 18.31 | 1877 | 0.02 | 2000 | |
| K | 39 | 2 | He | 246.834 | 246.834 | 0.89 | 391860 | 0.06 | 200000 | |
| Ca | 43 | 2 | He | 235.915 | 235.915 | 5.03 | 613 | 38.46 | 200000 | |
| Ca | 44 | 2 | He | 200.862 | 200.862 | 6.12 | 9126 | 2.20 | 200000 | |
| V | 51 | 2 | He | 2.814 | 2.814 | 4.94 | 28616 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | 1.744 | 1.744 | 5.18 | 15927 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 2.093 | 2.093 | 5.22 | 10763 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 193.195 | 193.195 | 5.22 | 1129490 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 1.909 | 1.909 | 3.17 | 17722 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 2.237 | 2.237 | 4.38 | 4767 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | 2.361 | 2.361 | 2.83 | 12074 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 1.929 | 1.929 | 8.90 | 2824 | 0.07 | 2000 | |
| As | 75 | 2 | He | 1.884 | 1.884 | 1.72 | 3060 | 0.06 | 2000 | |
| Se | 78 | 2 | He | 2.578 | 2.578 | 14.87 | 381 | 0.68 | 2000 | |
| B | 11 | 1 | nogas | 157.333 | 157.333 | 6.55 | 1007568 | 0.02 | 2000 | |
| Si | 28 | 1 | nogas | 112.891 | 112.891 | 5.69 | 2961235 | 0.00 | 2000 | |
| Ca | 43 | 1 | nogas | 247.817 | 247.817 | 9.02 | 9756 | 2.54 | 200000 | |

# Sample Report

| Ca | 44 | 1 | nogas | 230.648 | 230.648 | 4.05 | 190189 | 0.12 | 200000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 215.517 | 215.517 | 6.70 | 7596452 | 0.00 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Se | 77 | 1 | nogas | 67.543 | 67.543 | 15.96 | 65264 | 0.10 | 2000 | |
| Se | 82 | 1 | nogas | 2.171 | 2.171 | 18.49 | 800 | 0.27 | 2000 | |
| Mo | 95 | 1 | nogas | 1.880 | 1.880 | 1.18 | 11551 | 0.02 | 2000 | |
| Sn | 118 | 1 | nogas | 1.752 | 1.752 | 1.20 | 16151 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 1.934 | 1.934 | 3.62 | 8646 | 0.02 | 2000 | |
| Sb | 121 | 2 | He | 2.051 | 2.051 | 3.90 | 10036 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | -28.466 | -28.466 | -7.56 | 97 | -29.45 | 2000 | |
| Au | 197 | 1 | nogas | 549.704 | 549.704 | 84.38 | 13 | 4122.78 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1192689 | 4.12 | 1195276 | 99.78 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3469998 | 3.27 | 3552237 | 97.68 | 70 | 125 | |
| In | 115 | 1 | nogas | 3109113 | 3.47 | 3134247 | 99.20 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 2249644 | 3.67 | 2336631 | 96.28 | 70 | 125 | |
| Ge | 72 | 2 | He | 821667 | 3.58 | 837498 | 98.11 | 70 | 125 | |

# Interference Check Solution A (ICS-A) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSA |
| Data File Name | 272ICSA.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-25T00:01:09-06:00 |
| Sample Type | ICSA |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.007 | 25.3 | 137 | 4.2 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 1 | nogas | 101367.269 | 8.2 | 2349594453 | 1.7 | 0 | |
| Mg | 24 | 1 | nogas | 101831.323 | 9.4 | 1487158067 | 0.3 | 0 | |
| Al | 27 | 1 | nogas | 101285.905 | 10.9 | 1742370801 | 1.8 | 0 | |
| K | 39 | 1 | nogas | 108230.766 | 10.6 | 1974944177 | 2.7 | 0 | |
| Ti | 47 | 1 | nogas | 2321.774 | 8.8 | 3759910 | 0.7 | 0 | |
| V | 51 | 1 | nogas | 8.626 | 97.6 | 1270737 | 7.2 | 0 | |
| Cr | 52 | 1 | nogas | 1.366 | 34.2 | 86849 | 1.6 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 1 | nogas | 0.916 | 20.3 | 43267 | 2.5 | 0 | ICSA Main CR1 Failed |
| Co | 59 | 1 | nogas | 0.468 | 8.2 | 10460 | 2.3 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 1 | nogas | 1.035 | 14.0 | 7392 | 0.9 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 1 | nogas | 1.051 | 6.7 | 13068 | 3.6 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 1 | nogas | 3.046 | 14.7 | 13001 | 3.2 | 0 | ICSA Main CR1 Failed |
| As | 75 | 1 | nogas | 7.880 | 60.6 | 187948 | 2.4 | 0 | |
| Sr | 88 | 1 | nogas | 0.979 | 10.3 | 25936 | 1.9 | 0 | ICSA Main CR1 Failed |
| Ag | 107 | 1 | nogas | 0.025 | 18.8 | 397 | 6.3 | 0 | ICSA Main CR1 Failed |
| Cd | 111 | 1 | nogas | 1.693 | 5.1 | 4504 | 6.2 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 1 | nogas | 0.250 | 18.8 | 3197 | 8.2 | 0 | ICSA Main CR1 Failed |
| Tl | 205 | 1 | nogas | 0.044 | 27.5 | 1097 | 11.1 | 0 | ICSA Main CR1 Failed |
| Pb | 208 | 1 | nogas | 0.045 | 18.8 | 2433 | 9.9 | 0 | ICSA Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 0.066 | 43.3 | 660 | 19.7 | 0 | ICSA Main CR1 Failed |
| [Pb] | 207 | 1 | nogas | 0.059 | 16.7 | 523 | 1.1 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 2 | He | 98411.987 | 2.5 | 137346271 | 1.2 | 0 | |
| Mg | 24 | 2 | He | 97925.606 | 1.6 | 74359109 | 0.3 | 0 | |
| Al | 27 | 2 | He | 94308.093 | 2.3 | 39912231 | 1.4 | 0 | |
| K | 39 | 2 | He | 92206.860 | 0.5 | 82941105 | 0.5 | 0 | |
| Ca | 43 | 2 | He | 96797.106 | 1.3 | 215258 | 0.3 | 0 | |
| Ca | 44 | 2 | He | 101586.698 | 1.0 | 3787366 | 2.2 | 0 | |
| V | 51 | 2 | He | 0.496 | 4.5 | 12850 | 0.9 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 2 | He | 0.236 | 9.2 | 5144 | 2.5 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 2 | He | 0.748 | 1.3 | 4117 | 1.6 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 2 | He | 97302.219 | 4.4 | 506125179 | 3.2 | 0 | |
| Co | 59 | 2 | He | 0.282 | 3.2 | 2534 | 1.6 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 2 | He | 0.782 | 3.4 | 1383 | 2.7 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 2 | He | 0.674 | 4.0 | 2250 | 6.8 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 2 | He | 1.839 | 7.0 | 2454 | 5.9 | 0 | ICSA Main CR1 Failed |
| As | 75 | 2 | He | 0.186 | 12.5 | 691 | 5.1 | 0 | ICSA Main CR1 Failed |
| Se | 78 | 2 | He | 0.793 | 41.0 | 175 | 17.4 | 0 | ICSA Main CR1 Failed |
| B | 11 | 1 | nogas | 155.367 | 13.9 | 901144 | 4.0 | 0 | |
| Si | 28 | 1 | nogas | 85.893 | 26.3 | 2363991 | 0.0 | 0 | |
| Ca | 43 | 1 | nogas | 107666.168 | 10.0 | 3445245 | 1.6 | 0 | |
| Ca | 44 | 1 | nogas | 105903.726 | 9.8 | 55666348 | 0.7 | 0 | |
| Fe | 56 | 1 | nogas | 104925.232 | 11.4 | 2195304782 | 2.2 | 0 | |
| Se | 77 | 1 | nogas | 76.857 | 46.5 | 59537 | 2.6 | 0 | |
| Se | 82 | 1 | nogas | 0.486 | 117.1 | 310 | 32.7 | 0 | ICSA Main CR1 Failed |
| Mo | 95 | 1 | nogas | 2049.112 | 11.4 | 10785464 | 2.2 | 0 | |
| Sn | 118 | 1 | nogas | 0.092 | 49.4 | 1854 | 24.0 | 0 | ICSA Main CR1 Failed |
| Ba | 137 | 1 | nogas | 0.263 | 17.0 | 1137 | 8.4 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 2 | He | 0.228 | 4.1 | 1093 | 2.8 | 0 | ICSA Main CR1 Failed |

# Interference Check Solution A (ICS-A) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P | 31 | 1 | nogas | 104595.665 | 12.0 | 146775791 | 2.8 | 0 | |
| La | 139 | 1 | nogas | 28.821 | 30.1 | 250 | 6.9 | 0 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 1083094 | 7.51 | 1195276 | 90.61 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 3087359 | 8.77 | 3552237 | 86.91 | 70 | 125 | |
| In | 115 | 1 | nogas | 2646821 | 10.32 | 3134247 | 84.45 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1938124 | 8.13 | 2336631 | 82.95 | 70 | 125 | |
| Ge | 72 | 2 | He | 747291 | 1.32 | 837498 | 89.23 | 70 | 125 | |

# Interference Check Solution AB (ICS-AB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSAB |
| Data File Name | 273ICSB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-25T00:03:11-06:00 |
| Sample Type | ICSB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 231CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 106.335 | 13.777 | 772121 | 0.42 | 100 | 106.3 | 80 | 120 | |
| Na | 23 | 1 | nogas | 120547.122 | 12.828 | 2636618259 | 0.17 | 100 | 120547.1 | 80 | 120 | ICSB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 117328.144 | 14.124 | 1616265869 | 1.82 | 100 | 117328.1 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 1 | nogas | 104664.465 | 12.831 | 1706755761 | 0.25 | 100 | 104664.5 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 1 | nogas | 123908.011 | 12.539 | 2142302715 | 0.20 | 100 | 123908.0 | 80 | 120 | ICSB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 2514.916 | 10.251 | 3863700 | 2.22 | 100 | 2514.9 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 1 | nogas | 130.437 | 14.157 | 3945968 | 1.98 | 100 | 130.4 | 80 | 120 | ICSB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 124.132 | 11.644 | 2416175 | 1.94 | 100 | 124.1 | 80 | 120 | ICSB Main CR1 Failed |
| Mn | 55 | 1 | nogas | 121.557 | 14.297 | 2916099 | 2.25 | 100 | 121.6 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 1 | nogas | 123.888 | 11.931 | 2442995 | 0.93 | 100 | 123.9 | 80 | 120 | ICSB Main CR1 Failed |
| Ni | 60 | 1 | nogas | 124.704 | 13.125 | 526724 | 1.68 | 100 | 124.7 | 80 | 120 | ICSB Main CR1 Failed |
| Cu | 63 | 1 | nogas | 119.195 | 14.817 | 1257539 | 2.20 | 100 | 119.2 | 80 | 120 | |
| Zn | 66 | 1 | nogas | 126.841 | 13.533 | 432640 | 0.96 | 100 | 126.8 | 80 | 120 | ICSB Main CR1 Failed |
| As | 75 | 1 | nogas | 128.313 | 14.318 | 697378 | 1.18 | 100 | 128.3 | 80 | 120 | ICSB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 121.442 | 14.372 | 2924263 | 1.74 | 100 | 121.4 | 80 | 120 | ICSB Main CR1 Failed |
| Ag | 107 | 1 | nogas | 117.824 | 14.074 | 1378626 | 1.52 | 100 | 117.8 | 80 | 120 | |
| Cd | 111 | 1 | nogas | 124.944 | 13.744 | 303488 | 1.33 | 100 | 124.9 | 80 | 120 | ICSB Main CR1 Failed |
| Sb | 121 | 1 | nogas | 126.956 | 12.961 | 1423132 | 1.79 | 100 | 127.0 | 80 | 120 | ICSB Main CR1 Failed |
| Tl | 205 | 1 | nogas | 122.974 | 8.920 | 2077038 | 2.90 | 100 | 123.0 | 80 | 120 | ICSB Main CR1 Failed |
| Pb | 208 | 1 | nogas | 98.827 | 1.054 | 2806718 | 1.05 | 100 | 98.8 | 80 | 120 | |
| U | 238 | 1 | nogas | 131.189 | 11.900 | 2948829 | 1.00 | 100 | 131.2 | 80 | 120 | ICSB Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 123.573 | 11.873 | 683822 | 1.05 | 100 | 123.6 | 80 | 120 | ICSB Main CR1 Failed |
| [Pb] | 207 | 1 | nogas | 124.166 | 10.318 | 599567 | 1.53 | 100 | 124.2 | 80 | 120 | ICSB Main CR1 Failed |
| Na | 23 | 2 | He | 110269.342 | 2.780 | 154082611 | 1.70 | 100 | 110269.3 | 80 | 120 | |
| Mg | 24 | 2 | He | 108970.204 | 1.867 | 82847489 | 0.80 | 100 | 108970.2 | 80 | 120 | |
| Al | 27 | 2 | He | 94571.275 | 2.271 | 40072659 | 1.16 | 100 | 94571.3 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 2 | He | 99930.370 | 1.812 | 89874225 | 1.81 | 100 | 99930.4 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 2 | He | 105499.893 | 0.451 | 234924 | 1.19 | 100 | 105499.9 | 80 | 120 | |
| Ca | 44 | 2 | He | 111136.897 | 0.752 | 4148237 | 1.58 | 100 | 111136.9 | 80 | 120 | |
| V | 51 | 2 | He | 107.074 | 1.619 | 620061 | 0.64 | 100 | 107.1 | 80 | 120 | |
| Cr | 52 | 2 | He | 103.381 | 1.091 | 645583 | 0.82 | 100 | 103.4 | 80 | 120 | |
| Mn | 55 | 2 | He | 109.463 | 1.363 | 463985 | 0.82 | 100 | 109.5 | 80 | 120 | |
| Fe | 56 | 2 | He | 108165.335 | 1.451 | 563524258 | 1.97 | 100 | 108165.3 | 80 | 120 | |
| Co | 59 | 2 | He | 104.465 | 1.307 | 873894 | 0.53 | 100 | 104.5 | 80 | 120 | |
| Ni | 60 | 2 | He | 108.631 | 1.060 | 220765 | 0.50 | 100 | 108.6 | 80 | 120 | |
| Cu | 63 | 2 | He | 107.299 | 1.021 | 555475 | 2.05 | 100 | 107.3 | 80 | 120 | |
| Zn | 66 | 2 | He | 108.753 | 1.642 | 137294 | 1.87 | 100 | 108.8 | 80 | 120 | |
| As | 75 | 2 | He | 108.163 | 0.919 | 133843 | 0.22 | 100 | 108.2 | 80 | 120 | |
| Se | 78 | 2 | He | 110.618 | 2.030 | 10683 | 1.56 | 100 | 110.6 | 80 | 120 | |
| B | 11 | 1 | nogas | 681.333 | 15.432 | 3060974 | 0.61 | 100 | 681.3 | 80 | 120 | |
| Si | 28 | 1 | nogas | 6235.205 | 12.431 | 57763436 | 1.89 | 100 | 6235.2 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 123526.457 | 13.748 | 3741967 | 1.25 | 100 | 123526.5 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 1 | nogas | 124180.887 | 15.110 | 61714852 | 2.44 | 100 | 124180.9 | 80 | 120 | ICSB Main CR1 Failed |
| Fe | 56 | 1 | nogas | 120143.232 | 12.915 | 2383171587 | 0.58 | 100 | 120143.2 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 77 | 1 | nogas | 202.393 | 18.099 | 80039 | 4.32 | 100 | 202.4 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 82 | 1 | nogas | 124.846 | 14.787 | 27765 | 2.02 | 100 | 124.8 | 80 | 120 | ICSB Main CR1 Failed |
| Mo | 95 | 1 | nogas | 2245.357 | 12.315 | 11211017 | 1.78 | 100 | 2245.4 | 80 | 120 | ICSB Main CR1 Failed |
| Sn | 118 | 1 | nogas | 119.841 | 12.782 | 788088 | 0.49 | 100 | 119.8 | 80 | 120 | |
| Ba | 137 | 1 | nogas | 127.425 | 14.067 | 433831 | 1.87 | 100 | 127.4 | 80 | 120 | ICSB Main CR1 Failed |
| Sb | 121 | 2 | He | 112.272 | 1.712 | 496037 | 1.77 | 100 | 112.3 | 80 | 120 | |
| La | 139 | 1 | nogas | 269.373 | 13.116 | 883 | 8.57 | 100 | 269.4 | 80 | 120 | ICSB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 952813 | 13.25 | 1195276 | 79.71 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 2937900 | 11.93 | 3552237 | 82.71 | 70 | 125 | |
| In | 115 | 1 | nogas | 2448930 | 12.30 | 3134247 | 78.13 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1829652 | 11.20 | 2336631 | 78.30 | 70 | 125 | |
| Ge | 72 | 2 | He | 748210 | 1.09 | 837498 | 89.34 | 70 | 125 | |

# Tune Report

**Batch Folder** C:\Agilent\ICPMH\1\DATA\122418A.b
**Report Comment**
**Instrument Name** G3281A JP11080910

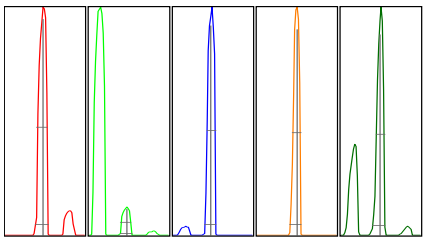
**[nogas]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 21396 | | | | NaN | - | |
| 24 | | 43271 | | | | NaN | - | |
| 59 | | 48170 | | | | NaN | - | |
| 115 | | 42261 | | | | NaN | - | |
| 208 | | 26050 | | | | NaN | - | |

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 0.71 | 5.00 | | | | |
| 24 | 0.24 | 5.00 | | | | |
| 59 | 0.34 | 5.00 | | | | |
| 115 | 1.73 | 5.00 | | | | |
| 208 | 0.65 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 21443 | 21454 | 21266 | 21221 | 21596 |
| 24 | 43115 | 43333 | 43234 | 43289 | 43386 |
| 59 | 48457 | 48041 | 48109 | 48090 | 48153 |
| 115 | 41738 | 41896 | 41658 | 42659 | 43355 |
| 208 | 26336 | 26067 | 25969 | 25909 | 25970 |

**Integration Time [sec]** 0.1



| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 6029.04 | 8.95 | 8.9 - 9.1 | | 0.37 | 0.467 | 0.750 | |
| 24 | 12180.39 | 23.95 | 23.9 - 24.1 | | 0.36 | 0.445 | 0.750 | |
| 59 | 14533.27 | 58.95 | 58.9 - 59.1 | | 0.33 | 0.436 | 0.750 | |
| 115 | 13634.77 | 115.05 | 114.9 - 115.1 | | 0.29 | 0.433 | 0.750 | |
| 208 | 7923.62 | 208.00 | 207.9 - 208.1 | | 0.31 | 0.486 | 0.750 | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

**Tune Parameters**

**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.40 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.70 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.40 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.0 V | Deflect | 15.0 V |
| Extract 2 | -200.0 V | Cell Entrance | -30 V | Plate Bias | -50 V |
| Omega Bias | -100 V | Cell Exit | -58 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -8.0 V | He Flow | 0.0 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 190 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

**[He]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 376 | | | | NaN | - | |
| 24 | | 2579 | | | | NaN | - | |
| 59 | | 19689 | | | | NaN | - | |

# Tune Report

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 3.23 | 5.00 | | | | |
| 24 | 2.44 | 5.00 | | | | |
| 59 | 1.03 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 366 | 393 | 364 | 383 | 377 |
| 24 | 2549 | 2663 | 2627 | 2511 | 2547 |
| 59 | 19803 | 19591 | 19429 | 19663 | 19960 |

**Integration Time [sec]** 0.1

| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 103.64 | 8.95 | 8.9 - 9.1 | | 0.37 | 0.482 | 0.750 | |
| 24 | 721.03 | 23.95 | 23.9 - 24.1 | | 0.37 | 0.444 | 0.750 | |
| 59 | 6137.87 | 58.95 | 58.9 - 59.1 | | 0.31 | 0.431 | 0.750 | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

**Tune Parameters**

**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.40 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.70 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.40 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.0 V | Deflect | 2.0 V |
| Extract 2 | -200.0 V | Cell Entrance | -32 V | Plate Bias | -60 V |
| Omega Bias | -100 V | Cell Exit | -70 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -18.0 V | He Flow | 4.0 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 190 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

# HS18120736 Wet Chem Raw Data

ALS WO# HS18120736

HS18120736

00947544

# PREP BATCH REPORT

Batch ID: **135984**

Prep Code: **P_TW_PR**

InitSampWt/Vol 0

FinSampVol: 50

Start Date: **24-Dec-18 12:00 pm**

End Date: **24-Dec-18 01:30 pm**

OriginalFac: 1

Technician:

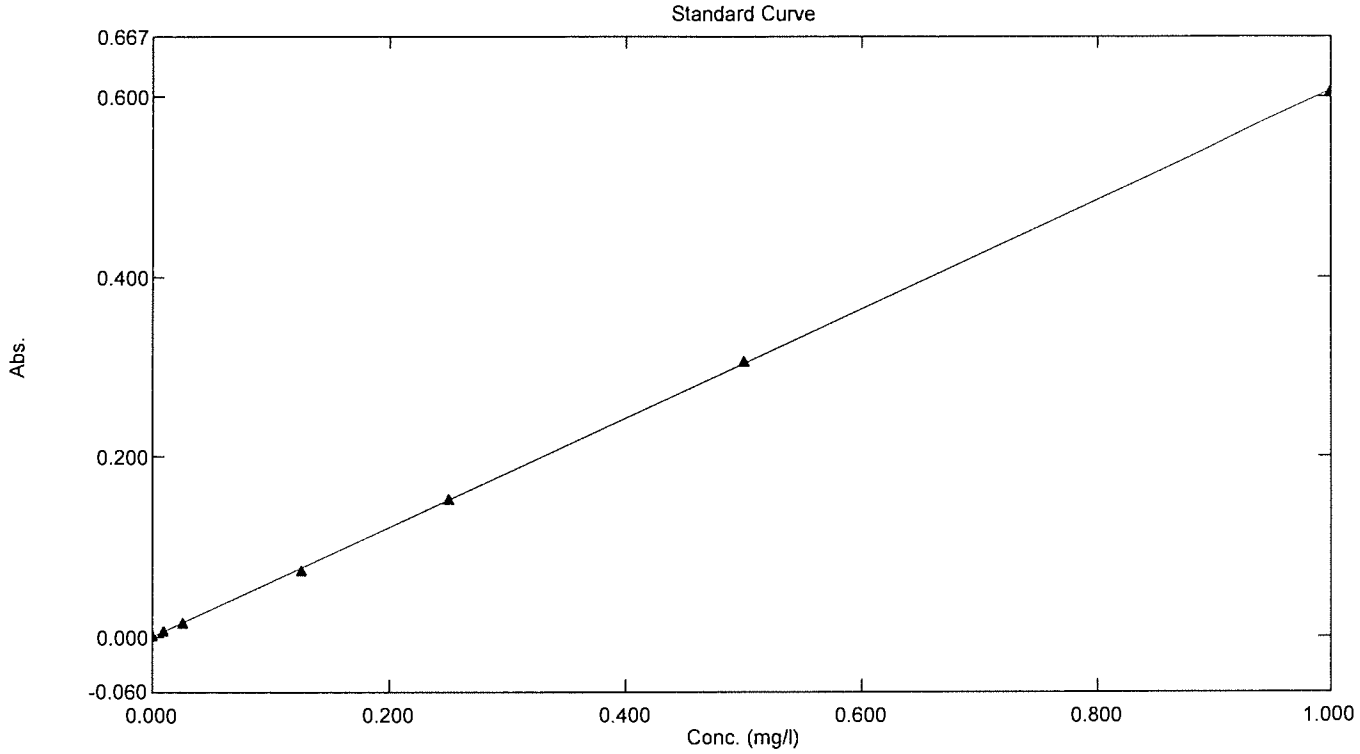
PrepUnitFac: 1

| SampID | Frac | Matrix | pH | Init Wt/Vol | FinalVol (mL) | PrepFac | SpkFac | Comments |
|---|---|---|---|---|---|---|---|---|
| HS18120736-01 | H | Groundwater | | 5 | 50 | 10 | 10 | |
| HS18120736-02 | H | Groundwater | | 5 | 50 | 10 | 10 | |
| HS18120736-03 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120736-04 | H | Groundwater | | 50 | 50 | 1 | 1 | |
| HS18120973-02 | B | Water | | 50 | 50 | 1 | 1 | |
| HS18120973-02MS | A | | | 50 | 50 | 1 | 1 | |
| HS18120973-02MSD | A | | | 50 | 50 | 1 | 1 | |
| HS18120996-01 | D | Water | | 50 | 50 | 1 | 1 | |
| LCS-135984 | A | | | 50 | 50 | 1 | 1 | |
| MBLK-135984 | A | | | 50 | 50 | 1 | 1 | |

# Standard Table Report

01/21/2019 04:59:12 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181224_P_TW_.pho




Correlation Coefficient r2 = 0.99993

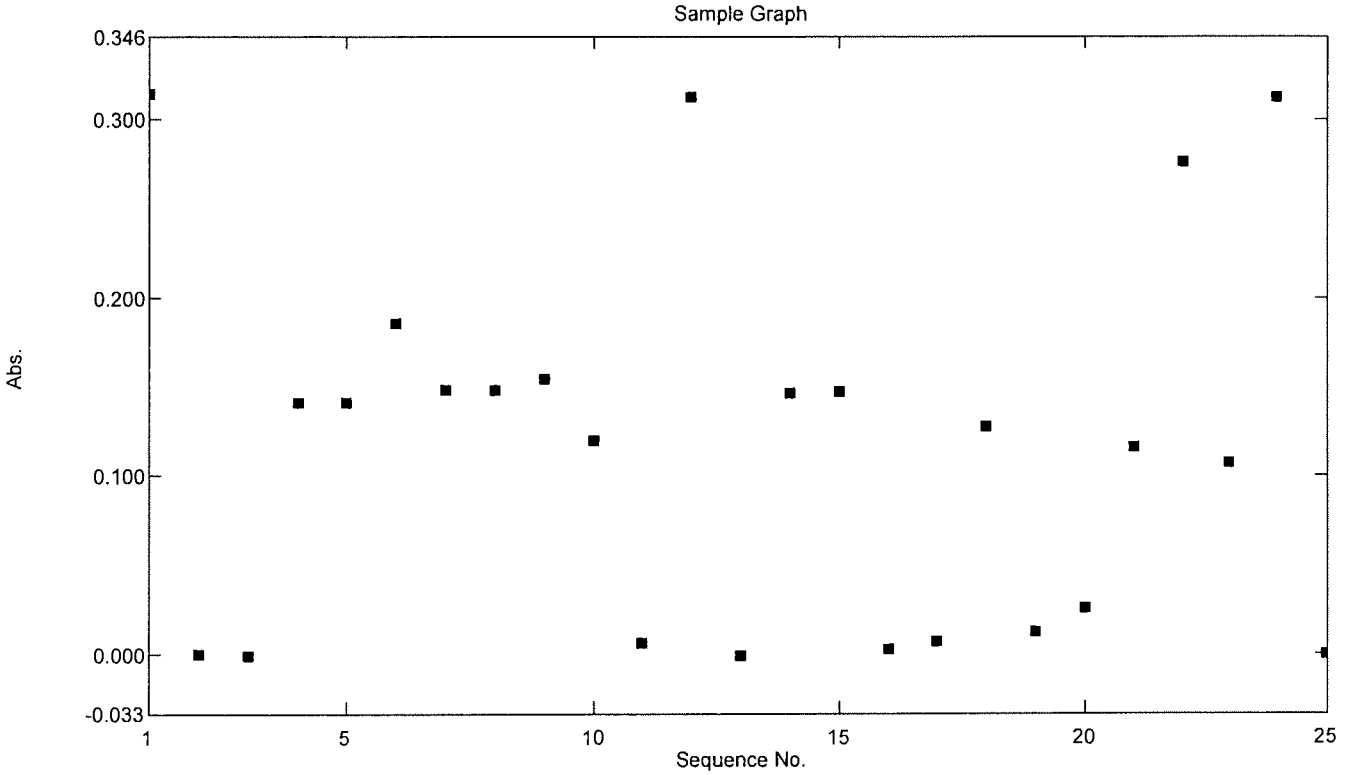
Standard Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Wgt.Facto | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | 0.001 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.007 | 1.000 | |
| 3 | STD3 | Standard | | 0.025 | 0.016 | 1.000 | |
| 4 | STD4 | Standard | | 0.125 | 0.073 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.153 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.307 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.606 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

01/21/2019 04:59:15 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181224_P_TW_.pho



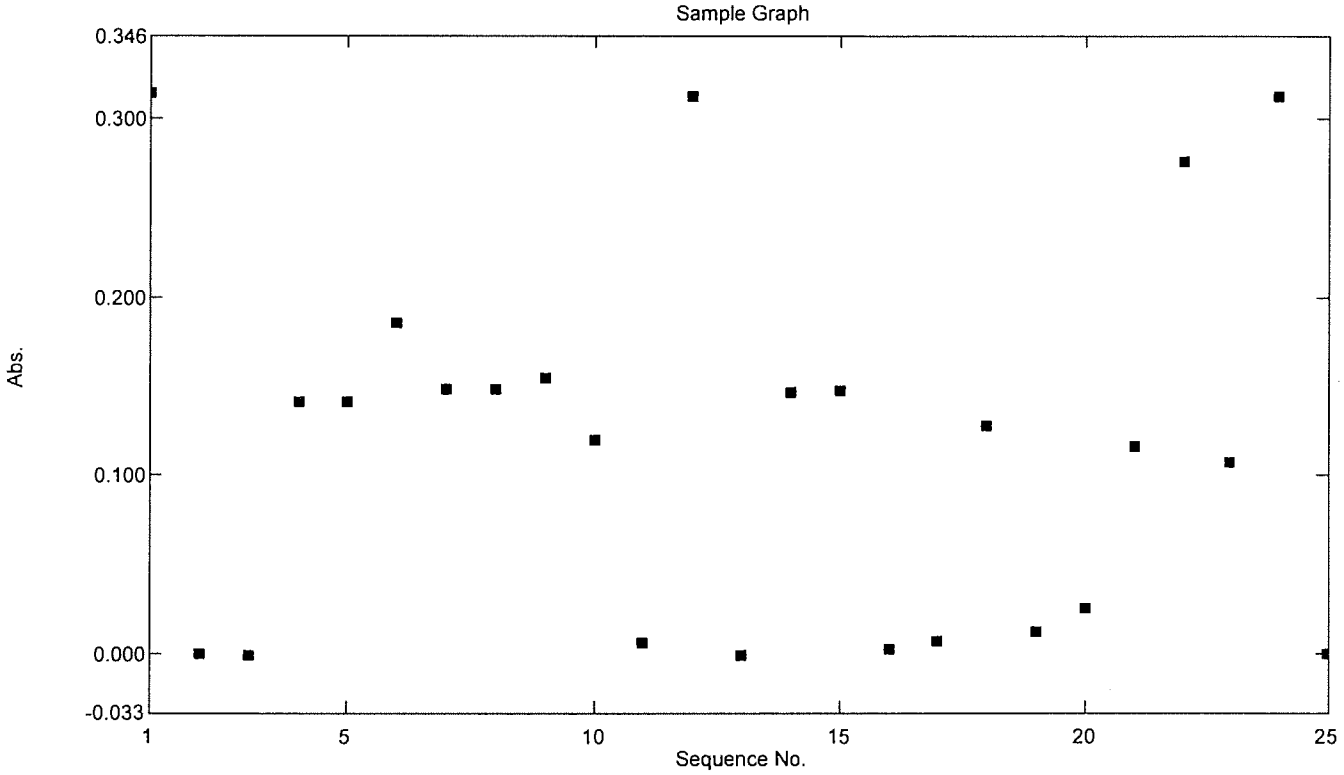

Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.518 | 0.315 | |
| 2 | CCB | Unknown | | -0.001 | 0.000 | |
| 3 | MBLK | Unknown | | -0.003 | -0.001 | |
| 4 | LCS | Unknown | | 0.232 | 0.141 | |
| 5 | LCSD | Unknown | | 0.231 | 0.141 | |
| 6 | 18120736.01 | Unknown | | 0.305 | 0.186 | PF:10X |
| 7 | 18120736.02 | Unknown | | 0.243 | 0.148 | PF:10X |
| 8 | 18120736.03 | Unknown | | 0.244 | 0.149 | |
| 9 | 18120736.04 | Unknown | | 0.253 | 0.154 | |
| 10 | 18120973.01 | Unknown | | 0.196 | 0.120 | |
| 11 | 18120973.02 | Unknown | | 0.009 | 0.006 | |
| 12 | CCV2 | Unknown | | 0.514 | 0.313 | |
| 13 | CCB2 | Unknown | | -0.002 | -0.001 | |
| 14 | 18120973.02MS | Unknown | | 0.240 | 0.147 | |
| 15 | 18120973.02MSD | Unknown | | 0.241 | 0.147 | |
| 16 | 18120973.03 | Unknown | | 0.003 | 0.003 | |
| 17 | 18120973.04 | Unknown | | 0.010 | 0.007 | |
| 18 | 18120996.01 | Unknown | | 0.209 | 0.128 | |
| 19 | 18121055.01 | Unknown | | 0.019 | 0.013 | |

# Sample Table Report

01/21/2019 04:59:15 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181224_P_TW_.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 20 | 18121055.02 | Unknown | | 0.041 | 0.026 | |
| 21 | 18121130.01 | Unknown | | 0.191 | 0.116 | |
| 22 | 18121231.01 | Unknown | | 0.454 | 0.276 | PF:10X |
| 23 | 18121231.02 | Unknown | | 0.176 | 0.108 | |
| 24 | CCV3 | Unknown | | 0.514 | 0.312 | |
| 25 | CCB3 | Unknown | | -0.001 | 0.000 | |
| 26 | | | | | | |

00947548

HS18120736

| Reagent ID: | Prep. Date: | | Date/Time: | 12/19/18 19:00 | Reported by: | JHD/ |
|---|---|---|---|---|---|---|
| 2970207917 | | | Batch ID: | | Reviewed by: | |
| 2970207820 | | | | | Log Book #: | |
| 2970207101 | | | LCS ID# : | 2970206703 → | Prep. Date: | |
| 308055203 | 10/31/18 | | MS ID# : | 2970206703 → | Prep. Date: | |

**Calculated Iodine Normality => 0.0251666666666667 Iodine (N)**

| WO | WO | Sx Vol. (mL) | Iodine (mL) | Titrant used (mL) | Sod. Thio. (N) | Iodine (N) | Init. Conc. | Final Conc. |
|---|---|---|---|---|---|---|---|---|
| STD1 | STD1 | 0 | 20 | 20.00 | 0.0250 | 0.02500 | | |
| STD2 | STD2 | 0 | 20 | 20.10 | 0.0250 | 0.02513 | 0.0252 | |
| STD3 | STD3 | 0 | 20 | 20.30 | 0.0250 | 0.02538 | Iodine (N) | (mg/L) |
| BLK | BLK | 200 | 20 | 20.20 | 0.0250 | 0.0252 | | -0.08 |
| LCS | LCS | 200 | 20 | 8.90 | 0.0250 | 0.0252 | | 22.52 |
| LCSD | LCSD | 200 | 20 | 9.10 | 0.0250 | 0.0252 | | 22.12 |
| HS18120736-01 | SAMP | 200 | 20 | 19.90 | 0.0250 | 0.0252 | | 0.52 |
| HS18120736-02 | SAMP | 10 | 20 | 20.20 | 0.0250 | 0.0252 | | -1.60 |
| HS18120736-03 | SAMP | 200 | 20 | 20.10 | 0.0250 | 0.0252 | | 0.12 |
| HS18120736-04 | SAMP | 200 | 20 | 20.10 | 0.0250 | 0.0252 | | 0.12 |
| HS18120825-14 | SAMP | 200 | 20 | 16.90 | 0.0250 | 0.0252 | | 6.52 |
| HS18120825-18 | SAMP | 200 | 20 | 17.90 | 0.0250 | 0.0252 | | 4.52 |
| HS18120825-21 | SAMP | 200 | 20 | 16.20 | 0.0250 | 0.0252 | | 7.92 |
| HS18120825-22 | SAMP | 200 | 20 | 14.10 | 0.0250 | 0.0252 | | 12.12 |
| HS18120736-04MS | MS | 200 | 20 | 6.10 | 0.0250 | 0.0252 | | 28.12 |
| HS18120825-06 | SAMP | 200 | 20 | 18.30 | 0.0250 | 0.0252 | | 3.72 |
| HS18120825-07 | SAMP | 200 | 20 | 10.00 | 0.0250 | 0.0252 | | 20.32 |
| HS18120825-10 | SAMP | 200 | 20 | 15.00 | 0.0250 | 0.0252 | | 10.32 |
| HS18120825-11 | SAMP | 200 | 20 | 19.70 | 0.0250 | 0.0252 | | 0.92 |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |
| | | | | | 0.0250 | | | |

HS181207 36

Report Date: 12/20/2018 : 8:27

# PC-TitratION PLUS
## Calibration Report

### Calibration Record # 2064

**Calibration Settings**

| | | | |
|---|---|---|---|
| Calibration ID | PH CAL 4-7-10 | Date | 12/20/2018 |
| Channel | 1 | Time | 8:27 PM |
| Probe Type | pH | Temperature | 295.99 K 22.84 C |
| Probe ID | PH ELECTRODE | Analysis Type | Single Line Fit |

**Calibration Results**

| | | | |
|---|---|---|---|
| Slope | -57.452 | CorrCoeff | 0.9997 |
| Intercept | 3.867 | Equation: Y = (-57.452) X + ( 3.867 ) | |

**Calibration Validity** True Operator

| | Result | Minimum | Maximum |
|---|---|---|---|
| **Slope** | -57.452 | -65.00 | -53.00 |
| **Intercept** | 3.867 | -100.00 | 100.00 |
| **Correlation Coefficient** | 0.9997 | 0.99 | 1.00 |

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

AIKA: 329695
AIKB: 329699
AIKC: 329700

| Calibration Data | Standard | Reading |
|---|---|---|
| | 4.00 | 178.58 |
| | 7.00 | -0.85 |
| | 10.00 | -166.13 |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CALRPRTLive1.SRW
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00947550

Report Date: 12/21/2018 : 7:56 AM

# *PC-TitratION PLUS*
## Water Analysis Report

**Run Number** 3446 **Order Number** 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ICV-PH | 12/20/2018 | 8:34 PM | 22.92 | -1.00 | 6.05 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| TAP WATER | 12/20/2018 | 8:41 PM | 23.33 | -1.00 | 7.72 | .00 | 149.66 | 149.66 | .00 | .00 | .00 | 1.43 | 1.43 |
| WBLKW1-181220 | 12/20/2018 | 8:45 PM | 22.78 | -1.00 | 5.84 | .00 | .34 | .34 | .00 | .00 | .00 | .02 | .02 |
| LCS1-181220 | 12/20/2018 | 8:54 PM | 22.86 | -1.00 | 10.95 | 547.45 | 1,060.90 | .00 | 1,026.91 | 33.99 | 5.21 | 10.10 | 10.10 |
| LCSD1-181220 | 12/20/2018 | 9:04 PM | 22.86 | -1.00 | 10.95 | 544.55 | 1,056.90 | .00 | 1,024.69 | 32.21 | 5.19 | 10.07 | 10.07 |
| HS18120569-01 | 12/20/2018 | 9:13 PM | 22.74 | -1.00 | 6.90 | .00 | 1,193.63 | 1,193.63 | .00 | .00 | .00 | 11.37 | 11.37 |
| HS18120569-02 | 12/20/2018 | 9:18 PM | 22.60 | -1.00 | 5.95 | .00 | 45.86 | 45.86 | .00 | .00 | .00 | .44 | .44 |
| HS18120569-03 | 12/20/2018 | 9:24 PM | 22.43 | -1.00 | 6.56 | .00 | 198.03 | 198.03 | .00 | .00 | .00 | 1.89 | 1.89 |
| HS18120569-04 | 12/20/2018 | 9:34 PM | 22.35 | -1.00 | 6.11 | .00 | 1,109.93 | 1,109.93 | .00 | .00 | .00 | 10.57 | 10.57 |
| HS18120569-05 | 12/20/2018 | 9:45 PM | 22.49 | -1.00 | 7.25 | .00 | 1,637.90 | 1,637.90 | .00 | .00 | .00 | 15.60 | 15.60 |
| HS18120642-01 | 12/20/2018 | 9:55 PM | 22.57 | -1.00 | 6.13 | .00 | 1,212.56 | 1,212.56 | .00 | .00 | .00 | 11.55 | 11.55 |
| CCV-PH | 12/20/2018 | 9:57 PM | 22.70 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/20/2018 | 10:06 PM | 22.42 | -1.00 | 10.92 | 542.50 | 1,065.15 | .00 | 1,045.28 | 19.86 | 5.17 | 10.14 | 10.14 |
| DI RINSE | 12/20/2018 | 10:11 PM | 22.37 | -1.00 | 5.87 | .00 | .51 | .51 | .00 | .00 | .00 | .02 | .02 |
| HS18120642-02 | 12/20/2018 | 10:22 PM | 22.26 | -1.00 | 6.34 | .00 | 1,429.21 | 1,429.21 | .00 | .00 | .00 | 13.61 | 13.61 |
| HS18120642-03 | 12/20/2018 | 10:27 PM | 22.23 | -1.00 | 6.42 | .00 | 281.92 | 281.92 | .00 | .00 | .00 | 2.68 | 2.68 |
| HS18120927-01 | 12/20/2018 | 10:34 PM | 22.16 | -1.00 | 7.56 | .00 | 511.17 | 511.17 | .00 | .00 | .00 | 4.87 | 4.87 |
| HS18120927-03 | 12/20/2018 | 10:42 PM | 22.08 | -1.00 | 7.65 | .00 | 515.51 | 515.51 | .00 | .00 | .00 | 4.91 | 4.91 |
| HS18120927-04 | 12/20/2018 | 10:50 PM | 22.08 | -1.00 | 7.41 | .00 | 869.76 | 869.76 | .00 | .00 | .00 | 8.28 | 8.28 |
| HS18120927-05 | 12/20/2018 | 10:57 PM | 22.13 | -1.00 | 7.99 | .00 | 647.59 | 647.59 | .00 | .00 | .00 | 6.17 | 6.17 |
| HS18120927-05DUP | 12/20/2018 | 11:05 PM | 22.07 | -1.00 | 7.98 | .00 | 650.20 | 650.20 | .00 | .00 | .00 | 6.19 | 6.19 |
| HS18120736-01DF5 | 12/20/2018 | 11:12 PM | 21.87 | -1.00 | 7.26 | .00 | 172.44 | 172.44 | .00 | .00 | .00 | 1.64 | 1.64 |
| HS18120736-02DF10 | 12/20/2018 | 11:18 PM | 21.71 | -1.00 | 7.72 | .00 | 342.28 | 342.28 | .00 | .00 | .00 | 3.26 | 3.26 |
| CCV-PH | 12/20/2018 | 11:21 PM | 21.56 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/20/2018 | 11:29 PM | 21.34 | -1.00 | 10.92 | 542.29 | 1,061.88 | .00 | 1,039.18 | 22.70 | 5.16 | 10.11 | 10.11 |
| DI RINSE | 12/20/2018 | 11:34 PM | 21.45 | -1.00 | 6.11 | .00 | .52 | .52 | .00 | .00 | .00 | .02 | .02 |
| HS18120736-03 | 12/20/2018 | 11:39 PM | 21.40 | -1.00 | 6.15 | .00 | 50.38 | 50.38 | .00 | .00 | .00 | .48 | .48 |



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GENERAL RESULTS REPORT.SRW

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**Run Number** 3446 **Order Number** 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HS18120736-04 | 12/20/2018 | 11:45 PM | 21.41 | -1.00 | 6.13 | .00 | 55.09 | 55.09 | .00 | .00 | .00 | .52 | .52 |
| HS18120779-23 | 12/20/2018 | 11:49 PM | 21.58 | -1.00 | 5.76 | .00 | .44 | .44 | .00 | .00 | .00 | .02 | .02 |
| HS18120927-06 | 12/20/2018 | 11:57 PM | 21.48 | -1.00 | 7.87 | .00 | 97.35 | 97.35 | .00 | .00 | .00 | .93 | .93 |
| HS18120927-07 | 12/21/2018 | 12:03 AM | 21.38 | -1.00 | 7.66 | .00 | 514.19 | 514.19 | .00 | .00 | .00 | 4.90 | 4.90 |
| HS18120927-08 | 12/21/2018 | 12:11 AM | 21.31 | -1.00 | 7.79 | .00 | 289.56 | 289.56 | .00 | .00 | .00 | 2.76 | 2.76 |
| WBLKW2-181220 | 12/21/2018 | 12:15 AM | 21.19 | -1.00 | 5.84 | .00 | .42 | .42 | .00 | .00 | .00 | .02 | .02 |
| WLCS2-181220 | 12/21/2018 | 12:24 AM | 21.06 | -1.00 | 10.91 | 543.38 | 1,065.28 | .00 | 1,043.80 | 21.48 | 5.18 | 10.15 | 10.15 |
| WLCSD2-181220 | 12/21/2018 | 12:33 AM | 21.06 | -1.00 | 10.91 | 540.17 | 1,057.87 | .00 | 1,035.40 | 22.47 | 5.14 | 10.07 | 10.07 |
| CCV-PH | 12/21/2018 | 12:35 AM | 21.03 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 12:44 AM | 20.94 | -1.00 | 10.90 | 543.35 | 1,065.58 | .00 | 1,044.46 | 21.12 | 5.17 | 10.15 | 10.15 |
| DI RINSE | 12/21/2018 | 12:49 AM | 21.21 | -1.00 | 6.13 | .00 | .63 | .63 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-01 | 12/21/2018 | 12:56 AM | 21.06 | -1.00 | 8.63 | 16.83 | 478.96 | 445.31 | 33.65 | .00 | .16 | 4.56 | 4.56 |
| HS18120779-02 | 12/21/2018 | 1:03 AM | 20.96 | -1.00 | 7.51 | .00 | 322.36 | 322.36 | .00 | .00 | .00 | 3.07 | 3.07 |
| HS18120779-02DUP | 12/21/2018 | 1:09 AM | 20.89 | -1.00 | 7.52 | .00 | 321.87 | 321.87 | .00 | .00 | .00 | 3.07 | 3.07 |
| HS18120779-03 | 12/21/2018 | 1:16 AM | 20.81 | -1.00 | 7.54 | .00 | 412.60 | 412.60 | .00 | .00 | .00 | 3.93 | 3.93 |
| HS18120779-04 | 12/21/2018 | 1:23 AM | 20.78 | -1.00 | 7.72 | .00 | 466.80 | 466.80 | .00 | .00 | .00 | 4.45 | 4.45 |
| HS18120779-05 | 12/21/2018 | 1:31 AM | 20.74 | -1.00 | 8.22 | .00 | 634.92 | 634.92 | .00 | .00 | .00 | 6.05 | 6.05 |
| HS18120779-06 | 12/21/2018 | 1:38 AM | 20.73 | -1.00 | 8.17 | .00 | 664.91 | 664.91 | .00 | .00 | .00 | 6.33 | 6.33 |
| HS18120779-07 | 12/21/2018 | 1:46 AM | 20.91 | -1.00 | 8.48 | 11.64 | 501.47 | 478.19 | 23.27 | .00 | .11 | 4.78 | 4.78 |
| HS18120779-08 | 12/21/2018 | 1:52 AM | 20.83 | -1.00 | 7.36 | .00 | 231.19 | 231.19 | .00 | .00 | .00 | 2.20 | 2.20 |
| CCV-PH | 12/21/2018 | 1:55 AM | 20.63 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 2:04 AM | 20.48 | -1.00 | 10.89 | 541.68 | 1,070.54 | .00 | 1,057.72 | 12.82 | 5.16 | 10.20 | 10.20 |
| DI RINSE | 12/21/2018 | 2:09 AM | 20.49 | -1.00 | 6.10 | .00 | .57 | .57 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-09 | 12/21/2018 | 2:17 AM | 20.43 | -1.00 | 7.98 | .00 | 926.02 | 926.02 | .00 | .00 | .00 | 8.82 | 8.82 |
| HS18120779-10 | 12/21/2018 | 2:22 AM | 20.40 | -1.00 | 6.01 | .00 | .79 | .79 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-12 | 12/21/2018 | 2:29 AM | 20.40 | -1.00 | 7.93 | .00 | 515.07 | 515.07 | .00 | .00 | .00 | 4.91 | 4.91 |
| HS18120779-13 | 12/21/2018 | 2:38 AM | 20.41 | -1.00 | 8.08 | .00 | 731.43 | 731.43 | .00 | .00 | .00 | 6.97 | 6.97 |
| HS18120779-14 | 12/21/2018 | 2:44 AM | 20.49 | -1.00 | 7.70 | .00 | 453.37 | 453.37 | .00 | .00 | .00 | 4.32 | 4.32 |
| HS18120779-15 | 12/21/2018 | 2:51 AM | 20.36 | -1.00 | 7.50 | .00 | 247.94 | 247.94 | .00 | .00 | .00 | 2.36 | 2.36 |
| HS18120779-16 | 12/21/2018 | 2:58 AM | 20.25 | -1.00 | 7.70 | .00 | 395.33 | 395.33 | .00 | .00 | .00 | 3.77 | 3.77 |







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## Run Number 3446 Order Number 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HS18120779-17 | 12/21/2018 | 3:05 AM | 20.19 | -1.00 | 8.41 | 7.88 | 401.51 | 385.76 | 15.76 | .00 | .08 | 3.82 | 3.82 |
| HS18120779-18 | 12/21/2018 | 3:12 AM | 20.08 | -1.00 | 7.57 | .00 | 722.42 | 722.42 | .00 | .00 | .00 | 6.88 | 6.88 |
| CCV-PH | 12/21/2018 | 3:15 AM | 20.00 | -1.00 | 7.07 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 3:24 AM | 19.92 | -1.00 | 10.87 | 539.52 | 1,065.42 | .00 | 1,051.80 | 13.62 | 5.14 | 10.15 | 10.15 |
| DI RINSE | 12/21/2018 | 3:29 AM | 19.96 | -1.00 | 6.08 | .00 | .53 | .53 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-19 | 12/21/2018 | 3:38 AM | 20.15 | -1.00 | 7.51 | .00 | 1,226.68 | 1,226.68 | .00 | .00 | .00 | 11.68 | 11.68 |
| HS18120779-20 | 12/21/2018 | 3:47 AM | 20.00 | -1.00 | 7.48 | .00 | 951.67 | 951.67 | .00 | .00 | .00 | 9.06 | 9.06 |
| HS18120779-21 | 12/21/2018 | 3:54 AM | 19.92 | -1.00 | 7.48 | .00 | 681.28 | 681.28 | .00 | .00 | .00 | 6.49 | 6.49 |
| WBLKW3-181220 | 12/21/2018 | 4:00 AM | 20.00 | -1.00 | 6.38 | .00 | 26.88 | 26.88 | .00 | .00 | .00 | .26 | .26 |
| LCS3-181220 | 12/21/2018 | 4:09 AM | 19.68 | -1.00 | 10.87 | 542.57 | 1,069.49 | .00 | 1,053.85 | 15.64 | 5.17 | 10.19 | 10.19 |
| LCSD3-181220 | 12/21/2018 | 4:18 AM | 19.71 | -1.00 | 10.87 | 538.56 | 1,061.72 | .00 | 1,046.31 | 15.41 | 5.13 | 10.11 | 10.11 |
| HS18121010-01 | 12/21/2018 | 4:24 AM | 19.63 | -1.00 | 6.76 | .00 | 298.43 | 298.43 | .00 | .00 | .00 | 2.84 | 2.84 |
| HS18121010-01DUP | 12/21/2018 | 4:30 AM | 19.56 | -1.00 | 6.78 | .00 | 296.07 | 296.07 | .00 | .00 | .00 | 2.82 | 2.82 |
| HS18121010-02 | 12/21/2018 | 4:36 AM | 19.50 | -1.00 | 6.68 | .00 | 267.13 | 267.13 | .00 | .00 | .00 | 2.54 | 2.54 |
| CCV-PH | 12/21/2018 | 4:39 AM | 19.63 | -1.00 | 7.07 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 4:48 AM | 19.59 | -1.00 | 10.84 | 539.66 | 1,072.45 | .00 | 1,065.58 | 6.87 | 5.14 | 10.21 | 10.21 |
| DI RINSE | 12/21/2018 | 4:53 AM | 19.55 | -1.00 | 6.08 | .00 | .49 | .49 | .00 | .00 | .00 | .02 | .02 |
| HS18120779-22 | 12/21/2018 | 5:02 AM | 19.51 | -1.00 | 7.57 | .00 | 1,240.44 | 1,240.44 | .00 | .00 | .00 | 11.81 | 11.81 |
| HS18120832-01DF5 | 12/21/2018 | 5:09 AM | 19.43 | -1.00 | 6.96 | .00 | 8.33 | 8.33 | .00 | .00 | .00 | .10 | .10 |
| HS18120918-01 | 12/21/2018 | 5:17 AM | 19.38 | -1.00 | 8.64 | 33.51 | 956.57 | 889.54 | 67.02 | .00 | .32 | 9.11 | 9.11 |
| HS18120829-01 | 12/21/2018 | 5:26 AM | 19.35 | -1.00 | 7.22 | .00 | 1,007.30 | 1,007.30 | .00 | .00 | .00 | 9.59 | 9.59 |
| HS18120829-02 | 12/21/2018 | 5:34 AM | 19.22 | -1.00 | 7.11 | .00 | 755.96 | 755.96 | .00 | .00 | .00 | 7.20 | 7.20 |
| HS18120829-03 | 12/21/2018 | 5:41 AM | 19.36 | -1.00 | 7.16 | .00 | 758.73 | 758.73 | .00 | .00 | .00 | 7.23 | 7.23 |
| HS18120829-04 | 12/21/2018 | 5:54 AM | 19.31 | -1.00 | 7.52 | .00 | 1,902.18 | 1,902.18 | .00 | .00 | .00 | 18.12 | 18.12 |
| HS18120829-05 | 12/21/2018 | 6:03 AM | 19.24 | -1.00 | 7.26 | .00 | 895.16 | 895.16 | .00 | .00 | .00 | 8.53 | 8.53 |
| HS18120829-06 | 12/21/2018 | 6:11 AM | 19.23 | -1.00 | 7.21 | .00 | 920.45 | 920.45 | .00 | .00 | .00 | 8.77 | 8.77 |
| CCV-PH | 12/21/2018 | 6:13 AM | 19.05 | -1.00 | 7.07 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 6:22 AM | 18.96 | -1.00 | 10.84 | 536.26 | 1,061.91 | .00 | 1,051.30 | 10.61 | 5.11 | 10.11 | 10.11 |
| DI RINSE | 12/21/2018 | 6:26 AM | 18.94 | -1.00 | 6.07 | .00 | .43 | .43 | .00 | .00 | .00 | .02 | .02 |
| HS18120829-07 | 12/21/2018 | 6:37 AM | 18.93 | -1.00 | 7.56 | .00 | 1,303.08 | 1,303.08 | .00 | .00 | .00 | 12.41 | 12.41 |







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Run Number 3446 Order Number 20181220-7

| SampleID | RunDate | RunTime | Temp | cond (uS) | pH | palk-ppm | talk-ppm | bcarb-ppm | carb-ppm | hydr-ppm | mLs @ 8.3 | mLs @ 4.5 | mLs @ 4.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HS18120829-08 | 12/21/2018 | 6:44 AM | 18.93 | -1.00 | 7.31 | .00 | 774.69 | 774.69 | .00 | .00 | .00 | 7.38 | 7.38 |
| HS18120829-09 | 12/21/2018 | 6:57 AM | 19.10 | -1.00 | 7.51 | .00 | 1,910.33 | 1,910.33 | .00 | .00 | .00 | 18.19 | 18.19 |
| HS18120947-01 | 12/21/2018 | 7:05 AM | 19.18 | -1.00 | 7.67 | .00 | 925.75 | 925.75 | .00 | .00 | .00 | 8.82 | 8.82 |
| HS18120991-05 | 12/21/2018 | 7:10 AM | 19.10 | -1.00 | 6.41 | .00 | 1.04 | 1.04 | .00 | .00 | .00 | .03 | .03 |
| HS18120991-06 | 12/21/2018 | 7:16 AM | 19.07 | -1.00 | 6.19 | .00 | .73 | .73 | .00 | .00 | .00 | .02 | .02 |
| HS18120991-07 | 12/21/2018 | 7:24 AM | 19.07 | -1.00 | 11.73 | 246.49 | 310.75 | .00 | 128.53 | 182.23 | 2.35 | 2.96 | 2.96 |
| HS18120992-04 | 12/21/2018 | 7:31 AM | 19.09 | -1.00 | 7.42 | .00 | 355.60 | 355.60 | .00 | .00 | .00 | 3.39 | 3.39 |
| HS18120992-05 | 12/21/2018 | 7:38 AM | 19.05 | -1.00 | 7.84 | 00 | 247.09 | 247.09 | .00 | .00 | .00 | 2.35 | 2.35 |
| CCV-PH | 12/21/2018 | 7:41 AM | 19.02 | -1.00 | 7.08 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 | -1.00 |
| CCV-ALK | 12/21/2018 | 7:49 AM | 19.17 | -1.00 | 10.80 | 527.01 | 1,061.96 | 7.93 | 1,054.03 | .00 | 5.02 | 10.11 | 10.11 |
| DI RINSE | 12/21/2018 | 7:53 AM | 19.38 | -1.00 | 6.00 | .00 | .55 | .55 | .00 | .00 | .00 | .02 | .02 |







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Sequence: 121318 HS18120736
Operator: alshs.nouser


Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume |
|---|---|---|---|---|---|---|---|---|
| 1 | STD1 | | Standard | 91 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 2 | STD2 | | Standard | 92 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 3 | STD3 | | Standard | 93 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 4 | STD4 | | Standard | 94 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 5 | STD5 | | Standard | 95 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 6 | STD6 | | Standard | 96 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 7 | ICV | | Unknown | 97 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 8 | ICB | | Unknown | 98 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 9 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 10 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 11 | MBLK-135564 | | Unknown | 11 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 12 | LCS-135564 | | Unknown | 12 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 13 | LCSD-135564 | | Unknown | 13 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 14 | HS18120413-02DF10 | | Unknown | 14 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 15 | HS18120413-04 | | Unknown | 15 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 16 | HS18120413-06DF5 | | Unknown | 16 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 17 | HS18120413-08DF20 | | Unknown | 17 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 18 | HS18120413-08MSDF20 | | Unknown | 18 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 19 | HS18120413-08MSDDF20 | | Unknown | 19 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 20 | HS18120413-10DF10 | | Unknown | 20 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 21 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 22 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 23 | WBLKW1-121318 | 9056_W | Unknown | 21 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 24 | WLCSW1-121318 | | Unknown | 22 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 25 | WLCSDW1-121318 | | Unknown | 23 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 26 | HS18120736-03 | | Unknown | 28 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 27 | HS18120736-03DF5 | | Unknown | 29 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 28 | HS18120736-04 | | Unknown | 30 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 29 | HS18120736-04MS | | Unknown | 31 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 30 | HS18120736-04MSD | | Unknown | 32 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 31 | HS18120783-01 | | Unknown | 42 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 32 | HS18111386-01 | | Unknown | 36 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 33 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 34 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 35 | HS18120736-01DF2 | | Unknown | 24 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 36 | HS18120736-01DF50 | | Unknown | 25 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 37 | HS18120736-02DF2 | | Unknown | 26 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 38 | HS18120736-02DF50 | | Unknown | 27 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 39 | HS18120736-01 | | Unknown | 45 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 40 | HS18120757-01 | | Unknown | 37 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 41 | HS18120757-02 | | Unknown | 38 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 42 | HS18120757-02MS | | Unknown | 39 | 1.0000 | 10.0 | 1.00 | 1.00 |

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Sequence: 121318
Operator: alshs.nouser


Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Method | Status | Inj. Date/Time | Program |
|---|---|---|---|---|---|
| 1 | STD1 | 121218 | Finished | 12/12/2018 3:52:35 PM | Anions Gradient Program |
| 2 | STD2 | 121218 | Finished | 12/12/2018 4:07:08 PM | Anions Gradient Program |
| 3 | STD3 | 121218 | Finished | 12/12/2018 4:21:41 PM | Anions Gradient Program |
| 4 | STD4 | 121218 | Finished | 12/12/2018 4:36:13 PM | Anions Gradient Program |
| 5 | STD5 | 121218 | Finished | 12/12/2018 4:50:46 PM | Anions Gradient Program |
| 6 | STD6 | 121218 | Finished | 12/12/2018 5:05:19 PM | Anions Gradient Program |
| 7 | ICV | 121218 | Finished | 12/12/2018 5:19:52 PM | Anions Gradient Program |
| 8 | ICB | 121218 | Finished | 12/12/2018 5:34:25 PM | Anions Gradient Program |
| 9 | CCV | 121218 | Finished | 12/13/2018 12:10:57 PM | Anions Gradient Program |
| 10 | CCB | 121218 | Finished | 12/13/2018 12:25:30 PM | Anions Gradient Program |
| 11 | MBLK-135564 | 121218 | Finished | 12/13/2018 1:17:50 PM | Anions Gradient Program |
| 12 | LCS-135564 | 121218 | Finished | 12/13/2018 1:32:23 PM | Anions Gradient Program |
| 13 | LCSD-135564 | 121218 | Finished | 12/13/2018 1:46:56 PM | Anions Gradient Program |
| 14 | HS18120413-02DF10 | 121218 | Finished | 12/13/2018 2:01:29 PM | Anions Gradient Program |
| 15 | HS18120413-04 | 121218 | Finished | 12/13/2018 2:16:03 PM | Anions Gradient Program |
| 16 | HS18120413-06DF5 | 121218 | Finished | 12/13/2018 2:30:35 PM | Anions Gradient Program |
| 17 | HS18120413-08DF20 | 121218 | Finished | 12/13/2018 2:45:08 PM | Anions Gradient Program |
| 18 | HS18120413-08MSDF20 | 121218 | Finished | 12/13/2018 2:59:41 PM | Anions Gradient Program |
| 19 | HS18120413-08MSDDF20 | 121218 | Finished | 12/13/2018 3:14:13 PM | Anions Gradient Program |
| 20 | HS18120413-10DF10 | 121218 | Finished | 12/13/2018 3:28:46 PM | Anions Gradient Program |
| 21 | CCV1 | 121218 | Finished | 12/13/2018 3:43:18 PM | Anions Gradient Program |
| 22 | CCB | 121218 | Finished | 12/13/2018 3:57:51 PM | Anions Gradient Program |
| 23 | WBLKW1-121318 | 121218 | Finished | 12/13/2018 4:12:24 PM | Anions Gradient Program |
| 24 | WLCSW1-121318 | 121218 | Finished | 12/13/2018 4:26:57 PM | Anions Gradient Program |
| 25 | WLCSDW1-121318 | 121218 | Finished | 12/13/2018 4:41:30 PM | Anions Gradient Program |
| 26 | HS18120736-03 | 121218 | Finished | 12/13/2018 4:56:02 PM | Anions Gradient Program |
| 27 | HS18120736-03DF5 | 121218 | Finished | 12/13/2018 5:10:35 PM | Anions Gradient Program |
| 28 | HS18120736-04 | 121218 | Finished | 12/13/2018 5:25:08 PM | Anions Gradient Program |
| 29 | HS18120736-04MS | 121218 | Finished | 12/13/2018 5:39:41 PM | Anions Gradient Program |
| 30 | HS18120736-04MSD | 121218 | Finished | 12/13/2018 5:54:13 PM | Anions Gradient Program |
| 31 | HS18120783-01 | 121218 | Finished | 12/13/2018 6:08:46 PM | Anions Gradient Program |
| 32 | HS18111386-01 | 121218 | Finished | 12/13/2018 6:23:19 PM | Anions Gradient Program |
| 33 | CCV | 121218 | Finished | 12/13/2018 6:37:51 PM | Anions Gradient Program |
| 34 | CCB | 121218 | Finished | 12/13/2018 6:52:24 PM | Anions Gradient Program |
| 35 | HS18120736-01DF2 | 121218 | Finished | 12/13/2018 7:24:41 PM | Anions Gradient Program |
| 36 | HS18120736-01DF50 | 121218 | Finished | 12/13/2018 7:39:14 PM | Anions Gradient Program |
| 37 | HS18120736-02DF2 | 121218 | Finished | 12/13/2018 7:53:48 PM | Anions Gradient Program |
| 38 | HS18120736-02DF50 | 121218 | Finished | 12/13/2018 8:08:20 PM | Anions Gradient Program |
| 39 | HS18120736-01 | 121218 | Finished | 12/13/2018 8:37:43 PM | Anions Gradient Program |
| 40 | HS18120757-01 | 121218 | Finished | 12/13/2018 8:52:16 PM | Anions Gradient Program |
| 41 | HS18120757-02 | 121218 | Finished | 12/13/2018 9:06:49 PM | Anions Gradient Program |
| 42 | HS18120757-02MS | 121218 | Finished | 12/13/2018 9:21:22 PM | Anions Gradient Program |

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153
Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | GUID |
|---|---|---|
| 1 | STD1 | 1ad81188-fe58-11e8-b6da-a24899608423 |
| 2 | STD2 | 2312cf21-fe5a-11e8-b6da-a24899608423 |
| 3 | STD3 | 2b6c8b0b-fe5c-11e8-b6da-a24899608423 |
| 4 | STD4 | 3332765f-fe5e-11e8-b6da-a24899608423 |
| 5 | STD5 | 3b9f44f1-fe60-11e8-b6da-a24899608423 |
| 6 | STD6 | 43711bee-fe62-11e8-b6da-a24899608423 |
| 7 | ICV | 4be5117f-fe64-11e8-b6da-a24899608423 |
| 8 | ICB | 544d1b67-fe66-11e8-b6da-a24899608423 |
| 9 | CCV | 4f2554d2-ff02-11e8-b6da-a24899608423 |
| 10 | CCB | 56f004d0-ff04-11e8-b6da-a24899608423 |
| 11 | MBLK-135564 | 47503773-ff0b-11e8-b6da-a24899608423 |
| 12 | LCS-135564 | ae81b8c5-ff0d-11e8-b6da-a24899608423 |
| 13 | LCSD-135564 | b7255cfa-ff0f-11e8-b6da-a24899608423 |
| 14 | HS18120413-02DF10 | bf918c4f-ff11-11e8-b6da-a24899608423 |
| 15 | HS18120413-04 | c87b2097-ff13-11e8-b6da-a24899608423 |
| 16 | HS18120413-06DF5 | d0bc1d17-ff15-11e8-b6da-a24899608423 |
| 17 | HS18120413-08DF20 | d8f9c809-ff17-11e8-b6da-a24899608423 |
| 18 | HS18120413-08MSDF20 | e0deb1ae-ff19-11e8-b6da-a24899608423 |
| 19 | HS18120413-08MSDDF20 | e91bd19c-ff1b-11e8-b6da-a24899608423 |
| 20 | HS18120413-10DF10 | f164dd33-ff1d-11e8-b6da-a24899608423 |
| 21 | CCV1 | f94e8b82-ff1f-11e8-b6da-a24899608423 |
| 22 | CCB | 0167e875-ff22-11e8-b6da-a24899608423 |
| 23 | WBLKW1-121318 | 09a50863-ff24-11e8-b6da-a24899608423 |
| 24 | WLCSW1-121318 | 11dfc5fc-ff26-11e8-b6da-a24899608423 |
| 25 | WLCSDW1-121318 | 1a2ff892-ff28-11e8-b6da-a24899608423 |
| 26 | HS18120736-03 | 226ab62b-ff2a-11e8-b6da-a24899608423 |
| 27 | HS18120736-03DF5 | 2a4adb26-ff2c-11e8-b6da-a24899608423 |
| 28 | HS18120736-04 | 32b54763-ff2e-11e8-b6da-a24899608423 |
| 29 | HS18120736-04MS | 3afe52fa-ff30-11e8-b6da-a24899608423 |
| 30 | HS18120736-04MSD | 43344be9-ff32-11e8-b6da-a24899608423 |
| 31 | HS18120783-01 | 4b16d339-ff34-11e8-b6da-a24899608423 |
| 32 | HS18111386-01 | 536e2cce-ff36-11e8-b6da-a24899608423 |
| 33 | CCV | 5ba425bd-ff38-11e8-b6da-a24899608423 |
| 34 | CCB | 63ed3154-ff3a-11e8-b6da-a24899608423 |
| 35 | HS18120736-01DF2 | 876241de-ff3e-11e8-b6da-a24899608423 |
| 36 | HS18120736-01DF50 | eeb2c181-ff40-11e8-b6da-a24899608423 |
| 37 | HS18120736-02DF2 | f72dde11-ff42-11e8-b6da-a24899608423 |
| 38 | HS18120736-02DF50 | ff8c5ea5-ff44-11e8-b6da-a24899608423 |
| 39 | HS18120736-01 | bb0e010d-ff48-11e8-b6da-a24899608423 |
| 40 | HS18120757-01 | 229c7d52-ff4b-11e8-b6da-a24899608423 |
| 41 | HS18120757-02 | 2ae588e9-ff4d-11e8-b6da-a24899608423 |
| 42 | HS18120757-02MS | 3348ce27-ff4f-11e8-b6da-a24899608423 |

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153
Created: 12/13/2018 7:20:14 PM by alshs.nouser (Modified, not saved)

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume |
|---|---|---|---|---|---|---|---|---|
| 43 | HS18120757-02MSD | | Unknown | 40 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 44 | HS18120642-02DF50 | SO4 9056_W | Unknown | 46 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 45 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 46 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 47 | HS18111386-01DF2 | | Unknown | 44 | 2.0000 | 10.0 | 1.00 | 1.00 |
| 48 | HS18120741-01DF10 | | Unknown | 41 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 49 | HS18111369-01DF20 | | Unknown | 33 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 50 | HS18111369-01DF400 | | Unknown | 34 | 400.0000 | 10.0 | 1.00 | 1.00 |
| 51 | HS18111369-01DF4000 | | Unknown | 35 | 4000.0000 | 10.0 | 1.00 | 1.00 |
| 52 | HS18111473-01DF20 | | Unknown | 47 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 53 | HS18111473-01DF400 | | Unknown | 48 | 400.0000 | 10.0 | 1.00 | 1.00 |
| 54 | HS18111473-02DF20 | | Unknown | 49 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 55 | HS18111473-02DF400 | | Unknown | 50 | 400.0000 | 10.0 | 1.00 | 1.00 |
| 56 | HS18111377-12DF50 | | Unknown | 51 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 57 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 58 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 59 | HS18111377-14 | | Unknown | 52 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 60 | HS18111377-13DF50 | | Unknown | 53 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 61 | HS18111377-11DF10 | | Unknown | 54 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 62 | HS18111377-10 | | Unknown | 55 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 63 | HS18111377-09 | | Unknown | 56 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 64 | HS18111377-08DF5 | | Unknown | 57 | 5.0000 | 10.0 | 1.00 | 1.00 |
| 65 | HS18120449-02 | | Unknown | 70 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 66 | HS18120449-03 | | Unknown | 71 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 67 | HS18120312-01 | | Unknown | 76 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 68 | HS18120312-02 | | Unknown | 77 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 69 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 70 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 71 | HS18120305-01 | | Unknown | 72 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 72 | HS18120305-01MS | | Unknown | 73 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 73 | HS18120305-01MSD | | Unknown | 74 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 74 | HS18120306-01 | | Unknown | 75 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 75 | HS18120315-01 | | Unknown | 78 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 76 | HS18120315-02 | | Unknown | 79 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 77 | HS18120432-01 | | Unknown | 80 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 78 | HS18120432-02 | | Unknown | 81 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 79 | HS18120435-01 | | Unknown | 82 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 80 | HS18120435-02 | | Unknown | 83 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 81 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 82 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 83 | WBLKW1-121418 | | Unknown | 67 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 84 | WLCSW1-121418 | | Unknown | 68 | 1.0000 | 10.0 | 1.00 | 1.00 |

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Sequence: 121318
Operator: alshs.nouser


Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser (Modified, not saved)

| No. | Name | Method | Status | Inj. Date/Time | Program |
|---|---|---|---|---|---|
| 43 | HS18120757-02MSD | 121218 | Finished | 12/13/2018 9:35:55 PM | Anions Gradient Program |
| 44 | HS18120642-02DF50 | 121218 | Finished | 12/13/2018 9:50:28 PM | Anions Gradient Program |
| 45 | CCV1 | 121218 | Finished | 12/13/2018 10:05:00 PM | Anions Gradient Program |
| 46 | CCB | 121218 | Finished | 12/13/2018 10:19:32 PM | Anions Gradient Program |
| 47 | HS18111386-01DF2 | 121218 | Finished | 12/13/2018 10:44:24 PM | Anions Gradient Program |
| 48 | HS18120741-01DF10 | 121218 | Finished | 12/13/2018 10:58:57 PM | Anions Gradient Program |
| 49 | HS18111369-01DF20 | 121218 | Finished | 12/13/2018 11:13:30 PM | Anions Gradient Program |
| 50 | HS18111369-01DF400 | 121218 | Finished | 12/13/2018 11:28:03 PM | Anions Gradient Program |
| 51 | HS18111369-01DF4000 | 121218 | Finished | 12/13/2018 11:42:36 PM | Anions Gradient Program |
| 52 | HS18111473-01DF20 | 121218 | Finished | 12/13/2018 11:57:09 PM | Anions Gradient Program |
| 53 | HS18111473-01DF400 | 121218 | Finished | 12/14/2018 12:11:41 AM | Anions Gradient Program |
| 54 | HS18111473-02DF20 | 121218 | Finished | 12/14/2018 12:26:14 AM | Anions Gradient Program |
| 55 | HS18111473-02DF400 | 121218 | Finished | 12/14/2018 12:40:47 AM | Anions Gradient Program |
| 56 | HS18111377-12DF50 | 121218 | Finished | 12/14/2018 12:55:20 AM | Anions Gradient Program |
| 57 | CCV | 121218 | Finished | 12/14/2018 1:09:52 AM | Anions Gradient Program |
| 58 | CCB | 121218 | Finished | 12/14/2018 1:24:25 AM | Anions Gradient Program |
| 59 | HS18111377-14 | 121218 | Finished | 12/14/2018 1:38:58 AM | Anions Gradient Program |
| 60 | HS18111377-13DF50 | 121218 | Finished | 12/14/2018 1:53:31 AM | Anions Gradient Program |
| 61 | HS18111377-11DF10 | 121218 | Finished | 12/14/2018 2:08:03 AM | Anions Gradient Program |
| 62 | HS18111377-10 | 121218 | Finished | 12/14/2018 2:22:36 AM | Anions Gradient Program |
| 63 | HS18111377-09 | 121218 | Finished | 12/14/2018 2:37:09 AM | Anions Gradient Program |
| 64 | HS18111377-08DF5 | 121218 | Finished | 12/14/2018 2:51:42 AM | Anions Gradient Program |
| 65 | HS18120449-02 | 121218 | Finished | 12/14/2018 3:06:15 AM | Anions Gradient Program |
| 66 | HS18120449-03 | 121218 | Finished | 12/14/2018 3:20:48 AM | Anions Gradient Program |
| 67 | HS18120312-01 | 121218 | Finished | 12/14/2018 3:35:21 AM | Anions Gradient Program |
| 68 | HS18120312-02 | 121218 | Finished | 12/14/2018 3:49:54 AM | Anions Gradient Program |
| 69 | CCV1 | 121218 | Finished | 12/14/2018 4:04:27 AM | Anions Gradient Program |
| 70 | CCB | 121218 | Finished | 12/14/2018 4:19:00 AM | Anions Gradient Program |
| 71 | HS18120305-01 | 121218 | Finished | 12/14/2018 4:33:32 AM | Anions Gradient Program |
| 72 | HS18120305-01MS | 121218 | Finished | 12/14/2018 4:48:05 AM | Anions Gradient Program |
| 73 | HS18120305-01MSD | 121218 | Finished | 12/14/2018 5:02:38 AM | Anions Gradient Program |
| 74 | HS18120306-01 | 121218 | Finished | 12/14/2018 5:17:10 AM | Anions Gradient Program |
| 75 | HS18120315-01 | 121218 | Finished | 12/14/2018 5:31:43 AM | Anions Gradient Program |
| 76 | HS18120315-02 | 121218 | Finished | 12/14/2018 5:46:16 AM | Anions Gradient Program |
| 77 | HS18120432-01 | 121218 | Finished | 12/14/2018 6:00:49 AM | Anions Gradient Program |
| 78 | HS18120432-02 | 121218 | Finished | 12/14/2018 6:15:22 AM | Anions Gradient Program |
| 79 | HS18120435-01 | 121218 | Finished | 12/14/2018 6:29:55 AM | Anions Gradient Program |
| 80 | HS18120435-02 | 121218 | Finished | 12/14/2018 6:44:28 AM | Anions Gradient Program |
| 81 | CCV | 121218 | Finished | 12/14/2018 6:59:00 AM | Anions Gradient Program |
| 82 | CCB | 121218 | Finished | 12/14/2018 7:13:33 AM | Anions Gradient Program |
| 83 | WBLKW1-121418 | 121218 | Finished | 12/14/2018 7:28:06 AM | Anions Gradient Program |
| 84 | WLCSW1-121418 | 121218 | Finished | 12/14/2018 7:42:39 AM | Anions Gradient Program |

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Sequence: 121318
Operator: alshs.nouser


Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | GUID |
|---|---|---|
| 43 | HS18120757-02MSD | 3b6bb46e-ff51-11e8-b6da-a24899608423 |
| 44 | HS18120642-02DF50 | 43a8d45c-ff53-11e8-b6da-a24899608423 |
| 45 | CCV1 | 4ba332fe-ff55-11e8-b6da-a24899608423 |
| 46 | CCB | 53704551-ff57-11e8-b6da-a24899608423 |
| 47 | HS18111386-01DF2 | 6d8ae74a-ff5a-11e8-b6da-a24899608423 |
| 48 | HS18120741-01DF10 | d4fa653e-ff5c-11e8-b6da-a24899608423 |
| 49 | HS18111369-01DF20 | dd67217e-ff5e-11e8-b6da-a24899608423 |
| 50 | HS18111369-01DF400 | e5c2afae-ff60-11e8-b6da-a24899608423 |
| 51 | HS18111369-01DF4000 | edf94b5d-ff62-11e8-b6da-a24899608423 |
| 52 | HS18111473-01DF20 | f63408f6-ff64-11e8-b6da-a24899608423 |
| 53 | HS18111473-01DF400 | fe8dc4e0-ff66-11e8-b6da-a24899608423 |
| 54 | HS18111473-02DF20 | 06c3bdcf-ff69-11e8-b6da-a24899608423 |
| 55 | HS18111473-02DF400 | 0f118e10-ff6b-11e8-b6da-a24899608423 |
| 56 | HS18111377-12DF50 | 17668550-ff6d-11e8-b6da-a24899608423 |
| 57 | CCV | 1f2ed2f9-ff6f-11e8-b6da-a24899608423 |
| 58 | CCB | 27757c3b-ff71-11e8-b6da-a24899608423 |
| 59 | HS18111377-14 | 2fadd77f-ff73-11e8-b6da-a24899608423 |
| 60 | HS18111377-13DF50 | 37e632c3-ff75-11e8-b6da-a24899608423 |
| 61 | HS18111377-11DF10 | 400b7b5f-ff77-11e8-b6da-a24899608423 |
| 62 | HS18111377-10 | 4856e94b-ff79-11e8-b6da-a24899608423 |
| 63 | HS18111377-09 | 508ce23a-ff7b-11e8-b6da-a24899608423 |
| 64 | HS18111377-08DF5 | 58d85026-ff7d-11e8-b6da-a24899608423 |
| 65 | HS18120449-02 | 610e4915-ff7f-11e8-b6da-a24899608423 |
| 66 | HS18120449-03 | 69bdd8f3-ff81-11e8-b6da-a24899608423 |
| 67 | HS18120312-01 | 72048235-ff83-11e8-b6da-a24899608423 |
| 68 | HS18120312-02 | 7a1ddf28-ff85-11e8-b6da-a24899608423 |
| 69 | CCV1 | 82694d14-ff87-11e8-b6da-a24899608423 |
| 70 | CCB | 8aaff656-ff89-11e8-b6da-a24899608423 |
| 71 | HS18120305-01 | 92a5904e-ff8b-11e8-b6da-a24899608423 |
| 72 | HS18120305-01MS | 9adb893d-ff8d-11e8-b6da-a24899608423 |
| 73 | HS18120305-01MSD | a31646d6-ff8f-11e8-b6da-a24899608423 |
| 74 | HS18120306-01 | ab6da06b-ff91-11e8-b6da-a24899608423 |
| 75 | HS18120315-01 | b3a5fbaf-ff93-11e8-b6da-a24899608423 |
| 76 | HS18120315-02 | bc0e0597-ff95-11e8-b6da-a24899608423 |
| 77 | HS18120432-01 | c430ebde-ff97-11e8-b6da-a24899608423 |
| 78 | HS18120432-02 | cc8380c9-ff99-11e8-b6da-a24899608423 |
| 79 | HS18120435-01 | d4b979b8-ff9b-11e8-b6da-a24899608423 |
| 80 | HS18120435-02 | dd0c0ea3-ff9d-11e8-b6da-a24899608423 |
| 81 | CCV | e552b7e5-ff9f-11e8-b6da-a24899608423 |
| 82 | CCB | ed923a28-ffa1-11e8-b6da-a24899608423 |
| 83 | WBLKW1-121418 | f5d68115-ffa3-11e8-b6da-a24899608423 |
| 84 | WLCSW1-121418 | fe0a17af-ffa5-11e8-b6da-a24899608423 |

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Sequence: 121318
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume |
|---|---|---|---|---|---|---|---|---|
| 85 | WLCSDW1-121418 | | Unknown | 69 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 86 | HS18111377-01DF50 | | Unknown | 58 | 50.0000 | 10.0 | 1.00 | 1.00 |
| 87 | HS18111377-02DF10 | | Unknown | 59 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 88 | HS18111377-02MSDF10 | | Unknown | 60 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 89 | HS18111377-02MSDDF10 | | Unknown | 61 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 90 | HS18111377-03DF10 | | Unknown | 62 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 91 | HS18111377-04DF10 | | Unknown | 63 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 92 | HS18111377-05DF10 | | Unknown | 64 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 93 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 94 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 95 | HS18111377-06DF10 | | Unknown | 65 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 96 | HS18111377-07DF10 | | Unknown | 66 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 97 | HS18120653-01 | | Unknown | 84 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 98 | HS18120825-07 | | Unknown | 85 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 99 | HS18120825-11 | | Unknown | 86 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 100 | HS18120825-10 | | Unknown | 87 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 101 | HS18120825-06 | | Unknown | 88 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 102 | HS18120825-22 | | Unknown | 89 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 103 | HS18120825-21 | | Unknown | 90 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 104 | DI H2O | | Unknown | 10 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 105 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 106 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 107 | HS18120828-01 | | Unknown | 93 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 108 | HS18120828-01DF20 | | Unknown | 94 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 109 | HS18120828-02 | | Unknown | 95 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 110 | HS18120828-02DF20 | | Unknown | 96 | 20.0000 | 10.0 | 1.00 | 1.00 |
| 111 | HS18120825-14 | | Unknown | 91 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 112 | HS18120825-18 | | Unknown | 92 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 113 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 114 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 115 | HS18120417-02DF2500 | | Unknown | 97 | 2500.0000 | 10.0 | 1.00 | 1.00 |
| 116 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 117 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 118 | MBLK-135586 | | Unknown | 11 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 119 | LCS-135586 | | Unknown | 12 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 120 | LCSD-135586 | | Unknown | 13 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 121 | HS18111388-01 | | Unknown | 14 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 122 | HS18111388-01MS | | Unknown | 15 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 123 | HS18111388-01MSD | | Unknown | 16 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 124 | HS18111388-02 | | Unknown | 17 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 125 | HS18111388-03 | | Unknown | 18 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 126 | HS18111388-04 | | Unknown | 19 | 1.0000 | 10.0 | 1.00 | 1.00 |

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Sequence: 121318
Operator: alshs.nouser


Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Method | Status | Inj. Date/Time | Program |
|---|---|---|---|---|---|
| 85 | WLCSDW1-121418 | 121218 | Finished | 12/14/2018 7:57:12 AM | Anions Gradient Program |
| 86 | HS18111377-01DF50 | 121218 | Finished | 12/14/2018 8:11:45 AM | Anions Gradient Program |
| 87 | HS18111377-02DF10 | 121218 | Finished | 12/14/2018 8:26:18 AM | Anions Gradient Program |
| 88 | HS18111377-02MSDF10 | 121218 | Finished | 12/14/2018 8:40:51 AM | Anions Gradient Program |
| 89 | HS18111377-02MSDDF10 | 121218 | Finished | 12/14/2018 8:55:24 AM | Anions Gradient Program |
| 90 | HS18111377-03DF10 | 121218 | Finished | 12/14/2018 9:09:57 AM | Anions Gradient Program |
| 91 | HS18111377-04DF10 | 121218 | Finished | 12/14/2018 9:24:29 AM | Anions Gradient Program |
| 92 | HS18111377-05DF10 | 121218 | Finished | 12/14/2018 9:39:02 AM | Anions Gradient Program |
| 93 | CCV1 | 121218 | Finished | 12/14/2018 9:53:34 AM | Anions Gradient Program |
| 94 | CCB | 121218 | Finished | 12/14/2018 10:08:07 AM | Anions Gradient Program |
| 95 | HS18111377-06DF10 | 121218 | Finished | 12/14/2018 10:22:40 AM | Anions Gradient Program |
| 96 | HS18111377-07DF10 | 121218 | Finished | 12/14/2018 10:37:13 AM | Anions Gradient Program |
| 97 | HS18120653-01 | 121218 | Finished | 12/14/2018 10:55:46 AM | Anions Gradient Program |
| 98 | HS18120825-07 | 121218 | Finished | 12/14/2018 12:50:27 PM | Anions Gradient Program |
| 99 | HS18120825-11 | 121218 | Finished | 12/14/2018 1:04:59 PM | Anions Gradient Program |
| 100 | HS18120825-10 | 121218 | Finished | 12/14/2018 1:19:32 PM | Anions Gradient Program |
| 101 | HS18120825-06 | 121218 | Finished | 12/14/2018 1:34:04 PM | Anions Gradient Program |
| 102 | HS18120825-22 | 121218 | Finished | 12/14/2018 1:48:37 PM | Anions Gradient Program |
| 103 | HS18120825-21 | 121218 | Finished | 12/14/2018 2:03:10 PM | Anions Gradient Program |
| 104 | DI H2O | 121218 | Finished | 12/14/2018 2:17:43 PM | Anions Gradient Program |
| 105 | CCV | 121218 | Finished | 12/14/2018 2:32:16 PM | Anions Gradient Program |
| 106 | CCB | 121218 | Finished | 12/14/2018 2:46:49 PM | Anions Gradient Program |
| 107 | HS18120828-01 | 121218 | Finished | 12/14/2018 3:01:21 PM | Anions Gradient Program |
| 108 | HS18120828-01DF20 | 121218 | Finished | 12/14/2018 3:15:54 PM | Anions Gradient Program |
| 109 | HS18120828-02 | 121218 | Finished | 12/14/2018 3:30:27 PM | Anions Gradient Program |
| 110 | HS18120828-02DF20 | 121218 | Finished | 12/14/2018 3:45:00 PM | Anions Gradient Program |
| 111 | HS18120825-14 | 121218 | Finished | 12/14/2018 3:59:33 PM | Anions Gradient Program |
| 112 | HS18120825-18 | 121218 | Finished | 12/14/2018 4:14:05 PM | Anions Gradient Program |
| 113 | CCV1 | 121218 | Finished | 12/14/2018 4:28:38 PM | Anions Gradient Program |
| 114 | CCB | 121218 | Finished | 12/14/2018 4:43:11 PM | Anions Gradient Program |
| 115 | HS18120417-02DF2500 | 121218 | Finished | 12/14/2018 6:39:16 PM | Anions Gradient Program |
| 116 | CCV | 121218 | Finished | 12/14/2018 7:32:29 PM | Anions Gradient Program |
| 117 | CCB | 121218 | Finished | 12/14/2018 7:47:02 PM | Anions Gradient Program |
| 118 | MBLK-135586 | 121218 | Finished | 12/14/2018 8:01:34 PM | Anions Gradient Program |
| 119 | LCS-135586 | 121218 | Finished | 12/14/2018 8:16:08 PM | Anions Gradient Program |
| 120 | LCSD-135586 | 121218 | Finished | 12/14/2018 8:30:40 PM | Anions Gradient Program |
| 121 | HS18111388-01 | 121218 | Finished | 12/14/2018 8:45:13 PM | Anions Gradient Program |
| 122 | HS18111388-01MS | 121218 | Finished | 12/14/2018 8:59:46 PM | Anions Gradient Program |
| 123 | HS18111388-01MSD | 121218 | Finished | 12/14/2018 9:14:19 PM | Anions Gradient Program |
| 124 | HS18111388-02 | 121218 | Finished | 12/14/2018 9:28:51 PM | Anions Gradient Program |
| 125 | HS18111388-03 | 121218 | Finished | 12/14/2018 9:43:24 PM | Anions Gradient Program |
| 126 | HS18111388-04 | 121218 | Finished | 12/14/2018 9:57:57 PM | Anions Gradient Program |

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Sequence: 121318
Operator: alshs.nouser


Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | GUID |
|---|---|---|
| 85 | WLCSDW1-121418 | 066635ee-ffa8-11e8-b6da-a24899608423 |
| 86 | HS18111377-01DF50 | 0e9e9132-ffaa-11e8-b6da-a24899608423 |
| 87 | HS18111377-02DF10 | 170b2711-ffac-11e8-b6da-a24899608423 |
| 88 | HS18111377-02MSDF10 | 1f505dd0-ffae-11e8-b6da-a24899608423 |
| 89 | HS18111377-02MSDDF10 | 27a567f9-ffb0-11e8-b6da-a24899608423 |
| 90 | HS18111377-03DF10 | 2fd8fe93-ffb2-11e8-b6da-a24899608423 |
| 91 | HS18111377-04DF10 | 381d4580-ffb4-11e8-b6da-a24899608423 |
| 92 | HS18111377-05DF10 | 3ff6437c-ffb6-11e8-b6da-a24899608423 |
| 93 | CCV1 | 485988ba-ffb8-11e8-b6da-a24899608423 |
| 94 | CCB | 50754802-ffba-11e8-b6da-a24899608423 |
| 95 | HS18111377-06DF10 | 58be5399-ffbc-11e8-b6da-a24899608423 |
| 96 | HS18111377-07DF10 | 60ef87de-ffbe-11e8-b6da-a24899608423 |
| 97 | HS18120653-01 | 99253417-ffc0-11e8-b6da-a24899608423 |
| 98 | HS18120825-07 | 9e8f06a7-ffd0-11e8-b6da-a24899608423 |
| 99 | HS18120825-11 | 05b239fb-ffd3-11e8-b6da-a24899608423 |
| 100 | HS18120825-10 | 0e17e18e-ffd5-11e8-b6da-a24899608423 |
| 101 | HS18120825-06 | 15ec1ae0-ffd7-11e8-b6da-a24899608423 |
| 102 | HS18120825-22 | 1e13c5d1-ffd9-11e8-b6da-a24899608423 |
| 103 | HS18120825-21 | 264c2115-ffdb-11e8-b6da-a24899608423 |
| 104 | DI H2O | 2e86deae-ffdd-11e8-b6da-a24899608423 |
| 105 | CCV | 36cd87f0-ffdf-11e8-b6da-a24899608423 |
| 106 | CCB | 3f201cdb-ffe1-11e8-b6da-a24899608423 |
| 107 | HS18120828-01 | 475f9f1e-ffe3-11e8-b6da-a24899608423 |
| 108 | HS18120828-01DF20 | 4fa8aab5-ffe5-11e8-b6da-a24899608423 |
| 109 | HS18120828-02 | 57f67af6-ffe7-11e8-b6da-a24899608423 |
| 110 | HS18120828-02DF20 | 602a1190-ffe9-11e8-b6da-a24899608423 |
| 111 | HS18120825-14 | 687f08d0-ffeb-11e8-b6da-a24899608423 |
| 112 | HS18120825-18 | 709f8cc2-ffed-11e8-b6da-a24899608423 |
| 113 | CCV1 | 78ce5eb2-ffef-11e8-b6da-a24899608423 |
| 114 | CCB | 812cdf46-fff1-11e8-b6da-a24899608423 |
| 115 | HS18120417-02DF2500 | 59a934d2-0001-11e9-b6da-a24899608423 |
| 116 | CCV | c8486479-0008-11e9-b6da-a24899608423 |
| 117 | CCB | 2fc6306b-000b-11e9-b6da-a24899608423 |
| 118 | MBLK-135586 | 37fc295a-000d-11e9-b6da-a24899608423 |
| 119 | LCS-135586 | 404534f1-000f-11e9-b6da-a24899608423 |
| 120 | LCSD-135586 | 487d9035-0011-11e9-b6da-a24899608423 |
| 121 | HS18111388-01 | 50b5eb79-0013-11e9-b6da-a24899608423 |
| 122 | HS18111388-01MS | 58ee46bd-0015-11e9-b6da-a24899608423 |
| 123 | HS18111388-01MSD | 61375254-0017-11e9-b6da-a24899608423 |
| 124 | HS18111388-02 | 696fad98-0019-11e9-b6da-a24899608423 |
| 125 | HS18111388-03 | 71b8b92f-001b-11e9-b6da-a24899608423 |
| 126 | HS18111388-04 | 7a33d5bf-001d-11e9-b6da-a24899608423 |

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Sequence: 121318
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume |
|---|---|---|---|---|---|---|---|---|
| 127 | HS18111388-05 | | Unknown | 20 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 128 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 129 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 130 | HS18111388-06 | | Unknown | 21 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 131 | HS18111388-07 | | Unknown | 22 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 132 | HS18111388-08 | | Unknown | 23 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 133 | HS18111388-09 | | Unknown | 24 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 134 | HS18111388-10 | | Unknown | 25 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 135 | HS18111388-11DF10 | | Unknown | 26 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 136 | HS18111388-12DF10 | | Unknown | 27 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 137 | HS18111390-01 | | Unknown | 28 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 138 | HS18111390-02DF10 | | Unknown | 29 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 139 | HS18111390-03DF10 | | Unknown | 30 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 140 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 141 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 142 | HS18111390-04 | | Unknown | 31 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 143 | HS18111390-05 | | Unknown | 32 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 144 | HS18111390-06DF10 | | Unknown | 33 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 145 | HS18111390-07 | | Unknown | 34 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 146 | HS18111390-08DF10 | | Unknown | 35 | 10.0000 | 10.0 | 1.00 | 1.00 |
| 147 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 148 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 149 | DI H2O | | Unknown | 10 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 150 | DI H2O | | Unknown | 10 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 151 | DI H2O | | Unknown | 10 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 152 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 |
| 153 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 |

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Sequence: 121318
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

| No. | Name | Method | Status | Inj. Date/Time | Program |
|---|---|---|---|---|---|
| 127 | HS18111388-05 | 121218 | Finished | 12/14/2018 10:12:30 PM | Anions Gradient Program |
| 128 | CCV1 | 121218 | Finished | 12/14/2018 10:27:03 PM | Anions Gradient Program |
| 129 | CCB | 121218 | Finished | 12/14/2018 10:41:36 PM | Anions Gradient Program |
| 130 | HS18111388-06 | 121218 | Finished | 12/14/2018 10:56:09 PM | Anions Gradient Program |
| 131 | HS18111388-07 | 121218 | Finished | 12/14/2018 11:10:42 PM | Anions Gradient Program |
| 132 | HS18111388-08 | 121218 | Finished | 12/14/2018 11:25:15 PM | Anions Gradient Program |
| 133 | HS18111388-09 | 121218 | Finished | 12/14/2018 11:39:48 PM | Anions Gradient Program |
| 134 | HS18111388-10 | 121218 | Finished | 12/14/2018 11:54:20 PM | Anions Gradient Program |
| 135 | HS18111388-11DF10 | 121218 | Finished | 12/15/2018 12:08:53 AM | Anions Gradient Program |
| 136 | HS18111388-12DF10 | 121218 | Finished | 12/15/2018 12:23:26 AM | Anions Gradient Program |
| 137 | HS18111390-01 | 121218 | Finished | 12/15/2018 12:37:59 AM | Anions Gradient Program |
| 138 | HS18111390-02DF10 | 121218 | Finished | 12/15/2018 12:52:32 AM | Anions Gradient Program |
| 139 | HS18111390-03DF10 | 121218 | Finished | 12/15/2018 1:07:05 AM | Anions Gradient Program |
| 140 | CCV | 121218 | Finished | 12/15/2018 1:21:38 AM | Anions Gradient Program |
| 141 | CCB | 121218 | Finished | 12/15/2018 1:36:10 AM | Anions Gradient Program |
| 142 | HS18111390-04 | 121218 | Finished | 12/15/2018 1:50:43 AM | Anions Gradient Program |
| 143 | HS18111390-05 | 121218 | Finished | 12/15/2018 2:05:16 AM | Anions Gradient Program |
| 144 | HS18111390-06DF10 | 121218 | Finished | 12/15/2018 2:19:49 AM | Anions Gradient Program |
| 145 | HS18111390-07 | 121218 | Finished | 12/15/2018 2:34:22 AM | Anions Gradient Program |
| 146 | HS18111390-08DF10 | 121218 | Finished | 12/15/2018 2:48:55 AM | Anions Gradient Program |
| 147 | CCV1 | 121218 | Finished | 12/15/2018 3:03:28 AM | Anions Gradient Program |
| 148 | CCB | 121218 | Finished | 12/15/2018 3:18:01 AM | Anions Gradient Program |
| 149 | DI H2O | 121218 | Finished | 12/15/2018 3:32:33 AM | Anions Gradient Program |
| 150 | DI H2O | 121218 | Finished | 12/15/2018 1:18:17 PM | Anions Gradient Program |
| 151 | DI H2O | 121218 | Finished | 12/15/2018 1:32:50 PM | Anions Gradient Program |
| 152 | CCV1 | 121218 | Finished | 12/15/2018 1:47:22 PM | Anions Gradient Program |
| 153 | CCB | 121218 | Finished | 12/15/2018 2:01:55 PM | Anions Gradient Program |

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| | | | |
|---|---|---|---|
| Sequence: | 121318 | | Page 12 of 12 |
| Operator: | alshs.nouser | | Printed: 12/26/2018 3:46:36 PM |
| Title: | | | |
| Datasource: | DB7CGHK1_local | | |
| Location: | ICS2100\Sequences and Data\01-2018 | | |
| Timebase: | ICS2100 | Created: | 12/13/2018 7:20:14 PM by alshs.nouser |
| #Samples: | 153 | | (Modified, not saved) |

| No. | Name | GUID |
|---|---|---|
| 127 | HS18111388-05 | 824ad05d-001f-11e9-b6da-a24899608423 |
| 128 | CCV1 | 8a832ba1-0021-11e9-b6da-a24899608423 |
| 129 | CCB | 92dce78b-0023-11e9-b6da-a24899608423 |
| 130 | HS18111388-06 | 9b7964c1-0025-11e9-b6da-a24899608423 |
| 131 | HS18111388-07 | a3b4225a-0027-11e9-b6da-a24899608423 |
| 132 | HS18111388-08 | abfacb9c-0029-11e9-b6da-a24899608423 |
| 133 | HS18111388-09 | b422768d-002b-11e9-b6da-a24899608423 |
| 134 | HS18111388-10 | bc5ad1d1-002d-11e9-b6da-a24899608423 |
| 135 | HS18111388-11DF10 | c4b48dbb-002f-11e9-b6da-a24899608423 |
| 136 | HS18111388-12DF10 | ccece8ff-0031-11e9-b6da-a24899608423 |
| 137 | HS18111390-01 | d546a4e9-0033-11e9-b6da-a24899608423 |
| 138 | HS18111390-02DF10 | dd7f002d-0035-11e9-b6da-a24899608423 |
| 139 | HS18111390-03DF10 | e5b75b71-0037-11e9-b6da-a24899608423 |
| 140 | CCV | ee052bb2-0039-11e9-b6da-a24899608423 |
| 141 | CCB | f64bd4f4-003b-11e9-b6da-a24899608423 |
| 142 | HS18111390-04 | fe7aa6e4-003d-11e9-b6da-a24899608423 |
| 143 | HS18111390-05 | 06abdb29-0040-11e9-b6da-a24899608423 |
| 144 | HS18111390-06DF10 | 0ef9ab6a-0042-11e9-b6da-a24899608423 |
| 145 | HS18111390-07 | 1766a750-0044-11e9-b6da-a24899608423 |
| 146 | HS18111390-08DF10 | 1fa946c5-0046-11e9-b6da-a24899608423 |
| 147 | CCV1 | 27e6bf8b-0048-11e9-b6da-a24899608423 |
| 148 | CCB | 3028a423-004a-11e9-b6da-a24899608423 |
| 149 | DI H2O | 386361bc-004c-11e9-b6da-a24899608423 |
| 150 | DI H2O | ac9e3da8-009d-11e9-b6da-a24899608423 |
| 151 | DI H2O | 141e6bef-00a0-11e9-b6da-a24899608423 |
| 152 | CCV1 | 1c00f33f-00a2-11e9-b6da-a24899608423 |
| 153 | CCB | 24479c81-00a4-11e9-b6da-a24899608423 |

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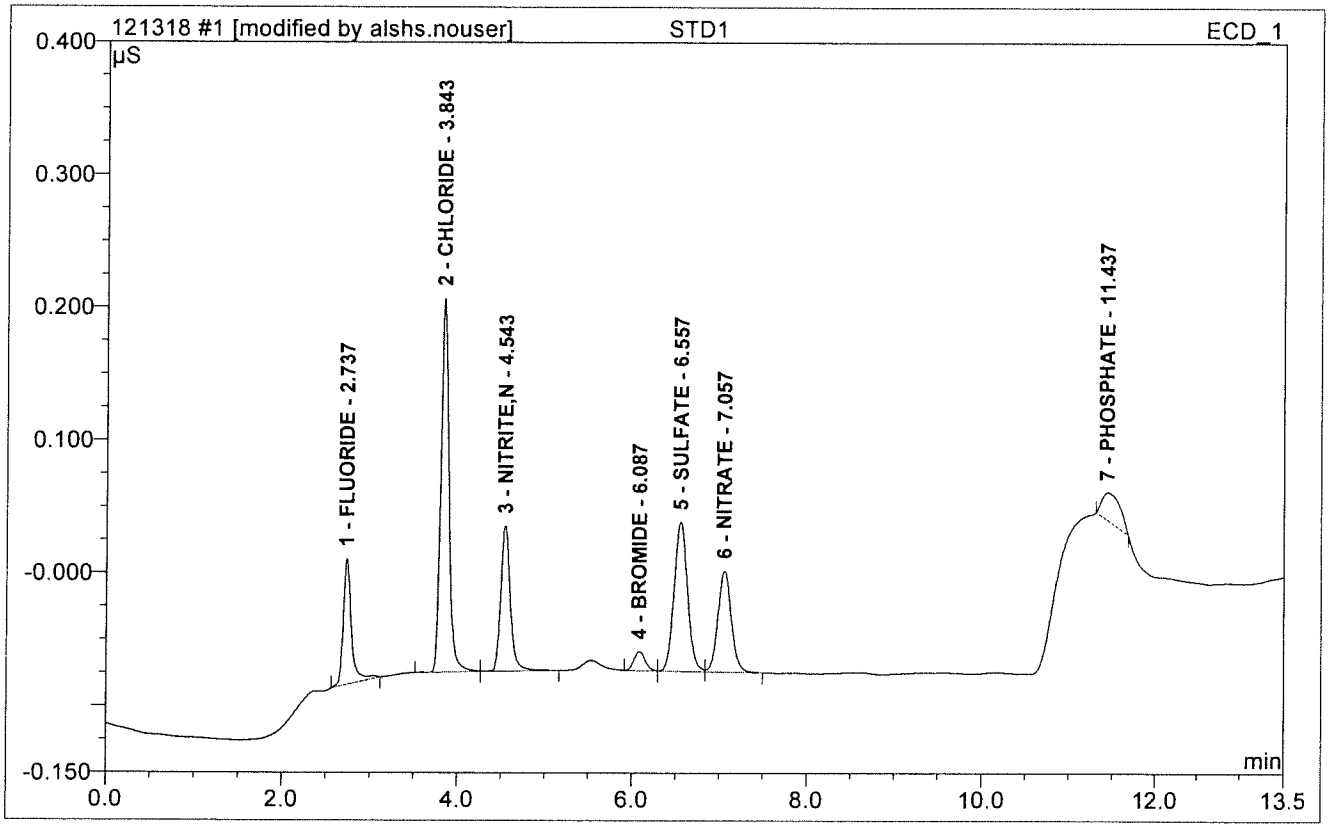
# 1 STD1

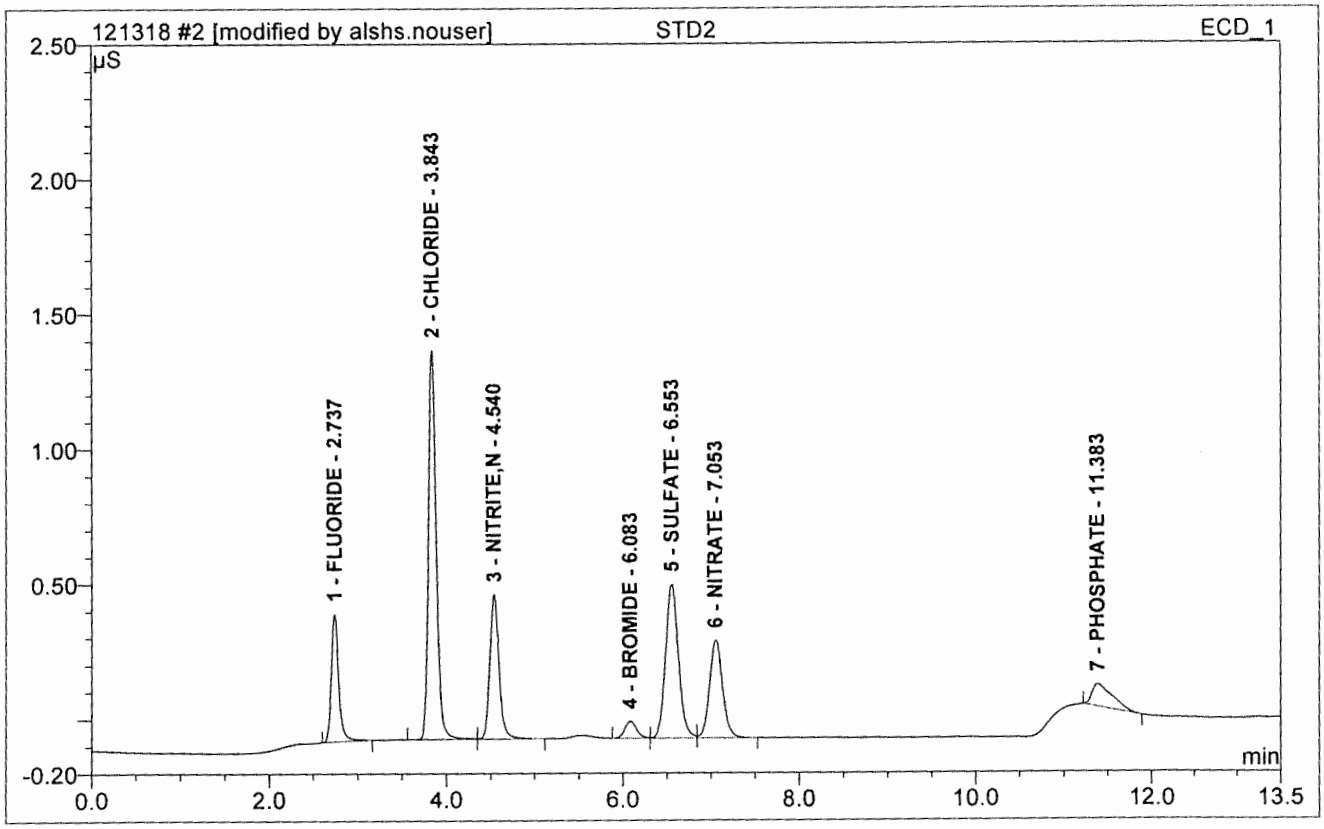
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **91** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 15:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.095 | 0.010 | 10.60 | 0.106 | 1. |
| 2 | 3.84 | CHLORIDE | 0.281 | 0.030 | 31.72 | 0.532 | 1. |
| 3 | 4.54 | NITRITE,N | 0.110 | 0.014 | 14.54 | 0.096 | 1. |
| 4 | 6.09 | BROMIDE | 0.015 | 0.002 | 2.26 | 0.137 | 1. |
| 5 | 6.56 | SULFATE | 0.112 | 0.020 | 21.05 | 0.571 | 1. |
| 6 | 7.06 | NITRATE | 0.076 | 0.014 | 14.23 | 0.121 | 1. |
| 7 | 11.44 | PHOSPHATE | 0.021 | 0.005 | 5.60 | 0.138 | 1. |
| **Total:** | | | 0.709 | 0.096 | 100.00 | 1.701 | |

## 2 STD2

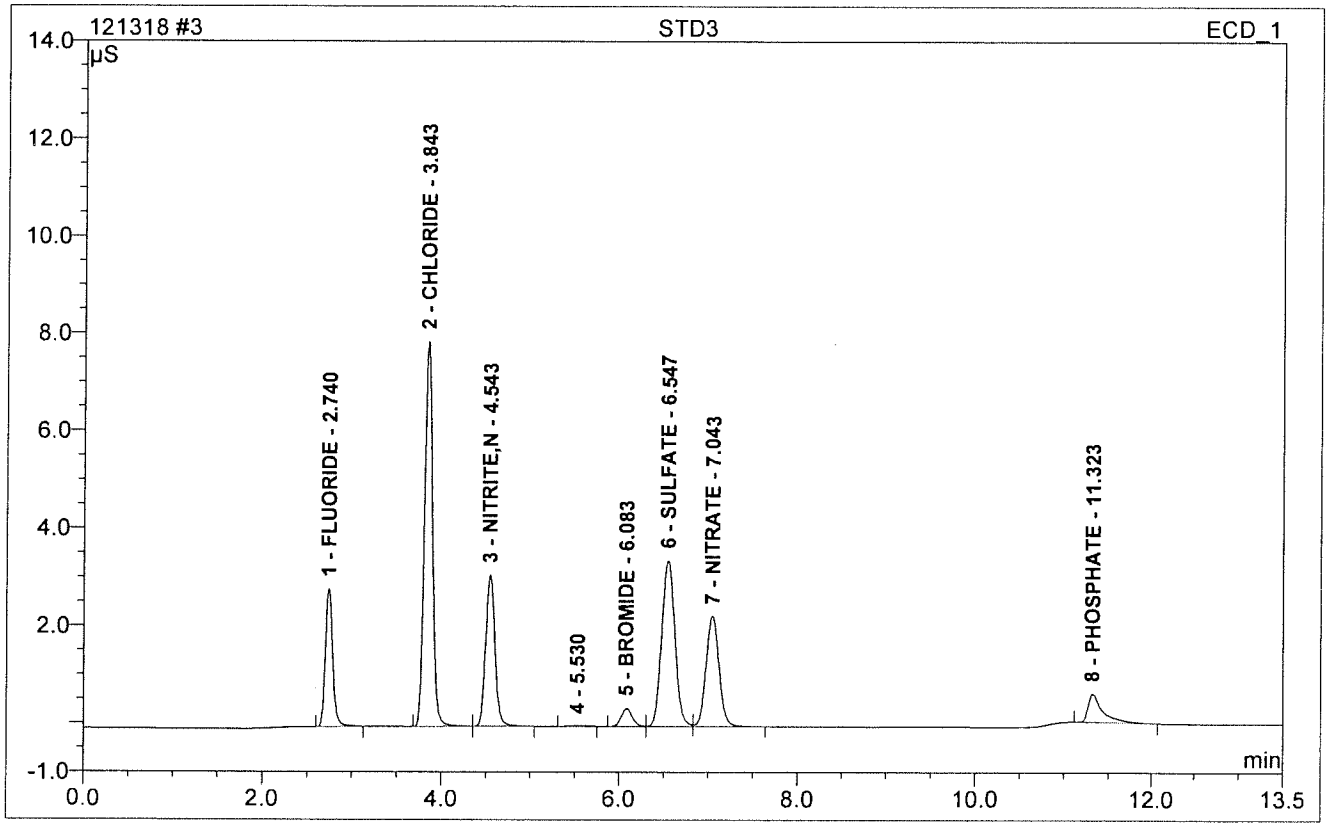
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **92** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:07** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.474 | 0.046 | 10.15 | 0.359 | 1. |
| 2 | 3.84 | CHLORIDE | 1.439 | 0.149 | 33.19 | 1.875 | 1. |
| 3 | 4.54 | NITRITE,N | 0.535 | 0.064 | 14.31 | 0.366 | 1. |
| 4 | 6.08 | BROMIDE | 0.063 | 0.010 | 2.13 | 0.348 | 1. |
| 5 | 6.55 | SULFATE | 0.568 | 0.097 | 21.51 | 1.771 | 1. |
| 6 | 7.05 | NITRATE | 0.361 | 0.062 | 13.74 | 0.341 | 1. |
| 7 | 11.38 | PHOSPHATE | 0.083 | 0.022 | 4.97 | 0.367 | 1. |
| **Total:** | | | 3.522 | 0.449 | 100.00 | 5.427 | |

## 3 STD3

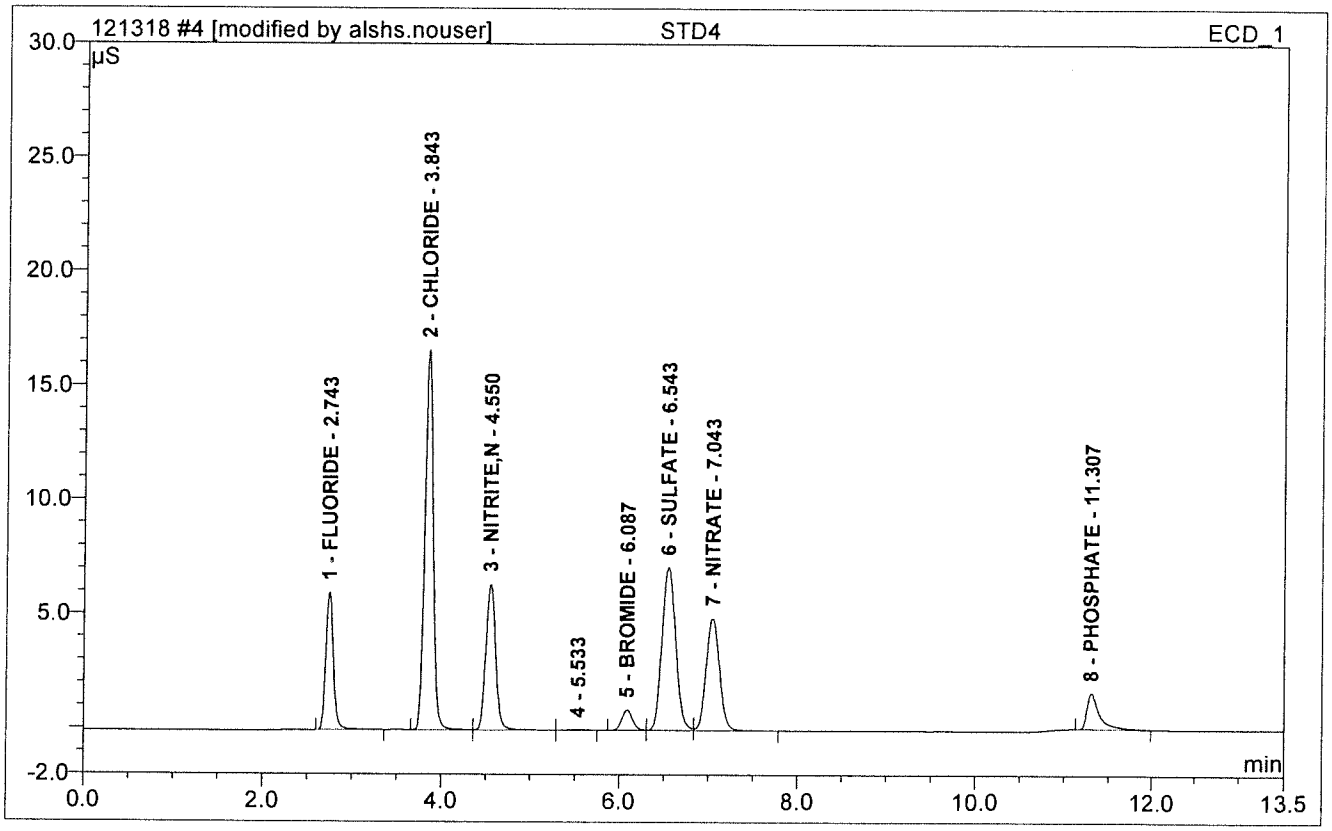
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD3** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **93** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:21** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 2.841 | 0.270 | 10.24 | 1.964 | 1. |
| 2 | 3.84 | CHLORIDE | 7.900 | 0.843 | 31.93 | 9.717 | 1. |
| 3 | 4.54 | NITRITE,N | 3.116 | 0.382 | 14.47 | 2.062 | 1. |
| 5 | 6.08 | BROMIDE | 0.372 | 0.054 | 2.05 | 1.614 | 1. |
| 6 | 6.55 | SULFATE | 3.415 | 0.589 | 22.31 | 9.497 | 1. |
| 7 | 7.04 | NITRATE | 2.279 | 0.388 | 14.71 | 1.837 | 1. |
| 8 | 11.32 | PHOSPHATE | 0.580 | 0.109 | 4.15 | 1.542 | 1. |
| **Total:** | | | 20.503 | 2.635 | 99.86 | 28.233 | |

# 4 STD4

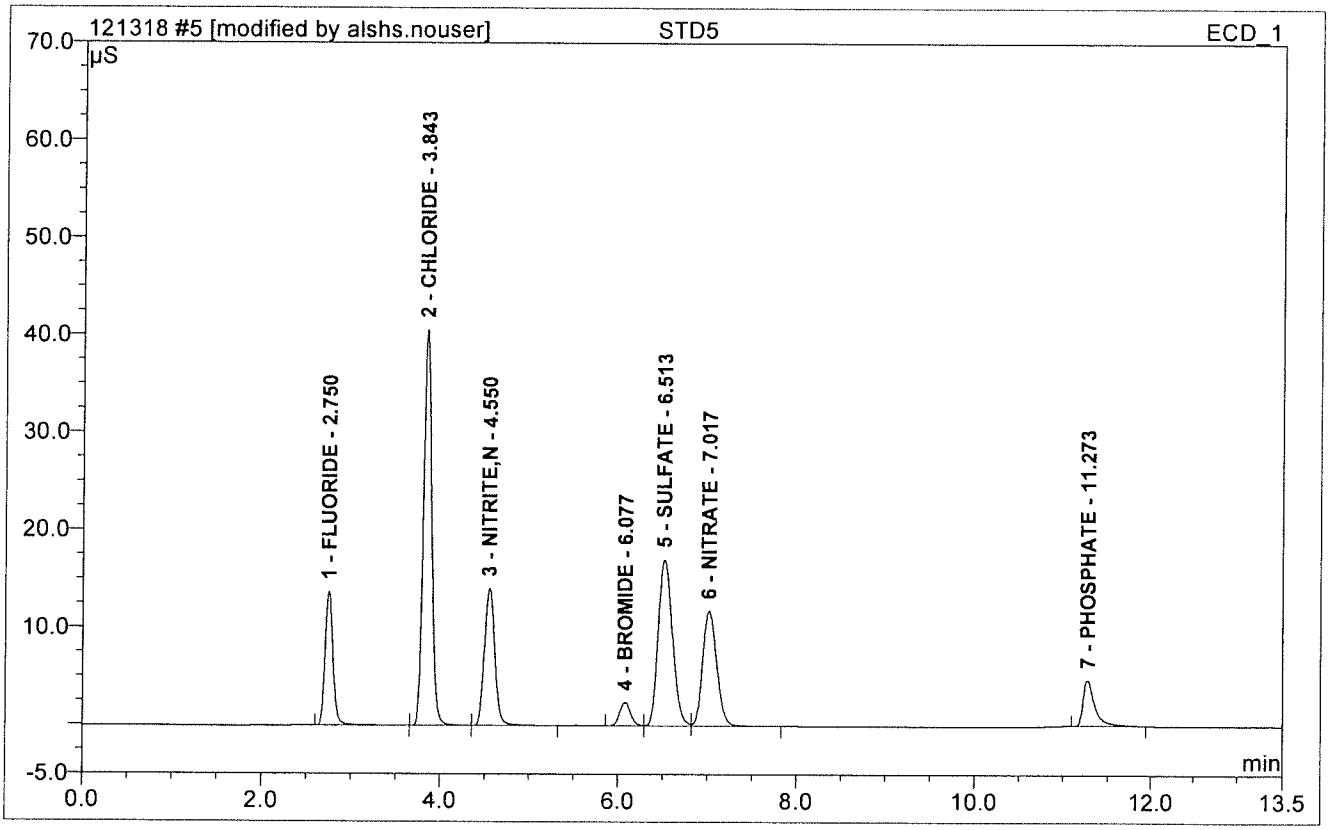
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD4** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **94** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:36** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 6.010 | 0.591 | 10.29 | 4.251 | 1. |
| 2 | 3.84 | CHLORIDE | 16.630 | 1.799 | 31.33 | 20.529 | 1. |
| 3 | 4.55 | NITRITE,N | 6.372 | 0.816 | 14.22 | 4.383 | 1. |
| 5 | 6.09 | BROMIDE | 0.887 | 0.126 | 2.20 | 3.675 | 1. |
| 6 | 6.54 | SULFATE | 7.129 | 1.281 | 22.31 | 20.357 | 1. |
| 7 | 7.04 | NITRATE | 4.918 | 0.866 | 15.08 | 4.025 | 1. |
| 8 | 11.31 | PHOSPHATE | 1.568 | 0.258 | 4.49 | 3.545 | 1. |
| **Total:** | | | 43.514 | 5.736 | 99.92 | 60.764 | |

# 5 STD5

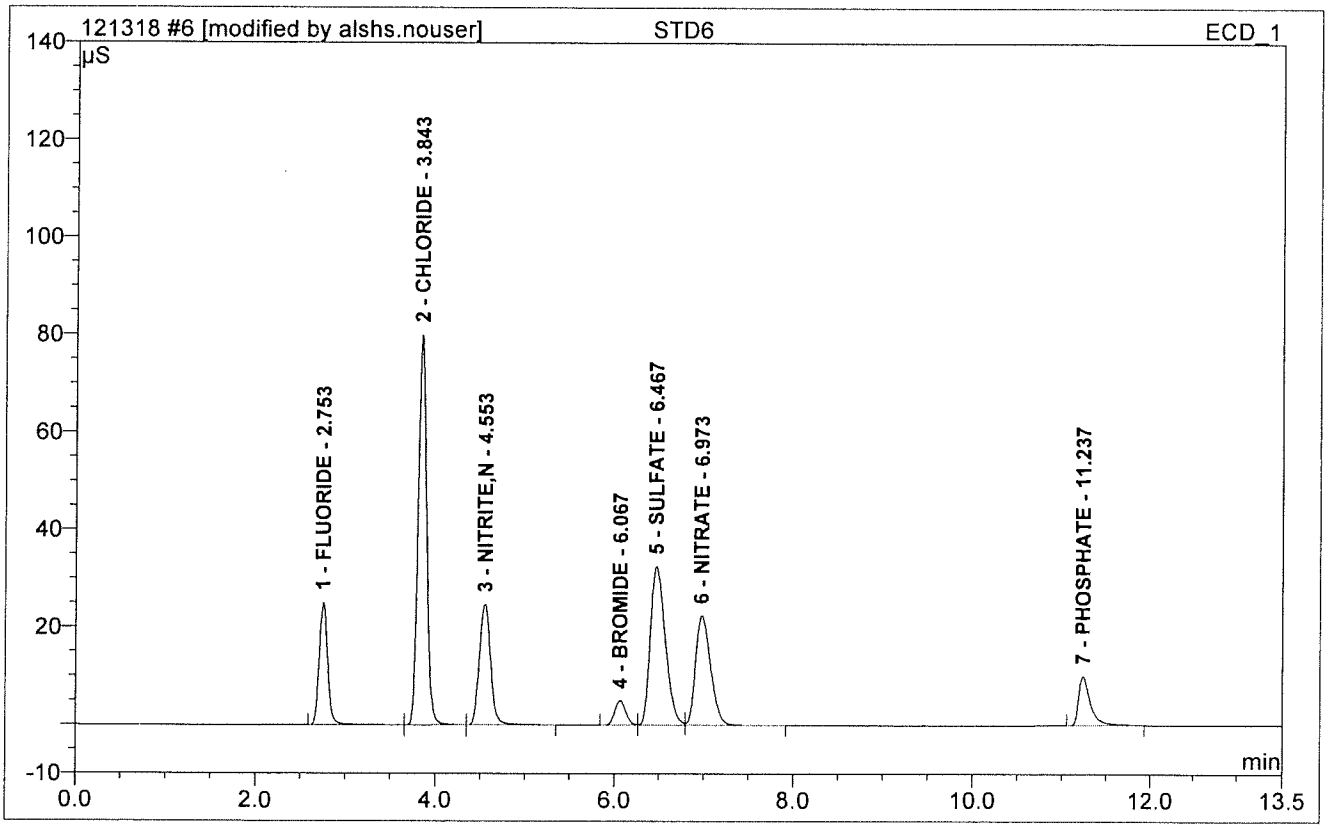
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD5** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **95** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 16:50** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | 13.744 | 1.431 | 10.06 | 10.252 | 1. |
| 2 | 3.84 | CHLORIDE | 40.596 | 4.426 | 31.11 | 50.239 | 1. |
| 3 | 4.55 | NITRITE,N | 14.095 | 1.927 | 13.54 | 10.316 | 1. |
| 4 | 6.08 | BROMIDE | 2.438 | 0.346 | 2.43 | 9.945 | 1. |
| 5 | 6.51 | SULFATE | 17.140 | 3.186 | 22.39 | 50.267 | 1. |
| 6 | 7.02 | NITRATE | 11.863 | 2.183 | 15.35 | 10.062 | 1. |
| 7 | 11.27 | PHOSPHATE | 4.736 | 0.728 | 5.12 | 9.884 | 1. |
| **Total:** | | | 104.613 | 14.227 | 100.00 | 150.965 | |

# 6 STD6

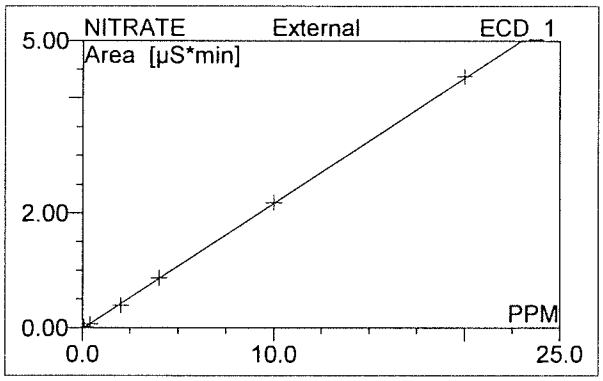
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:05** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

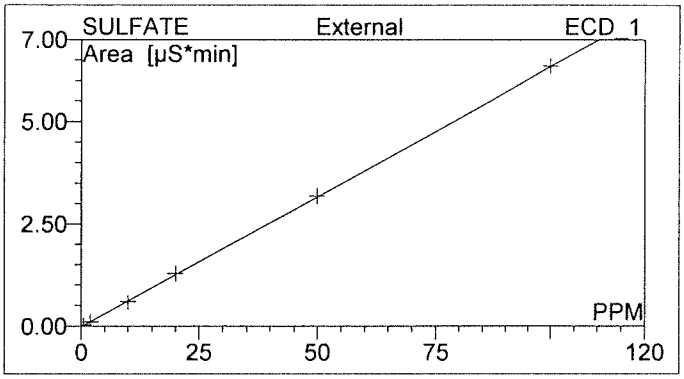


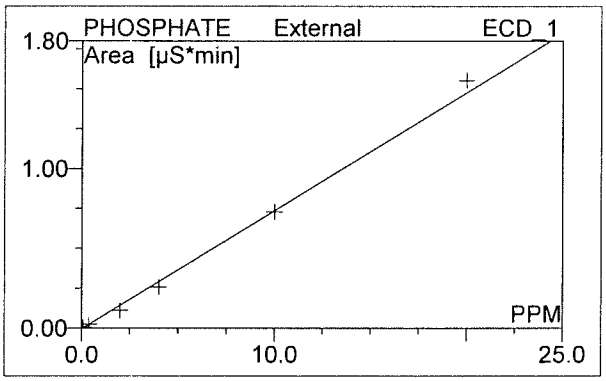

| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | 25.094 | 2.735 | 9.72 | 19.570 | 1. |
| 2 | 3.84 | CHLORIDE | 80.004 | 8.792 | 31.24 | 99.609 | 1. |
| 3 | 4.55 | NITRITE,N | 24.712 | 3.604 | 12.80 | 19.277 | 1. |
| 4 | 6.07 | BROMIDE | 5.012 | 0.727 | 2.58 | 20.782 | 1. |
| 5 | 6.47 | SULFATE | 32.586 | 6.356 | 22.58 | 100.037 | 1. |
| 6 | 6.97 | NITRATE | 22.506 | 4.377 | 15.55 | 20.113 | 1. |
| 7 | 11.24 | PHOSPHATE | 10.023 | 1.553 | 5.52 | 21.023 | 1. |
| **Total:** | | | 199.937 | 28.145 | 100.00 | 300.410 | |

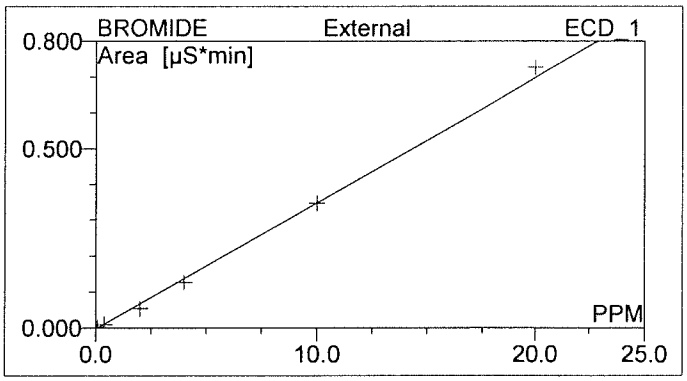
## 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **###############** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

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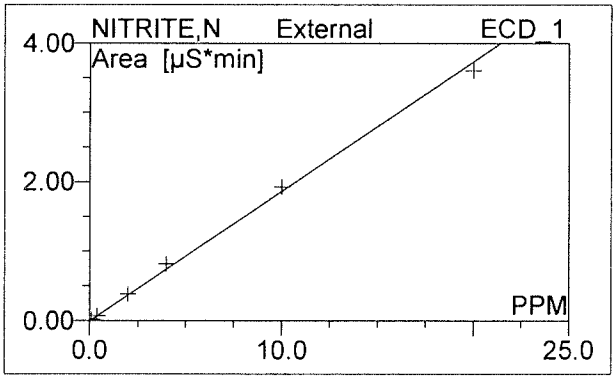
The system cannot find the path specified.

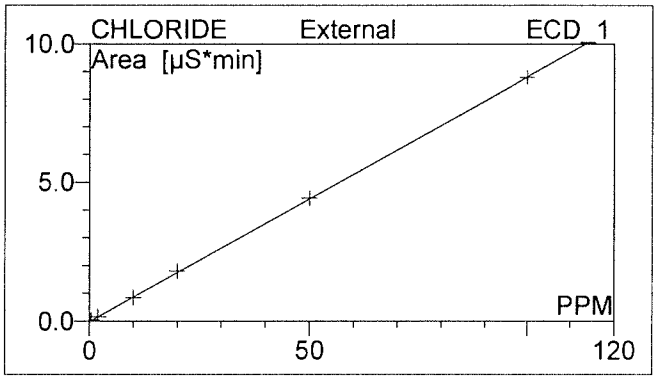
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.892 | -0.0046 | 0.1400 | 0.000 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.980 | -0.0166 | 0.0884 | 0.000 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.770 | -0.0041 | 0.1872 | 0.000 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.551 | -0.0026 | 0.0351 | 0.000 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.959 | -0.0162 | 0.0637 | 0.000 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.919 | -0.0128 | 0.2183 | 0.000 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.331 | -0.0049 | 0.0741 | 0.000 |
| **Average:** | | | | | 99.7718 | -0.0088 | 0.1153 | 0.0000 |

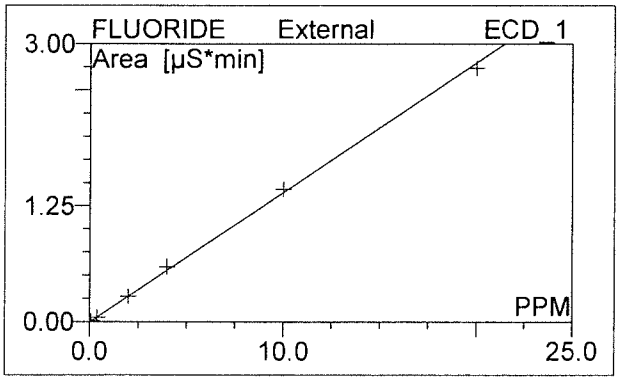
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.946 | 7.143 | 0.009 | 15.424 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.990 | 11.308 | 0.012 | 6.781 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.885 | 5.343 | 0.017 | 21.923 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.775 | 28.489 | 0.005 | 35.074 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.980 | 15.698 | 0.013 | 9.916 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.959 | 4.582 | 0.012 | 14.239 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.665 | 13.491 | 0.012 | 41.812 |
| **Average:** | | | | | 99.8858 | 12.2932 | 0.0114 | 20.7385 |

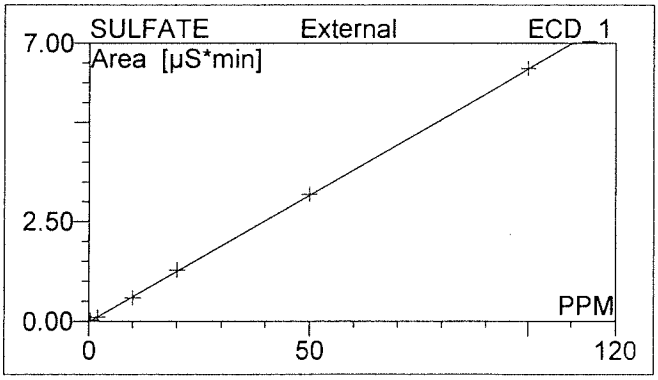
# 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **96** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.000** |
| *Recording Time:* | **12/12/2018 17:05** | *Sample Weight/Volume:* | **1.000** |
| *Run Time (min):* | **13.50** | *Final Volume:* | **1.000** |

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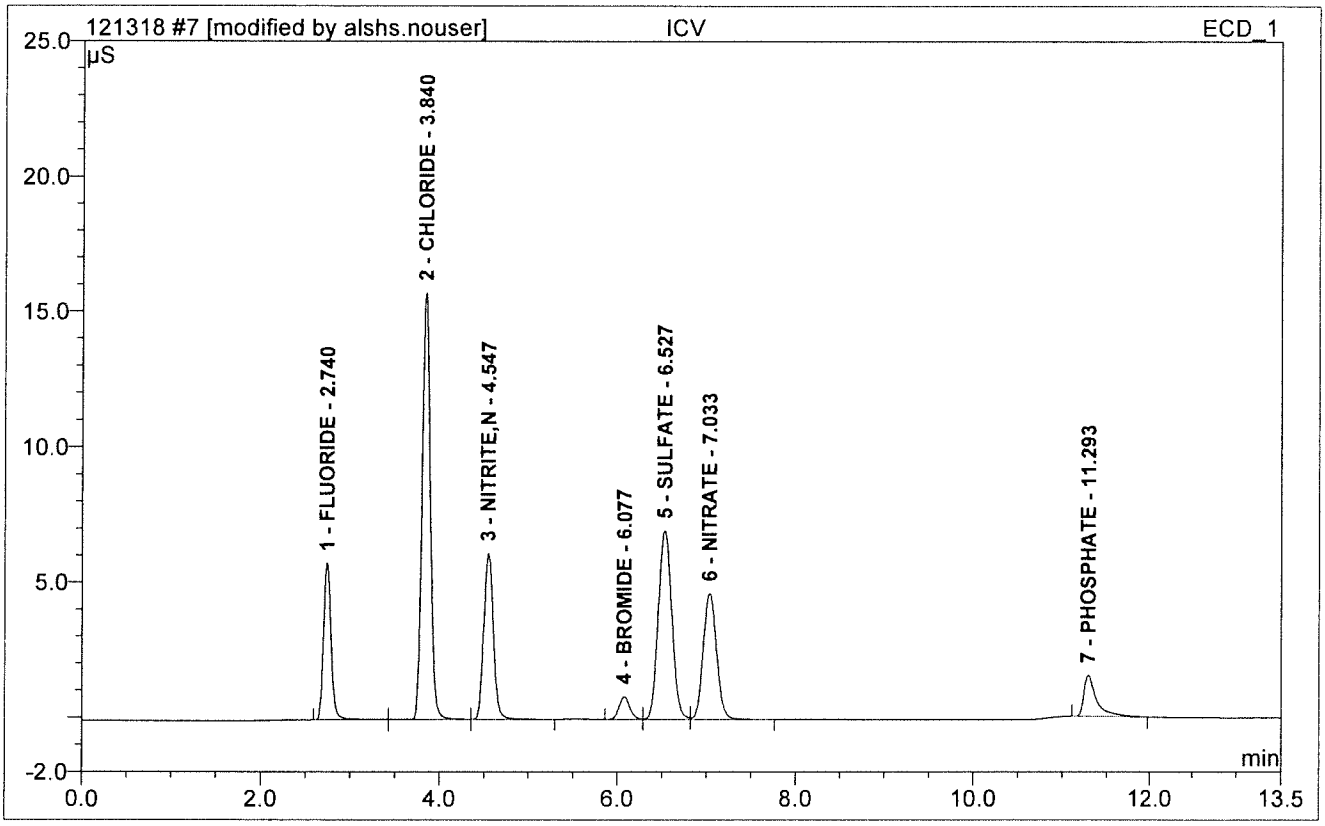
| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.8920 | -0.0046 | 0.1400 | 0.000 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.9796 | -0.0166 | 0.0884 | 0.000 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.7703 | -0.0041 | 0.1872 | 0.000 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.5513 | -0.0026 | 0.0351 | 0.000 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.9591 | -0.0162 | 0.0637 | 0.000 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.9189 | -0.0128 | 0.2183 | 0.000 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.3314 | -0.0049 | 0.0741 | 0.000 |
| Average: | | | | | 99.7718 | -0.0088 | 0.1153 | 0.000 |

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.75 | FLUORIDE | XLOff | 6 | 99.946 | 7.143 | 0.009 | 15.424 |
| 2 | 3.84 | CHLORIDE | XLOff | 6 | 99.990 | 11.308 | 0.012 | 6.781 |
| 3 | 4.55 | NITRITE,N | XLOff | 6 | 99.885 | 5.343 | 0.017 | 21.923 |
| 4 | 6.07 | BROMIDE | XLOff | 6 | 99.775 | 28.489 | 0.005 | 35.074 |
| 5 | 6.47 | SULFATE | XLOff | 6 | 99.980 | 15.698 | 0.013 | 9.916 |
| 6 | 6.97 | NITRATE | XLOff | 6 | 99.959 | 4.582 | 0.012 | 14.239 |
| 7 | 11.24 | PHOSPHATE | XLOff | 6 | 99.665 | 13.491 | 0.012 | 41.812 |
| Average: | | | | | 99.8858 | 12.293 | 0.011 | 20.739 |

# 7 ICV

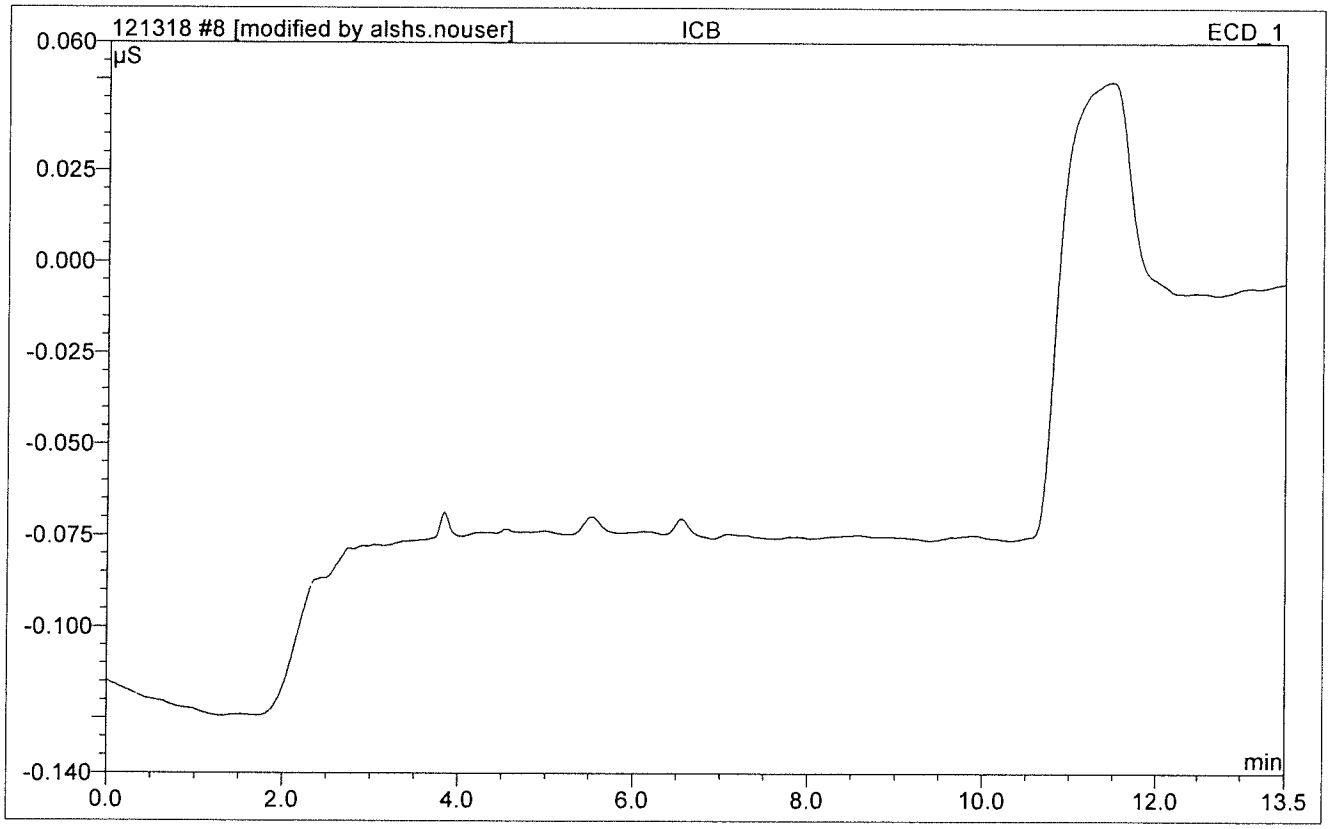
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **97** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:19** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 5.803 | 0.572 | 10.40 | 4.119 | 1. |
| 2 | 3.84 | CHLORIDE | 15.767 | 1.715 | 31.18 | 19.578 | 1. |
| 3 | 4.55 | NITRITE,N | 6.151 | 0.786 | 14.30 | 4.224 | 1. |
| 4 | 6.08 | BROMIDE | 0.844 | 0.120 | 2.19 | 3.506 | 1. |
| 5 | 6.53 | SULFATE | 6.990 | 1.234 | 22.43 | 19.619 | 1. |
| 6 | 7.03 | NITRATE | 4.677 | 0.820 | 14.90 | 3.813 | 1. |
| 7 | 11.29 | PHOSPHATE | 1.523 | 0.252 | 4.58 | 3.465 | 1. |
| **Total:** | | | 41.755 | 5.499 | 100.00 | 58.324 | |

## 8 ICB

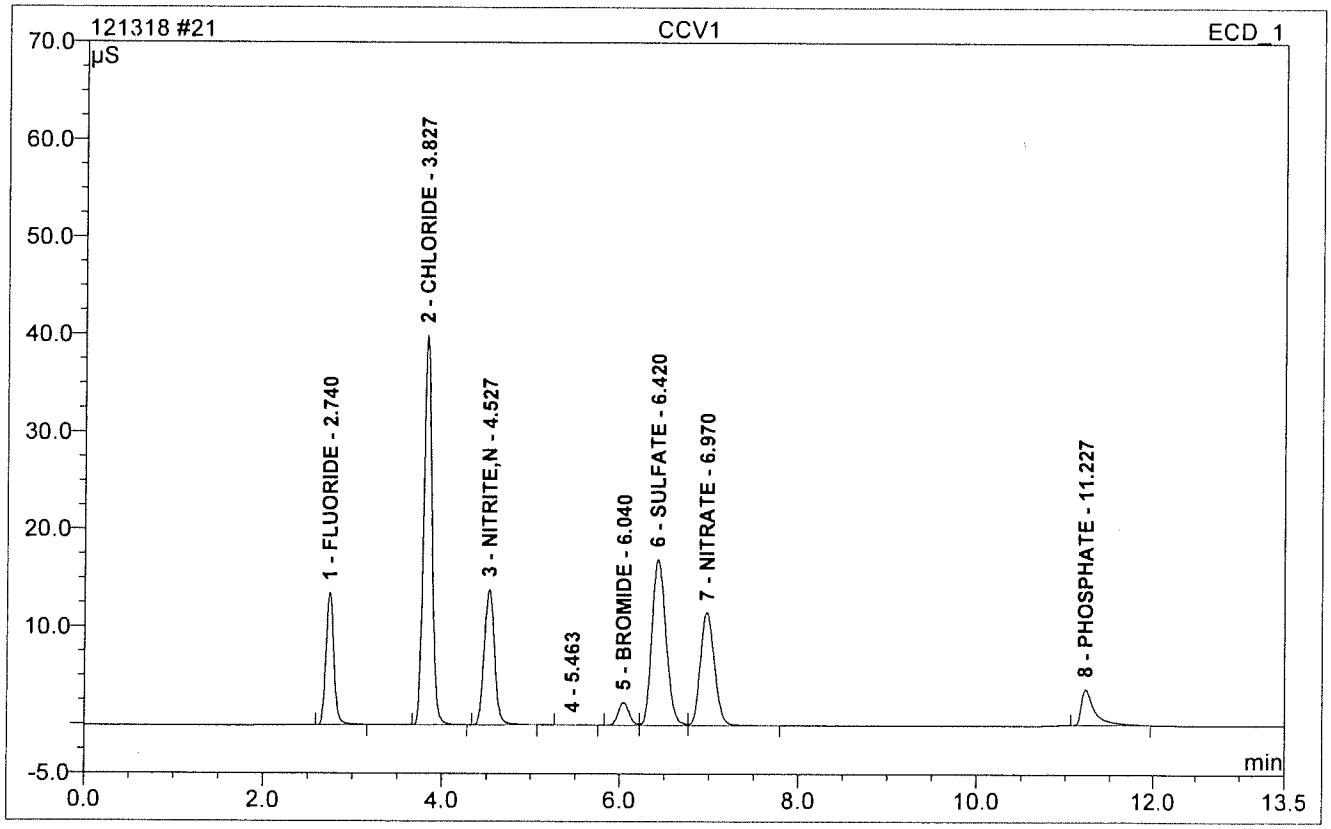
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **98** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/12/2018 17:34** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| Total: | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 21 CCV1

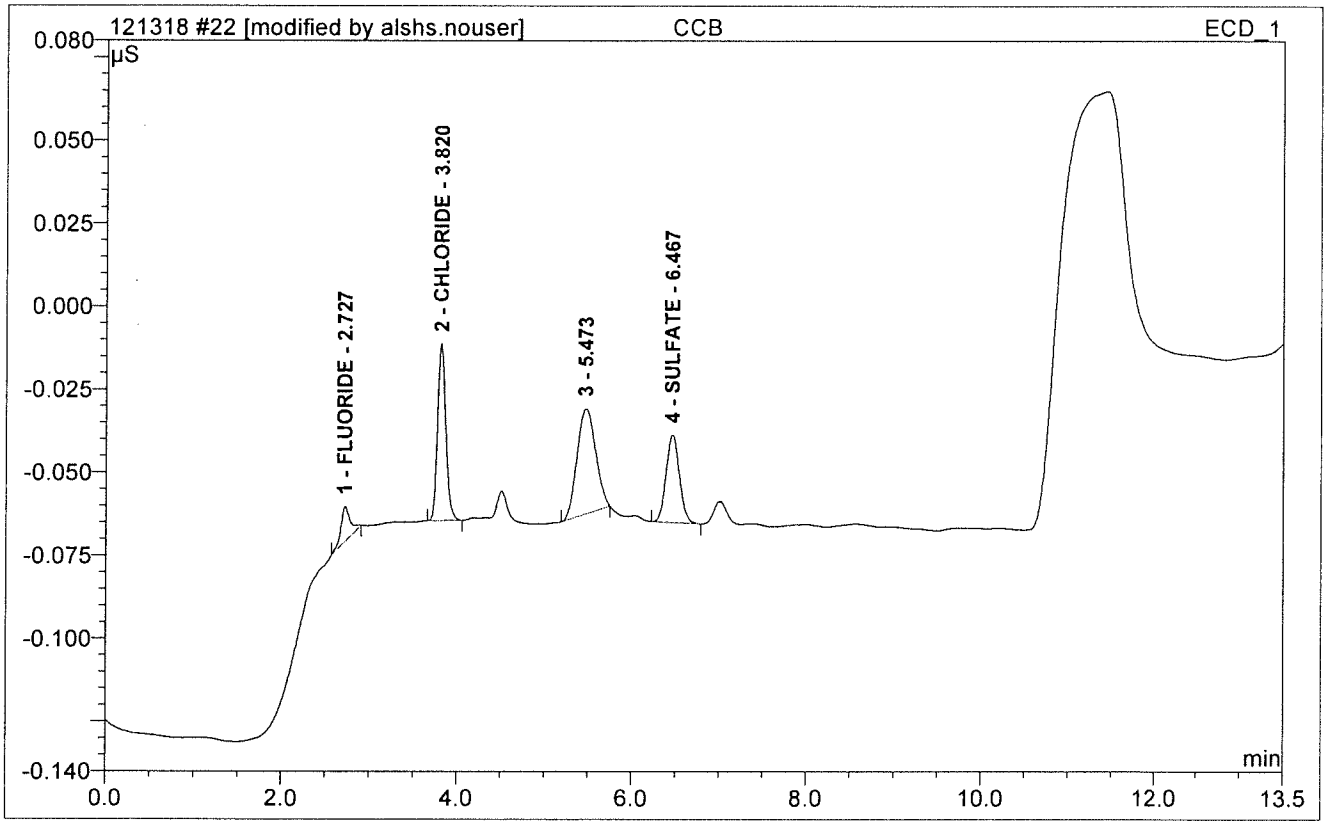
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 15:43** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 13.559 | 1.393 | 10.04 | 9.981 | 1. |
| 2 | 3.83 | CHLORIDE | 39.956 | 4.347 | 31.33 | 49.341 | 1. |
| 3 | 4.53 | NITRITE,N | 13.899 | 1.889 | 13.62 | 10.117 | 1. |
| 5 | 6.04 | BROMIDE | 2.328 | 0.332 | 2.39 | 9.536 | 1. |
| 6 | 6.42 | SULFATE | 17.031 | 3.132 | 22.58 | 49.421 | 1. |
| 7 | 6.97 | NITRATE | 11.597 | 2.134 | 15.38 | 9.837 | 1. |
| 8 | 11.23 | PHOSPHATE | 3.684 | 0.640 | 4.61 | 8.694 | 1. |
| **Total:** | | | 102.053 | 13.867 | 99.96 | 146.927 | |

## 22 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 15:57** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

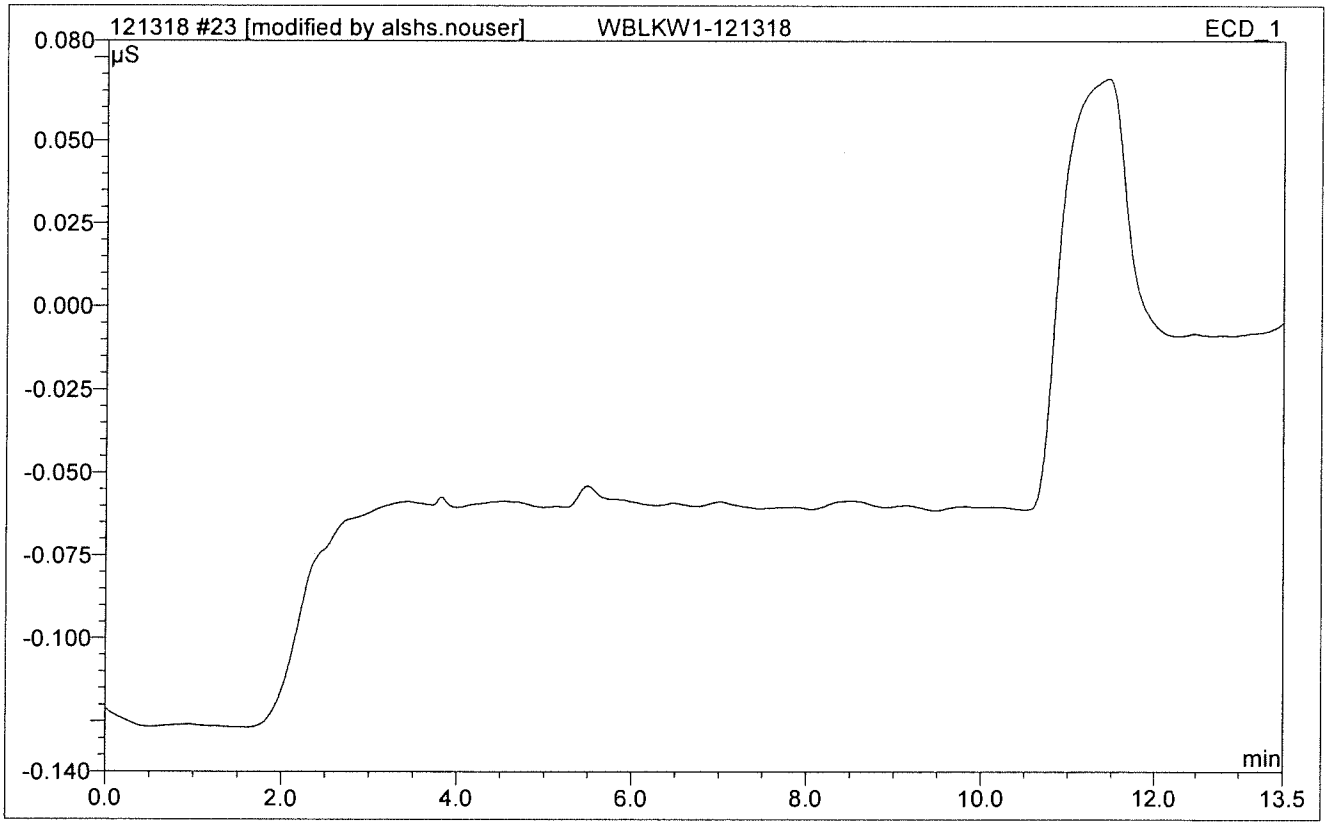



| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.010 | 0.001 | 6.29 | 0.042 | 1. |
| 2 | 3.82 | CHLORIDE | 0.053 | 0.006 | 29.83 | 0.254 | 1. |
| 4 | 6.47 | SULFATE | 0.026 | 0.005 | 24.07 | 0.328 | 1. |
| **Total:** | | | 0.090 | 0.012 | 60.18 | 0.623 | |

## 23 WBLKW1-121318

**9056_W**

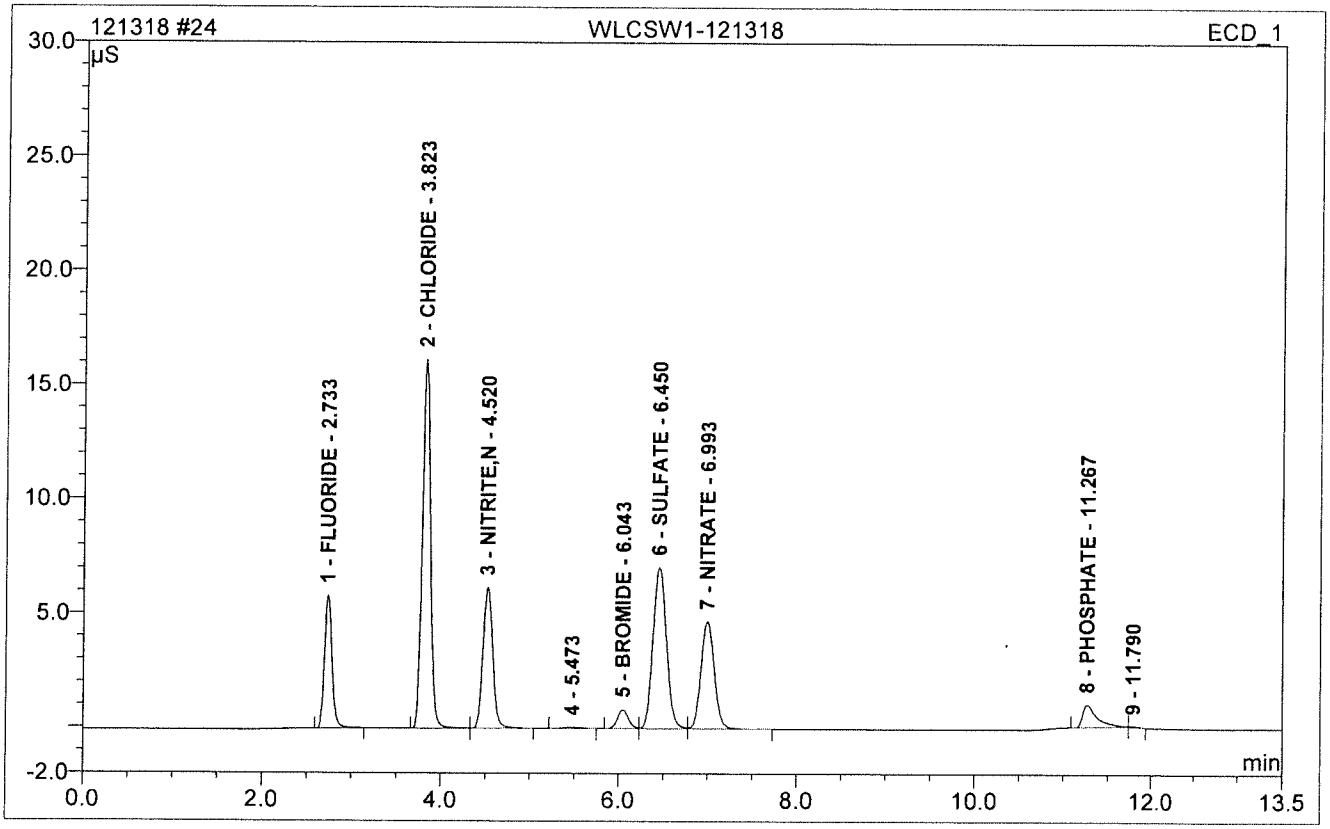
| | | | |
|---|---|---|---|
| *Sample Name:* | **WBLKW1-121318** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **21** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 16:12** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| **Total:** | | | 0.000 | 0.000 | 0.00 | 0.000 | |

## 24 WLCSW1-121318

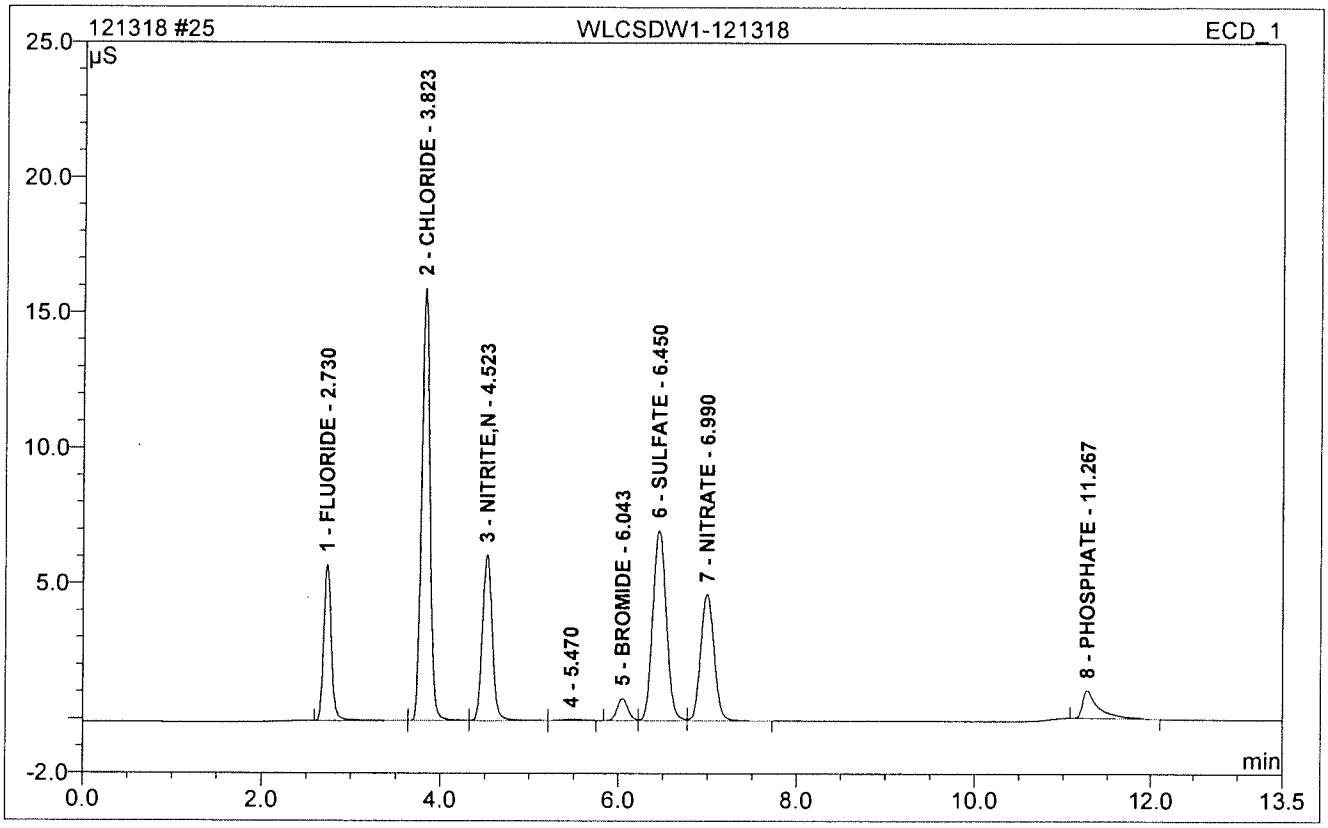
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSW1-121318** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **22** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 16:26** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 5.834 | 0.569 | 10.38 | 4.101 | 1. |
| 2 | 3.82 | CHLORIDE | 16.157 | 1.739 | 31.70 | 19.851 | 1. |
| 3 | 4.52 | NITRITE,N | 6.180 | 0.787 | 14.35 | 4.228 | 1. |
| 5 | 6.04 | BROMIDE | 0.828 | 0.118 | 2.15 | 3.428 | 1. |
| 6 | 6.45 | SULFATE | 7.090 | 1.251 | 22.81 | 19.895 | 1. |
| 7 | 6.99 | NITRATE | 4.732 | 0.825 | 15.05 | 3.840 | 1. |
| 8 | 11.27 | PHOSPHATE | 0.988 | 0.183 | 3.34 | 2.537 | 1. |
| **Total:** | | | 41.807 | 5.473 | 99.77 | 57.880 | |

## 25 WLCSDW1-121318

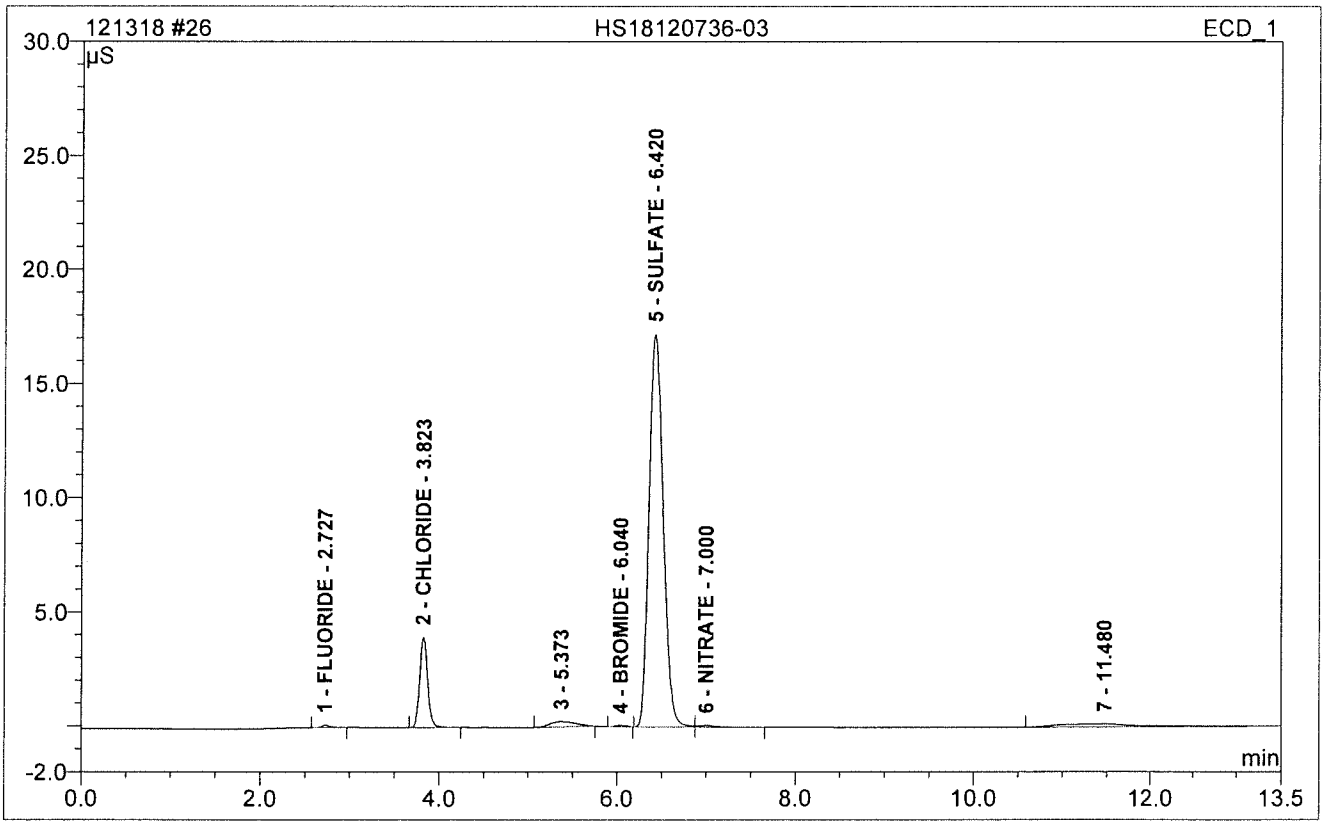
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSDW1-121318** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **23** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 16:41** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 5.764 | 0.571 | 10.43 | 4.109 | 1. |
| 2 | 3.82 | CHLORIDE | 15.977 | 1.726 | 31.54 | 19.706 | 1. |
| 3 | 4.52 | NITRITE,N | 6.115 | 0.783 | 14.31 | 4.204 | 1. |
| 5 | 6.04 | BROMIDE | 0.819 | 0.116 | 2.13 | 3.390 | 1. |
| 6 | 6.45 | SULFATE | 7.032 | 1.238 | 22.62 | 19.688 | 1. |
| 7 | 6.99 | NITRATE | 4.680 | 0.815 | 14.90 | 3.794 | 1. |
| 8 | 11.27 | PHOSPHATE | 1.020 | 0.212 | 3.88 | 2.931 | 1. |
| **Total:** | | | 41.407 | 5.462 | 99.81 | 57.822 | |

## 26 HS18120736-03

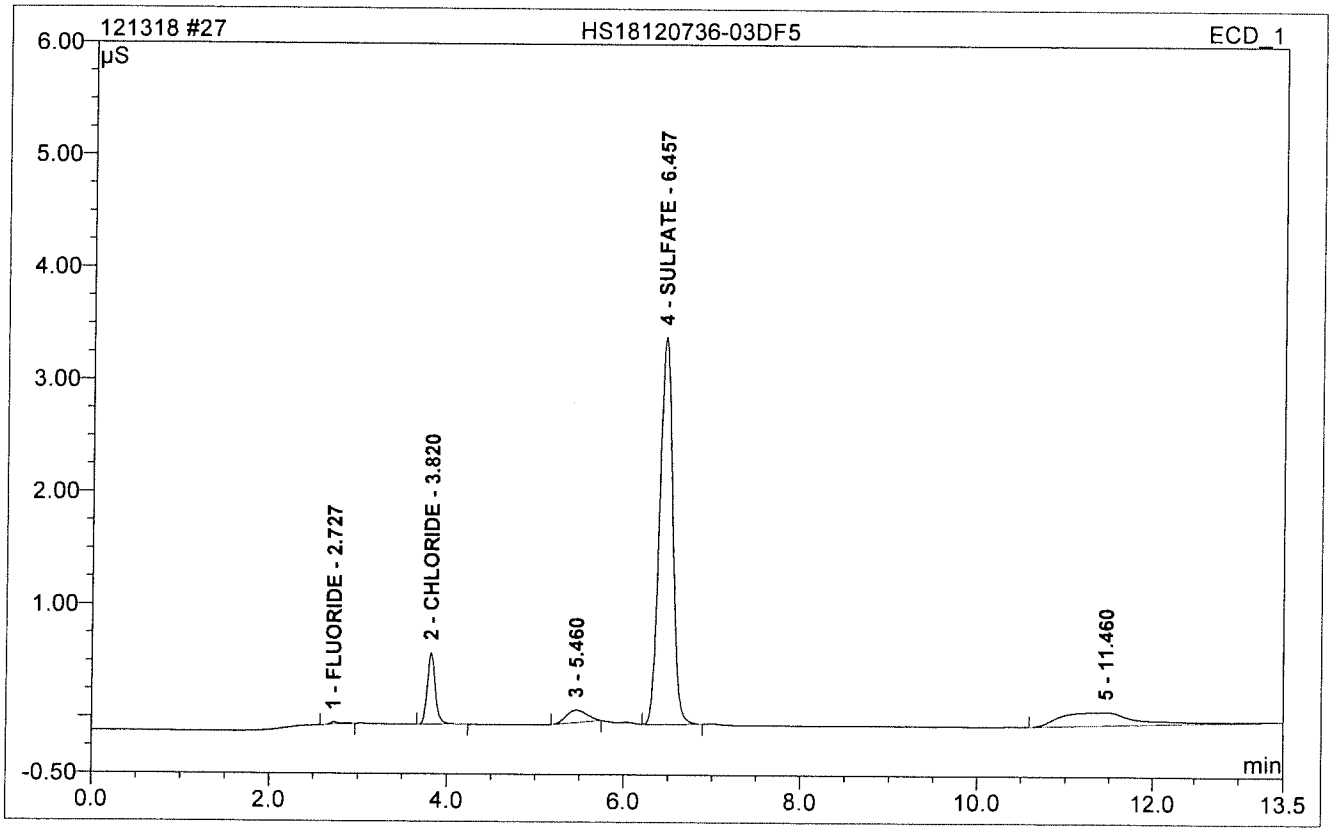
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-03** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **28** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 16:56** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.102 | 0.011 | 0.29 | 0.112 | 1. |
| 2 | 3.82 | CHLORIDE | 3.951 | 0.410 | 10.68 | 4.827 | 1. |
| 4 | 6.04 | BROMIDE | 0.059 | 0.008 | 0.20 | 0.296 | 1. |
| 5 | 6.42 | SULFATE | 17.210 | 3.186 | 82.95 | 50.275 | 1. |
| 6 | 7.00 | NITRATE | 0.074 | 0.016 | 0.41 | 0.131 | 1. |
| **Total:** | | | 21.396 | 3.632 | 94.54 | 55.642 | |

# 27 HS18120736-03DF5

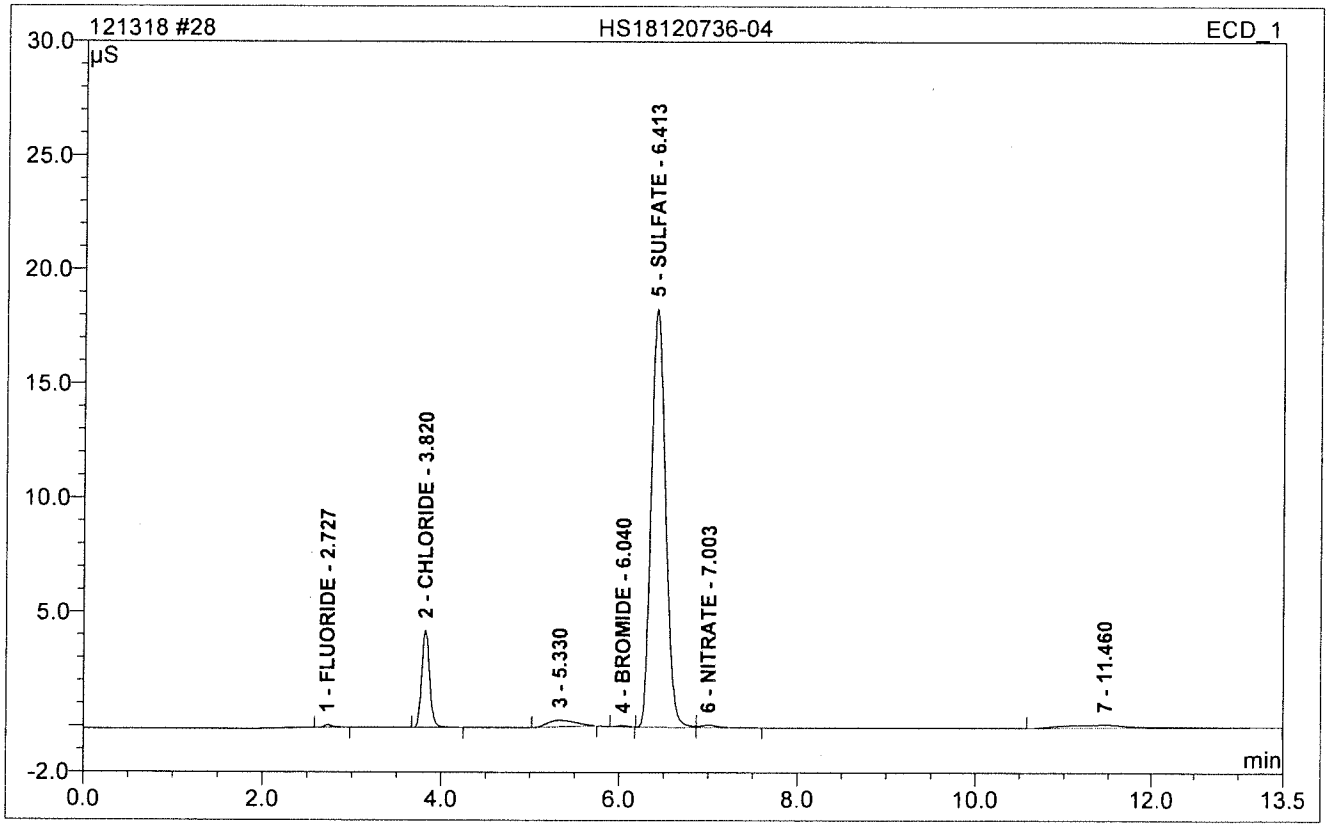
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-03DF5** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **29** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **5.** |
| *Recording Time:* | **12/13/2018 17:10** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.020 | 0.003 | 0.34 | 0.263 | 5. |
| 2 | 3.82 | CHLORIDE | 0.635 | 0.066 | 8.12 | 4.683 | 5. |
| 4 | 6.46 | SULFATE | 3.449 | 0.591 | 72.51 | 47.643 | 5. |
| **Total:** | | | 4.104 | 0.660 | 80.97 | 52.588 | |

## 28 HS18120736-04

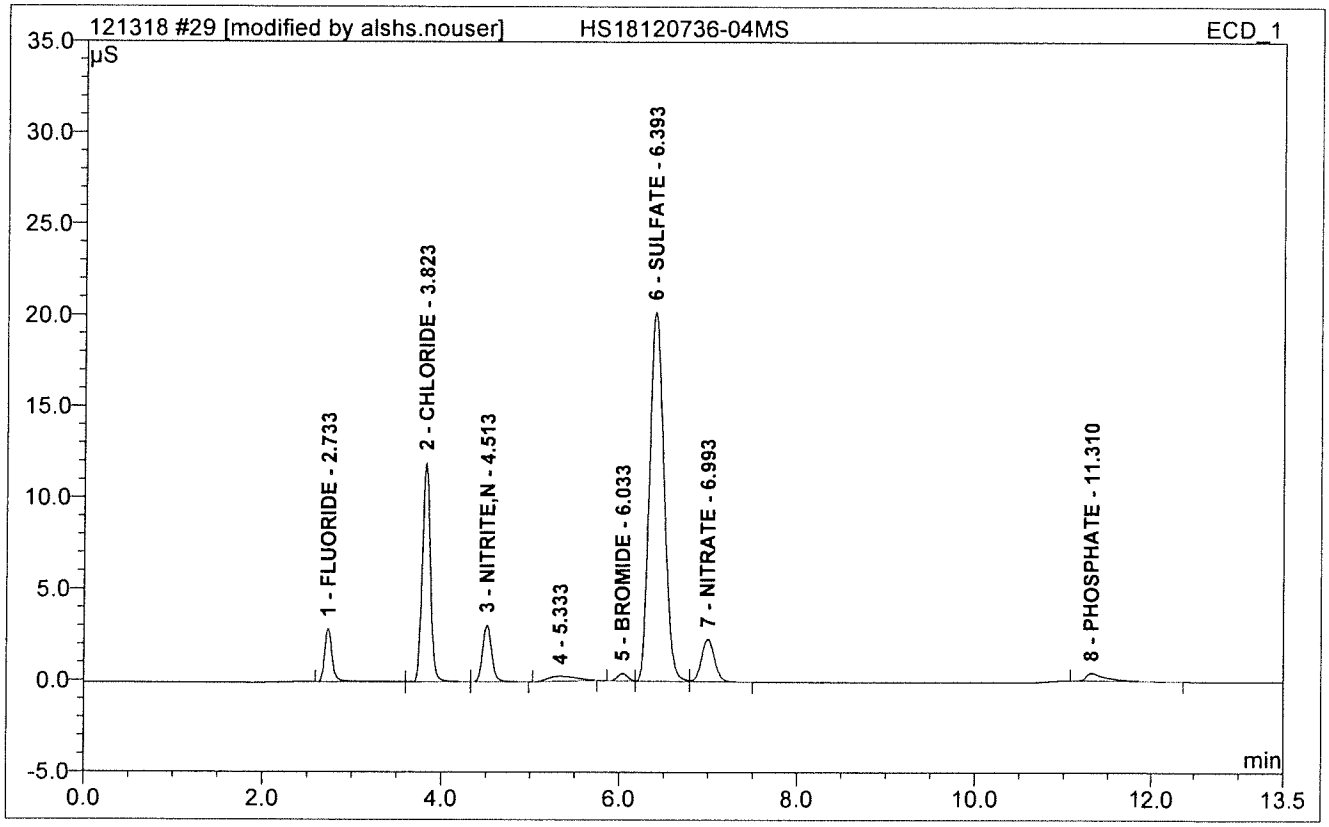
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-04** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **30** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 17:25** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.119 | 0.013 | 0.31 | 0.123 | 1. |
| 2 | 3.82 | CHLORIDE | 4.254 | 0.440 | 10.71 | 5.166 | 1. |
| 4 | 6.04 | BROMIDE | 0.060 | 0.008 | 0.19 | 0.295 | 1. |
| 5 | 6.41 | SULFATE | 18.307 | 3.387 | 82.39 | 53.420 | 1. |
| 6 | 7.00 | NITRATE | 0.107 | 0.022 | 0.53 | 0.159 | 1. |
| **Total:** | | | 22.846 | 3.869 | 94.12 | 59.163 | |

## 29 HS18120736-04MS

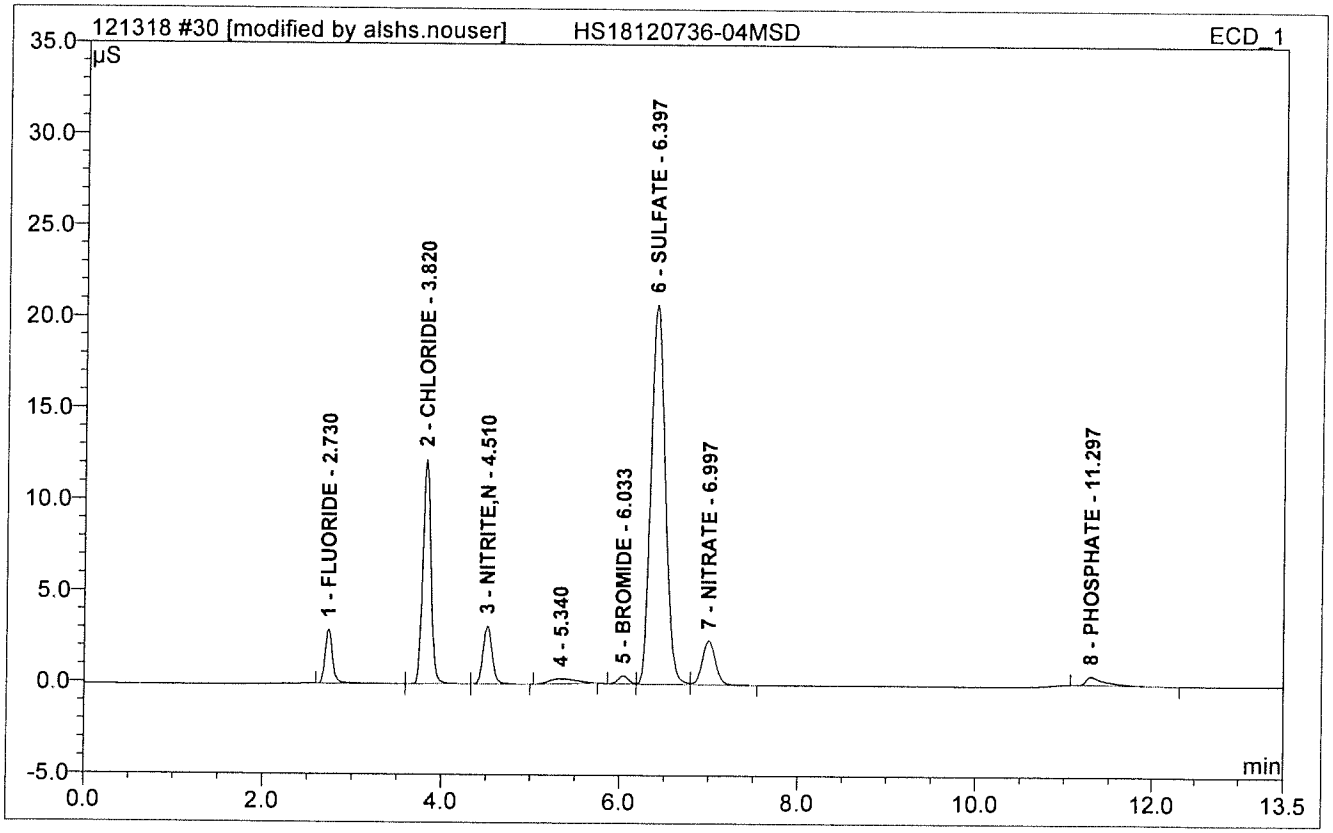
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-04MS** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **31** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 17:39** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.885 | 0.281 | 4.39 | 2.040 | 1. |
| 2 | 3.82 | CHLORIDE | 11.974 | 1.272 | 19.89 | 14.571 | 1. |
| 3 | 4.51 | NITRITE,N | 3.092 | 0.368 | 5.75 | 1.988 | 1. |
| 5 | 6.03 | BROMIDE | 0.416 | 0.056 | 0.88 | 1.674 | 1. |
| 6 | 6.39 | SULFATE | 20.209 | 3.818 | 59.70 | 60.183 | 1. |
| 7 | 6.99 | NITRATE | 2.327 | 0.398 | 6.23 | 1.884 | 1. |
| 8 | 11.31 | PHOSPHATE | 0.422 | 0.103 | 1.61 | 1.451 | 1. |
| **Total:** | | | 41.326 | 6.296 | 98.45 | 83.790 | |

# 30 HS18120736-04MSD

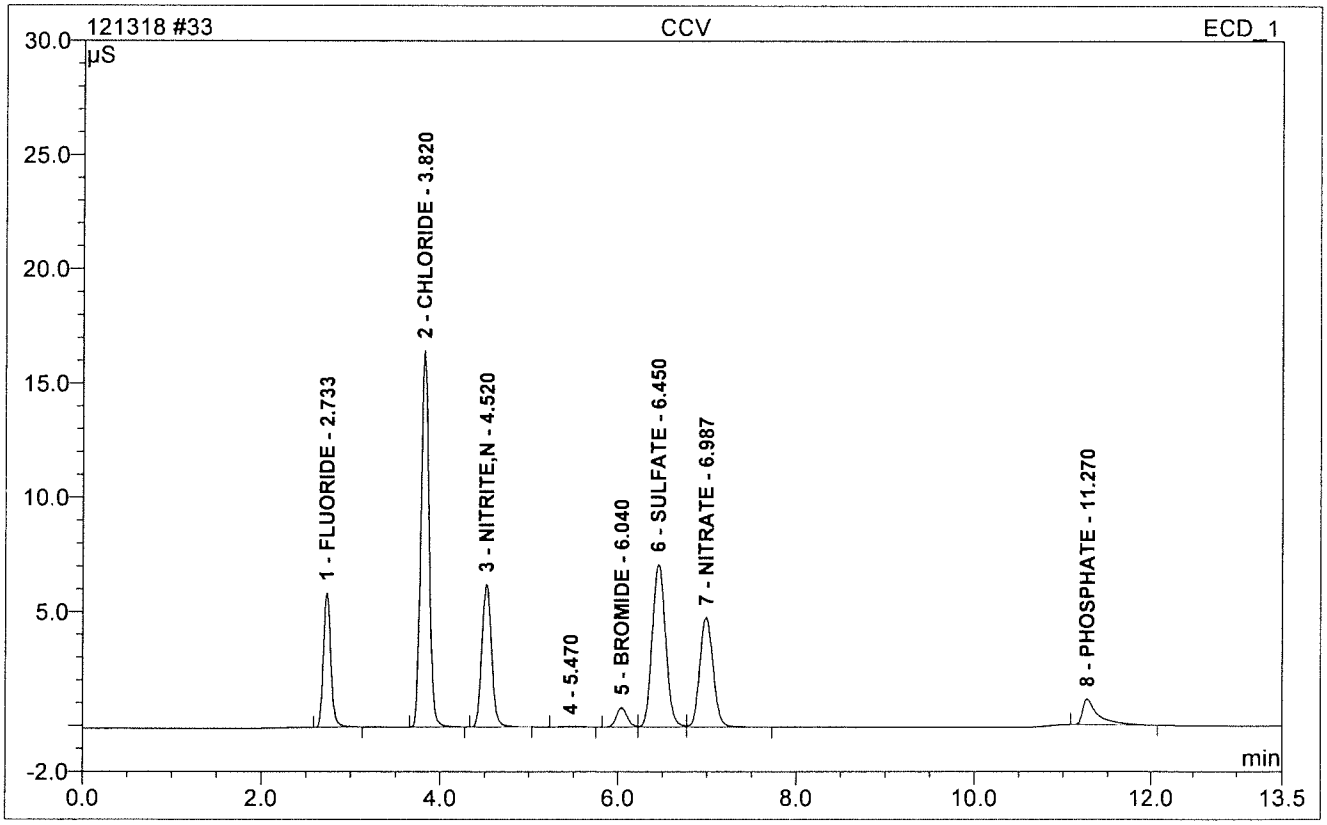
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-04MSD** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **32** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 17:54** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.960 | 0.289 | 4.41 | 2.097 | 1. |
| 2 | 3.82 | CHLORIDE | 12.293 | 1.307 | 19.92 | 14.967 | 1. |
| 3 | 4.51 | NITRITE,N | 3.171 | 0.379 | 5.78 | 2.047 | 1. |
| 5 | 6.03 | BROMIDE | 0.431 | 0.058 | 0.89 | 1.741 | 1. |
| 6 | 6.40 | SULFATE | 20.774 | 3.910 | 59.59 | 61.632 | 1. |
| 7 | 7.00 | NITRATE | 2.403 | 0.411 | 6.27 | 1.942 | 1. |
| 8 | 11.30 | PHOSPHATE | 0.458 | 0.109 | 1.66 | 1.533 | 1. |
| **Total:** | | | 42.490 | 6.463 | 98.51 | 85.961 | |

## 33 CCV

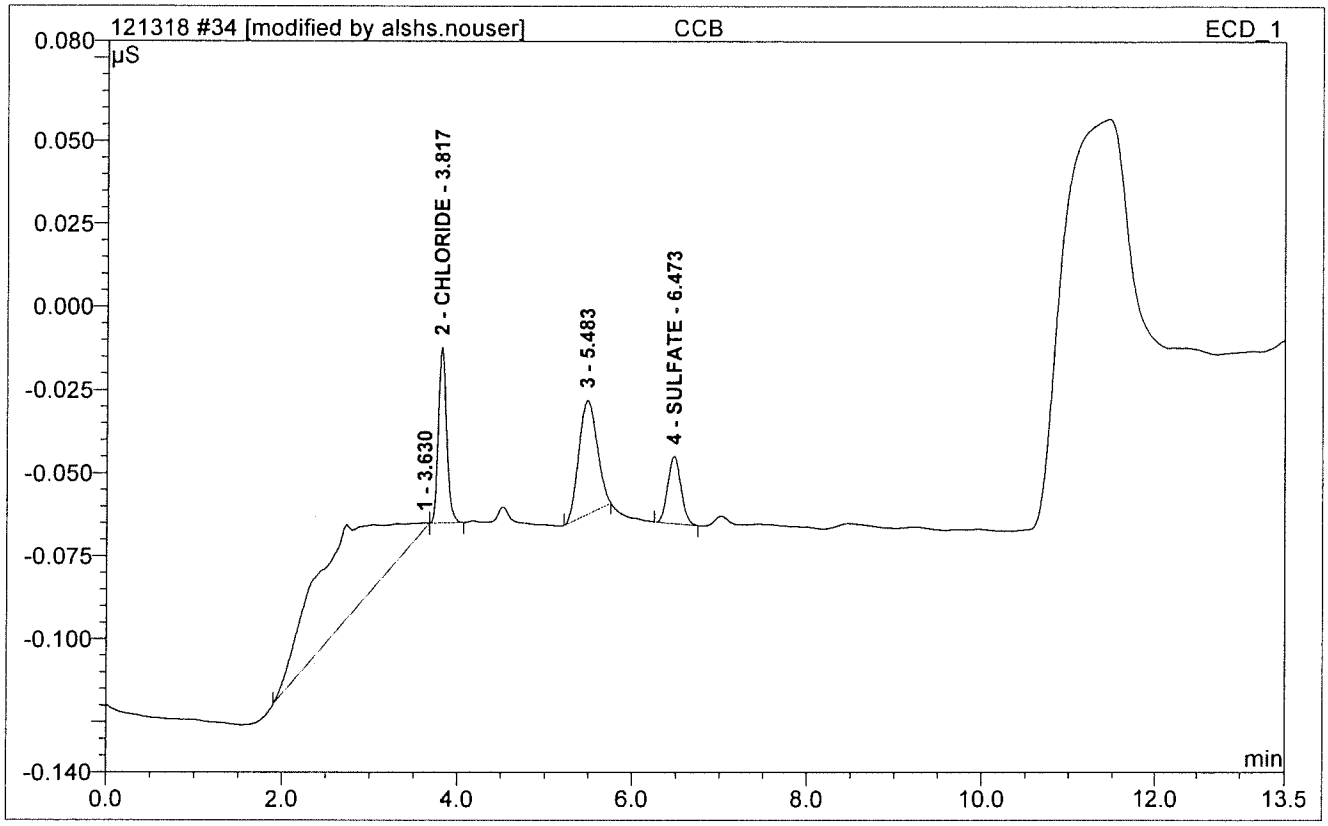
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 18:37** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 5.902 | 0.575 | 10.28 | 4.139 | 1. |
| 2 | 3.82 | CHLORIDE | 16.494 | 1.771 | 31.66 | 20.218 | 1. |
| 3 | 4.52 | NITRITE,N | 6.262 | 0.794 | 14.20 | 4.266 | 1. |
| 5 | 6.04 | BROMIDE | 0.854 | 0.121 | 2.16 | 3.519 | 1. |
| 6 | 6.45 | SULFATE | 7.135 | 1.260 | 22.52 | 20.028 | 1. |
| 7 | 6.99 | NITRATE | 4.828 | 0.843 | 15.07 | 3.921 | 1. |
| 8 | 11.27 | PHOSPHATE | 1.132 | 0.225 | 4.02 | 3.096 | 1. |
| **Total:** | | | 42.607 | 5.589 | 99.90 | 59.187 | |

# 34 CCB

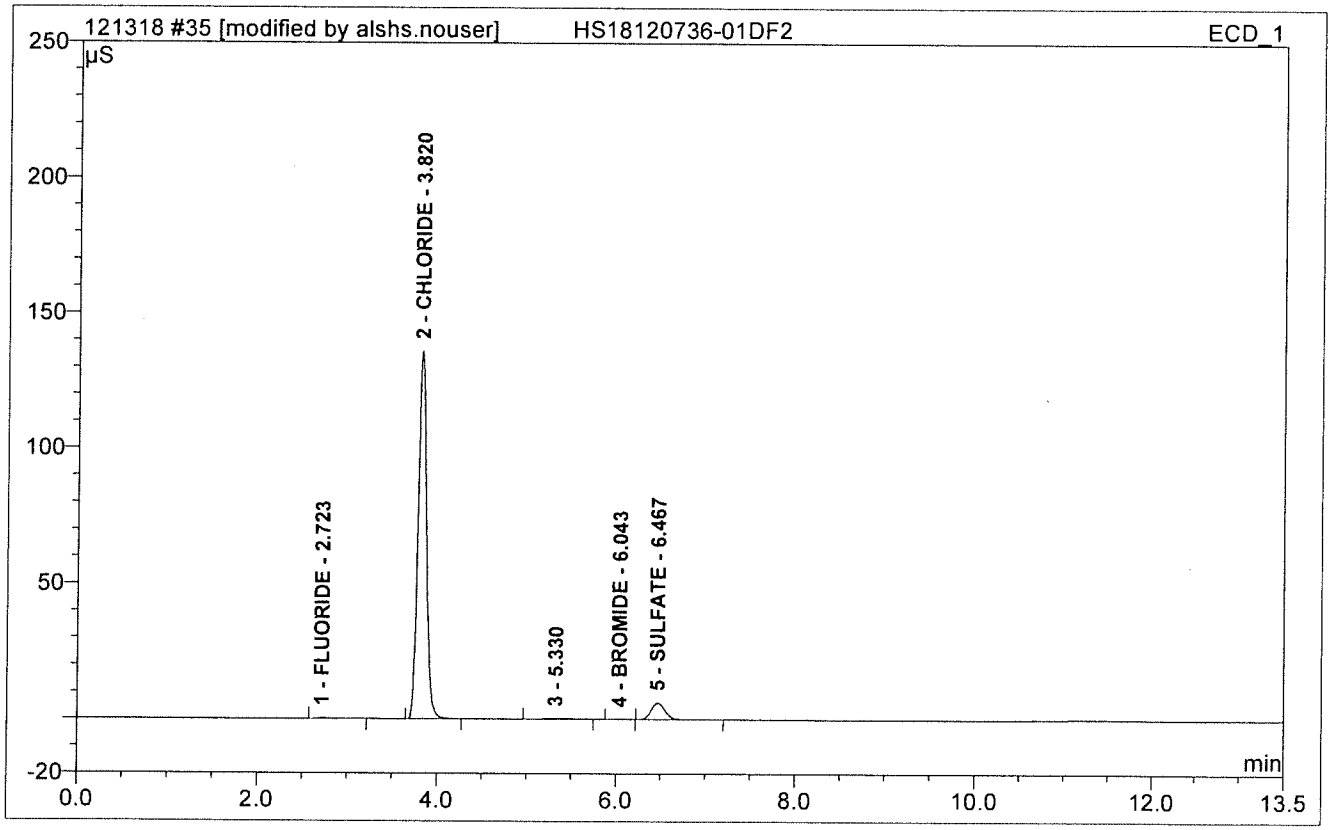
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 18:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 2 | 3.82 | CHLORIDE | 0.053 | 0.006 | 12.77 | 0.253 | 1. |
| 4 | 6.47 | SULFATE | 0.020 | 0.004 | 7.95 | 0.310 | 1. |
| **Total:** | | | 0.073 | 0.009 | 20.72 | 0.563 | |

## 35 HS18120736-01DF2

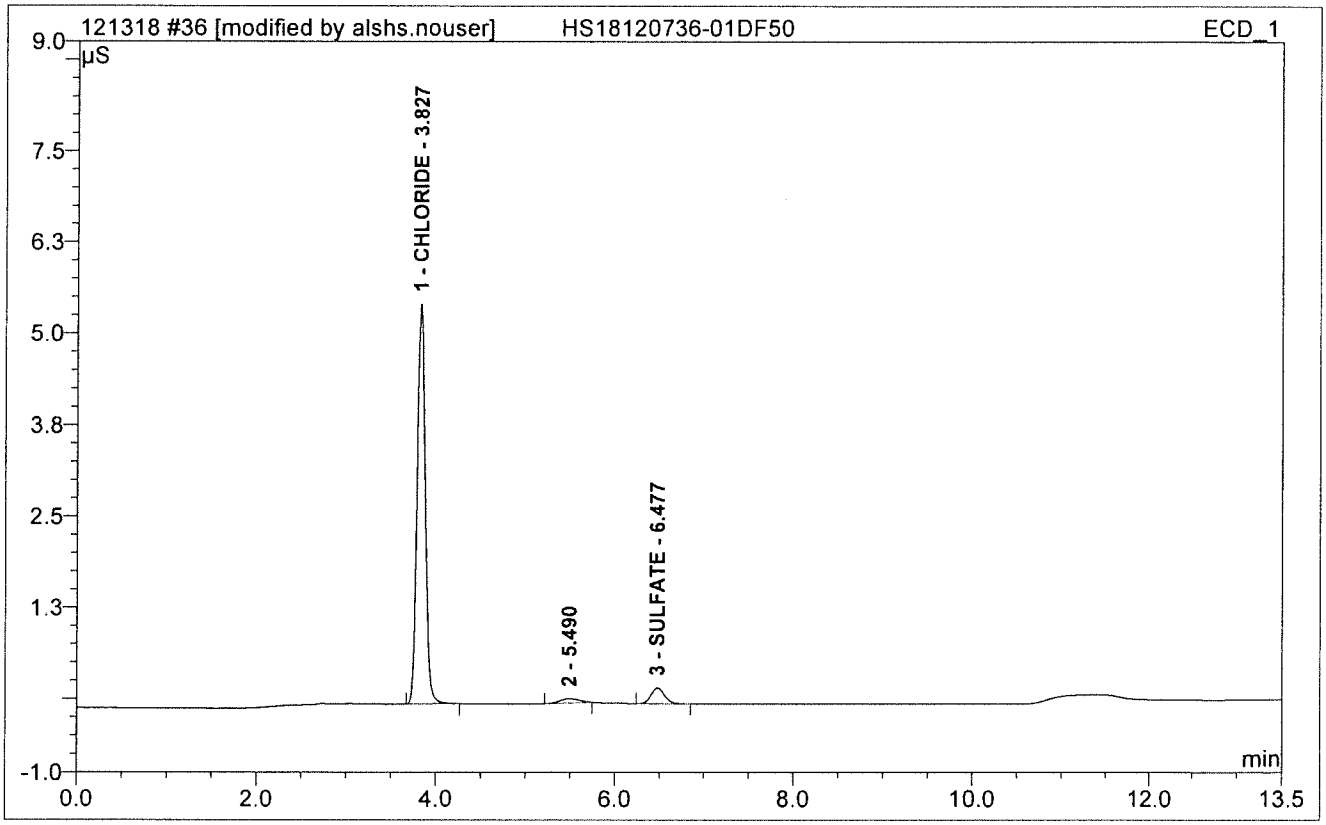
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-01DF2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **24** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **2.** |
| *Recording Time:* | **12/13/2018 19:24** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.72 | FLUORIDE | 0.308 | 0.046 | 0.29 | 0.726 | 2. |
| 2 | 3.82 | CHLORIDE | 135.899 | 14.886 | 92.14 | 337.035 | 2. |
| 4 | 6.04 | BROMIDE | 0.131 | 0.018 | 0.11 | 1.186 | 2. |
| 5 | 6.47 | SULFATE | 6.159 | 1.104 | 6.83 | 35.169 | 2. |
| **Total:** | | | 142.498 | 16.054 | 99.37 | 374.116 | |

## 36 HS18120736-01DF50

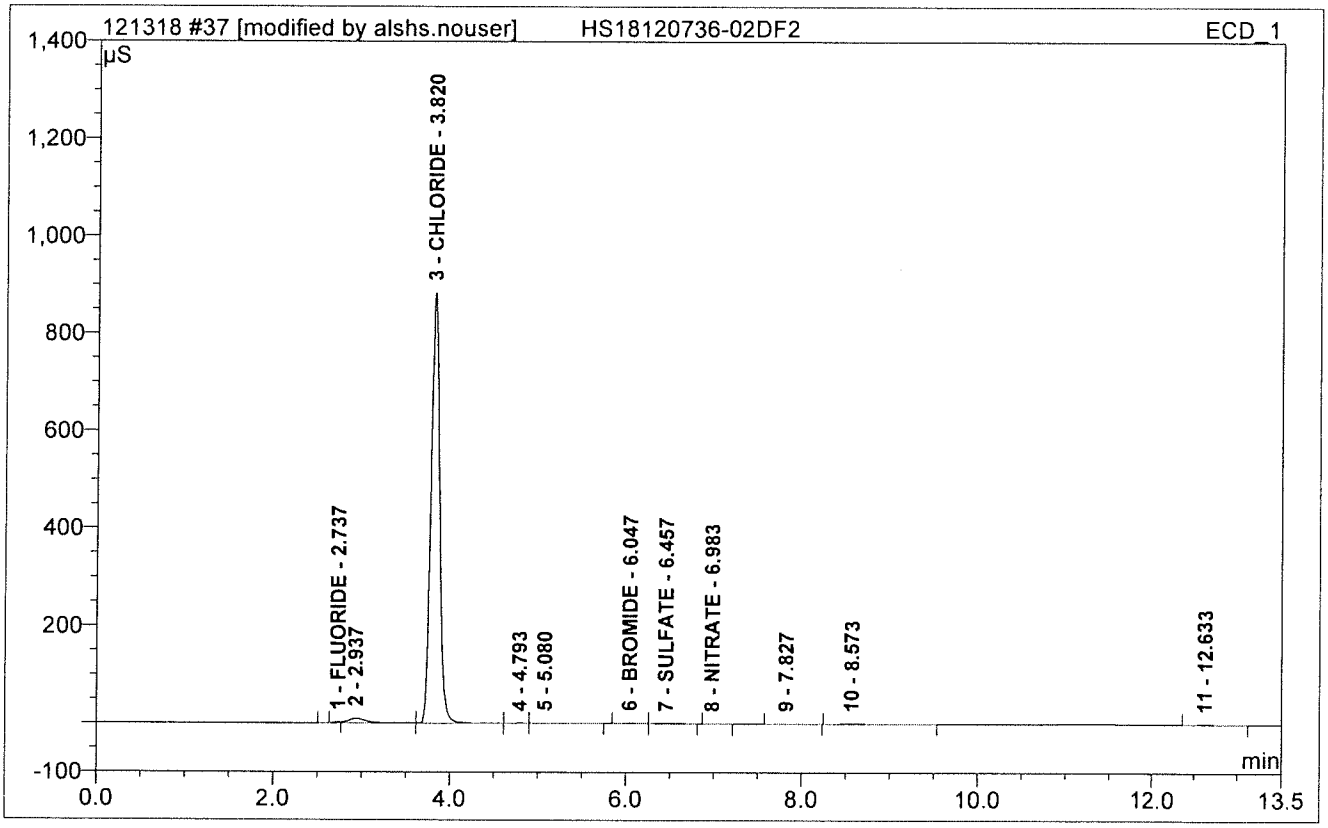
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-01DF50** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **25** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **50.** |
| *Recording Time:* | **12/13/2018 19:39** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 3.83 | CHLORIDE | 5.475 | 0.577 | 91.65 | 335.736 | 50. |
| 3 | 6.48 | SULFATE | 0.218 | 0.038 | 6.01 | 42.409 | 50. |
| **Total:** | | | 5.693 | 0.615 | 97.66 | 378.145 | |

## 37 HS18120736-02DF2

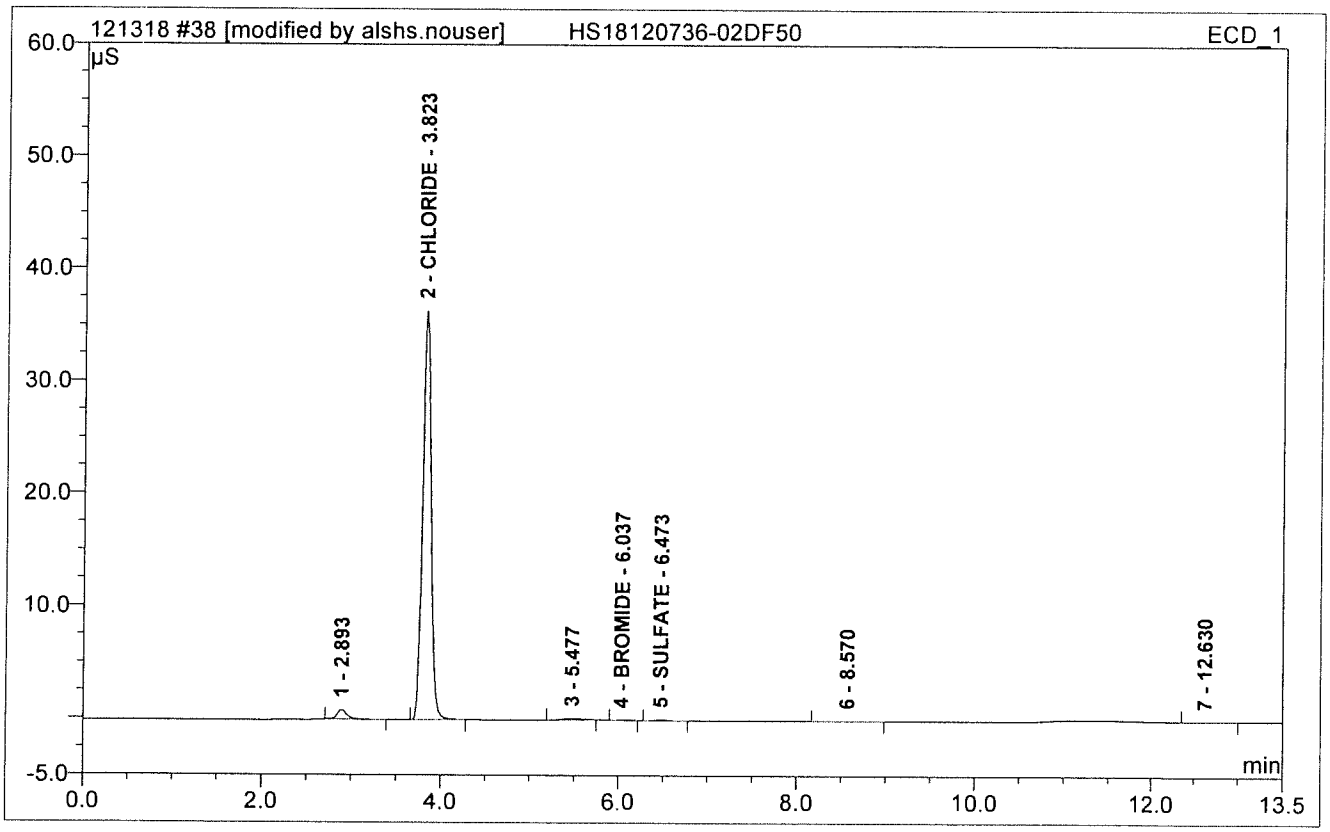
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-02DF2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **26** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **2.** |
| *Recording Time:* | **12/13/2018 19:53** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 0.438 | 0.040 | 0.04 | 0.632 | 2. |
| 3 | 3.82 | CHLORIDE | 884.637 | 100.549 | 96.92 | 2274.367 | 2. |
| 6 | 6.05 | BROMIDE | 1.210 | 0.183 | 0.18 | 10.551 | 2. |
| 7 | 6.46 | SULFATE | 0.708 | 0.136 | 0.13 | 4.763 | 2. |
| 8 | 6.98 | NITRATE | 0.017 | 0.003 | 0.00 | 0.147 | 2. |
| **Total:** | | | 887.010 | 100.910 | 97.27 | 2290.460 | |

## 38 HS18120736-02DF50

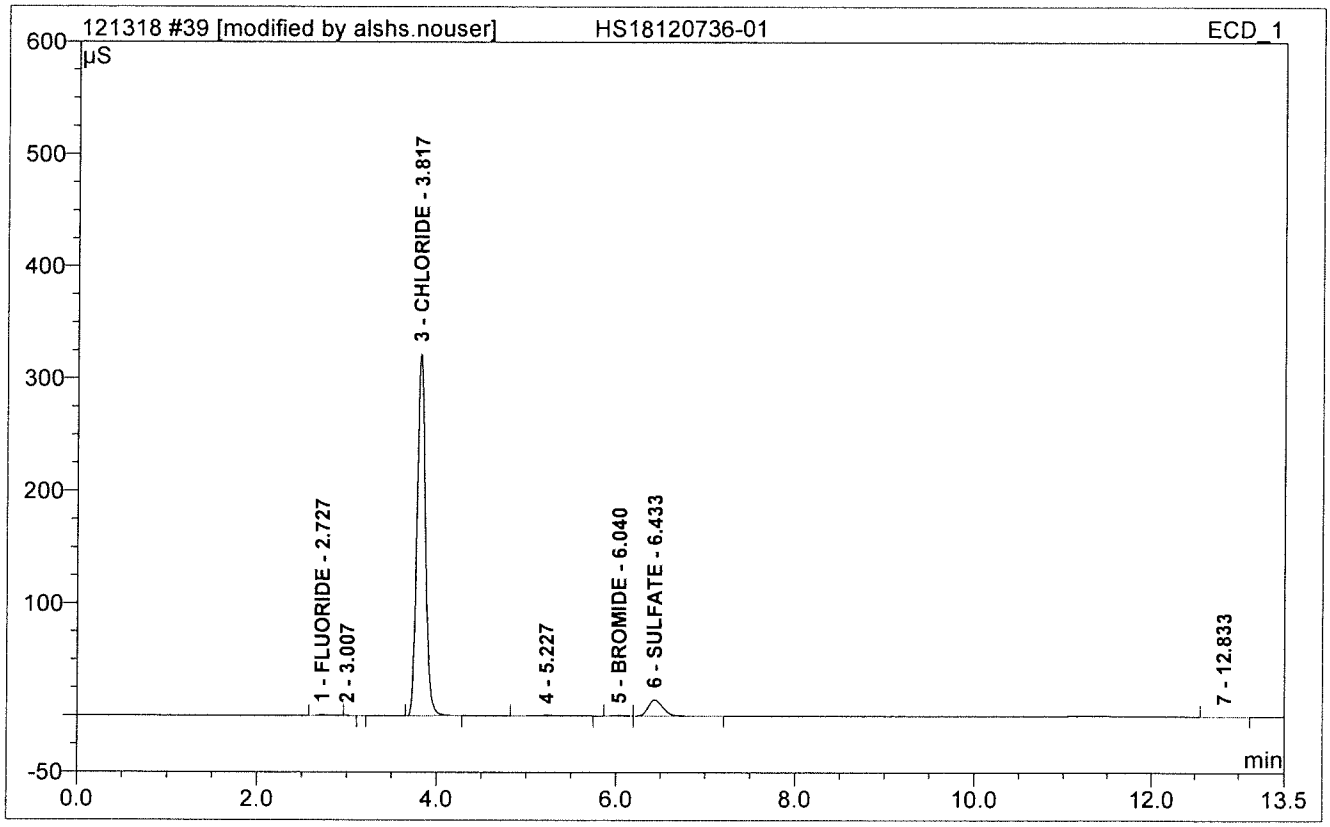
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-02DF50** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **27** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **50.** |
| *Recording Time:* | **12/13/2018 20:08** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 2 | 3.82 | CHLORIDE | 36.332 | 3.951 | 96.34 | 2243.187 | 50. |
| 4 | 6.04 | BROMIDE | 0.028 | 0.004 | 0.09 | 9.086 | 50. |
| 5 | 6.47 | SULFATE | 0.050 | 0.009 | 0.21 | 19.594 | 50. |
| **Total:** | | | 36.410 | 3.963 | 96.64 | 2271.868 | |

## 39 HS18120736-01

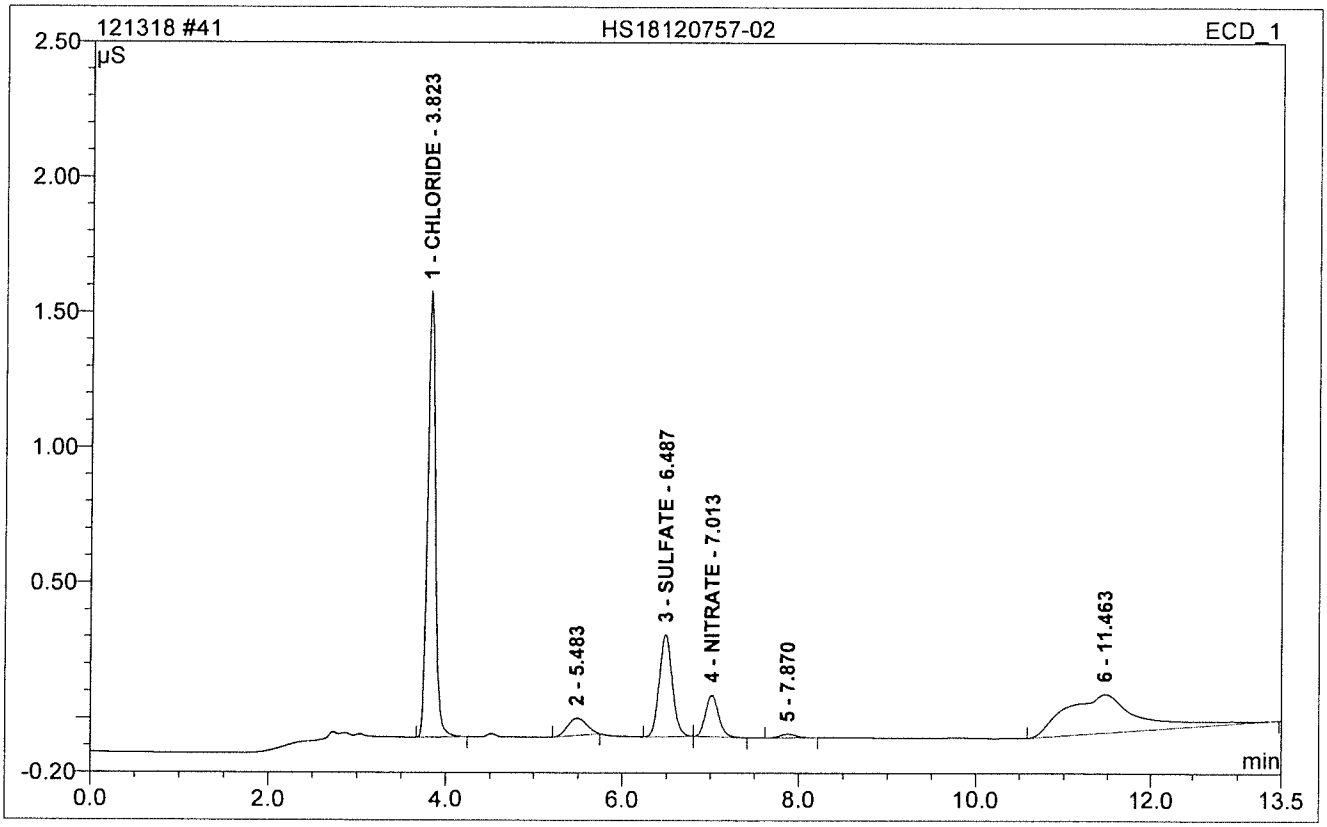
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120736-01** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **45** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 20:37** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 0.839 | 0.125 | 0.32 | 0.925 | 1. |
| 3 | 3.82 | CHLORIDE | 321.714 | 35.640 | 92.14 | 403.196 | 1. |
| 5 | 6.04 | BROMIDE | 0.364 | 0.050 | 0.13 | 1.495 | 1. |
| 6 | 6.43 | SULFATE | 14.279 | 2.710 | 7.00 | 42.789 | 1. |
| **Total:** | | | 337.197 | 38.524 | 99.59 | 448.405 | |

# 41 HS18120757-02

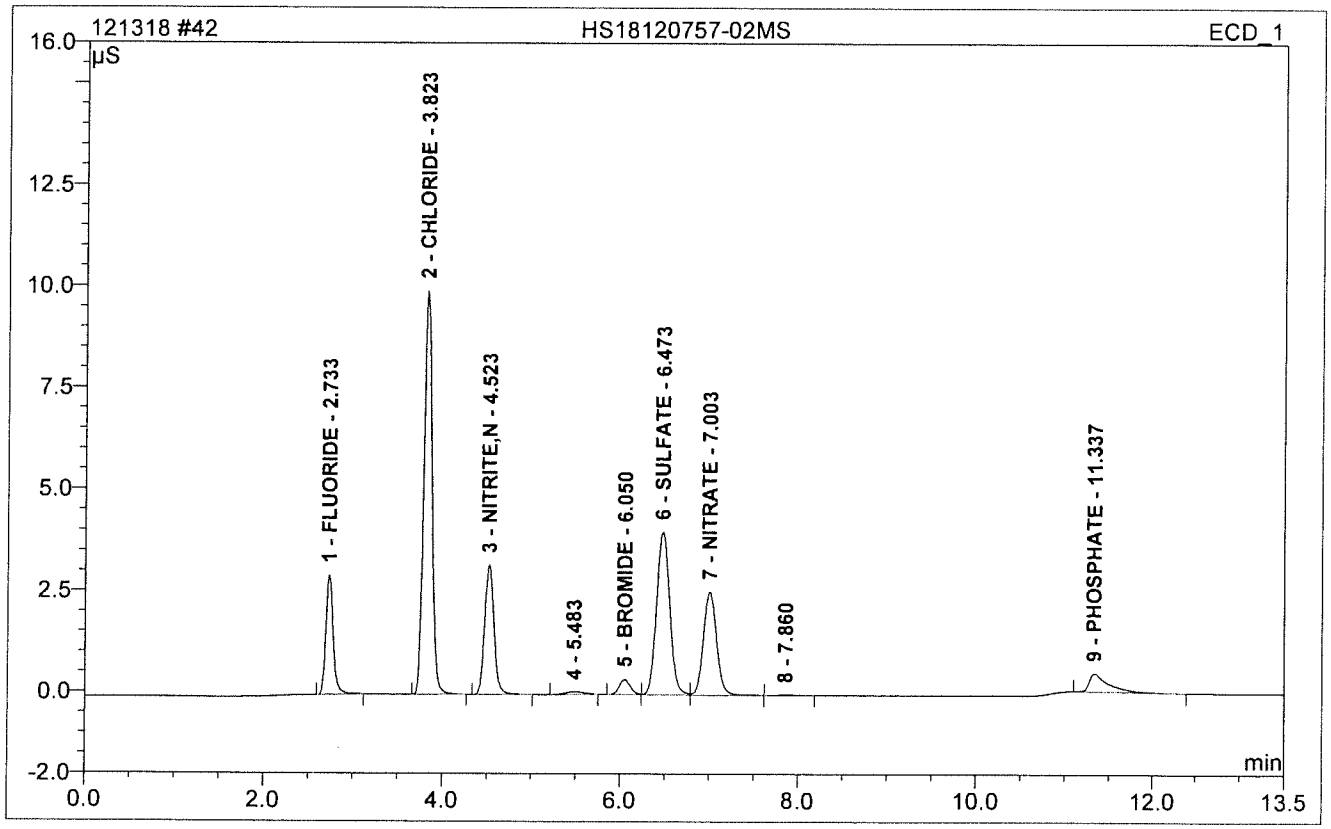
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120757-02** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **38** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 21:06** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 3.82 | CHLORIDE | 1.647 | 0.170 | 40.54 | 2.107 | 1. |
| 3 | 6.49 | SULFATE | 0.376 | 0.065 | 15.44 | 1.268 | 1. |
| 4 | 7.01 | NITRATE | 0.155 | 0.027 | 6.39 | 0.181 | 1. |
| **Total:** | | | 2.177 | 0.261 | 62.36 | 3.556 | |

## 42 HS18120757-02MS

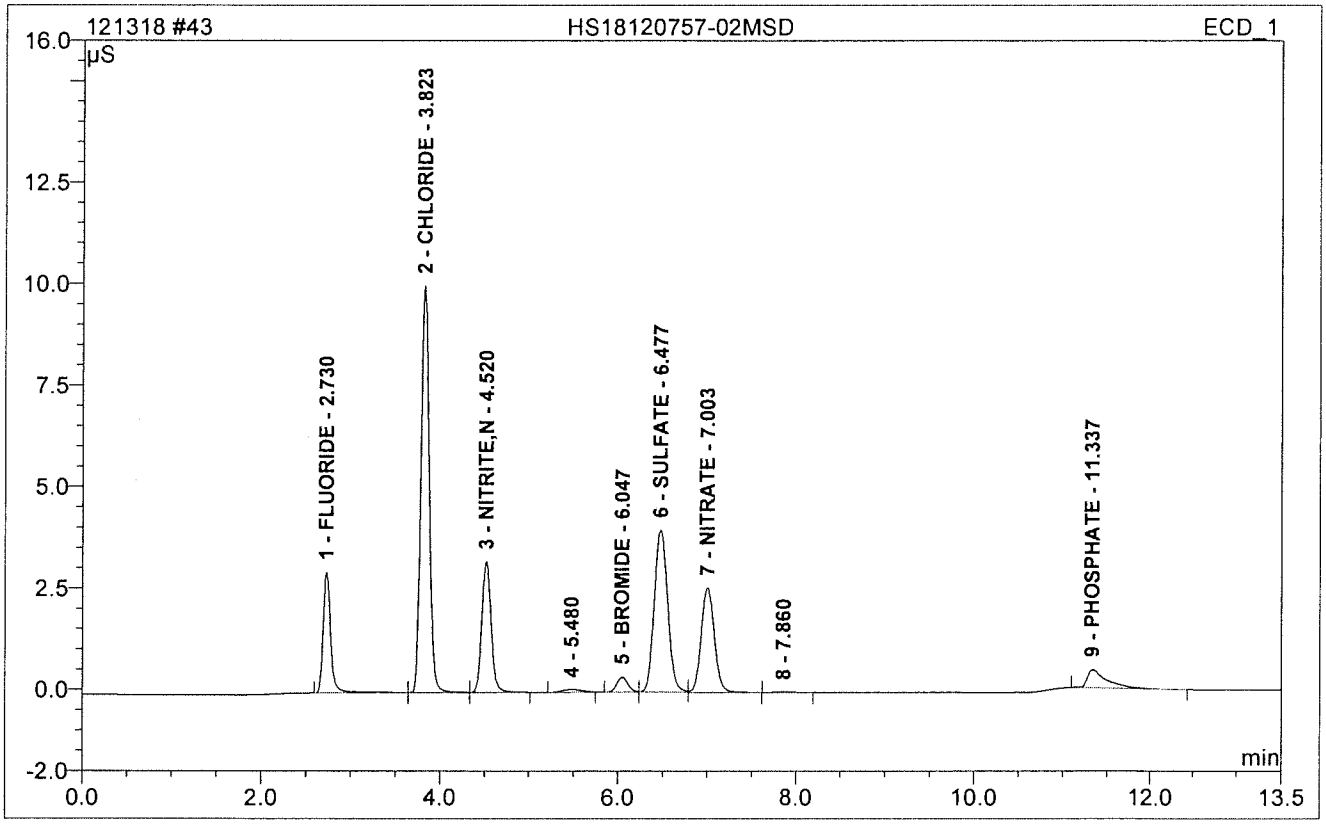
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120757-02MS** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **39** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 21:21** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.953 | 0.284 | 9.28 | 2.064 | 1. |
| 2 | 3.82 | CHLORIDE | 9.949 | 1.067 | 34.83 | 12.251 | 1. |
| 3 | 4.52 | NITRITE,N | 3.199 | 0.392 | 12.81 | 2.117 | 1. |
| 5 | 6.05 | BROMIDE | 0.374 | 0.054 | 1.76 | 1.610 | 1. |
| 6 | 6.47 | SULFATE | 4.024 | 0.698 | 22.78 | 11.204 | 1. |
| 7 | 7.00 | NITRATE | 2.560 | 0.438 | 14.29 | 2.063 | 1. |
| 9 | 11.34 | PHOSPHATE | 0.451 | 0.111 | 3.62 | 1.560 | 1. |
| **Total:** | | | 23.509 | 3.043 | 99.36 | 32.870 | |

# 43 HS18120757-02MSD

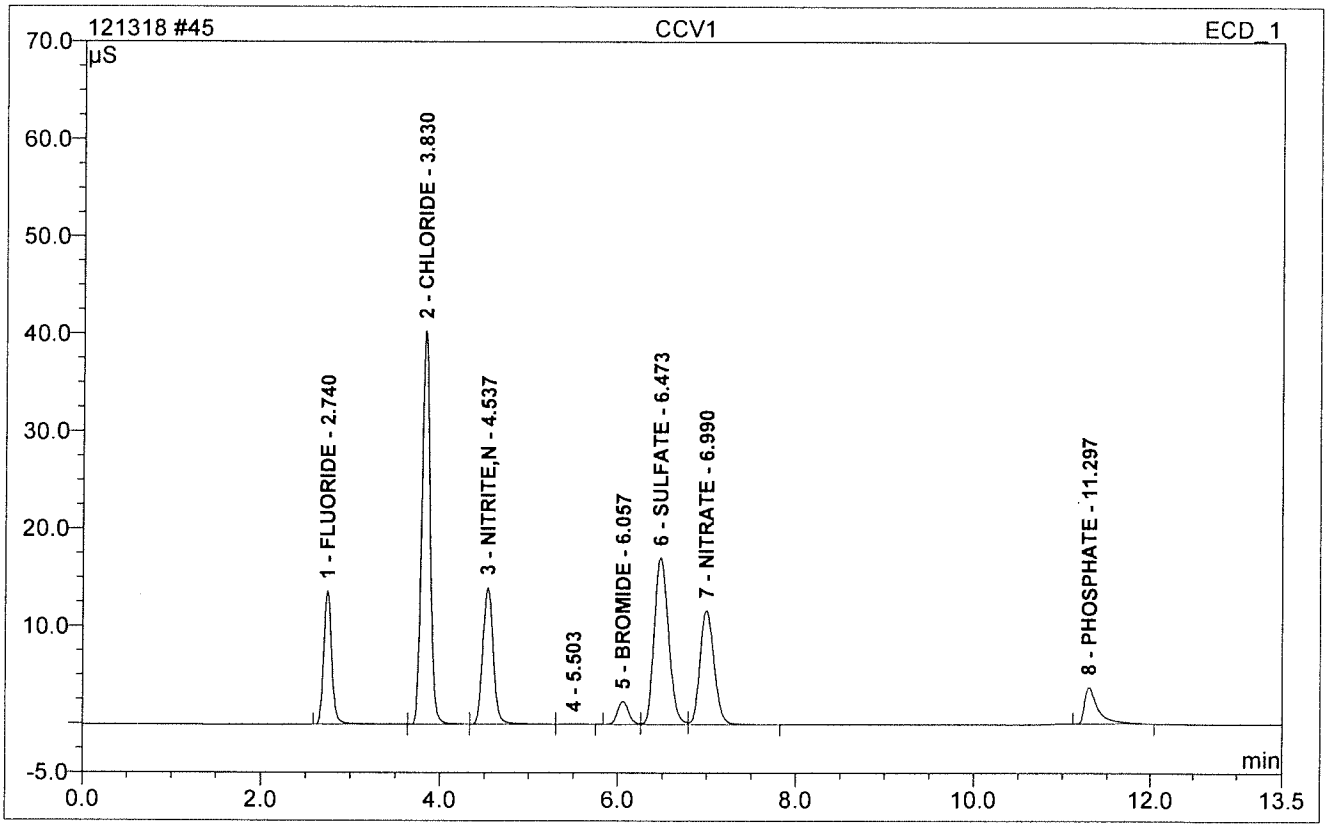
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS18120757-02MSD** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **40** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 21:35** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | FLUORIDE | 2.975 | 0.293 | 9.50 | 2.125 | 1. |
| 2 | 3.82 | CHLORIDE | 10.006 | 1.072 | 34.78 | 12.306 | 1. |
| 3 | 4.52 | NITRITE,N | 3.218 | 0.394 | 12.80 | 2.129 | 1. |
| 5 | 6.05 | BROMIDE | 0.373 | 0.054 | 1.75 | 1.611 | 1. |
| 6 | 6.48 | SULFATE | 3.997 | 0.699 | 22.67 | 11.220 | 1. |
| 7 | 7.00 | NITRATE | 2.580 | 0.439 | 14.24 | 2.069 | 1. |
| 9 | 11.34 | PHOSPHATE | 0.447 | 0.111 | 3.62 | 1.570 | 1. |
| **Total:** | | | 23.596 | 3.062 | 99.37 | 33.029 | |

## 45 CCV1

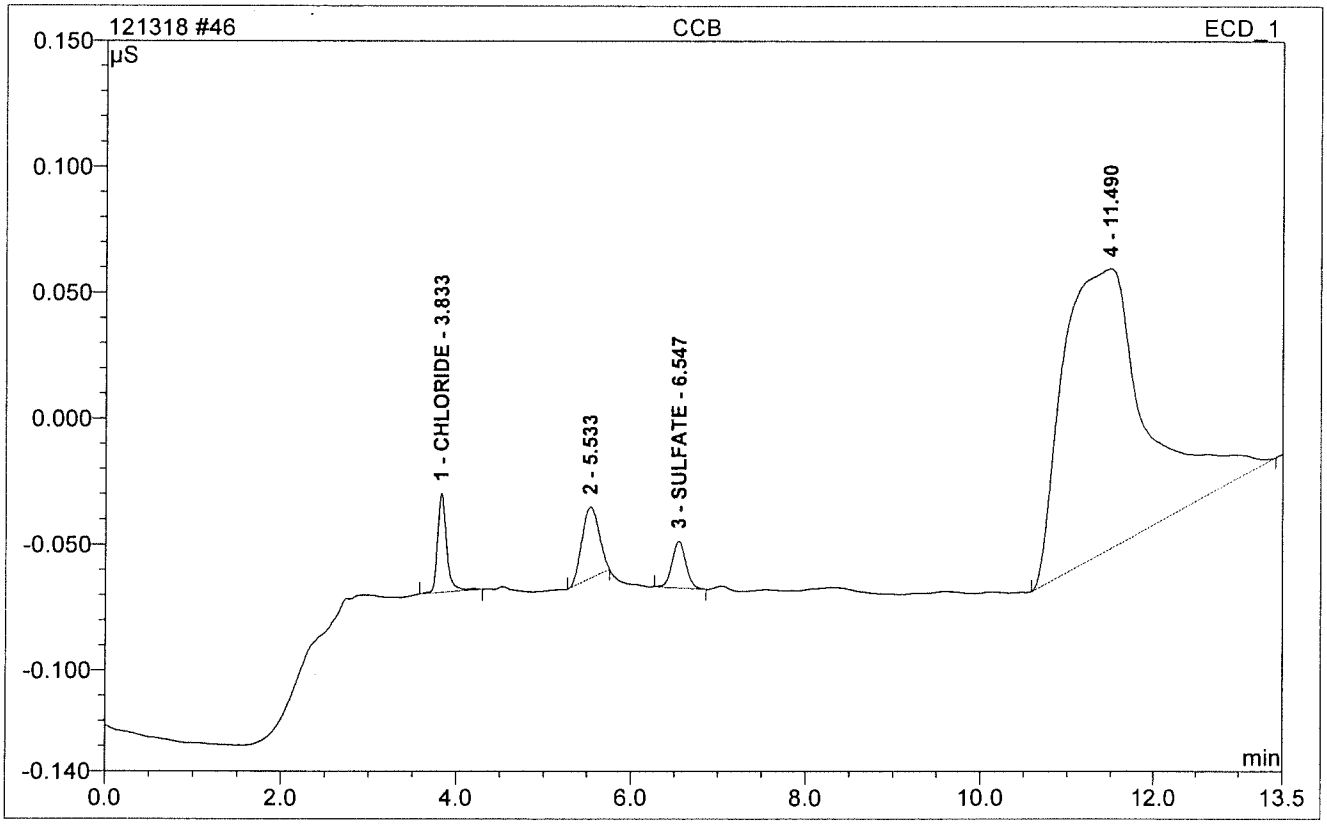
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 22:05** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.74 | FLUORIDE | 13.665 | 1.428 | 10.10 | 10.233 | 1. |
| 2 | 3.83 | CHLORIDE | 40.386 | 4.423 | 31.29 | 50.206 | 1. |
| 3 | 4.54 | NITRITE,N | 14.054 | 1.935 | 13.68 | 10.358 | 1. |
| 5 | 6.06 | BROMIDE | 2.367 | 0.339 | 2.40 | 9.741 | 1. |
| 6 | 6.47 | SULFATE | 17.142 | 3.178 | 22.48 | 50.142 | 1. |
| 7 | 6.99 | NITRATE | 11.745 | 2.172 | 15.37 | 10.012 | 1. |
| 8 | 11.30 | PHOSPHATE | 3.766 | 0.654 | 4.63 | 8.889 | 1. |
| **Total:** | | | 103.127 | 14.130 | 99.94 | 149.582 | |

# 46 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **121218** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **12/13/2018 22:19** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 3.83 | CHLORIDE | 0.039 | 0.005 | 3.31 | 0.241 | 1. |
| 3 | 6.55 | SULFATE | 0.019 | 0.003 | 2.40 | 0.307 | 1. |
| **Total:** | | | 0.058 | 0.008 | 5.71 | 0.548 | |

# HS18120913 Cover Page

ALS WO# HS18120913

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- Form 8 - ICPMS04_329719 SD

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# WorkOrder: HS18120913

**LHAAP-58**

**Bhate Environmental Associates, Inc.**

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**28-Jan-2019**

# HS18120913 LHAAP58 Final

ALS WO# HS18120913

10450 Stancliff Rd. Suite 210
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December 27, 2018

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS18120913**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 8 sample(s) on Dec 15, 2018 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

**Generated By: DAYNA.FISHER**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18120913

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS18120913-01 | LHSMW06_121318 | Groundwater | | 13-Dec-2018 11:00 | 15-Dec-2018 09:40 | ☐ |
| HS18120913-02 | LHSMW06_121318_a | Groundwater | | 13-Dec-2018 11:00 | 15-Dec-2018 09:40 | ☐ |
| HS18120913-03 | 34AWW21_121318 | Groundwater | | 13-Dec-2018 11:55 | 15-Dec-2018 09:40 | ☐ |
| HS18120913-04 | 35AWW01_121318 | Groundwater | | 13-Dec-2018 13:40 | 15-Dec-2018 09:40 | ☐ |
| HS18120913-05 | 35AWW14_121318 | Groundwater | | 13-Dec-2018 14:00 | 15-Dec-2018 09:40 | ☐ |
| HS18120913-06 | 35AWW22_121418 | Groundwater | | 14-Dec-2018 09:15 | 15-Dec-2018 09:40 | ☐ |
| HS18120913-07 | 35AWW12_121418 | Groundwater | | 14-Dec-2018 10:10 | 15-Dec-2018 09:40 | ☐ |
| HS18120913-08 | Trip Blank | Water | | 14-Dec-2018 00:00 | 15-Dec-2018 09:40 | ☐ |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18120913

**CASE NARRATIVE**

## GCMS Volatiles by Method SW8260

### Batch ID: R329894

#### Sample ID: 34AWW21_121318 (HS18120913-03MS)

- MS/MSD failed QC limits for select target cmompounds.

## Metals by Method SW6020

### Batch ID: 135804

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318
Collection Date: 13-Dec-2018 11:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| **1,1-Dichloroethane** | **8.2** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 13:59 |
| **1,1-Dichloroethene** | **19** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 13:59 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318
Collection Date: 13-Dec-2018 11:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| **cis-1,2-Dichloroethene** | **55** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 13:59 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| **Tetrachloroethene** | **1.6** | | **0.30** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 13:59 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| **trans-1,2-Dichloroethene** | **0.91** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 13:59 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| **Trichloroethene** | **16** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 13:59 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 13:59 |
| **Vinyl chloride** | **5.0** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 13:59 |
| *Surr: 1,2-Dichloroethane-d4* | *96.7* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 13:59* |
| *Surr: 4-Bromofluorobenzene* | *97.1* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 13:59* |
| *Surr: Dibromofluoromethane* | *89.9* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 13:59* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 13:59* |
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| Arsenic | 0.00100 | U | 0.000400 | 0.00100 | 0.00200 | mg/L | 1 | 21-Dec-2018 21:48 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318_a
Collection Date: 13-Dec-2018 11:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| **1,1-Dichloroethane** | **8.1** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 14:24 |
| **1,1-Dichloroethene** | **20** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 14:24 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318_a
Collection Date: 13-Dec-2018 11:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| **cis-1,2-Dichloroethene** | **55** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 14:24 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| **Tetrachloroethene** | **1.5** | | **0.30** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 14:24 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| **trans-1,2-Dichloroethene** | **0.94** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 14:24 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| **Trichloroethene** | **16** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 14:24 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 14:24 |
| **Vinyl chloride** | **5.0** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 14:24 |
| *Surr: 1,2-Dichloroethane-d4* | *98.0* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 14:24* |
| *Surr: 4-Bromofluorobenzene* | *97.0* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 14:24* |
| *Surr: Dibromofluoromethane* | *90.5* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 14:24* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 14:24* |
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| Arsenic | 0.00100 | U | 0.000400 | 0.00100 | 0.00200 | mg/L | 1 | 21-Dec-2018 21:50 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 34AWW21_121318
Collection Date: 13-Dec-2018 11:55

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 34AWW21_121318
Collection Date: 13-Dec-2018 11:55

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 11:55 |
| *Surr: 1,2-Dichloroethane-d4* | *94.8* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 11:55* |
| *Surr: 4-Bromofluorobenzene* | *98.6* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 11:55* |
| *Surr: Dibromofluoromethane* | *89.4* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 11:55* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 11:55* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_121318
Collection Date: 13-Dec-2018 13:40

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_121318
Collection Date: 13-Dec-2018 13:40

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:18 |
| *Surr: 1,2-Dichloroethane-d4* | *98.6* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 17:18* |
| *Surr: 4-Bromofluorobenzene* | *96.8* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 17:18* |
| *Surr: Dibromofluoromethane* | *90.5* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 17:18* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 17:18* |
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 19-Dec-2018 | | Analyst: JCJ |
| Arsenic | 0.00100 | U | 0.000400 | 0.00100 | 0.00200 | mg/L | 1 | 21-Dec-2018 22:08 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_121318
Collection Date: 13-Dec-2018 14:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| **1,1-Dichloroethane** | **15** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 17:43 |
| **1,1-Dichloroethene** | **10** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 17:43 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_121318
Collection Date: 13-Dec-2018 14:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| **cis-1,2-Dichloroethene** | **4.6** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 17:43 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| **Trichloroethene** | **9.4** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 17:43 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 17:43 |
| **Vinyl chloride** | **1.3** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 17:43 |
| *Surr: 1,2-Dichloroethane-d4* | *99.3* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 17:43* |
| *Surr: 4-Bromofluorobenzene* | *96.3* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 17:43* |
| *Surr: Dibromofluoromethane* | *92.0* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 17:43* |
| *Surr: Toluene-d8* | *104* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 17:43* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_121418
Collection Date: 14-Dec-2018 09:15

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-06
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_121418
Collection Date: 14-Dec-2018 09:15

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-06
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:08 |
| *Surr: 1,2-Dichloroethane-d4* | *99.5* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 18:08* |
| *Surr: 4-Bromofluorobenzene* | *96.8* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 18:08* |
| *Surr: Dibromofluoromethane* | *91.8* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 18:08* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 18:08* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_121418
Collection Date: 14-Dec-2018 10:10

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| **Acetone** | **3.2** | | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 24-Dec-2018 18:32 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_121418
Collection Date: 14-Dec-2018 10:10

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:32 |
| *Surr: 1,2-Dichloroethane-d4* | *99.3* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 18:32* |
| *Surr: 4-Bromofluorobenzene* | *96.7* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 18:32* |
| *Surr: Dibromofluoromethane* | *91.1* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 18:32* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 18:32* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 14-Dec-2018 00:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-08
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| **Acetone** | **3.2** | | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 24-Dec-2018 16:28 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 14-Dec-2018 00:00

**ANALYTICAL REPORT**
WorkOrder:HS18120913
Lab ID:HS18120913-08
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:28 |
| *Surr: 1,2-Dichloroethane-d4* | *98.2* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 16:28* |
| *Surr: 4-Bromofluorobenzene* | *97.6* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 16:28* |
| *Surr: Dibromofluoromethane* | *91.8* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 16:28* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 16:28* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**WEIGHT LOG**

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**Batch ID:** 135804 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

| SampID | Container | Sample Wt/Vol | Final Volume | Prep Factor |
|---|---|---|---|---|
| HS18120913-01 | 1 | 10 | 10 (mL) | 1 |
| HS18120913-02 | 1 | 10 | 10 (mL) | 1 |
| HS18120913-04 | 1 | 10 | 10 (mL) | 1 |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** 135804 | **Test Name :** ICP-MS METALS BY SW6020A | | | **Matrix:** Groundwater | | |
| HS18120913-01 | LHSMW06_121318 | 13 Dec 2018 11:00 | | 19 Dec 2018 13:00 | 21 Dec 2018 21:48 | 1 |
| HS18120913-02 | LHSMW06_121318_a | 13 Dec 2018 11:00 | | 19 Dec 2018 13:00 | 21 Dec 2018 21:50 | 1 |
| HS18120913-04 | 35AWW01_121318 | 13 Dec 2018 13:40 | | 19 Dec 2018 13:00 | 21 Dec 2018 22:08 | 1 |
| **Batch ID** R329894 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Water | | |
| HS18120913-08 | Trip Blank | 14 Dec 2018 00:00 | | | 24 Dec 2018 16:28 | 1 |
| **Batch ID** R329894 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Groundwater | | |
| HS18120913-01 | LHSMW06_121318 | 13 Dec 2018 11:00 | | | 24 Dec 2018 13:59 | 1 |
| HS18120913-02 | LHSMW06_121318_a | 13 Dec 2018 11:00 | | | 24 Dec 2018 14:24 | 1 |
| HS18120913-03 | 34AWW21_121318 | 13 Dec 2018 11:55 | | | 24 Dec 2018 11:55 | 1 |
| HS18120913-04 | 35AWW01_121318 | 13 Dec 2018 13:40 | | | 24 Dec 2018 17:18 | 1 |
| HS18120913-05 | 35AWW14_121318 | 13 Dec 2018 14:00 | | | 24 Dec 2018 17:43 | 1 |
| HS18120913-06 | 35AWW22_121418 | 14 Dec 2018 09:15 | | | 24 Dec 2018 18:08 | 1 |
| HS18120913-07 | 35AWW12_121418 | 14 Dec 2018 10:10 | | | 24 Dec 2018 18:32 | 1 |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: 135804** **Instrument: ICPMS04** **Method: SW6020**

**MBLK** Sample ID: **MBLK-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:07**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879116** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00100 | 0.00200 | | | | | | | | U |

**LCS** Sample ID: **LCS-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:10**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879117** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.04962 | 0.00200 | 0.05 | 0 | 99.2 | 80 - 120 | | | | |

**MS** Sample ID: **HS18120913-04MS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:12**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879142** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.05079 | 0.00200 | 0.05 | 0.000056 | 101 | 80 - 120 | | | | |

**MSD** Sample ID: **HS18120913-04MSD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:14**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879143** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.04889 | 0.00200 | 0.05 | 0.000056 | 97.7 | 80 - 120 | 0.05079 | 3.81 | 20 | |

**PDS** Sample ID: **HS18120913-04PDS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:17**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879144** PrepDate: **19-Dec-2018** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.1074 | 0.00200 | 0.1 | 0.000056 | 107 | 75 - 125 | | | | |

**SD** Sample ID: **HS18120913-04SD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:10**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879141** PrepDate: **19-Dec-2018** DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %D | %D Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00500 | 0.0100 | | | | | 0.000056 | 0 | 10 | U |

**The following samples were analyzed in this batch:** HS18120913-01 HS18120913-02 HS18120913-04

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,1-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,3,5-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 2,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 2-Butanone | 1.0 | 2.0 | | | | | | | | U |
| 2-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 2-Hexanone | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 1.0 | 2.0 | | | | | | | | U |
| Acetone | 2.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 1.0 | 2.0 | | | | | | | | U |
| Carbon tetrachloride | 0.50 | 1.0 | | | | | | | | U |
| Chlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| Chloroethane | 0.50 | 1.0 | | | | | | | | U |
| Chloroform | 0.50 | 1.0 | | | | | | | | U |
| Chloromethane | 0.50 | 1.0 | | | | | | | | U |
| cis-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| cis-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Dibromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Dibromomethane | 0.50 | 1.0 | | | | | | | | U |
| Dichlorodifluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Ethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Hexachlorobutadiene | 1.0 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 0.50 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| n-Propylbenzene | 0.50 | 1.0 | | | | | | | | U |
| o-Xylene | 0.50 | 1.0 | | | | | | | | U |
| sec-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Styrene | 0.50 | 1.0 | | | | | | | | U |
| tert-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Tetrachloroethene | 0.50 | 1.0 | | | | | | | | U |
| Toluene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Trichloroethene | 0.50 | 1.0 | | | | | | | | U |
| Trichlorofluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Vinyl chloride | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *47.4* | *1.0* | *50* | *0* | *94.8* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.2* | *1.0* | *50* | *0* | *96.4* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *44.37* | *1.0* | *50* | *0* | *88.7* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *52.27* | *1.0* | *50* | *0* | *105* | *89 - 112* | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 20.16 | 1.0 | 20 | 0 | 101 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 21.11 | 1.0 | 20 | 0 | 106 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 20.07 | 1.0 | 20 | 0 | 100 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 21.18 | 1.0 | 20 | 0 | 106 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 21.09 | 1.0 | 20 | 0 | 105 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 20.42 | 1.0 | 20 | 0 | 102 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 20.99 | 1.0 | 20 | 0 | 105 | 78 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 20.31 | 1.0 | 20 | 0 | 102 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 20.24 | 1.0 | 20 | 0 | 101 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 21.21 | 1.0 | 20 | 0 | 106 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 22.29 | 1.0 | 20 | 0 | 111 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 18.25 | 1.0 | 20 | 0 | 91.2 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 21.18 | 1.0 | 20 | 0 | 106 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 20.6 | 1.0 | 20 | 0 | 103 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 21.54 | 1.0 | 20 | 0 | 108 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 20.78 | 1.0 | 20 | 0 | 104 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 22.13 | 1.0 | 20 | 0 | 111 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 20.97 | 1.0 | 20 | 0 | 105 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 21.09 | 1.0 | 20 | 0 | 105 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 20.29 | 1.0 | 20 | 0 | 101 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 22 | 1.0 | 20 | 0 | 110 | 60 - 139 | | | | |
| 2-Butanone | 38.79 | 2.0 | 40 | 0 | 97.0 | 56 - 143 | | | | |
| 2-Chlorotoluene | 21.45 | 1.0 | 20 | 0 | 107 | 79 - 122 | | | | |
| 2-Hexanone | 40.62 | 2.0 | 40 | 0 | 102 | 57 - 139 | | | | |
| 4-Chlorotoluene | 21.76 | 1.0 | 20 | 0 | 109 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 22.33 | 1.0 | 20 | 0 | 112 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 40.91 | 2.0 | 40 | 0 | 102 | 67 - 130 | | | | |
| Acetone | 40.17 | 2.0 | 40 | 0 | 100 | 39 - 160 | | | | |
| Benzene | 21.12 | 1.0 | 20 | 0 | 106 | 79 - 120 | | | | |
| Bromobenzene | 20.81 | 1.0 | 20 | 0 | 104 | 80 - 120 | | | | |
| Bromochloromethane | 21.94 | 1.0 | 20 | 0 | 110 | 78 - 123 | | | | |
| Bromodichloromethane | 21.19 | 1.0 | 20 | 0 | 106 | 79 - 125 | | | | |
| Bromoform | 18.69 | 1.0 | 20 | 0 | 93.4 | 66 - 130 | | | | |
| Bromomethane | 23.72 | 1.0 | 20 | 0 | 119 | 53 - 141 | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 41.71 | 2.0 | 40 | 0 | 104 | 64 - 133 | | | | |
| Carbon tetrachloride | 20.11 | 1.0 | 20 | 0 | 101 | 72 - 136 | | | | |
| Chlorobenzene | 21 | 1.0 | 20 | 0 | 105 | 82 - 118 | | | | |
| Chloroethane | 21.28 | 1.0 | 20 | 0 | 106 | 60 - 138 | | | | |
| Chloroform | 21 | 1.0 | 20 | 0 | 105 | 79 - 124 | | | | |
| Chloromethane | 24 | 1.0 | 20 | 0 | 120 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 21.07 | 1.0 | 20 | 0 | 105 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 19.85 | 1.0 | 20 | 0 | 99.2 | 75 - 124 | | | | |
| Dibromochloromethane | 19.36 | 1.0 | 20 | 0 | 96.8 | 74 - 126 | | | | |
| Dibromomethane | 21.38 | 1.0 | 20 | 0 | 107 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 20.2 | 1.0 | 20 | 0 | 101 | 32 - 152 | | | | |
| Ethylbenzene | 21.65 | 1.0 | 20 | 0 | 108 | 79 - 121 | | | | |
| Hexachlorobutadiene | 19.46 | 1.0 | 20 | 0 | 97.3 | 66 - 134 | | | | |
| Isopropylbenzene | 22.24 | 1.0 | 20 | 0 | 111 | 72 - 131 | | | | |
| m,p-Xylene | 43.9 | 2.0 | 40 | 0 | 110 | 80 - 121 | | | | |
| Methylene chloride | 21.23 | 2.0 | 20 | 0 | 106 | 74 - 124 | | | | |
| Naphthalene | 19.59 | 1.0 | 20 | 0 | 98.0 | 61 - 128 | | | | |
| n-Butylbenzene | 22.04 | 1.0 | 20 | 0 | 110 | 75 - 128 | | | | |
| n-Propylbenzene | 22.34 | 1.0 | 20 | 0 | 112 | 76 - 126 | | | | |
| o-Xylene | 21.97 | 1.0 | 20 | 0 | 110 | 78 - 122 | | | | |
| sec-Butylbenzene | 22.08 | 1.0 | 20 | 0 | 110 | 77 - 126 | | | | |
| Styrene | 22.39 | 1.0 | 20 | 0 | 112 | 78 - 123 | | | | |
| tert-Butylbenzene | 22.16 | 1.0 | 20 | 0 | 111 | 78 - 124 | | | | |
| Tetrachloroethene | 20.33 | 1.0 | 20 | 0 | 102 | 74 - 129 | | | | |
| Toluene | 21.58 | 1.0 | 20 | 0 | 108 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 21.03 | 1.0 | 20 | 0 | 105 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 19.56 | 1.0 | 20 | 0 | 97.8 | 73 - 127 | | | | |
| Trichloroethene | 20.92 | 1.0 | 20 | 0 | 105 | 79 - 123 | | | | |
| Trichlorofluoromethane | 21.1 | 1.0 | 20 | 0 | 105 | 65 - 141 | | | | |
| Vinyl chloride | 21.62 | 1.0 | 20 | 0 | 108 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *52.09* | *1.0* | *50* | *0* | *104* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.83* | *1.0* | *50* | *0* | *104* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *50.79* | *1.0* | *50* | *0* | *102* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.79* | *1.0* | *50* | *0* | *102* | *89 - 112* | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 23.21 | 1.0 | 20 | 0 | 116 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 22.95 | 1.0 | 20 | 0 | 115 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 24.2 | 1.0 | 20 | 0 | 121 | 71 - 121 | | | | S |
| 1,1,2-Trichloroethane | 25.3 | 1.0 | 20 | 0 | 127 | 80 - 119 | | | | S |
| 1,1-Dichloroethane | 22.71 | 1.0 | 20 | 0 | 114 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 23.04 | 1.0 | 20 | 0 | 115 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 25.45 | 1.0 | 20 | 0 | 127 | 78 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 22.1 | 1.0 | 20 | 0 | 111 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 23.35 | 1.0 | 20 | 0 | 117 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 22.37 | 1.0 | 20 | 0 | 112 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 25.22 | 1.0 | 20 | 0 | 126 | 76 - 124 | | | | S |
| 1,2-Dibromo-3-chloropropane | 20.81 | 1.0 | 20 | 0 | 104 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 25.44 | 1.0 | 20 | 0 | 127 | 77 - 121 | | | | S |
| 1,2-Dichlorobenzene | 23.76 | 1.0 | 20 | 0 | 119 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 25.48 | 1.0 | 20 | 0 | 127 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 24.78 | 1.0 | 20 | 0 | 124 | 78 - 122 | | | | S |
| 1,3,5-Trimethylbenzene | 25.58 | 1.0 | 20 | 0 | 128 | 75 - 124 | | | | S |
| 1,3-Dichlorobenzene | 23.33 | 1.0 | 20 | 0 | 117 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 24.94 | 1.0 | 20 | 0 | 125 | 80 - 119 | | | | S |
| 1,4-Dichlorobenzene | 23.26 | 1.0 | 20 | 0 | 116 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 22.8 | 1.0 | 20 | 0 | 114 | 60 - 139 | | | | |
| 2-Butanone | 45.46 | 2.0 | 40 | 0 | 114 | 56 - 143 | | | | |
| 2-Chlorotoluene | 24.95 | 1.0 | 20 | 0 | 125 | 79 - 122 | | | | S |
| 2-Hexanone | 52.86 | 2.0 | 40 | 0 | 132 | 57 - 139 | | | | |
| 4-Chlorotoluene | 25.12 | 1.0 | 20 | 0 | 126 | 78 - 122 | | | | S |
| 4-Isopropyltoluene | 25.22 | 1.0 | 20 | 0 | 126 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 51.36 | 2.0 | 40 | 0 | 128 | 67 - 130 | | | | |
| Acetone | 51.25 | 2.0 | 40 | 0 | 128 | 39 - 160 | | | | |
| Benzene | 25.09 | 1.0 | 20 | 0 | 125 | 79 - 120 | | | | S |
| Bromobenzene | 23.78 | 1.0 | 20 | 0 | 119 | 80 - 120 | | | | |
| Bromochloromethane | 24.02 | 1.0 | 20 | 0 | 120 | 78 - 123 | | | | |
| Bromodichloromethane | 24.47 | 1.0 | 20 | 0 | 122 | 79 - 125 | | | | |
| Bromoform | 21.34 | 1.0 | 20 | 0 | 107 | 66 - 130 | | | | |
| Bromomethane | 24.97 | 1.0 | 20 | 0 | 125 | 53 - 141 | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 43.18 | 2.0 | 40 | 0 | 108 | 64 - 133 | | | | |
| Carbon tetrachloride | 23.76 | 1.0 | 20 | 0 | 119 | 72 - 136 | | | | |
| Chlorobenzene | 24.99 | 1.0 | 20 | 0 | 125 | 82 - 118 | | | | S |
| Chloroethane | 21.76 | 1.0 | 20 | 0 | 109 | 60 - 138 | | | | |
| Chloroform | 22.96 | 1.0 | 20 | 0 | 115 | 79 - 124 | | | | |
| Chloromethane | 22.1 | 1.0 | 20 | 0 | 111 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 24.28 | 1.0 | 20 | 0 | 121 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 21.7 | 1.0 | 20 | 0 | 109 | 75 - 124 | | | | |
| Dibromochloromethane | 22.33 | 1.0 | 20 | 0 | 112 | 74 - 126 | | | | |
| Dibromomethane | 25.07 | 1.0 | 20 | 0 | 125 | 79 - 123 | | | | S |
| Dichlorodifluoromethane | 14.71 | 1.0 | 20 | 0 | 73.6 | 32 - 152 | | | | |
| Ethylbenzene | 25.65 | 1.0 | 20 | 0 | 128 | 79 - 121 | | | | S |
| Hexachlorobutadiene | 19.31 | 1.0 | 20 | 0 | 96.5 | 66 - 134 | | | | |
| Isopropylbenzene | 26.47 | 1.0 | 20 | 0 | 132 | 72 - 131 | | | | S |
| m,p-Xylene | 51.94 | 2.0 | 40 | 0 | 130 | 80 - 121 | | | | S |
| Methylene chloride | 22.91 | 2.0 | 20 | 0 | 115 | 74 - 124 | | | | |
| Naphthalene | 22.43 | 1.0 | 20 | 0 | 112 | 61 - 128 | | | | |
| n-Butylbenzene | 24.46 | 1.0 | 20 | 0 | 122 | 75 - 128 | | | | |
| n-Propylbenzene | 25.91 | 1.0 | 20 | 0 | 130 | 76 - 126 | | | | S |
| o-Xylene | 25.64 | 1.0 | 20 | 0 | 128 | 78 - 122 | | | | S |
| sec-Butylbenzene | 25.41 | 1.0 | 20 | 0 | 127 | 77 - 126 | | | | S |
| Styrene | 26.3 | 1.0 | 20 | 0 | 131 | 78 - 123 | | | | S |
| tert-Butylbenzene | 25.39 | 1.0 | 20 | 0 | 127 | 78 - 124 | | | | S |
| Tetrachloroethene | 24.22 | 1.0 | 20 | 0 | 121 | 74 - 129 | | | | |
| Toluene | 26.12 | 1.0 | 20 | 0 | 131 | 80 - 121 | | | | S |
| trans-1,2-Dichloroethene | 23.07 | 1.0 | 20 | 0 | 115 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 21.38 | 1.0 | 20 | 0 | 107 | 73 - 127 | | | | |
| Trichloroethene | 26.19 | 1.0 | 20 | 0 | 131 | 79 - 123 | | | | S |
| Trichlorofluoromethane | 22.5 | 1.0 | 20 | 0 | 113 | 65 - 141 | | | | |
| Vinyl chloride | 21.27 | 1.0 | 20 | 0 | 106 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *47.14* | *1.0* | *50* | *0* | *94.3* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.68* | *1.0* | *50* | *0* | *103* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *45.74* | *1.0* | *50* | *0* | *91.5* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *53.29* | *1.0* | *50* | *0* | *107* | *89 - 112* | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 23.48 | 1.0 | 20 | 0 | 117 | 78 - 124 | 23.21 | 1.12 | 20 | |
| 1,1,1-Trichloroethane | 23.85 | 1.0 | 20 | 0 | 119 | 74 - 131 | 22.95 | 3.86 | 20 | |
| 1,1,2,2-Tetrachloroethane | 25.53 | 1.0 | 20 | 0 | 128 | 71 - 121 | 24.2 | 5.32 | 20 | S |
| 1,1,2-Trichloroethane | 25.33 | 1.0 | 20 | 0 | 127 | 80 - 119 | 25.3 | 0.11 | 20 | S |
| 1,1-Dichloroethane | 23.23 | 1.0 | 20 | 0 | 116 | 77 - 125 | 22.71 | 2.24 | 20 | |
| 1,1-Dichloroethene | 23.12 | 1.0 | 20 | 0 | 116 | 71 - 131 | 23.04 | 0.317 | 20 | |
| 1,1-Dichloropropene | 25.23 | 1.0 | 20 | 0 | 126 | 78 - 125 | 25.45 | 0.901 | 20 | S |
| 1,2,3-Trichlorobenzene | 23.31 | 1.0 | 20 | 0 | 117 | 69 - 129 | 22.1 | 5.31 | 20 | |
| 1,2,3-Trichloropropane | 24.69 | 1.0 | 20 | 0 | 123 | 73 - 122 | 23.35 | 5.58 | 20 | S |
| 1,2,4-Trichlorobenzene | 23.66 | 1.0 | 20 | 0 | 118 | 69 - 130 | 22.37 | 5.62 | 20 | |
| 1,2,4-Trimethylbenzene | 26.26 | 1.0 | 20 | 0 | 131 | 76 - 124 | 25.22 | 4.02 | 20 | S |
| 1,2-Dibromo-3-chloropropane | 22.44 | 1.0 | 20 | 0 | 112 | 62 - 128 | 20.81 | 7.53 | 20 | |
| 1,2-Dibromoethane | 25.59 | 1.0 | 20 | 0 | 128 | 77 - 121 | 25.44 | 0.588 | 20 | S |
| 1,2-Dichlorobenzene | 24.61 | 1.0 | 20 | 0 | 123 | 80 - 119 | 23.76 | 3.52 | 20 | S |
| 1,2-Dichloroethane | 25.75 | 1.0 | 20 | 0 | 129 | 73 - 128 | 25.48 | 1.02 | 20 | S |
| 1,2-Dichloropropane | 24.75 | 1.0 | 20 | 0 | 124 | 78 - 122 | 24.78 | 0.143 | 20 | S |
| 1,3,5-Trimethylbenzene | 26.32 | 1.0 | 20 | 0 | 132 | 75 - 124 | 25.58 | 2.86 | 20 | S |
| 1,3-Dichlorobenzene | 24.37 | 1.0 | 20 | 0 | 122 | 80 - 119 | 23.33 | 4.36 | 20 | S |
| 1,3-Dichloropropane | 25.46 | 1.0 | 20 | 0 | 127 | 80 - 119 | 24.94 | 2.04 | 20 | S |
| 1,4-Dichlorobenzene | 23.85 | 1.0 | 20 | 0 | 119 | 79 - 118 | 23.26 | 2.5 | 20 | S |
| 2,2-Dichloropropane | 22.69 | 1.0 | 20 | 0 | 113 | 60 - 139 | 22.8 | 0.477 | 20 | |
| 2-Butanone | 48.23 | 2.0 | 40 | 0 | 121 | 56 - 143 | 45.46 | 5.92 | 20 | |
| 2-Chlorotoluene | 25.59 | 1.0 | 20 | 0 | 128 | 79 - 122 | 24.95 | 2.53 | 20 | S |
| 2-Hexanone | 54.29 | 2.0 | 40 | 0 | 136 | 57 - 139 | 52.86 | 2.68 | 20 | |
| 4-Chlorotoluene | 25.92 | 1.0 | 20 | 0 | 130 | 78 - 122 | 25.12 | 3.12 | 20 | S |
| 4-Isopropyltoluene | 26.15 | 1.0 | 20 | 0 | 131 | 77 - 127 | 25.22 | 3.63 | 20 | S |
| 4-Methyl-2-pentanone | 53.35 | 2.0 | 40 | 0 | 133 | 67 - 130 | 51.36 | 3.81 | 20 | S |
| Acetone | 56.13 | 2.0 | 40 | 0 | 140 | 39 - 160 | 51.25 | 9.1 | 20 | |
| Benzene | 25.56 | 1.0 | 20 | 0 | 128 | 79 - 120 | 25.09 | 1.85 | 20 | S |
| Bromobenzene | 24.7 | 1.0 | 20 | 0 | 123 | 80 - 120 | 23.78 | 3.78 | 20 | S |
| Bromochloromethane | 24.56 | 1.0 | 20 | 0 | 123 | 78 - 123 | 24.02 | 2.24 | 20 | |
| Bromodichloromethane | 24.72 | 1.0 | 20 | 0 | 124 | 79 - 125 | 24.47 | 1.04 | 20 | |
| Bromoform | 21.74 | 1.0 | 20 | 0 | 109 | 66 - 130 | 21.34 | 1.83 | 20 | |
| Bromomethane | 24.74 | 1.0 | 20 | 0 | 124 | 53 - 141 | 24.97 | 0.929 | 20 | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 43.81 | 2.0 | 40 | 0 | 110 | 64 - 133 | 43.18 | 1.44 | 20 | |
| Carbon tetrachloride | 23.83 | 1.0 | 20 | 0 | 119 | 72 - 136 | 23.76 | 0.262 | 20 | |
| Chlorobenzene | 25.13 | 1.0 | 20 | 0 | 126 | 82 - 118 | 24.99 | 0.573 | 20 | S |
| Chloroethane | 22.25 | 1.0 | 20 | 0 | 111 | 60 - 138 | 21.76 | 2.2 | 20 | |
| Chloroform | 23.5 | 1.0 | 20 | 0 | 118 | 79 - 124 | 22.96 | 2.35 | 20 | |
| Chloromethane | 22.78 | 1.0 | 20 | 0 | 114 | 50 - 139 | 22.1 | 3.04 | 20 | |
| cis-1,2-Dichloroethene | 23.76 | 1.0 | 20 | 0 | 119 | 78 - 123 | 24.28 | 2.17 | 20 | |
| cis-1,3-Dichloropropene | 22.27 | 1.0 | 20 | 0 | 111 | 75 - 124 | 21.7 | 2.58 | 20 | |
| Dibromochloromethane | 22.83 | 1.0 | 20 | 0 | 114 | 74 - 126 | 22.33 | 2.25 | 20 | |
| Dibromomethane | 25.35 | 1.0 | 20 | 0 | 127 | 79 - 123 | 25.07 | 1.12 | 20 | S |
| Dichlorodifluoromethane | 15.5 | 1.0 | 20 | 0 | 77.5 | 32 - 152 | 14.71 | 5.21 | 20 | |
| Ethylbenzene | 25.77 | 1.0 | 20 | 0 | 129 | 79 - 121 | 25.65 | 0.469 | 20 | S |
| Hexachlorobutadiene | 19.88 | 1.0 | 20 | 0 | 99.4 | 66 - 134 | 19.31 | 2.89 | 20 | |
| Isopropylbenzene | 26.75 | 1.0 | 20 | 0 | 134 | 72 - 131 | 26.47 | 1.03 | 20 | S |
| m,p-Xylene | 52.36 | 2.0 | 40 | 0 | 131 | 80 - 121 | 51.94 | 0.81 | 20 | S |
| Methylene chloride | 23.35 | 2.0 | 20 | 0 | 117 | 74 - 124 | 22.91 | 1.88 | 20 | |
| Naphthalene | 23.92 | 1.0 | 20 | 0 | 120 | 61 - 128 | 22.43 | 6.43 | 20 | |
| n-Butylbenzene | 25.47 | 1.0 | 20 | 0 | 127 | 75 - 128 | 24.46 | 4.06 | 20 | |
| n-Propylbenzene | 26.51 | 1.0 | 20 | 0 | 133 | 76 - 126 | 25.91 | 2.27 | 20 | S |
| o-Xylene | 26.1 | 1.0 | 20 | 0 | 130 | 78 - 122 | 25.64 | 1.78 | 20 | S |
| sec-Butylbenzene | 26.21 | 1.0 | 20 | 0 | 131 | 77 - 126 | 25.41 | 3.1 | 20 | S |
| Styrene | 26.53 | 1.0 | 20 | 0 | 133 | 78 - 123 | 26.3 | 0.883 | 20 | S |
| tert-Butylbenzene | 26.17 | 1.0 | 20 | 0 | 131 | 78 - 124 | 25.39 | 3 | 20 | S |
| Tetrachloroethene | 24.34 | 1.0 | 20 | 0 | 122 | 74 - 129 | 24.22 | 0.488 | 20 | |
| Toluene | 25.86 | 1.0 | 20 | 0 | 129 | 80 - 121 | 26.12 | 0.978 | 20 | S |
| trans-1,2-Dichloroethene | 23.18 | 1.0 | 20 | 0 | 116 | 75 - 124 | 23.07 | 0.473 | 20 | |
| trans-1,3-Dichloropropene | 21.86 | 1.0 | 20 | 0 | 109 | 73 - 127 | 21.38 | 2.21 | 20 | |
| Trichloroethene | 25.67 | 1.0 | 20 | 0 | 128 | 79 - 123 | 26.19 | 2 | 20 | S |
| Trichlorofluoromethane | 22.74 | 1.0 | 20 | 0 | 114 | 65 - 141 | 22.5 | 1.05 | 20 | |
| Vinyl chloride | 21.67 | 1.0 | 20 | 0 | 108 | 58 - 137 | 21.27 | 1.89 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *47.33* | *1.0* | *50* | *0* | *94.7* | *81 - 118* | *47.14* | *0.404* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *51.76* | *1.0* | *50* | *0* | *104* | *85 - 114* | *51.68* | *0.153* | *20* | |
| *Surr: Dibromofluoromethane* | *45.85* | *1.0* | *50* | *0* | *91.7* | *80 - 119* | *45.74* | *0.237* | *20* | |
| *Surr: Toluene-d8* | *53.06* | *1.0* | *50* | *0* | *106* | *89 - 112* | *53.29* | *0.432* | *20* | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**The following samples were analyzed in this batch:**

| | | | |
|---|---|---|---|
| HS18120913-01 | HS18120913-02 | HS18120913-03 | HS18120913-04 |
| HS18120913-05 | HS18120913-06 | HS18120913-07 | HS18120913-08 |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** **HS18120913**

**QUALIFIERS, ACRONYMS, UNITS**

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| M | Manually integrated, see raw data for justification |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL/SDL |

| Acronym | Description |
|---|---|
| DCS | Detectability Check Study |
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SD | Serial Dilution |
| SDL | Sample Detection Limit |
| TRRP | Texas Risk Reduction Program |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| North Carolina | 624-2018 | 31-Dec-2018 |
| Arkansas | 88-0356 | 27-Mar-2019 |
| Texas | T10470231-18-21 | 30-Apr-2019 |
| North Dakota | R193 2018-2019 | 30-Apr-2019 |
| Illinois | 004438 | 29-Jun-2019 |
| Louisiana | 03087 | 30-Jun-2019 |
| Kentucky | 123043 - 2018 | 30-Apr-2019 |
| Kansas | E-10352 2018-2019 | 31-Jul-2019 |
| Oklahoma | 2018-156 | 31-Aug-2019 |

**ALS Houston, US** Date: 27-Dec-18

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18120913
Date/Time Received: **15-Dec-2018 09:40**
Received by: **PJM**

Checklist completed by: *Nilesh D. Ranchod* eSignature — 17-Dec-2018 Date
Reviewed by: *Corey Grandits* eSignature — 17-Dec-2018 Date

Matrices: **Water**
Carrier name: **FedEx Priority Overnight**

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | |
| Temperature(s)/Thermometer(s): | 0.4C / 0.7C UC/C | IR # 25 | |
| Cooler(s)/Kit(s): | 44564 | | |
| Date/Time sample(s) sent to storage: | 12/15/2018 14:00 | | |
| Water - VOA vials have zero headspace? | Yes ☑ | No ☐ | No VOA vials submitted ☐ |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ |
| pH adjusted? | Yes ☐ | No ☑ | N/A ☐ |
| pH adjusted by: | | | |

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL ASSOCIATES, INC.

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

# Chain of Custody and Analytical Request

Page: ____ of ____
Project/Phase No: NWO1312.0150
COC Number(1): ____
LIMS Number: ____

Facility/Base I.D.: LHAAP
Project/Site Name: LHAAP / Site 58
Client Name:
Collected by: Scott Beesinger

| Field Sample ID (30 Characters Max) | ERPIMS LOCID (15 Characters Max) | Date Collected (dd-mmm-yyyy) | Time Collected (Military) (hhmm) | Sample Depth (beginning - ending) | SA Code (2) | Sample Number (3) | Sample Matrix (4) | Number of containers | VOC | MEE | TOC | Carbon Dioxide | Total Phosphorous | Total Manganese & Iron | Dissolved Manganese & Iron | Sulfide | Arsenic | | Ambient Blank Lot Control Number | Equipment Blank Lot Control Number | Trip Blank Lot Control Number | Cooler ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LHSMW06-121318 | | 13DEC2018 | 1100 | - | N | | WG | 4 | X | | | | | | | | X | | | | | |
| LHSMW06_121318_a | | 13DEC2018 | 1100 | - | FD | | WG | 4 | X | | | | | | | | X | | | | | |
| 35AWW21_121318 | | 13 DEC 2018 | 1155 | - | N | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW21_121318_MS | | 13 DEC 2018 | 1155 | | MS | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW21_121318_MSD | | 13 DEC 2018 | 1155 | | SD | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW08_121318 | | 13DEC2018 | 1340 | - | N | | WG | 4 | X | | | | | | | | X | | | | | |
| 35AWW14_121318 | | 13DEC2018 | 1400 | - | N | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW22_121418 | | 14DEC2018 | 0915 | - | N | | WG | 3 | X | | | | | | | | | | | | | |
| 35AWW12_121418 | | 14DEC2018 | 1010 | - | N | | WG | 3 | X | | | | | | | | | | | | | |
| Trip Blank | | 14DEC2018 | | - | TB | | W | 2 | X | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | | |

Sample Analysis Requested (5) | Quality Assurance Samples (6)

COMMENTS:

HS18120913
Bhate Environmental Associates, Inc.
LHAAP-58

**Custody Transfers Prior to Receipt by Laboratory**

| | Relinquished By (Signed) | Date | Time | Received By (signed) | Date | Time |
|---|---|---|---|---|---|---|
| 1. | Scott Beesinger | 12/14/18 | 12:00 | P.M [illegible] | 12/15/18 | 09:40 |
| 2. | | | | | | |
| 3. | | | | | | |

**Sample Delivery Details / Laboratory Receipt**

Delivered Directly to Lab: ____ Shipped ____ No.:
____ Method of Shipment: ____
____ Fed Ex ____ Airbill Number: ____
____ Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656
ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

44564
SIC. 0.93. 4.25. 40.30



00947639

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

**CUSTODY SEAL**

Date: 12/12/18 Time: 1200
Name: Scott Beesinger
Company: BHATE

Seal Broken By:
Date:

Must Deliver Next Business Day
Time and Tempature Sensitive!

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 19JUL18
ACTWGT: 1.00 LB MAN
CAD: 3001307CAFE3111
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 58 - RJ

RMA:

FedEx Express

FedEx
TRK# 0221 4380 9530 9434

SATURDAY 12:00P
PRIORITY OVERNIGHT

XØ SGRA

77099
TX-US
IAH

# HS18120913  8260 Raw Data

ALS WO# HS18120913

# MSVOA09 -Logbook

**Batch:** 34002 **Analyst:** Presenta Cabascango

**Date:** 12-21-2018 **Reviewer:**

**Method:** 8260 **Laboratory:** Houston

**Comments:**

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 12-21-2018 01:25 pm | 1.00 | 50 mL | 50 mL | U122101.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD00.25 | ICAL1 | 12-21-2018 01:49 pm | 1.00 | 50 mL | 50 mL | U122102.D | Liquid | Y | NA |
| | *0.25 uL cal std/250 mL DI* | | | | | | | | | |
| 3 | VSTD00.5 | ICAL2 | 12-21-2018 02:14 pm | 1.00 | 50 mL | 50 mL | U122103.D | Liquid | Y | NA |
| | *0.5 uL cal std/250 mL DI* | | | | | | | | | |
| 4 | VSTD001 | ICAL3 | 12-21-2018 03:03 pm | 1.00 | 50 mL | 50 mL | U122104.D | Liquid | Y | NA |
| | *1 uL cal std/250 mL DI* | | | | | | | | | |
| 5 | VSTD002 | ICAL4 | 12-21-2018 03:28 pm | 1.00 | 50 mL | 50 mL | U122105.D | Liquid | Y | NA |
| | *2 uL cal std/250 mL DI* | | | | | | | | | |
| 6 | VSTD005 | ICAL5 | 12-21-2018 03:52 pm | 1.00 | 50 mL | 50 mL | U122106.D | Liquid | Y | NA |
| | *5 uL cal std/250 mL DI* | | | | | | | | | |
| 7 | VSTD020 | ICAL6 | 12-21-2018 04:17 pm | 1.00 | 50 mL | 50 mL | U122107.D | Liquid | Y | NA |
| | *4 uL cal std/50 mL DI* | | | | | | | | | |
| 8 | VSTD050 | ICAL7 | 12-21-2018 04:41 pm | 1.00 | 50 mL | 50 mL | U122108.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 9 | VSTD100 | ICAL8 | 12-21-2018 05:06 pm | 1.00 | 50 mL | 50 mL | U122109.D | Liquid | Y | NA |
| | *20 uL cal std/50 mL DI* | | | | | | | | | |
| 10 | VSTD150 | ICAL9 | 12-21-2018 05:31 pm | 1.00 | 50 mL | 50 mL | U122110.D | Liquid | Y | NA |
| | *30 uL cal std/50 mL DI* | | | | | | | | | |
| 11 | VSTD200 | ICAL | 12-21-2018 05:55 pm | 1.00 | 50 mL | 50 mL | U122111.D | Liquid | Y | NA |
| | *40 uL cal std/50 mL DI* | | | | | | | | | |
| 12 | BLANK | SAMP | 12-21-2018 06:20 pm | 1.00 | 50 mL | 50 mL | U122112.D | Liquid | Y | NA |
| | *Cleanup blk* | | | | | | | | | |
| 13 | VSTD050 | ICV | 12-21-2018 06:45 pm | 1.00 | 50 mL | 50 mL | U122113.D | Liquid | Y | NA |
| | *10 uL ICV std/50 mL DI* | | | | | | | | | |
| 14 | BLANK | SAMP | 12-21-2018 07:09 pm | 1.00 | 50 mL | 50 mL | U122114.D | Liquid | Y | NA |
| 15 | VLCSW-1812021 | LCS | 12-21-2018 07:34 pm | 1.00 | 50 mL | 50 mL | U122115.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 16 | BLANK | SAMP | 12-21-2018 07:59 pm | 1.00 | 50 mL | 50 mL | U122116.D | Liquid | Y | NA |
| 17 | VBLKW-181221 | MBLK | 12-21-2018 08:24 pm | 1.00 | 50 mL | 50 mL | U122117.D | Liquid | Y | NA |
| 18 | HS18120782-01 | SAMP | 12-21-2018 08:48 pm | 1.00 | 50 mL | 50 mL | U122118.D | Liquid | Y | <2 |
| 19 | HS18121172-01 | SAMP | 12-21-2018 09:13 pm | 1.00 | 50 mL | 50 mL | U122119.D | Liquid | Y | <2 |
| 20 | HS18120947-01 | SAMP | 12-21-2018 09:38 pm | 10.00 | 5 mL | 50 mL | U122120.D | Liquid | Y | <2 |
| 21 | HS18121172-01MS | MS | 12-21-2018 10:03 pm | 1.00 | 50 mL | 50 mL | U122121.D | Liquid | Y | <2 |
| | *3.5 uL cal std/40 mL Sample* | | | | | | | | | |
| 22 | HS18121172-01MSD | MSD | 12-21-2018 10:27 pm | 1.00 | 50 mL | 50 mL | U122122.D | Liquid | Y | <2 |
| | *3.5 uL cal std/40 mL Sample* | | | | | | | | | |
| 23 | HS18121172-02 | SAMP | 12-21-2018 10:52 pm | 1.00 | 50 mL | 50 mL | U122123.D | Liquid | Y | <2 |
| 24 | HS18121172-03 | SAMP | 12-21-2018 11:17 pm | 1.00 | 50 mL | 50 mL | U122124.D | Liquid | Y | <2 |
| 25 | HS18121172-04 | SAMP | 12-21-2018 11:42 pm | 1.00 | 50 mL | 50 mL | U122125.D | Liquid | Y | <2 |
| 26 | HS18121172-05 | SAMP | 12-22-2018 12:06 am | 1.00 | 50 mL | 50 mL | U122126.D | Liquid | Y | <2 |
| 27 | HS18121172-06 | SAMP | 12-22-2018 12:31 am | 1.00 | 50 mL | 50 mL | U122127.D | Liquid | Y | <2 |

# MSVOA09 -Logbook

| Chemical | Value |
|---|---|
| SURR SPK ID | 30502-52-03 |
| IS ID | 30502-52-04 |
| ICV STD ID | 30603-46-01 |
| LCS/MS ID | 30603-46-01 |
| CAL STD ID | 30502-56-01/02 |
| BFB ID | 30502-52-03 |

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 50.00 | 48.91 | 98 | 80-120 |
| trans-1,3-Dichloroprope | 50.00 | 48.93 | 98 | 80-120 |
| 1,3-Dichlorobenzene | 50.00 | 48.27 | 96 | 80-120 |
| 2,2-Dichloropropane | 50.00 | 53.09 | 106 | 80-120 |
| 1,1-Dichloropropene | 50.00 | 47.46 | 95 | 80-120 |
| Dibromomethane | 50.00 | 50.89 | 102 | 80-120 |
| 1,2-Dibromoethane | 50.00 | 51.16 | 102 | 80-120 |
| trans-1,2-Dichloroethen | 50.00 | 48.02 | 96 | 80-120 |
| 1,1,1,2-Tetrachloroetha | 50.00 | 48.43 | 97 | 80-120 |
| 1,1,1-Trichloroethane | 50.00 | 49.36 | 99 | 80-120 |
| 1,1,2,2-Tetrachloroetha | 50.00 | 49.55 | 99 | 80-120 |
| Freon TF | 50.00 | 45.07 | 90 | 80-120 |
| 1,1,2-Trichloroethane | 50.00 | 49.30 | 99 | 80-120 |
| 1,1-Dichloroethane | 50.00 | 47.96 | 96 | 80-120 |
| 1,1-Dichloroethene | 50.00 | 45.82 | 92 | 80-120 |
| Trichlorofluoromethane | 50.00 | 45.85 | 92 | 80-120 |
| 1,2,3-Trichlorobenzene | 50.00 | 47.80 | 96 | 80-120 |
| Toluene | 50.00 | 49.27 | 98 | 80-120 |
| 1,2,4-Trichlorobenzene | 50.00 | 50.37 | 101 | 80-120 |
| 1,2,4-Trimethylbenzene | 50.00 | 50.13 | 100 | 80-120 |
| Tetrachloroethene | 50.00 | 45.93 | 92 | 80-120 |
| Trichloroethene | 50.00 | 48.84 | 98 | 80-120 |
| 1,2-Dichlorobenzene | 50.00 | 48.36 | 97 | 80-120 |
| 1,2-Dichloroethane | 50.00 | 50.35 | 101 | 80-120 |
| 1,2-Dichloropropane | 50.00 | 49.19 | 98 | 80-120 |
| 1,3,5-Trimethylbenzene | 50.00 | 50.06 | 100 | 80-120 |
| 1,3-Dichloropropane | 50.00 | 49.40 | 99 | 80-120 |
| 1,4-Dichlorobenzene | 50.00 | 47.08 | 94 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 2-Butanone | 100.00 | 104.35 | 104 | 80-120 |
| 2-Chlorotoluene | 50.00 | 49.32 | 99 | 80-120 |
| 2-Hexanone | 100.00 | 109.16 | 109 | 80-120 |
| 4-Chlorotoluene | 50.00 | 49.71 | 99 | 80-120 |
| tert-Butylbenzene | 50.00 | 47.93 | 96 | 80-120 |
| 4-Methyl-2-Pentanone | 100.00 | 106.57 | 106 | 80-120 |
| Acetone | 100.00 | 114.45 | 114 | 80-120 |
| Benzene | 50.00 | 48.82 | 98 | 80-120 |
| Bromobenzene | 50.00 | 49.77 | 100 | 80-120 |
| Bromochloromethane | 50.00 | 56.76 | 114 | 80-120 |
| Bromodichloromethane | 50.00 | 52.06 | 104 | 80-120 |
| Bromoform | 50.00 | 47.92 | 96 | 80-120 |
| Bromomethane | 50.00 | 54.05 | 108 | 80-120 |
| Carbon Disulfide | 100.00 | 96.00 | 96 | 80-120 |
| Carbon Tetrachloride | 50.00 | 44.88 | 90 | 80-120 |
| Chlorobenzene | 50.00 | 48.25 | 96 | 80-120 |
| Chloroethane | 50.00 | 46.15 | 92 | 80-120 |
| Chloroform | 50.00 | 48.45 | 97 | 80-120 |
| Chloromethane | 50.00 | 48.96 | 98 | 80-120 |
| cis-1,2-Dichloroethene | 50.00 | 48.93 | 98 | 80-120 |
| Dibromochloromethane | 50.00 | 48.57 | 97 | 80-120 |
| Dichlorodifluoromethane | 50.00 | 46.21 | 92 | 80-120 |
| Ethylbenzene | 50.00 | 49.30 | 99 | 80-120 |
| Hexachlorobutadiene | 50.00 | 46.17 | 92 | 80-120 |
| Isopropylbenzene | 50.00 | 49.07 | 98 | 80-120 |
| m,p-Xylenes | 100.00 | 99.88 | 100 | 80-120 |
| Methylene Chloride | 50.00 | 49.75 | 100 | 80-120 |
| n-Butylbenzene | 50.00 | 46.94 | 94 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| n-Propylbenzene | 50.00 | 49.11 | 98 | 80-120 |
| Naphthalene | 50.00 | 49.46 | 99 | 80-120 |
| o-Xylene | 50.00 | 49.89 | 100 | 80-120 |
| sec-Butylbenzene | 50.00 | 47.69 | 95 | 80-120 |
| Styrene | 50.00 | 52.73 | 105 | 80-120 |
| Vinyl Chloride | 50.00 | 46.02 | 92 | 80-120 |
| 1,2,3-Trichloropropane | 50.00 | 53.26 | 106 | 80-120 |
| p-Isopropyltoluene | 50.00 | 49.19 | 98 | 80-120 |
| 1,2-Dibromo-3-Chloropro | 50.00 | 49.92 | 100 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Lab File ID: U122101  BFB Injection Date: 12/21/18

Instrument ID: VOA9  BFB Injection Time: 1325

GC Column: DB624  ID: 0.25 (mm)  Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 19.6 |
| 75 | 30.0 - 60.0% of mass 95 | 50.4 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.0 |
| 173 | Less than 2.0% of mass 174 | 0.5 ( 0.8)1 |
| 174 | Greater than 50.0% of mass 95 | 66.8 |
| 175 | 5.0 - 9.0% of mass 174 | 5.1 ( 7.7)1 |
| 176 | 95.0 - 101.0% of mass 174 | 63.8 ( 95.6)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 ( 7.0)2 |

1-Value is % mass 174  2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD00.25 | VSTD00.25 | U122102 | 12/21/18 | 1349 |
| 02 | VSTD00.5 | VSTD00.5 | U122103 | 12/21/18 | 1414 |
| 03 | VSTD001 | VSTD001 | U122104 | 12/21/18 | 1503 |
| 04 | VSTD002 | VSTD002 | U122105 | 12/21/18 | 1528 |
| 05 | VSTD005 | VSTD005 | U122106 | 12/21/18 | 1552 |
| 06 | VSTD020 | VSTD020 | U122107 | 12/21/18 | 1617 |
| 07 | VSTD050 | VSTD050 | U122108 | 12/21/18 | 1641 |
| 08 | VSTD100 | VSTD100 | U122109 | 12/21/18 | 1706 |
| 09 | VSTD150 | VSTD150 | U122110 | 12/21/18 | 1731 |
| 10 | VSTD200 | VSTD200 | U122111 | 12/21/18 | 1755 |
| 11 | VSTD050 | VSTD050 | U122113 | 12/21/18 | 1845 |
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FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF0.25: U122102  RF0.5: U122103  RF1: U122104
RF2: U122105  RF5: U122106  RF20: U122107

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | | 2152 | 7273 | 13732 | 38403 | 162454 |
| trans-1,3-Dichloropropene | | 1633 | 5668 | 10646 | 30725 | 135347 |
| 1,3-Dichlorobenzene | | 1.191 | 1.700 | 1.605 | 1.568 | 1.456 |
| 2,2-Dichloropropane | | 0.485 | 0.763 | 0.625 | 0.645 | 0.634 |
| 1,1-Dichloropropene | | 0.322 | 0.521 | 0.477 | 0.458 | 0.439 |
| Dibromomethane | | 0.143 | 0.229 | 0.212 | 0.217 | 0.208 |
| 1,2-Dibromoethane | | 0.251 | 0.393 | 0.345 | 0.364 | 0.358 |
| trans-1,2-Dichloroethene | | 0.432 | 0.724 | 0.620 | 0.614 | 0.598 |
| 1,1,1,2-Tetrachloroethane | | 1272 | 4208 | 8522 | 21878 | 89389 |
| 1,1,1-Trichloroethane | | 0.521 | 0.866 | 0.775 | 0.824 | 0.806 |
| 1,1,2,2-Tetrachloroethane | | 0.818 | 1.359 | 1.245 | 1.216 | 1.139 |
| Freon TF | | 0.306 | 0.503 | 0.450 | 0.439 | 0.408 |
| 1,1,2-Trichloroethane | | 0.224 | 0.351 | 0.317 | 0.320 | 0.302 |
| 1,1-Dichloroethane | | 0.726 | 1.305 | 1.174 | 1.154 | 1.100 |
| 1,1-Dichloroethene | | 0.403 | 0.563 | 0.526 | 0.486 | 0.447 |
| Trichlorofluoromethane | | 1919 | 7922 | 14026 | 37144 | 130957 |
| 1,2,3-Trichlorobenzene | | 1324 | 6631 | 12385 | 31113 | 126752 |
| Toluene | | 1.131 | 1.662 | 1.581 | 1.624 | 1.525 |
| 1,2,4-Trichlorobenzene | | 0.721 | 1.015 | 0.905 | 0.905 | 0.901 |
| 1,2,4-Trimethylbenzene | | 1.826 | 2.823 | 2.656 | 2.819 | 2.701 |
| Tetrachloroethene | | 0.219 | 0.326 | 0.277 | 0.272 | 0.254 |
| Trichloroethene | | 0.245 | 0.382 | 0.322 | 0.344 | 0.317 |
| 1,2-Dichlorobenzene | | 1.166 | 1.777 | 1.606 | 1.586 | 1.444 |
| 1,2-Dichloroethane | | 2385 | 8970 | 15708 | 41415 | 149131 |
| 1,2-Dichloropropane | | 0.265 | 0.415 | 0.367 | 0.371 | 0.353 |
| 1,3,5-Trimethylbenzene | | 1.672 | 2.689 | 2.445 | 2.682 | 2.616 |
| 1,3-Dichloropropane | | 0.478 | 0.748 | 0.679 | 0.708 | 0.655 |
| 1,4-Dichlorobenzene | | 1.357 | 1.906 | 1.683 | 1.662 | 1.508 |
| 2-Butanone | | 2109 | 6369 | 11299 | 29605 | 119433 |
| 2-Chlorotoluene | | 1.700 | 2.636 | 2.392 | 2.490 | 2.333 |
| 2-Hexanone | | 0.182 | 0.278 | 0.270 | 0.285 | 0.300 |
| 4-Chlorotoluene | | 1.938 | 2.990 | 2.793 | 2.876 | 2.698 |
| tert-Butylbenzene | | 1.429 | 2.338 | 2.197 | 2.340 | 2.218 |
| 4-Methyl-2-Pentanone | | 0.264 | 0.428 | 0.396 | 0.407 | 0.423 |
| Acetone | | 3366 | 5582 | 8219 | 19230 | 73380 |
| Benzene | | 0.975 | 1.562 | 1.399 | 1.435 | 1.337 |
| Bromobenzene | | 0.564 | 0.890 | 0.814 | 0.813 | 0.765 |
| Bromochloromethane | | 773 | 2865 | 5148 | 13786 | 51515 |
| Bromodichloromethane | | 0.250 | 0.393 | 0.362 | 0.383 | 0.380 |
| Bromoform | | 762 | 2343 | 4574 | 12962 | 53922 |
| Bromomethane | | 822 | 2293 | 4588 | 12245 | 47148 |
| Carbon Disulfide | | 1.468 | 2.043 | 1.806 | 1.808 | 1.714 |
| Carbon Tetrachloride | | 1510 | 5463 | 10077 | 26439 | 104210 |
| Chlorobenzene | | 0.762 | 1.142 | 1.012 | 1.020 | 0.962 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812091

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF0.25: U122102  RF0.5: U122103  RF1: U122104
RF2: U122105  RF5: U122106  RF20: U122107

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| Chloroethane | | 2753 | 3213 | 8179 | 22172 | 73150 |
| Chloroform | | 0.705 | 1.253 | 1.110 | 1.148 | 1.060 |
| Chloromethane | | 1695 | 4689 | 8693 | 20682 | 79075 |
| cis-1,2-Dichloroethene | | 0.459 | 0.806 | 0.684 | 0.699 | 0.678 |
| Dibromochloromethane | | 1194 | 4051 | 7740 | 20846 | 89836 |
| Dichlorodifluoromethane | | 2033 | 6583 | 11371 | 26580 | 98486 |
| Ethylbenzene | | 0.353 | 0.556 | 0.512 | 0.523 | 0.497 |
| Hexachlorobutadiene | | 0.453 | 0.398 | 0.322 | 0.324 | 0.310 |
| Isopropylbenzene | | 0.918 | 1.542 | 1.455 | 1.530 | 1.485 |
| m,p-Xylenes | | 0.432 | 0.668 | 0.621 | 0.648 | 0.629 |
| Methylene Chloride | | 3346 | 8113 | 13726 | 31487 | 109403 |
| n-Butylbenzene | | 1.993 | 2.818 | 2.596 | 2.666 | 2.520 |
| n-Propylbenzene | | 2.596 | 4.144 | 3.755 | 4.032 | 3.835 |
| Naphthalene | | 5535 | 16505 | 32897 | 91300 | 413229 |
| o-Xylene | | 0.413 | 0.703 | 0.613 | 0.642 | 0.637 |
| sec-Butylbenzene | | 2.047 | 3.385 | 3.201 | 3.334 | 3.199 |
| Styrene | | 0.640 | 1.035 | 0.996 | 1.084 | 1.092 |
| Vinyl Chloride | | 1815 | 6308 | 12656 | 29272 | 111713 |
| 1,2,3-Trichloropropane | | 0.777 | 1.295 | 1.203 | 1.184 | 1.156 |
| p-Isopropyltoluene | | 1.912 | 2.733 | 2.516 | 2.786 | 2.704 |
| 1,2-Dibromo-3-Chloropropane | | 272 | 861 | 1910 | 4931 | 22196 |
| 1,2-Dichloroethane-d4 | | 8601 | 10907 | 17881 | 38943 | 131494 |
| Dibromofluoromethane | | 6036 | 8005 | 12720 | 28568 | 98984 |
| Toluene-d8 | | 27052 | 32175 | 54444 | 117010 | 408521 |
| 4-Bromofluorobenzene | | 9627 | 12547 | 20092 | 42900 | 153183 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF50: U122108 RF100: U122109 RF150: U122110
RF200: U122111

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 449225 | 944095 | 1468956 | 1986544 |
| trans-1,3-Dichloropropene | 381258 | 811224 | 1271771 | 1721394 |
| 1,3-Dichlorobenzene | 1.440 | 1.476 | 1.485 | 1.441 |
| 2,2-Dichloropropane | 0.635 | 0.683 | 0.695 | 0.673 |
| 1,1-Dichloropropene | 0.427 | 0.455 | 0.457 | 0.448 |
| Dibromomethane | 0.207 | 0.207 | 0.205 | 0.205 |
| 1,2-Dibromoethane | 0.349 | 0.345 | 0.342 | 0.340 |
| trans-1,2-Dichloroethene | 0.564 | 0.579 | 0.576 | 0.559 |
| 1,1,1,2-Tetrachloroethane | 235446 | 493177 | 766622 | 1032567 |
| 1,1,1-Trichloroethane | 0.788 | 0.846 | 0.852 | 0.826 |
| 1,1,2,2-Tetrachloroethane | 1.127 | 1.090 | 1.080 | 1.060 |
| Freon TF | 0.397 | 0.445 | 0.445 | 0.434 |
| 1,1,2-Trichloroethane | 0.296 | 0.295 | 0.290 | 0.286 |
| 1,1-Dichloroethane | 1.058 | 1.079 | 1.066 | 1.028 |
| 1,1-Dichloroethene | 0.441 | 0.480 | 0.472 | 0.461 |
| Trichlorofluoromethane | 330010 | 753769 | 1146930 | 1561606 |
| 1,2,3-Trichlorobenzene | 334600 | 694931 | 1085027 | 1453309 |
| Toluene | 1.488 | 1.490 | 1.464 | 1.421 |
| 1,2,4-Trichlorobenzene | 0.926 | 0.982 | 1.001 | 0.974 |
| 1,2,4-Trimethylbenzene | 2.661 | 2.738 | 2.712 | 2.610 |
| Tetrachloroethene | 0.243 | 0.257 | 0.257 | 0.251 |
| Trichloroethene | 0.311 | 0.321 | 0.328 | 0.321 |
| 1,2-Dichlorobenzene | 1.442 | 1.463 | 1.459 | 1.417 |
| 1,2-Dichloroethane | 376591 | 747337 | 1129116 | 1504782 |
| 1,2-Dichloropropane | 0.350 | 0.357 | 0.353 | 0.348 |
| 1,3,5-Trimethylbenzene | 2.579 | 2.685 | 2.665 | 2.582 |
| 1,3-Dichloropropane | 0.642 | 0.630 | 0.620 | 0.613 |
| 1,4-Dichlorobenzene | 1.482 | 1.511 | 1.509 | 1.472 |
| 2-Butanone | 304044 | 587152 | 880878 | 1199902 |
| 2-Chlorotoluene | 2.295 | 2.323 | 2.315 | 2.248 |
| 2-Hexanone | 0.302 | 0.295 | 0.297 | 0.293 |
| 4-Chlorotoluene | 2.665 | 2.704 | 2.694 | 2.601 |
| tert-Butylbenzene | 2.197 | 2.301 | 2.300 | 2.225 |
| 4-Methyl-2-Pentanone | 0.427 | 0.421 | 0.419 | 0.415 |
| Acetone | 187964 | 331678 | 520533 | 723113 |
| Benzene | 1.319 | 1.335 | 1.317 | 1.294 |
| Bromobenzene | 0.765 | 0.778 | 0.792 | 0.773 |
| Bromochloromethane | 129496 | 244429 | 348533 | 453685 |
| Bromodichloromethane | 0.388 | 0.406 | 0.411 | 0.408 |
| Bromoform | 154855 | 331336 | 522892 | 718878 |
| Bromomethane | 117780 | 281859 | 444174 | 585856 |
| Carbon Disulfide | 1.656 | 1.742 | 1.730 | 1.622 |
| Carbon Tetrachloride | 274507 | 601960 | 939611 | 1268610 |
| Chlorobenzene | 0.940 | 0.949 | 0.943 | 0.916 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812091

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF50: U122108  RF100: U122109  RF150: U122110
RF200: U122111

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| Chloroethane | 179707 | 384958 | 684109 | 859472 |
| Chloroform | 1.027 | 1.035 | 1.016 | 0.978 |
| Chloromethane | 197328 | 441603 | 746873 | 1095269 |
| cis-1,2-Dichloroethene | 0.650 | 0.655 | 0.653 | 0.630 |
| Dibromochloromethane | 242061 | 512845 | 791728 | 1081017 |
| Dichlorodifluoromethane | 248322 | 553841 | 873891 | 1151588 |
| Ethylbenzene | 0.490 | 0.504 | 0.504 | 0.495 |
| Hexachlorobutadiene | 0.324 | 0.352 | 0.356 | |
| Isopropylbenzene | 1.450 | 1.506 | 1.482 | 1.428 |
| m,p-Xylenes | 0.612 | 0.626 | 0.616 | 0.600 |
| Methylene Chloride | 274258 | 554902 | 841220 | 1131189 |
| n-Butylbenzene | 2.535 | 2.661 | 2.637 | |
| n-Propylbenzene | 3.794 | 3.919 | 3.867 | 3.682 |
| Naphthalene | 1107938 | 2231968 | 3430934 | 4589381 |
| o-Xylene | 0.622 | 0.631 | 0.627 | 0.612 |
| sec-Butylbenzene | 3.182 | 3.378 | 3.341 | 3.190 |
| Styrene | 1.084 | 1.087 | 1.074 | 1.044 |
| Vinyl Chloride | 283791 | 629175 | 1000865 | 1348117 |
| 1,2,3-Trichloropropane | 1.210 | 1.222 | 1.246 | 1.245 |
| p-Isopropyltoluene | 2.733 | 2.856 | 2.837 | 2.735 |
| 1,2-Dibromo-3-Chloropropane | 61793 | 125814 | 200384 | 274280 |
| 1,2-Dichloroethane-d4 | 320796 | 635081 | 949266 | 1274051 |
| Dibromofluoromethane | 245007 | 495628 | 745399 | 1006329 |
| Toluene-d8 | 1010127 | 2029223 | 3016887 | 4010125 |
| 4-Bromofluorobenzene | 382581 | 764798 | 1153874 | 1540801 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812091

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

| COMPOUND | CURVE | COEFFICENTS A0 | COEFFICENTS A1 | COEFFICENTS A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | LINR | 2.529e-002 | 1.70725996 | | 0.9997580 | 0.9900000 |
| trans-1,3-Dichloropropene | LINR | 3.3e-002 | 1.96902158 | | 0.9995927 | 0.9900000 |
| 1,3-Dichlorobenzene | AVRG | | 1.48472992 | | 9.494 | 20.000 |
| 2,2-Dichloropropane | AVRG | | 0.64891526 | | 11.509 | 20.000 |
| 1,1-Dichloropropene | AVRG | | 0.44488137 | | 11.968 | 20.000 |
| Dibromomethane | AVRG | | 0.20390294 | | 11.744 | 20.000 |
| 1,2-Dibromoethane | AVRG | | 0.34310644 | | 11.102 | 20.000 |
| trans-1,2-Dichloroethene | AVRG | | 0.58526565 | | 12.993 | 20.000 |
| 1,1,1,2-Tetrachloroethane | LINR | 1.17e-002 | 3.11489679 | | 0.9998991 | 0.9900000 |
| 1,1,1-Trichloroethane | AVRG | | 0.78949465 | | 13.294 | 20.000 |
| 1,1,2,2-Tetrachloroethane | AVRG | | 1.12601556 | | 13.302 | 20.000 |
| Freon TF | AVRG | | 0.42507305 | | 12.611 | 20.000 |
| 1,1,2-Trichloroethane | AVRG | | 0.29788801 | | 11.475 | 20.000 |
| 1,1-Dichloroethane | AVRG | | 1.07678494 | | 14.456 | 20.000 |
| 1,1-Dichloroethene | AVRG | | 0.47540572 | | 9.911 | 20.000 |
| Trichlorofluoromethane | LINR | 1.25e-002 | 1.19826122 | | 0.9992799 | 0.9900000 |
| 1,2,3-Trichlorobenzene | LINR | 1.266e-002 | 1.04791842 | | 0.9997493 | 0.9900000 |
| Toluene | AVRG | | 1.48733738 | | 10.393 | 20.000 |
| 1,2,4-Trichlorobenzene | AVRG | | 0.92571167 | | 9.562 | 20.000 |
| 1,2,4-Trimethylbenzene | AVRG | | 2.61651384 | | 11.645 | 20.000 |
| Tetrachloroethene | AVRG | | 0.26176272 | | 11.269 | 20.000 |
| Trichloroethene | AVRG | | 0.32119921 | | 11.118 | 20.000 |
| 1,2-Dichlorobenzene | AVRG | | 1.48461871 | | 11.211 | 20.000 |
| 1,2-Dichloroethane | LINR | -1.47e-002 | 2.25247271 | | 0.9997943 | 0.9900000 |
| 1,2-Dichloropropane | AVRG | | 0.35329723 | | 11.023 | 20.000 |
| 1,3,5-Trimethylbenzene | AVRG | | 2.51283681 | | 12.919 | 20.000 |
| 1,3-Dichloropropane | AVRG | | 0.64163858 | | 11.739 | 20.000 |
| 1,4-Dichlorobenzene | AVRG | | 1.56545234 | | 10.298 | 20.000 |
| 2-Butanone | LINR | -4.87e-002 | 3.13274512 | | 0.9994657 | 0.9900000 |
| 2-Chlorotoluene | AVRG | | 2.30373097 | | 11.091 | 20.000 |
| 2-Hexanone | AVRG | | 0.27803053 | | 13.505 | 20.000 |
| 4-Chlorotoluene | AVRG | | 2.66220268 | | 11.134 | 20.000 |
| tert-Butylbenzene | AVRG | | 2.17187412 | | 13.092 | 20.000 |
| 4-Methyl-2-Pentanone | AVRG | | 0.40004668 | | 13.000 | 20.000 |
| Acetone | LINR | -6.05e-002 | 5.27806885 | | 0.9991782 | 0.9900000 |
| Benzene | AVRG | | 1.33049482 | | 11.804 | 20.000 |
| Bromobenzene | AVRG | | 0.77253354 | | 11.330 | 20.000 |
| Bromochloromethane | LINR | -6.22e-002 | 4.05290698 | | 0.9951390 | 0.9900000 |
| Bromodichloromethane | AVRG | | 0.37570006 | | 13.249 | 20.000 |
| Bromoform | LINR | 3.523e-002 | 4.49538839 | | 0.9994690 | 0.9900000 |
| Bromomethane | LINR | 2.677e-002 | 3.15194291 | | 0.9981331 | 0.9900000 |
| Carbon Disulfide | AVRG | | 1.73224763 | | 9.031 | 20.000 |
| Carbon Tetrachloride | LINR | 2.798e-002 | 2.67309140 | | 0.9994430 | 0.9900000 |
| Chlorobenzene | AVRG | | 0.96069061 | | 10.497 | 20.000 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812091

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349 1755

| COMPOUND | CURVE | COEFFICENTS A0 | COEFFICENTS A1 | COEFFICENTS A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| Chloroethane | 2ORDR | 9.363e-003 | 2.27118996 | -8.34e-002 | 0.9953360 | 0.9900000 |
| Chloroform | AVRG | | 1.03699562 | | 14.439 | 20.000 |
| Chloromethane | LINR | 6.638e-002 | 1.75757606 | | 0.9946541 | 0.9900000 |
| cis-1,2-Dichloroethene | AVRG | | 0.65721728 | | 13.730 | 20.000 |
| Dibromochloromethane | LINR | 1.95e-002 | 2.98429229 | | 0.9998675 | 0.9900000 |
| Dichlorodifluoromethane | LINR | 9.706e-003 | 1.60963706 | | 0.9988360 | 0.9900000 |
| Ethylbenzene | AVRG | | 0.49273054 | | 11.389 | 20.000 |
| Hexachlorobutadiene | AVRG | | 0.35465839 | | 13.679 | 20.000 |
| Isopropylbenzene | AVRG | | 1.42182513 | | 13.532 | 20.000 |
| m,p-Xylenes | AVRG | | 0.60575037 | | 11.285 | 20.000 |
| Methylene Chloride | LINR | -2.41e-002 | 1.65721813 | | 0.9996145 | 0.9900000 |
| n-Butylbenzene | AVRG | | 2.55335964 | | 9.575 | 20.000 |
| n-Propylbenzene | AVRG | | 3.73602785 | | 12.044 | 20.000 |
| Naphthalene | 2ORDR | 1.313e-002 | 0.32140252 | 9.017e-004 | 0.9999007 | 0.9900000 |
| o-Xylene | AVRG | | 0.61109521 | | 12.917 | 20.000 |
| sec-Butylbenzene | AVRG | | 3.13985879 | | 13.327 | 20.000 |
| Styrene | AVRG | | 1.01526757 | | 14.203 | 20.000 |
| Vinyl Chloride | LINR | 1.938e-002 | 1.38661185 | | 0.9992348 | 0.9900000 |
| 1,2,3-Trichloropropane | AVRG | | 1.17088717 | | 13.058 | 20.000 |
| p-Isopropyltoluene | AVRG | | 2.64580193 | | 11.042 | 20.000 |
| 1,2-Dibromo-3-Chloropropane | LINR | 2.904e-002 | 5.59224209 | | 0.9995363 | 0.9900000 |
| 1,2-Dichloroethane-d4 | LINR | -4.34e-002 | 1.47435424 | | 0.9993295 | 0.9900000 |
| Dibromofluoromethane | LINR | -3.06e-002 | 1.86777807 | | 0.9996249 | 0.9900000 |
| Toluene-d8 | LINR | -3.57e-002 | 0.80216996 | | 0.9994439 | 0.9900000 |
| 4-Bromofluorobenzene | LINR | -2.86e-002 | 2.09274699 | | 0.9997553 | 0.9900000 |

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

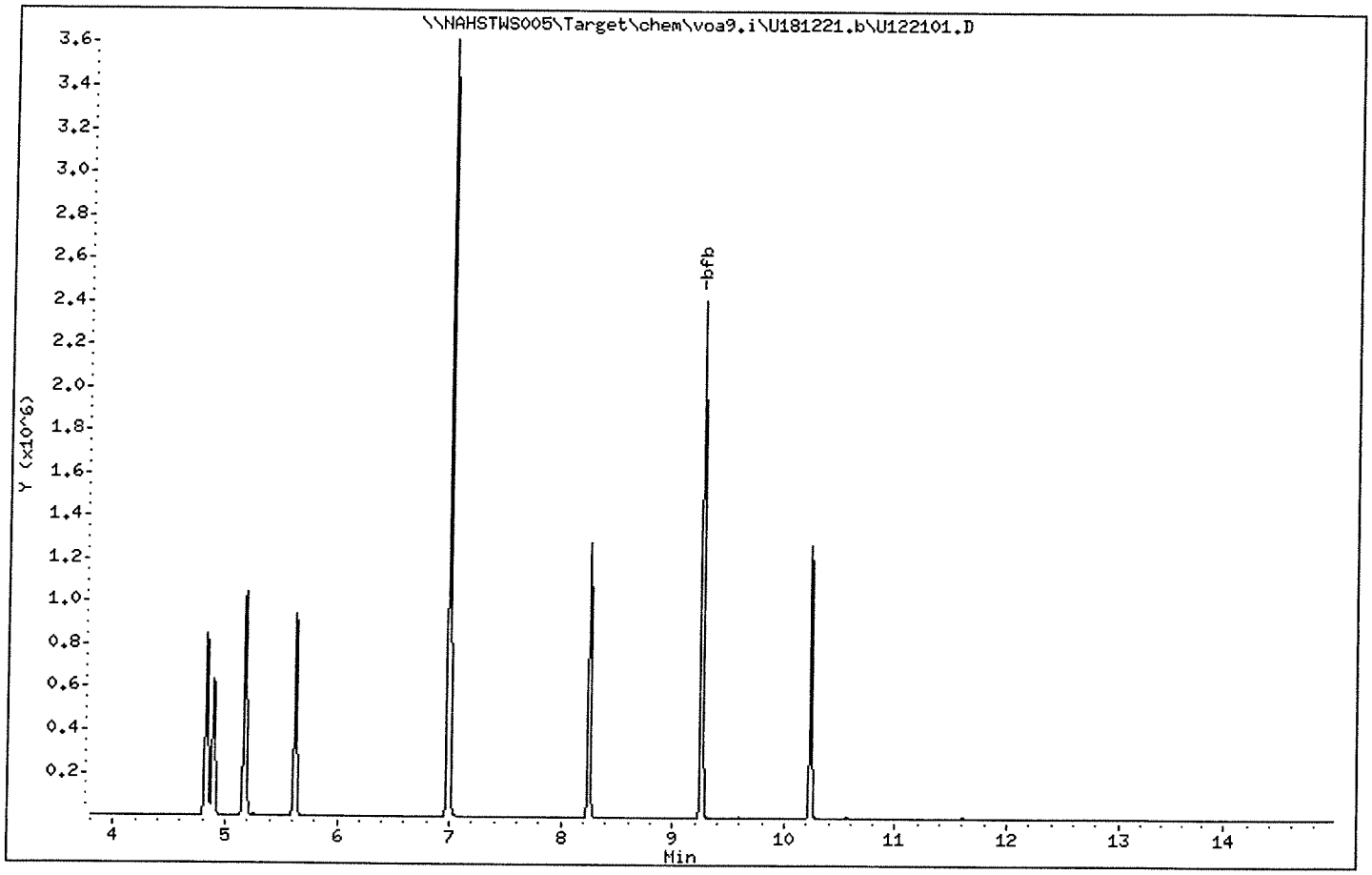
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D Page 3

Date : 21-DEC-2018 13:25

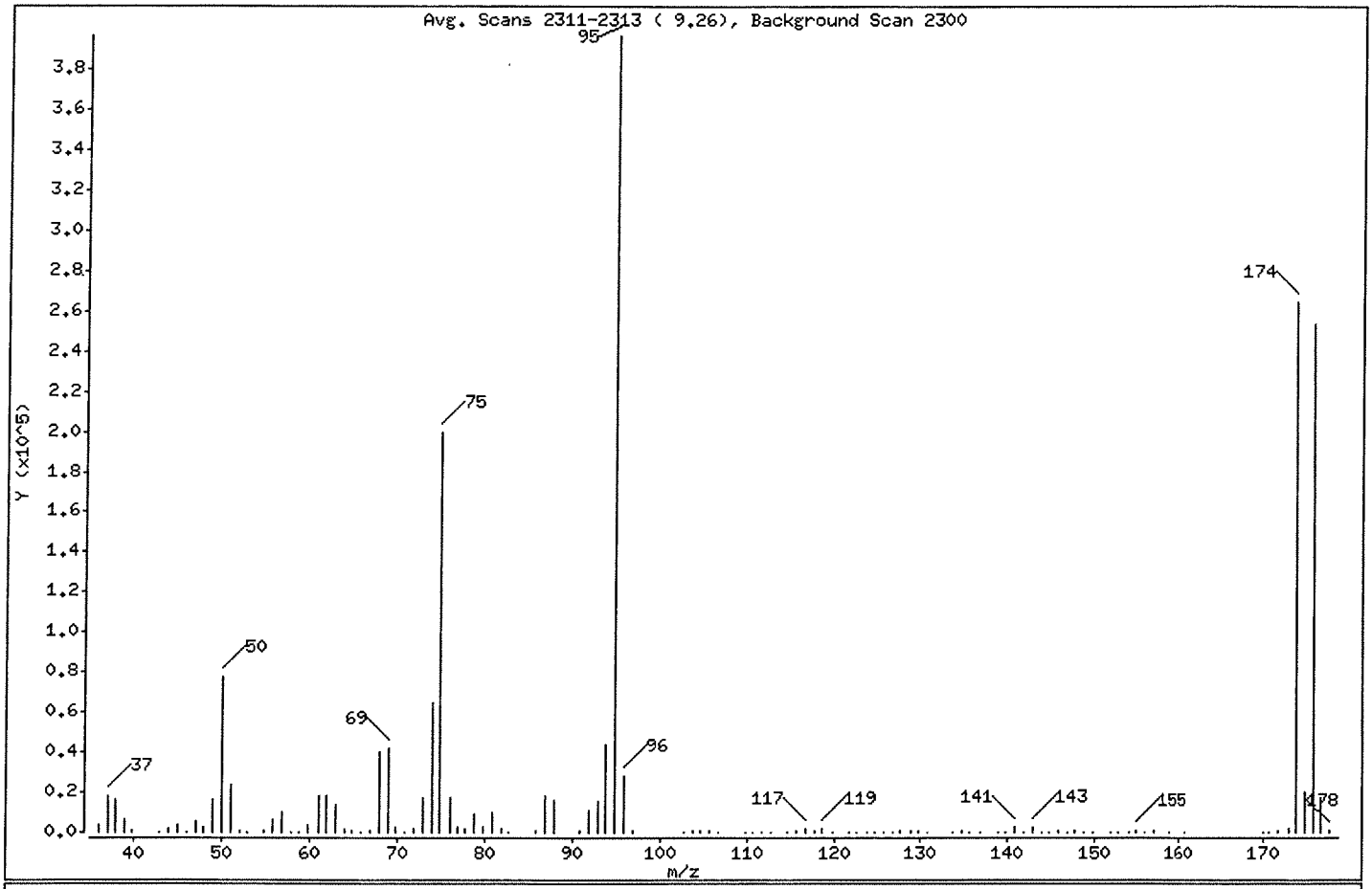
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 19.64 |
| 75 | 30.00 - 60.00% of mass 95 | 50.36 |
| 96 | 5.00 - 9.00% of mass 95 | 7.02 |
| 173 | Less than 2.00% of mass 174 | 0.53 ( 0.79) |
| 174 | Greater than 50.00% of mass 95 | 66.76 |
| 175 | 5.00 - 9.00% of mass 174 | 5.12 ( 7.67) |
| 176 | 95.00 - 101.00% of mass 174 | 63.79 ( 95.55) |
| 177 | 5.00 - 9.00% of mass 176 | 4.47 ( 7.01) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122101.D

Spectrum: Avg. Scans 2311-2313 ( 9.26), Background Scan 2300

Location of Maximum: 94.95

Number of points: 113

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 3522 | 67.90 | 40024 | 105.80 | 1268 | 141.70 | 302 |
| 37.00 | 18528 | 68.90 | 41568 | 106.80 | 285 | 142.80 | 2909 |
| 38.00 | 16159 | 69.90 | 3074 | 109.80 | 127 | 143.80 | 180 |
| 39.00 | 6598 | 70.90 | 134 | 110.70 | 307 | 144.70 | 380 |
| 39.90 | 601 | 71.90 | 2102 | 111.70 | 156 | 145.70 | 457 |
| 42.90 | 115 | 73.00 | 17344 | 112.80 | 260 | 146.70 | 229 |
| 43.90 | 2066 | 73.90 | 64968 | 114.70 | 321 | 147.70 | 676 |
| 45.00 | 3408 | 74.90 | 199680 | 115.70 | 1039 | 148.60 | 185 |
| 46.10 | 284 | 76.00 | 17352 | 116.80 | 1890 | 149.70 | 381 |
| 47.00 | 5059 | 76.90 | 2402 | 117.70 | 1164 | 151.70 | 195 |
| 47.90 | 2352 | 77.80 | 1696 | 118.70 | 1600 | 152.70 | 221 |
| 49.00 | 16317 | 78.90 | 8933 | 119.80 | 55 | 153.80 | 245 |
| 50.00 | 77856 | 79.90 | 2552 | 121.70 | 99 | 154.70 | 869 |
| 51.00 | 23912 | 80.90 | 9833 | 122.70 | 71 | 155.70 | 141 |
| 52.00 | 1198 | 81.90 | 1903 | 123.80 | 148 | 156.70 | 599 |
| 52.90 | 102 | 82.80 | 214 | 124.70 | 101 | 158.60 | 297 |
| 54.90 | 806 | 85.90 | 533 | 125.70 | 152 | 160.70 | 273 |
| 55.90 | 6021 | 86.90 | 18088 | 126.70 | 123 | 169.90 | 51 |
| 56.90 | 10148 | 87.90 | 16848 | 127.70 | 1127 | 170.60 | 105 |
| 57.90 | 434 | 90.80 | 1233 | 128.80 | 534 | 171.70 | 1051 |
| 58.70 | 68 | 91.90 | 10521 | 129.70 | 1152 | 172.80 | 2098 |
| 59.90 | 3925 | 92.90 | 15269 | 130.70 | 419 | 173.70 | 264704 |
| 61.00 | 18160 | 93.90 | 43328 | 133.70 | 53 | 174.70 | 20304 |
| 61.90 | 18216 | 94.90 | 396480 | 134.70 | 496 | 175.70 | 252928 |
| 63.00 | 13327 | 95.90 | 27824 | 135.60 | 96 | 176.70 | 17720 |
| 64.00 | 1507 | 96.90 | 709 | 136.70 | 369 | 177.70 | 520 |
| 64.90 | 816 | 102.80 | 137 | 138.90 | 62 | | |
| 65.80 | 130 | 103.80 | 1364 | 139.70 | 200 | | |
| 67.00 | 910 | 104.70 | 463 | 140.80 | 2707 | | |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 1
Report Date: 28-Jan-2019 11:36

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Lab Smp Id: VSTD00.25 Client Smp ID: VSTD00.25
Inj Date : 21-DEC-2018 13:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.25;VSTD00.25;1;1;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

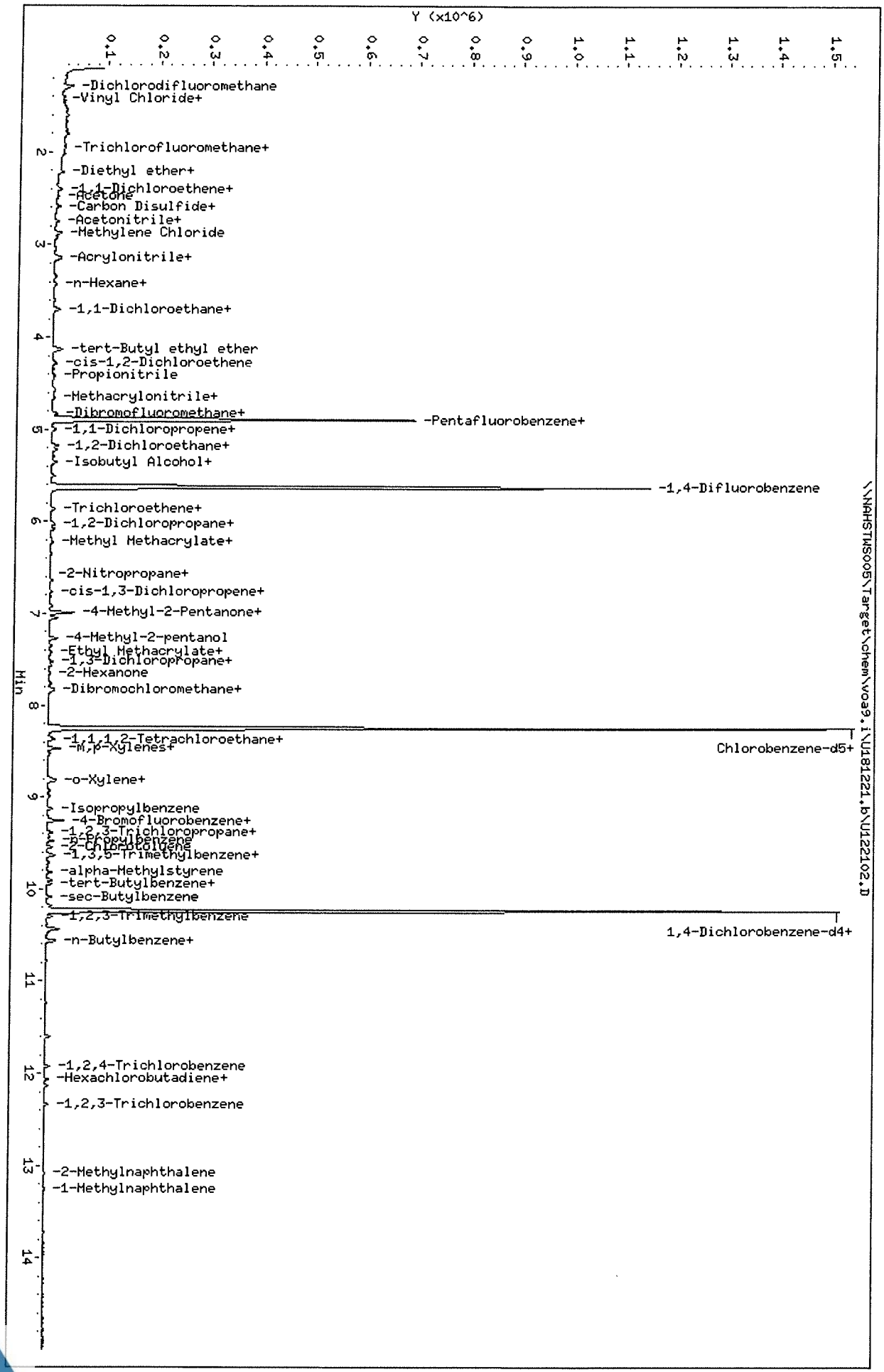
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.890 | (1.000) | 428138 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 818709 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 747851 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 340535 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.987) | 4885 | 0.25000 | (a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 7874 | 0.25000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.986 | 6.989 | (0.847) | 25629 | 0.25000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 9480 | 0.25000 | (a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1214 | 0.25000 | 0.83(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 2037 | 0.25000 | 0.30(a) |
| 138 Freon TF | 101 | 2.401 | 2.394 | (0.491) | 1292 | 0.25000 | 0.35(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 1492 | 0.25000 | 0.33(a) |
| 22 1,1-Dichloroethane | 63 | 3.601 | 3.597 | (0.736) | 2808 | 0.25000 | 0.30(Ta) |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.394 | (0.490) | 1606 | 0.25000 | 0.39(a) |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 2559 | 0.25000 | 0.35(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 2119 | 0.25000 | 0.95(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.430 | (0.921) | 2311 | 0.25000 | 0.28(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.926 | (1.165) | 1867 | 0.25000 | 0.29(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.940 | 9.943 | (0.971) | 5702 | 0.25000 | 0.31(a) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1463 | 0.25000 | 0.28(a) |
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 3604 | 0.25000 | 0.35(a) |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 2468 | 0.25000 | (a) |
| 42 1,2-Dichloropropane | 63 | 6.079 | 6.078 | (1.081) | 1752 | 0.25000 | 0.30(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 2
Report Date: 28-Jan-2019 11:36

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.628 | (0.940) | 5173 | 0.25000 | 0.30(a) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 3530 | 0.25000 | 0.34(a) |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 3033 | 0.25000 | 0.31(a) |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.258 | (1.002) | 4184 | 0.25000 | 0.39(a) |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.550 | (0.933) | 5370 | 0.25000 | 0.34(a) |
| 52 2-Hexanone | 43 | 7.649 | 7.653 | (0.927) | 2221 | 0.50000 | 0.53(a) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 6065 | 0.25000 | 0.33(a) |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.213 | (0.997) | 5637 | 0.25000 | 0.31(a) |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 3388 | 0.50000 | 0.56(a) |
| 10 Acetone | 43 | 2.480 | 2.476 | (0.507) | 3620 | 0.50000 | (a) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 7659 | 0.25000 | 0.35(a) |
| 74 Bromobenzene | 156 | 9.381 | 9.385 | (0.917) | 1549 | 0.25000 | 0.29(a) |
| 19 Carbon Disulfide | 76 | 2.588 | 2.585 | (0.529) | 12805 | 0.50000 | 0.86(a) |
| 34 Carbon Tetrachloride | 117 | 4.988 | 4.991 | (0.887) | 1501 | 0.25000 | 1.64(a) |
| 59 Chlorobenzene | 112 | 8.272 | 8.275 | (1.003) | 5314 | 0.25000 | 0.36(a) |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 3005 | 0.25000 | 0.33(a) |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 1960 | 0.25000 | 0.34(a) |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 2017 | 0.25000 | 1.47(a) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1084 | 0.25000 | 1.19(a) |
| 2 Dichlorodifluoromethane | 85 | 1.201 | 1.198 | (0.246) | 2264 | 0.25000 | 0.91(a) |
| 61 Ethylbenzene | 106 | 8.369 | 8.373 | (1.015) | 2474 | 0.25000 | 0.33(a) |
| 91 Hexachlorobutadiene | 225 | 12.061 | 12.065 | (1.178) | 1019 | 0.25000 | 0.42(a) |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 6811 | 0.25000 | 0.32(a) |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 5829 | 0.50000 | 0.64(a) |
| 17 Methylene Chloride | 84 | 2.870 | 2.866 | (0.586) | 3269 | 0.25000 | (a) |
| 87 n-Butylbenzene | 91 | 10.554 | 10.558 | (1.031) | 6526 | 0.25000 | 0.37(a) |
| 73 n-Propylbenzene | 91 | 9.475 | 9.479 | (0.926) | 8427 | 0.25000 | 0.33(a) |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 4657 | 0.25000 | 0.87(a) |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 2975 | 0.25000 | 0.32(a) |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.090 | (0.985) | 6928 | 0.25000 | 0.32(a) |
| 64 Styrene | 104 | 8.823 | 8.826 | (1.070) | 4467 | 0.25000 | 0.29(a) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 4611 | 0.25000 | 0.31(a) |
| 56 Tetrachloroethene | 164 | 7.522 | 7.525 | (0.912) | 1622 | 0.25000 | 0.41(a) |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 7336 | 0.25000 | 0.32(a) |
| 20 trans-1,2-Dichloroethene | 96 | 3.136 | 3.136 | (0.641) | 1833 | 0.25000 | 0.36(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 2028 | 0.25000 | 0.38(a) |
| 8 Trichlorofluoromethane | 101 | 1.955 | 1.944 | (0.400) | 2465 | 0.25000 | 0.97(a) |
| 5 Vinyl Chloride | 62 | 1.419 | 1.415 | (0.290) | 2098 | 0.25000 | 1.30(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Date : 21-DEC-2018 13:49
Client ID: VSTD00.25
Sample Info: VSTD00.25;VSTD00.25;1;1;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 21-DEC-2018 14:14
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

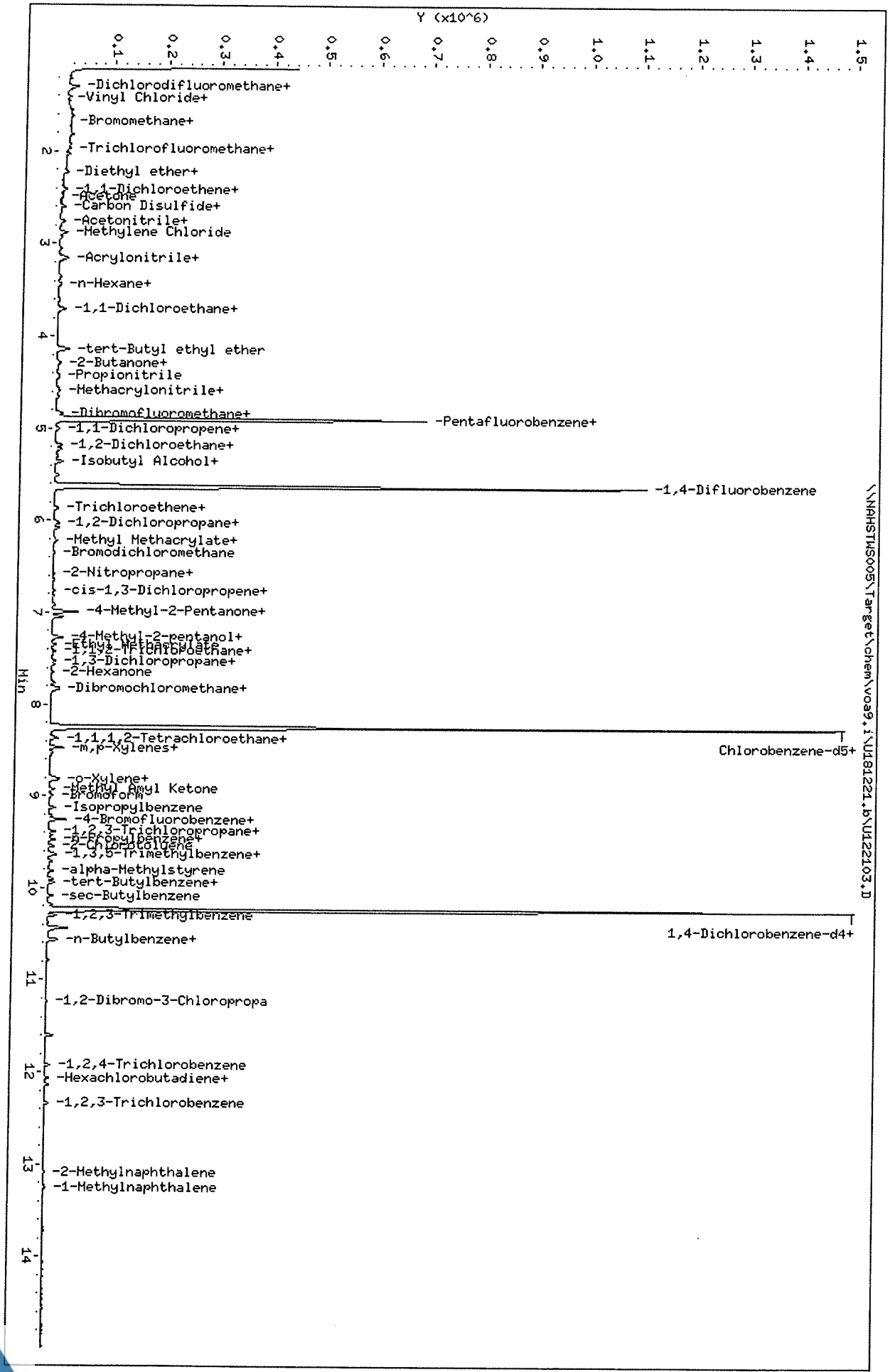
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 422356 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 796827 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 725774 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 333300 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 6036 | 0.50000 | (a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 8601 | 0.50000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 27052 | 0.50000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 9627 | 0.50000 | (a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1272 | 0.50000 | 0.85(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 2201 | 0.50000 | 0.33(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 2725 | 0.50000 | 0.36(aM) |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.493) | 1292 | 0.50000 | 0.35(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 1629 | 0.50000 | 0.37(a) |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 3066 | 0.50000 | 0.33(Ta) |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.492) | 1703 | 0.50000 | 0.42(a) |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 2565 | 0.50000 | 0.36(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1324 | 0.50000 | 0.84(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 2591 | 0.50000 | 0.33(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 2402 | 0.50000 | 0.38(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 6088 | 0.50000 | 0.34(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 272 | 0.50000 | 1.68(aM) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1825 | 0.50000 | 0.36(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 3885 | 0.50000 | 0.39(a) |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 2385 | 0.50000 | (a) |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 2114 | 0.50000 | 0.37(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 5574 | 0.50000 | 0.33(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 3970 | 0.50000 | 0.40(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 3471 | 0.50000 | 0.37(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 4522 | 0.50000 | 0.43(a) |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 2050 | 0.50000 | 0.37(aM) |
| 24 | 2-Butanone | 43 | 4.354 | 4.354 | (0.889) | 2109 | 1.00000 | (a) |
| 76 | 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 5666 | 0.50000 | 0.36(a) |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 2639 | 1.00000 | 0.65(a) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 6459 | 0.50000 | 0.36(a) |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 6372 | 0.50000 | 0.36(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 3831 | 1.00000 | 0.65(a) |
| 10 | Acetone | 43 | 2.491 | 2.491 | (0.509) | 3366 | 1.00000 | (a) |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 7772 | 0.50000 | 0.36(a) |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 1879 | 0.50000 | 0.36(a) |
| 29 | Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 773 | 0.50000 | (a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 1990 | 0.50000 | 0.33(aM) |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 762 | 0.50000 | 1.99(aM) |
| 6 | Bromomethane | 94 | 1.681 | 1.681 | (0.343) | 822 | 0.50000 | 1.64(a) |
| 19 | Carbon Disulfide | 76 | 2.596 | 2.596 | (0.530) | 12403 | 1.00000 | 0.84(a) |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 1510 | 0.50000 | 1.65(a) |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 5533 | 0.50000 | 0.39(a) |
| 7 | Chloroethane | 64 | 1.764 | 1.764 | (0.360) | 2753 | 0.50000 | 1.20(aM) |
| 28 | Chloroform | 83 | 4.662 | 4.662 | (0.952) | 2977 | 0.50000 | 0.33(a) |
| 3 | Chloromethane | 50 | 1.348 | 1.348 | (0.275) | 1695 | 0.50000 | 3.67(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.877) | 1939 | 0.50000 | 0.34(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 2152 | 0.50000 | 1.49(a) |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1194 | 0.50000 | 1.22(a) |
| 44 | Dibromomethane | 93 | 6.195 | 6.195 | (1.101) | 1143 | 0.50000 | 0.35(aM) |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.213 | (0.248) | 2033 | 0.50000 | 0.87(aM) |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 2560 | 0.50000 | 0.35(a) |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 1509 | 0.50000 | 0.63(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 6665 | 0.50000 | 0.32(a) |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 6264 | 1.00000 | 0.71(a) |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 3346 | 0.50000 | (a) |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 6644 | 0.50000 | 0.39(a) |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 8654 | 0.50000 | 0.34(a) |
| 92 | Naphthalene | 128 | 12.136 | 12.136 | (1.186) | 5535 | 0.50000 | 0.92(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 3001 | 0.50000 | 0.33(a) |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 6823 | 0.50000 | 0.32(a) |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 4646 | 0.50000 | 0.31(a) |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 4764 | 0.50000 | 0.32(a) |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 1587 | 0.50000 | 0.41(a) |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 8207 | 0.50000 | 0.38(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.151 | 3.151 | (0.643) | 1825 | 0.50000 | 0.36(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 1633 | 0.50000 | 1.85(aM) |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 1953 | 0.50000 | 0.38(a) |
| 8 | Trichlorofluoromethane | 101 | 1.966 | 1.966 | (0.402) | 1919 | 0.50000 | 0.89(a) |
| 5 | Vinyl Chloride | 62 | 1.430 | 1.430 | (0.292) | 1815 | 0.50000 | 1.26(a) |

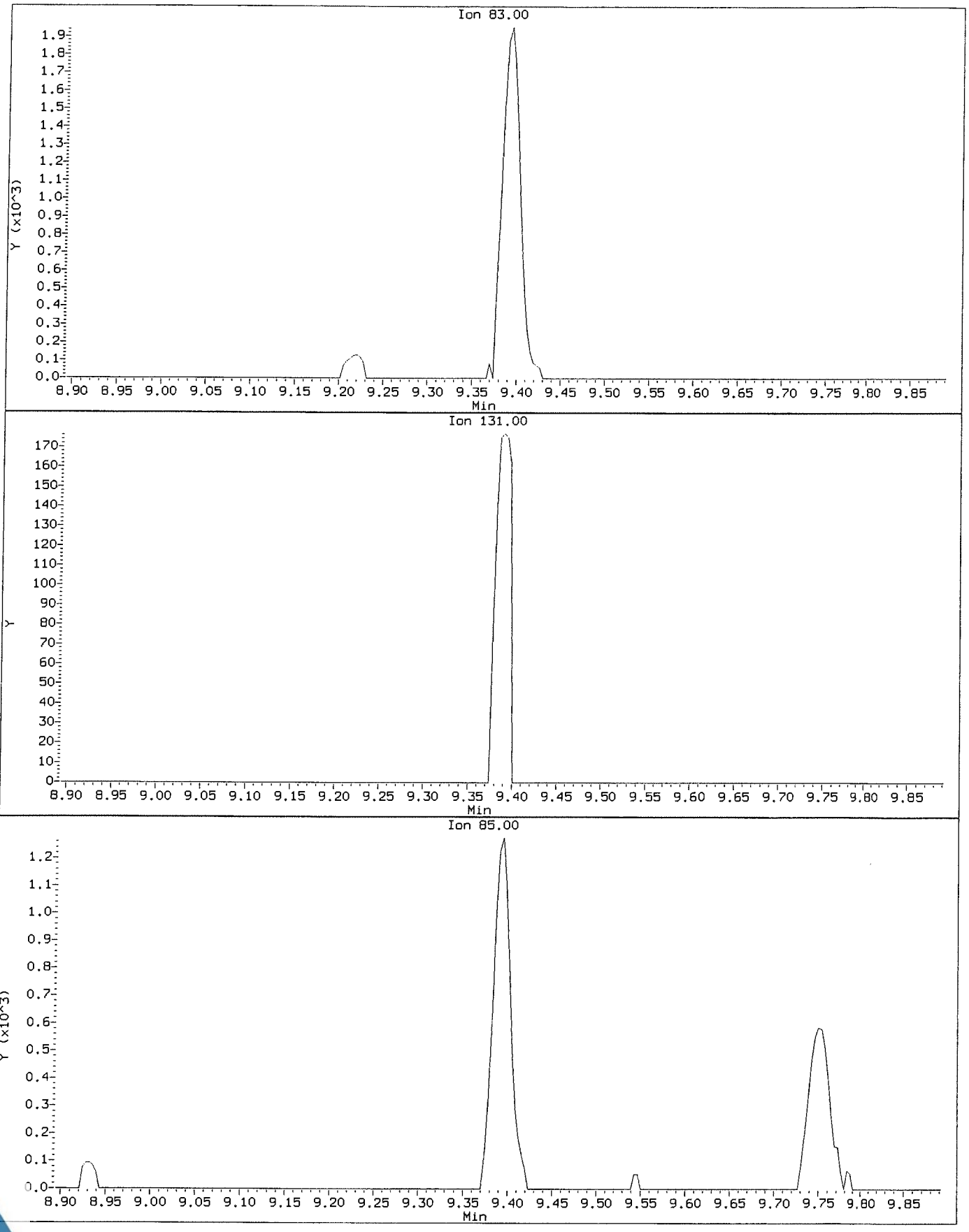
QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
Min
-Dichlorodifluoromethane+
-Vinyl Chloride+
-Bromomethane+
-Trichlorofluoromethane+
-Diethyl ether+
-1,1-Dichloroethene+
-Acetone
-Carbon Disulfide+
-Acetonitrile+
-Methylene Chloride
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile
-Methacrylonitrile+
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-4-Methyl-2-pentanol+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
Chlorobenzene-d5+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-n-Propylbenzene+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,2,3-Trimethylbenzene
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS005\Target\chem\voa9,i\U181221.b\U122103.D
Data File: \\NAHSTWS005\Target\chem\voa9,i\U181221.b\U122103.D
Date : 21-DEC-2018 14:14
Client ID: VSTD00,5
Sample Info: VSTD00,5;VSTD00,5;1;2;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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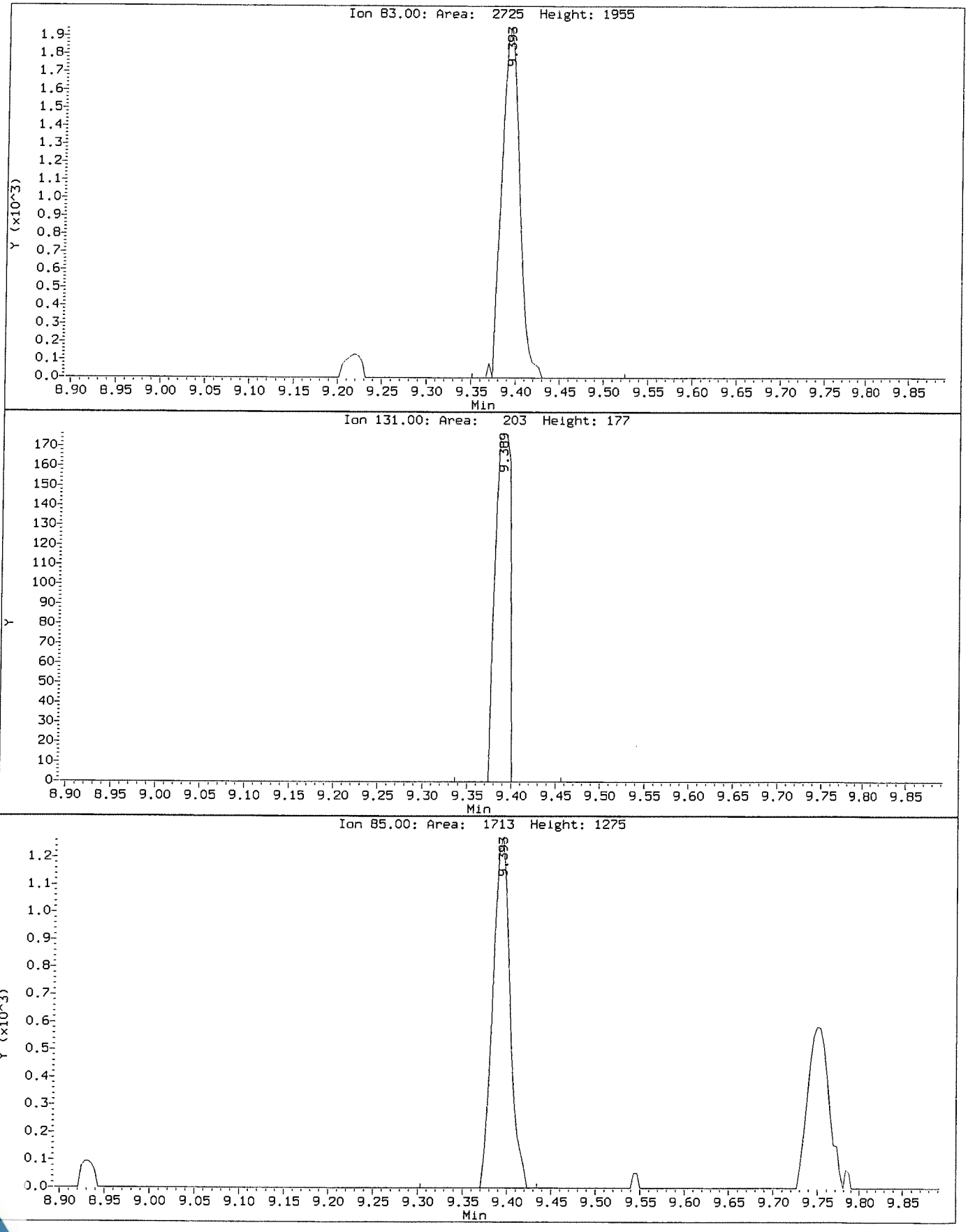
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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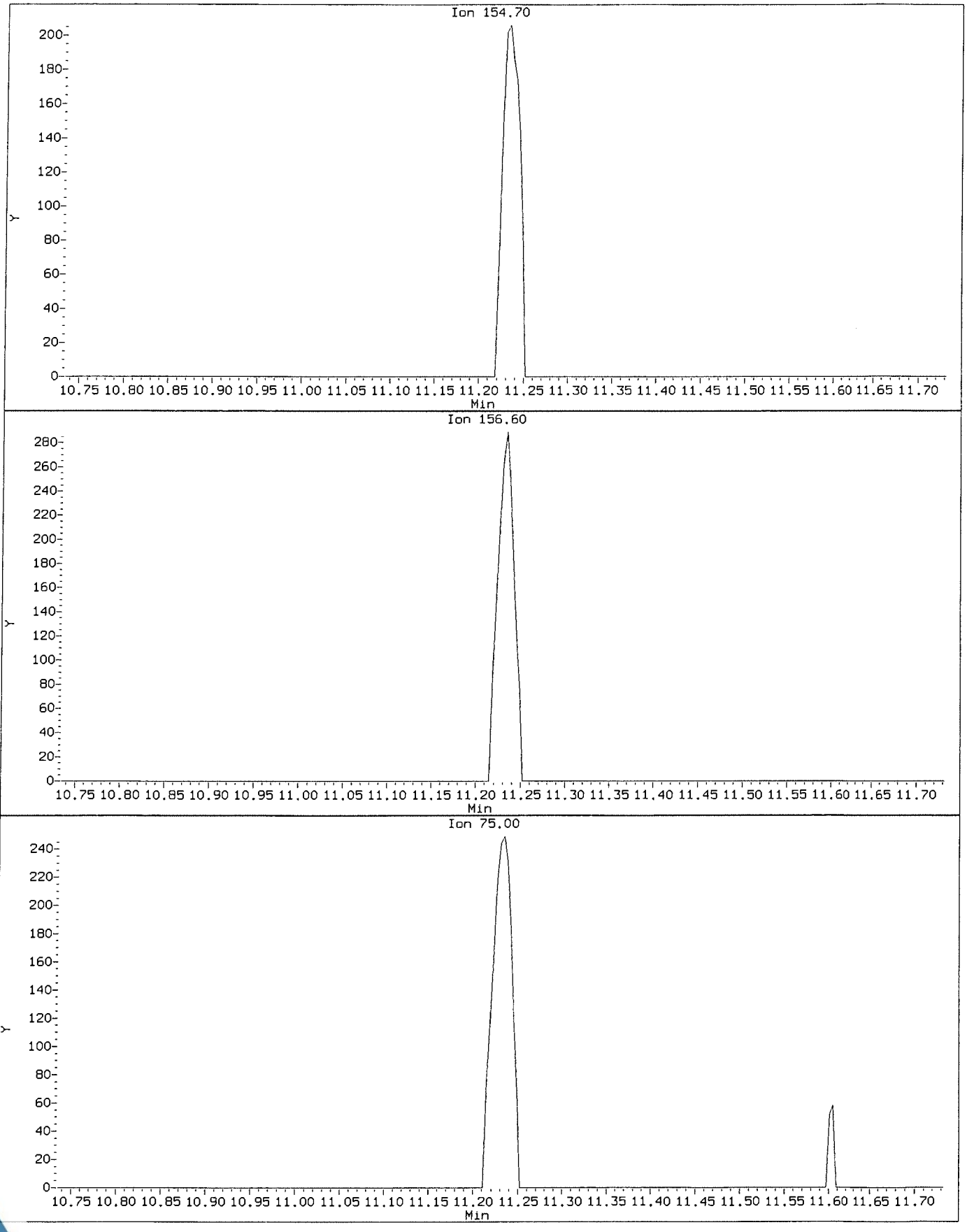
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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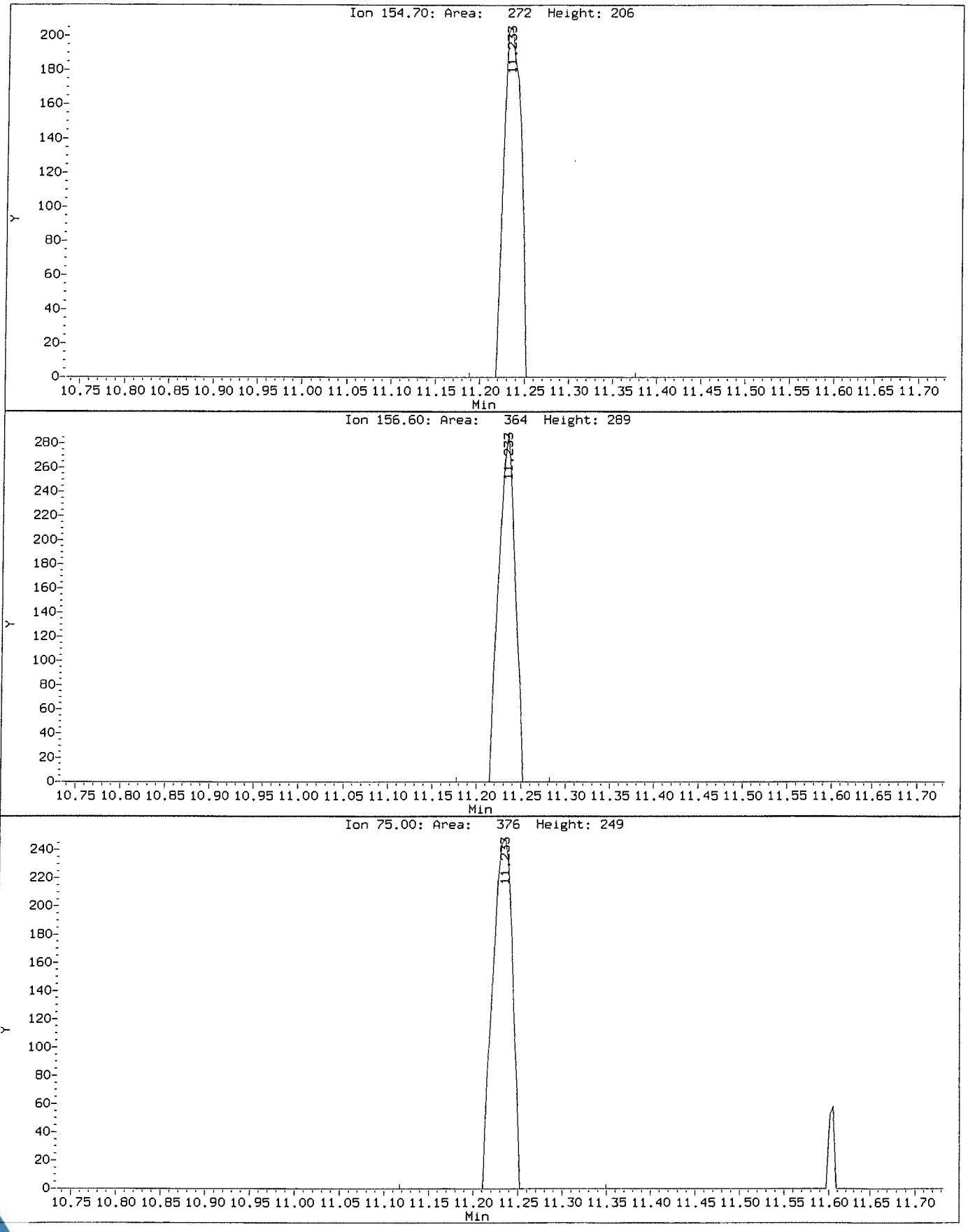
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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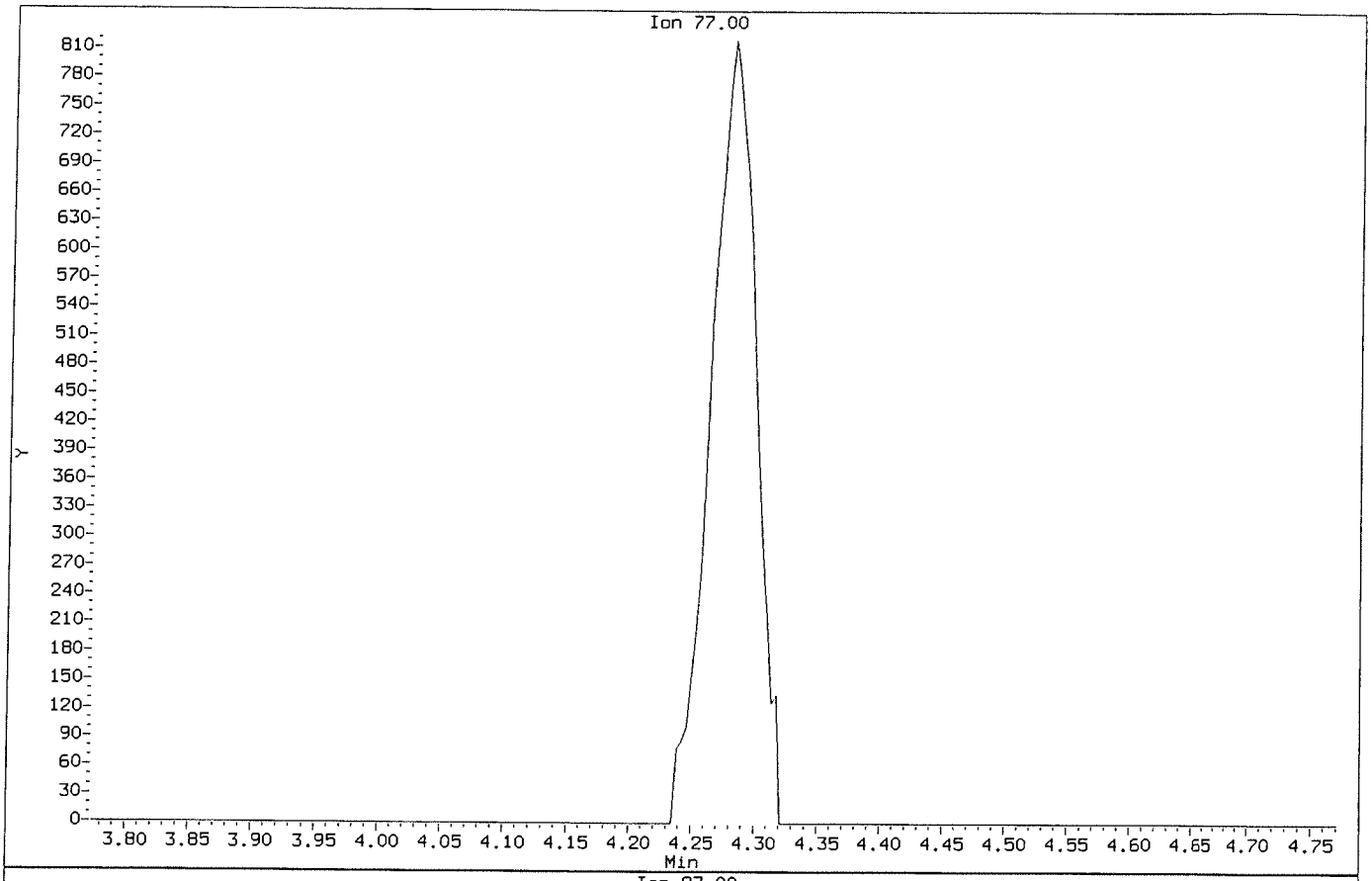
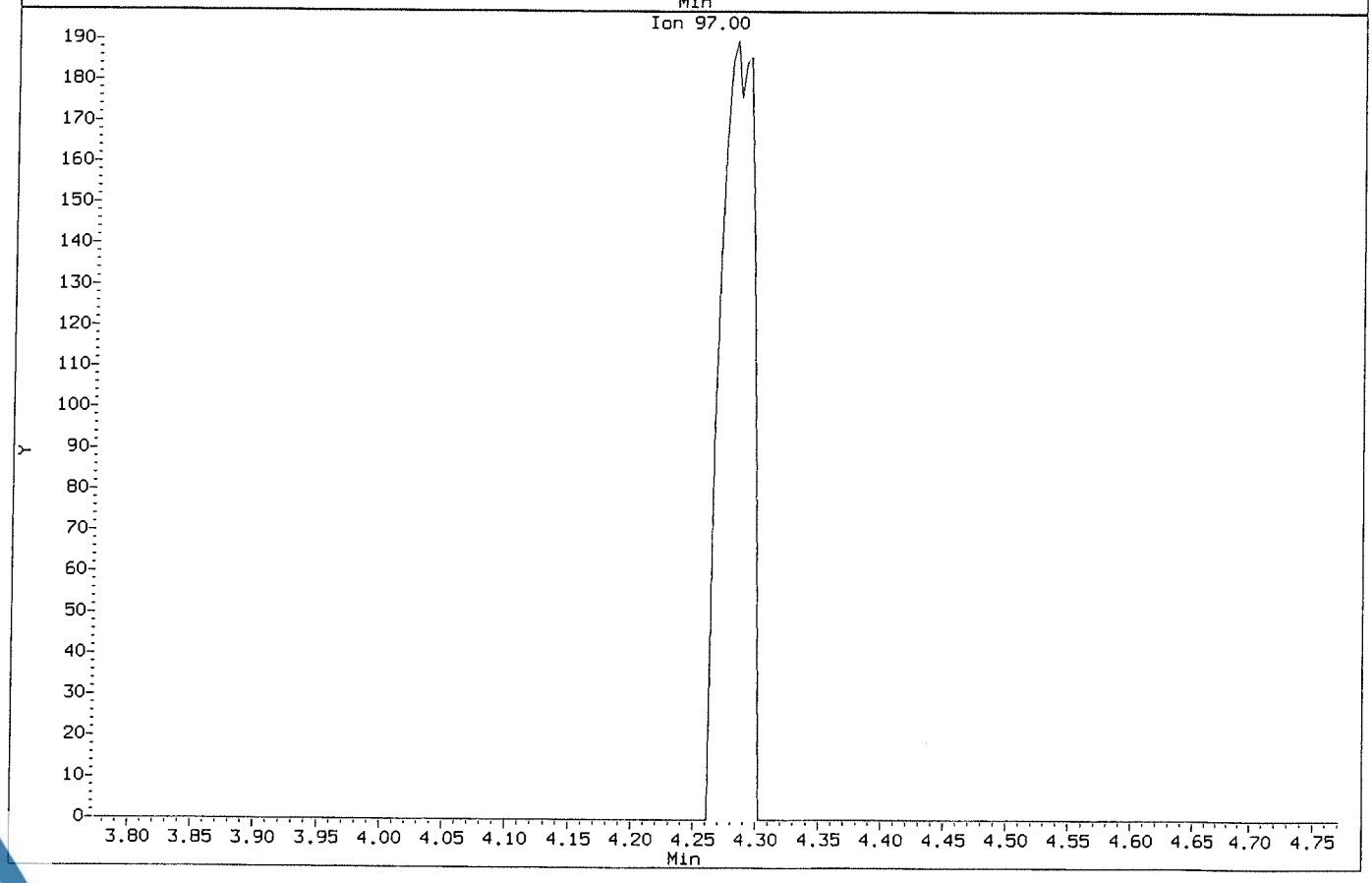
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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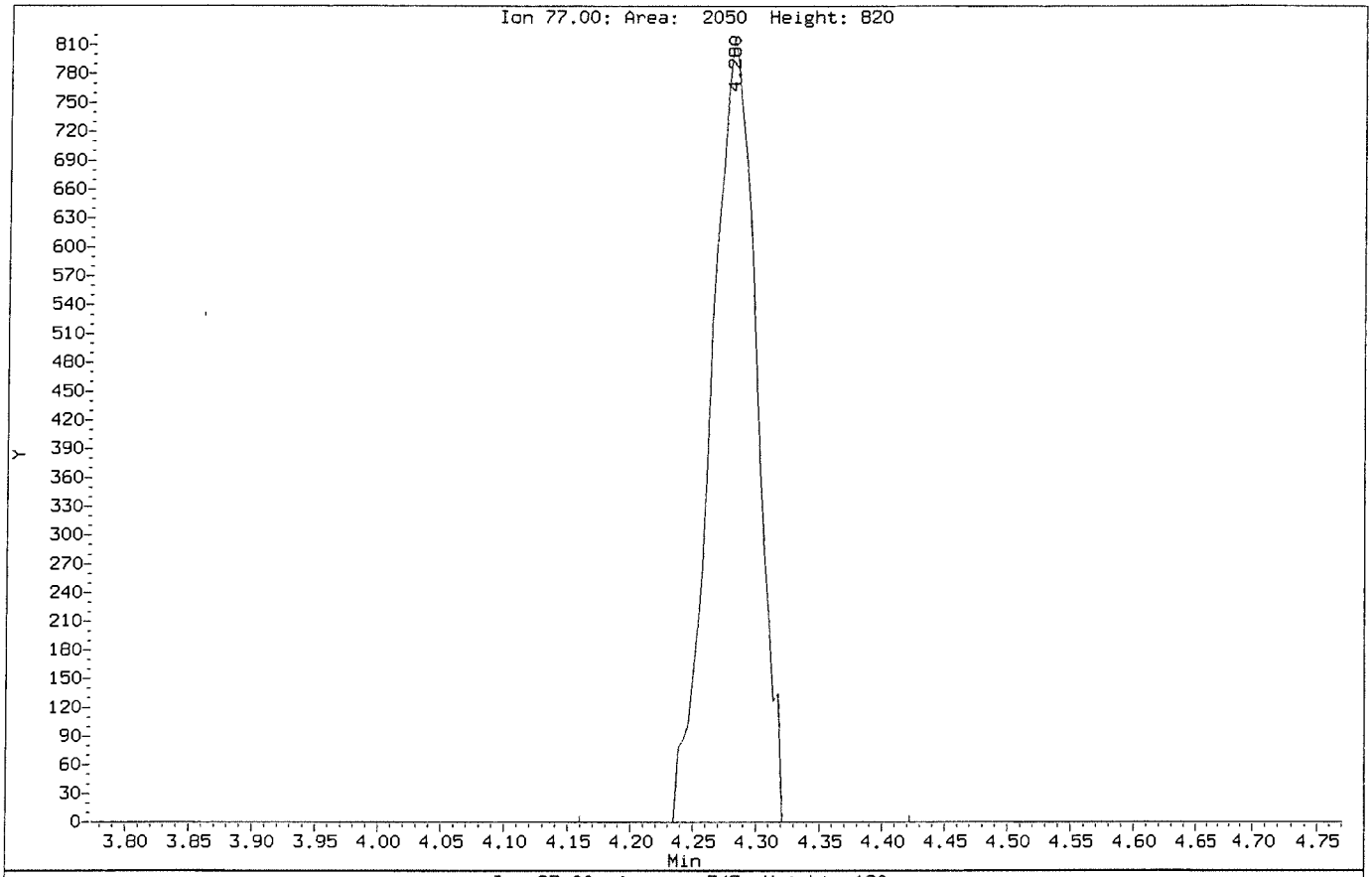
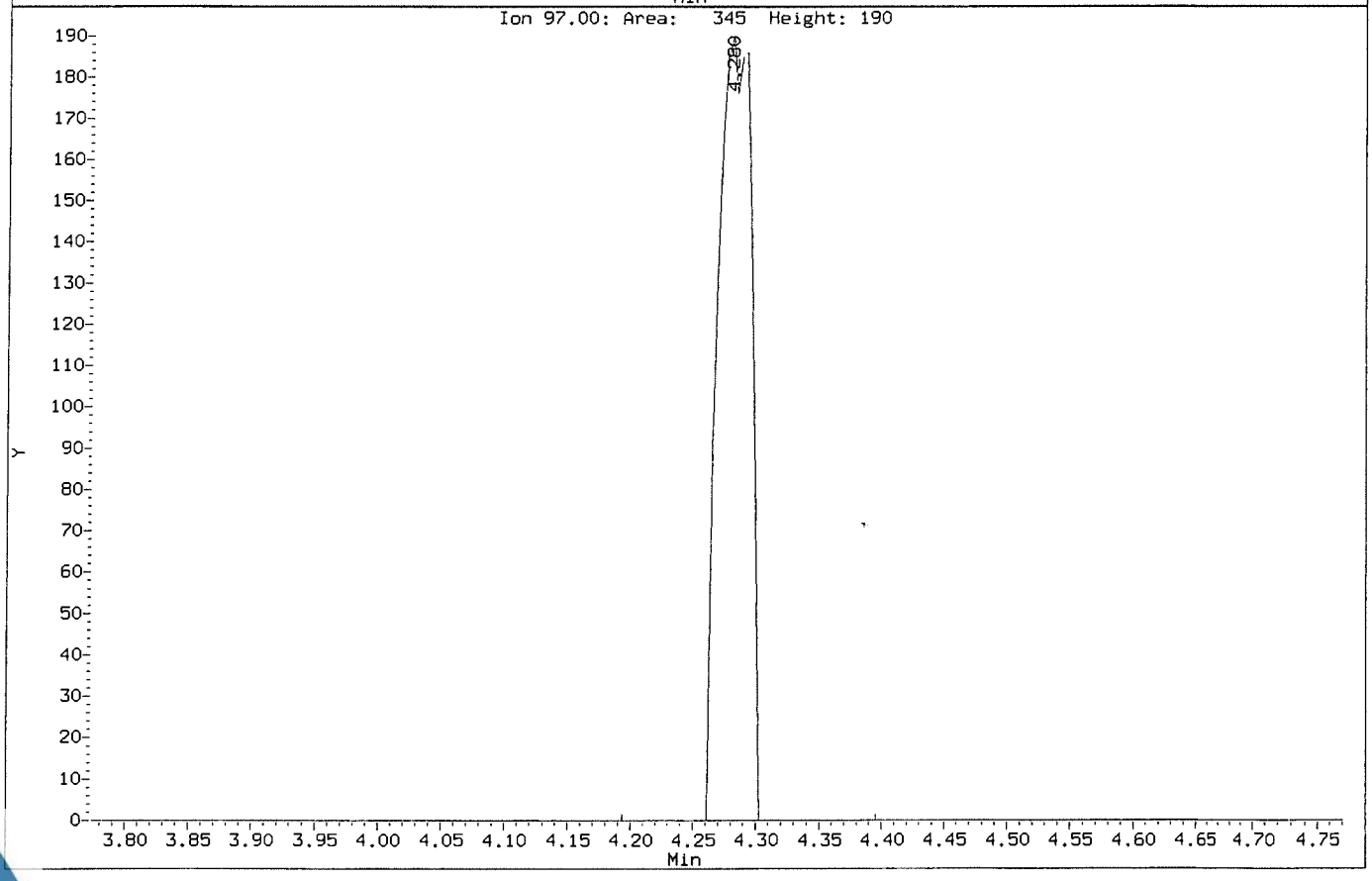
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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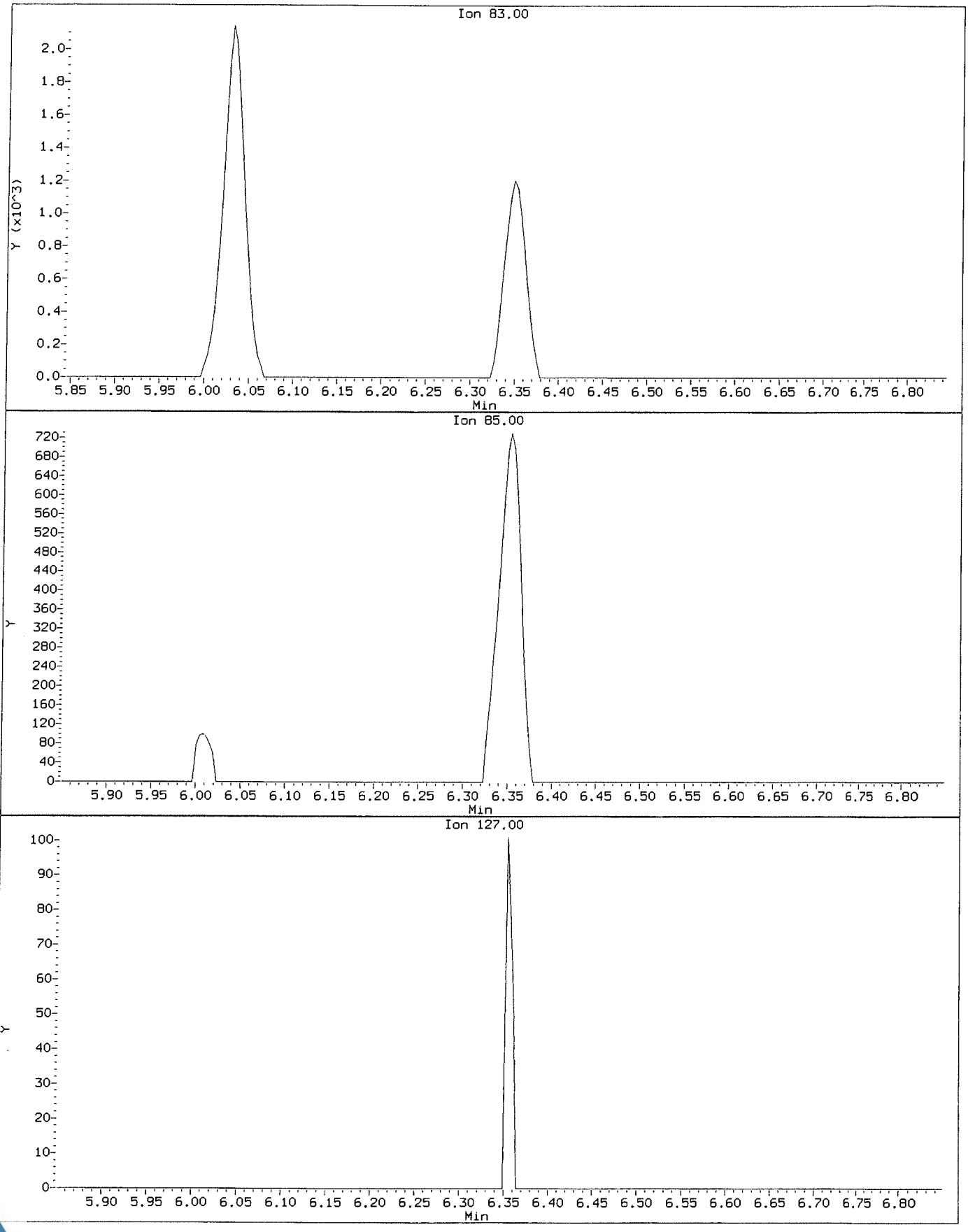
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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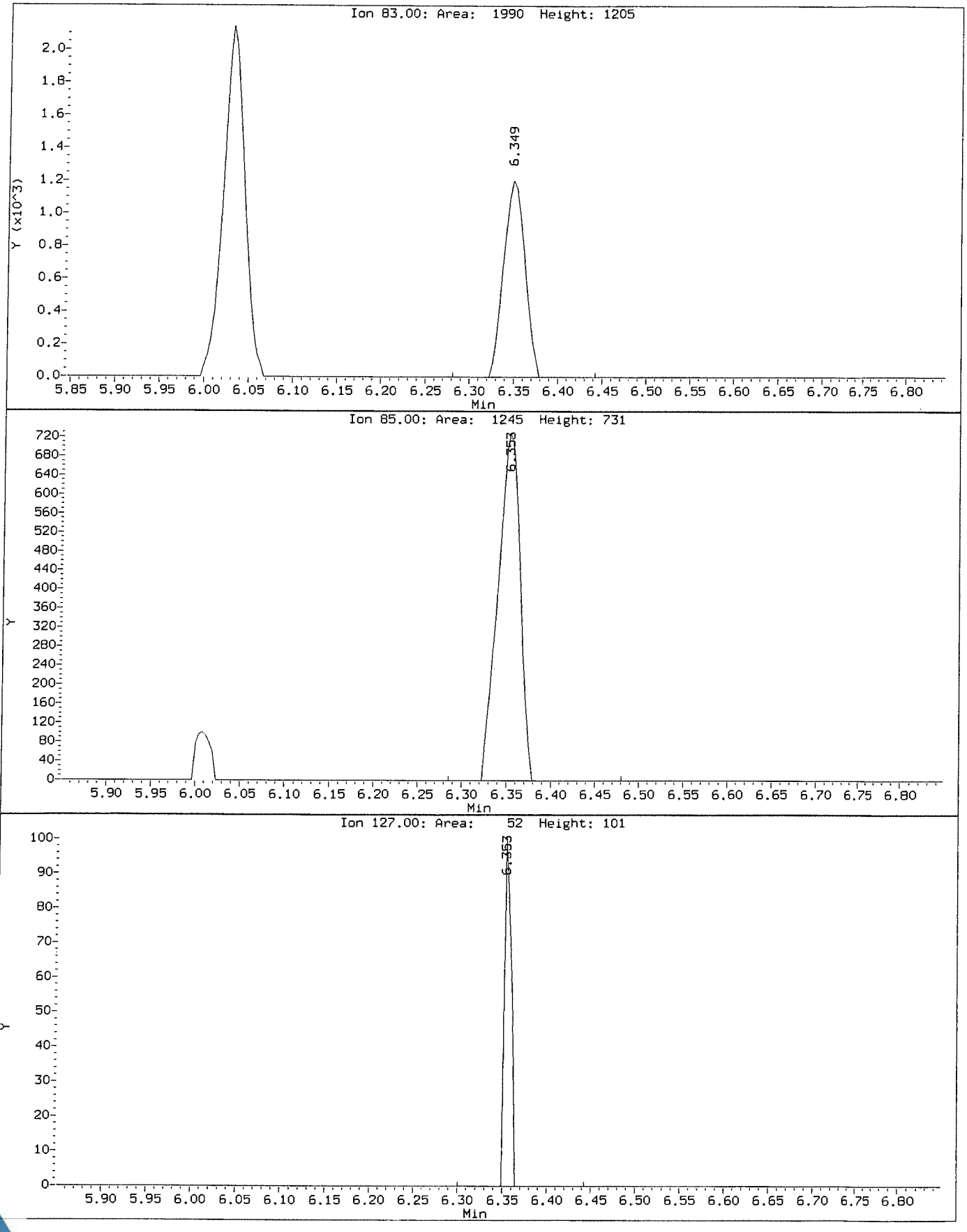
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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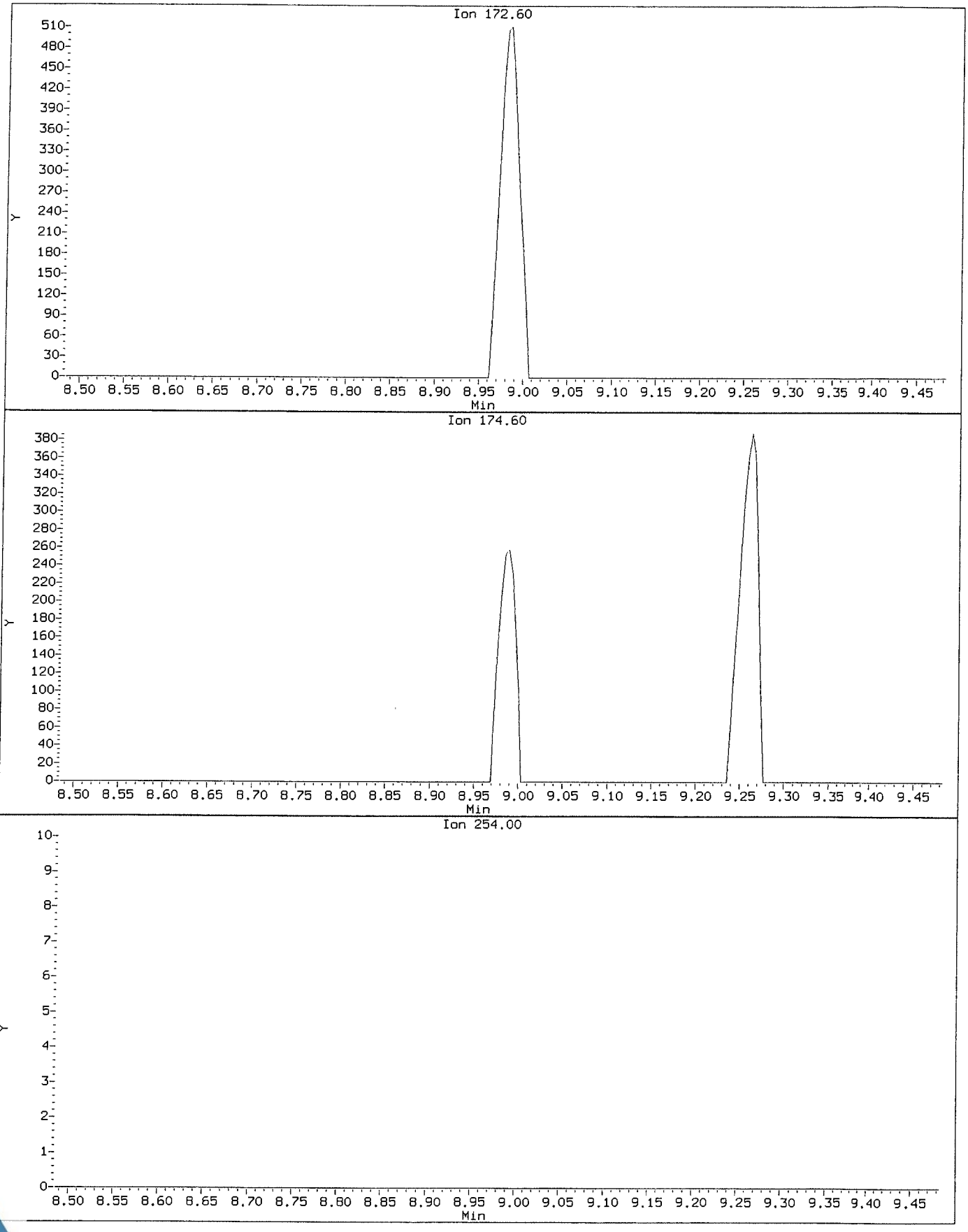
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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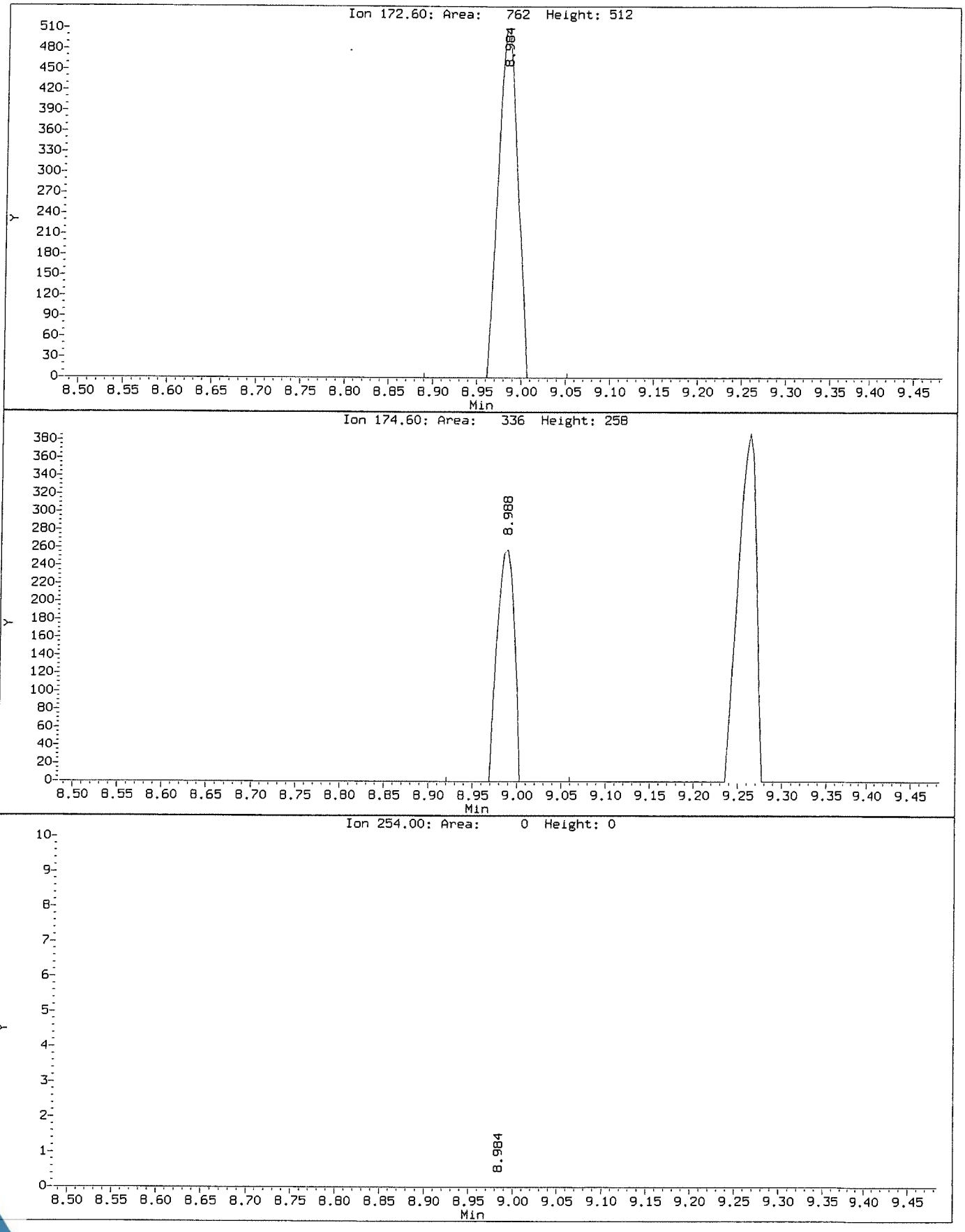
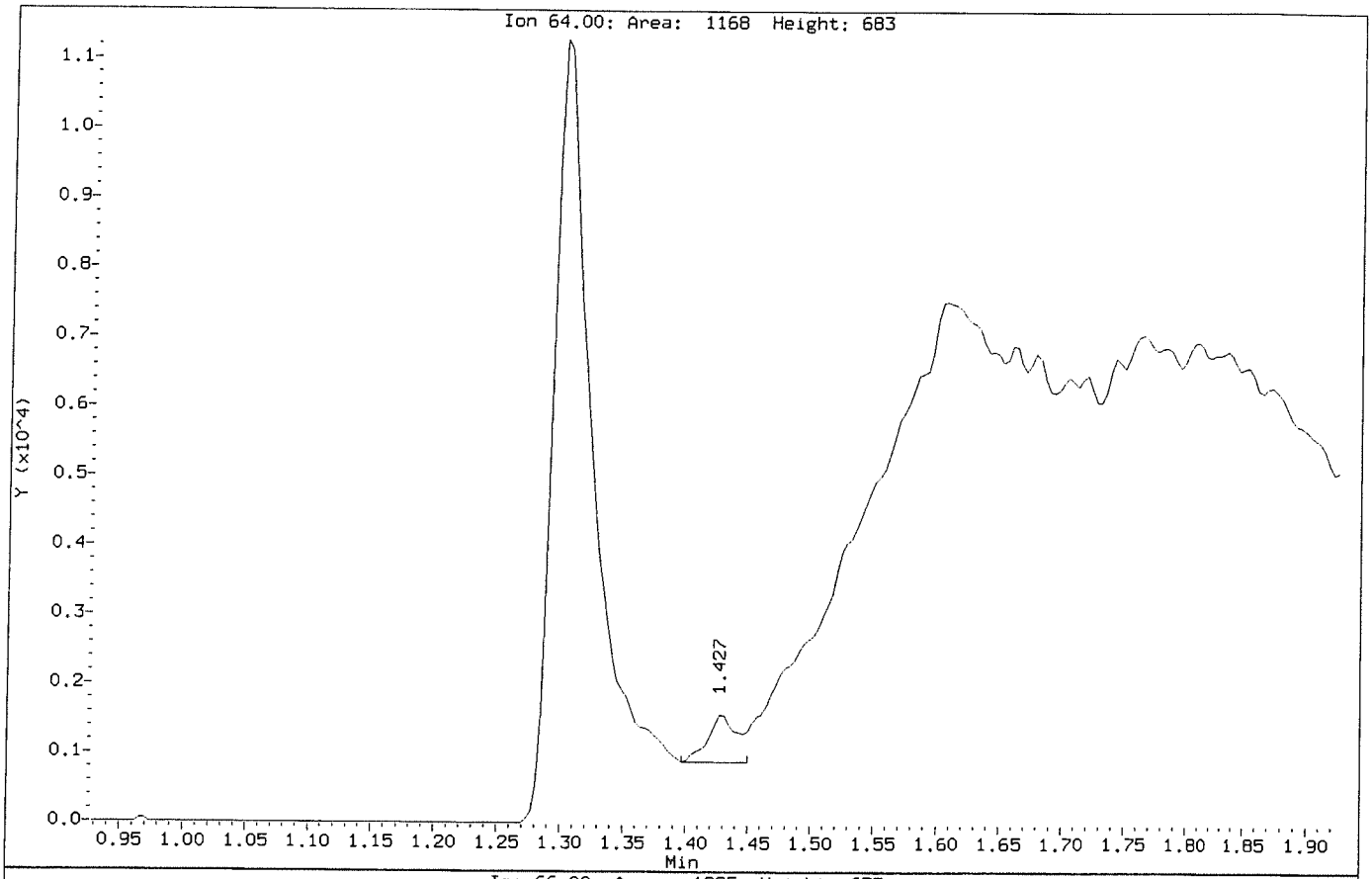
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

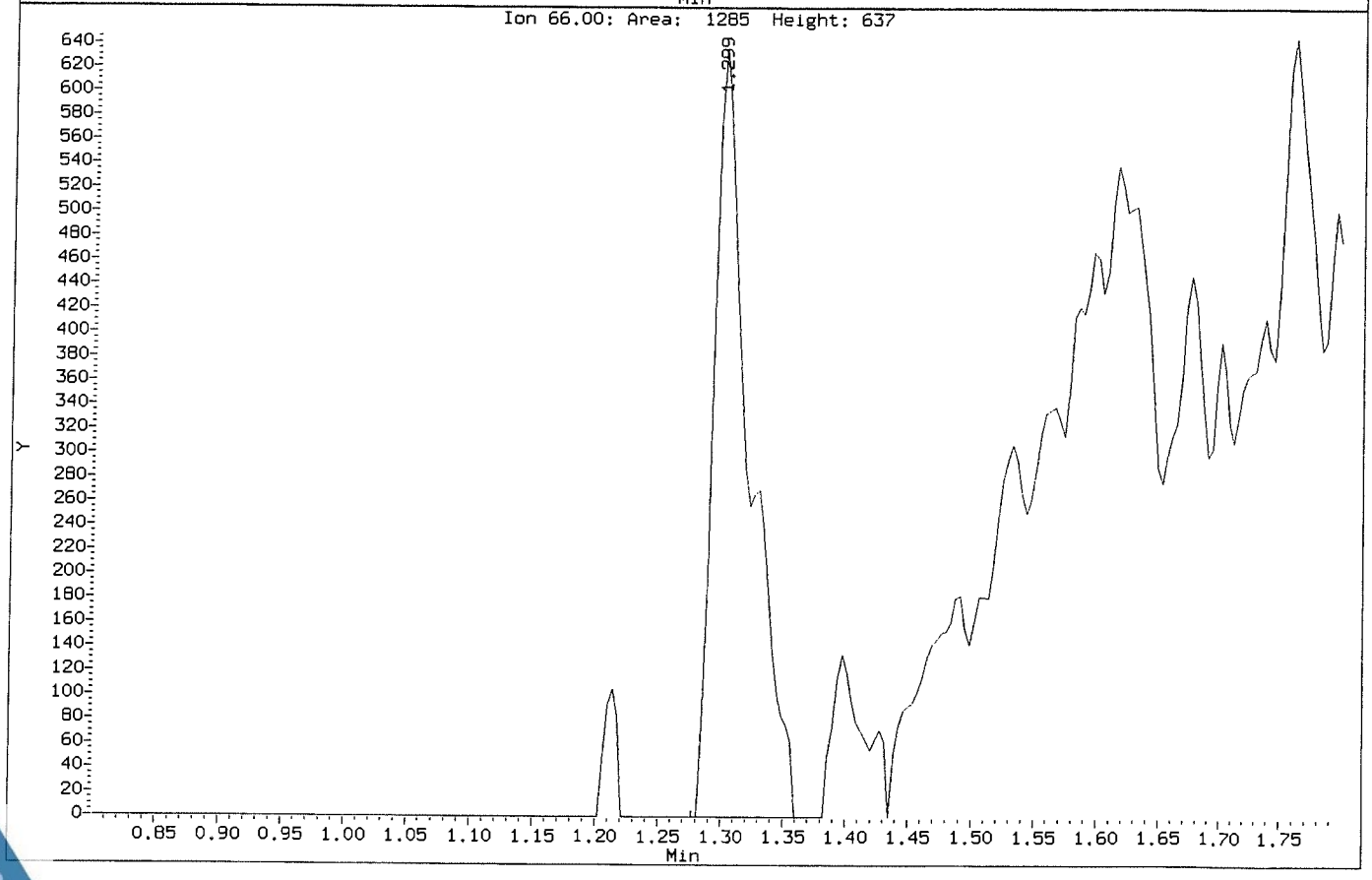
Compound: Bromoform
CAS Number: 75-25-2



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3



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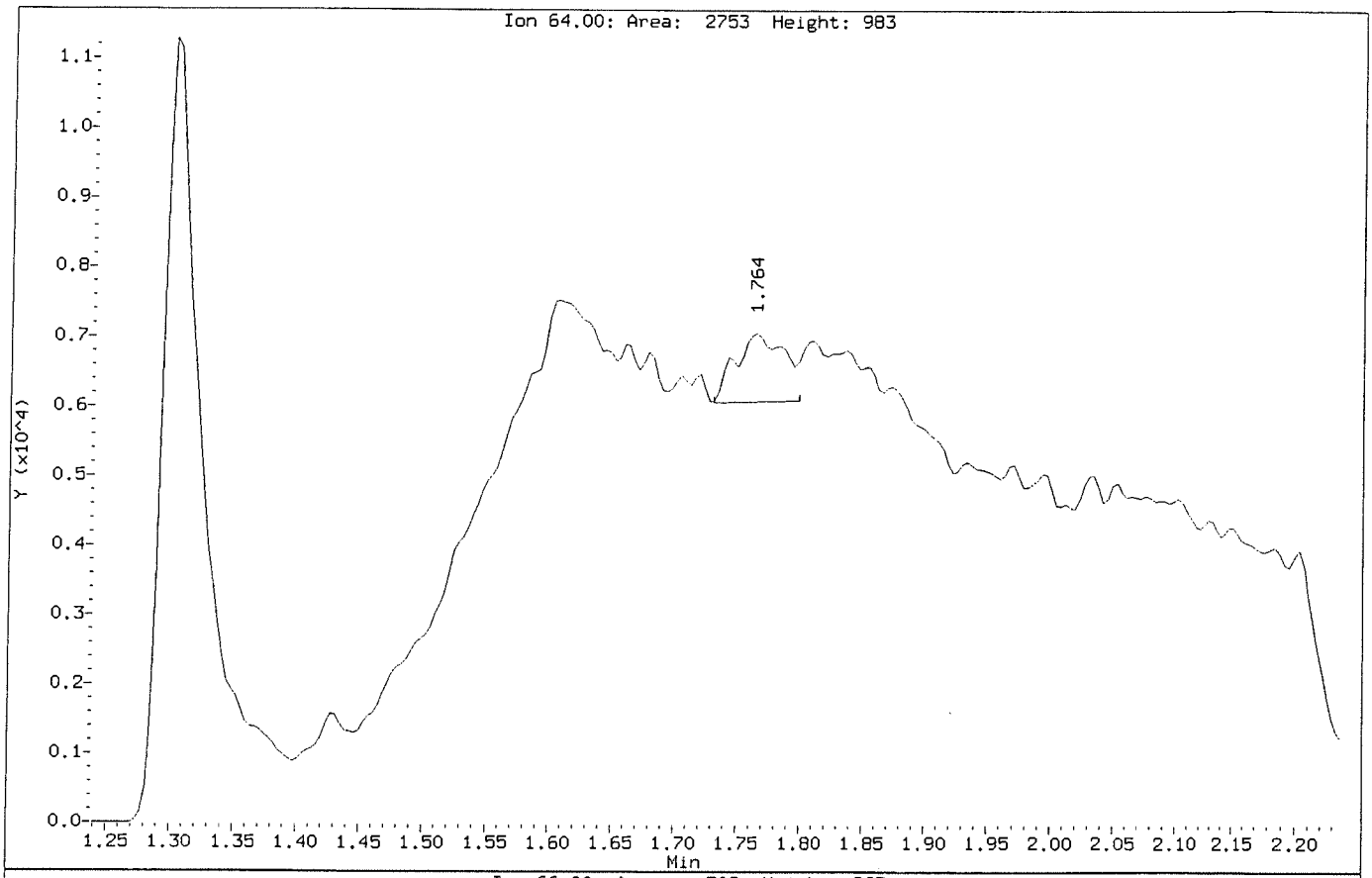
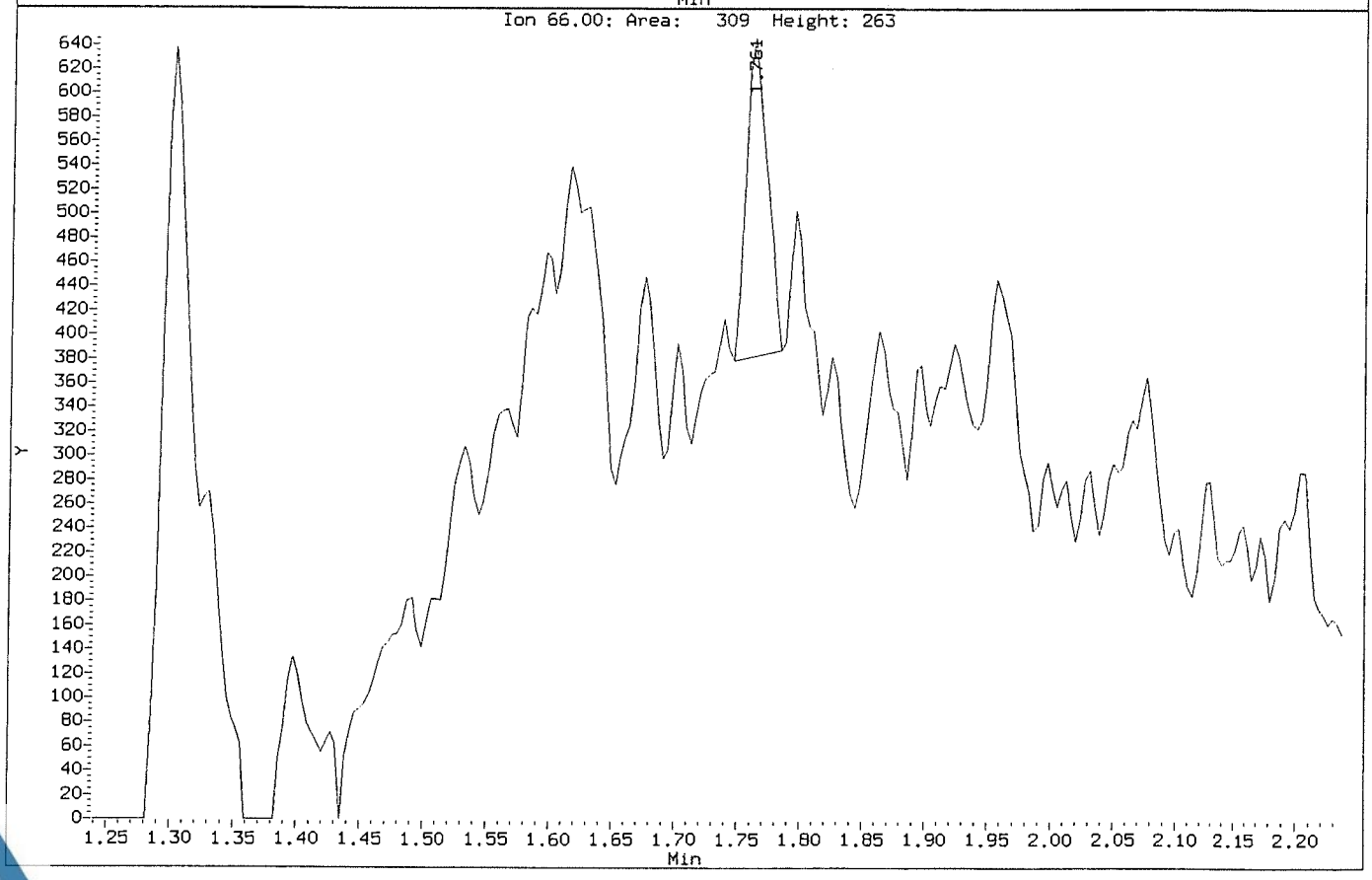
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3



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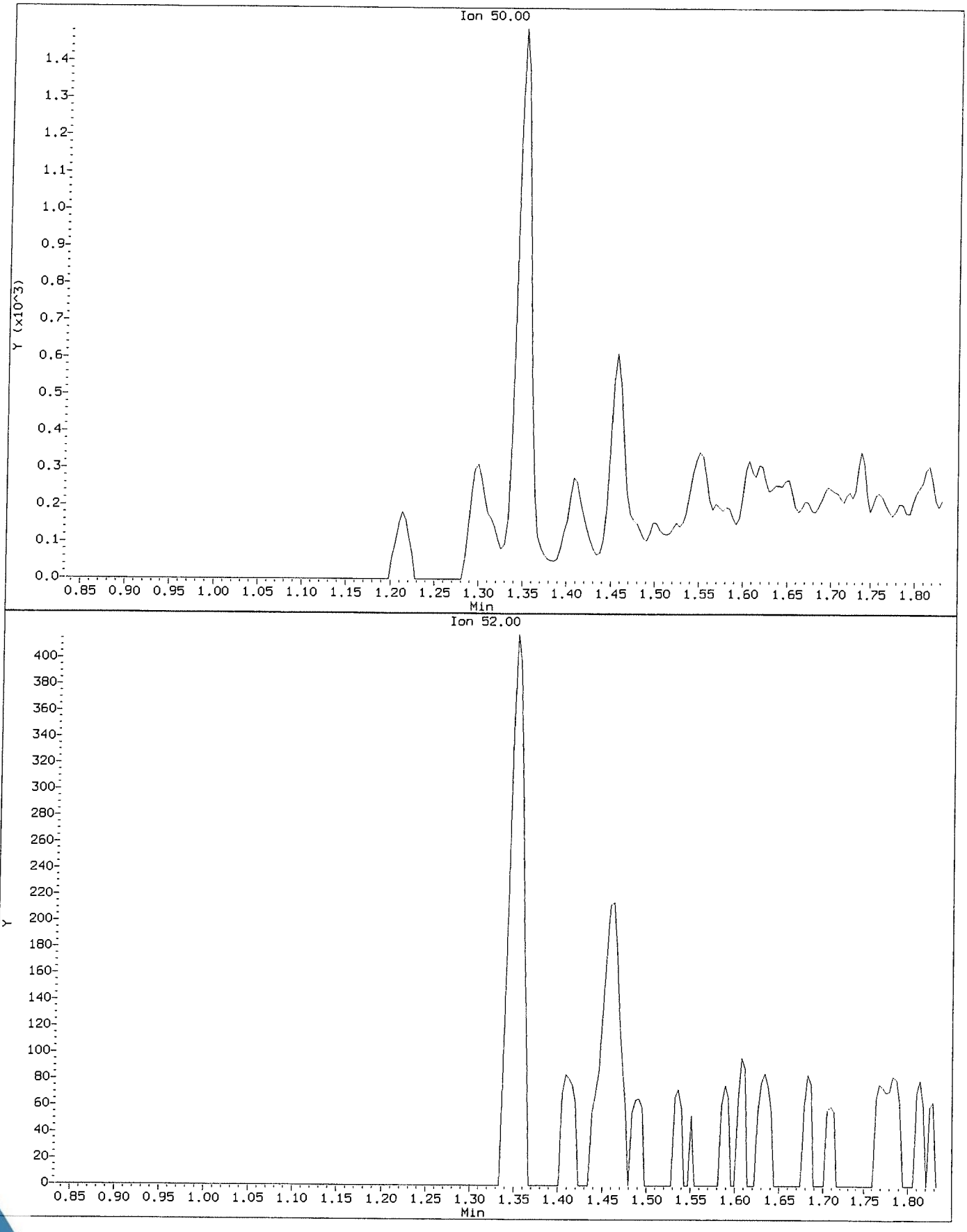
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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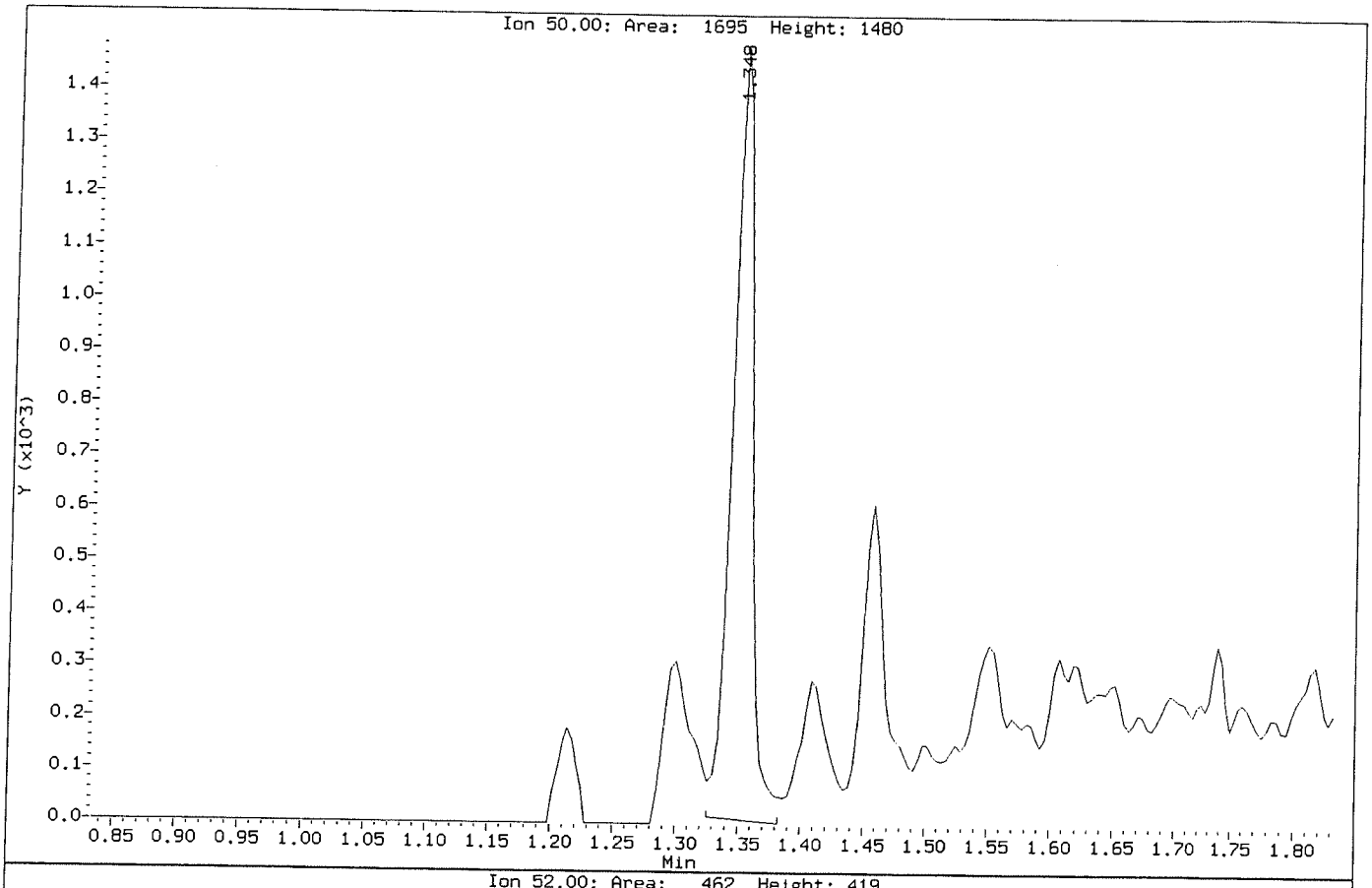
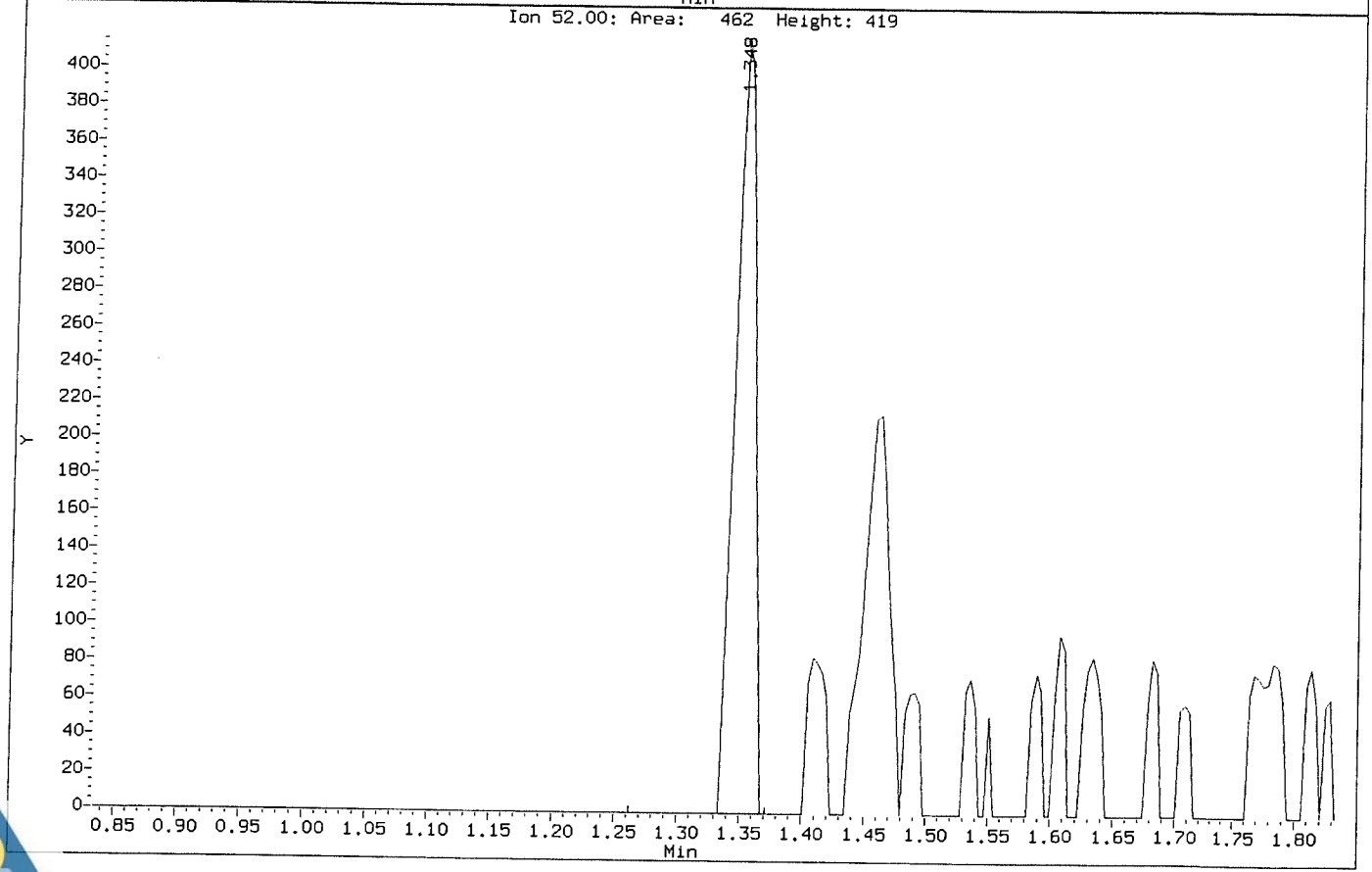
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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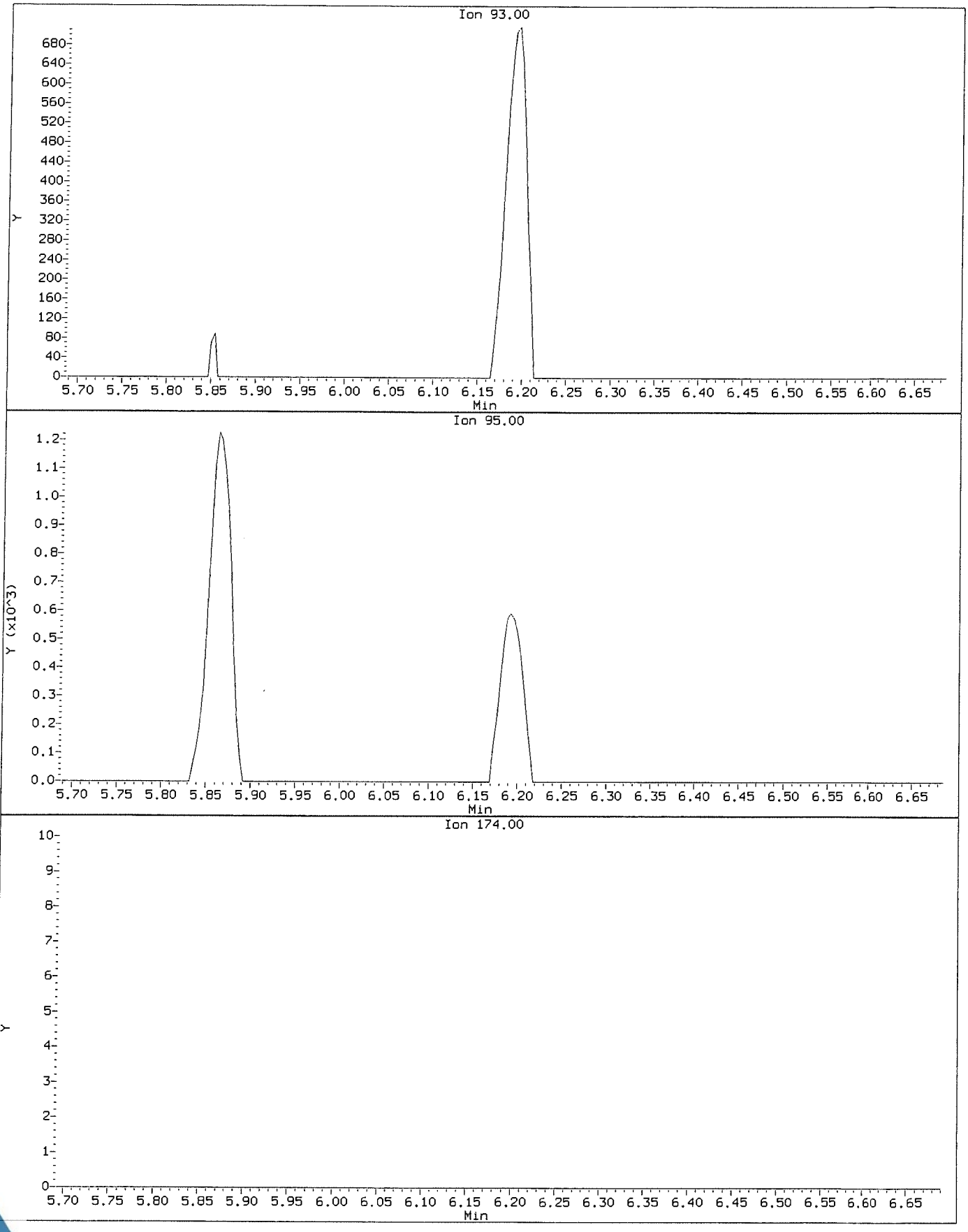
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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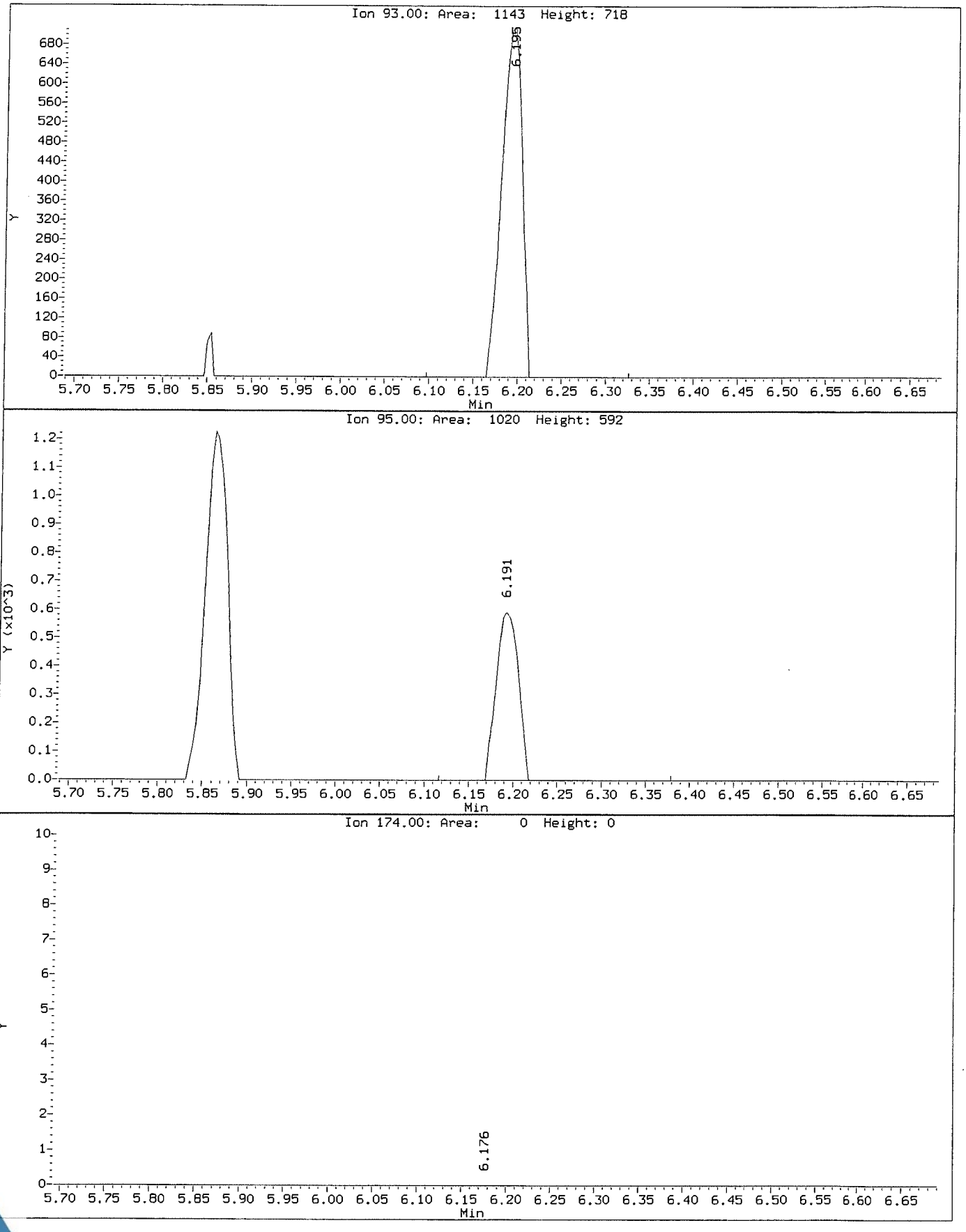
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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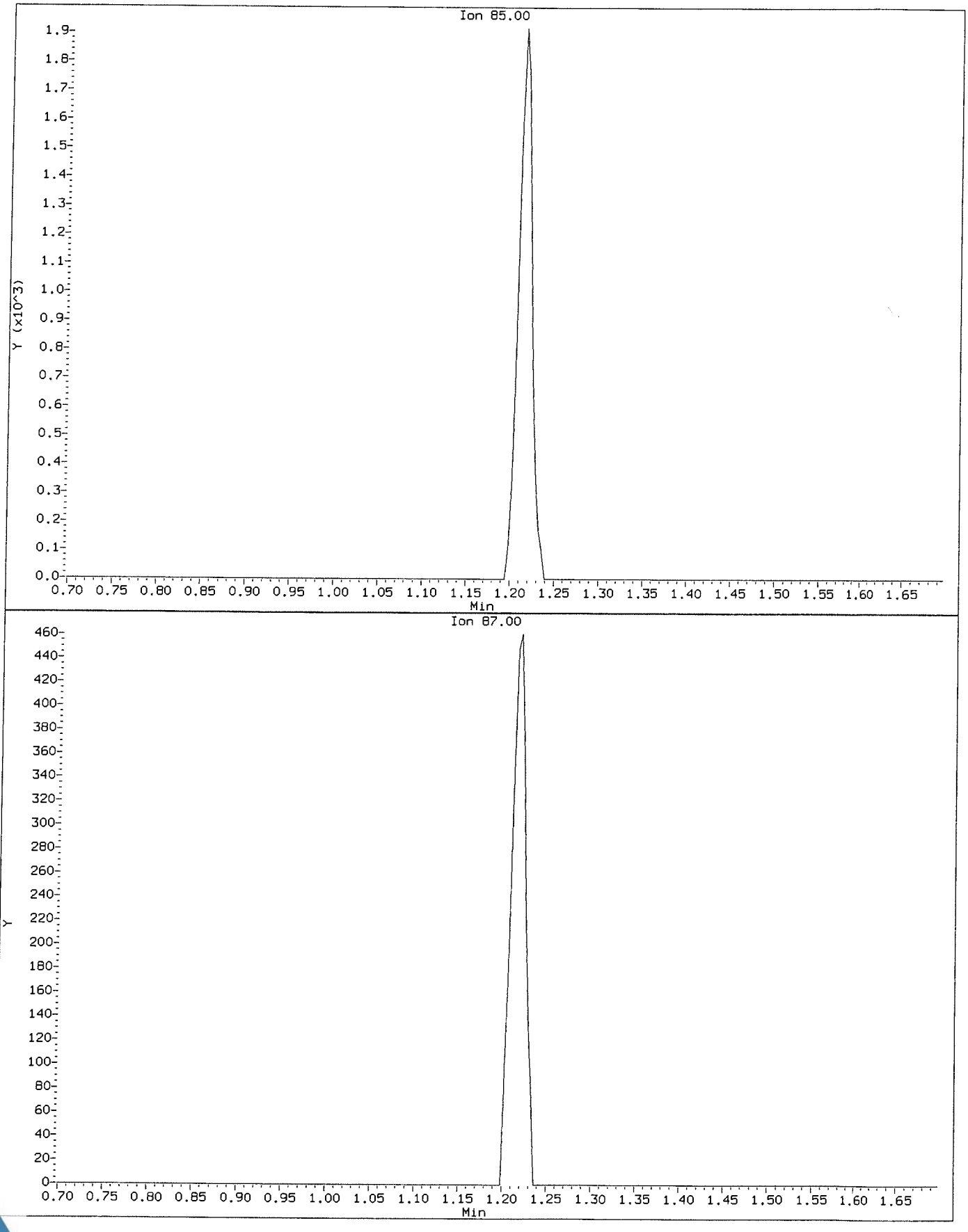
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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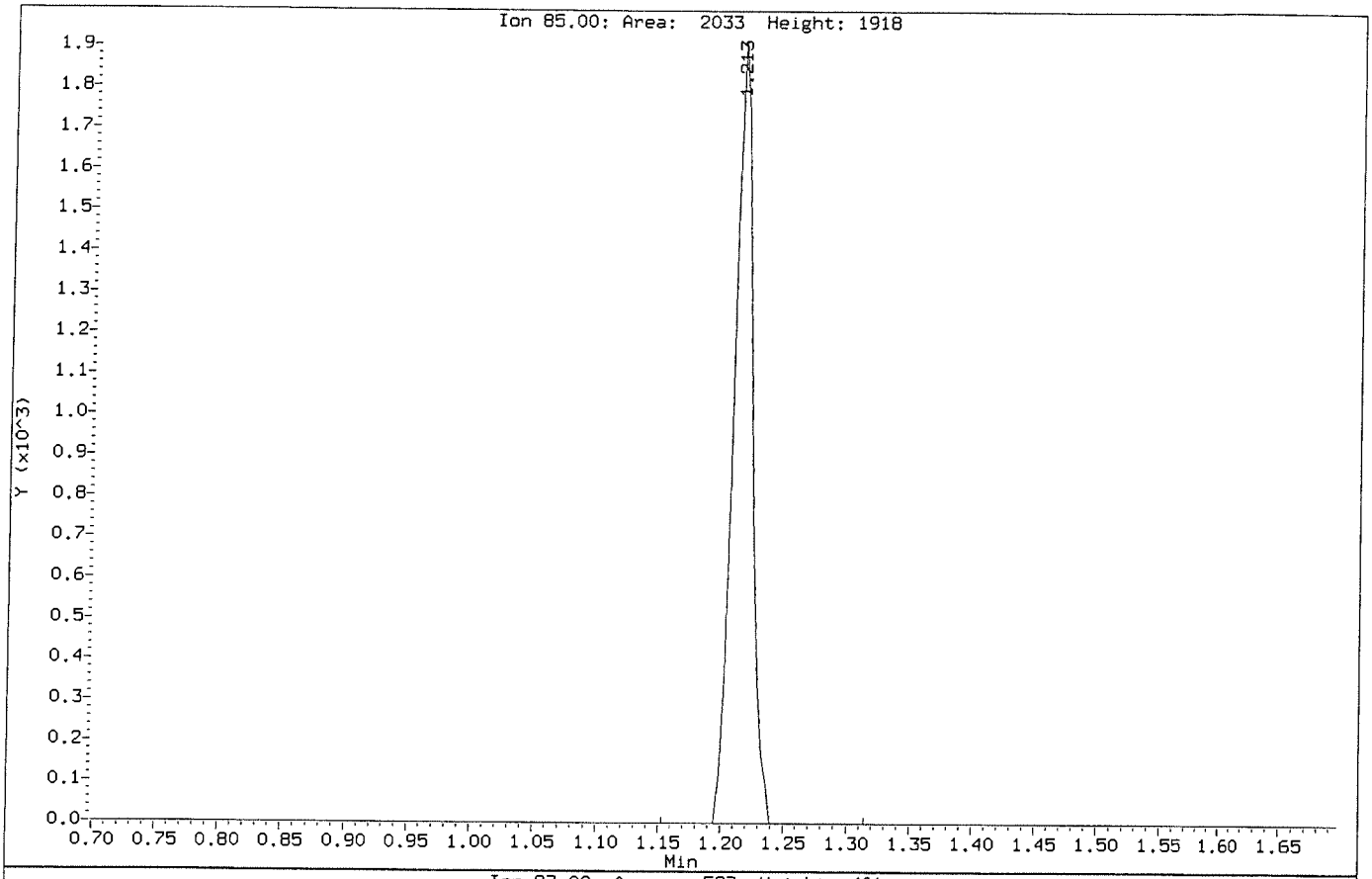
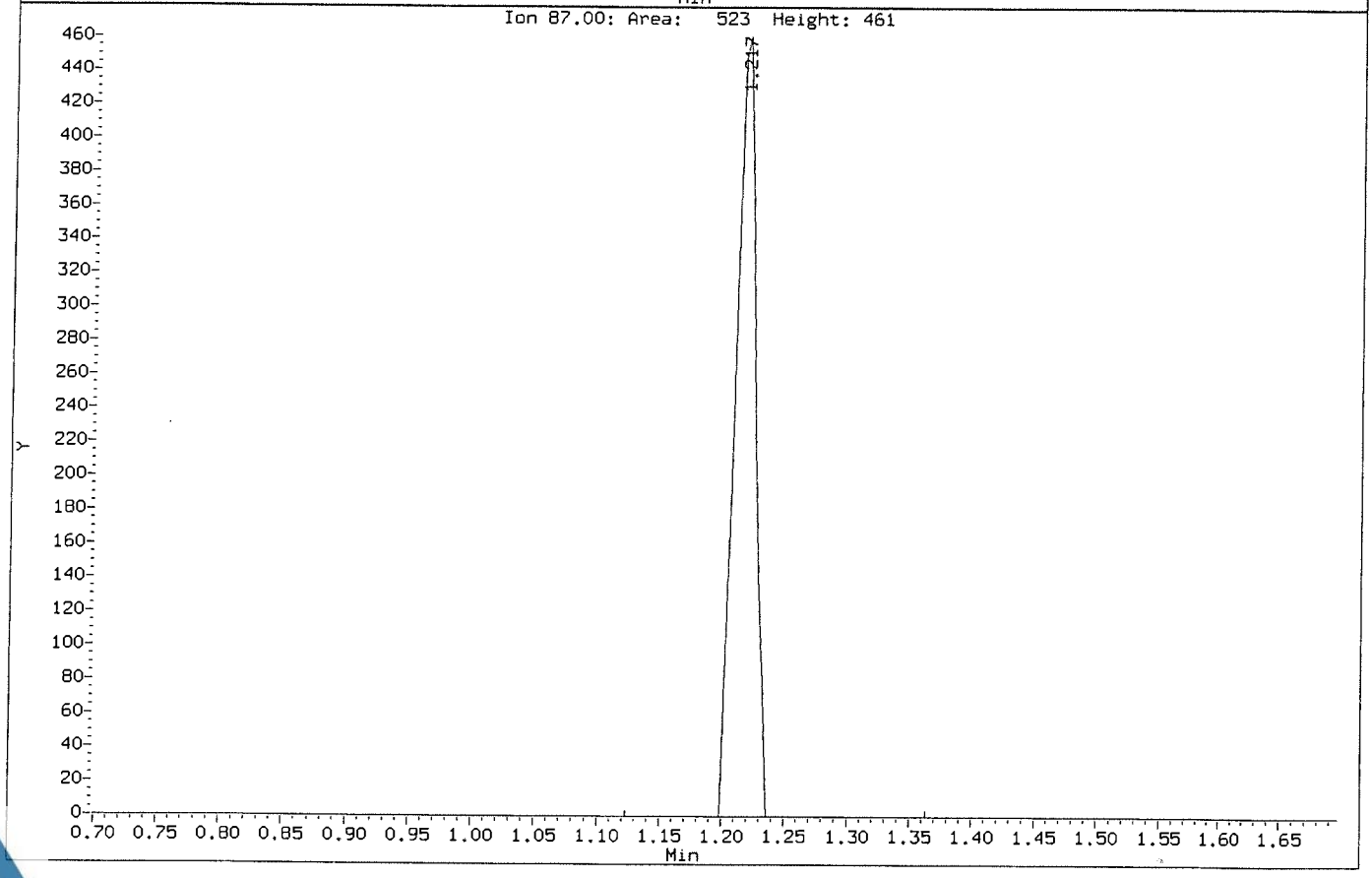
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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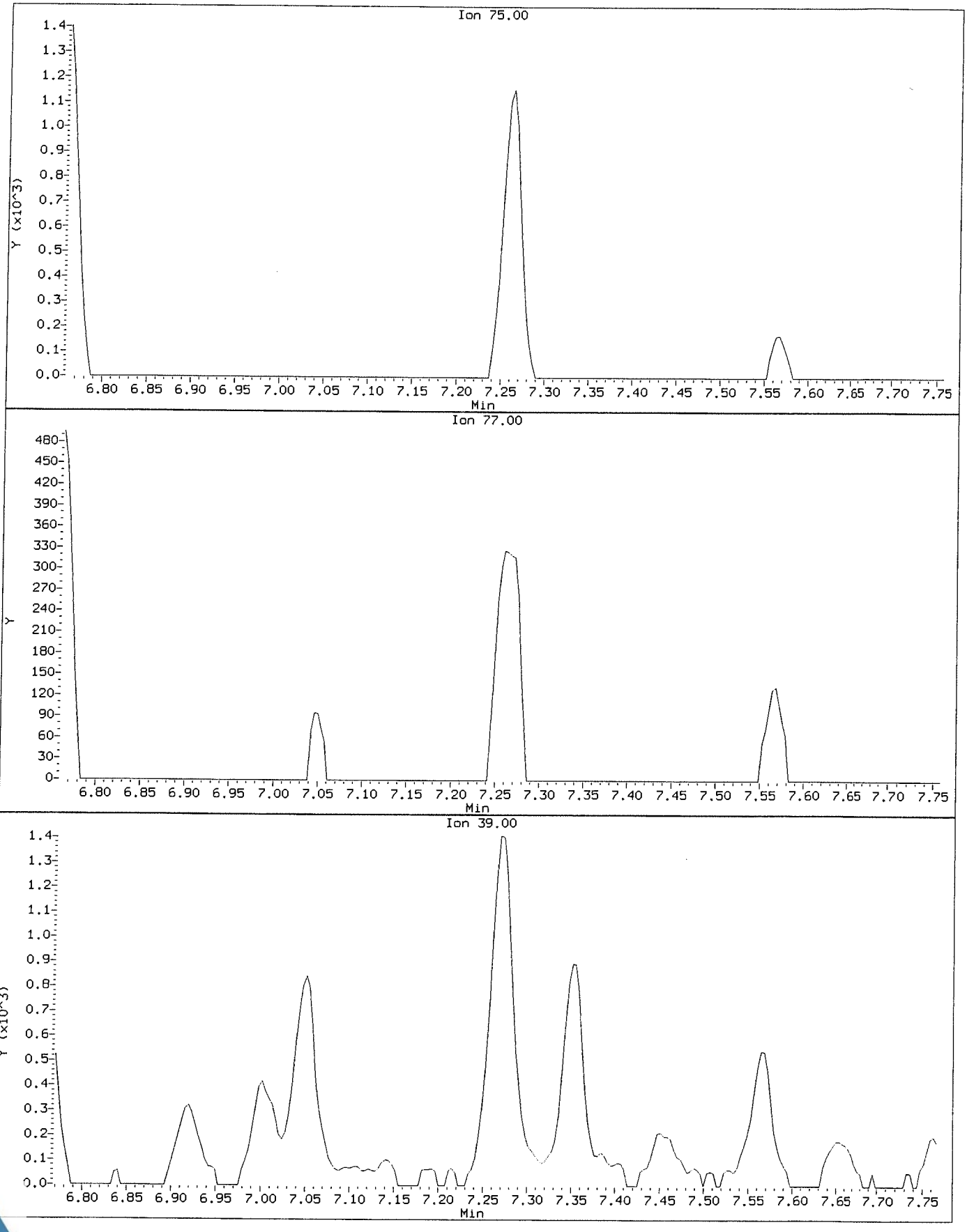
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



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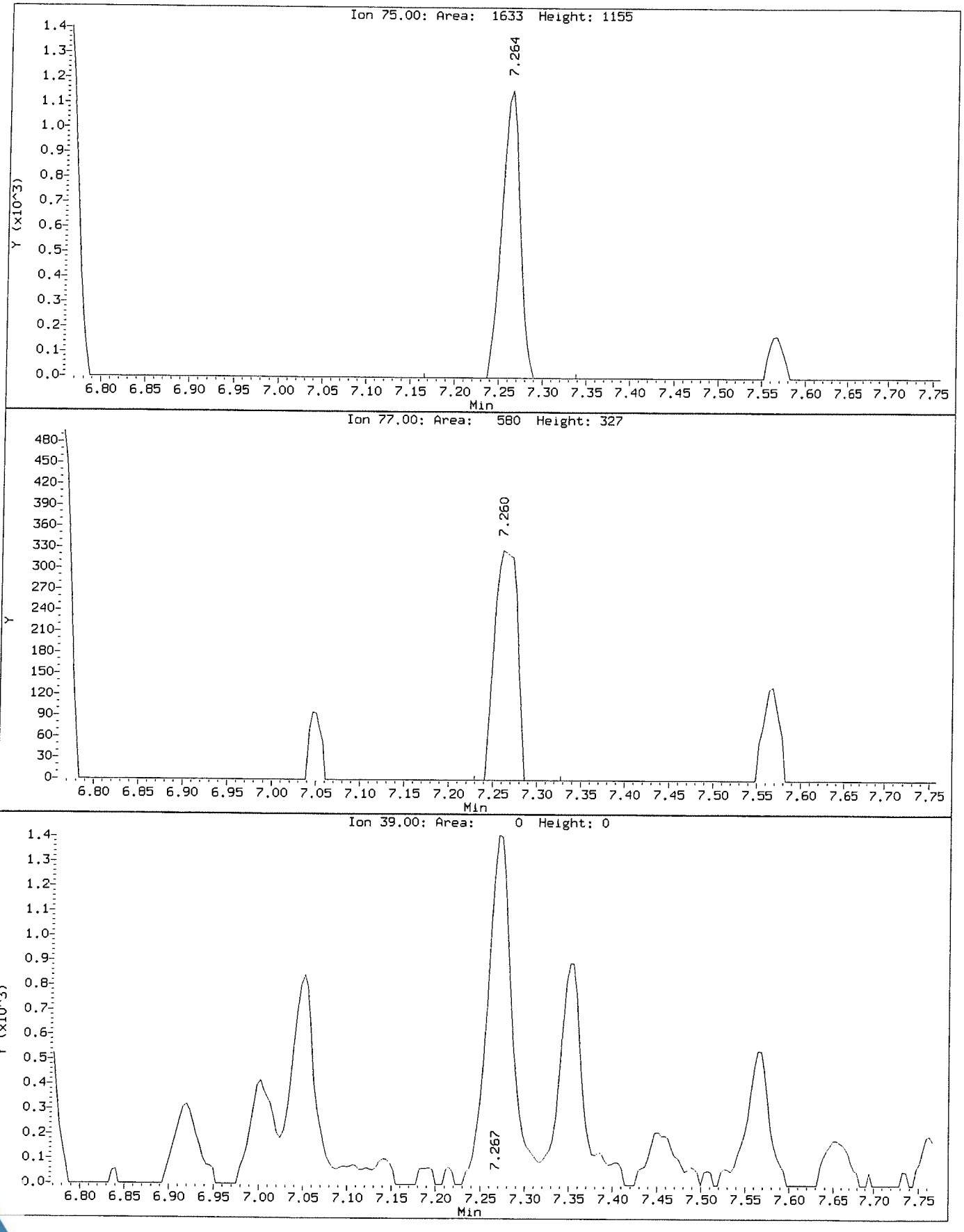
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 21-DEC-2018 15:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 14:14 Cal File: U122103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

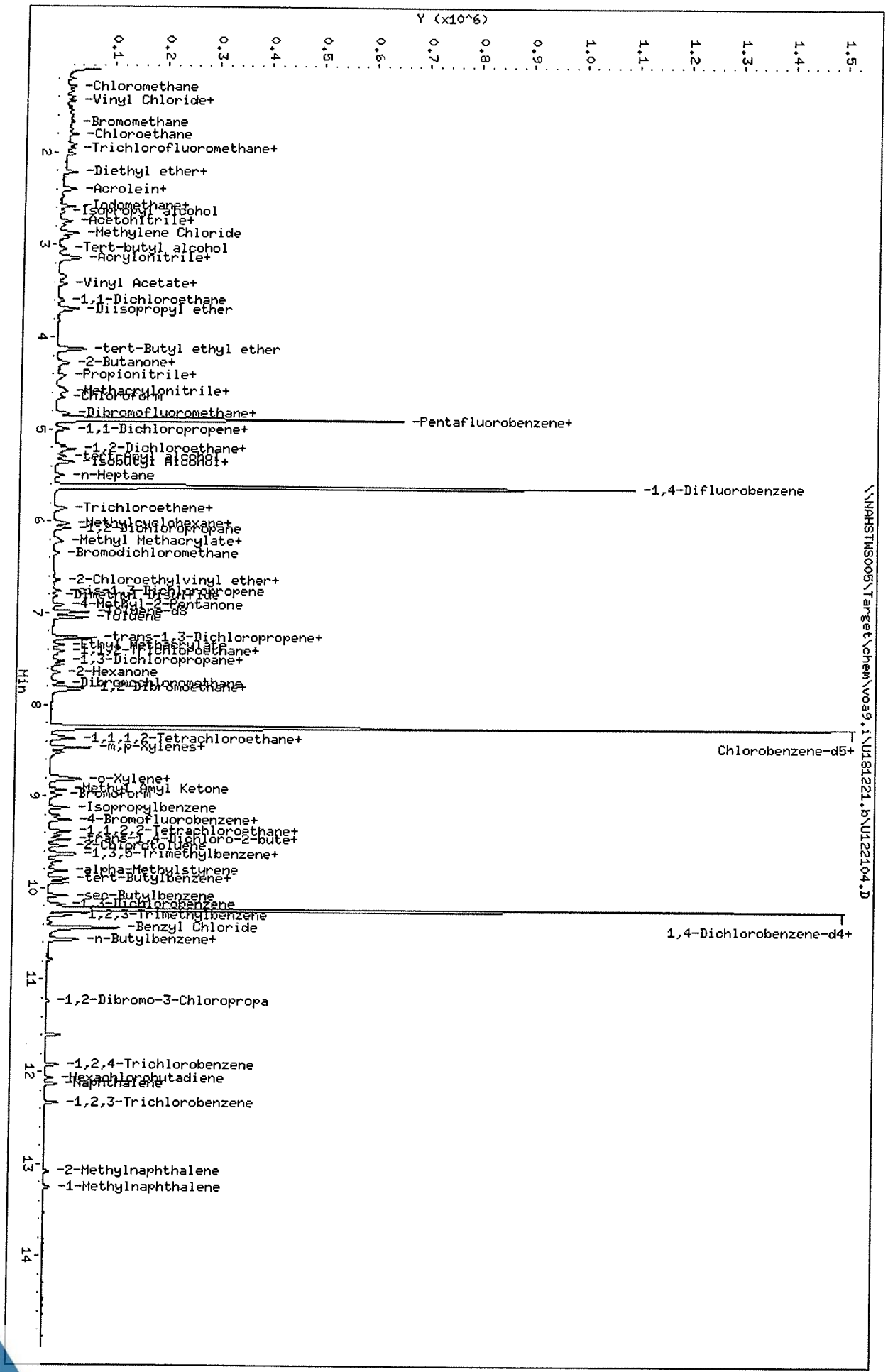
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 408613 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 790484 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 731112 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 336061 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.986) | 8005 | 1.00000 | 0.30(a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 10907 | 1.00000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 32175 | 1.00000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 12547 | 1.00000 | 0.36(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 4208 | 1.00000 | 1.48(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 7082 | 1.00000 | 1.09(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 9134 | 1.00000 | 1.20(a) |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 4108 | 1.00000 | 1.18(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 5137 | 1.00000 | 1.17(a) |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 10662 | 1.00000 | 1.21(a) |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 4598 | 1.00000 | 1.18(a) |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 8232 | 1.00000 | 1.17(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 6631 | 1.00000 | 1.66(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 8706 | 1.00000 | 1.10(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 6820 | 1.00000 | 1.09(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 18977 | 1.00000 | 1.07(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 861 | 1.00000 | 2.16(a) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 5748 | 1.00000 | 1.14(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 11945 | 1.00000 | 1.19(a) |
| 33 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 8970 | 1.00000 | 0.54(a) |
| 42 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 6565 | 1.00000 | 1.17(a) |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 18075 | 1.00000 | 1.07(a) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 11430 | 1.00000 | 1.14(a) |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 10939 | 1.00000 | 1.16(a) |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 12811 | 1.00000 | 1.21(a) |
| 26 2,2-Dichloropropane | 77 | 4.272 | 4.272 | (0.873) | 6236 | 1.00000 | 1.17(a) |
| 24 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 6369 | 2.00000 | 0.00(a) |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 17719 | 1.00000 | 1.14(a) |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 8136 | 2.00000 | 2.00(a) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 20099 | 1.00000 | 1.12(a) |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 18371 | 1.00000 | 1.03(a) |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 12526 | 2.00000 | 2.14(a) |
| 10 Acetone | 43 | 2.480 | 2.480 | (0.507) | 5582 | 2.00000 | 0.58(a) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 24701 | 1.00000 | 1.17(a) |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 5982 | 1.00000 | 1.15(a) |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 2865 | 1.00000 | (a) |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 6221 | 1.00000 | 1.04(aM) |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 2343 | 1.00000 | 2.48(Ta) |
| 6 Bromomethane | 94 | 1.670 | 1.670 | (0.341) | 2293 | 1.00000 | 2.22(a) |
| 19 Carbon Disulfide | 76 | 2.585 | 2.585 | (0.528) | 33391 | 2.00000 | 2.35(a) |
| 34 Carbon Tetrachloride | 117 | 4.991 | 4.991 | (0.887) | 5463 | 1.00000 | 2.32(a) |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 16703 | 1.00000 | 1.18(a) |
| 7 Chloroethane | 64 | 1.749 | 1.749 | (0.357) | 3213 | 1.00000 | 1.36(aM) |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 10242 | 1.00000 | 1.20(a) |
| 3 Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 4689 | 1.00000 | 4.32(a) |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 6586 | 1.00000 | 1.22(a) |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 7273 | 1.00000 | 2.04(a) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 4051 | 1.00000 | 1.80(a) |
| 44 Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 3627 | 1.00000 | 1.12(aM) |
| 2 Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 6583 | 1.00000 | 1.78(a) |
| 61 Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 8132 | 1.00000 | 1.12(a) |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 2672 | 1.00000 | 1.12(a) |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 22547 | 1.00000 | 1.08(a) |
| 62 m,p-Xylenes | 106 | 8.470 | 8.470 | (1.027) | 19538 | 2.00000 | 2.20(a) |
| 17 Methylene Chloride | 84 | 2.866 | 2.866 | (0.586) | 8113 | 1.00000 | 0.44(a) |
| 87 n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 18944 | 1.00000 | 1.10(a) |
| 73 n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 27852 | 1.00000 | 1.10(a) |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 16505 | 1.00000 | 1.44(a) |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 10277 | 1.00000 | 1.15(a) |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 22753 | 1.00000 | 1.07(a) |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 15133 | 1.00000 | 1.01(a) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 15715 | 1.00000 | 1.07(a) |
| 56 Tetrachloroethene | 164 | 7.522 | 7.522 | (0.912) | 4775 | 1.00000 | 1.24(a) |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 24298 | 1.00000 | 1.11(a) |
| 20 trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 5920 | 1.00000 | 1.23(a) |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 5668 | 1.00000 | 2.35(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 6040 | 1.00000 | 1.18(a) |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 7922 | 1.00000 | 1.78(a) |
| 5 Vinyl Chloride | 62 | 1.415 | 1.415 | (0.289) | 6308 | 1.00000 | 2.03(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Date : 21-DEC-2018 15:03
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

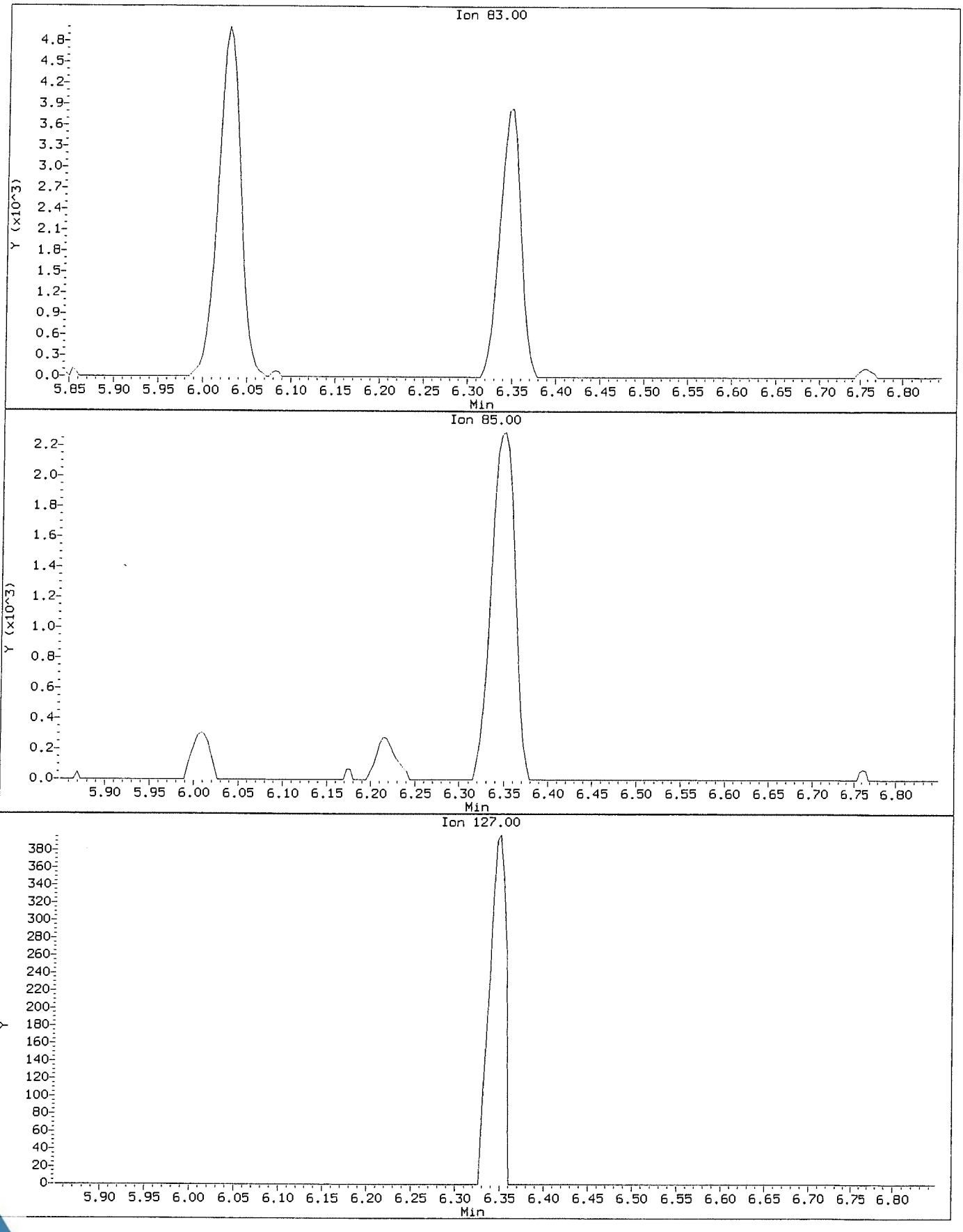
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D

Instrument: VOA9.i

Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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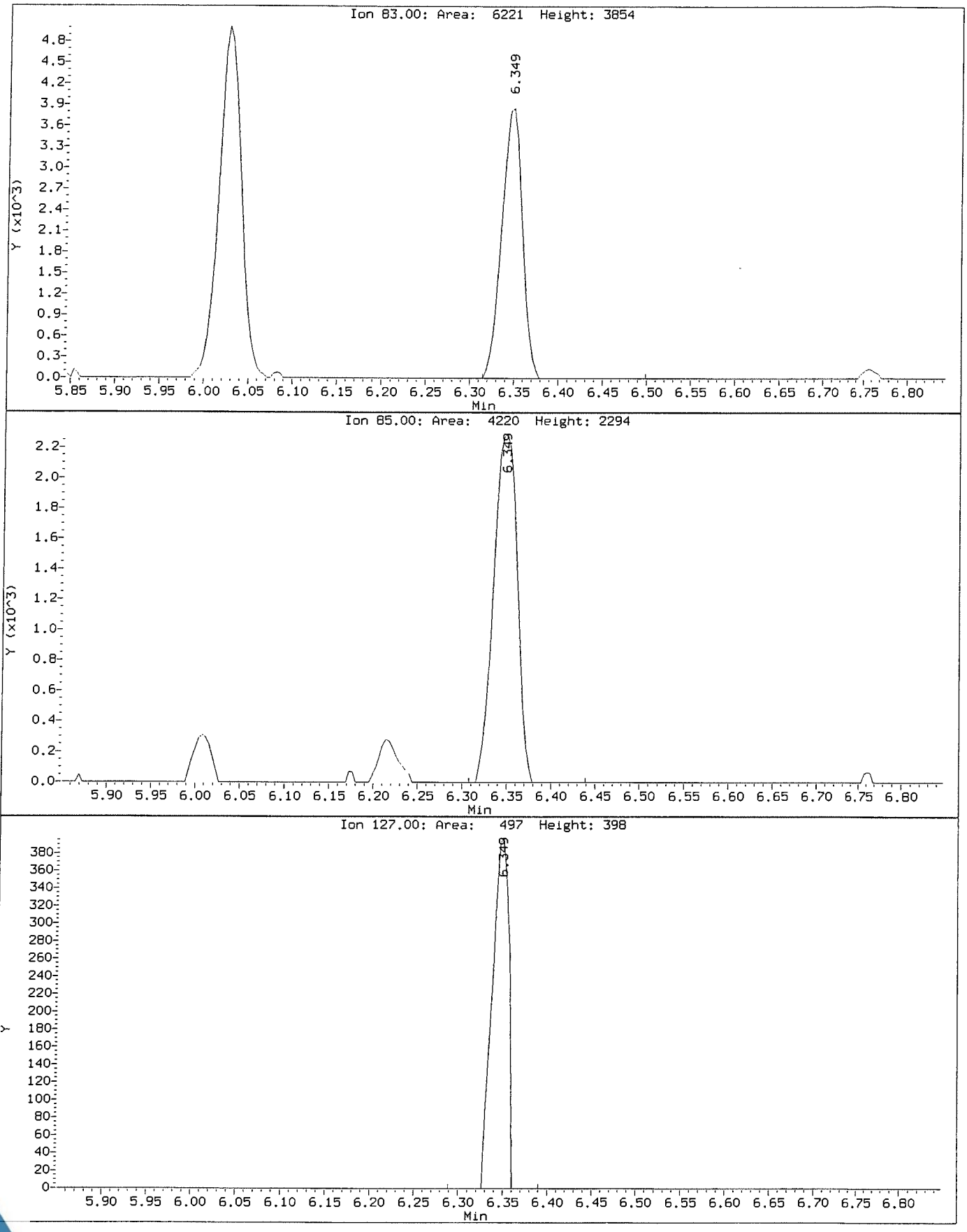
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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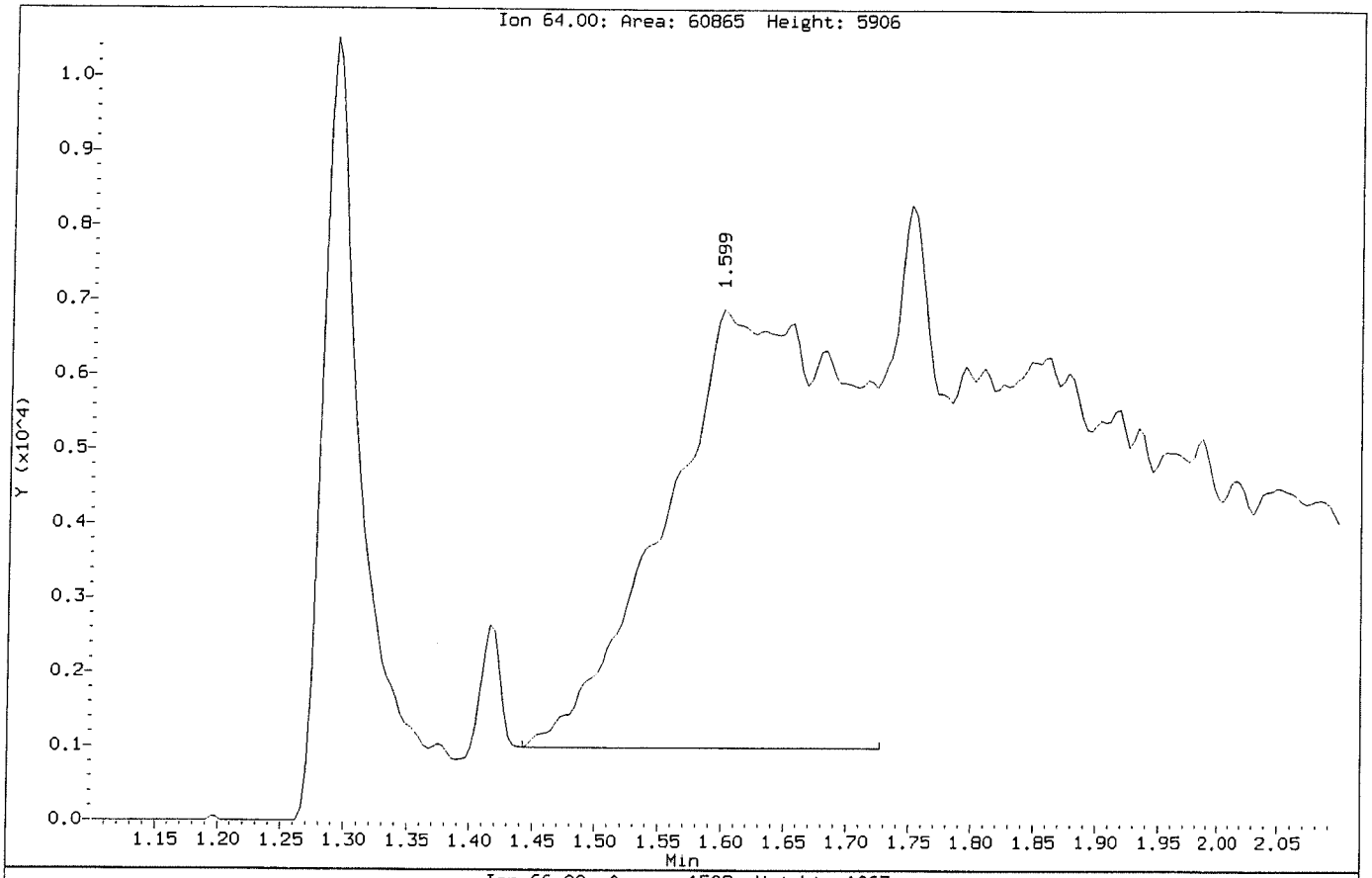
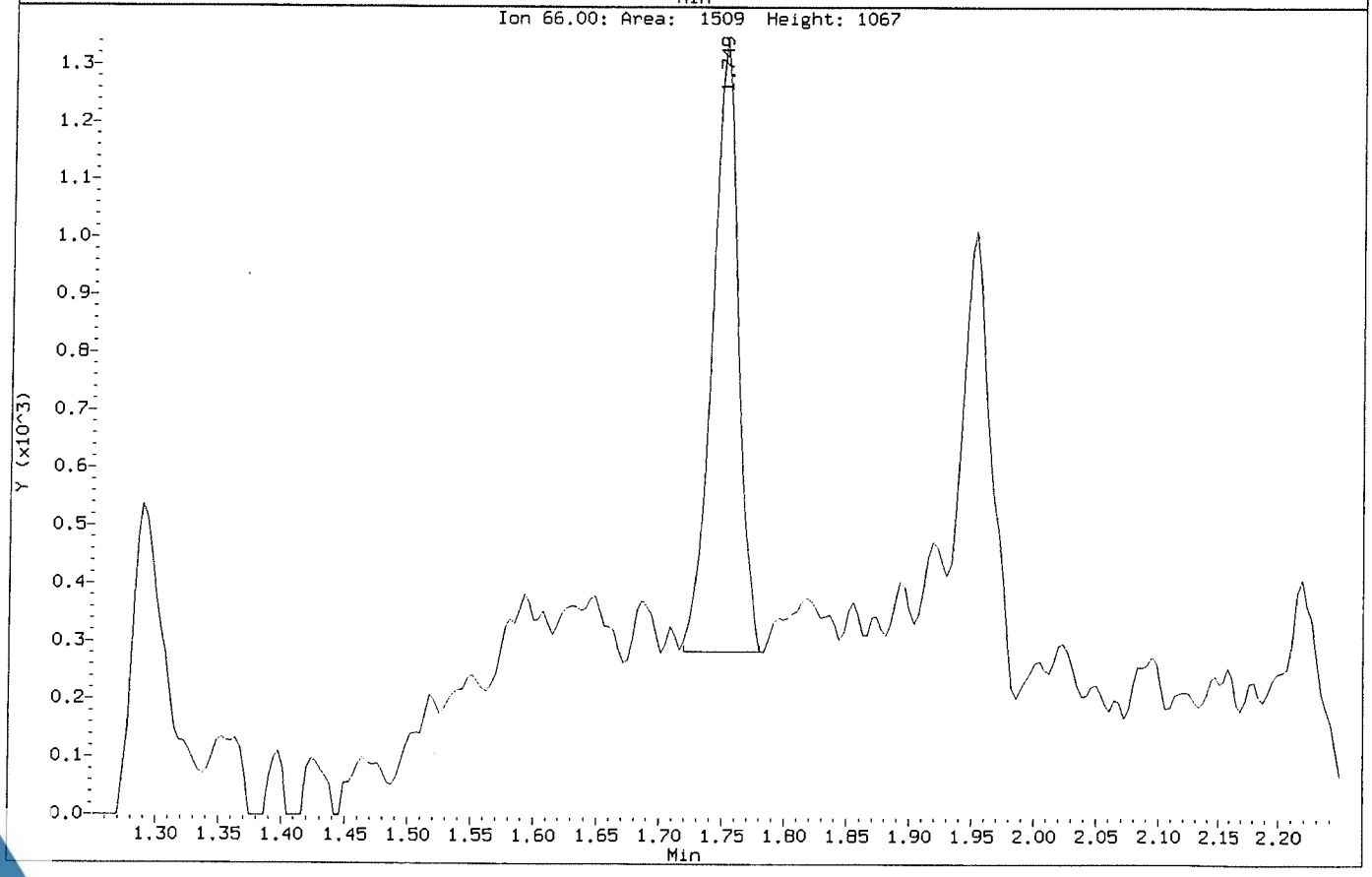
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



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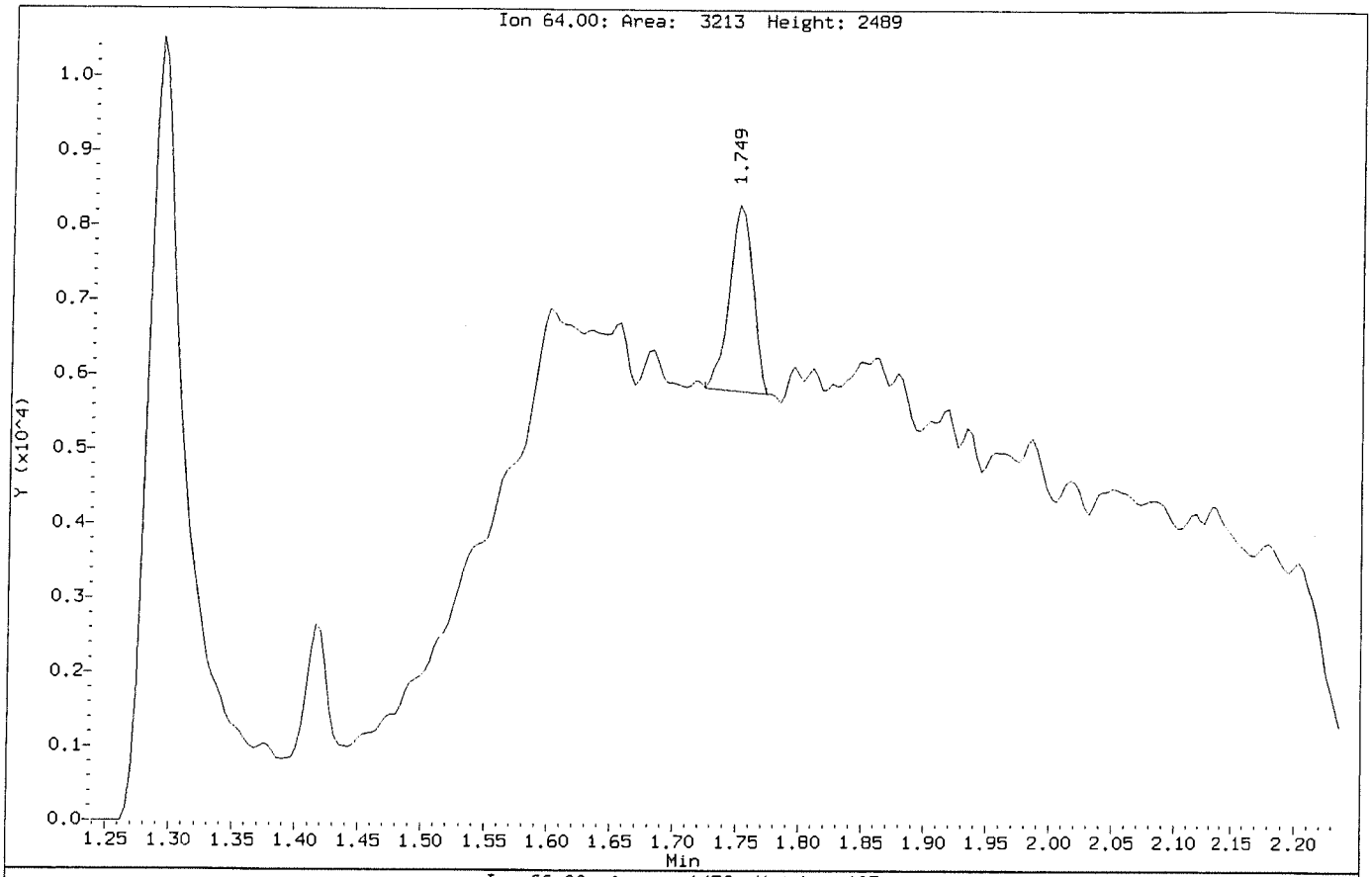
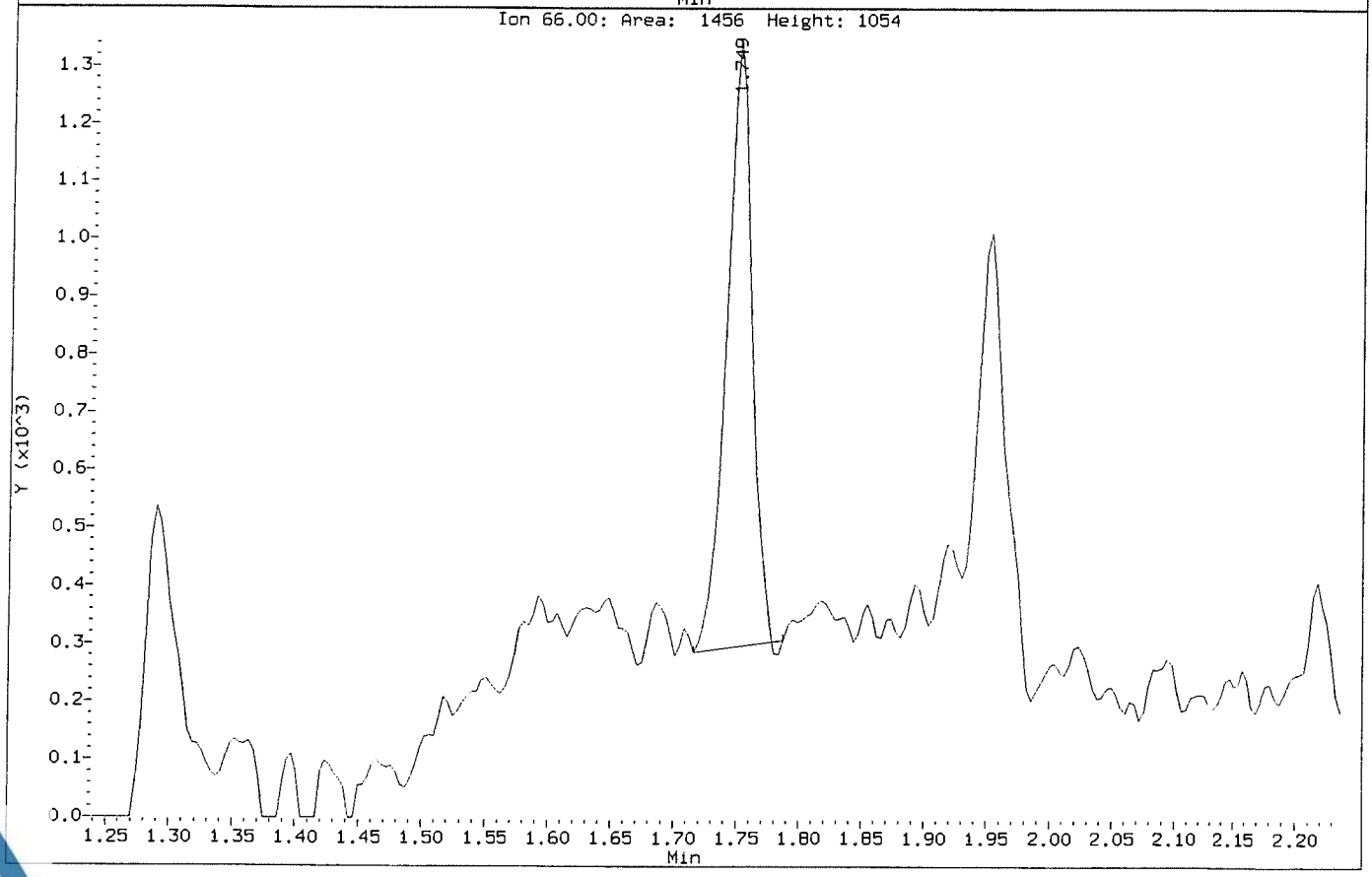
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



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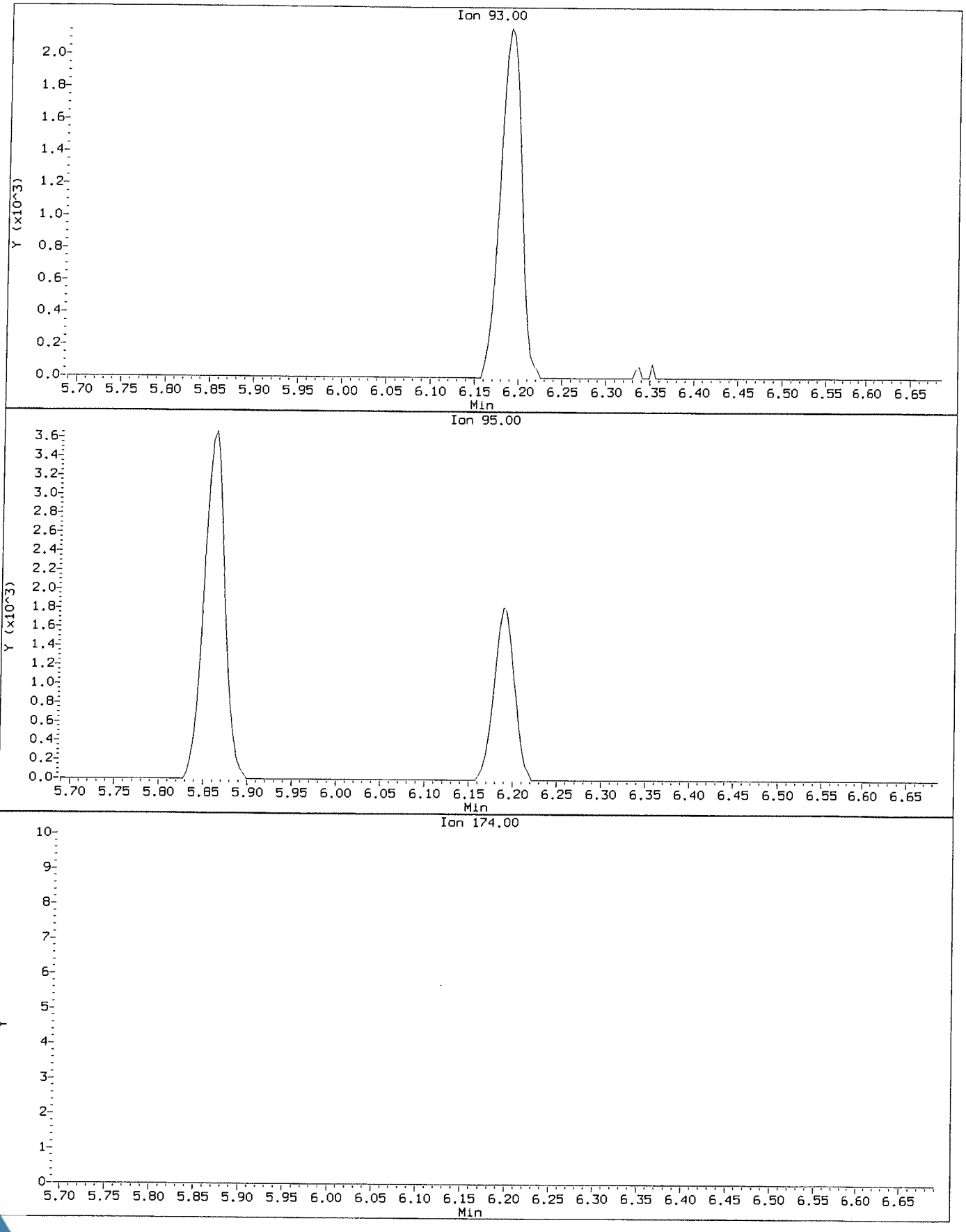
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



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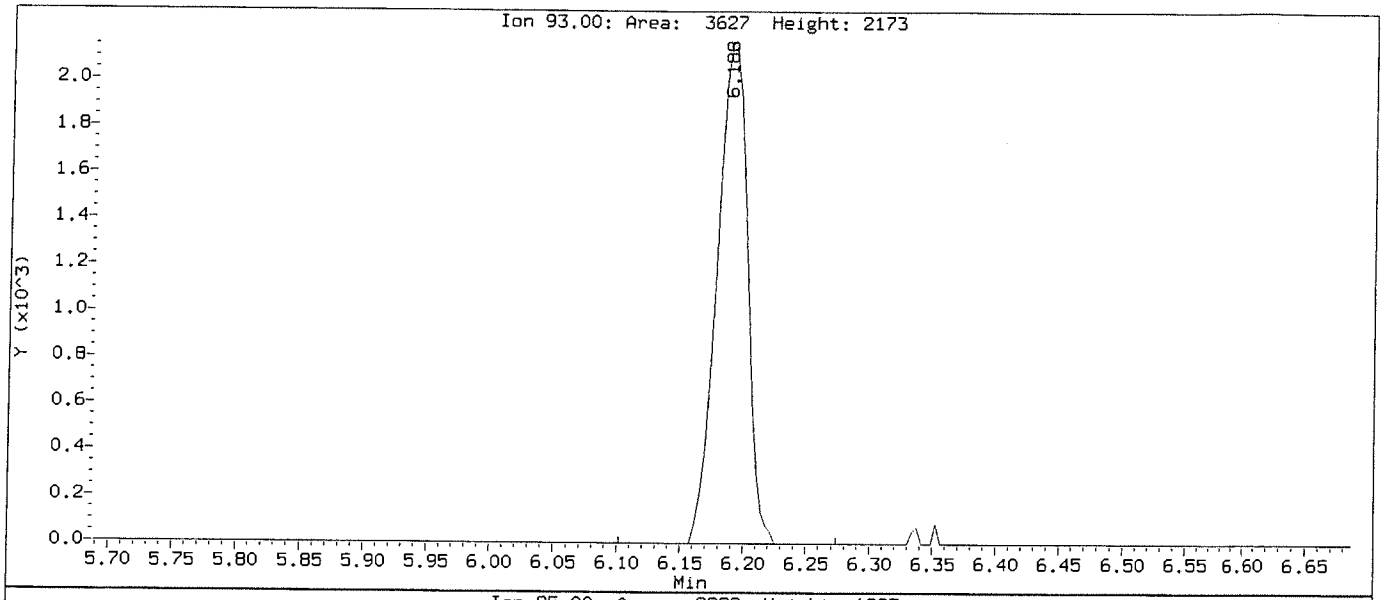
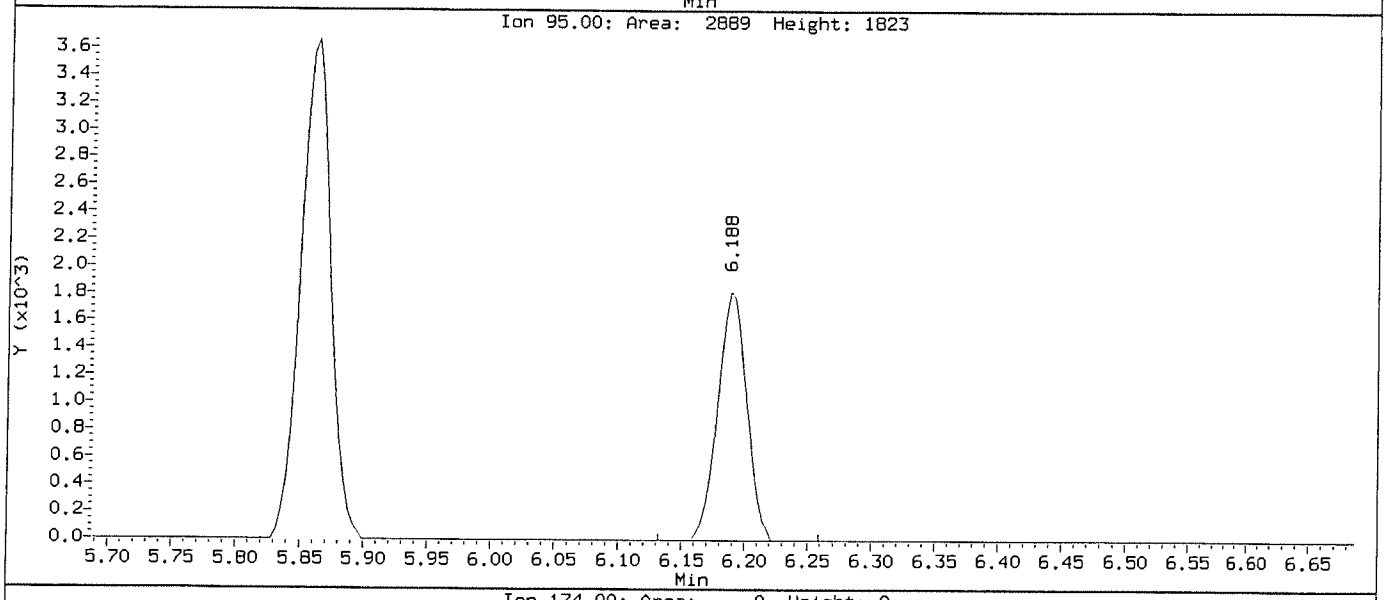
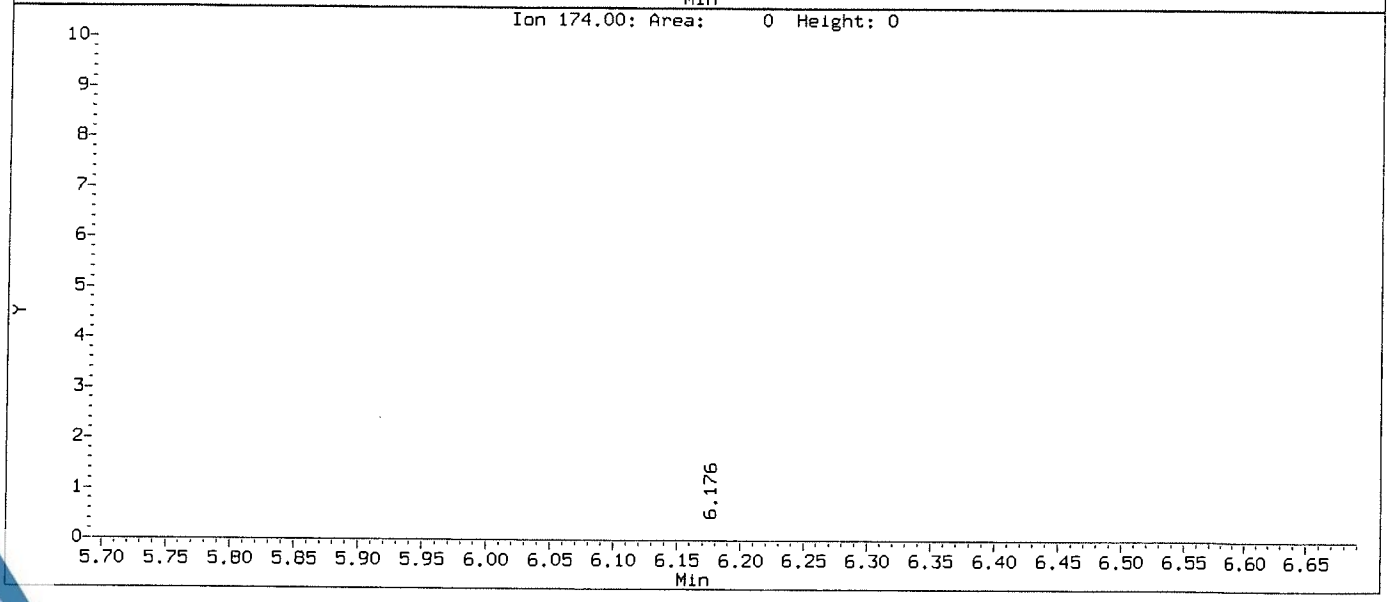
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 21-DEC-2018 15:28
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:03 Cal File: U122104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

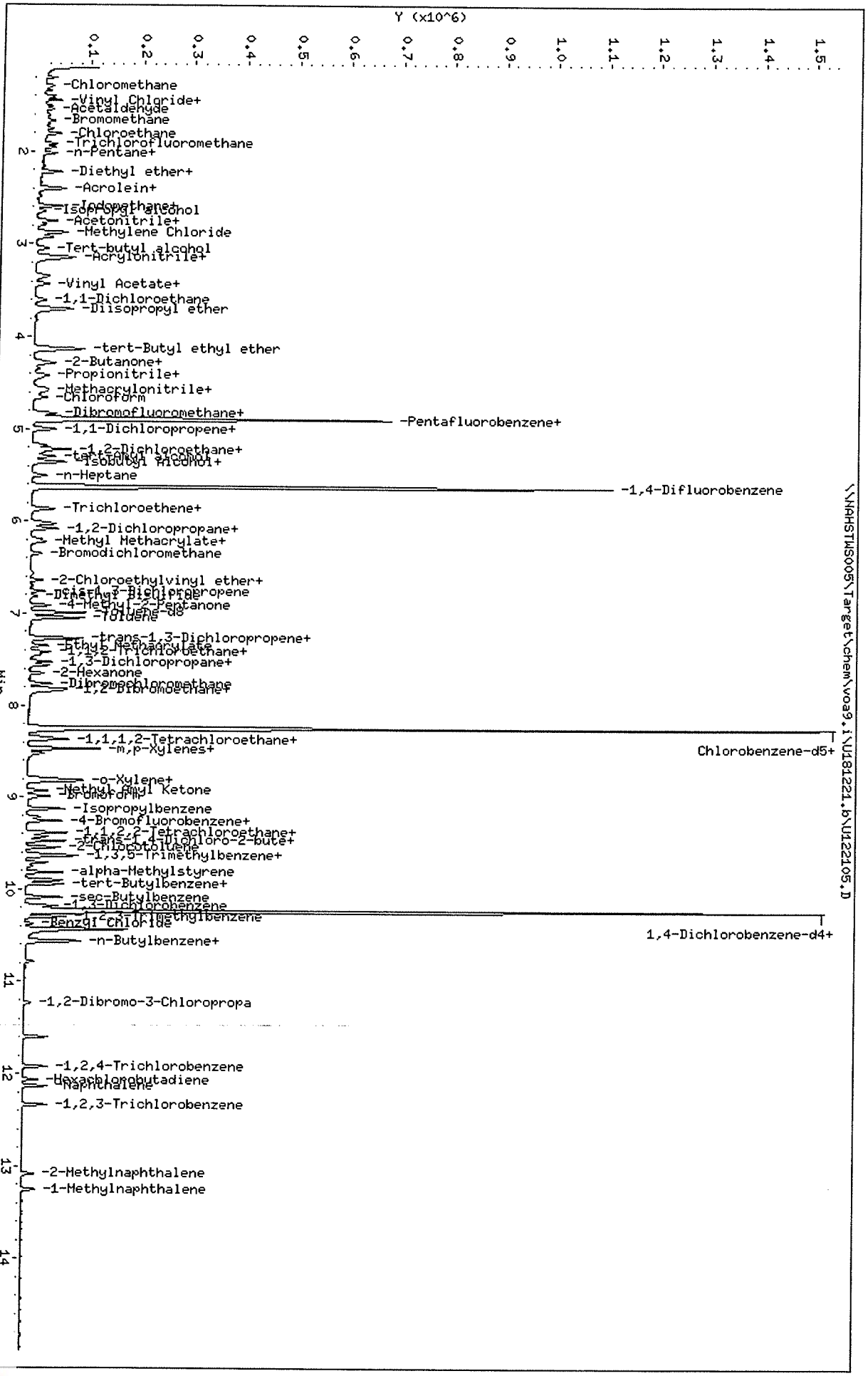
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 416245 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 790380 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 728875 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 340088 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 12720 | 2.00000 | 1.32(a) |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 17881 | 2.00000 | 0.99(a) |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 54444 | 2.00000 | 1.21(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 20092 | 2.00000 | 1.45(a) |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.347 | 8.347 | (1.012) | 8522 | 2.00000 | 2.40(a) |
| | 31 1,1,1-Trichloroethane | 97 | 4.827 | 4.827 | (0.986) | 12904 | 2.00000 | 1.96(a) |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 16933 | 2.00000 | 2.21(a) |
| | 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 7489 | 2.00000 | 2.11(a) |
| | 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 9254 | 2.00000 | 2.13(a) |
| | 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 19553 | 2.00000 | 2.18(a) |
| | 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.491) | 8761 | 2.00000 | 2.21(a) |
| | 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 15087 | 2.00000 | 2.14(a) |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 12385 | 2.00000 | 2.54(a) |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 16368 | 2.00000 | 2.05(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 12313 | 2.00000 | 1.95(a) |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 36129 | 2.00000 | 2.03(a) |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 1910 | 2.00000 | 3.02(a) |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 10069 | 2.00000 | 2.01(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 21852 | 2.00000 | 2.16(a) |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 15708 | 2.00000 | 1.50(a) |
| 42 1,2-Dichloropropane | 63 | 6.079 | 6.079 | (1.081) | 11593 | 2.00000 | 2.07(a) |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 33264 | 2.00000 | 1.94(a) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 21833 | 2.00000 | 2.16(a) |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 19804 | 2.00000 | 2.11(a) |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 22897 | 2.00000 | 2.15(a) |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 10414 | 2.00000 | 1.92(a) |
| 24 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 11299 | 4.00000 | 1.81(a) |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 32538 | 2.00000 | 2.07(a) |
| 52 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 15773 | 4.00000 | 3.89(a) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 38000 | 2.00000 | 2.09(a) |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 34224 | 2.00000 | 1.90(a) |
| 45 4-Methyl-2-Pentanone | 43 | 6.915 | 6.915 | (0.838) | 23124 | 4.00000 | 3.96(a) |
| 10 Acetone | 43 | 2.484 | 2.484 | (0.508) | 8219 | 4.00000 | 2.18(a) |
| 37 Benzene | 78 | 5.220 | 5.220 | (0.928) | 44238 | 2.00000 | 2.10(a) |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 11074 | 2.00000 | 2.10(a) |
| 29 Bromochloromethane | 128 | 4.557 | 4.557 | (0.931) | 5148 | 2.00000 | (a) |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 11433 | 2.00000 | 1.92(a) |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 4574 | 2.00000 | 3.17(Ta) |
| 6 Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 4588 | 2.00000 | 3.07(a) |
| 19 Carbon Disulfide | 76 | 2.589 | 2.589 | (0.529) | 60138 | 4.00000 | 4.17(a) |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 10077 | 2.00000 | 3.10(a) |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 29501 | 2.00000 | 2.10(a) |
| 7 Chloroethane | 64 | 1.753 | 1.753 | (0.358) | 8179 | 2.00000 | 2.69(aM) |
| 28 Chloroform | 83 | 4.658 | 4.658 | (0.952) | 18482 | 2.00000 | 2.14(a) |
| 3 Chloromethane | 50 | 1.340 | 1.340 | (0.274) | 8693 | 2.00000 | 5.15 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 11391 | 2.00000 | 2.08(a) |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 13732 | 2.00000 | 2.74(a) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 7740 | 2.00000 | 2.55(a) |
| 44 Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 6690 | 2.00000 | 2.07(aM) |
| 2 Dichlorodifluoromethane | 85 | 1.205 | 1.205 | (0.246) | 11371 | 2.00000 | 2.68(a) |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 14915 | 2.00000 | 2.07(a) |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 4376 | 2.00000 | 1.81(a) |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 42416 | 2.00000 | 2.04(a) |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 36211 | 4.00000 | 4.10(a) |
| 17 Methylene Chloride | 84 | 2.873 | 2.873 | (0.587) | 13726 | 2.00000 | 1.52(a) |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 35309 | 2.00000 | 2.03(a) |
| 73 n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 51078 | 2.00000 | 2.01(a) |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 32897 | 2.00000 | 2.21(a) |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 17863 | 2.00000 | 2.00(a) |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 43551 | 2.00000 | 2.03(a) |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 29048 | 2.00000 | 1.96(a) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 29889 | 2.00000 | 2.02(a) |
| 56 Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 8071 | 2.00000 | 2.11(a) |
| 50 Toluene | 91 | 7.049 | 7.049 | (0.855) | 46092 | 2.00000 | 2.12(a) |
| 20 trans-1,2-Dichloroethene | 96 | 3.143 | 3.143 | (0.642) | 10325 | 2.00000 | 2.11(a) |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 10646 | 2.00000 | 2.97(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 10169 | 2.00000 | 2.00(a) |
| 8 Trichlorofluoromethane | 101 | 1.955 | 1.955 | (0.400) | 14026 | 2.00000 | 2.64(a) |
| 5 Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 12656 | 2.00000 | 3.07(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



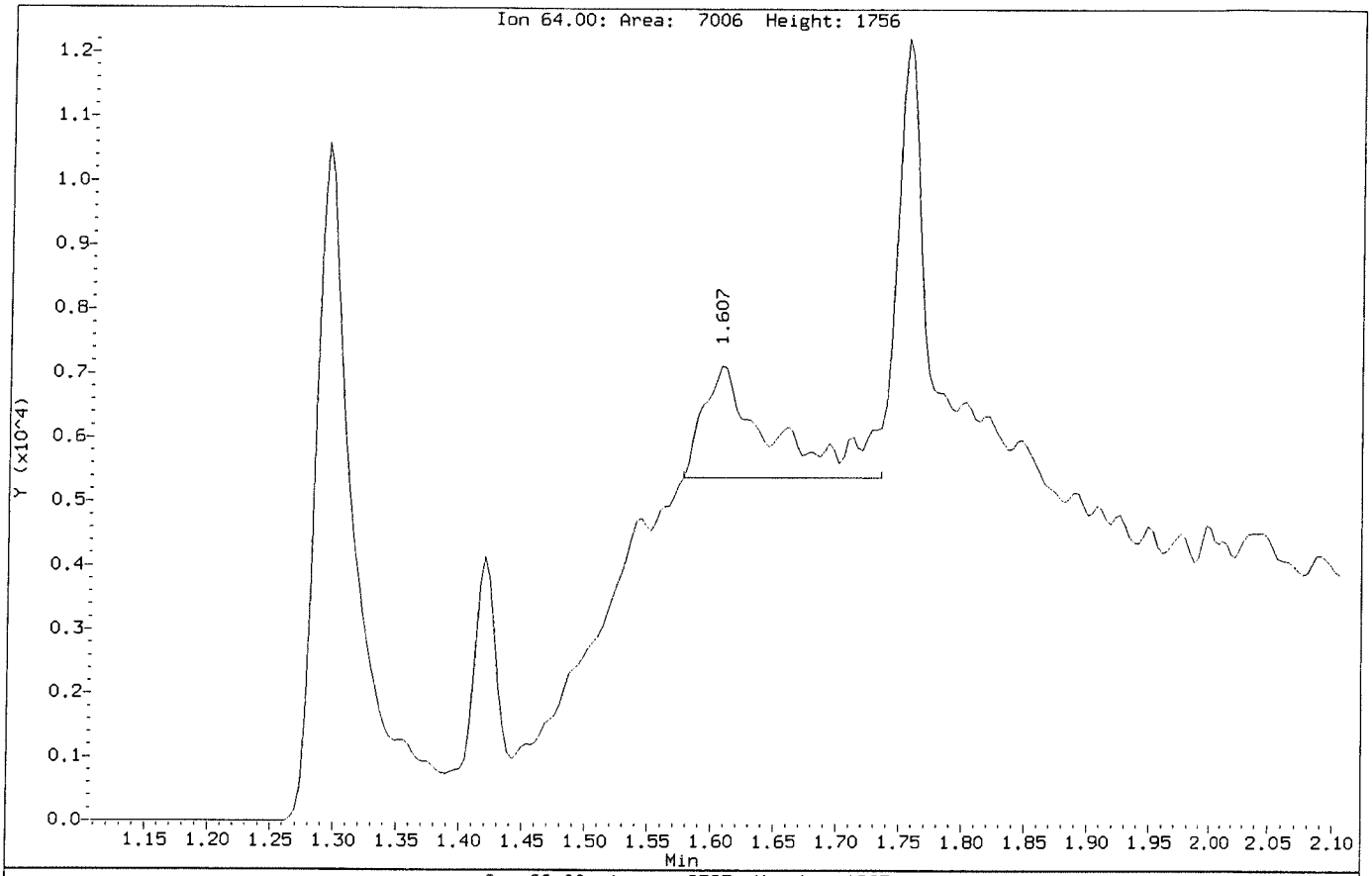

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122105.D
Date : 21-DEC-2018 15:28
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

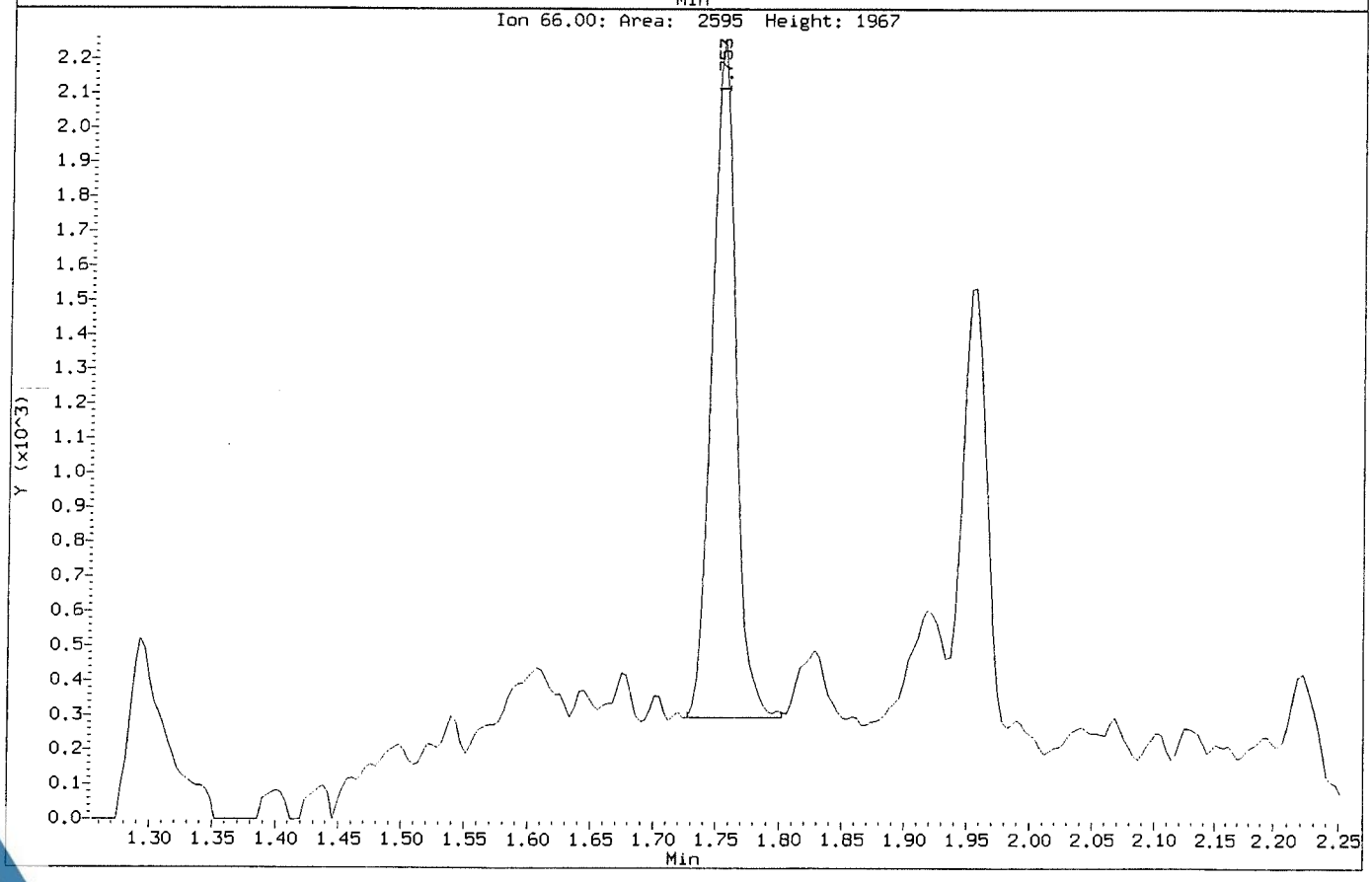
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3



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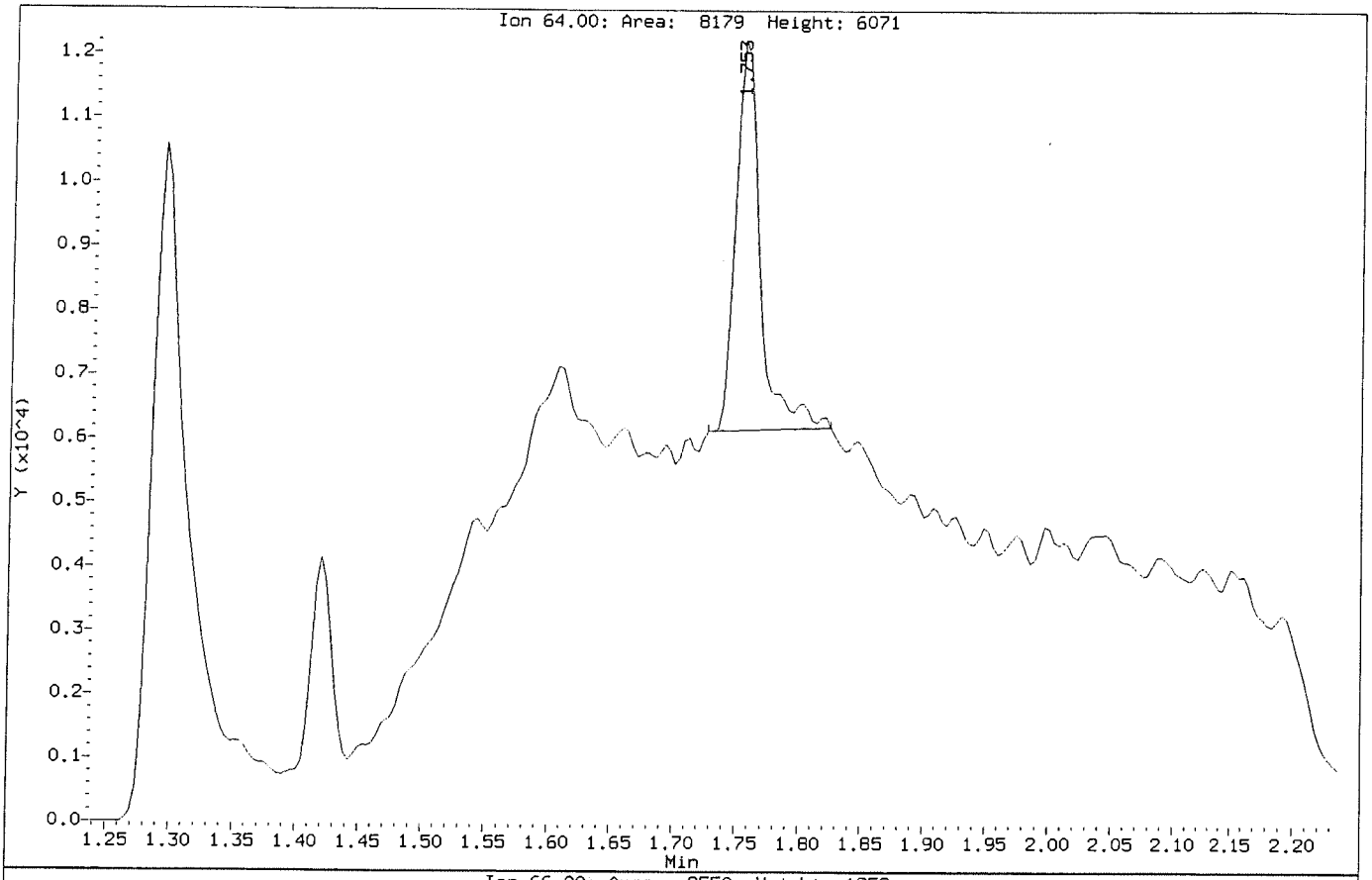
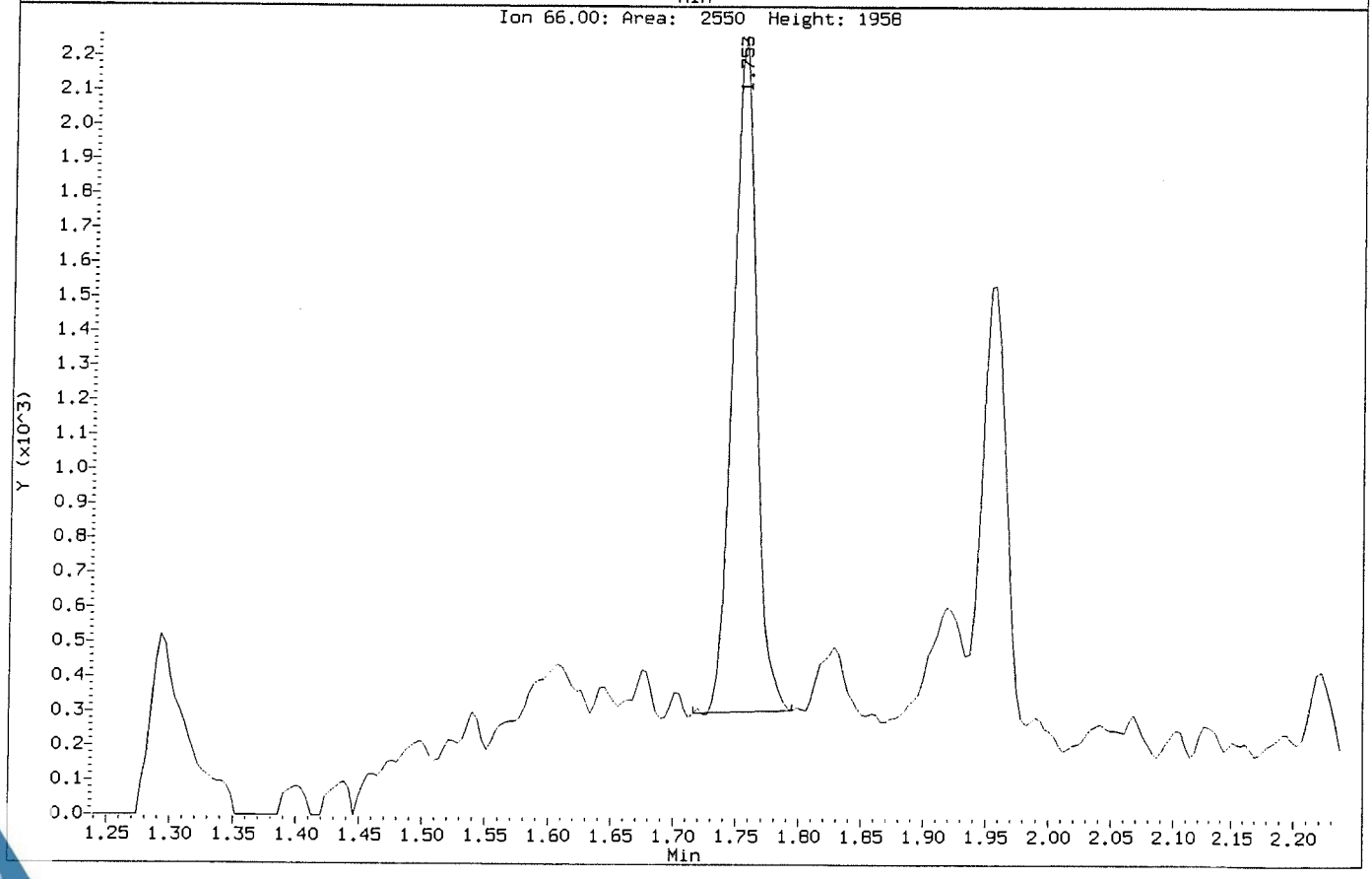
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

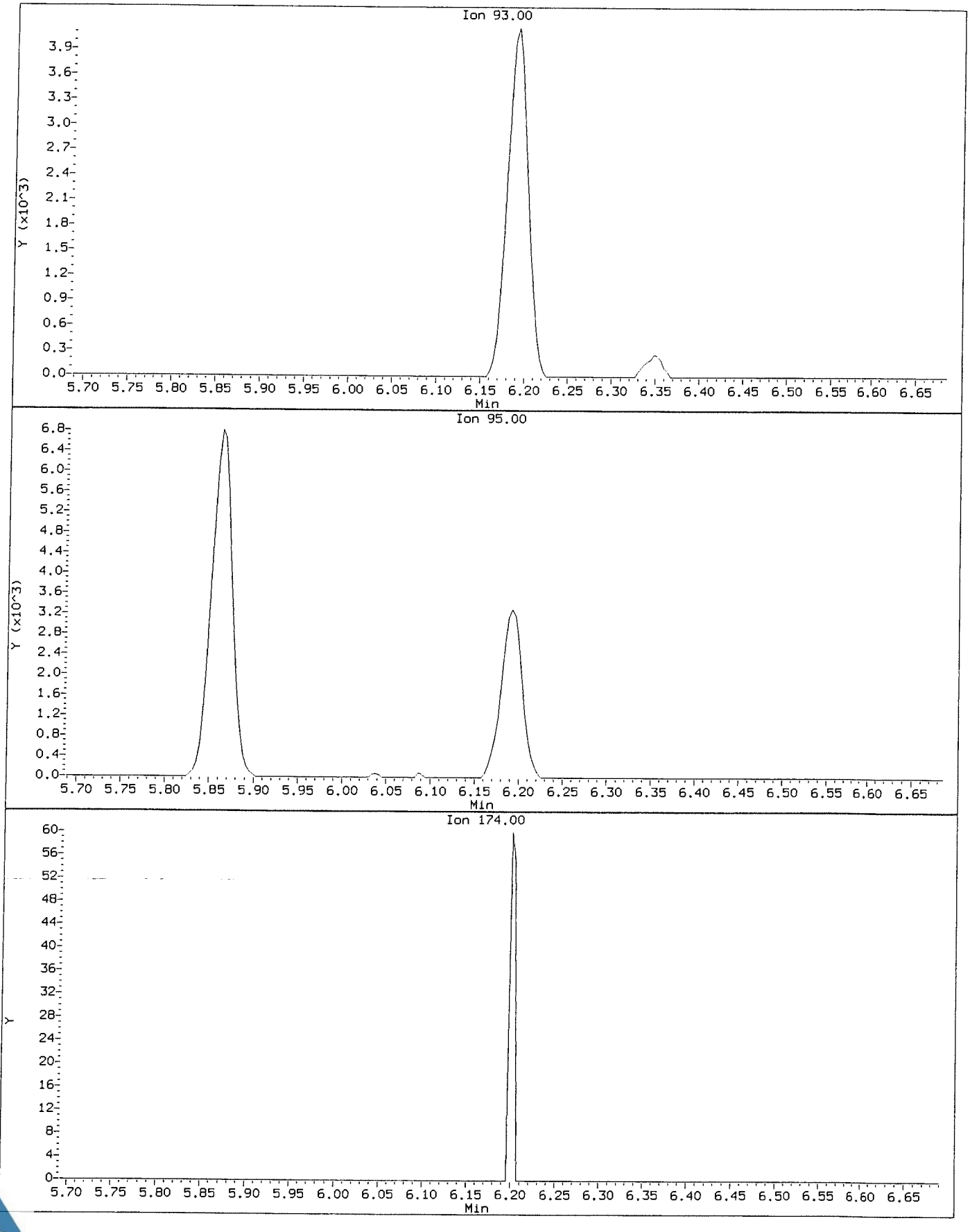
Compound: Chloroethane
CAS Number: 75-00-3



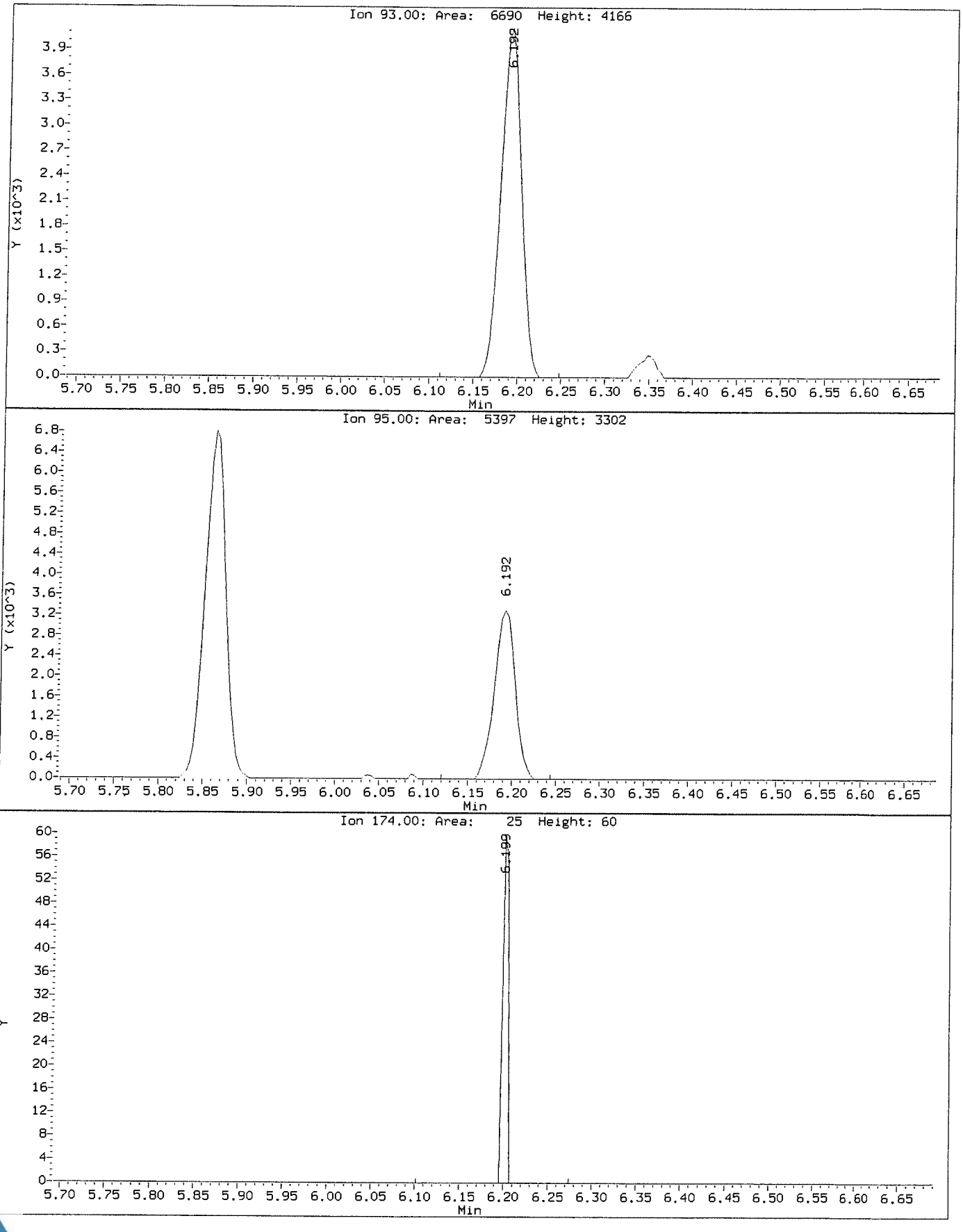
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 21-DEC-2018 15:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:28 Cal File: U122105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

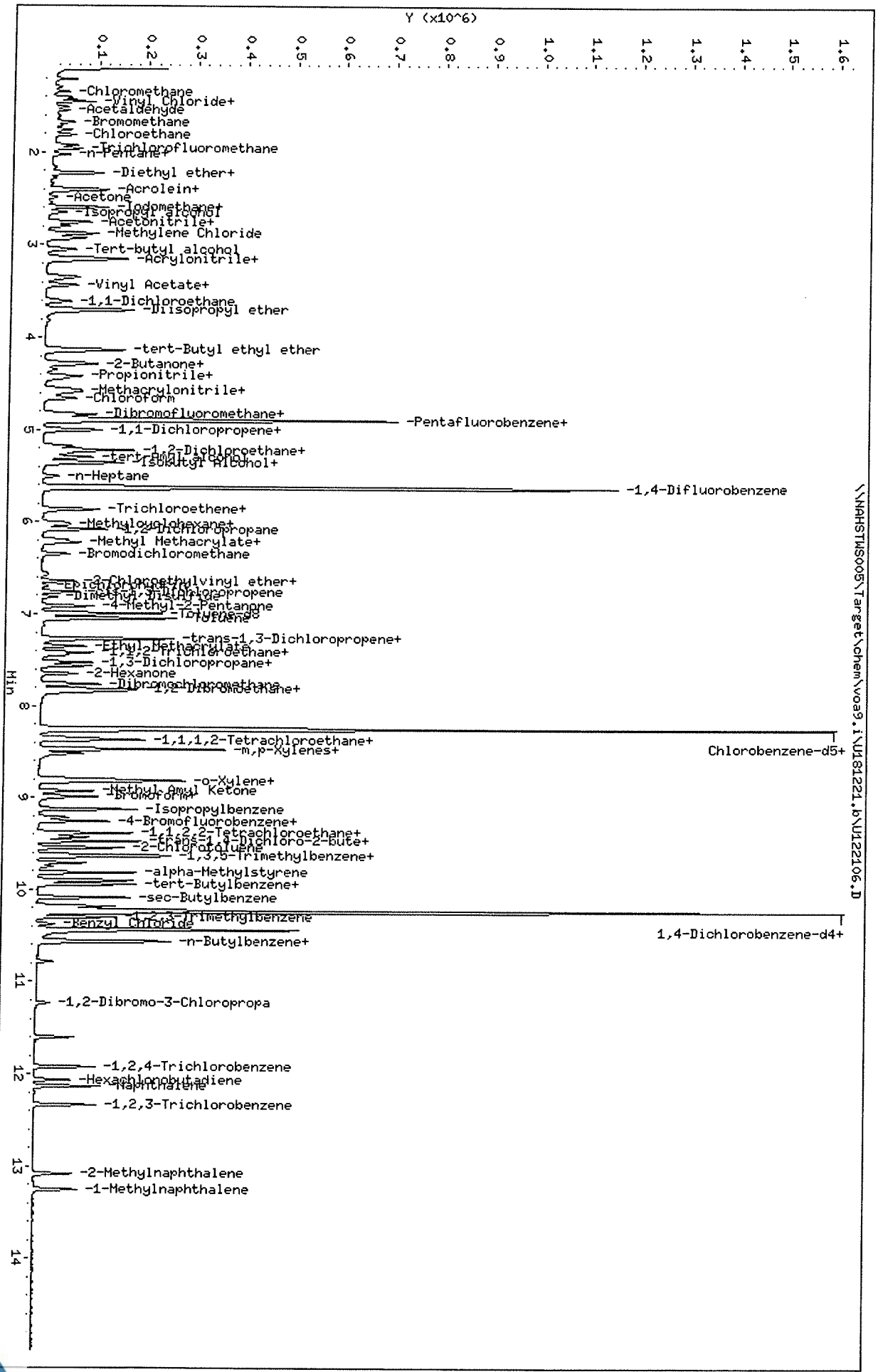
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.897 | (1.000) | 423551 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 811321 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 744062 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 348718 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.986) | 28568 | 5.00000 | 4.77(a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 38943 | 5.00000 | 4.60(a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 117010 | 5.00000 | 4.52(a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 42900 | 5.00000 | 4.60(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 21878 | 5.00000 | 5.16 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 34906 | 5.00000 | 5.21 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 42397 | 5.00000 | 5.39 |
| 138 Freon TF | 101 | 2.408 | 2.408 | (0.492) | 18593 | 5.00000 | 5.16 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 23788 | 5.00000 | 5.36 |
| 22 1,1-Dichloroethane | 63 | 3.608 | 3.608 | (0.737) | 48869 | 5.00000 | 5.35 |
| 11 1,1-Dichloroethene | 96 | 2.405 | 2.405 | (0.491) | 20607 | 5.00000 | 5.11 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 37139 | 5.00000 | 5.14 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 31113 | 5.00000 | 5.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 41282 | 5.00000 | 5.05 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 31564 | 5.00000 | 4.88(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 98307 | 5.00000 | 5.38 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 4931 | 5.00000 | 5.40 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 27067 | 5.00000 | 5.30 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 55324 | 5.00000 | 5.34 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 41415 | 5.00000 | 5.01 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 30107 | 5.00000 | 5.25 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 93516 | 5.00000 | 5.33 |
| 83 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 54677 | 5.00000 | 5.28 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 52651 | 5.00000 | 5.51 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 57942 | 5.00000 | 5.30 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.873) | 27335 | 5.00000 | 4.97(a) |
| 24 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 29605 | 10.0000 | 8.51 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 86842 | 5.00000 | 5.40 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 42401 | 10.0000 | 10.24 |
| 77 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 100274 | 5.00000 | 5.40 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 97160 | 5.00000 | 5.26 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 60636 | 10.0000 | 10.18 |
| 10 Acetone | 43 | 2.487 | 2.487 | (0.508) | 19230 | 10.0000 | 8.95 |
| 37 Benzene | 78 | 5.220 | 5.220 | (0.928) | 116462 | 5.00000 | 5.39 |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 28350 | 5.00000 | 5.26 |
| 29 Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 13786 | 5.00000 | 3.48(a) |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 31104 | 5.00000 | 5.10 |
| 66 Bromoform | 173 | 8.983 | 8.983 | (1.089) | 12962 | 5.00000 | 5.67(T) |
| 6 Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 12245 | 5.00000 | 5.89 |
| 19 Carbon Disulfide | 76 | 2.592 | 2.592 | (0.529) | 153199 | 10.0000 | 10.44 |
| 34 Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.889) | 26439 | 5.00000 | 5.75 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 75901 | 5.00000 | 5.30 |
| 7 Chloroethane | 64 | 1.756 | 1.756 | (0.359) | 22172 | 5.00000 | 6.40(M) |
| 28 Chloroform | 83 | 4.657 | 4.657 | (0.951) | 48639 | 5.00000 | 5.53 |
| 3 Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 20682 | 5.00000 | 7.61 |
| 27 cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 29626 | 5.00000 | 5.32 |
| 46 cis-1,3-Dichloropropene | 75 | 6.760 | 6.760 | (1.202) | 38403 | 5.00000 | 5.30 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 20846 | 5.00000 | 5.15 |
| 44 Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 17610 | 5.00000 | 5.32(M) |
| 2 Dichlorodifluoromethane | 85 | 1.209 | 1.209 | (0.247) | 26580 | 5.00000 | 5.53 |
| 61 Ethylbenzene | 106 | 8.372 | 8.372 | (1.015) | 38926 | 5.00000 | 5.30 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 11286 | 5.00000 | 4.56(a) |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 113805 | 5.00000 | 5.37 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 96419 | 10.0000 | 10.69 |
| 17 Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 31487 | 5.00000 | 4.95(a) |
| 87 n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 92969 | 5.00000 | 5.22 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 140607 | 5.00000 | 5.39 |
| 92 Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 91300 | 5.00000 | 4.86(a) |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 47745 | 5.00000 | 5.25 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 116270 | 5.00000 | 5.30 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 80690 | 5.00000 | 5.34 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 81608 | 5.00000 | 5.38 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 20249 | 5.00000 | 5.19 |
| 50 Toluene | 91 | 7.049 | 7.049 | (0.855) | 120808 | 5.00000 | 5.45 |
| 20 trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 25998 | 5.00000 | 5.24 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 30725 | 5.00000 | 5.37 |
| 38 Trichloroethene | 130 | 5.865 | 5.865 | (1.043) | 27950 | 5.00000 | 5.36 |
| 8 Trichlorofluoromethane | 101 | 1.958 | 1.958 | (0.400) | 37144 | 5.00000 | 5.87 |
| 5 Vinyl Chloride | 62 | 1.422 | 1.422 | (0.291) | 29272 | 5.00000 | 5.76 |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

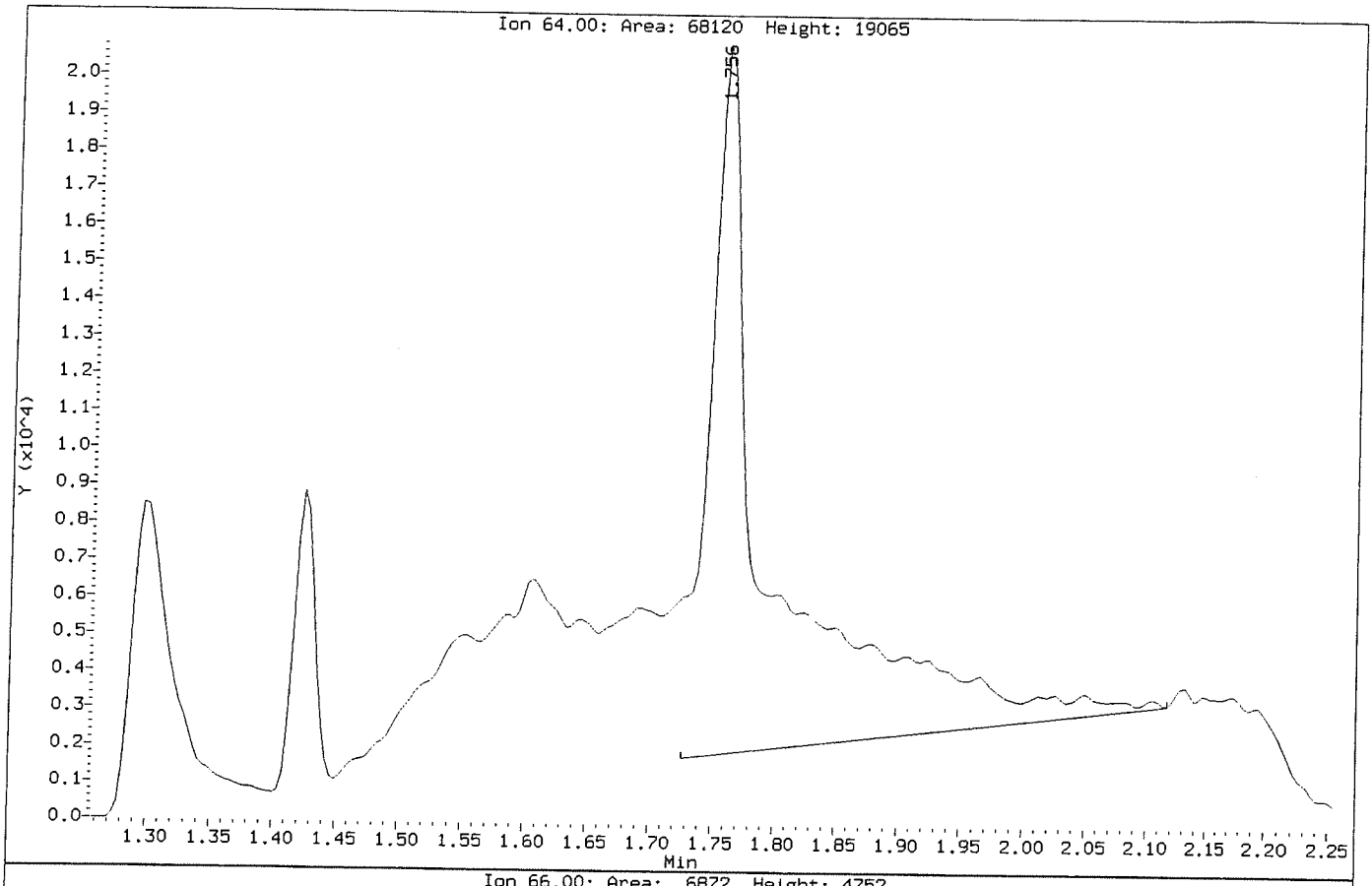


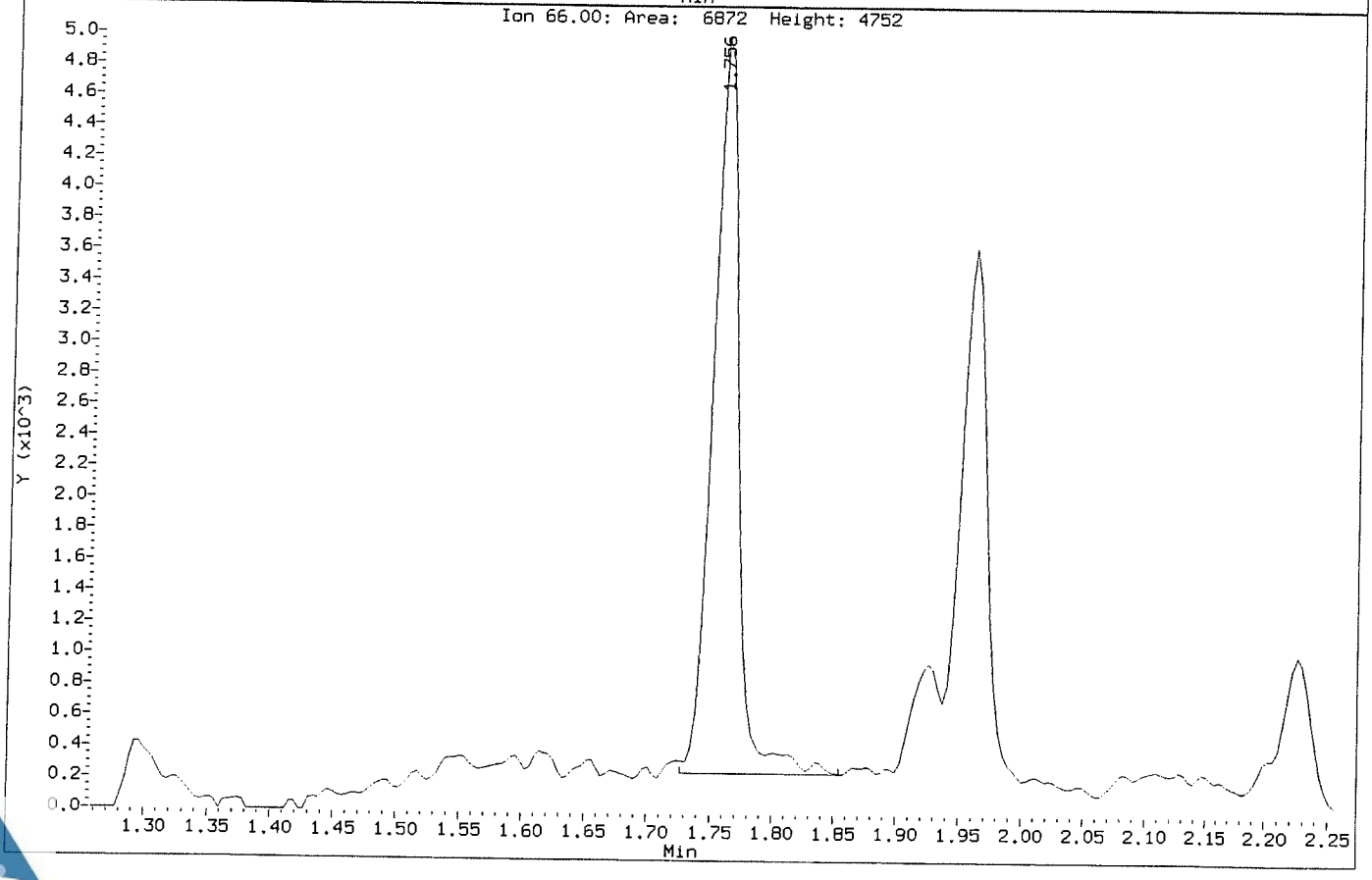

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Date : 21-DEC-2018 15:52
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

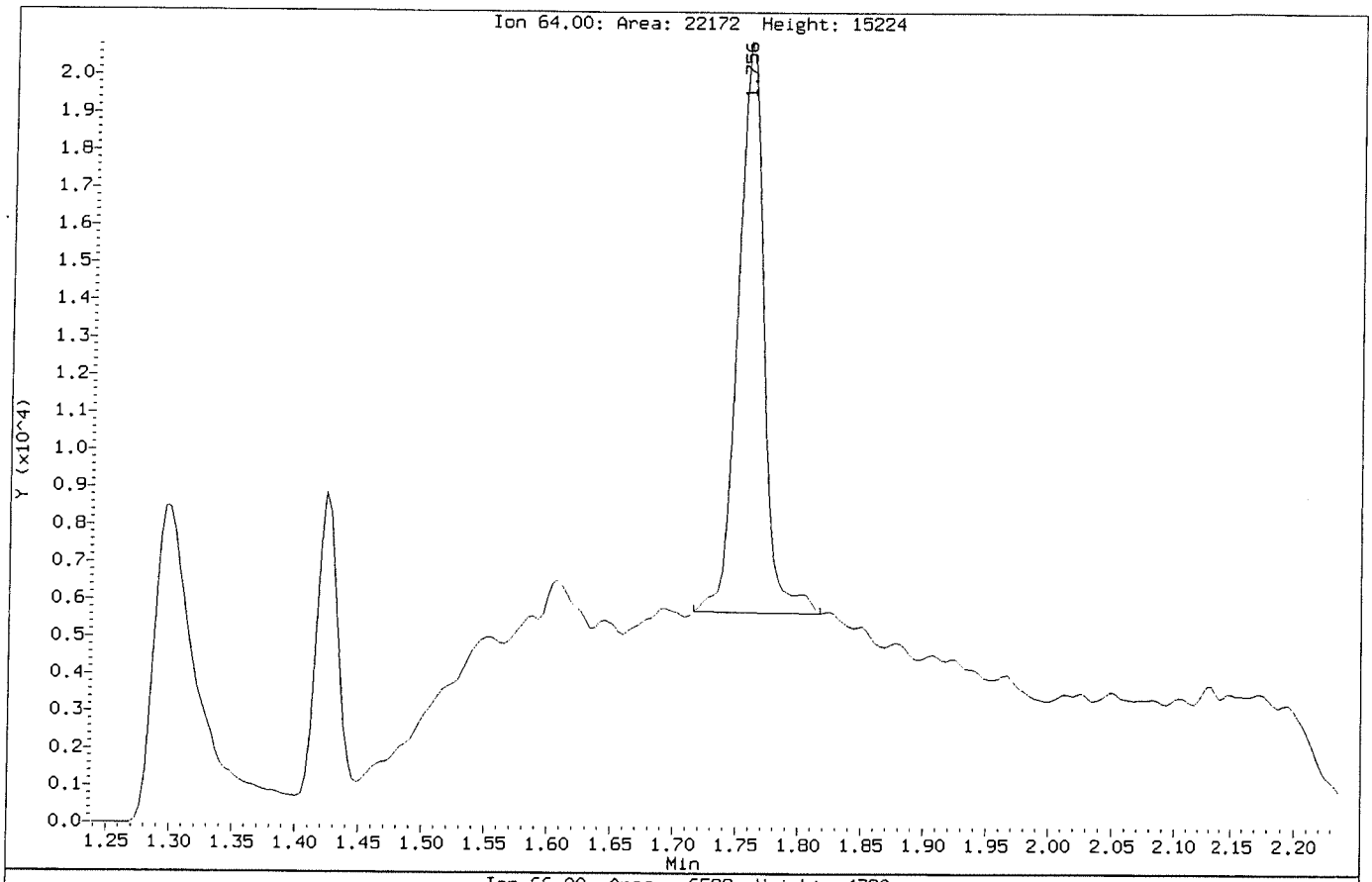
Compound: Chloroethane
CAS Number: 75-00-3

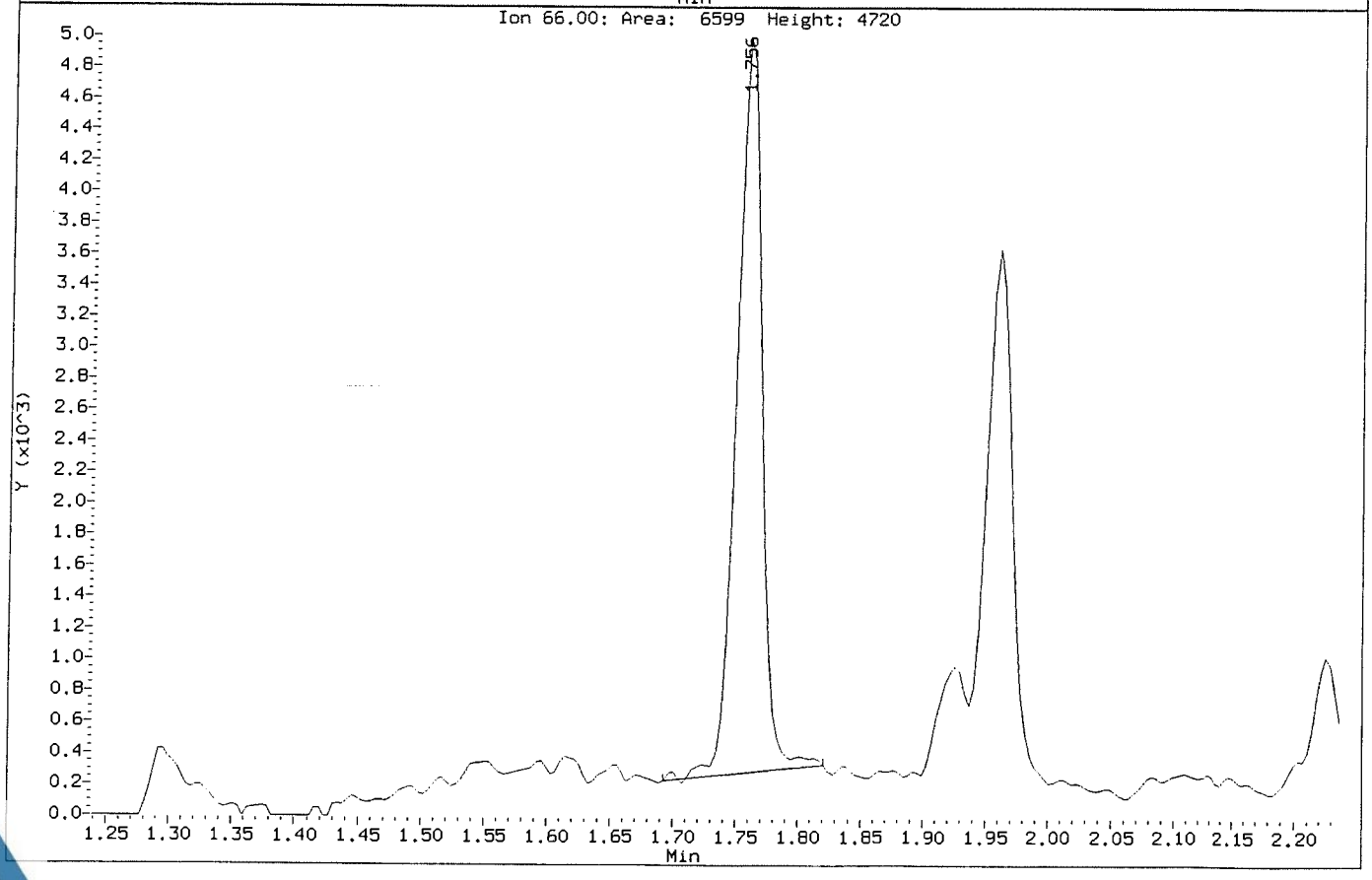


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

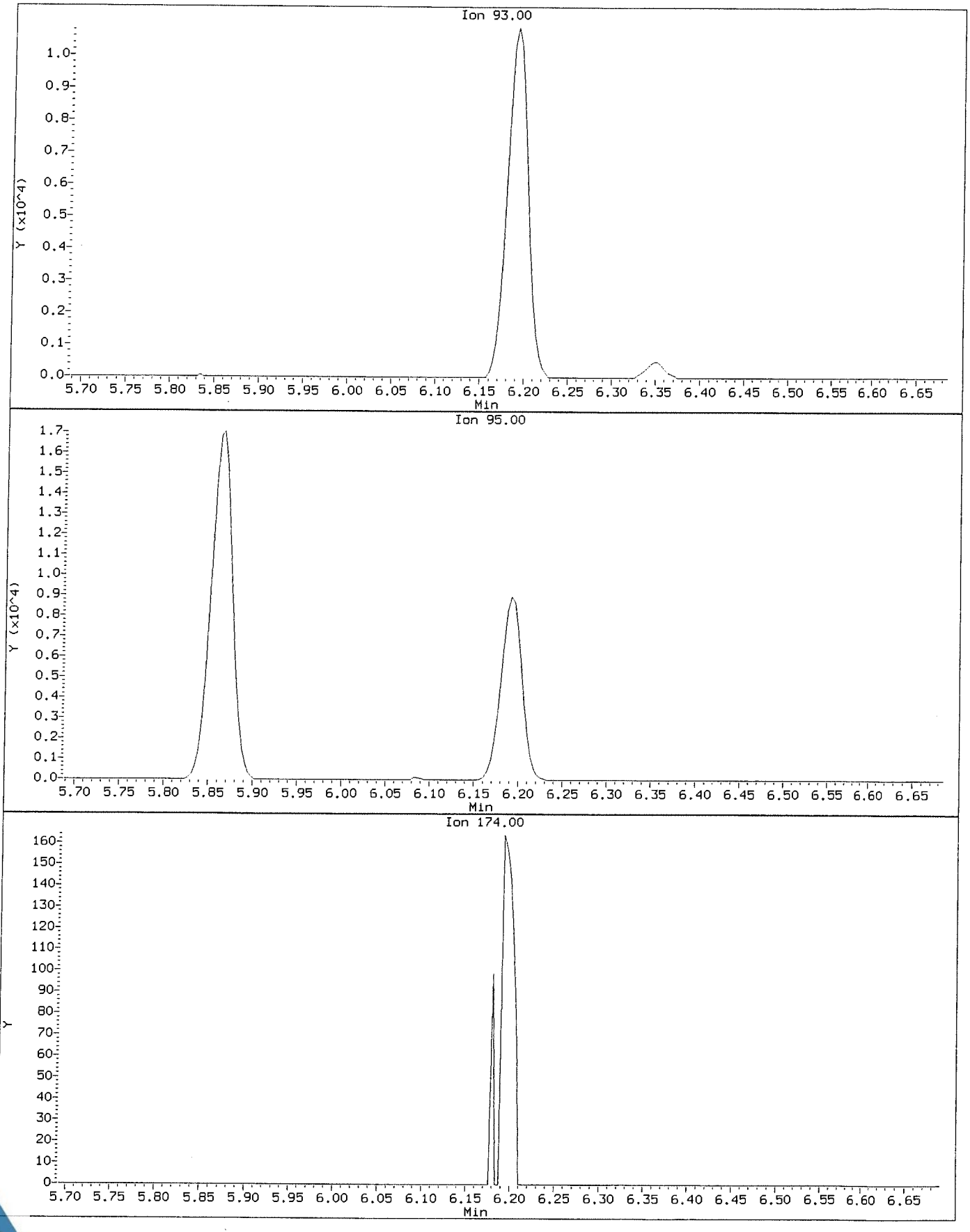
Compound: Chloroethane
CAS Number: 75-00-3



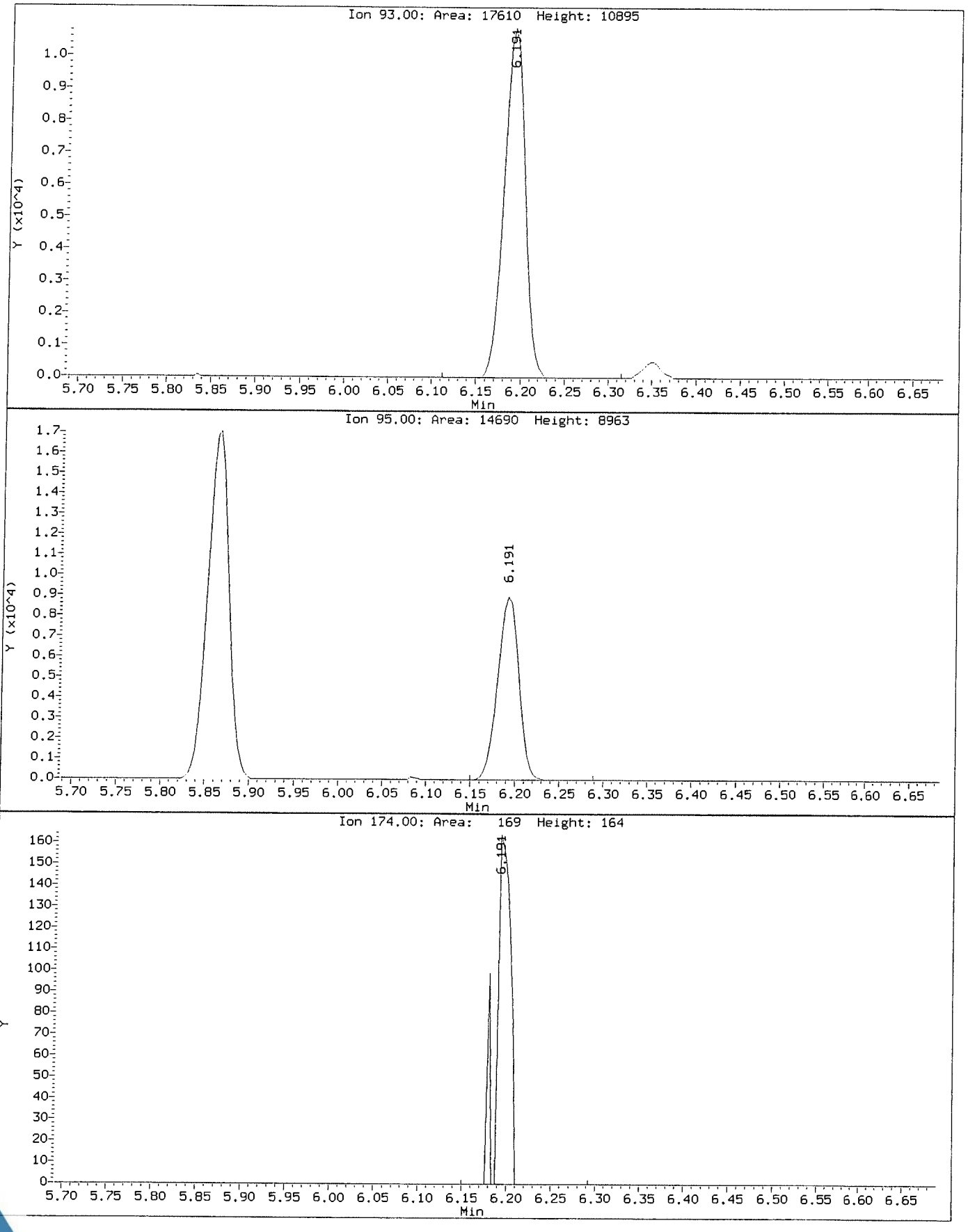
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 21-DEC-2018 16:17
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:52 Cal File: U122106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

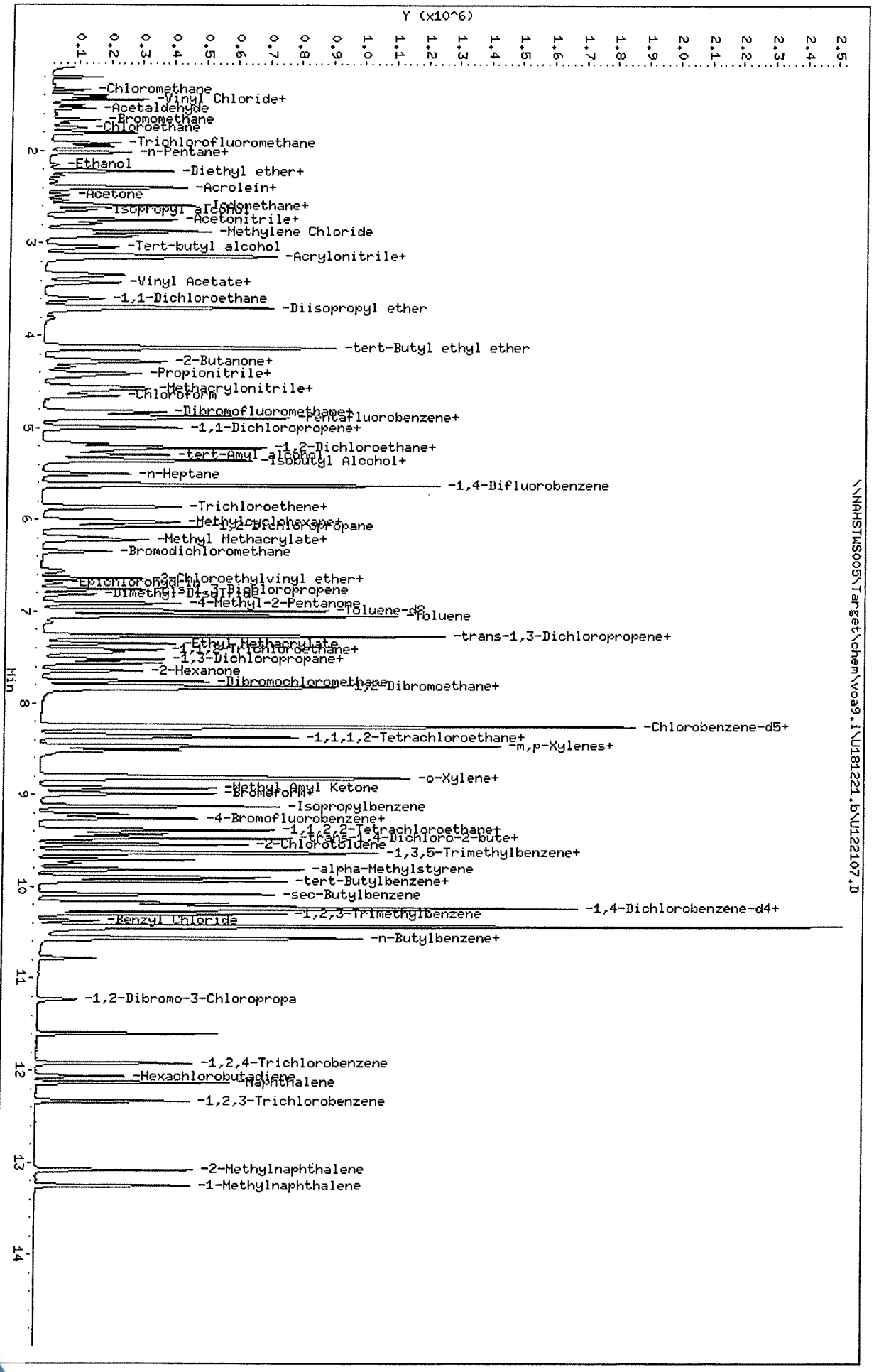
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 420221 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 802033 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 739775 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 359235 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 98984 | 20.0000 | 20.47 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 131494 | 20.0000 | 20.89 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 408521 | 20.0000 | 20.36 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 153183 | 20.0000 | 20.23 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 89389 | 20.0000 | 19.40 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 135496 | 20.0000 | 20.42 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 163701 | 20.0000 | 20.23 |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 68573 | 20.0000 | 19.19 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 89267 | 20.0000 | 20.25 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 184998 | 20.0000 | 20.44 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 75169 | 20.0000 | 18.81 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 140960 | 20.0000 | 19.75 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 126752 | 20.0000 | 19.12 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 166045 | 20.0000 | 19.73 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 129526 | 20.0000 | 19.47 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 388189 | 20.0000 | 20.64 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 22196 | 20.0000 | 18.72 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 105981 | 20.0000 | 20.87 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 207507 | 20.0000 | 19.45 |
| 33 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 149131 | 20.0000 | 20.20 |
| 42 1,2-Dichloropropane | 63 | 6.079 | 6.079 | (1.081) | 113309 | 20.0000 | 19.99 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 375852 | 20.0000 | 20.81 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 209196 | 20.0000 | 19.61 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 193920 | 20.0000 | 20.42 |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 216649 | 20.0000 | 19.26 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 106667 | 20.0000 | 19.55 |
| 24 2-Butanone | 43 | 4.339 | 4.339 | (0.887) | 119433 | 40.0000 | 42.08 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 335289 | 20.0000 | 20.25 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 177404 | 40.0000 | 43.12 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 387760 | 20.0000 | 20.27 |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 388512 | 20.0000 | 20.43 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 250121 | 40.0000 | 42.25 |
| 10 Acetone | 43 | 2.480 | 2.480 | (0.507) | 73380 | 40.0000 | 43.05 |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 428833 | 20.0000 | 20.09 |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 109892 | 20.0000 | 19.79 |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 51515 | 20.0000 | 21.73 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 121760 | 20.0000 | 20.20 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 53922 | 20.0000 | 18.14(T) |
| 6 Bromomethane | 94 | 1.666 | 1.666 | (0.341) | 47148 | 20.0000 | 19.02 |
| 19 Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 576362 | 40.0000 | 39.58 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 104210 | 20.0000 | 18.76 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 284621 | 20.0000 | 20.02 |
| 7 Chloroethane | 64 | 1.749 | 1.749 | (0.357) | 73150 | 20.0000 | 20.10(M) |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 178122 | 20.0000 | 20.43 |
| 3 Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 79075 | 20.0000 | 19.85 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 114056 | 20.0000 | 20.64 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 162454 | 20.0000 | 18.55 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 89836 | 20.0000 | 19.09 |
| 44 Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 66878 | 20.0000 | 20.44 |
| 2 Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 98486 | 20.0000 | 19.34 |
| 61 Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 147187 | 20.0000 | 20.18 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 44482 | 20.0000 | 17.45 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 439477 | 20.0000 | 20.89 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 372108 | 40.0000 | 41.51 |
| 17 Methylene Chloride | 84 | 2.870 | 2.870 | (0.586) | 109403 | 20.0000 | 20.36 |
| 87 n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 362066 | 20.0000 | 19.73 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 551133 | 20.0000 | 20.53 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 413229 | 20.0000 | 19.20 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 188442 | 20.0000 | 20.84 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 459645 | 20.0000 | 20.37 |
| 64 Styrene | 104 | 8.823 | 8.823 | (1.070) | 323232 | 20.0000 | 21.51 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 318726 | 20.0000 | 20.42 |
| 56 Tetrachloroethene | 164 | 7.522 | 7.522 | (0.912) | 75128 | 20.0000 | 19.39 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 451178 | 20.0000 | 20.50 |
| 20 trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 100515 | 20.0000 | 20.43 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 135347 | 20.0000 | 18.26 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 101824 | 20.0000 | 19.76 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 130957 | 20.0000 | 19.29 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 111713 | 20.0000 | 19.39 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

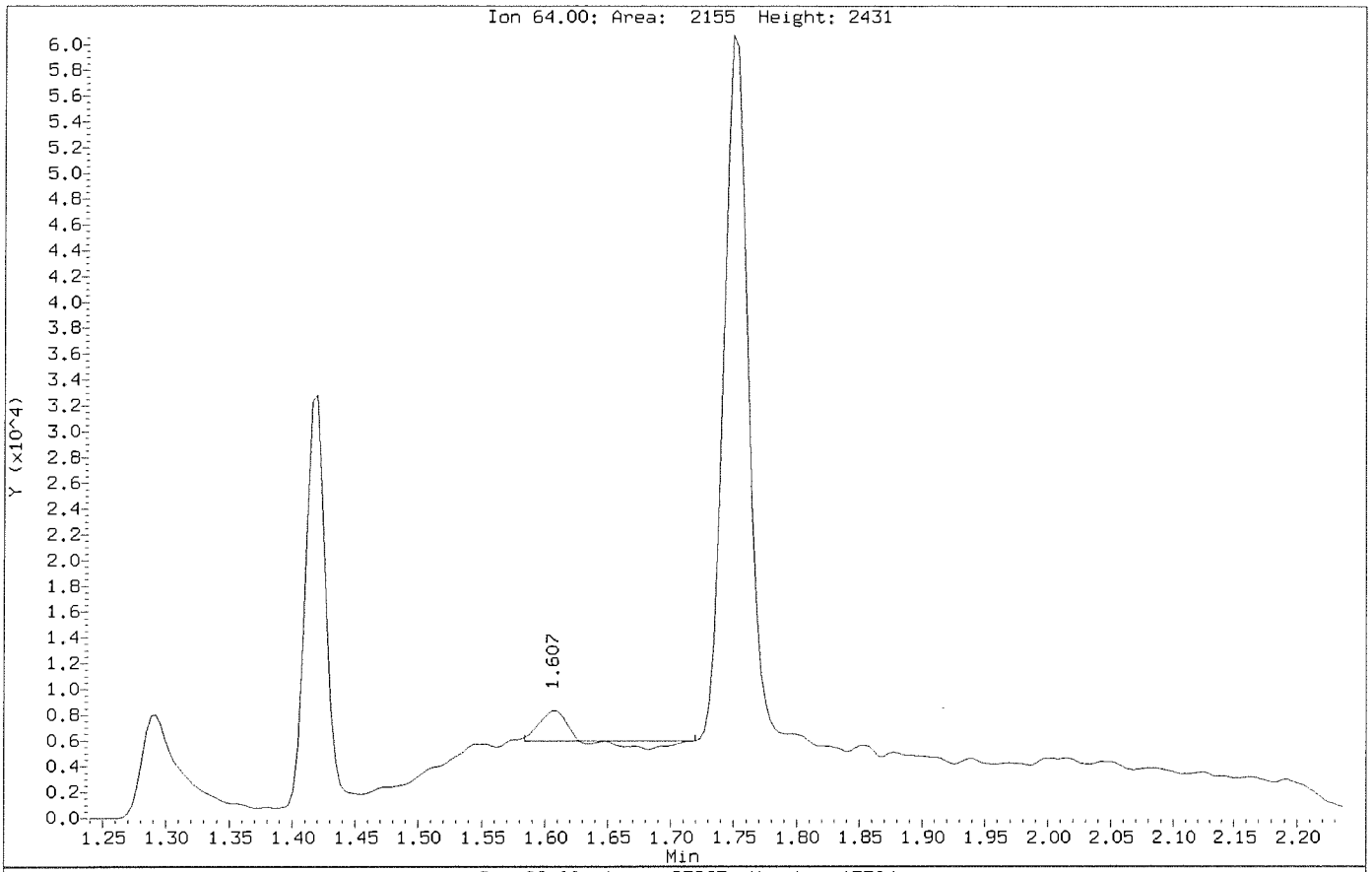


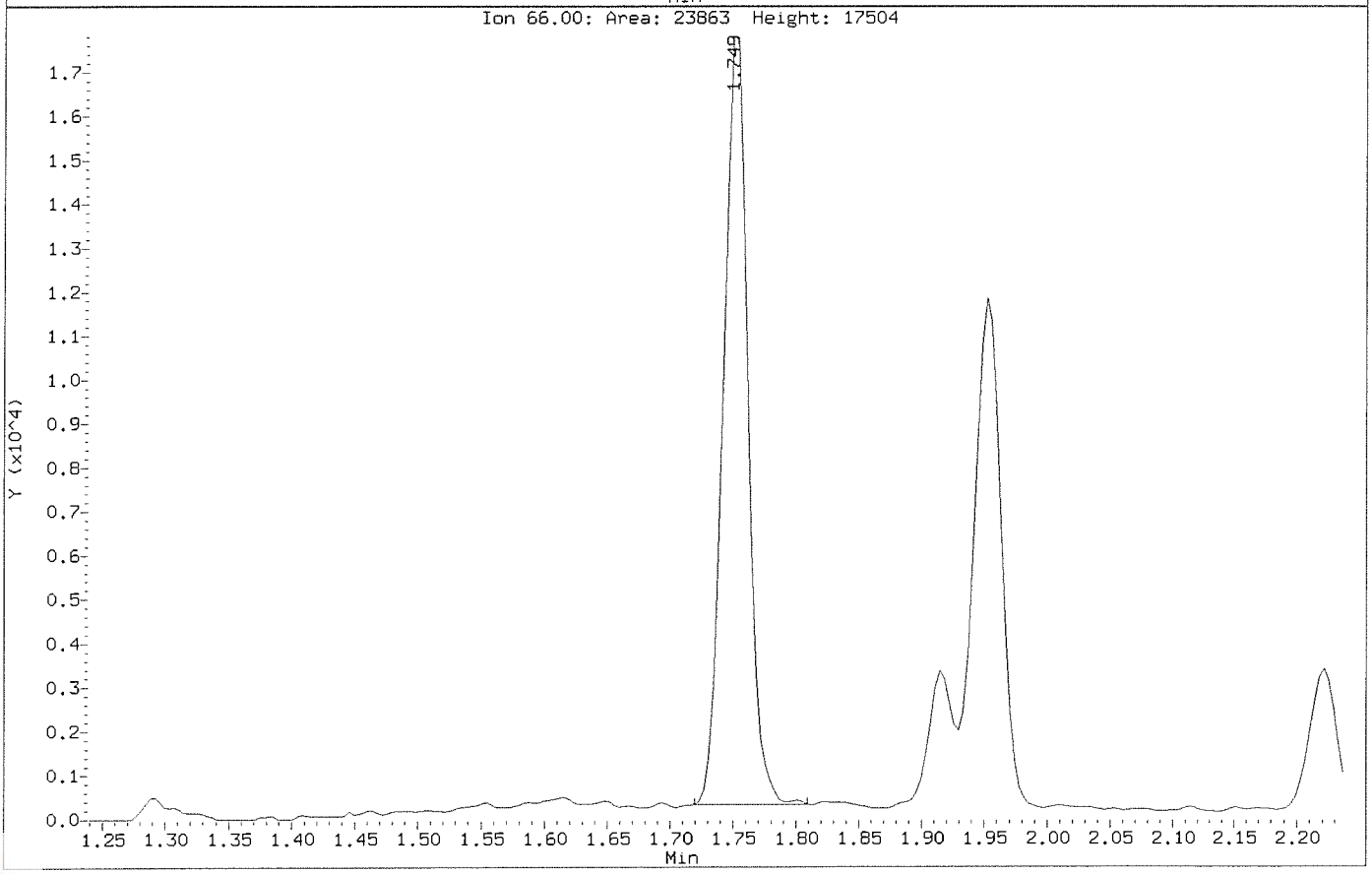

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Date : 21-DEC-2018 16:17
Client ID: VSTD020
Sample Info: VSTD020;VSTD0201;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

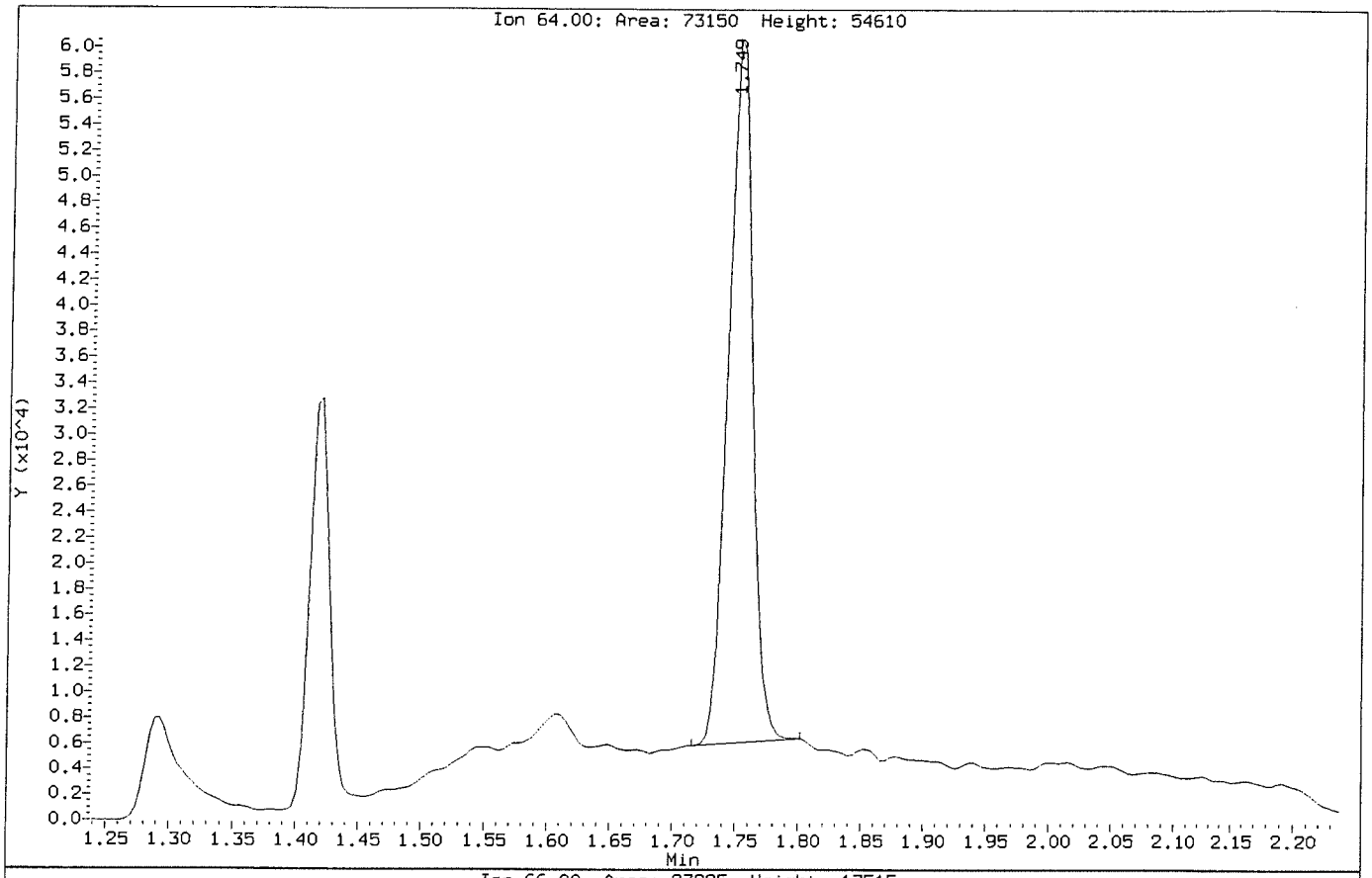
Compound: Chloroethane
CAS Number: 75-00-3

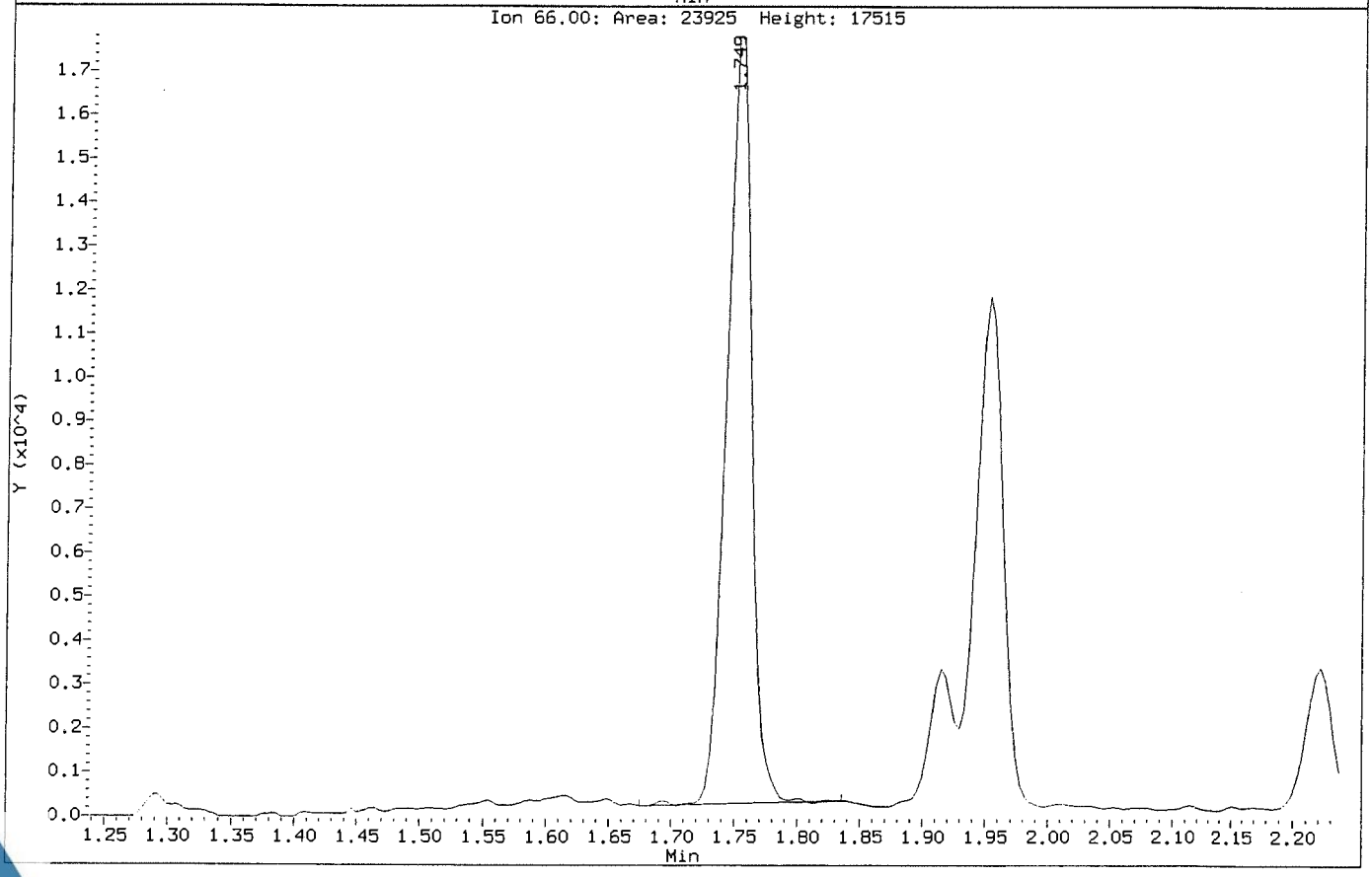


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 16:41
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:17 Cal File: U122107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

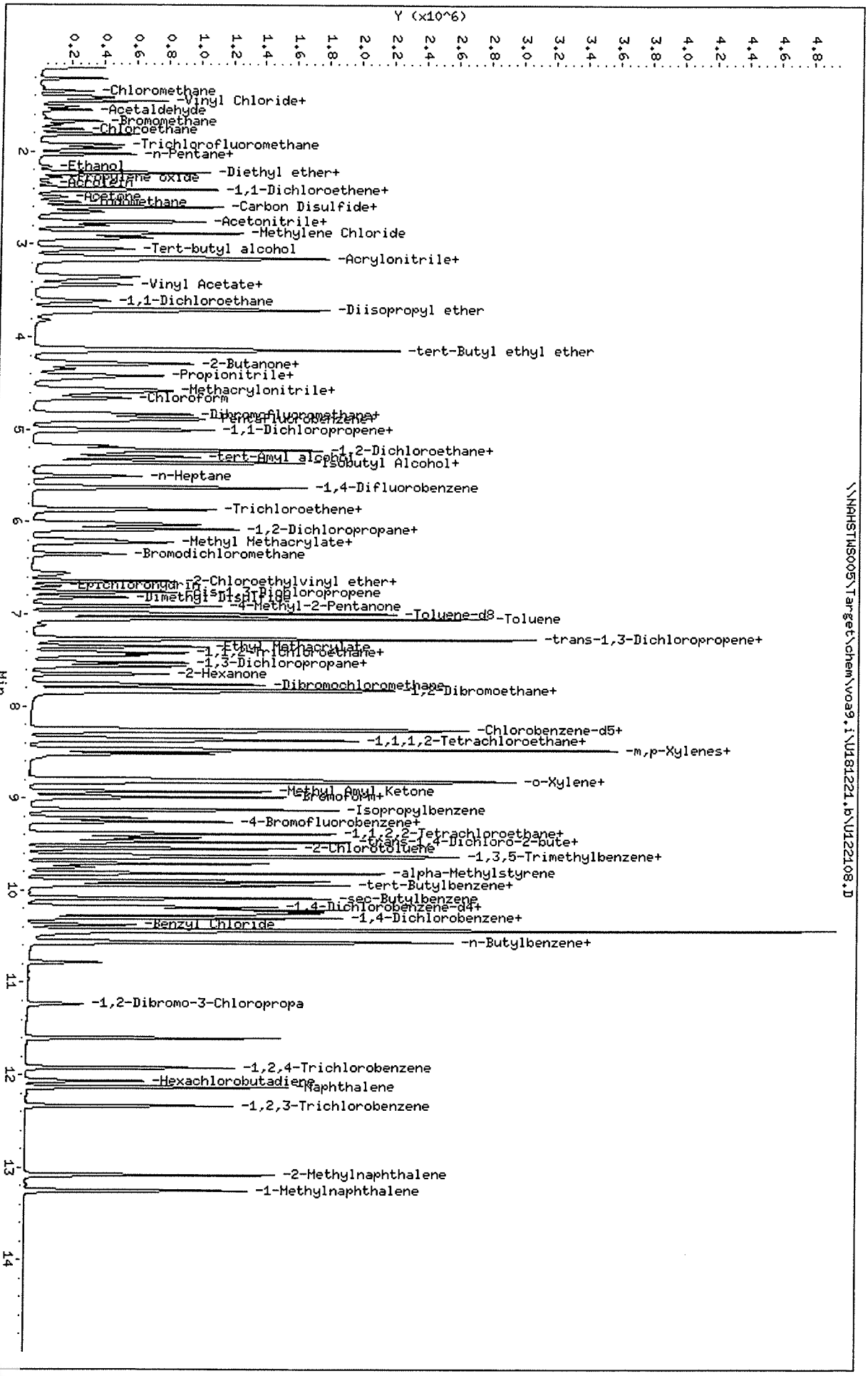
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 441118 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 822734 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 764792 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 367345 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 245007 | 50.0000 | 50.34 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 320796 | 50.0000 | 51.44 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 1010127 | 50.0000 | 51.19 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 382581 | 50.0000 | 50.91 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 235446 | 50.0000 | 48.53 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 347757 | 50.0000 | 49.92 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 414173 | 50.0000 | 50.06 |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.493) | 175022 | 50.0000 | 46.67 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 226615 | 50.0000 | 49.73 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 466899 | 50.0000 | 49.14 |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.492) | 194403 | 50.0000 | 46.35 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 351519 | 50.0000 | 48.01 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 334600 | 50.0000 | 48.35 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 444407 | 50.0000 | 51.66 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 340316 | 50.0000 | 50.03 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 977610 | 50.0000 | 50.85 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 61793 | 50.0000 | 48.48 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 266705 | 50.0000 | 50.81 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 529898 | 50.0000 | 48.58 |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 376591 | 50.0000 | 50.81 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 287570 | 50.0000 | 49.46 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 947470 | 50.0000 | 51.32 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 529098 | 50.0000 | 48.50 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 491255 | 50.0000 | 50.05 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 544274 | 50.0000 | 47.32 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 280126 | 50.0000 | 48.93 |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 304044 | 100.000 | 105.52 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 843166 | 50.0000 | 49.81 |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 461299 | 100.000 | 108.47 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 978873 | 50.0000 | 50.04 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 1003937 | 50.0000 | 51.64 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 653234 | 100.000 | 106.75 |
| 10 | Acetone | 43 | 2.487 | 2.487 | (0.508) | 187964 | 100.000 | 109.42 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 1084861 | 50.0000 | 49.55 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 280874 | 50.0000 | 49.48 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.560 | (0.931) | 129496 | 50.0000 | 56.37 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 319701 | 50.0000 | 51.71 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 154855 | 50.0000 | 47.27(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 117780 | 50.0000 | 43.41 |
| 19 | Carbon Disulfide | 76 | 2.600 | 2.600 | (0.531) | 1460668 | 100.000 | 95.57 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 274507 | 50.0000 | 45.99 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 718560 | 50.0000 | 48.89 |
| 7 | Chloroethane | 64 | 1.760 | 1.760 | (0.359) | 179707 | 50.0000 | 46.03(M) |
| 28 | Chloroform | 83 | 4.661 | 4.661 | (0.952) | 453061 | 50.0000 | 49.52 |
| 3 | Chloromethane | 50 | 1.348 | 1.348 | (0.275) | 197328 | 50.0000 | 42.63 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 286659 | 50.0000 | 49.43 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 449225 | 50.0000 | 47.87 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 242061 | 50.0000 | 48.20 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.100) | 170556 | 50.0000 | 50.83 |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.213 | (0.248) | 248322 | 50.0000 | 45.79 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 374921 | 50.0000 | 49.74 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 119140 | 50.0000 | 45.72 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1109213 | 50.0000 | 51.00 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 936911 | 100.000 | 101.11 |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 274258 | 50.0000 | 50.31 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 931396 | 50.0000 | 49.64 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1393780 | 50.0000 | 50.77 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 1107938 | 50.0000 | 49.53 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 475748 | 50.0000 | 50.89 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1169025 | 50.0000 | 50.67 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 828798 | 50.0000 | 53.36 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 807157 | 50.0000 | 50.58 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 186057 | 50.0000 | 46.46 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 1138194 | 50.0000 | 50.03 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 248845 | 50.0000 | 48.19 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 381258 | 50.0000 | 47.27 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 255628 | 50.0000 | 48.36 |
| 8 | Trichlorofluoromethane | 101 | 1.962 | 1.962 | (0.401) | 330010 | 50.0000 | 45.44 |
| 5 | Vinyl Chloride | 62 | 1.426 | 1.426 | (0.291) | 283791 | 50.0000 | 45.57 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

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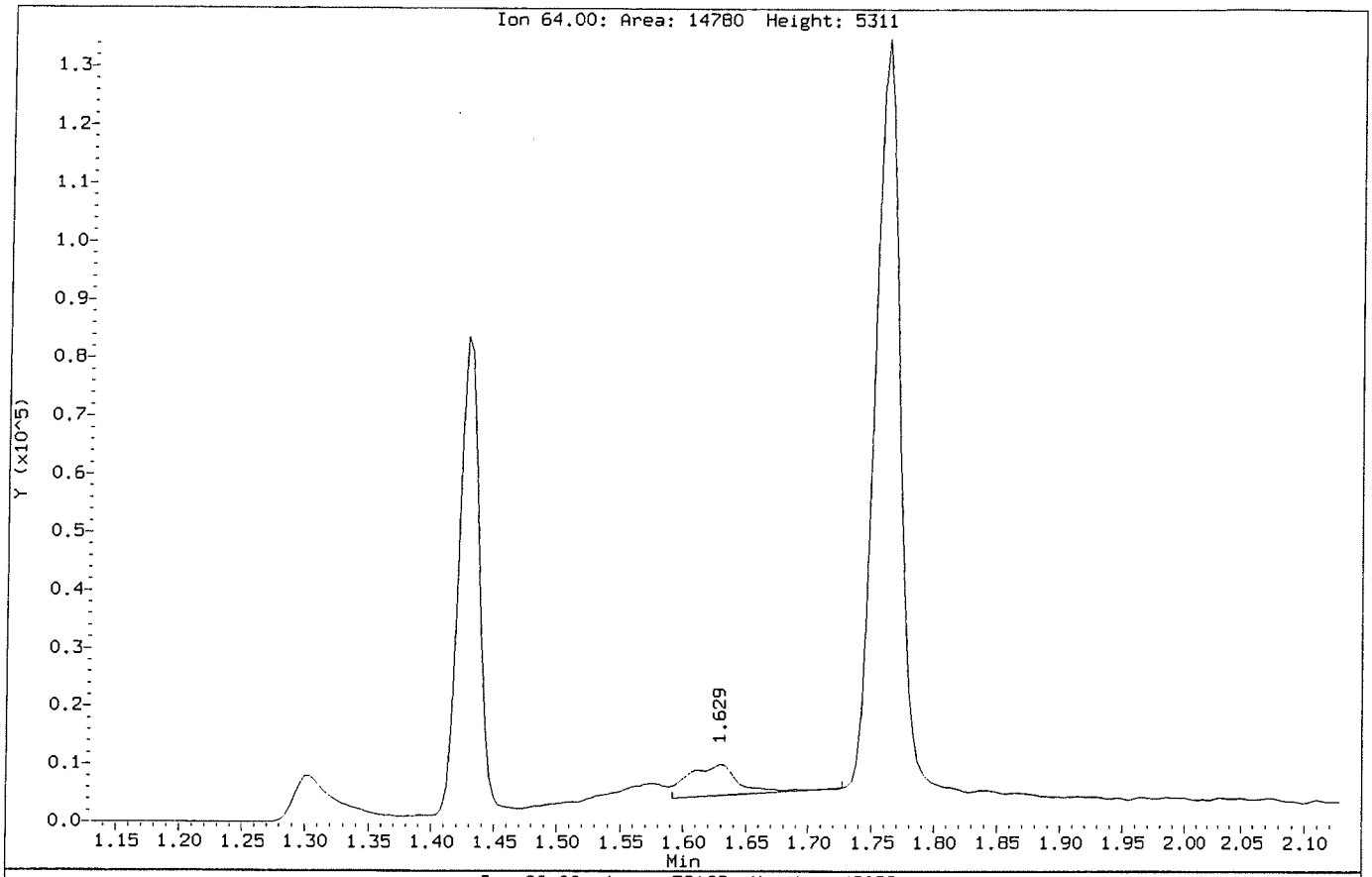
Date : 21-DEC-2018 16:41
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

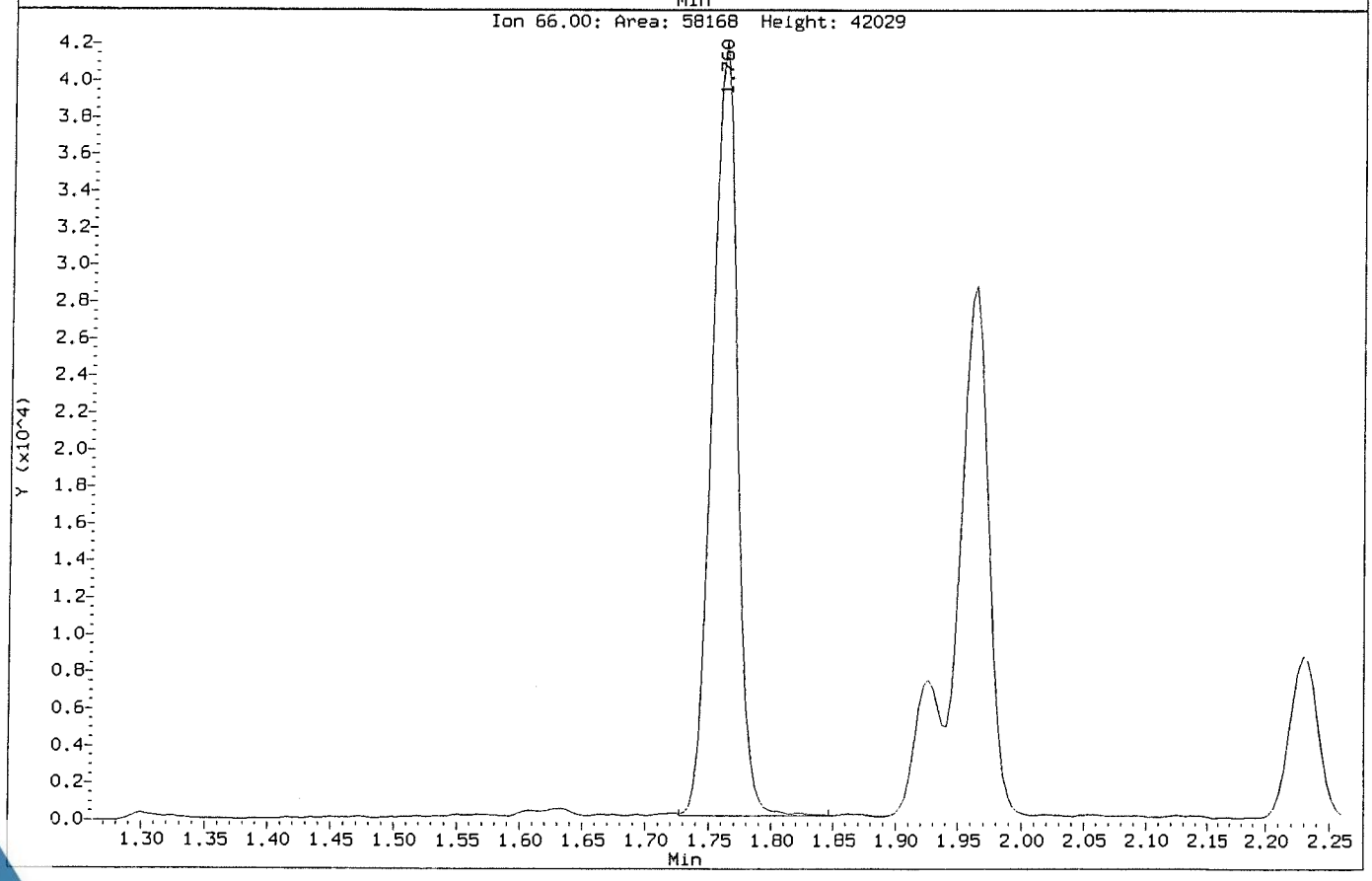
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D

Instrument: VOa9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122108.D
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



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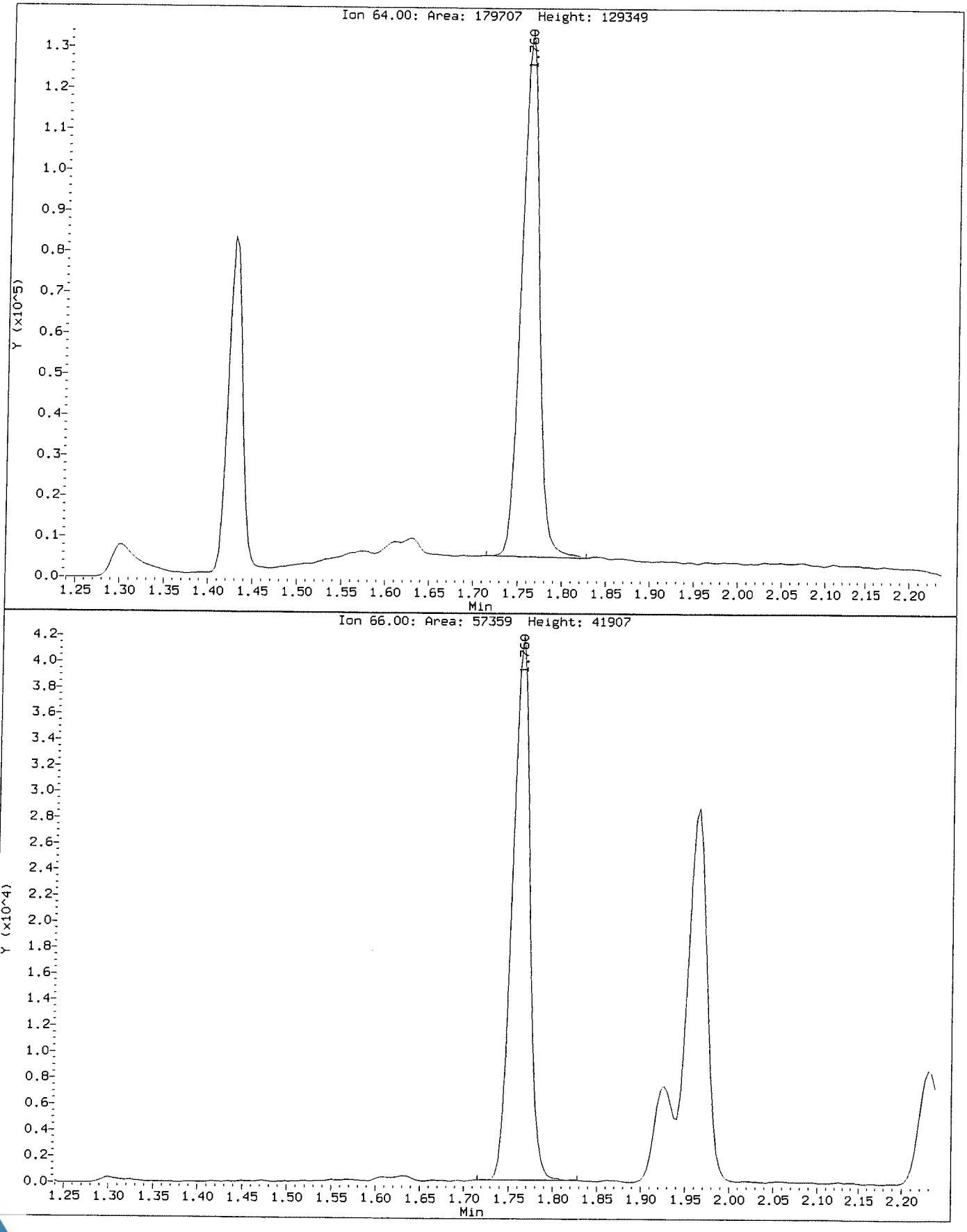
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 21-DEC-2018 17:06
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

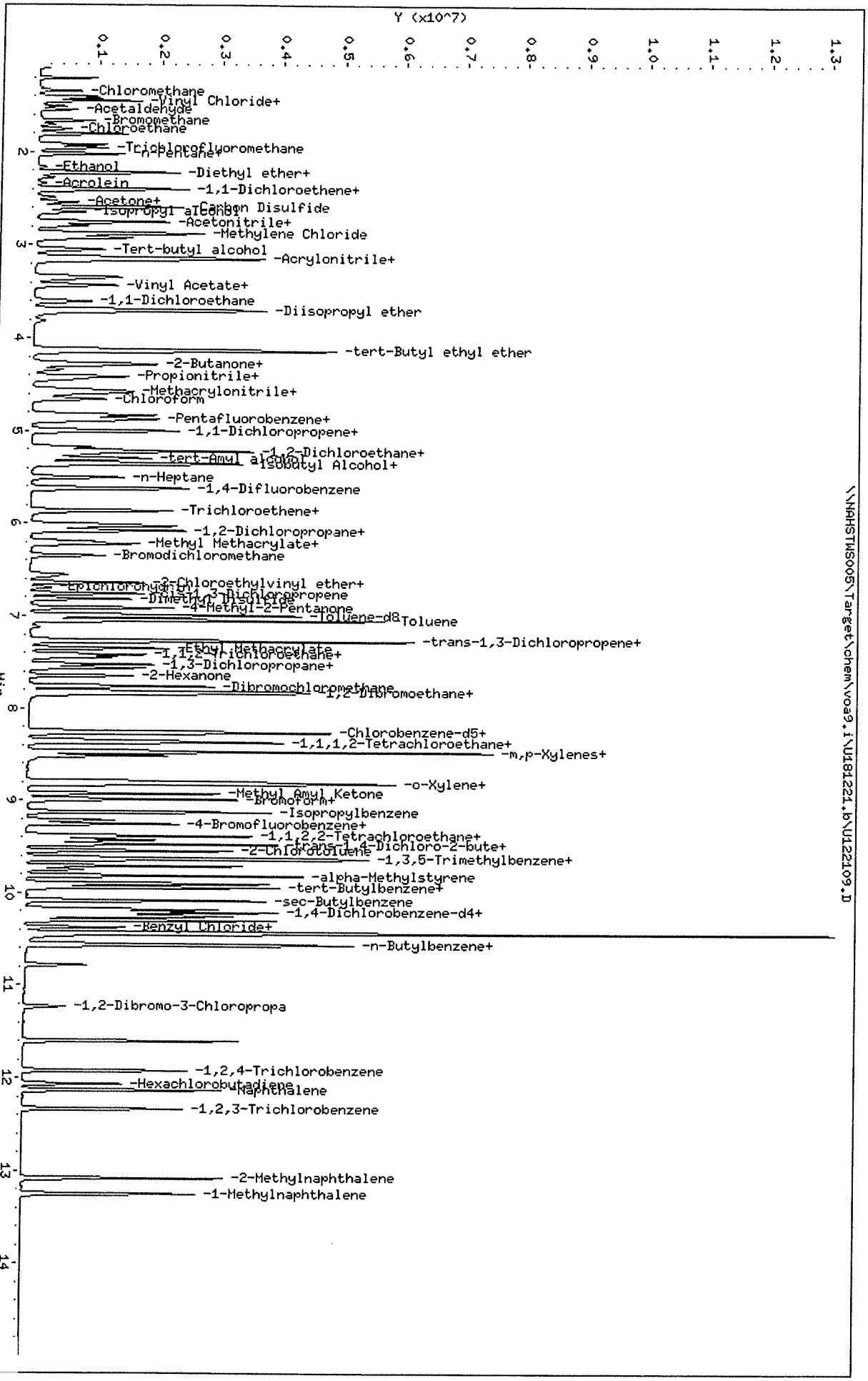
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.897 | (1.000) | 443466 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 822102 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.252 | 8.252 | (1.000) | 772888 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 368944 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.986) | 495628 | 100.000 | 102.84 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 635081 | 100.000 | 103.40 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 2029223 | 100.000 | 103.52 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 764798 | 100.000 | 102.11 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 493177 | 100.000 | 99.96 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 750490 | 100.000 | 107.17 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 804056 | 100.000 | 96.77 |
| 138 Freon TF | 101 | 2.404 | 2.404 | (0.491) | 394668 | 100.000 | 104.68 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.899) | 455612 | 100.000 | 98.94 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.736) | 956686 | 100.000 | 100.17 |
| 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.490) | 425292 | 100.000 | 100.86 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 748488 | 100.000 | 102.32 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 694931 | 100.000 | 99.32 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 901833 | 100.000 | 104.38 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.926 | 11.926 | (1.165) | 724973 | 100.000 | 106.13 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 2020622 | 100.000 | 104.65 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 125814 | 100.000 | 96.80 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.951) | 533692 | 100.000 | 100.62 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 1079683 | 100.000 | 98.55 |
| 33 | 1,2-Dichloroethane | 62 | 5.253 | 5.253 | (0.934) | 747337 | 100.000 | 101.64 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 587293 | 100.000 | 101.10 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.628 | 9.628 | (0.941) | 1981203 | 100.000 | 106.84 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 1088889 | 100.000 | 99.39 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.916) | 974518 | 100.000 | 98.25 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.258 | 10.258 | (1.002) | 1115296 | 100.000 | 96.55 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.873) | 606051 | 100.000 | 105.30 |
| 24 | 2-Butanone | 43 | 4.339 | 4.339 | (0.886) | 587152 | 200.000 | 204.95(A) |
| 76 | 2-Chlorotoluene | 91 | 9.549 | 9.549 | (0.933) | 1714248 | 100.000 | 100.84 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 912444 | 200.000 | 212.30(A) |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 1995109 | 100.000 | 101.56 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 2107729 | 100.000 | 107.96 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 1301011 | 200.000 | 210.38(A) |
| 10 | Acetone | 43 | 2.483 | 2.483 | (0.507) | 331678 | 200.000 | 194.35 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.928) | 2195227 | 100.000 | 100.34 |
| 74 | Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 573954 | 100.000 | 100.68 |
| 29 | Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 244429 | 100.000 | 108.58 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 667511 | 100.000 | 108.05 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 331336 | 100.000 | 98.11(T) |
| 6 | Bromomethane | 94 | 1.666 | 1.666 | (0.340) | 281859 | 100.000 | 101.50 |
| 19 | Carbon Disulfide | 76 | 2.592 | 2.592 | (0.529) | 3090544 | 200.000 | 201.15(A) |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.889) | 601960 | 100.000 | 99.26 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 1466929 | 100.000 | 98.78 |
| 7 | Chloroethane | 64 | 1.752 | 1.752 | (0.358) | 384958 | 100.000 | 95.90(M) |
| 28 | Chloroform | 83 | 4.657 | 4.657 | (0.951) | 918394 | 100.000 | 99.85 |
| 3 | Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 441603 | 100.000 | 90.82 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.286 | 4.286 | (0.875) | 580958 | 100.000 | 99.66 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.760 | 6.760 | (1.202) | 944095 | 100.000 | 99.29 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 512845 | 100.000 | 99.98 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 341140 | 100.000 | 101.75 |
| 2 | Dichlorodifluoromethane | 85 | 1.209 | 1.209 | (0.247) | 553841 | 100.000 | 100.99 |
| 61 | Ethylbenzene | 106 | 8.372 | 8.372 | (1.015) | 779796 | 100.000 | 102.38 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 259405 | 100.000 | 99.12 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 2327627 | 100.000 | 105.90 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 1935465 | 200.000 | 206.70(A) |
| 17 | Methylene Chloride | 84 | 2.873 | 2.873 | (0.587) | 554902 | 100.000 | 102.47 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 1963594 | 100.000 | 104.21 |
| 73 | n-Propylbenzene | 91 | 9.478 | 9.478 | (0.926) | 2891517 | 100.000 | 104.88 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 2231968 | 100.000 | 99.52 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 975544 | 100.000 | 103.27 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 2492415 | 100.000 | 107.57 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.069) | 1680613 | 100.000 | 107.08 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 1698031 | 100.000 | 105.95 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 397169 | 100.000 | 98.15 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.854) | 2304015 | 100.000 | 100.21 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.143 | 3.143 | (0.642) | 513822 | 100.000 | 98.98 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.291) | 811224 | 100.000 | 98.79 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 528149 | 100.000 | 100.00 |
| 8 | Trichlorofluoromethane | 101 | 1.955 | 1.955 | (0.399) | 753769 | 100.000 | 102.46 |
| 5 | Vinyl Chloride | 62 | 1.422 | 1.422 | (0.290) | 629175 | 100.000 | 99.33 |

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



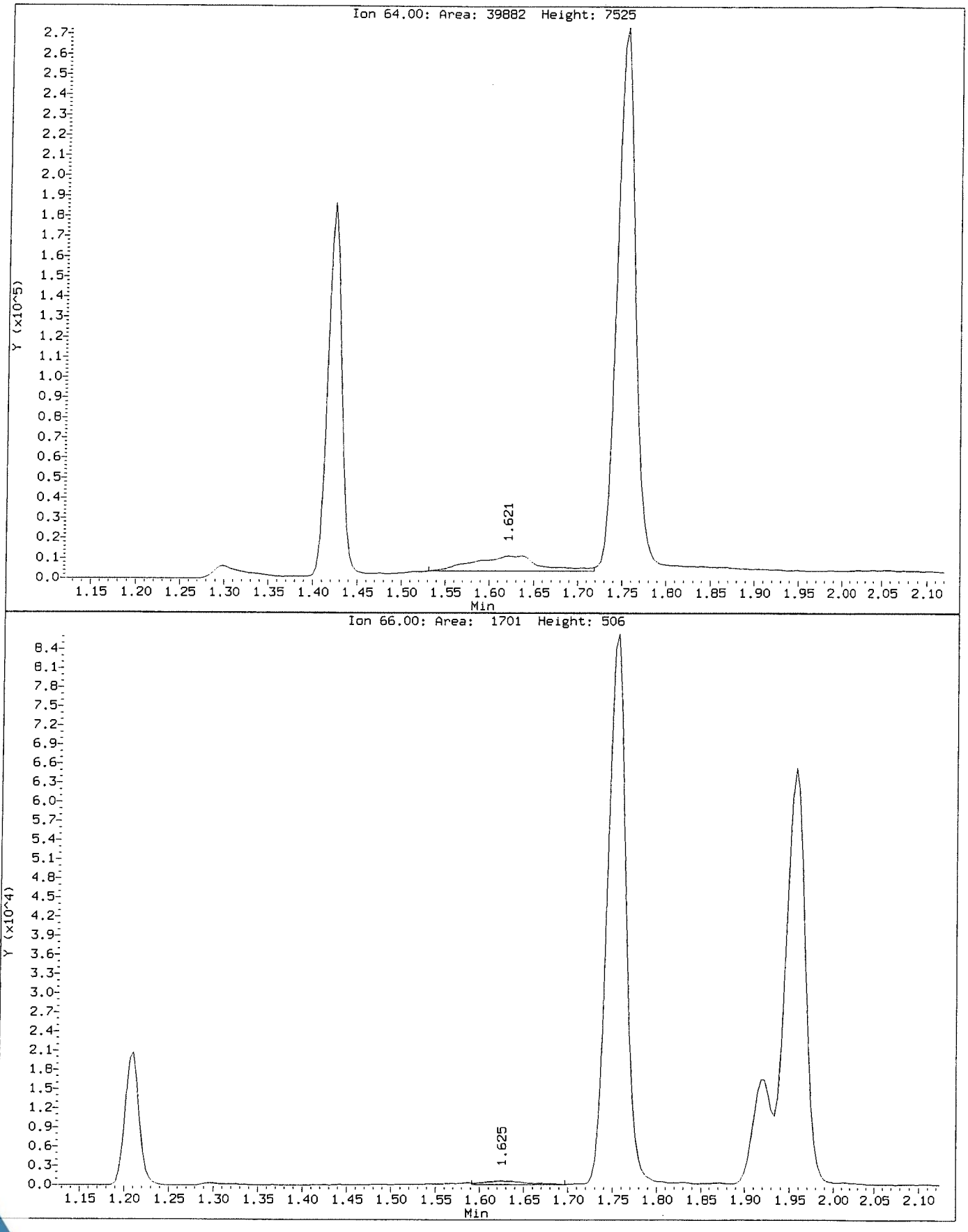

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Date : 21-DEC-2018 17:06
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

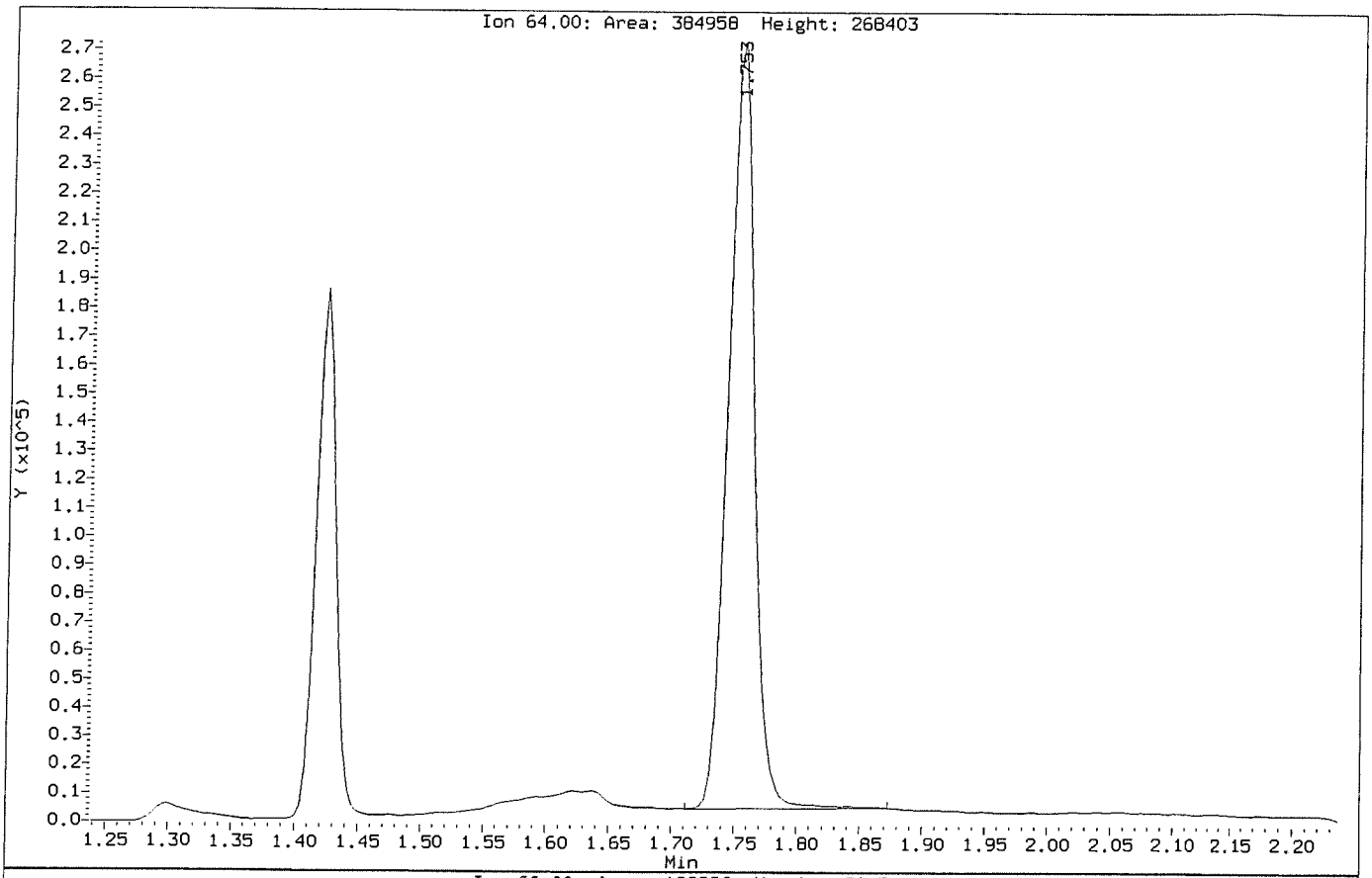
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

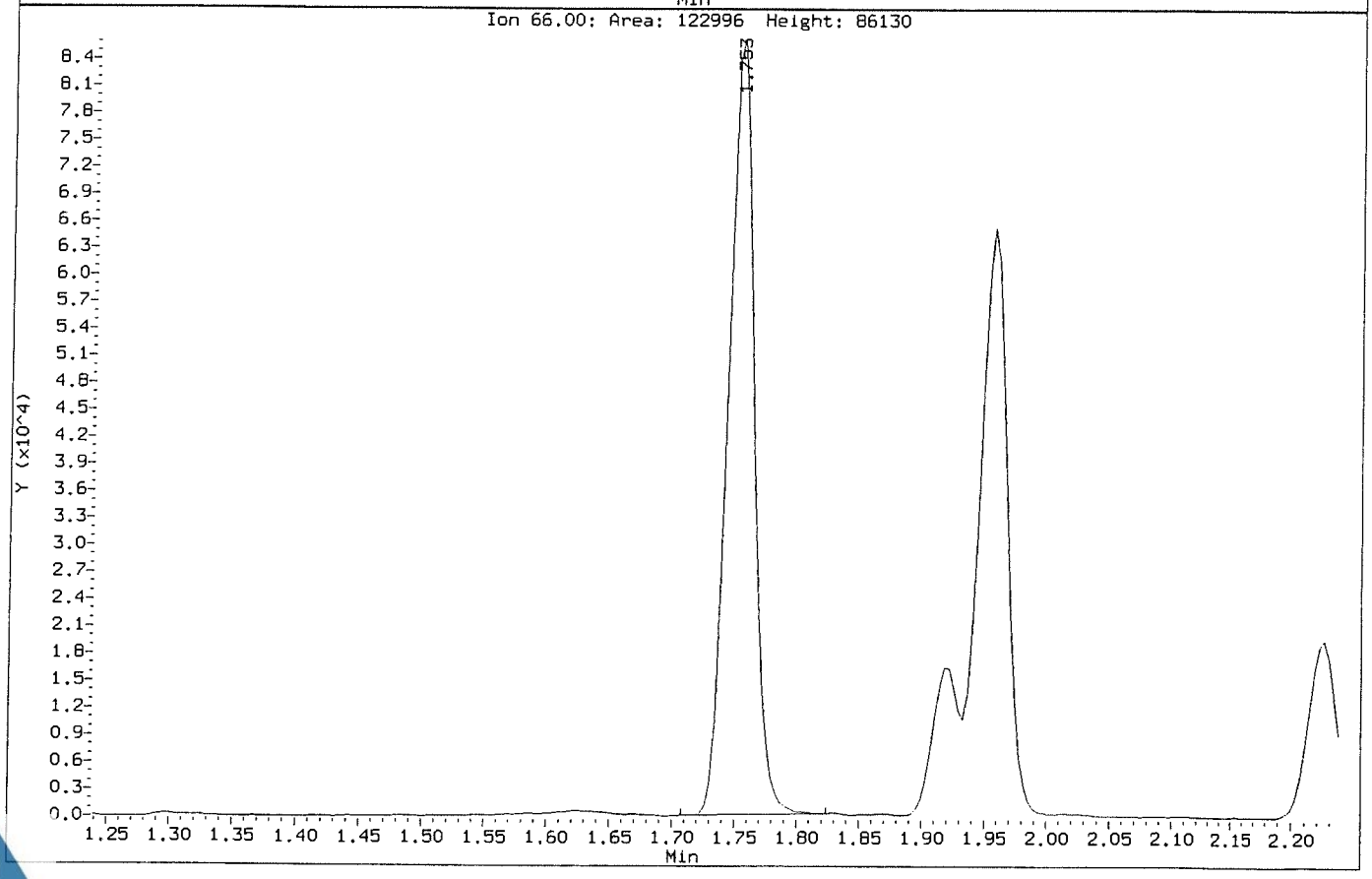
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 21-DEC-2018 17:31
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:06 Cal File: U122109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

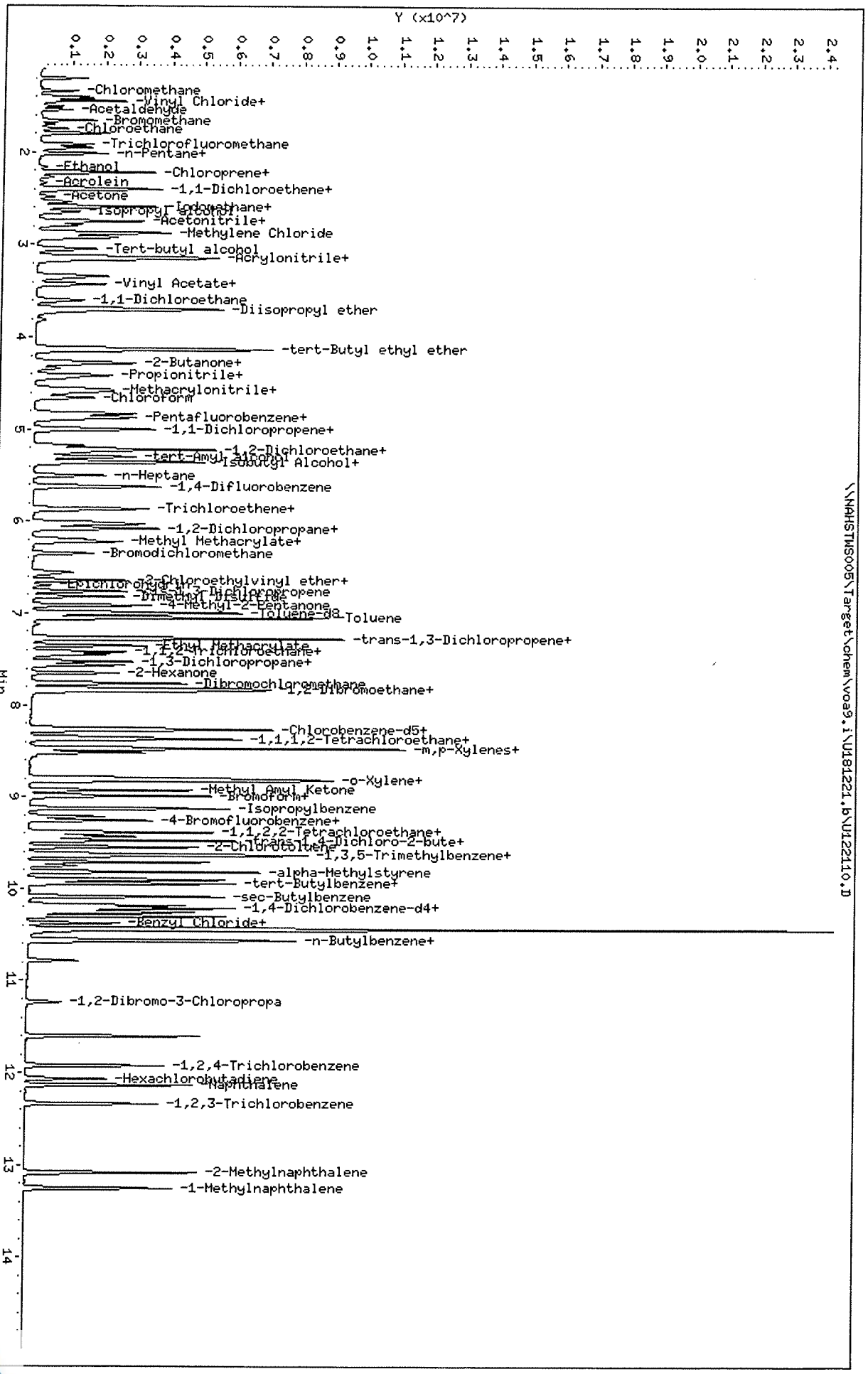
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 456327 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 837974 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 793198 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 374825 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 745399 | 150.000 | 151.02 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 949266 | 150.000 | 151.18 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 3016887 | 150.000 | 150.76 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 1153874 | 150.000 | 150.78 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 766622 | 150.000 | 151.11 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 1166981 | 150.000 | 161.96 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 1214939 | 150.000 | 143.93 |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 609198 | 150.000 | 157.03 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 689788 | 150.000 | 145.96 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 1459691 | 150.000 | 148.53 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 645721 | 150.000 | 148.82 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 1147997 | 150.000 | 153.96 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1085027 | 150.000 | 152.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 1401190 | 150.000 | 159.63 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 1126029 | 150.000 | 162.26 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 3050007 | 150.000 | 155.49 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 200384 | 150.000 | 150.93 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 815175 | 150.000 | 149.76 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 1640210 | 150.000 | 147.37 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 1129116 | 150.000 | 151.01 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 888346 | 150.000 | 150.03 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 2996671 | 150.000 | 159.08 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 1669910 | 150.000 | 150.03 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 1476732 | 150.000 | 145.07 |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 1696761 | 150.000 | 144.58 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 951402 | 150.000 | 160.64 |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 880878 | 300.000 | 299.93(A) |
| 76 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 2603345 | 150.000 | 150.74 |
| 52 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 1413890 | 300.000 | 320.56(A) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 3029757 | 150.000 | 151.81 |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 3190047 | 150.000 | 160.83 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 1993190 | 300.000 | 314.06(A) |
| 10 Acetone | 43 | 2.480 | 2.480 | (0.507) | 520533 | 300.000 | 298.01(A) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 3311929 | 150.000 | 148.52 |
| 74 Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 890701 | 150.000 | 153.79 |
| 29 Bromochloromethane | 128 | 4.557 | 4.557 | (0.931) | 348533 | 150.000 | 151.66 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 1032680 | 150.000 | 164.00 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 522892 | 150.000 | 149.93 |
| 6 Bromomethane | 94 | 1.659 | 1.659 | (0.339) | 444174 | 150.000 | 154.73 |
| 19 Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 4735575 | 300.000 | 299.54(A) |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 939611 | 150.000 | 151.26 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 2244427 | 150.000 | 147.26 |
| 7 Chloroethane | 64 | 1.745 | 1.745 | (0.357) | 684109 | 150.000 | 161.33 |
| 28 Chloroform | 83 | 4.658 | 4.658 | (0.952) | 1391091 | 150.000 | 146.98 |
| 3 Chloromethane | 50 | 1.340 | 1.340 | (0.274) | 746873 | 150.000 | 147.15 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 893807 | 150.000 | 149.01 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 1468956 | 150.000 | 150.90 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 791728 | 150.000 | 149.91 |
| 44 Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 516406 | 150.000 | 151.11 |
| 2 Dichlorodifluoromethane | 85 | 1.205 | 1.205 | (0.246) | 873891 | 150.000 | 154.61 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 1198529 | 150.000 | 153.33 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 400552 | 150.000 | 150.65 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 3526393 | 150.000 | 156.34 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 2933161 | 300.000 | 305.23(A) |
| 17 Methylene Chloride | 84 | 2.870 | 2.870 | (0.586) | 841220 | 150.000 | 151.54 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 2965307 | 150.000 | 154.91 |
| 73 n-Propylbenzene | 91 | 9.479 | 9.479 | (0.926) | 4348220 | 150.000 | 155.25 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 3430934 | 150.000 | 151.53 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 1492877 | 150.000 | 153.99 |
| 81 sec-Butylbenzene | 105 | 10.090 | 10.090 | (0.986) | 3757107 | 150.000 | 159.61 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 2556162 | 150.000 | 158.70 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 2586354 | 150.000 | 158.85 |
| 56 Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 610669 | 150.000 | 147.05 |
| 50 Toluene | 91 | 7.049 | 7.049 | (0.855) | 3483930 | 150.000 | 147.65 |
| 20 trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 789348 | 150.000 | 147.77 |
| 51 trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.291) | 1271771 | 150.000 | 151.06 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 823329 | 150.000 | 152.94 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 1146930 | 150.000 | 151.21 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 1000865 | 150.000 | 153.03 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Date : 21-DEC-2018 17:31
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 21-DEC-2018 17:55
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:31 Cal File: U122110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

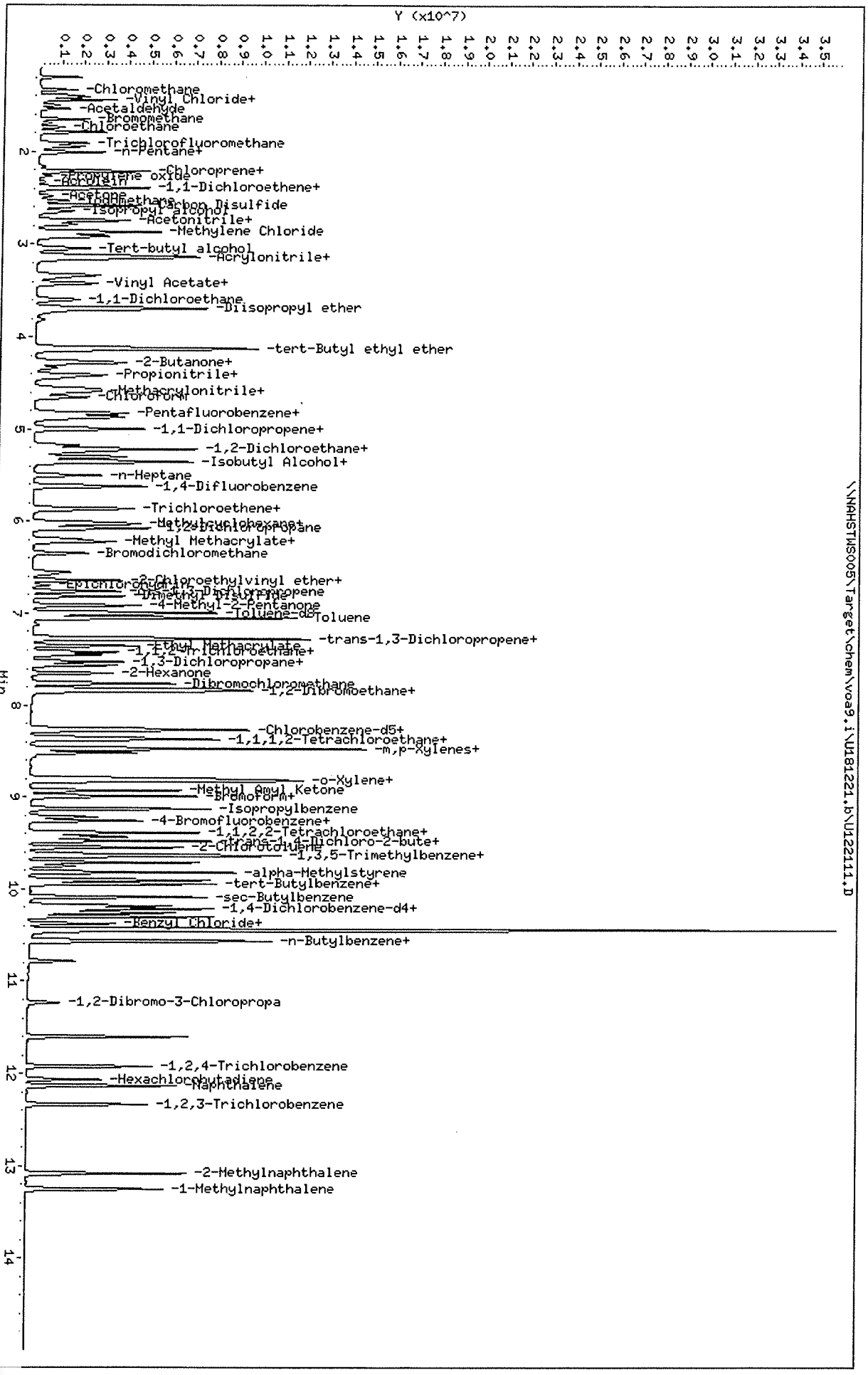
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.890 | 4.890 | (1.000) | 471928 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 852109 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 808162 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 383807 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.987) | 1006329 | 200.000 | 197.61 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.171 | (1.057) | 1274051 | 200.000 | 196.84 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 4010125 | 200.000 | 197.23 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 1540801 | 200.000 | 198.06 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1032567 | 200.000 | 199.57 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.987) | 1558350 | 200.000 | 209.12(A) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 1627647 | 200.000 | 188.30 |
| 138 Freon TF | 101 | 2.394 | 2.394 | (0.490) | 818502 | 200.000 | 204.00(A) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 922969 | 200.000 | 191.69 |
| 22 1,1-Dichloroethane | 63 | 3.597 | 3.597 | (0.736) | 1941260 | 200.000 | 191.00 |
| 11 1,1-Dichloroethene | 96 | 2.394 | 2.394 | (0.490) | 870210 | 200.000 | 193.93 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 1526453 | 200.000 | 201.33(A) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1453309 | 200.000 | 199.03 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 1910859 | 200.000 | 212.60(A) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.926 | 11.926 | (1.165) | 1495400 | 200.000 | 210.44(A) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 4007083 | 200.000 | 199.50 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 274280 | 200.000 | 201.27(A) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1097675 | 200.000 | 197.93 |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 2176108 | 200.000 | 190.95 |
| 33 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 1504782 | 200.000 | 198.15 |
| 42 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 1186343 | 200.000 | 197.03 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.628 | 9.628 | (0.941) | 3964216 | 200.000 | 205.51(A) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 2212350 | 200.000 | 194.11 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 1981022 | 200.000 | 191.01 |
| 84 1,4-Dichlorobenzene | 146 | 10.258 | 10.258 | (1.002) | 2259523 | 200.000 | 188.03 |
| 26 2,2-Dichloropropane | 77 | 4.272 | 4.272 | (0.874) | 1270502 | 200.000 | 207.43(A) |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.887) | 1199902 | 400.000 | 395.82(A) |
| 76 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 3451393 | 200.000 | 195.17 |
| 52 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 1896004 | 400.000 | 421.90(A) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 3993483 | 200.000 | 195.41 |
| 82 p-Isopropyltoluene | 119 | 10.213 | 10.213 | (0.998) | 4198944 | 200.000 | 206.74(A) |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 2681840 | 400.000 | 414.75(A) |
| 10 Acetone | 43 | 2.476 | 2.476 | (0.506) | 723113 | 400.000 | 401.34(A) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 4410809 | 200.000 | 194.52 |
| 74 Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 1186255 | 200.000 | 200.04(A) |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.931) | 453685 | 200.000 | 191.69 |
| 39 Bromodichloromethane | 83 | 6.345 | 6.345 | (1.128) | 1391257 | 200.000 | 217.29(A) |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 718878 | 200.000 | 201.69(A) |
| 6 Bromomethane | 94 | 1.651 | 1.651 | (0.338) | 585856 | 200.000 | 196.98 |
| 19 Carbon Disulfide | 76 | 2.585 | 2.585 | (0.529) | 6125723 | 400.000 | 374.66(A) |
| 34 Carbon Tetrachloride | 117 | 4.991 | 4.991 | (0.887) | 1268610 | 200.000 | 200.38(A) |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 2961137 | 200.000 | 190.69 |
| 7 Chloroethane | 64 | 1.737 | 1.737 | (0.355) | 859472 | 200.000 | 193.44 |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.952) | 1846267 | 200.000 | 188.63 |
| 3 Chloromethane | 50 | 1.333 | 1.333 | (0.273) | 1095269 | 200.000 | 207.27(A) |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.876) | 1189323 | 200.000 | 191.72 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 1986544 | 200.000 | 200.27(A) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1081017 | 200.000 | 200.56(A) |
| 44 Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 698521 | 200.000 | 201.01(A) |
| 2 Dichlorodifluoromethane | 85 | 1.198 | 1.198 | (0.245) | 1151588 | 200.000 | 196.87 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 1600834 | 200.000 | 201.00(A) |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 534175 | 200.000 | 196.21 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 4617933 | 200.000 | 200.94(A) |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 3876248 | 400.000 | 395.90(A) |
| 17 Methylene Chloride | 84 | 2.866 | 2.866 | (0.586) | 1131189 | 200.000 | 197.41 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 3856663 | 200.000 | 196.76 |
| 73 n-Propylbenzene | 91 | 9.479 | 9.479 | (0.926) | 5652456 | 200.000 | 197.09 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 4589381 | 200.000 | 199.26 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 1977764 | 200.000 | 200.23(A) |
| 81 sec-Butylbenzene | 105 | 10.090 | 10.090 | (0.986) | 4898290 | 200.000 | 203.23(A) |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 3375201 | 200.000 | 205.67(A) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 3416506 | 200.000 | 204.92(A) |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 811202 | 200.000 | 191.73 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 4594912 | 200.000 | 191.13 |
| 20 trans-1,2-Dichloroethene | 96 | 3.136 | 3.136 | (0.641) | 1055077 | 200.000 | 190.99 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 1721394 | 200.000 | 200.53(A) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 1093007 | 200.000 | 199.67 |
| 8 Trichlorofluoromethane | 101 | 1.944 | 1.944 | (0.398) | 1561606 | 200.000 | 198.87 |
| 5 Vinyl Chloride | 62 | 1.415 | 1.415 | (0.289) | 1348117 | 200.000 | 199.01 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.


Y (x10^7)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5
Min
2
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9
10
11
12
13
14
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Chloroprene+
-1,1-Dichloroethene+
-Acetone
-Carbon Disulfide
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Date : 21-DEC-2018 17:55
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 18:45
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:55 Cal File: U122111.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

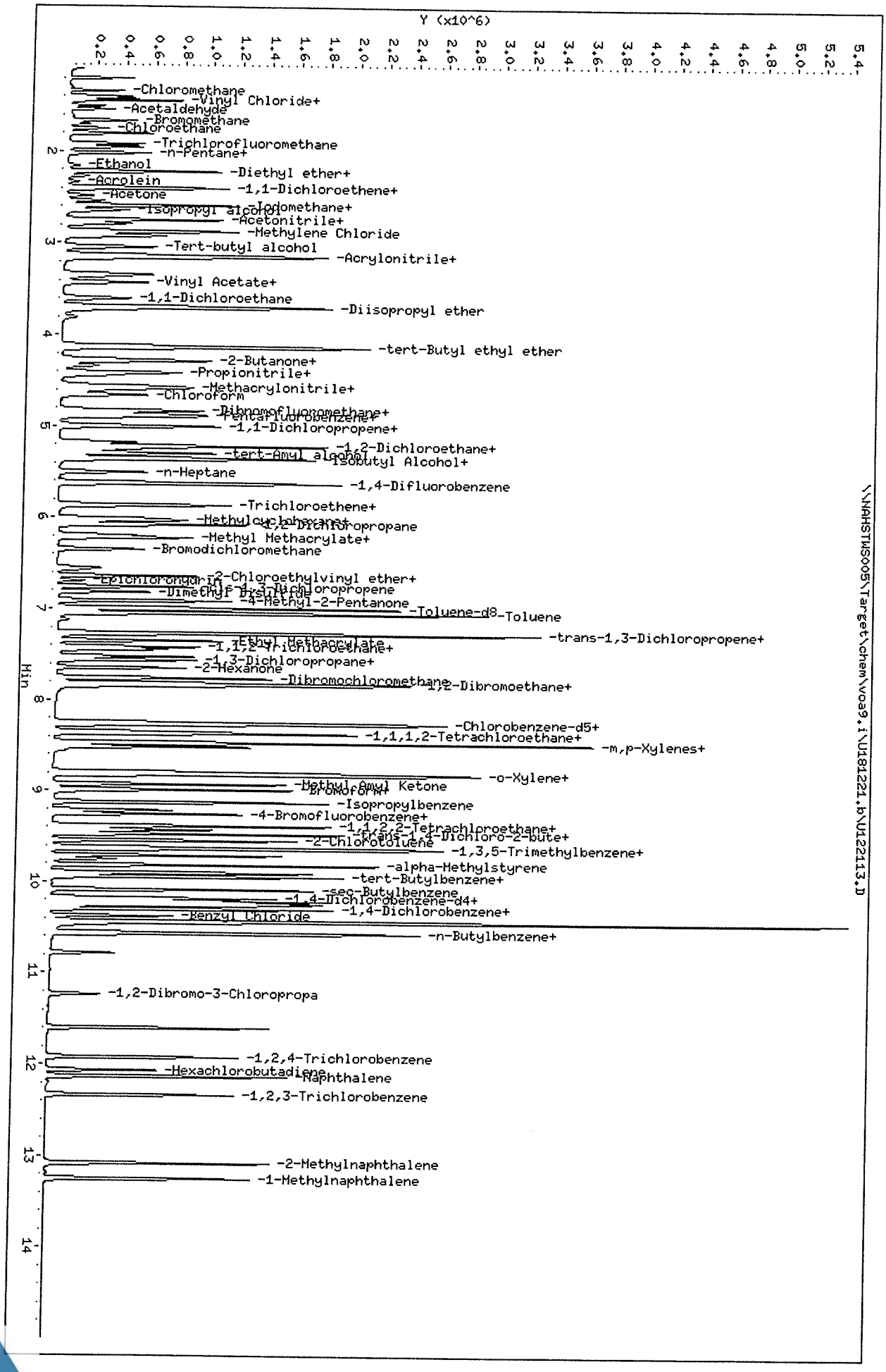
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.890 | (1.000) | 454236 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 837452 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 785431 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 375418 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.987) | 255609 | 51.0245 | 51.02 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 329809 | 51.3551 | 51.35 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 1045729 | 51.6161 | 51.61 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 396478 | 51.3902 | 51.39 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 241293 | 48.4317 | 48.43 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 354032 | 49.3608 | 49.36 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 418971 | 49.5558 | 49.55 |
| 138 Freon TF | 101 | 2.401 | 2.394 | (0.491) | 174050 | 45.0712 | 45.07 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.421 | (0.900) | 230741 | 49.3099 | 49.30 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.597 | (0.737) | 469167 | 47.9609 | 47.96 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.394 | (0.490) | 197920 | 45.8262 | 45.82 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 353683 | 47.4657 | 47.46 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 338004 | 47.8072 | 47.80 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.430 | (0.921) | 468241 | 53.2610 | 53.26 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.926 | (1.165) | 350114 | 50.3719 | 50.37 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 985013 | 50.1388 | 50.13 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 65081 | 49.9244 | 49.92 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 275792 | 51.1699 | 51.16 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 539129 | 48.3652 | 48.36 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 379863 | 50.3501 | 50.35 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 291083 | 49.1911 | 49.19 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.628 | (0.940) | 944583 | 50.0646 | 50.06 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 538150 | 48.2737 | 48.27 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 498006 | 49.4090 | 49.40 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.258 | (1.002) | 553425 | 47.0841 | 47.08 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.272 | (0.874) | 312995 | 53.0931 | 53.09 |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 309683 | 104.354 | 104.35 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.550 | (0.933) | 853147 | 49.3227 | 49.32 |
| 52 2-Hexanone | 43 | 7.649 | 7.653 | (0.927) | 476780 | 109.166 | 109.16 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 993815 | 49.7187 | 49.71 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.213 | (0.997) | 977284 | 49.1947 | 49.19 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 669743 | 106.576 | 106.57 |
| 10 Acetone | 43 | 2.480 | 2.476 | (0.507) | 202203 | 114.452 | 114.45 |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 1087936 | 48.8203 | 48.82 |
| 74 Bromobenzene | 156 | 9.381 | 9.385 | (0.917) | 288693 | 49.7707 | 49.77 |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 134219 | 56.7663 | 56.76 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.345 | (1.129) | 327631 | 52.0660 | 52.06 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 161326 | 47.9288 | 47.92(T) |
| 6 Bromomethane | 94 | 1.666 | 1.651 | (0.341) | 151955 | 54.0592 | 54.05 |
| 19 Carbon Disulfide | 76 | 2.588 | 2.585 | (0.529) | 1510901 | 96.0096 | 96.00 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.991 | (0.888) | 272477 | 44.8853 | 44.88 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 728193 | 48.2531 | 48.25 |
| 7 Chloroethane | 64 | 1.752 | 1.737 | (0.358) | 185529 | 46.1546 | 46.15(M) |
| 28 Chloroform | 83 | 4.658 | 4.654 | (0.952) | 456472 | 48.4536 | 48.45 |
| 3 Chloromethane | 50 | 1.340 | 1.333 | (0.274) | 235959 | 48.9688 | 48.96 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.283 | (0.876) | 292150 | 48.9311 | 48.93 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 467498 | 48.9175 | 48.91 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 250542 | 48.5723 | 48.57 |
| 44 Dibromomethane | 93 | 6.191 | 6.187 | (1.101) | 173822 | 50.8969 | 50.89 |
| 2 Dichlorodifluoromethane | 85 | 1.205 | 1.198 | (0.246) | 258081 | 46.2123 | 46.21 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 381593 | 49.3007 | 49.30 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 122959 | 46.1748 | 46.17 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1096015 | 49.0718 | 49.07 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 950452 | 99.8846 | 99.88 |
| 17 Methylene Chloride | 84 | 2.870 | 2.866 | (0.586) | 279368 | 49.7584 | 49.75 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 900081 | 46.9488 | 46.94 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.479 | (0.926) | 1377655 | 49.1117 | 49.11 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 1130612 | 49.4621 | 49.46 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 478939 | 49.8923 | 49.89 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.090 | (0.985) | 1124348 | 47.6920 | 47.69 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 841070 | 52.7368 | 52.73 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 781669 | 47.9339 | 47.93 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 188872 | 45.9327 | 45.93 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 1151259 | 49.2749 | 49.27 |
| 20 trans-1,2-Dichloroethene | 96 | 3.139 | 3.136 | (0.642) | 255368 | 48.0288 | 48.02 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 402226 | 48.9357 | 48.93 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 262761 | 48.8423 | 48.84 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.944 | (0.399) | 342884 | 45.8511 | 45.85 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.415 | (0.290) | 295169 | 46.0208 | 46.02 |

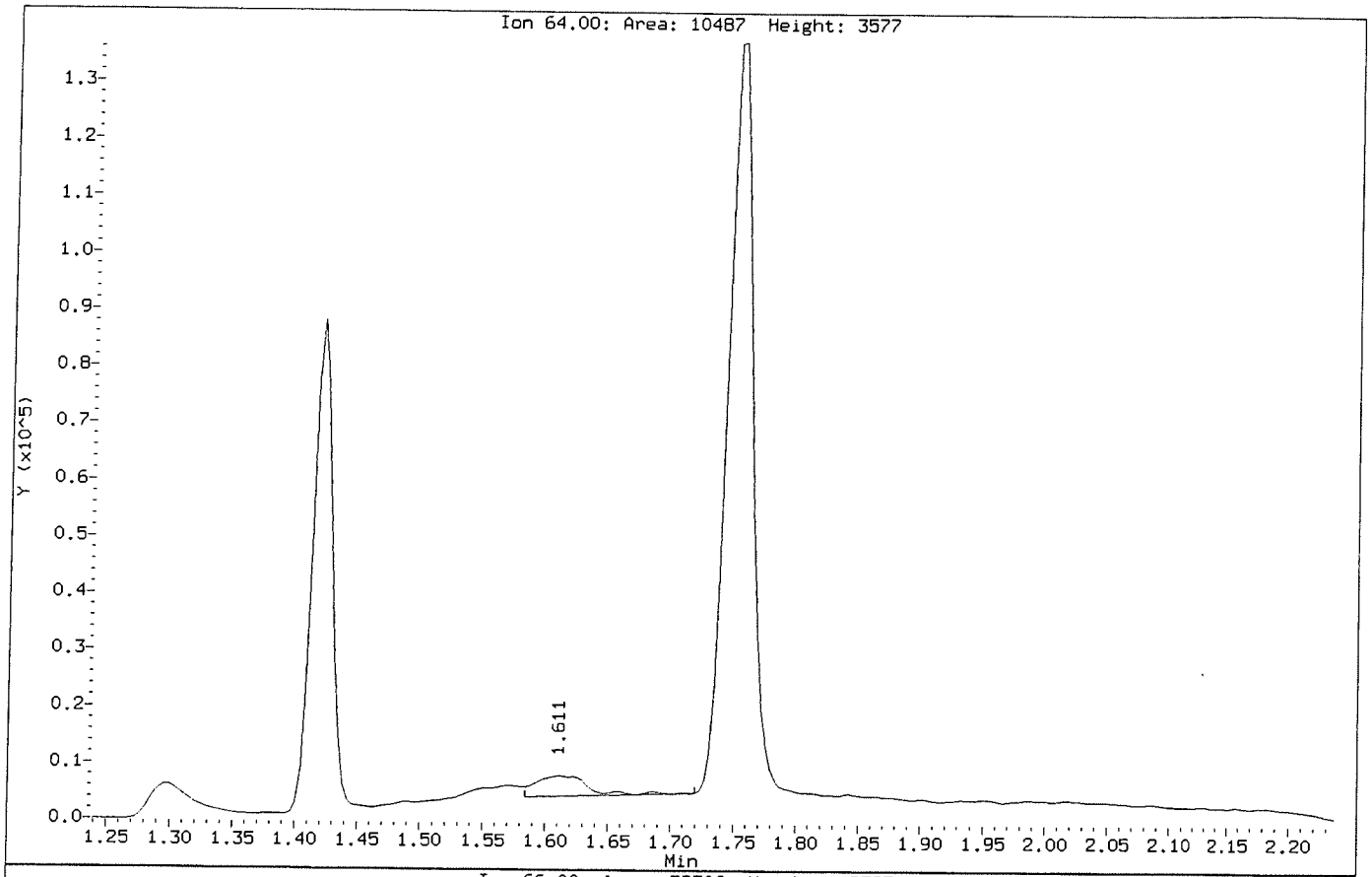
QC Flag Legend

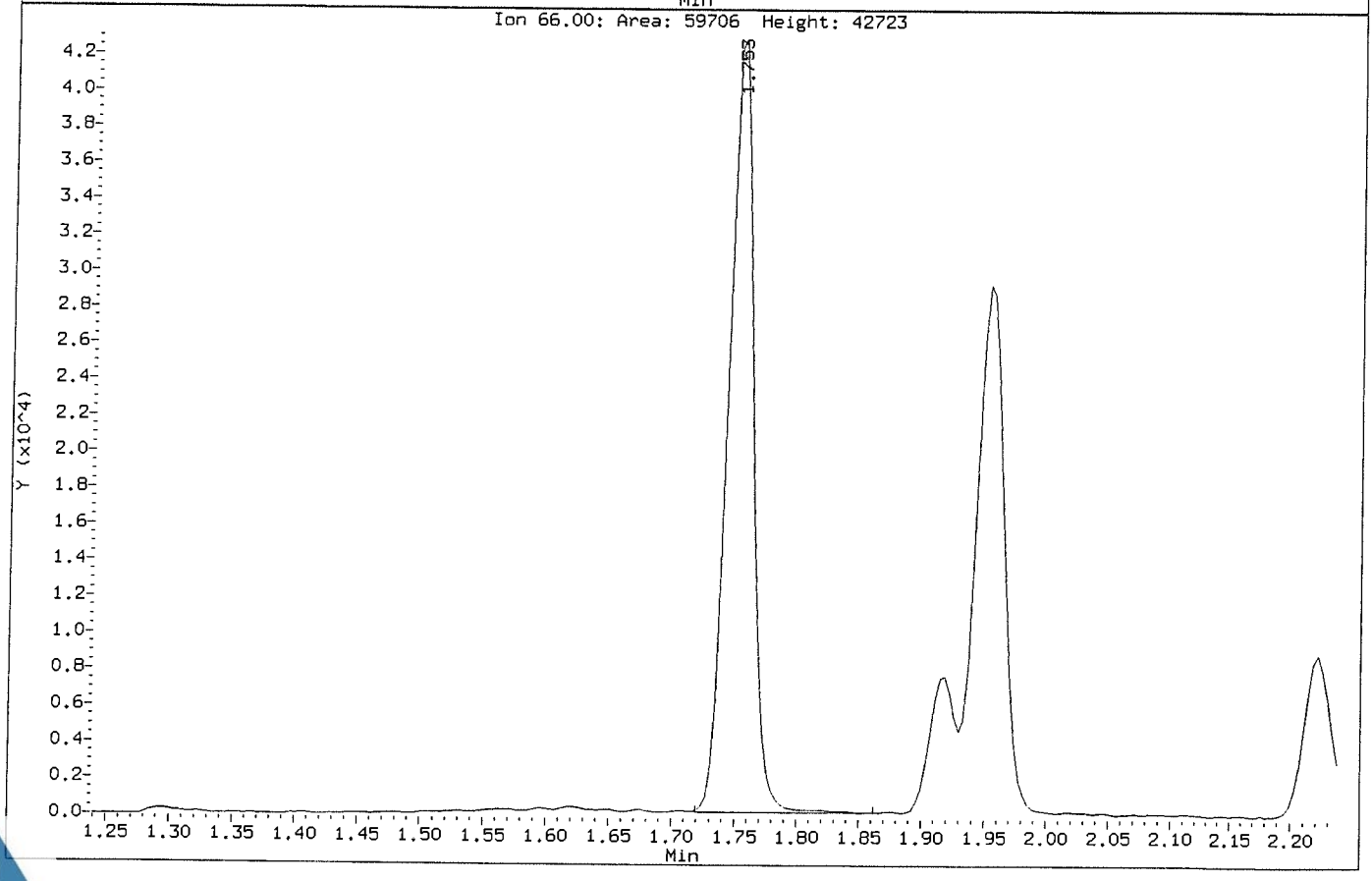
T - Target compound detected outside RT window.
M - Compound response manually integrated.


Y (x10^6)
Min
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Ethanol
-Diethyl ether+
-Acrolein
-1,1-Dichloroethene+
-Acetone
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene
-Dimethyl disulfide
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-1,4-Dichlorobenzene+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Date : 21-DEC-2018 18:45
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18
Page 4

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

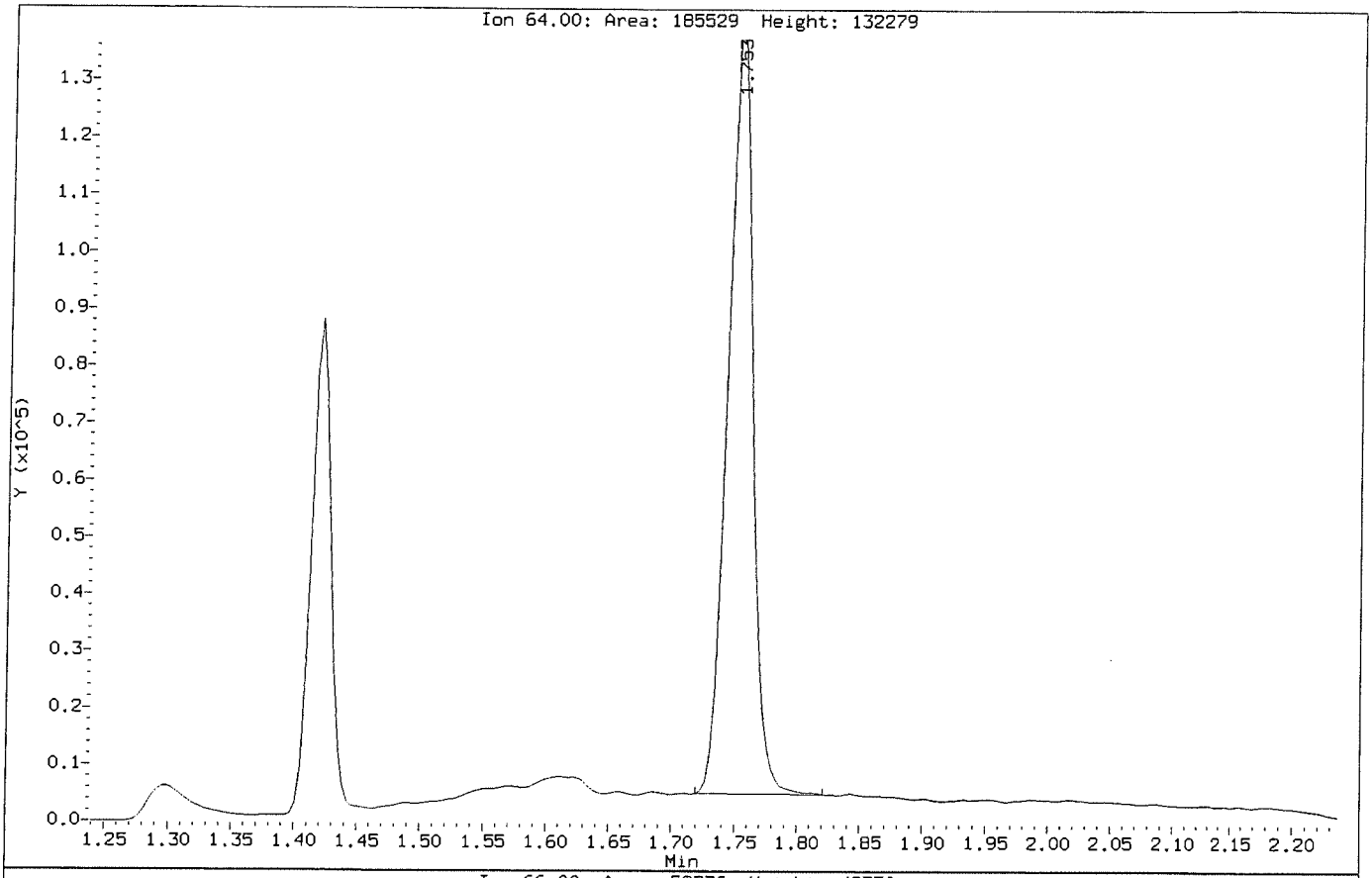
Compound: Chloroethane
CAS Number: 75-00-3

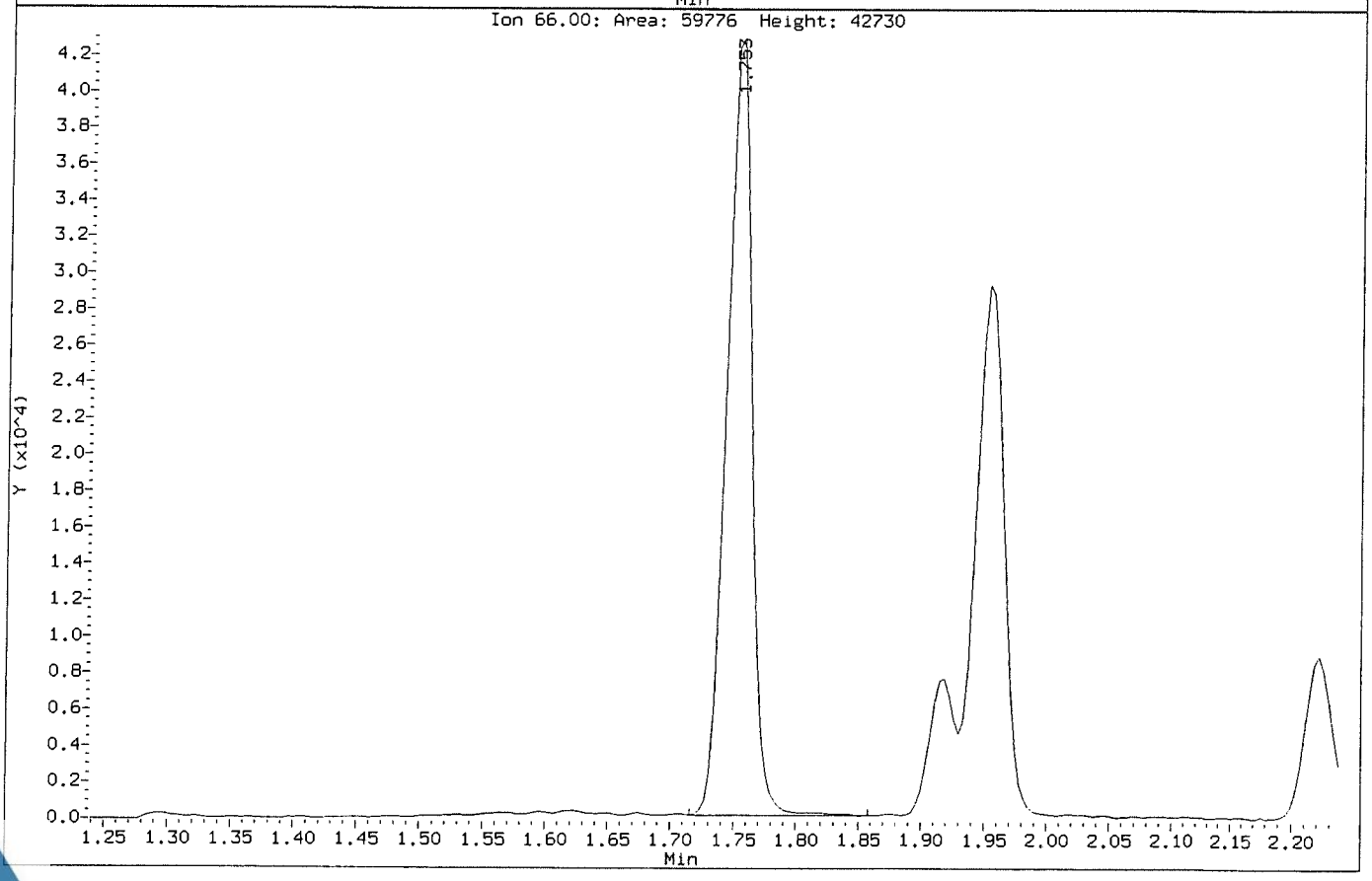


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



# MSVOA09 -Logbook

**Batch:** 34004
**Date:** 12-24-2018
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 12-24-2018 09:28 am | 1.00 | 50 mL | 50 mL | U122401.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD050 | CCV | 12-24-2018 09:52 am | 1.00 | 50 mL | 50 mL | U122402.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | VLCSW-1812024 | LCS | 12-24-2018 10:17 am | 1.00 | 50 mL | 50 mL | U122403.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 4 | BLANK | SAMP | 12-24-2018 10:41 am | 1.00 | 50 mL | 50 mL | U122404.D | Liquid | Y | NA |
| 5 | VBLKW-181224 | MBLK | 12-24-2018 11:06 am | 1.00 | 50 mL | 50 mL | U122405.D | Liquid | Y | NA |
| 6 | HS18120736-09 | SAMP | 12-24-2018 11:31 am | 1.00 | 50 mL | 50 mL | U122406.D | Liquid | Y | <2 |
| 7 | HS18120913-03 | SAMP | 12-24-2018 11:55 am | 1.00 | 50 mL | 50 mL | U122407.D | Liquid | Y | <2 |
| 8 | HS18120736-05 | SAMP | 12-24-2018 12:20 pm | 1.00 | 50 mL | 50 mL | U122408.D | Liquid | Y | <2 |
| 9 | HS18120736-06 | SAMP | 12-24-2018 12:45 pm | 1.00 | 50 mL | 50 mL | U122409.D | Liquid | Y | <2 |
| 10 | HS18120736-07 | SAMP | 12-24-2018 01:10 pm | 1.00 | 50 mL | 50 mL | U122410.D | Liquid | Y | <2 |
| 11 | HS18121093-02 | SAMP | 12-24-2018 01:35 pm | 1.00 | 50 mL | 50 mL | U122411.D | Liquid | Y | <2 |
| 12 | HS18120913-01 | SAMP | 12-24-2018 01:59 pm | 1.00 | 50 mL | 50 mL | U122412.D | Liquid | Y | <2 |
| 13 | HS18120913-02 | SAMP | 12-24-2018 02:24 pm | 1.00 | 50 mL | 50 mL | U122413.D | Liquid | Y | <2 |
| 14 | HS18121093-01 | SAMP | 12-24-2018 02:49 pm | 5.00 | 10 mL | 50 mL | U122414.D | Liquid | Y | <2 |
| 15 | HS18120913-03MS | MS | 12-24-2018 03:14 pm | 1.00 | 50 mL | 50 mL | U122415.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 16 | HS18120913-03MSD | MSD | 12-24-2018 03:39 pm | 1.00 | 50 mL | 50 mL | U122416.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 17 | HS18121093-01 | SAMP | 12-24-2018 04:03 pm | 50.00 | 1 mL | 50 mL | U122417.D | Liquid | Y | <2 |
| 18 | HS18120913-08 | SAMP | 12-24-2018 04:28 pm | 1.00 | 50 mL | 50 mL | U122418.D | Liquid | Y | <2 |
| 19 | HS18121030-05 | SAMP | 12-24-2018 04:53 pm | 1.00 | 50 mL | 50 mL | U122419.D | Liquid | Y | <2 |
| 20 | HS18120913-04 | SAMP | 12-24-2018 05:18 pm | 1.00 | 50 mL | 50 mL | U122420.D | Liquid | Y | <2 |
| 21 | HS18120913-05 | SAMP | 12-24-2018 05:43 pm | 1.00 | 50 mL | 50 mL | U122421.D | Liquid | Y | <2 |
| 22 | HS18120913-06 | SAMP | 12-24-2018 06:08 pm | 1.00 | 50 mL | 50 mL | U122422.D | Liquid | Y | <2 |
| 23 | HS18120913-07 | SAMP | 12-24-2018 06:32 pm | 1.00 | 50 mL | 50 mL | U122423.D | Liquid | Y | <2 |
| 24 | HS18121030-01 | SAMP | 12-24-2018 06:57 pm | 1.00 | 50 mL | 50 mL | U122424.D | Liquid | Y | <2 |
| 25 | HS18121030-02 | SAMP | 12-24-2018 07:22 pm | 1.00 | 50 mL | 50 mL | U122425.D | Liquid | Y | <2 |
| 26 | HS18121030-03 | SAMP | 12-24-2018 07:47 pm | 1.00 | 50 mL | 50 mL | U122426.D | Liquid | Y | <2 |
| 27 | HS18121030-04 | SAMP | 12-24-2018 08:12 pm | 1.00 | 50 mL | 50 mL | U122427.D | Liquid | Y | <2 |
| 28 | VSTD050-END | CCV | 12-24-2018 08:37 pm | 1.00 | 50 mL | 50 mL | U122428.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 29 | BFB | TUNE | 12-24-2018 09:01 pm | 1.00 | 50 mL | 50 mL | V122401.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 30 | VSTD050 | CCV | 12-24-2018 09:26 pm | 1.00 | 50 mL | 50 mL | V122402.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 31 | BLANK | SAMP | 12-24-2018 09:51 pm | 1.00 | 50 mL | 50 mL | V122403.D | Liquid | Y | NA |
| 32 | CCB | SAMP | 12-24-2018 10:16 pm | 1.00 | 50 mL | 50 mL | V122404.D | Liquid | Y | NA |
| | *CCB* | | | | | | | | | |
| 33 | VLCSW-1812024 | LCS | 12-24-2018 10:40 pm | 1.00 | 50 mL | 50 mL | V122405.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 34 | BLANK | SAMP | 12-24-2018 11:05 pm | 1.00 | 50 mL | 50 mL | V122406.D | Liquid | Y | NA |
| 35 | VBLKW-181224 | MBLK | 12-24-2018 11:30 pm | 1.00 | 50 mL | 50 mL | V122407.D | Liquid | Y | NA |
| 36 | HS18120845-05 | SAMP | 12-24-2018 11:55 pm | 1.00 | 50 mL | 50 mL | V122408.D | Liquid | Y | <2 |

# MSVOA09 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 37 | HS18120845-06 | SAMP | 12-25-2018 12:20 am | 1.00 | 50 mL | 50 mL | V122409.D | Liquid | Y | <2 |
| 38 | HS18121097-07 | SAMP | 12-25-2018 12:45 am | 1.00 | 50 mL | 50 mL | V122410.D | Liquid | Y | <2 |
| 39 | HS18121097-08 | SAMP | 12-25-2018 01:09 am | 1.00 | 50 mL | 50 mL | V122411.D | Liquid | Y | <2 |
| 40 | HS18121097-09 | SAMP | 12-25-2018 01:34 am | 1.00 | 50 mL | 50 mL | V122412.D | Liquid | Y | <2 |
| 41 | HS18121098-01 | SAMP | 12-25-2018 01:59 am | 1.00 | 50 mL | 50 mL | V122413.D | Liquid | Y | <2 |
| 42 | HS18121098-02 | SAMP | 12-25-2018 02:24 am | 1.00 | 50 mL | 50 mL | V122414.D | Liquid | Y | <2 |
| 43 | HS18121098-08 | SAMP | 12-25-2018 02:49 am | 1.00 | 50 mL | 50 mL | V122415.D | Liquid | Y | <2 |
| 44 | HS18121098-03 | SAMP | 12-25-2018 03:14 am | 1.00 | 50 mL | 50 mL | V122416.D | Liquid | Y | <2 |
| 45 | HS18121098-03MS | MS | 12-25-2018 03:38 am | 1.00 | 50 mL | 50 mL | V122417.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 46 | HS18121098-03MSD | MSD | 12-25-2018 04:03 am | 1.00 | 50 mL | 50 mL | V122418.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 47 | HS18121068-09 | SAMP | 12-25-2018 04:28 am | 1.00 | 50 mL | 50 mL | V122419.D | Liquid | Y | <2 |
| 48 | HS18121097-01 | SAMP | 12-25-2018 04:53 am | 1.00 | 50 mL | 50 mL | V122420.D | Liquid | Y | <2 |
| 49 | HS18121097-02 | SAMP | 12-25-2018 05:18 am | 1.00 | 50 mL | 50 mL | V122421.D | Liquid | Y | <2 |
| 50 | HS18121097-03 | SAMP | 12-25-2018 05:43 am | 1.00 | 50 mL | 50 mL | V122422.D | Liquid | Y | <2 |
| 51 | HS18121097-04 | SAMP | 12-25-2018 06:07 am | 1.00 | 50 mL | 50 mL | V122423.D | Liquid | Y | <2 |
| 52 | HS18121097-05 | SAMP | 12-25-2018 06:32 am | 1.00 | 50 mL | 50 mL | V122424.D | Liquid | Y | <2 |
| 53 | HS18121097-06 | SAMP | 12-25-2018 06:57 am | 1.00 | 50 mL | 50 mL | V122425.D | Liquid | Y | <2 |
| 54 | HS18121098-04 | SAMP | 12-25-2018 07:22 am | 1.00 | 50 mL | 50 mL | V122426.D | Liquid | Y | <2 |
| 55 | HS18121098-05 | SAMP | 12-25-2018 07:47 am | 1.00 | 50 mL | 50 mL | V122427.D | Liquid | Y | <2 |
| 56 | HS18121098-06 | SAMP | 12-25-2018 08:11 am | 1.00 | 50 mL | 50 mL | V122428.D | Liquid | Y | <2 |
| 57 | HS18121098-07 | SAMP | 12-25-2018 08:36 am | 1.00 | 50 mL | 50 mL | V122429.D | Liquid | Y | <2 |

| Chemical | Value |
|---|---|
| SURR SPK ID | 30502-52-03 |
| IS ID | 30502-52-04 |
| ICV STD ID | 30603-46-01 |
| LCS/MS ID | 30603-46-01 |
| CAL STD ID | 30502-57-01/02 |
| BFB ID | 30502-52-03 |

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

| | CLIENT SAMPLE NO. | SMC1 (DCE)# | SMC2 # | SMC3 (TOL)# | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-181224 | 104 | 102 | 102 | 104 | 0 |
| 02 | VBLKW-181224 | 95 | 89 | 104 | 96 | 0 |
| 03 | HS18120913-0 | 95 | 89 | 106 | 99 | 0 |
| 04 | HS18120913-0 | 97 | 90 | 105 | 97 | 0 |
| 05 | HS18120913-0 | 98 | 90 | 106 | 97 | 0 |
| 06 | HS18120913-0 | 94 | 91 | 106 | 103 | 0 |
| 07 | HS18120913-0 | 95 | 92 | 106 | 104 | 0 |
| 08 | HS18120913-0 | 98 | 92 | 105 | 98 | 0 |
| 09 | HS18120913-0 | 98 | 90 | 105 | 97 | 0 |
| 10 | HS18120913-0 | 99 | 92 | 104 | 96 | 0 |
| 11 | HS18120913-0 | 99 | 92 | 105 | 97 | 0 |
| 12 | HS18120913-0 | 99 | 91 | 105 | 97 | 0 |
| 13 | | | | | | |
| 14 | | | | | | |
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| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | ( 0-130) |
| SMC2 | = Dibromofluoromethane | ( 0-130) |
| SMC3 (TOL) | = Toluene-d8 | ( 0-130) |
| OTHER | = 4-Bromofluorobenzene | ( 0-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181224

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Lab File ID: U122405 Lab Sample ID: VBLKW-181224

Date Analyzed: 12/24/18 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

| | SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VLCSW-181224 | VLCSW-1812024 | U122403 | 1017 |
| 02 | HS18120913-0 | HS18120913-03 | U122407 | 1155 |
| 03 | HS18120913-0 | HS18120913-01 | U122412 | 1359 |
| 04 | HS18120913-0 | HS18120913-02 | U122413 | 1424 |
| 05 | HS18120913-0 | HS18120913-03M | U122415 | 1514 |
| 06 | HS18120913-0 | HS18120913-03M | U122416 | 1539 |
| 07 | HS18120913-0 | HS18120913-08 | U122418 | 1628 |
| 08 | HS18120913-0 | HS18120913-04 | U122420 | 1718 |
| 09 | HS18120913-0 | HS18120913-05 | U122421 | 1743 |
| 10 | HS18120913-0 | HS18120913-06 | U122422 | 1808 |
| 11 | HS18120913-0 | HS18120913-07 | U122423 | 1832 |
| 12 | | | | |
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COMMENTS:

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Lab File ID: U122401  BFB Injection Date: 12/24/18

Instrument ID: VOA9  BFB Injection Time: 0928

GC Column: DB624  ID: 0.25 (mm)  Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 19.5 |
| 75 | 30.0 - 60.0% of mass 95 | 50.9 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.1 |
| 173 | Less than 2.0% of mass 174 | 0.7 ( 1.0)1 |
| 174 | Greater than 50.0% of mass 95 | 66.6 |
| 175 | 5.0 - 9.0% of mass 174 | 4.9 ( 7.4)1 |
| 176 | 95.0 - 101.0% of mass 174 | 64.4 ( 96.7)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.4 ( 6.8)2 |

1-Value is % mass 174  2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 | U122402 | 12/24/18 | 0952 |
| 02 | VLCSW-181224 | VLCSW-1812024 | U122403 | 12/24/18 | 1017 |
| 03 | VBLKW-181224 | VBLKW-181224 | U122405 | 12/24/18 | 1106 |
| 04 | HS18120913-0 | HS18120913-03 | U122407 | 12/24/18 | 1155 |
| 05 | HS18120913-0 | HS18120913-01 | U122412 | 12/24/18 | 1359 |
| 06 | HS18120913-0 | HS18120913-02 | U122413 | 12/24/18 | 1424 |
| 07 | HS18120913-0 | HS18120913-03M | U122415 | 12/24/18 | 1514 |
| 08 | HS18120913-0 | HS18120913-03M | U122416 | 12/24/18 | 1539 |
| 09 | HS18120913-0 | HS18120913-08 | U122418 | 12/24/18 | 1628 |
| 10 | HS18120913-0 | HS18120913-04 | U122420 | 12/24/18 | 1718 |
| 11 | HS18120913-0 | HS18120913-05 | U122421 | 12/24/18 | 1743 |
| 12 | HS18120913-0 | HS18120913-06 | U122422 | 12/24/18 | 1808 |
| 13 | HS18120913-0 | HS18120913-07 | U122423 | 12/24/18 | 1832 |
| 14 | VSTD050-END | VSTD050-END | U122428 | 12/24/18 | 2037 |
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| 22 | | | | | |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 0952

Lab File ID: U122402  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE | |
|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 46.969001 | 50.000000 | 0.5381928 | 0.2 | 6.06 | 20.00 | LINR | |
| trans-1,3-Dichloropropene | 46.115718 | 50.000000 | 0.4606842 | 0.1 | 7.77 | 20.00 | LINR | |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4492226 | 1.4492226 | 0.6 | 2.41 | 20.00 | AVRG | |
| 2,2-Dichloropropane | 0.6490000 | 0.5663916 | 0.5663916 | 0.1 | 12.73 | 20.00 | AVRG | |
| 1,1-Dichloropropene | 0.4450000 | 0.4256150 | 0.4256150 | 0.1 | 4.36 | 20.00 | AVRG | |
| Dibromomethane | 0.2040000 | 0.2144626 | 0.2144626 | 0.1 | -5.13 | 20.00 | AVRG | |
| 1,2-Dibromoethane | 0.3430000 | 0.3597016 | 0.3597016 | 0.1 | -4.87 | 20.00 | AVRG | |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5850593 | 0.5850593 | 0.1 | -0.01 | 20.00 | AVRG | |
| 1,1,1,2-Tetrachloroethane | 46.940910 | 50.000000 | 0.3043937 | 0.1 | 6.12 | 20.00 | LINR | |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7935465 | 0.7935465 | 0.1 | -0.58 | 20.00 | AVRG | |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1917002 | 1.1917002 | 0.3 | -5.83 | 20.00 | AVRG | |
| Freon TF | 0.4250000 | 0.3989719 | 0.3989719 | 0.1 | 6.12 | 20.00 | AVRG | |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3097296 | 0.3097296 | 0.1 | -3.94 | 20.00 | AVRG | |
| 1,1-Dichloroethane | 1.0770000 | 1.0983183 | 1.0983183 | 0.2 | -1.98 | 20.00 | AVRG | |
| 1,1-Dichloroethene | 0.4750000 | 0.4595711 | 0.4595711 | 0.1 | 3.25 | 20.00 | AVRG | |
| Trichlorofluoromethane | 44.085746 | 50.000000 | 0.7886797 | 0.1 | 11.83 | 20.00 | LINR | |
| 1,2,3-Trichlorobenzene | 43.749299 | 50.000000 | 0.9004990 | 0.1 | 12.50 | 20.00 | LINR | |
| Toluene | 1.4870000 | 1.4890724 | 1.4890724 | 0.4 | -0.14 | 20.00 | AVRG | |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9128821 | 0.9128821 | 0.2 | 1.42 | 20.00 | AVRG | |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6703840 | 2.6703840 | 0.1 | -2.08 | 20.00 | AVRG | |
| Tetrachloroethene | 0.2620000 | 0.2343416 | 0.2343416 | 0.2 | 10.56 | 20.00 | AVRG | |
| Trichloroethene | 0.3210000 | 0.3111153 | 0.3111153 | 0.2 | 3.08 | 20.00 | AVRG | |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4720949 | 1.4720949 | 0.4 | 0.80 | 20.00 | AVRG | |
| 1,2-Dichloroethane | 49.720294 | 50.000000 | 0.4762008 | 0.1 | 0.56 | 20.00 | LINR | |
| 1,2-Dichloropropane | 0.3530000 | 0.3595027 | 0.3595027 | 0.1 | -1.84 | 20.00 | AVRG | |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5708391 | 2.5708391 | 0.1 | -2.30 | 20.00 | AVRG | |
| 1,3-Dichloropropane | 0.6410000 | 0.6628423 | 0.6628423 | 0.1 | -3.41 | 20.00 | AVRG | |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4828544 | 1.4828544 | 0.4 | 5.31 | 20.00 | AVRG | |
| 2-Butanone | 87.524774 | 100.00000 | 0.3885447 | 0.1 | 12.48 | 20.00 | LINR | |
| 2-Chlorotoluene | 2.3040000 | 2.2915781 | 2.2915781 | 0.1 | 0.54 | 20.00 | AVRG | |
| 2-Hexanone | 0.2780000 | 0.3355379 | 0.3355379 | 0.1 | -20.70 | 20.00 | AVRG | <- |
| 4-Chlorotoluene | 2.6620000 | 2.6823399 | 2.6823399 | 0.1 | -0.76 | 20.00 | AVRG | |
| tert-Butylbenzene | 2.1720000 | 2.1680208 | 2.1680208 | 0.1 | 0.18 | 20.00 | AVRG | |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4671265 | 0.4671265 | 0.1 | -16.78 | 20.00 | AVRG | |
| Acetone | 88.945078 | 100.00000 | 0.2567717 | 0.1 | 11.05 | 20.00 | LINR | |
| Benzene | 1.3300000 | 1.3327330 | 1.3327330 | 0.5 | -0.20 | 20.00 | AVRG | |
| Bromobenzene | 0.7730000 | 0.7689868 | 0.7689868 | 0.1 | 0.52 | 20.00 | AVRG | |
| Bromochloromethane | 54.738270 | 50.000000 | 0.2995106 | 0.1 | -9.48 | 20.00 | LINR | |
| Bromodichloromethane | 0.3760000 | 0.3919790 | 0.3919790 | 0.2 | -4.25 | 20.00 | AVRG | |
| Bromoform | 43.625632 | 50.000000 | 0.2006203 | 0.1 | 12.75 | 20.00 | LINR | |
| Bromomethane | 48.433994 | 50.000000 | 0.3215455 | 0.1 | 3.13 | 20.00 | LINR | |
| Carbon Disulfide | 1.7320000 | 1.6738989 | 1.6738989 | 0.1 | 3.35 | 20.00 | AVRG | |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812091

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 0952

Lab File ID: U122402  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 42.908085 | 50.000000 | 0.3206431 | 0.1 | 14.18 | 20.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9517026 | 0.9517026 | 0.5 | 0.97 | 20.00 | AVRG |
| Chloroethane | 48.651727 | 50.000000 | 0.4376382 | 0.1 | 2.70 | 20.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0750225 | 1.0750225 | 0.2 | -3.67 | 20.00 | AVRG |
| Chloromethane | 48.105273 | 50.000000 | 0.5006841 | 0.1 | 3.79 | 20.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6738882 | 0.6738882 | 0.1 | -2.57 | 20.00 | AVRG |
| Dibromochloromethane | 46.378243 | 50.000000 | 0.3131343 | 0.1 | 7.24 | 20.00 | LINR |
| Dichlorodifluoromethane | 41.832474 | 50.000000 | 0.5469699 | 0.1 | 16.34 | 20.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4907710 | 0.4907710 | 0.1 | 0.45 | 20.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.3075225 | 0.3075225 | 0.1 | 13.37 | 20.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4345733 | 1.4345733 | 0.1 | -0.88 | 20.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6065328 | 0.6065328 | 0.1 | -0.09 | 20.00 | AVRG |
| Methylene Chloride | 49.161284 | 50.000000 | 0.6598726 | 0.1 | 1.68 | 20.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.4878949 | 2.4878949 | 0.5 | 2.55 | 20.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.7675955 | 3.7675955 | 0.1 | -0.84 | 20.00 | AVRG |
| Naphthalene | 42.625569 | 50.000000 | 3.1185011 | 0.2 | 14.75 | 20.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6247110 | 0.6247110 | 0.3 | -2.24 | 20.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.1149837 | 3.1149837 | 0.1 | 0.80 | 20.00 | AVRG |
| Styrene | 1.0150000 | 1.0920948 | 1.0920948 | 0.3 | -7.60 | 20.00 | AVRG |
| Vinyl Chloride | 44.382144 | 50.000000 | 0.6938894 | 0.1 | 11.24 | 20.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2984150 | 1.2984150 | 0.1 | -10.88 | 20.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6489186 | 2.6489186 | 0.1 | -0.11 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 40.205727 | 50.000000 | 0.1753790 | 0.05 | 19.59 | 20.00 | LINR |
| 1,2-Dichloroethane-d4 | 50.883328 | 50.000000 | 0.7752248 | 0.1 | -1.77 | 20.00 | LINR |
| Dibromofluoromethane | 51.294758 | 50.000000 | 0.5865296 | 0.1 | -2.59 | 20.00 | LINR |
| Toluene-d8 | 51.601871 | 50.000000 | 1.3137645 | 0.1 | -3.20 | 20.00 | LINR |
| 4-Bromofluorobenzene | 51.802881 | 50.000000 | 0.5048850 | 0.1 | -3.60 | 20.00 | LINR |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120736

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 2037

Lab File ID: U122428  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 47.206327 | 50.000000 | 0.5381928 | 0.2 | 5.59 | 50.00 | LINR |
| trans-1,3-Dichloropropene | 47.004802 | 50.000000 | 0.4606842 | 0.1 | 5.99 | 50.00 | LINR |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4492226 | 1.4492226 | 0.6 | 2.41 | 50.00 | AVRG |
| 2,2-Dichloropropane | 0.6490000 | 0.5663916 | 0.5663916 | 0.1 | 12.73 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.4450000 | 0.4256150 | 0.4256150 | 0.1 | 4.36 | 50.00 | AVRG |
| Dibromomethane | 0.2040000 | 0.2144626 | 0.2144626 | 0.1 | -5.13 | 50.00 | AVRG |
| 1,2-Dibromoethane | 0.3430000 | 0.3597016 | 0.3597016 | 0.1 | -4.87 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5850593 | 0.5850593 | 0.1 | -0.01 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 47.992888 | 50.000000 | 0.3043937 | 0.1 | 4.01 | 50.00 | LINR |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7935465 | 0.7935465 | 0.1 | -0.58 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1917002 | 1.1917002 | 0.3 | -5.83 | 50.00 | AVRG |
| Freon TF | 0.4250000 | 0.3989719 | 0.3989719 | 0.1 | 6.12 | 50.00 | AVRG |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3097296 | 0.3097296 | 0.1 | -3.94 | 50.00 | AVRG |
| 1,1-Dichloroethane | 1.0770000 | 1.0983183 | 1.0983183 | 0.2 | -1.98 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.4750000 | 0.4595711 | 0.4595711 | 0.1 | 3.25 | 50.00 | AVRG |
| Trichlorofluoromethane | 47.877448 | 50.000000 | 0.7886797 | 0.1 | 4.24 | 50.00 | LINR |
| 1,2,3-Trichlorobenzene | 47.815512 | 50.000000 | 0.9004990 | 0.1 | 4.37 | 50.00 | LINR |
| Toluene | 1.4870000 | 1.4890724 | 1.4890724 | 0.4 | -0.14 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9128821 | 0.9128821 | 0.2 | 1.42 | 50.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6703840 | 2.6703840 | 0.1 | -2.08 | 50.00 | AVRG |
| Tetrachloroethene | 0.2620000 | 0.2343416 | 0.2343416 | 0.2 | 10.56 | 50.00 | AVRG |
| Trichloroethene | 0.3210000 | 0.3111153 | 0.3111153 | 0.2 | 3.08 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4720949 | 1.4720949 | 0.4 | 0.80 | 50.00 | AVRG |
| 1,2-Dichloroethane | 52.896221 | 50.000000 | 0.4762008 | 0.1 | -5.79 | 50.00 | LINR |
| 1,2-Dichloropropane | 0.3530000 | 0.3595027 | 0.3595027 | 0.1 | -1.84 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5708391 | 2.5708391 | 0.1 | -2.30 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.6410000 | 0.6628423 | 0.6628423 | 0.1 | -3.41 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4828544 | 1.4828544 | 0.4 | 5.31 | 50.00 | AVRG |
| 2-Butanone | 119.28553 | 100.00000 | 0.3885447 | 0.1 | -19.28 | 50.00 | LINR |
| 2-Chlorotoluene | 2.3040000 | 2.2915781 | 2.2915781 | 0.1 | 0.54 | 50.00 | AVRG |
| 2-Hexanone | 0.2780000 | 0.3355379 | 0.3355379 | 0.1 | -20.70 | 50.00 | AVRG |
| 4-Chlorotoluene | 2.6620000 | 2.6823399 | 2.6823399 | 0.1 | -0.76 | 50.00 | AVRG |
| tert-Butylbenzene | 2.1720000 | 2.1680208 | 2.1680208 | 0.1 | 0.18 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4671265 | 0.4671265 | 0.1 | -16.78 | 50.00 | AVRG |
| Acetone | 132.50176 | 100.00000 | 0.2567717 | 0.1 | -32.50 | 50.00 | LINR |
| Benzene | 1.3300000 | 1.3327330 | 1.3327330 | 0.5 | -0.20 | 50.00 | AVRG |
| Bromobenzene | 0.7730000 | 0.7689868 | 0.7689868 | 0.1 | 0.52 | 50.00 | AVRG |
| Bromochloromethane | 57.582518 | 50.000000 | 0.2995106 | 0.1 | -15.16 | 50.00 | LINR |
| Bromodichloromethane | 0.3760000 | 0.3919790 | 0.3919790 | 0.2 | -4.25 | 50.00 | AVRG |
| Bromoform | 46.854942 | 50.000000 | 0.2006203 | 0.1 | 6.29 | 50.00 | LINR |
| Bromomethane | 52.013096 | 50.000000 | 0.3215455 | 0.1 | -4.03 | 50.00 | LINR |
| Carbon Disulfide | 1.7320000 | 1.6738989 | 1.6738989 | 0.1 | 3.35 | 50.00 | AVRG |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812073

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 2037

Lab File ID: U122428  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 44.254301 | 50.000000 | 0.3206431 | 0.1 | 11.49 | 50.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9517026 | 0.9517026 | 0.5 | 0.97 | 50.00 | AVRG |
| Chloroethane | 49.367103 | 50.000000 | 0.4376382 | 0.1 | 1.26 | 50.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0750225 | 1.0750225 | 0.2 | -3.67 | 50.00 | AVRG |
| Chloromethane | 47.318479 | 50.000000 | 0.5006841 | 0.1 | 5.36 | 50.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6738882 | 0.6738882 | 0.1 | -2.57 | 50.00 | AVRG |
| Dibromochloromethane | 47.699067 | 50.000000 | 0.3131343 | 0.1 | 4.60 | 50.00 | LINR |
| Dichlorodifluoromethane | 44.506477 | 50.000000 | 0.5469699 | 0.1 | 10.99 | 50.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4907710 | 0.4907710 | 0.1 | 0.45 | 50.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.3075225 | 0.3075225 | 0.1 | 13.37 | 50.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4345733 | 1.4345733 | 0.1 | -0.88 | 50.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6065328 | 0.6065328 | 0.1 | -0.09 | 50.00 | AVRG |
| Methylene Chloride | 53.474221 | 50.000000 | 0.6598726 | 0.1 | -6.95 | 50.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.4878949 | 2.4878949 | 0.5 | 2.55 | 50.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.7675955 | 3.7675955 | 0.1 | -0.84 | 50.00 | AVRG |
| Naphthalene | 51.209442 | 50.000000 | 3.1185011 | 0.2 | -2.42 | 50.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6247110 | 0.6247110 | 0.3 | -2.24 | 50.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.1149837 | 3.1149837 | 0.1 | 0.80 | 50.00 | AVRG |
| Styrene | 1.0150000 | 1.0920948 | 1.0920948 | 0.3 | -7.60 | 50.00 | AVRG |
| Vinyl Chloride | 49.076608 | 50.000000 | 0.6938894 | 0.1 | 1.85 | 50.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2984150 | 1.2984150 | 0.1 | -10.88 | 50.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6489186 | 2.6489186 | 0.1 | -0.11 | 50.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 50.490014 | 50.000000 | 0.1753790 | 0.05 | -0.98 | 50.00 | LINR |
| 1,2-Dichloroethane-d4 | 54.978385 | 50.000000 | 0.7752248 | 0.1 | -9.96 | 50.00 | LINR |
| Dibromofluoromethane | 53.247810 | 50.000000 | 0.5865296 | 0.1 | -6.50 | 50.00 | LINR |
| Toluene-d8 | 50.908412 | 50.000000 | 1.3137645 | 0.1 | -1.82 | 50.00 | LINR |
| 4-Bromofluorobenzene | 51.400094 | 50.000000 | 0.5048850 | 0.1 | -2.80 | 50.00 | LINR |



FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Lab File ID (Standard): U122402  Date Analyzed: 12/24/18

Instrument ID: VOA9  Time Analyzed: 0952

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS1(DCB) AREA # | RT # | IS2(CBZ) AREA # | RT # | IS3(DFB) AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 352991 | 10.24 | 724498 | 8.25 | 785837 | 5.63 |
| | UPPER LIMIT | 705982 | 10.74 | 1448996 | 8.75 | 1571674 | 6.13 |
| | LOWER LIMIT | 176496 | 9.74 | 362249 | 7.75 | 392919 | 5.13 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181224 | 339524 | 10.24 | 703027 | 8.25 | 758509 | 5.63 |
| 02 | VBLKW-181224 | 263882 | 10.24 | 571876 | 8.25 | 632508 | 5.63 |
| 03 | HS18120913-0 | 260126 | 10.24 | 557826 | 8.25 | 616128 | 5.63 |
| 04 | HS18120913-0 | 239609 | 10.24 | 523015 | 8.25 | 578134 | 5.63 |
| 05 | HS18120913-0 | 238390 | 10.24 | 518136 | 8.25 | 575201 | 5.63 |
| 06 | HS18120913-0 | 266360 | 10.24 | 543870 | 8.25 | 594715 | 5.63 |
| 07 | HS18120913-0 | 254873 | 10.24 | 529623 | 8.25 | 576248 | 5.63 |
| 08 | HS18120913-0 | 238700 | 10.24 | 519400 | 8.25 | 572577 | 5.63 |
| 09 | HS18120913-0 | 238090 | 10.24 | 520680 | 8.25 | 574454 | 5.63 |
| 10 | HS18120913-0 | 232339 | 10.24 | 514638 | 8.25 | 560574 | 5.63 |
| 11 | HS18120913-0 | 228496 | 10.24 | 506791 | 8.25 | 558405 | 5.63 |
| 12 | HS18120913-0 | 230671 | 10.24 | 507981 | 8.25 | 559358 | 5.63 |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18120913

Lab File ID (Standard): U122402  Date Analyzed: 12/24/18

Instrument ID: VOA9  Time Analyzed: 0952

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 423354 | 4.89 | | | | |
| | UPPER LIMIT | 846708 | 5.39 | | | | |
| | LOWER LIMIT | 211677 | 4.39 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181224 | 406772 | 4.90 | | | | |
| 02 | VBLKW-181224 | 360724 | 4.90 | | | | |
| 03 | HS18120913-0 | 357809 | 4.89 | | | | |
| 04 | HS18120913-0 | 329698 | 4.89 | | | | |
| 05 | HS18120913-0 | 326911 | 4.89 | | | | |
| 06 | HS18120913-0 | 345000 | 4.90 | | | | |
| 07 | HS18120913-0 | 331424 | 4.89 | | | | |
| 08 | HS18120913-0 | 321626 | 4.90 | | | | |
| 09 | HS18120913-0 | 325737 | 4.90 | | | | |
| 10 | HS18120913-0 | 317953 | 4.89 | | | | |
| 11 | HS18120913-0 | 315819 | 4.90 | | | | |
| 12 | HS18120913-0 | 313434 | 4.90 | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

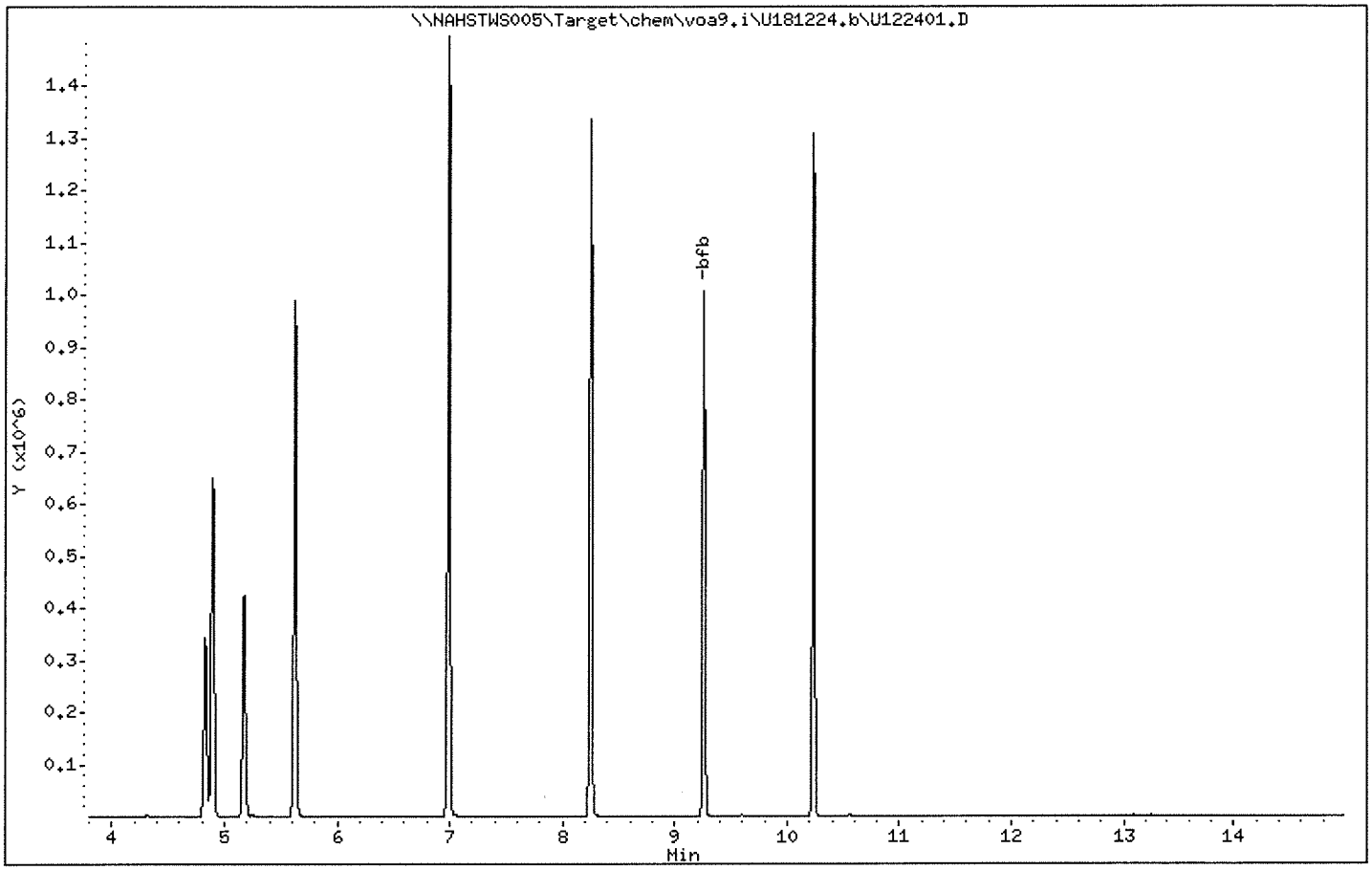
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

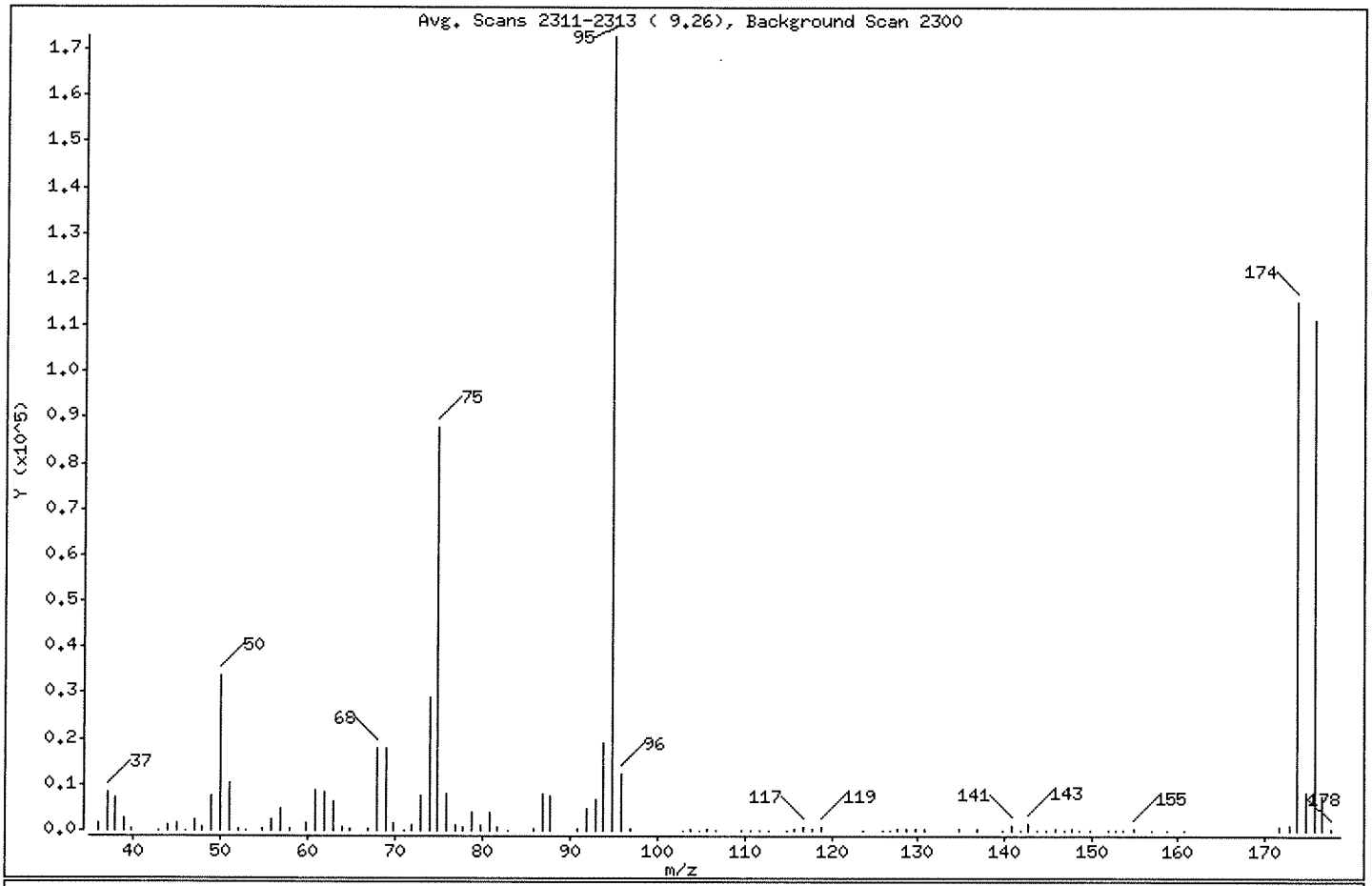
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 19.51 |
| 75 | 30.00 - 60.00% of mass 95 | 50.89 |
| 96 | 5.00 - 9.00% of mass 95 | 7.08 |
| 173 | Less than 2.00% of mass 174 | 0.66 ( 0.98) |
| 174 | Greater than 50.00% of mass 95 | 66.63 |
| 175 | 5.00 - 9.00% of mass 174 | 4.91 ( 7.37) |
| 176 | 95.00 - 101.00% of mass 174 | 64.42 ( 96.68) |
| 177 | 5.00 - 9.00% of mass 176 | 4.35 ( 6.75) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122401.D
Spectrum: Avg. Scans 2311-2313 ( 9.26), Background Scan 2300
Location of Maximum: 94.90
Number of points: 101

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1458 | 66.90 | 489 | 96.90 | 358 | 141.70 | 125 |
| 37.00 | 8306 | 67.90 | 17736 | 102.90 | 83 | 142.70 | 1432 |
| 38.00 | 7224 | 68.90 | 17704 | 103.80 | 566 | 143.70 | 92 |
| 39.00 | 2852 | 69.90 | 1399 | 104.80 | 198 | 144.80 | 130 |
| 39.90 | 515 | 71.00 | 55 | 105.70 | 571 | 145.70 | 211 |
| 42.90 | 58 | 71.90 | 1002 | 106.70 | 150 | 146.80 | 93 |
| 43.90 | 1149 | 72.90 | 7684 | 109.70 | 67 | 147.60 | 307 |
| 45.00 | 1416 | 73.90 | 28936 | 110.70 | 106 | 148.50 | 71 |
| 46.00 | 144 | 74.90 | 87944 | 111.80 | 127 | 149.70 | 118 |
| 47.00 | 2331 | 75.90 | 7853 | 112.80 | 101 | 151.70 | 104 |
| 47.90 | 988 | 76.90 | 1152 | 114.80 | 164 | 152.70 | 119 |
| 48.90 | 7413 | 77.80 | 691 | 115.80 | 498 | 153.50 | 62 |
| 50.00 | 33712 | 78.90 | 3904 | 116.70 | 773 | 154.80 | 440 |
| 51.00 | 10257 | 79.90 | 1262 | 117.80 | 575 | 156.70 | 197 |
| 52.00 | 516 | 80.80 | 4127 | 118.80 | 642 | 158.60 | 130 |
| 52.90 | 79 | 81.80 | 955 | 123.70 | 117 | 160.70 | 97 |
| 54.90 | 360 | 83.00 | 125 | 125.90 | 58 | 171.70 | 672 |
| 55.90 | 2572 | 85.90 | 201 | 126.70 | 59 | 172.80 | 1133 |
| 57.00 | 4669 | 86.90 | 7827 | 127.70 | 540 | 173.70 | 115136 |
| 58.00 | 207 | 87.80 | 7508 | 128.70 | 266 | 174.70 | 8487 |
| 59.90 | 1649 | 90.80 | 470 | 129.70 | 553 | 175.70 | 111312 |
| 60.90 | 8598 | 91.90 | 4648 | 130.70 | 230 | 176.70 | 7518 |
| 61.90 | 8257 | 92.90 | 6773 | 134.70 | 224 | 177.70 | 226 |
| 62.90 | 6370 | 93.90 | 19208 | 136.80 | 276 | | |
| 63.90 | 787 | 94.90 | 172800 | 139.70 | 105 | | |
| 64.90 | 503 | 95.90 | 12233 | 140.70 | 1161 | | |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-DEC-2018 09:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

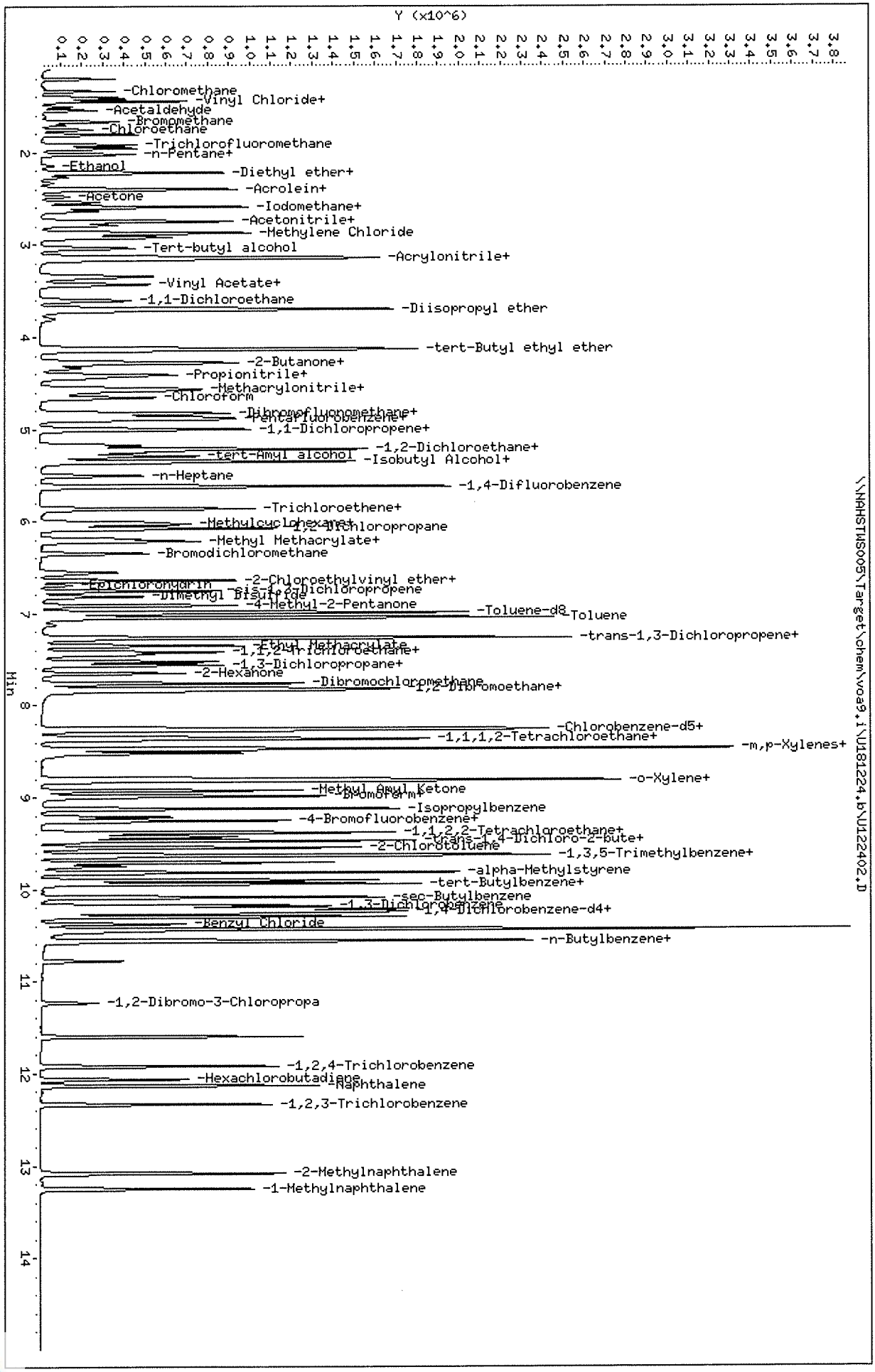
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 423354 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 785837 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 724498 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 352991 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.986) | 239456 | 50.0000 | 51.29 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.171 | (1.057) | 304677 | 50.0000 | 50.88 |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 964346 | 50.0000 | 51.60 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 368577 | 50.0000 | 51.80 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 215639 | 50.0000 | 46.94 |
| | 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 316440 | 50.0000 | 47.33 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 355332 | 50.0000 | 44.69 |
| | 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 153951 | 50.0000 | 42.77 |
| | 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 207577 | 50.0000 | 48.09 |
| | 22 1,1-Dichloroethane | 63 | 3.600 | 3.600 | (0.736) | 433057 | 50.0000 | 47.49 |
| | 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.491) | 181293 | 50.0000 | 45.03 |
| | 32 1,1-Dichloropropene | 75 | 5.002 | 5.002 | (0.889) | 323333 | 50.0000 | 46.24 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 290474 | 50.0000 | 43.74 |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 390574 | 50.0000 | 47.24 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 305143 | 50.0000 | 46.69 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 893982 | 50.0000 | 48.39 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 48924 | 50.0000 | 40.20 |
| | 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 242501 | 50.0000 | 48.77 |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 486970 | 50.0000 | 46.46 |
| 33 | 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 352056 | 50.0000 | 49.72 |
| 42 | 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 267418 | 50.0000 | 48.16 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 854241 | 50.0000 | 48.15 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 487011 | 50.0000 | 46.46 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 448896 | 50.0000 | 48.28 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 501619 | 50.0000 | 45.38 |
| 26 | 2,2-Dichloropropane | 77 | 4.271 | 4.271 | (0.873) | 274613 | 50.0000 | 49.98 |
| 24 | 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 243142 | 100.000 | 87.52 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 777485 | 50.0000 | 47.80 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 368317 | 100.000 | 91.42 |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 907472 | 50.0000 | 48.28 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 884191 | 50.0000 | 47.33 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.910 | 6.910 | (0.838) | 534634 | 100.000 | 92.23 |
| 10 | Acetone | 43 | 2.476 | 2.476 | (0.506) | 147537 | 100.000 | 88.94 |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 1004828 | 50.0000 | 48.05 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 258984 | 50.0000 | 47.48 |
| 29 | Bromochloromethane | 128 | 4.552 | 4.552 | (0.930) | 120857 | 50.0000 | 54.73 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 296500 | 50.0000 | 50.21 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 134940 | 50.0000 | 43.62(T) |
| 6 | Bromomethane | 94 | 1.666 | 1.666 | (0.341) | 126513 | 50.0000 | 48.43 |
| 19 | Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 1200523 | 100.000 | 81.85 |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 244058 | 50.0000 | 42.90 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 671654 | 50.0000 | 48.24 |
| 7 | Chloroethane | 64 | 1.748 | 1.748 | (0.357) | 182521 | 50.0000 | 48.65 |
| 28 | Chloroform | 83 | 4.654 | 4.654 | (0.951) | 423382 | 50.0000 | 48.21 |
| 3 | Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 215757 | 50.0000 | 48.10 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 268280 | 50.0000 | 48.21 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 420747 | 50.0000 | 46.96 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 220452 | 50.0000 | 46.37 |
| 44 | Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 155992 | 50.0000 | 48.67 |
| 2 | Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 217496 | 50.0000 | 41.83 |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 346487 | 50.0000 | 48.53 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 111829 | 50.0000 | 44.66 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 987775 | 50.0000 | 47.94 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 860607 | 100.000 | 98.04 |
| 17 | Methylene Chloride | 84 | 2.869 | 2.869 | (0.586) | 257324 | 50.0000 | 49.16 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 832522 | 50.0000 | 46.18 |
| 73 | n-Propylbenzene | 91 | 9.474 | 9.474 | (0.926) | 1249543 | 50.0000 | 47.37 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 915226 | 50.0000 | 42.62 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 438615 | 50.0000 | 49.53 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1017399 | 50.0000 | 45.89 |
| 64 | Styrene | 104 | 8.822 | 8.822 | (1.070) | 765253 | 50.0000 | 52.01 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 704838 | 50.0000 | 45.96 |
| 56 | Tetrachloroethene | 164 | 7.521 | 7.521 | (0.912) | 165998 | 50.0000 | 43.76 |
| 50 | Toluene | 91 | 7.045 | 7.045 | (0.854) | 1057144 | 50.0000 | 49.05 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.139 | 3.139 | (0.642) | 235322 | 50.0000 | 47.48 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 354926 | 50.0000 | 46.11 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 235763 | 50.0000 | 46.70 |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 307098 | 50.0000 | 44.08 |
| 5 | Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 265095 | 50.0000 | 44.38 |

QC Flag Legend

T - Target compound detected outside RT window.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Date : 24-DEC-2018 09:52
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Lab Smp Id: VLCSW-1812024 Client Smp ID: VLCSW-181224
Inj Date : 24-DEC-2018 10:17
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812024;VLCSW-181224;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

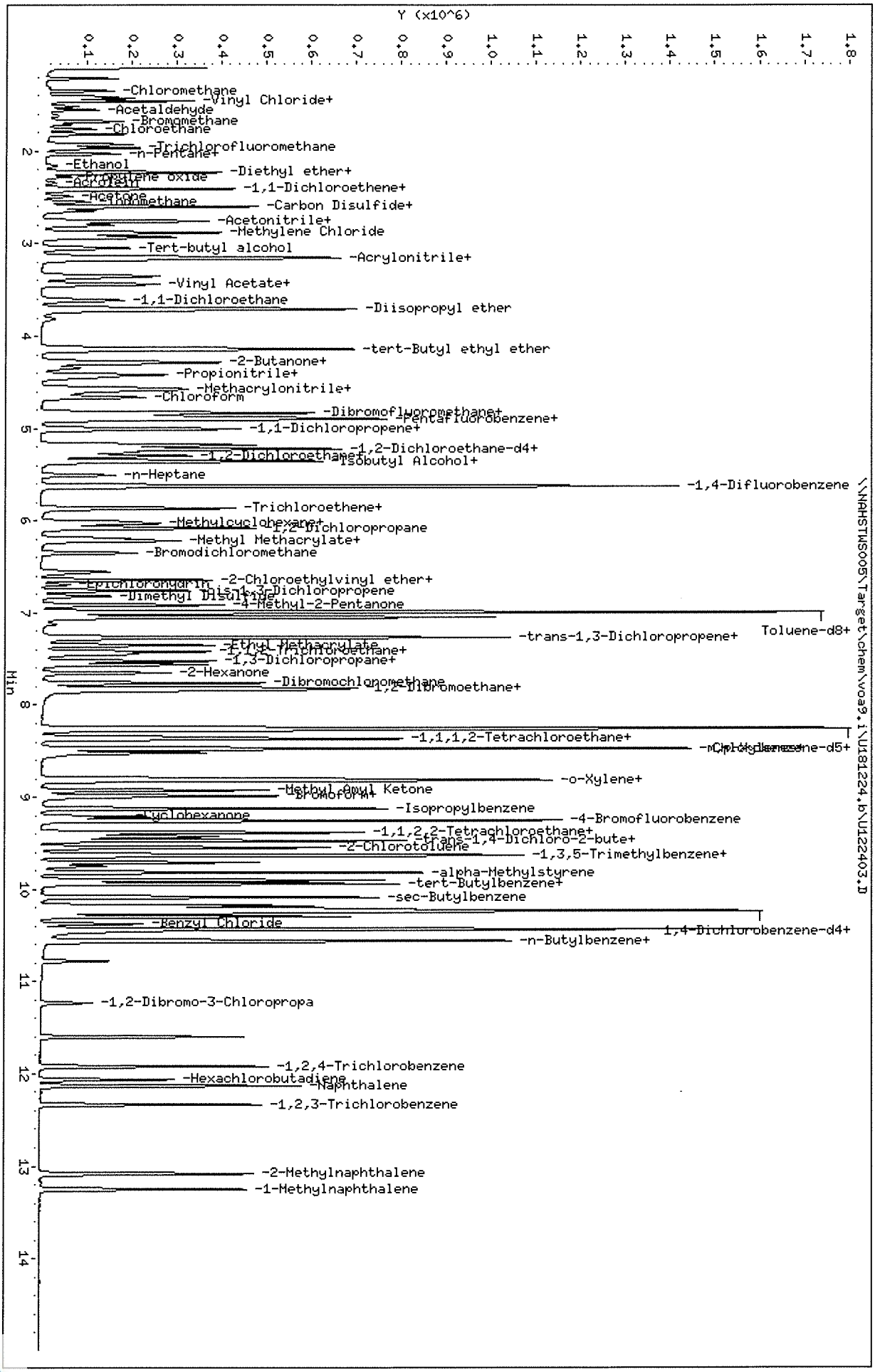
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.894 | (1.000) | 406772 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.625 | (1.000) | 758509 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 703027 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 339524 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.826 | (0.987) | 227871 | 50.7883 | 50.78 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.178 | 5.171 | (1.057) | 299407 | 52.0910 | 52.09 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 921570 | 50.7919 | 50.79 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 357826 | 51.8285 | 51.82 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 88375 | 20.1633 | 20.16 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.826 | (0.986) | 135603 | 21.1125 | 21.11 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 153489 | 20.0739 | 20.07 |
| 138 Freon TF | 101 | 2.412 | 2.401 | (0.493) | 72333 | 20.9166 | 20.91 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 88710 | 21.1796 | 21.17 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.600 | (0.737) | 184709 | 21.0852 | 21.08 |
| 11 1,1-Dichloroethene | 96 | 2.408 | 2.401 | (0.492) | 78960 | 20.4156 | 20.41 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.002 | (0.890) | 141680 | 20.9930 | 20.99 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 127493 | 20.3080 | 20.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 160947 | 20.2426 | 20.24 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 133328 | 21.2102 | 21.21 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 396053 | 22.2910 | 22.29 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 20393 | 18.2464 | 18.24 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 102168 | 21.1780 | 21.17 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 2
Report Date: 28-Jan-2019 14:34

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 207631 | 20.5957 | 20.59 |
| 33 | 1,2-Dichloroethane | 62 | 5.257 | 5.250 | (0.934) | 150051 | 21.5444 | 21.54 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 111360 | 20.7777 | 20.77 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 377636 | 22.1314 | 22.13 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 211456 | 20.9736 | 20.97 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 190232 | 21.0858 | 21.08 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 215686 | 20.2900 | 20.28 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.271 | (0.874) | 116146 | 22.0006 | 22.00 |
| 24 | 2-Butanone | 43 | 4.343 | 4.335 | (0.887) | 107059 | 38.7900 | 38.78 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 335605 | 21.4534 | 21.45 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 158802 | 40.6220 | 40.62 |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 393315 | 21.7570 | 21.75 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 401121 | 22.3263 | 22.32 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.910 | (0.838) | 230112 | 40.9097 | 40.90 |
| 10 | Acetone | 43 | 2.487 | 2.476 | (0.508) | 66585 | 40.1746 | 40.17 |
| 37 | Benzene | 78 | 5.223 | 5.216 | (0.928) | 426379 | 21.1248 | 21.12 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 109171 | 20.8108 | 20.81 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.552 | (0.931) | 50277 | 21.9350 | 21.93 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 120773 | 21.1903 | 21.19 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 52936 | 18.6861 | 18.68 |
| 6 | Bromomethane | 94 | 1.681 | 1.666 | (0.343) | 57771 | 23.7209 | 23.72 |
| 19 | Carbon Disulfide | 76 | 2.599 | 2.588 | (0.531) | 587803 | 41.7101 | 41.71 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.995 | (0.888) | 106164 | 20.1057 | 20.10 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 283627 | 20.9972 | 20.99 |
| 7 | Chloroethane | 64 | 1.763 | 1.748 | (0.360) | 75051 | 21.2783 | 21.27(M) |
| 28 | Chloroform | 83 | 4.661 | 4.654 | (0.952) | 177187 | 21.0026 | 21.00 |
| 3 | Chloromethane | 50 | 1.347 | 1.336 | (0.275) | 95716 | 23.9974 | 23.99 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.283 | (0.876) | 112668 | 21.0722 | 21.07 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.760 | 6.757 | (1.201) | 165133 | 19.8487 | 19.84 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 86605 | 19.3564 | 19.35 |
| 44 | Dibromomethane | 93 | 6.191 | 6.187 | (1.100) | 66144 | 21.3834 | 21.38 |
| 2 | Dichlorodifluoromethane | 85 | 1.212 | 1.201 | (0.248) | 99637 | 20.1990 | 20.19 |
| 61 | Ethylbenzene | 106 | 8.372 | 8.369 | (1.015) | 150022 | 21.6543 | 21.65 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 46864 | 19.4594 | 19.45 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 444629 | 22.2408 | 22.24 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 373925 | 43.9025 | 43.90 |
| 17 | Methylene Chloride | 84 | 2.881 | 2.869 | (0.588) | 110110 | 21.2264 | 21.22 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 382218 | 22.0444 | 22.04 |
| 73 | n-Propylbenzene | 91 | 9.474 | 9.474 | (0.926) | 566860 | 22.3442 | 22.34 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 398777 | 19.5931 | 19.59 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 188789 | 21.9718 | 21.97 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 470724 | 22.0778 | 22.07 |
| 64 | Styrene | 104 | 8.826 | 8.822 | (1.070) | 319620 | 22.3899 | 22.38 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 326809 | 22.1594 | 22.15 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.521 | (0.912) | 74823 | 20.3294 | 20.32 |
| 50 | Toluene | 91 | 7.049 | 7.045 | (0.855) | 451266 | 21.5785 | 21.57 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.150 | 3.139 | (0.643) | 100128 | 21.0291 | 21.02 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.259 | (1.290) | 137974 | 19.5584 | 19.55 |
| 38 | Trichloroethene | 130 | 5.864 | 5.861 | (1.042) | 101926 | 20.9180 | 20.91 |
| 8 | Trichlorofluoromethane | 101 | 1.966 | 1.951 | (0.401) | 138983 | 21.0959 | 21.09 |
| 5 | Vinyl Chloride | 62 | 1.430 | 1.419 | (0.292) | 121149 | 21.6176 | 21.61 |

QC Flag Legend

M - Compound response manually integrated.



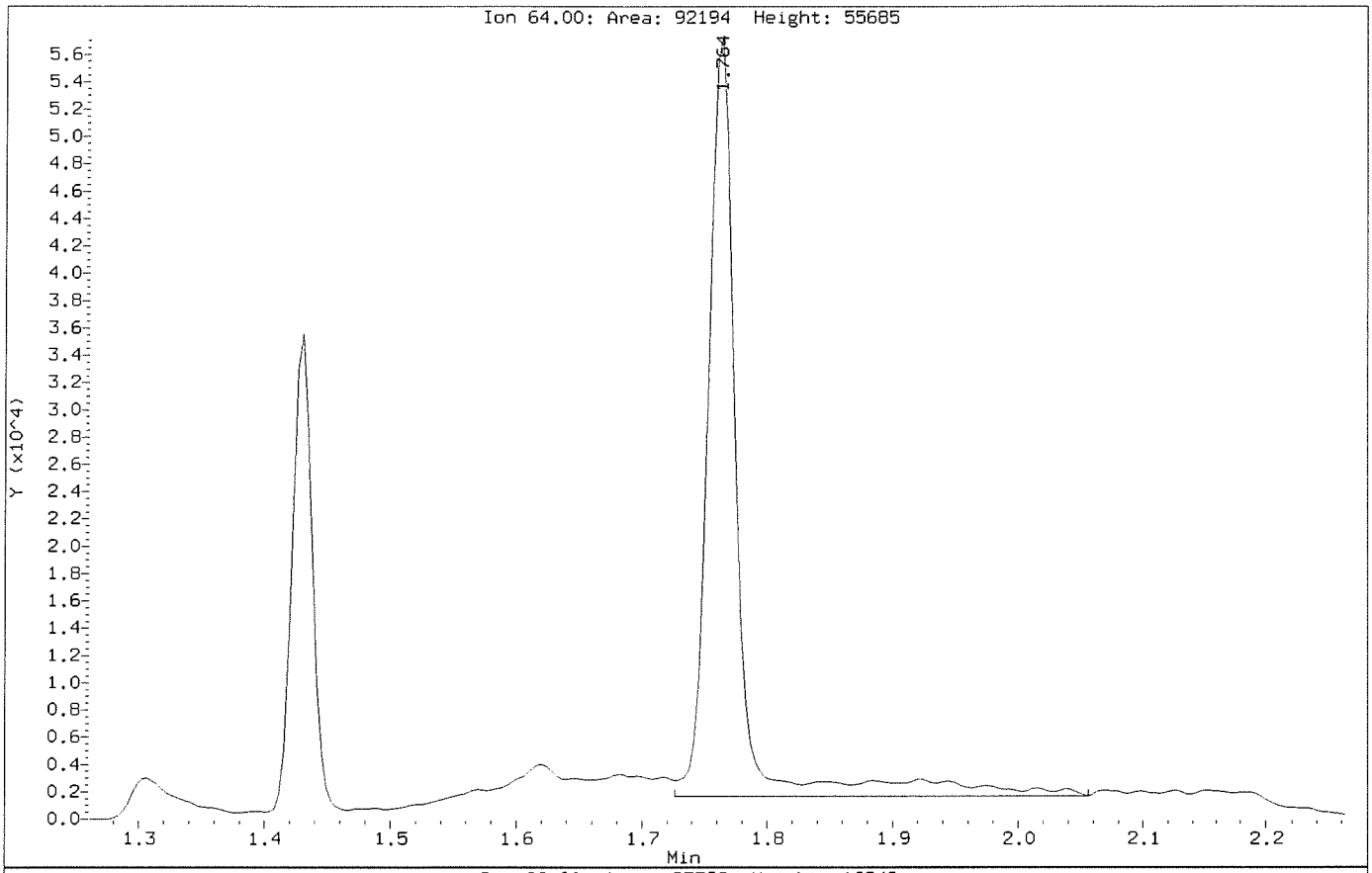

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Date : 24-DEC-2018 10:17
Client ID: VLCSW-181224
Sample Info: VLCSW-1812024;VLCSW-181224;3;;LCS
Purge Volume: 5.0
Column phase: DB624

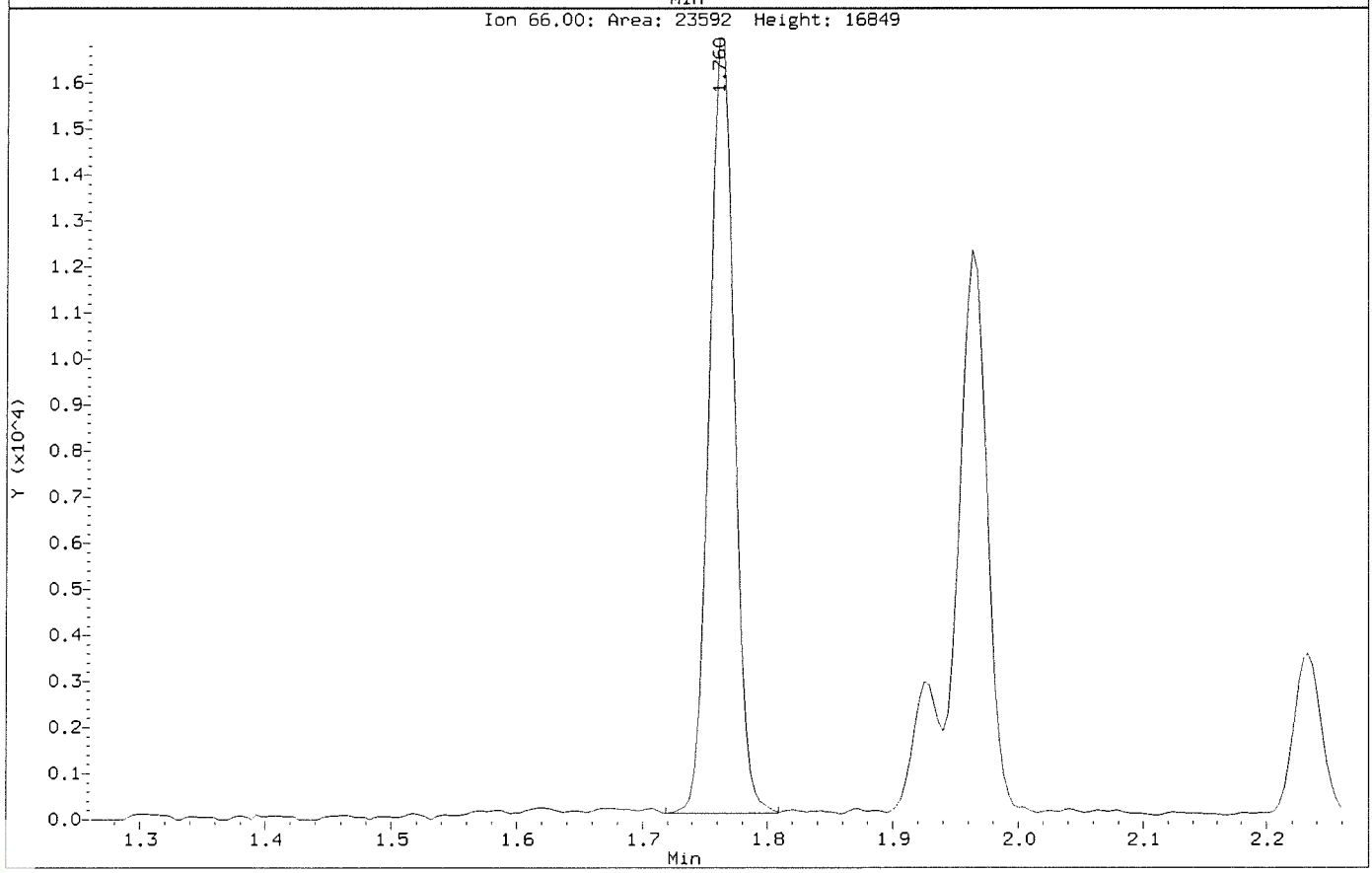
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

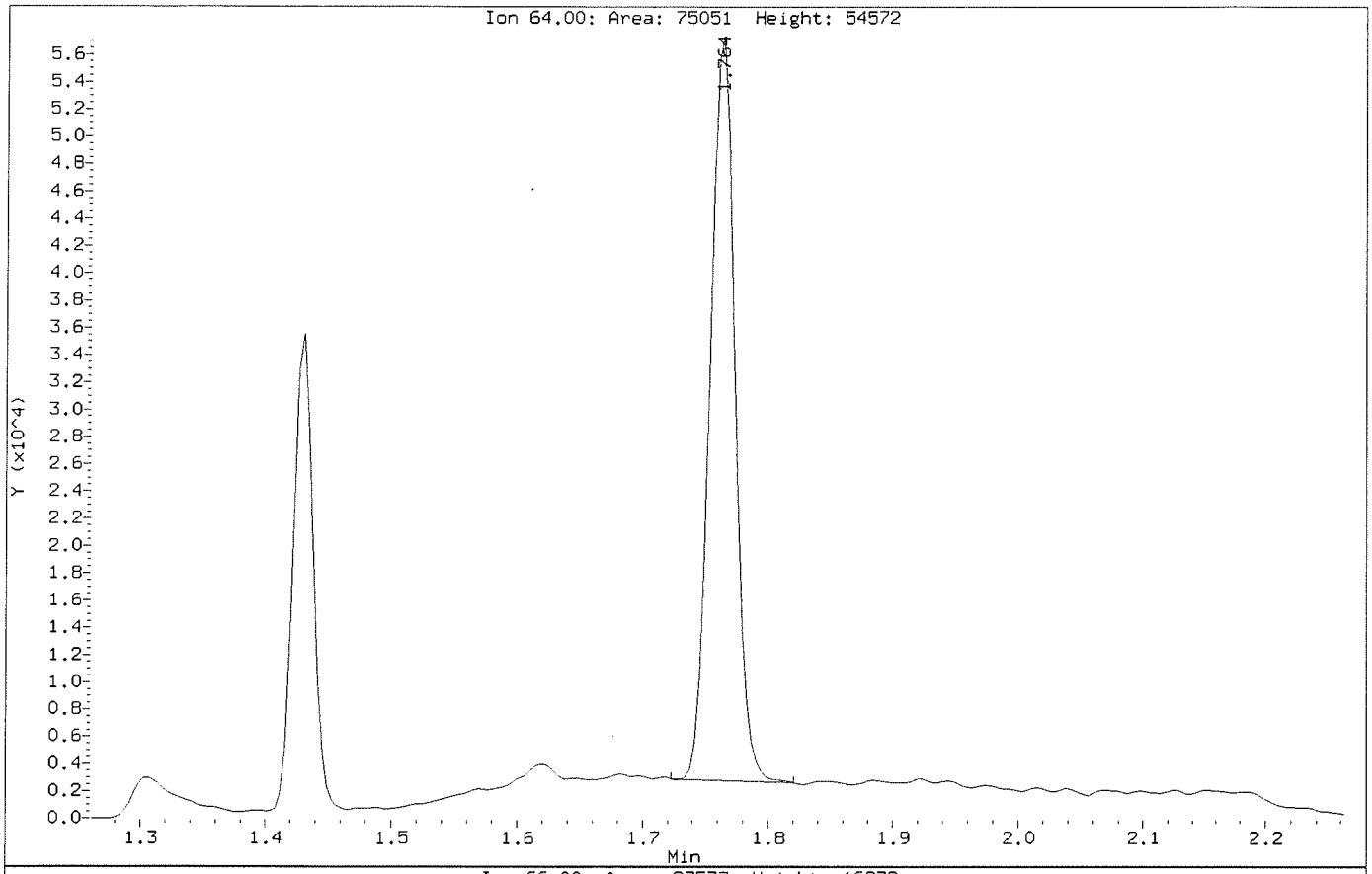
Compound: Chloroethane
CAS Number: 75-00-3

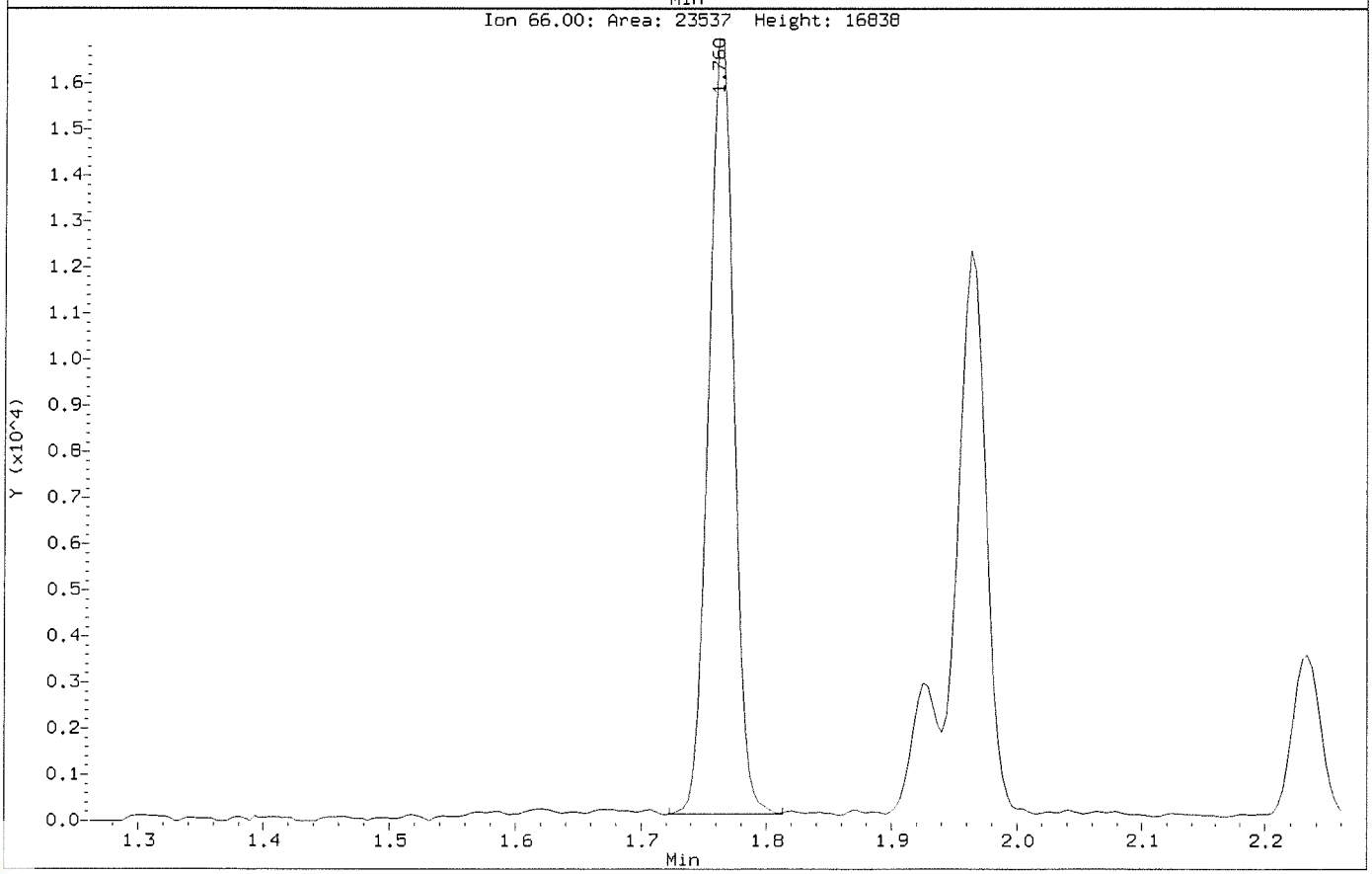


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



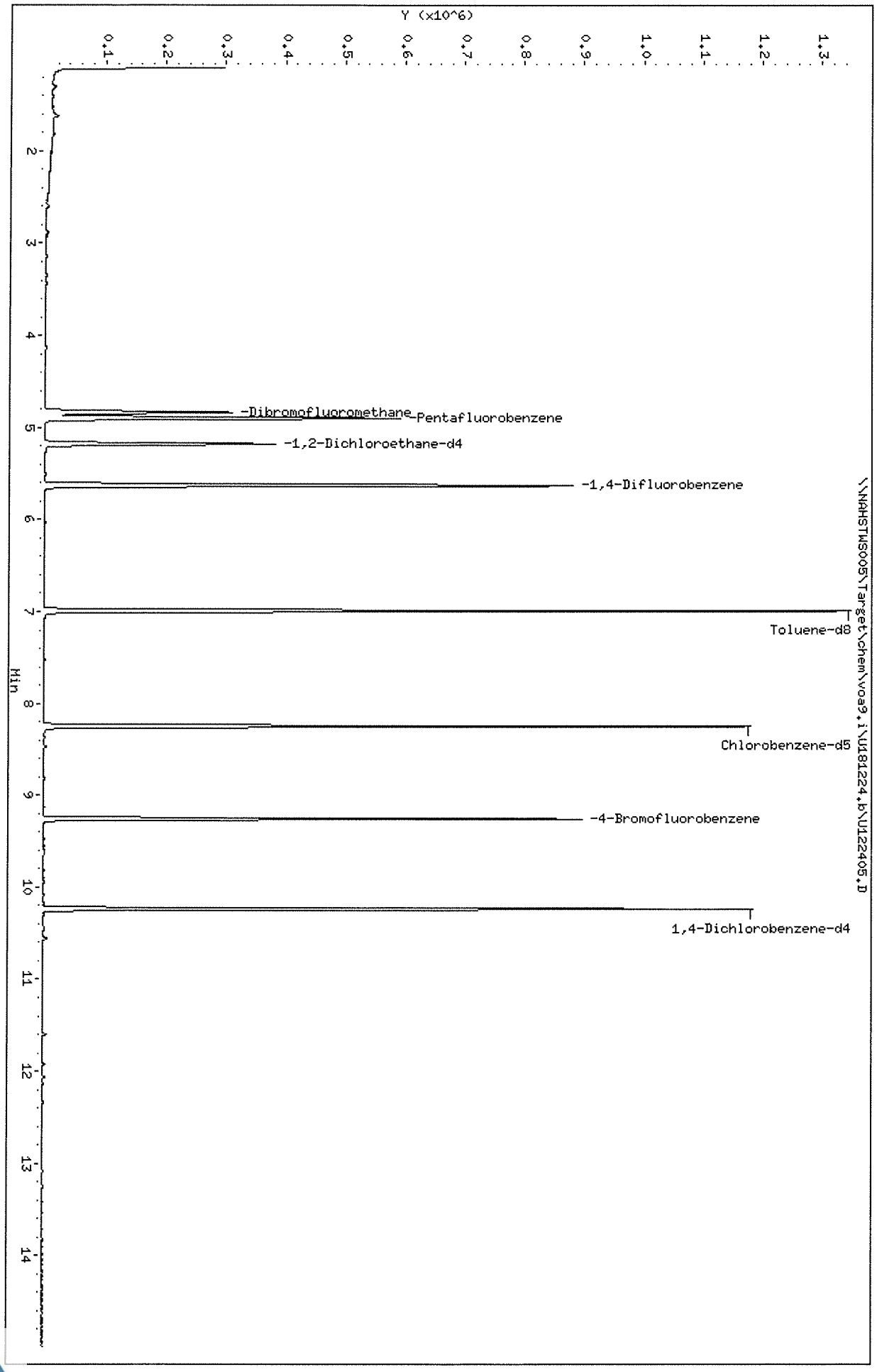
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Lab Smp Id: VBLKW-181224 Client Smp ID: VBLKW-181224
Inj Date : 24-DEC-2018 11:06
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-181224;VBLKW-181224;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.894 | (1.000) | 360724 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.625 | (1.000) | 632508 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 571876 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 263882 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.826 | (0.987) | 177273 | 44.3672 | 44.36 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.171 | (1.057) | 242561 | 47.4005 | 47.40 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 770698 | 52.2682 | 52.26 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 271263 | 48.2038 | 48.20 |




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Date : 24-DEC-2018 11:06
Client ID: VBLKW-181224
Sample Info: VBLKW-181224;VBLKW-181224;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122407.D Page 1
Report Date: 28-Jan-2019 14:43

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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122407.D
Lab Smp Id: HS18120913-03 Client Smp ID: HS18120913-03
Inj Date : 24-DEC-2018 11:55
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03;HS18120913-03;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

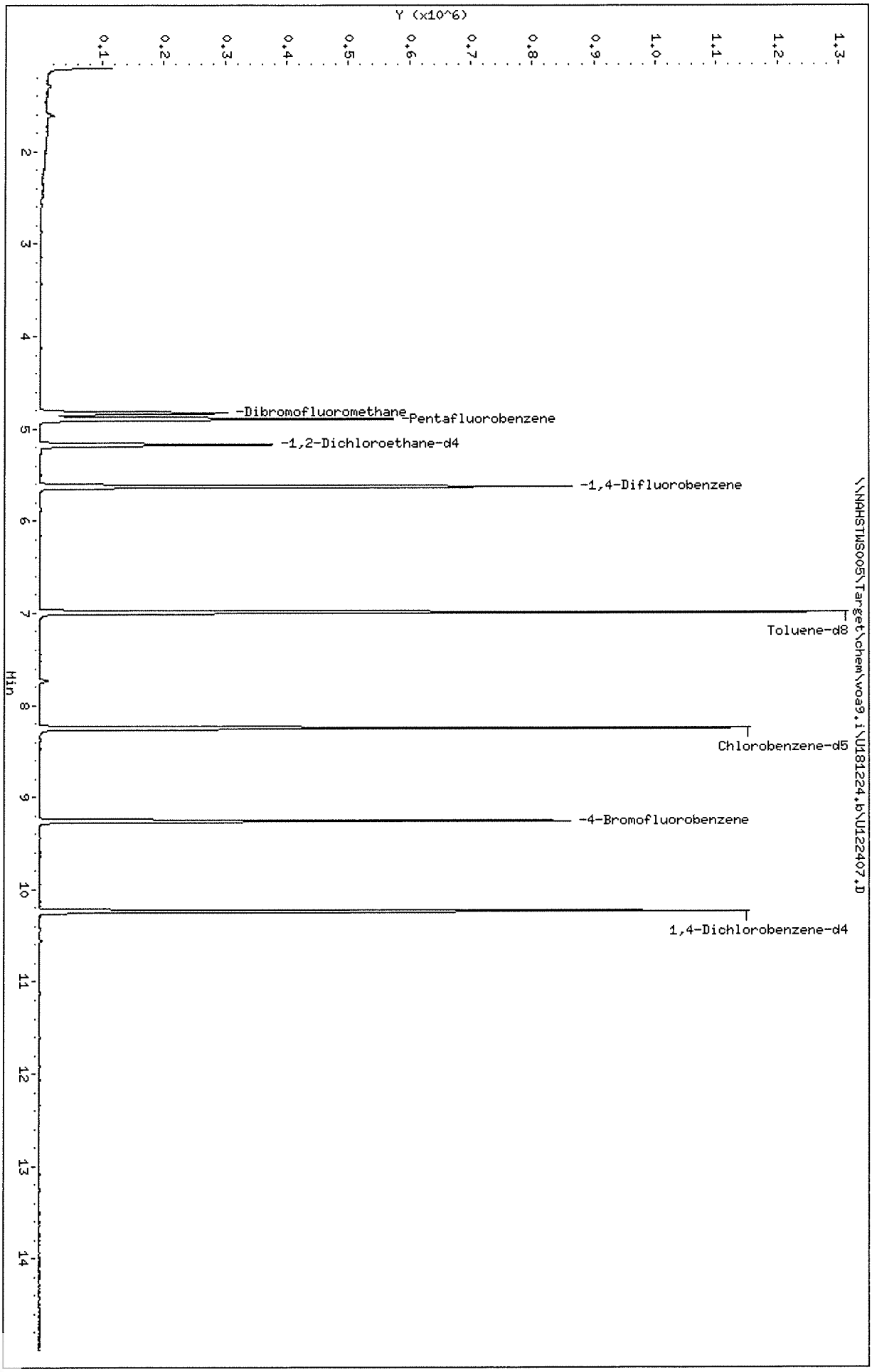
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.902 | (1.000) | 357809 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 616128 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 557826 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 260126 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.834 | (0.986) | 177171 | 44.7145 | 44.71 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.179 | (1.057) | 240522 | 47.3842 | 47.38 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 761578 | 52.9739 | 52.97 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 270514 | 49.3135 | 49.31 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122407.D
Date : 24-DEC-2018 11:55
Client ID: HS18120913-03
Sample Info: HS18120913-03;HS18120913-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D
Lab Smp Id: HS18120913-01 Client Smp ID: HS18120913-01
Inj Date : 24-DEC-2018 13:59
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-01;HS18120913-01;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

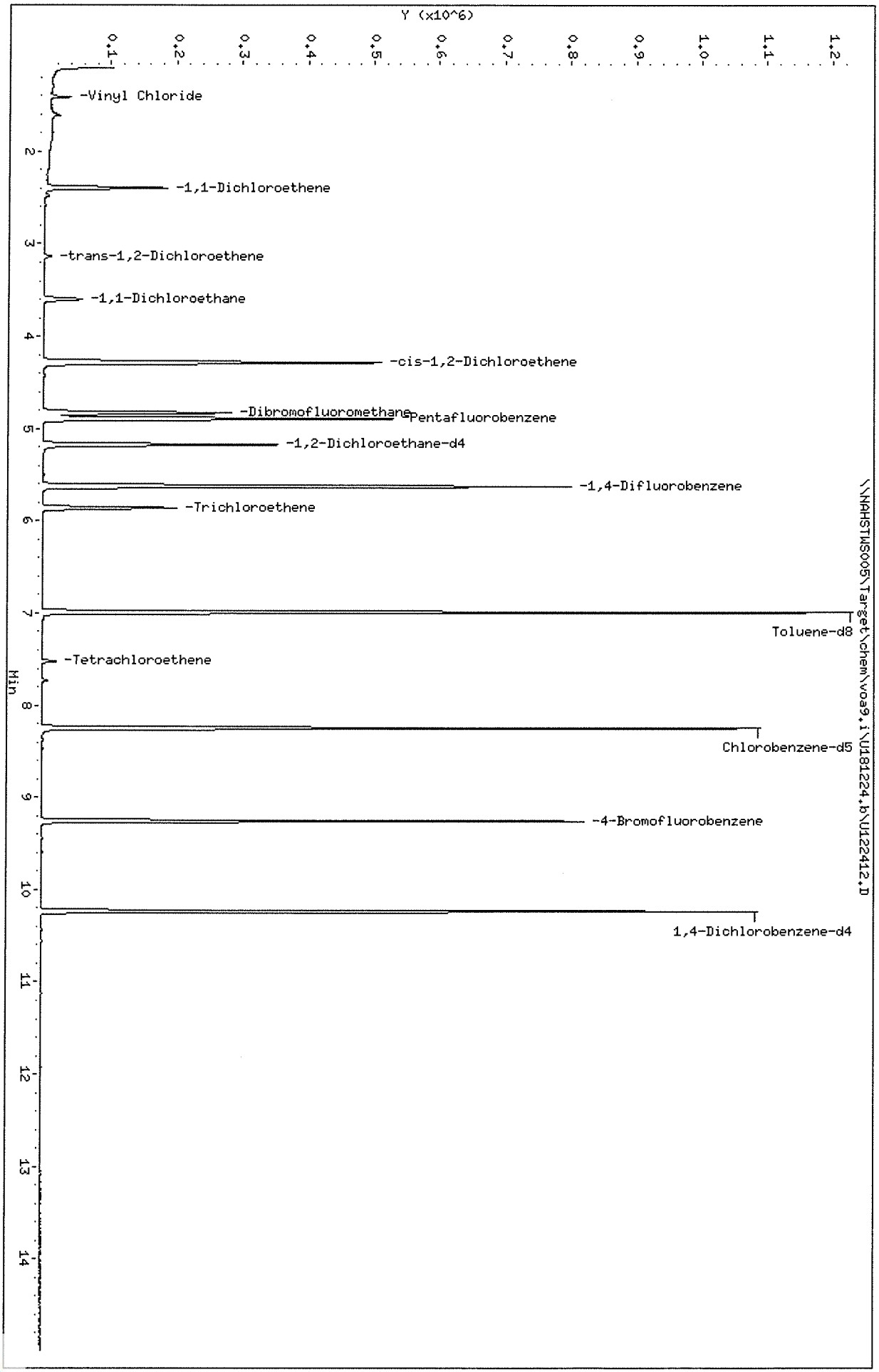
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.902 | (1.000) | 329698 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 578134 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 523015 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 239609 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.834 | (0.986) | 164168 | 44.9740 | 44.97 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.179 | (1.057) | 226046 | 48.3726 | 48.37 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 706093 | 52.3635 | 52.36 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 249872 | 48.5611 | 48.56 |
| 22 1,1-Dichloroethane | 63 | 3.601 | 3.612 | (0.736) | 58072 | 8.17884 | 8.17 |
| 11 1,1-Dichloroethene | 96 | 2.394 | 2.409 | (0.489) | 60832 | 19.4053 | 19.40 |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.294 | (0.875) | 236665 | 54.6108 | 54.61 |
| 56 Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 4268 | 1.55874 | 1.55(a) |
| 20 trans-1,2-Dichloroethene | 96 | 3.136 | 3.151 | (0.641) | 3498 | 0.90640 | 0.90(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.865 | (1.042) | 60368 | 16.2545 | 16.25 |
| 5 Vinyl Chloride | 62 | 1.415 | 1.430 | (0.289) | 19087 | 4.98256 | 4.98(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D
Date : 24-DEC-2018 13:59
Client ID: HS18120913-01
Sample Info: HS18120913-01;HS18120913-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D



Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

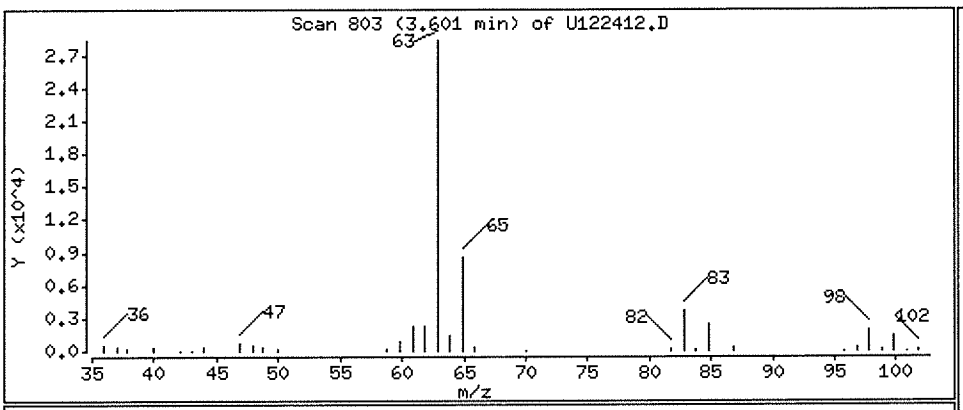
Operator: PC

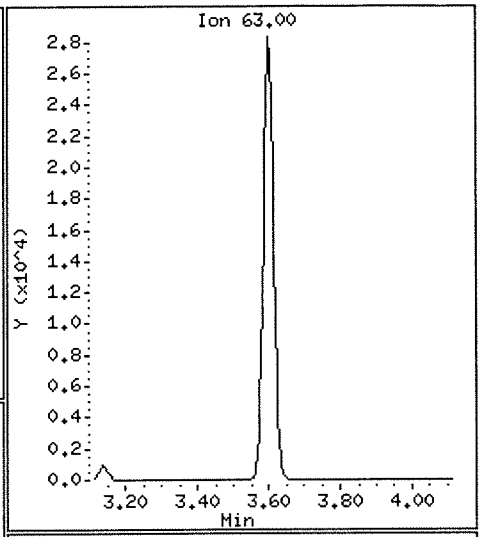
Column phase: DB624

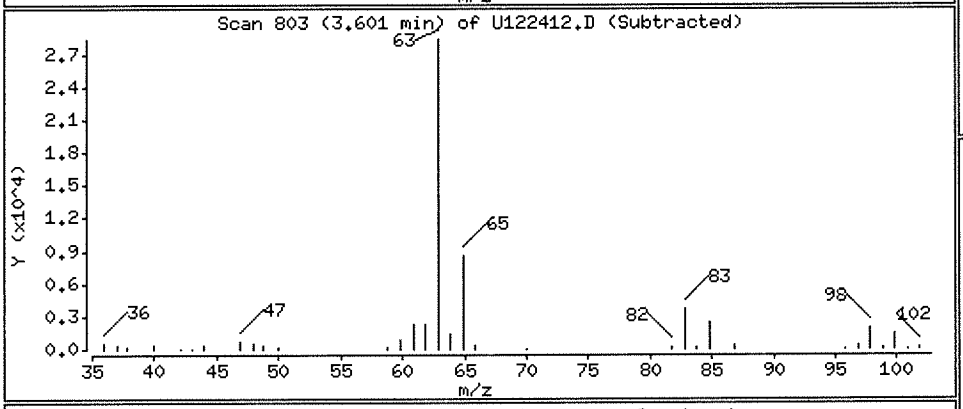
Column diameter: 0.18

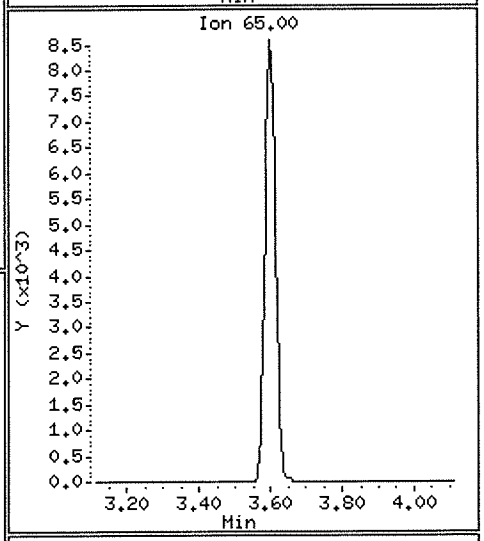
22 1,1-Dichloroethane

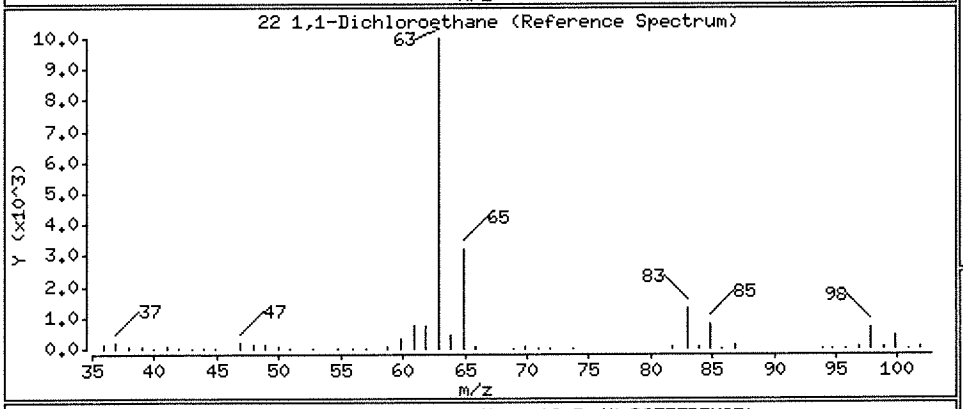
Concentration: 8.17 ug/l

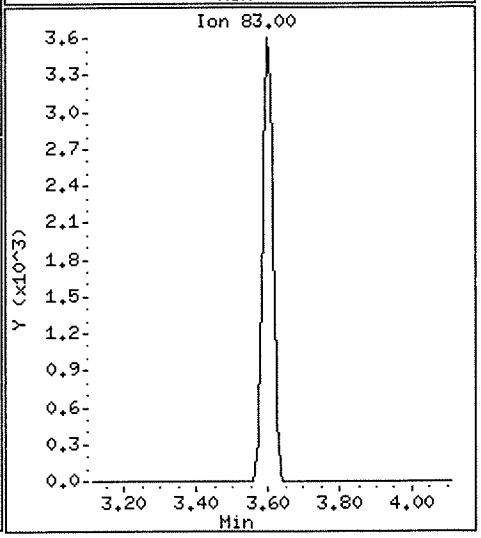


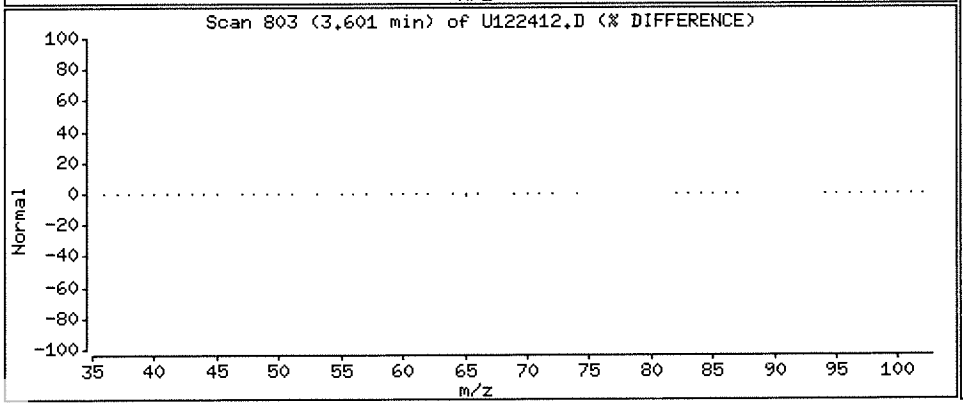



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D



Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

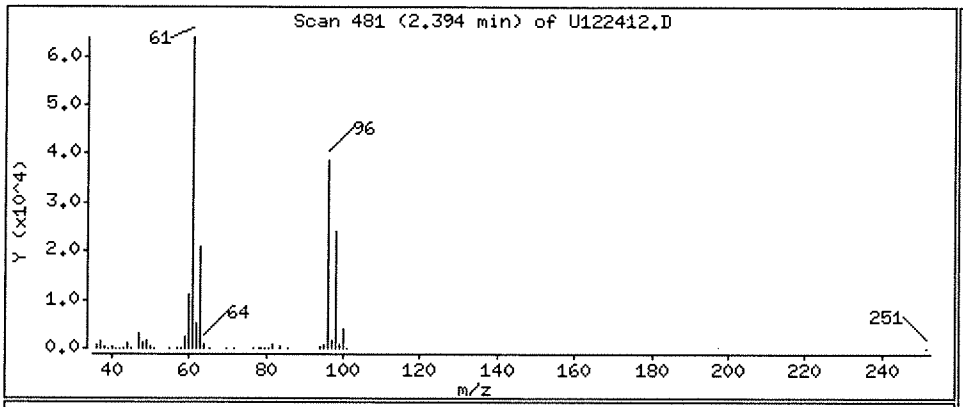
Operator: PC

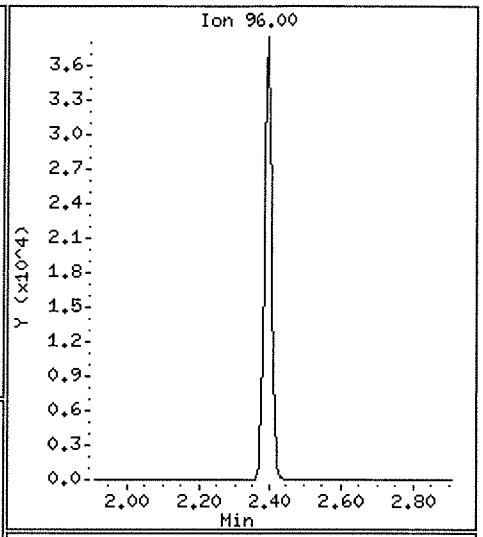
Column phase: DB624

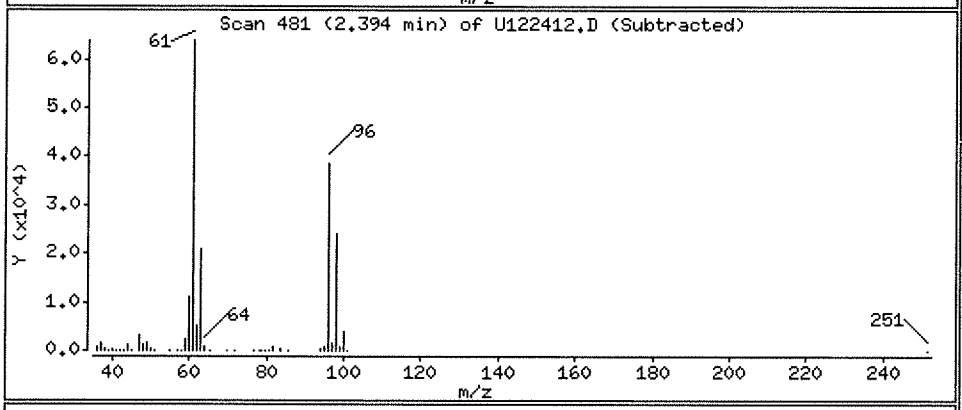
Column diameter: 0.18

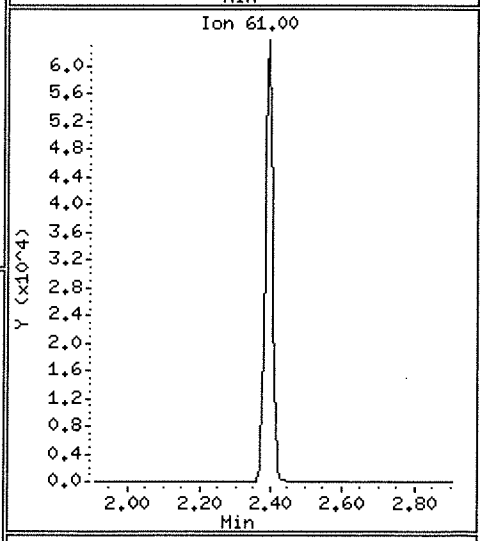
11 1,1-Dichloroethene

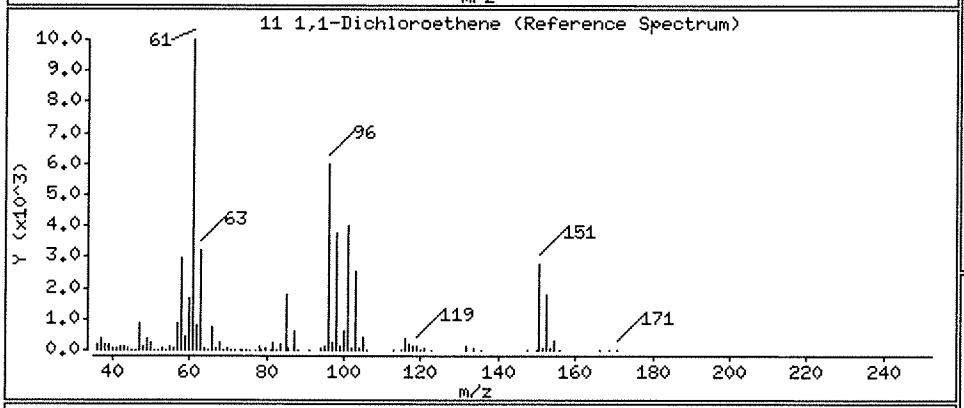
Concentration: 19.40 ug/l

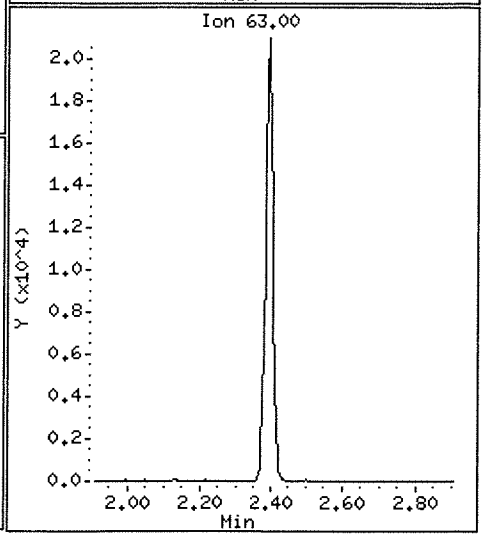


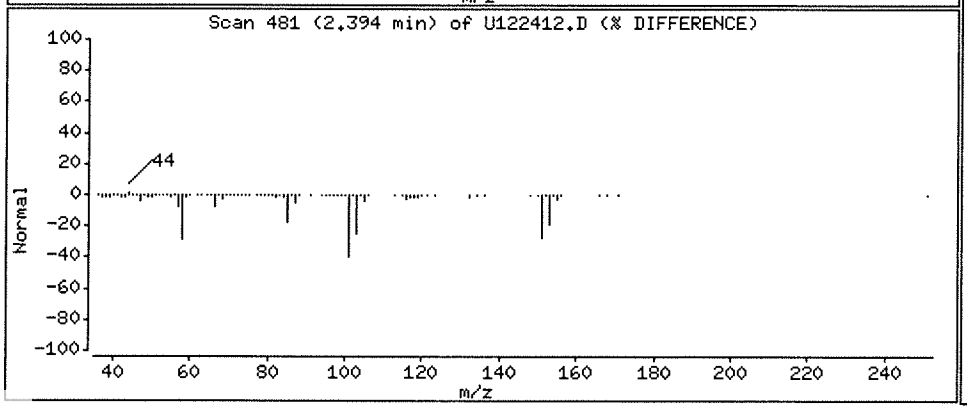



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D

Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

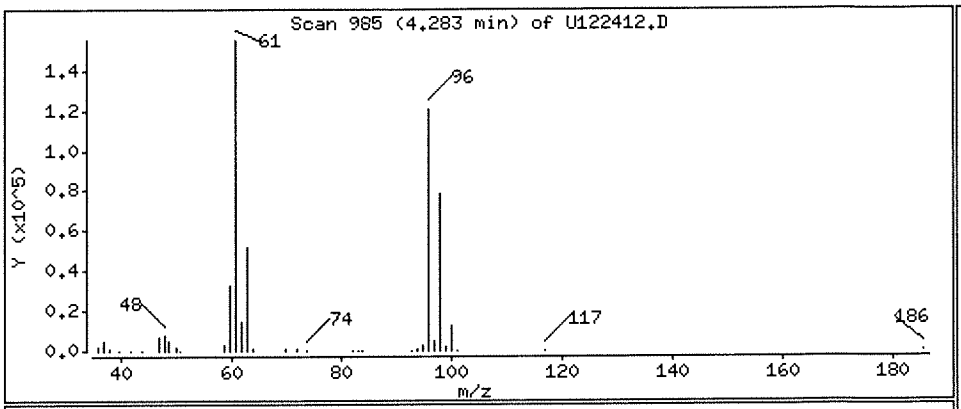
Operator: PC

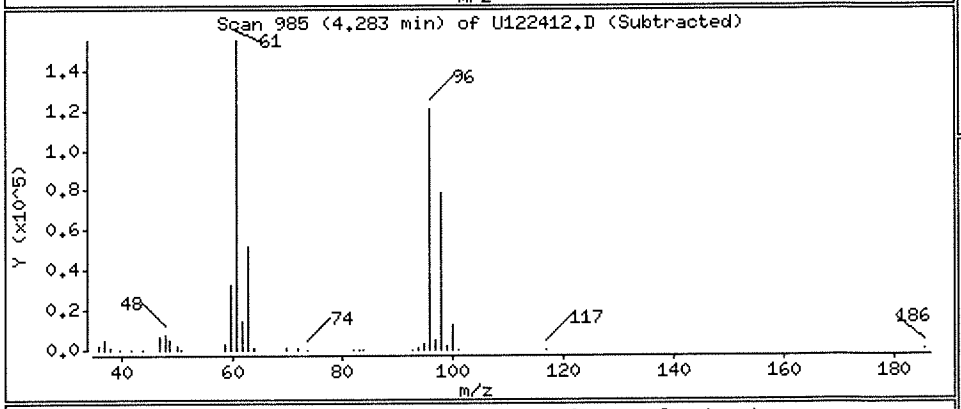
Column phase: DB624

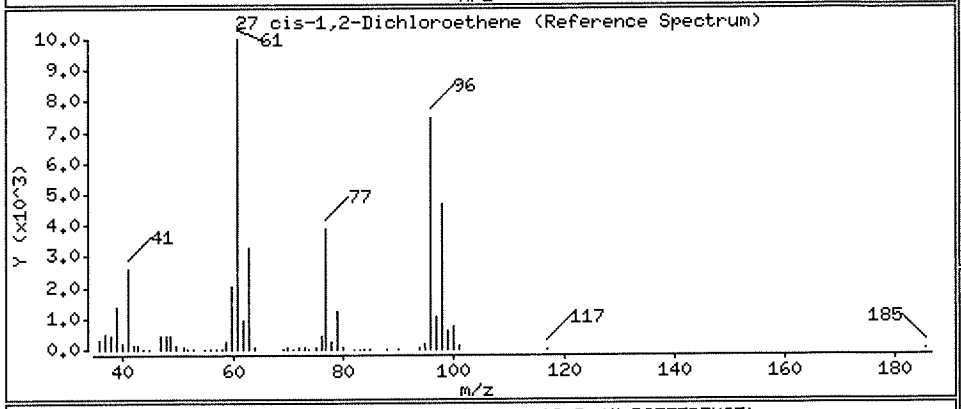
Column diameter: 0.18

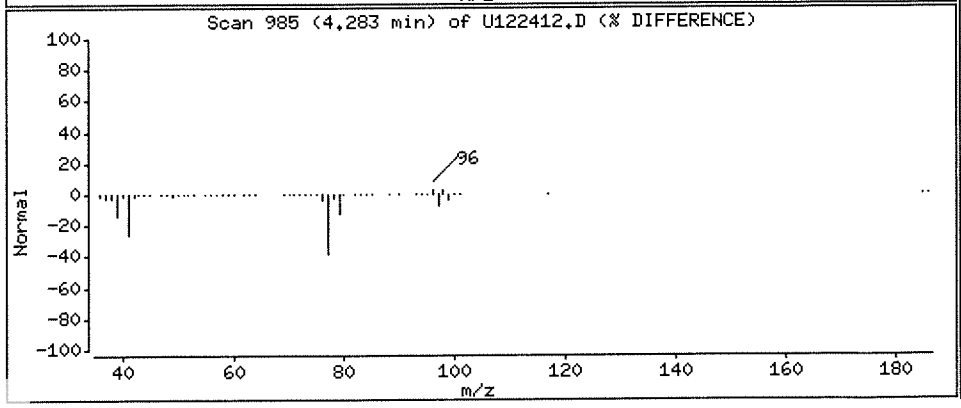
27 cis-1,2-Dichloroethene

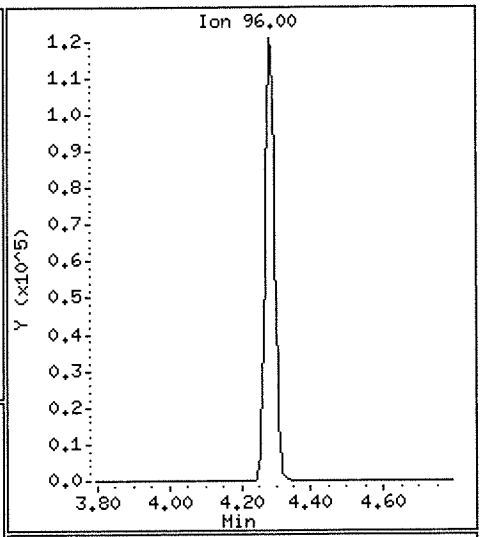
Concentration: 54.61 ug/l

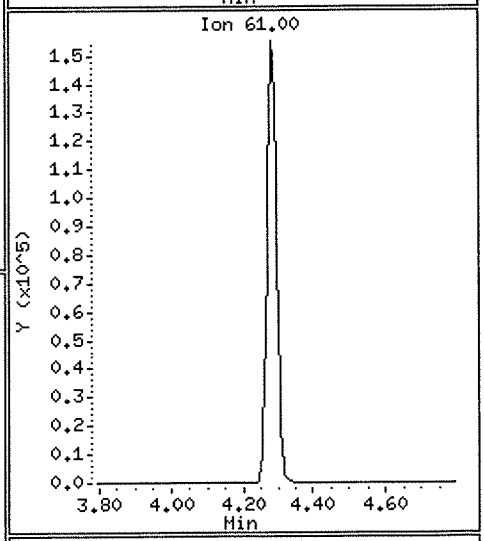


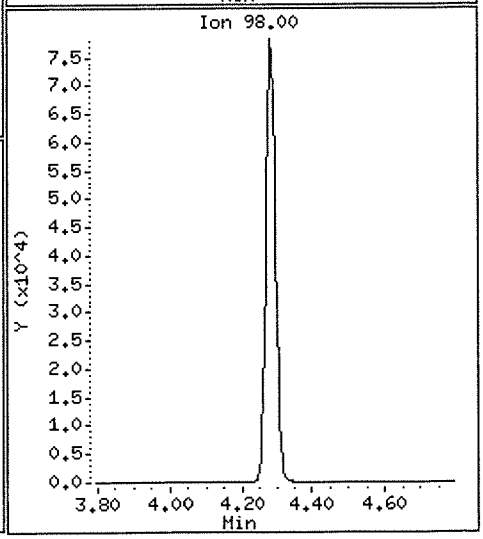



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D



Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

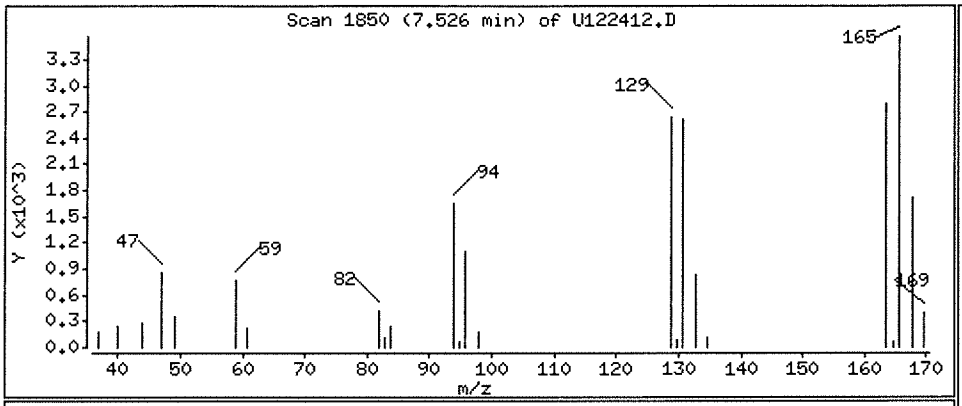
Operator: PC

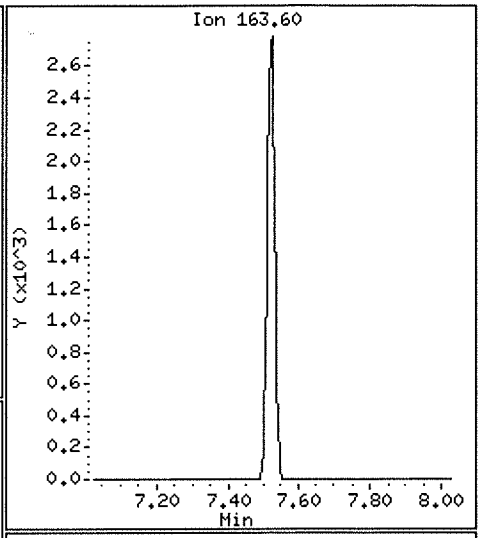
Column phase: DB624

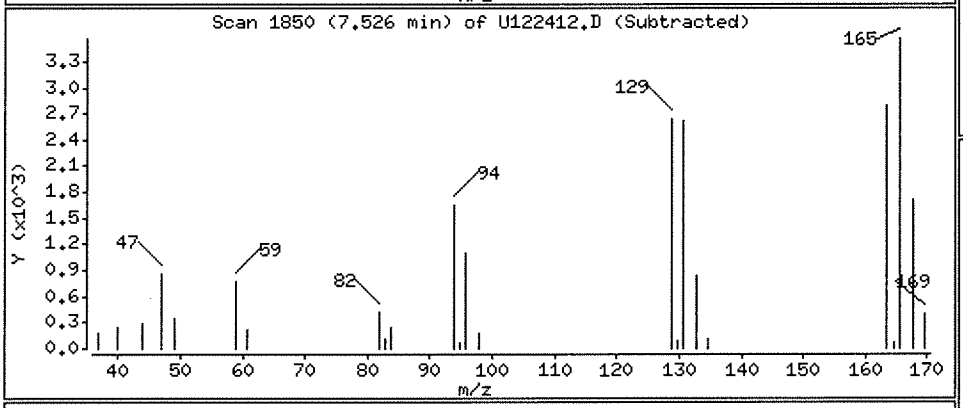
Column diameter: 0.18

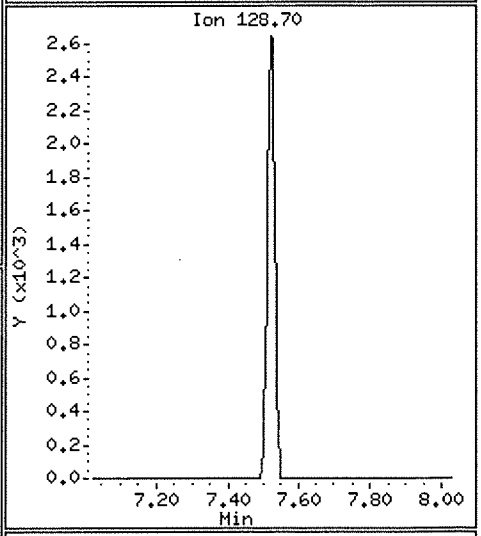
56 Tetrachloroethene

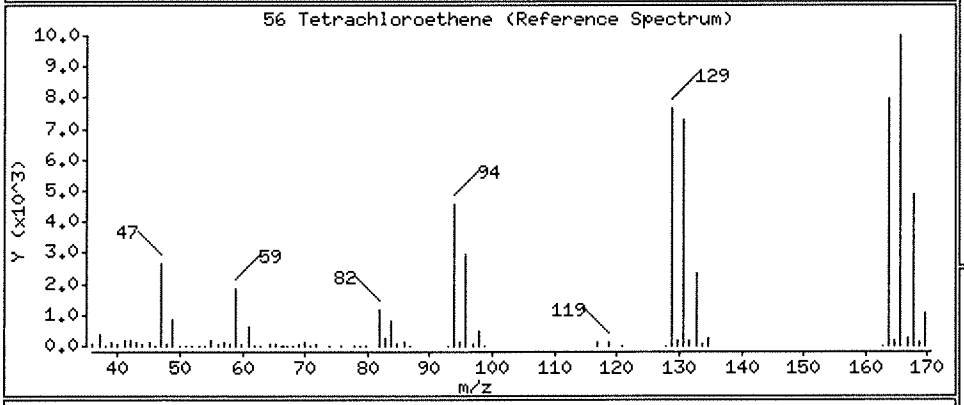
Concentration: 1.55 ug/l

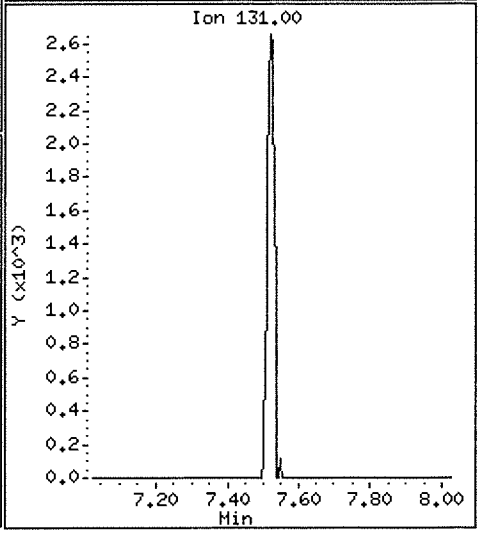


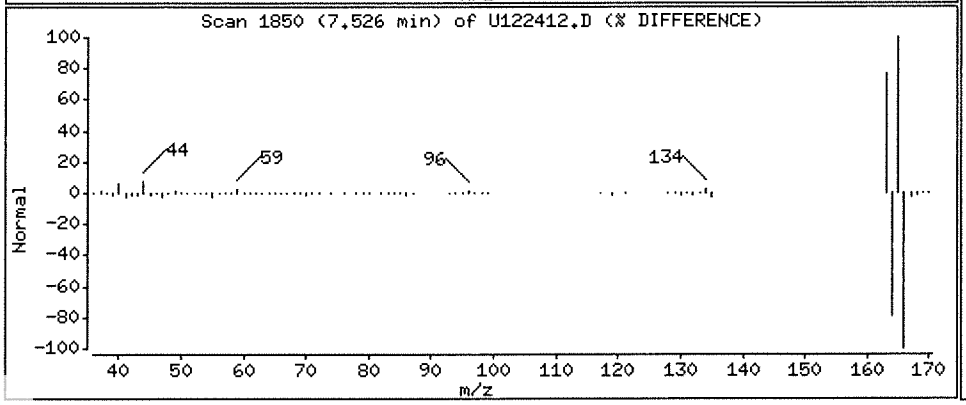



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Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

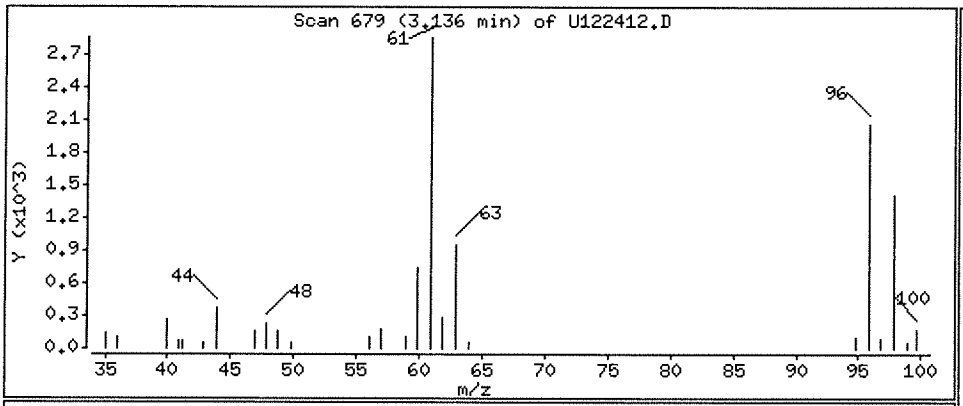
Operator: PC

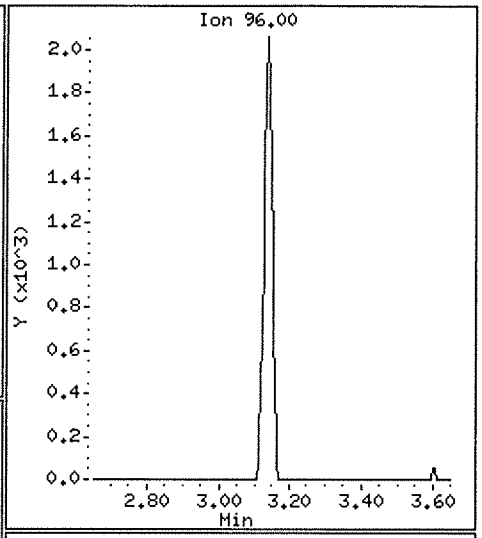
Column phase: DB624

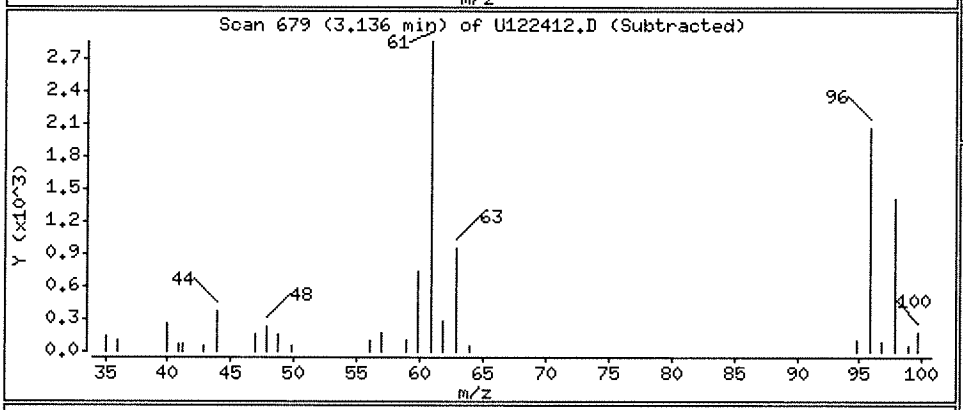
Column diameter: 0.18

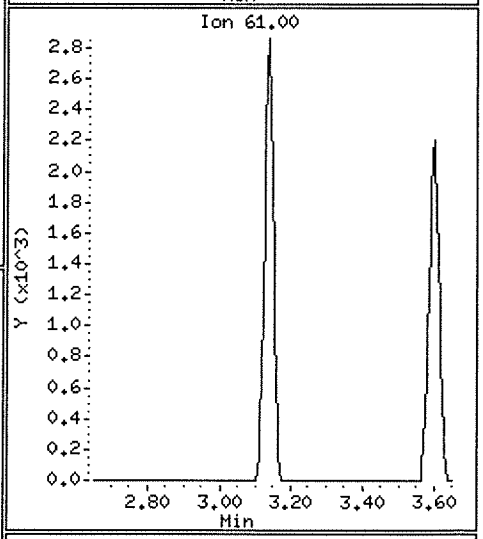
20 trans-1,2-Dichloroethene

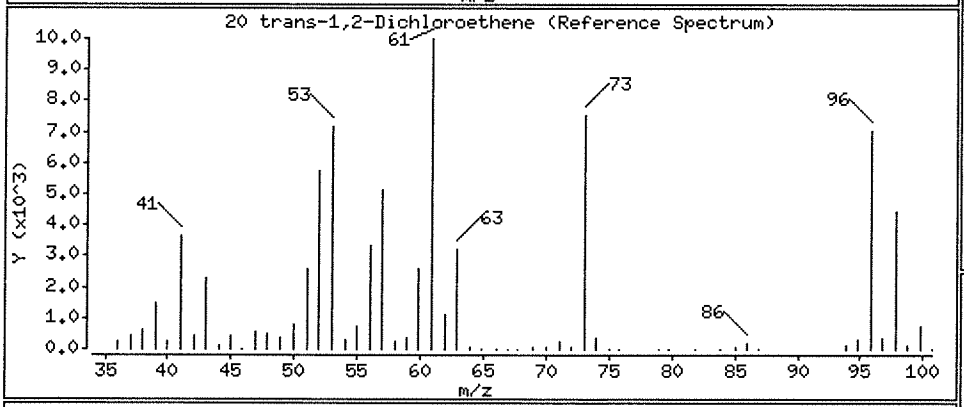
Concentration: 0.90 ug/l

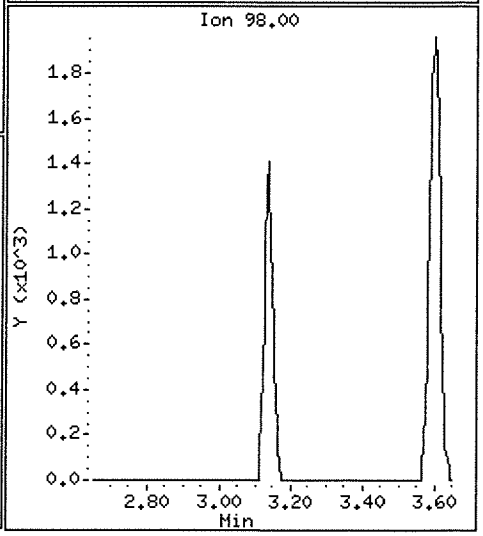


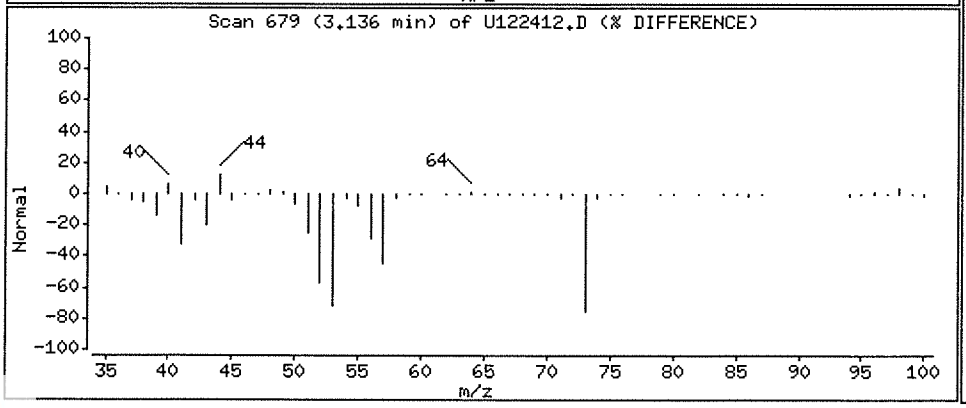



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D



Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

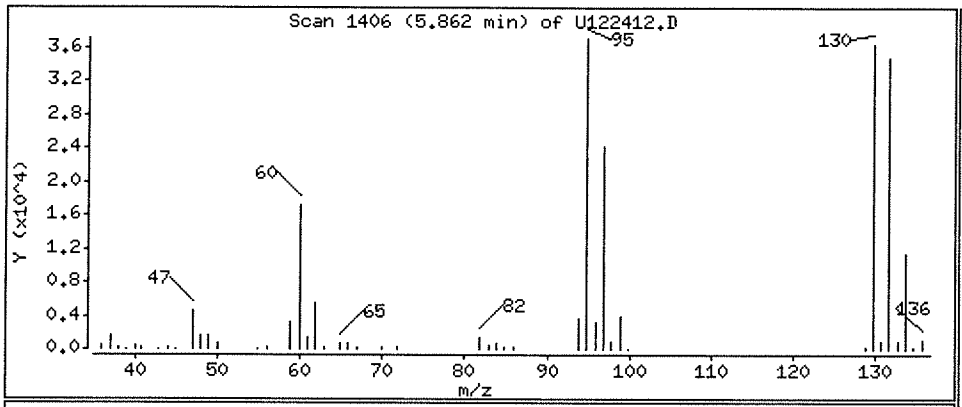
Operator: PC

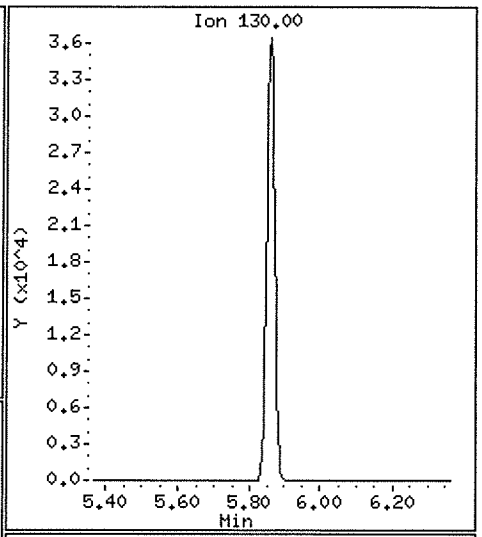
Column phase: DB624

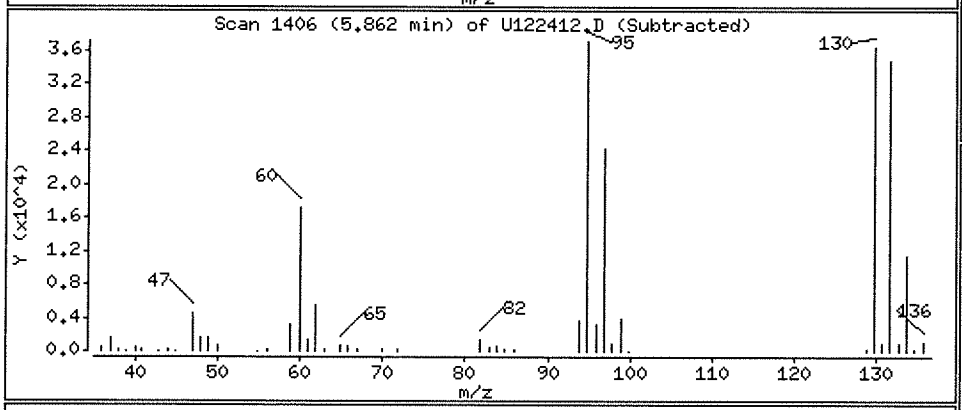
Column diameter: 0.18

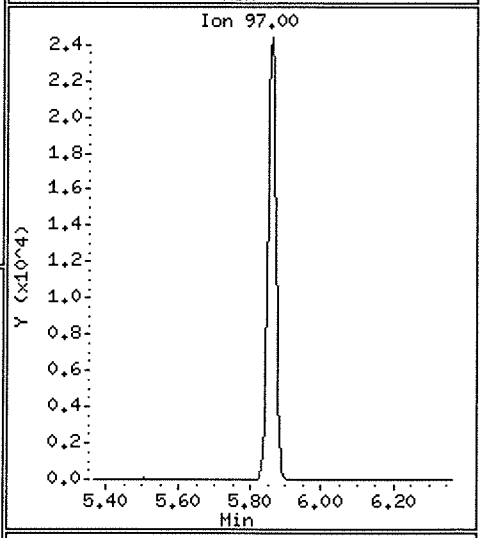
38 Trichloroethene

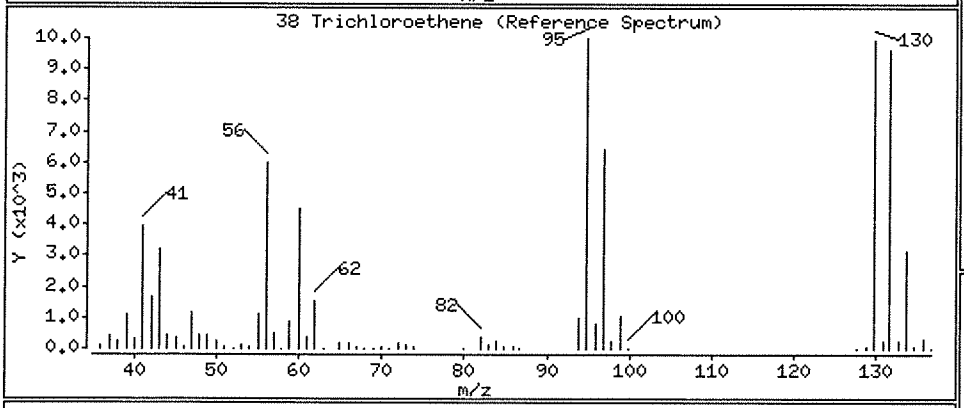
Concentration: 16.25 ug/l

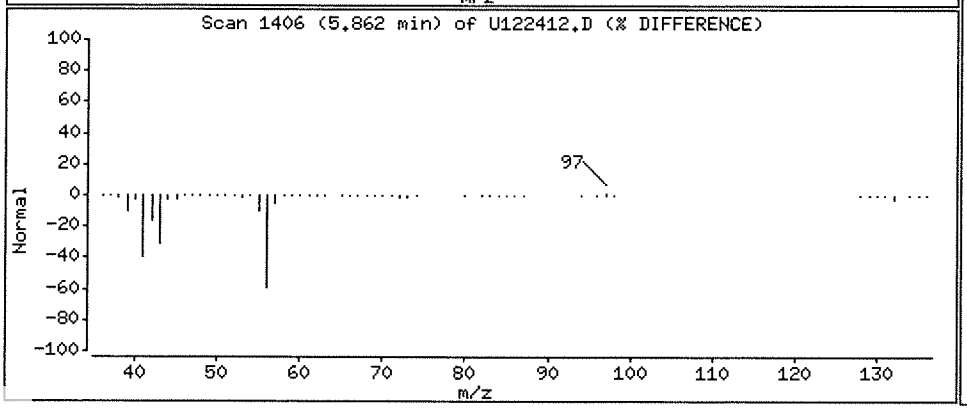


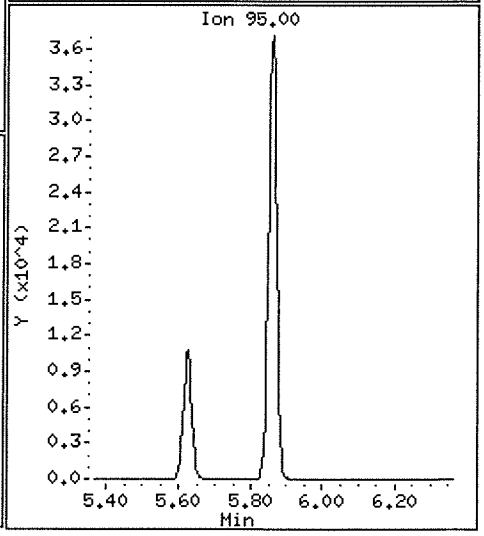



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D Page 9

Date : 24-DEC-2018 13:59

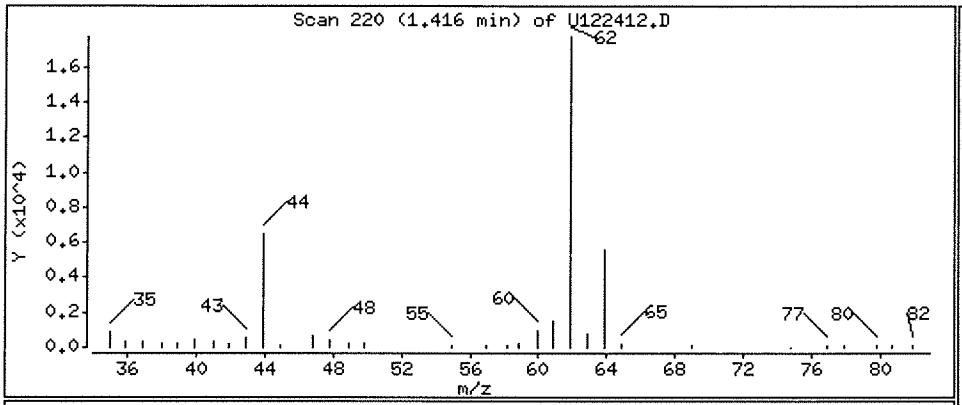
Client ID: HS18120913-01 Instrument: VOA9.i

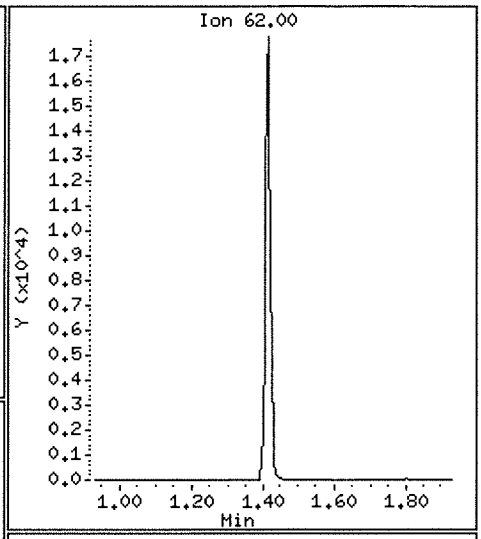
Sample Info: HS18120913-01;HS18120913-01;;;

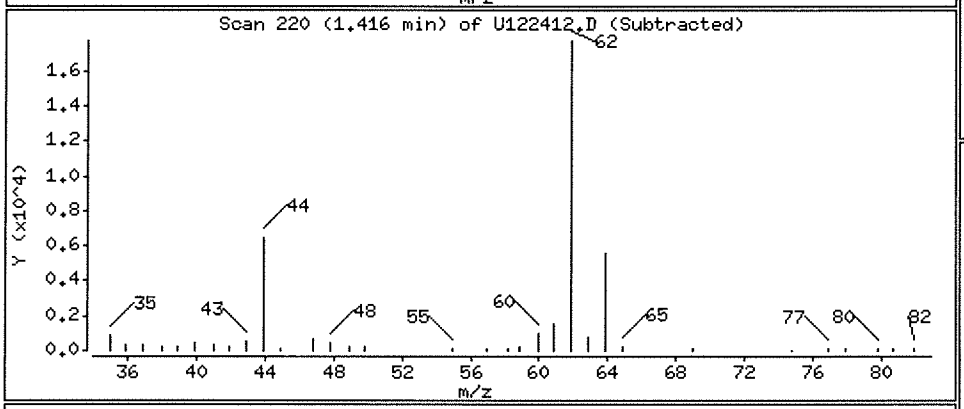
Purge Volume: 5.0 Operator: PC

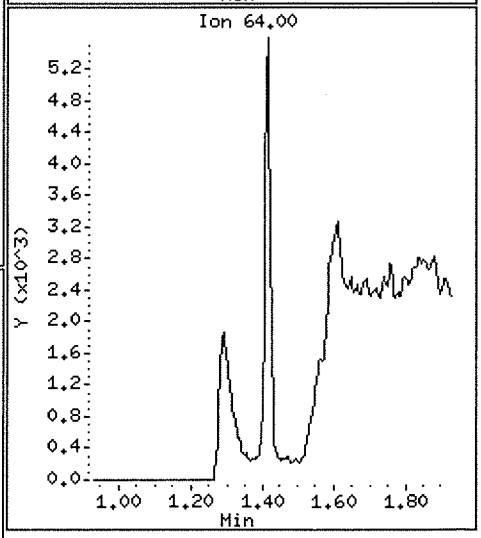
Column phase: DB624 Column diameter: 0.18

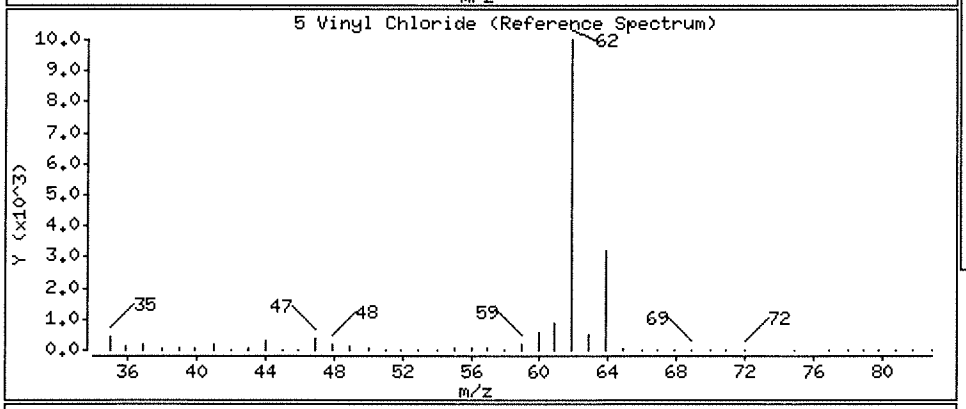
5 Vinyl Chloride Concentration: 4.98 ug/l

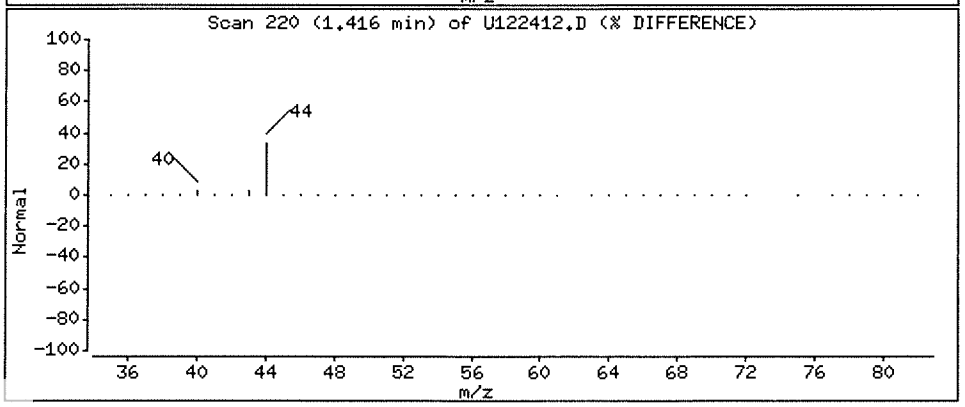


ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D
Lab Smp Id: HS18120913-02 Client Smp ID: HS18120913-02
Inj Date : 24-DEC-2018 14:24
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-02;HS18120913-02;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

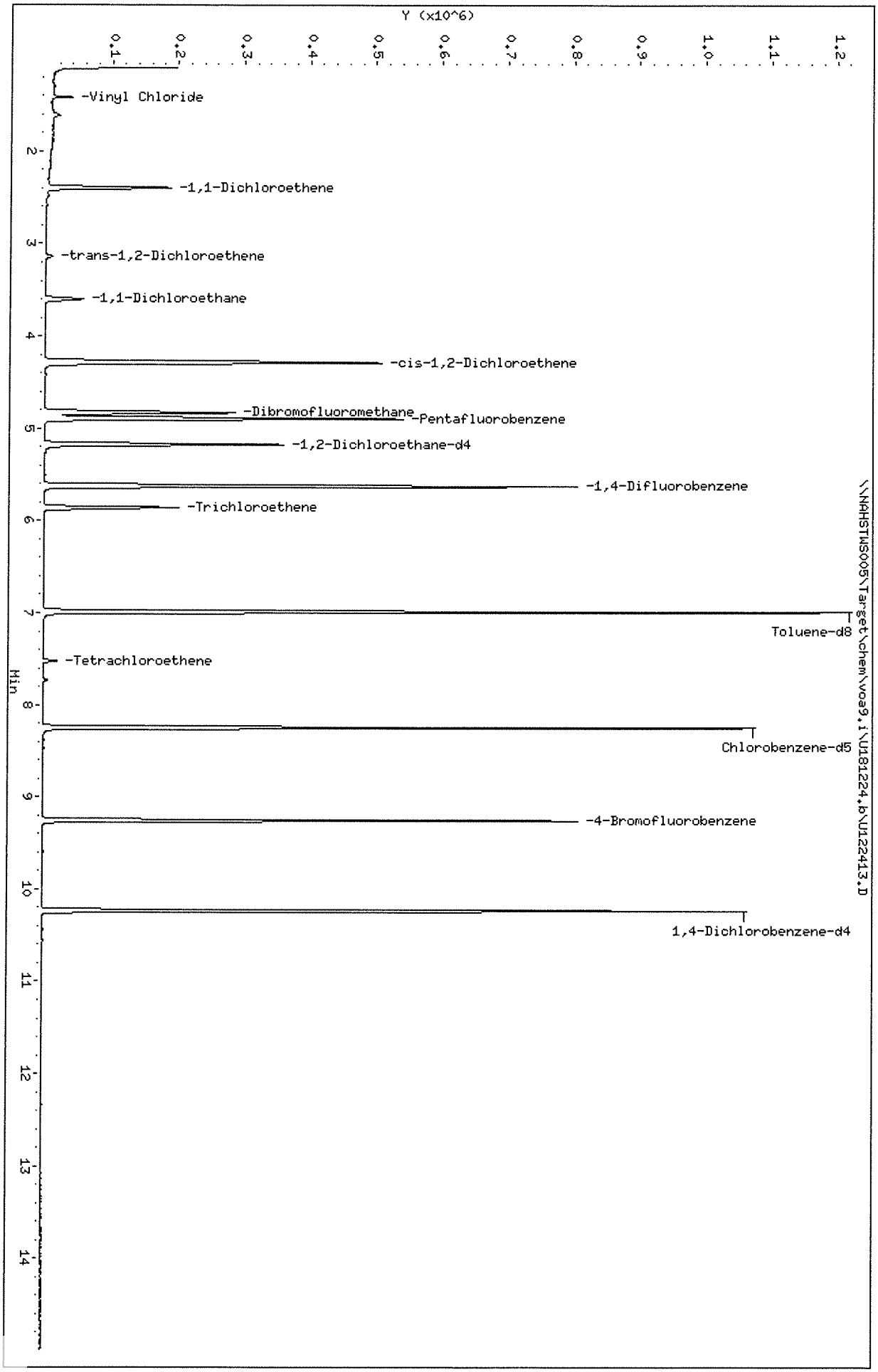
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.902 | (1.000) | 326911 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 575201 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 518136 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 238390 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.987) | 163751 | 45.2513 | 45.25 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 226914 | 48.9992 | 48.99 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 704773 | 52.7712 | 52.77 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 247211 | 48.4944 | 48.49 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.612 | (0.737) | 56864 | 8.07698 | 8.07 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.409 | (0.490) | 62020 | 19.9530 | 19.95 |
| 27 cis-1,2-Dichloroethene | 96 | 4.286 | 4.294 | (0.876) | 236252 | 54.9803 | 54.98 |
| 56 Tetrachloroethene | 164 | 7.522 | 7.526 | (0.912) | 4144 | 1.52770 | 1.52(a) |
| 20 trans-1,2-Dichloroethene | 96 | 3.143 | 3.151 | (0.642) | 3607 | 0.94261 | 0.94(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.865 | (1.042) | 58820 | 15.9185 | 15.91 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.430 | (0.290) | 18958 | 4.98942 | 4.98(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122413.D
Date : 24-DEC-2018 14:24
Client ID: HS18120913-02
Sample Info: HS18120913-02;HS18120913-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D



Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

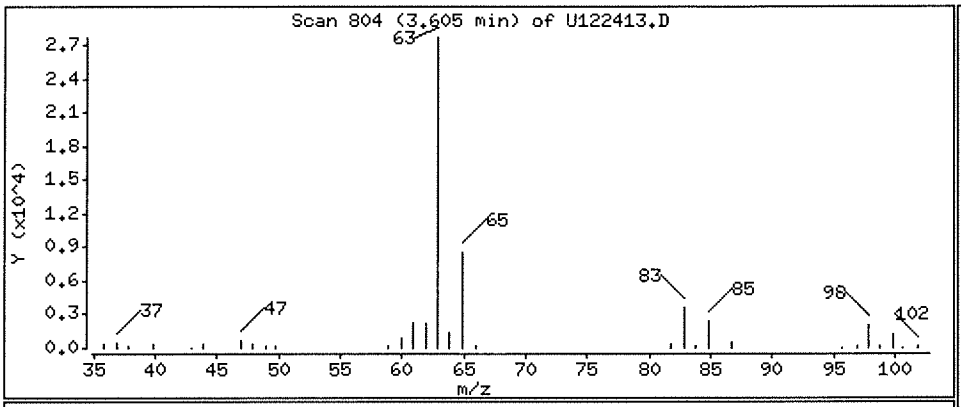
Operator: PC

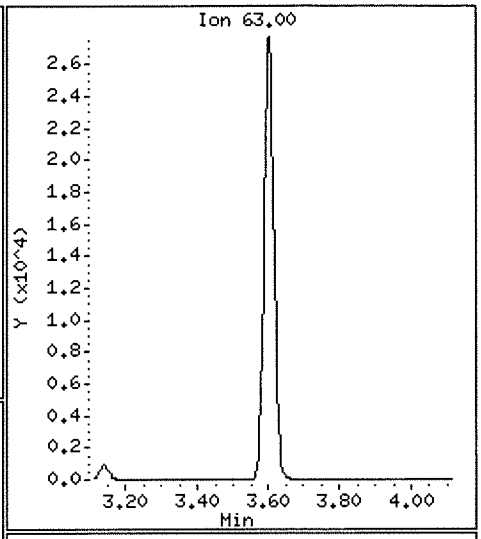
Column phase: DB624

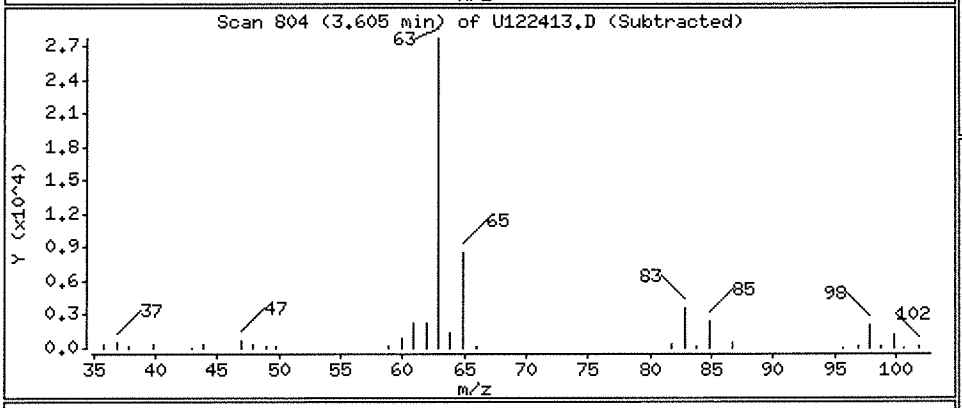
Column diameter: 0.18

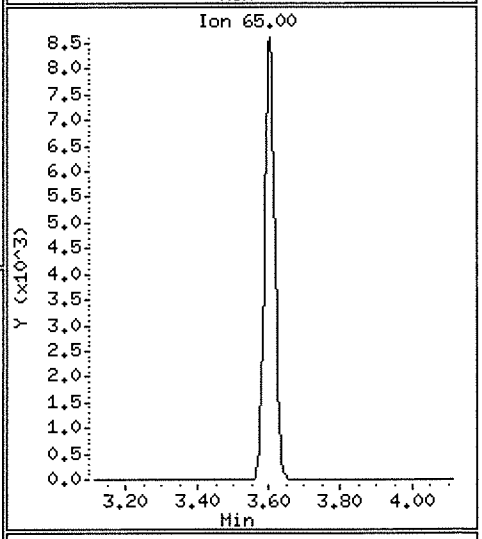
22 1,1-Dichloroethane

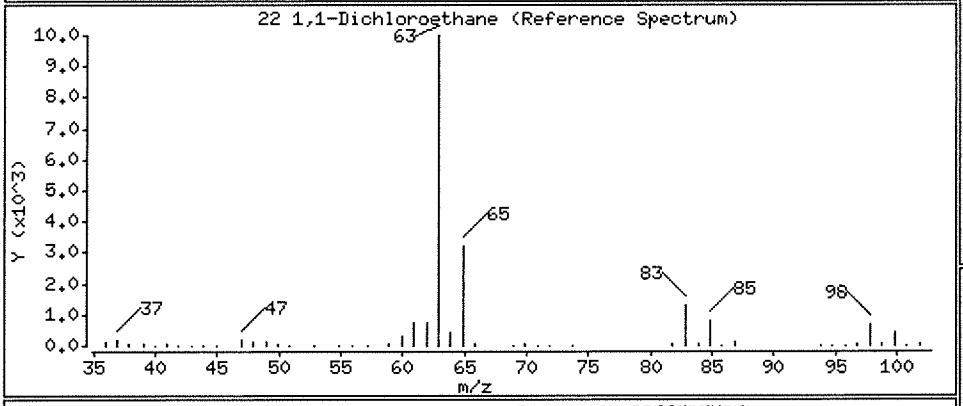
Concentration: 8.07 ug/l

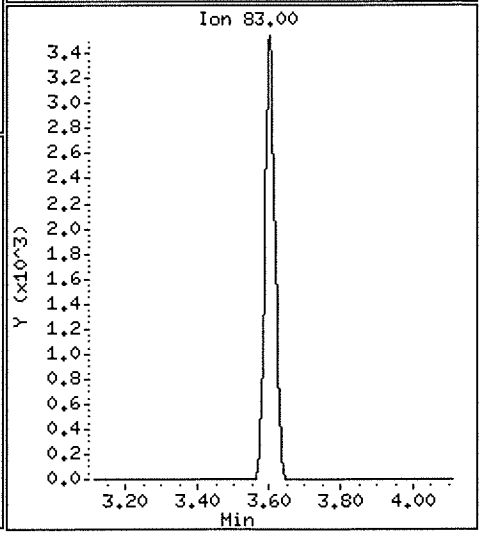


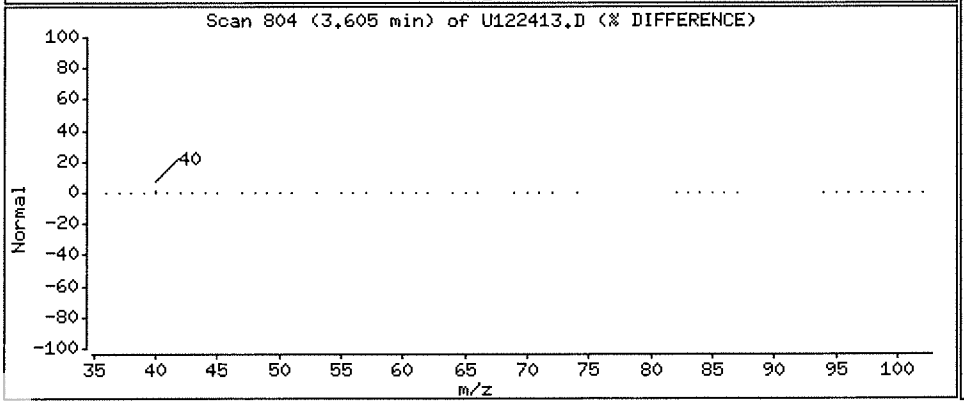



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D



Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

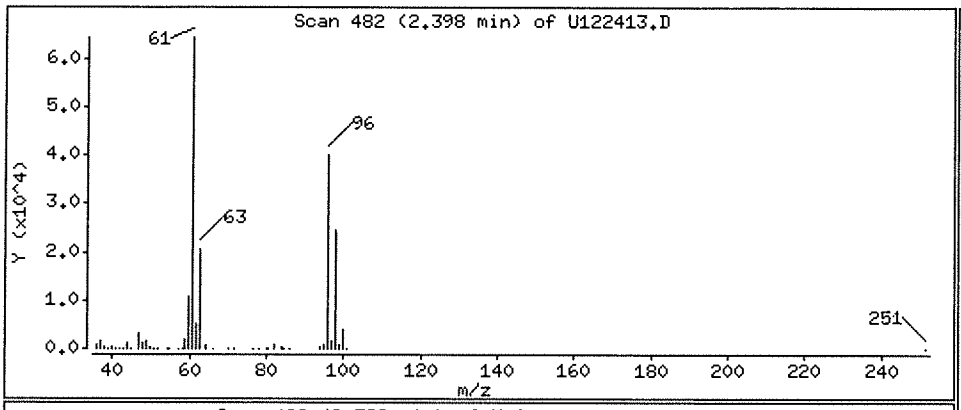
Operator: PC

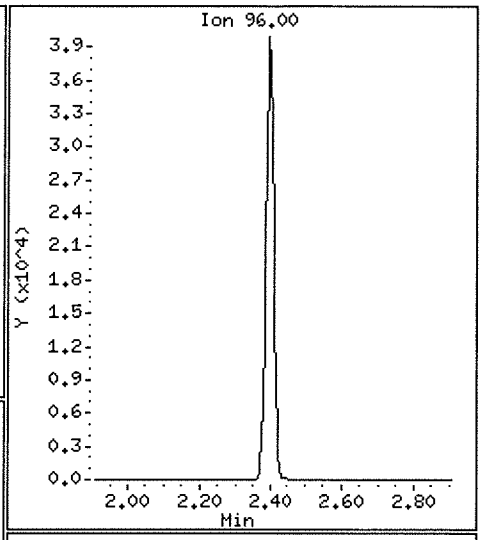
Column phase: DB624

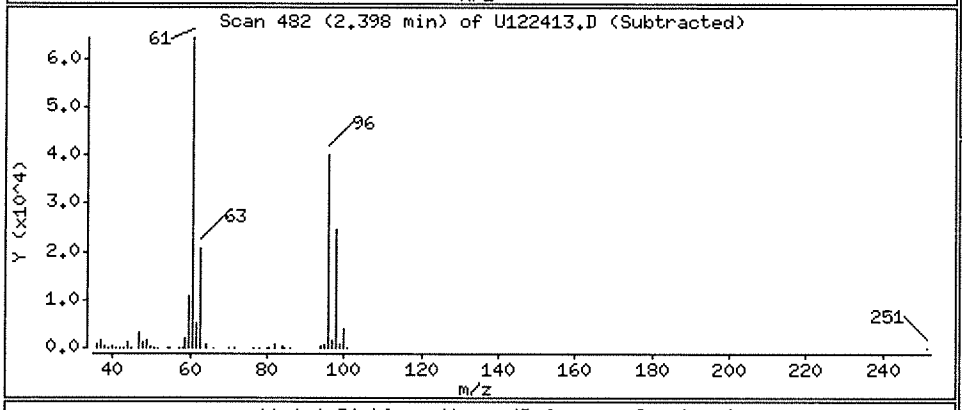
Column diameter: 0.18

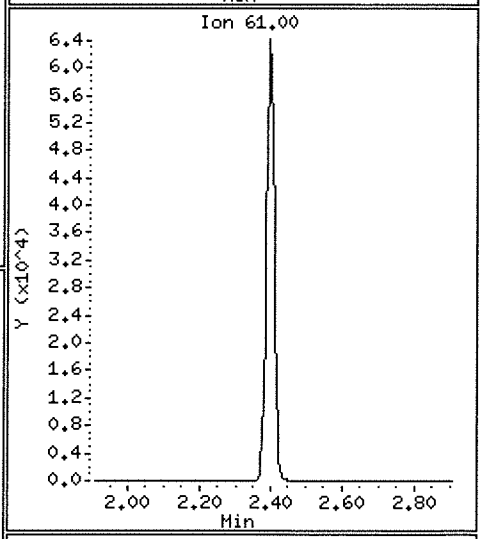
11 1,1-Dichloroethene

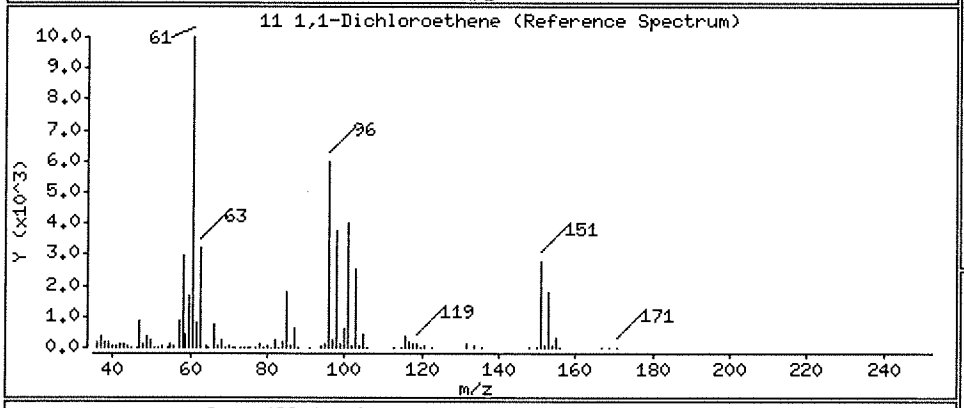
Concentration: 19.95 ug/l

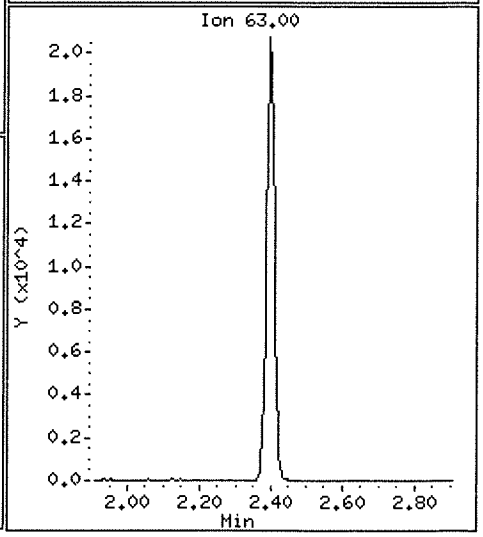


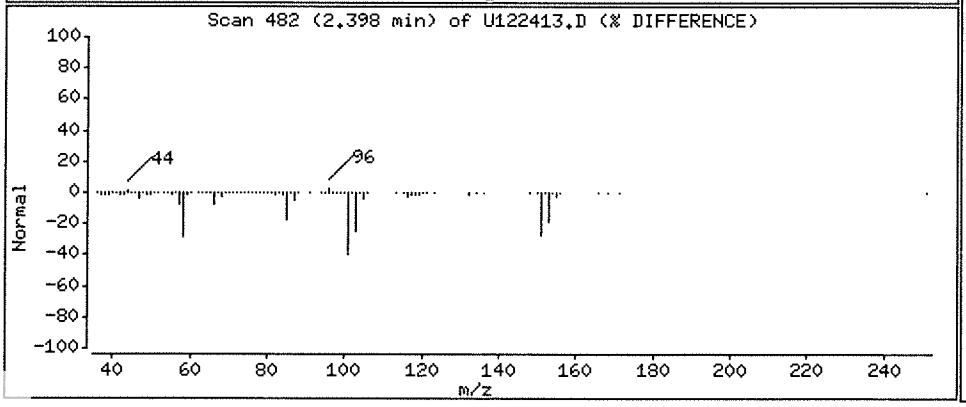



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D



Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

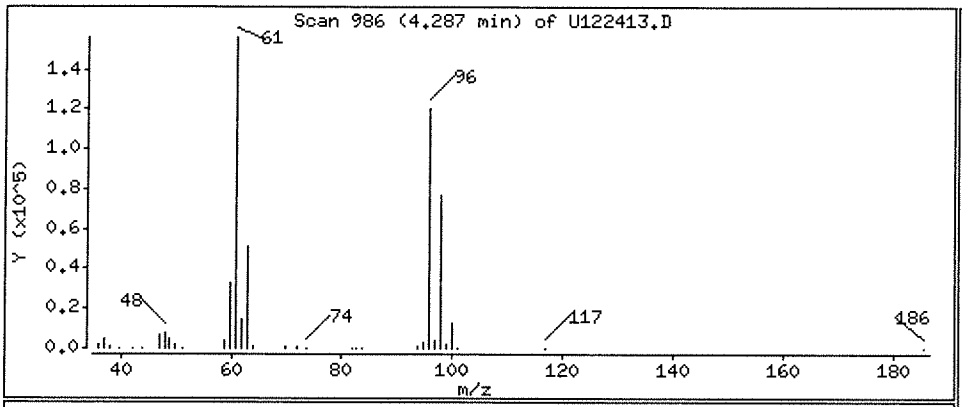
Operator: PC

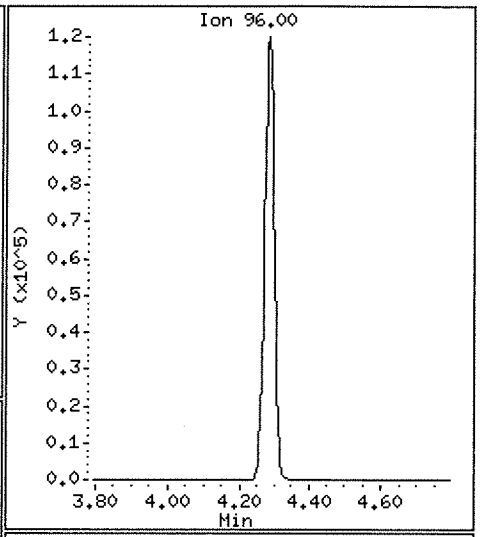
Column phase: DB624

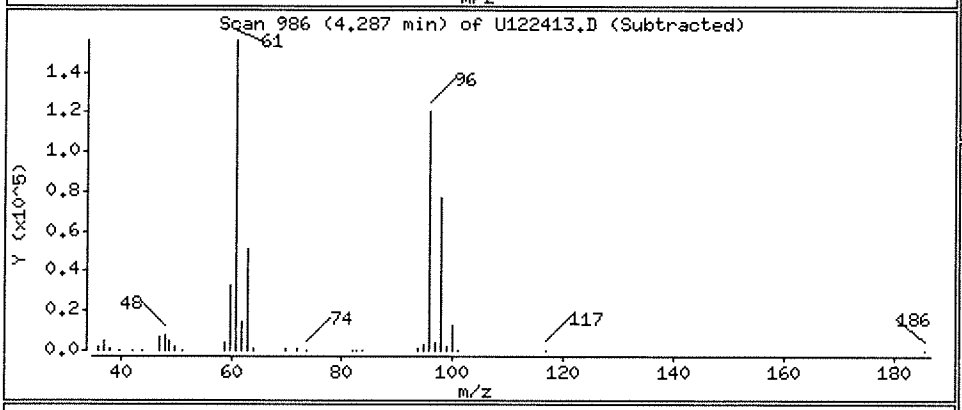
Column diameter: 0.18

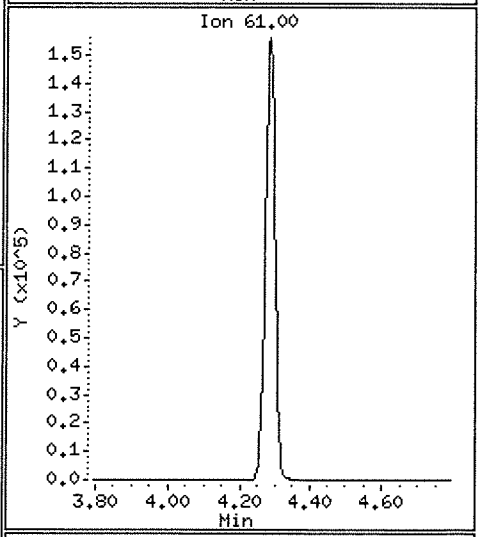
27 cis-1,2-Dichloroethene

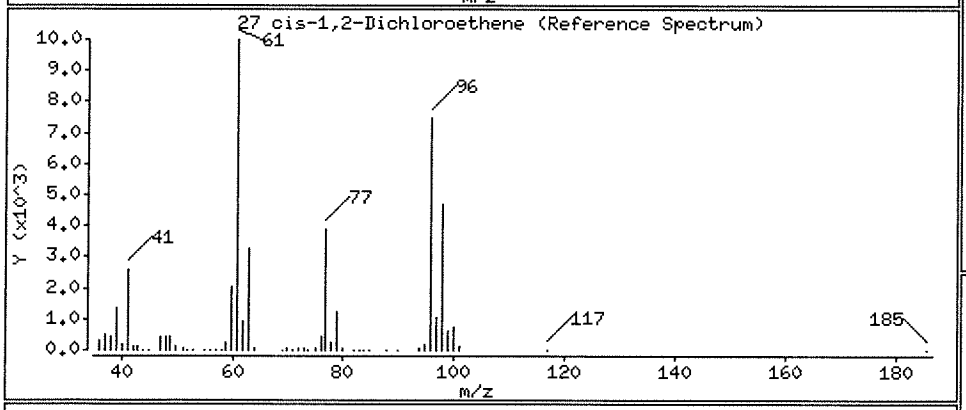
Concentration: 54.98 ug/l

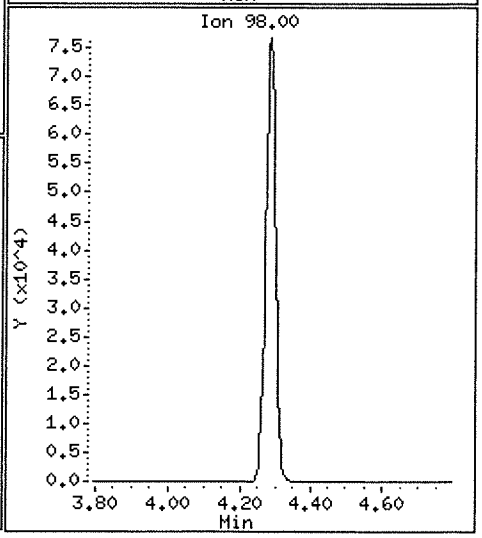


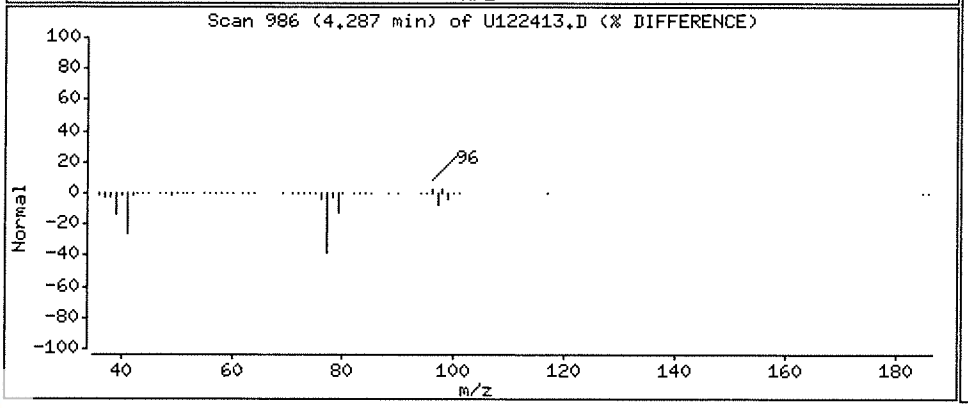



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D



Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

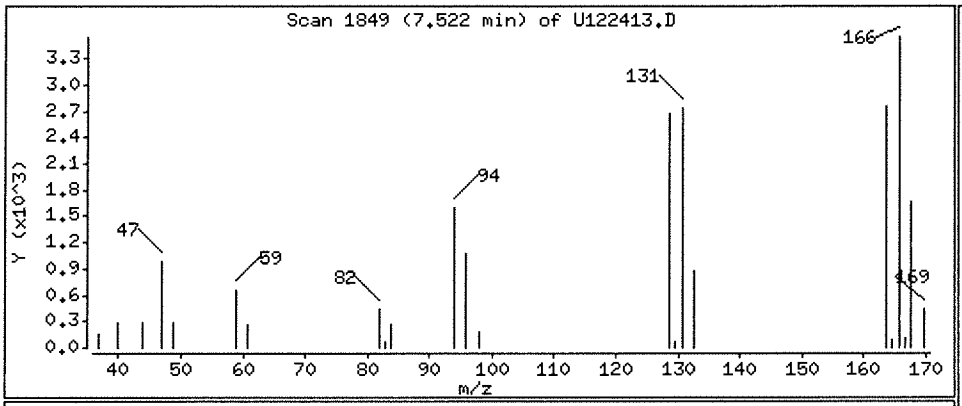
Operator: PC

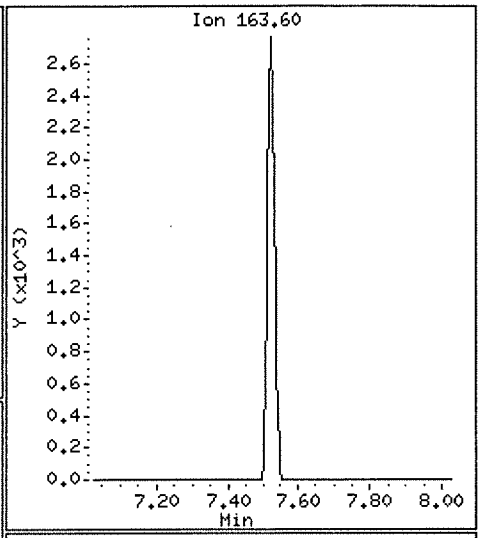
Column phase: DB624

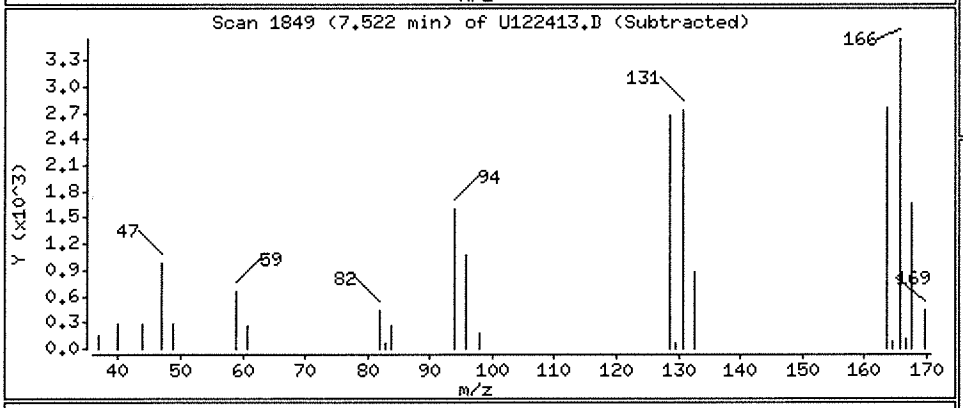
Column diameter: 0.18

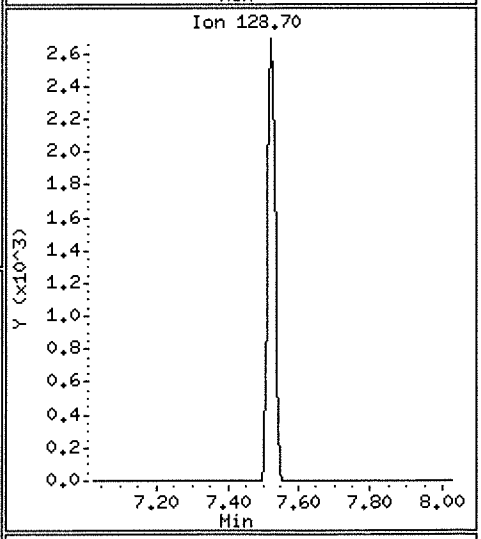
56 Tetrachloroethene

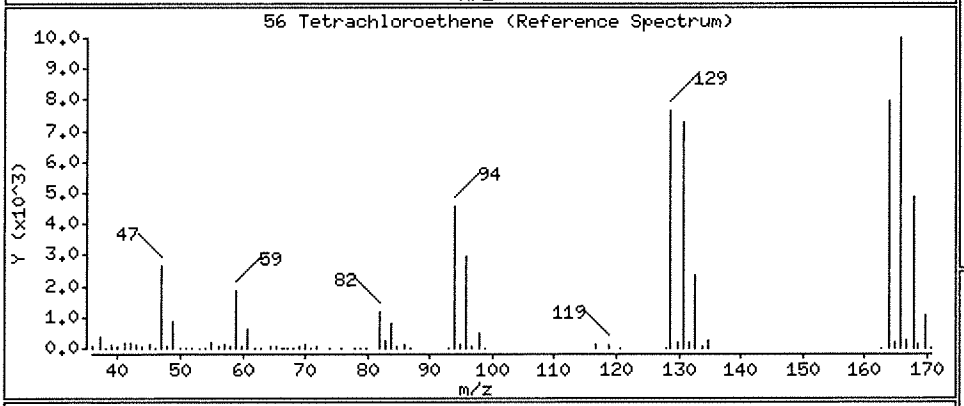
Concentration: 1.52 ug/l

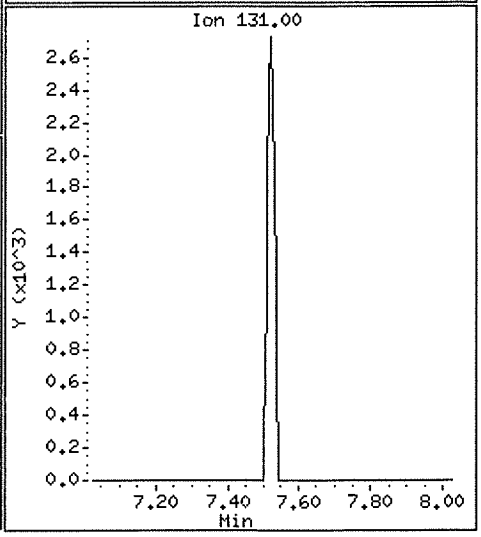


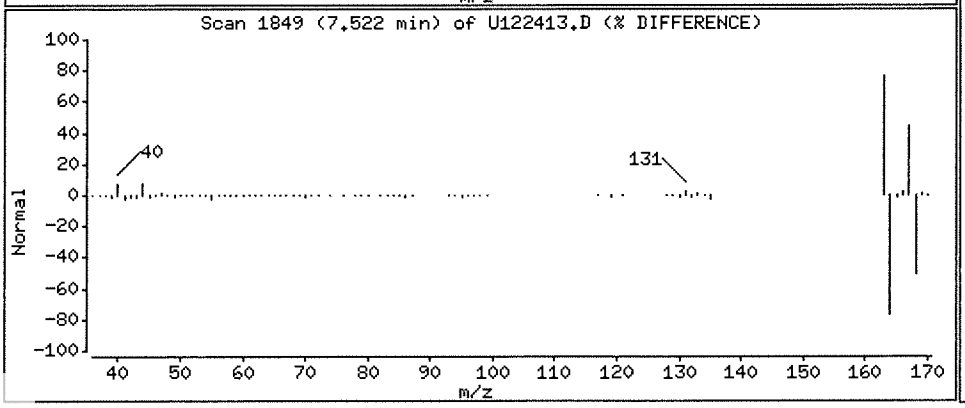



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D



Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

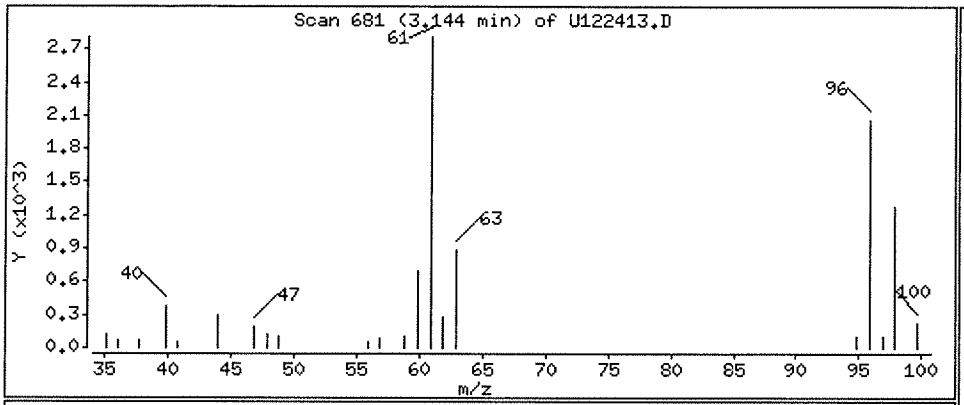
Operator: PC

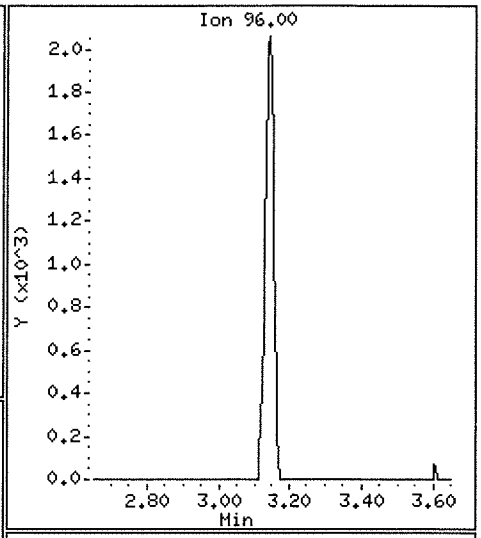
Column phase: DB624

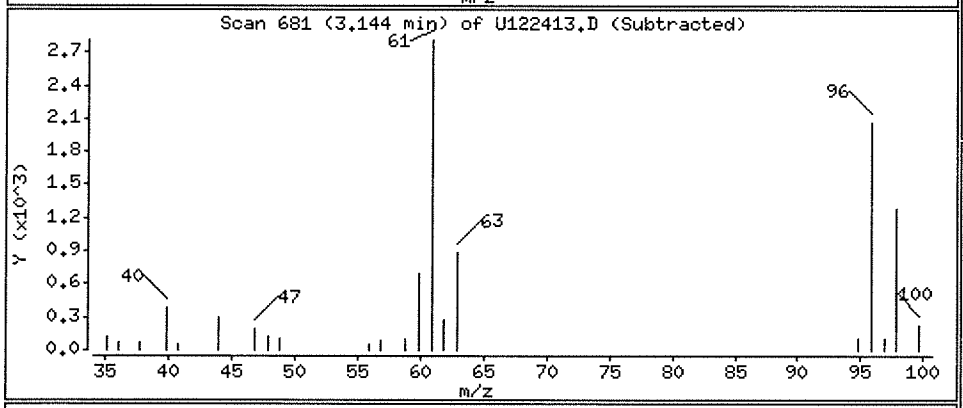
Column diameter: 0.18

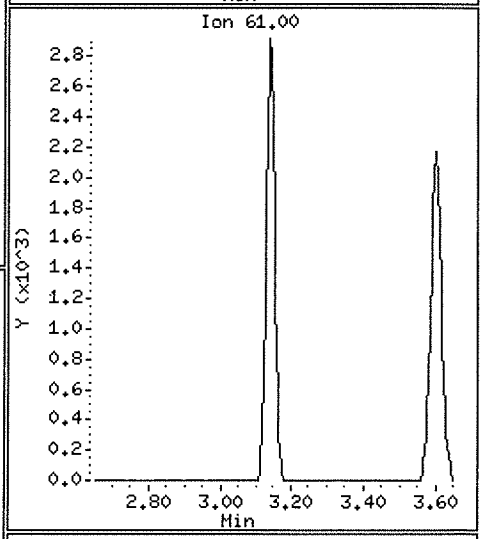
20 trans-1,2-Dichloroethene

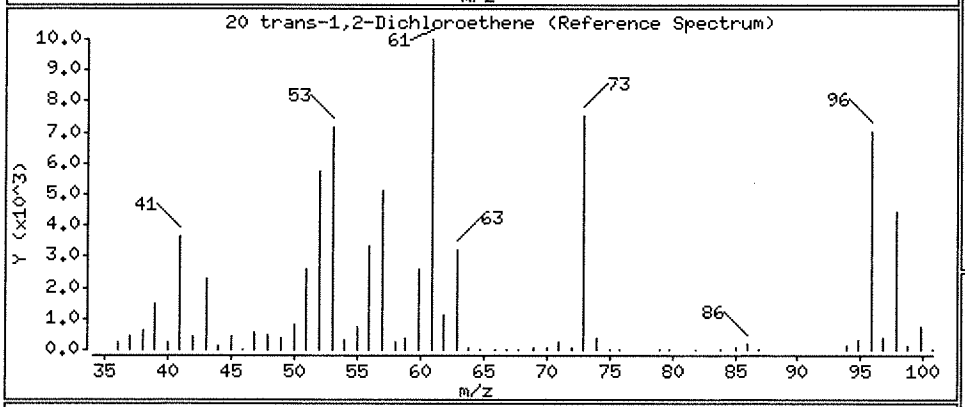
Concentration: 0.94 ug/l

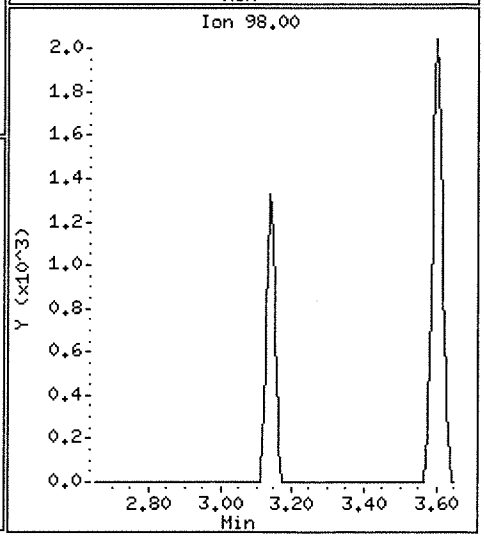


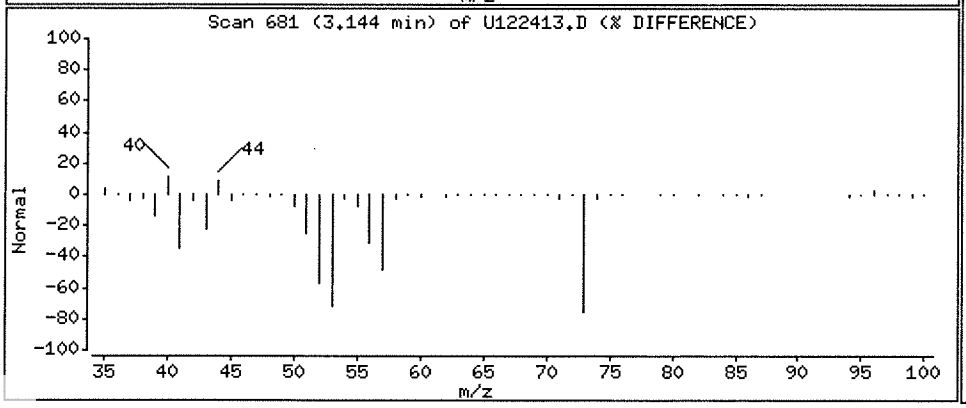



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Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

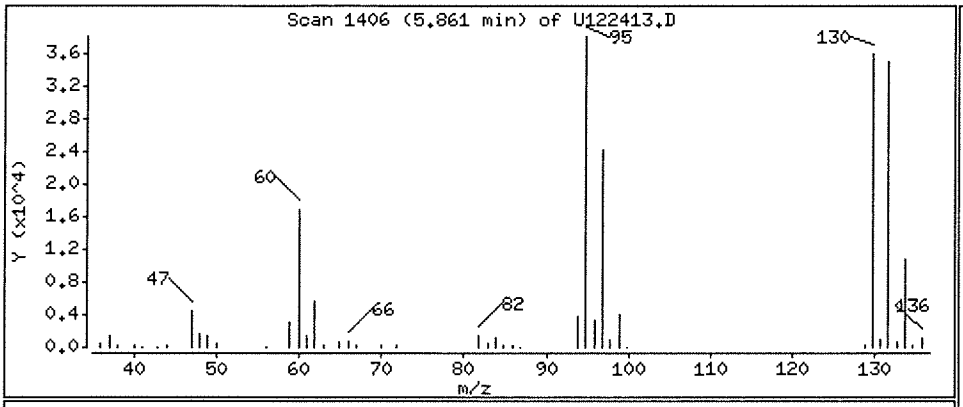
Operator: PC

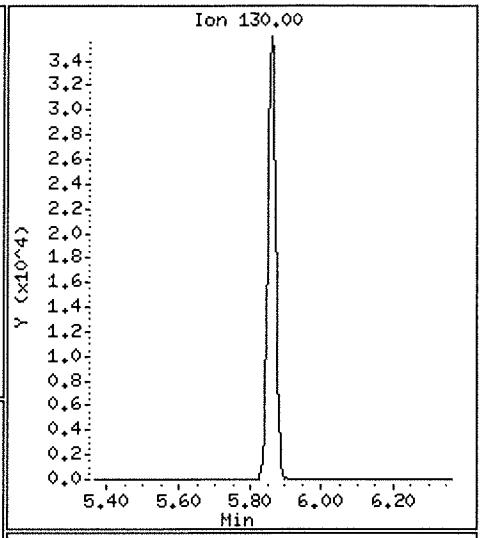
Column phase: DB624

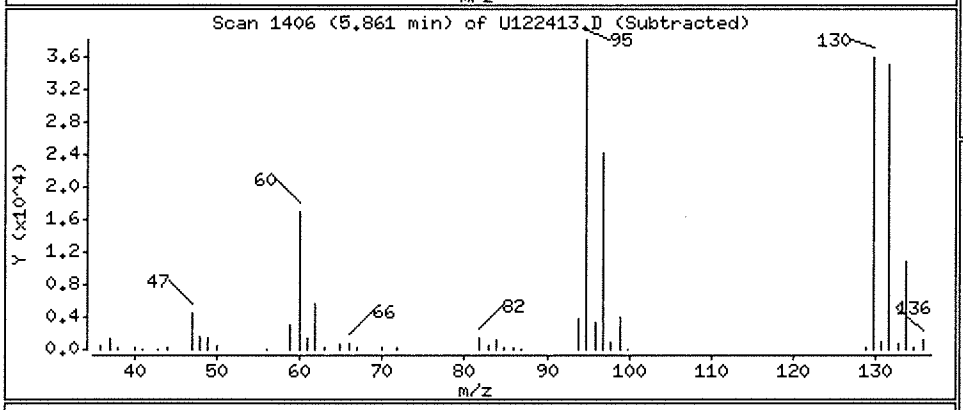
Column diameter: 0.18

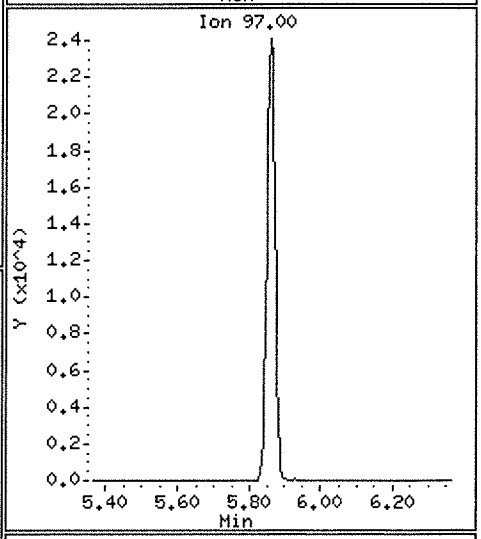
38 Trichloroethene

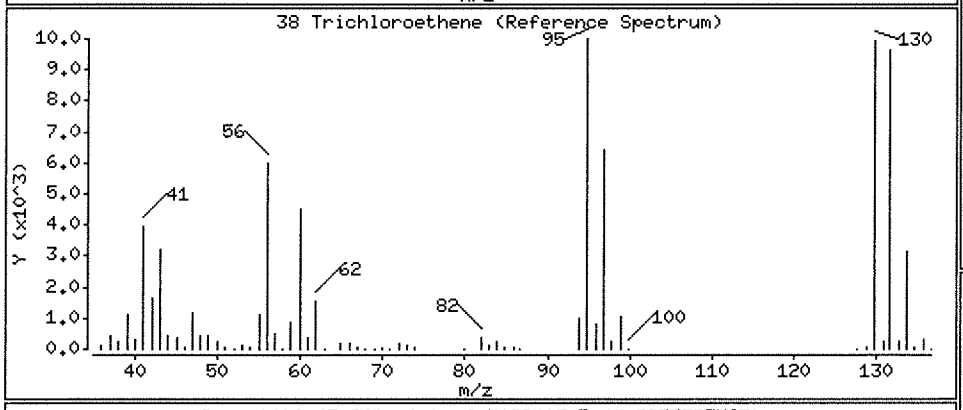
Concentration: 15.91 ug/l

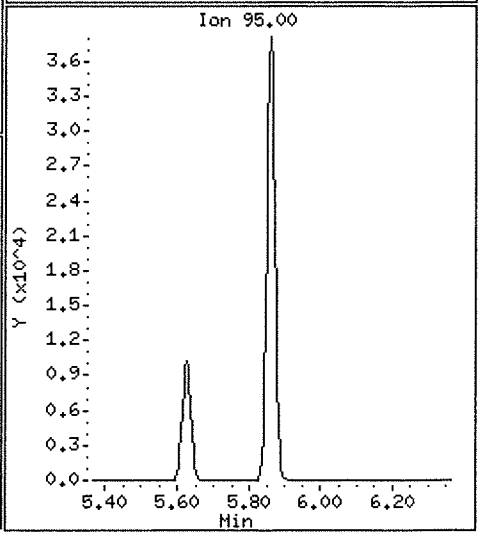


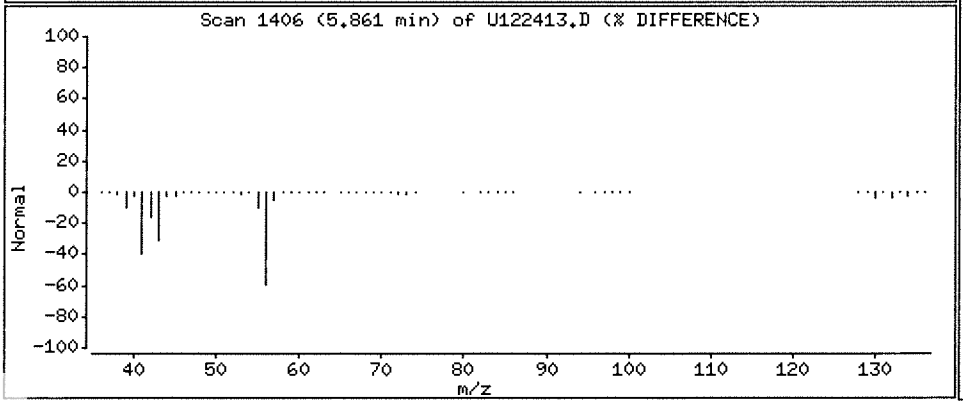



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D



Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

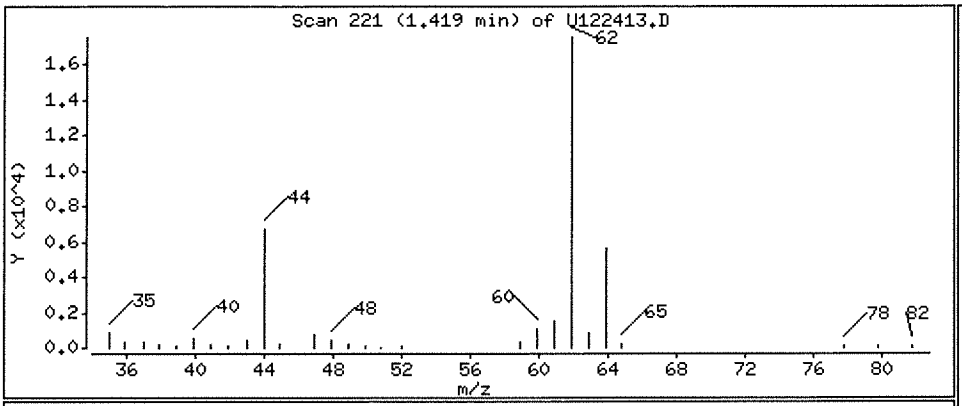
Operator: PC

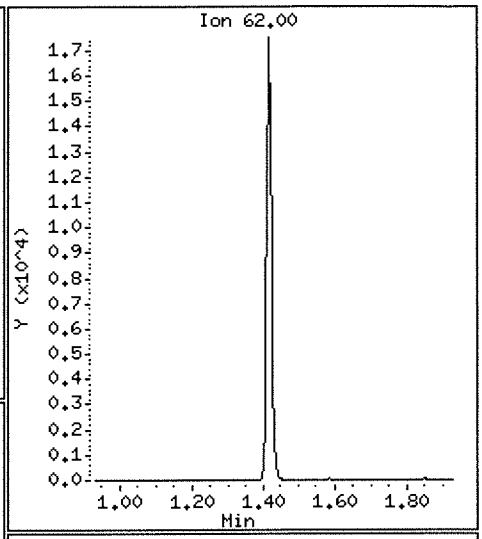
Column phase: DB624

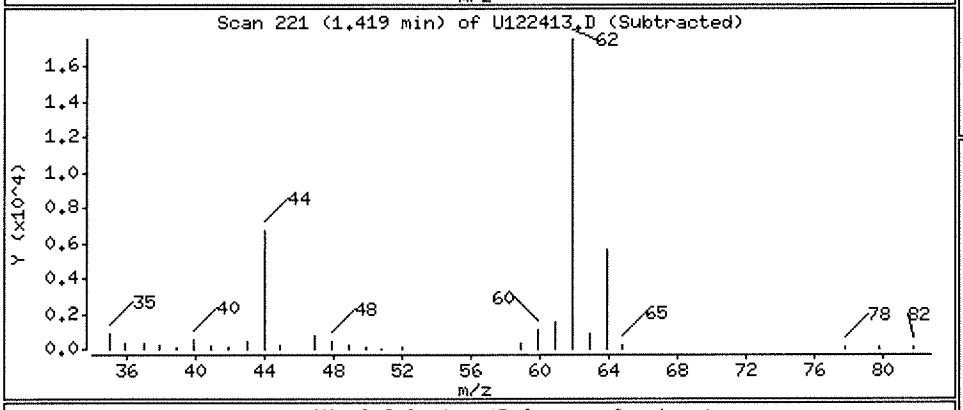
Column diameter: 0.18

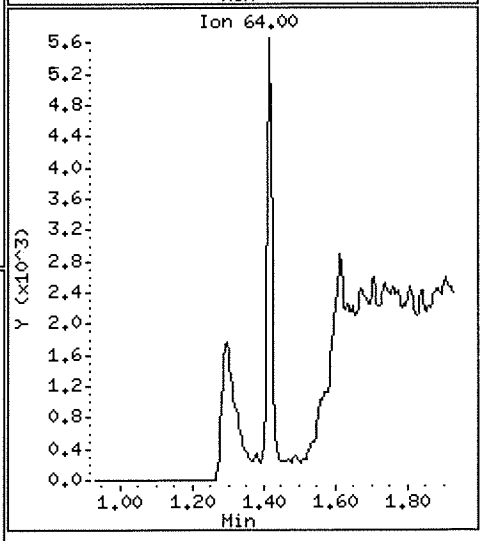
5 Vinyl Chloride

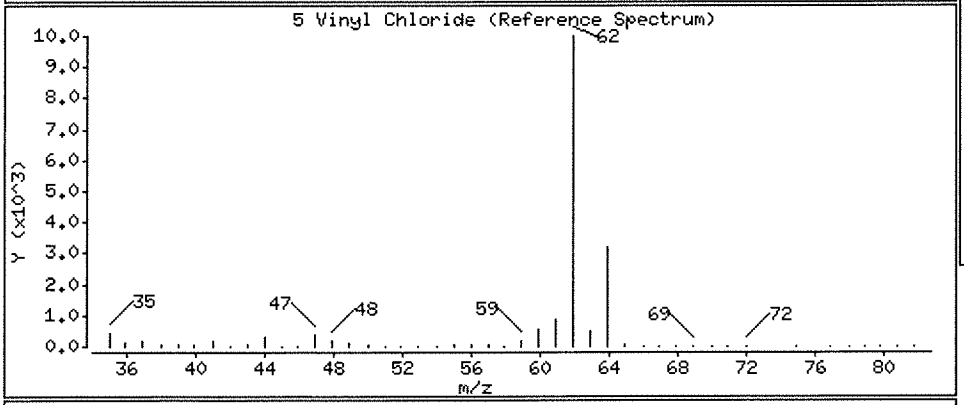
Concentration: 4.98 ug/l

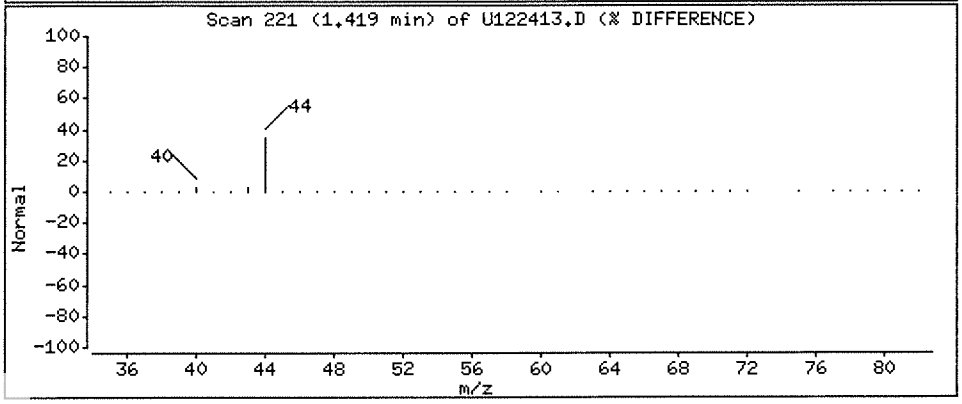


ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Lab Smp Id: HS18120913-03MS Client Smp ID: HS18120913-03MS
Inj Date : 24-DEC-2018 15:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MS;HS18120913-03MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

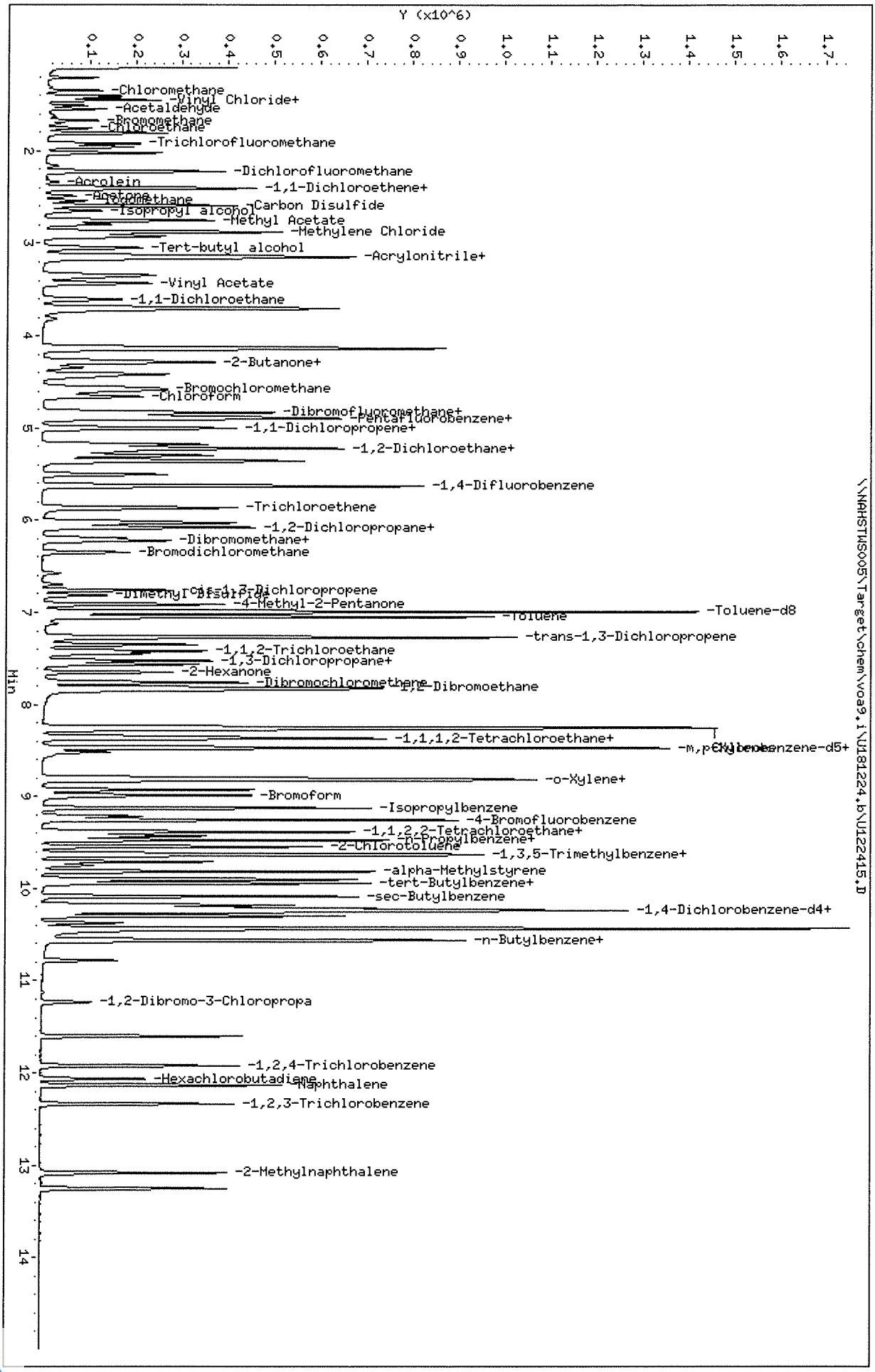
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.898 | 4.894 | (1.000) | 345000 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.629 | 5.625 | (1.000) | 594715 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 543870 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.235 | (1.000) | 266360 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.986) | 174630 | 45.7435 | 45.74 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.171 | (1.057) | 230784 | 47.1432 | 47.14 |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 746782 | 53.2878 | 53.28 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 276028 | 51.6764 | 51.67 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 79024 | 23.2148 | 23.21 |
| | 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.826 | (0.986) | 124996 | 22.9455 | 22.94 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 145185 | 24.2035 | 24.20 |
| | 138 Freon TF | 101 | 2.405 | 2.401 | (0.491) | 73723 | 25.1357 | 25.13 |
| | 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 81989 | 25.3033 | 25.30 |
| | 22 1,1-Dichloroethane | 63 | 3.608 | 3.600 | (0.737) | 168755 | 22.7132 | 22.71 |
| | 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.490) | 75592 | 23.0442 | 23.04 |
| | 32 1,1-Dichloropropene | 75 | 5.006 | 5.002 | (0.889) | 134692 | 25.4542 | 25.45 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 109130 | 22.1001 | 22.10 |
| | 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 145667 | 23.3532 | 23.35 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.922 | (1.165) | 110324 | 22.3715 | 22.37 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 351572 | 25.2227 | 25.22 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 18444 | 20.8136 | 20.81 |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 94955 | 25.4427 | 25.44 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 2
Report Date: 28-Jan-2019 14:34

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 187882 | 23.7559 | 23.75 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.933) | 138450 | 25.4836 | 25.48 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 104134 | 24.7807 | 24.78 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.624 | (0.940) | 342429 | 25.5804 | 25.58 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 184561 | 23.3342 | 23.33 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 174086 | 24.9430 | 24.94 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 194001 | 23.2630 | 23.26 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.271 | (0.873) | 102083 | 22.7990 | 22.79 |
| 24 | 2-Butanone | 43 | 4.343 | 4.335 | (0.887) | 105483 | 45.4559 | 45.45 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 306257 | 24.9549 | 24.95 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 159855 | 52.8577 | 52.85 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.639 | (0.942) | 356306 | 25.1237 | 25.12 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 355401 | 25.2152 | 25.21 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.910 | (0.838) | 223482 | 51.3578 | 51.35 |
| 10 | Acetone | 43 | 2.487 | 2.476 | (0.508) | 70952 | 51.2497 | 51.24 |
| 37 | Benzene | 78 | 5.220 | 5.216 | (0.927) | 397101 | 25.0928 | 25.09 |
| 74 | Bromobenzene | 156 | 9.385 | 9.381 | (0.917) | 97879 | 23.7834 | 23.78 |
| 29 | Bromochloromethane | 128 | 4.556 | 4.552 | (0.930) | 46188 | 24.0179 | 24.01 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 109342 | 24.4685 | 24.46 |
| 66 | Bromoform | 173 | 8.984 | 8.983 | (1.089) | 47381 | 21.3431 | 21.34 |
| 6 | Bromomethane | 94 | 1.670 | 1.666 | (0.341) | 51729 | 24.9684 | 24.96 |
| 19 | Carbon Disulfide | 76 | 2.592 | 2.588 | (0.529) | 516135 | 43.1821 | 43.18 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.995 | (0.888) | 99519 | 23.7645 | 23.76 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 261122 | 24.9882 | 24.98 |
| 7 | Chloroethane | 64 | 1.756 | 1.748 | (0.359) | 65153 | 21.7650 | 21.76(M) |
| 28 | Chloroform | 83 | 4.658 | 4.654 | (0.951) | 164251 | 22.9552 | 22.95 |
| 3 | Chloromethane | 50 | 1.344 | 1.336 | (0.274) | 73734 | 22.1006 | 22.10 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.283 | (0.876) | 110116 | 24.2824 | 24.28 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.757 | (1.201) | 142392 | 21.7030 | 21.70 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 77822 | 22.3259 | 22.32 |
| 44 | Dibromomethane | 93 | 6.191 | 6.187 | (1.100) | 60796 | 25.0676 | 25.06 |
| 2 | Dichlorodifluoromethane | 85 | 1.209 | 1.201 | (0.247) | 60996 | 14.7145 | 14.71 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.369 | (1.015) | 137460 | 25.6473 | 25.64 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 36483 | 19.3100 | 19.30 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 409452 | 26.4747 | 26.47 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 342200 | 51.9351 | 51.93 |
| 17 | Methylene Chloride | 84 | 2.873 | 2.869 | (0.587) | 100414 | 22.9137 | 22.91 |
| 87 | n-Butylbenzene | 91 | 10.554 | 10.558 | (1.031) | 332695 | 24.4588 | 24.45 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.474 | (0.926) | 515682 | 25.9103 | 25.91 |
| 92 | Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 359474 | 22.4263 | 22.42 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 170427 | 25.6392 | 25.63 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 425090 | 25.4139 | 25.41 |
| 64 | Styrene | 104 | 8.826 | 8.822 | (1.070) | 290415 | 26.2974 | 26.29 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 293816 | 25.3946 | 25.39 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.521 | (0.912) | 68956 | 24.2180 | 24.21 |
| 50 | Toluene | 91 | 7.049 | 7.045 | (0.855) | 422501 | 26.1152 | 26.11 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.143 | 3.139 | (0.642) | 93150 | 23.0664 | 23.06 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.259 | (1.290) | 119186 | 21.3804 | 21.38 |
| 38 | Trichloroethene | 130 | 5.865 | 5.861 | (1.042) | 100047 | 26.1873 | 26.18 |
| 8 | Trichlorofluoromethane | 101 | 1.959 | 1.951 | (0.400) | 125967 | 22.5008 | 22.50 |
| 5 | Vinyl Chloride | 62 | 1.423 | 1.419 | (0.291) | 101003 | 21.2662 | 21.26 |

QC Flag Legend

M - Compound response manually integrated.

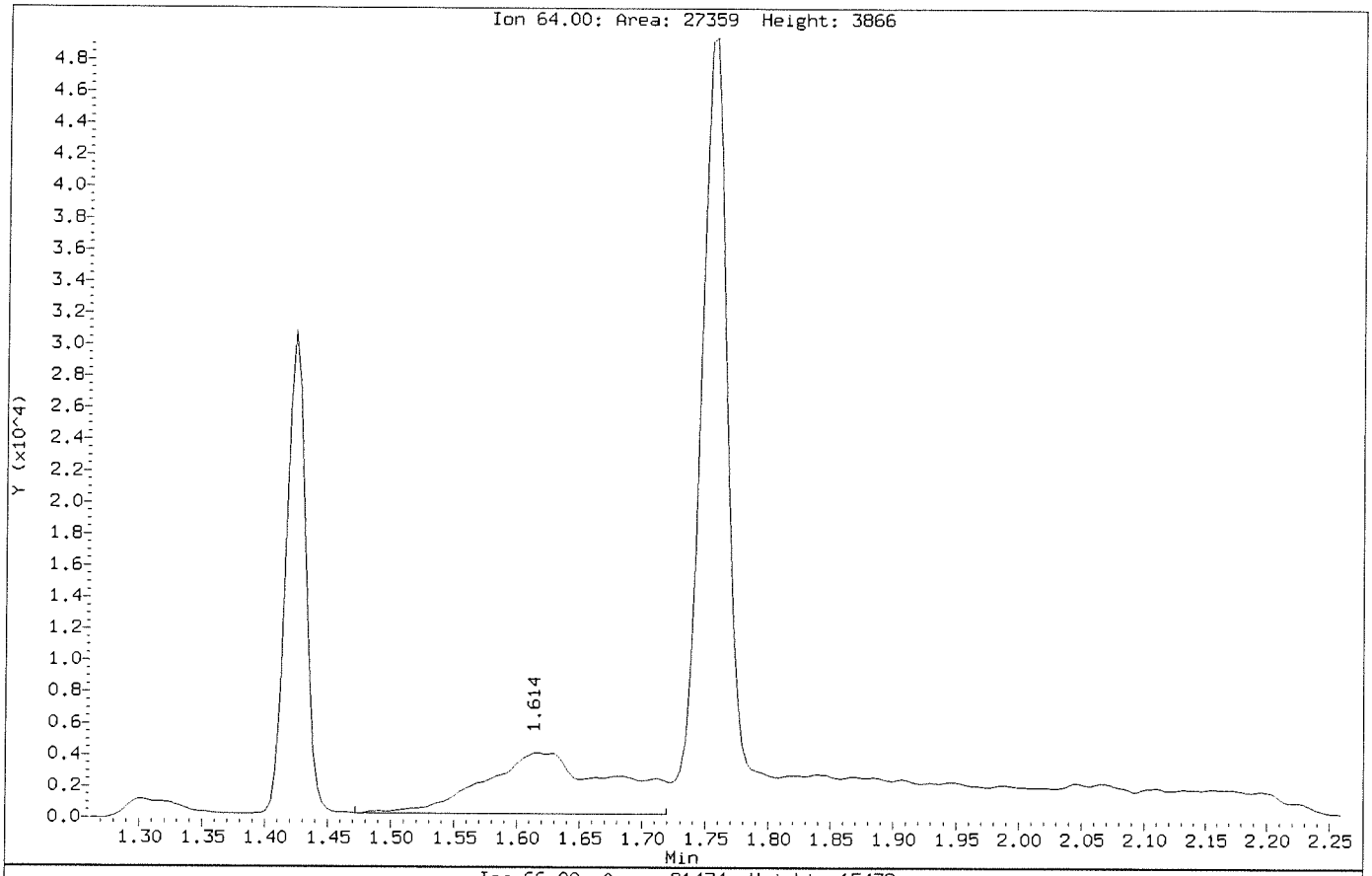


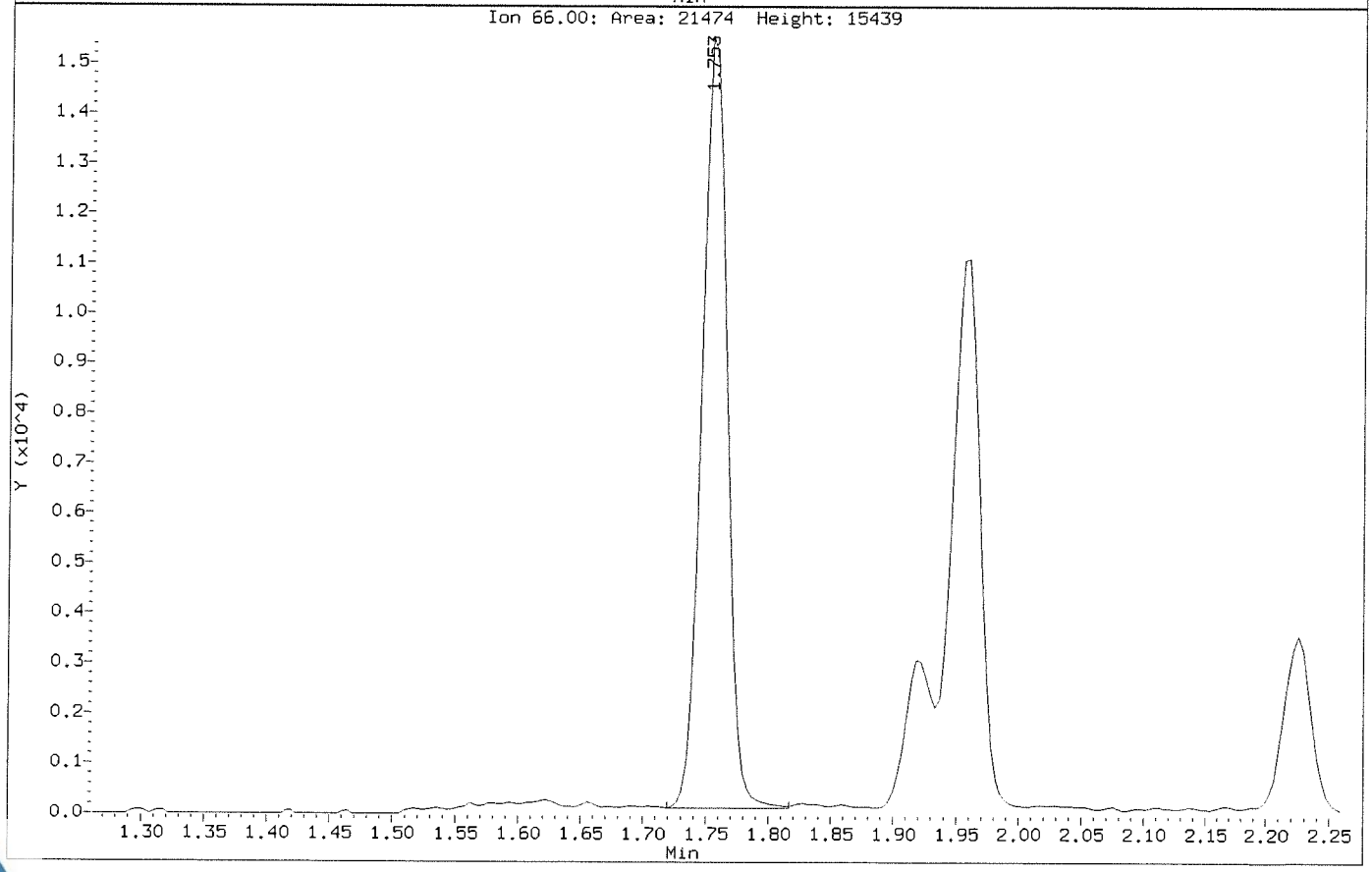

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Date : 24-DEC-2018 15:14
Client ID: HS18120913-03MS
Sample Info: HS18120913-03MS;HS18120913-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122415.D
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

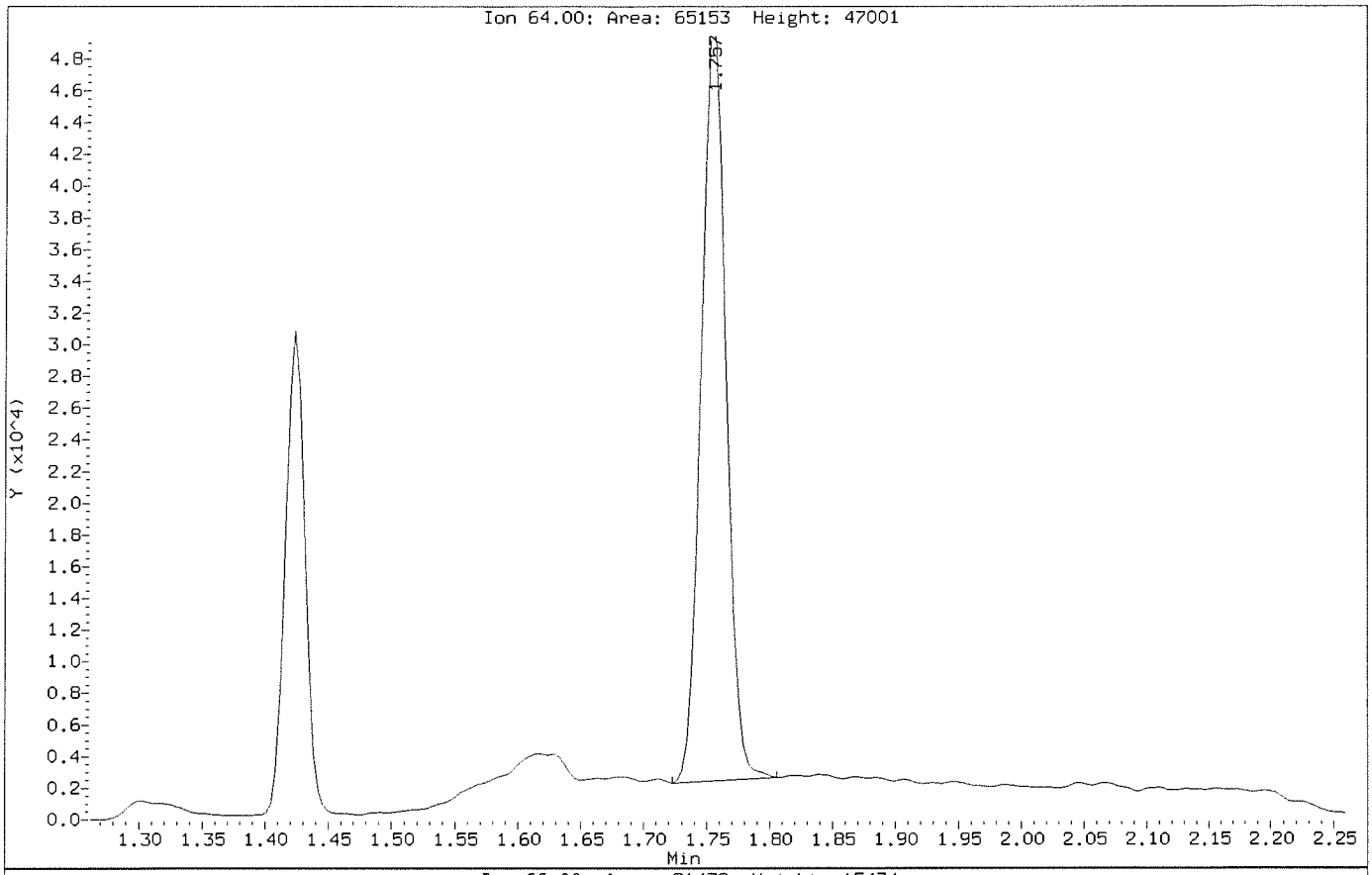
Compound: Chloroethane
CAS Number: 75-00-3

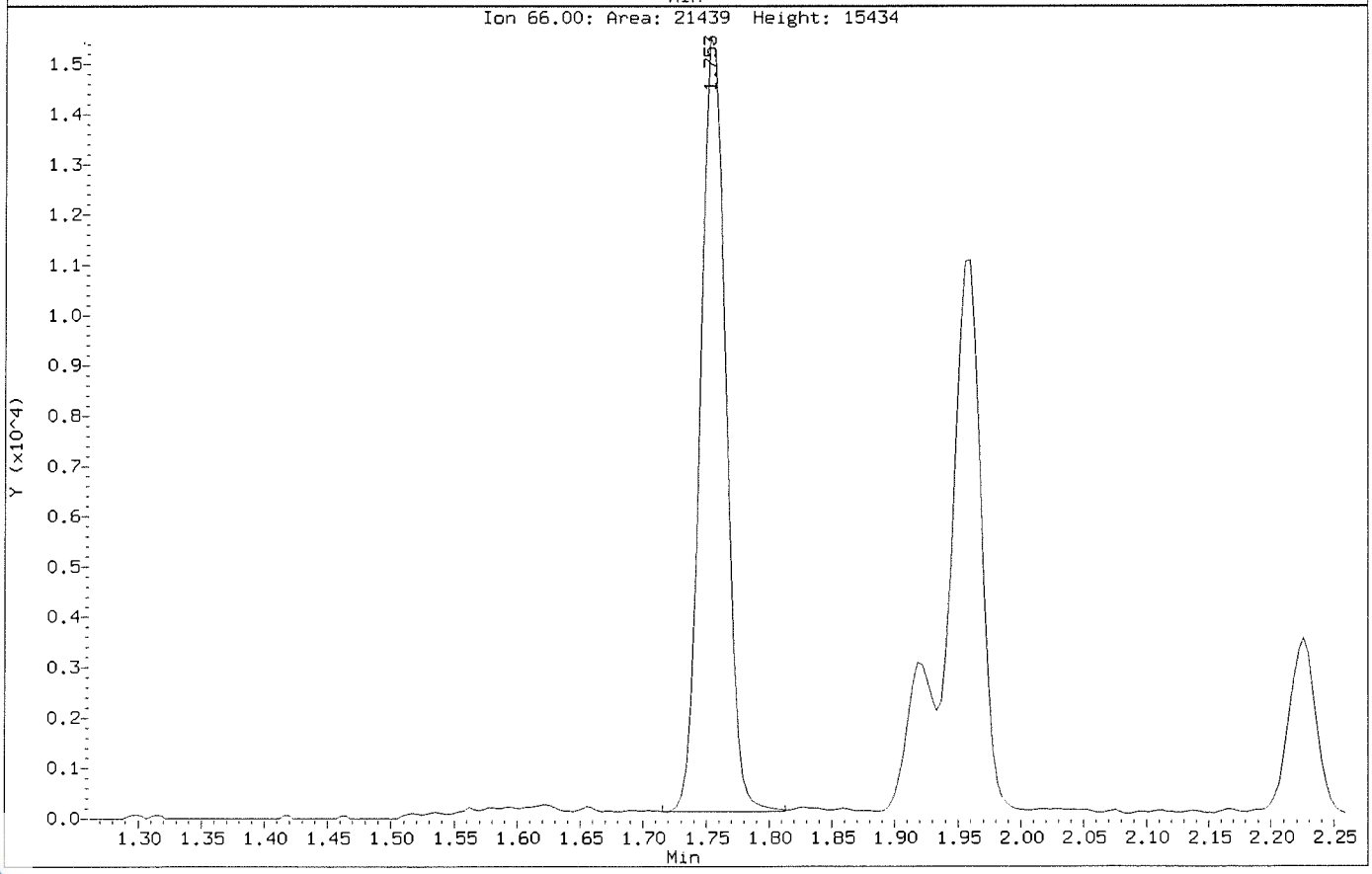


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Lab Smp Id: HS18120913-03MSD Client Smp ID: HS18120913-03MSD
Inj Date : 24-DEC-2018 15:39
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MSD;HS18120913-03MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

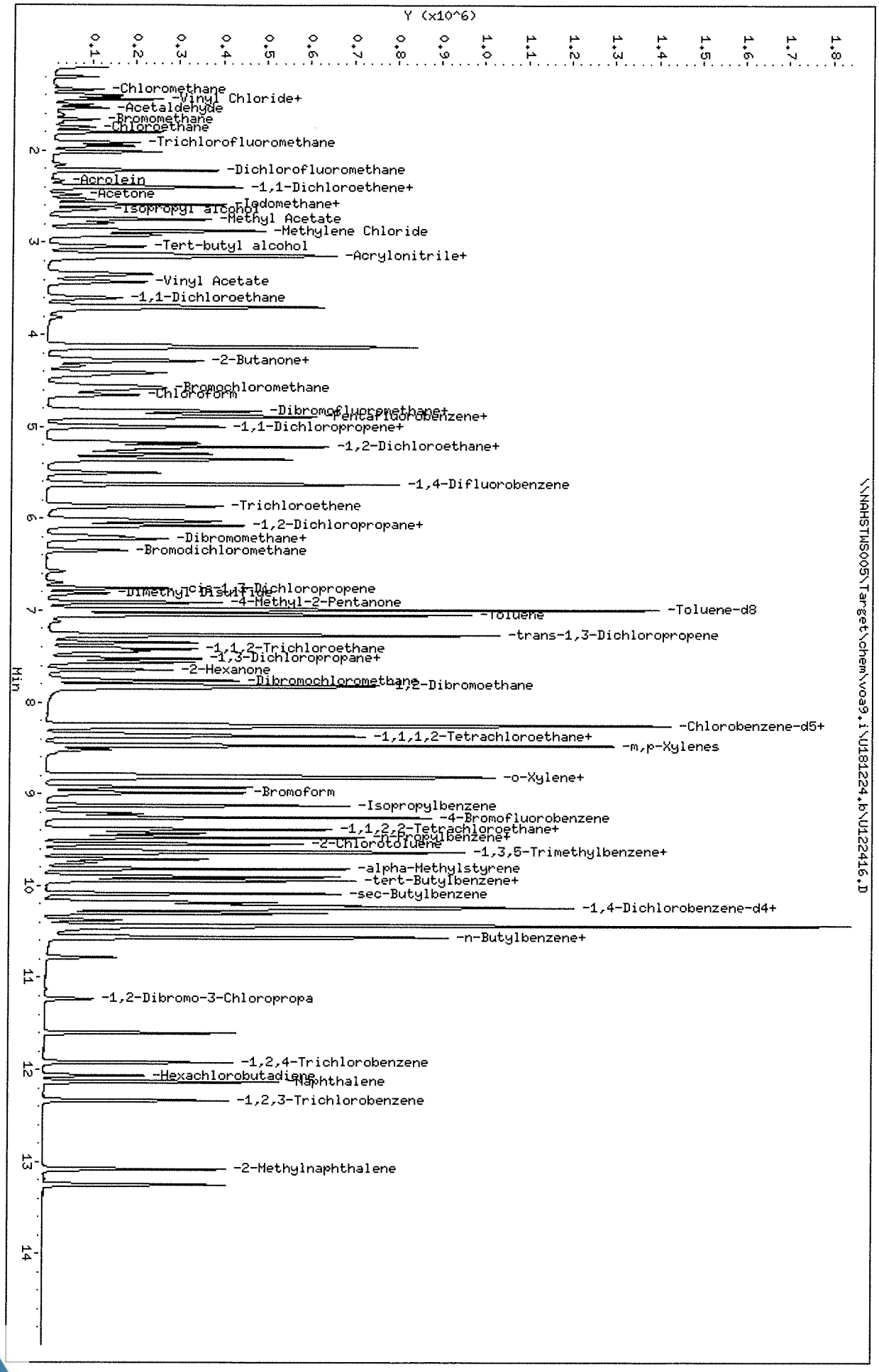
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 331424 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 576248 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 529623 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.235 | (1.000) | 254873 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.827 | 4.826 | (0.986) | 168144 | 45.8522 | 45.85 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 222561 | 47.3342 | 47.33 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.989 | (0.847) | 724188 | 53.0583 | 53.05 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.257 | (1.122) | 269198 | 51.7556 | 51.75 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 77847 | 23.4774 | 23.47 |
| 31 1,1,1-Trichloroethane | 97 | 4.827 | 4.826 | (0.986) | 124807 | 23.8493 | 23.84 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 146512 | 25.5255 | 25.52 |
| 138 Freon TF | 101 | 2.397 | 2.401 | (0.490) | 69274 | 24.5863 | 24.58 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.420 | (0.900) | 79929 | 25.3311 | 25.33 |
| 22 1,1-Dichloroethane | 63 | 3.601 | 3.600 | (0.736) | 165784 | 23.2274 | 23.22 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.401 | (0.490) | 72848 | 23.1174 | 23.11 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.002 | (0.889) | 129339 | 25.2259 | 25.22 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 110289 | 23.3059 | 23.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 147392 | 24.6948 | 24.69 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.922 | (1.165) | 111669 | 23.6648 | 23.66 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.944 | 9.943 | (0.971) | 350216 | 26.2578 | 26.25 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 19134 | 22.4432 | 22.44 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 93013 | 25.5928 | 25.59 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 2
Report Date: 28-Jan-2019 14:34

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.570 | 10.569 | (1.033) | 186214 | 24.6061 | 24.60 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 135491 | 25.7455 | 25.74 |
| 42 | 1,2-Dichloropropane | 63 | 6.079 | 6.078 | (1.081) | 100756 | 24.7452 | 24.74 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.624 | (0.940) | 337155 | 26.3216 | 26.32 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.179 | (0.995) | 184469 | 24.3737 | 24.37 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 173022 | 25.4574 | 25.45 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.254 | (1.002) | 190330 | 23.8514 | 23.85 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.271 | (0.874) | 97599 | 22.6905 | 22.69 |
| 24 | 2-Butanone | 43 | 4.339 | 4.335 | (0.887) | 107198 | 48.2282 | 48.22 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 300561 | 25.5945 | 25.59 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 159891 | 54.2919 | 54.29 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.639 | (0.942) | 351762 | 25.9211 | 25.92 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.209 | (0.997) | 352635 | 26.1465 | 26.14 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.915 | 6.910 | (0.838) | 226082 | 53.3530 | 53.35 |
| 10 | Acetone | 43 | 2.480 | 2.476 | (0.507) | 74295 | 56.1349 | 56.13 |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 391973 | 25.5625 | 25.56 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 97267 | 24.6999 | 24.69 |
| 29 | Bromochloromethane | 128 | 4.553 | 4.552 | (0.930) | 45259 | 24.5612 | 24.56 |
| 39 | Bromodichloromethane | 83 | 6.349 | 6.348 | (1.129) | 107054 | 24.7242 | 24.72 |
| 66 | Bromoform | 173 | 8.984 | 8.983 | (1.089) | 47071 | 21.7383 | 21.73 |
| 6 | Bromomethane | 94 | 1.663 | 1.666 | (0.340) | 49208 | 24.7376 | 24.73 |
| 19 | Carbon Disulfide | 76 | 2.585 | 2.588 | (0.528) | 503010 | 43.8079 | 43.80 |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 96698 | 23.8270 | 23.82 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 255742 | 25.1317 | 25.13 |
| 7 | Chloroethane | 64 | 1.749 | 1.748 | (0.357) | 64023 | 22.2494 | 22.24(M) |
| 28 | Chloroform | 83 | 4.654 | 4.654 | (0.951) | 161546 | 23.5020 | 23.50 |
| 3 | Chloromethane | 50 | 1.337 | 1.336 | (0.273) | 73406 | 22.7829 | 22.78 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.287 | 4.283 | (0.876) | 103515 | 23.7619 | 23.76 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 141799 | 22.2701 | 22.27 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 77586 | 22.8337 | 22.83 |
| 44 | Dibromomethane | 93 | 6.191 | 6.187 | (1.101) | 59570 | 25.3492 | 25.34 |
| 2 | Dichlorodifluoromethane | 85 | 1.202 | 1.201 | (0.246) | 61834 | 15.5009 | 15.50 |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 134489 | 25.7680 | 25.76 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 35933 | 19.8760 | 19.87 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 402846 | 26.7483 | 26.74 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 335947 | 52.3577 | 52.35 |
| 17 | Methylene Chloride | 84 | 2.870 | 2.869 | (0.586) | 98201 | 23.3483 | 23.34 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 331532 | 25.4718 | 25.47 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.474 | (0.926) | 504768 | 26.5050 | 26.50 |
| 92 | Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 367426 | 23.9167 | 23.91 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 168940 | 26.0992 | 26.09 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 419576 | 26.2148 | 26.21 |
| 64 | Styrene | 104 | 8.826 | 8.822 | (1.070) | 285317 | 26.5308 | 26.53 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 289715 | 26.1687 | 26.16 |
| 56 | Tetrachloroethene | 164 | 7.522 | 7.521 | (0.912) | 67478 | 24.3365 | 24.33 |
| 50 | Toluene | 91 | 7.046 | 7.045 | (0.854) | 407430 | 25.8611 | 25.86 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.140 | 3.139 | (0.642) | 89909 | 23.1759 | 23.17 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 118283 | 21.8584 | 21.85 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 95016 | 25.6675 | 25.66 |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 122329 | 22.7392 | 22.73 |
| 5 | Vinyl Chloride | 62 | 1.415 | 1.419 | (0.289) | 98964 | 21.6711 | 21.67 |

QC Flag Legend

M - Compound response manually integrated.

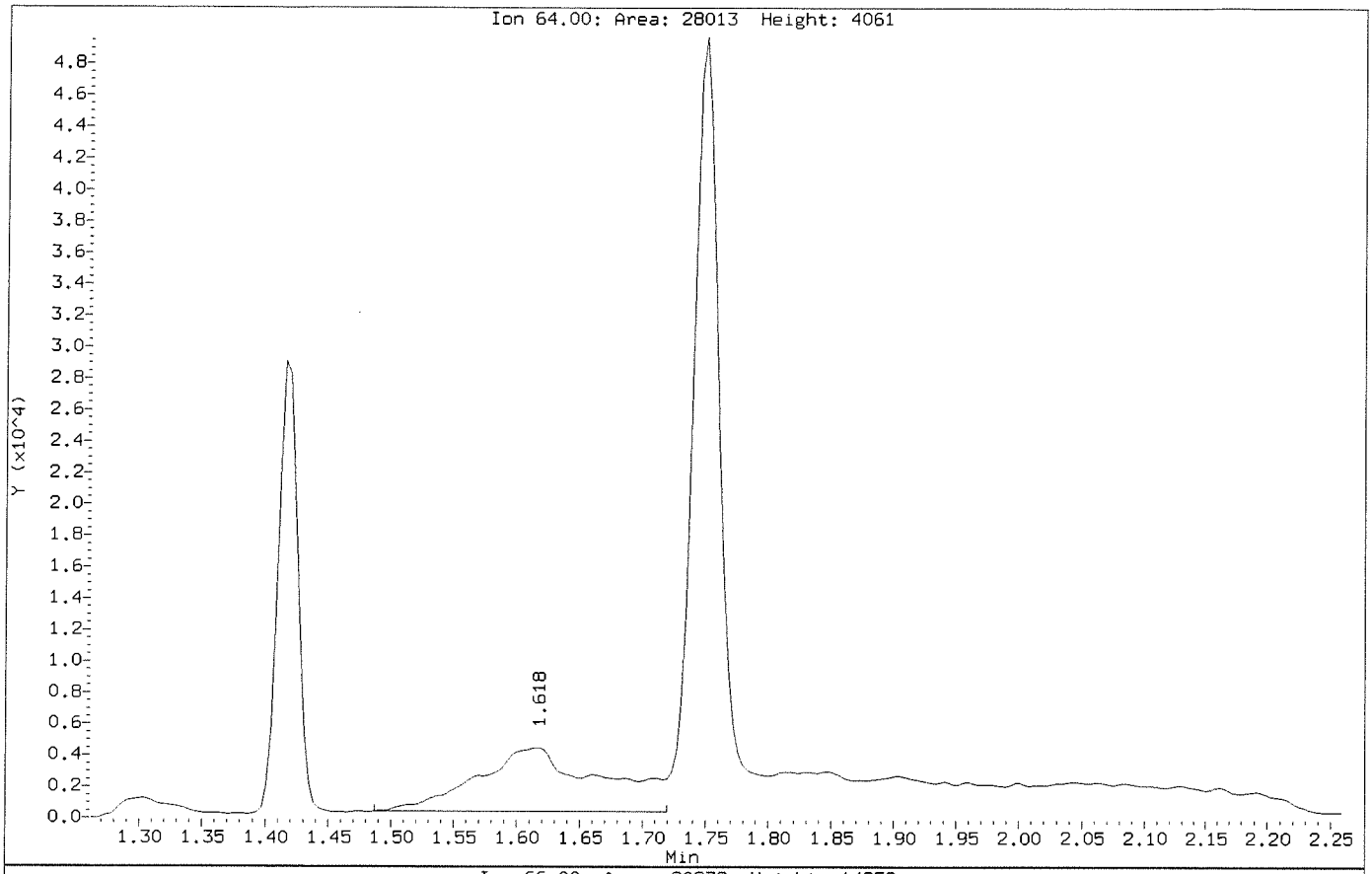


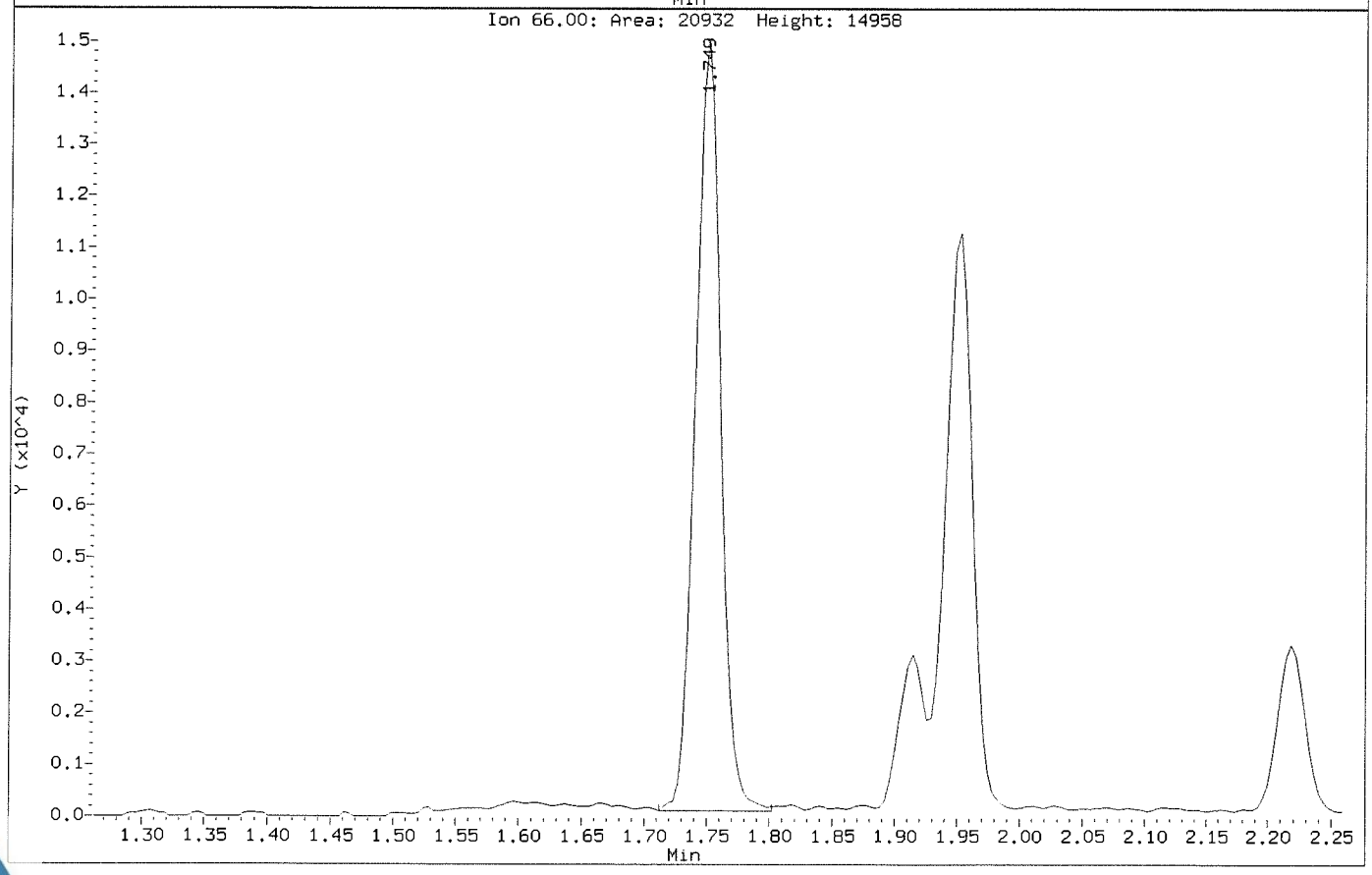

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122416,D
Date : 24-DEC-2018 15:39
Client ID: HS18120913-03HSD
Sample Info: HS18120913-03HSD;HS18120913-03HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122416.D
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3



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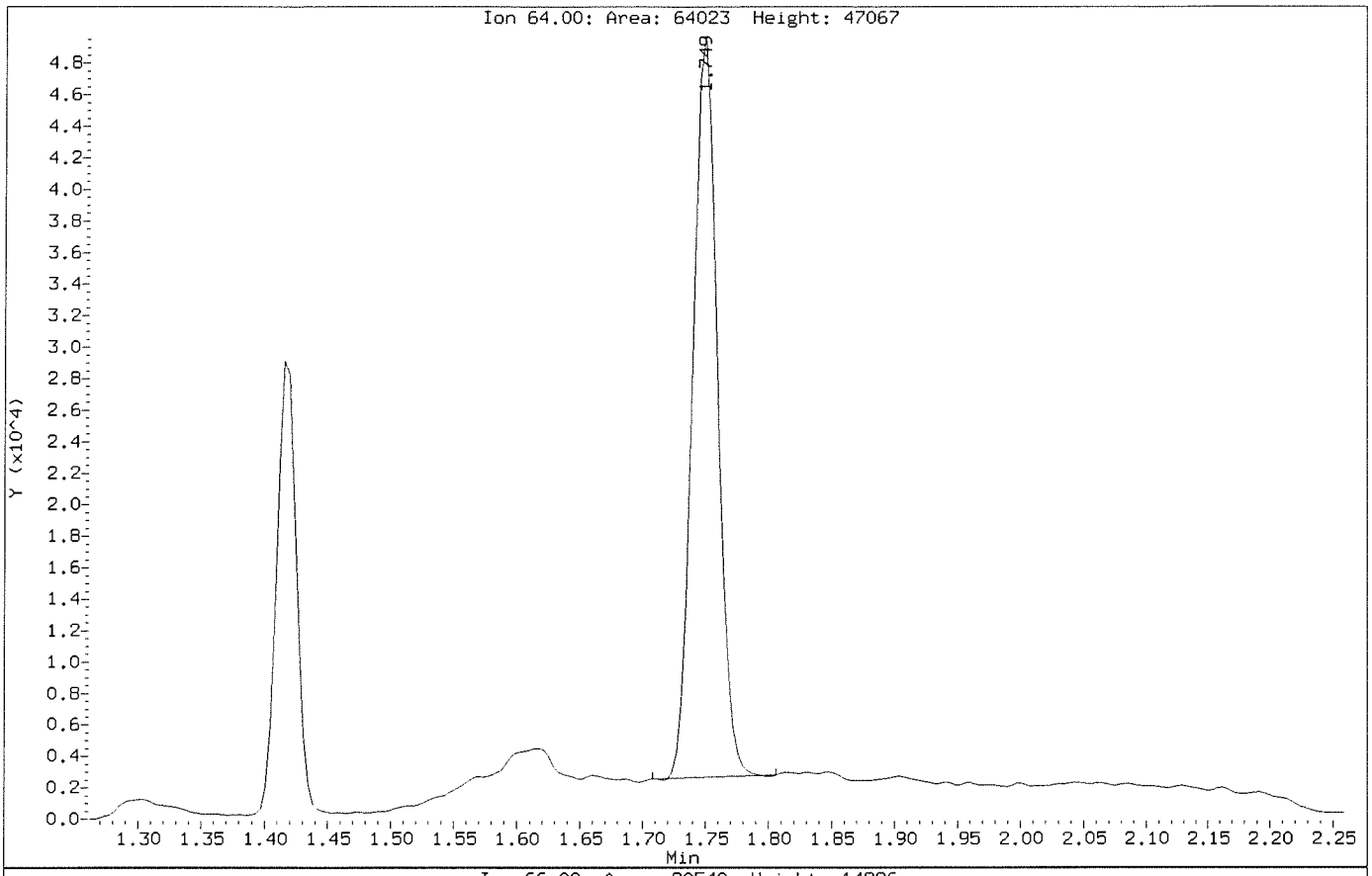
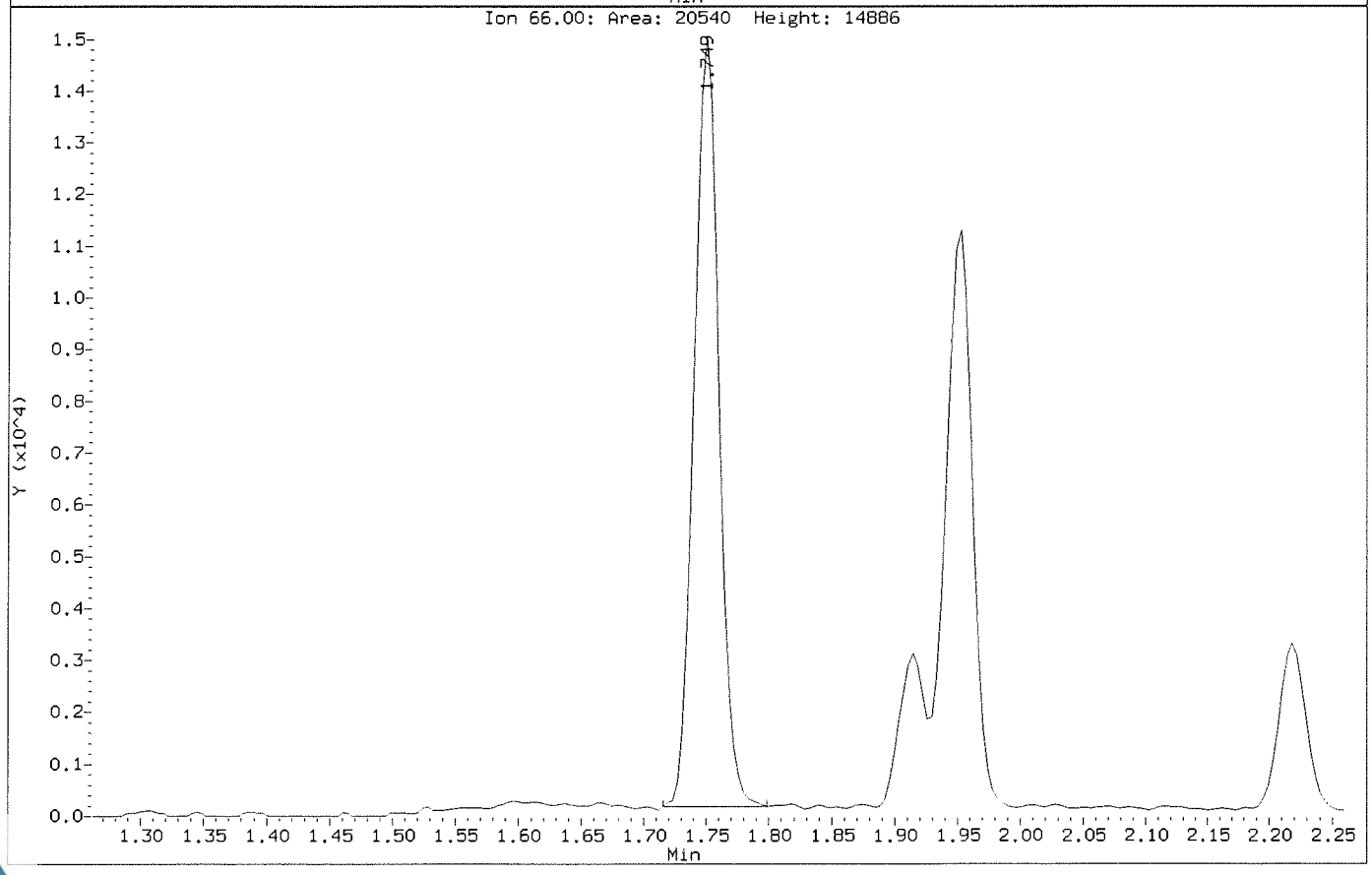
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3



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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122418.D
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Inj Date : 24-DEC-2018 16:28
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-08;HS18120913-08;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

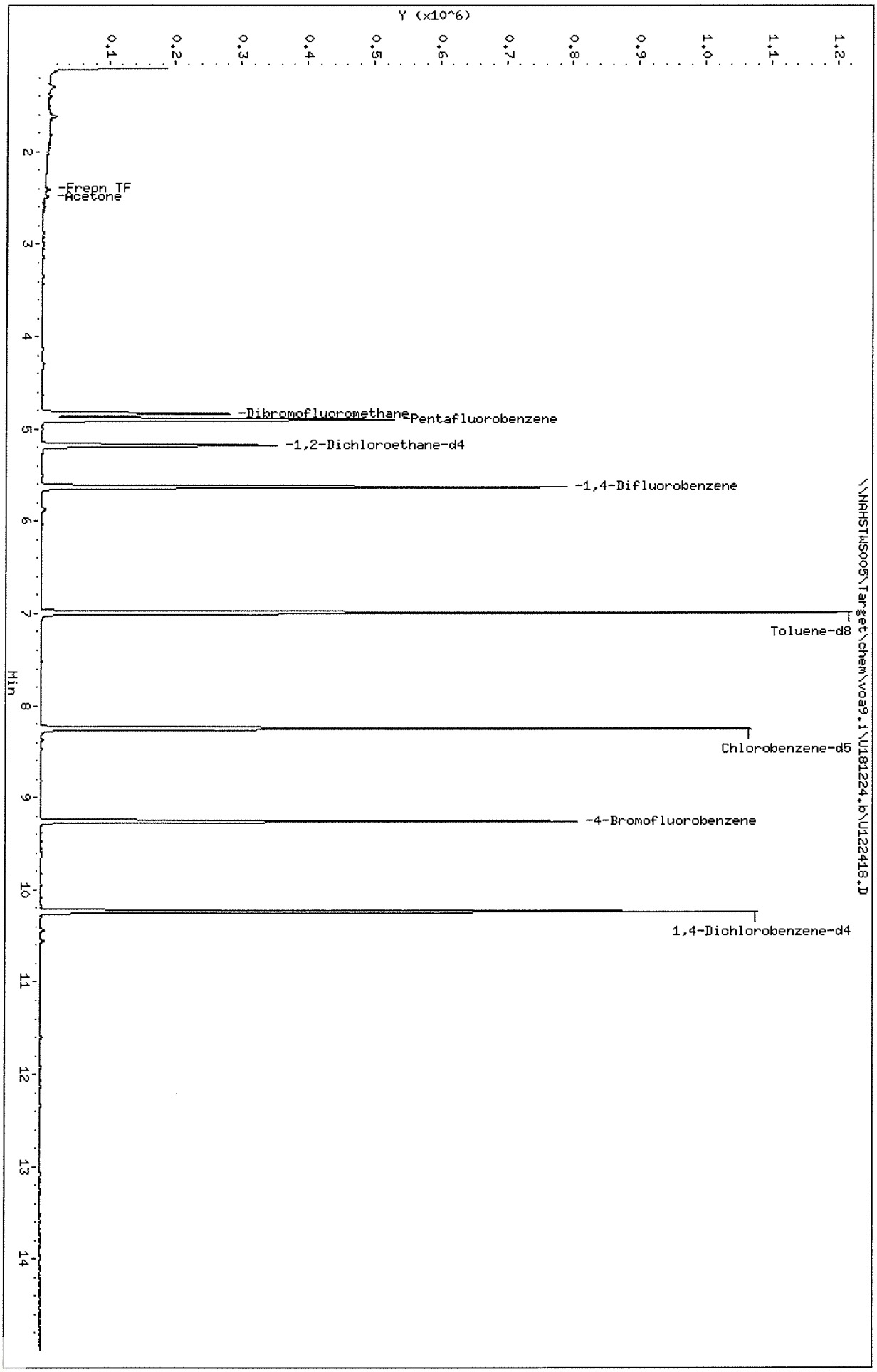
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.902 | (1.000) | 321626 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 572577 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.253 | 8.253 | (1.000) | 519400 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 238700 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 163407 | 45.9201 | 45.92 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 223746 | 49.1139 | 49.11 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 705160 | 52.6683 | 52.66 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 249340 | 48.8018 | 48.80 |
| 138 Freon TF | 101 | 2.409 | 2.412 | (0.492) | 1913 | 0.69963 | 0.69(a) |
| 10 Acetone | 43 | 2.484 | 2.491 | (0.507) | 7569 | 3.18648 | 3.18(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122418,D
Date : 24-DEC-2018 16:28
Client ID: HS18120913-08
Sample Info: HS18120913-08;HS18120913-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122418.D Page 3

Date : 24-DEC-2018 16:28

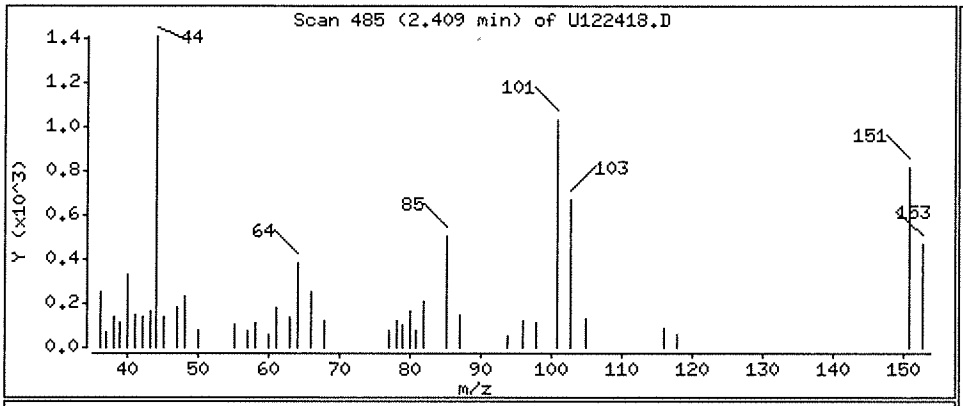
Client ID: HS18120913-08 Instrument: VOA9.i

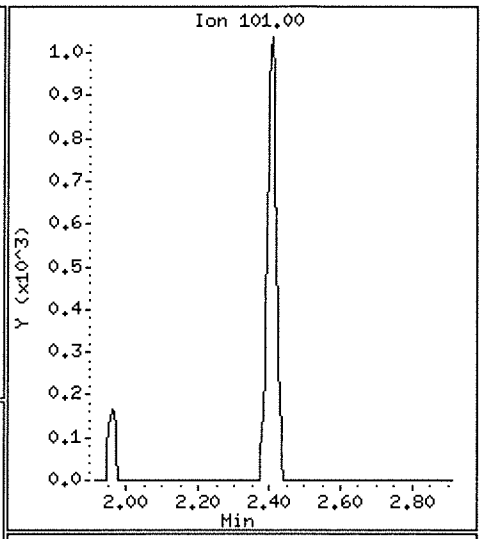
Sample Info: HS18120913-08;HS18120913-08;;;

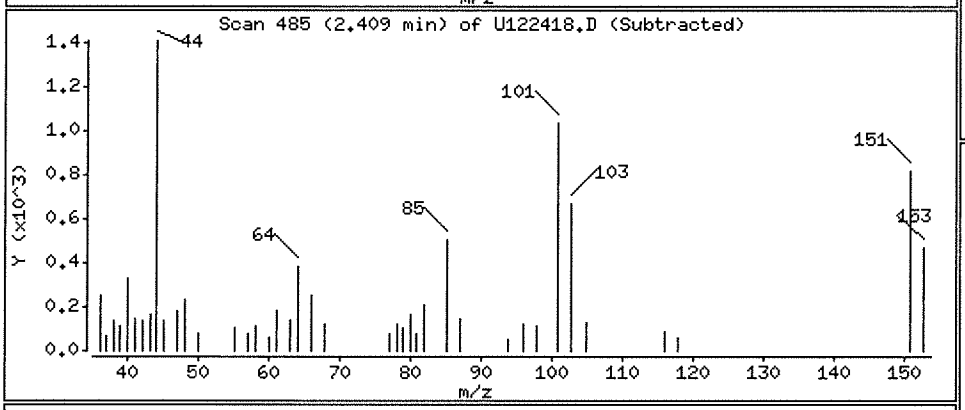
Purge Volume: 5.0 Operator: PC

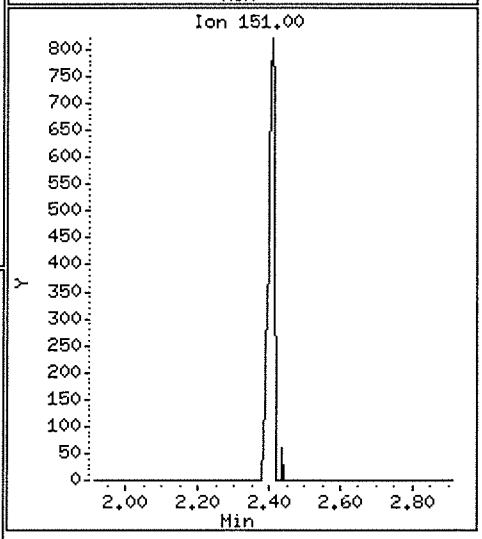
Column phase: DB624 Column diameter: 0.18

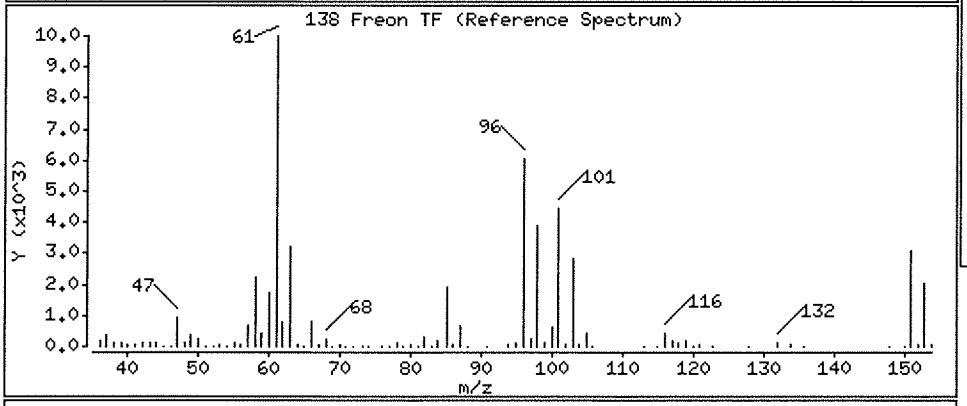
138 Freon TF Concentration: 0.69 ug/l

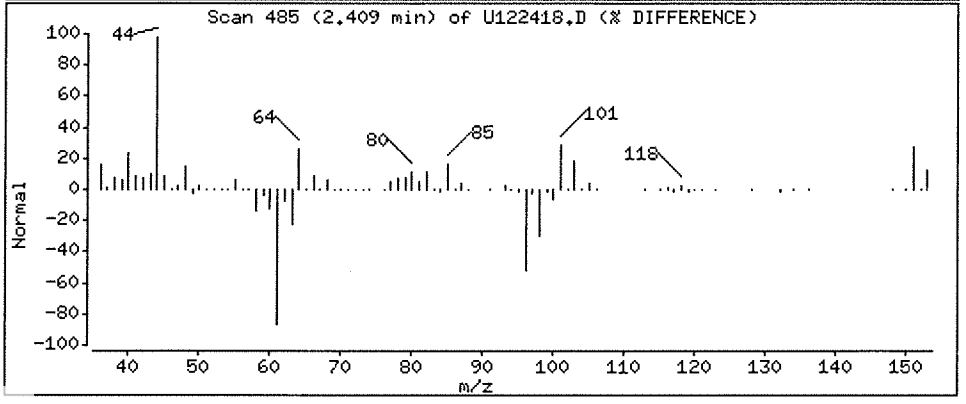


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122418.D



Date : 24-DEC-2018 16:28

Client ID: HS18120913-08

Instrument: VOA9.i

Sample Info: HS18120913-08;HS18120913-08;;;

Purge Volume: 5.0

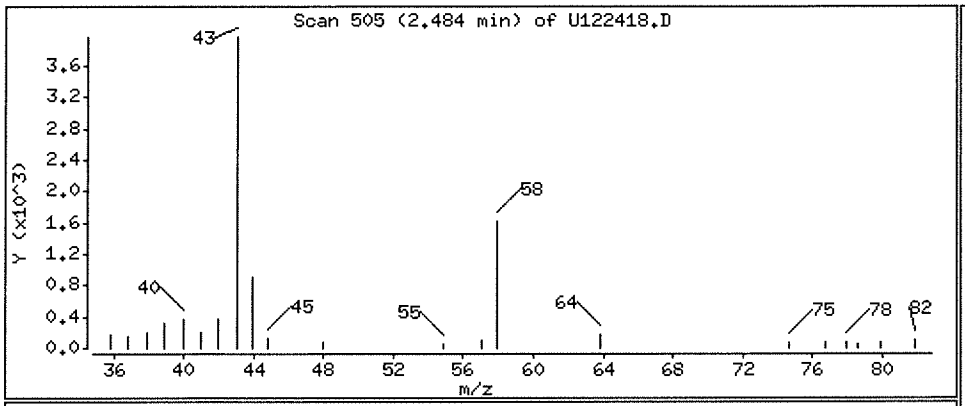
Operator: PC

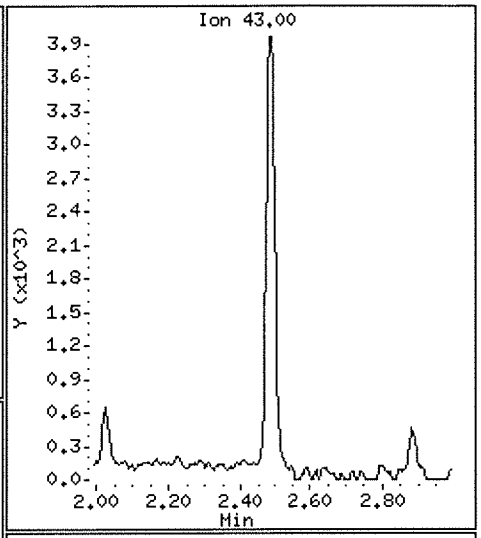
Column phase: DB624

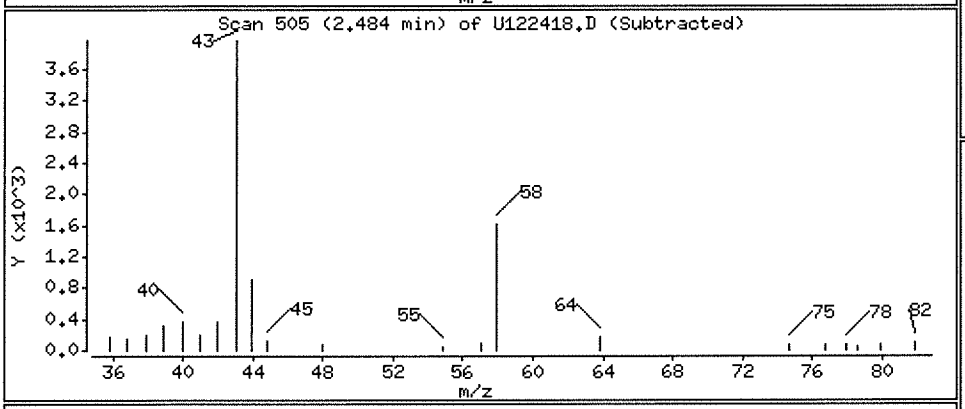
Column diameter: 0.18

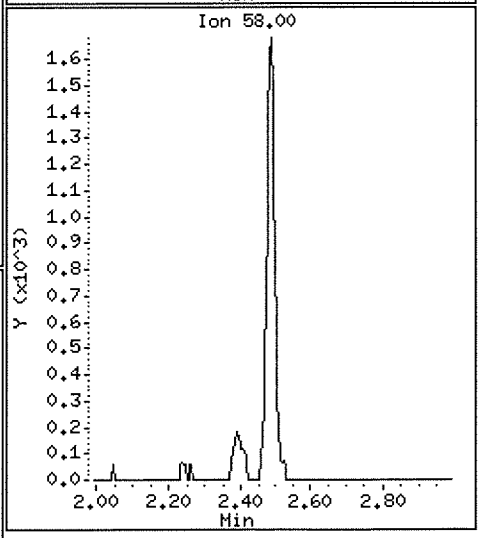
10 Acetone

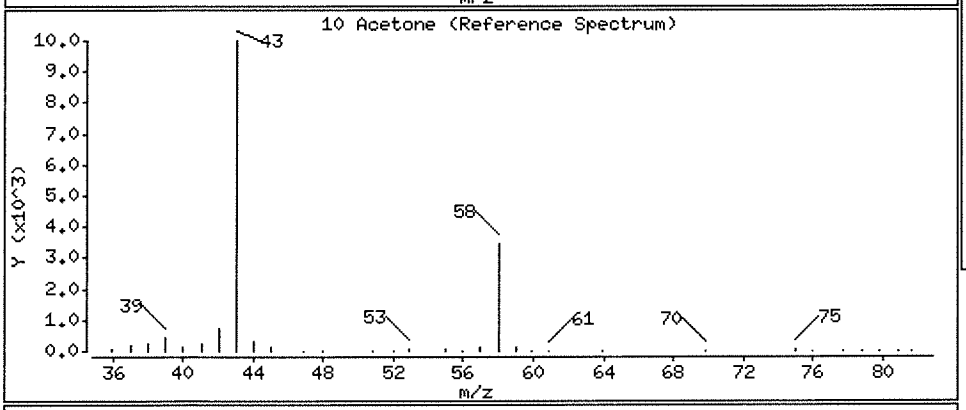
Concentration: 3.18 ug/l

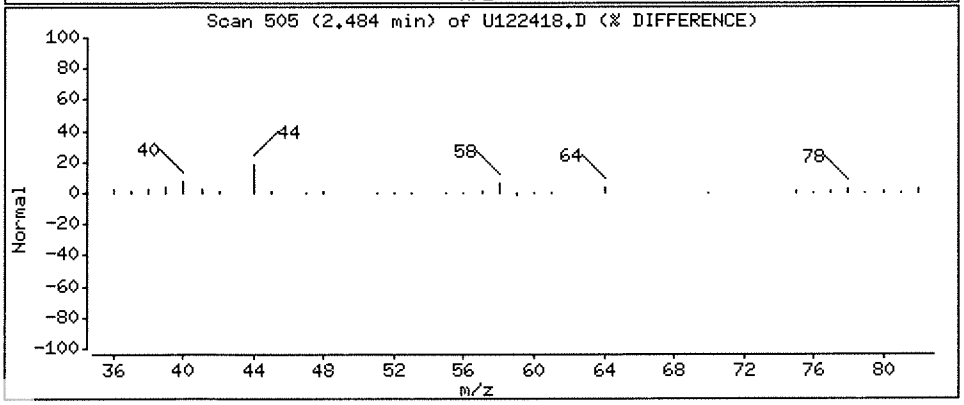


ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122420.D
Lab Smp Id: HS18120913-04 Client Smp ID: HS18120913-04
Inj Date : 24-DEC-2018 17:18
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-04;HS18120913-04;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

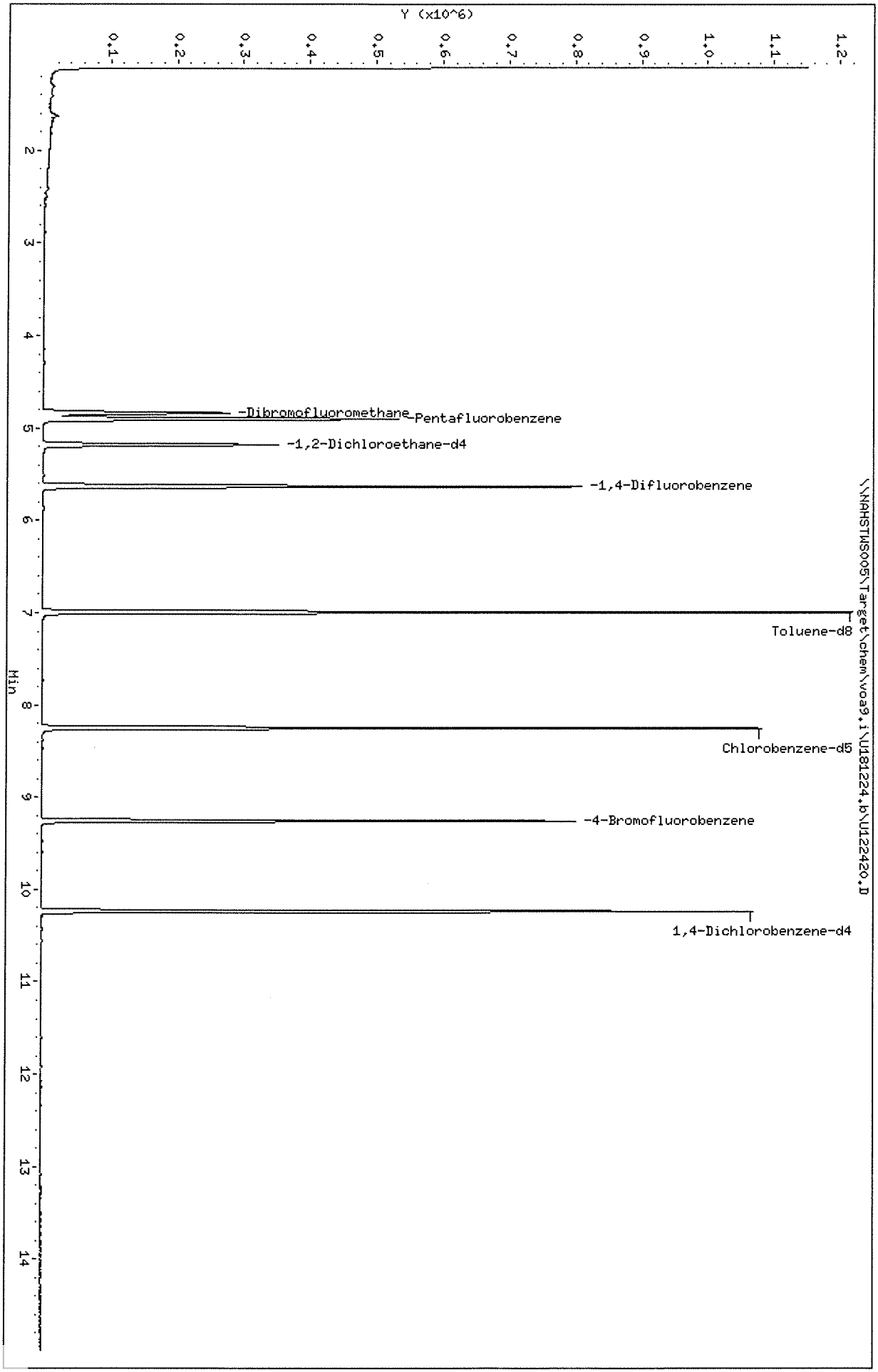
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.901 | 4.902 | (1.000) | 325737 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 574454 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.253 | 8.253 | (1.000) | 520680 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 238090 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.838 | 4.834 | (0.987) | 163096 | 45.2321 | 45.23 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 227422 | 49.2986 | 49.29 |
| $ 48 Toluene-d8 | 98 | 6.993 | 6.990 | (0.847) | 705933 | 52.5940 | 52.59 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 247865 | 48.3819 | 48.38 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122420.D
Date : 24-DEC-2018 17:18
Client ID: HS18120913-04
Sample Info: HS18120913-04;HS18120913-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D  Page 1
Report Date: 28-Jan-2019 14:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D
Lab Smp Id: HS18120913-05  Client Smp ID: HS18120913-05
Inj Date  : 24-DEC-2018 17:43
Operator  : PC  Inst ID: VOA9.i
Smp Info  : HS18120913-05;HS18120913-05;;;
Misc Info : 180315V9;WATER;0;1;
Comment   :
Method    : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i  Quant Type: ISTD
Cal Date  : 21-DEC-2018 16:41  Cal File: U122108.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: LHAAP.sub
Target Version:  4.14
Processing Host: NAHSTW7087

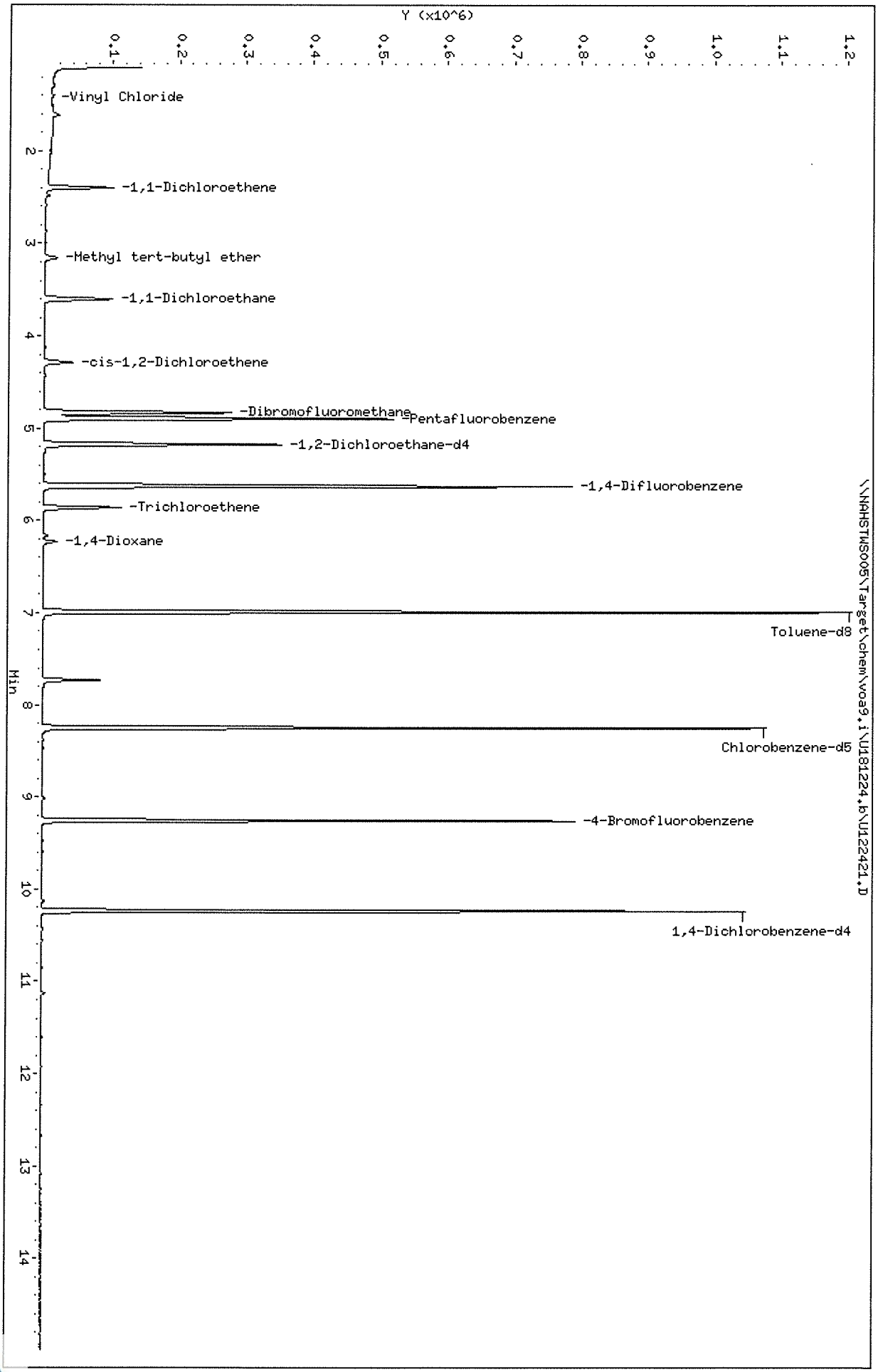
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.902 | (1.000) | 317953 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 560574 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 514638 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 232339 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.987) | 161781 | 45.9906 | 45.99 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 223523 | 49.6546 | 49.65 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 689364 | 51.9411 | 51.94 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 243771 | 48.1343 | 48.13 |
| 22 1,1-Dichloroethane | 63 | 3.601 | 3.612 | (0.736) | 101571 | 14.8336 | 14.83 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.409 | (0.490) | 31500 | 10.4197 | 10.41 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.294 | (0.876) | 19236 | 4.60270 | 4.60(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.865 | (1.042) | 33724 | 9.36487 | 9.36 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.430 | (0.290) | 1416 | 1.27761 | 1.27(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122421.D
Date : 24-DEC-2018 17:43
Client ID: HS18120913-05
Sample Info: HS18120913-05;HS18120913-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 3

Date : 24-DEC-2018 17:43

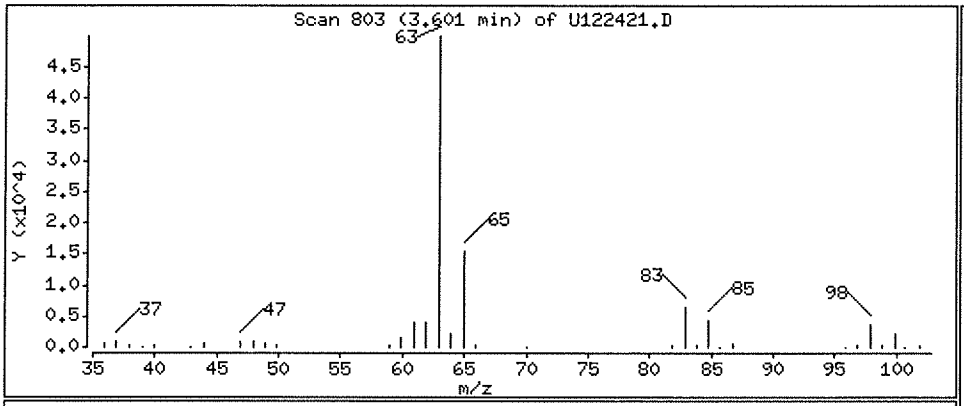
Client ID: HS18120913-05 Instrument: VOA9.i

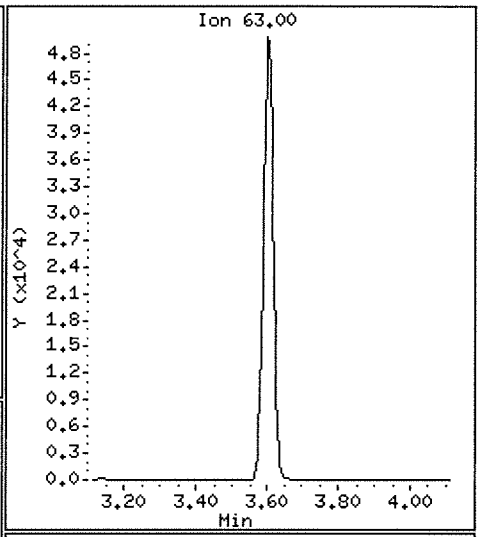
Sample Info: HS18120913-05;HS18120913-05;;;

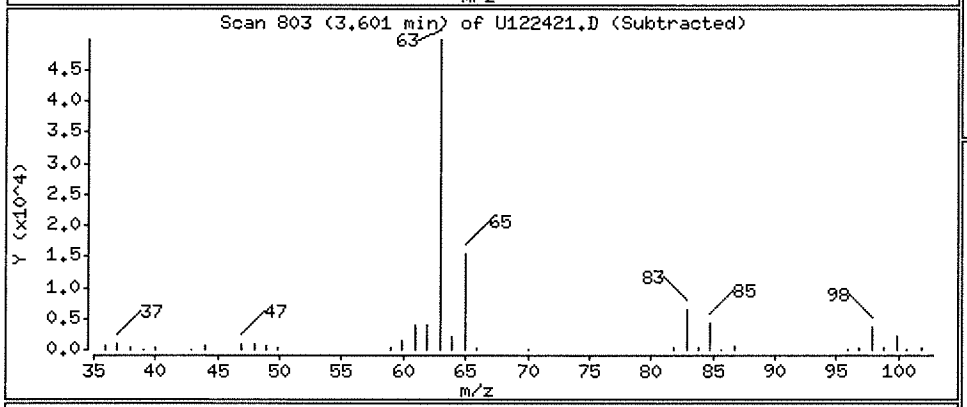
Purge Volume: 5.0 Operator: PC

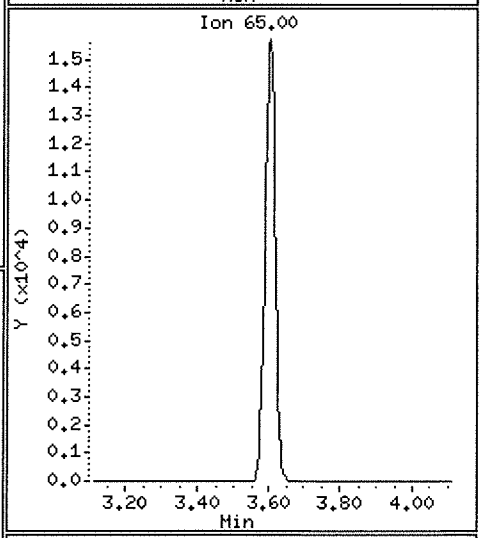
Column phase: DB624 Column diameter: 0.18

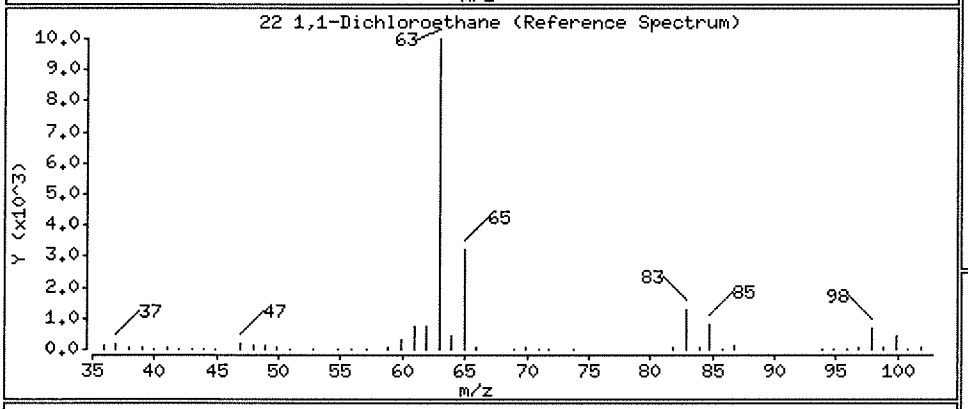
22 1,1-Dichloroethane Concentration: 14.83 ug/l

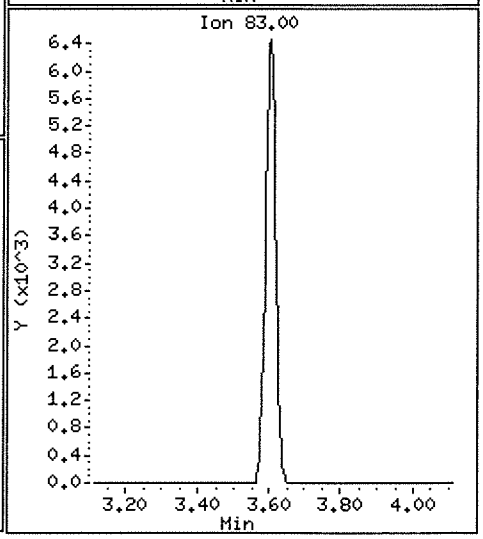


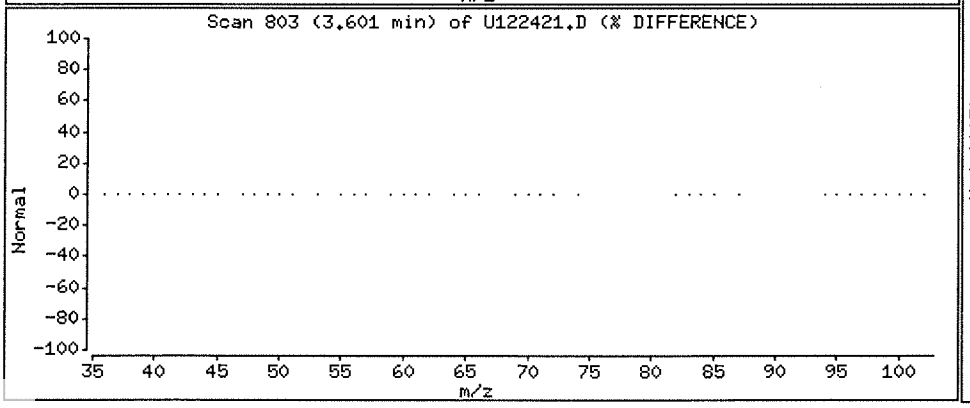



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 4

Date : 24-DEC-2018 17:43

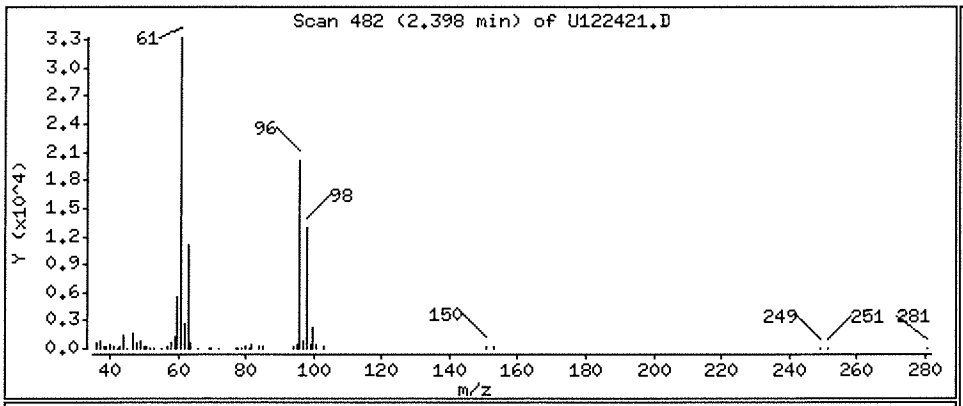
Client ID: HS18120913-05 Instrument: VOA9.i

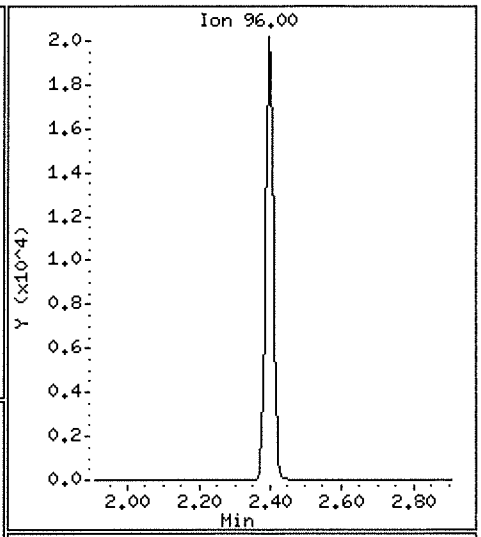
Sample Info: HS18120913-05;HS18120913-05;;;

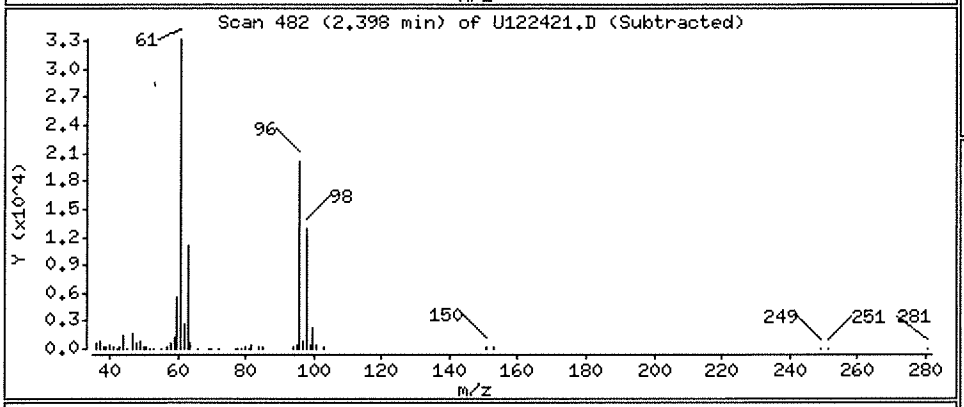
Purge Volume: 5.0 Operator: PC

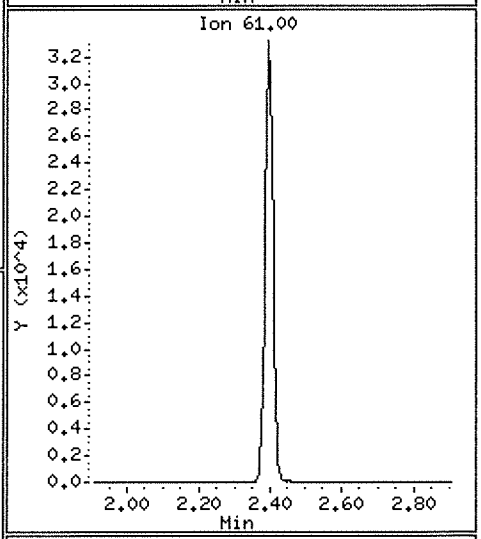
Column phase: DB624 Column diameter: 0.18

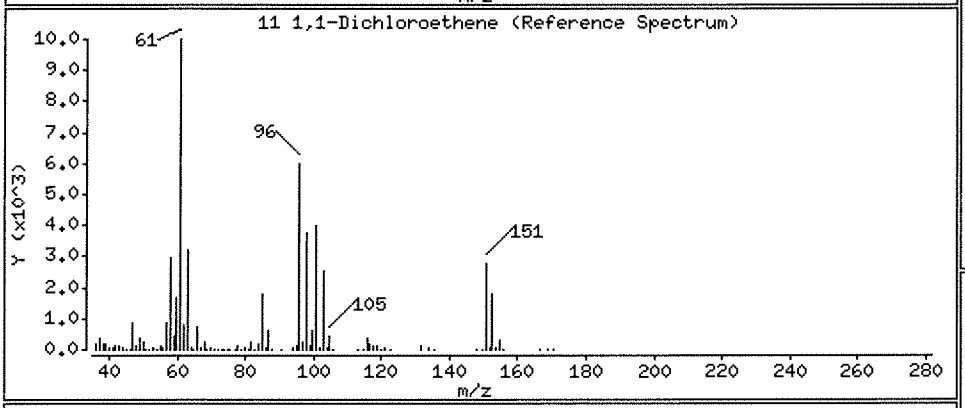
11 1,1-Dichloroethene Concentration: 10.41 ug/l

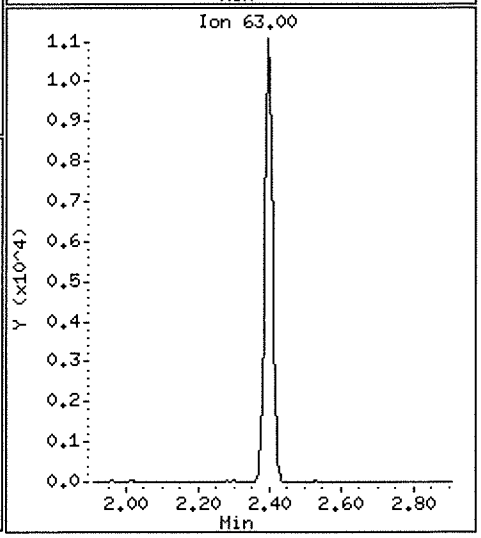


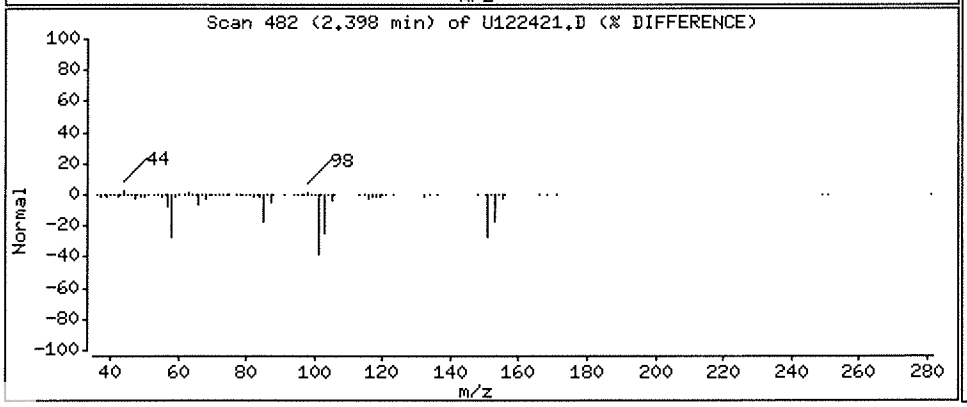



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 5

Date : 24-DEC-2018 17:43

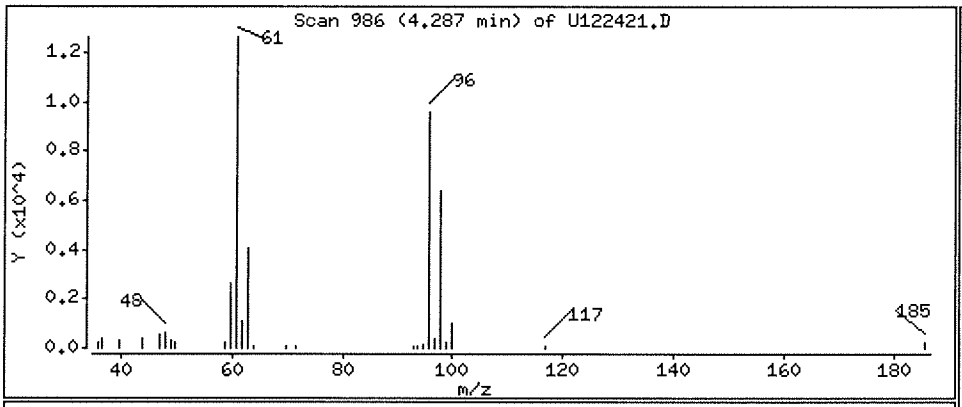
Client ID: HS18120913-05 Instrument: VOA9.i

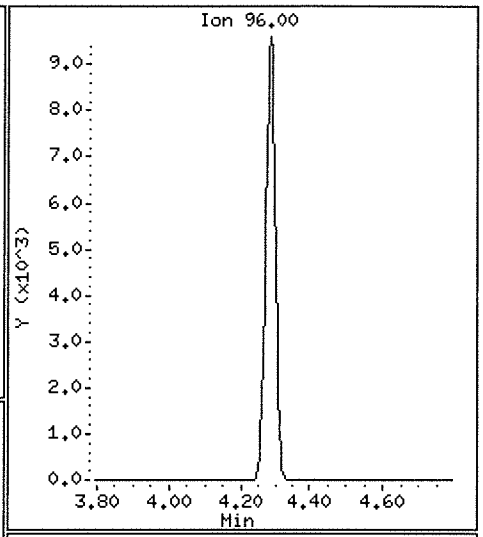
Sample Info: HS18120913-05;HS18120913-05;;;

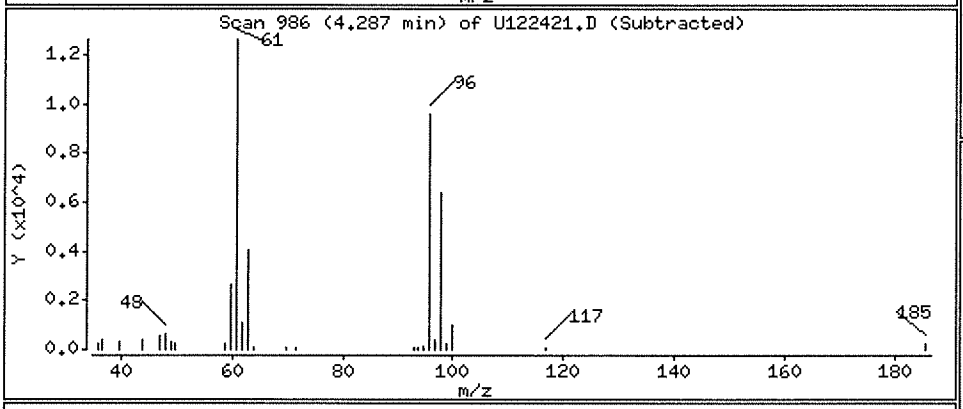
Purge Volume: 5.0 Operator: PC

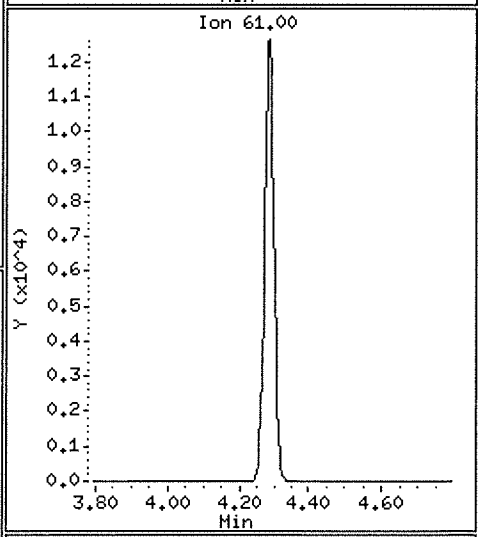
Column phase: DB624 Column diameter: 0.18

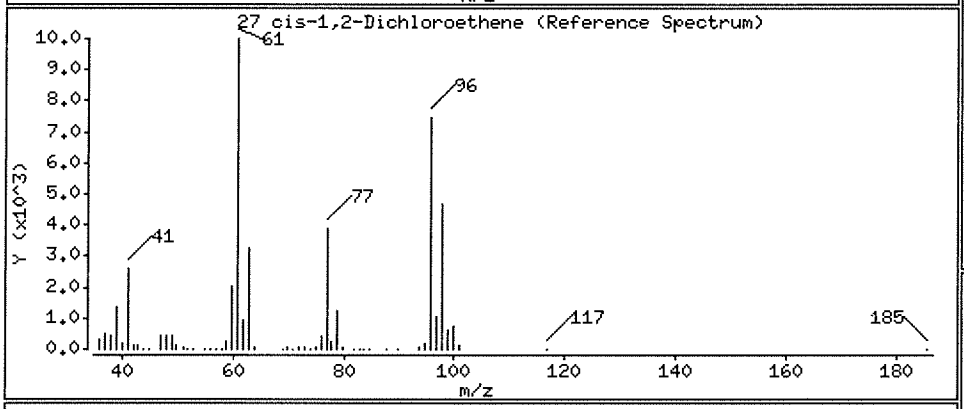
27 cis-1,2-Dichloroethene Concentration: 4.60 ug/l

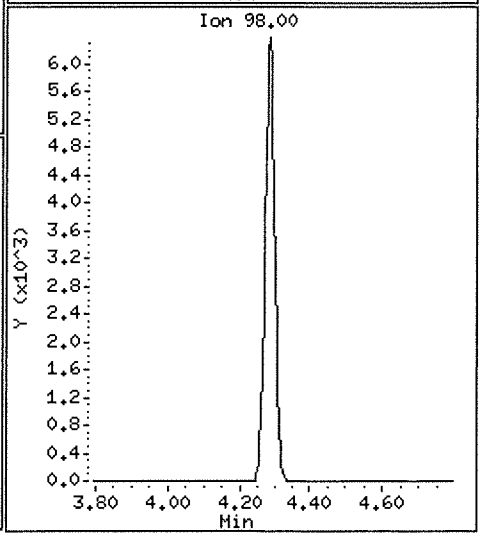


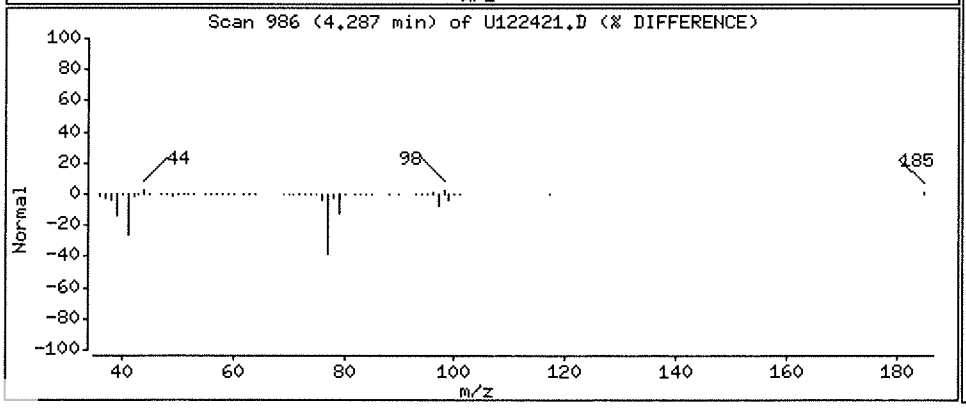



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D



Date : 24-DEC-2018 17:43

Client ID: HS18120913-05

Instrument: VOA9.i

Sample Info: HS18120913-05;HS18120913-05;;;

Purge Volume: 5.0

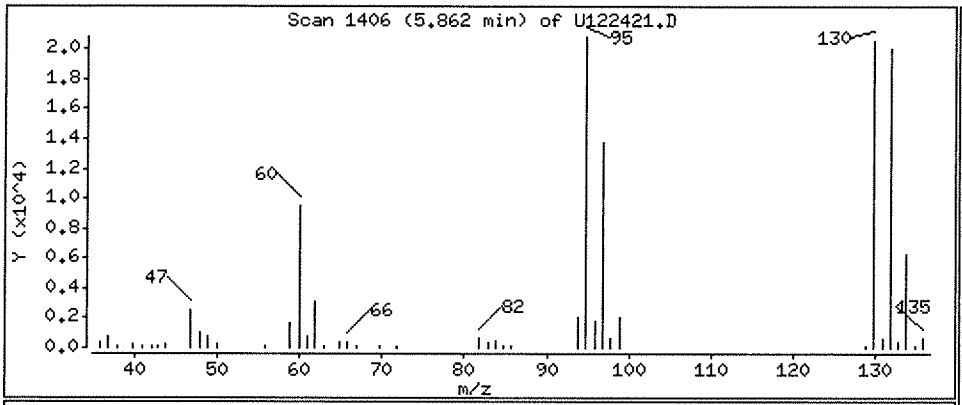
Operator: PC

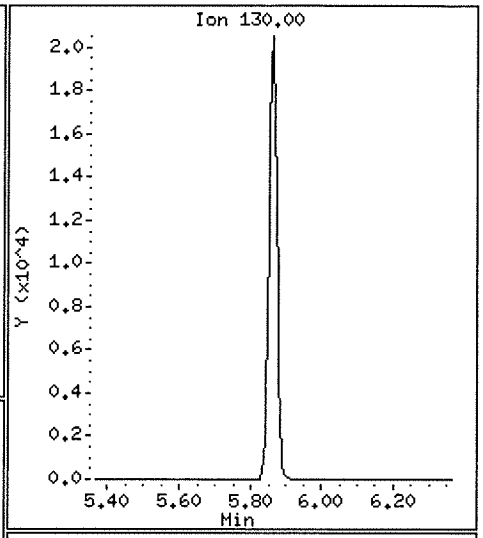
Column phase: DB624

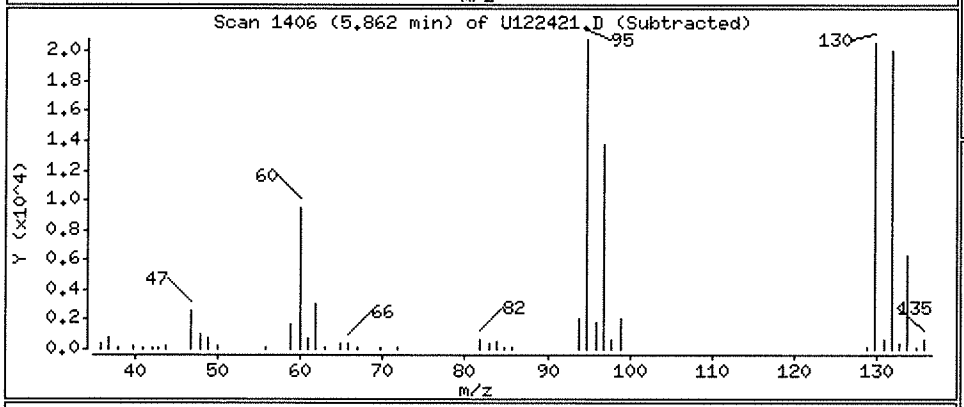
Column diameter: 0.18

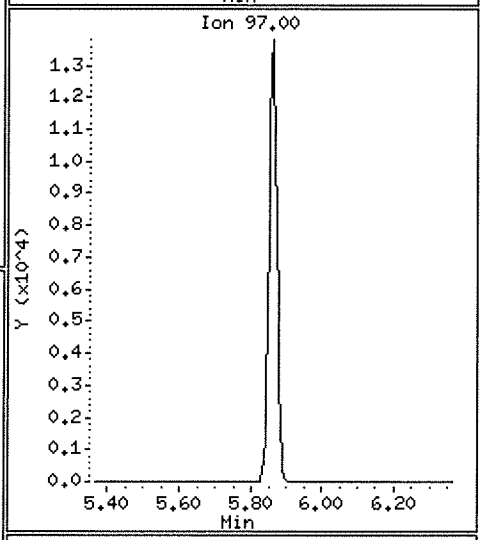
38 Trichloroethene

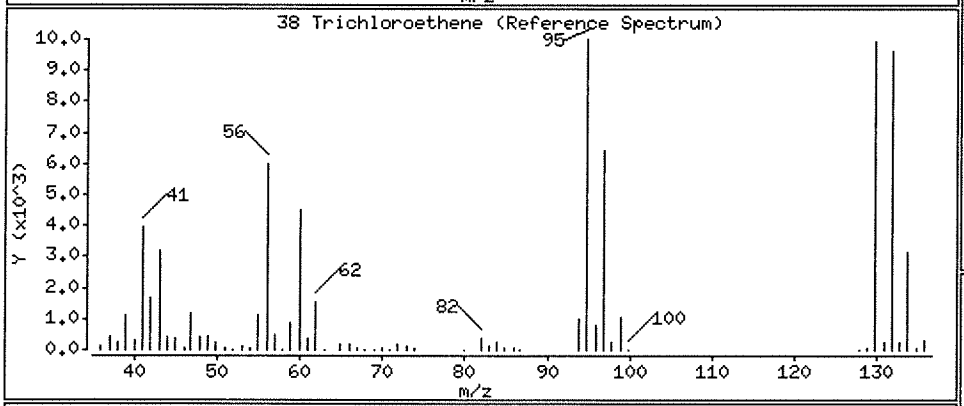
Concentration: 9.36 ug/l

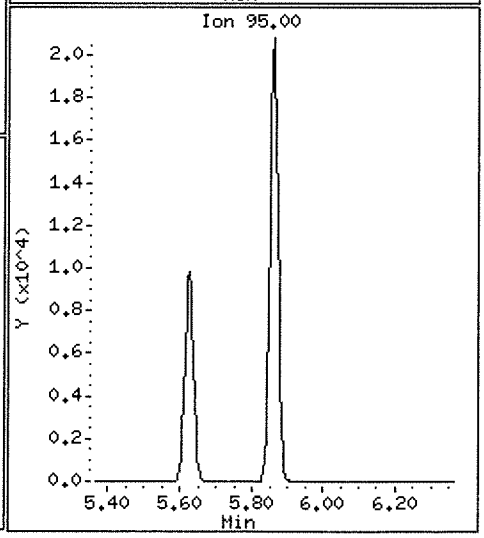


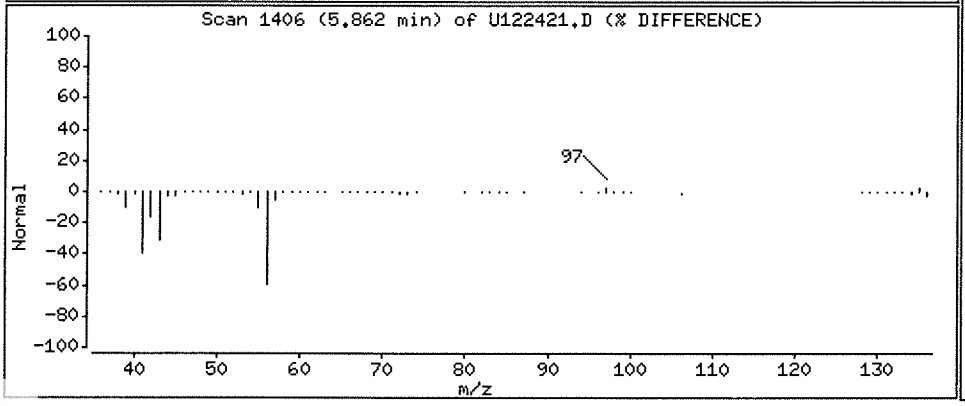



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 7

Date : 24-DEC-2018 17:43

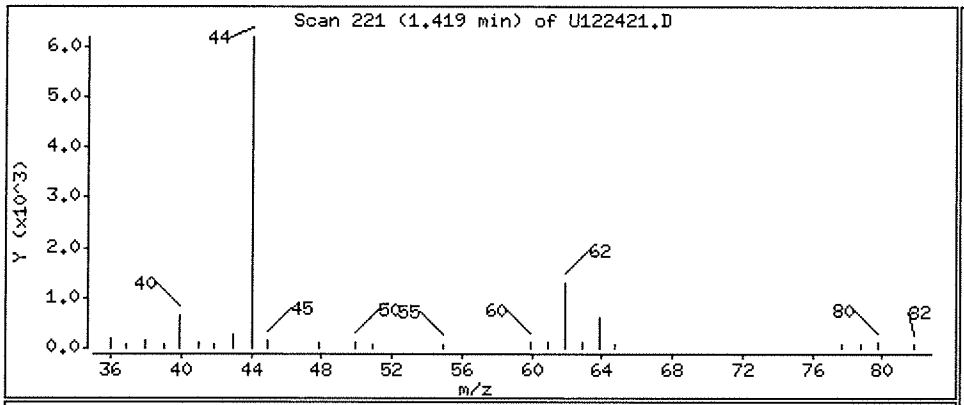
Client ID: HS18120913-05 Instrument: VOA9.i

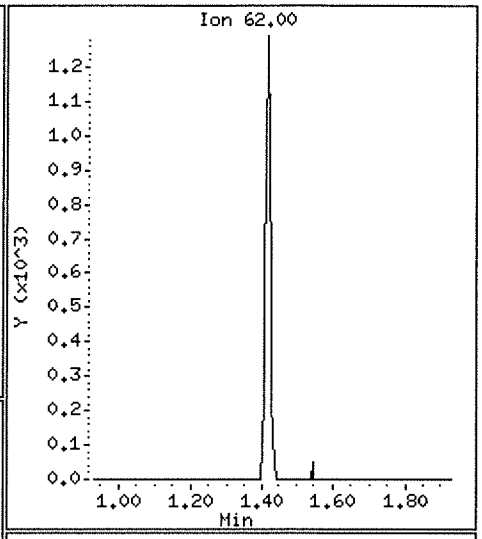
Sample Info: HS18120913-05;HS18120913-05;;;

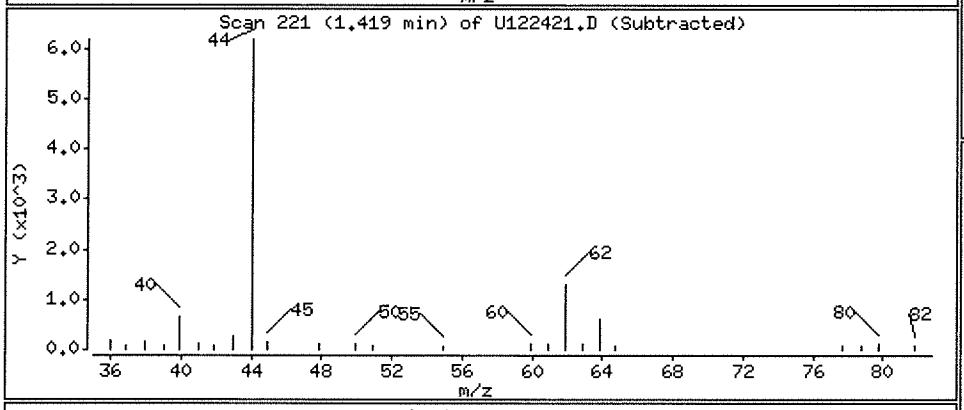
Purge Volume: 5.0 Operator: PC

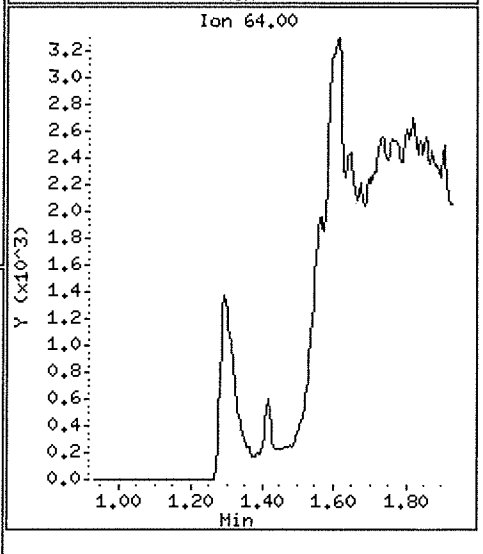
Column phase: DB624 Column diameter: 0.18

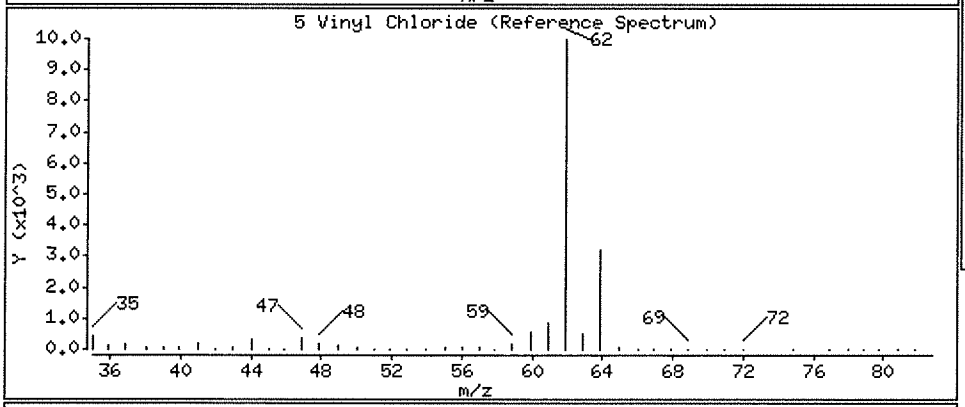
5 Vinyl Chloride Concentration: 1.27 ug/l

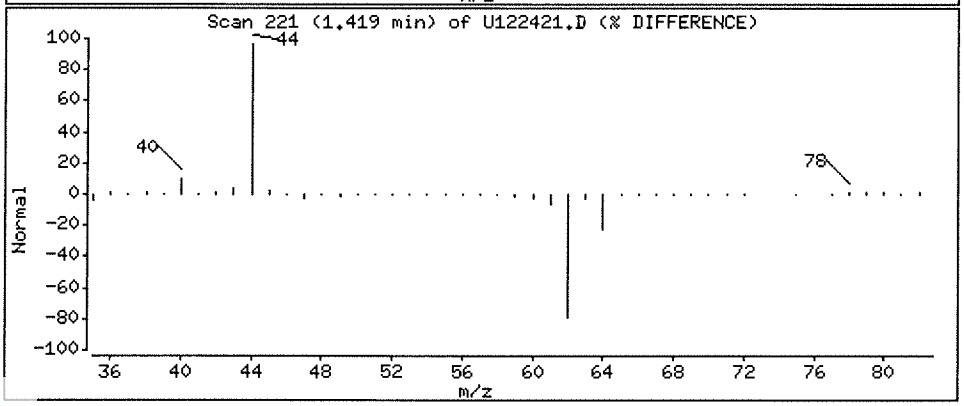


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122422.D Page 1
Report Date: 28-Jan-2019 14:43

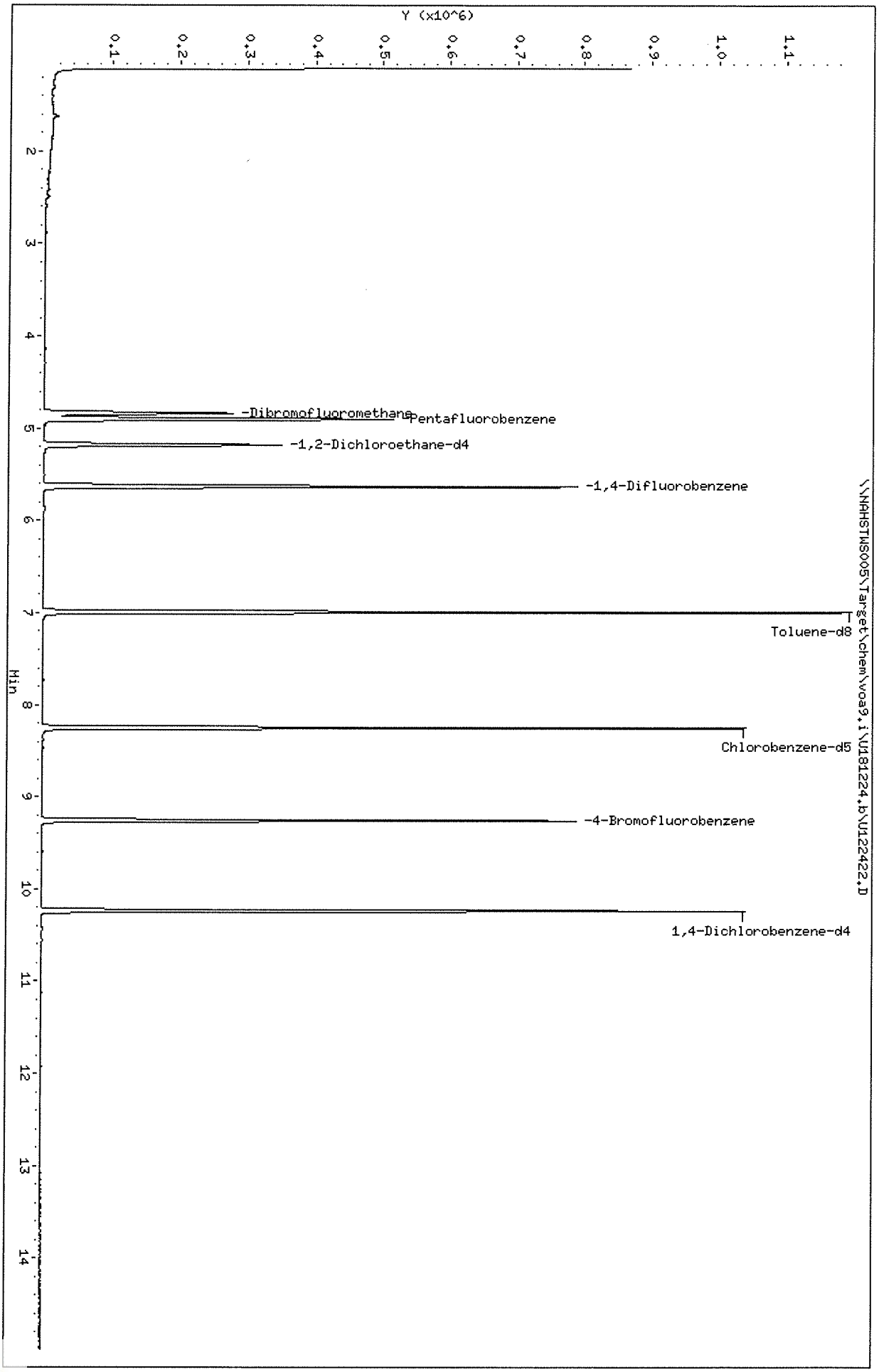
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122422.D
Lab Smp Id: HS18120913-06 Client Smp ID: HS18120913-06
Inj Date : 24-DEC-2018 18:08
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-06;HS18120913-06;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.901 | 4.902 | (1.000) | 315819 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 558405 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.253 | 8.253 | (1.000) | 506791 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 228496 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.986) | 160418 | 45.9087 | 45.90 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 222373 | 49.7364 | 49.73 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 688966 | 52.7415 | 52.74 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 241356 | 48.4031 | 48.40 |




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122422.D
Date : 24-DEC-2018 18:08
Client ID: HS18120913-06
Sample Info: HS18120913-06;HS18120913-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122423.D Page 1
Report Date: 28-Jan-2019 14:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122423.D
Lab Smp Id: HS18120913-07 Client Smp ID: HS18120913-07
Inj Date : 24-DEC-2018 18:32
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-07;HS18120913-07;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

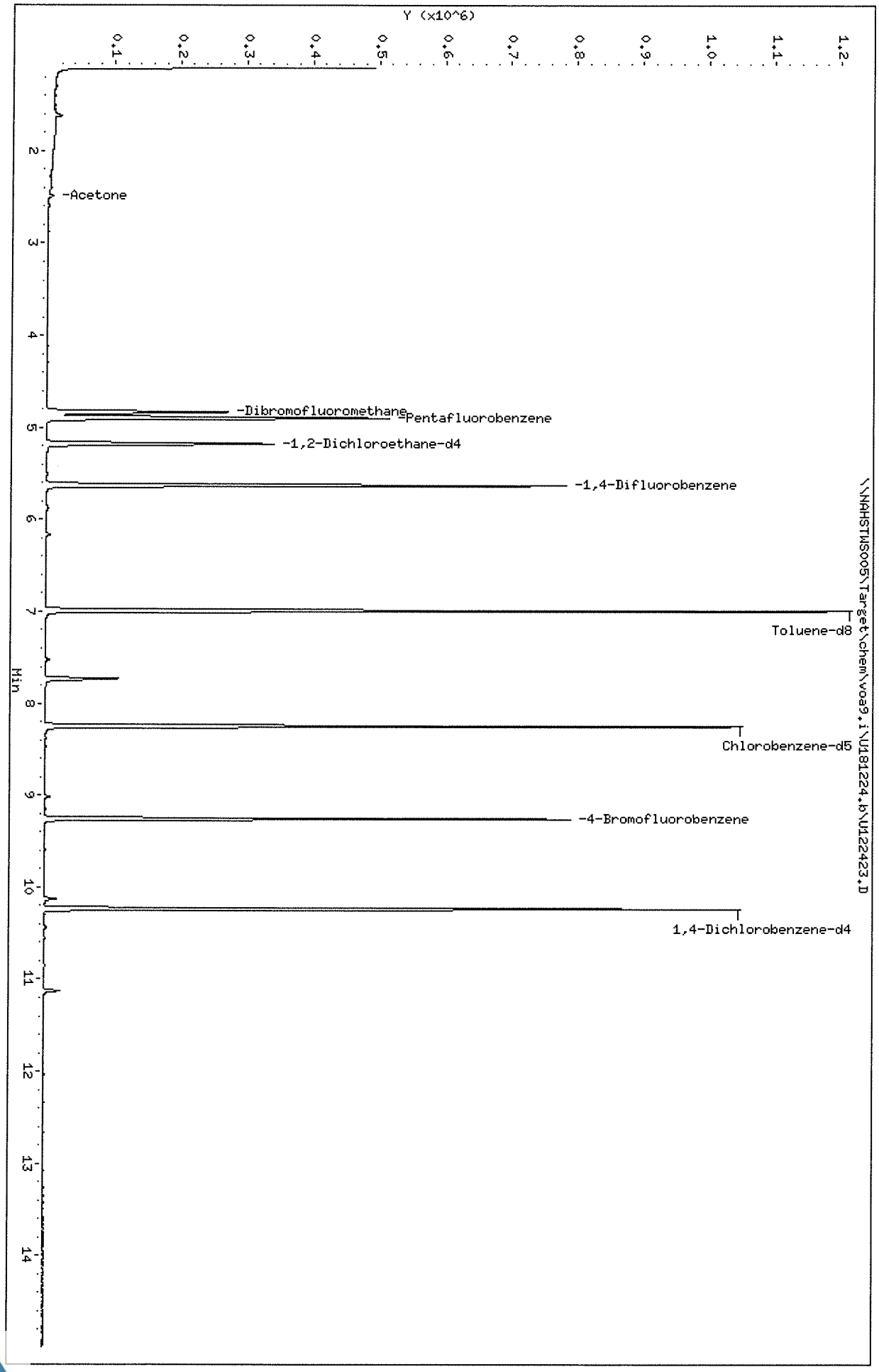
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.902 | (1.000) | 313434 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 559358 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 507981 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 230671 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.986) | 158045 | 45.5626 | 45.56 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 220399 | 49.6670 | 49.66 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 686171 | 52.3931 | 52.39 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.258 | (1.122) | 241692 | 48.3556 | 48.35 |
| 10 Acetone | 43 | 2.487 | 2.491 | (0.508) | 7369 | 3.18040 | 3.18(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122423.D
Date : 24-DEC-2018 18:32
Client ID: HS18120913-07
Sample Info: HS18120913-07;HS18120913-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122423.D Page 3

Date : 24-DEC-2018 18:32

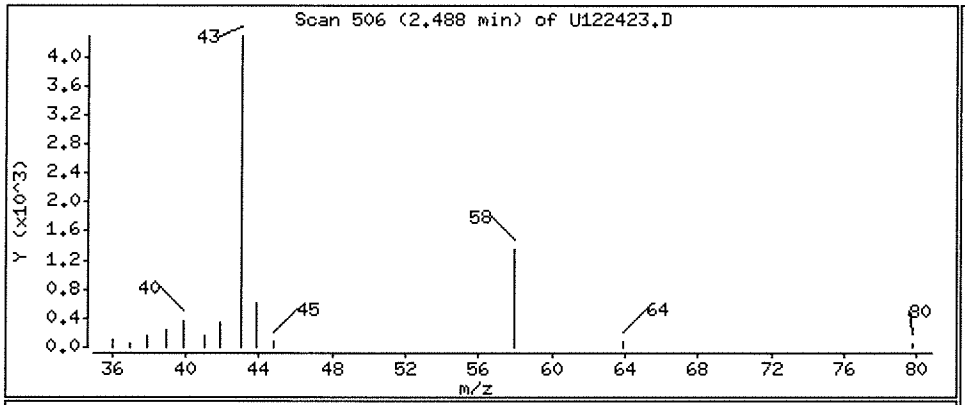
Client ID: HS18120913-07 Instrument: VOA9.i

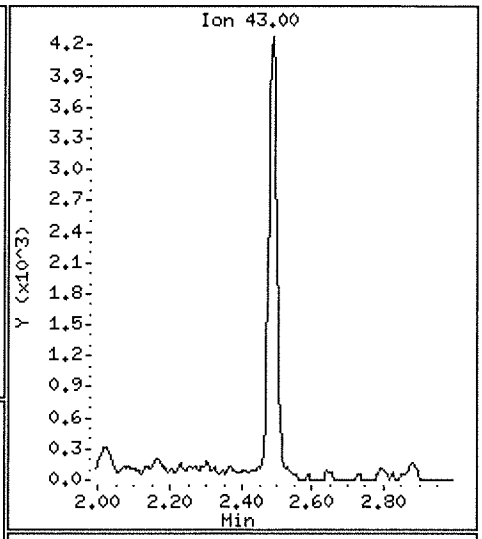
Sample Info: HS18120913-07;HS18120913-07;;;

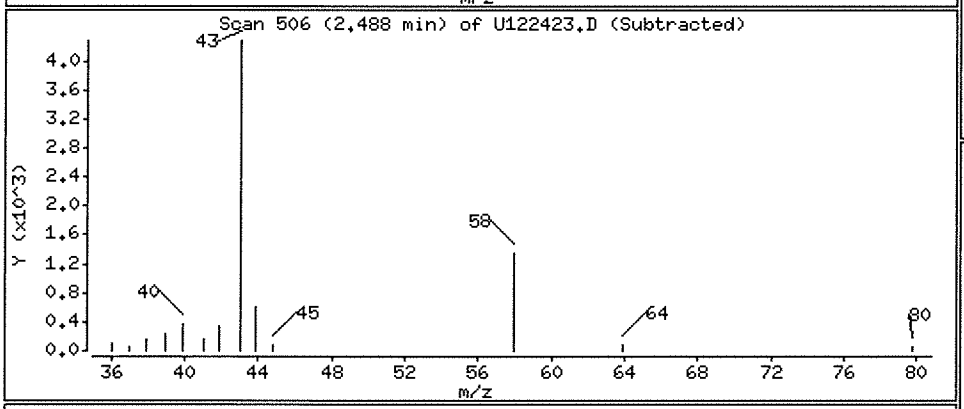
Purge Volume: 5.0 Operator: PC

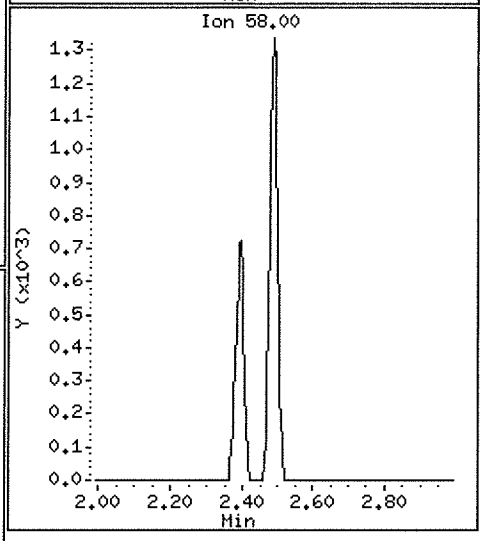
Column phase: DB624 Column diameter: 0.18

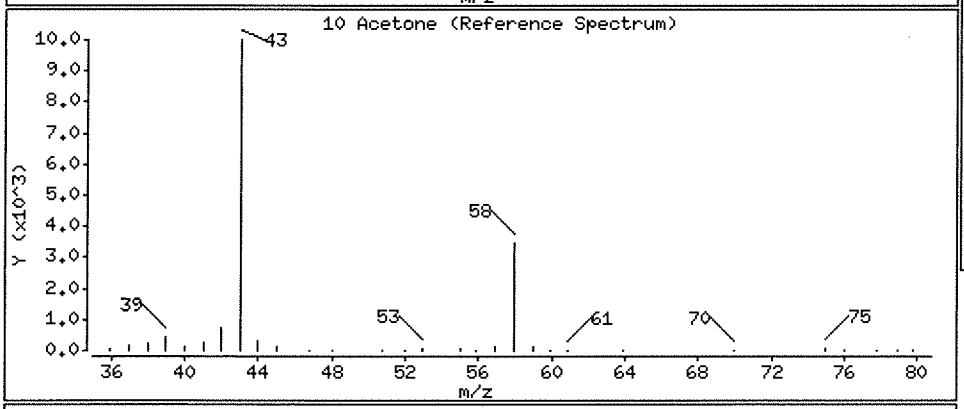
10 Acetone Concentration: 3.18 ug/l

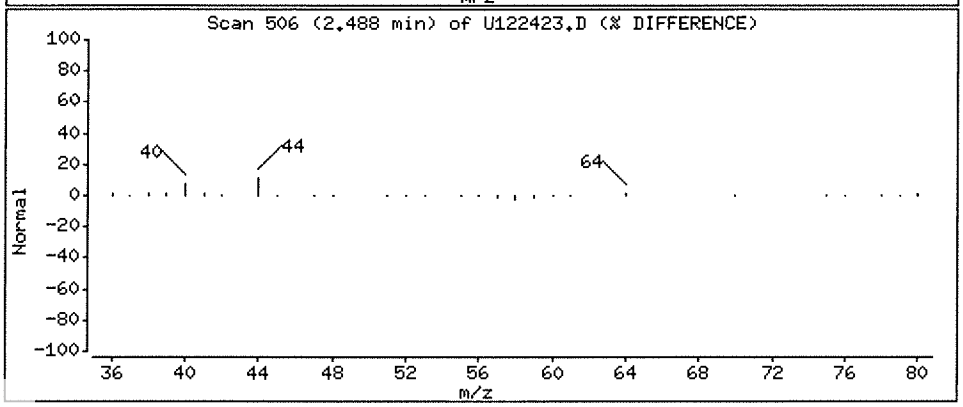


ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 24-DEC-2018 20:37
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

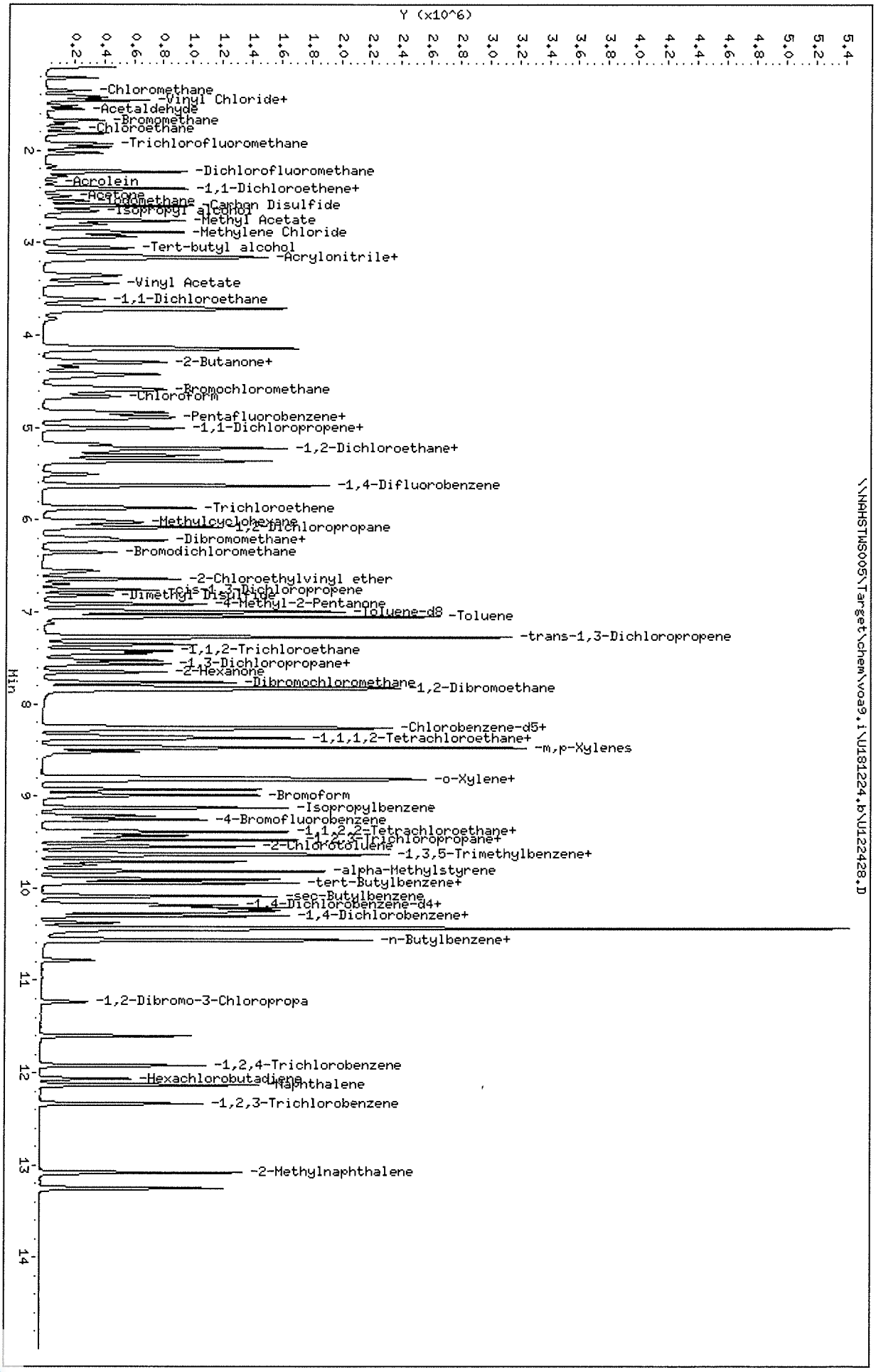
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.902 | 4.902 | (1.000) | 372728 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 712334 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.253 | 8.253 | (1.000) | 666433 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 318419 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.986) | 218616 | 50.0000 | 53.24 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 288948 | 50.0000 | 54.97 |
| $ | 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 875536 | 50.0000 | 50.90 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.258 | 9.258 | (1.122) | 336472 | 50.0000 | 51.40 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 202858 | 50.0000 | 47.99 |
| | 31 1,1,1-Trichloroethane | 97 | 4.834 | 4.834 | (0.986) | 295777 | 50.0000 | 50.25 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 379460 | 50.0000 | 52.91 |
| | 138 Freon TF | 101 | 2.412 | 2.412 | (0.492) | 148708 | 50.0000 | 46.92 |
| | 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.899) | 206414 | 50.0000 | 51.98 |
| | 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 409374 | 50.0000 | 50.99 |
| | 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.491) | 171295 | 50.0000 | 48.33 |
| | 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 303180 | 50.0000 | 47.83 |
| | 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 286736 | 50.0000 | 47.81 |
| | 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 413440 | 50.0000 | 55.44 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 290679 | 50.0000 | 49.30 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.944 | 9.944 | (0.971) | 850301 | 50.0000 | 51.02 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 55844 | 50.0000 | 50.49 |
| | 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.951) | 239717 | 50.0000 | 52.41 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D Page 2
Report Date: 28-Jan-2019 14:34

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.570 | 10.570 | (1.033) | 468743 | 50.0000 | 49.57 |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 339214 | 50.0000 | 52.89 |
| 42 | 1,2-Dichloropropane | 63 | 6.086 | 6.086 | (1.081) | 256086 | 50.0000 | 50.87 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 818604 | 50.0000 | 51.15 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 461460 | 50.0000 | 48.80 |
| 54 | 1,3-Dichloropropane | 76 | 7.567 | 7.567 | (0.917) | 441740 | 50.0000 | 51.65 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 472169 | 50.0000 | 47.36 |
| 26 | 2,2-Dichloropropane | 77 | 4.283 | 4.283 | (0.874) | 211110 | 50.0000 | 43.64 |
| 24 | 2-Butanone | 43 | 4.347 | 4.347 | (0.887) | 289643 | 100.000 | 119.28 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 729682 | 50.0000 | 49.73 |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.927) | 447227 | 100.000 | 120.68 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 854108 | 50.0000 | 50.37 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 843466 | 50.0000 | 50.05 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.915 | 6.915 | (0.838) | 622617 | 100.000 | 116.76 |
| 10 | Acetone | 43 | 2.491 | 2.491 | (0.508) | 191412 | 100.000 | 132.50 |
| 37 | Benzene | 78 | 5.224 | 5.224 | (0.928) | 949351 | 50.0000 | 50.08 |
| 74 | Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 244860 | 50.0000 | 49.77 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.560 | (0.930) | 111636 | 50.0000 | 57.58 |
| 39 | Bromodichloromethane | 83 | 6.352 | 6.352 | (1.129) | 279220 | 50.0000 | 52.16 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 133700 | 50.0000 | 46.85(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 119849 | 50.0000 | 52.01 |
| 19 | Carbon Disulfide | 76 | 2.600 | 2.600 | (0.530) | 1247818 | 100.000 | 96.63 |
| 34 | Carbon Tetrachloride | 117 | 5.003 | 5.003 | (0.889) | 228405 | 50.0000 | 44.25 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 634246 | 50.0000 | 49.53 |
| 7 | Chloroethane | 64 | 1.760 | 1.760 | (0.359) | 163120 | 50.0000 | 49.36(M) |
| 28 | Chloroform | 83 | 4.665 | 4.665 | (0.952) | 400691 | 50.0000 | 51.83 |
| 3 | Chloromethane | 50 | 1.352 | 1.352 | (0.276) | 186619 | 50.0000 | 47.31 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.876) | 251177 | 50.0000 | 51.26 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 383373 | 50.0000 | 47.20 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 208683 | 50.0000 | 47.69 |
| 44 | Dibromomethane | 93 | 6.195 | 6.195 | (1.101) | 152769 | 50.0000 | 52.58 |
| 2 | Dichlorodifluoromethane | 85 | 1.217 | 1.217 | (0.248) | 203871 | 50.0000 | 44.50 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 327066 | 50.0000 | 49.80 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 97921 | 50.0000 | 43.35 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 956047 | 50.0000 | 50.44 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 808427 | 100.000 | 100.12 |
| 17 | Methylene Chloride | 84 | 2.881 | 2.881 | (0.588) | 245953 | 50.0000 | 53.47 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 792193 | 50.0000 | 48.71 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1199674 | 50.0000 | 50.42 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 992990 | 50.0000 | 51.20 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 416328 | 50.0000 | 51.11 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 991870 | 50.0000 | 49.60 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.069) | 727808 | 50.0000 | 53.78 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 690339 | 50.0000 | 49.91 |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 156173 | 50.0000 | 44.76 |
| 50 | Toluene | 91 | 7.050 | 7.050 | (0.854) | 992367 | 50.0000 | 50.05 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.151 | 3.151 | (0.643) | 218068 | 50.0000 | 49.98 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 328161 | 50.0000 | 47.00 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 221618 | 50.0000 | 48.43 |
| 8 | Trichlorofluoromethane | 101 | 1.963 | 1.963 | (0.400) | 293963 | 50.0000 | 47.87 |
| 5 | Vinyl Chloride | 62 | 1.430 | 1.430 | (0.292) | 258632 | 50.0000 | 49.07 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

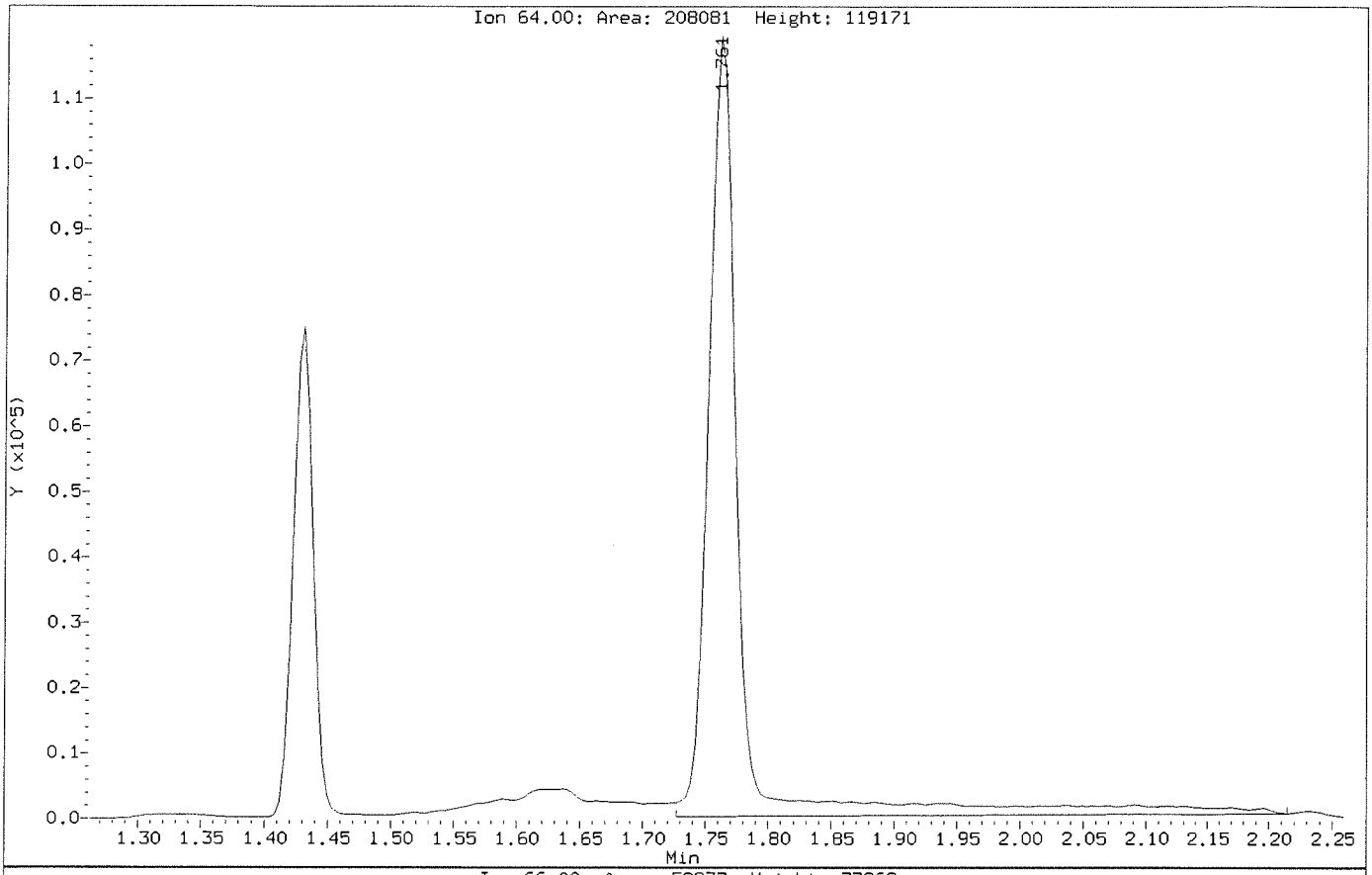


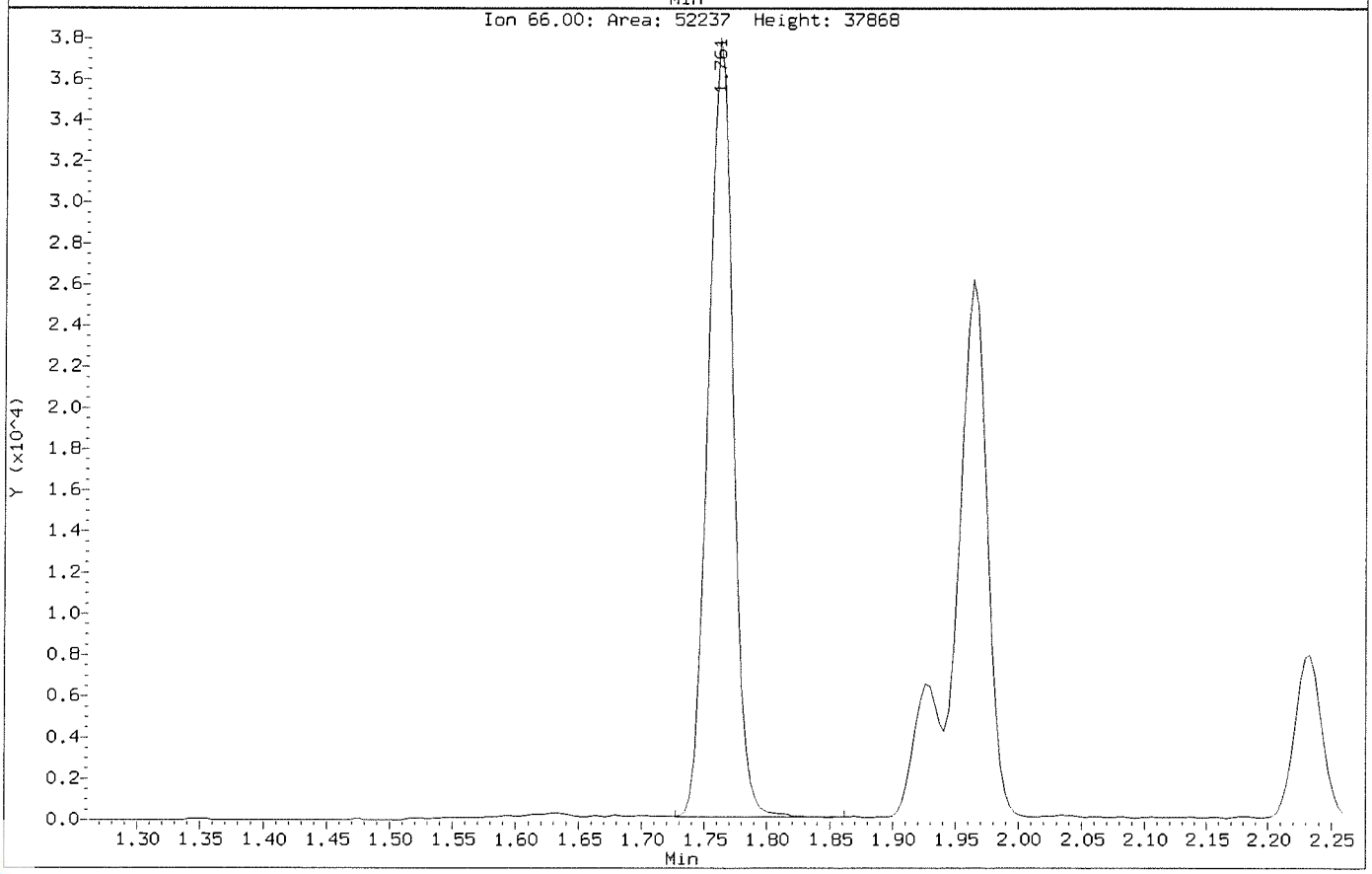

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122428.D
Date : 24-DEC-2018 20:37
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

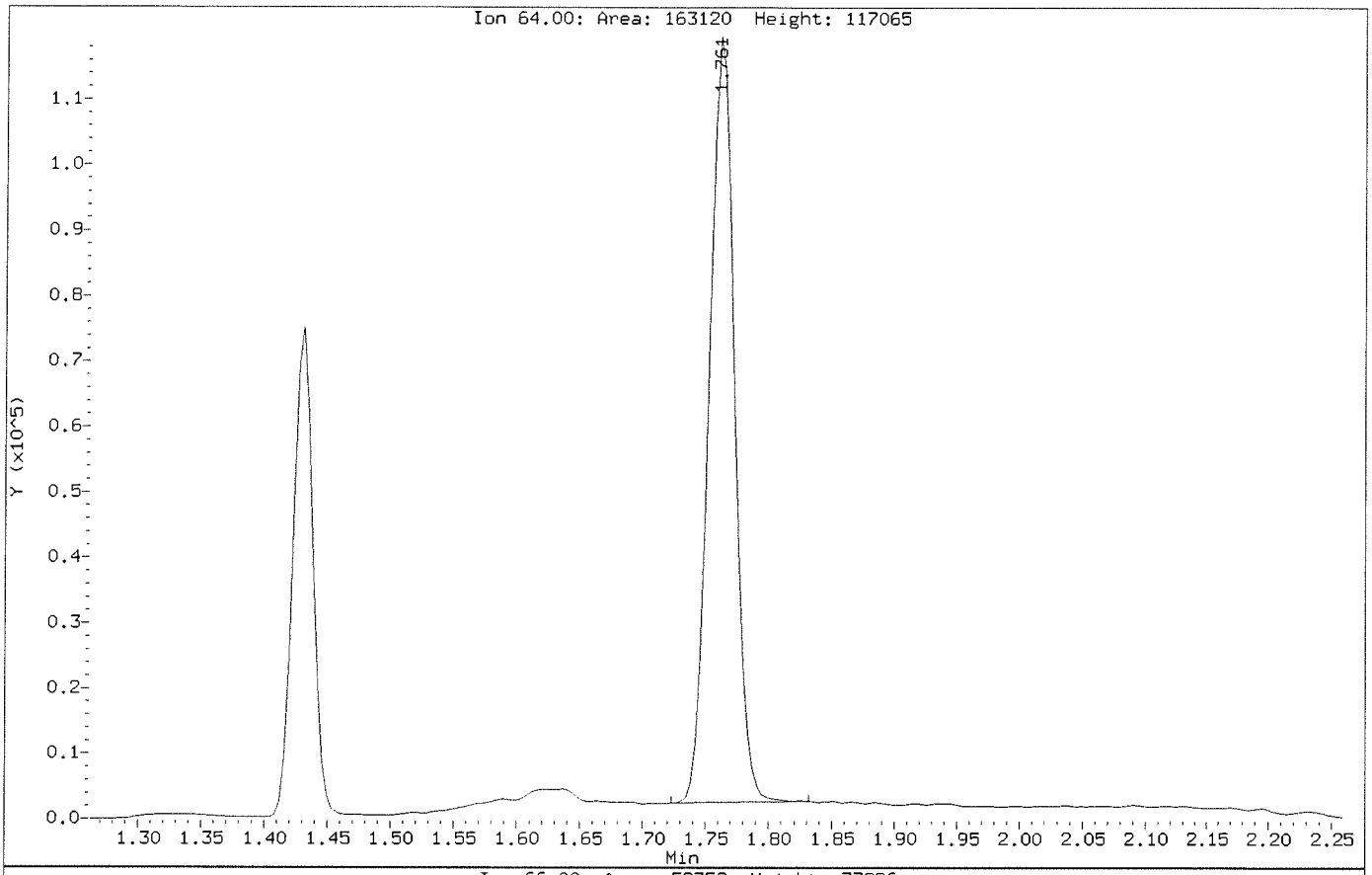
Compound: Chloroethane
CAS Number: 75-00-3

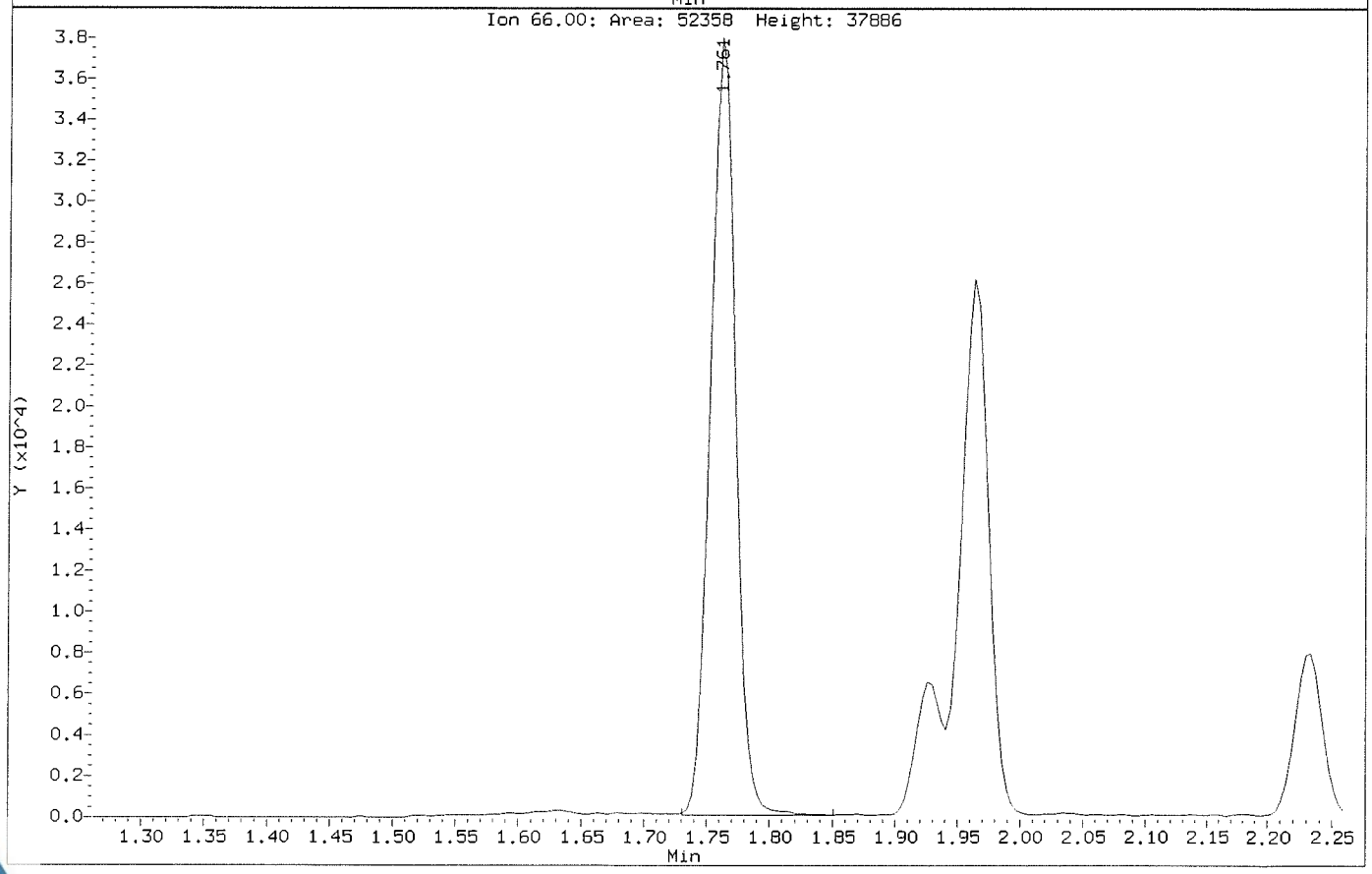


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3



# HS18120913 LHAAP58

ALS WO# HS18120913

## Form 11 - INTERNAL STANDARD ASSOCIATION

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Instrument:ICPMS04

| Mass | Analyte | Assoc Int Standard 1 | Assoc Int Standard 2 | Mode |
|---|---|---|---|---|
| 9 | Beryllium | Lithium | | Ar |
| 11 | Boron | Lithium | | Ar |
| 23 | Sodium | Germanium | | Ar |
| 24 | Magnesium | Germanium | | Ar |
| 27 | Aluminum | Germanium | | Ar |
| 39 | Potassium | Germanium | | Ar |
| 44 | Calcium | Germanium | | ArHe |
| 47 | Titanium | Germanium | | Ar |
| 51 | Vanadium | Germanium | | ArHe |
| 52 | Chromium | Germanium | | ArHe |
| 55 | Manganese | Germanium | | ArHe |
| 56 | Iron | Germanium | | ArHe |
| 59 | Cobalt | Germanium | | ArHe |
| 60 | Nickel | Germanium | | ArHe |
| 63 | Copper | Germanium | | ArHe |
| 66 | Zinc | Germanium | | ArHe |
| 75 | Arsenic | Germanium | | ArHe |
| 78 | Selenium | Germanium | | ArHe |
| 88 | Strontium | Germanium | | Ar |
| 95 | Molybdenum | Germanium | | Ar |
| 105 | Palladium | Germanium | | Ar |
| 107 | Silver | Germanium | | Ar |
| 111 | Cadmium | Indium | | Ar |
| 118 | Tin | Germanium | | Ar |
| 121 | Antimony | Germanium | | ArHe |
| 135 | Barium | Indium | | Ar |
| 203 | Thallium | Bismuth | | Ar |
| 208 | Lead | Bismuth | | Ar |

## FORM 12 - PREPARATION LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913
Start Date: 19-Dec-2018 13:00 End Date: 19-Dec-2018 17:00

Batch ID: 135804
Prep Code: 3010A
Method: SW3010A
Technician:

| SampID | ClientID | Matrix | Init Wt | Init Vol | FinalVol (mL) | PrepFac |
|---|---|---|---|---|---|---|
| HS18120913-01 | LHSMW06_121318 | Groundwater | | 10 | 10 | 1 |
| HS18120913-02 | LHSMW06_121318_a | Groundwater | | 10 | 10 | 1 |
| HS18120913-04 | 35AWW01_121318 | Groundwater | | 10 | 10 | 1 |
| HS18120913-04MS | | | | 10 | 10 | 1 |
| HS18120913-04MSD | | | | 10 | 10 | 1 |
| HS18120913-04PDS | | | | 10 | 10 | 1 |
| HS18120913-04SD | | | | 10 | 10 | 1 |
| LCS-135804 | | | | 10 | 10 | 1 |
| MBLK-135804 | | | | 10 | 10 | 1 |

## FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| ICPMS04_329719_Tune | 1 | 21-Dec-2018 00:00 | ICPMS04_329719_Tune_1 | |
| CAL BLK | 1 | 21-Dec-2018 12:57 | 014CALB.d_4877193 | AS |
| 2/10/200 | 1 | 21-Dec-2018 12:59 | 015CALS.d_4877194 | AS |
| 5/25/500 | 1 | 21-Dec-2018 13:01 | 016CALS.d_4877195 | AS |
| 10/50/1000 | 1 | 21-Dec-2018 13:03 | 017CALS.d_4877196 | AS |
| 100/500/10K | 1 | 21-Dec-2018 13:06 | 018CALS.d_4877197 | AS |
| 200/1000/20K | 1 | 21-Dec-2018 13:08 | 019CALS.d_4877198 | AS |
| ICV | 1 | 21-Dec-2018 13:12 | 021_ICV.d_4877200 | AS |
| LLICV2 | 1 | 21-Dec-2018 13:14 | 022SMPL.d_4877201 | AS |
| LLICV5 | 1 | 21-Dec-2018 13:17 | 023LICV.d_4877202 | AS |
| ICB | 1 | 21-Dec-2018 13:19 | 024_ICB.d_4877203 | AS |
| ICSA | 1 | 21-Dec-2018 13:36 | 025ICSA.d_4877204 | AS |
| ICSAB | 1 | 21-Dec-2018 13:38 | 026ICSB.d_4877205 | AS |
| CCV 1 | 1 | 21-Dec-2018 14:07 | 038_CCV.d_4877419 | AS |
| CCB 1 | 1 | 21-Dec-2018 14:09 | 039_CCB.d_4877420 | AS |
| CCB 2 | 1 | 21-Dec-2018 14:47 | 051_CCB.d_4877517 | AS |
| CCV 2 | 1 | 21-Dec-2018 15:12 | 053_CCV.d_4877562 | AS |
| CCB 3 | 1 | 21-Dec-2018 15:45 | 064_CCB.d_4877606 | AS |
| CCV 3 | 1 | 21-Dec-2018 15:57 | 066_CCV.d_4877806 | AS |
| CCV 4 | 1 | 21-Dec-2018 16:59 | 076_CCV.d_4877824 | AS |
| CCB 4 | 1 | 21-Dec-2018 17:01 | 077_CCB.d_4877825 | AS |
| CCV 5 | 1 | 21-Dec-2018 17:32 | 088_CCV.d_4877944 | AS |
| CCB 5 | 1 | 21-Dec-2018 17:34 | 089_CCB.d_4877945 | AS |
| CCV 6 | 1 | 21-Dec-2018 18:09 | 093_CCV.d_4878002 | AS |
| CCB 6 | 1 | 21-Dec-2018 18:11 | 094_CCB.d_4878003 | AS |
| CCV 7 | 1 | 21-Dec-2018 18:44 | 105_CCV.d_4878027 | AS |
| CCB 7 | 1 | 21-Dec-2018 18:46 | 106_CCB.d_4878028 | AS |
| CCV 8 | 1 | 21-Dec-2018 19:16 | 117_CCV.d_4878173 | AS |
| CCB 8 | 1 | 21-Dec-2018 19:18 | 118_CCB.d_4878174 | AS |
| CCV 9 | 1 | 21-Dec-2018 19:51 | 129_CCV.d_4878188 | AS |
| CCB 9 | 1 | 21-Dec-2018 19:53 | 130_CCB.d_4878189 | AS |
| CCV 10 | 1 | 21-Dec-2018 20:23 | 141_CCV.d_4878292 | AS |
| CCB 10 | 1 | 21-Dec-2018 20:25 | 142_CCB.d_4878293 | AS |
| CCV 11 | 1 | 21-Dec-2018 20:40 | 148_CCV.d_4878299 | AS |
| CCB 11 | 1 | 21-Dec-2018 20:42 | 149_CCB.d_4878300 | AS |
| MBLK-135804 | 1 | 21-Dec-2018 21:07 | 151SMPL.d_4879116 | AS |
| LCS-135804 | 1 | 21-Dec-2018 21:10 | 152SMPL.d_4879117 | AS |
| CCV 12 | 1 | 21-Dec-2018 21:28 | 160_CCV.d_4879125 | AS |
| CCB 12 | 1 | 21-Dec-2018 21:30 | 161_CCB.d_4879126 | AS |
| LHSMW06_121318 | 1 | 21-Dec-2018 21:48 | 169SMPL.d_4879134 | AS |
| LHSMW06_121318_a | 1 | 21-Dec-2018 21:50 | 170SMPL.d_4879135 | AS |
| CCV 13 | 1 | 21-Dec-2018 21:55 | 172_CCV.d_4879137 | AS |
| CCB 13 | 1 | 21-Dec-2018 21:57 | 173_CCB.d_4879138 | AS |
| 35AWW01_121318 | 1 | 21-Dec-2018 22:08 | 175SMPL.d_4879140 | AS |
| 35AWW01_121318SD | 5 | 21-Dec-2018 22:10 | 176SMPL.d_4879141 | AS |
| 35AWW01_121318MS | 1 | 21-Dec-2018 22:12 | 177SMPL.d_4879142 | AS |
| 35AWW01_121318MSD | 1 | 21-Dec-2018 22:14 | 178SMPL.d_4879143 | AS |
| 35AWW01_121318PDS | 1 | 21-Dec-2018 22:17 | 179SMPL.d_4879144 | AS |
| CCV 14 | 1 | 21-Dec-2018 22:21 | 181_CCV.d_4879146 | AS |
| CCB 14 | 1 | 21-Dec-2018 22:23 | 182_CCB.d_4879147 | AS |
| CAL BLK | 1 | 21-Dec-2018 22:57 | 193CALB.d_4879261 | AS |

## FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| 2/10/200 | 1 | 21-Dec-2018 22:59 | 194CALS.d_4879262 | AS |
| 5/25/500 | 1 | 21-Dec-2018 23:01 | 195CALS.d_4879263 | AS |
| 10/50/1000 | 1 | 21-Dec-2018 23:03 | 196CALS.d_4879264 | AS |
| 100/500/10K | 1 | 21-Dec-2018 23:06 | 197CALS.d_4879265 | AS |
| 200/1000/20K | 1 | 21-Dec-2018 23:08 | 198CALS.d_4879269 | AS |
| ICCV 15 | 1 | 21-Dec-2018 23:12 | 200_ICV.d_4879271 | AS |
| LLCCV2 | 1 | 21-Dec-2018 23:15 | 201SMPL.d_4879272 | AS |
| LLCCV5 | 1 | 21-Dec-2018 23:17 | 202LICV.d_4879273 | AS |
| ICCB 15 | 1 | 21-Dec-2018 23:19 | 203_ICB.d_4879274 | AS |
| CCV 16 | 1 | 21-Dec-2018 23:42 | 213_CCV.d_4879295 | AS |
| CCB 16 | 1 | 21-Dec-2018 23:44 | 214_CCB.d_4879296 | AS |
| CCV 17 | 1 | 22-Dec-2018 00:02 | 222_CCV.d_4879304 | AS |
| CCB 17 | 1 | 22-Dec-2018 00:04 | 223_CCB.d_4879305 | AS |
| CCV 18 | 1 | 22-Dec-2018 00:36 | 231_CCV.d_4879319 | AS |
| CCB 18 | 1 | 22-Dec-2018 00:38 | 232_CCB.d_4879320 | AS |
| CCV 19 | 1 | 22-Dec-2018 00:56 | 240_CCV.d_4879328 | AS |
| CCB 19 | 1 | 22-Dec-2018 00:59 | 241_CCB.d_4879329 | AS |
| LLICV2 | 1 | 22-Dec-2018 01:01 | 242SMPL.d_4879330 | AS |
| LLICV5 | 1 | 22-Dec-2018 01:03 | 243LICV.d_4879331 | AS |
| ICSA | 1 | 22-Dec-2018 01:05 | 244ICSA.d_4879332 | AS |
| ICSAB | 1 | 22-Dec-2018 01:08 | 245ICSB.d_4879333 | AS |

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| ICV | Date: 21-Dec-2018 13:12 | | Seq: 4877200 | ICV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 102.764 | 103 | 90-110 | |

| CCV1 | Date: 21-Dec-2018 14:07 | | Seq: 4877419 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 104.385 | 104 | 90-110 | |

| CCV2 | Date: 21-Dec-2018 15:12 | | Seq: 4877562 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 103.155 | 103 | 90-110 | |

| CCV3 | Date: 21-Dec-2018 15:57 | | Seq: 4877806 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 102.165 | 102 | 90-110 | |

| CCV4 | Date: 21-Dec-2018 16:59 | | Seq: 4877824 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 98.559 | 99 | 90-110 | |

| CCV5 | Date: 21-Dec-2018 17:32 | | Seq: 4877944 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 96.562 | 97 | 90-110 | |

| CCV6 | Date: 21-Dec-2018 18:09 | | Seq: 4878002 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 99.666 | 100 | 90-110 | |

| CCV7 | Date: 21-Dec-2018 18:44 | | Seq: 4878027 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 104.615 | 105 | 90-110 | |

| CCV8 | Date: 21-Dec-2018 19:16 | | Seq: 4878173 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 101.432 | 101 | 90-110 | |

| CCV9 | Date: 21-Dec-2018 19:51 | | Seq: 4878188 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 103.291 | 103 | 90-110 | |

| CCV10 | Date: 21-Dec-2018 20:23 | | Seq: 4878292 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 101.201 | 101 | 90-110 | |

| CCV11 | Date: 21-Dec-2018 20:40 | | Seq: 4878299 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 101.088 | 101 | 90-110 | |

| CCV12 | Date: 21-Dec-2018 21:28 | | Seq: 4879125 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 102.789 | 103 | 90-110 | |

| CCV13 | Date: 21-Dec-2018 21:55 | | Seq: 4879137 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 99.083 | 99 | 90-110 | |

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| CCV14 | Date: 21-Dec-2018 22:21 | | Seq: 4879146 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 102.89 | 103 | 90-110 | |

| ICCV15 | Date: 21-Dec-2018 23:12 | | Seq: 4879271 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 101.778 | 102 | 90-110 | |

| CCV16 | Date: 21-Dec-2018 23:42 | | Seq: 4879295 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 98.381 | 98 | 90-110 | |

| CCV17 | Date: 22-Dec-2018 00:02 | | Seq: 4879304 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 103.546 | 104 | 90-110 | |

| CCV18 | Date: 22-Dec-2018 00:36 | | Seq: 4879319 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 97.362 | 97 | 90-110 | |

| CCV19 | Date: 22-Dec-2018 00:56 | | Seq: 4879328 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Arsenic | 100 | 98.182 | 98 | 90-110 | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| ICB | Date: 21-Dec-2018 13:19 | | Seq: 4877203 | ICB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB1 | Date: 21-Dec-2018 14:09 | | Seq: 4877420 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB2 | Date: 21-Dec-2018 14:47 | | Seq: 4877517 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB3 | Date: 21-Dec-2018 15:45 | | Seq: 4877606 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB4 | Date: 21-Dec-2018 17:01 | | Seq: 4877825 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB5 | Date: 21-Dec-2018 17:34 | | Seq: 4877945 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB6 | Date: 21-Dec-2018 18:11 | | Seq: 4878003 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB7 | Date: 21-Dec-2018 18:46 | | Seq: 4878028 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB8 | Date: 21-Dec-2018 19:18 | | Seq: 4878174 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB9 | Date: 21-Dec-2018 19:53 | | Seq: 4878189 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB10 | Date: 21-Dec-2018 20:25 | | Seq: 4878293 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB11 | Date: 21-Dec-2018 20:42 | | Seq: 4878300 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| MBLK-135804 | Date: 21-Dec-2018 21:07 | | Seq: 4879116 | MBLK | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB12 | Date: 21-Dec-2018 21:30 | | Seq: 4879126 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB13 | Date: 21-Dec-2018 21:57 | | Seq: 4879138 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| CCB14 | Date: 21-Dec-2018 22:23 | | Seq: 4879147 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| ICCB15 | Date: 21-Dec-2018 23:19 | | Seq: 4879274 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB16 | Date: 21-Dec-2018 23:44 | | Seq: 4879296 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB17 | Date: 22-Dec-2018 00:04 | | Seq: 4879305 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB18 | Date: 22-Dec-2018 00:38 | | Seq: 4879320 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

| CCB19 | Date: 22-Dec-2018 00:59 | | Seq: 4879329 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Arsenic | 2 | 0.4 | 2 | U | |

## Form 4 - ICP Interference Check Sample

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

| ICSA | Date: 21-Dec-2018 13:36 | Seq: 4877204 | ICSA | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | | 0.156 | 0 | |

| ICSAB | Date: 21-Dec-2018 13:38 | Seq: 4877205 | ICSAB | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | 100 | 114.4 | 114 | |

| ICSA | Date: 22-Dec-2018 01:05 | Seq: 4879332 | ICSA | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | | 0.16 | 0 | |

| ICSAB | Date: 22-Dec-2018 01:08 | Seq: 4879333 | ICSAB | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Arsenic | 100 | 109.6 | 110 | |

## Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Date Analyzed: 21-Dec-2018 22:14
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Matrix Spike: HS18120913-04MS
Client Sample ID: 35AWW01_121318

Analysis Method: SW6020

| Analyte | Sample Result | MS Result | Spike Amount | % Rec | MSD Result | Spike Amount | % Rec | % Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 2.000 | 50.79 | 50.00 | 101 | 48.89 | 50.00 | 97.7 | 80-120 | 3.81 | 20 |

## Form 5B - Post Digest Sample Recovery

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Date Analyzed: 21-Dec-2018 22:17
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04PDS
Client Sample ID: 35AWW01_121318

Analysis Method: SW6020

| Analyte | Sample Result | PDS Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Arsenic | 0 | 107.4 | 100 | 107 | 75-125 |

**Form 7 - Laboratory Control Sample**

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Date Analyzed: 21-Dec-2018 21:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: LCS-135804 Analysis Method: SW6020

| Analyte | Spike Amount | LCS Result | % Rec | % Rec Limits |
|---|---|---|---|---|
| Arsenic | 50 | 49.62 | 99 | 80-120 |

**ALS Houston, US**

Date: 12-Jan-19

## Form 8 - ICP Serial Dilutions

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18120913

Date Analyzed: 21-Dec-2018 22:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04SD
Client Sample ID:35AWW01_121318

Analysis Method: SW6020

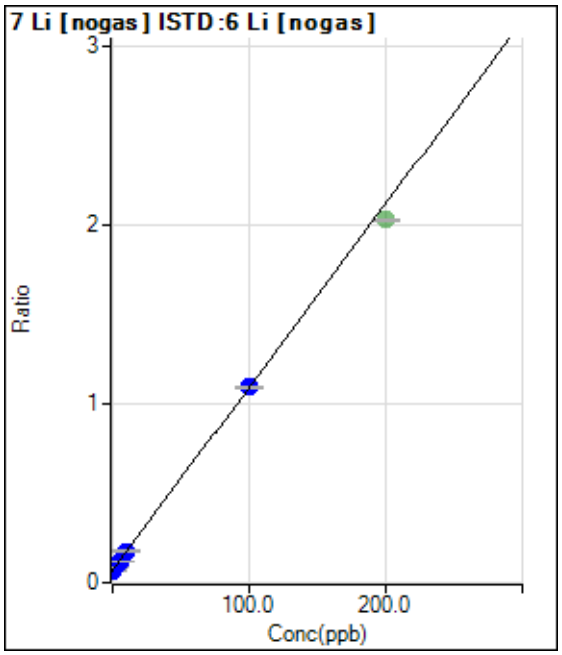
| Analyte | Sample Result | C | SD Result | C | RPD | Q |
|---|---|---|---|---|---|---|
| Arsenic | 0 | U | 0 | U | 0 | |

Calibration for 021_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122118A.b\
Analysis File: 122118A.batch.bin
DA Date-Time: 12/21/2018 11:16:05 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 014CALB.d | CAL BLK | 12/21/2018 12:57:03 PM |
| 2 | 015CALS.d | 2/10/200 | 12/21/2018 12:59:17 PM |
| 3 | 016CALS.d | 5/25/500 | 12/21/2018 1:01:31 PM |
| 4 | 017CALS.d | 10/50/1000 | 12/21/2018 1:03:46 PM |
| 5 | 018CALS.d | 100/500/10K | 12/21/2018 1:06:00 PM |
| 6 | 019CALS.d | 200/1000/20K | 12/21/2018 1:08:13 PM |
| 7 | | | |

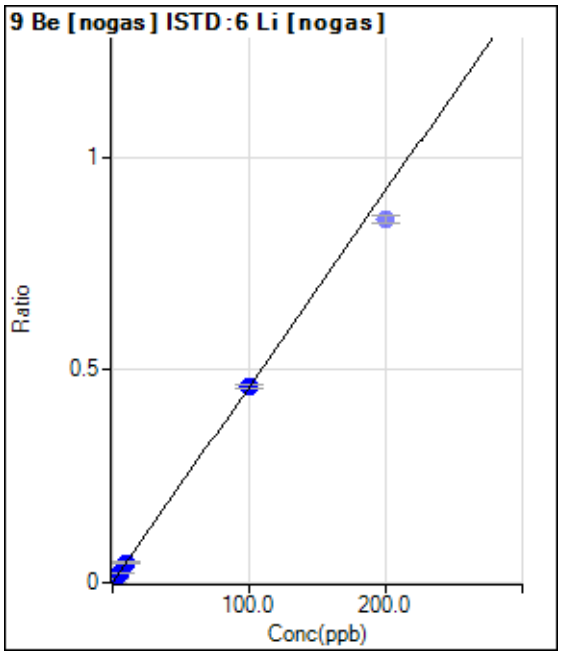
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 40067.63 | 0.0690 | P | 3.2 |
| 2 | ☐ | 2.000 | 2.063 | 53468.75 | 0.0901 | P | 4.2 |
| 3 | ☐ | 5.000 | 5.183 | 73546.88 | 0.1221 | P | 1.5 |
| 4 | ☐ | 10.000 | 10.415 | 105643.77 | 0.1756 | P | 3.7 |
| 5 | ☐ | 100.000 | 99.948 | 681143.61 | 1.0928 | P | 1.1 |
| 6 | ☑ | 200.000 | | 1335447.82 | 2.0293 | A | 0.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0102 * x + 0.0690
R = 1.0000
DL = 0.6418
BEC = 6.732

Weight: <None>
Min Conc: <None>

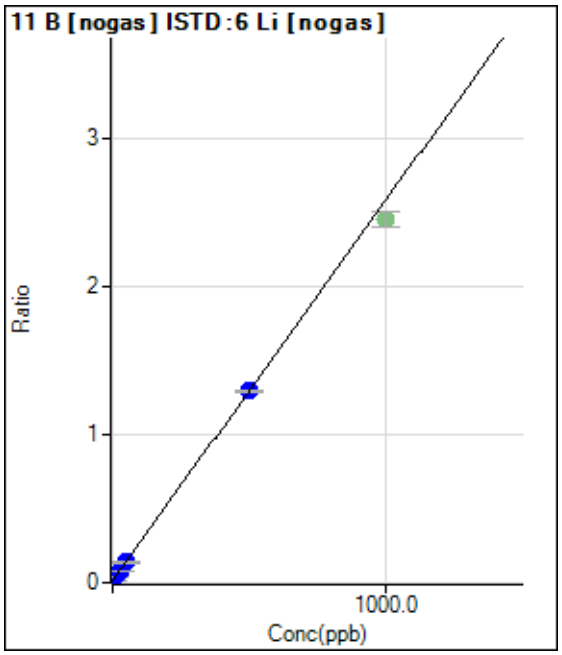



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13.33 | 0.0000 | P | 44.3 |
| 2 | ☐ | 2.000 | 2.115 | 5784.35 | 0.0097 | P | 7.0 |
| 3 | ☐ | 5.000 | 5.032 | 13962.20 | 0.0232 | P | 0.1 |
| 4 | ☐ | 10.000 | 9.930 | 27447.45 | 0.0457 | P | 7.5 |
| 5 | ☐ | 100.000 | 100.003 | 286605.72 | 0.4599 | P | 1.6 |
| 6 | ☑ | 200.000 | | 560373.51 | 0.8518 | P | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0046 * x + 2.3010E-005
R = 1.0000
DL = 0.006657
BEC = 0.005004

Weight: <None>
Min Conc: <None>

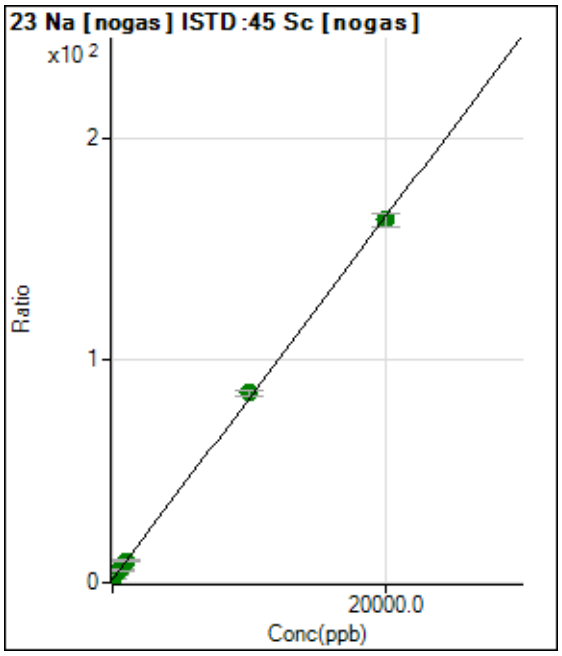
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7281.57 | 0.0125 | P | 2.9 |
| 2 | ☐ | 10.000 | 9.759 | 22307.35 | 0.0376 | P | 1.9 |
| 3 | ☐ | 25.000 | 24.734 | 45770.33 | 0.0760 | P | 5.2 |
| 4 | ☐ | 50.000 | 49.347 | 83658.91 | 0.1392 | P | 8.4 |
| 5 | ☐ | 500.000 | 500.083 | 807759.15 | 1.2962 | P | 0.9 |
| 6 | ☑ | 1000.000 | | 1611895.81 | 2.4503 | A | 4.4 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0026 * x + 0.0125
R = 1.0000
DL = 0.4229
BEC = 4.883

Weight: <None>
Min Conc: <None>

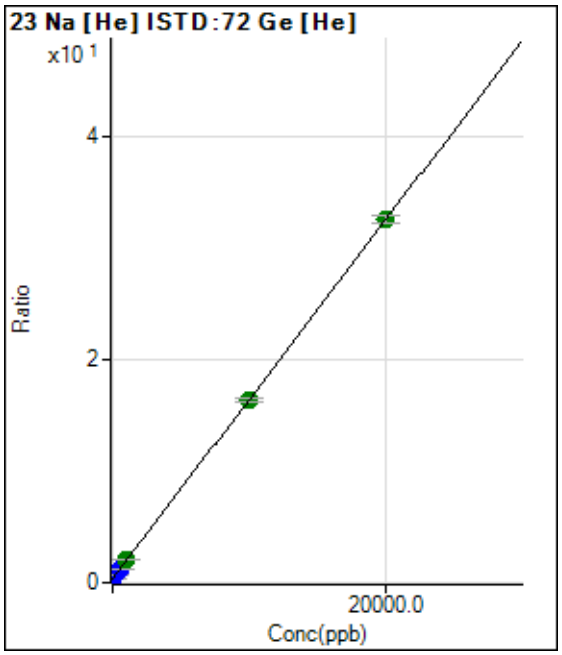



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1838469.50 | 1.4981 | A | 1.5 |
| 2 | ☐ | 200.000 | 218.099 | 4080039.02 | 3.2763 | A | 1.8 |
| 3 | ☐ | 500.000 | 521.411 | 7100749.90 | 5.7491 | A | 4.4 |
| 4 | ☐ | 1000.000 | 1030.939 | 12178539.59 | 9.9032 | A | 3.1 |
| 5 | ☐ | 10000.00 | 10301.481 | 103892000.2 | 85.4847 | A | 3.2 |
| 6 | ☐ | 20000.00 | 19846.996 | 201861504.5 | 163.308 | A | 3.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0082 * x + 1.4981
R = 0.9998
DL = 8.329
BEC = 183.8

Weight: <None>
Min Conc: <None>

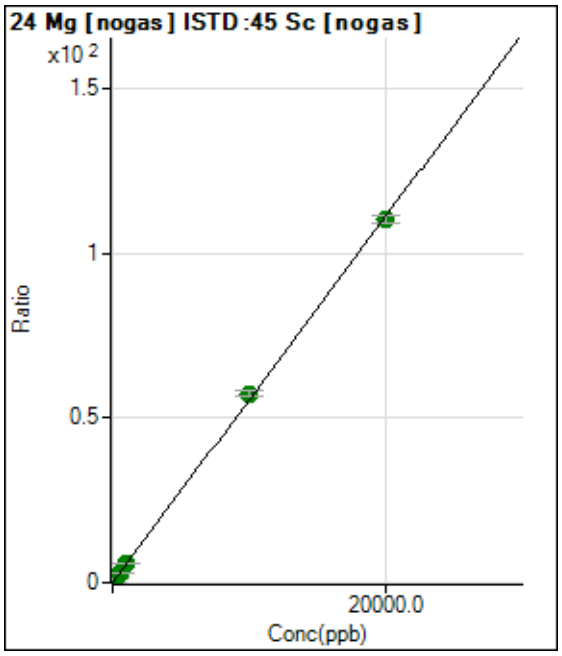
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 254108.17 | 0.3315 | P | 2.0 |
| 2 | ☐ | 200.000 | 215.119 | 534621.54 | 0.6772 | P | 1.2 |
| 3 | ☐ | 500.000 | 533.517 | 908287.95 | 1.1889 | P | 0.7 |
| 4 | ☐ | 1000.000 | 1046.039 | 1547651.28 | 2.0125 | A | 3.0 |
| 5 | ☐ | 10000.00 | 9973.897 | 12643160.64 | 16.3591 | A | 2.4 |
| 6 | ☐ | 20000.00 | 20009.760 | 24601919.64 | 32.4864 | A | 2.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0016 * x + 0.3315
R = 1.0000
DL = 12.36
BEC = 206.3

Weight: <None>
Min Conc: <None>

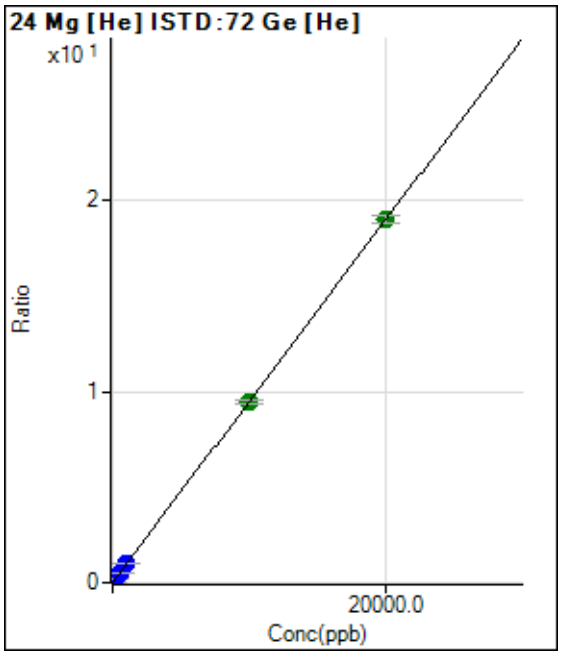



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 5468.47 | 0.0045 | P | 13.1 |
| 2 | ☐ | 200.000 | 216.513 | 1504274.58 | 1.2079 | A | 1.4 |
| 3 | ☐ | 500.000 | 521.211 | 3583938.62 | 2.9014 | A | 3.8 |
| 4 | ☐ | 1000.000 | 1052.010 | 7193877.50 | 5.8517 | A | 4.5 |
| 5 | ☐ | 10000.00 | 10341.381 | 69859734.89 | 57.4832 | A | 3.6 |
| 6 | ☐ | 20000.00 | 19826.013 | 136227057.2 | 110.200 | A | 2.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0056 * x + 0.0045
R = 0.9998
DL = 0.315
BEC = 0.8011

Weight: <None>
Min Conc: <None>

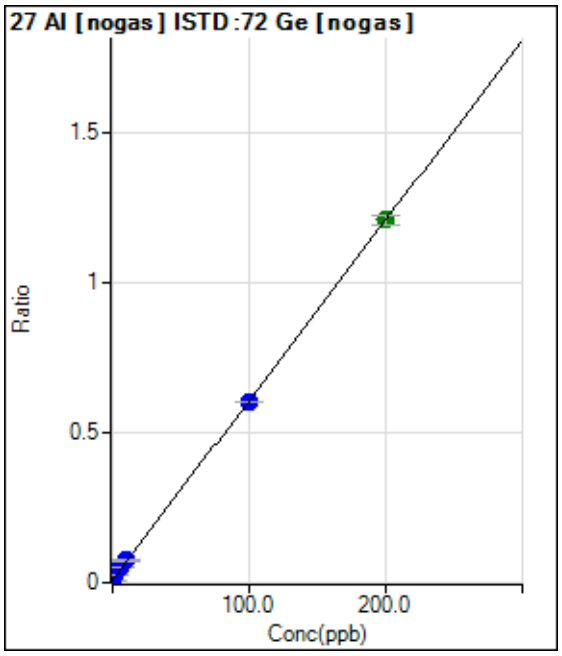
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 490.02 | 0.0006 | P | 22.5 |
| 2 | ☐ | 200.000 | 206.533 | 155111.22 | 0.1965 | P | 0.1 |
| 3 | ☐ | 500.000 | 518.190 | 375870.07 | 0.4919 | P | 0.3 |
| 4 | ☐ | 1000.000 | 1029.632 | 751187.83 | 0.9768 | P | 2.7 |
| 5 | ☐ | 10000.00 | 9974.937 | 7308855.10 | 9.4579 | A | 2.7 |
| 6 | ☐ | 20000.00 | 20010.530 | 14367271.03 | 18.9727 | A | 2.2 |
| 7 | ☐ | 100.000 | | | | | |

y = 9.4811E-004 * x + 6.3949E-004
R = 1.0000
DL = 0.4553
BEC = 0.6745

Weight: <None>
Min Conc: <None>

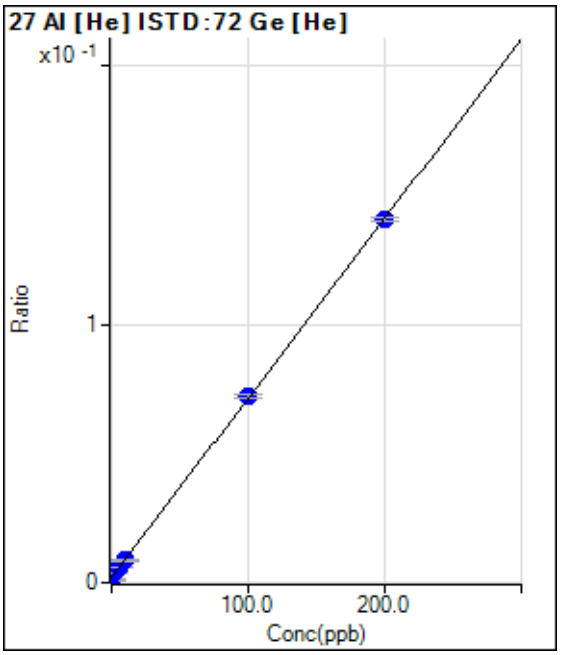



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 14449.27 | 0.0087 | P | 1.9 |
| 2 | ☐ | 2.000 | 3.160 | 45838.22 | 0.0277 | P | 3.3 |
| 3 | ☐ | 5.000 | 7.368 | 86471.85 | 0.0529 | P | 5.2 |
| 4 | ☐ | 10.000 | 10.877 | 121714.90 | 0.0740 | P | 2.4 |
| 5 | ☐ | 100.000 | 99.221 | 983211.37 | 0.6044 | P | 0.4 |
| 6 | ☐ | 200.000 | 200.275 | 1929886.17 | 1.2112 | A | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0060 * x + 0.0087
R = 0.9999
DL = 0.08379
BEC = 1.451

Weight: <None>
Min Conc: <None>

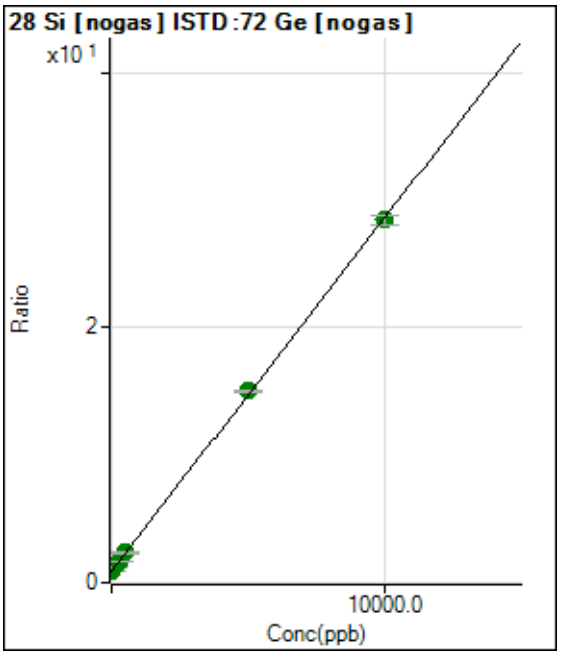
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -1.410 | 756.70 | 0.0010 | P | 25.9 |
| 2 | ☐ | 2.000 | 2.130 | 2720.26 | 0.0034 | P | 1.8 |
| 3 | ☐ | 5.000 | 5.972 | 4667.38 | 0.0061 | P | 4.8 |
| 4 | ☐ | 10.000 | 9.735 | 6708.06 | 0.0087 | P | 4.3 |
| 5 | ☐ | 100.000 | 101.170 | 55788.98 | 0.0722 | P | 1.2 |
| 6 | ☐ | 200.000 | 199.403 | 106315.75 | 0.1403 | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.9396E-004 * x + 0.0020
R = 0.9999
DL = 1.108
BEC = 2.834

Weight: <None>
Min Conc: <None>

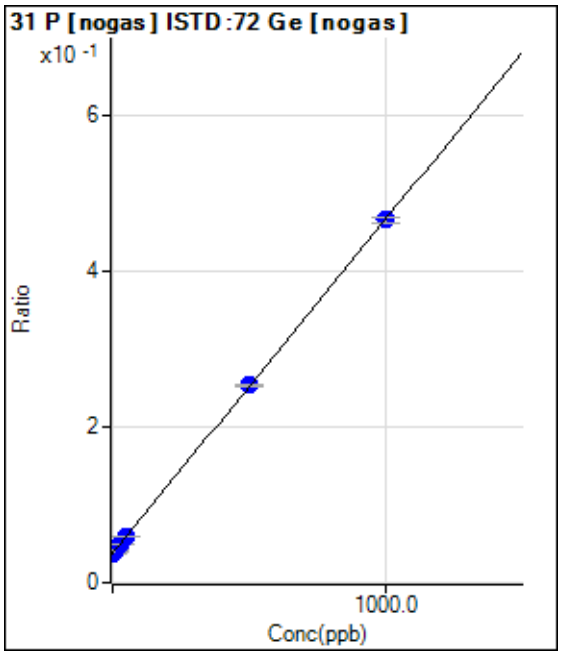



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1473917.43 | 0.8886 | A | 0.6 |
| 2 | ☐ | 100.000 | 104.893 | 1952303.88 | 1.1792 | A | 1.0 |
| 3 | ☐ | 250.000 | 265.418 | 2653036.21 | 1.6239 | A | 1.4 |
| 4 | ☐ | 500.000 | 524.858 | 3852620.88 | 2.3427 | A | 0.9 |
| 5 | ☐ | 5000.000 | 5098.811 | 24421569.63 | 15.0149 | A | 1.2 |
| 6 | ☐ | 10000.00 | 9948.917 | 45334709.32 | 28.4522 | A | 2.7 |
| 7 | ☐ | 50.000 | | | | | |

y = 0.0028 * x + 0.8886
R = 0.9999
DL = 5.36
BEC = 320.7

Weight: <None>
Min Conc: <None>

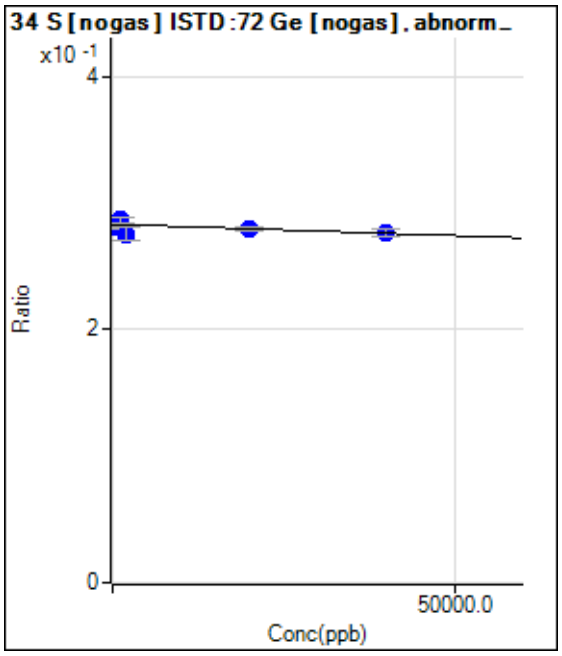
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 62559.45 | 0.0377 | P | 2.1 |
| 2 | ☐ | 10.000 | 6.712 | 67215.98 | 0.0406 | P | 1.1 |
| 3 | ☐ | 25.000 | 25.040 | 79169.67 | 0.0485 | P | 0.6 |
| 4 | ☐ | 50.000 | 48.376 | 96160.35 | 0.0585 | P | 1.4 |
| 5 | ☐ | 500.000 | 503.622 | 412696.16 | 0.2537 | P | 1.3 |
| 6 | ☐ | 1000.000 | 998.302 | 742643.14 | 0.4659 | P | 1.5 |
| 7 | ☐ | 5.000 | | | | | |

y = 4.2894E-004 * x + 0.0377
R = 1.0000
DL = 5.48
BEC = 87.93

Weight: <None>
Min Conc: <None>

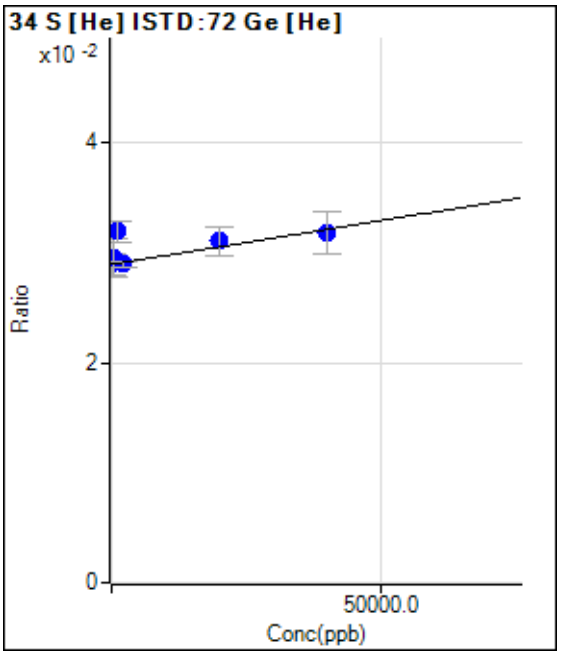



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 470373.50 | 0.2835 | P | 2.0 |
| 2 | ☐ | 400.000 | 11279.878 | 466052.74 | 0.2815 | P | 1.6 |
| 3 | ☐ | 1000.000 | -18660.20 | 468857.42 | 0.2869 | P | 1.8 |
| 4 | ☐ | 2000.000 | 44461.681 | 453032.55 | 0.2755 | P | 3.8 |
| 5 | ☐ | 20000.00 | 19658.961 | 455495.68 | 0.2800 | P | 1.3 |
| 6 | ☐ | 40000.00 | 38430.142 | 440789.89 | 0.2766 | P | 2.0 |
| 7 | ☐ | 200.000 | | | | | |

y = -1.8057E-007 * x + 0.2835
R = -0.5164
DL = -9.218E+04
BEC = -1.57E+06

Weight: <None>
Min Conc: <None>

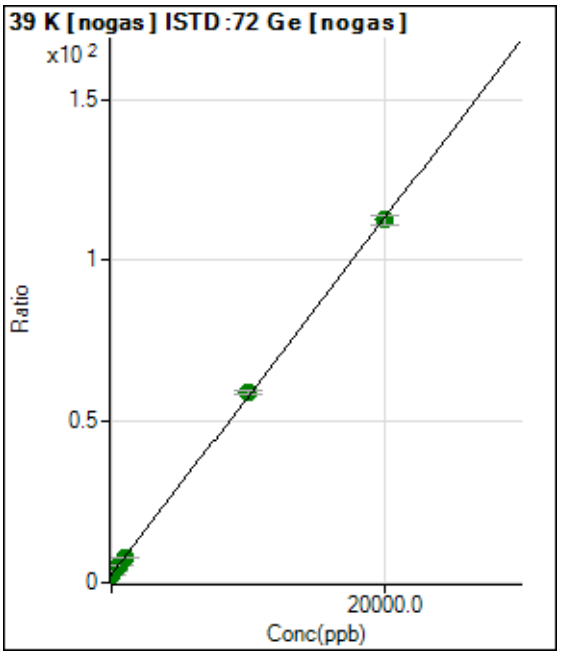
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 22184.56 | 0.0290 | P | 6.5 |
| 2 | ☐ | 400.000 | 7556.244 | 23352.15 | 0.0296 | P | 11.3 |
| 3 | ☐ | 1000.000 | 37433.885 | 24388.85 | 0.0319 | P | 5.7 |
| 4 | ☐ | 2000.000 | 144.870 | 22285.62 | 0.0290 | P | 1.7 |
| 5 | ☐ | 20000.00 | 26462.401 | 23988.24 | 0.0311 | P | 8.3 |
| 6 | ☐ | 40000.00 | 35879.146 | 24054.95 | 0.0318 | P | 12.3 |
| 7 | ☐ | 200.000 | | | | | |

y = 7.9386E-008 * x + 0.0290
R = 0.6102
DL = 7.138E+04
BEC = 3.648E+05

Weight: <None>
Min Conc: <None>

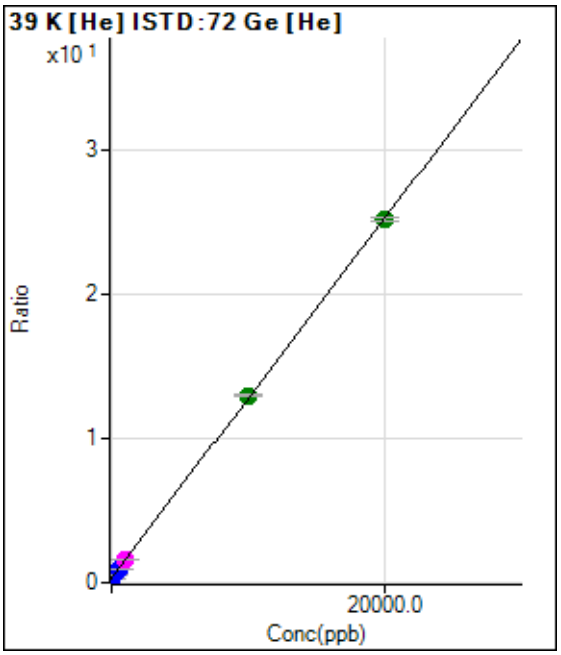



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4204803.87 | 2.5349 | A | 0.4 |
| 2 | ☐ | 200.000 | 200.520 | 6031612.63 | 3.6433 | A | 2.2 |
| 3 | ☐ | 500.000 | 521.638 | 8852408.27 | 5.4184 | A | 0.7 |
| 4 | ☐ | 1000.000 | 986.688 | 13138380.50 | 7.9891 | A | 0.6 |
| 5 | ☐ | 10000.00 | 10193.743 | 95754737.55 | 58.8840 | A | 2.4 |
| 6 | ☐ | 20000.00 | 19903.248 | 179391241.5 | 112.556 | A | 2.4 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0055 * x + 2.5349
R = 0.9999
DL = 5.273
BEC = 458.6

Weight: <None>
Min Conc: <None>

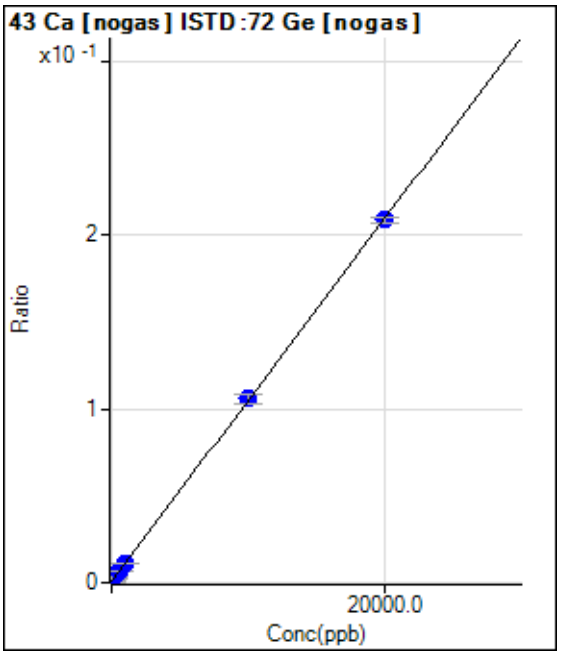
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 252552.37 | 0.3295 | P | 1.7 |
| 2 | ☐ | 200.000 | 192.284 | 449133.51 | 0.5690 | P | 2.1 |
| 3 | ☐ | 500.000 | 515.041 | 741749.73 | 0.9709 | P | 1.4 |
| 4 | ☐ | 1000.000 | 1012.957 | 1223709.36 | 1.5911 | M | 2.2 |
| 5 | ☐ | 10000.00 | 10140.643 | 10016729.44 | 12.9590 | A | 1.3 |
| 6 | ☐ | 20000.00 | 19928.732 | 19049740.55 | 25.1494 | A | 0.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0012 * x + 0.3295
R = 1.0000
DL = 13.86
BEC = 264.5

Weight: <None>
Min Conc: <None>

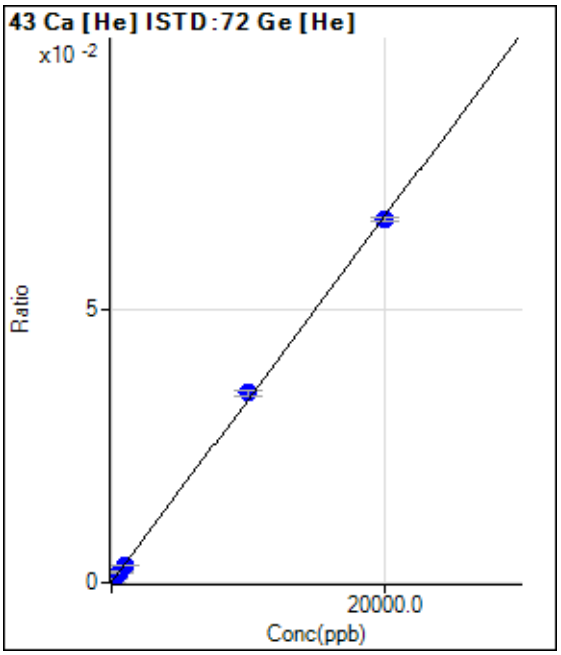



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 923.38 | 0.0006 | P | 17.2 |
| 2 | ☐ | 200.000 | 219.907 | 4720.71 | 0.0029 | P | 7.0 |
| 3 | ☐ | 500.000 | 537.268 | 10072.95 | 0.0062 | P | 1.9 |
| 4 | ☐ | 1000.000 | 1004.122 | 18156.15 | 0.0110 | P | 4.9 |
| 5 | ☐ | 10000.00 | 10101.568 | 172358.48 | 0.1060 | P | 4.8 |
| 6 | ☐ | 20000.00 | 19947.879 | 332827.16 | 0.2088 | P | 1.5 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.0441E-005 * x + 5.5648E-004
R = 1.0000
DL = 27.45
BEC = 53.3

Weight: <None>
Min Conc: <None>

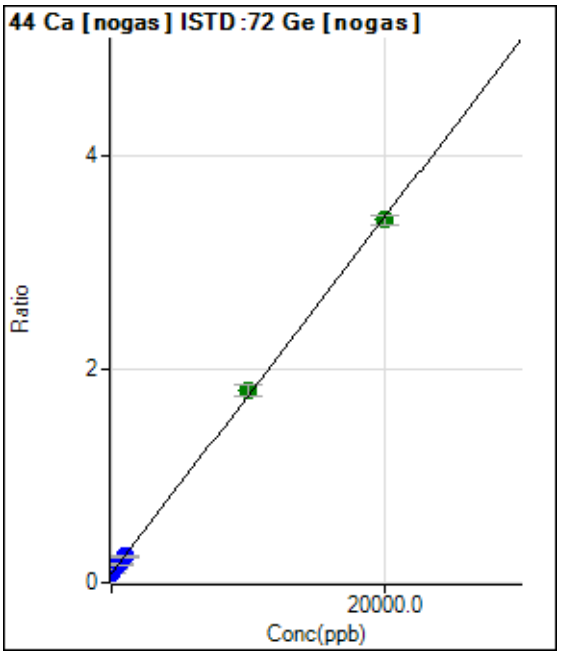
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56.67 | 0.0001 | P | 57.3 |
| 2 | ☐ | 200.000 | 189.028 | 556.68 | 0.0007 | P | 11.7 |
| 3 | ☐ | 500.000 | 543.641 | 1443.42 | 0.0019 | P | 9.9 |
| 4 | ☐ | 1000.000 | 922.353 | 2426.87 | 0.0032 | P | 3.5 |
| 5 | ☐ | 10000.00 | 10365.282 | 26820.20 | 0.0347 | P | 2.9 |
| 6 | ☐ | 20000.00 | 19820.260 | 50209.94 | 0.0663 | P | 1.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 3.3409E-006 * x + 7.4295E-005
R = 0.9997
DL = 38.2
BEC = 22.24

Weight: <None>
Min Conc: <None>

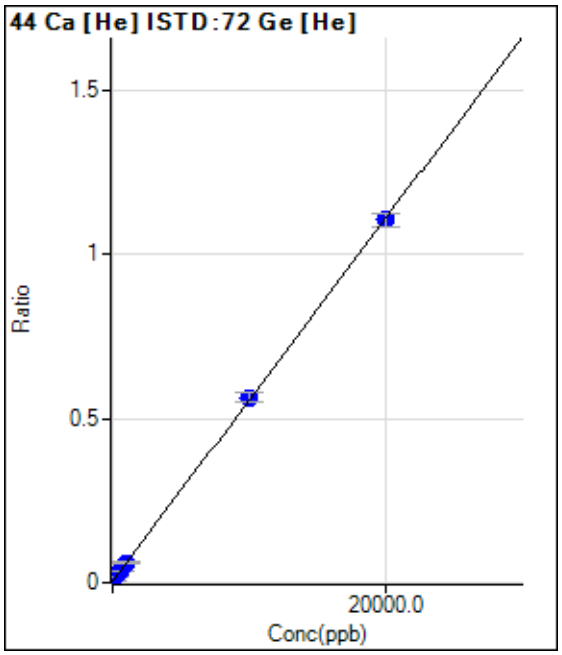



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 142971.10 | 0.0862 | P | 1.2 |
| 2 | ☐ | 200.000 | 206.837 | 199933.34 | 0.1208 | P | 2.2 |
| 3 | ☐ | 500.000 | 518.597 | 282419.64 | 0.1729 | P | 2.2 |
| 4 | ☐ | 1000.000 | 946.877 | 402048.51 | 0.2445 | P | 1.1 |
| 5 | ☐ | 10000.00 | 10288.594 | 2935739.02 | 1.8061 | A | 5.4 |
| 6 | ☐ | 20000.00 | 19857.826 | 5426705.54 | 3.4058 | A | 2.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.6717E-004 * x + 0.0862
R = 0.9998
DL = 18.72
BEC = 515.6

Weight: <None>
Min Conc: <None>

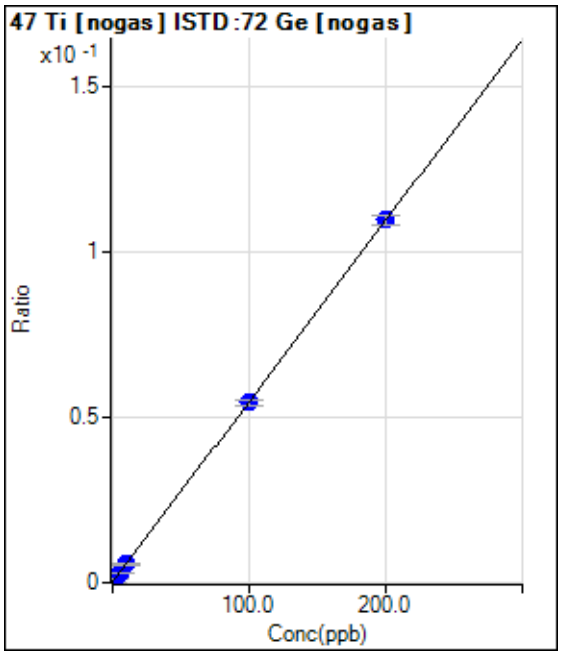
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 3010.31 | 0.0039 | P | 7.0 |
| 2 | ☐ | 200.000 | 212.195 | 12354.45 | 0.0156 | P | 3.4 |
| 3 | ☐ | 500.000 | 547.675 | 26109.25 | 0.0342 | P | 1.5 |
| 4 | ☐ | 1000.000 | 1031.606 | 46804.38 | 0.0609 | P | 4.8 |
| 5 | ☐ | 10000.00 | 10143.177 | 435721.33 | 0.5640 | P | 4.6 |
| 6 | ☐ | 20000.00 | 19925.518 | 835961.81 | 1.1042 | P | 3.6 |
| 7 | ☐ | 100.000 | | | | | |

y = 5.5222E-005 * x + 0.0039
R = 1.0000
DL = 14.88
BEC = 71.07

Weight: <None>
Min Conc: <None>

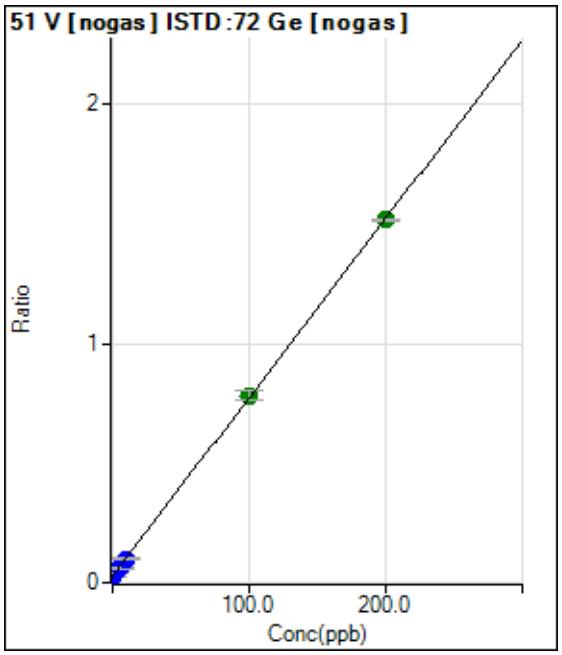



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 180.00 | 0.0001 | P | 15.4 |
| 2 | ☐ | 2.000 | 1.937 | 1936.81 | 0.0012 | P | 6.3 |
| 3 | ☐ | 5.000 | 5.048 | 4690.69 | 0.0029 | P | 4.3 |
| 4 | ☐ | 10.000 | 9.928 | 9115.81 | 0.0055 | P | 6.0 |
| 5 | ☐ | 100.000 | 99.244 | 88523.87 | 0.0544 | P | 2.7 |
| 6 | ☐ | 200.000 | 200.381 | 174977.03 | 0.1098 | P | 2.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.4745E-004 * x + 1.0860E-004
R = 1.0000
DL = 0.09183
BEC = 0.1984

Weight: <None>
Min Conc: <None>

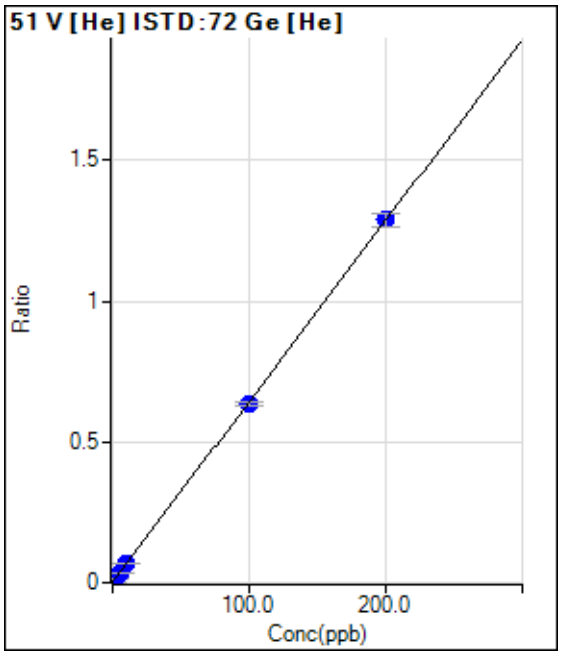
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 44999.20 | 0.0271 | P | 6.1 |
| 2 | ☐ | 2.000 | 1.803 | 67236.43 | 0.0406 | P | 2.7 |
| 3 | ☐ | 5.000 | 4.778 | 102512.72 | 0.0628 | P | 8.9 |
| 4 | ☐ | 10.000 | 9.779 | 164678.04 | 0.1001 | P | 0.9 |
| 5 | ☐ | 100.000 | 101.217 | 1272229.55 | 0.7826 | A | 4.6 |
| 6 | ☐ | 200.000 | 199.410 | 2415757.74 | 1.5155 | A | 0.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0075 * x + 0.0271
R = 1.0000
DL = 0.6637
BEC = 3.635

Weight: <None>
Min Conc: <None>

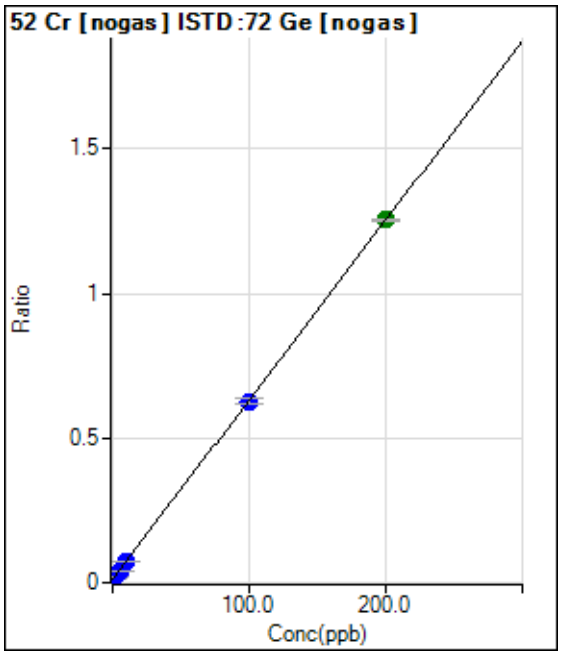



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.113 | 1644.75 | 0.0021 | P | 5.8 |
| 2 | ☐ | 2.000 | 2.103 | 11789.87 | 0.0149 | P | 1.7 |
| 3 | ☐ | 5.000 | 5.060 | 25921.89 | 0.0339 | P | 0.9 |
| 4 | ☐ | 10.000 | 10.207 | 51509.56 | 0.0670 | P | 3.2 |
| 5 | ☐ | 100.000 | 99.059 | 492852.93 | 0.6377 | P | 2.3 |
| 6 | ☐ | 200.000 | 200.457 | 975993.75 | 1.2891 | P | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0064 * x + 0.0014
R = 1.0000
DL = 0.05816
BEC = 0.2209

Weight: <None>
Min Conc: <None>

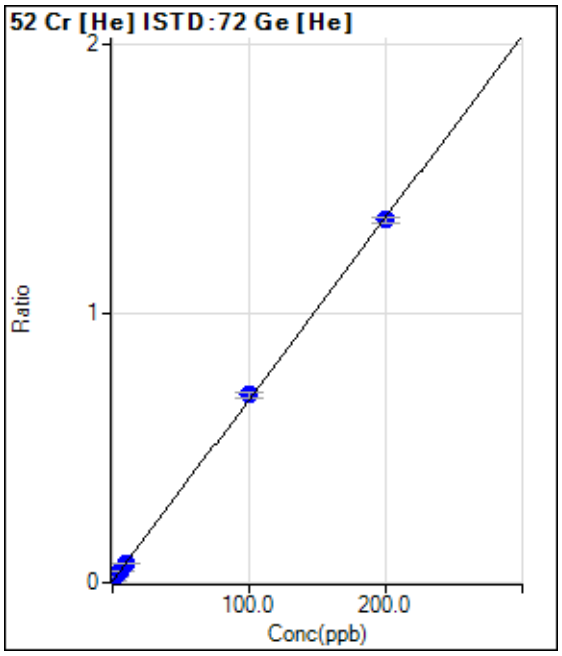
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 18783.49 | 0.0113 | P | 1.1 |
| 2 | ☐ | 2.000 | 1.924 | 38515.07 | 0.0233 | P | 3.3 |
| 3 | ☐ | 5.000 | 4.885 | 68012.47 | 0.0416 | P | 2.5 |
| 4 | ☐ | 10.000 | 10.001 | 120657.83 | 0.0734 | P | 2.0 |
| 5 | ☐ | 100.000 | 99.406 | 1021219.15 | 0.6280 | P | 3.7 |
| 6 | ☐ | 200.000 | 200.301 | 1998643.72 | 1.2539 | A | 0.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0062 * x + 0.0113
R = 1.0000
DL = 0.06294
BEC = 1.825

Weight: <None>
Min Conc: <None>

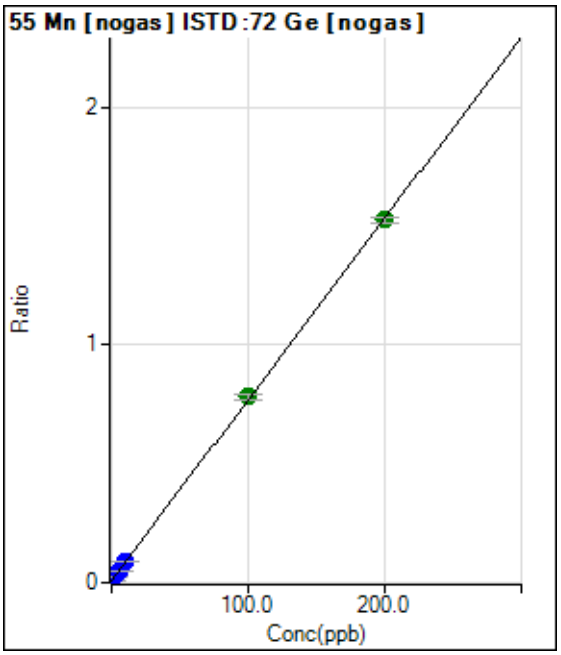



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4200.58 | 0.0055 | P | 2.2 |
| 2 | ☐ | 2.000 | 1.974 | 14849.77 | 0.0188 | P | 1.0 |
| 3 | ☐ | 5.000 | 5.320 | 31638.20 | 0.0414 | P | 0.6 |
| 4 | ☐ | 10.000 | 10.032 | 56362.15 | 0.0732 | P | 2.6 |
| 5 | ☐ | 100.000 | 102.445 | 538960.79 | 0.6974 | P | 2.6 |
| 6 | ☐ | 200.000 | 198.768 | 1021077.01 | 1.3479 | P | 1.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0068 * x + 0.0055
R = 0.9999
DL = 0.05268
BEC = 0.8111

Weight: <None>
Min Conc: <None>

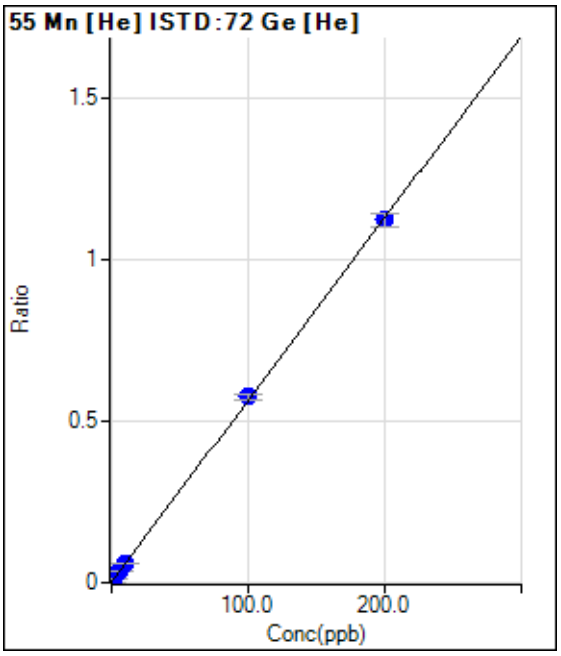
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13912.29 | 0.0084 | P | 1.8 |
| 2 | ☐ | 2.000 | 2.296 | 42831.36 | 0.0259 | P | 3.6 |
| 3 | ☐ | 5.000 | 5.525 | 82450.03 | 0.0505 | P | 3.9 |
| 4 | ☐ | 10.000 | 10.281 | 142545.90 | 0.0867 | P | 3.8 |
| 5 | ☐ | 100.000 | 101.407 | 1269184.88 | 0.7807 | A | 3.9 |
| 6 | ☐ | 200.000 | 199.266 | 2431913.61 | 1.5260 | A | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0076 * x + 0.0084
R = 1.0000
DL = 0.0598
BEC = 1.101

Weight: <None>
Min Conc: <None>

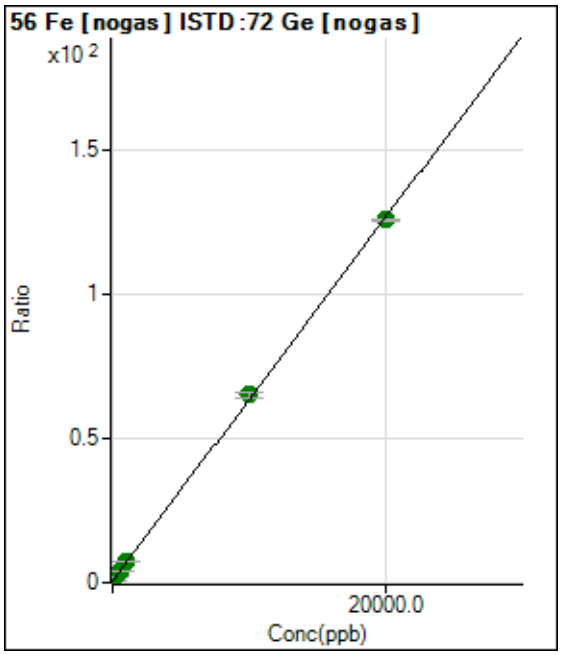



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1350.07 | 0.0018 | P | 6.3 |
| 2 | ☐ | 2.000 | 2.276 | 11533.87 | 0.0146 | P | 1.0 |
| 3 | ☐ | 5.000 | 5.706 | 25949.29 | 0.0340 | P | 0.5 |
| 4 | ☐ | 10.000 | 10.107 | 45241.25 | 0.0588 | P | 0.7 |
| 5 | ☐ | 100.000 | 101.816 | 445356.23 | 0.5763 | P | 3.5 |
| 6 | ☐ | 200.000 | 199.066 | 851860.32 | 1.1252 | P | 3.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0056 * x + 0.0018
R = 0.9999
DL = 0.05853
BEC = 0.3121

Weight: <None>
Min Conc: <None>

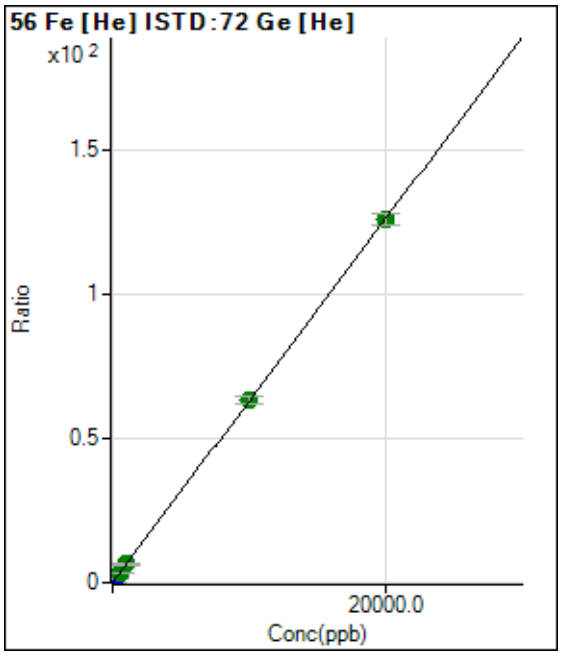
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 872576.71 | 0.5261 | P | 1.9 |
| 2 | ☐ | 200.000 | 211.629 | 3075836.27 | 1.8579 | A | 2.3 |
| 3 | ☐ | 500.000 | 534.416 | 6353908.74 | 3.8891 | A | 2.5 |
| 4 | ☐ | 1000.000 | 1044.480 | 11675251.31 | 7.0990 | A | 2.5 |
| 5 | ☐ | 10000.00 | 10238.456 | 105618848.1 | 64.9563 | A | 2.9 |
| 6 | ☐ | 20000.00 | 19877.571 | 200233879.4 | 125.614 | A | 0.5 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0063 * x + 0.5261
R = 0.9999
DL = 4.838
BEC = 83.6

Weight: <None>
Min Conc: <None>

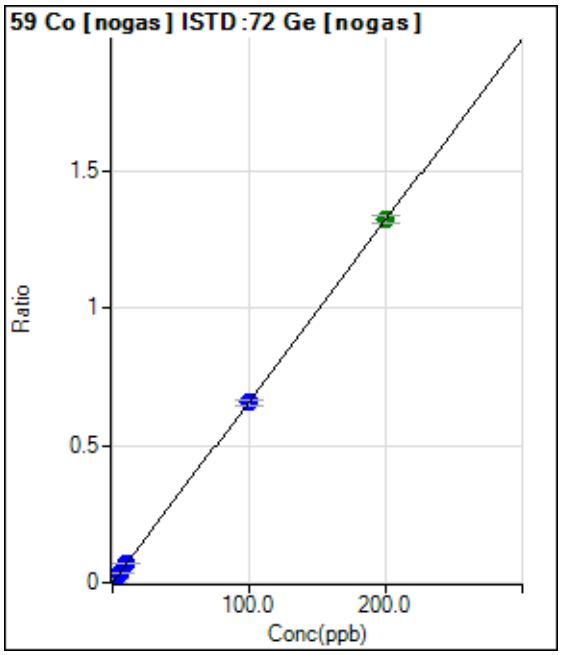



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 17228.54 | 0.0225 | P | 3.8 |
| 2 | ☐ | 200.000 | 197.044 | 1000311.00 | 1.2671 | P | 1.7 |
| 3 | ☐ | 500.000 | 534.004 | 2594361.99 | 3.3956 | A | 0.4 |
| 4 | ☐ | 1000.000 | 1030.444 | 5020232.84 | 6.5314 | A | 5.8 |
| 5 | ☐ | 10000.00 | 10090.649 | 49264524.26 | 63.7617 | A | 4.1 |
| 6 | ☐ | 20000.00 | 19952.333 | 95442521.91 | 126.054 | A | 3.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0063 * x + 0.0225
R = 1.0000
DL = 0.4006
BEC = 3.557

Weight: <None>
Min Conc: <None>

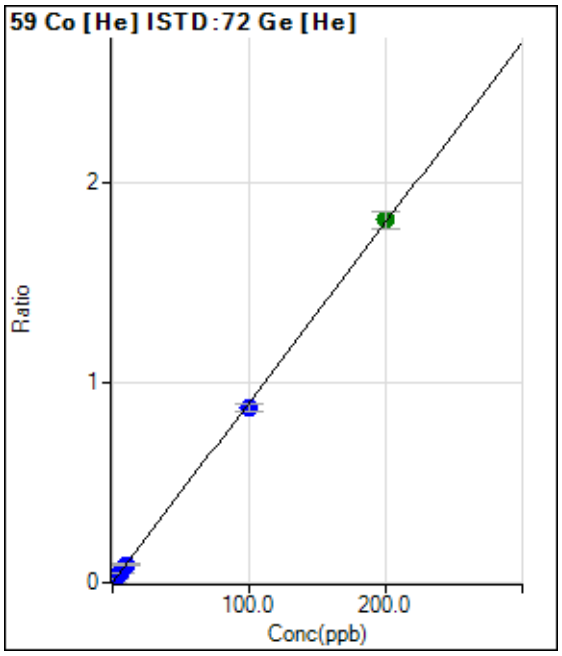
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 296.67 | 0.0002 | P | 29.3 |
| 2 | ☐ | 2.000 | 2.017 | 22344.28 | 0.0135 | P | 0.9 |
| 3 | ☐ | 5.000 | 5.151 | 55844.22 | 0.0342 | P | 2.4 |
| 4 | ☐ | 10.000 | 10.238 | 111452.23 | 0.0678 | P | 1.3 |
| 5 | ☐ | 100.000 | 99.589 | 1069293.00 | 0.6576 | P | 3.1 |
| 6 | ☐ | 200.000 | 200.190 | 2106225.96 | 1.3218 | A | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0066 * x + 1.7912E-004
R = 1.0000
DL = 0.02387
BEC = 0.02713

Weight: <None>
Min Conc: <None>

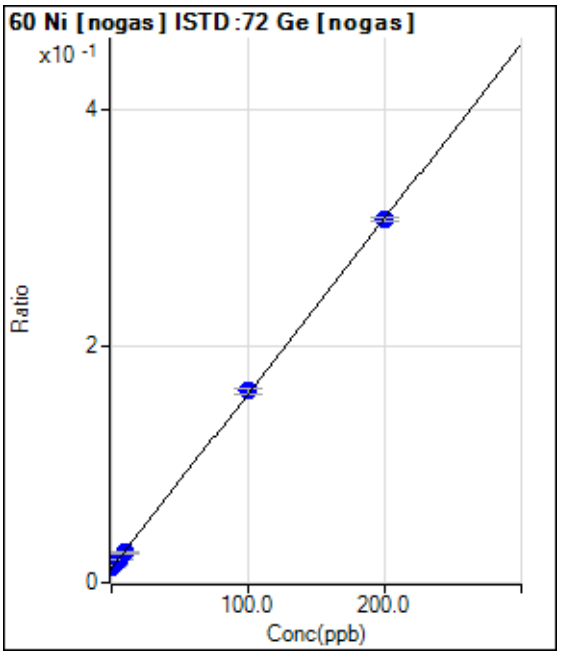



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 66.67 | 0.0001 | P | 59.3 |
| 2 | ☐ | 2.000 | 1.945 | 13892.31 | 0.0176 | P | 5.7 |
| 3 | ☐ | 5.000 | 5.015 | 34577.32 | 0.0453 | P | 1.3 |
| 4 | ☐ | 10.000 | 9.810 | 67946.76 | 0.0884 | P | 7.5 |
| 5 | ☐ | 100.000 | 97.191 | 676292.57 | 0.8755 | P | 4.5 |
| 6 | ☐ | 200.000 | 201.414 | 1373323.05 | 1.8142 | A | 4.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0090 * x + 8.6583E-005
R = 0.9999
DL = 0.0171
BEC = 0.009613

Weight: <None>
Min Conc: <None>

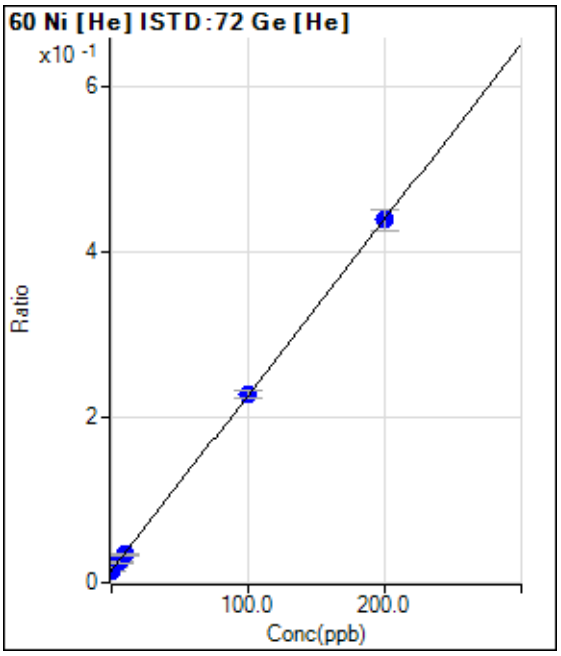
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.393 | 20935.77 | 0.0126 | P | 2.3 |
| 2 | ☐ | 2.000 | 2.004 | 24840.72 | 0.0150 | P | 0.4 |
| 3 | ☐ | 5.000 | 4.787 | 31217.37 | 0.0191 | P | 2.5 |
| 4 | ☐ | 10.000 | 9.022 | 41708.84 | 0.0254 | P | 2.9 |
| 5 | ☐ | 100.000 | 101.478 | 263243.92 | 0.1619 | P | 3.2 |
| 6 | ☐ | 200.000 | 199.315 | 488286.41 | 0.3064 | P | 1.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 0.0120
R = 0.9999
DL = 0.5962
BEC = 8.154

Weight: <None>
Min Conc: <None>

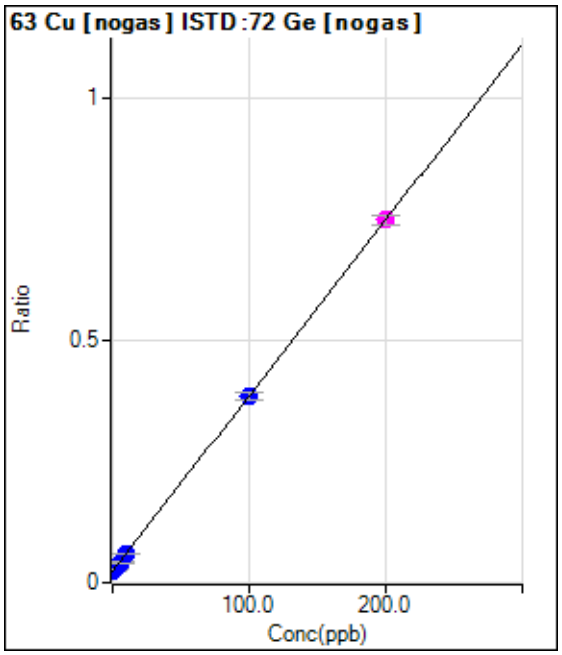



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.129 | 11050.28 | 0.0144 | P | 5.7 |
| 2 | ☐ | 2.000 | 2.875 | 16418.11 | 0.0208 | P | 24.6 |
| 3 | ☐ | 5.000 | 4.749 | 18926.85 | 0.0248 | P | 6.0 |
| 4 | ☐ | 10.000 | 9.157 | 26242.96 | 0.0341 | P | 6.1 |
| 5 | ☐ | 100.000 | 100.616 | 176470.15 | 0.2284 | P | 4.3 |
| 6 | ☐ | 200.000 | 199.732 | 332209.40 | 0.4390 | P | 5.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0021 * x + 0.0147
R = 1.0000
DL = 1.151
BEC = 6.918

Weight: <None>
Min Conc: <None>

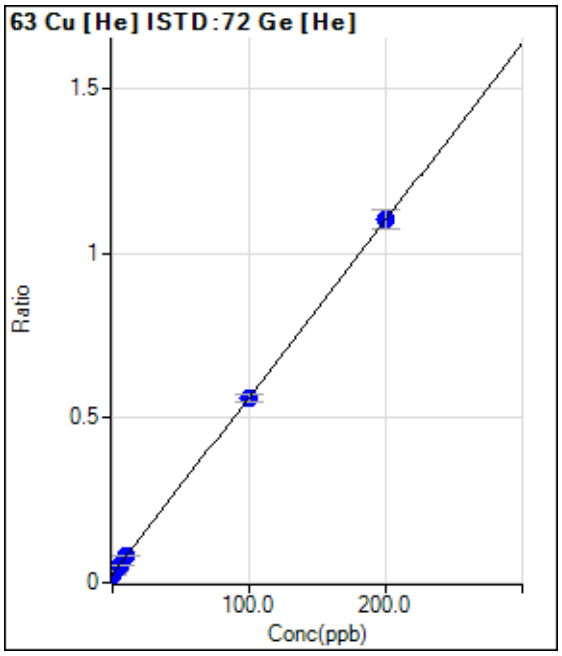
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 39189.89 | 0.0236 | P | 7.3 |
| 2 | ☐ | 2.000 | 1.373 | 47379.60 | 0.0286 | P | 7.3 |
| 3 | ☐ | 5.000 | 4.725 | 66583.27 | 0.0408 | P | 6.1 |
| 4 | ☐ | 10.000 | 9.770 | 97122.24 | 0.0591 | P | 4.6 |
| 5 | ☐ | 100.000 | 99.728 | 626435.86 | 0.3852 | P | 3.7 |
| 6 | ☐ | 200.000 | 200.160 | 1194383.68 | 0.7494 | M | 2.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0036 * x + 0.0236
R = 1.0000
DL = 1.431
BEC = 6.516

Weight: <None>
Min Conc: <None>

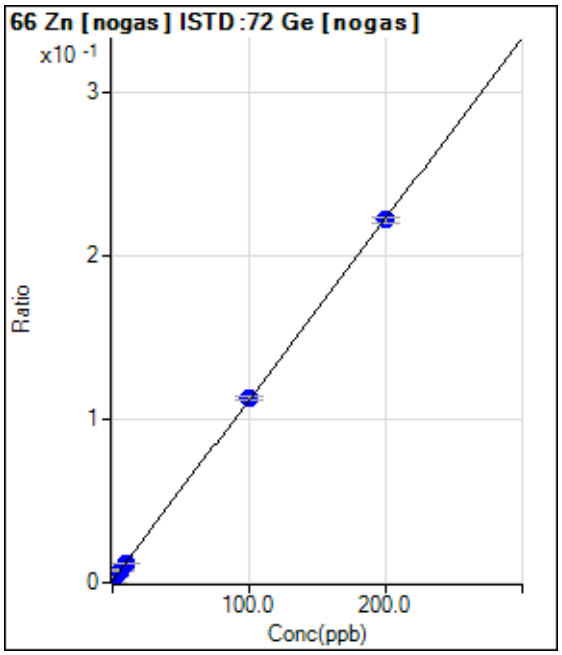



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.047 | 19871.27 | 0.0259 | P | 5.4 |
| 2 | ☐ | 2.000 | 1.369 | 26075.86 | 0.0330 | P | 3.5 |
| 3 | ☐ | 5.000 | 5.184 | 40897.20 | 0.0535 | P | 3.5 |
| 4 | ☐ | 10.000 | 10.682 | 63890.82 | 0.0831 | P | 2.3 |
| 5 | ☐ | 100.000 | 99.502 | 432849.08 | 0.5603 | P | 4.5 |
| 6 | ☐ | 200.000 | 200.216 | 833629.89 | 1.1015 | P | 5.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0054 * x + 0.0257
R = 1.0000
DL = 0.7777
BEC = 4.78

Weight: <None>
Min Conc: <None>

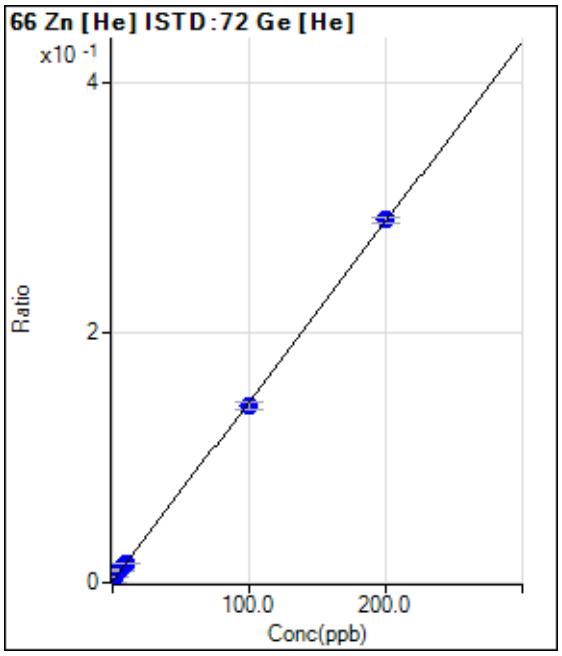
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.802 | 603.36 | 0.0004 | P | 19.7 |
| 2 | ☐ | 2.000 | 1.972 | 5680.99 | 0.0034 | P | 8.1 |
| 3 | ☐ | 5.000 | 5.737 | 12411.14 | 0.0076 | P | 3.6 |
| 4 | ☐ | 10.000 | 9.417 | 19184.06 | 0.0117 | P | 2.6 |
| 5 | ☐ | 100.000 | 101.333 | 184263.57 | 0.1133 | P | 2.2 |
| 6 | ☐ | 200.000 | 199.345 | 353311.89 | 0.2217 | P | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0011 * x + 0.0013
R = 0.9999
DL = 0.1943
BEC = 1.132

Weight: <None>
Min Conc: <None>

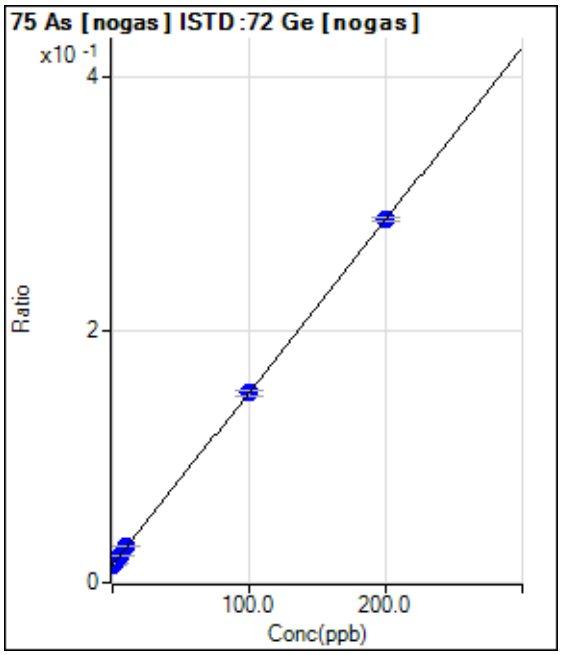



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.277 | 510.02 | 0.0007 | P | 6.5 |
| 2 | ☐ | 2.000 | 2.234 | 3380.39 | 0.0043 | P | 7.0 |
| 3 | ☐ | 5.000 | 6.351 | 7805.20 | 0.0102 | P | 7.4 |
| 4 | ☐ | 10.000 | 9.745 | 11607.33 | 0.0151 | P | 3.9 |
| 5 | ☐ | 100.000 | 97.940 | 109769.85 | 0.1421 | P | 4.1 |
| 6 | ☐ | 200.000 | 201.006 | 219982.13 | 0.2905 | P | 1.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 0.0011
R = 0.9999
DL = 0.09
BEC = 0.7394

Weight: <None>
Min Conc: <None>

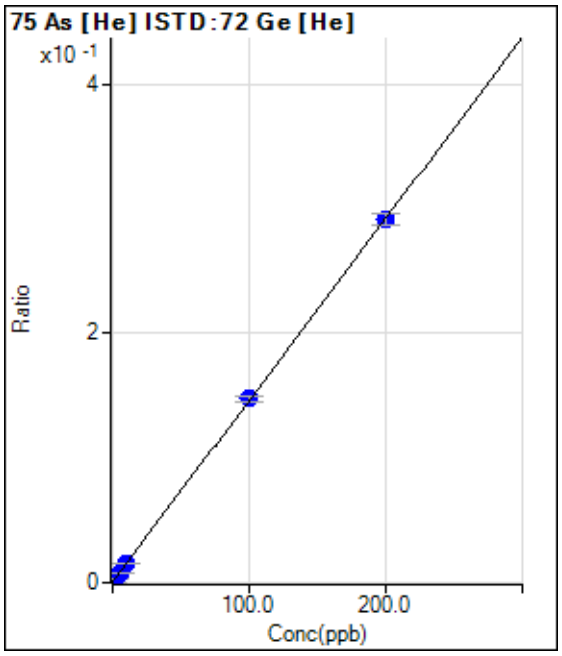
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.161 | 23025.15 | 0.0139 | P | 1.5 |
| 2 | ☐ | 2.000 | 1.171 | 25989.40 | 0.0157 | P | 0.8 |
| 3 | ☐ | 5.000 | 5.395 | 35061.55 | 0.0215 | P | 2.9 |
| 4 | ☐ | 10.000 | 10.649 | 47082.60 | 0.0286 | P | 3.1 |
| 5 | ☐ | 100.000 | 99.961 | 244693.82 | 0.1505 | P | 3.0 |
| 6 | ☐ | 200.000 | 199.985 | 457377.47 | 0.2870 | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 0.0141
R = 1.0000
DL = 0.4602
BEC = 10.33

Weight: <None>
Min Conc: <None>

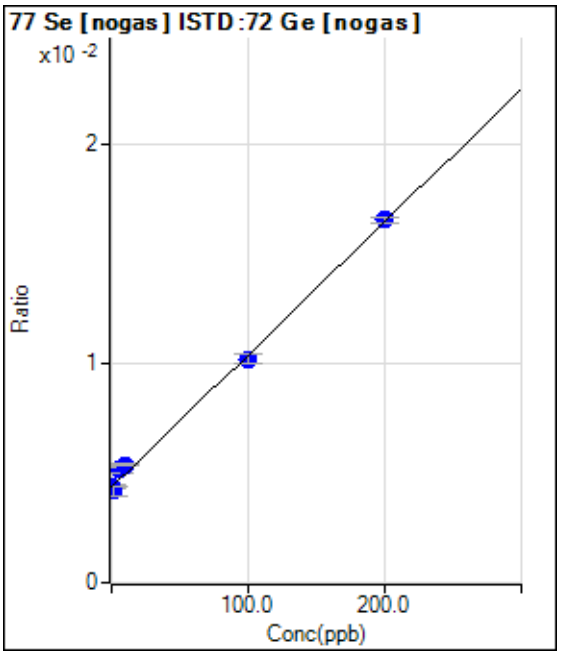



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 400.01 | 0.0005 | P | 4.2 |
| 2 | ☐ | 2.000 | 1.978 | 2685.77 | 0.0034 | P | 2.6 |
| 3 | ☐ | 5.000 | 5.165 | 6143.32 | 0.0080 | P | 3.2 |
| 4 | ☐ | 10.000 | 10.085 | 11691.68 | 0.0152 | P | 3.8 |
| 5 | ☐ | 100.000 | 101.061 | 114107.46 | 0.1477 | P | 3.2 |
| 6 | ☐ | 200.000 | 199.461 | 220293.71 | 0.2910 | P | 3.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 5.2191E-004
R = 1.0000
DL = 0.04541
BEC = 0.3584

Weight: <None>
Min Conc: <None>

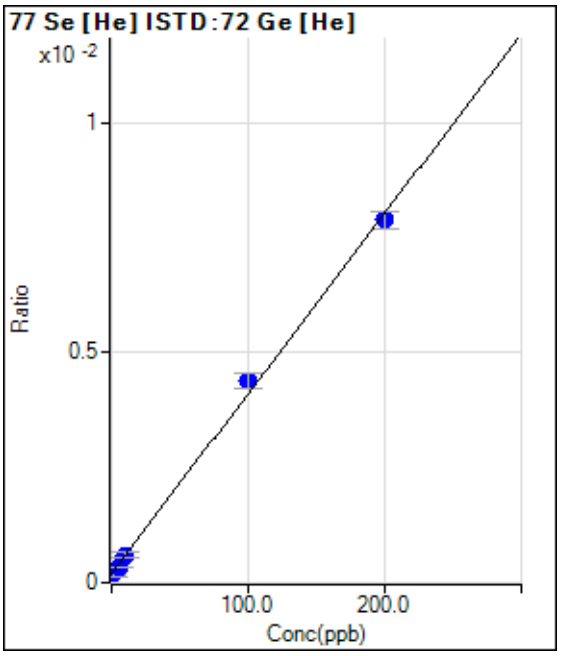
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7218.26 | 0.0044 | P | 4.0 |
| 2 | ☐ | 2.000 | -2.942 | 6908.15 | 0.0042 | P | 8.8 |
| 3 | ☐ | 5.000 | 13.064 | 8402.15 | 0.0051 | P | 4.3 |
| 4 | ☐ | 10.000 | 17.183 | 8869.06 | 0.0054 | P | 2.4 |
| 5 | ☐ | 100.000 | 96.344 | 16561.29 | 0.0102 | P | 4.5 |
| 6 | ☐ | 200.000 | 201.317 | 26373.25 | 0.0165 | P | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.0573E-005 * x + 0.0044
R = 0.9979
DL = 8.627
BEC = 71.84

Weight: <None>
Min Conc: <None>

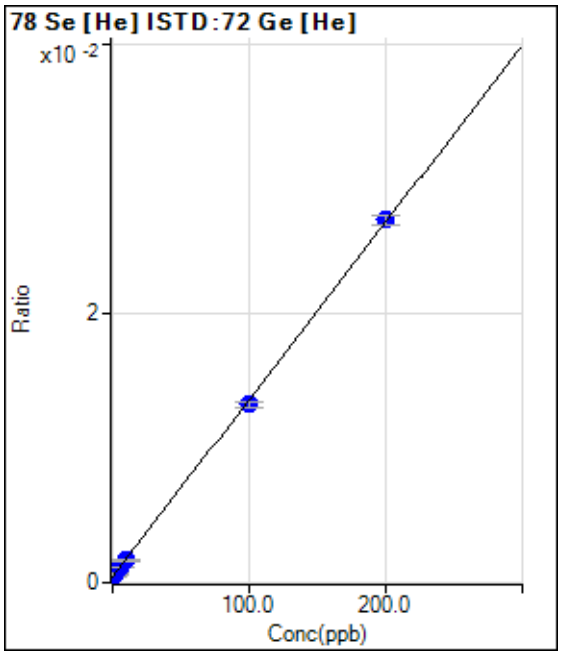



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.057 | 150.00 | 0.0002 | P | 10.0 |
| 2 | ☐ | 2.000 | -0.075 | 153.34 | 0.0002 | P | 53.8 |
| 3 | ☐ | 5.000 | 3.419 | 253.34 | 0.0003 | P | 7.0 |
| 4 | ☐ | 10.000 | 10.180 | 456.68 | 0.0006 | P | 20.7 |
| 5 | ☐ | 100.000 | 106.964 | 3387.05 | 0.0044 | P | 8.0 |
| 6 | ☐ | 200.000 | 196.569 | 5967.78 | 0.0079 | P | 4.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 3.9103E-005 * x + 1.9771E-004
R = 0.9990
DL = 1.506
BEC = 5.056

Weight: <None>
Min Conc: <None>

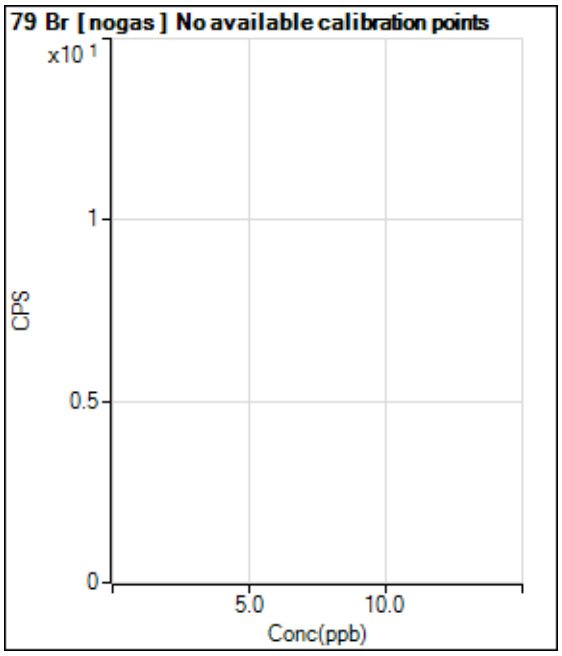
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 342.67 | 0.0004 | P | 12.4 |
| 2 | ☐ | 2.000 | 1.438 | 502.01 | 0.0006 | P | 7.8 |
| 3 | ☐ | 5.000 | 5.095 | 853.36 | 0.0011 | P | 5.8 |
| 4 | ☐ | 10.000 | 9.246 | 1280.05 | 0.0017 | P | 2.9 |
| 5 | ☐ | 100.000 | 97.259 | 10227.63 | 0.0132 | P | 3.3 |
| 6 | ☐ | 200.000 | 201.411 | 20394.36 | 0.0269 | P | 2.4 |
| 7 | ☐ | 1.000 | | | | | |

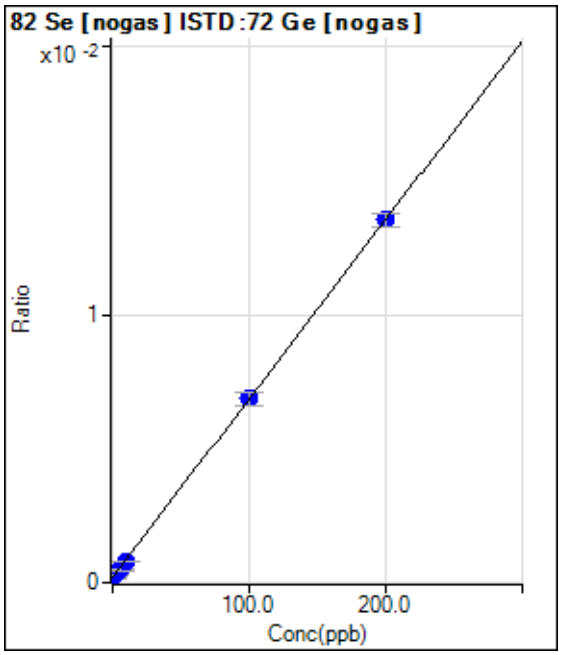
y = 1.3148E-004 * x + 4.4715E-004
R = 0.9999
DL = 1.265
BEC = 3.401

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

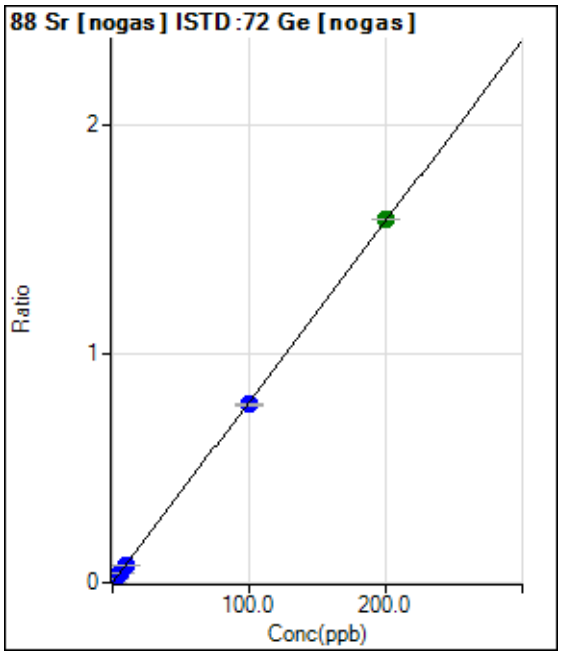
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 313.34 | 0.0002 | P | 17.3 |
| 2 | ☐ | 2.000 | 1.628 | 493.35 | 0.0003 | P | 14.2 |
| 3 | ☐ | 5.000 | 4.246 | 770.04 | 0.0005 | P | 22.9 |
| 4 | ☐ | 10.000 | 8.890 | 1286.74 | 0.0008 | P | 3.1 |
| 5 | ☐ | 100.000 | 100.205 | 11177.06 | 0.0069 | P | 7.3 |
| 6 | ☐ | 200.000 | 199.975 | 21576.92 | 0.0135 | P | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.6762E-005 * x + 1.8882E-004
R = 1.0000
DL = 1.467
BEC = 2.828

Weight: <None>
Min Conc: <None>

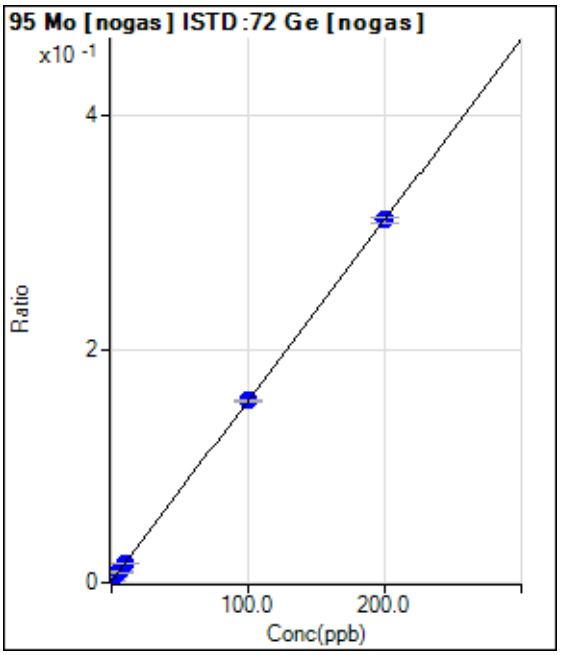



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 713.36 | 0.0004 | P | 10.1 |
| 2 | ☐ | 2.000 | 2.009 | 26944.65 | 0.0163 | P | 1.5 |
| 3 | ☐ | 5.000 | 5.108 | 66510.57 | 0.0407 | P | 2.2 |
| 4 | ☐ | 10.000 | 9.722 | 126791.84 | 0.0771 | P | 3.1 |
| 5 | ☐ | 100.000 | 98.480 | 1263903.34 | 0.7771 | P | 1.5 |
| 6 | ☐ | 200.000 | 200.771 | 2524789.91 | 1.5839 | A | 0.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0079 * x + 4.3027E-004
R = 1.0000
DL = 0.01655
BEC = 0.05455

Weight: <None>
Min Conc: <None>

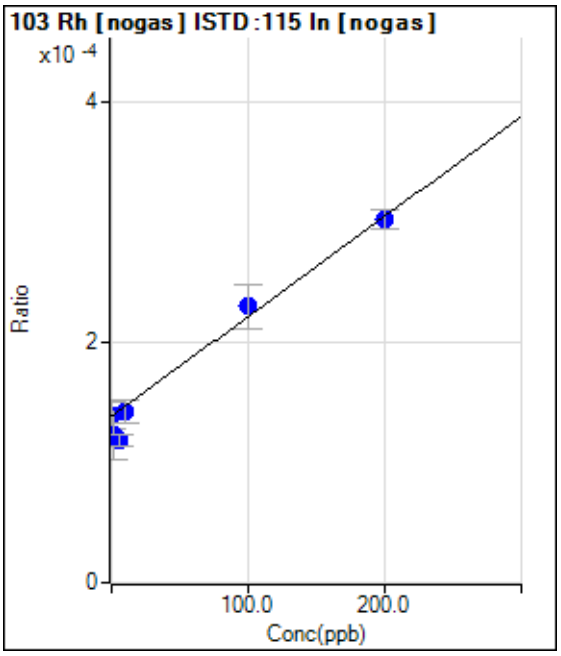
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1983.49 | 0.0012 | P | 3.9 |
| 2 | ☐ | 2.000 | 1.997 | 7101.61 | 0.0043 | P | 4.7 |
| 3 | ☐ | 5.000 | 5.191 | 15076.87 | 0.0092 | P | 6.6 |
| 4 | ☐ | 10.000 | 9.974 | 27358.56 | 0.0166 | P | 3.7 |
| 5 | ☐ | 100.000 | 99.963 | 253707.15 | 0.1560 | P | 1.8 |
| 6 | ☐ | 200.000 | 200.015 | 495542.44 | 0.3109 | P | 1.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 0.0012
R = 1.0000
DL = 0.09026
BEC = 0.7722

Weight: <None>
Min Conc: <None>

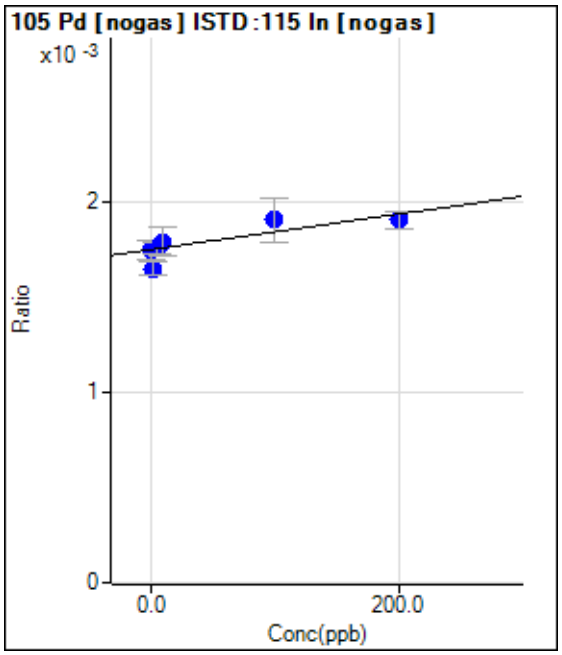



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 193.34 | 0.0001 | P | 16.4 |
| 2 | ☐ | 2.000 | -19.145 | 166.67 | 0.0001 | P | 32.2 |
| 3 | ☐ | 5.000 | -24.076 | 163.34 | 0.0001 | P | 9.1 |
| 4 | ☐ | 10.000 | 4.668 | 190.00 | 0.0001 | P | 14.1 |
| 5 | ☐ | 100.000 | 109.555 | 303.34 | 0.0002 | P | 15.7 |
| 6 | ☐ | 200.000 | 196.427 | 396.68 | 0.0003 | P | 5.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 8.3020E-007 * x + 1.3838E-004
R = 0.9897
DL = 81.93
BEC = 166.7

Weight: <None>
Min Conc: <None>

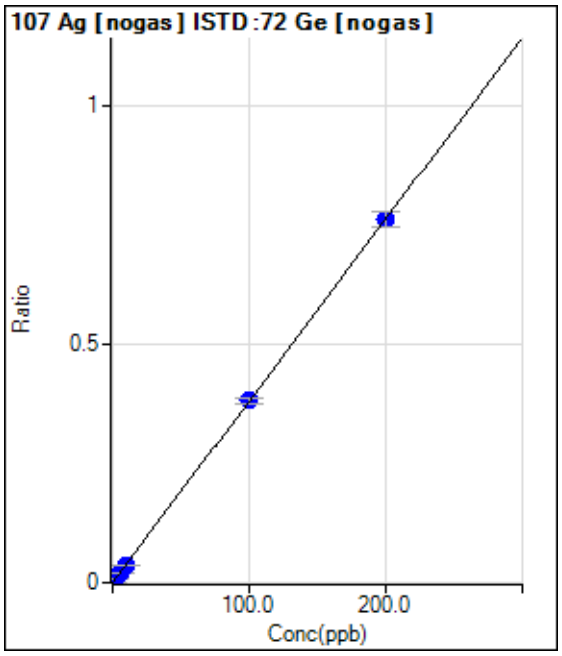
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2446.90 | 0.0018 | P | 5.9 |
| 2 | ☐ | 2.000 | -106.859 | 2263.53 | 0.0017 | P | 4.7 |
| 3 | ☐ | 5.000 | 3.878 | 2413.54 | 0.0018 | P | 3.5 |
| 4 | ☐ | 10.000 | 43.807 | 2393.55 | 0.0018 | P | 8.7 |
| 5 | ☐ | 100.000 | 166.710 | 2530.24 | 0.0019 | P | 12.5 |
| 6 | ☐ | 200.000 | 166.071 | 2506.92 | 0.0019 | P | 4.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 9.3232E-007 * x + 0.0018
R = 0.8233
DL = 332.6
BEC = 1878

Weight: <None>
Min Conc: <None>

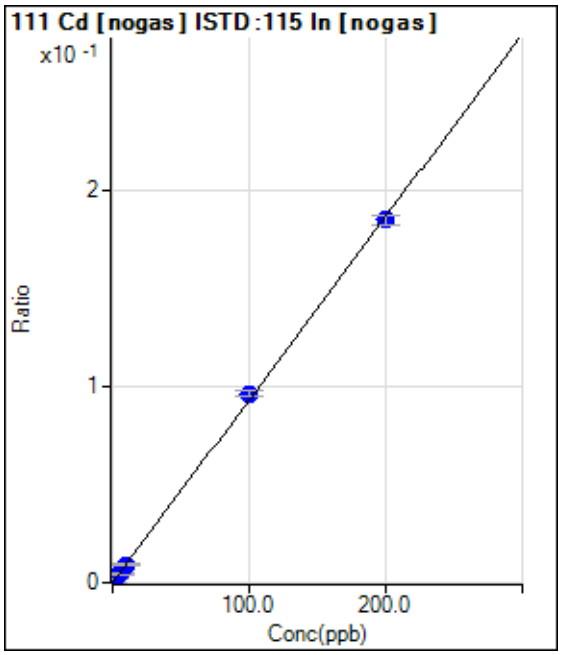



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56.67 | 0.0000 | P | 26.2 |
| 2 | ☐ | 2.000 | 1.890 | 11994.35 | 0.0072 | P | 5.2 |
| 3 | ☐ | 5.000 | 4.968 | 31001.85 | 0.0190 | P | 7.7 |
| 4 | ☐ | 10.000 | 9.947 | 62426.68 | 0.0380 | P | 1.4 |
| 5 | ☐ | 100.000 | 100.529 | 623218.92 | 0.3833 | P | 3.2 |
| 6 | ☐ | 200.000 | 199.740 | 1213845.32 | 0.7615 | P | 4.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0038 * x + 3.4113E-005
R = 1.0000
DL = 0.007041
BEC = 0.008948

Weight: <None>
Min Conc: <None>

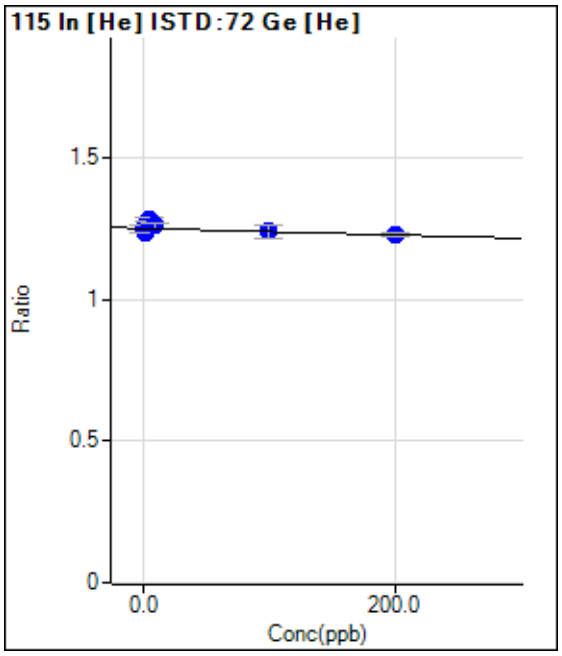
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 23.33 | 0.0000 | P | 89.2 |
| 2 | ☐ | 2.000 | 1.811 | 2336.87 | 0.0017 | P | 5.6 |
| 3 | ☐ | 5.000 | 4.826 | 6214.56 | 0.0045 | P | 7.5 |
| 4 | ☐ | 10.000 | 9.844 | 12304.67 | 0.0092 | P | 3.5 |
| 5 | ☐ | 100.000 | 103.211 | 127782.02 | 0.0964 | P | 3.1 |
| 6 | ☐ | 200.000 | 198.409 | 243818.45 | 0.1853 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 9.3405E-004 * x + 1.6441E-005
R = 0.9998
DL = 0.04709
BEC = 0.0176

Weight: <None>
Min Conc: <None>

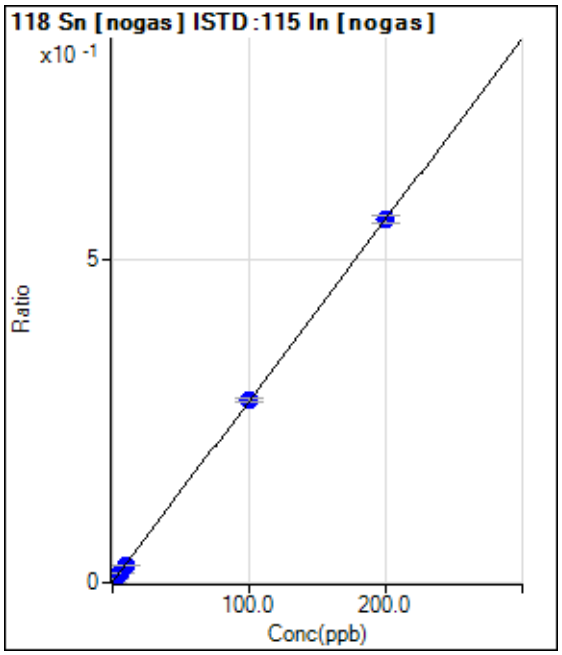



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 958057.38 | 1.2499 | P | 2.2 |
| 2 | ☐ | 2.000 | 131.640 | 974726.29 | 1.2345 | P | 0.5 |
| 3 | ☐ | 5.000 | -254.942 | 977657.36 | 1.2796 | P | 1.2 |
| 4 | ☐ | 10.000 | -85.627 | 969669.80 | 1.2599 | P | 1.4 |
| 5 | ☐ | 100.000 | 101.908 | 956514.52 | 1.2380 | P | 3.8 |
| 6 | ☐ | 200.000 | 209.029 | 928248.97 | 1.2255 | P | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

y = -1.1665E-004 * x + 1.2499
R = -0.6498
DL = -712.7
BEC = -1.071E+04

Weight: <None>
Min Conc: <None>

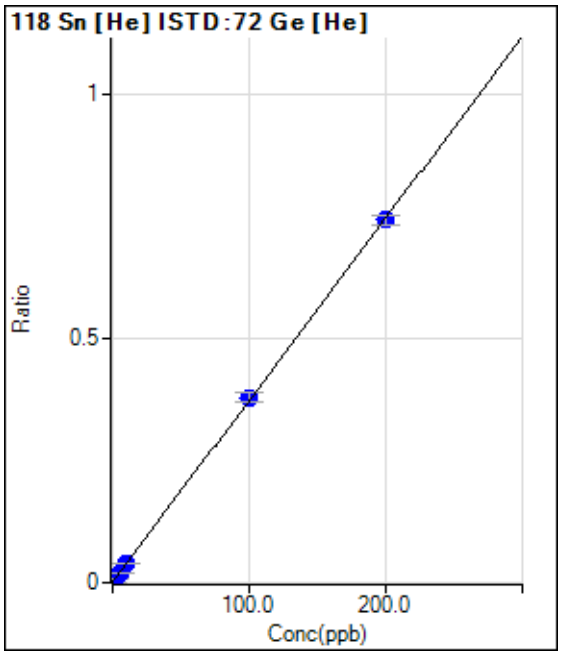
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1093.62 | 0.0008 | P | 26.4 |
| 2 | ☐ | 2.000 | 1.869 | 8252.16 | 0.0060 | P | 1.7 |
| 3 | ☐ | 5.000 | 5.199 | 21110.12 | 0.0154 | P | 5.3 |
| 4 | ☐ | 10.000 | 9.505 | 36629.90 | 0.0274 | P | 1.5 |
| 5 | ☐ | 100.000 | 100.469 | 374239.93 | 0.2823 | P | 1.9 |
| 6 | ☐ | 200.000 | 199.787 | 737577.10 | 0.5607 | P | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0028 * x + 7.8538E-004
R = 1.0000
DL = 0.2221
BEC = 0.2803

Weight: <None>
Min Conc: <None>

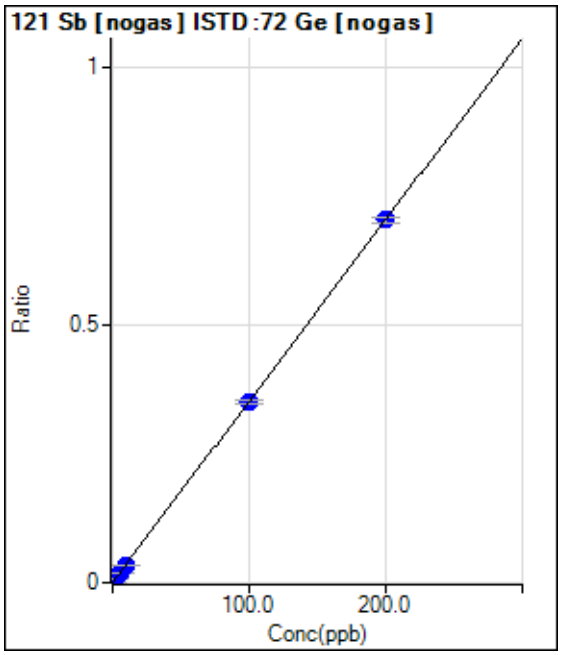



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 583.35 | 0.0008 | P | 30.6 |
| 2 | ☐ | 2.000 | 2.057 | 6661.43 | 0.0084 | P | 6.4 |
| 3 | ☐ | 5.000 | 5.462 | 16154.61 | 0.0211 | P | 1.2 |
| 4 | ☐ | 10.000 | 9.989 | 29255.44 | 0.0380 | P | 1.5 |
| 5 | ☐ | 100.000 | 101.528 | 293220.37 | 0.3796 | P | 5.3 |
| 6 | ☐ | 200.000 | 199.224 | 563508.88 | 0.7441 | P | 2.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0037 * x + 7.6000E-004
R = 1.0000
DL = 0.1867
BEC = 0.2037

Weight: <None>
Min Conc: <None>

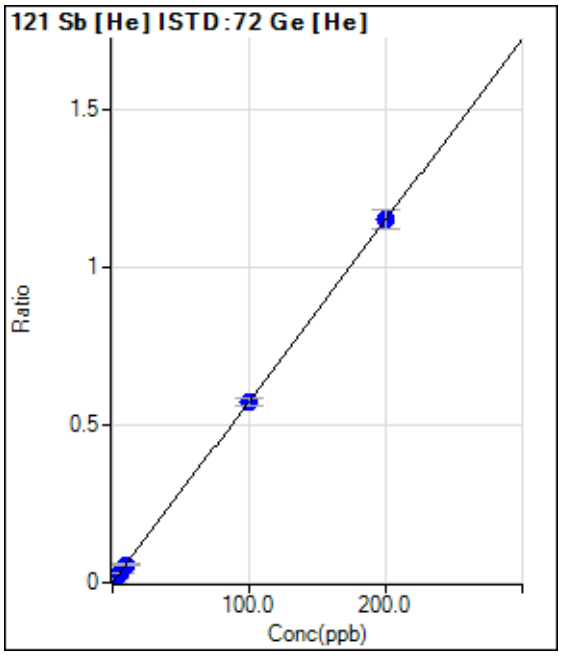
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 733.36 | 0.0004 | P | 28.1 |
| 2 | ☐ | 2.000 | 1.925 | 11934.48 | 0.0072 | P | 5.3 |
| 3 | ☐ | 5.000 | 4.917 | 28972.00 | 0.0177 | P | 2.3 |
| 4 | ☐ | 10.000 | 9.705 | 56861.77 | 0.0346 | P | 0.4 |
| 5 | ☐ | 100.000 | 99.955 | 572475.58 | 0.3520 | P | 2.3 |
| 6 | ☐ | 200.000 | 200.040 | 1122025.79 | 0.7040 | P | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0035 * x + 4.4143E-004
R = 1.0000
DL = 0.1058
BEC = 0.1255

Weight: <None>
Min Conc: <None>

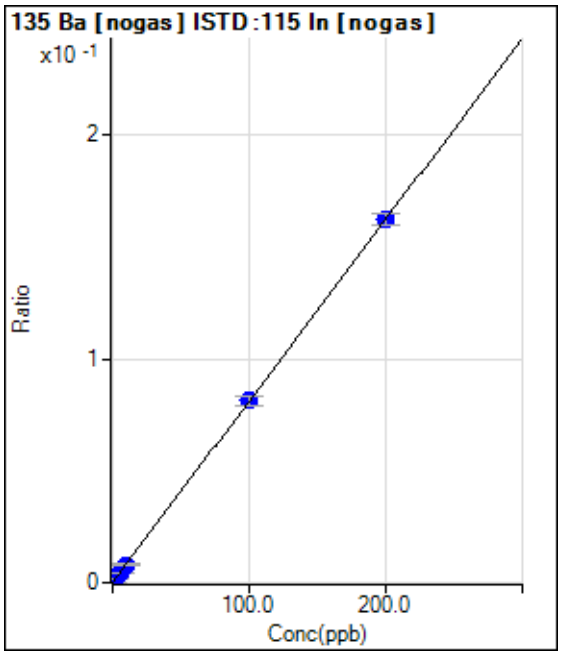



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 503.35 | 0.0007 | P | 6.3 |
| 2 | ☐ | 2.000 | 1.870 | 8989.22 | 0.0114 | P | 3.4 |
| 3 | ☐ | 5.000 | 4.985 | 22348.38 | 0.0293 | P | 3.0 |
| 4 | ☐ | 10.000 | 9.925 | 44264.46 | 0.0576 | P | 5.1 |
| 5 | ☐ | 100.000 | 99.823 | 442882.36 | 0.5733 | P | 4.6 |
| 6 | ☐ | 200.000 | 200.094 | 869164.13 | 1.1485 | P | 5.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0057 * x + 6.5621E-004
R = 1.0000
DL = 0.0215
BEC = 0.1144

Weight: <None>
Min Conc: <None>

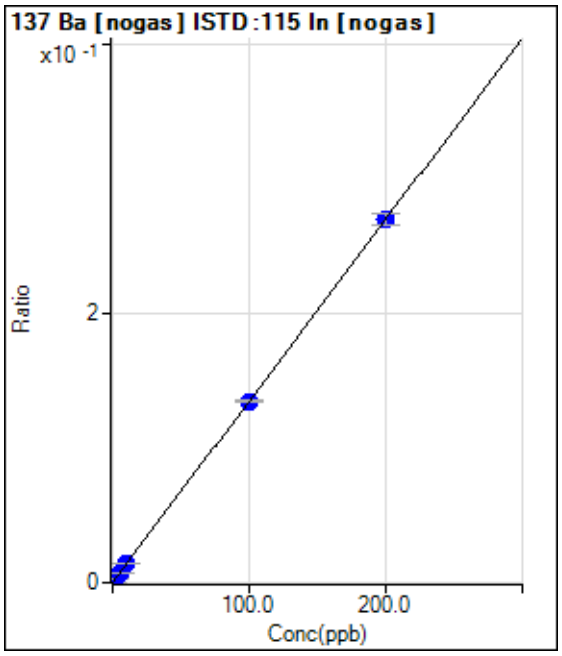
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 160.00 | 0.0001 | P | 19.2 |
| 2 | ☐ | 2.000 | 2.231 | 2626.93 | 0.0019 | P | 9.5 |
| 3 | ☐ | 5.000 | 5.092 | 5824.46 | 0.0042 | P | 7.0 |
| 4 | ☐ | 10.000 | 9.748 | 10700.27 | 0.0080 | P | 5.3 |
| 5 | ☐ | 100.000 | 100.176 | 107656.12 | 0.0813 | P | 4.7 |
| 6 | ☐ | 200.000 | 199.920 | 213130.85 | 0.1621 | P | 3.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 8.1003E-004 * x + 1.1476E-004
R = 1.0000
DL = 0.08163
BEC = 0.1417

Weight: <None>
Min Conc: <None>

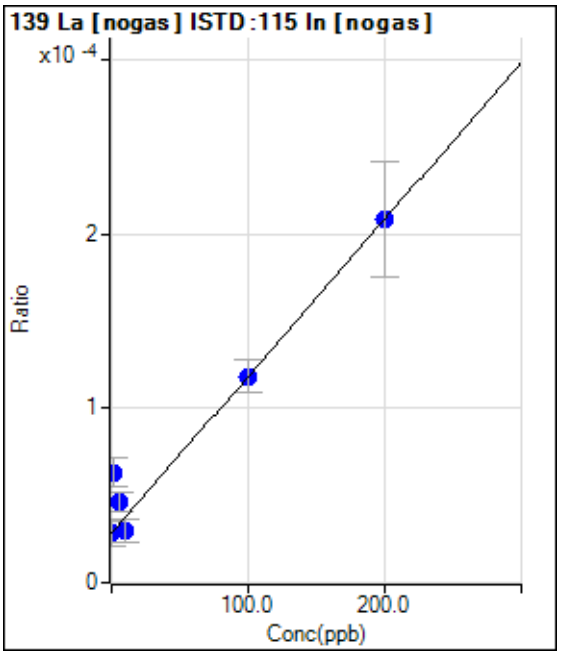



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 206.67 | 0.0001 | P | 21.2 |
| 2 | ☐ | 2.000 | 2.384 | 4594.04 | 0.0034 | P | 8.5 |
| 3 | ☐ | 5.000 | 5.005 | 9472.87 | 0.0069 | P | 5.5 |
| 4 | ☐ | 10.000 | 10.118 | 18410.48 | 0.0138 | P | 1.4 |
| 5 | ☐ | 100.000 | 100.078 | 179009.52 | 0.1350 | P | 0.7 |
| 6 | ☐ | 200.000 | 199.951 | 354604.39 | 0.2696 | P | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0013 * x + 1.4758E-004
R = 1.0000
DL = 0.06954
BEC = 0.1095

Weight: <None>
Min Conc: <None>

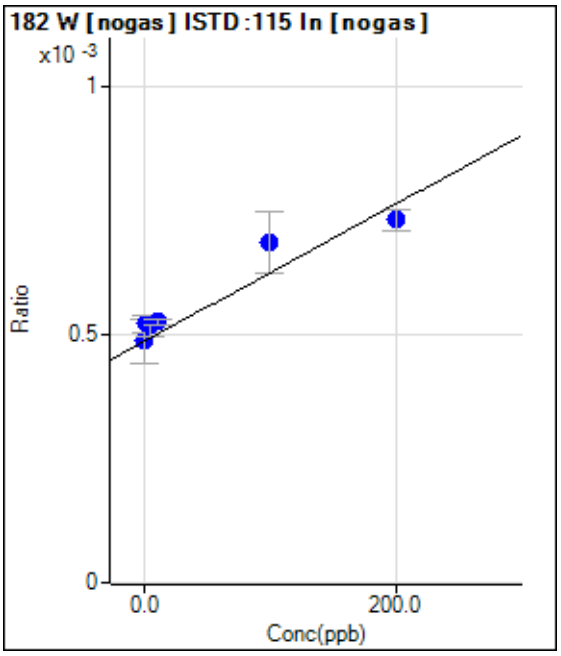
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 40.00 | 0.0000 | P | 48.6 |
| 2 | ☐ | 2.000 | 38.485 | 86.67 | 0.0001 | P | 26.8 |
| 3 | ☐ | 5.000 | 19.564 | 63.33 | 0.0000 | P | 23.3 |
| 4 | ☐ | 10.000 | 1.677 | 40.00 | 0.0000 | P | 42.9 |
| 5 | ☐ | 100.000 | 99.995 | 156.67 | 0.0001 | P | 15.3 |
| 6 | ☐ | 200.000 | 199.690 | 273.34 | 0.0002 | P | 31.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 8.9995E-007 * x + 2.8408E-005
R = 0.9806
DL = 46.03
BEC = 31.57

Weight: <None>
Min Conc: <None>

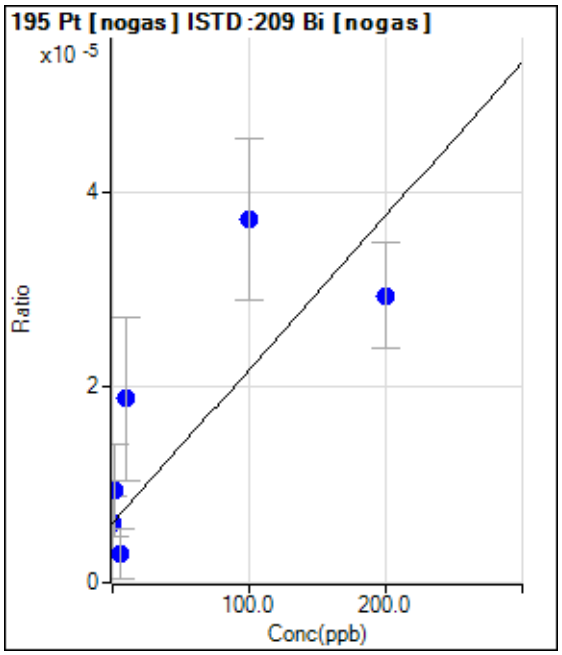



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 680.03 | 0.0005 | P | 18.3 |
| 2 | ☐ | 2.000 | 25.637 | 716.69 | 0.0005 | P | 6.9 |
| 3 | ☐ | 5.000 | 22.230 | 713.37 | 0.0005 | P | 7.7 |
| 4 | ☐ | 10.000 | 28.072 | 703.36 | 0.0005 | P | 1.7 |
| 5 | ☐ | 100.000 | 143.117 | 906.71 | 0.0007 | P | 18.1 |
| 6 | ☐ | 200.000 | 176.871 | 963.39 | 0.0007 | P | 5.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.3846E-006 * x + 4.8770E-004
R = 0.9627
DL = 192.9
BEC = 352.2

Weight: <None>
Min Conc: <None>

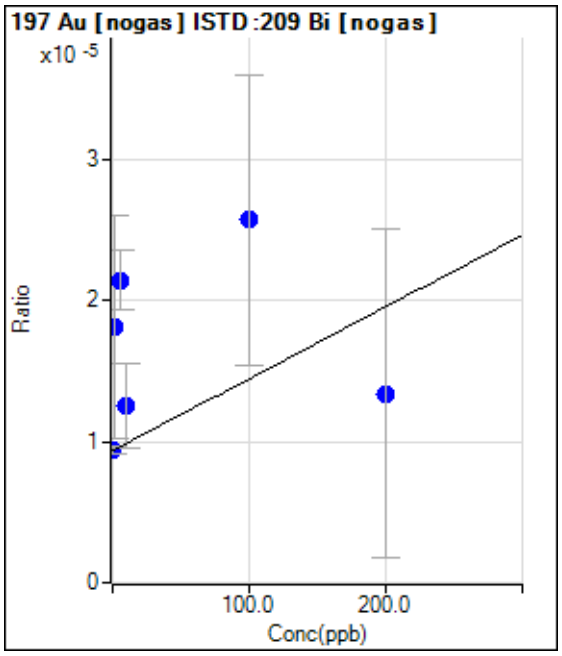
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6.67 | 0.0000 | P | 86.9 |
| 2 | ☐ | 2.000 | 21.067 | 10.00 | 0.0000 | P | 99.8 |
| 3 | ☐ | 5.000 | -20.253 | 3.33 | 0.0000 | P | 173. |
| 4 | ☐ | 10.000 | 81.189 | 20.00 | 0.0000 | P | 88.7 |
| 5 | ☐ | 100.000 | 197.342 | 40.00 | 0.0000 | P | 44.4 |
| 6 | ☐ | 200.000 | 148.210 | 30.00 | 0.0000 | P | 36.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.5708E-007 * x + 6.1124E-006
R = 0.7744
DL = 101.4
BEC = 38.91

Weight: <None>
Min Conc: <None>

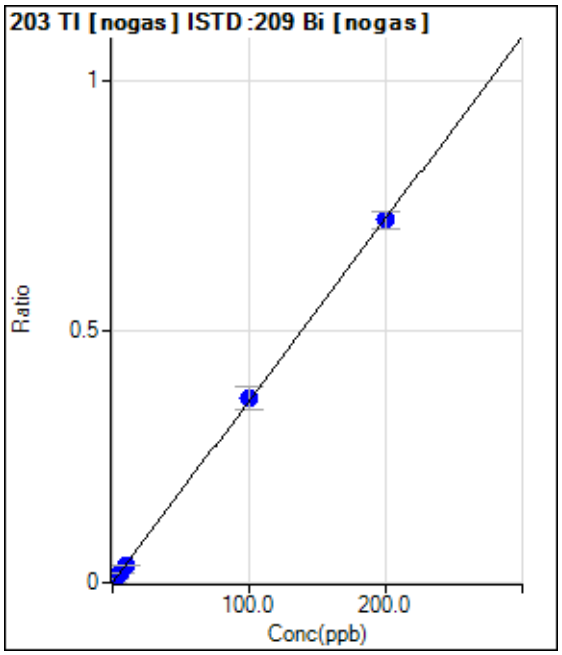



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10.00 | 0.0000 | P | 6.0 |
| 2 | ☐ | 2.000 | 172.637 | 20.00 | 0.0000 | P | 86.8 |
| 3 | ☐ | 5.000 | 236.856 | 23.33 | 0.0000 | P | 19.9 |
| 4 | ☐ | 10.000 | 62.644 | 13.33 | 0.0000 | P | 47.8 |
| 5 | ☐ | 100.000 | 320.754 | 26.67 | 0.0000 | P | 80.0 |
| 6 | ☐ | 200.000 | 79.488 | 13.33 | 0.0000 | P | 173. |
| 7 | ☐ | 1.000 | | | | | |

y = 5.1033E-008 * x + 9.3727E-006
R = 0.0823
DL = 32.85
BEC = 183.7

Weight: <None>
Min Conc: <None>

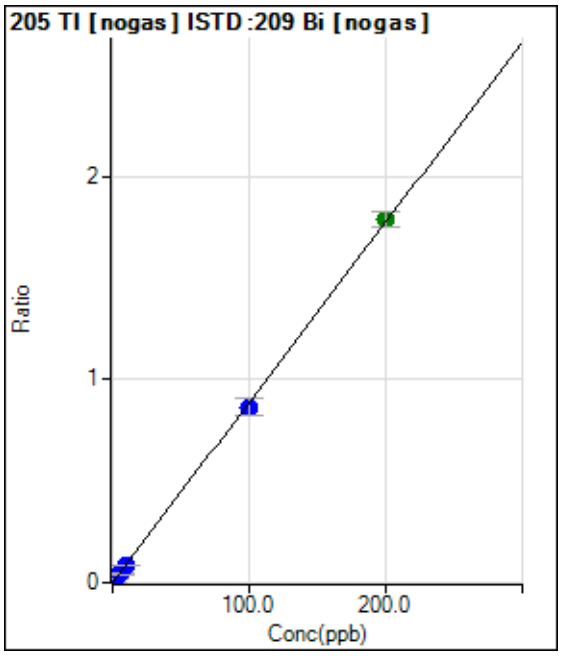
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 36.67 | 0.0000 | P | 34.1 |
| 2 | ☐ | 2.000 | 1.950 | 7698.67 | 0.0071 | P | 9.6 |
| 3 | ☐ | 5.000 | 5.064 | 19842.65 | 0.0184 | P | 5.8 |
| 4 | ☐ | 10.000 | 9.671 | 37648.41 | 0.0351 | P | 5.2 |
| 5 | ☐ | 100.000 | 101.416 | 387957.37 | 0.3675 | P | 11.6 |
| 6 | ☐ | 200.000 | 199.308 | 743638.35 | 0.7222 | P | 4.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0036 * x + 3.4519E-005
R = 1.0000
DL = 0.009759
BEC = 0.009527

Weight: <None>
Min Conc: <None>

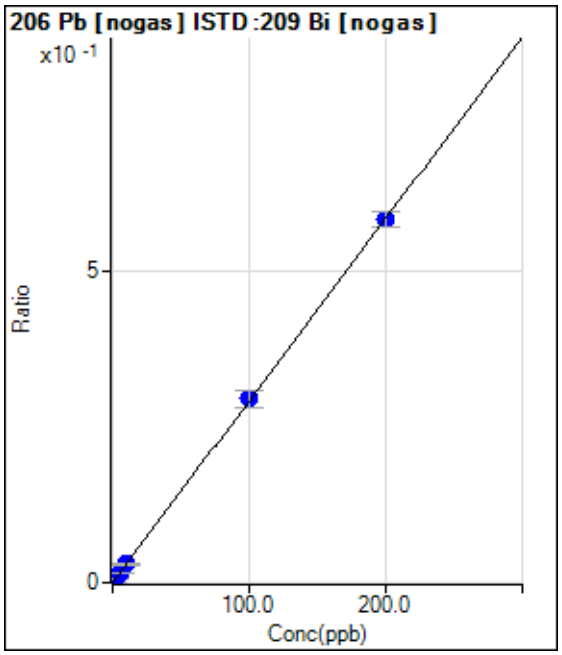



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 46.67 | 0.0000 | P | 56.5 |
| 2 | ☐ | 2.000 | 1.884 | 18184.03 | 0.0168 | P | 3.0 |
| 3 | ☐ | 5.000 | 4.862 | 46585.48 | 0.0432 | P | 6.5 |
| 4 | ☐ | 10.000 | 9.446 | 89929.77 | 0.0838 | P | 6.0 |
| 5 | ☐ | 100.000 | 97.317 | 911781.84 | 0.8631 | P | 10.0 |
| 6 | ☐ | 200.000 | 201.374 | 1839073.77 | 1.7860 | A | 4.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0089 * x + 4.4529E-005
R = 0.9999
DL = 0.00851
BEC = 0.005021

Weight: <None>
Min Conc: <None>

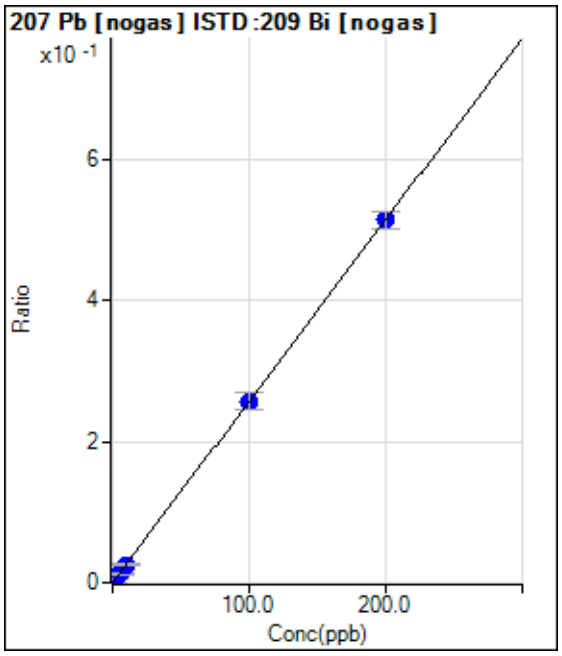
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 100.00 | 0.0001 | P | 45.3 |
| 2 | ☐ | 2.000 | 1.992 | 6408.06 | 0.0059 | P | 7.1 |
| 3 | ☐ | 5.000 | 4.929 | 15634.62 | 0.0145 | P | 5.4 |
| 4 | ☐ | 10.000 | 10.100 | 31718.69 | 0.0296 | P | 8.0 |
| 5 | ☐ | 100.000 | 101.037 | 312009.87 | 0.2952 | P | 8.8 |
| 6 | ☐ | 200.000 | 199.478 | 599947.12 | 0.5827 | P | 4.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0029 * x + 9.2284E-005
R = 1.0000
DL = 0.04293
BEC = 0.0316

Weight: <None>
Min Conc: <None>

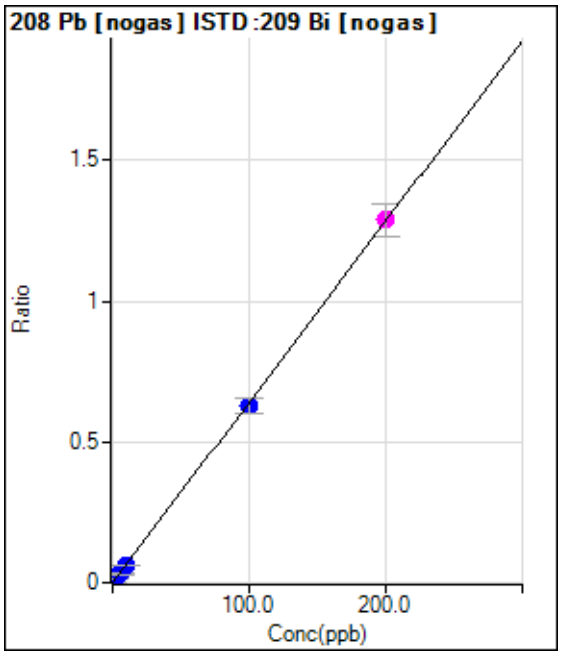



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 103.33 | 0.0001 | P | 25.1 |
| 2 | ☐ | 2.000 | 1.996 | 5661.11 | 0.0052 | P | 6.5 |
| 3 | ☐ | 5.000 | 4.842 | 13519.43 | 0.0125 | P | 6.1 |
| 4 | ☐ | 10.000 | 9.696 | 26789.63 | 0.0250 | P | 8.0 |
| 5 | ☐ | 100.000 | 100.010 | 271440.70 | 0.2569 | P | 9.5 |
| 6 | ☐ | 200.000 | 200.014 | 528807.92 | 0.5136 | P | 4.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0026 * x + 9.7156E-005
R = 1.0000
DL = 0.02853
BEC = 0.03784

Weight: <None>
Min Conc: <None>

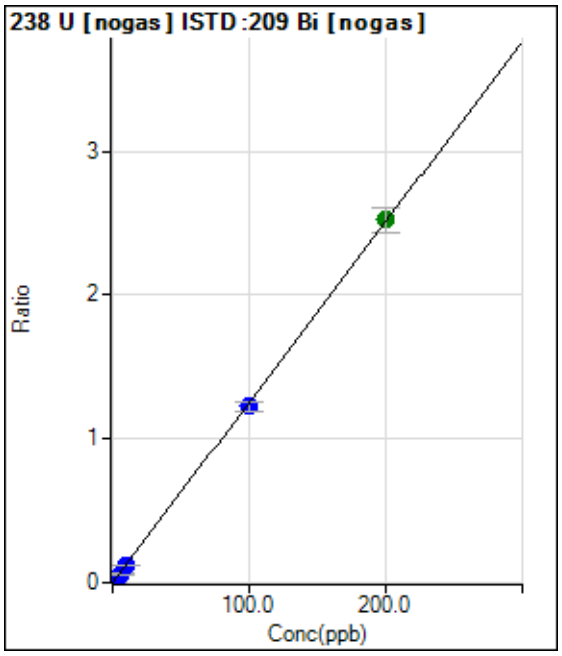
Calibration for 021_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 206.67 | 0.0002 | P | 28.8 |
| 2 | ☐ | 2.000 | 1.953 | 13779.53 | 0.0127 | P | 8.8 |
| 3 | ☐ | 5.000 | 4.800 | 33388.85 | 0.0310 | P | 8.1 |
| 4 | ☐ | 10.000 | 9.567 | 65997.25 | 0.0615 | P | 6.3 |
| 5 | ☐ | 100.000 | 98.104 | 665038.49 | 0.6291 | P | 8.7 |
| 6 | ☐ | 200.000 | 200.975 | 1325318.55 | 1.2885 | M | 8.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0064 * x + 1.9155E-004
R = 0.9999
DL = 0.02584
BEC = 0.02988

Weight: <None>
Min Conc: <None>

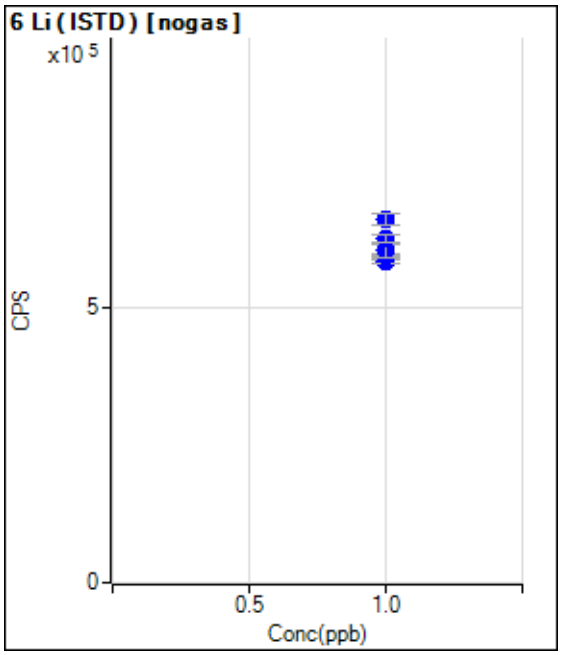



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56.67 | 0.0001 | P | 47.6 |
| 2 | ☐ | 2.000 | 1.862 | 25371.13 | 0.0234 | P | 7.9 |
| 3 | ☐ | 5.000 | 4.627 | 62650.65 | 0.0581 | P | 7.6 |
| 4 | ☐ | 10.000 | 9.586 | 128973.09 | 0.1203 | P | 7.5 |
| 5 | ☐ | 100.000 | 97.646 | 1296815.81 | 1.2246 | P | 5.8 |
| 6 | ☐ | 200.000 | 201.208 | 2596683.08 | 2.5233 | A | 6.8 |
| 7 | ☐ | 1.000 | | | | | |

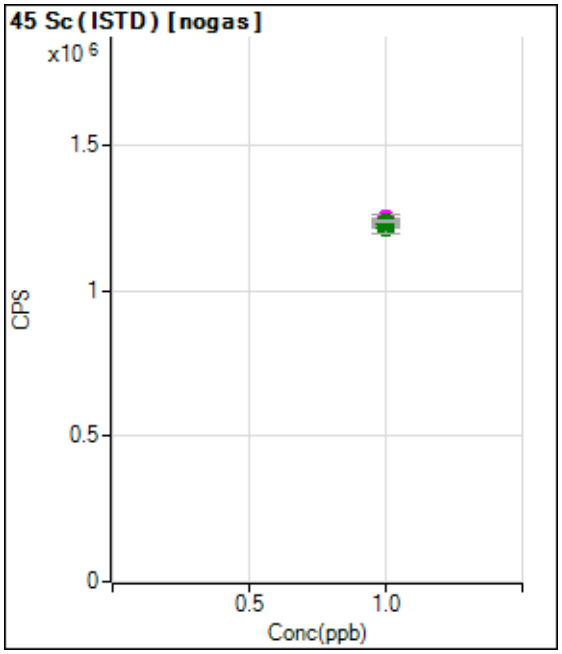
y = 0.0125 * x + 5.3901E-005
R = 0.9999
DL = 0.006134
BEC = 0.004298

Weight: <None>
Min Conc: <None>

Calibration for 021_ICV.d

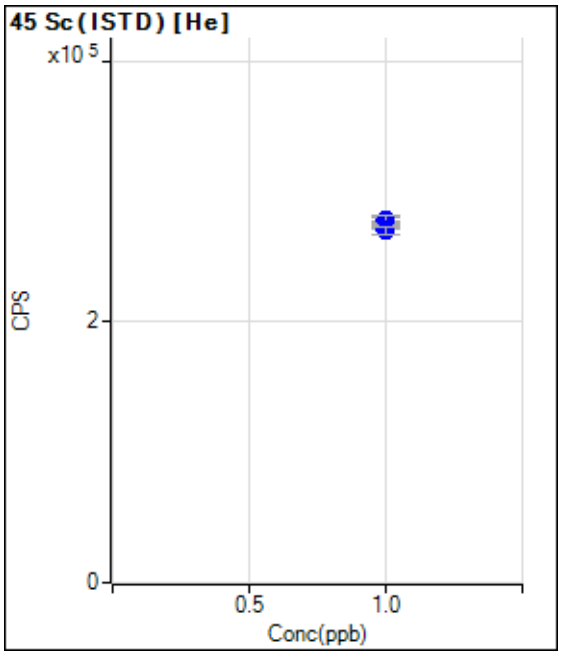



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 581094.41 | | P | 1.1 |
| 2 | ☐ | 1.000 | | 593525.93 | | P | 0.7 |
| 3 | ☐ | 1.000 | | 602731.33 | | P | 3.3 |
| 4 | ☐ | 1.000 | | 602129.48 | | P | 4.5 |
| 5 | ☐ | 1.000 | | 623184.07 | | P | 2.3 |
| 6 | ☐ | 1.000 | | 658160.44 | | P | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

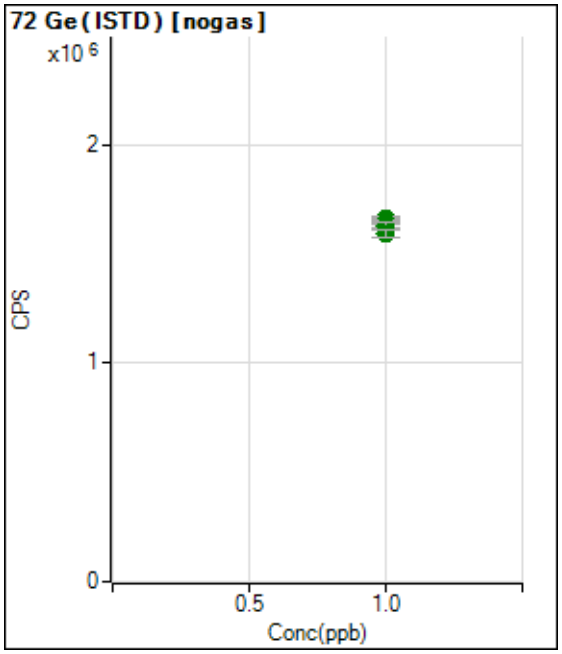



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1227341.05 | | A | 1.4 |
| 2 | ☐ | 1.000 | | 1245708.73 | | M | 2.5 |
| 3 | ☐ | 1.000 | | 1235884.72 | | M | 2.2 |
| 4 | ☐ | 1.000 | | 1230342.79 | | A | 2.6 |
| 5 | ☐ | 1.000 | | 1216077.46 | | A | 3.0 |
| 6 | ☐ | 1.000 | | 1236205.82 | | A | 0.7 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 021_ICV.d

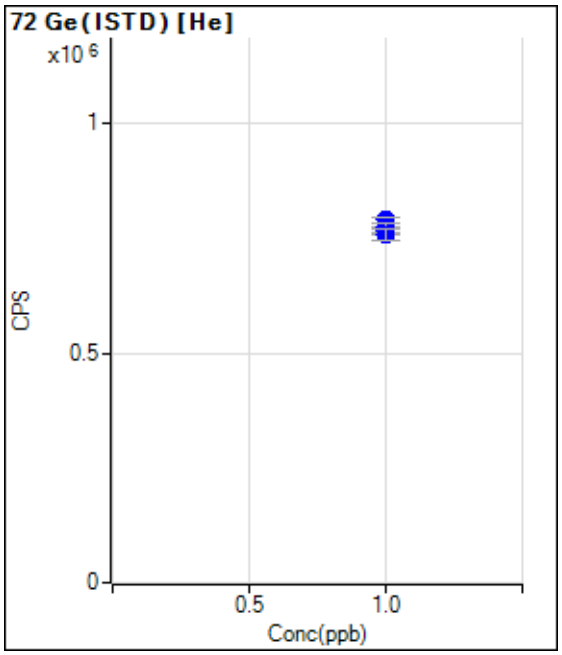



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 278180.73 | | P | 1.1 |
| 2 | ☐ | 1.000 | | 274619.75 | | P | 2.1 |
| 3 | ☐ | 1.000 | | 275580.89 | | P | 0.2 |
| 4 | ☐ | 1.000 | | 277394.26 | | P | 3.0 |
| 5 | ☐ | 1.000 | | 271004.86 | | P | 2.7 |
| 6 | ☐ | 1.000 | | 269147.66 | | P | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

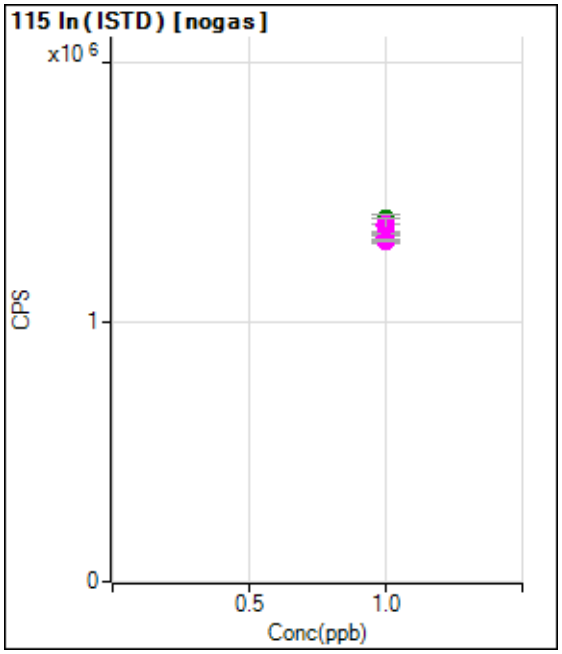



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1658792.27 | | A | 0.8 |
| 2 | ☐ | 1.000 | | 1655826.49 | | A | 1.5 |
| 3 | ☐ | 1.000 | | 1633871.22 | | A | 1.5 |
| 4 | ☐ | 1.000 | | 1644580.76 | | A | 0.8 |
| 5 | ☐ | 1.000 | | 1626751.69 | | A | 2.4 |
| 6 | ☐ | 1.000 | | 1594015.81 | | A | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 021_ICV.d

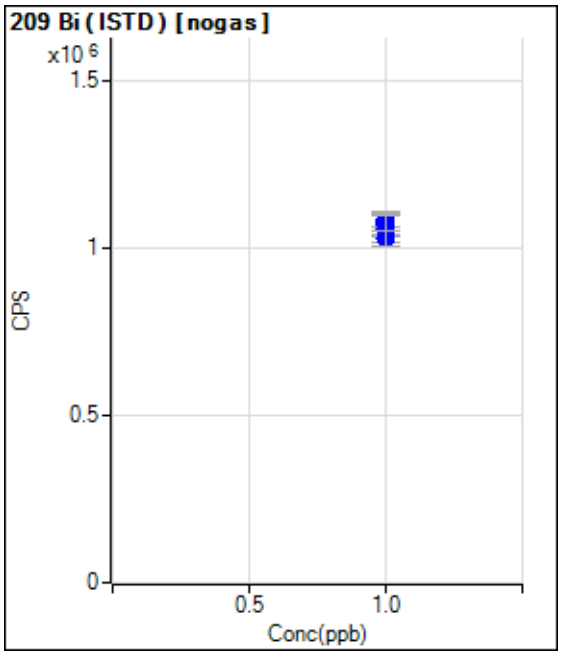



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 766661.29 | | P | 1.6 |
| 2 | ☐ | 1.000 | | 789547.90 | | P | 1.5 |
| 3 | ☐ | 1.000 | | 764049.00 | | P | 1.3 |
| 4 | ☐ | 1.000 | | 769432.02 | | P | 3.2 |
| 5 | ☐ | 1.000 | | 773125.12 | | P | 2.7 |
| 6 | ☐ | 1.000 | | 757586.13 | | P | 3.0 |
| 7 | ☐ | 1.000 | | | | | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1398609.77 | | A | 2.5 |
| 2 | ☐ | 1.000 | | 1370611.54 | | M | 4.7 |
| 3 | ☐ | 1.000 | | 1376426.07 | | M | 4.1 |
| 4 | ☐ | 1.000 | | 1335757.12 | | M | 0.4 |
| 5 | ☐ | 1.000 | | 1325889.59 | | M | 2.7 |
| 6 | ☐ | 1.000 | | 1315440.21 | | M | 1.0 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 021_ICV.d



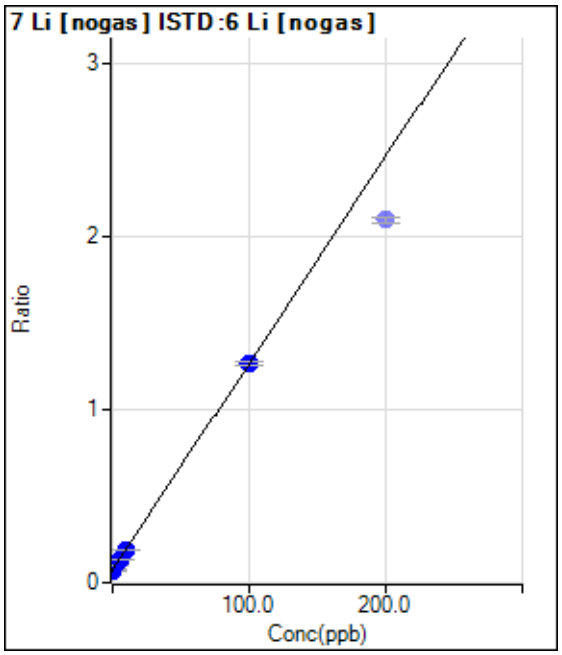

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1069547.22 | | P | 6.2 |
| 2 | ☐ | 1.000 | | 1086170.76 | | P | 4.2 |
| 3 | ☐ | 1.000 | | 1080851.86 | | P | 4.5 |
| 4 | ☐ | 1.000 | | 1075464.62 | | P | 6.3 |
| 5 | ☐ | 1.000 | | 1061726.96 | | P | 7.6 |
| 6 | ☐ | 1.000 | | 1030857.46 | | P | 4.1 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 200_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122118A.b\
Analysis File: 122118A.batch.bin
DA Date-Time: 12/21/2018 11:16:05 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 193CALB.d | CAL BLK | 12/21/2018 10:57:14 PM |
| 2 | 194CALS.d | 2/10/200 | 12/21/2018 10:59:28 PM |
| 3 | 195CALS.d | 5/25/500 | 12/21/2018 11:01:44 PM |
| 4 | 196CALS.d | 10/50/1000 | 12/21/2018 11:03:58 PM |
| 5 | 197CALS.d | 100/500/10K | 12/21/2018 11:06:14 PM |
| 6 | 198CALS.d | 200/1000/20K | 12/21/2018 11:08:28 PM |
| 7 | | | |

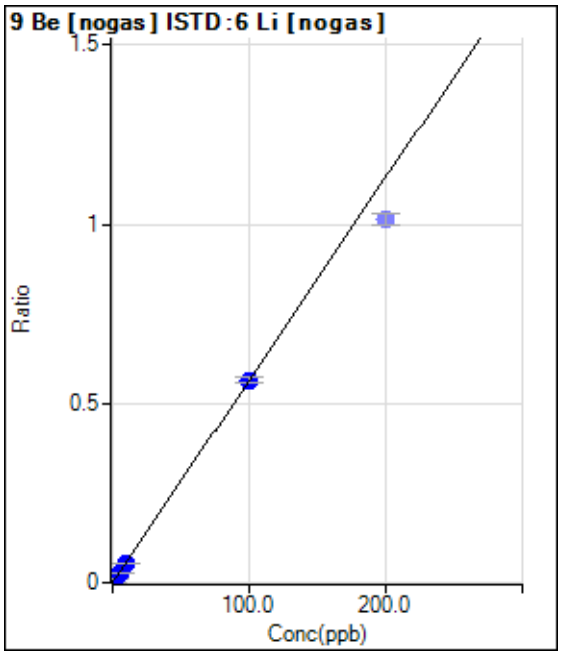
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 22664.33 | 0.0718 | P | 2.8 |
| 2 | ☐ | 2.000 | 2.075 | 30605.70 | 0.0966 | P | 0.6 |
| 3 | ☐ | 5.000 | 5.016 | 41884.82 | 0.1318 | P | 3.2 |
| 4 | ☐ | 10.000 | 9.578 | 59382.66 | 0.1864 | P | 2.6 |
| 5 | ☐ | 100.000 | 100.040 | 416196.47 | 1.2685 | P | 1.0 |
| 6 | ☑ | 200.000 | | 698608.27 | 2.0993 | P | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0120 * x + 0.0718
R = 1.0000
DL = 0.5106
BEC = 6

Weight: <None>
Min Conc: <None>

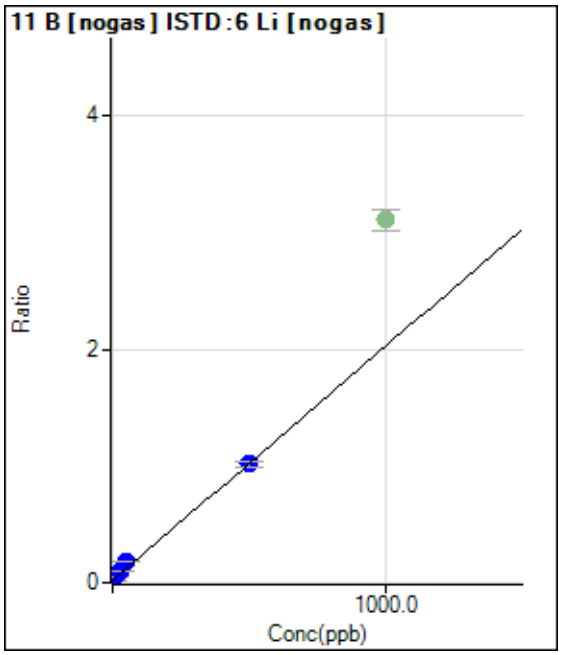



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10.00 | 0.0000 | P | 100. |
| 2 | ☐ | 2.000 | 2.158 | 3870.47 | 0.0122 | P | 1.5 |
| 3 | ☐ | 5.000 | 5.009 | 8995.66 | 0.0283 | P | 0.7 |
| 4 | ☐ | 10.000 | 9.708 | 17478.43 | 0.0548 | P | 2.4 |
| 5 | ☐ | 100.000 | 100.026 | 185254.88 | 0.5647 | P | 2.8 |
| 6 | ☑ | 200.000 | | 336688.40 | 1.0120 | P | 3.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0056 * x + 3.1988E-005
R = 1.0000
DL = 0.0171
BEC = 0.005666

Weight: <None>
Min Conc: <None>

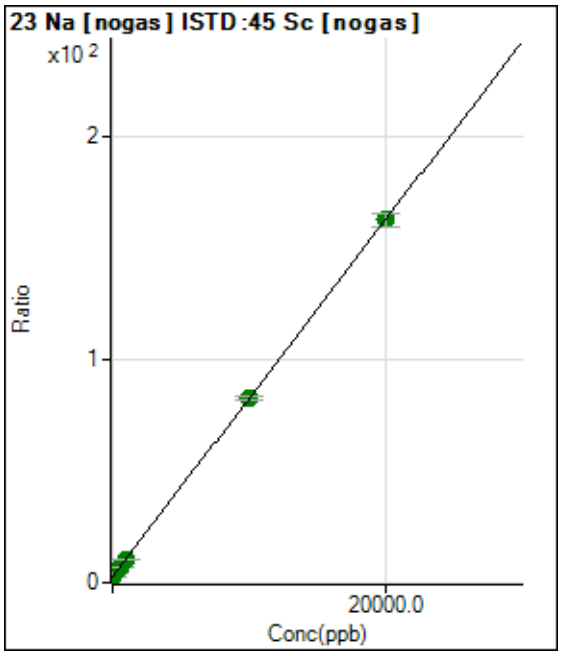
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6151.12 | 0.0195 | P | 5.5 |
| 2 | ☐ | 10.000 | 16.082 | 16397.57 | 0.0518 | P | 3.1 |
| 3 | ☐ | 25.000 | 39.981 | 31697.61 | 0.0998 | P | 1.4 |
| 4 | ☐ | 50.000 | 79.756 | 57228.92 | 0.1796 | P | 3.0 |
| 5 | ☐ | 500.000 | 496.154 | 333155.51 | 1.0157 | P | 4.5 |
| 6 | ☑ | 1000.000 | | 1033862.49 | 3.1089 | A | 5.9 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0020 * x + 0.0195
R = 0.9984
DL = 1.601
BEC = 9.705

Weight: <None>
Min Conc: <None>

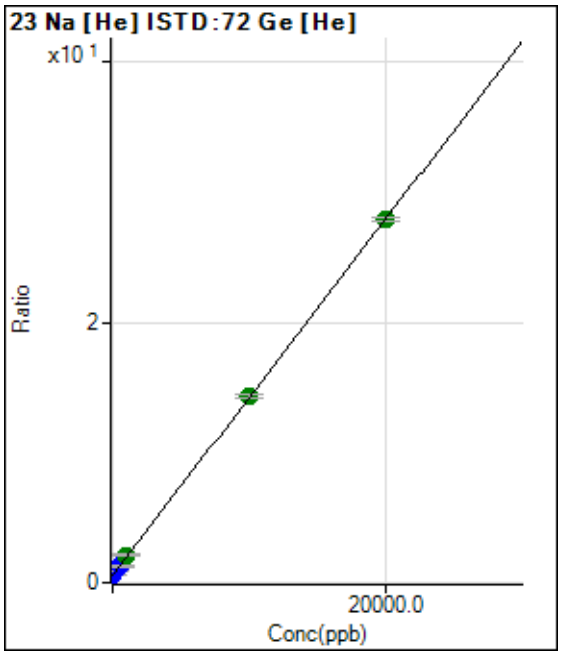



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2479605.26 | 2.6960 | A | 3.2 |
| 2 | ☐ | 200.000 | 213.531 | 4041273.01 | 4.4076 | A | 2.4 |
| 3 | ☐ | 500.000 | 484.210 | 5983490.89 | 6.5772 | A | 2.2 |
| 4 | ☐ | 1000.000 | 983.817 | 9311185.11 | 10.5818 | A | 2.5 |
| 5 | ☐ | 10000.00 | 10006.963 | 74661435.00 | 82.9070 | A | 1.6 |
| 6 | ☐ | 20000.00 | 19997.587 | 137860944.7 | 162.987 | A | 4.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0080 * x + 2.6960
R = 1.0000
DL = 31.94
BEC = 336.3

Weight: <None>
Min Conc: <None>

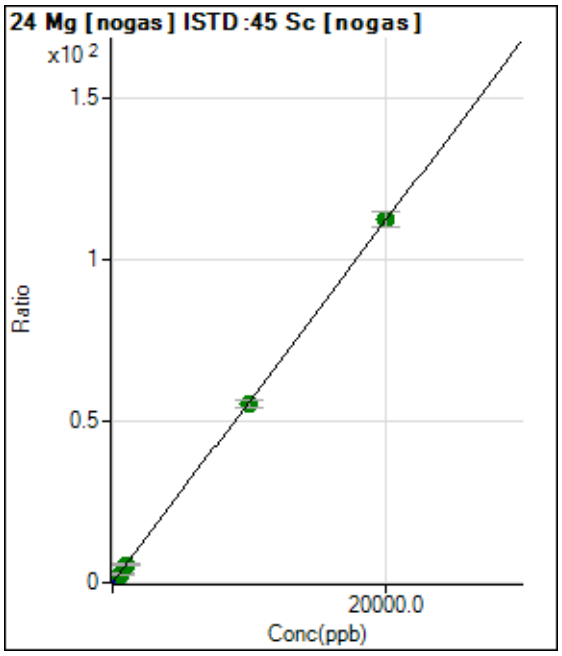
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 369616.87 | 0.5522 | P | 0.8 |
| 2 | ☐ | 200.000 | 223.442 | 579848.65 | 0.8578 | P | 4.3 |
| 3 | ☐ | 500.000 | 516.768 | 854676.89 | 1.2589 | P | 2.3 |
| 4 | ☐ | 1000.000 | 1129.218 | 1351376.28 | 2.0966 | A | 5.0 |
| 5 | ☐ | 10000.00 | 10049.825 | 9748895.27 | 14.2973 | A | 1.8 |
| 6 | ☐ | 20000.00 | 19967.973 | 18154403.06 | 27.8624 | A | 1.2 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0014 * x + 0.5522
R = 1.0000
DL = 9.437
BEC = 403.7

Weight: <None>
Min Conc: <None>

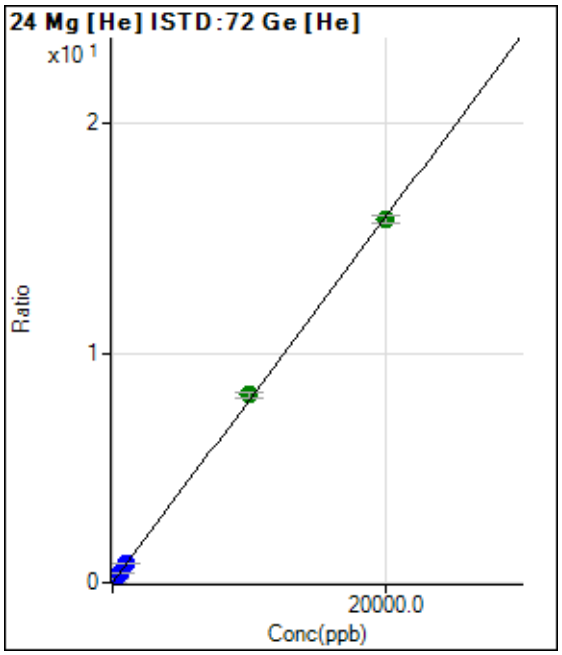



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 5468.64 | 0.0059 | P | 12.0 |
| 2 | ☐ | 200.000 | 192.356 | 993329.52 | 1.0831 | P | 1.1 |
| 3 | ☐ | 500.000 | 476.779 | 2434610.99 | 2.6758 | A | 1.2 |
| 4 | ☐ | 1000.000 | 981.938 | 4842982.40 | 5.5046 | A | 5.6 |
| 5 | ☐ | 10000.00 | 9889.140 | 49877781.32 | 55.3833 | A | 4.4 |
| 6 | ☐ | 20000.00 | 20056.990 | 94975383.37 | 112.321 | A | 4.3 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0056 * x + 0.0059
R = 1.0000
DL = 0.3798
BEC = 1.059

Weight: <None>
Min Conc: <None>

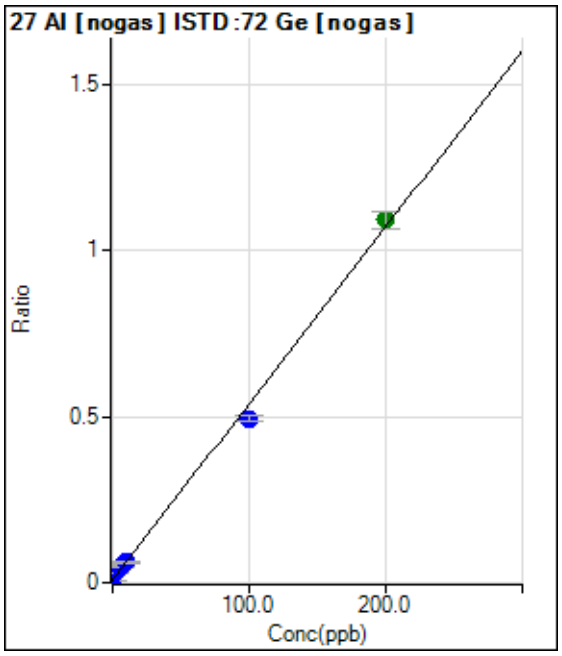
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 743.36 | 0.0011 | P | 28.1 |
| 2 | ☐ | 200.000 | 205.575 | 111470.65 | 0.1648 | P | 4.9 |
| 3 | ☐ | 500.000 | 503.313 | 272731.29 | 0.4018 | P | 6.5 |
| 4 | ☐ | 1000.000 | 1055.650 | 542587.41 | 0.8416 | P | 3.9 |
| 5 | ☐ | 10000.00 | 10271.313 | 5579214.60 | 8.1792 | A | 3.9 |
| 6 | ☐ | 20000.00 | 19861.423 | 10304449.22 | 15.8149 | A | 1.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 7.9621E-004 * x + 0.0011
R = 0.9999
DL = 1.175
BEC = 1.392

Weight: <None>
Min Conc: <None>

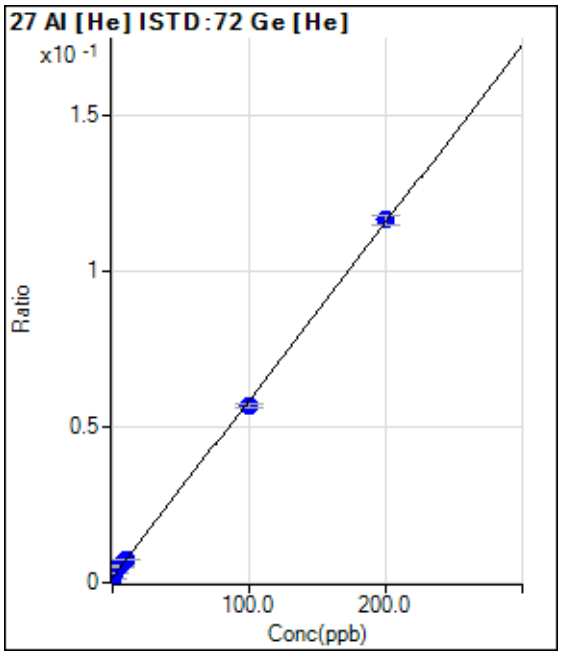



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 11443.76 | 0.0084 | P | 2.4 |
| 2 | ☐ | 2.000 | 3.663 | 38293.40 | 0.0278 | P | 10.5 |
| 3 | ☐ | 5.000 | 7.540 | 65145.44 | 0.0484 | P | 4.0 |
| 4 | ☐ | 10.000 | 9.897 | 82173.39 | 0.0609 | P | 4.8 |
| 5 | ☐ | 100.000 | 91.591 | 645199.55 | 0.4950 | P | 3.8 |
| 6 | ☐ | 200.000 | 204.129 | 1385720.81 | 1.0929 | A | 5.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0053 * x + 0.0084
R = 0.9986
DL = 0.1141
BEC = 1.574

Weight: <None>
Min Conc: <None>

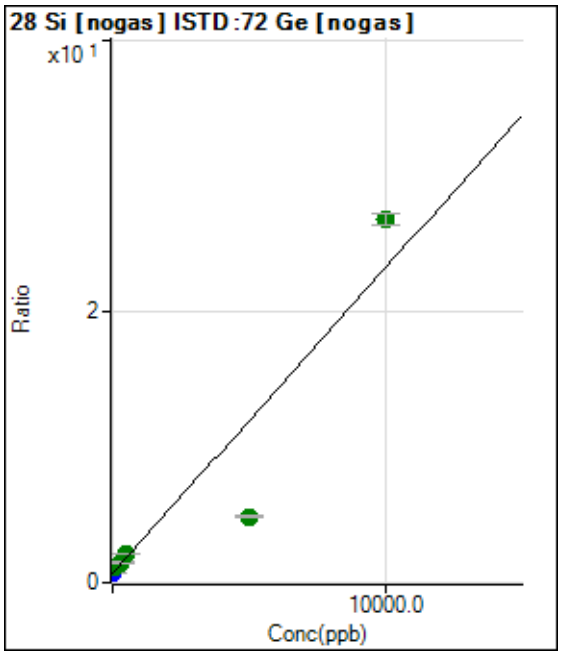
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.860 | 766.70 | 0.0011 | P | 12.3 |
| 2 | ☐ | 2.000 | 2.831 | 2200.17 | 0.0032 | P | 8.8 |
| 3 | ☐ | 5.000 | 6.408 | 3583.77 | 0.0053 | P | 3.2 |
| 4 | ☐ | 10.000 | 10.278 | 4824.07 | 0.0075 | P | 5.9 |
| 5 | ☐ | 100.000 | 96.801 | 38668.83 | 0.0567 | P | 2.6 |
| 6 | ☐ | 200.000 | 201.542 | 75813.48 | 0.1163 | P | 2.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.6883E-004 * x + 0.0016
R = 0.9998
DL = 0.7412
BEC = 2.872

Weight: <None>
Min Conc: <None>

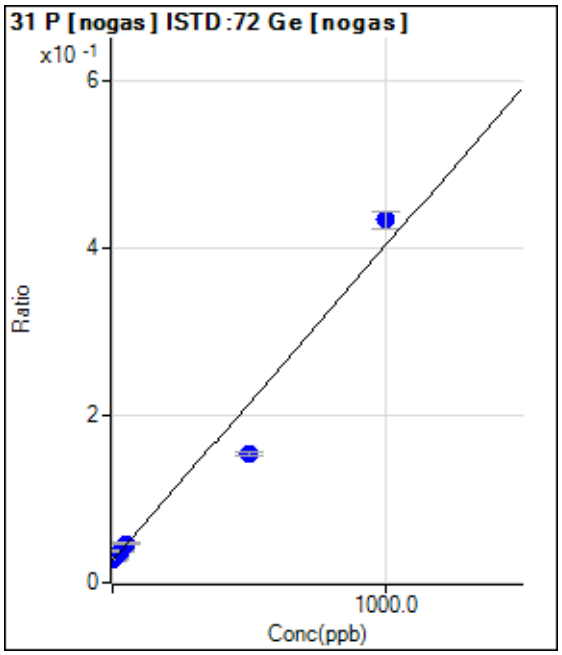



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 958813.82 | 0.7004 | P | 1.0 |
| 2 | ☐ | 100.000 | 179.495 | 1522581.12 | 1.1049 | A | 5.7 |
| 3 | ☐ | 250.000 | 340.843 | 1976116.27 | 1.4686 | A | 3.0 |
| 4 | ☐ | 500.000 | 622.554 | 2833358.40 | 2.1034 | A | 1.7 |
| 5 | ☐ | 5000.000 | 1858.033 | 6369974.90 | 4.8877 | A | 3.7 |
| 6 | ☐ | 10000.00 | 11561.790 | 33940925.33 | 26.7559 | A | 3.1 |
| 7 | ☐ | 50.000 | | | | | |

y = 0.0023 * x + 0.7004
R = 0.9399
DL = 9.519
BEC = 310.8

Weight: <None>
Min Conc: <None>

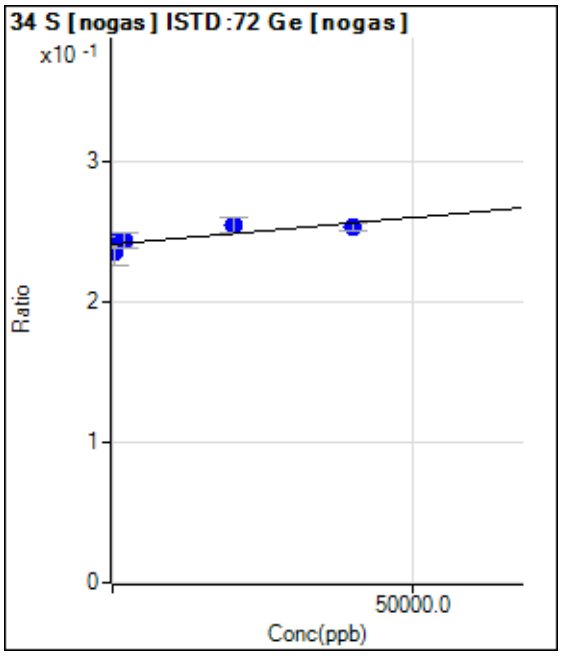
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 36276.43 | 0.0265 | P | 2.9 |
| 2 | ☐ | 10.000 | 8.810 | 41073.15 | 0.0298 | P | 7.4 |
| 3 | ☐ | 25.000 | 29.202 | 50480.16 | 0.0375 | P | 2.8 |
| 4 | ☐ | 50.000 | 54.805 | 63513.23 | 0.0472 | P | 3.1 |
| 5 | ☐ | 500.000 | 335.984 | 199640.93 | 0.1532 | P | 3.1 |
| 6 | ☐ | 1000.000 | 1081.675 | 550716.53 | 0.4343 | P | 5.0 |
| 7 | ☐ | 5.000 | | | | | |

y = 3.7703E-004 * x + 0.0265
R = 0.9821
DL = 6.143
BEC = 70.29

Weight: <None>
Min Conc: <None>

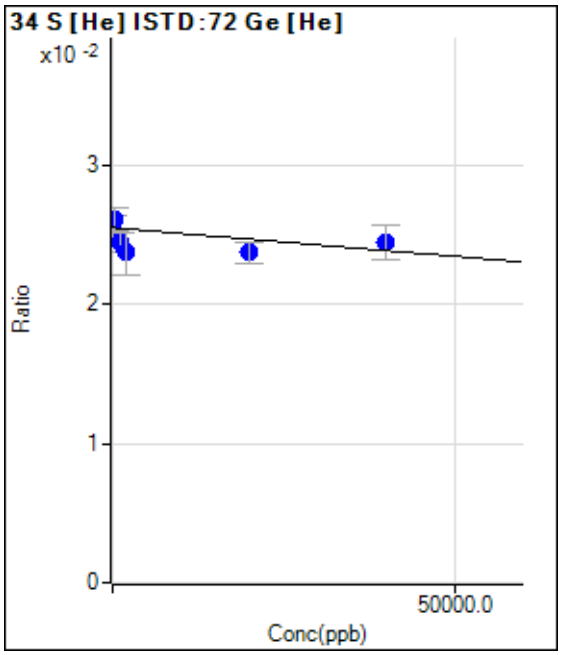



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 330262.61 | 0.2413 | P | 0.4 |
| 2 | ☐ | 400.000 | -12936.14 | 325281.09 | 0.2363 | P | 9.0 |
| 3 | ☐ | 1000.000 | 5668.369 | 327574.81 | 0.2434 | P | 2.6 |
| 4 | ☐ | 2000.000 | 7778.994 | 328803.54 | 0.2442 | P | 4.2 |
| 5 | ☐ | 20000.00 | 35771.000 | 332254.82 | 0.2549 | P | 3.8 |
| 6 | ☐ | 40000.00 | 31842.203 | 321564.36 | 0.2534 | P | 2.4 |
| 7 | ☐ | 200.000 | | | | | |

y = 3.8243E-007 * x + 0.2413
R = 0.8337
DL = 7355
BEC = 6.309E+05

Weight: <None>
Min Conc: <None>

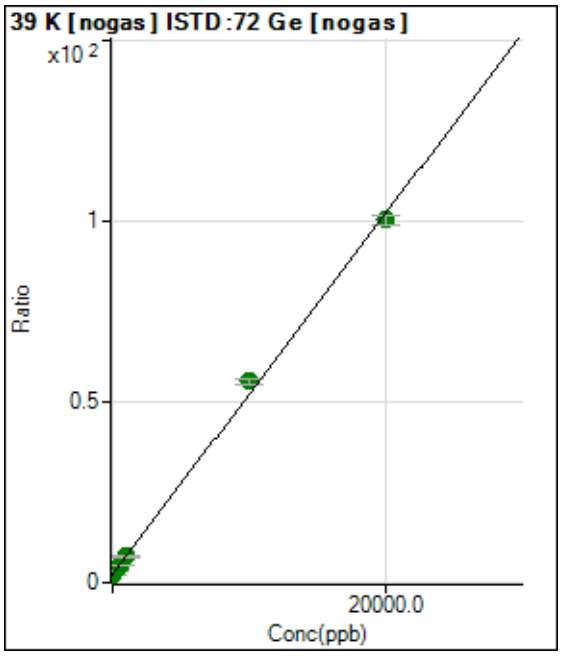
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 17044.65 | 0.0255 | P | 7.1 |
| 2 | ☐ | 400.000 | -13647.84 | 17645.51 | 0.0260 | P | 6.4 |
| 3 | ☐ | 1000.000 | 26087.229 | 16577.35 | 0.0244 | P | 5.6 |
| 4 | ☐ | 2000.000 | 42124.093 | 15309.71 | 0.0237 | P | 13.5 |
| 5 | ☐ | 20000.00 | 44048.159 | 16143.71 | 0.0237 | P | 6.5 |
| 6 | ☐ | 40000.00 | 25483.013 | 15943.86 | 0.0244 | P | 10.1 |
| 7 | ☐ | 200.000 | | | | | |

y = -4.0967E-008 * x + 0.0255
R = -0.3679
DL = -1.332E+05
BEC = -6.218E+05

Weight: <None>
Min Conc: <None>

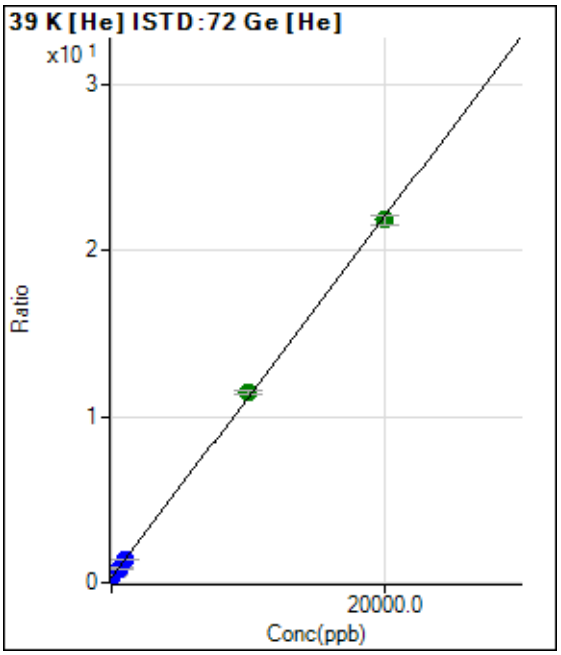



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 3137766.93 | 2.2923 | A | 1.5 |
| 2 | ☐ | 200.000 | 186.624 | 4441725.75 | 3.2243 | A | 6.4 |
| 3 | ☐ | 500.000 | 509.987 | 6512013.43 | 4.8390 | A | 2.5 |
| 4 | ☐ | 1000.000 | 998.453 | 9792809.33 | 7.2783 | A | 7.1 |
| 5 | ☐ | 10000.00 | 10690.336 | 72605622.46 | 55.6767 | A | 2.5 |
| 6 | ☐ | 20000.00 | 19654.793 | 127422152.8 | 100.442 | A | 2.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0050 * x + 2.2923
R = 0.9991
DL = 20.26
BEC = 459

Weight: <None>
Min Conc: <None>

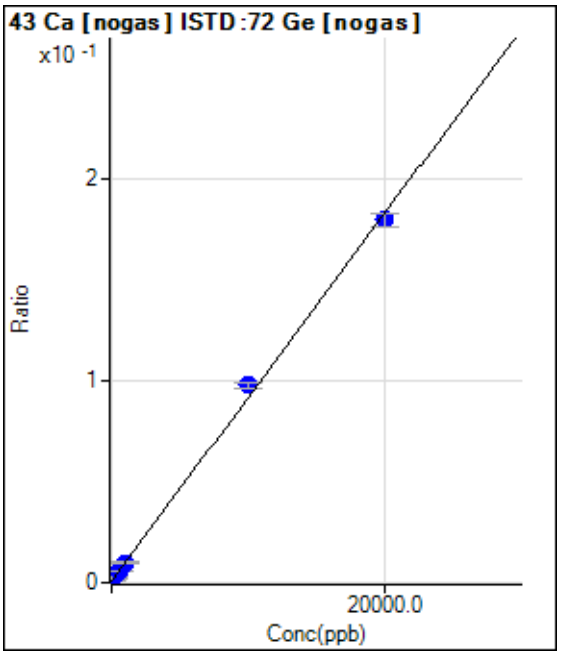
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 206200.58 | 0.3080 | P | 1.5 |
| 2 | ☐ | 200.000 | 198.531 | 353790.27 | 0.5234 | P | 4.9 |
| 3 | ☐ | 500.000 | 512.108 | 586422.44 | 0.8636 | P | 1.9 |
| 4 | ☐ | 1000.000 | 1005.976 | 902601.45 | 1.3993 | P | 1.6 |
| 5 | ☐ | 10000.00 | 10308.328 | 7833674.88 | 11.4908 | A | 1.6 |
| 6 | ☐ | 20000.00 | 19845.249 | 14228046.87 | 21.8368 | A | 2.5 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0011 * x + 0.3080
R = 0.9998
DL = 12.35
BEC = 283.9

Weight: <None>
Min Conc: <None>

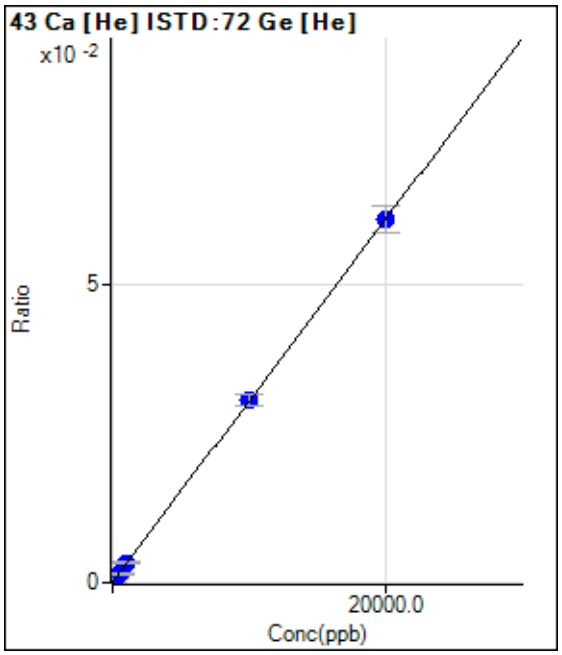



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 990.05 | 0.0007 | P | 11.1 |
| 2 | ☐ | 200.000 | 186.307 | 3337.03 | 0.0024 | P | 7.4 |
| 3 | ☐ | 500.000 | 541.119 | 7608.47 | 0.0057 | P | 6.0 |
| 4 | ☐ | 1000.000 | 1003.595 | 13295.25 | 0.0099 | P | 3.8 |
| 5 | ☐ | 10000.00 | 10684.192 | 127929.04 | 0.0981 | P | 3.1 |
| 6 | ☐ | 20000.00 | 19656.833 | 228182.77 | 0.1799 | P | 3.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 9.1156E-006 * x + 7.2354E-004
R = 0.9992
DL = 26.47
BEC = 79.37

Weight: <None>
Min Conc: <None>

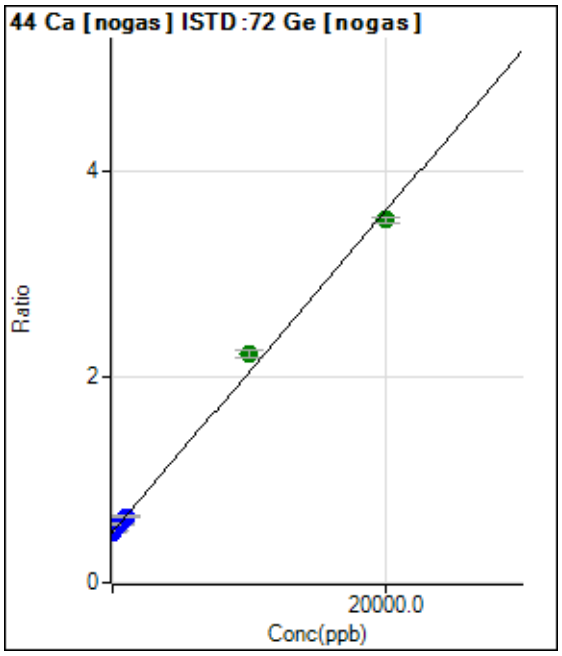
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56.67 | 0.0001 | P | 53.4 |
| 2 | ☐ | 200.000 | 210.462 | 490.02 | 0.0007 | P | 15.1 |
| 3 | ☐ | 500.000 | 481.783 | 1050.05 | 0.0015 | P | 14.3 |
| 4 | ☐ | 1000.000 | 1066.467 | 2140.17 | 0.0033 | P | 7.2 |
| 5 | ☐ | 10000.00 | 10031.570 | 20785.95 | 0.0305 | P | 6.4 |
| 6 | ☐ | 20000.00 | 19981.243 | 39491.44 | 0.0607 | P | 7.3 |
| 7 | ☐ | 100.000 | | | | | |

y = 3.0325E-006 * x + 8.4428E-005
R = 1.0000
DL = 44.61
BEC = 27.84

Weight: <None>
Min Conc: <None>

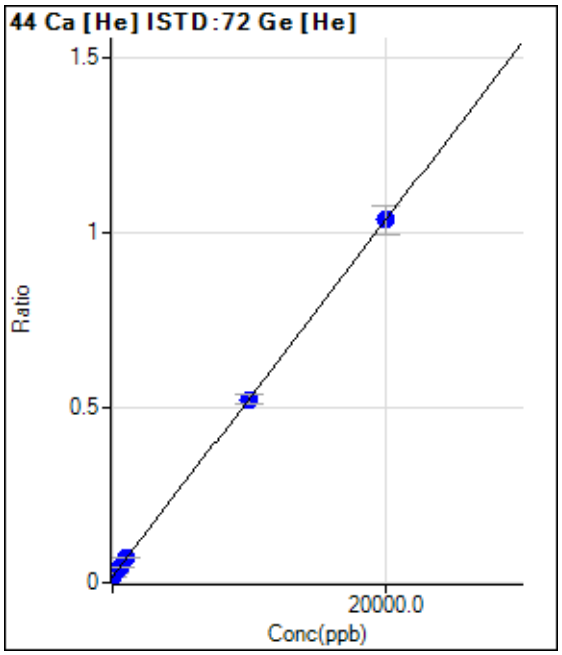



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 672488.09 | 0.4913 | P | 1.4 |
| 2 | ☐ | 200.000 | 180.720 | 715638.27 | 0.5195 | P | 6.3 |
| 3 | ☐ | 500.000 | 538.045 | 774034.18 | 0.5752 | P | 2.5 |
| 4 | ☐ | 1000.000 | 955.045 | 862088.45 | 0.6402 | P | 2.6 |
| 5 | ☐ | 10000.00 | 11110.441 | 2897414.02 | 2.2232 | A | 3.4 |
| 6 | ☐ | 20000.00 | 19446.269 | 4470161.81 | 3.5226 | A | 1.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.5588E-004 * x + 0.4913
R = 0.9978
DL = 133.9
BEC = 3152

Weight: <None>
Min Conc: <None>

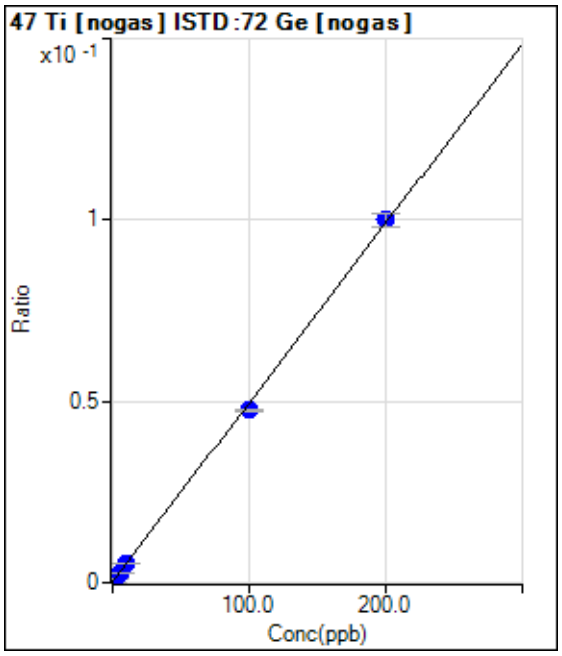
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 11417.10 | 0.0171 | P | 6.6 |
| 2 | ☐ | 200.000 | 216.088 | 18983.60 | 0.0281 | P | 2.3 |
| 3 | ☐ | 500.000 | 521.720 | 29624.96 | 0.0436 | P | 3.5 |
| 4 | ☐ | 1000.000 | 1074.044 | 46246.87 | 0.0718 | P | 5.3 |
| 5 | ☐ | 10000.00 | 9926.240 | 356094.32 | 0.5225 | P | 5.4 |
| 6 | ☐ | 20000.00 | 20032.474 | 674940.34 | 1.0372 | P | 7.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 5.0923E-005 * x + 0.0171
R = 1.0000
DL = 66.54
BEC = 335.1

Weight: <None>
Min Conc: <None>

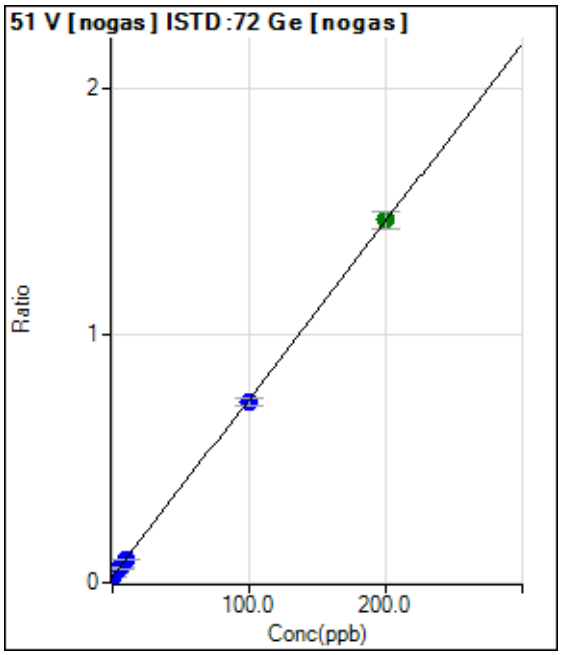



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 280.01 | 0.0002 | P | 14.1 |
| 2 | ☐ | 2.000 | 1.986 | 1633.44 | 0.0012 | P | 14.2 |
| 3 | ☐ | 5.000 | 5.134 | 3693.79 | 0.0027 | P | 5.0 |
| 4 | ☐ | 10.000 | 10.448 | 7228.29 | 0.0054 | P | 4.1 |
| 5 | ☐ | 100.000 | 95.886 | 62063.27 | 0.0476 | P | 1.1 |
| 6 | ☐ | 200.000 | 202.031 | 126951.19 | 0.1001 | P | 3.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 4.9431E-004 * x + 2.0452E-004
R = 0.9997
DL = 0.1755
BEC = 0.4137

Weight: <None>
Min Conc: <None>

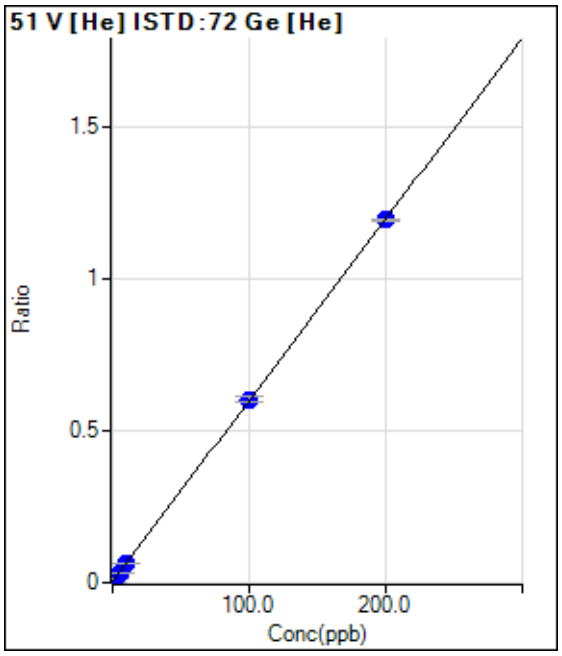
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 34205.64 | 0.0250 | P | 4.6 |
| 2 | ☐ | 2.000 | 2.090 | 55130.18 | 0.0400 | P | 5.9 |
| 3 | ☐ | 5.000 | 4.946 | 81366.02 | 0.0605 | P | 7.4 |
| 4 | ☐ | 10.000 | 9.653 | 127054.92 | 0.0943 | P | 1.0 |
| 5 | ☐ | 100.000 | 98.332 | 953415.06 | 0.7310 | P | 3.4 |
| 6 | ☐ | 200.000 | 200.852 | 1860146.98 | 1.4670 | A | 5.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0072 * x + 0.0250
R = 1.0000
DL = 0.48
BEC = 3.48

Weight: <None>
Min Conc: <None>

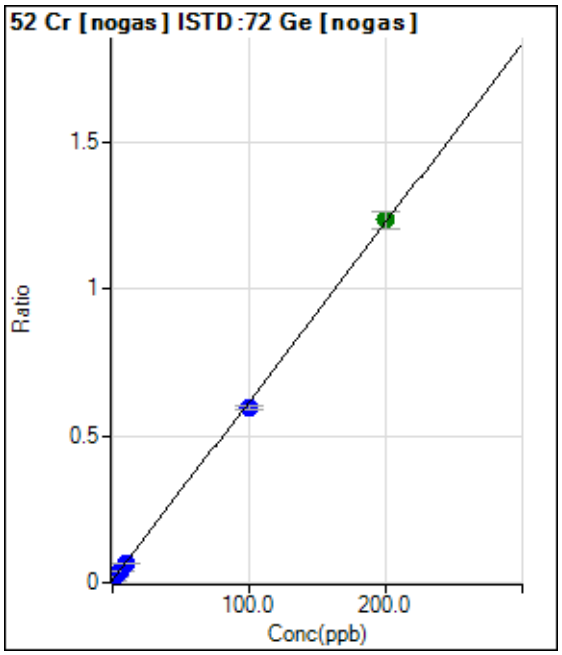



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.167 | 1570.74 | 0.0023 | P | 7.2 |
| 2 | ☐ | 2.000 | 1.809 | 9552.56 | 0.0141 | P | 2.0 |
| 3 | ☐ | 5.000 | 4.688 | 21241.32 | 0.0313 | P | 2.9 |
| 4 | ☐ | 10.000 | 10.370 | 42022.28 | 0.0652 | P | 3.3 |
| 5 | ☐ | 100.000 | 100.616 | 411230.29 | 0.6032 | P | 3.1 |
| 6 | ☐ | 200.000 | 199.683 | 778082.96 | 1.1939 | P | 0.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0060 * x + 0.0033
R = 1.0000
DL = 0.08541
BEC = 0.5599

Weight: <None>
Min Conc: <None>

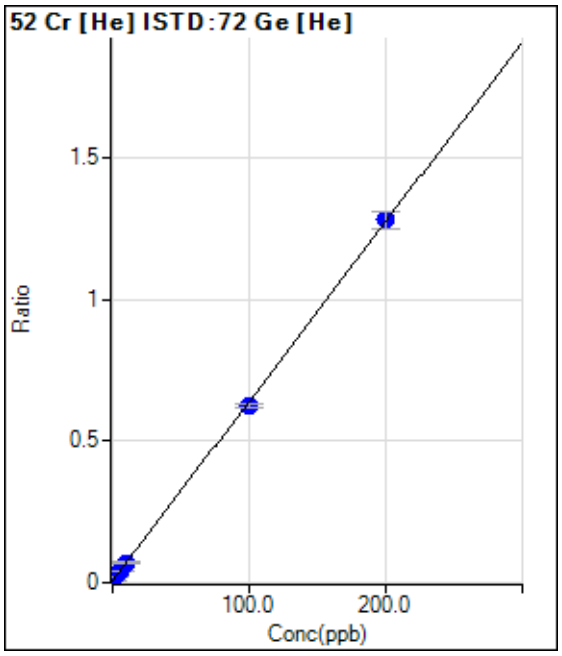
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 11403.84 | 0.0083 | P | 4.8 |
| 2 | ☐ | 2.000 | 1.777 | 26396.82 | 0.0191 | P | 4.0 |
| 3 | ☐ | 5.000 | 4.730 | 49944.70 | 0.0371 | P | 3.0 |
| 4 | ☐ | 10.000 | 9.630 | 90183.63 | 0.0669 | P | 3.1 |
| 5 | ☐ | 100.000 | 96.971 | 780242.57 | 0.5985 | P | 2.2 |
| 6 | ☐ | 200.000 | 201.542 | 1566205.70 | 1.2348 | A | 4.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0061 * x + 0.0083
R = 0.9998
DL = 0.1952
BEC = 1.369

Weight: <None>
Min Conc: <None>

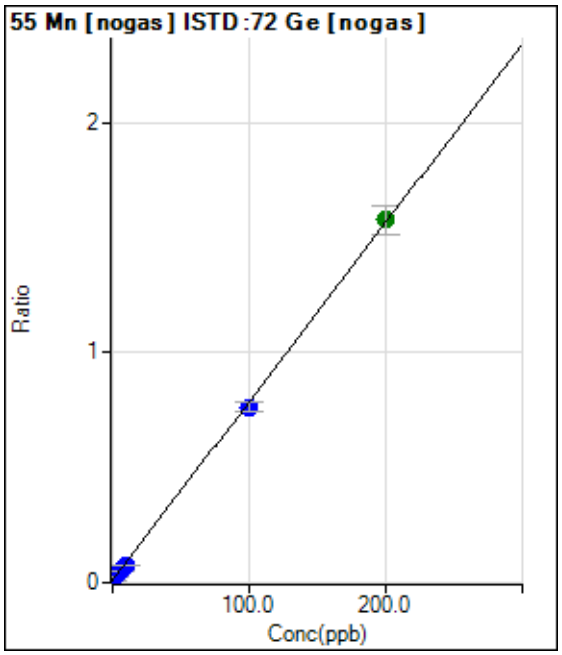



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4167.22 | 0.0062 | P | 4.9 |
| 2 | ☐ | 2.000 | 1.903 | 12401.14 | 0.0183 | P | 2.6 |
| 3 | ☐ | 5.000 | 5.093 | 26183.13 | 0.0386 | P | 1.2 |
| 4 | ☐ | 10.000 | 10.251 | 46034.04 | 0.0713 | P | 4.4 |
| 5 | ☐ | 100.000 | 97.747 | 427395.52 | 0.6268 | P | 1.8 |
| 6 | ☐ | 200.000 | 201.112 | 836433.16 | 1.2830 | P | 4.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0063 * x + 0.0062
R = 0.9999
DL = 0.1429
BEC = 0.9809

Weight: <None>
Min Conc: <None>

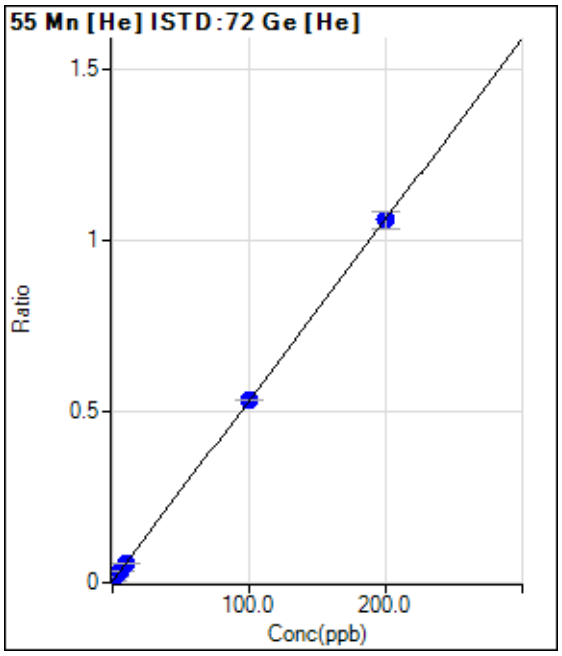
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13939.01 | 0.0102 | P | 0.6 |
| 2 | ☐ | 2.000 | 1.895 | 34301.25 | 0.0249 | P | 7.0 |
| 3 | ☐ | 5.000 | 4.765 | 63505.62 | 0.0472 | P | 2.3 |
| 4 | ☐ | 10.000 | 8.794 | 105725.07 | 0.0785 | P | 1.0 |
| 5 | ☐ | 100.000 | 96.770 | 992437.62 | 0.7617 | P | 5.4 |
| 6 | ☐ | 200.000 | 201.682 | 1997311.95 | 1.5764 | A | 8.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0078 * x + 0.0102
R = 0.9998
DL = 0.02321
BEC = 1.311

Weight: <None>
Min Conc: <None>

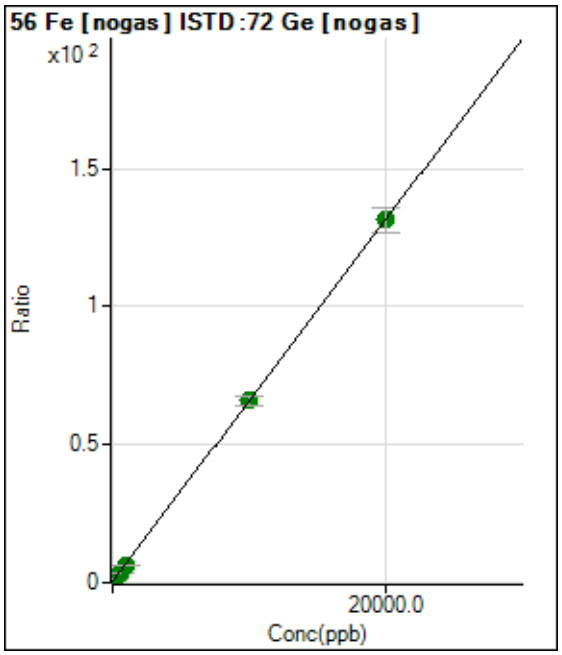



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2776.94 | 0.0042 | P | 6.0 |
| 2 | ☐ | 2.000 | 2.224 | 10766.87 | 0.0159 | P | 3.7 |
| 3 | ☐ | 5.000 | 5.392 | 22201.25 | 0.0327 | P | 3.2 |
| 4 | ☐ | 10.000 | 10.009 | 36848.78 | 0.0571 | P | 2.4 |
| 5 | ☐ | 100.000 | 100.512 | 365630.73 | 0.5363 | P | 0.4 |
| 6 | ☐ | 200.000 | 199.732 | 691249.05 | 1.0615 | P | 4.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0053 * x + 0.0042
R = 1.0000
DL = 0.1403
BEC = 0.7839

Weight: <None>
Min Conc: <None>

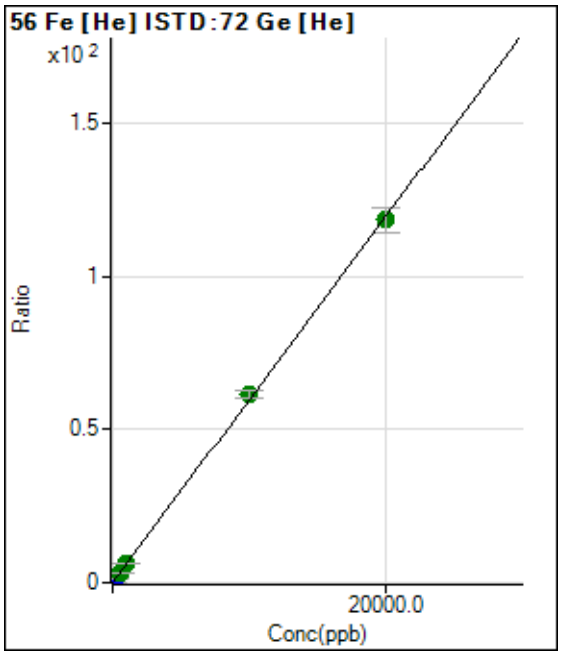
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 611073.50 | 0.4464 | P | 2.4 |
| 2 | ☐ | 200.000 | 193.068 | 2358186.84 | 1.7113 | A | 7.5 |
| 3 | ☐ | 500.000 | 469.240 | 4738182.14 | 3.5206 | A | 2.0 |
| 4 | ☐ | 1000.000 | 930.042 | 8811478.06 | 6.5395 | A | 0.4 |
| 5 | ☐ | 10000.00 | 10008.580 | 86013668.59 | 66.0167 | A | 5.5 |
| 6 | ☐ | 20000.00 | 20000.046 | 166644928.7 | 131.474 | A | 6.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0066 * x + 0.4464
R = 1.0000
DL = 4.98
BEC = 68.14

Weight: <None>
Min Conc: <None>

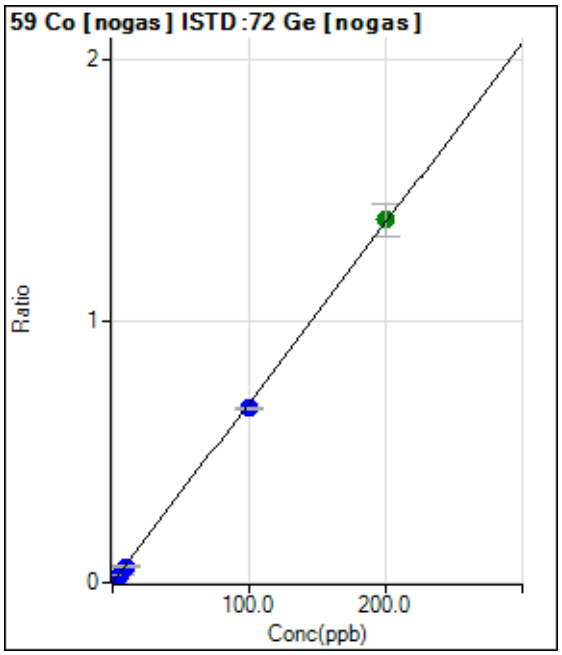



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 15640.42 | 0.0234 | P | 5.3 |
| 2 | ☐ | 200.000 | 203.755 | 837020.51 | 1.2384 | P | 5.3 |
| 3 | ☐ | 500.000 | 520.767 | 2124346.58 | 3.1287 | A | 2.1 |
| 4 | ☐ | 1000.000 | 1039.516 | 4010719.31 | 6.2221 | A | 5.2 |
| 5 | ☐ | 10000.00 | 10308.620 | 41919099.38 | 61.4944 | A | 3.3 |
| 6 | ☐ | 20000.00 | 19843.157 | 77034148.85 | 118.349 | A | 6.6 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0060 * x + 0.0234
R = 0.9998
DL = 0.6269
BEC = 3.918

Weight: <None>
Min Conc: <None>

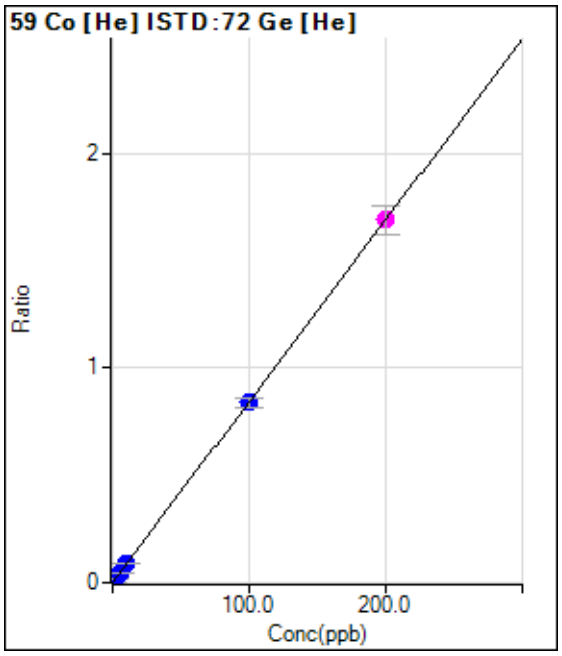
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 246.67 | 0.0002 | P | 10.0 |
| 2 | ☐ | 2.000 | 1.790 | 17182.17 | 0.0125 | P | 7.2 |
| 3 | ☐ | 5.000 | 4.555 | 42341.74 | 0.0315 | P | 2.5 |
| 4 | ☐ | 10.000 | 8.923 | 82737.72 | 0.0615 | P | 4.6 |
| 5 | ☐ | 100.000 | 96.742 | 866428.09 | 0.6646 | P | 0.6 |
| 6 | ☐ | 200.000 | 201.696 | 1754938.47 | 1.3853 | A | 9.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0069 * x + 1.8028E-004
R = 0.9998
DL = 0.007849
BEC = 0.02625

Weight: <None>
Min Conc: <None>

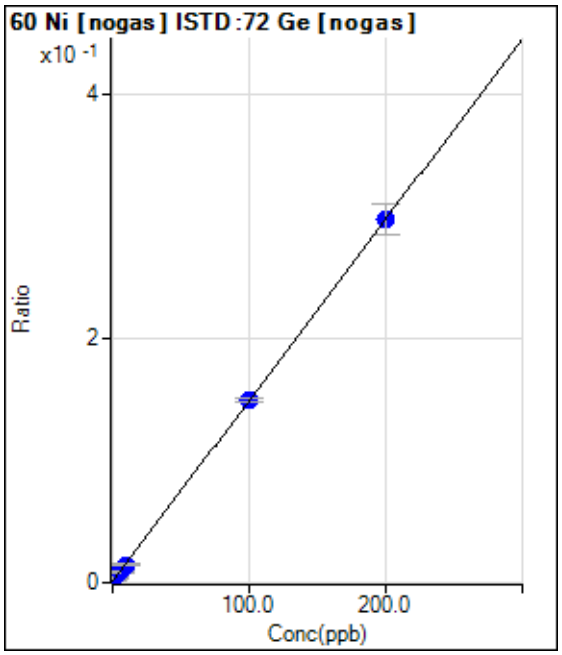



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 100.00 | 0.0002 | P | 79.3 |
| 2 | ☐ | 2.000 | 2.032 | 11694.08 | 0.0173 | P | 10.6 |
| 3 | ☐ | 5.000 | 5.036 | 28994.55 | 0.0427 | P | 2.8 |
| 4 | ☐ | 10.000 | 10.660 | 58133.74 | 0.0902 | P | 6.6 |
| 5 | ☐ | 100.000 | 99.528 | 573218.05 | 0.8412 | P | 5.5 |
| 6 | ☐ | 200.000 | 200.202 | 1100994.44 | 1.6919 | M | 7.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0084 * x + 1.5027E-004
R = 1.0000
DL = 0.0423
BEC = 0.01778

Weight: <None>
Min Conc: <None>

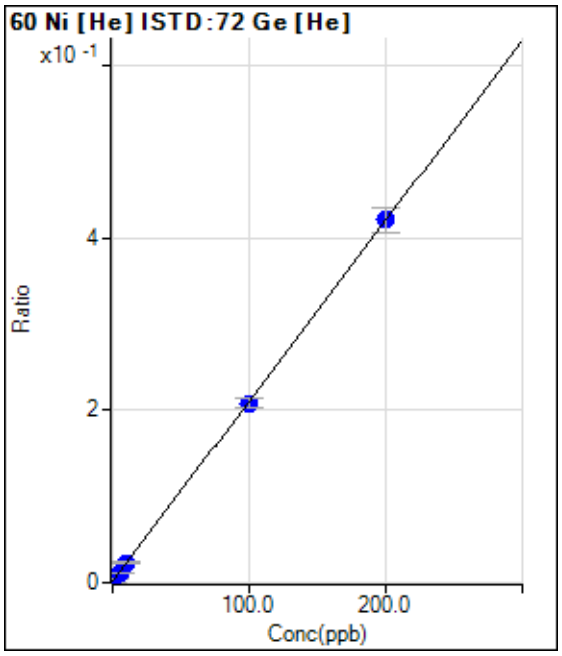
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.132 | 1630.11 | 0.0012 | P | 11.3 |
| 2 | ☐ | 2.000 | 2.100 | 5661.01 | 0.0041 | P | 9.1 |
| 3 | ☐ | 5.000 | 5.365 | 12037.72 | 0.0090 | P | 9.0 |
| 4 | ☐ | 10.000 | 9.299 | 19898.20 | 0.0148 | P | 6.4 |
| 5 | ☐ | 100.000 | 100.158 | 194969.27 | 0.1495 | P | 2.1 |
| 6 | ☐ | 200.000 | 199.946 | 376948.67 | 0.2975 | P | 8.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 9.9572E-004
R = 1.0000
DL = 0.2734
BEC = 0.6714

Weight: <None>
Min Conc: <None>

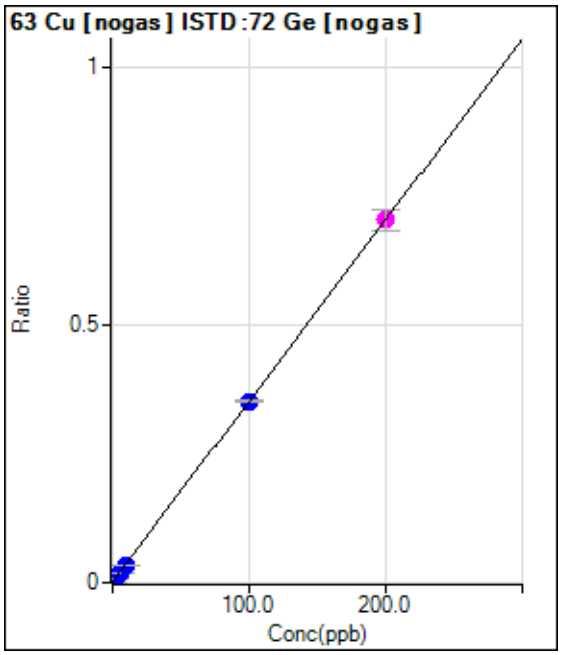



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.104 | 713.36 | 0.0011 | P | 2.3 |
| 2 | ☐ | 2.000 | 2.156 | 3913.85 | 0.0058 | P | 7.6 |
| 3 | ☐ | 5.000 | 5.013 | 7992.00 | 0.0118 | P | 5.1 |
| 4 | ☐ | 10.000 | 10.510 | 14999.90 | 0.0233 | P | 6.7 |
| 5 | ☐ | 100.000 | 98.906 | 141861.31 | 0.2082 | P | 4.6 |
| 6 | ☐ | 200.000 | 200.520 | 273822.69 | 0.4207 | P | 6.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0021 * x + 0.0013
R = 1.0000
DL = 0.03527
BEC = 0.614

Weight: <None>
Min Conc: <None>

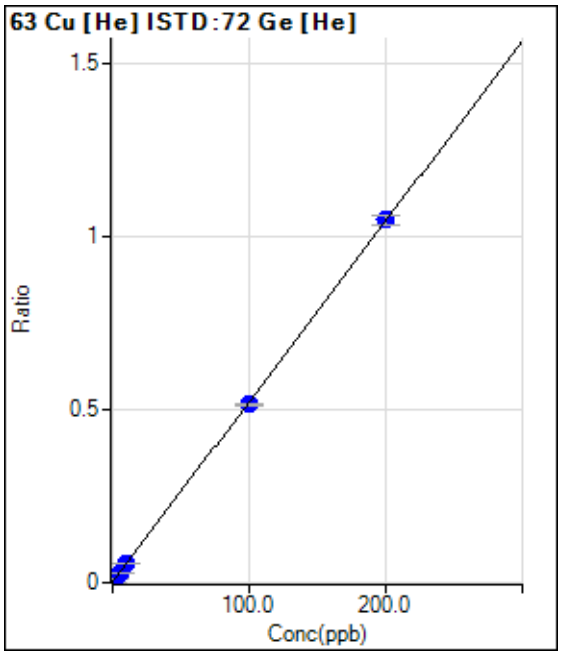
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1996.81 | 0.0015 | P | 4.5 |
| 2 | ☐ | 2.000 | 1.925 | 11337.22 | 0.0082 | P | 5.5 |
| 3 | ☐ | 5.000 | 4.882 | 25038.57 | 0.0186 | P | 9.5 |
| 4 | ☐ | 10.000 | 9.524 | 47074.51 | 0.0349 | P | 1.9 |
| 5 | ☐ | 100.000 | 99.915 | 460032.53 | 0.3528 | P | 1.6 |
| 6 | ☐ | 200.000 | 200.070 | 893910.33 | 0.7049 | M | 5.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0035 * x + 0.0015
R = 1.0000
DL = 0.05546
BEC = 0.4148

Weight: <None>
Min Conc: <None>

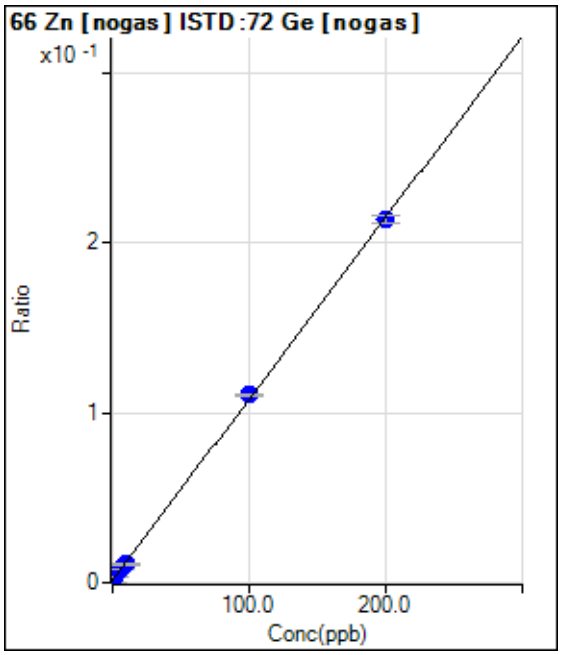



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.011 | 1006.72 | 0.0015 | P | 17.3 |
| 2 | ☐ | 2.000 | 2.165 | 8608.91 | 0.0128 | P | 9.0 |
| 3 | ☐ | 5.000 | 4.993 | 18680.37 | 0.0275 | P | 4.0 |
| 4 | ☐ | 10.000 | 10.689 | 36922.55 | 0.0573 | P | 2.5 |
| 5 | ☐ | 100.000 | 98.355 | 351130.74 | 0.5150 | P | 1.4 |
| 6 | ☐ | 200.000 | 200.787 | 684098.58 | 1.0498 | P | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0052 * x + 0.0014
R = 0.9999
DL = 0.1498
BEC = 0.277

Weight: <None>
Min Conc: <None>

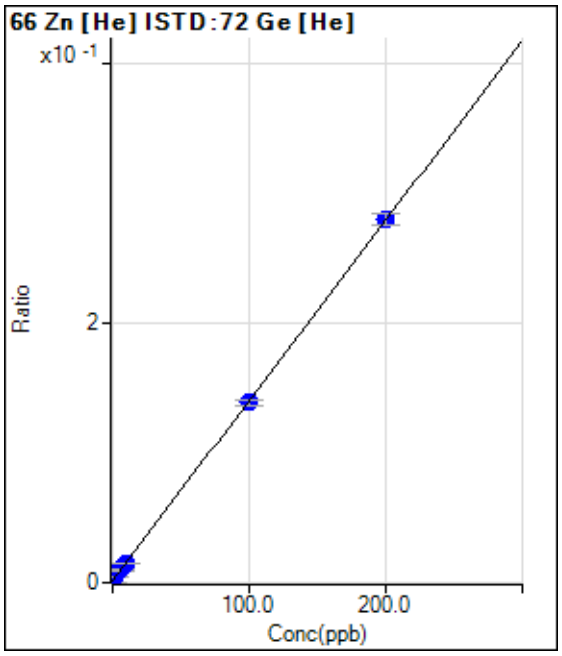
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.908 | 580.02 | 0.0004 | P | 8.1 |
| 2 | ☐ | 2.000 | 1.931 | 4774.08 | 0.0035 | P | 2.9 |
| 3 | ☐ | 5.000 | 5.891 | 10346.54 | 0.0077 | P | 2.6 |
| 4 | ☐ | 10.000 | 8.859 | 14619.78 | 0.0109 | P | 3.2 |
| 5 | ☐ | 100.000 | 102.382 | 144358.06 | 0.1107 | P | 1.2 |
| 6 | ☐ | 200.000 | 198.845 | 271125.97 | 0.2137 | P | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0011 * x + 0.0014
R = 0.9999
DL = 0.09645
BEC = 1.305

Weight: <None>
Min Conc: <None>

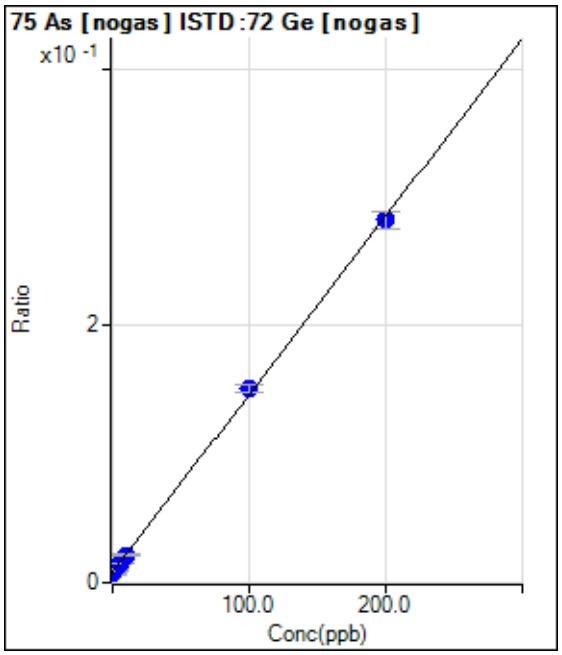



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.522 | 426.68 | 0.0006 | P | 18.3 |
| 2 | ☐ | 2.000 | 2.004 | 2803.61 | 0.0041 | P | 6.4 |
| 3 | ☐ | 5.000 | 6.120 | 6698.11 | 0.0099 | P | 7.2 |
| 4 | ☐ | 10.000 | 9.770 | 9642.82 | 0.0149 | P | 3.9 |
| 5 | ☐ | 100.000 | 99.290 | 95052.89 | 0.1394 | P | 3.2 |
| 6 | ☐ | 200.000 | 200.339 | 182378.22 | 0.2798 | P | 3.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 0.0014
R = 1.0000
DL = 0.2517
BEC = 0.9805

Weight: <None>
Min Conc: <None>

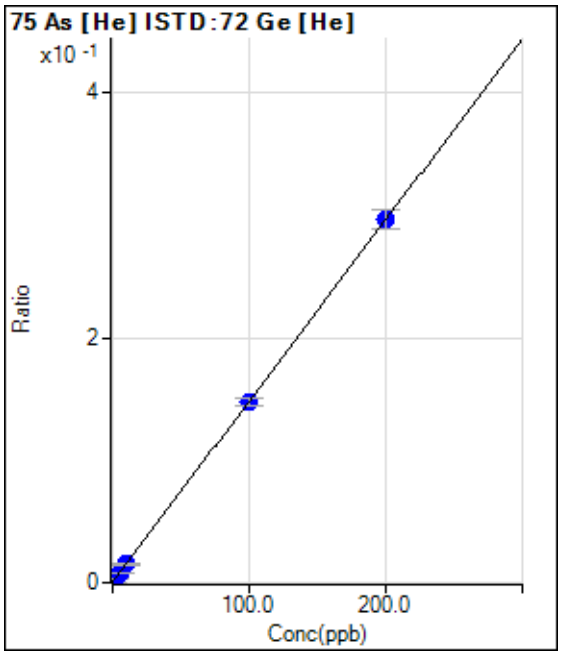
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.839 | 9282.59 | 0.0068 | P | 5.5 |
| 2 | ☐ | 2.000 | 1.366 | 13572.06 | 0.0098 | P | 3.4 |
| 3 | ☐ | 5.000 | 4.774 | 19591.31 | 0.0146 | P | 4.0 |
| 4 | ☐ | 10.000 | 9.803 | 28997.67 | 0.0215 | P | 2.7 |
| 5 | ☐ | 100.000 | 103.747 | 197792.62 | 0.1518 | P | 3.6 |
| 6 | ☐ | 200.000 | 198.148 | 358443.33 | 0.2826 | P | 4.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0014 * x + 0.0079
R = 0.9997
DL = 0.8075
BEC = 5.731

Weight: <None>
Min Conc: <None>

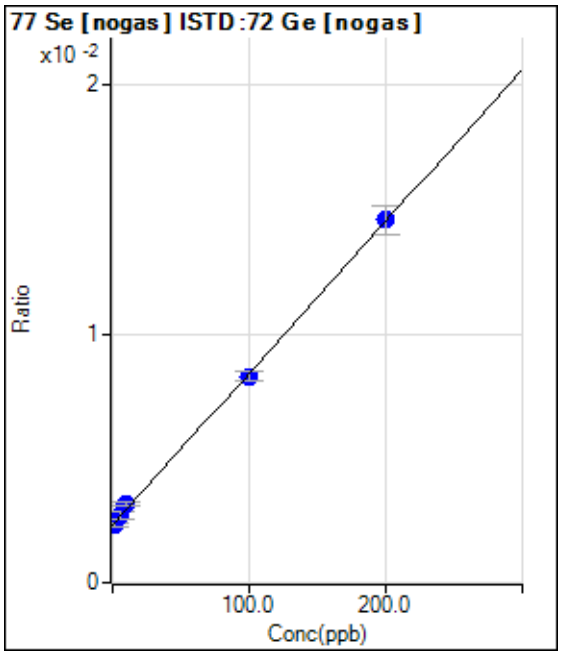



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 211.11 | 0.0003 | P | 11.0 |
| 2 | ☐ | 2.000 | 1.913 | 2123.47 | 0.0031 | P | 7.2 |
| 3 | ☐ | 5.000 | 5.008 | 5240.83 | 0.0077 | P | 3.6 |
| 4 | ☐ | 10.000 | 10.012 | 9742.73 | 0.0151 | P | 4.8 |
| 5 | ☐ | 100.000 | 99.824 | 100783.23 | 0.1479 | P | 4.6 |
| 6 | ☐ | 200.000 | 200.088 | 192755.94 | 0.2961 | P | 5.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0015 * x + 3.1557E-004
R = 1.0000
DL = 0.07038
BEC = 0.2135

Weight: <None>
Min Conc: <None>

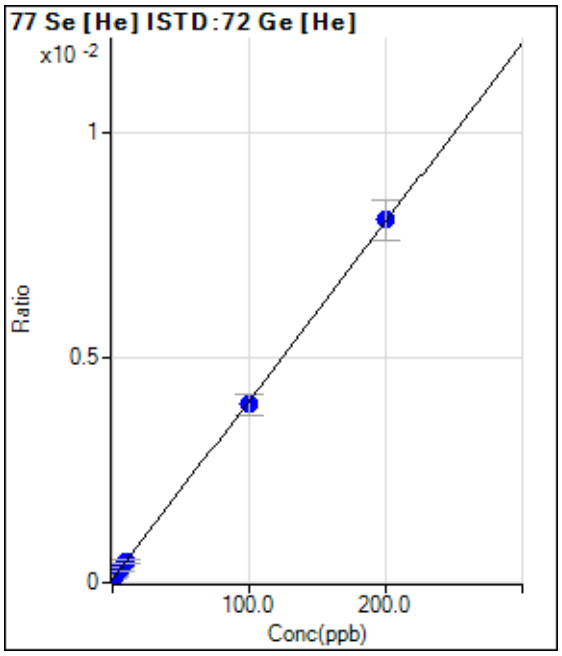
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 3177.01 | 0.0023 | P | 9.1 |
| 2 | ☐ | 2.000 | 0.262 | 3220.35 | 0.0023 | P | 8.1 |
| 3 | ☐ | 5.000 | 6.330 | 3637.11 | 0.0027 | P | 10.8 |
| 4 | ☐ | 10.000 | 14.070 | 4283.93 | 0.0032 | P | 3.7 |
| 5 | ☐ | 100.000 | 97.720 | 10786.85 | 0.0083 | P | 4.7 |
| 6 | ☐ | 200.000 | 200.920 | 18463.34 | 0.0146 | P | 8.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.0963E-005 * x + 0.0023
R = 0.9996
DL = 10.44
BEC = 38.06

Weight: <None>
Min Conc: <None>

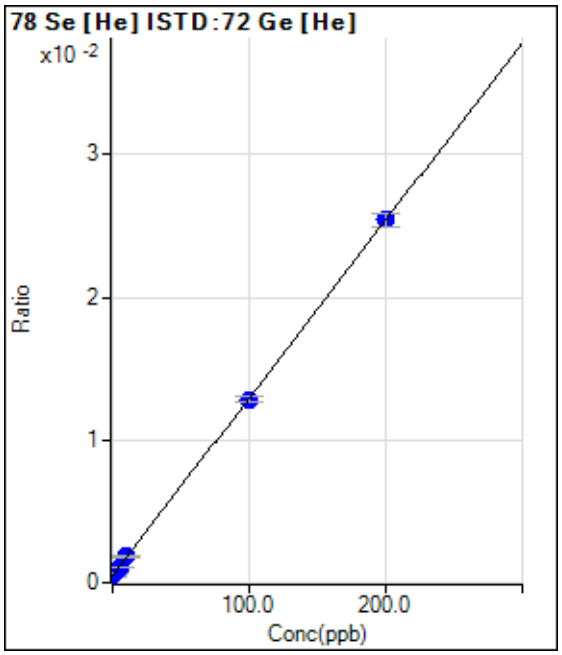



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.506 | 63.33 | 0.0001 | P | 37.7 |
| 2 | ☐ | 2.000 | 1.595 | 93.33 | 0.0001 | P | 23.0 |
| 3 | ☐ | 5.000 | 5.927 | 210.01 | 0.0003 | P | 29.5 |
| 4 | ☐ | 10.000 | 10.155 | 306.68 | 0.0005 | P | 21.5 |
| 5 | ☐ | 100.000 | 97.688 | 2690.26 | 0.0039 | P | 11.4 |
| 6 | ☐ | 200.000 | 201.129 | 5237.56 | 0.0081 | P | 11.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 3.9659E-005 * x + 7.4792E-005
R = 0.9999
DL = 2.708
BEC = 1.886

Weight: <None>
Min Conc: <None>

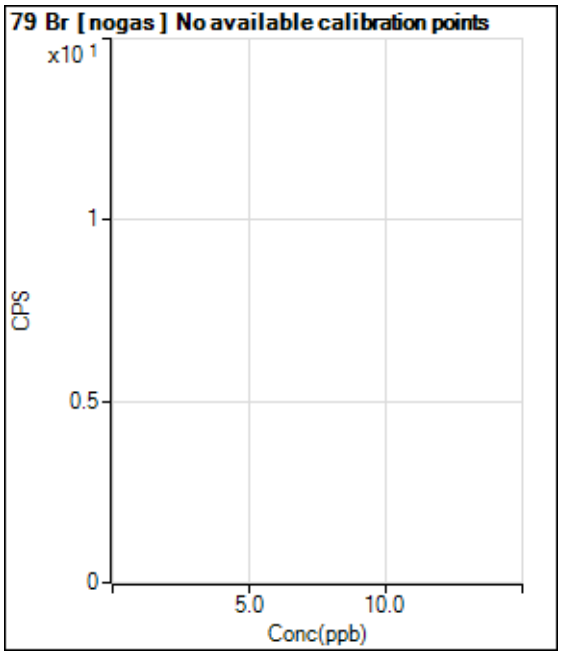
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 336.67 | 0.0005 | P | 16.4 |
| 2 | ☐ | 2.000 | 1.853 | 495.34 | 0.0007 | P | 5.8 |
| 3 | ☐ | 5.000 | 4.615 | 731.35 | 0.0011 | P | 8.7 |
| 4 | ☐ | 10.000 | 10.635 | 1177.37 | 0.0018 | P | 2.8 |
| 5 | ☐ | 100.000 | 99.308 | 8768.20 | 0.0129 | P | 3.6 |
| 6 | ☐ | 200.000 | 200.325 | 16562.46 | 0.0254 | P | 3.6 |
| 7 | ☐ | 1.000 | | | | | |

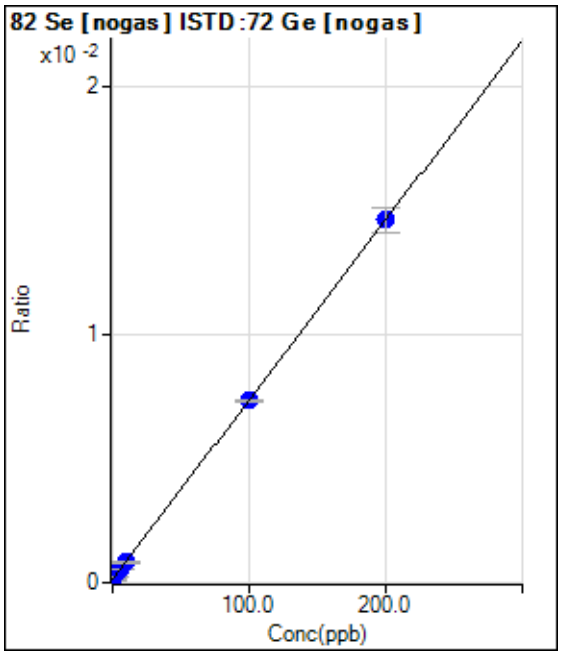
y = 1.2443E-004 * x + 5.0251E-004
R = 1.0000
DL = 1.981
BEC = 4.038

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

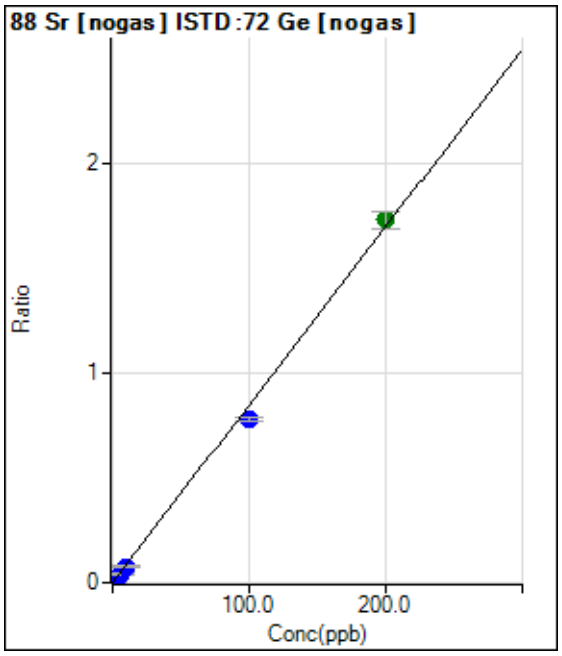
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 170.00 | 0.0001 | P | 26.1 |
| 2 | ☐ | 2.000 | 2.460 | 413.35 | 0.0003 | P | 32.0 |
| 3 | ☐ | 5.000 | 5.703 | 723.37 | 0.0005 | P | 10.1 |
| 4 | ☐ | 10.000 | 9.738 | 1116.73 | 0.0008 | P | 12.6 |
| 5 | ☐ | 100.000 | 99.587 | 9559.51 | 0.0073 | P | 0.9 |
| 6 | ☐ | 200.000 | 200.197 | 18520.17 | 0.0146 | P | 6.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 7.2368E-005 * x + 1.2432E-004
R = 1.0000
DL = 1.347
BEC = 1.718

Weight: <None>
Min Conc: <None>

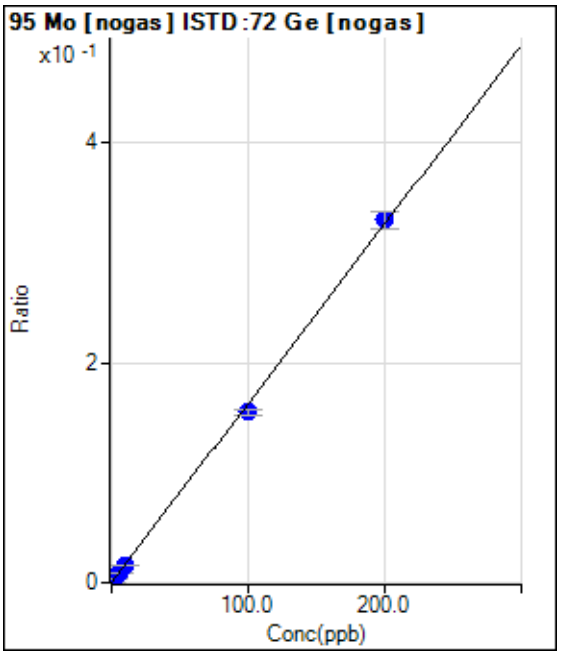



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 766.69 | 0.0006 | P | 14.9 |
| 2 | ☐ | 2.000 | 1.846 | 22304.96 | 0.0162 | P | 7.3 |
| 3 | ☐ | 5.000 | 4.774 | 55127.19 | 0.0410 | P | 3.5 |
| 4 | ☐ | 10.000 | 8.995 | 103288.41 | 0.0767 | P | 4.4 |
| 5 | ☐ | 100.000 | 92.024 | 1016586.08 | 0.7796 | P | 2.2 |
| 6 | ☐ | 200.000 | 204.045 | 2191654.39 | 1.7278 | A | 4.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0085 * x + 5.6012E-004
R = 0.9989
DL = 0.02964
BEC = 0.06617

Weight: <None>
Min Conc: <None>

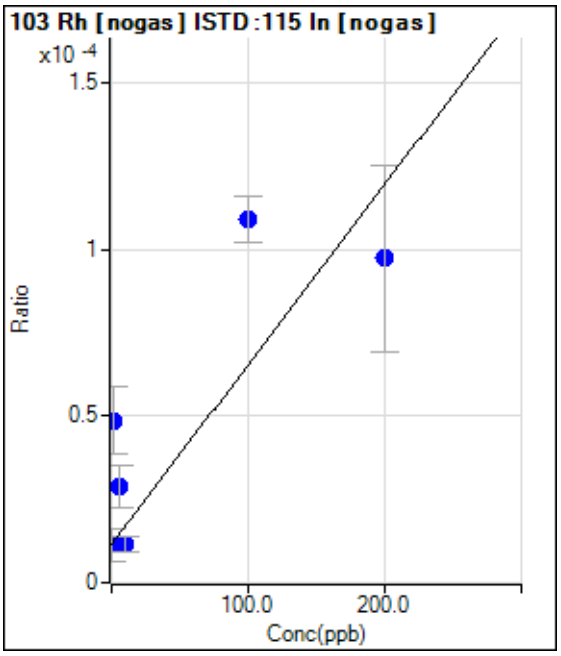
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 336.68 | 0.0002 | P | 11.9 |
| 2 | ☐ | 2.000 | 1.981 | 4787.44 | 0.0035 | P | 7.5 |
| 3 | ☐ | 5.000 | 5.109 | 11524.07 | 0.0086 | P | 6.2 |
| 4 | ☐ | 10.000 | 9.582 | 21357.12 | 0.0159 | P | 1.3 |
| 5 | ☐ | 100.000 | 95.086 | 202339.68 | 0.1551 | P | 3.0 |
| 6 | ☐ | 200.000 | 202.475 | 418529.06 | 0.3301 | P | 4.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0016 * x + 2.4593E-004
R = 0.9996
DL = 0.05409
BEC = 0.151

Weight: <None>
Min Conc: <None>

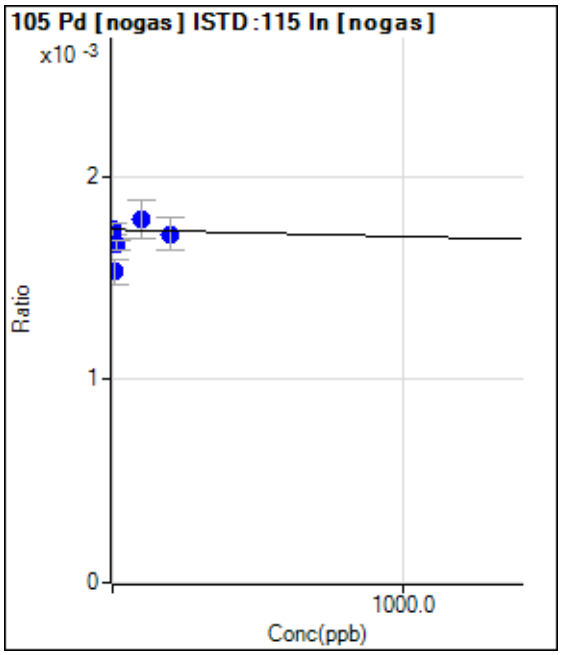



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13.33 | 0.0000 | P | 86.6 |
| 2 | ☐ | 2.000 | 69.064 | 56.67 | 0.0000 | P | 40.8 |
| 3 | ☐ | 5.000 | 32.189 | 33.33 | 0.0000 | P | 45.7 |
| 4 | ☐ | 10.000 | -0.166 | 13.33 | 0.0000 | P | 41.8 |
| 5 | ☐ | 100.000 | 180.460 | 126.67 | 0.0001 | P | 12.8 |
| 6 | ☐ | 200.000 | 158.928 | 116.67 | 0.0001 | P | 57.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.4051E-007 * x + 1.1482E-005
R = 0.8310
DL = 55.19
BEC = 21.24

Weight: <None>
Min Conc: <None>

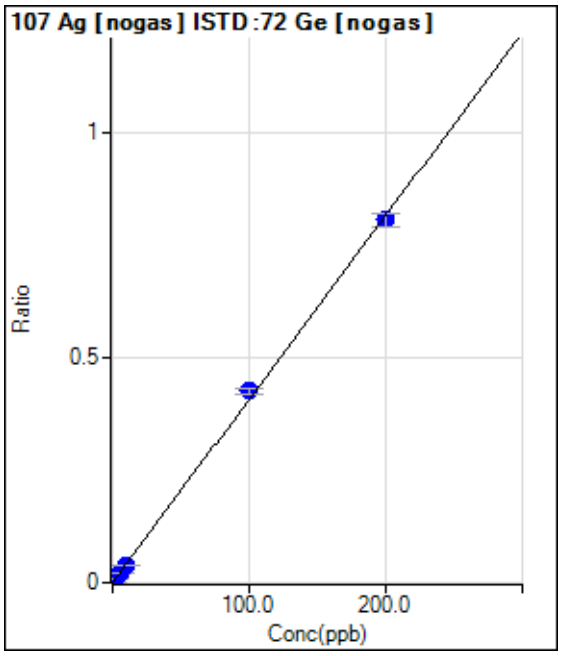
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2023.50 | 0.0017 | P | 3.1 |
| 2 | ☐ | 2.000 | 708.140 | 2013.50 | 0.0017 | P | 2.8 |
| 3 | ☐ | 5.000 | 6090.111 | 1766.80 | 0.0015 | P | 8.2 |
| 4 | ☐ | 10.000 | 2156.014 | 1943.48 | 0.0017 | P | 3.0 |
| 5 | ☐ | 100.000 | -1387.123 | 2076.83 | 0.0018 | P | 10.6 |
| 6 | ☐ | 200.000 | 677.072 | 2073.50 | 0.0017 | P | 9.2 |
| 7 | ☐ | 1.000 | | | | | |

y = -3.4169E-008 * x + 0.0017
R = 0.3656
DL = -4736
BEC = -5.092E+04

Weight: <None>
Min Conc: <None>

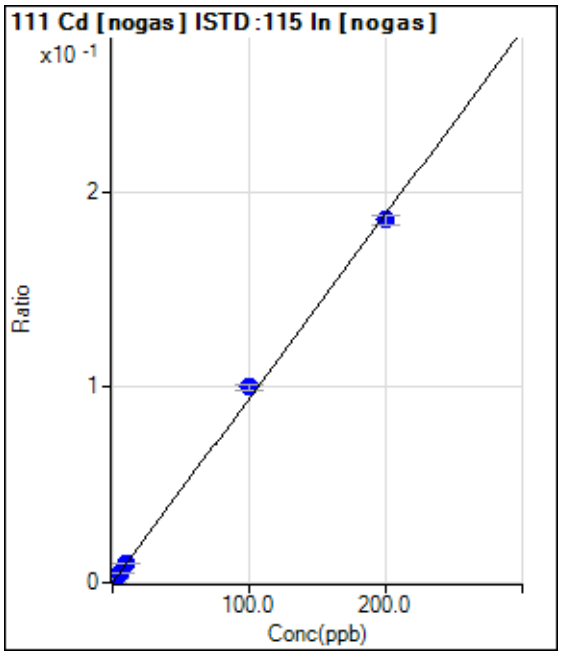



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 50.00 | 0.0000 | P | 19.3 |
| 2 | ☐ | 2.000 | 1.846 | 10443.43 | 0.0076 | P | 5.9 |
| 3 | ☐ | 5.000 | 4.928 | 27116.01 | 0.0201 | P | 2.8 |
| 4 | ☐ | 10.000 | 9.610 | 52883.56 | 0.0393 | P | 3.7 |
| 5 | ☐ | 100.000 | 104.409 | 555427.23 | 0.4261 | P | 2.8 |
| 6 | ☐ | 200.000 | 197.818 | 1024395.43 | 0.8073 | P | 4.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0041 * x + 3.6495E-005
R = 0.9996
DL = 0.005189
BEC = 0.008943

Weight: <None>
Min Conc: <None>

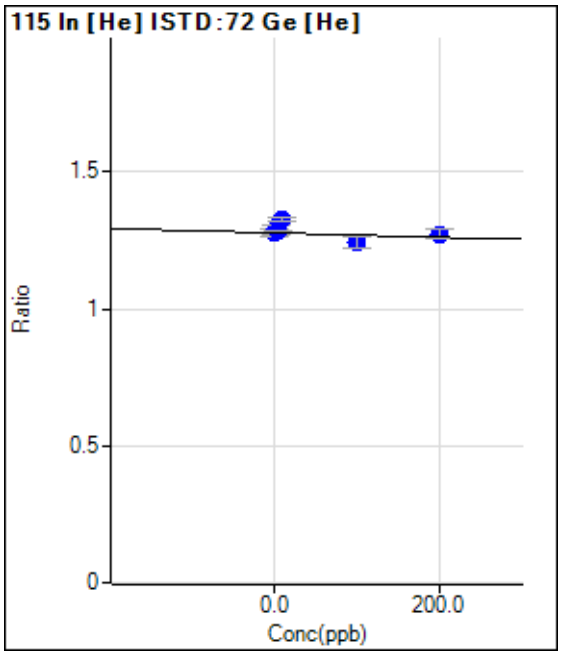
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13.33 | 0.0000 | P | 114. |
| 2 | ☐ | 2.000 | 2.054 | 2286.88 | 0.0019 | P | 2.1 |
| 3 | ☐ | 5.000 | 5.141 | 5594.35 | 0.0049 | P | 3.8 |
| 4 | ☐ | 10.000 | 10.626 | 11684.39 | 0.0100 | P | 2.5 |
| 5 | ☐ | 100.000 | 105.982 | 116050.52 | 0.0999 | P | 3.9 |
| 6 | ☐ | 200.000 | 196.974 | 224523.79 | 0.1856 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 9.4205E-004 * x + 1.1439E-005
R = 0.9994
DL = 0.04153
BEC = 0.01214

Weight: <None>
Min Conc: <None>

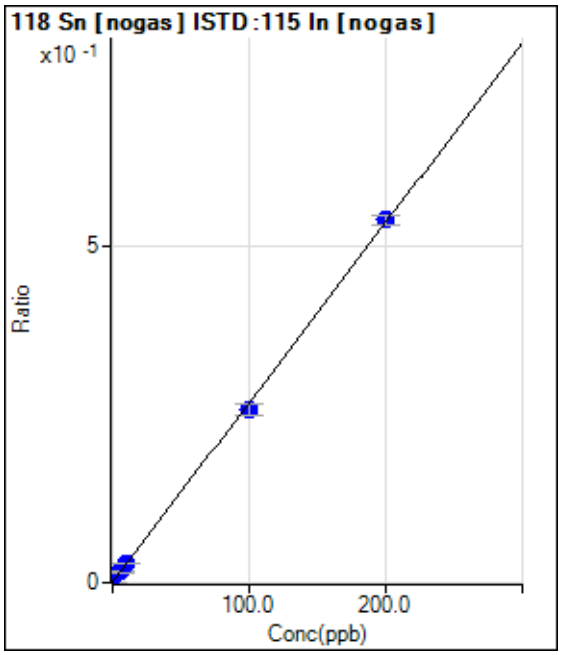



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 855732.70 | 1.2783 | P | 2.1 |
| 2 | ☐ | 2.000 | -146.505 | 873247.22 | 1.2901 | P | 2.5 |
| 3 | ☐ | 5.000 | -96.053 | 873202.57 | 1.2860 | P | 0.2 |
| 4 | ☐ | 10.000 | -584.626 | 855092.64 | 1.3255 | P | 0.9 |
| 5 | ☐ | 100.000 | 438.183 | 847708.01 | 1.2429 | P | 3.1 |
| 6 | ☐ | 200.000 | 64.651 | 829581.58 | 1.2731 | P | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = -8.0756E-005 * x + 1.2783
R = -0.4959
DL = -1003
BEC = -1.583E+04

Weight: <None>
Min Conc: <None>

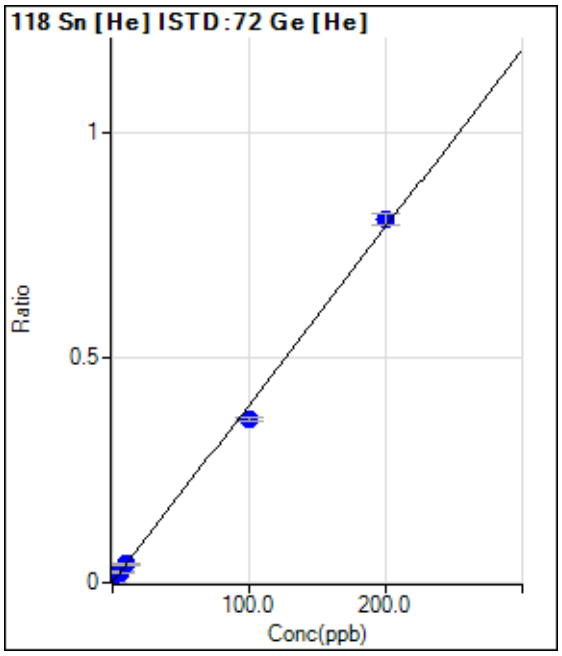
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 690.03 | 0.0006 | P | 13.5 |
| 2 | ☐ | 2.000 | 3.870 | 12841.84 | 0.0109 | P | 3.6 |
| 3 | ☐ | 5.000 | 5.704 | 18283.62 | 0.0159 | P | 3.4 |
| 4 | ☐ | 10.000 | 10.250 | 32672.15 | 0.0280 | P | 1.7 |
| 5 | ☐ | 100.000 | 96.495 | 300962.95 | 0.2588 | P | 6.4 |
| 6 | ☐ | 200.000 | 201.703 | 654141.90 | 0.5403 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0027 * x + 5.9344E-004
R = 0.9997
DL = 0.09
BEC = 0.2218

Weight: <None>
Min Conc: <None>

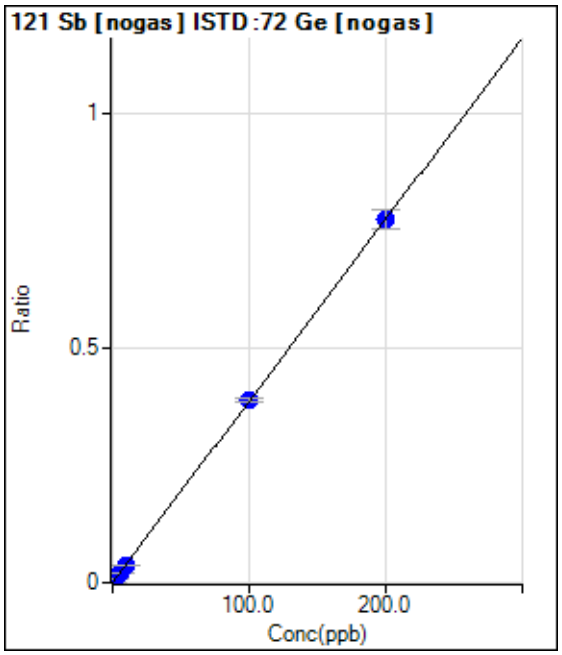



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 603.36 | 0.0009 | P | 22.9 |
| 2 | ☐ | 2.000 | 3.588 | 10179.95 | 0.0151 | P | 2.4 |
| 3 | ☐ | 5.000 | 5.589 | 15580.84 | 0.0229 | P | 5.8 |
| 4 | ☐ | 10.000 | 10.320 | 26805.10 | 0.0416 | P | 6.7 |
| 5 | ☐ | 100.000 | 91.779 | 247391.66 | 0.3629 | P | 1.9 |
| 6 | ☐ | 200.000 | 204.064 | 524811.10 | 0.8058 | P | 3.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0039 * x + 8.9984E-004
R = 0.9987
DL = 0.1568
BEC = 0.2281

Weight: <None>
Min Conc: <None>

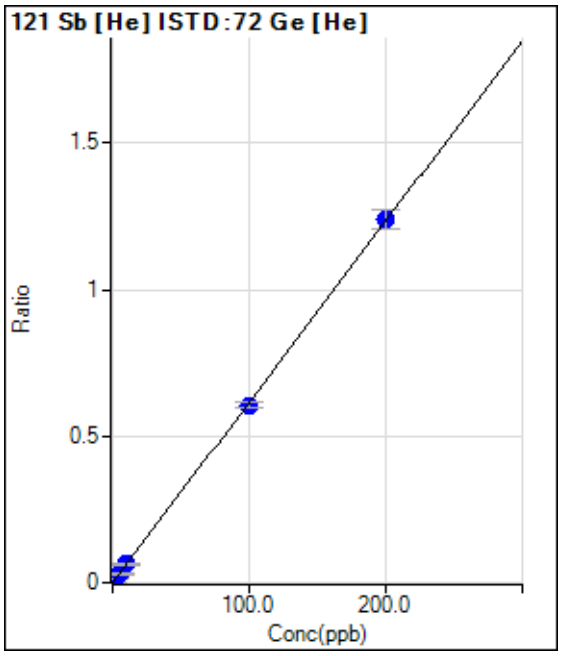
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 306.68 | 0.0002 | P | 13.7 |
| 2 | ☐ | 2.000 | 1.880 | 10353.39 | 0.0075 | P | 3.8 |
| 3 | ☐ | 5.000 | 4.817 | 25393.18 | 0.0189 | P | 4.2 |
| 4 | ☐ | 10.000 | 9.522 | 49932.15 | 0.0371 | P | 3.9 |
| 5 | ☐ | 100.000 | 100.388 | 507110.60 | 0.3889 | P | 2.6 |
| 6 | ☐ | 200.000 | 199.836 | 981242.38 | 0.7739 | P | 5.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0039 * x + 2.2404E-004
R = 1.0000
DL = 0.0237
BEC = 0.05787

Weight: <None>
Min Conc: <None>

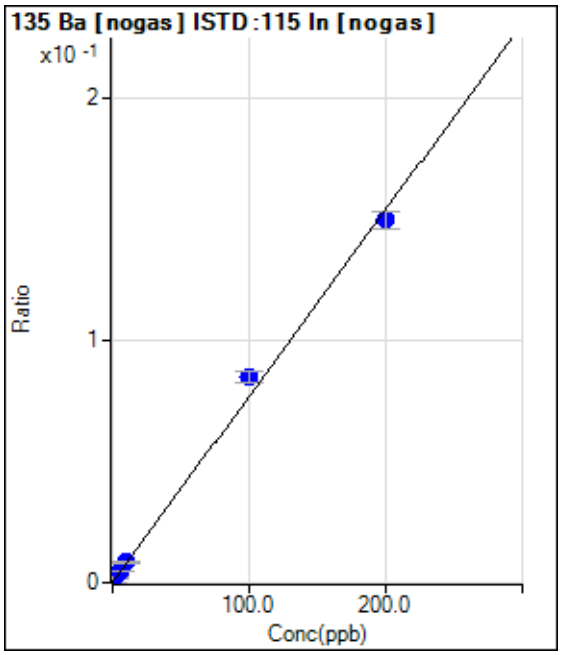



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 206.67 | 0.0003 | P | 24.1 |
| 2 | ☐ | 2.000 | 1.951 | 8318.89 | 0.0123 | P | 10.8 |
| 3 | ☐ | 5.000 | 4.846 | 20479.45 | 0.0302 | P | 4.4 |
| 4 | ☐ | 10.000 | 10.116 | 40398.56 | 0.0626 | P | 4.1 |
| 5 | ☐ | 100.000 | 98.153 | 412212.52 | 0.6048 | P | 3.7 |
| 6 | ☐ | 200.000 | 200.922 | 805796.92 | 1.2377 | P | 5.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0062 * x + 3.0929E-004
R = 0.9999
DL = 0.03631
BEC = 0.05022

Weight: <None>
Min Conc: <None>

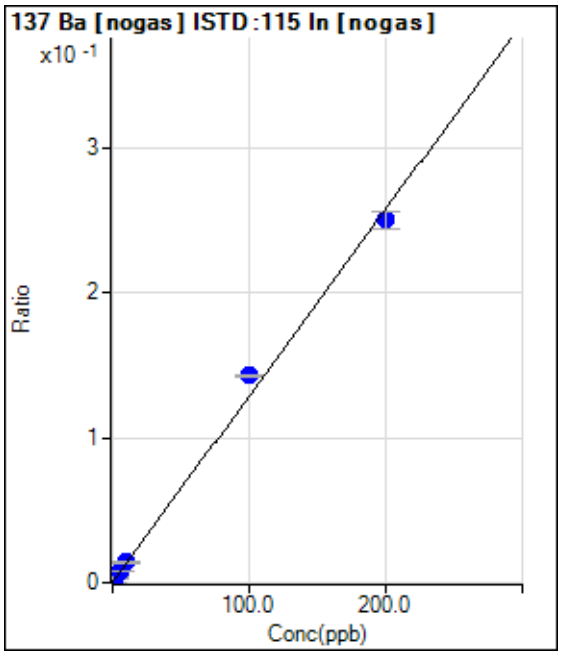
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 150.00 | 0.0001 | P | 20.1 |
| 2 | ☐ | 2.000 | 2.489 | 2390.22 | 0.0020 | P | 15.5 |
| 3 | ☐ | 5.000 | 5.861 | 5347.63 | 0.0046 | P | 6.1 |
| 4 | ☐ | 10.000 | 10.715 | 9769.71 | 0.0084 | P | 1.6 |
| 5 | ☐ | 100.000 | 110.630 | 99132.41 | 0.0853 | P | 5.6 |
| 6 | ☐ | 200.000 | 194.623 | 181362.98 | 0.1500 | P | 5.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 7.6992E-004 * x + 1.2900E-004
R = 0.9980
DL = 0.1008
BEC = 0.1675

Weight: <None>
Min Conc: <None>

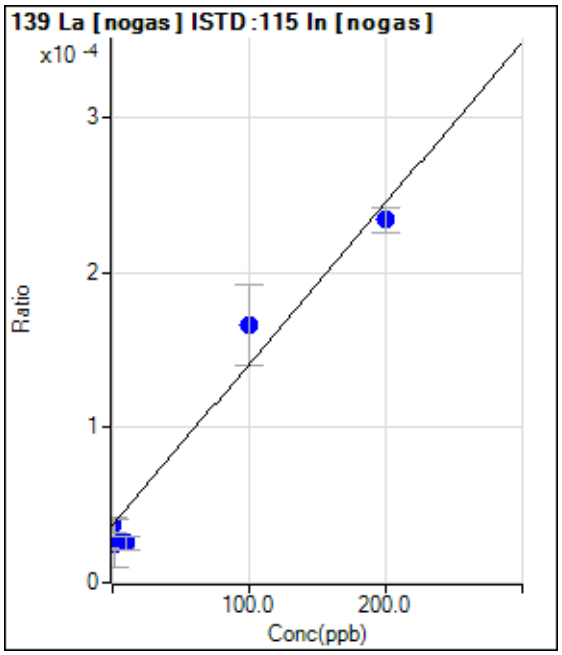



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 283.34 | 0.0002 | P | 23.6 |
| 2 | ☐ | 2.000 | 2.369 | 3850.51 | 0.0033 | P | 8.9 |
| 3 | ☐ | 5.000 | 5.670 | 8679.13 | 0.0075 | P | 4.4 |
| 4 | ☐ | 10.000 | 10.667 | 16258.22 | 0.0139 | P | 3.8 |
| 5 | ☐ | 100.000 | 110.935 | 165948.90 | 0.1428 | P | 1.2 |
| 6 | ☐ | 200.000 | 194.479 | 302410.15 | 0.2501 | P | 4.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0013 * x + 2.4346E-004
R = 0.9979
DL = 0.1344
BEC = 0.1895

Weight: <None>
Min Conc: <None>

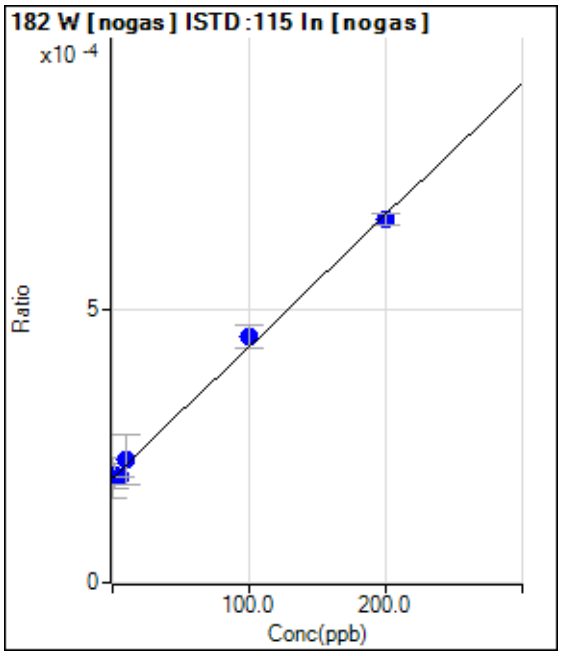
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 43.33 | 0.0000 | P | 26.0 |
| 2 | ☐ | 2.000 | -11.320 | 30.00 | 0.0000 | P | 122. |
| 3 | ☐ | 5.000 | -10.804 | 30.00 | 0.0000 | P | 31.9 |
| 4 | ☐ | 10.000 | -10.995 | 30.00 | 0.0000 | P | 33.8 |
| 5 | ☐ | 100.000 | 124.171 | 193.34 | 0.0002 | P | 31.5 |
| 6 | ☐ | 200.000 | 189.492 | 283.34 | 0.0002 | P | 6.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.0401E-006 * x + 3.7207E-005
R = 0.9839
DL = 27.93
BEC = 35.77

Weight: <None>
Min Conc: <None>

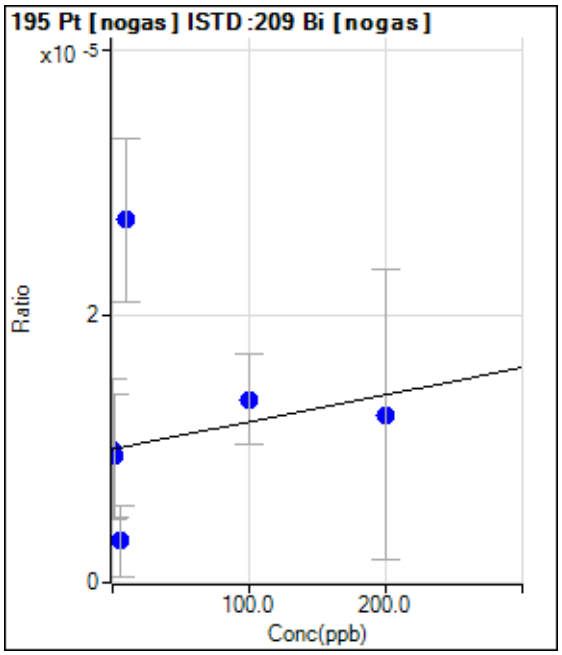



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 223.34 | 0.0002 | P | 37.5 |
| 2 | ☐ | 2.000 | 1.595 | 230.01 | 0.0002 | P | 22.3 |
| 3 | ☐ | 5.000 | 0.883 | 223.34 | 0.0002 | P | 1.1 |
| 4 | ☐ | 10.000 | 13.891 | 263.34 | 0.0002 | P | 40.2 |
| 5 | ☐ | 100.000 | 107.618 | 523.35 | 0.0005 | P | 9.1 |
| 6 | ☐ | 200.000 | 196.104 | 803.37 | 0.0007 | P | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 2.4047E-006 * x + 1.9167E-004
R = 0.9984
DL = 89.58
BEC = 79.71

Weight: <None>
Min Conc: <None>

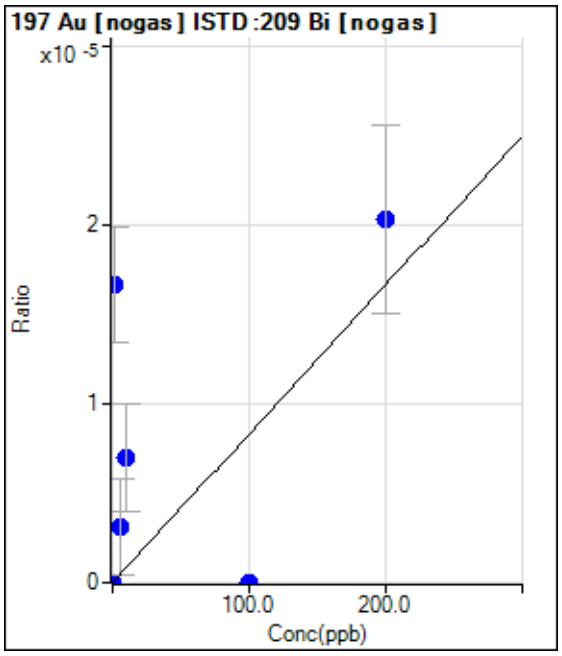
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10.00 | 0.0000 | P | 104. |
| 2 | ☐ | 2.000 | -24.439 | 10.00 | 0.0000 | P | 96.5 |
| 3 | ☐ | 5.000 | -337.909 | 3.33 | 0.0000 | P | 173. |
| 4 | ☐ | 10.000 | 842.420 | 26.67 | 0.0000 | P | 44.9 |
| 5 | ☐ | 100.000 | 183.855 | 13.33 | 0.0000 | P | 49.8 |
| 6 | ☐ | 200.000 | 125.289 | 13.33 | 0.0000 | P | 173. |
| 7 | ☐ | 1.000 | | | | | |

y = 2.0419E-008 * x + 1.0029E-005
R = 0.0526
DL = 1541
BEC = 491.2

Weight: <None>
Min Conc: <None>

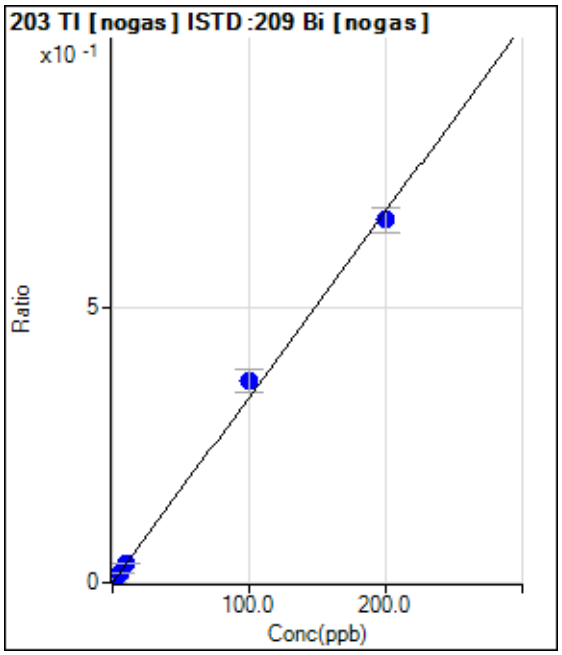



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 0.00 | 0.0000 | P | |
| 2 | ☐ | 2.000 | 200.083 | 16.67 | 0.0000 | P | 39.0 |
| 3 | ☐ | 5.000 | 37.529 | 3.33 | 0.0000 | P | 173. |
| 4 | ☐ | 10.000 | 83.645 | 6.67 | 0.0000 | P | 86.6 |
| 5 | ☐ | 100.000 | 0.000 | 0.00 | 0.0000 | P | |
| 6 | ☐ | 200.000 | 243.524 | 20.00 | 0.0000 | P | 52.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 8.3391E-008 * x + 0.0000E+000
R = 0.4754
DL = 0
BEC = 0

Weight: <None>
Min Conc: <None>

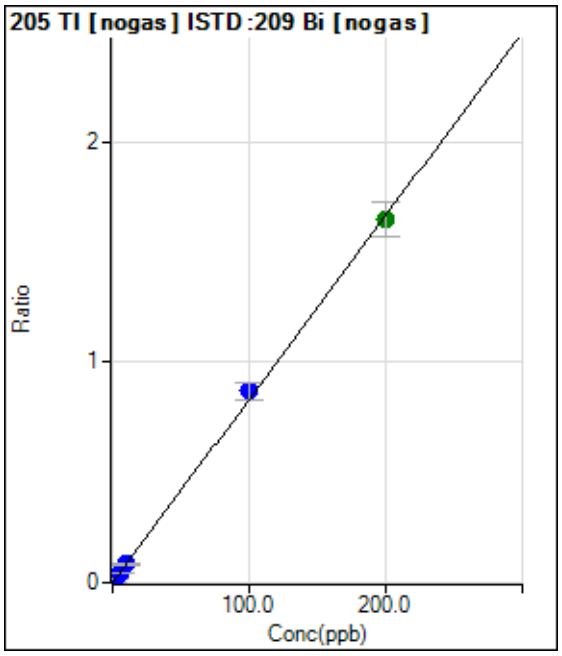
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 20.00 | 0.0000 | P | 104. |
| 2 | ☐ | 2.000 | 2.140 | 7345.25 | 0.0073 | P | 14.0 |
| 3 | ☐ | 5.000 | 5.120 | 17379.81 | 0.0173 | P | 8.2 |
| 4 | ☐ | 10.000 | 10.579 | 35209.80 | 0.0358 | P | 4.0 |
| 5 | ☐ | 100.000 | 108.849 | 361547.97 | 0.3682 | P | 10.9 |
| 6 | ☐ | 200.000 | 195.542 | 651251.03 | 0.6615 | P | 6.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0034 * x + 2.0059E-005
R = 0.9986
DL = 0.01861
BEC = 0.005929

Weight: <None>
Min Conc: <None>

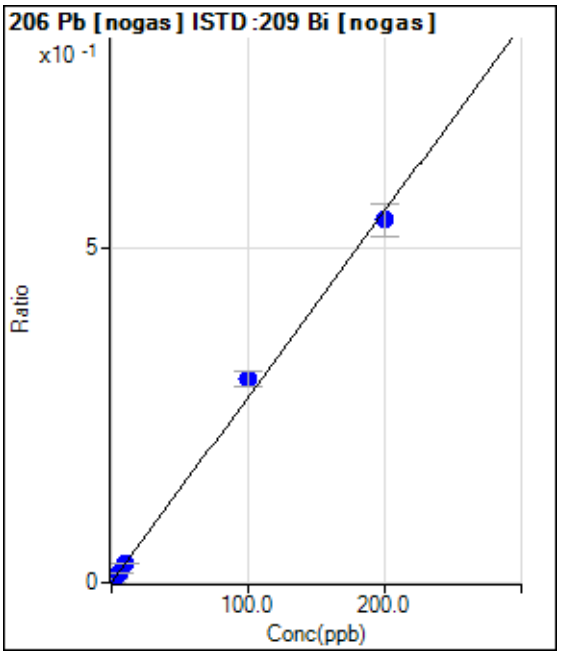



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 63.33 | 0.0001 | P | 2.0 |
| 2 | ☐ | 2.000 | 1.975 | 16689.15 | 0.0165 | P | 7.9 |
| 3 | ☐ | 5.000 | 5.005 | 41806.42 | 0.0417 | P | 6.4 |
| 4 | ☐ | 10.000 | 10.123 | 82771.67 | 0.0842 | P | 6.0 |
| 5 | ☐ | 100.000 | 104.337 | 852994.62 | 0.8676 | P | 8.1 |
| 6 | ☐ | 200.000 | 197.825 | 1617508.20 | 1.6450 | A | 9.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0083 * x + 6.2852E-005
R = 0.9997
DL = 0.0004437
BEC = 0.007559

Weight: <None>
Min Conc: <None>

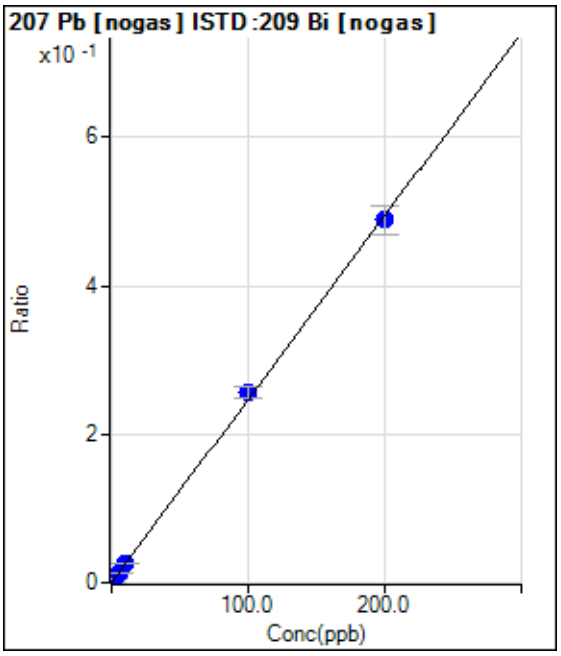
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 80.00 | 0.0001 | P | 7.1 |
| 2 | ☐ | 2.000 | 2.199 | 6254.72 | 0.0062 | P | 12.5 |
| 3 | ☐ | 5.000 | 5.028 | 14126.60 | 0.0140 | P | 4.9 |
| 4 | ☐ | 10.000 | 10.479 | 28673.71 | 0.0292 | P | 6.1 |
| 5 | ☐ | 100.000 | 109.258 | 298497.33 | 0.3035 | P | 7.6 |
| 6 | ☐ | 200.000 | 195.344 | 533752.87 | 0.5426 | P | 9.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0028 * x + 7.9732E-005
R = 0.9985
DL = 0.006098
BEC = 0.02871

Weight: <None>
Min Conc: <None>

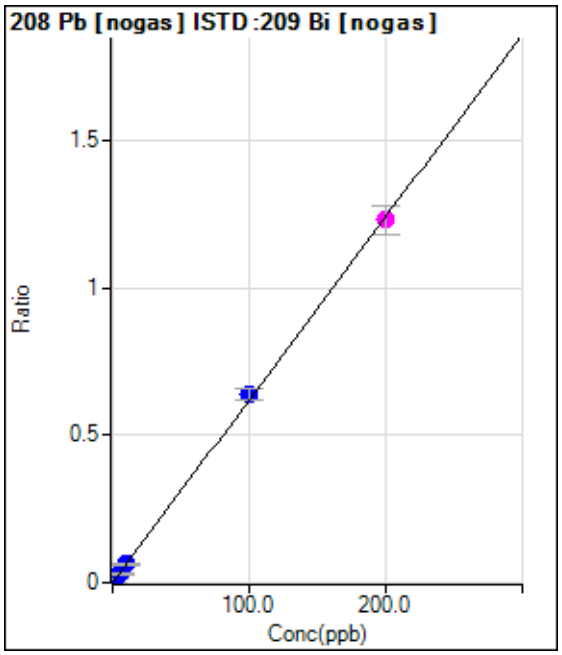



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 76.67 | 0.0001 | P | 61.6 |
| 2 | ☐ | 2.000 | 2.085 | 5281.01 | 0.0052 | P | 13.7 |
| 3 | ☐ | 5.000 | 5.000 | 12441.81 | 0.0124 | P | 11.2 |
| 4 | ☐ | 10.000 | 10.455 | 25417.67 | 0.0259 | P | 8.9 |
| 5 | ☐ | 100.000 | 104.042 | 252850.91 | 0.2570 | P | 6.5 |
| 6 | ☐ | 200.000 | 197.956 | 481252.78 | 0.4889 | P | 7.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0025 * x + 7.8169E-005
R = 0.9997
DL = 0.05851
BEC = 0.03166

Weight: <None>
Min Conc: <None>

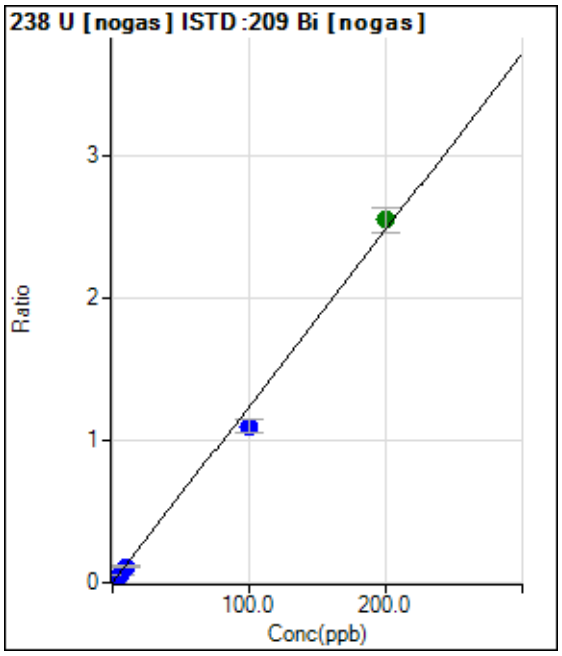
Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 173.34 | 0.0002 | P | 35.0 |
| 2 | ☐ | 2.000 | 1.983 | 12611.96 | 0.0125 | P | 10.0 |
| 3 | ☐ | 5.000 | 4.855 | 30306.40 | 0.0303 | P | 10.7 |
| 4 | ☐ | 10.000 | 9.997 | 61051.91 | 0.0621 | P | 5.7 |
| 5 | ☐ | 100.000 | 102.839 | 627326.72 | 0.6376 | P | 6.6 |
| 6 | ☐ | 200.000 | 198.585 | 1211671.18 | 1.2310 | M | 7.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0062 * x + 1.7324E-004
R = 0.9999
DL = 0.02934
BEC = 0.02795

Weight: <None>
Min Conc: <None>

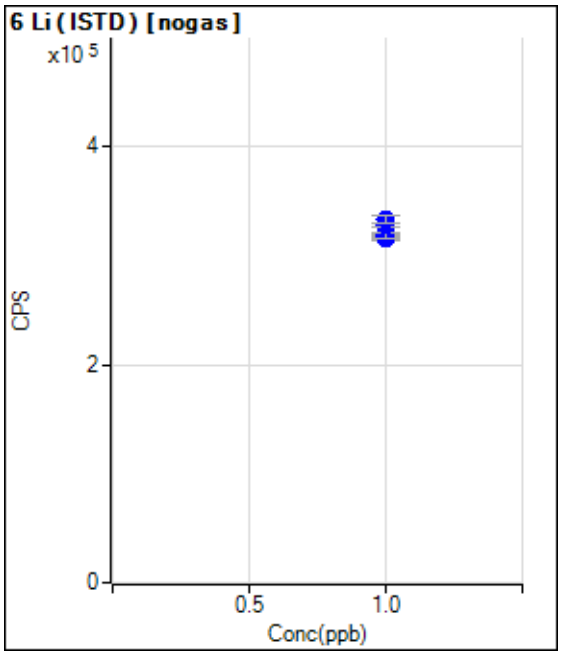



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 20.00 | 0.0000 | P | 51.7 |
| 2 | ☐ | 2.000 | 1.853 | 23174.45 | 0.0229 | P | 13.4 |
| 3 | ☐ | 5.000 | 4.674 | 57969.84 | 0.0578 | P | 8.6 |
| 4 | ☐ | 10.000 | 9.245 | 112400.75 | 0.1144 | P | 6.2 |
| 5 | ☐ | 100.000 | 88.625 | 1077705.35 | 1.0965 | P | 8.9 |
| 6 | ☐ | 200.000 | 205.735 | 2505790.69 | 2.5453 | A | 6.7 |
| 7 | ☐ | 1.000 | | | | | |

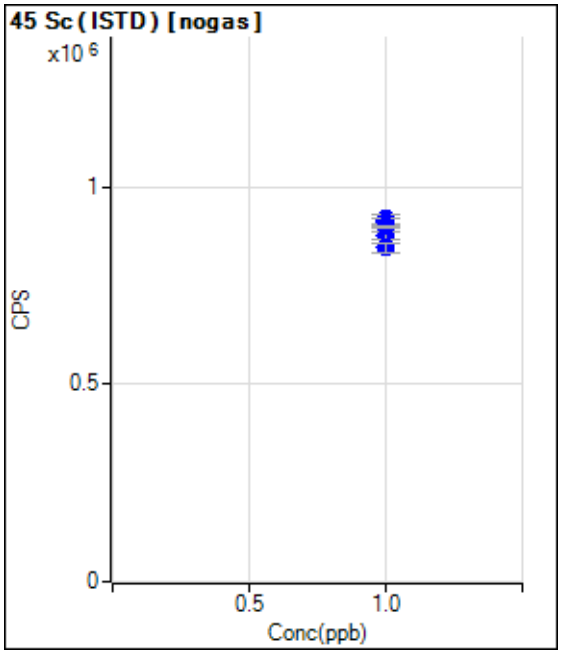
y = 0.0124 * x + 1.9870E-005
R = 0.9978
DL = 0.00249
BEC = 0.001606

Weight: <None>
Min Conc: <None>

Calibration for 200_ICV.d

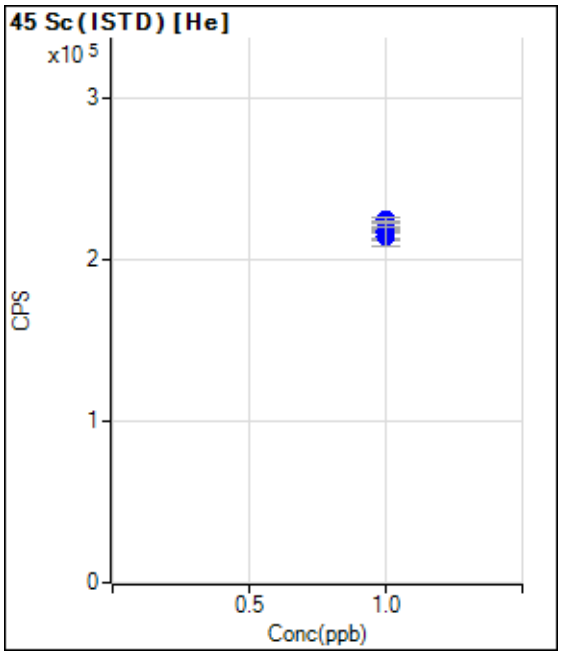



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 315825.36 | | P | 1.5 |
| 2 | ☐ | 1.000 | | 316812.24 | | P | 2.0 |
| 3 | ☐ | 1.000 | | 317759.46 | | P | 1.3 |
| 4 | ☐ | 1.000 | | 318694.19 | | P | 1.7 |
| 5 | ☐ | 1.000 | | 328118.84 | | P | 1.2 |
| 6 | ☐ | 1.000 | | 332840.93 | | P | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

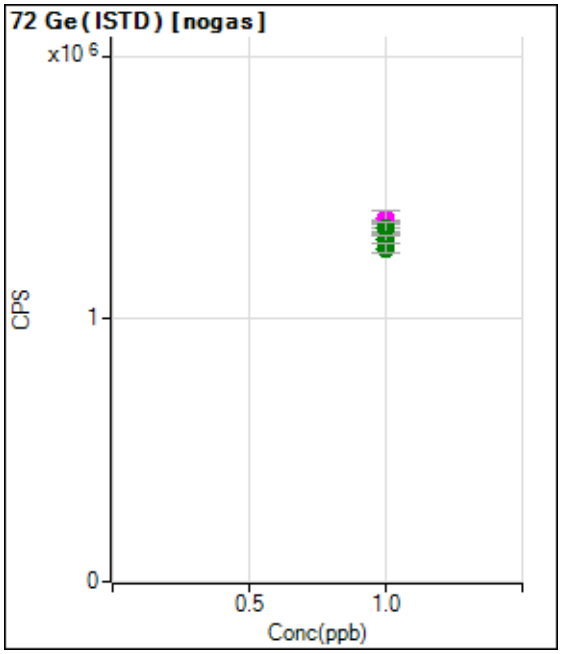



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 920231.73 | | P | 2.6 |
| 2 | ☐ | 1.000 | | 917299.26 | | P | 3.0 |
| 3 | ☐ | 1.000 | | 910036.60 | | P | 2.3 |
| 4 | ☐ | 1.000 | | 880220.17 | | P | 2.2 |
| 5 | ☐ | 1.000 | | 900578.55 | | P | 0.8 |
| 6 | ☐ | 1.000 | | 846305.80 | | P | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 200_ICV.d

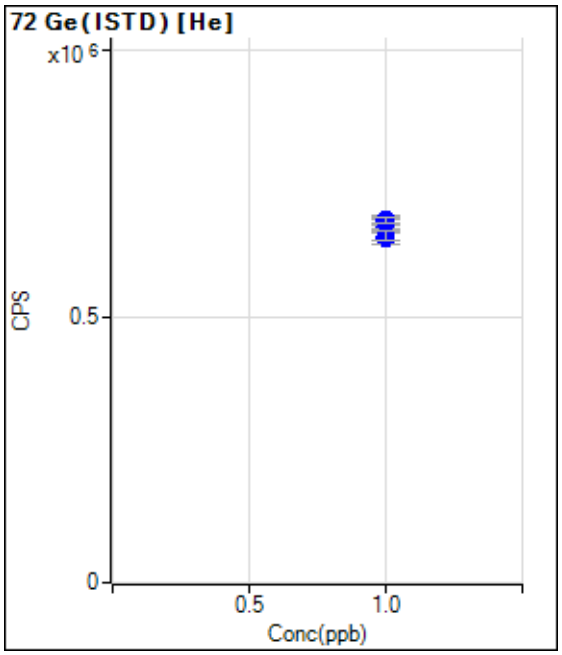



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 214108.75 | | P | 2.2 |
| 2 | ☐ | 1.000 | | 220270.19 | | P | 2.2 |
| 3 | ☐ | 1.000 | | 215850.31 | | P | 3.0 |
| 4 | ☐ | 1.000 | | 224260.97 | | P | 1.1 |
| 5 | ☐ | 1.000 | | 217481.67 | | P | 4.5 |
| 6 | ☐ | 1.000 | | 213643.80 | | P | 5.3 |
| 7 | ☐ | 1.000 | | | | | |

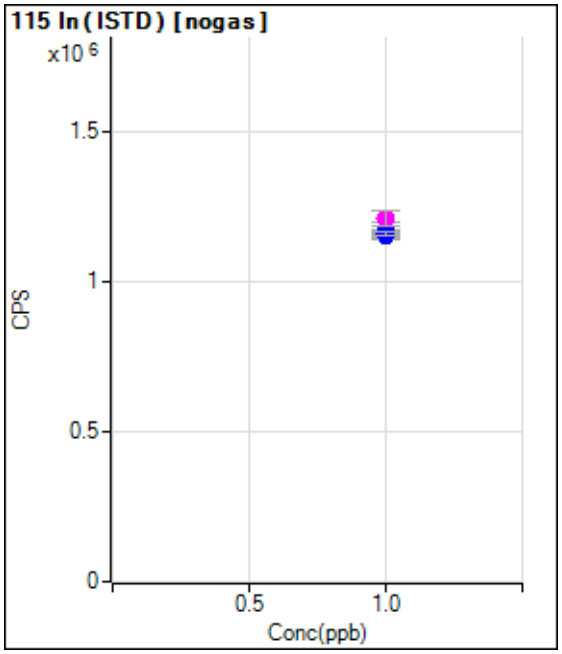



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1368895.92 | | A | 0.7 |
| 2 | ☐ | 1.000 | | 1380589.25 | | M | 5.1 |
| 3 | ☐ | 1.000 | | 1346235.29 | | A | 2.3 |
| 4 | ☐ | 1.000 | | 1347398.00 | | A | 3.1 |
| 5 | ☐ | 1.000 | | 1303831.65 | | A | 1.9 |
| 6 | ☐ | 1.000 | | 1269423.52 | | A | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 200_ICV.d

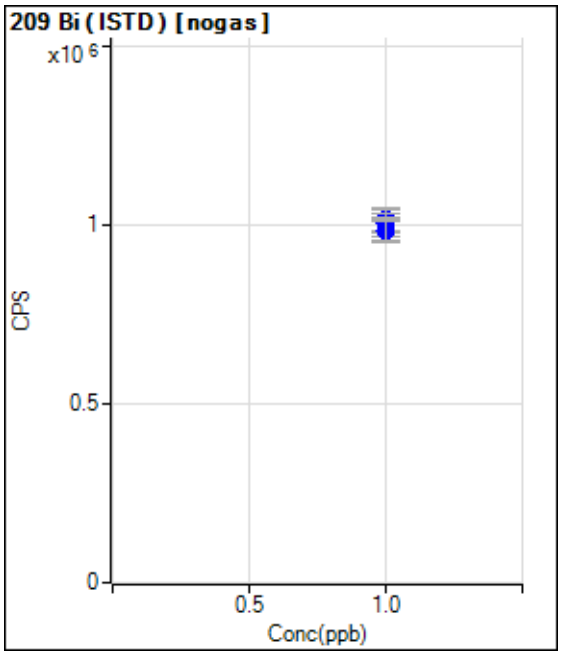



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 669421.40 | | P | 1.1 |
| 2 | ☐ | 1.000 | | 676787.83 | | P | 4.0 |
| 3 | ☐ | 1.000 | | 678993.14 | | P | 1.0 |
| 4 | ☐ | 1.000 | | 645242.85 | | P | 3.3 |
| 5 | ☐ | 1.000 | | 681844.42 | | P | 1.6 |
| 6 | ☐ | 1.000 | | 651729.95 | | P | 2.9 |
| 7 | ☐ | 1.000 | | | | | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1163100.35 | | P | 0.8 |
| 2 | ☐ | 1.000 | | 1174135.82 | | P | 4.5 |
| 3 | ☐ | 1.000 | | 1152449.12 | | P | 2.2 |
| 4 | ☐ | 1.000 | | 1166151.60 | | P | 1.6 |
| 5 | ☐ | 1.000 | | 1162581.23 | | P | 1.2 |
| 6 | ☐ | 1.000 | | 1210779.80 | | M | 4.2 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 200_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1006852.54 | | P | 7.4 |
| 2 | ☐ | 1.000 | | 1015646.34 | | P | 6.3 |
| 3 | ☐ | 1.000 | | 1005116.75 | | P | 5.2 |
| 4 | ☐ | 1.000 | | 984538.58 | | P | 5.2 |
| 5 | ☐ | 1.000 | | 986959.52 | | P | 7.2 |
| 6 | ☐ | 1.000 | | 987209.57 | | P | 6.3 |
| 7 | ☐ | 1.000 | | | | | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 014CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T12:57:03-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 13 | 324.76 |
| B | 11 | 1 | nogas | 7282 | 0.02 |
| Na | 23 | 1 | nogas | 1838470 | 0.00 |
| Mg | 24 | 1 | nogas | 5468 | 0.25 |
| Al | 27 | 1 | nogas | 14449 | 0.02 |
| P | 31 | 1 | nogas | 62559 | 0.00 |
| K | 39 | 1 | nogas | 4204804 | 0.00 |
| Ca | 43 | 1 | nogas | 923 | 1.90 |
| Ca | 44 | 1 | nogas | 142971 | 0.00 |
| Ti | 47 | 1 | nogas | 180 | 8.17 |
| V | 51 | 1 | nogas | 44999 | 0.01 |
| Cr | 52 | 1 | nogas | 18783 | 0.00 |
| Mn | 55 | 1 | nogas | 13912 | 0.01 |
| Fe | 56 | 1 | nogas | 872577 | 0.00 |
| Co | 59 | 1 | nogas | 297 | 9.66 |
| Ni | 60 | 1 | nogas | 20936 | 0.01 |
| Cu | 63 | 1 | nogas | 39190 | 0.02 |
| Zn | 66 | 1 | nogas | 603 | 3.12 |
| As | 75 | 1 | nogas | 23025 | 0.01 |
| Se | 77 | 1 | nogas | 7218 | 0.05 |
| Se | 82 | 1 | nogas | 313 | 5.61 |
| Sr | 88 | 1 | nogas | 713 | 1.31 |
| Mo | 95 | 1 | nogas | 1983 | 0.22 |
| Ag | 107 | 1 | nogas | 57 | 47.57 |
| Cd | 111 | 1 | nogas | 23 | 382.35 |
| Sn | 118 | 1 | nogas | 1094 | 2.16 |
| Sb | 121 | 1 | nogas | 733 | 3.94 |
| Ba | 137 | 1 | nogas | 207 | 10.82 |
| Tl | 205 | 1 | nogas | 47 | 115.56 |
| Pb | 208 | 1 | nogas | 207 | 16.44 |
| Li | 7 | 1 | nogas | 40068 | 0.01 |
| Si | 28 | 1 | nogas | 1473917 | 0.00 |
| La | 139 | 1 | nogas | 40 | 125.00 |
| Na | 23 | 2 | He | 254108 | 0.00 |
| Mg | 24 | 2 | He | 490 | 4.50 |
| Al | 27 | 2 | He | 757 | 3.34 |
| K | 39 | 2 | He | 252552 | 0.00 |
| Ca | 43 | 2 | He | 57 | 100.11 |
| Ca | 44 | 2 | He | 3010 | 0.27 |
| V | 51 | 2 | He | 1645 | 0.45 |
| Cr | 52 | 2 | He | 4201 | 0.08 |
| Mn | 55 | 2 | He | 1350 | 0.43 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 17229 | 0.03 |
| Co | 59 | 2 | He | 67 | 90.93 |
| Ni | 60 | 2 | He | 11050 | 0.04 |
| Cu | 63 | 2 | He | 19871 | 0.02 |
| Zn | 66 | 2 | He | 510 | 1.02 |
| As | 75 | 2 | He | 400 | 0.83 |
| Sb | 121 | 2 | He | 503 | 1.49 |
| Se | 78 | 2 | He | 343 | 3.48 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1658792 | 0.83 |
| In | 115 | 1 | nogas | 1398610 | 2.52 |
| Li | 6 | 1 | nogas | 581094 | 1.11 |
| Bi | 209 | 1 | nogas | 1069547 | 6.15 |
| Ge | 72 | 2 | He | 766661 | 1.56 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 015CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T12:59:17-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 5784 | 0.11 |
| B | 11 | 1 | nogas | 22307 | 0.01 |
| Na | 23 | 1 | nogas | 4080039 | 0.00 |
| Mg | 24 | 1 | nogas | 1504275 | 0.00 |
| Al | 27 | 1 | nogas | 45838 | 0.01 |
| P | 31 | 1 | nogas | 67216 | 0.00 |
| K | 39 | 1 | nogas | 6031613 | 0.00 |
| Ca | 43 | 1 | nogas | 4721 | 0.13 |
| Ca | 44 | 1 | nogas | 199933 | 0.00 |
| Ti | 47 | 1 | nogas | 1937 | 0.40 |
| V | 51 | 1 | nogas | 67236 | 0.01 |
| Cr | 52 | 1 | nogas | 38515 | 0.01 |
| Mn | 55 | 1 | nogas | 42831 | 0.01 |
| Fe | 56 | 1 | nogas | 3075836 | 0.00 |
| Co | 59 | 1 | nogas | 22344 | 0.00 |
| Ni | 60 | 1 | nogas | 24841 | 0.01 |
| Cu | 63 | 1 | nogas | 47380 | 0.02 |
| Zn | 66 | 1 | nogas | 5681 | 0.14 |
| As | 75 | 1 | nogas | 25989 | 0.00 |
| Se | 77 | 1 | nogas | 6908 | 0.12 |
| Se | 82 | 1 | nogas | 493 | 3.19 |
| Sr | 88 | 1 | nogas | 26945 | 0.01 |
| Mo | 95 | 1 | nogas | 7102 | 0.08 |
| Ag | 107 | 1 | nogas | 11994 | 0.05 |
| Cd | 111 | 1 | nogas | 2337 | 0.07 |
| Sn | 118 | 1 | nogas | 8252 | 0.05 |
| Sb | 121 | 1 | nogas | 11934 | 0.04 |
| Ba | 137 | 1 | nogas | 4594 | 0.09 |
| Tl | 205 | 1 | nogas | 18184 | 0.01 |
| Pb | 208 | 1 | nogas | 13780 | 0.05 |
| Si | 28 | 1 | nogas | 1952304 | 0.00 |
| La | 139 | 1 | nogas | 87 | 33.51 |
| Na | 23 | 2 | He | 534622 | 0.00 |
| Mg | 24 | 2 | He | 155111 | 0.00 |
| Al | 27 | 2 | He | 2720 | 0.11 |
| K | 39 | 2 | He | 449134 | 0.00 |
| Ca | 43 | 2 | He | 557 | 1.89 |
| Ca | 44 | 2 | He | 12354 | 0.04 |
| V | 51 | 2 | He | 11790 | 0.03 |
| Cr | 52 | 2 | He | 14850 | 0.01 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 11534 | 0.02 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 1000311 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 13892 | 0.03 |
| Ni | 60 | 2 | He | 16418 | 0.15 |
| Cu | 63 | 2 | He | 26076 | 0.01 |
| Zn | 66 | 2 | He | 3380 | 0.21 |
| As | 75 | 2 | He | 2686 | 0.04 |
| Sb | 121 | 2 | He | 8989 | 0.04 |
| Se | 78 | 2 | He | 502 | 1.34 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1655826 | 1.53 | 1658792 | 99.82 | 70 | 125 | |
| In | 115 | 1 | nogas | 1370612 | 4.69 | 1398610 | 98.00 | 70 | 125 | |
| Li | 6 | 1 | nogas | 593526 | 0.71 | 581094 | 102.14 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1086171 | 4.17 | 1069547 | 101.55 | 70 | 125 | |
| Ge | 72 | 2 | He | 789548 | 1.53 | 766661 | 102.99 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 016CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:01:31-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 13962 | 0.02 |
| B | 11 | 1 | nogas | 45770 | 0.00 |
| Na | 23 | 1 | nogas | 7100750 | 0.00 |
| Mg | 24 | 1 | nogas | 3583939 | 0.00 |
| Al | 27 | 1 | nogas | 86472 | 0.00 |
| P | 31 | 1 | nogas | 79170 | 0.00 |
| K | 39 | 1 | nogas | 8852408 | 0.00 |
| Ca | 43 | 1 | nogas | 10073 | 0.01 |
| Ca | 44 | 1 | nogas | 282420 | 0.00 |
| Ti | 47 | 1 | nogas | 4691 | 0.06 |
| V | 51 | 1 | nogas | 102513 | 0.01 |
| Cr | 52 | 1 | nogas | 68012 | 0.00 |
| Mn | 55 | 1 | nogas | 82450 | 0.00 |
| Fe | 56 | 1 | nogas | 6353909 | 0.00 |
| Co | 59 | 1 | nogas | 55844 | 0.00 |
| Ni | 60 | 1 | nogas | 31217 | 0.00 |
| Cu | 63 | 1 | nogas | 66583 | 0.01 |
| Zn | 66 | 1 | nogas | 12411 | 0.04 |
| As | 75 | 1 | nogas | 35062 | 0.01 |
| Se | 77 | 1 | nogas | 8402 | 0.05 |
| Se | 82 | 1 | nogas | 770 | 2.79 |
| Sr | 88 | 1 | nogas | 66511 | 0.00 |
| Mo | 95 | 1 | nogas | 15077 | 0.03 |
| Ag | 107 | 1 | nogas | 31002 | 0.03 |
| Cd | 111 | 1 | nogas | 6215 | 0.05 |
| Sn | 118 | 1 | nogas | 21110 | 0.02 |
| Sb | 121 | 1 | nogas | 28972 | 0.00 |
| Ba | 137 | 1 | nogas | 9473 | 0.02 |
| Tl | 205 | 1 | nogas | 46585 | 0.01 |
| Pb | 208 | 1 | nogas | 33389 | 0.01 |
| Si | 28 | 1 | nogas | 2653036 | 0.00 |
| La | 139 | 1 | nogas | 63 | 38.08 |
| Na | 23 | 2 | He | 908288 | 0.00 |
| Mg | 24 | 2 | He | 375870 | 0.00 |
| Al | 27 | 2 | He | 4667 | 0.08 |
| K | 39 | 2 | He | 741750 | 0.00 |
| Ca | 43 | 2 | He | 1443 | 0.61 |
| Ca | 44 | 2 | He | 26109 | 0.01 |
| V | 51 | 2 | He | 25922 | 0.01 |
| Cr | 52 | 2 | He | 31638 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Mn | 55 | 2 | He | 25949 | 0.01 |
| Fe | 56 | 2 | He | 2594362 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 34577 | 0.01 |
| Ni | 60 | 2 | He | 18927 | 0.03 |
| Cu | 63 | 2 | He | 40897 | 0.01 |
| Zn | 66 | 2 | He | 7805 | 0.11 |
| As | 75 | 2 | He | 6143 | 0.04 |
| Sb | 121 | 2 | He | 22348 | 0.01 |
| Se | 78 | 2 | He | 853 | 0.68 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1633871 | 1.49 | 1658792 | 98.50 | 70 | 125 | |
| In | 115 | 1 | nogas | 1376426 | 4.08 | 1398610 | 98.41 | 70 | 125 | |
| Li | 6 | 1 | nogas | 602731 | 3.28 | 581094 | 103.72 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1080852 | 4.55 | 1069547 | 101.06 | 70 | 125 | |
| Ge | 72 | 2 | He | 764049 | 1.27 | 766661 | 99.66 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 017CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:03:46-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 27447 | 0.01 |
| B | 11 | 1 | nogas | 83659 | 0.01 |
| Na | 23 | 1 | nogas | 12178540 | 0.00 |
| Mg | 24 | 1 | nogas | 7193878 | 0.00 |
| Al | 27 | 1 | nogas | 121715 | 0.00 |
| P | 31 | 1 | nogas | 96160 | 0.00 |
| K | 39 | 1 | nogas | 13138381 | 0.00 |
| Ca | 43 | 1 | nogas | 18156 | 0.03 |
| Ca | 44 | 1 | nogas | 402049 | 0.00 |
| Ti | 47 | 1 | nogas | 9116 | 0.06 |
| V | 51 | 1 | nogas | 164678 | 0.00 |
| Cr | 52 | 1 | nogas | 120658 | 0.00 |
| Mn | 55 | 1 | nogas | 142546 | 0.00 |
| Fe | 56 | 1 | nogas | 11675251 | 0.00 |
| Co | 59 | 1 | nogas | 111452 | 0.00 |
| Ni | 60 | 1 | nogas | 41709 | 0.01 |
| Cu | 63 | 1 | nogas | 97122 | 0.00 |
| Zn | 66 | 1 | nogas | 19184 | 0.01 |
| As | 75 | 1 | nogas | 47083 | 0.01 |
| Se | 77 | 1 | nogas | 8869 | 0.03 |
| Se | 82 | 1 | nogas | 1287 | 0.29 |
| Sr | 88 | 1 | nogas | 126792 | 0.00 |
| Mo | 95 | 1 | nogas | 27359 | 0.01 |
| Ag | 107 | 1 | nogas | 62427 | 0.00 |
| Cd | 111 | 1 | nogas | 12305 | 0.03 |
| Sn | 118 | 1 | nogas | 36630 | 0.00 |
| Sb | 121 | 1 | nogas | 56862 | 0.00 |
| Ba | 137 | 1 | nogas | 18410 | 0.01 |
| Tl | 205 | 1 | nogas | 89930 | 0.00 |
| Pb | 208 | 1 | nogas | 65997 | 0.00 |
| Si | 28 | 1 | nogas | 3852621 | 0.00 |
| La | 139 | 1 | nogas | 40 | 108.25 |
| Na | 23 | 2 | He | 1547651 | 0.00 |
| Mg | 24 | 2 | He | 751188 | 0.00 |
| Al | 27 | 2 | He | 6708 | 0.06 |
| K | 39 | 2 | He | 1223709 | 0.00 |
| Ca | 43 | 2 | He | 2427 | 0.10 |
| Ca | 44 | 2 | He | 46804 | 0.00 |
| V | 51 | 2 | He | 51510 | 0.00 |
| Cr | 52 | 2 | He | 56362 | 0.01 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 45241 | 0.01 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 5020233 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 67947 | 0.01 |
| Ni | 60 | 2 | He | 26243 | 0.01 |
| Cu | 63 | 2 | He | 63891 | 0.00 |
| Zn | 66 | 2 | He | 11607 | 0.02 |
| As | 75 | 2 | He | 11692 | 0.01 |
| Sb | 121 | 2 | He | 44264 | 0.00 |
| Se | 78 | 2 | He | 1280 | 0.46 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1644581 | 0.76 | 1658792 | 99.14 | 70 | 125 | |
| In | 115 | 1 | nogas | 1335757 | 0.41 | 1398610 | 95.51 | 70 | 125 | |
| Li | 6 | 1 | nogas | 602129 | 4.53 | 581094 | 103.62 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1075465 | 6.26 | 1069547 | 100.55 | 70 | 125 | |
| Ge | 72 | 2 | He | 769432 | 3.17 | 766661 | 100.36 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 018CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:06:00-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 286606 | 0.00 |
| B | 11 | 1 | nogas | 807759 | 0.00 |
| Na | 23 | 1 | nogas | 103892000 | 0.00 |
| Mg | 24 | 1 | nogas | 69859735 | 0.00 |
| Al | 27 | 1 | nogas | 983211 | 0.00 |
| P | 31 | 1 | nogas | 412696 | 0.00 |
| K | 39 | 1 | nogas | 95754738 | 0.00 |
| Ca | 43 | 1 | nogas | 172358 | 0.00 |
| Ca | 44 | 1 | nogas | 2935739 | 0.00 |
| Ti | 47 | 1 | nogas | 88524 | 0.00 |
| V | 51 | 1 | nogas | 1272230 | 0.00 |
| Cr | 52 | 1 | nogas | 1021219 | 0.00 |
| Mn | 55 | 1 | nogas | 1269185 | 0.00 |
| Fe | 56 | 1 | nogas | 105618848 | 0.00 |
| Co | 59 | 1 | nogas | 1069293 | 0.00 |
| Ni | 60 | 1 | nogas | 263244 | 0.00 |
| Cu | 63 | 1 | nogas | 626436 | 0.00 |
| Zn | 66 | 1 | nogas | 184264 | 0.00 |
| As | 75 | 1 | nogas | 244694 | 0.00 |
| Se | 77 | 1 | nogas | 16561 | 0.01 |
| Se | 82 | 1 | nogas | 11177 | 0.04 |
| Sr | 88 | 1 | nogas | 1263903 | 0.00 |
| Mo | 95 | 1 | nogas | 253707 | 0.00 |
| Ag | 107 | 1 | nogas | 623219 | 0.00 |
| Cd | 111 | 1 | nogas | 127782 | 0.00 |
| Sn | 118 | 1 | nogas | 374240 | 0.00 |
| Sb | 121 | 1 | nogas | 572476 | 0.00 |
| Ba | 137 | 1 | nogas | 179010 | 0.00 |
| Tl | 205 | 1 | nogas | 911782 | 0.00 |
| Pb | 208 | 1 | nogas | 665038 | 0.00 |
| Si | 28 | 1 | nogas | 24421570 | 0.00 |
| La | 139 | 1 | nogas | 157 | 8.48 |
| Na | 23 | 2 | He | 12643161 | 0.00 |
| Mg | 24 | 2 | He | 7308855 | 0.00 |
| Al | 27 | 2 | He | 55789 | 0.00 |
| K | 39 | 2 | He | 10016729 | 0.00 |
| Ca | 43 | 2 | He | 26820 | 0.01 |
| Ca | 44 | 2 | He | 435721 | 0.00 |
| V | 51 | 2 | He | 492853 | 0.00 |
| Cr | 52 | 2 | He | 538961 | 0.00 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 445356 | 0.00 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 49264524 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 676293 | 0.00 |
| Ni | 60 | 2 | He | 176470 | 0.00 |
| Cu | 63 | 2 | He | 432849 | 0.00 |
| Zn | 66 | 2 | He | 109770 | 0.00 |
| As | 75 | 2 | He | 114107 | 0.00 |
| Sb | 121 | 2 | He | 442882 | 0.00 |
| Se | 78 | 2 | He | 10228 | 0.02 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1626752 | 2.38 | 1658792 | 98.07 | 70 | 125 | |
| In | 115 | 1 | nogas | 1325890 | 2.67 | 1398610 | 94.80 | 70 | 125 | |
| Li | 6 | 1 | nogas | 623184 | 2.26 | 581094 | 107.24 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1061727 | 7.56 | 1069547 | 99.27 | 70 | 125 | |
| Ge | 72 | 2 | He | 773125 | 2.67 | 766661 | 100.84 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 019CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:08:13-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 560374 | 0.00 |
| B | 11 | 1 | nogas | 1611896 | 0.00 |
| Na | 23 | 1 | nogas | 201861505 | 0.00 |
| Mg | 24 | 1 | nogas | 136227057 | 0.00 |
| Al | 27 | 1 | nogas | 1929886 | 0.00 |
| P | 31 | 1 | nogas | 742643 | 0.00 |
| K | 39 | 1 | nogas | 179391242 | 0.00 |
| Ca | 43 | 1 | nogas | 332827 | 0.00 |
| Ca | 44 | 1 | nogas | 5426706 | 0.00 |
| Ti | 47 | 1 | nogas | 174977 | 0.00 |
| V | 51 | 1 | nogas | 2415758 | 0.00 |
| Cr | 52 | 1 | nogas | 1998644 | 0.00 |
| Mn | 55 | 1 | nogas | 2431914 | 0.00 |
| Fe | 56 | 1 | nogas | 200233879 | 0.00 |
| Co | 59 | 1 | nogas | 2106226 | 0.00 |
| Ni | 60 | 1 | nogas | 488286 | 0.00 |
| Cu | 63 | 1 | nogas | 1194384 | 0.00 |
| Zn | 66 | 1 | nogas | 353312 | 0.00 |
| As | 75 | 1 | nogas | 457377 | 0.00 |
| Se | 77 | 1 | nogas | 26373 | 0.01 |
| Se | 82 | 1 | nogas | 21577 | 0.01 |
| Sr | 88 | 1 | nogas | 2524790 | 0.00 |
| Mo | 95 | 1 | nogas | 495542 | 0.00 |
| Ag | 107 | 1 | nogas | 1213845 | 0.00 |
| Cd | 111 | 1 | nogas | 243818 | 0.00 |
| Sn | 118 | 1 | nogas | 737577 | 0.00 |
| Sb | 121 | 1 | nogas | 1122026 | 0.00 |
| Ba | 137 | 1 | nogas | 354604 | 0.00 |
| Tl | 205 | 1 | nogas | 1839074 | 0.00 |
| Pb | 208 | 1 | nogas | 1325319 | 0.00 |
| Si | 28 | 1 | nogas | 45334709 | 0.00 |
| La | 139 | 1 | nogas | 273 | 11.38 |
| Na | 23 | 2 | He | 24601920 | 0.00 |
| Mg | 24 | 2 | He | 14367271 | 0.00 |
| Al | 27 | 2 | He | 106316 | 0.00 |
| K | 39 | 2 | He | 19049741 | 0.00 |
| Ca | 43 | 2 | He | 50210 | 0.00 |
| Ca | 44 | 2 | He | 835962 | 0.00 |
| V | 51 | 2 | He | 975994 | 0.00 |
| Cr | 52 | 2 | He | 1021077 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Mn | 55 | 2 | He | 851860 | 0.00 |
| Fe | 56 | 2 | He | 95442522 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 1373323 | 0.00 |
| Ni | 60 | 2 | He | 332209 | 0.00 |
| Cu | 63 | 2 | He | 833630 | 0.00 |
| Zn | 66 | 2 | He | 219982 | 0.00 |
| As | 75 | 2 | He | 220294 | 0.00 |
| Sb | 121 | 2 | He | 869164 | 0.00 |
| Se | 78 | 2 | He | 20394 | 0.01 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1594016 | 2.28 | 1658792 | 96.09 | 70 | 125 | |
| In | 115 | 1 | nogas | 1315440 | 1.01 | 1398610 | 94.05 | 70 | 125 | |
| Li | 6 | 1 | nogas | 658160 | 3.16 | 581094 | 113.26 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1030857 | 4.07 | 1069547 | 96.38 | 70 | 125 | |
| Ge | 72 | 2 | He | 757586 | 3.01 | 766661 | 98.82 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICV |
| Data File Name | 021_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:12:39-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 103.201 | 1.684 | 290781 | 1.30 | 100 | 103.2 | 90 | 110 | |
| B | 11 | 1 | nogas | 536.927 | 1.367 | 852248 | 2.35 | 500 | 107.4 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10798.510 | 3.553 | 109430877 | 2.66 | 10000 | 108.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10840.805 | 2.794 | 73648147 | 1.64 | 10000 | 108.4 | 90 | 110 | |
| Al | 27 | 1 | nogas | 93.872 | 2.597 | 939258 | 2.29 | 100 | 93.9 | 90 | 110 | |
| P | 31 | 1 | nogas | 533.993 | 3.803 | 437695 | 1.50 | 500 | 106.8 | 90 | 110 | |
| K | 39 | 1 | nogas | 10418.734 | 3.186 | 98657152 | 1.43 | 10000 | 104.2 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10331.900 | 3.318 | 177912 | 1.80 | 10000 | 103.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10728.649 | 2.792 | 3084165 | 0.19 | 10000 | 107.3 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 100.263 | 1.709 | 90270 | 2.42 | 100 | 100.3 | 90 | 110 | |
| V | 51 | 1 | nogas | 104.869 | 4.341 | 1329354 | 4.69 | 100 | 104.9 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 101.145 | 1.199 | 1048524 | 2.60 | 100 | 101.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 104.375 | 6.327 | 1317379 | 4.10 | 100 | 104.4 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10574.020 | 3.854 | 110023207 | 1.27 | 10000 | 105.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.487 | 4.283 | 1077672 | 1.82 | 100 | 99.5 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 101.291 | 4.948 | 265111 | 2.25 | 100 | 101.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 98.444 | 3.351 | 624485 | 2.14 | 100 | 98.4 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 102.939 | 0.518 | 188898 | 2.17 | 100 | 102.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 102.587 | 2.786 | 252824 | 1.41 | 100 | 102.6 | 90 | 110 | |
| Se | 77 | 1 | nogas | 95.614 | 4.173 | 16648 | 2.62 | 100 | 95.6 | 90 | 110 | |
| Se | 82 | 1 | nogas | 100.360 | 5.218 | 11301 | 3.17 | 100 | 100.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 99.862 | 6.918 | 1292225 | 4.70 | 100 | 99.9 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 98.201 | 2.009 | 251480 | 0.61 | 100 | 98.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 101.188 | 2.081 | 633097 | 0.54 | 100 | 101.2 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 102.935 | 2.647 | 130808 | 0.60 | 100 | 102.9 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.668 | 2.235 | 358159 | 0.73 | 100 | 93.7 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 99.283 | 1.725 | 573767 | 1.13 | 100 | 99.3 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 100.965 | 3.650 | 185270 | 1.37 | 100 | 101.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.405 | 6.457 | 931707 | 0.63 | 100 | 98.4 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 98.606 | 6.595 | 674953 | 0.73 | 100 | 98.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 96.699 | 7.540 | 1294014 | 1.93 | 100 | 96.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 109.714 | 2.212 | 731186 | 4.09 | 100 | 109.7 | 90 | 110 | |
| Si | 28 | 1 | nogas | 1582.539 | 5.012 | 8650824 | 2.47 | 5000 | 31.7 | 90 | 110 | ICV Main CR1 Failed |
| Ba | 135 | 1 | nogas | 98.831 | 3.523 | 109042 | 1.46 | 100 | 98.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 190.808 | 24.780 | 273 | 23.81 | 100 | 190.8 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 5.684 | 5769.864 | 10 | 173.21 | 100 | 5.7 | 90 | 110 | ICV Main CR1 Failed |
| Tl | 203 | 1 | nogas | 104.132 | 6.303 | 402841 | 0.55 | 100 | 104.1 | 90 | 110 | |
| Na | 23 | 2 | He | 10674.338 | 3.146 | 13484456 | 1.11 | 10000 | 106.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 10603.466 | 1.608 | 7755990 | 1.79 | 10000 | 106.0 | 90 | 110 | |
| Al | 27 | 2 | He | 94.213 | 1.173 | 51961 | 2.36 | 100 | 94.2 | 90 | 110 | |
| K | 39 | 2 | He | 10697.897 | 0.529 | 10535494 | 3.05 | 10000 | 107.0 | 90 | 110 | |
| Ca | 43 | 2 | He | 10495.901 | 3.694 | 27097 | 1.34 | 10000 | 105.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 10628.182 | 4.634 | 455509 | 1.76 | 10000 | 106.3 | 90 | 110 | |
| V | 51 | 2 | He | 103.010 | 3.340 | 511373 | 0.61 | 100 | 103.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 103.316 | 1.198 | 542789 | 4.01 | 100 | 103.3 | 90 | 110 | |
| Mn | 55 | 2 | He | 103.623 | 0.869 | 452593 | 2.89 | 100 | 103.6 | 90 | 110 | |
| Fe | 56 | 2 | He | 10546.047 | 3.265 | 51389558 | 0.72 | 10000 | 105.5 | 90 | 110 | |
| Co | 59 | 2 | He | 100.016 | 6.464 | 694311 | 3.56 | 100 | 100.0 | 90 | 110 | |
| Ni | 60 | 2 | He | 104.962 | 7.717 | 183138 | 4.41 | 100 | 105.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 103.227 | 5.314 | 447385 | 2.47 | 100 | 103.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 101.640 | 0.346 | 113752 | 3.11 | 100 | 101.6 | 90 | 110 | |
| As | 75 | 2 | He | 102.764 | 2.683 | 115807 | 0.29 | 100 | 102.8 | 90 | 110 | |
| Sn | 118 | 2 | He | 97.228 | 1.213 | 280468 | 1.67 | 100 | 97.2 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.901 | 4.806 | 446755 | 2.14 | 100 | 100.9 | 90 | 110 | |
| Se | 78 | 2 | He | 102.590 | 5.994 | 10743 | 3.68 | 100 | 102.6 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1641555 | 2.60 | 1658792 | 98.96 | 70 | 125 | |
| In | 115 | 1 | nogas | 1360880 | 2.58 | 1398610 | 97.30 | 70 | 125 | |
| Li | 6 | 1 | nogas | 612824 | 2.34 | 581094 | 105.46 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Bi | 209 | 1 | nogas | 1070323 | 6.10 | 1069547 | 100.07 | 70 | 125 | |
| Ge | 72 | 2 | He | 771642 | 2.87 | 766661 | 100.65 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV2 |
| Data File Name | 022SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:14:53-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 2.104 | 2.104 | 4.12 | 5591 | 0.04 | 2000 | |
| B | 11 | 1 | nogas | 32.480 | 32.480 | 7.95 | 55271 | 0.06 | 2000 | |
| Na | 23 | 1 | nogas | 241.541 | 241.541 | 6.38 | 4108428 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 231.421 | 231.421 | 3.47 | 1529372 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 3.254 | 3.254 | 1.60 | 46546 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 194.113 | 194.113 | 3.83 | 5944928 | 0.00 | 200000 | |
| Ca | 43 | 1 | nogas | 194.344 | 194.344 | 8.68 | 4262 | 4.56 | 200000 | |
| Ca | 44 | 1 | nogas | 172.808 | 172.808 | 5.69 | 189616 | 0.09 | 200000 | |
| Ti | 47 | 1 | nogas | 2.114 | 2.114 | 7.94 | 2087 | 0.10 | 2000 | |
| V | 51 | 1 | nogas | 1.363 | 1.363 | 23.44 | 61452 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 1.904 | 1.904 | 8.29 | 38121 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 2.380 | 2.380 | 3.57 | 43684 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 215.832 | 215.832 | 0.54 | 3104938 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 1.974 | 1.974 | 5.32 | 21770 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 0.848 | 0.848 | 13.50 | 21907 | 0.00 | 2000 | |
| Cu | 63 | 1 | nogas | 0.517 | 0.517 | 123.60 | 42003 | 0.00 | 2000 | |
| Zn | 66 | 1 | nogas | 1.887 | 1.887 | 8.38 | 5501 | 0.03 | 2000 | |
| As | 75 | 1 | nogas | 1.177 | 1.177 | 14.37 | 25876 | 0.00 | 2000 | |
| Se | 77 | 1 | nogas | -0.887 | -0.887 | -834.25 | 7078 | -0.01 | 2000 | |
| Se | 82 | 1 | nogas | 1.292 | 1.292 | 7.96 | 453 | 0.29 | 2000 | |
| Sr | 88 | 1 | nogas | 2.057 | 2.057 | 1.11 | 27445 | 0.01 | 2000 | |
| Mo | 95 | 1 | nogas | 1.971 | 1.971 | 6.19 | 7002 | 0.03 | 2000 | |
| Ag | 107 | 1 | nogas | 1.961 | 1.961 | 0.62 | 12375 | 0.02 | 2000 | |
| Cd | 111 | 1 | nogas | 2.196 | 2.196 | 10.85 | 2840 | 0.08 | 2000 | |
| Sn | 118 | 1 | nogas | 2.168 | 2.168 | 7.03 | 9436 | 0.02 | 2000 | |
| Sb | 121 | 1 | nogas | 2.077 | 2.077 | 3.32 | 12762 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 2.180 | 2.180 | 7.35 | 4247 | 0.05 | 2000 | |
| Tl | 205 | 1 | nogas | 2.194 | 2.194 | 1.26 | 21138 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 2.067 | 2.067 | 4.79 | 14540 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 1.907 | 1.907 | 2.62 | 25939 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 118.752 | 118.752 | 4.27 | 2006301 | 0.01 | 2000 | |
| La | 139 | 1 | nogas | 14.783 | 14.783 | 206.04 | 57 | 26.09 | 2000 | |
| Au | 197 | 1 | nogas | 185.408 | 185.408 | 106.29 | 20 | 927.04 | 2000 | |
| Na | 23 | 2 | He | 220.945 | 220.945 | 1.12 | 534698 | 0.04 | 200000 | |
| Mg | 24 | 2 | He | 207.852 | 207.852 | 1.47 | 153976 | 0.13 | 200000 | |
| Al | 27 | 2 | He | 2.187 | 2.187 | 10.42 | 2714 | 0.08 | 2000 | |
| K | 39 | 2 | He | 200.137 | 200.137 | 0.92 | 450721 | 0.04 | 200000 | |
| Ca | 43 | 2 | He | 195.580 | 195.580 | 14.87 | 567 | 34.51 | 200000 | |
| Ca | 44 | 2 | He | 210.682 | 210.682 | 4.96 | 12118 | 1.74 | 200000 | |
| V | 51 | 2 | He | 2.089 | 2.089 | 1.39 | 11558 | 0.02 | 2000 | |

# Sample Report

| Cr | 52 | 2 | He | 1.997 | 1.997 | 1.28 | 14770 | 0.01 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mn | 55 | 2 | He | 2.325 | 2.325 | 0.56 | 11591 | 0.02 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Fe | 56 | 2 | He | 200.325 | 200.325 | 3.09 | 1002962 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 1.920 | 1.920 | 4.86 | 13532 | 0.01 | 2000 | |
| Ni | 60 | 2 | He | 0.792 | 0.792 | 50.53 | 12755 | 0.01 | 2000 | |
| Cu | 63 | 2 | He | 0.996 | 0.996 | 9.55 | 24167 | 0.00 | 2000 | |
| Zn | 66 | 2 | He | 2.358 | 2.358 | 3.45 | 3474 | 0.07 | 2000 | |
| As | 75 | 2 | He | 1.913 | 1.913 | 8.71 | 2576 | 0.07 | 2000 | |
| Sb | 121 | 2 | He | 2.007 | 2.007 | 2.27 | 9479 | 0.02 | 2000 | |
| Se | 78 | 2 | He | 1.560 | 1.560 | 61.24 | 508 | 0.31 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1647782 | 0.87 | 1658792 | 99.34 | 70 | 125 | |
| In | 115 | 1 | nogas | 1378582 | 5.25 | 1398610 | 98.57 | 70 | 125 | |
| Li | 6 | 1 | nogas | 576384 | 0.71 | 581094 | 99.19 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1083589 | 6.53 | 1069547 | 101.31 | 70 | 125 | |
| Ge | 72 | 2 | He | 778805 | 0.11 | 766661 | 101.58 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV5 |
| Data File Name | 023LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:17:08-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 5.520 | 3.141 | 14352 | 4.08 | 5 | 110.4 | 70 | 130 | |
| B | 11 | 1 | nogas | 37.154 | 1.685 | 60958 | 3.59 | 25 | 148.6 | 70 | 130 | LLICV Main CR1 Failed |
| Na | 23 | 1 | nogas | 547.121 | 4.359 | 7166944 | 2.14 | 500 | 109.4 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 547.021 | 4.394 | 3662031 | 3.35 | 500 | 109.4 | 70 | 130 | |
| Al | 27 | 1 | nogas | 7.308 | 3.646 | 85760 | 3.58 | 5 | 146.2 | 70 | 130 | LLICV Main CR1 Failed |
| P | 31 | 1 | nogas | 18.919 | 15.512 | 74719 | 0.96 | 25 | 75.7 | 70 | 130 | |
| K | 39 | 1 | nogas | 501.000 | 6.676 | 8645957 | 0.75 | 500 | 100.2 | 70 | 130 | |
| Ca | 43 | 1 | nogas | 494.594 | 3.169 | 9326 | 1.26 | 500 | 98.9 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 479.213 | 7.465 | 271100 | 2.07 | 500 | 95.8 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 4.888 | 1.297 | 4541 | 1.96 | 5 | 97.8 | 70 | 130 | |
| V | 51 | 1 | nogas | 4.987 | 2.161 | 104988 | 3.90 | 5 | 99.7 | 70 | 130 | |
| Cr | 52 | 1 | nogas | 5.062 | 3.758 | 69703 | 4.54 | 5 | 101.2 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.533 | 6.710 | 82349 | 4.15 | 5 | 110.7 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 525.171 | 7.272 | 6242910 | 4.55 | 500 | 105.0 | 70 | 130 | |
| Co | 59 | 1 | nogas | 5.132 | 4.450 | 55504 | 2.05 | 5 | 102.6 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 3.805 | 8.709 | 28793 | 1.85 | 5 | 76.1 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 3.873 | 8.632 | 61469 | 5.55 | 5 | 77.5 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 5.758 | 6.749 | 12415 | 3.43 | 5 | 115.2 | 70 | 130 | |
| As | 75 | 1 | nogas | 5.085 | 8.986 | 34294 | 0.38 | 5 | 101.7 | 70 | 130 | |
| Se | 77 | 1 | nogas | 16.310 | 23.133 | 8709 | 4.88 | 5 | 326.2 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 4.743 | 11.642 | 823 | 4.60 | 5 | 94.9 | 70 | 130 | |
| Sr | 88 | 1 | nogas | 5.009 | 4.151 | 65092 | 1.30 | 5 | 100.2 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 5.042 | 6.139 | 14670 | 2.74 | 5 | 100.8 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 4.831 | 0.551 | 30097 | 3.07 | 5 | 96.6 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 4.563 | 7.334 | 6085 | 8.78 | 5 | 91.3 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 5.136 | 5.663 | 21567 | 5.27 | 5 | 102.7 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 4.872 | 3.376 | 28651 | 1.01 | 5 | 97.4 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 4.757 | 2.716 | 9319 | 1.49 | 5 | 95.1 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.601 | 9.015 | 44573 | 4.83 | 5 | 92.0 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 4.714 | 7.822 | 33182 | 2.65 | 5 | 94.3 | 70 | 130 | |
| U | 238 | 1 | nogas | 4.748 | 8.937 | 64990 | 2.85 | 5 | 95.0 | 70 | 130 | |
| Li | 7 | 1 | nogas | 5.174 | 5.370 | 68890 | 3.19 | 5 | 103.5 | 70 | 130 | |
| Si | 28 | 1 | nogas | 268.130 | 8.162 | 2659202 | 1.56 | 25 | 1072.5 | 70 | 130 | LLICV Main CR1 Failed |
| La | 139 | 1 | nogas | 21.271 | 150.423 | 67 | 56.79 | 5 | 425.4 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 239.594 | 55.793 | 23 | 24.74 | 5 | 4791.9 | 70 | 130 | LLICV Main CR1 Failed |
| Na | 23 | 2 | He | 517.595 | 3.134 | 898916 | 0.92 | 500 | 103.5 | 70 | 130 | |
| Mg | 24 | 2 | He | 508.521 | 1.298 | 373100 | 0.67 | 500 | 101.7 | 70 | 130 | |
| Al | 27 | 2 | He | 6.233 | 6.404 | 4861 | 2.57 | 5 | 124.7 | 70 | 130 | |
| K | 39 | 2 | He | 502.221 | 3.523 | 737928 | 0.53 | 500 | 100.4 | 70 | 130 | |
| Ca | 43 | 2 | He | 504.959 | 12.606 | 1363 | 14.00 | 500 | 101.0 | 70 | 130 | |
| Ca | 44 | 2 | He | 532.450 | 5.354 | 25745 | 2.89 | 500 | 106.5 | 70 | 130 | |
| V | 51 | 2 | He | 5.080 | 0.459 | 26318 | 1.47 | 5 | 101.6 | 70 | 130 | |
| Cr | 52 | 2 | He | 5.042 | 3.702 | 30543 | 1.54 | 5 | 100.8 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.724 | 3.150 | 26320 | 1.32 | 5 | 114.5 | 70 | 130 | |
| Fe | 56 | 2 | He | 529.054 | 3.449 | 2599357 | 1.62 | 500 | 105.8 | 70 | 130 | |
| Co | 59 | 2 | He | 4.841 | 4.455 | 33749 | 2.61 | 5 | 96.8 | 70 | 130 | |
| Ni | 60 | 2 | He | 3.714 | 10.309 | 17459 | 4.43 | 5 | 74.3 | 70 | 130 | |
| Cu | 63 | 2 | He | 4.237 | 2.733 | 37443 | 1.01 | 5 | 84.7 | 70 | 130 | |
| Zn | 66 | 2 | He | 6.124 | 4.048 | 7642 | 5.43 | 5 | 122.5 | 70 | 130 | |
| As | 75 | 2 | He | 5.050 | 1.034 | 6088 | 2.24 | 5 | 101.0 | 70 | 130 | |
| Sb | 121 | 2 | He | 4.987 | 2.251 | 22622 | 3.27 | 5 | 99.7 | 70 | 130 | |
| Se | 78 | 2 | He | 4.763 | 7.041 | 830 | 5.76 | 5 | 95.3 | 70 | 130 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1631063 | 2.88 | 1658792 | 98.33 | 70 | 125 | |
| In | 115 | 1 | nogas | 1421634 | 3.42 | 1398610 | 101.65 | 70 | 125 | |
| Li | 6 | 1 | nogas | 564840 | 2.43 | 581094 | 97.20 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1095476 | 7.91 | 1069547 | 102.42 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 772950 | 1.87 | 766661 | 100.82 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICB |
| Data File Name | 024_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:19:23-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.007 | 30.2 | 33 | 17.3 | 1 | |
| B | 11 | 1 | nogas | 7.019 | 1.9 | 17729 | 1.8 | 10 | |
| Na | 23 | 1 | nogas | 4.551 | 153.4 | 1821657 | 1.7 | 100 | |
| Mg | 24 | 1 | nogas | 1.032 | 25.6 | 12106 | 15.8 | 100 | |
| Al | 27 | 1 | nogas | 0.296 | 15.5 | 16991 | 1.5 | 5 | |
| P | 31 | 1 | nogas | -8.443 | -5.6 | 55256 | 1.4 | 10 | |
| K | 39 | 1 | nogas | 5.543 | 284.6 | 4156491 | 2.0 | 100 | |
| Ca | 43 | 1 | nogas | 19.481 | 40.2 | 1230 | 9.2 | 100 | |
| Ca | 44 | 1 | nogas | -27.956 | -46.9 | 132083 | 1.2 | 100 | |
| Ti | 47 | 1 | nogas | 0.051 | 310.0 | 220 | 63.1 | 2.5 | |
| V | 51 | 1 | nogas | -0.351 | -35.7 | 39720 | 2.3 | 2.5 | |
| Cr | 52 | 1 | nogas | 0.016 | 264.6 | 18513 | 2.6 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.197 | 23.2 | 16024 | 2.1 | 2.5 | |
| Fe | 56 | 1 | nogas | -0.236 | -1023.7 | 849977 | 1.6 | 100 | |
| Co | 59 | 1 | nogas | 0.015 | 37.1 | 450 | 11.8 | 2.5 | |
| Ni | 60 | 1 | nogas | -1.526 | -7.9 | 15861 | 1.4 | 2.5 | |
| Cu | 63 | 1 | nogas | -1.543 | -26.7 | 29244 | 9.5 | 1 | |
| Zn | 66 | 1 | nogas | -0.672 | -12.8 | 823 | 18.4 | 2.5 | |
| As | 75 | 1 | nogas | -0.134 | -233.8 | 22551 | 2.6 | 2.5 | |
| Se | 77 | 1 | nogas | 7.979 | 42.2 | 7835 | 4.0 | 2.5 | ICB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.111 | -474.8 | 293 | 17.5 | 1 | |
| Sr | 88 | 1 | nogas | 0.013 | 114.9 | 860 | 20.3 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.091 | -94.3 | 1707 | 11.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.009 | 103.4 | 110 | 50.6 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.003 | 613.7 | 27 | 86.6 | 1 | |
| Sn | 118 | 1 | nogas | 0.109 | 36.9 | 1470 | 8.5 | 5 | |
| Sb | 121 | 1 | nogas | 0.053 | 37.9 | 1020 | 12.7 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.031 | 37.6 | 257 | 11.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.044 | 48.6 | 490 | 53.1 | 1 | |
| Pb | 208 | 1 | nogas | 0.020 | 96.1 | 357 | 40.5 | 2.5 | |
| U | 238 | 1 | nogas | 0.007 | 42.0 | 157 | 35.2 | 2.5 | |
| Si | 28 | 1 | nogas | 10.874 | 44.3 | 1488684 | 0.5 | 5 | ICB Main CR1 Failed |
| La | 139 | 1 | nogas | 18.193 | 86.4 | 60 | 28.9 | 2.5 | ICB Main CR1 Failed |
| Au | 197 | 1 | nogas | 120.592 | 186.8 | 17 | 69.3 | 2.5 | ICB Main CR1 Failed |
| Na | 23 | 2 | He | 4.714 | 144.0 | 254885 | 1.7 | 100 | |
| Mg | 24 | 2 | He | 0.893 | 11.0 | 1117 | 4.6 | 100 | |
| Al | 27 | 2 | He | -1.225 | -8.9 | 840 | 8.2 | 5 | |
| K | 39 | 2 | He | 2.125 | 224.3 | 249690 | 0.5 | 100 | |
| Ca | 43 | 2 | He | 16.457 | 113.1 | 97 | 46.6 | 100 | |
| Ca | 44 | 2 | He | 18.750 | 65.5 | 3727 | 12.9 | 100 | |
| V | 51 | 2 | He | 0.131 | 8.1 | 1699 | 3.8 | 2.5 | |
| Cr | 52 | 2 | He | -0.043 | -97.4 | 3904 | 6.5 | 2.5 | |
| Mn | 55 | 2 | He | 0.121 | 61.9 | 1840 | 17.8 | 2.5 | |
| Fe | 56 | 2 | He | 0.634 | 31.9 | 19891 | 3.1 | 100 | |

# Initial Calibration Blank (ICB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Co | 59 | 2 | He | 0.012 | 91.6 | 147 | 51.2 | 2.5 | |
| Ni | 60 | 2 | He | -1.537 | -4.9 | 8596 | 2.6 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Cu | 63 | 2 | He | -1.061 | -5.7 | 15023 | 1.3 | 1 | |
| Zn | 66 | 2 | He | -0.280 | -43.8 | 497 | 25.3 | 2.5 | |
| As | 75 | 2 | He | 0.036 | 82.2 | 432 | 7.9 | 2.5 | |
| Sb | 121 | 2 | He | 0.068 | 35.4 | 787 | 11.5 | 2.5 | |
| Se | 78 | 2 | He | -0.036 | -1285.8 | 333 | 14.0 | 1 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1620739 | 1.92 | 1658792 | 97.71 | 70 | 125 | |
| In | 115 | 1 | nogas | 1350081 | 5.52 | 1398610 | 96.53 | 70 | 125 | |
| Li | 6 | 1 | nogas | 580278 | 0.77 | 581094 | 99.86 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1100356 | 8.62 | 1069547 | 102.88 | 70 | 125 | |
| Ge | 72 | 2 | He | 751943 | 1.74 | 766661 | 98.08 | 70 | 125 | |

# Interference Check Solution A (ICS-A) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSA |
| Data File Name | 025ICSA.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:36:13-06:00 |
| Sample Type | ICSA |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.014 | 130.8 | 43 | 93.3 | 0 | ICSA Main CR1 Failed |
| B | 11 | 1 | nogas | 2.046 | 45.2 | 8899 | 9.5 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 1 | nogas | 109998.471 | 2.5 | 950380888 | 3.0 | 0 | |
| Mg | 24 | 1 | nogas | 109284.153 | 2.8 | 642498131 | 2.1 | 0 | |
| Al | 27 | 1 | nogas | 87308.436 | 4.1 | 769887642 | 1.8 | 0 | |
| P | 31 | 1 | nogas | 100868.169 | 3.6 | 63606179 | 1.8 | 0 | |
| K | 39 | 1 | nogas | 104330.498 | 5.0 | 850805452 | 3.8 | 0 | |
| Ca | 43 | 1 | nogas | 103475.855 | 2.6 | 1588064 | 1.9 | 0 | |
| Ca | 44 | 1 | nogas | 102650.181 | 4.8 | 25328532 | 3.2 | 0 | |
| Ti | 47 | 1 | nogas | 2071.678 | 3.4 | 1666114 | 2.0 | 0 | |
| V | 51 | 1 | nogas | 1.127 | 47.6 | 52155 | 9.1 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 1 | nogas | 1.079 | 14.6 | 26470 | 4.5 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 1 | nogas | 1.023 | 12.4 | 23759 | 3.9 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 1 | nogas | 106045.015 | 2.8 | 981047255 | 0.6 | 0 | |
| Co | 59 | 1 | nogas | 0.450 | 2.8 | 4627 | 3.3 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 1 | nogas | -2.295 | -17.0 | 12711 | 6.1 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 1 | nogas | -1.539 | -30.0 | 26497 | 8.3 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 1 | nogas | 4.364 | 1.6 | 8932 | 3.5 | 0 | ICSA Main CR1 Failed |
| As | 75 | 1 | nogas | 4.903 | 7.1 | 30540 | 0.0 | 0 | ICSA Main CR1 Failed |
| Se | 77 | 1 | nogas | 45.694 | 5.2 | 10460 | 1.1 | 0 | |
| Se | 82 | 1 | nogas | 0.130 | 130.9 | 290 | 3.4 | 0 | ICSA Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.891 | 6.8 | 10950 | 4.2 | 0 | ICSA Main CR1 Failed |
| Mo | 95 | 1 | nogas | 2155.674 | 3.1 | 4904789 | 1.5 | 0 | |
| Ag | 107 | 1 | nogas | 0.054 | 48.1 | 353 | 39.0 | 0 | ICSA Main CR1 Failed |
| Cd | 111 | 1 | nogas | 1.405 | 11.7 | 1533 | 10.9 | 0 | ICSA Main CR1 Failed |
| Sn | 118 | 1 | nogas | 0.224 | 10.3 | 1633 | 4.6 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 1 | nogas | 0.508 | 21.7 | 3280 | 19.2 | 0 | ICSA Main CR1 Failed |
| Ba | 137 | 1 | nogas | 0.308 | 11.2 | 650 | 9.6 | 0 | ICSA Main CR1 Failed |
| Tl | 205 | 1 | nogas | 0.024 | 25.2 | 260 | 16.8 | 0 | ICSA Main CR1 Failed |
| Pb | 208 | 1 | nogas | 0.092 | 2.8 | 810 | 17.1 | 0 | ICSA Main CR1 Failed |
| Si | 28 | 1 | nogas | 104.223 | 10.2 | 1729536 | 1.1 | 0 | |
| La | 139 | 1 | nogas | 96.355 | 64.9 | 133 | 49.9 | 0 | |
| Na | 23 | 2 | He | 103722.196 | 7.6 | 118559788 | 2.8 | 0 | |
| Mg | 24 | 2 | He | 101674.303 | 6.5 | 68466674 | 3.0 | 0 | |
| Al | 27 | 2 | He | 90515.665 | 8.2 | 44594558 | 4.3 | 0 | |
| K | 39 | 2 | He | 105563.911 | 6.9 | 93575112 | 1.4 | 0 | |
| Ca | 43 | 2 | He | 103043.719 | 8.2 | 244347 | 2.8 | 0 | |
| Ca | 44 | 2 | He | 109271.005 | 8.4 | 4284913 | 3.6 | 0 | |
| V | 51 | 2 | He | 0.283 | 7.8 | 2302 | 2.5 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 2 | He | 0.487 | 10.5 | 6231 | 2.9 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 2 | He | 0.990 | 7.7 | 5221 | 3.2 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 2 | He | 104604.174 | 3.9 | 469680046 | 2.4 | 0 | |
| Co | 59 | 2 | He | 0.291 | 9.6 | 1920 | 7.0 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 2 | He | -3.626 | -6.9 | 4964 | 2.5 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 2 | He | -1.046 | -17.2 | 14259 | 3.7 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 2 | He | 3.569 | 4.2 | 4411 | 3.6 | 0 | ICSA Main CR1 Failed |
| As | 75 | 2 | He | 0.156 | 49.1 | 530 | 8.9 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 2 | He | 0.393 | 11.0 | 2067 | 6.3 | 0 | ICSA Main CR1 Failed |
| Se | 78 | 2 | He | 0.253 | 74.6 | 342 | 8.0 | 0 | ICSA Main CR1 Failed |

# Interference Check Solution A (ICS-A) Report

# Interference Check Solution A (ICS-A) Report

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1469563 | 2.32 | 1658792 | 88.59 | 70 | 125 | |
| In | 115 | 1 | nogas | 1154956 | 1.42 | 1398610 | 82.58 | 70 | 125 | |
| Li | 6 | 1 | nogas | 502011 | 3.76 | 581094 | 86.39 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1043348 | 19.43 | 1069547 | 97.55 | 70 | 125 | |
| Ge | 72 | 2 | He | 711849 | 5.84 | 766661 | 92.85 | 70 | 125 | |

# Interference Check Solution AB (ICS-AB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSAB |
| Data File Name | 026ICSB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T13:38:33-06:00 |
| Sample Type | ICSB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 118.432 | 3.643 | 288126 | 2.43 | 100 | 118.4 | 80 | 120 | |
| B | 11 | 1 | nogas | 594.135 | 6.132 | 813018 | 3.67 | 100 | 594.1 | 80 | 120 | |
| Na | 23 | 1 | nogas | 113459.223 | 2.569 | 1037448257 | 2.90 | 100 | 113459.2 | 80 | 120 | ICSB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 109355.563 | 2.257 | 680626849 | 2.93 | 100 | 109355.6 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 1 | nogas | 86172.631 | 2.773 | 781829135 | 3.40 | 100 | 86172.6 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 1 | nogas | 109867.687 | 0.695 | 921485954 | 1.50 | 100 | 109867.7 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 113723.194 | 1.392 | 1794780 | 0.97 | 100 | 113723.2 | 80 | 120 | |
| Ca | 44 | 1 | nogas | 114502.800 | 2.041 | 29047664 | 1.21 | 100 | 114502.8 | 80 | 120 | |
| Ti | 47 | 1 | nogas | 2172.678 | 4.784 | 1797121 | 4.55 | 100 | 2172.7 | 80 | 120 | |
| V | 51 | 1 | nogas | 116.860 | 2.415 | 1359049 | 3.11 | 100 | 116.9 | 80 | 120 | |
| Cr | 52 | 1 | nogas | 109.034 | 2.306 | 1039191 | 3.06 | 100 | 109.0 | 80 | 120 | |
| Mn | 55 | 1 | nogas | 111.487 | 1.422 | 1295463 | 1.00 | 100 | 111.5 | 80 | 120 | |
| Fe | 56 | 1 | nogas | 111727.071 | 1.192 | 1063131124 | 1.63 | 100 | 111727.1 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 1 | nogas | 114.768 | 1.277 | 1144986 | 0.76 | 100 | 114.8 | 80 | 120 | |
| Ni | 60 | 1 | nogas | 111.335 | 0.492 | 266615 | 1.28 | 100 | 111.3 | 80 | 120 | |
| Cu | 63 | 1 | nogas | 108.088 | 3.059 | 627862 | 3.12 | 100 | 108.1 | 80 | 120 | |
| Zn | 66 | 1 | nogas | 112.252 | 2.349 | 189447 | 2.77 | 100 | 112.3 | 80 | 120 | |
| As | 75 | 1 | nogas | 120.919 | 2.869 | 270551 | 2.03 | 100 | 120.9 | 80 | 120 | |
| Se | 77 | 1 | nogas | 142.995 | 3.266 | 19661 | 1.91 | 100 | 143.0 | 80 | 120 | |
| Se | 82 | 1 | nogas | 117.004 | 5.226 | 12084 | 4.26 | 100 | 117.0 | 80 | 120 | |
| Sr | 88 | 1 | nogas | 116.482 | 1.165 | 1388771 | 1.94 | 100 | 116.5 | 80 | 120 | |
| Mo | 95 | 1 | nogas | 2084.170 | 3.232 | 4877859 | 3.51 | 100 | 2084.2 | 80 | 120 | ICSB Main CR1 Failed |
| Ag | 107 | 1 | nogas | 109.266 | 4.003 | 629405 | 3.76 | 100 | 109.3 | 80 | 120 | |
| Cd | 111 | 1 | nogas | 119.337 | 2.766 | 135153 | 2.53 | 100 | 119.3 | 80 | 120 | |
| Sn | 118 | 1 | nogas | 114.532 | 2.710 | 389989 | 0.58 | 100 | 114.5 | 80 | 120 | |
| Sb | 121 | 1 | nogas | 109.786 | 2.073 | 584118 | 2.75 | 100 | 109.8 | 80 | 120 | |
| Ba | 137 | 1 | nogas | 115.324 | 4.300 | 188530 | 2.23 | 100 | 115.3 | 80 | 120 | |
| Tl | 205 | 1 | nogas | 105.411 | 7.662 | 901727 | 2.44 | 100 | 105.4 | 80 | 120 | |
| Pb | 208 | 1 | nogas | 110.087 | 7.144 | 680946 | 1.73 | 100 | 110.1 | 80 | 120 | |
| U | 238 | 1 | nogas | 114.450 | 9.038 | 1384332 | 5.40 | 100 | 114.5 | 80 | 120 | |
| Si | 28 | 1 | nogas | 5847.180 | 2.391 | 25820719 | 2.82 | 100 | 5847.2 | 80 | 120 | ICSB Main CR1 Failed |
| La | 139 | 1 | nogas | 189.570 | 49.004 | 240 | 39.75 | 100 | 189.6 | 80 | 120 | |
| Na | 23 | 2 | He | 112703.670 | 0.854 | 132076895 | 2.20 | 100 | 112703.7 | 80 | 120 | |
| Mg | 24 | 2 | He | 111026.923 | 1.903 | 76635167 | 3.34 | 100 | 111026.9 | 80 | 120 | |
| Al | 27 | 2 | He | 87962.711 | 2.654 | 44440609 | 3.72 | 100 | 87962.7 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 2 | He | 112840.732 | 0.561 | 102536385 | 1.84 | 100 | 112840.7 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 2 | He | 108303.801 | 3.038 | 263387 | 2.67 | 100 | 108303.8 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 2 | He | 113436.283 | 3.989 | 4561887 | 3.81 | 100 | 113436.3 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 2 | He | 115.475 | 1.756 | 540873 | 0.67 | 100 | 115.5 | 80 | 120 | |
| Cr | 52 | 2 | He | 114.220 | 1.255 | 565533 | 2.28 | 100 | 114.2 | 80 | 120 | |
| Mn | 55 | 2 | He | 111.428 | 2.130 | 459022 | 2.86 | 100 | 111.4 | 80 | 120 | |
| Fe | 56 | 2 | He | 108948.328 | 0.928 | 500930099 | 1.60 | 100 | 108948.3 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 2 | He | 108.323 | 2.622 | 710070 | 1.78 | 100 | 108.3 | 80 | 120 | |
| Ni | 60 | 2 | He | 109.842 | 3.395 | 180478 | 1.64 | 100 | 109.8 | 80 | 120 | |
| Cu | 63 | 2 | He | 113.075 | 2.411 | 460819 | 0.89 | 100 | 113.1 | 80 | 120 | |
| Zn | 66 | 2 | He | 115.117 | 0.147 | 121425 | 1.74 | 100 | 115.1 | 80 | 120 | |
| As | 75 | 2 | He | 114.387 | 0.525 | 121610 | 1.23 | 100 | 114.4 | 80 | 120 | |
| Sb | 121 | 2 | He | 112.234 | 3.997 | 468920 | 2.41 | 100 | 112.2 | 80 | 120 | |
| Se | 78 | 2 | He | 114.995 | 2.447 | 11328 | 0.87 | 100 | 115.0 | 80 | 120 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1510918 | 0.84 | 1658792 | 91.09 | 70 | 125 | |
| In | 115 | 1 | nogas | 1212803 | 3.24 | 1398610 | 86.71 | 70 | 125 | |
| Li | 6 | 1 | nogas | 529505 | 4.52 | 581094 | 91.12 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 967297 | 5.80 | 1069547 | 90.44 | 70 | 125 | |
| Ge | 72 | 2 | He | 727896 | 1.65 | 766661 | 94.94 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 038_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T14:07:16-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 114.230 | 2.242 | 236847 | 2.06 | 100 | 114.2 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 594.946 | 0.655 | 694487 | 3.47 | 500 | 119.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10669.557 | 4.089 | 96920396 | 1.62 | 10000 | 106.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10638.777 | 6.682 | 64719856 | 2.62 | 10000 | 106.4 | 90 | 110 | |
| Al | 27 | 1 | nogas | 88.047 | 2.069 | 829020 | 2.58 | 100 | 88.0 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 494.724 | 4.579 | 385402 | 1.99 | 500 | 98.9 | 90 | 110 | |
| K | 39 | 1 | nogas | 10428.873 | 3.050 | 92821531 | 1.25 | 10000 | 104.3 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10314.620 | 1.545 | 166989 | 1.12 | 10000 | 103.1 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10597.354 | 1.770 | 2865675 | 1.10 | 10000 | 106.0 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.756 | 4.117 | 81855 | 2.77 | 100 | 96.8 | 90 | 110 | |
| V | 51 | 1 | nogas | 103.557 | 3.626 | 1234677 | 4.75 | 100 | 103.6 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 98.005 | 2.980 | 955184 | 1.79 | 100 | 98.0 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 105.151 | 2.225 | 1248199 | 1.49 | 100 | 105.2 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10839.127 | 4.270 | 105990786 | 2.31 | 10000 | 108.4 | 90 | 110 | |
| Co | 59 | 1 | nogas | 102.134 | 4.745 | 1040156 | 3.82 | 100 | 102.1 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 102.136 | 4.344 | 251180 | 2.80 | 100 | 102.1 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 97.822 | 3.292 | 583475 | 1.61 | 100 | 97.8 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 101.881 | 0.235 | 175758 | 2.31 | 100 | 101.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 102.652 | 1.750 | 237815 | 1.45 | 100 | 102.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | 92.217 | 5.744 | 15327 | 1.88 | 100 | 92.2 | 90 | 110 | |
| Se | 82 | 1 | nogas | 102.209 | 3.179 | 10817 | 2.52 | 100 | 102.2 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 103.008 | 1.695 | 1254025 | 2.22 | 100 | 103.0 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 104.293 | 2.501 | 250930 | 1.58 | 100 | 104.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 104.797 | 1.156 | 616475 | 2.26 | 100 | 104.8 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 105.206 | 3.589 | 129213 | 2.41 | 100 | 105.2 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 94.376 | 3.175 | 348741 | 1.81 | 100 | 94.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 102.881 | 2.001 | 558803 | 0.56 | 100 | 102.9 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 100.554 | 3.461 | 178365 | 2.43 | 100 | 100.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.221 | 6.753 | 885680 | 1.77 | 100 | 99.2 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 101.013 | 6.935 | 651905 | 2.33 | 100 | 101.0 | 90 | 110 | |
| U | 238 | 1 | nogas | 94.513 | 4.698 | 1193750 | 0.37 | 100 | 94.5 | 90 | 110 | |
| Li | 7 | 1 | nogas | 115.561 | 3.049 | 564687 | 0.31 | 100 | 115.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 1445.192 | 4.109 | 7544746 | 0.86 | 5000 | 28.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 99.768 | 3.777 | 106388 | 2.07 | 100 | 99.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 232.516 | 22.204 | 313 | 21.25 | 100 | 232.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -50.156 | -230.517 | 7 | 86.60 | 100 | -50.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 103.925 | 7.257 | 378962 | 2.50 | 100 | 103.9 | 90 | 110 | |
| Na | 23 | 2 | He | 10756.696 | 1.835 | 13028717 | 4.46 | 10000 | 107.6 | 90 | 110 | |
| Mg | 24 | 2 | He | 10419.140 | 2.015 | 7307667 | 5.23 | 10000 | 104.2 | 90 | 110 | |
| Al | 27 | 2 | He | 93.763 | 2.582 | 49588 | 5.53 | 100 | 93.8 | 90 | 110 | |
| K | 39 | 2 | He | 10234.677 | 3.411 | 9661733 | 0.81 | 10000 | 102.3 | 90 | 110 | |
| Ca | 43 | 2 | He | 10140.061 | 5.211 | 25074 | 1.81 | 10000 | 101.4 | 90 | 110 | |
| Ca | 44 | 2 | He | 10469.998 | 7.746 | 429615 | 4.05 | 10000 | 104.7 | 90 | 110 | |
| V | 51 | 2 | He | 102.955 | 0.386 | 490165 | 4.21 | 100 | 103.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 101.788 | 2.089 | 512181 | 2.00 | 100 | 101.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 103.031 | 8.248 | 430383 | 4.63 | 100 | 103.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 10470.451 | 7.604 | 48831293 | 3.97 | 10000 | 104.7 | 90 | 110 | |
| Co | 59 | 2 | He | 100.039 | 9.147 | 664809 | 5.54 | 100 | 100.0 | 90 | 110 | |
| Ni | 60 | 2 | He | 103.486 | 7.032 | 173146 | 3.01 | 100 | 103.5 | 90 | 110 | |
| Cu | 63 | 2 | He | 102.762 | 2.053 | 427096 | 1.93 | 100 | 102.8 | 90 | 110 | |
| Zn | 66 | 2 | He | 103.400 | 2.002 | 110940 | 5.85 | 100 | 103.4 | 90 | 110 | |
| As | 75 | 2 | He | 104.385 | 6.389 | 112602 | 2.72 | 100 | 104.4 | 90 | 110 | |
| Sb | 121 | 2 | He | 103.327 | 9.264 | 437784 | 5.67 | 100 | 103.3 | 90 | 110 | |
| Se | 78 | 2 | He | 101.764 | 2.334 | 10222 | 3.50 | 100 | 101.8 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1542986 | 2.54 | 1658792 | 93.02 | 70 | 125 | |
| In | 115 | 1 | nogas | 1315164 | 1.94 | 1398610 | 94.03 | 70 | 125 | |
| Li | 6 | 1 | nogas | 451022 | 3.09 | 581094 | 77.62 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1008799 | 5.20 | 1069547 | 94.32 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 739499 | 3.82 | 766661 | 96.46 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 039_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T14:09:29-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.014 | 82.3 | 37 | 56.8 | 1 | |
| B | 11 | 1 | nogas | 15.731 | 25.9 | 22731 | 16.2 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 47.726 | 8.2 | 2084610 | 1.2 | 100 | |
| Mg | 24 | 1 | nogas | 1.537 | 18.7 | 14341 | 11.1 | 100 | |
| Al | 27 | 1 | nogas | 0.566 | 2.8 | 18386 | 1.0 | 5 | |
| P | 31 | 1 | nogas | -25.929 | -3.7 | 40371 | 0.6 | 10 | |
| K | 39 | 1 | nogas | -12.775 | -28.0 | 3740970 | 0.5 | 100 | |
| Ca | 43 | 1 | nogas | 9.640 | 100.5 | 997 | 14.6 | 100 | |
| Ca | 44 | 1 | nogas | -18.106 | -45.1 | 126252 | 1.2 | 100 | |
| Ti | 47 | 1 | nogas | 0.094 | 108.4 | 243 | 35.4 | 2.5 | |
| V | 51 | 1 | nogas | 1.497 | 17.0 | 58173 | 5.9 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.132 | -20.0 | 15944 | 1.8 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.039 | 66.8 | 13185 | 2.6 | 2.5 | |
| Fe | 56 | 1 | nogas | 3.262 | 87.1 | 830004 | 4.2 | 100 | |
| Co | 59 | 1 | nogas | 0.015 | 77.1 | 427 | 28.4 | 2.5 | |
| Ni | 60 | 1 | nogas | -3.338 | -7.2 | 10793 | 4.2 | 2.5 | |
| Cu | 63 | 1 | nogas | -3.693 | -9.2 | 15534 | 11.3 | 2 | |
| Zn | 66 | 1 | nogas | -1.005 | -1.4 | 213 | 11.8 | 2.5 | |
| As | 75 | 1 | nogas | -0.622 | -59.3 | 20112 | 2.9 | 2.5 | |
| Se | 77 | 1 | nogas | -2.188 | -85.9 | 6405 | 2.0 | 2.5 | |
| Se | 82 | 1 | nogas | 0.233 | 158.2 | 310 | 11.2 | 2 | |
| Sr | 88 | 1 | nogas | -0.004 | -106.1 | 607 | 9.1 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.100 | -78.7 | 1580 | 12.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.034 | 55.6 | 250 | 45.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.044 | 66.3 | 73 | 47.9 | 1 | |
| Sn | 118 | 1 | nogas | 0.267 | 16.2 | 1947 | 4.3 | 5 | |
| Sb | 121 | 1 | nogas | 0.383 | 13.0 | 2717 | 10.5 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.055 | -36.5 | 93 | 32.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.262 | 66.3 | 2370 | 71.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.080 | 7.4 | 690 | 8.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.038 | 75.1 | 533 | 73.1 | 2.5 | |
| Si | 28 | 1 | nogas | 5.830 | 103.5 | 1373329 | 0.9 | 5 | CCB Main CR1 Failed |
| La | 139 | 1 | nogas | -10.798 | -132.5 | 23 | 65.5 | 2.5 | |
| Au | 197 | 1 | nogas | -50.340 | -230.6 | 7 | 86.6 | 2.5 | |
| Na | 23 | 2 | He | 43.547 | 8.7 | 295970 | 0.4 | 100 | |
| Mg | 24 | 2 | He | 1.545 | 15.3 | 1550 | 9.3 | 100 | |
| Al | 27 | 2 | He | -0.767 | -27.3 | 1057 | 8.8 | 5 | |
| K | 39 | 2 | He | -9.654 | -35.0 | 234024 | 0.4 | 100 | |
| Ca | 43 | 2 | He | -3.228 | -294.7 | 47 | 49.5 | 100 | |
| Ca | 44 | 2 | He | -4.271 | -73.6 | 2720 | 5.4 | 100 | |
| V | 51 | 2 | He | 0.313 | 5.9 | 2529 | 4.0 | 2.5 | |
| Cr | 52 | 2 | He | 0.024 | 262.0 | 4154 | 6.3 | 2.5 | |
| Mn | 55 | 2 | He | -0.084 | -29.4 | 950 | 9.4 | 2.5 | |
| Fe | 56 | 2 | He | 2.561 | 15.8 | 28480 | 5.7 | 100 | |
| Co | 59 | 2 | He | 0.017 | 75.6 | 180 | 49.4 | 2.5 | |
| Ni | 60 | 2 | He | -3.266 | -2.6 | 5721 | 3.7 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -2.738 | -3.7 | 8089 | 5.2 | 2 | |
| Zn | 66 | 2 | He | -0.639 | -5.4 | 107 | 32.9 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | 0.037 | 110.0 | 424 | 10.7 | 2.5 | |
| Sb | 121 | 2 | He | 0.291 | 4.5 | 1713 | 3.6 | 2.5 | |
| Se | 78 | 2 | He | -0.143 | -375.8 | 315 | 15.3 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1518138 | 0.94 | 1658792 | 91.52 | 70 | 125 | |
| In | 115 | 1 | nogas | 1272003 | 4.12 | 1398610 | 90.95 | 70 | 125 | |
| Li | 6 | 1 | nogas | 431446 | 3.37 | 581094 | 74.25 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 977395 | 6.05 | 1069547 | 91.38 | 70 | 125 | |
| Ge | 72 | 2 | He | 737280 | 1.43 | 766661 | 96.17 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 051_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T14:47:53-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.025 | 68.2 | 67 | 56.8 | 1 | |
| B | 11 | 1 | nogas | 15.184 | 18.2 | 24954 | 12.4 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 129.843 | 7.8 | 2951760 | 1.8 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 1.768 | 23.7 | 16478 | 15.5 | 100 | |
| Al | 27 | 1 | nogas | -0.457 | -9.1 | 9476 | 3.6 | 5 | |
| P | 31 | 1 | nogas | -22.957 | -5.1 | 44280 | 2.2 | 10 | |
| K | 39 | 1 | nogas | 9.902 | 145.6 | 4113019 | 0.7 | 100 | |
| Ca | 43 | 1 | nogas | -9.562 | -59.1 | 727 | 14.7 | 100 | |
| Ca | 44 | 1 | nogas | -7.423 | -127.5 | 134957 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.112 | 90.7 | 270 | 32.9 | 2.5 | |
| V | 51 | 1 | nogas | 0.172 | 64.5 | 45165 | 4.4 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.225 | -60.7 | 15751 | 6.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.037 | 177.6 | 13765 | 3.9 | 2.5 | |
| Fe | 56 | 1 | nogas | 8.243 | 79.1 | 917581 | 5.4 | 100 | |
| Co | 59 | 1 | nogas | 0.026 | 34.8 | 553 | 15.2 | 2.5 | |
| Ni | 60 | 1 | nogas | -4.337 | -6.1 | 8946 | 4.5 | 2.5 | |
| Cu | 63 | 1 | nogas | -3.324 | -7.1 | 18413 | 9.6 | 2 | |
| Zn | 66 | 1 | nogas | -0.973 | -2.1 | 280 | 15.6 | 2.5 | |
| As | 75 | 1 | nogas | -0.863 | -36.2 | 20522 | 1.1 | 2.5 | |
| Se | 77 | 1 | nogas | -5.298 | -83.2 | 6401 | 5.5 | 2.5 | |
| Se | 82 | 1 | nogas | -0.276 | -282.3 | 270 | 28.9 | 2 | |
| Sr | 88 | 1 | nogas | 0.054 | 7.6 | 1357 | 5.9 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.191 | -58.0 | 1430 | 19.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.036 | 31.6 | 270 | 23.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.026 | 87.0 | 53 | 47.2 | 1 | |
| Sn | 118 | 1 | nogas | 0.255 | 10.9 | 2010 | 2.2 | 5 | |
| Sb | 121 | 1 | nogas | 0.275 | 14.3 | 2234 | 7.3 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.043 | -11.4 | 120 | 8.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.243 | 82.7 | 2364 | 85.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.036 | 28.6 | 447 | 20.3 | 2.5 | |
| U | 238 | 1 | nogas | 0.034 | 35.2 | 510 | 36.0 | 2.5 | |
| Si | 28 | 1 | nogas | 3.218 | 609.1 | 1424685 | 3.5 | 5 | |
| La | 139 | 1 | nogas | -6.308 | -238.6 | 30 | 57.7 | 2.5 | |
| Au | 197 | 1 | nogas | 252.992 | 115.4 | 23 | 65.5 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 131.647 | 4.4 | 402278 | 0.2 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 1.275 | 11.7 | 1370 | 8.9 | 100 | |
| Al | 27 | 2 | He | -1.699 | -5.0 | 583 | 6.9 | 5 | |
| K | 39 | 2 | He | 0.524 | 1263.1 | 244526 | 0.9 | 100 | |
| Ca | 43 | 2 | He | -3.429 | -375.6 | 47 | 68.9 | 100 | |
| Ca | 44 | 2 | He | 2.291 | 211.4 | 3000 | 5.7 | 100 | |
| V | 51 | 2 | He | 0.144 | 6.1 | 1735 | 3.8 | 2.5 | |
| Cr | 52 | 2 | He | -0.004 | -364.3 | 4037 | 2.5 | 2.5 | |
| Mn | 55 | 2 | He | -0.067 | -22.7 | 1027 | 7.6 | 2.5 | |
| Fe | 56 | 2 | He | 1.508 | 11.1 | 23693 | 2.0 | 100 | |
| Co | 59 | 2 | He | 0.009 | 53.6 | 123 | 24.8 | 2.5 | |
| Ni | 60 | 2 | He | -3.988 | -7.6 | 4607 | 9.1 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| Cu | 63 | 2 | He | -2.463 | -4.2 | 9219 | 3.0 | 2 | |
|---|---|---|---|---|---|---|---|---|---|
| Zn | 66 | 2 | He | -0.611 | -6.5 | 137 | 30.5 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | 0.014 | 74.5 | 402 | 4.3 | 2.5 | |
| Sb | 121 | 2 | He | 0.199 | 18.6 | 1333 | 11.5 | 2.5 | |
| Se | 78 | 2 | He | -0.216 | -89.6 | 310 | 4.5 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1589125 | 2.72 | 1658792 | 95.80 | 70 | 125 | |
| In | 115 | 1 | nogas | 1342211 | 4.78 | 1398610 | 95.97 | 70 | 125 | |
| Li | 6 | 1 | nogas | 485397 | 3.96 | 581094 | 83.53 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1048283 | 4.39 | 1069547 | 98.01 | 70 | 125 | |
| Ge | 72 | 2 | He | 740894 | 1.64 | 766661 | 96.64 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 053_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T15:12:55-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 112.107 | 1.247 | 259454 | 1.32 | 100 | 112.1 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 568.547 | 3.228 | 740856 | 3.82 | 500 | 113.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10497.978 | 4.440 | 99157538 | 4.00 | 10000 | 105.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10625.062 | 4.851 | 67245760 | 4.51 | 10000 | 106.3 | 90 | 110 | |
| Al | 27 | 1 | nogas | 88.563 | 2.014 | 858148 | 1.76 | 100 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 498.256 | 2.643 | 399208 | 1.20 | 500 | 99.7 | 90 | 110 | |
| K | 39 | 1 | nogas | 10252.737 | 1.570 | 94016304 | 1.24 | 10000 | 102.5 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9998.138 | 1.390 | 166662 | 2.26 | 10000 | 100.0 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10477.273 | 0.224 | 2918096 | 1.14 | 10000 | 104.8 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.549 | 3.437 | 84081 | 2.12 | 100 | 96.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 97.306 | 5.338 | 1195950 | 3.99 | 100 | 97.3 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 96.909 | 5.390 | 972323 | 4.52 | 100 | 96.9 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.493 | 5.239 | 1240677 | 5.22 | 100 | 101.5 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10556.643 | 2.419 | 106328815 | 2.77 | 10000 | 105.6 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.087 | 0.975 | 1039035 | 1.49 | 100 | 99.1 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 95.671 | 1.535 | 243444 | 0.61 | 100 | 95.7 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 92.618 | 1.344 | 570740 | 0.76 | 100 | 92.6 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.888 | 0.790 | 177385 | 1.23 | 100 | 99.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 101.310 | 4.559 | 241820 | 3.03 | 100 | 101.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 88.863 | 6.216 | 15457 | 3.33 | 100 | 88.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 99.530 | 2.019 | 10854 | 3.26 | 100 | 99.5 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 104.289 | 2.084 | 1306616 | 1.29 | 100 | 104.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 100.129 | 1.448 | 248066 | 0.59 | 100 | 100.1 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 101.285 | 2.726 | 613200 | 2.67 | 100 | 101.3 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 101.207 | 5.383 | 125211 | 1.40 | 100 | 101.2 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.640 | 4.836 | 348618 | 1.28 | 100 | 93.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 101.006 | 1.091 | 564793 | 1.31 | 100 | 101.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 101.587 | 4.457 | 181561 | 1.30 | 100 | 101.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.199 | 7.425 | 897775 | 1.23 | 100 | 98.2 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.339 | 9.230 | 642899 | 3.08 | 100 | 97.3 | 90 | 110 | |
| U | 238 | 1 | nogas | 93.714 | 6.868 | 1211727 | 0.64 | 100 | 93.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 116.521 | 0.752 | 635430 | 1.42 | 100 | 116.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 1467.922 | 2.040 | 7868126 | 0.80 | 5000 | 29.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 98.314 | 5.699 | 105604 | 1.37 | 100 | 98.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 175.475 | 10.097 | 247 | 6.19 | 100 | 175.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 261.987 | 48.575 | 23 | 24.74 | 100 | 262.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 102.733 | 6.678 | 383883 | 1.35 | 100 | 102.7 | 90 | 110 | |
| Na | 23 | 2 | He | 10615.355 | 2.023 | 12975379 | 1.52 | 10000 | 106.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 10503.839 | 2.223 | 7431526 | 2.22 | 10000 | 105.0 | 90 | 110 | |
| Al | 27 | 2 | He | 92.259 | 1.896 | 49240 | 1.64 | 100 | 92.3 | 90 | 110 | |
| K | 39 | 2 | He | 10612.350 | 1.808 | 10108957 | 2.34 | 10000 | 106.1 | 90 | 110 | |
| Ca | 43 | 2 | He | 10408.628 | 1.348 | 26002 | 0.98 | 10000 | 104.1 | 90 | 110 | |
| Ca | 44 | 2 | He | 10597.311 | 2.083 | 439593 | 2.04 | 10000 | 106.0 | 90 | 110 | |
| V | 51 | 2 | He | 101.291 | 4.070 | 486541 | 3.83 | 100 | 101.3 | 90 | 110 | |
| Cr | 52 | 2 | He | 104.144 | 0.787 | 528947 | 1.01 | 100 | 104.1 | 90 | 110 | |
| Mn | 55 | 2 | He | 103.792 | 3.082 | 438413 | 3.37 | 100 | 103.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 10369.046 | 4.526 | 48892174 | 4.68 | 10000 | 103.7 | 90 | 110 | |
| Co | 59 | 2 | He | 95.690 | 3.563 | 643190 | 3.77 | 100 | 95.7 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.238 | 1.431 | 168278 | 1.90 | 100 | 99.2 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.898 | 3.947 | 419681 | 3.78 | 100 | 99.9 | 90 | 110 | |
| Zn | 66 | 2 | He | 104.812 | 1.539 | 113400 | 1.26 | 100 | 104.8 | 90 | 110 | |
| As | 75 | 2 | He | 103.155 | 1.866 | 112470 | 2.03 | 100 | 103.2 | 90 | 110 | |
| Sb | 121 | 2 | He | 98.932 | 3.469 | 423993 | 3.72 | 100 | 98.9 | 90 | 110 | |
| Se | 78 | 2 | He | 100.436 | 1.565 | 10188 | 2.05 | 100 | 100.4 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1587972 | 1.31 | 1658792 | 95.73 | 70 | 125 | |
| In | 115 | 1 | nogas | 1326507 | 4.79 | 1398610 | 94.84 | 70 | 125 | |
| Li | 6 | 1 | nogas | 503263 | 0.96 | 581094 | 86.61 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1034121 | 6.51 | 1069547 | 96.69 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 746193 | 0.61 | 766661 | 97.33 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 064_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T15:45:24-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.025 | 33.2 | 57 | 27.0 | 1 | |
| B | 11 | 1 | nogas | 25.402 | 14.2 | 32330 | 12.3 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 120.484 | 9.7 | 2751326 | 0.8 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 3.265 | 12.3 | 25058 | 8.4 | 100 | |
| Al | 27 | 1 | nogas | -0.538 | -13.3 | 8732 | 7.9 | 5 | |
| P | 31 | 1 | nogas | -28.618 | -8.1 | 40538 | 4.2 | 10 | |
| K | 39 | 1 | nogas | -23.627 | -13.7 | 3830699 | 0.9 | 100 | |
| Ca | 43 | 1 | nogas | -6.801 | -68.6 | 773 | 9.8 | 100 | |
| Ca | 44 | 1 | nogas | -30.737 | -44.4 | 129151 | 3.1 | 100 | |
| Ti | 47 | 1 | nogas | 0.203 | 19.6 | 350 | 9.9 | 2.5 | |
| V | 51 | 1 | nogas | 0.623 | 34.0 | 50646 | 5.3 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.337 | -24.6 | 14710 | 5.6 | 2.5 | |
| Mn | 55 | 1 | nogas | -0.004 | -1076.3 | 13315 | 4.0 | 2.5 | |
| Fe | 56 | 1 | nogas | 5.084 | 59.2 | 889120 | 3.2 | 100 | |
| Co | 59 | 1 | nogas | 0.015 | 145.5 | 447 | 52.5 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.114 | -0.1 | 4801 | 0.0 | 2.5 | |
| Cu | 63 | 1 | nogas | -4.086 | -7.1 | 14042 | 12.0 | 2 | |
| Zn | 66 | 1 | nogas | -0.943 | -3.0 | 333 | 14.8 | 2.5 | |
| As | 75 | 1 | nogas | -1.845 | -6.3 | 18453 | 1.4 | 2.5 | |
| Se | 77 | 1 | nogas | -13.212 | -35.9 | 5658 | 7.8 | 2.5 | |
| Se | 82 | 1 | nogas | -0.728 | -33.3 | 223 | 11.3 | 2 | |
| Sr | 88 | 1 | nogas | 0.033 | 33.9 | 1103 | 12.6 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.213 | -30.4 | 1380 | 11.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.030 | 33.3 | 237 | 25.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.026 | 134.7 | 53 | 75.8 | 1 | |
| Sn | 118 | 1 | nogas | 0.317 | 25.8 | 2220 | 7.4 | 5 | |
| Sb | 121 | 1 | nogas | 0.442 | 5.3 | 3180 | 3.9 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.020 | -108.0 | 160 | 21.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.265 | 73.6 | 2630 | 79.1 | 1 | |
| Pb | 208 | 1 | nogas | 0.043 | 63.0 | 503 | 44.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.046 | 40.0 | 683 | 44.0 | 2.5 | |
| Si | 28 | 1 | nogas | -22.946 | -18.1 | 1314440 | 1.5 | 5 | |
| La | 139 | 1 | nogas | -28.627 | -17.8 | 3 | 173.2 | 2.5 | |
| Au | 197 | 1 | nogas | 71.846 | 308.1 | 13 | 86.6 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 125.362 | 1.8 | 382487 | 0.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 2.722 | 12.5 | 2310 | 9.4 | 100 | |
| Al | 27 | 2 | He | -1.701 | -13.8 | 563 | 19.6 | 5 | |
| K | 39 | 2 | He | -7.477 | -17.7 | 229773 | 0.6 | 100 | |
| Ca | 43 | 2 | He | -8.263 | -119.2 | 33 | 69.3 | 100 | |
| Ca | 44 | 2 | He | -7.513 | -52.4 | 2520 | 7.3 | 100 | |
| V | 51 | 2 | He | 0.230 | 8.3 | 2079 | 3.3 | 2.5 | |
| Cr | 52 | 2 | He | 0.096 | 39.4 | 4397 | 5.0 | 2.5 | |
| Mn | 55 | 2 | He | -0.100 | -41.1 | 860 | 20.1 | 2.5 | |
| Fe | 56 | 2 | He | 1.998 | 17.3 | 25178 | 6.1 | 100 | |
| Co | 59 | 2 | He | 0.014 | 60.3 | 150 | 35.3 | 2.5 | |
| Ni | 60 | 2 | He | -5.376 | -1.3 | 2350 | 3.4 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -2.803 | -2.4 | 7622 | 3.8 | 2 | |
| Zn | 66 | 2 | He | -0.655 | -2.4 | 87 | 17.6 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | 0.050 | 99.1 | 427 | 12.6 | 2.5 | |
| Sb | 121 | 2 | He | 0.357 | 7.9 | 1940 | 6.3 | 2.5 | |
| Se | 78 | 2 | He | -0.121 | -172.8 | 309 | 5.2 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1593261 | 0.30 | 1658792 | 96.05 | 70 | 125 | |
| In | 115 | 1 | nogas | 1334724 | 6.98 | 1398610 | 95.43 | 70 | 125 | |
| Li | 6 | 1 | nogas | 415752 | 1.51 | 581094 | 71.55 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1064803 | 6.95 | 1069547 | 99.56 | 70 | 125 | |
| Ge | 72 | 2 | He | 717697 | 1.13 | 766661 | 93.61 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 066_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T15:57:24-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 112.715 | 3.848 | 222403 | 1.40 | 100 | 112.7 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 573.830 | 2.923 | 637530 | 1.71 | 500 | 114.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10434.679 | 5.422 | 87274452 | 1.58 | 10000 | 104.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10576.394 | 4.179 | 59295330 | 2.41 | 10000 | 105.8 | 90 | 110 | |
| Al | 27 | 1 | nogas | 90.698 | 0.806 | 831592 | 2.13 | 100 | 90.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 440.936 | 3.470 | 340835 | 0.48 | 500 | 88.2 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9548.505 | 1.803 | 83130394 | 1.32 | 10000 | 95.5 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9575.488 | 4.687 | 151065 | 4.18 | 10000 | 95.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9983.565 | 2.455 | 2637218 | 0.19 | 10000 | 99.8 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 98.240 | 0.972 | 80996 | 1.85 | 100 | 98.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 100.043 | 7.329 | 1163841 | 8.40 | 100 | 100.0 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 97.100 | 2.300 | 922525 | 3.63 | 100 | 97.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 99.174 | 4.711 | 1147057 | 2.25 | 100 | 99.2 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10257.711 | 4.817 | 97745098 | 2.26 | 10000 | 102.6 | 90 | 110 | |
| Co | 59 | 1 | nogas | 98.224 | 3.612 | 974452 | 1.43 | 100 | 98.2 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 93.503 | 3.422 | 225539 | 0.70 | 100 | 93.5 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 92.569 | 4.063 | 539703 | 1.28 | 100 | 92.6 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 101.069 | 3.907 | 169771 | 1.40 | 100 | 101.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 99.122 | 1.983 | 224432 | 1.33 | 100 | 99.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 86.561 | 7.010 | 14423 | 4.51 | 100 | 86.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 102.405 | 6.371 | 10550 | 3.78 | 100 | 102.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 103.683 | 4.480 | 1228921 | 1.96 | 100 | 103.7 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 103.201 | 4.287 | 241827 | 1.89 | 100 | 103.2 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 103.779 | 3.191 | 594469 | 0.75 | 100 | 103.8 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 103.783 | 9.356 | 122084 | 0.83 | 100 | 103.8 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 104.407 | 6.383 | 370102 | 3.49 | 100 | 104.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 107.190 | 3.155 | 567111 | 1.94 | 100 | 107.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 104.102 | 8.681 | 176919 | 1.01 | 100 | 104.1 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.488 | 4.499 | 880272 | 2.57 | 100 | 98.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 99.926 | 3.277 | 645808 | 1.10 | 100 | 99.9 | 90 | 110 | |
| U | 238 | 1 | nogas | 100.627 | 3.282 | 1272407 | 3.72 | 100 | 100.6 | 90 | 110 | |
| Li | 7 | 1 | nogas | 106.395 | 2.898 | 497319 | 0.64 | 100 | 106.4 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4679.423 | 1.074 | 20820004 | 1.57 | 5000 | 93.6 | 90 | 110 | |
| Ba | 135 | 1 | nogas | 103.339 | 9.005 | 105568 | 0.26 | 100 | 103.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 107.032 | 35.744 | 160 | 34.80 | 100 | 107.0 | 90 | 110 | |
| Au | 197 | 1 | nogas | 330.251 | 86.682 | 27 | 57.28 | 100 | 330.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 103.978 | 6.664 | 379605 | 4.80 | 100 | 104.0 | 90 | 110 | |
| Na | 23 | 2 | He | 10115.378 | 2.538 | 11390534 | 1.94 | 10000 | 101.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 9906.078 | 3.192 | 6449135 | 1.57 | 10000 | 99.1 | 90 | 110 | |
| Al | 27 | 2 | He | 94.606 | 0.140 | 46463 | 3.78 | 100 | 94.6 | 90 | 110 | |
| K | 39 | 2 | He | 9755.267 | 1.977 | 8572647 | 3.37 | 10000 | 97.6 | 90 | 110 | |
| Ca | 43 | 2 | He | 10006.442 | 7.488 | 22985 | 4.67 | 10000 | 100.1 | 90 | 110 | |
| Ca | 44 | 2 | He | 10121.924 | 5.736 | 386209 | 1.90 | 10000 | 101.2 | 90 | 110 | |
| V | 51 | 2 | He | 100.032 | 4.036 | 442055 | 0.08 | 100 | 100.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 101.618 | 0.614 | 475441 | 4.50 | 100 | 101.6 | 90 | 110 | |
| Mn | 55 | 2 | He | 101.308 | 4.360 | 393621 | 0.49 | 100 | 101.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 10189.285 | 6.792 | 44164639 | 2.88 | 10000 | 101.9 | 90 | 110 | |
| Co | 59 | 2 | He | 99.589 | 8.984 | 614960 | 4.90 | 100 | 99.6 | 90 | 110 | |
| Ni | 60 | 2 | He | 100.126 | 7.786 | 155957 | 3.28 | 100 | 100.1 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.833 | 7.243 | 385577 | 3.30 | 100 | 99.8 | 90 | 110 | |
| Zn | 66 | 2 | He | 100.656 | 3.695 | 100239 | 2.27 | 100 | 100.7 | 90 | 110 | |
| As | 75 | 2 | He | 102.165 | 3.901 | 102478 | 1.11 | 100 | 102.2 | 90 | 110 | |
| Sb | 121 | 2 | He | 107.088 | 7.373 | 421771 | 3.44 | 100 | 107.1 | 90 | 110 | |
| Se | 78 | 2 | He | 98.264 | 5.076 | 9174 | 1.81 | 100 | 98.3 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1503166 | 2.48 | 1658792 | 90.62 | 70 | 125 | |
| In | 115 | 1 | nogas | 1265808 | 8.42 | 1398610 | 90.50 | 70 | 125 | |
| Li | 6 | 1 | nogas | 429333 | 2.48 | 581094 | 73.88 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1008384 | 2.42 | 1069547 | 94.28 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 687146 | 3.91 | 766661 | 89.63 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 076_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T16:59:30-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 114.332 | 2.425 | 209672 | 1.61 | 100 | 114.3 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 617.174 | 3.219 | 636619 | 0.77 | 500 | 123.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10374.739 | 1.473 | 87313900 | 2.49 | 10000 | 103.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10192.403 | 1.156 | 57468070 | 2.57 | 10000 | 101.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 86.368 | 3.968 | 784585 | 2.96 | 100 | 86.4 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 422.154 | 3.490 | 325564 | 1.07 | 500 | 84.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9081.423 | 4.963 | 78473179 | 4.17 | 10000 | 90.8 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 8961.157 | 4.201 | 140055 | 3.49 | 10000 | 89.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 1 | nogas | 9718.473 | 2.255 | 2545869 | 0.43 | 10000 | 97.2 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 93.430 | 3.714 | 76305 | 4.64 | 100 | 93.4 | 90 | 110 | |
| V | 51 | 1 | nogas | 93.977 | 2.565 | 1084173 | 0.91 | 100 | 94.0 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 93.539 | 4.359 | 880049 | 1.88 | 100 | 93.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.801 | 6.656 | 1131416 | 4.16 | 100 | 98.8 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10046.499 | 5.236 | 94818817 | 2.79 | 10000 | 100.5 | 90 | 110 | |
| Co | 59 | 1 | nogas | 94.384 | 4.597 | 927481 | 4.03 | 100 | 94.4 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 87.940 | 4.529 | 211174 | 3.67 | 100 | 87.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Cu | 63 | 1 | nogas | 89.274 | 3.063 | 516851 | 1.89 | 100 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Zn | 66 | 1 | nogas | 98.825 | 2.910 | 164465 | 0.50 | 100 | 98.8 | 90 | 110 | |
| As | 75 | 1 | nogas | 96.691 | 4.236 | 217246 | 1.44 | 100 | 96.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | 85.777 | 13.134 | 14199 | 5.39 | 100 | 85.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 106.985 | 4.090 | 10907 | 1.70 | 100 | 107.0 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 100.740 | 3.662 | 1182718 | 1.49 | 100 | 100.7 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 100.515 | 3.286 | 233353 | 1.57 | 100 | 100.5 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 106.222 | 4.615 | 602450 | 2.25 | 100 | 106.2 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 103.646 | 4.794 | 125451 | 4.06 | 100 | 103.6 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 99.187 | 1.813 | 361213 | 1.36 | 100 | 99.2 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 108.197 | 3.109 | 566859 | 1.10 | 100 | 108.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 104.273 | 4.245 | 182264 | 3.27 | 100 | 104.3 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 94.483 | 10.583 | 922372 | 3.21 | 100 | 94.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 96.571 | 6.278 | 683162 | 1.34 | 100 | 96.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 96.256 | 12.489 | 1327806 | 5.82 | 100 | 96.3 | 90 | 110 | |
| Li | 7 | 1 | nogas | 106.729 | 2.099 | 463679 | 3.53 | 100 | 106.7 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4431.364 | 3.580 | 19590905 | 2.24 | 5000 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 99.664 | 3.083 | 104751 | 2.01 | 100 | 99.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 85.654 | 23.445 | 137 | 16.90 | 100 | 85.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 1.360 | 13541.797 | 10 | 100.00 | 100 | 1.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 96.958 | 11.157 | 386621 | 3.99 | 100 | 97.0 | 90 | 110 | |
| Na | 23 | 2 | He | 9385.334 | 6.128 | 10685227 | 3.50 | 10000 | 93.9 | 90 | 110 | |
| Mg | 24 | 2 | He | 9217.162 | 4.270 | 6060482 | 1.82 | 10000 | 92.2 | 90 | 110 | |
| Al | 27 | 2 | He | 89.277 | 0.790 | 44365 | 3.29 | 100 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9319.832 | 1.335 | 8284169 | 3.20 | 10000 | 93.2 | 90 | 110 | |
| Ca | 43 | 2 | He | 9262.524 | 5.010 | 21533 | 6.51 | 10000 | 92.6 | 90 | 110 | |
| Ca | 44 | 2 | He | 9445.376 | 6.284 | 364297 | 3.56 | 10000 | 94.5 | 90 | 110 | |
| V | 51 | 2 | He | 94.011 | 2.534 | 420004 | 2.87 | 100 | 94.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.770 | 0.853 | 471509 | 3.59 | 100 | 99.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 96.481 | 2.977 | 379024 | 3.39 | 100 | 96.5 | 90 | 110 | |
| Fe | 56 | 2 | He | 9598.353 | 4.099 | 42061641 | 1.63 | 10000 | 96.0 | 90 | 110 | |
| Co | 59 | 2 | He | 93.545 | 7.597 | 583931 | 4.67 | 100 | 93.5 | 90 | 110 | |
| Ni | 60 | 2 | He | 91.242 | 6.714 | 144539 | 3.30 | 100 | 91.2 | 90 | 110 | |
| Cu | 63 | 2 | He | 94.005 | 5.505 | 367981 | 2.31 | 100 | 94.0 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.470 | 4.630 | 99053 | 2.24 | 100 | 98.5 | 90 | 110 | |
| As | 75 | 2 | He | 98.559 | 2.438 | 99925 | 1.96 | 100 | 98.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 104.075 | 3.003 | 414644 | 2.45 | 100 | 104.1 | 90 | 110 | |
| Se | 78 | 2 | He | 94.775 | 4.665 | 8950 | 1.68 | 100 | 94.8 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1488603 | 2.35 | 1658792 | 89.74 | 70 | 125 | |
| In | 115 | 1 | nogas | 1295967 | 1.05 | 1398610 | 92.66 | 70 | 125 | |
| Li | 6 | 1 | nogas | 398910 | 2.57 | 581094 | 68.65 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1106830 | 7.86 | 1069547 | 103.49 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 694040 | 3.14 | 766661 | 90.53 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 077_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T17:01:44-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.014 | 116.7 | 33 | 86.6 | 1 | |
| B | 11 | 1 | nogas | 20.365 | 13.9 | 24176 | 11.2 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 127.015 | 6.9 | 2549653 | 0.6 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 2.087 | 25.2 | 16144 | 17.6 | 100 | |
| Al | 27 | 1 | nogas | -0.581 | -3.4 | 7698 | 2.3 | 5 | |
| P | 31 | 1 | nogas | -24.955 | -8.3 | 39810 | 1.8 | 10 | |
| K | 39 | 1 | nogas | -14.938 | -130.5 | 3612868 | 1.3 | 100 | |
| Ca | 43 | 1 | nogas | -8.300 | -104.9 | 690 | 16.7 | 100 | |
| Ca | 44 | 1 | nogas | 104.474 | 23.8 | 152725 | 0.5 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.076 | 114.9 | 220 | 29.8 | 2.5 | |
| V | 51 | 1 | nogas | 2.420 | 7.4 | 66636 | 3.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.347 | -17.2 | 13519 | 4.0 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.054 | 82.7 | 12965 | 3.0 | 2.5 | |
| Fe | 56 | 1 | nogas | 4.036 | 145.5 | 812100 | 3.8 | 100 | |
| Co | 59 | 1 | nogas | 0.028 | 30.5 | 537 | 12.4 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.829 | -1.7 | 2890 | 12.3 | 2.5 | |
| Cu | 63 | 1 | nogas | -3.552 | -7.6 | 15864 | 11.2 | 2 | |
| Zn | 66 | 1 | nogas | -0.931 | -6.0 | 327 | 26.4 | 2.5 | |
| As | 75 | 1 | nogas | -2.101 | -18.1 | 16548 | 1.1 | 2.5 | |
| Se | 77 | 1 | nogas | -11.964 | -28.8 | 5354 | 8.8 | 2.5 | |
| Se | 82 | 1 | nogas | -1.001 | -29.4 | 180 | 16.7 | 2 | |
| Sr | 88 | 1 | nogas | 0.008 | 51.0 | 723 | 3.2 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.208 | -24.7 | 1287 | 6.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.042 | 25.2 | 287 | 21.0 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.003 | 344.1 | 27 | 57.3 | 1 | |
| Sn | 118 | 1 | nogas | 0.210 | 27.2 | 1863 | 14.1 | 5 | |
| Sb | 121 | 1 | nogas | 0.596 | 15.8 | 3734 | 10.7 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.057 | -56.2 | 97 | 60.6 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.250 | 61.4 | 2560 | 67.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.033 | 39.2 | 453 | 28.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.038 | 61.0 | 607 | 62.0 | 2.5 | |
| Si | 28 | 1 | nogas | -95.862 | -9.4 | 917880 | 1.1 | 5 | |
| La | 139 | 1 | nogas | -9.741 | -44.0 | 27 | 21.7 | 2.5 | |
| Au | 197 | 1 | nogas | 561.874 | 88.8 | 43 | 74.2 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 122.835 | 0.9 | 372203 | 0.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 1.549 | 21.7 | 1483 | 15.2 | 100 | |
| Al | 27 | 2 | He | -1.871 | -14.3 | 470 | 27.7 | 5 | |
| K | 39 | 2 | He | -18.313 | -9.9 | 215809 | 0.4 | 100 | |
| Ca | 43 | 2 | He | -6.660 | -132.1 | 37 | 56.8 | 100 | |
| Ca | 44 | 2 | He | 6.055 | 136.2 | 2997 | 10.6 | 100 | |
| V | 51 | 2 | He | 0.312 | 10.8 | 2408 | 6.2 | 2.5 | |
| Cr | 52 | 2 | He | 0.043 | 110.5 | 4057 | 5.3 | 2.5 | |
| Mn | 55 | 2 | He | -0.103 | -16.8 | 830 | 7.9 | 2.5 | |
| Fe | 56 | 2 | He | 1.501 | 13.9 | 22481 | 3.8 | 100 | |
| Co | 59 | 2 | He | 0.013 | 48.9 | 143 | 28.2 | 2.5 | |
| Ni | 60 | 2 | He | -6.269 | -0.5 | 970 | 4.7 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -2.686 | -1.3 | 7919 | 1.9 | 2 | |
| Zn | 66 | 2 | He | -0.588 | -2.0 | 153 | 7.5 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | -0.117 | -23.5 | 248 | 11.4 | 2.5 | |
| Sb | 121 | 2 | He | 0.471 | 24.1 | 2364 | 19.0 | 2.5 | |
| Se | 78 | 2 | He | -0.303 | -44.8 | 287 | 4.6 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1474721 | 3.53 | 1658792 | 88.90 | 70 | 125 | |
| In | 115 | 1 | nogas | 1353681 | 2.75 | 1398610 | 96.79 | 70 | 125 | |
| Li | 6 | 1 | nogas | 373057 | 0.19 | 581094 | 64.20 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1106079 | 7.21 | 1069547 | 103.42 | 70 | 125 | |
| Ge | 72 | 2 | He | 703727 | 0.37 | 766661 | 91.79 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 088_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T17:32:13-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 110.826 | 3.655 | 199758 | 2.65 | 100 | 110.8 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 584.123 | 5.704 | 592299 | 3.39 | 500 | 116.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10145.439 | 5.436 | 83379066 | 2.37 | 10000 | 101.5 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9995.472 | 3.667 | 55029147 | 0.85 | 10000 | 100.0 | 90 | 110 | |
| Al | 27 | 1 | nogas | 85.014 | 1.605 | 764268 | 2.01 | 100 | 85.0 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 410.532 | 1.866 | 314725 | 0.36 | 500 | 82.1 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9175.735 | 1.940 | 78401777 | 2.18 | 10000 | 91.8 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9094.611 | 0.987 | 140607 | 1.30 | 10000 | 90.9 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9382.878 | 4.503 | 2435139 | 3.08 | 10000 | 93.8 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 90.697 | 3.194 | 73233 | 1.61 | 100 | 90.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 91.625 | 4.868 | 1047258 | 6.22 | 100 | 91.6 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 89.959 | 0.975 | 838369 | 2.81 | 100 | 90.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Mn | 55 | 1 | nogas | 95.061 | 2.491 | 1078175 | 2.93 | 100 | 95.1 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9882.790 | 2.697 | 92335221 | 3.15 | 10000 | 98.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 96.022 | 2.886 | 933479 | 3.06 | 100 | 96.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 89.824 | 1.589 | 212978 | 0.44 | 100 | 89.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cu | 63 | 1 | nogas | 91.144 | 2.913 | 521161 | 0.99 | 100 | 91.1 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 97.654 | 0.523 | 160829 | 2.14 | 100 | 97.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 93.952 | 1.678 | 209449 | 0.40 | 100 | 94.0 | 90 | 110 | |
| Se | 77 | 1 | nogas | 76.957 | 3.617 | 13272 | 3.32 | 100 | 77.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 92.288 | 8.648 | 9343 | 7.39 | 100 | 92.3 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 100.584 | 1.840 | 1168515 | 2.38 | 100 | 100.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 103.979 | 2.748 | 238719 | 1.32 | 100 | 104.0 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 103.625 | 1.968 | 581820 | 3.75 | 100 | 103.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 102.317 | 4.478 | 122995 | 3.45 | 100 | 102.3 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 98.737 | 1.042 | 357145 | 0.71 | 100 | 98.7 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 107.231 | 0.409 | 555891 | 1.84 | 100 | 107.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 100.496 | 4.113 | 174480 | 3.20 | 100 | 100.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 96.643 | 6.928 | 917778 | 3.15 | 100 | 96.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 98.336 | 6.771 | 675056 | 1.37 | 100 | 98.3 | 90 | 110 | |
| U | 238 | 1 | nogas | 97.835 | 11.235 | 1311121 | 5.60 | 100 | 97.8 | 90 | 110 | |
| Li | 7 | 1 | nogas | 104.492 | 2.261 | 446718 | 2.85 | 100 | 104.5 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4334.993 | 1.463 | 18988682 | 1.70 | 5000 | 86.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 101.059 | 2.199 | 105500 | 1.28 | 100 | 101.1 | 90 | 110 | |
| La | 139 | 1 | nogas | 135.143 | 28.696 | 193 | 23.89 | 100 | 135.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 6.108 | 3134.976 | 10 | 100.00 | 100 | 6.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 101.183 | 6.765 | 392502 | 1.00 | 100 | 101.2 | 90 | 110 | |
| Na | 23 | 2 | He | 9387.630 | 4.651 | 10478985 | 2.62 | 10000 | 93.9 | 90 | 110 | |
| Mg | 24 | 2 | He | 9017.735 | 5.134 | 5811759 | 3.59 | 10000 | 90.2 | 90 | 110 | |
| Al | 27 | 2 | He | 86.020 | 3.342 | 41936 | 3.80 | 100 | 86.0 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9193.459 | 2.624 | 8011200 | 3.30 | 10000 | 91.9 | 90 | 110 | |
| Ca | 43 | 2 | He | 9357.470 | 5.497 | 21296 | 3.45 | 10000 | 93.6 | 90 | 110 | |
| Ca | 44 | 2 | He | 9373.407 | 5.936 | 354439 | 4.02 | 10000 | 93.7 | 90 | 110 | |
| V | 51 | 2 | He | 95.025 | 3.435 | 415973 | 2.48 | 100 | 95.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.475 | 6.670 | 451210 | 5.57 | 100 | 97.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 95.811 | 3.452 | 368922 | 3.92 | 100 | 95.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 9639.653 | 1.352 | 41427139 | 2.44 | 10000 | 96.4 | 90 | 110 | |
| Co | 59 | 2 | He | 94.845 | 1.242 | 581117 | 3.19 | 100 | 94.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 92.755 | 1.742 | 143991 | 2.17 | 100 | 92.8 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.549 | 5.212 | 373717 | 3.38 | 100 | 97.5 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.789 | 5.937 | 96460 | 5.67 | 100 | 97.8 | 90 | 110 | |
| As | 75 | 2 | He | 96.562 | 4.388 | 95932 | 2.89 | 100 | 96.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 104.644 | 1.198 | 408756 | 2.95 | 100 | 104.6 | 90 | 110 | |
| Se | 78 | 2 | He | 92.832 | 2.265 | 8603 | 1.30 | 100 | 92.8 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1472255 | 1.86 | 1658792 | 88.75 | 70 | 125 | |
| In | 115 | 1 | nogas | 1287160 | 1.09 | 1398610 | 92.03 | 70 | 125 | |
| Li | 6 | 1 | nogas | 392100 | 2.37 | 581094 | 67.48 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1073376 | 5.95 | 1069547 | 100.36 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 680101 | 1.98 | 766661 | 88.71 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 089_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T17:34:26-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.029 | 103.3 | 60 | 88.2 | 1 | |
| B | 11 | 1 | nogas | 15.723 | 17.5 | 20061 | 14.0 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 129.670 | 5.7 | 2614139 | 0.7 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 2.898 | 26.7 | 21016 | 20.3 | 100 | |
| Al | 27 | 1 | nogas | -0.565 | -10.8 | 8089 | 5.0 | 5 | |
| P | 31 | 1 | nogas | -27.152 | -5.5 | 39663 | 1.5 | 10 | |
| K | 39 | 1 | nogas | -25.194 | -45.8 | 3644380 | 1.0 | 100 | |
| Ca | 43 | 1 | nogas | 0.248 | 2524.7 | 850 | 10.6 | 100 | |
| Ca | 44 | 1 | nogas | 135.415 | 6.9 | 165585 | 0.7 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.054 | 68.0 | 210 | 12.6 | 2.5 | |
| V | 51 | 1 | nogas | 0.828 | 11.3 | 50684 | 1.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.501 | -13.7 | 12495 | 4.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.048 | 175.5 | 13312 | 5.3 | 2.5 | |
| Fe | 56 | 1 | nogas | -2.573 | -193.9 | 775295 | 4.1 | 100 | |
| Co | 59 | 1 | nogas | 0.024 | 69.4 | 513 | 31.1 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.870 | -0.4 | 2887 | 4.0 | 2.5 | |
| Cu | 63 | 1 | nogas | -3.490 | -5.1 | 16708 | 7.9 | 2 | |
| Zn | 66 | 1 | nogas | -0.959 | -4.1 | 290 | 21.0 | 2.5 | |
| As | 75 | 1 | nogas | -3.255 | -9.0 | 14690 | 2.0 | 2.5 | |
| Se | 77 | 1 | nogas | -22.573 | -7.0 | 4541 | 2.7 | 2.5 | |
| Se | 82 | 1 | nogas | -0.825 | -60.1 | 203 | 24.3 | 2 | |
| Sr | 88 | 1 | nogas | 0.027 | 68.6 | 973 | 20.6 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.383 | -38.3 | 913 | 35.8 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.053 | 14.9 | 360 | 12.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.013 | 98.0 | 40 | 43.3 | 1 | |
| Sn | 118 | 1 | nogas | 0.156 | 27.6 | 1683 | 10.4 | 5 | |
| Sb | 121 | 1 | nogas | 0.239 | 36.8 | 1943 | 22.2 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.054 | -5.7 | 103 | 5.6 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.270 | 60.6 | 2794 | 67.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.040 | 48.8 | 500 | 34.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.043 | 55.1 | 680 | 58.3 | 2.5 | |
| Si | 28 | 1 | nogas | -108.180 | -5.7 | 895743 | 0.8 | 5 | |
| La | 139 | 1 | nogas | -26.176 | -17.8 | 7 | 86.6 | 2.5 | |
| Au | 197 | 1 | nogas | -13.669 | -1185.2 | 10 | 100.0 | 2.5 | |
| Na | 23 | 2 | He | 135.833 | 3.8 | 372499 | 0.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 1.669 | 11.7 | 1507 | 9.7 | 100 | |
| Al | 27 | 2 | He | -1.707 | -15.1 | 530 | 23.2 | 5 | |
| K | 39 | 2 | He | -6.882 | -39.9 | 217439 | 1.1 | 100 | |
| Ca | 43 | 2 | He | -14.905 | -16.4 | 17 | 34.6 | 100 | |
| Ca | 44 | 2 | He | 11.121 | 42.6 | 3074 | 3.9 | 100 | |
| V | 51 | 2 | He | 0.233 | 2.4 | 1977 | 3.1 | 2.5 | |
| Cr | 52 | 2 | He | -0.008 | -721.0 | 3677 | 7.2 | 2.5 | |
| Mn | 55 | 2 | He | -0.087 | -19.9 | 860 | 9.5 | 2.5 | |
| Fe | 56 | 2 | He | 1.423 | 14.5 | 21306 | 2.4 | 100 | |
| Co | 59 | 2 | He | 0.021 | 38.4 | 190 | 27.9 | 2.5 | |
| Ni | 60 | 2 | He | -6.104 | -1.8 | 1173 | 14.8 | 2.5 | |
| Cu | 63 | 2 | He | -2.343 | -5.7 | 8866 | 4.0 | 2 | |
| Zn | 66 | 2 | He | -0.589 | -2.8 | 147 | 10.4 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| As | 75 | 2 | He | -0.067 | -72.6 | 288 | 18.0 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.147 | 10.3 | 1017 | 7.4 | 2.5 | |
| Se | 78 | 2 | He | 0.039 | 1211.5 | 306 | 12.0 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1521788 | 2.13 | 1658792 | 91.74 | 70 | 125 | |
| In | 115 | 1 | nogas | 1375749 | 0.94 | 1398610 | 98.37 | 70 | 125 | |
| Li | 6 | 1 | nogas | 379073 | 0.80 | 581094 | 65.23 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1110807 | 8.20 | 1069547 | 103.86 | 70 | 125 | |
| Ge | 72 | 2 | He | 677652 | 1.84 | 766661 | 88.39 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 093_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T18:09:37-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 123.141 | 2.873 | 200096 | 2.62 | 100 | 123.1 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 663.544 | 3.044 | 606282 | 2.95 | 500 | 132.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10731.351 | 4.080 | 83607031 | 1.03 | 10000 | 107.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10456.828 | 4.295 | 54604597 | 0.91 | 10000 | 104.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 83.105 | 2.063 | 711935 | 2.28 | 100 | 83.1 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 445.857 | 5.555 | 320850 | 1.04 | 500 | 89.2 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9527.776 | 4.725 | 77360077 | 1.11 | 10000 | 95.3 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9562.795 | 5.612 | 140694 | 3.14 | 10000 | 95.6 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10390.644 | 9.533 | 2552865 | 6.07 | 10000 | 103.9 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 93.925 | 6.485 | 72182 | 3.23 | 100 | 93.9 | 90 | 110 | |
| V | 51 | 1 | nogas | 96.548 | 3.875 | 1048522 | 3.51 | 100 | 96.5 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 94.543 | 2.157 | 838280 | 1.94 | 100 | 94.5 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.137 | 2.469 | 1081106 | 2.11 | 100 | 100.1 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10409.029 | 3.238 | 92561375 | 0.72 | 10000 | 104.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.300 | 6.794 | 918426 | 3.21 | 100 | 99.3 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 92.200 | 9.519 | 207495 | 5.42 | 100 | 92.2 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 93.321 | 7.106 | 507115 | 3.68 | 100 | 93.3 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.425 | 3.288 | 157444 | 2.04 | 100 | 100.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 97.498 | 5.142 | 206171 | 1.07 | 100 | 97.5 | 90 | 110 | |
| Se | 77 | 1 | nogas | 64.525 | 13.168 | 11571 | 2.57 | 100 | 64.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 101.386 | 9.957 | 9740 | 6.35 | 100 | 101.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 105.721 | 5.915 | 1169135 | 4.07 | 100 | 105.7 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 104.798 | 5.546 | 229113 | 3.95 | 100 | 104.8 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 107.444 | 6.174 | 573891 | 3.08 | 100 | 107.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 106.288 | 1.489 | 122063 | 1.04 | 100 | 106.3 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 98.870 | 2.200 | 341737 | 4.25 | 100 | 98.9 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 111.914 | 2.902 | 552432 | 1.10 | 100 | 111.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 137 | 1 | nogas | 105.715 | 2.340 | 175309 | 1.20 | 100 | 105.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.723 | 6.863 | 922966 | 1.55 | 100 | 98.7 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 99.820 | 7.357 | 674567 | 1.92 | 100 | 99.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 98.019 | 10.776 | 1293704 | 5.10 | 100 | 98.0 | 90 | 110 | |
| Li | 7 | 1 | nogas | 116.952 | 1.655 | 447738 | 2.08 | 100 | 117.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 1512.389 | 4.199 | 7119008 | 0.89 | 5000 | 30.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 104.789 | 4.510 | 104434 | 2.00 | 100 | 104.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 194.416 | 8.091 | 250 | 6.93 | 100 | 194.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -119.633 | -92.698 | 3 | 173.21 | 100 | -119.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 100.844 | 8.474 | 384904 | 2.39 | 100 | 100.8 | 90 | 110 | |
| Na | 23 | 2 | He | 9814.230 | 2.896 | 10840768 | 0.87 | 10000 | 98.1 | 90 | 110 | |
| Mg | 24 | 2 | He | 9696.709 | 2.097 | 6190409 | 0.22 | 10000 | 97.0 | 90 | 110 | |
| Al | 27 | 2 | He | 86.401 | 2.061 | 41712 | 3.46 | 100 | 86.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9338.310 | 2.257 | 8053388 | 1.97 | 10000 | 93.4 | 90 | 110 | |
| Ca | 43 | 2 | He | 9272.662 | 9.028 | 20889 | 6.96 | 10000 | 92.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 9520.958 | 6.287 | 356415 | 3.96 | 10000 | 95.2 | 90 | 110 | |
| V | 51 | 2 | He | 98.950 | 1.345 | 428994 | 1.57 | 100 | 99.0 | 90 | 110 | |
| Cr | 52 | 2 | He | 98.138 | 1.888 | 450060 | 2.41 | 100 | 98.1 | 90 | 110 | |
| Mn | 55 | 2 | He | 96.201 | 2.519 | 366722 | 1.47 | 100 | 96.2 | 90 | 110 | |
| Fe | 56 | 2 | He | 9768.633 | 2.645 | 41557835 | 0.44 | 10000 | 97.7 | 90 | 110 | |
| Co | 59 | 2 | He | 92.447 | 3.810 | 560537 | 1.74 | 100 | 92.4 | 90 | 110 | |
| Ni | 60 | 2 | He | 91.790 | 4.920 | 141127 | 2.26 | 100 | 91.8 | 90 | 110 | |
| Cu | 63 | 2 | He | 98.680 | 2.978 | 374297 | 2.24 | 100 | 98.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 103.325 | 1.176 | 100905 | 1.79 | 100 | 103.3 | 90 | 110 | |
| As | 75 | 2 | He | 99.666 | 3.169 | 98046 | 0.91 | 100 | 99.7 | 90 | 110 | |
| Sb | 121 | 2 | He | 103.973 | 4.064 | 401910 | 1.80 | 100 | 104.0 | 90 | 110 | |
| Se | 78 | 2 | He | 97.042 | 2.103 | 8892 | 0.42 | 100 | 97.0 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1402907 | 3.70 | 1658792 | 84.57 | 70 | 125 | |
| In | 115 | 1 | nogas | 1229602 | 2.48 | 1398610 | 87.92 | 70 | 125 | |
| Li | 6 | 1 | nogas | 353383 | 1.37 | 581094 | 60.81 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1057349 | 6.94 | 1069547 | 98.86 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 673514 | 2.28 | 766661 | 87.85 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 094_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T18:11:51-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.032 | 73.8 | 57 | 62.0 | 1 | |
| B | 11 | 1 | nogas | 16.583 | 14.9 | 18613 | 9.4 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 131.476 | 6.5 | 2492779 | 1.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 3.074 | 39.8 | 20983 | 33.8 | 100 | |
| Al | 27 | 1 | nogas | -0.198 | -17.9 | 10270 | 4.8 | 5 | |
| P | 31 | 1 | nogas | -24.152 | -8.4 | 37335 | 1.8 | 10 | |
| K | 39 | 1 | nogas | -4.623 | -318.2 | 3424276 | 1.2 | 100 | |
| Ca | 43 | 1 | nogas | 8.639 | 84.0 | 883 | 12.6 | 100 | |
| Ca | 44 | 1 | nogas | 432.893 | 3.2 | 216431 | 1.1 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.098 | 128.0 | 220 | 39.6 | 2.5 | |
| V | 51 | 1 | nogas | 0.484 | 60.2 | 42024 | 9.3 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.393 | -6.0 | 12131 | 2.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.105 | 25.9 | 12551 | 4.6 | 2.5 | |
| Fe | 56 | 1 | nogas | -1.002 | -568.2 | 708978 | 4.9 | 100 | |
| Co | 59 | 1 | nogas | 0.031 | 49.2 | 520 | 24.6 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.663 | -0.5 | 3007 | 3.0 | 2.5 | |
| Cu | 63 | 1 | nogas | -1.955 | -37.5 | 22618 | 17.7 | 2 | |
| Zn | 66 | 1 | nogas | -0.755 | -9.4 | 570 | 21.1 | 2.5 | |
| As | 75 | 1 | nogas | -3.525 | -2.3 | 12681 | 2.2 | 2.5 | |
| Se | 77 | 1 | nogas | -22.818 | -9.0 | 4057 | 6.6 | 2.5 | |
| Se | 82 | 1 | nogas | -0.528 | -46.1 | 210 | 12.6 | 2 | |
| Sr | 88 | 1 | nogas | 0.037 | 45.3 | 987 | 17.3 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.292 | -26.8 | 1013 | 14.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.033 | 26.3 | 217 | 19.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.022 | 116.4 | 47 | 65.5 | 1 | |
| Sn | 118 | 1 | nogas | 0.330 | 20.7 | 2140 | 10.5 | 5 | |
| Sb | 121 | 1 | nogas | 0.379 | 15.4 | 2417 | 9.3 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.015 | 281.3 | 210 | 33.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.313 | 69.4 | 3104 | 74.1 | 1 | |
| Pb | 208 | 1 | nogas | 0.034 | 13.9 | 443 | 13.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.051 | 55.4 | 753 | 57.6 | 2.5 | |
| Si | 28 | 1 | nogas | -98.950 | -6.3 | 838485 | 0.4 | 5 | |
| La | 139 | 1 | nogas | 0.888 | 2047.5 | 37 | 56.8 | 2.5 | |
| Au | 197 | 1 | nogas | 123.738 | 318.3 | 17 | 124.9 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 129.712 | 2.2 | 363144 | 1.0 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 1.766 | 4.0 | 1557 | 4.1 | 100 | |
| Al | 27 | 2 | He | -1.443 | -15.3 | 650 | 17.1 | 5 | |
| K | 39 | 2 | He | -10.751 | -43.6 | 212563 | 0.8 | 100 | |
| Ca | 43 | 2 | He | 2.971 | 81.1 | 57 | 10.2 | 100 | |
| Ca | 44 | 2 | He | 40.988 | 14.5 | 4164 | 6.6 | 100 | |
| V | 51 | 2 | He | 0.202 | 17.3 | 1825 | 7.1 | 2.5 | |
| Cr | 52 | 2 | He | 0.013 | 295.0 | 3740 | 3.5 | 2.5 | |
| Mn | 55 | 2 | He | -0.021 | -123.3 | 1107 | 10.0 | 2.5 | |
| Fe | 56 | 2 | He | 1.591 | 21.9 | 21860 | 5.9 | 100 | |
| Co | 59 | 2 | He | 0.019 | 32.0 | 173 | 20.3 | 2.5 | |
| Ni | 60 | 2 | He | -6.057 | -2.2 | 1230 | 16.4 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -1.410 | -3.6 | 12174 | 0.8 | 2 | |
| Zn | 66 | 2 | He | -0.481 | -15.5 | 250 | 28.0 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | -0.063 | -55.4 | 289 | 10.7 | 2.5 | |
| Sb | 121 | 2 | He | 0.311 | 19.9 | 1640 | 14.4 | 2.5 | |
| Se | 78 | 2 | He | 0.155 | 380.1 | 314 | 15.5 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1365298 | 2.47 | 1658792 | 82.31 | 70 | 125 | |
| In | 115 | 1 | nogas | 1251488 | 1.07 | 1398610 | 89.48 | 70 | 125 | |
| Li | 6 | 1 | nogas | 338350 | 2.87 | 581094 | 58.23 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1073115 | 6.01 | 1069547 | 100.33 | 70 | 125 | |
| Ge | 72 | 2 | He | 672576 | 1.25 | 766661 | 87.73 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 105_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T18:44:21-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 126.058 | 4.042 | 200847 | 1.93 | 100 | 126.1 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 669.164 | 3.561 | 599574 | 2.37 | 500 | 133.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10142.989 | 3.313 | 81057681 | 2.77 | 10000 | 101.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10006.772 | 3.985 | 53550408 | 3.46 | 10000 | 100.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 83.991 | 2.076 | 739117 | 2.70 | 100 | 84.0 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 433.146 | 8.174 | 321575 | 2.47 | 500 | 86.6 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9281.795 | 7.432 | 77455375 | 2.44 | 10000 | 92.8 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9113.336 | 5.052 | 137771 | 1.00 | 10000 | 91.1 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9945.382 | 3.957 | 2518357 | 1.86 | 10000 | 99.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 94.473 | 4.647 | 74627 | 2.47 | 100 | 94.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 92.528 | 1.406 | 1034345 | 3.34 | 100 | 92.5 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 91.840 | 2.527 | 837126 | 2.85 | 100 | 91.8 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 97.020 | 5.569 | 1075518 | 1.47 | 100 | 97.0 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10070.795 | 7.833 | 91902754 | 3.03 | 10000 | 100.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 96.755 | 7.922 | 918869 | 3.18 | 100 | 96.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 91.403 | 7.657 | 211503 | 2.54 | 100 | 91.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 89.678 | 6.172 | 502020 | 2.33 | 100 | 89.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Zn | 66 | 1 | nogas | 99.802 | 4.013 | 160734 | 2.19 | 100 | 99.8 | 90 | 110 | |
| As | 75 | 1 | nogas | 98.679 | 5.322 | 214115 | 0.29 | 100 | 98.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | 62.365 | 2.095 | 11721 | 4.92 | 100 | 62.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 100.758 | 7.235 | 9960 | 6.47 | 100 | 100.8 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 102.588 | 5.976 | 1164944 | 1.50 | 100 | 102.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 101.562 | 5.915 | 228049 | 2.18 | 100 | 101.6 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 109.210 | 5.739 | 599233 | 1.15 | 100 | 109.2 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 105.743 | 4.449 | 123254 | 1.97 | 100 | 105.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 99.382 | 4.714 | 348456 | 2.25 | 100 | 99.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 109.685 | 5.698 | 555824 | 1.36 | 100 | 109.7 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 106.685 | 5.331 | 179556 | 2.92 | 100 | 106.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 101.892 | 7.927 | 945064 | 1.67 | 100 | 101.9 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 99.396 | 7.356 | 666712 | 1.16 | 100 | 99.4 | 90 | 110 | |
| U | 238 | 1 | nogas | 99.750 | 12.435 | 1305786 | 6.30 | 100 | 99.8 | 90 | 110 | |
| Li | 7 | 1 | nogas | 120.754 | 0.403 | 452718 | 2.09 | 100 | 120.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 1535.142 | 5.340 | 7402610 | 0.76 | 5000 | 30.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 102.728 | 2.890 | 104011 | 2.27 | 100 | 102.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 320.731 | 14.921 | 397 | 16.01 | 100 | 320.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 5.488 | 3598.505 | 10 | 100.00 | 100 | 5.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 105.074 | 9.044 | 397970 | 2.62 | 100 | 105.1 | 90 | 110 | |
| Na | 23 | 2 | He | 9648.517 | 2.927 | 10545847 | 2.04 | 10000 | 96.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9459.735 | 1.836 | 5974037 | 2.10 | 10000 | 94.6 | 90 | 110 | |
| Al | 27 | 2 | He | 88.051 | 3.653 | 41993 | 1.78 | 100 | 88.1 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9373.902 | 1.656 | 7998354 | 3.94 | 10000 | 93.7 | 90 | 110 | |
| Ca | 43 | 2 | He | 9716.570 | 2.880 | 21674 | 3.69 | 10000 | 97.2 | 90 | 110 | |
| Ca | 44 | 2 | He | 9692.706 | 5.751 | 358807 | 2.99 | 10000 | 96.9 | 90 | 110 | |
| V | 51 | 2 | He | 97.223 | 2.268 | 416855 | 1.46 | 100 | 97.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.749 | 3.431 | 443393 | 3.79 | 100 | 97.7 | 90 | 110 | |
| Mn | 55 | 2 | He | 100.473 | 1.566 | 378813 | 1.55 | 100 | 100.5 | 90 | 110 | |
| Fe | 56 | 2 | He | 10161.004 | 5.416 | 42729017 | 2.54 | 10000 | 101.6 | 90 | 110 | |
| Co | 59 | 2 | He | 98.142 | 6.114 | 588264 | 3.49 | 100 | 98.1 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.315 | 6.730 | 148756 | 3.81 | 100 | 98.3 | 90 | 110 | |
| Cu | 63 | 2 | He | 96.877 | 2.012 | 363778 | 1.78 | 100 | 96.9 | 90 | 110 | |
| Zn | 66 | 2 | He | 101.256 | 1.142 | 97829 | 2.65 | 100 | 101.3 | 90 | 110 | |
| As | 75 | 2 | He | 104.615 | 1.986 | 101791 | 1.02 | 100 | 104.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 108.937 | 4.786 | 416390 | 2.17 | 100 | 108.9 | 90 | 110 | |
| Se | 78 | 2 | He | 98.802 | 2.755 | 8948 | 0.97 | 100 | 98.8 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1441662 | 4.64 | 1658792 | 86.91 | 70 | 125 | |
| In | 115 | 1 | nogas | 1248623 | 2.50 | 1398610 | 89.28 | 70 | 125 | |
| Li | 6 | 1 | nogas | 346671 | 2.31 | 581094 | 59.66 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1049510 | 6.79 | 1069547 | 98.13 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 666220 | 3.03 | 766661 | 86.90 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 106_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T18:46:34-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.035 | 51.3 | 63 | 45.6 | 1 | |
| B | 11 | 1 | nogas | 19.893 | 16.1 | 21646 | 12.0 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 107.436 | 1.9 | 2257250 | 0.5 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 2.388 | 61.5 | 16879 | 46.4 | 100 | |
| Al | 27 | 1 | nogas | 1.766 | 55.4 | 27021 | 29.3 | 5 | |
| P | 31 | 1 | nogas | -31.189 | -7.4 | 34119 | 2.0 | 10 | |
| K | 39 | 1 | nogas | -20.371 | -71.1 | 3396096 | 1.6 | 100 | |
| Ca | 43 | 1 | nogas | 4.363 | 166.0 | 843 | 11.2 | 100 | |
| Ca | 44 | 1 | nogas | 269.318 | 10.9 | 183949 | 1.7 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.154 | 62.6 | 270 | 25.9 | 2.5 | |
| V | 51 | 1 | nogas | -0.835 | -17.0 | 29330 | 6.4 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.473 | -8.3 | 11767 | 1.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 1.101 | 22.1 | 23499 | 9.5 | 2.5 | |
| Fe | 56 | 1 | nogas | -0.102 | -8856.3 | 736217 | 9.5 | 100 | |
| Co | 59 | 1 | nogas | 0.029 | 35.6 | 517 | 17.3 | 2.5 | |
| Ni | 60 | 1 | nogas | -7.028 | -0.4 | 2334 | 4.2 | 2.5 | |
| Cu | 63 | 1 | nogas | -5.136 | -1.2 | 7025 | 6.3 | 2 | |
| Zn | 66 | 1 | nogas | -0.876 | -2.3 | 397 | 8.1 | 2.5 | |
| As | 75 | 1 | nogas | -3.845 | -4.3 | 12415 | 2.1 | 2.5 | |
| Se | 77 | 1 | nogas | -22.811 | -5.3 | 4167 | 4.5 | 2.5 | |
| Se | 82 | 1 | nogas | -0.513 | -21.4 | 217 | 2.7 | 2 | |
| Sr | 88 | 1 | nogas | -0.001 | -1872.8 | 590 | 34.4 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.331 | -39.9 | 957 | 28.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.034 | 34.8 | 230 | 26.4 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.002 | 1588.1 | 23 | 137.8 | 1 | |
| Sn | 118 | 1 | nogas | 0.219 | 32.9 | 1807 | 11.4 | 5 | |
| Sb | 121 | 1 | nogas | 0.274 | 30.5 | 1967 | 19.1 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.025 | 173.0 | 233 | 29.2 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.314 | 75.0 | 3087 | 80.3 | 1 | |
| Pb | 208 | 1 | nogas | 0.067 | 36.3 | 660 | 26.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.036 | 41.1 | 547 | 40.6 | 2.5 | |
| Si | 28 | 1 | nogas | -81.301 | -6.1 | 930108 | 0.3 | 5 | |
| La | 139 | 1 | nogas | 87.238 | 89.2 | 137 | 63.1 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 45.436 | 873.3 | 13 | 173.2 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 89.876 | 8.9 | 328983 | 0.3 | 100 | |
| Mg | 24 | 2 | He | 1.225 | 17.3 | 1243 | 8.9 | 100 | |
| Al | 27 | 2 | He | -0.718 | -39.9 | 1013 | 11.4 | 5 | |
| K | 39 | 2 | He | -20.926 | -33.2 | 209725 | 0.6 | 100 | |
| Ca | 43 | 2 | He | -9.445 | -116.0 | 30 | 88.2 | 100 | |
| Ca | 44 | 2 | He | 15.688 | 25.8 | 3314 | 5.6 | 100 | |
| V | 51 | 2 | He | 0.084 | 19.1 | 1355 | 5.7 | 2.5 | |
| Cr | 52 | 2 | He | 0.082 | 51.1 | 4171 | 4.2 | 2.5 | |
| Mn | 55 | 2 | He | 0.884 | 4.8 | 4667 | 1.8 | 2.5 | |
| Fe | 56 | 2 | He | 6.296 | 5.5 | 43012 | 1.1 | 100 | |
| Co | 59 | 2 | He | 0.009 | 53.9 | 117 | 27.6 | 2.5 | |
| Ni | 60 | 2 | He | -6.191 | -1.6 | 1070 | 15.6 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -3.775 | -2.2 | 3734 | 8.9 | 2 | |
| Zn | 66 | 2 | He | -0.521 | -12.5 | 217 | 27.8 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | -0.099 | -47.9 | 261 | 16.4 | 2.5 | |
| Sb | 121 | 2 | He | 0.199 | 11.2 | 1243 | 6.9 | 2.5 | |
| Se | 78 | 2 | He | -0.065 | -69.2 | 303 | 3.7 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1402614 | 2.15 | 1658792 | 84.56 | 70 | 125 | |
| In | 115 | 1 | nogas | 1295552 | 3.23 | 1398610 | 92.63 | 70 | 125 | |
| Li | 6 | 1 | nogas | 340665 | 2.73 | 581094 | 58.62 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1060969 | 6.66 | 1069547 | 99.20 | 70 | 125 | |
| Ge | 72 | 2 | He | 691558 | 2.68 | 766661 | 90.20 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 117_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T19:16:26-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 129.739 | 2.340 | 190809 | 0.86 | 100 | 129.7 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 681.781 | 2.655 | 563658 | 0.48 | 500 | 136.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10100.798 | 7.154 | 78413652 | 2.38 | 10000 | 101.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9891.474 | 6.642 | 51425568 | 2.22 | 10000 | 98.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 89.002 | 4.881 | 741808 | 5.36 | 100 | 89.0 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 437.897 | 1.370 | 308010 | 0.36 | 500 | 87.6 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9075.160 | 2.413 | 71963587 | 1.48 | 10000 | 90.8 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9181.155 | 6.270 | 131637 | 5.56 | 10000 | 91.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10404.272 | 5.225 | 2492341 | 4.21 | 10000 | 104.0 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.737 | 1.155 | 72473 | 1.34 | 100 | 96.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 93.878 | 6.218 | 994319 | 6.79 | 100 | 93.9 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 92.068 | 1.179 | 795504 | 1.89 | 100 | 92.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 95.046 | 2.966 | 999839 | 2.09 | 100 | 95.0 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10124.033 | 2.943 | 87712456 | 2.07 | 10000 | 101.2 | 90 | 110 | |
| Co | 59 | 1 | nogas | 98.830 | 2.547 | 891161 | 1.71 | 100 | 98.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 94.591 | 1.632 | 207195 | 0.76 | 100 | 94.6 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 92.118 | 2.606 | 488382 | 2.11 | 100 | 92.1 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 101.735 | 3.778 | 155345 | 3.78 | 100 | 101.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 98.085 | 1.488 | 202036 | 1.96 | 100 | 98.1 | 90 | 110 | |
| Se | 77 | 1 | nogas | 62.416 | 5.597 | 11107 | 2.97 | 100 | 62.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 107.363 | 2.786 | 10046 | 2.60 | 100 | 107.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 105.056 | 4.753 | 1131839 | 3.88 | 100 | 105.1 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 106.805 | 4.935 | 227432 | 4.24 | 100 | 106.8 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 109.325 | 1.096 | 569245 | 1.04 | 100 | 109.3 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 105.197 | 1.844 | 117925 | 2.55 | 100 | 105.2 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 98.744 | 2.301 | 332896 | 0.41 | 100 | 98.7 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 110.291 | 3.666 | 530253 | 2.90 | 100 | 110.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 137 | 1 | nogas | 108.401 | 5.247 | 175353 | 2.95 | 100 | 108.4 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 100.091 | 12.121 | 899936 | 2.95 | 100 | 100.1 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 99.760 | 9.731 | 649548 | 1.13 | 100 | 99.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 94.823 | 9.482 | 1207617 | 0.59 | 100 | 94.8 | 90 | 110 | |
| Li | 7 | 1 | nogas | 122.038 | 1.919 | 422147 | 4.35 | 100 | 122.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 1645.244 | 1.925 | 7438248 | 1.46 | 5000 | 32.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 105.237 | 6.081 | 102333 | 3.64 | 100 | 105.2 | 90 | 110 | |
| La | 139 | 1 | nogas | 339.541 | 43.264 | 400 | 38.49 | 100 | 339.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -115.667 | -101.816 | 3 | 173.21 | 100 | -115.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 101.723 | 11.439 | 373829 | 1.95 | 100 | 101.7 | 90 | 110 | |
| Na | 23 | 2 | He | 9967.730 | 6.813 | 10722444 | 5.47 | 10000 | 99.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 9651.539 | 4.332 | 6002799 | 2.91 | 10000 | 96.5 | 90 | 110 | |
| Al | 27 | 2 | He | 91.349 | 2.509 | 42895 | 3.30 | 100 | 91.3 | 90 | 110 | |
| K | 39 | 2 | He | 8838.928 | 2.737 | 7443810 | 4.92 | 10000 | 88.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 9033.478 | 5.833 | 19848 | 5.25 | 10000 | 90.3 | 90 | 110 | |
| Ca | 44 | 2 | He | 9443.847 | 5.753 | 344500 | 2.83 | 10000 | 94.4 | 90 | 110 | |
| V | 51 | 2 | He | 100.393 | 5.045 | 423855 | 2.92 | 100 | 100.4 | 90 | 110 | |
| Cr | 52 | 2 | He | 95.607 | 1.988 | 427275 | 1.25 | 100 | 95.6 | 90 | 110 | |
| Mn | 55 | 2 | He | 94.326 | 1.374 | 350468 | 1.76 | 100 | 94.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 9637.139 | 2.365 | 39962430 | 2.79 | 10000 | 96.4 | 90 | 110 | |
| Co | 59 | 2 | He | 96.601 | 4.799 | 570636 | 2.30 | 100 | 96.6 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.954 | 3.928 | 148906 | 0.76 | 100 | 100.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 103.876 | 4.671 | 382911 | 2.57 | 100 | 103.9 | 90 | 110 | |
| Zn | 66 | 2 | He | 104.566 | 3.763 | 99478 | 3.15 | 100 | 104.6 | 90 | 110 | |
| As | 75 | 2 | He | 101.432 | 3.697 | 97217 | 1.15 | 100 | 101.4 | 90 | 110 | |
| Sb | 121 | 2 | He | 108.440 | 4.559 | 408395 | 1.93 | 100 | 108.4 | 90 | 110 | |
| Se | 78 | 2 | He | 99.695 | 3.487 | 8891 | 0.35 | 100 | 99.7 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1365689 | 0.86 | 1658792 | 82.33 | 70 | 125 | |
| In | 115 | 1 | nogas | 1200083 | 2.60 | 1398610 | 85.81 | 70 | 125 | |
| Li | 6 | 1 | nogas | 319945 | 2.83 | 581094 | 55.06 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1022083 | 10.18 | 1069547 | 95.56 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 656384 | 3.03 | 766661 | 85.62 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 118_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T19:18:40-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.041 | 61.6 | 67 | 60.6 | 1 | |
| B | 11 | 1 | nogas | 15.618 | 9.2 | 16408 | 12.6 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 128.617 | 11.5 | 2343451 | 1.0 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 3.890 | 34.6 | 23853 | 25.2 | 100 | |
| Al | 27 | 1 | nogas | 4.222 | 54.2 | 46870 | 42.4 | 5 | |
| P | 31 | 1 | nogas | -42.039 | -5.1 | 26923 | 3.0 | 10 | |
| K | 39 | 1 | nogas | -53.899 | -21.2 | 3060571 | 2.3 | 100 | |
| Ca | 43 | 1 | nogas | 4.277 | 88.1 | 823 | 8.5 | 100 | |
| Ca | 44 | 1 | nogas | 523.717 | 4.9 | 237723 | 2.2 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.244 | 81.0 | 333 | 46.5 | 2.5 | |
| V | 51 | 1 | nogas | -0.746 | -22.1 | 29529 | 7.0 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.464 | -18.7 | 11547 | 5.1 | 2.5 | |
| Mn | 55 | 1 | nogas | -0.066 | -67.3 | 10790 | 5.9 | 2.5 | |
| Fe | 56 | 1 | nogas | -3.328 | -338.9 | 691471 | 14.3 | 100 | |
| Co | 59 | 1 | nogas | 0.020 | 55.3 | 427 | 23.5 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.938 | -0.5 | 2457 | 3.8 | 2.5 | |
| Cu | 63 | 1 | nogas | -5.609 | -0.2 | 4501 | 1.0 | 2 | |
| Zn | 66 | 1 | nogas | -0.676 | -11.9 | 690 | 18.5 | 2.5 | |
| As | 75 | 1 | nogas | -4.307 | -5.5 | 11247 | 2.1 | 2.5 | |
| Se | 77 | 1 | nogas | -30.866 | -9.2 | 3394 | 5.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.016 | -2026.0 | 257 | 9.8 | 2 | |
| Sr | 88 | 1 | nogas | 0.009 | 268.6 | 680 | 35.9 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.436 | -19.1 | 713 | 25.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.028 | 61.1 | 193 | 46.9 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.016 | 114.3 | 37 | 56.8 | 1 | |
| Sn | 118 | 1 | nogas | 0.323 | 21.7 | 1980 | 8.9 | 5 | |
| Sb | 121 | 1 | nogas | 0.210 | 27.5 | 1613 | 17.4 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.017 | 259.8 | 200 | 35.0 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.291 | 71.5 | 2707 | 74.6 | 1 | |
| Pb | 208 | 1 | nogas | 0.065 | 28.2 | 620 | 24.1 | 2.5 | |
| U | 238 | 1 | nogas | 0.036 | 49.3 | 520 | 48.8 | 2.5 | |
| Si | 28 | 1 | nogas | -65.749 | -20.3 | 966188 | 4.0 | 5 | |
| La | 139 | 1 | nogas | 38.747 | 127.9 | 73 | 67.3 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 146.683 | 204.0 | 17 | 91.7 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 126.229 | 2.0 | 345818 | 0.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 1.933 | 9.8 | 1600 | 7.1 | 100 | |
| Al | 27 | 2 | He | 1.134 | 66.5 | 1780 | 18.1 | 5 | |
| K | 39 | 2 | He | -21.179 | -11.6 | 196155 | 0.5 | 100 | |
| Ca | 43 | 2 | He | -3.688 | -223.0 | 40 | 43.3 | 100 | |
| Ca | 44 | 2 | He | 44.130 | 18.9 | 4117 | 7.3 | 100 | |
| V | 51 | 2 | He | 0.050 | 10.3 | 1125 | 1.7 | 2.5 | |
| Cr | 52 | 2 | He | 0.052 | 53.4 | 3770 | 3.2 | 2.5 | |
| Mn | 55 | 2 | He | 0.037 | 2.4 | 1273 | 0.9 | 2.5 | |
| Fe | 56 | 2 | He | 7.492 | 10.5 | 45161 | 6.8 | 100 | |
| Co | 59 | 2 | He | 0.011 | 95.7 | 120 | 50.7 | 2.5 | |
| Ni | 60 | 2 | He | -5.898 | -2.1 | 1403 | 12.9 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -4.119 | -1.3 | 2297 | 7.8 | 2 | |
| Zn | 66 | 2 | He | -0.389 | -2.3 | 327 | 1.8 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | -0.126 | -11.8 | 219 | 6.3 | 2.5 | |
| Sb | 121 | 2 | He | 0.147 | 0.5 | 970 | 1.0 | 2.5 | |
| Se | 78 | 2 | He | 0.079 | 532.4 | 296 | 11.7 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1368497 | 2.07 | 1658792 | 82.50 | 70 | 125 | |
| In | 115 | 1 | nogas | 1174560 | 3.57 | 1398610 | 83.98 | 70 | 125 | |
| Li | 6 | 1 | nogas | 311078 | 6.21 | 581094 | 53.53 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1009049 | 4.78 | 1069547 | 94.34 | 70 | 125 | |
| Ge | 72 | 2 | He | 647194 | 0.95 | 766661 | 84.42 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 129_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T19:51:09-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 127.507 | 3.736 | 184174 | 0.79 | 100 | 127.5 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 677.284 | 6.735 | 549646 | 3.43 | 500 | 135.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10174.148 | 0.511 | 79356777 | 2.12 | 10000 | 101.7 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10062.568 | 0.297 | 52558889 | 1.55 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 89.361 | 8.152 | 763321 | 4.64 | 100 | 89.4 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 431.726 | 7.452 | 312141 | 2.04 | 500 | 86.3 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9158.779 | 4.431 | 74502372 | 2.27 | 10000 | 91.6 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9156.539 | 3.972 | 134812 | 3.81 | 10000 | 91.6 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10834.076 | 3.116 | 2660206 | 3.33 | 10000 | 108.3 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 93.914 | 2.257 | 72246 | 3.21 | 100 | 93.9 | 90 | 110 | |
| V | 51 | 1 | nogas | 95.079 | 3.250 | 1033244 | 4.09 | 100 | 95.1 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 95.566 | 3.639 | 846805 | 2.21 | 100 | 95.6 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.145 | 4.104 | 1059086 | 0.41 | 100 | 98.1 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10071.437 | 4.901 | 89526560 | 1.15 | 10000 | 100.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 96.216 | 6.616 | 889797 | 3.34 | 100 | 96.2 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 92.787 | 6.938 | 208738 | 2.49 | 100 | 92.8 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 92.448 | 4.441 | 502901 | 2.56 | 100 | 92.4 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.298 | 4.411 | 157285 | 5.04 | 100 | 100.3 | 90 | 110 | |
| As | 75 | 1 | nogas | 100.464 | 4.125 | 211923 | 3.20 | 100 | 100.5 | 90 | 110 | |
| Se | 77 | 1 | nogas | 68.738 | 1.369 | 11948 | 4.84 | 100 | 68.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 103.391 | 9.186 | 9923 | 4.99 | 100 | 103.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 103.406 | 7.369 | 1142754 | 4.70 | 100 | 103.4 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 105.676 | 5.892 | 230885 | 3.02 | 100 | 105.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 103.576 | 0.564 | 553946 | 3.99 | 100 | 103.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 102.810 | 3.213 | 116047 | 3.23 | 100 | 102.8 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 98.128 | 5.143 | 332959 | 2.16 | 100 | 98.1 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 107.801 | 5.266 | 531891 | 3.41 | 100 | 107.8 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 107.413 | 3.972 | 175026 | 2.35 | 100 | 107.4 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 96.841 | 10.495 | 849120 | 1.24 | 100 | 96.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.616 | 9.644 | 619329 | 2.73 | 100 | 97.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 93.165 | 9.846 | 1155541 | 0.68 | 100 | 93.2 | 90 | 110 | |
| Li | 7 | 1 | nogas | 119.034 | 2.068 | 404822 | 1.77 | 100 | 119.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 1641.526 | 7.077 | 7613759 | 1.99 | 5000 | 32.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 104.427 | 4.739 | 102294 | 2.83 | 100 | 104.4 | 90 | 110 | |
| La | 139 | 1 | nogas | 290.213 | 33.184 | 350 | 29.83 | 100 | 290.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -42.901 | -568.296 | 7 | 173.21 | 100 | -42.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 100.477 | 9.738 | 360180 | 1.85 | 100 | 100.5 | 90 | 110 | |
| Na | 23 | 2 | He | 8984.941 | 0.860 | 10524585 | 2.56 | 10000 | 89.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Mg | 24 | 2 | He | 8925.597 | 3.443 | 6031323 | 4.65 | 10000 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Al | 27 | 2 | He | 88.824 | 1.422 | 45337 | 4.01 | 100 | 88.8 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9419.277 | 3.360 | 8589899 | 1.49 | 10000 | 94.2 | 90 | 110 | |
| Ca | 43 | 2 | He | 9389.971 | 4.983 | 22398 | 4.34 | 10000 | 93.9 | 90 | 110 | |
| Ca | 44 | 2 | He | 9438.999 | 4.175 | 373948 | 1.29 | 10000 | 94.4 | 90 | 110 | |
| V | 51 | 2 | He | 95.479 | 3.038 | 437849 | 1.21 | 100 | 95.5 | 90 | 110 | |
| Cr | 52 | 2 | He | 98.878 | 3.848 | 479584 | 3.05 | 100 | 98.9 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.427 | 3.068 | 400897 | 1.14 | 100 | 99.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9780.511 | 5.536 | 44009571 | 4.04 | 10000 | 97.8 | 90 | 110 | |
| Co | 59 | 2 | He | 91.648 | 7.089 | 587672 | 5.08 | 100 | 91.6 | 90 | 110 | |
| Ni | 60 | 2 | He | 89.743 | 3.836 | 146246 | 2.10 | 100 | 89.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Cu | 63 | 2 | He | 91.345 | 3.470 | 367931 | 2.98 | 100 | 91.3 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.760 | 1.450 | 102080 | 2.55 | 100 | 98.8 | 90 | 110 | |
| As | 75 | 2 | He | 103.291 | 3.469 | 107485 | 1.33 | 100 | 103.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 103.965 | 4.767 | 425131 | 2.51 | 100 | 104.0 | 90 | 110 | |
| Se | 78 | 2 | He | 96.794 | 3.274 | 9382 | 0.22 | 100 | 96.8 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1402842 | 4.31 | 1658792 | 84.57 | 70 | 125 | |
| In | 115 | 1 | nogas | 1208614 | 3.10 | 1398610 | 86.42 | 70 | 125 | |
| Li | 6 | 1 | nogas | 314373 | 3.71 | 581094 | 54.10 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 995440 | 9.82 | 1069547 | 93.07 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 712637 | 2.97 | 766661 | 92.95 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 130_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T19:53:23-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.038 | 65.1 | 60 | 57.7 | 1 | |
| B | 11 | 1 | nogas | 17.221 | 13.1 | 17242 | 8.8 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 104.730 | 3.1 | 2227788 | 1.0 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 5.052 | 24.7 | 30899 | 23.2 | 100 | |
| Al | 27 | 1 | nogas | 5.077 | 45.3 | 55167 | 36.1 | 5 | CCB Main CR1 Failed |
| P | 31 | 1 | nogas | -43.395 | -2.2 | 26793 | 2.6 | 10 | |
| K | 39 | 1 | nogas | -57.895 | -32.8 | 3104191 | 1.7 | 100 | |
| Ca | 43 | 1 | nogas | 12.888 | 73.0 | 967 | 11.5 | 100 | |
| Ca | 44 | 1 | nogas | 869.020 | 1.8 | 324658 | 2.2 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.371 | 18.3 | 437 | 11.5 | 2.5 | |
| V | 51 | 1 | nogas | -0.100 | -81.4 | 37013 | 3.4 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.380 | -11.9 | 12571 | 0.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.722 | 11.7 | 19501 | 7.8 | 2.5 | |
| Fe | 56 | 1 | nogas | 6.307 | 40.1 | 794169 | 5.9 | 100 | |
| Co | 59 | 1 | nogas | 0.026 | 16.1 | 490 | 10.8 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.724 | -0.7 | 2960 | 1.5 | 2.5 | |
| Cu | 63 | 1 | nogas | -5.842 | -0.4 | 3427 | 2.5 | 2 | |
| Zn | 66 | 1 | nogas | -0.808 | -4.0 | 503 | 13.2 | 2.5 | |
| As | 75 | 1 | nogas | -3.944 | -9.1 | 12218 | 2.8 | 2.5 | |
| Se | 77 | 1 | nogas | -27.308 | -7.4 | 3784 | 4.8 | 2.5 | |
| Se | 82 | 1 | nogas | 0.012 | 2488.7 | 267 | 14.2 | 2 | |
| Sr | 88 | 1 | nogas | 0.019 | 117.8 | 817 | 33.6 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.391 | -16.1 | 830 | 19.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.035 | 32.4 | 237 | 25.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.017 | 6.8 | 40 | 0.0 | 1 | |
| Sn | 118 | 1 | nogas | 0.174 | 53.3 | 1593 | 23.9 | 5 | |
| Sb | 121 | 1 | nogas | 0.145 | 24.8 | 1337 | 16.6 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.001 | 5243.6 | 187 | 38.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.292 | 62.8 | 2694 | 69.9 | 1 | |
| Pb | 208 | 1 | nogas | 0.103 | 9.5 | 850 | 14.1 | 2.5 | |
| U | 238 | 1 | nogas | 0.050 | 55.7 | 687 | 57.5 | 2.5 | |
| Si | 28 | 1 | nogas | -60.453 | -10.1 | 1011121 | 1.0 | 5 | |
| La | 139 | 1 | nogas | 69.811 | 53.8 | 113 | 35.7 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 82.615 | 149.2 | 13 | 43.3 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 95.468 | 1.8 | 331370 | 0.2 | 100 | |
| Mg | 24 | 2 | He | 3.102 | 13.7 | 2447 | 11.5 | 100 | |
| Al | 27 | 2 | He | 1.504 | 110.5 | 2057 | 38.3 | 5 | |
| K | 39 | 2 | He | -20.429 | -15.1 | 207756 | 0.9 | 100 | |
| Ca | 43 | 2 | He | 5.486 | 119.4 | 63 | 24.1 | 100 | |
| Ca | 44 | 2 | He | 79.830 | 2.6 | 5694 | 1.1 | 100 | |
| V | 51 | 2 | He | 0.165 | 10.0 | 1695 | 3.6 | 2.5 | |
| Cr | 52 | 2 | He | 0.068 | 74.0 | 4057 | 6.4 | 2.5 | |
| Mn | 55 | 2 | He | 0.680 | 3.2 | 3827 | 2.9 | 2.5 | |
| Fe | 56 | 2 | He | 5.743 | 8.1 | 40139 | 4.8 | 100 | |
| Co | 59 | 2 | He | 0.018 | 65.5 | 170 | 42.4 | 2.5 | |
| Ni | 60 | 2 | He | -5.770 | -1.8 | 1667 | 9.9 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -4.311 | -0.5 | 1720 | 4.1 | 2 | |
| Zn | 66 | 2 | He | -0.441 | -9.0 | 293 | 12.9 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | -0.087 | -53.1 | 270 | 17.1 | 2.5 | |
| Sb | 121 | 2 | He | 0.095 | 13.3 | 820 | 5.3 | 2.5 | |
| Se | 78 | 2 | He | 0.627 | 58.2 | 362 | 9.4 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1402898 | 3.11 | 1658792 | 84.57 | 70 | 125 | |
| In | 115 | 1 | nogas | 1246719 | 3.35 | 1398610 | 89.14 | 70 | 125 | |
| Li | 6 | 1 | nogas | 304201 | 1.87 | 581094 | 52.35 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 991971 | 7.89 | 1069547 | 92.75 | 70 | 125 | |
| Ge | 72 | 2 | He | 683358 | 0.71 | 766661 | 89.13 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 141_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T20:23:35-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 123.450 | 3.952 | 186675 | 2.04 | 100 | 123.4 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 634.506 | 1.909 | 539819 | 0.63 | 500 | 126.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10010.156 | 1.902 | 76068452 | 0.87 | 10000 | 100.1 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10060.321 | 2.533 | 51183112 | 1.89 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 82.684 | 1.667 | 698160 | 1.89 | 100 | 82.7 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 429.322 | 2.106 | 306611 | 0.92 | 500 | 85.9 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 8843.158 | 3.933 | 71058945 | 3.55 | 10000 | 88.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 8915.219 | 2.902 | 129405 | 2.46 | 10000 | 89.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 1 | nogas | 10368.003 | 0.300 | 2514612 | 1.40 | 10000 | 103.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 91.210 | 0.724 | 69160 | 0.78 | 100 | 91.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 92.359 | 0.662 | 990275 | 1.24 | 100 | 92.4 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 94.172 | 2.583 | 823091 | 2.96 | 100 | 94.2 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 95.025 | 1.840 | 1011727 | 1.55 | 100 | 95.0 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9853.148 | 1.515 | 86414912 | 0.47 | 10000 | 98.5 | 90 | 110 | |
| Co | 59 | 1 | nogas | 94.975 | 0.371 | 866843 | 1.49 | 100 | 95.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 92.556 | 2.972 | 205551 | 2.99 | 100 | 92.6 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 88.316 | 2.510 | 475237 | 2.68 | 100 | 88.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Zn | 66 | 1 | nogas | 97.946 | 2.525 | 151421 | 2.67 | 100 | 97.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 98.823 | 1.504 | 205855 | 2.14 | 100 | 98.8 | 90 | 110 | |
| Se | 77 | 1 | nogas | 63.973 | 4.710 | 11371 | 2.57 | 100 | 64.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 103.332 | 3.642 | 9793 | 2.46 | 100 | 103.3 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 99.083 | 0.439 | 1080679 | 1.63 | 100 | 99.1 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 99.365 | 3.019 | 214329 | 3.87 | 100 | 99.4 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 104.402 | 0.695 | 550173 | 1.58 | 100 | 104.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 104.704 | 0.399 | 115767 | 1.59 | 100 | 104.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 98.620 | 0.922 | 328014 | 1.49 | 100 | 98.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 106.779 | 1.303 | 519654 | 1.72 | 100 | 106.8 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 104.823 | 0.748 | 167378 | 1.80 | 100 | 104.8 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.809 | 9.073 | 853248 | 3.60 | 100 | 99.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 96.148 | 8.469 | 594326 | 2.71 | 100 | 96.1 | 90 | 110 | |
| U | 238 | 1 | nogas | 93.424 | 7.779 | 1129623 | 1.31 | 100 | 93.4 | 90 | 110 | |
| Li | 7 | 1 | nogas | 116.082 | 3.028 | 413793 | 2.16 | 100 | 116.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 2624.626 | 2.281 | 11276522 | 1.16 | 5000 | 52.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 102.256 | 2.854 | 98177 | 3.61 | 100 | 102.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 190.850 | 27.910 | 237 | 23.27 | 100 | 190.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 99.104 | 329.456 | 13 | 114.56 | 100 | 99.1 | 90 | 110 | |
| Tl | 203 | 1 | nogas | 102.289 | 8.501 | 357278 | 2.21 | 100 | 102.3 | 90 | 110 | |
| Na | 23 | 2 | He | 9199.288 | 0.946 | 10344165 | 2.81 | 10000 | 92.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 8892.579 | 1.471 | 5769686 | 2.10 | 10000 | 88.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Al | 27 | 2 | He | 83.508 | 3.915 | 41044 | 6.87 | 100 | 83.5 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 8893.852 | 2.178 | 7804150 | 1.81 | 10000 | 88.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 9340.792 | 6.542 | 21383 | 3.68 | 10000 | 93.4 | 90 | 110 | |
| Ca | 44 | 2 | He | 9553.811 | 8.817 | 363070 | 5.17 | 10000 | 95.5 | 90 | 110 | |
| V | 51 | 2 | He | 96.348 | 0.106 | 424640 | 3.66 | 100 | 96.3 | 90 | 110 | |
| Cr | 52 | 2 | He | 96.598 | 1.988 | 450138 | 1.69 | 100 | 96.6 | 90 | 110 | |
| Mn | 55 | 2 | He | 94.900 | 4.530 | 367414 | 1.01 | 100 | 94.9 | 90 | 110 | |
| Fe | 56 | 2 | He | 9386.321 | 5.527 | 40547735 | 2.05 | 10000 | 93.9 | 90 | 110 | |
| Co | 59 | 2 | He | 93.047 | 6.741 | 572799 | 3.21 | 100 | 93.0 | 90 | 110 | |
| Ni | 60 | 2 | He | 95.126 | 6.852 | 148161 | 2.84 | 100 | 95.1 | 90 | 110 | |
| Cu | 63 | 2 | He | 96.458 | 4.126 | 372054 | 2.21 | 100 | 96.5 | 90 | 110 | |
| Zn | 66 | 2 | He | 100.724 | 3.604 | 100022 | 5.53 | 100 | 100.7 | 90 | 110 | |
| As | 75 | 2 | He | 101.201 | 6.595 | 101071 | 3.08 | 100 | 101.2 | 90 | 110 | |
| Sb | 121 | 2 | He | 104.539 | 7.551 | 410233 | 4.05 | 100 | 104.5 | 90 | 110 | |
| Se | 78 | 2 | He | 98.529 | 1.588 | 9172 | 3.39 | 100 | 98.5 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1382099 | 1.19 | 1658792 | 83.32 | 70 | 125 | |
| In | 115 | 1 | nogas | 1183497 | 1.22 | 1398610 | 84.62 | 70 | 125 | |
| Li | 6 | 1 | nogas | 328995 | 2.20 | 581094 | 56.62 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 967598 | 6.86 | 1069547 | 90.47 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 684520 | 3.56 | 766661 | 89.29 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 142_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T20:25:48-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.059 | 67.9 | 93 | 62.8 | 1 | |
| B | 11 | 1 | nogas | 12.135 | 20.5 | 13765 | 15.6 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 125.096 | 0.6 | 2277026 | 1.0 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 3.569 | 45.6 | 21953 | 37.2 | 100 | |
| Al | 27 | 1 | nogas | -0.320 | -37.6 | 9350 | 11.6 | 5 | |
| P | 31 | 1 | nogas | -41.850 | -1.1 | 27204 | 2.3 | 10 | |
| K | 39 | 1 | nogas | -45.197 | -13.1 | 3144307 | 0.8 | 100 | |
| Ca | 43 | 1 | nogas | 4.586 | 281.8 | 830 | 21.2 | 100 | |
| Ca | 44 | 1 | nogas | 933.875 | 3.0 | 333408 | 1.0 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.121 | 36.2 | 240 | 12.5 | 2.5 | |
| V | 51 | 1 | nogas | -0.216 | -82.4 | 35141 | 6.6 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.364 | -5.3 | 12478 | 2.3 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.026 | 116.6 | 11814 | 1.9 | 2.5 | |
| Fe | 56 | 1 | nogas | 5.961 | 83.9 | 775372 | 4.9 | 100 | |
| Co | 59 | 1 | nogas | 0.041 | 19.0 | 617 | 10.8 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.571 | -1.9 | 3217 | 8.1 | 2.5 | |
| Cu | 63 | 1 | nogas | -5.947 | -0.8 | 2837 | 7.2 | 2 | |
| Zn | 66 | 1 | nogas | -0.854 | -12.7 | 423 | 40.2 | 2.5 | |
| As | 75 | 1 | nogas | -4.396 | -3.1 | 11147 | 1.0 | 2.5 | |
| Se | 77 | 1 | nogas | -29.801 | -14.2 | 3507 | 11.1 | 2.5 | |
| Se | 82 | 1 | nogas | -0.795 | -53.9 | 187 | 20.3 | 2 | |
| Sr | 88 | 1 | nogas | 0.002 | 378.7 | 610 | 10.2 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.460 | -15.5 | 663 | 22.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.031 | 57.6 | 207 | 43.6 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.008 | 202.2 | 30 | 66.7 | 1 | |
| Sn | 118 | 1 | nogas | 0.199 | 46.9 | 1653 | 19.8 | 5 | |
| Sb | 121 | 1 | nogas | 0.161 | 50.9 | 1387 | 28.6 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.039 | -110.5 | 117 | 62.0 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.272 | 66.7 | 2519 | 73.1 | 1 | |
| Pb | 208 | 1 | nogas | 0.073 | 24.0 | 663 | 24.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.043 | 45.1 | 603 | 48.3 | 2.5 | |
| Si | 28 | 1 | nogas | -59.837 | -3.1 | 994641 | 1.1 | 5 | |
| La | 139 | 1 | nogas | 13.983 | 237.8 | 50 | 72.1 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | -183.660 | 0.0 | 0 | #DIV/0! | 2.5 | |
| Na | 23 | 2 | He | 95.428 | 8.2 | 338853 | 0.3 | 100 | |
| Mg | 24 | 2 | He | 1.795 | 2.6 | 1637 | 2.5 | 100 | |
| Al | 27 | 2 | He | -1.226 | -65.2 | 777 | 47.8 | 5 | |
| K | 39 | 2 | He | -26.447 | -23.2 | 207249 | 0.9 | 100 | |
| Ca | 43 | 2 | He | 4.974 | 112.1 | 63 | 18.2 | 100 | |
| Ca | 44 | 2 | He | 90.123 | 16.4 | 6221 | 8.8 | 100 | |
| V | 51 | 2 | He | 0.142 | 14.7 | 1629 | 3.3 | 2.5 | |
| Cr | 52 | 2 | He | 0.074 | 33.3 | 4177 | 0.3 | 2.5 | |
| Mn | 55 | 2 | He | 0.180 | 29.8 | 1943 | 11.3 | 2.5 | |
| Fe | 56 | 2 | He | 2.379 | 11.1 | 26199 | 2.8 | 100 | |
| Co | 59 | 2 | He | 0.013 | 37.4 | 140 | 18.9 | 2.5 | |
| Ni | 60 | 2 | He | -5.821 | -1.9 | 1627 | 8.6 | 2.5 | |
| Cu | 63 | 2 | He | -4.405 | -0.5 | 1407 | 5.1 | 2 | |
| Zn | 66 | 2 | He | -0.511 | -10.5 | 230 | 23.0 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| As | 75 | 2 | He | -0.072 | -46.5 | 292 | 14.3 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.110 | 17.9 | 900 | 10.6 | 2.5 | |
| Se | 78 | 2 | He | 0.170 | 154.3 | 329 | 10.1 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1376173 | 1.35 | 1658792 | 82.96 | 70 | 125 | |
| In | 115 | 1 | nogas | 1229901 | 1.86 | 1398610 | 87.94 | 70 | 125 | |
| Li | 6 | 1 | nogas | 314811 | 2.39 | 581094 | 54.18 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 994573 | 7.33 | 1069547 | 92.99 | 70 | 125 | |
| Ge | 72 | 2 | He | 699197 | 2.74 | 766661 | 91.20 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 148_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T20:40:21-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 122.825 | 0.915 | 186358 | 0.96 | 100 | 122.8 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 638.607 | 2.357 | 544941 | 1.95 | 500 | 127.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10206.105 | 7.574 | 77276854 | 4.03 | 10000 | 102.1 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10063.975 | 4.783 | 51063978 | 1.43 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 86.680 | 1.725 | 705175 | 0.38 | 100 | 86.7 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 440.897 | 3.050 | 302281 | 1.45 | 500 | 88.2 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9212.584 | 2.799 | 71237633 | 1.13 | 10000 | 92.1 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9359.639 | 3.098 | 130961 | 1.85 | 10000 | 93.6 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10723.849 | 3.346 | 2504338 | 3.52 | 10000 | 107.2 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 93.699 | 5.400 | 68474 | 3.62 | 100 | 93.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 94.206 | 2.762 | 973207 | 1.84 | 100 | 94.2 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 94.998 | 2.093 | 800422 | 0.54 | 100 | 95.0 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.431 | 2.965 | 1010356 | 3.31 | 100 | 98.4 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10376.441 | 3.683 | 87720156 | 3.10 | 10000 | 103.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.026 | 1.614 | 880419 | 2.29 | 100 | 100.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 94.385 | 1.311 | 201815 | 1.22 | 100 | 94.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 92.157 | 1.326 | 476824 | 0.60 | 100 | 92.2 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 101.921 | 4.666 | 151857 | 4.08 | 100 | 101.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 101.298 | 2.033 | 203022 | 2.51 | 100 | 101.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 67.340 | 10.004 | 11234 | 3.97 | 100 | 67.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 108.399 | 1.512 | 9896 | 0.56 | 100 | 108.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 103.730 | 2.278 | 1090750 | 0.51 | 100 | 103.7 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 103.480 | 3.336 | 215164 | 3.73 | 100 | 103.5 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 108.695 | 3.085 | 552348 | 3.08 | 100 | 108.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 104.033 | 3.265 | 114773 | 1.49 | 100 | 104.0 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 97.826 | 3.064 | 324683 | 1.03 | 100 | 97.8 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 109.324 | 2.864 | 513026 | 2.65 | 100 | 109.3 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 104.240 | 6.133 | 166003 | 3.91 | 100 | 104.2 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 94.925 | 11.537 | 831880 | 4.03 | 100 | 94.9 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 96.760 | 10.201 | 613461 | 2.38 | 100 | 96.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 91.035 | 8.888 | 1129664 | 1.63 | 100 | 91.0 | 90 | 110 | |
| Li | 7 | 1 | nogas | 116.170 | 0.622 | 415378 | 0.48 | 100 | 116.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 2684.919 | 1.239 | 11099113 | 1.80 | 5000 | 53.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 101.725 | 4.576 | 97423 | 2.37 | 100 | 101.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 207.171 | 35.565 | 253 | 29.63 | 100 | 207.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 409.100 | 50.672 | 30 | 33.33 | 100 | 409.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 97.952 | 11.883 | 350652 | 4.39 | 100 | 98.0 | 90 | 110 | |
| Na | 23 | 2 | He | 9260.723 | 7.944 | 10539292 | 4.43 | 10000 | 92.6 | 90 | 110 | |
| Mg | 24 | 2 | He | 8927.604 | 7.636 | 5864304 | 4.14 | 10000 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Al | 27 | 2 | He | 82.521 | 2.061 | 41091 | 1.80 | 100 | 82.5 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 8998.104 | 4.772 | 8012388 | 7.61 | 10000 | 90.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 8720.069 | 3.548 | 20255 | 1.72 | 10000 | 87.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 8975.250 | 5.739 | 346240 | 2.12 | 10000 | 89.8 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 2 | He | 97.583 | 5.277 | 435491 | 1.74 | 100 | 97.6 | 90 | 110 | |
| Cr | 52 | 2 | He | 95.977 | 3.284 | 453367 | 1.45 | 100 | 96.0 | 90 | 110 | |
| Mn | 55 | 2 | He | 92.065 | 2.523 | 361710 | 3.28 | 100 | 92.1 | 90 | 110 | |
| Fe | 56 | 2 | He | 9350.528 | 1.583 | 41011063 | 4.22 | 10000 | 93.5 | 90 | 110 | |
| Co | 59 | 2 | He | 91.512 | 3.946 | 571556 | 0.60 | 100 | 91.5 | 90 | 110 | |
| Ni | 60 | 2 | He | 91.557 | 8.287 | 144911 | 3.95 | 100 | 91.6 | 90 | 110 | |
| Cu | 63 | 2 | He | 93.554 | 8.257 | 365997 | 4.17 | 100 | 93.6 | 90 | 110 | |
| Zn | 66 | 2 | He | 101.237 | 3.790 | 101814 | 0.27 | 100 | 101.2 | 90 | 110 | |
| As | 75 | 2 | He | 101.088 | 3.471 | 102455 | 2.52 | 100 | 101.1 | 90 | 110 | |
| Sb | 121 | 2 | He | 102.475 | 3.642 | 408090 | 0.38 | 100 | 102.5 | 90 | 110 | |
| Se | 78 | 2 | He | 96.418 | 4.333 | 9100 | 1.37 | 100 | 96.4 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1332942 | 1.85 | 1658792 | 80.36 | 70 | 125 | |
| In | 115 | 1 | nogas | 1181485 | 2.28 | 1398610 | 84.48 | 70 | 125 | |
| Li | 6 | 1 | nogas | 329942 | 1.07 | 581094 | 56.78 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 994353 | 8.38 | 1069547 | 92.97 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 694056 | 3.72 | 766661 | 90.53 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 149_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T20:42:34-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.067 | 38.5 | 107 | 35.5 | 1 | |
| B | 11 | 1 | nogas | 11.896 | 13.6 | 13925 | 9.6 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 130.094 | 11.7 | 2295412 | 1.0 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 3.928 | 35.3 | 23453 | 25.5 | 100 | |
| Al | 27 | 1 | nogas | -0.264 | -82.3 | 9629 | 18.7 | 5 | |
| P | 31 | 1 | nogas | -40.042 | -1.1 | 27755 | 1.3 | 10 | |
| K | 39 | 1 | nogas | -42.532 | -8.7 | 3107296 | 1.0 | 100 | |
| Ca | 43 | 1 | nogas | 2.924 | 286.5 | 793 | 15.2 | 100 | |
| Ca | 44 | 1 | nogas | 832.503 | 1.1 | 304496 | 1.0 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.126 | 104.8 | 240 | 41.0 | 2.5 | |
| V | 51 | 1 | nogas | 0.499 | 25.2 | 41690 | 2.9 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.404 | -19.5 | 11911 | 5.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.030 | 33.7 | 11644 | 0.9 | 2.5 | |
| Fe | 56 | 1 | nogas | 4.575 | 122.8 | 749818 | 6.7 | 100 | |
| Co | 59 | 1 | nogas | 0.037 | 47.5 | 570 | 27.6 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.769 | -1.5 | 2764 | 7.3 | 2.5 | |
| Cu | 63 | 1 | nogas | -6.059 | -0.9 | 2240 | 12.0 | 2 | |
| Zn | 66 | 1 | nogas | -0.804 | -2.3 | 490 | 5.4 | 2.5 | |
| As | 75 | 1 | nogas | -4.177 | -4.4 | 11351 | 3.3 | 2.5 | |
| Se | 77 | 1 | nogas | -26.184 | -4.6 | 3737 | 2.9 | 2.5 | |
| Se | 82 | 1 | nogas | 0.202 | 78.5 | 273 | 5.6 | 2 | |
| Sr | 88 | 1 | nogas | 0.009 | 233.1 | 677 | 33.1 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.458 | -4.5 | 657 | 6.9 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.034 | 26.5 | 223 | 21.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.032 | 57.3 | 57 | 36.7 | 1 | |
| Sn | 118 | 1 | nogas | 0.135 | 24.9 | 1433 | 11.6 | 5 | |
| Sb | 121 | 1 | nogas | 0.132 | 36.7 | 1223 | 19.2 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.027 | -156.9 | 137 | 54.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.314 | 66.6 | 2827 | 73.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.069 | 45.1 | 623 | 37.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.056 | 53.6 | 747 | 55.6 | 2.5 | |
| Si | 28 | 1 | nogas | -58.779 | -4.1 | 980546 | 1.2 | 5 | |
| La | 139 | 1 | nogas | -10.290 | -136.3 | 23 | 65.5 | 2.5 | |
| Au | 197 | 1 | nogas | -51.396 | -224.0 | 7 | 86.6 | 2.5 | |
| Na | 23 | 2 | He | 100.414 | 11.3 | 338706 | 0.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 2.462 | 5.0 | 2047 | 7.1 | 100 | |
| Al | 27 | 2 | He | -1.857 | -13.7 | 467 | 25.9 | 5 | |
| K | 39 | 2 | He | -23.379 | -31.2 | 206463 | 1.8 | 100 | |
| Ca | 43 | 2 | He | -6.115 | -115.8 | 37 | 41.7 | 100 | |
| Ca | 44 | 2 | He | 67.314 | 6.0 | 5254 | 3.0 | 100 | |
| V | 51 | 2 | He | 0.185 | 11.2 | 1792 | 5.6 | 2.5 | |
| Cr | 52 | 2 | He | 0.065 | 132.1 | 4061 | 6.2 | 2.5 | |
| Mn | 55 | 2 | He | 0.234 | 17.1 | 2123 | 10.2 | 2.5 | |
| Fe | 56 | 2 | He | 2.790 | 13.0 | 27545 | 3.8 | 100 | |
| Co | 59 | 2 | He | 0.015 | 18.1 | 153 | 10.0 | 2.5 | |
| Ni | 60 | 2 | He | -5.919 | -1.3 | 1457 | 5.5 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -4.441 | -0.6 | 1250 | 5.6 | 2 | |
| Zn | 66 | 2 | He | -0.484 | -6.8 | 253 | 14.9 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| As | 75 | 2 | He | -0.073 | -82.7 | 284 | 17.7 | 2.5 | |
| Sb | 121 | 2 | He | 0.086 | 24.2 | 790 | 7.0 | 2.5 | |
| Se | 78 | 2 | He | 0.417 | 69.2 | 345 | 4.4 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1351116 | 0.36 | 1658792 | 81.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 1228083 | 3.64 | 1398610 | 87.81 | 70 | 125 | |
| Li | 6 | 1 | nogas | 323332 | 0.48 | 581094 | 55.64 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 968643 | 7.29 | 1069547 | 90.57 | 70 | 125 | |
| Ge | 72 | 2 | He | 687861 | 3.89 | 766661 | 89.72 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | MBLK-135804 |
| Data File Name | 151SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:07:50-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | -0.001 | -0.001 | -927.64 | 7 | -0.01 | 2000 | |
| B | 11 | 1 | nogas | -0.267 | -0.267 | -95.80 | 4041 | -0.01 | 2000 | |
| Na | 23 | 1 | nogas | 120.288 | 120.288 | 10.16 | 2289374 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 11.274 | 11.274 | 3.39 | 62021 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 3.270 | 3.270 | 2.55 | 38682 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | -56.476 | -56.476 | -44.14 | 3029242 | 0.00 | 200000 | |
| Ca | 43 | 1 | nogas | -8.352 | -8.352 | -98.37 | 640 | -1.30 | 200000 | |
| Ca | 44 | 1 | nogas | 864.177 | 864.177 | 9.35 | 314356 | 0.27 | 200000 | |
| Ti | 47 | 1 | nogas | 0.137 | 0.137 | 48.87 | 250 | 0.05 | 2000 | |
| V | 51 | 1 | nogas | -0.314 | -0.314 | -33.99 | 33840 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | -0.681 | -0.681 | -7.73 | 9686 | -0.01 | 2000 | |
| Mn | 55 | 1 | nogas | -0.097 | -0.097 | -77.68 | 10417 | 0.00 | 2000 | |
| Fe | 56 | 1 | nogas | -9.860 | -9.860 | -35.58 | 632838 | 0.00 | 200000 | |
| Co | 59 | 1 | nogas | 0.003 | 0.003 | 194.45 | 273 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | -7.017 | -7.017 | -2.20 | 2284 | -0.31 | 2000 | |
| Cu | 63 | 1 | nogas | -6.232 | -6.232 | -0.17 | 1403 | -0.44 | 2000 | |
| Zn | 66 | 1 | nogas | -0.760 | -0.760 | -5.01 | 560 | -0.14 | 2000 | |
| As | 75 | 1 | nogas | -5.078 | -5.078 | -5.87 | 9773 | -0.05 | 2000 | |
| Se | 77 | 1 | nogas | -34.826 | -34.826 | -11.98 | 3050 | -1.14 | 2000 | |
| Se | 82 | 1 | nogas | -0.460 | -0.460 | -149.34 | 217 | -0.21 | 2000 | |
| Sr | 88 | 1 | nogas | 0.006 | 0.006 | 72.38 | 653 | 0.00 | 2000 | |
| Mo | 95 | 1 | nogas | -0.604 | -0.604 | -4.19 | 353 | -0.17 | 2000 | |
| Ag | 107 | 1 | nogas | 0.005 | 0.005 | 81.80 | 73 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | -0.003 | -0.003 | -190.04 | 17 | -0.02 | 2000 | |
| Sn | 118 | 1 | nogas | -0.177 | -0.177 | -10.60 | 353 | -0.05 | 2000 | |
| Sb | 121 | 1 | nogas | -0.059 | -0.059 | -21.38 | 320 | -0.02 | 2000 | |
| Ba | 137 | 1 | nogas | -0.040 | -0.040 | -20.55 | 113 | -0.04 | 2000 | |
| Tl | 205 | 1 | nogas | -0.002 | -0.002 | -95.25 | 30 | -0.01 | 2000 | |
| Pb | 208 | 1 | nogas | -0.004 | -0.004 | -68.40 | 170 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | -0.004 | -0.004 | -23.30 | 10 | -0.04 | 2000 | |
| Si | 28 | 1 | nogas | 78.214 | 78.214 | 15.12 | 1507902 | 0.01 | 2000 | |
| La | 139 | 1 | nogas | -6.410 | -6.410 | -326.87 | 27 | -24.04 | 2000 | |
| Au | 197 | 1 | nogas | 300.961 | 300.961 | 139.93 | 27 | 1128.60 | 2000 | |
| Na | 23 | 2 | He | 108.452 | 108.452 | 6.92 | 343484 | 0.03 | 200000 | |
| Mg | 24 | 2 | He | 10.835 | 10.835 | 3.75 | 7408 | 0.15 | 200000 | |
| Al | 27 | 2 | He | 1.876 | 1.876 | 28.38 | 2217 | 0.08 | 2000 | |
| K | 39 | 2 | He | -25.275 | -25.275 | -21.17 | 202385 | -0.01 | 200000 | |
| Ca | 43 | 2 | He | -7.640 | -7.640 | -84.00 | 33 | -22.92 | 200000 | |
| Ca | 44 | 2 | He | 82.221 | 82.221 | 6.22 | 5748 | 1.43 | 200000 | |
| V | 51 | 2 | He | 0.134 | 0.134 | 3.66 | 1547 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | -0.170 | -0.170 | -40.09 | 2942 | -0.01 | 2000 | |
| Mn | 55 | 2 | He | 0.215 | 0.215 | 22.93 | 2017 | 0.01 | 2000 | |

# Sample Report

| Fe | 56 | 2 | He | -0.158 | -0.158 | -50.40 | 14579 | 0.00 | 200000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Co | 59 | 2 | He | -0.001 | -0.001 | -134.16 | 53 | 0.00 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ni | 60 | 2 | He | -6.049 | -6.049 | -0.63 | 1253 | -0.48 | 2000 | |
| Cu | 63 | 2 | He | -4.515 | -4.515 | -0.73 | 963 | -0.47 | 2000 | |
| Zn | 66 | 2 | He | -0.364 | -0.364 | -11.07 | 367 | -0.10 | 2000 | |
| As | 75 | 2 | He | -0.116 | -0.116 | -38.66 | 240 | -0.05 | 2000 | |
| Sb | 121 | 2 | He | -0.045 | -0.045 | -9.11 | 270 | -0.02 | 2000 | |
| Se | 78 | 2 | He | -0.009 | -0.009 | -3729.70 | 303 | 0.00 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1365743 | 5.42 | 1658792 | 82.33 | 70 | 125 | |
| In | 115 | 1 | nogas | 1215664 | 5.59 | 1398610 | 86.92 | 70 | 125 | |
| Li | 6 | 1 | nogas | 341270 | 2.02 | 581094 | 58.73 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1045788 | 7.61 | 1069547 | 97.78 | 70 | 125 | |
| Ge | 72 | 2 | He | 679311 | 2.50 | 766661 | 88.61 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LCS-135804 |
| Data File Name | 152SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:10:04-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 60.458 | 60.458 | 3.26 | 95898 | 0.06 | 2000 | |
| B | 11 | 1 | nogas | 602.024 | 602.024 | 4.07 | 537224 | 0.11 | 2000 | |
| Na | 23 | 1 | nogas | 5093.123 | 5093.123 | 5.75 | 39491883 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 4976.632 | 4976.632 | 4.62 | 25394553 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 77.965 | 77.965 | 2.14 | 644066 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 4377.781 | 4377.781 | 6.59 | 36087308 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 4459.518 | 4459.518 | 4.88 | 63615 | 7.01 | 200000 | |
| Ca | 44 | 1 | nogas | 5858.667 | 5858.667 | 2.94 | 1439817 | 0.41 | 200000 | |
| Ti | 47 | 1 | nogas | 134.818 | 134.818 | 3.62 | 99820 | 0.14 | 2000 | |
| V | 51 | 1 | nogas | 44.915 | 44.915 | 3.46 | 489602 | 0.01 | 2000 | |
| Cr | 52 | 1 | nogas | 45.089 | 45.089 | 2.88 | 393259 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 45.704 | 45.704 | 2.77 | 481732 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 4811.082 | 4811.082 | 1.60 | 41615022 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 48.079 | 48.079 | 4.97 | 428766 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 42.321 | 42.321 | 5.81 | 100638 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 41.833 | 41.833 | 4.29 | 236750 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 46.858 | 46.858 | 2.82 | 71672 | 0.07 | 2000 | |
| As | 75 | 1 | nogas | 45.462 | 45.462 | 4.27 | 102804 | 0.04 | 2000 | |
| Se | 77 | 1 | nogas | 13.019 | 13.019 | 15.99 | 6948 | 0.19 | 2000 | |
| Se | 82 | 1 | nogas | 54.016 | 54.016 | 12.49 | 5124 | 1.05 | 2000 | |
| Sr | 88 | 1 | nogas | 99.161 | 99.161 | 6.16 | 1056443 | 0.01 | 2000 | |
| Mo | 95 | 1 | nogas | 49.469 | 49.469 | 3.53 | 105052 | 0.05 | 2000 | |
| Ag | 107 | 1 | nogas | 52.217 | 52.217 | 1.70 | 268957 | 0.02 | 2000 | |
| Cd | 111 | 1 | nogas | 49.452 | 49.452 | 2.22 | 56686 | 0.09 | 2000 | |
| Sn | 118 | 1 | nogas | 91.618 | 91.618 | 4.91 | 316022 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 51.219 | 51.219 | 4.47 | 243860 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 47.906 | 47.906 | 1.91 | 79366 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 43.346 | 43.346 | 10.58 | 391483 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 45.880 | 45.880 | 8.61 | 300002 | 0.02 | 2000 | |
| U | 238 | 1 | nogas | 85.599 | 85.599 | 13.06 | 1091271 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 519.250 | 519.250 | 3.71 | 3143189 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | 25.985 | 25.985 | 146.37 | 63 | 41.03 | 2000 | |
| Au | 197 | 1 | nogas | -50.468 | -50.468 | -457.11 | 7 | -757.03 | 2000 | |
| Na | 23 | 2 | He | 4361.796 | 4361.796 | 6.54 | 5153629 | 0.08 | 200000 | |
| Mg | 24 | 2 | He | 4268.105 | 4268.105 | 4.35 | 2843407 | 0.15 | 200000 | |
| Al | 27 | 2 | He | 77.548 | 77.548 | 5.82 | 39220 | 0.20 | 2000 | |
| K | 39 | 2 | He | 4643.216 | 4643.216 | 4.81 | 4293371 | 0.11 | 200000 | |
| Ca | 43 | 2 | He | 4838.499 | 4838.499 | 5.07 | 11404 | 42.43 | 200000 | |
| Ca | 44 | 2 | He | 4590.352 | 4590.352 | 10.97 | 180363 | 2.55 | 200000 | |
| V | 51 | 2 | He | 44.438 | 44.438 | 3.56 | 201502 | 0.02 | 2000 | |
| Cr | 52 | 2 | He | 47.922 | 47.922 | 2.10 | 231308 | 0.02 | 2000 | |
| Mn | 55 | 2 | He | 47.290 | 47.290 | 5.76 | 188590 | 0.03 | 2000 | |
| Fe | 56 | 2 | He | 4795.027 | 4795.027 | 5.73 | 21274938 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 45.506 | 45.506 | 9.04 | 287434 | 0.02 | 2000 | |

# Sample Report

| Ni | 60 | 2 | He | 40.031 | 40.031 | 12.42 | 69885 | 0.06 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | 41.343 | 41.343 | 9.15 | 173805 | 0.02 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Zn | 66 | 2 | He | 47.509 | 47.509 | 4.47 | 48785 | 0.10 | 2000 | |
| As | 75 | 2 | He | 49.623 | 49.623 | 5.37 | 51092 | 0.10 | 2000 | |
| Sb | 121 | 2 | He | 49.323 | 49.323 | 6.60 | 199004 | 0.02 | 2000 | |
| Se | 78 | 2 | He | 47.751 | 47.751 | 5.78 | 4722 | 1.01 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1351167 | 2.47 | 1658792 | 81.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 1226639 | 1.46 | 1398610 | 87.70 | 70 | 125 | |
| Li | 6 | 1 | nogas | 344957 | 1.23 | 581094 | 59.36 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1024714 | 9.13 | 1069547 | 95.81 | 70 | 125 | |
| Ge | 72 | 2 | He | 703249 | 5.08 | 766661 | 91.73 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 160_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:28:10-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 122.072 | 3.778 | 182573 | 2.46 | 100 | 122.1 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 640.393 | 5.229 | 538540 | 3.30 | 500 | 128.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10430.009 | 2.347 | 78176262 | 5.16 | 10000 | 104.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9862.288 | 2.223 | 49526409 | 5.09 | 10000 | 98.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 87.208 | 2.429 | 696060 | 4.77 | 100 | 87.2 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 466.213 | 6.638 | 310320 | 0.81 | 500 | 93.2 | 90 | 110 | |
| K | 39 | 1 | nogas | 9604.935 | 8.213 | 72575391 | 3.15 | 10000 | 96.0 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9191.582 | 5.425 | 126029 | 0.97 | 10000 | 91.9 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 11708.777 | 2.888 | 2670258 | 2.02 | 10000 | 117.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ti | 47 | 1 | nogas | 95.240 | 0.840 | 68320 | 4.26 | 100 | 95.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 93.401 | 3.281 | 946366 | 2.26 | 100 | 93.4 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 93.906 | 2.186 | 776155 | 2.67 | 100 | 93.9 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.742 | 4.334 | 993696 | 4.29 | 100 | 98.7 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10422.832 | 4.639 | 86389471 | 4.07 | 10000 | 104.2 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.996 | 5.591 | 870707 | 0.96 | 100 | 101.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.298 | 8.444 | 203208 | 3.82 | 100 | 97.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 93.003 | 3.616 | 471429 | 1.58 | 100 | 93.0 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.405 | 2.650 | 146721 | 2.15 | 100 | 100.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 99.287 | 2.920 | 195527 | 4.06 | 100 | 99.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 69.819 | 24.836 | 11200 | 10.98 | 100 | 69.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 106.436 | 10.654 | 9509 | 5.54 | 100 | 106.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 106.040 | 5.631 | 1092397 | 0.85 | 100 | 106.0 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 105.058 | 5.863 | 213932 | 1.75 | 100 | 105.1 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 106.909 | 2.558 | 533133 | 5.50 | 100 | 106.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 100.197 | 3.585 | 112107 | 3.57 | 100 | 100.2 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 96.603 | 2.692 | 325111 | 1.37 | 100 | 96.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 111.127 | 7.346 | 510570 | 2.66 | 100 | 111.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 137 | 1 | nogas | 99.984 | 2.516 | 161537 | 1.19 | 100 | 100.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 95.372 | 4.180 | 818211 | 1.71 | 100 | 95.4 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 96.319 | 9.925 | 596329 | 5.53 | 100 | 96.3 | 90 | 110 | |
| U | 238 | 1 | nogas | 92.513 | 7.039 | 1121178 | 2.78 | 100 | 92.5 | 90 | 110 | |
| Li | 7 | 1 | nogas | 113.495 | 0.241 | 400711 | 2.13 | 100 | 113.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 2845.627 | 1.349 | 11468802 | 3.66 | 5000 | 56.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 98.497 | 2.676 | 95675 | 1.22 | 100 | 98.5 | 90 | 110 | |
| La | 139 | 1 | nogas | 188.549 | 17.518 | 237 | 12.20 | 100 | 188.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -113.536 | -106.978 | 3 | 173.21 | 100 | -113.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 101.114 | 4.345 | 354368 | 0.22 | 100 | 101.1 | 90 | 110 | |
| Na | 23 | 2 | He | 9233.062 | 5.631 | 10276438 | 4.67 | 10000 | 92.3 | 90 | 110 | |
| Mg | 24 | 2 | He | 8647.531 | 5.209 | 5555408 | 4.60 | 10000 | 86.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Al | 27 | 2 | He | 82.120 | 5.254 | 39942 | 4.26 | 100 | 82.1 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9258.143 | 3.471 | 8039267 | 4.38 | 10000 | 92.6 | 90 | 110 | |
| Ca | 43 | 2 | He | 9515.958 | 3.286 | 21597 | 3.75 | 10000 | 95.2 | 90 | 110 | |
| Ca | 44 | 2 | He | 10039.711 | 5.027 | 378469 | 5.75 | 10000 | 100.4 | 90 | 110 | |
| V | 51 | 2 | He | 93.942 | 3.832 | 409819 | 2.80 | 100 | 93.9 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.762 | 0.963 | 437482 | 1.98 | 100 | 94.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.617 | 2.745 | 378351 | 2.82 | 100 | 98.6 | 90 | 110 | |
| Fe | 56 | 2 | He | 9940.719 | 3.621 | 42570620 | 3.86 | 10000 | 99.4 | 90 | 110 | |
| Co | 59 | 2 | He | 97.047 | 2.453 | 592421 | 2.72 | 100 | 97.0 | 90 | 110 | |
| Ni | 60 | 2 | He | 93.977 | 1.036 | 145259 | 1.88 | 100 | 94.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 93.356 | 4.403 | 357245 | 3.22 | 100 | 93.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.899 | 4.257 | 94271 | 3.22 | 100 | 95.9 | 90 | 110 | |
| As | 75 | 2 | He | 102.789 | 1.544 | 101791 | 2.32 | 100 | 102.8 | 90 | 110 | |
| Sb | 121 | 2 | He | 107.118 | 1.431 | 416870 | 1.49 | 100 | 107.1 | 90 | 110 | |
| Se | 78 | 2 | He | 95.348 | 3.006 | 8797 | 1.88 | 100 | 95.3 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1307816 | 4.68 | 1658792 | 78.84 | 70 | 125 | |
| In | 115 | 1 | nogas | 1198109 | 3.37 | 1398610 | 85.66 | 70 | 125 | |
| Li | 6 | 1 | nogas | 325354 | 1.96 | 581094 | 55.99 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 968446 | 4.63 | 1069547 | 90.55 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 677702 | 1.02 | 766661 | 88.40 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 161_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:30:24-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.041 | 38.2 | 67 | 34.6 | 1 | |
| B | 11 | 1 | nogas | 14.535 | 11.1 | 15774 | 8.7 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 345.533 | 5.4 | 3934962 | 0.8 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 11.719 | 19.4 | 63358 | 16.4 | 100 | |
| Al | 27 | 1 | nogas | -0.465 | -70.8 | 8117 | 29.8 | 5 | |
| P | 31 | 1 | nogas | -30.342 | -7.8 | 34079 | 2.2 | 10 | |
| K | 39 | 1 | nogas | -30.522 | -55.9 | 3263986 | 0.9 | 100 | |
| Ca | 43 | 1 | nogas | 12.361 | 77.0 | 943 | 11.3 | 100 | |
| Ca | 44 | 1 | nogas | 1615.511 | 6.0 | 491361 | 1.0 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.266 | 16.5 | 350 | 5.7 | 2.5 | |
| V | 51 | 1 | nogas | -0.809 | -38.0 | 29064 | 8.3 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.380 | -36.2 | 12354 | 5.9 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.355 | 35.7 | 15284 | 5.4 | 2.5 | |
| Fe | 56 | 1 | nogas | 6.522 | 125.1 | 781755 | 6.6 | 100 | |
| Co | 59 | 1 | nogas | 0.034 | 23.6 | 553 | 13.8 | 2.5 | |
| Ni | 60 | 1 | nogas | -6.889 | -1.3 | 2577 | 6.2 | 2.5 | |
| Cu | 63 | 1 | nogas | -5.800 | -0.6 | 3584 | 3.8 | 2 | |
| Zn | 66 | 1 | nogas | -0.825 | -4.3 | 470 | 14.7 | 2.5 | |
| As | 75 | 1 | nogas | -4.782 | -8.7 | 10447 | 5.8 | 2.5 | |
| Se | 77 | 1 | nogas | -32.713 | -9.6 | 3267 | 5.2 | 2.5 | |
| Se | 82 | 1 | nogas | -0.668 | -78.9 | 200 | 26.5 | 2 | |
| Sr | 88 | 1 | nogas | 0.342 | 21.5 | 4297 | 15.1 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.465 | -17.9 | 653 | 23.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.053 | 29.1 | 323 | 21.9 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.038 | 85.9 | 60 | 60.1 | 1 | |
| Sn | 118 | 1 | nogas | 0.258 | 9.1 | 1733 | 2.3 | 5 | |
| Sb | 121 | 1 | nogas | 0.133 | 27.1 | 1250 | 10.2 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.003 | 1472.1 | 173 | 37.5 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.328 | 64.1 | 2957 | 69.3 | 1 | |
| Pb | 208 | 1 | nogas | 0.063 | 47.2 | 590 | 38.5 | 2.5 | |
| U | 238 | 1 | nogas | 0.061 | 30.5 | 810 | 34.4 | 2.5 | |
| Si | 28 | 1 | nogas | -37.589 | -110.6 | 1079562 | 11.2 | 5 | |
| La | 139 | 1 | nogas | -2.610 | -1094.7 | 30 | 100.0 | 2.5 | |
| Au | 197 | 1 | nogas | 27.017 | 1350.7 | 10 | 173.2 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 295.709 | 3.3 | 553952 | 0.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 9.860 | 4.1 | 6858 | 3.2 | 100 | |
| Al | 27 | 2 | He | -1.945 | -6.4 | 423 | 13.0 | 5 | |
| K | 39 | 2 | He | -11.458 | -29.0 | 216468 | 0.8 | 100 | |
| Ca | 43 | 2 | He | 3.768 | 337.0 | 60 | 50.0 | 100 | |
| Ca | 44 | 2 | He | 165.870 | 3.6 | 8986 | 2.3 | 100 | CCB Main CR1 Failed |
| V | 51 | 2 | He | 0.108 | 4.1 | 1451 | 3.1 | 2.5 | |
| Cr | 52 | 2 | He | 0.075 | 79.5 | 4111 | 5.7 | 2.5 | |
| Mn | 55 | 2 | He | 0.500 | 18.6 | 3144 | 9.5 | 2.5 | |
| Fe | 56 | 2 | He | 4.549 | 6.5 | 35175 | 4.9 | 100 | |
| Co | 59 | 2 | He | 0.020 | 83.3 | 187 | 57.8 | 2.5 | |
| Ni | 60 | 2 | He | -6.201 | -0.5 | 1047 | 5.4 | 2.5 | |
| Cu | 63 | 2 | He | -4.343 | -1.9 | 1613 | 19.7 | 2 | |
| Zn | 66 | 2 | He | -0.564 | -5.9 | 173 | 20.3 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| As | 75 | 2 | He | -0.120 | -16.0 | 238 | 6.3 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.066 | 23.5 | 713 | 10.3 | 2.5 | |
| Se | 78 | 2 | He | -0.222 | -101.5 | 287 | 8.9 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1380753 | 3.72 | 1658792 | 83.24 | 70 | 125 | |
| In | 115 | 1 | nogas | 1149177 | 2.14 | 1398610 | 82.17 | 70 | 125 | |
| Li | 6 | 1 | nogas | 316387 | 1.11 | 581094 | 54.45 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 977378 | 6.23 | 1069547 | 91.38 | 70 | 125 | |
| Ge | 72 | 2 | He | 686853 | 1.89 | 766661 | 89.59 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120913-01 |
| Data File Name | 169SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:48:33-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.060 | 0.060 | 48.47 | 93 | 0.06 | 2000 | |
| B | 11 | 1 | nogas | 53.195 | 53.195 | 3.34 | 46265 | 0.11 | 2000 | |
| Na | 23 | 1 | nogas | 354521.904 | 354521.904 | 1.19 | 2716855527 | 0.01 | 200000 | >LDR |
| Mg | 24 | 1 | nogas | 57848.925 | 57848.925 | 4.50 | 301998307 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 59.442 | 59.442 | 3.27 | 480634 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 787.792 | 787.792 | 3.18 | 9057758 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 118486.581 | 118486.581 | 0.88 | 1627195 | 7.28 | 200000 | |
| Ca | 44 | 1 | nogas | 121753.676 | 121753.676 | 0.85 | 26870616 | 0.45 | 200000 | |
| Ti | 47 | 1 | nogas | 2.814 | 2.814 | 19.86 | 2167 | 0.13 | 2000 | |
| V | 51 | 1 | nogas | 0.219 | 0.219 | 93.12 | 37815 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 5.567 | 5.567 | 1.57 | 60290 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 257.693 | 257.693 | 4.47 | 2591094 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 275.444 | 275.444 | 4.87 | 2970445 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 0.700 | 0.700 | 3.76 | 6315 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 25.860 | 25.860 | 9.34 | 66025 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | -3.272 | -3.272 | -5.71 | 15464 | -0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 4.073 | 4.073 | 7.46 | 7568 | 0.05 | 2000 | |
| As | 75 | 1 | nogas | 4.608 | 4.608 | 5.10 | 26801 | 0.02 | 2000 | |
| Se | 77 | 1 | nogas | 28.633 | 28.633 | 20.75 | 8002 | 0.36 | 2000 | |
| Se | 82 | 1 | nogas | 1.234 | 1.234 | 49.57 | 357 | 0.35 | 2000 | |
| Sr | 88 | 1 | nogas | 3098.024 | 3098.024 | 2.16 | 32121100 | 0.01 | 2000 | >LDR |
| Mo | 95 | 1 | nogas | 0.306 | 0.306 | 37.78 | 2194 | 0.01 | 2000 | |
| Ag | 107 | 1 | nogas | 0.020 | 0.020 | 44.92 | 147 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 0.491 | 0.491 | 3.66 | 557 | 0.09 | 2000 | |
| Sn | 118 | 1 | nogas | -0.158 | -0.158 | -7.19 | 400 | -0.04 | 2000 | |
| Sb | 121 | 1 | nogas | 0.121 | 0.121 | 9.21 | 1140 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 33.170 | 33.170 | 8.38 | 52336 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 0.012 | 0.012 | 37.58 | 150 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 0.210 | 0.210 | 17.99 | 1503 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 2.237 | 2.237 | 14.07 | 27555 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 17440.581 | 17440.581 | 3.25 | 64690081 | 0.03 | 2000 | >LDR |
| La | 139 | 1 | nogas | 6294.439 | 6294.439 | 11.20 | 6638 | 94.82 | 2000 | >LDR |
| Au | 197 | 1 | nogas | 703.042 | 703.042 | 46.99 | 43 | 1622.41 | 2000 | |
| Na | 23 | 2 | He | 335472.539 | 335472.539 | 6.81 | 366121008 | 0.09 | 200000 | >LDR |
| Mg | 24 | 2 | He | 55959.028 | 55959.028 | 5.69 | 36033840 | 0.16 | 200000 | |
| Al | 27 | 2 | He | 61.004 | 61.004 | 5.94 | 30152 | 0.20 | 2000 | |
| K | 39 | 2 | He | 723.602 | 723.602 | 5.25 | 836326 | 0.09 | 200000 | |
| Ca | 43 | 2 | He | 112344.909 | 112344.909 | 10.39 | 254514 | 44.14 | 200000 | |
| Ca | 44 | 2 | He | 113215.782 | 113215.782 | 11.96 | 4236788 | 2.67 | 200000 | |
| V | 51 | 2 | He | 1.015 | 1.015 | 6.49 | 5391 | 0.02 | 2000 | |
| Cr | 52 | 2 | He | 6.223 | 6.223 | 2.60 | 32323 | 0.02 | 2000 | |
| Mn | 55 | 2 | He | 238.916 | 238.916 | 6.14 | 916485 | 0.03 | 2000 | |
| Fe | 56 | 2 | He | 248.851 | 248.851 | 10.69 | 1080294 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 0.514 | 0.514 | 8.25 | 3200 | 0.02 | 2000 | |

# Sample Report

| Ni | 60 | 2 | He | 23.279 | 23.279 | 16.13 | 43428 | 0.05 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -3.045 | -3.045 | -2.00 | 6335 | -0.05 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Zn | 66 | 2 | He | 3.929 | 3.929 | 6.95 | 4564 | 0.09 | 2000 | |
| As | 75 | 2 | He | 0.153 | 0.153 | 66.38 | 511 | 0.03 | 2000 | |
| Sb | 121 | 2 | He | 0.080 | 0.080 | 24.69 | 757 | 0.01 | 2000 | |
| Se | 78 | 2 | He | 0.384 | 0.384 | 141.66 | 337 | 0.11 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1314682 | 0.50 | 1658792 | 79.26 | 70 | 125 | |
| In | 115 | 1 | nogas | 1171308 | 6.95 | 1398610 | 83.75 | 70 | 125 | |
| Li | 6 | 1 | nogas | 310326 | 0.22 | 581094 | 53.40 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 994100 | 14.76 | 1069547 | 92.95 | 70 | 125 | |
| Ge | 72 | 2 | He | 680626 | 6.40 | 766661 | 88.78 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120913-02 |
| Data File Name | 170SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:50:50-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.051 | 0.051 | 35.12 | 80 | 0.06 | 2000 | |
| B | 11 | 1 | nogas | 46.970 | 46.970 | 8.22 | 41367 | 0.11 | 2000 | |
| Na | 23 | 1 | nogas | 358282.761 | 358282.761 | 3.23 | 2707756794 | 0.01 | 200000 | >LDR |
| Mg | 24 | 1 | nogas | 57400.501 | 57400.501 | 2.41 | 295460015 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 41.799 | 41.799 | 1.89 | 346766 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 724.852 | 724.852 | 9.55 | 8729615 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 111715.732 | 111715.732 | 4.94 | 1557613 | 7.17 | 200000 | |
| Ca | 44 | 1 | nogas | 114679.678 | 114679.678 | 3.69 | 25711433 | 0.45 | 200000 | |
| Ti | 47 | 1 | nogas | 2.124 | 2.124 | 6.10 | 1697 | 0.13 | 2000 | |
| V | 51 | 1 | nogas | 0.024 | 0.024 | 1116.95 | 36445 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 3.370 | 3.370 | 6.07 | 43013 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 250.613 | 250.613 | 1.48 | 2559393 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 219.340 | 219.340 | 6.39 | 2544114 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 0.655 | 0.655 | 6.67 | 6005 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 24.100 | 24.100 | 2.29 | 63593 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | -3.372 | -3.372 | -5.94 | 15220 | -0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 3.982 | 3.982 | 4.93 | 7555 | 0.05 | 2000 | |
| As | 75 | 1 | nogas | 4.288 | 4.288 | 7.78 | 26634 | 0.02 | 2000 | |
| Se | 77 | 1 | nogas | 25.982 | 25.982 | 8.52 | 7915 | 0.33 | 2000 | |
| Se | 82 | 1 | nogas | 1.139 | 1.139 | 34.14 | 353 | 0.32 | 2000 | |
| Sr | 88 | 1 | nogas | 2919.525 | 2919.525 | 4.50 | 30730315 | 0.01 | 2000 | >LDR |
| Mo | 95 | 1 | nogas | 0.123 | 0.123 | 11.79 | 1850 | 0.01 | 2000 | |
| Ag | 107 | 1 | nogas | 0.019 | 0.019 | 53.98 | 143 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 0.490 | 0.490 | 18.16 | 557 | 0.09 | 2000 | |
| Sn | 118 | 1 | nogas | -0.163 | -0.163 | -13.64 | 383 | -0.04 | 2000 | |
| Sb | 121 | 1 | nogas | 0.092 | 0.092 | 9.78 | 1020 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 32.530 | 32.530 | 4.05 | 51518 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 0.013 | 0.013 | 5.43 | 157 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 0.091 | 0.091 | 21.12 | 763 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 2.240 | 2.240 | 9.56 | 27775 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 17304.271 | 17304.271 | 1.79 | 65193106 | 0.03 | 2000 | >LDR |
| La | 139 | 1 | nogas | 5695.029 | 5695.029 | 2.28 | 6038 | 94.32 | 2000 | >LDR |
| Au | 197 | 1 | nogas | -125.229 | -125.229 | -80.82 | 3 | -3756.86 | 2000 | |
| Na | 23 | 2 | He | 323010.988 | 323010.988 | 5.10 | 361884368 | 0.09 | 200000 | >LDR |
| Mg | 24 | 2 | He | 53365.558 | 53365.558 | 2.34 | 35294154 | 0.15 | 200000 | |
| Al | 27 | 2 | He | 41.739 | 41.739 | 3.63 | 21580 | 0.19 | 2000 | |
| K | 39 | 2 | He | 683.850 | 683.850 | 5.76 | 823244 | 0.08 | 200000 | |
| Ca | 43 | 2 | He | 106062.716 | 106062.716 | 8.19 | 246771 | 42.98 | 200000 | |
| Ca | 44 | 2 | He | 108995.866 | 108995.866 | 8.23 | 4192769 | 2.60 | 200000 | |
| V | 51 | 2 | He | 0.853 | 0.853 | 5.29 | 4809 | 0.02 | 2000 | |
| Cr | 52 | 2 | He | 3.858 | 3.858 | 4.01 | 22004 | 0.02 | 2000 | |
| Mn | 55 | 2 | He | 224.072 | 224.072 | 6.48 | 882584 | 0.03 | 2000 | |
| Fe | 56 | 2 | He | 174.607 | 174.607 | 7.07 | 783713 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 0.448 | 0.448 | 8.09 | 2870 | 0.02 | 2000 | |
| Ni | 60 | 2 | He | 20.206 | 20.206 | 10.42 | 40113 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | -3.086 | -3.086 | -5.49 | 6331 | -0.05 | 2000 | |

# Sample Report

| Zn | 66 | 2 | He | 3.649 | 3.649 | 4.56 | 4404 | 0.08 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| As | 75 | 2 | He | 0.161 | 0.161 | 23.11 | 528 | 0.03 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Sb | 121 | 2 | He | 0.061 | 0.061 | 41.58 | 700 | 0.01 | 2000 | |
| Se | 78 | 2 | He | 0.160 | 0.160 | 143.75 | 327 | 0.05 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1335354 | 2.05 | 1658792 | 80.50 | 70 | 125 | |
| In | 115 | 1 | nogas | 1172044 | 2.95 | 1398610 | 83.80 | 70 | 125 | |
| Li | 6 | 1 | nogas | 311092 | 2.03 | 581094 | 53.54 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 993702 | 10.99 | 1069547 | 92.91 | 70 | 125 | |
| Ge | 72 | 2 | He | 697832 | 4.62 | 766661 | 91.02 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 172_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:55:24-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 122.849 | 5.400 | 184727 | 2.23 | 100 | 122.8 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 676.548 | 3.247 | 572198 | 0.02 | 500 | 135.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10644.303 | 2.644 | 81045181 | 1.15 | 10000 | 106.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10273.764 | 3.387 | 52445503 | 4.09 | 10000 | 102.7 | 90 | 110 | |
| Al | 27 | 1 | nogas | 83.116 | 6.952 | 710455 | 3.20 | 100 | 83.1 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 426.842 | 6.053 | 309106 | 1.53 | 500 | 85.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 8741.546 | 3.313 | 71236662 | 2.22 | 10000 | 87.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 8857.642 | 7.231 | 130167 | 3.38 | 10000 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 1 | nogas | 11348.819 | 5.470 | 2776212 | 1.27 | 10000 | 113.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ti | 47 | 1 | nogas | 89.710 | 5.662 | 68892 | 2.11 | 100 | 89.7 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 1 | nogas | 90.989 | 6.487 | 988452 | 2.96 | 100 | 91.0 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 93.075 | 4.008 | 824380 | 1.07 | 100 | 93.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 94.812 | 6.830 | 1022034 | 2.68 | 100 | 94.8 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9696.836 | 7.784 | 86094519 | 3.65 | 10000 | 97.0 | 90 | 110 | |
| Co | 59 | 1 | nogas | 93.712 | 6.192 | 866112 | 3.01 | 100 | 93.7 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 89.249 | 6.401 | 201376 | 3.84 | 100 | 89.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Cu | 63 | 1 | nogas | 86.152 | 5.474 | 470339 | 1.08 | 100 | 86.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Zn | 66 | 1 | nogas | 97.113 | 5.191 | 152075 | 1.30 | 100 | 97.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 97.439 | 4.968 | 205899 | 2.10 | 100 | 97.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 59.729 | 7.994 | 11164 | 2.87 | 100 | 59.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 103.144 | 8.034 | 9896 | 3.88 | 100 | 103.1 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 100.933 | 6.066 | 1114725 | 2.76 | 100 | 100.9 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 99.936 | 6.263 | 218242 | 3.10 | 100 | 99.9 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 105.060 | 5.900 | 560626 | 2.09 | 100 | 105.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 104.074 | 4.324 | 117641 | 1.48 | 100 | 104.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 100.345 | 2.503 | 341400 | 2.72 | 100 | 100.3 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 108.870 | 5.207 | 536658 | 2.35 | 100 | 108.9 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 103.612 | 3.936 | 169179 | 2.45 | 100 | 103.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 94.195 | 7.547 | 869462 | 1.86 | 100 | 94.2 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 98.372 | 8.305 | 656270 | 2.49 | 100 | 98.4 | 90 | 110 | |
| U | 238 | 1 | nogas | 93.223 | 7.977 | 1216447 | 2.20 | 100 | 93.2 | 90 | 110 | |
| Li | 7 | 1 | nogas | 112.759 | 3.395 | 400430 | 0.79 | 100 | 112.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 2585.046 | 5.829 | 11269230 | 1.62 | 5000 | 51.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 100.183 | 3.799 | 98371 | 3.30 | 100 | 100.2 | 90 | 110 | |
| La | 139 | 1 | nogas | 163.553 | 22.185 | 213 | 21.14 | 100 | 163.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 185.831 | 89.216 | 20 | 50.00 | 100 | 185.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 98.476 | 7.500 | 371425 | 2.48 | 100 | 98.5 | 90 | 110 | |
| Na | 23 | 2 | He | 8959.565 | 1.688 | 10301960 | 2.48 | 10000 | 89.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Mg | 24 | 2 | He | 8644.054 | 2.964 | 5732620 | 3.52 | 10000 | 86.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Al | 27 | 2 | He | 81.471 | 0.387 | 40917 | 1.30 | 100 | 81.5 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 8774.999 | 1.671 | 7873045 | 1.18 | 10000 | 87.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 8968.580 | 4.113 | 20999 | 2.65 | 10000 | 89.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 9018.993 | 5.416 | 350891 | 3.96 | 10000 | 90.2 | 90 | 110 | |
| V | 51 | 2 | He | 93.109 | 0.318 | 419306 | 1.49 | 100 | 93.1 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.208 | 0.225 | 448839 | 1.48 | 100 | 94.2 | 90 | 110 | |
| Mn | 55 | 2 | He | 93.952 | 2.657 | 371965 | 1.26 | 100 | 94.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 9259.048 | 3.754 | 40906024 | 2.35 | 10000 | 92.6 | 90 | 110 | |
| Co | 59 | 2 | He | 89.140 | 4.522 | 561325 | 3.10 | 100 | 89.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ni | 60 | 2 | He | 88.644 | 4.035 | 141927 | 2.35 | 100 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Cu | 63 | 2 | He | 90.276 | 2.297 | 357161 | 1.65 | 100 | 90.3 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.254 | 1.531 | 99697 | 2.68 | 100 | 98.3 | 90 | 110 | |
| As | 75 | 2 | He | 99.083 | 3.536 | 101236 | 2.20 | 100 | 99.1 | 90 | 110 | |
| Sb | 121 | 2 | He | 102.338 | 3.921 | 410893 | 2.46 | 100 | 102.3 | 90 | 110 | |
| Se | 78 | 2 | He | 93.811 | 2.540 | 8937 | 1.18 | 100 | 93.8 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1401754 | 4.09 | 1658792 | 84.50 | 70 | 125 | |
| In | 115 | 1 | nogas | 1210986 | 2.94 | 1398610 | 86.58 | 70 | 125 | |
| Li | 6 | 1 | nogas | 327352 | 3.22 | 581094 | 56.33 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1043892 | 6.11 | 1069547 | 97.60 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 699398 | 1.49 | 766661 | 91.23 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 173_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T21:57:38-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.066 | 72.4 | 107 | 66.5 | 1 | |
| B | 11 | 1 | nogas | 18.703 | 15.9 | 19891 | 11.3 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 267.396 | 2.8 | 3475155 | 0.6 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 7.178 | 18.1 | 41860 | 15.1 | 100 | |
| Al | 27 | 1 | nogas | -0.674 | -1.4 | 6398 | 0.9 | 5 | |
| P | 31 | 1 | nogas | -23.246 | -4.7 | 38080 | 1.0 | 10 | |
| K | 39 | 1 | nogas | -17.377 | -64.3 | 3347072 | 1.9 | 100 | |
| Ca | 43 | 1 | nogas | 12.231 | 96.4 | 940 | 18.8 | 100 | |
| Ca | 44 | 1 | nogas | 1697.463 | 1.8 | 507753 | 0.7 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.250 | 22.8 | 337 | 12.0 | 2.5 | |
| V | 51 | 1 | nogas | -0.481 | -44.7 | 32336 | 7.8 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.428 | -10.4 | 11897 | 3.3 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.168 | 30.9 | 13269 | 3.2 | 2.5 | |
| Fe | 56 | 1 | nogas | 5.494 | 72.7 | 769325 | 3.5 | 100 | |
| Co | 59 | 1 | nogas | 0.040 | 30.5 | 607 | 17.5 | 2.5 | |
| Ni | 60 | 1 | nogas | -7.141 | -0.8 | 2053 | 5.0 | 2.5 | |
| Cu | 63 | 1 | nogas | -6.014 | -0.5 | 2500 | 6.0 | 2 | |
| Zn | 66 | 1 | nogas | -0.846 | -6.7 | 433 | 19.4 | 2.5 | |
| As | 75 | 1 | nogas | -4.864 | -2.5 | 10243 | 2.3 | 2.5 | |
| Se | 77 | 1 | nogas | -35.318 | -6.0 | 3037 | 6.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.500 | -35.2 | 213 | 7.2 | 2 | |
| Sr | 88 | 1 | nogas | 0.149 | 7.5 | 2207 | 4.6 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.439 | -25.9 | 707 | 33.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.038 | 23.4 | 243 | 19.4 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.057 | 23.1 | 90 | 19.2 | 1 | |
| Sn | 118 | 1 | nogas | 0.200 | 25.1 | 1733 | 8.7 | 5 | |
| Sb | 121 | 1 | nogas | 0.132 | 21.5 | 1243 | 10.1 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.015 | -300.2 | 163 | 46.0 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.296 | 62.3 | 2867 | 69.6 | 1 | |
| Pb | 208 | 1 | nogas | 0.062 | 42.0 | 617 | 29.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.053 | 27.6 | 757 | 33.2 | 2.5 | |
| Si | 28 | 1 | nogas | -70.357 | -6.6 | 951962 | 0.9 | 5 | |
| La | 139 | 1 | nogas | 0.353 | 7690.7 | 37 | 83.3 | 2.5 | |
| Au | 197 | 1 | nogas | -118.868 | -94.4 | 3 | 173.2 | 2.5 | |
| Na | 23 | 2 | He | 244.401 | 4.6 | 498143 | 0.7 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 5.599 | 10.5 | 4087 | 7.2 | 100 | |
| Al | 27 | 2 | He | -2.040 | -8.1 | 380 | 22.5 | 5 | |
| K | 39 | 2 | He | -10.659 | -29.4 | 217539 | 1.8 | 100 | |
| Ca | 43 | 2 | He | 12.342 | 98.5 | 80 | 37.5 | 100 | |
| Ca | 44 | 2 | He | 157.106 | 3.2 | 8669 | 2.7 | 100 | CCB Main CR1 Failed |
| V | 51 | 2 | He | 0.136 | 11.5 | 1577 | 3.8 | 2.5 | |
| Cr | 52 | 2 | He | 0.024 | 136.1 | 3880 | 2.2 | 2.5 | |
| Mn | 55 | 2 | He | 0.287 | 11.1 | 2327 | 5.8 | 2.5 | |
| Fe | 56 | 2 | He | 3.016 | 3.5 | 28570 | 3.2 | 100 | |
| Co | 59 | 2 | He | 0.024 | 49.1 | 210 | 34.3 | 2.5 | |
| Ni | 60 | 2 | He | -6.277 | -0.7 | 937 | 6.2 | 2.5 | |
| Cu | 63 | 2 | He | -4.450 | -0.5 | 1217 | 4.5 | 2 | |
| Zn | 66 | 2 | He | -0.558 | -18.8 | 180 | 58.8 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| As | 75 | 2 | He | -0.138 | -6.3 | 221 | 3.5 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.060 | 44.3 | 690 | 17.6 | 2.5 | |
| Se | 78 | 2 | He | 0.698 | 82.9 | 370 | 11.7 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1372582 | 1.02 | 1658792 | 82.75 | 70 | 125 | |
| In | 115 | 1 | nogas | 1288548 | 1.82 | 1398610 | 92.13 | 70 | 125 | |
| Li | 6 | 1 | nogas | 328928 | 1.39 | 581094 | 56.60 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1040196 | 7.92 | 1069547 | 97.26 | 70 | 125 | |
| Ge | 72 | 2 | He | 688111 | 2.78 | 766661 | 89.75 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120913-04 |
| Data File Name | 175SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:08:05-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.119 | 0.119 | 30.96 | 183 | 0.07 | 2000 | |
| B | 11 | 1 | nogas | 177.674 | 177.674 | 6.71 | 150666 | 0.12 | 2000 | |
| Na | 23 | 1 | nogas | 75778.628 | 75778.628 | 10.01 | 583663996 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 24037.580 | 24037.580 | 7.05 | 126083840 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 12.613 | 12.613 | 0.74 | 116661 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 2706.971 | 2706.971 | 10.74 | 24124880 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 42364.365 | 42364.365 | 6.55 | 610960 | 6.93 | 200000 | |
| Ca | 44 | 1 | nogas | 44537.842 | 44537.842 | 5.96 | 10397564 | 0.43 | 200000 | |
| Ti | 47 | 1 | nogas | 1.717 | 1.717 | 15.60 | 1453 | 0.12 | 2000 | |
| V | 51 | 1 | nogas | -0.996 | -0.996 | -9.67 | 27226 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 0.274 | 0.274 | 38.61 | 17976 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 67.597 | 67.597 | 6.22 | 721821 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 10761.511 | 10761.511 | 5.72 | 94173738 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 0.084 | 0.084 | 33.13 | 1010 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | -5.330 | -5.330 | -4.38 | 5751 | -0.09 | 2000 | |
| Cu | 63 | 1 | nogas | -5.381 | -5.381 | -1.99 | 5678 | -0.09 | 2000 | |
| Zn | 66 | 1 | nogas | 0.656 | 0.656 | 6.49 | 2734 | 0.02 | 2000 | |
| As | 75 | 1 | nogas | -3.634 | -3.634 | -14.34 | 12608 | -0.03 | 2000 | |
| Se | 77 | 1 | nogas | -24.909 | -24.909 | -8.56 | 3924 | -0.63 | 2000 | |
| Se | 82 | 1 | nogas | -0.571 | -0.571 | -137.61 | 207 | -0.28 | 2000 | |
| Sr | 88 | 1 | nogas | 1653.872 | 1653.872 | 5.03 | 18001008 | 0.01 | 2000 | |
| Mo | 95 | 1 | nogas | -0.451 | -0.451 | -11.22 | 687 | -0.07 | 2000 | |
| Ag | 107 | 1 | nogas | 0.007 | 0.007 | 30.86 | 87 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 0.052 | 0.052 | 57.07 | 83 | 0.06 | 2000 | |
| Sn | 118 | 1 | nogas | -0.133 | -0.133 | -3.57 | 533 | -0.02 | 2000 | |
| Sb | 121 | 1 | nogas | 0.021 | 0.021 | 123.69 | 710 | 0.00 | 2000 | |
| Ba | 137 | 1 | nogas | 358.887 | 358.887 | 0.89 | 623555 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 0.001 | 0.001 | 107.21 | 60 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 0.056 | 0.056 | 30.25 | 590 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 0.009 | 0.009 | 68.01 | 180 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 12964.675 | 12964.675 | 3.68 | 50816401 | 0.03 | 2000 | >LDR |
| La | 139 | 1 | nogas | 706.033 | 706.033 | 20.32 | 857 | 82.41 | 2000 | |
| Au | 197 | 1 | nogas | 125.592 | 125.592 | 323.53 | 17 | 753.55 | 2000 | |
| Na | 23 | 2 | He | 66701.797 | 66701.797 | 4.10 | 76167436 | 0.09 | 200000 | |
| Mg | 24 | 2 | He | 21687.305 | 21687.305 | 2.57 | 14568422 | 0.15 | 200000 | |
| Al | 27 | 2 | He | 11.916 | 11.916 | 1.70 | 7255 | 0.16 | 2000 | |
| K | 39 | 2 | He | 2594.706 | 2594.706 | 2.00 | 2524078 | 0.10 | 200000 | |
| Ca | 43 | 2 | He | 41189.448 | 41189.448 | 1.54 | 97562 | 42.22 | 200000 | |
| Ca | 44 | 2 | He | 42849.736 | 42849.736 | 0.59 | 1679612 | 2.55 | 200000 | |
| V | 51 | 2 | He | 0.104 | 0.104 | 14.88 | 1480 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | 0.831 | 0.831 | 6.17 | 7855 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 65.872 | 65.872 | 1.55 | 264681 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 10146.730 | 10146.730 | 1.35 | 45432076 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 0.053 | 0.053 | 12.42 | 397 | 0.01 | 2000 | |

# Sample Report

| Ni | 60 | 2 | He | -5.004 | -5.004 | -3.47 | 2880 | -0.17 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -4.044 | -4.044 | -0.68 | 2800 | -0.14 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Zn | 66 | 2 | He | 0.953 | 0.953 | 5.61 | 1727 | 0.06 | 2000 | |
| As | 75 | 2 | He | 0.056 | 0.056 | 58.55 | 428 | 0.01 | 2000 | |
| Sb | 121 | 2 | He | 0.046 | 0.046 | 70.73 | 650 | 0.01 | 2000 | |
| Se | 78 | 2 | He | 0.313 | 0.313 | 88.62 | 346 | 0.09 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1381795 | 3.89 | 1658792 | 83.30 | 70 | 125 | |
| In | 115 | 1 | nogas | 1288786 | 1.10 | 1398610 | 92.15 | 70 | 125 | |
| Li | 6 | 1 | nogas | 321914 | 3.00 | 581094 | 55.40 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1088039 | 11.93 | 1069547 | 101.73 | 70 | 125 | |
| Ge | 72 | 2 | He | 708687 | 1.59 | 766661 | 92.44 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120913-04SD |
| Data File Name | 176SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:10:19-06:00 |
| Sample Type | Sample |
| Dilution | 5 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.050 | 0.248 | 71.24 | 80 | 0.06 | 2000 | |
| B | 11 | 1 | nogas | 43.009 | 215.044 | 3.90 | 38982 | 0.11 | 2000 | |
| Na | 23 | 1 | nogas | 15637.323 | 78186.615 | 0.34 | 118174457 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 5138.361 | 25691.804 | 1.66 | 26164067 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 3.101 | 15.506 | 6.75 | 36942 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 502.738 | 2513.688 | 6.29 | 7177250 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 8422.652 | 42113.262 | 0.40 | 119567 | 7.04 | 200000 | |
| Ca | 44 | 1 | nogas | 11018.834 | 55094.170 | 0.73 | 2605295 | 0.42 | 200000 | |
| Ti | 47 | 1 | nogas | 0.405 | 2.024 | 19.62 | 447 | 0.09 | 2000 | |
| V | 51 | 1 | nogas | -0.511 | -2.556 | -38.10 | 31502 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | -0.377 | -1.885 | -8.57 | 12141 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 14.475 | 72.377 | 1.76 | 160290 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 2299.767 | 11498.837 | 1.33 | 20266282 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 0.017 | 0.083 | 38.34 | 390 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | -6.962 | -34.808 | -1.19 | 2380 | -0.29 | 2000 | |
| Cu | 63 | 1 | nogas | -5.938 | -29.690 | -0.39 | 2834 | -0.21 | 2000 | |
| Zn | 66 | 1 | nogas | -0.004 | -0.020 | -3835.99 | 1687 | 0.00 | 2000 | |
| As | 75 | 1 | nogas | -4.859 | -24.295 | -6.77 | 10096 | -0.05 | 2000 | |
| Se | 77 | 1 | nogas | -31.009 | -155.045 | -6.30 | 3340 | -0.93 | 2000 | |
| Se | 82 | 1 | nogas | -0.502 | -2.509 | -37.52 | 210 | -0.24 | 2000 | |
| Sr | 88 | 1 | nogas | 341.787 | 1708.934 | 1.28 | 3642671 | 0.01 | 2000 | |
| Mo | 95 | 1 | nogas | -0.540 | -2.698 | -1.33 | 487 | -0.11 | 2000 | |
| Ag | 107 | 1 | nogas | 0.003 | 0.014 | 307.70 | 60 | 0.00 | 2000 | |
| Cd | 111 | 1 | nogas | 0.000 | -0.001 | -5730.02 | 20 | 0.00 | 2000 | |
| Sn | 118 | 1 | nogas | -0.139 | -0.696 | -5.91 | 487 | -0.03 | 2000 | |
| Sb | 121 | 1 | nogas | -0.071 | -0.357 | -7.75 | 257 | -0.03 | 2000 | |
| Ba | 137 | 1 | nogas | 75.439 | 377.194 | 0.57 | 125420 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | -0.002 | -0.010 | -118.34 | 27 | -0.01 | 2000 | |
| Pb | 208 | 1 | nogas | -0.001 | -0.005 | -599.72 | 193 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 0.000 | -0.001 | -407.63 | 53 | 0.00 | 2000 | |
| Si | 28 | 1 | nogas | 2673.422 | 13367.108 | 1.43 | 11208914 | 0.02 | 2000 | >LDR |
| La | 139 | 1 | nogas | 164.138 | 820.691 | 15.35 | 217 | 75.75 | 2000 | |
| Au | 197 | 1 | nogas | -53.826 | -269.131 | -417.79 | 7 | -807.39 | 2000 | |
| Na | 23 | 2 | He | 14430.646 | 72153.230 | 5.35 | 16436145 | 0.09 | 200000 | |
| Mg | 24 | 2 | He | 4680.467 | 23402.334 | 3.35 | 3104321 | 0.15 | 200000 | |
| Al | 27 | 2 | He | 1.973 | 9.864 | 25.19 | 2327 | 0.08 | 2000 | |
| K | 39 | 2 | He | 487.944 | 2439.718 | 6.75 | 655290 | 0.07 | 200000 | |
| Ca | 43 | 2 | He | 8319.505 | 41597.524 | 8.10 | 19454 | 42.76 | 200000 | |
| Ca | 44 | 2 | He | 8520.300 | 42601.502 | 9.03 | 331103 | 2.57 | 200000 | |
| V | 51 | 2 | He | 0.105 | 0.526 | 15.68 | 1464 | 0.01 | 2000 | |
| Cr | 52 | 2 | He | 0.162 | 0.811 | 65.15 | 4584 | 0.00 | 2000 | |
| Mn | 55 | 2 | He | 13.224 | 66.120 | 5.46 | 53412 | 0.02 | 2000 | |
| Fe | 56 | 2 | He | 2020.124 | 10100.619 | 7.38 | 8938489 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 0.004 | 0.021 | 67.14 | 87 | 0.00 | 2000 | |

# Sample Report

| Ni | 60 | 2 | He | -6.118 | -30.591 | -0.77 | 1187 | -0.52 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | -4.395 | -21.976 | -0.99 | 1440 | -0.31 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Zn | 66 | 2 | He | 0.387 | 1.935 | 17.89 | 1137 | 0.03 | 2000 | |
| As | 75 | 2 | He | -0.131 | -0.654 | -21.82 | 231 | -0.06 | 2000 | |
| Sb | 121 | 2 | He | -0.050 | -0.249 | -39.48 | 257 | -0.02 | 2000 | |
| Se | 78 | 2 | He | 0.320 | 1.598 | 174.22 | 342 | 0.09 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1351073 | 1.47 | 1658792 | 81.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 1231882 | 2.31 | 1398610 | 88.08 | 70 | 125 | |
| Li | 6 | 1 | nogas | 317309 | 2.84 | 581094 | 54.61 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1038437 | 6.52 | 1069547 | 97.09 | 70 | 125 | |
| Ge | 72 | 2 | He | 700100 | 5.42 | 766661 | 91.32 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120913-04MS |
| Data File Name | 177SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:12:33-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 62.400 | 62.400 | 4.37 | 94685 | 0.07 | 2000 | |
| B | 11 | 1 | nogas | 827.938 | 827.938 | 5.65 | 705173 | 0.12 | 2000 | |
| Na | 23 | 1 | nogas | 82897.367 | 82897.367 | 9.30 | 644765781 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 30252.373 | 30252.373 | 6.71 | 160165058 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 84.291 | 84.291 | 5.18 | 723555 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 7049.223 | 7049.223 | 4.07 | 58328080 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 46419.110 | 46419.110 | 0.74 | 682303 | 6.80 | 200000 | |
| Ca | 44 | 1 | nogas | 49558.935 | 49558.935 | 1.26 | 11773316 | 0.42 | 200000 | |
| Ti | 47 | 1 | nogas | 136.301 | 136.301 | 2.64 | 105049 | 0.13 | 2000 | |
| V | 51 | 1 | nogas | 43.984 | 43.984 | 5.65 | 499477 | 0.01 | 2000 | |
| Cr | 52 | 1 | nogas | 45.264 | 45.264 | 7.59 | 410427 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 112.790 | 112.790 | 3.84 | 1219709 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 15560.212 | 15560.212 | 5.33 | 138404228 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 46.298 | 46.298 | 1.49 | 430014 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 42.927 | 42.927 | 2.10 | 106050 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 41.495 | 41.495 | 6.95 | 244584 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 49.060 | 49.060 | 4.93 | 78002 | 0.06 | 2000 | |
| As | 75 | 1 | nogas | 46.355 | 46.355 | 3.18 | 108731 | 0.04 | 2000 | |
| Se | 77 | 1 | nogas | 21.492 | 21.492 | 4.23 | 7952 | 0.27 | 2000 | |
| Se | 82 | 1 | nogas | 49.675 | 49.675 | 3.48 | 4927 | 1.01 | 2000 | |
| Sr | 88 | 1 | nogas | 1761.468 | 1761.468 | 1.23 | 19533465 | 0.01 | 2000 | |
| Mo | 95 | 1 | nogas | 50.530 | 50.530 | 1.39 | 111725 | 0.05 | 2000 | |
| Ag | 107 | 1 | nogas | 51.544 | 51.544 | 2.95 | 276286 | 0.02 | 2000 | |
| Cd | 111 | 1 | nogas | 51.205 | 51.205 | 5.85 | 58592 | 0.09 | 2000 | |
| Sn | 118 | 1 | nogas | 98.259 | 98.259 | 1.15 | 338193 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 54.122 | 54.122 | 4.03 | 268146 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 449.218 | 449.218 | 2.10 | 741574 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 47.325 | 47.325 | 8.93 | 425012 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 49.050 | 49.050 | 12.01 | 318058 | 0.02 | 2000 | |
| U | 238 | 1 | nogas | 92.583 | 92.583 | 7.02 | 1176661 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 13741.680 | 13741.680 | 2.67 | 54775648 | 0.03 | 2000 | >LDR |
| La | 139 | 1 | nogas | 712.996 | 712.996 | 19.40 | 820 | 86.95 | 2000 | |
| Au | 197 | 1 | nogas | -183.660 | -183.660 | 0.00 | 0 | #DIV/0! | 2000 | |
| Na | 23 | 2 | He | 73307.634 | 73307.634 | 4.71 | 82532132 | 0.09 | 200000 | |
| Mg | 24 | 2 | He | 26539.122 | 26539.122 | 3.87 | 17585728 | 0.15 | 200000 | |
| Al | 27 | 2 | He | 87.140 | 87.140 | 3.00 | 43647 | 0.20 | 2000 | |
| K | 39 | 2 | He | 7065.878 | 7065.878 | 1.86 | 6384580 | 0.11 | 200000 | |
| Ca | 43 | 2 | He | 49817.215 | 49817.215 | 3.06 | 116442 | 42.78 | 200000 | |
| Ca | 44 | 2 | He | 51047.903 | 51047.903 | 2.59 | 1973718 | 2.59 | 200000 | |
| V | 51 | 2 | He | 47.175 | 47.175 | 5.98 | 212607 | 0.02 | 2000 | |
| Cr | 52 | 2 | He | 49.111 | 49.111 | 3.35 | 235692 | 0.02 | 2000 | |
| Mn | 55 | 2 | He | 113.511 | 113.511 | 4.98 | 448710 | 0.03 | 2000 | |
| Fe | 56 | 2 | He | 15074.048 | 15074.048 | 5.26 | 66523472 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 45.601 | 45.601 | 5.46 | 286925 | 0.02 | 2000 | |

# Sample Report

| Ni | 60 | 2 | He | 43.102 | 43.102 | 7.72 | 74183 | 0.06 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | 43.682 | 43.682 | 9.85 | 181659 | 0.02 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Zn | 66 | 2 | He | 48.532 | 48.532 | 4.67 | 49564 | 0.10 | 2000 | |
| As | 75 | 2 | He | 50.792 | 50.792 | 2.10 | 52078 | 0.10 | 2000 | |
| Sb | 121 | 2 | He | 53.230 | 53.230 | 3.71 | 213857 | 0.02 | 2000 | |
| Se | 78 | 2 | He | 48.528 | 48.528 | 9.36 | 4765 | 1.02 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1406287 | 2.43 | 1658792 | 84.78 | 70 | 125 | |
| In | 115 | 1 | nogas | 1224703 | 0.69 | 1398610 | 87.57 | 70 | 125 | |
| Li | 6 | 1 | nogas | 330182 | 2.58 | 581094 | 56.82 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1016987 | 7.48 | 1069547 | 95.09 | 70 | 125 | |
| Ge | 72 | 2 | He | 699708 | 5.01 | 766661 | 91.27 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120913-04MSD |
| Data File Name | 178SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:14:49-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 60.626 | 60.626 | 3.79 | 90363 | 0.07 | 2000 | |
| B | 11 | 1 | nogas | 811.535 | 811.535 | 1.45 | 679253 | 0.12 | 2000 | |
| Na | 23 | 1 | nogas | 78343.385 | 78343.385 | 1.99 | 619112147 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 27587.837 | 27587.837 | 0.80 | 148300866 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 81.198 | 81.198 | 3.62 | 676188 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 7369.425 | 7369.425 | 4.92 | 58945285 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 47314.579 | 47314.579 | 4.93 | 673527 | 7.02 | 200000 | |
| Ca | 44 | 1 | nogas | 50089.593 | 50089.593 | 6.99 | 11513645 | 0.44 | 200000 | |
| Ti | 47 | 1 | nogas | 134.119 | 134.119 | 5.38 | 100122 | 0.13 | 2000 | |
| V | 51 | 1 | nogas | 42.837 | 42.837 | 8.00 | 472161 | 0.01 | 2000 | |
| Cr | 52 | 1 | nogas | 44.237 | 44.237 | 7.80 | 388890 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 113.351 | 113.351 | 6.65 | 1187155 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 15339.172 | 15339.172 | 6.01 | 132135861 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 47.021 | 47.021 | 6.32 | 422790 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 42.654 | 42.654 | 6.22 | 102178 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 42.141 | 42.141 | 7.44 | 240173 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 48.703 | 48.703 | 3.14 | 75084 | 0.06 | 2000 | |
| As | 75 | 1 | nogas | 45.514 | 45.514 | 5.45 | 103802 | 0.04 | 2000 | |
| Se | 77 | 1 | nogas | 19.928 | 19.928 | 26.37 | 7568 | 0.26 | 2000 | |
| Se | 82 | 1 | nogas | 52.352 | 52.352 | 2.34 | 5021 | 1.04 | 2000 | |
| Sr | 88 | 1 | nogas | 1802.866 | 1802.866 | 5.25 | 19361786 | 0.01 | 2000 | >LDR |
| Mo | 95 | 1 | nogas | 51.964 | 51.964 | 5.59 | 111193 | 0.05 | 2000 | |
| Ag | 107 | 1 | nogas | 50.836 | 50.836 | 6.05 | 263979 | 0.02 | 2000 | |
| Cd | 111 | 1 | nogas | 48.976 | 48.976 | 3.19 | 56389 | 0.09 | 2000 | |
| Sn | 118 | 1 | nogas | 97.500 | 97.500 | 4.38 | 337539 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 54.179 | 54.179 | 5.26 | 260066 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 428.783 | 428.783 | 3.00 | 712176 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 44.048 | 44.048 | 10.04 | 404193 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 46.326 | 46.326 | 12.53 | 306748 | 0.02 | 2000 | |
| U | 238 | 1 | nogas | 90.178 | 90.178 | 8.73 | 1170239 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 13307.085 | 13307.085 | 4.71 | 51430468 | 0.03 | 2000 | >LDR |
| La | 139 | 1 | nogas | 552.126 | 552.126 | 18.74 | 647 | 85.38 | 2000 | |
| Au | 197 | 1 | nogas | 10.535 | 10.535 | 3192.84 | 10 | 105.35 | 2000 | |
| Na | 23 | 2 | He | 72162.881 | 72162.881 | 8.10 | 79415125 | 0.09 | 200000 | |
| Mg | 24 | 2 | He | 26177.343 | 26177.343 | 6.27 | 16954684 | 0.15 | 200000 | |
| Al | 27 | 2 | He | 82.934 | 82.934 | 3.49 | 40684 | 0.20 | 2000 | |
| K | 39 | 2 | He | 6804.061 | 6804.061 | 3.89 | 6017752 | 0.11 | 200000 | |
| Ca | 43 | 2 | He | 47768.907 | 47768.907 | 6.41 | 109069 | 43.80 | 200000 | |
| Ca | 44 | 2 | He | 50109.463 | 50109.463 | 8.42 | 1891680 | 2.65 | 200000 | |
| V | 51 | 2 | He | 47.204 | 47.204 | 5.06 | 208262 | 0.02 | 2000 | |
| Cr | 52 | 2 | He | 46.756 | 46.756 | 2.39 | 219655 | 0.02 | 2000 | |
| Mn | 55 | 2 | He | 108.353 | 108.353 | 5.00 | 419032 | 0.03 | 2000 | |
| Fe | 56 | 2 | He | 14444.343 | 14444.343 | 5.01 | 62359306 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 44.433 | 44.433 | 5.28 | 273464 | 0.02 | 2000 | |

# Sample Report

| Ni | 60 | 2 | He | 41.572 | 41.572 | 8.84 | 70349 | 0.06 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | 43.539 | 43.539 | 7.61 | 177347 | 0.02 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Zn | 66 | 2 | He | 50.217 | 50.217 | 5.82 | 50136 | 0.10 | 2000 | |
| As | 75 | 2 | He | 48.892 | 48.892 | 3.78 | 49026 | 0.10 | 2000 | |
| Sb | 121 | 2 | He | 52.731 | 52.731 | 3.50 | 207203 | 0.03 | 2000 | |
| Se | 78 | 2 | He | 50.137 | 50.137 | 7.88 | 4807 | 1.04 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1363726 | 4.41 | 1658792 | 82.21 | 70 | 125 | |
| In | 115 | 1 | nogas | 1232619 | 2.23 | 1398610 | 88.13 | 70 | 125 | |
| Li | 6 | 1 | nogas | 324140 | 0.57 | 581094 | 55.78 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1040279 | 9.24 | 1069547 | 97.26 | 70 | 125 | |
| Ge | 72 | 2 | He | 684117 | 3.93 | 766661 | 89.23 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS18120913-04PDS |
| Data File Name | 179SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:17:03-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | TW B 135804 |
| ISTD Ref FileName | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 133.450 | 133.450 | 1.00 | 189925 | 0.07 | 2000 | |
| B | 11 | 1 | nogas | 188.642 | 188.642 | 4.77 | 153653 | 0.12 | 2000 | |
| Na | 23 | 1 | nogas | 82271.573 | 82271.573 | 4.69 | 637646864 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 33102.086 | 33102.086 | 1.67 | 174611216 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 93.023 | 93.023 | 6.06 | 756482 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 12285.535 | 12285.535 | 9.01 | 93777856 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 52350.050 | 52350.050 | 7.09 | 728601 | 7.19 | 200000 | |
| Ca | 44 | 1 | nogas | 55287.415 | 55287.415 | 6.08 | 12425810 | 0.44 | 200000 | |
| Ti | 47 | 1 | nogas | 95.542 | 95.542 | 1.73 | 69908 | 0.14 | 2000 | |
| V | 51 | 1 | nogas | 93.013 | 93.013 | 1.61 | 962684 | 0.01 | 2000 | |
| Cr | 52 | 1 | nogas | 96.891 | 96.891 | 1.68 | 816740 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 174.411 | 174.411 | 5.70 | 1780711 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 22167.105 | 22167.105 | 4.89 | 186583492 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 102.722 | 102.722 | 9.97 | 902584 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 97.233 | 97.233 | 11.12 | 207070 | 0.05 | 2000 | |
| Cu | 63 | 1 | nogas | 94.760 | 94.760 | 6.26 | 489285 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 104.853 | 104.853 | 4.91 | 156184 | 0.07 | 2000 | |
| As | 75 | 1 | nogas | 104.871 | 104.871 | 4.86 | 209490 | 0.05 | 2000 | |
| Se | 77 | 1 | nogas | 76.760 | 76.760 | 24.30 | 11971 | 0.64 | 2000 | |
| Se | 82 | 1 | nogas | 115.926 | 115.926 | 9.83 | 10550 | 1.10 | 2000 | |
| Sr | 88 | 1 | nogas | 1707.274 | 1707.274 | 8.47 | 17924506 | 0.01 | 2000 | |
| Mo | 95 | 1 | nogas | 109.903 | 109.903 | 5.17 | 228368 | 0.05 | 2000 | |
| Ag | 107 | 1 | nogas | 99.056 | 99.056 | 3.07 | 503503 | 0.02 | 2000 | |
| Cd | 111 | 1 | nogas | 107.478 | 107.478 | 4.36 | 120537 | 0.09 | 2000 | |
| Sn | 118 | 1 | nogas | 0.911 | 0.911 | 12.56 | 4011 | 0.02 | 2000 | |
| Sb | 121 | 1 | nogas | 114.943 | 114.943 | 5.48 | 539285 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 492.381 | 492.381 | 0.71 | 796970 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 97.413 | 97.413 | 3.15 | 871812 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 99.187 | 99.187 | 6.74 | 641081 | 0.02 | 2000 | |
| U | 238 | 1 | nogas | 0.090 | 0.090 | 35.86 | 1203 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 13540.510 | 13540.510 | 5.40 | 51166384 | 0.03 | 2000 | >LDR |
| La | 139 | 1 | nogas | 721.775 | 721.775 | 14.96 | 813 | 88.74 | 2000 | |
| Au | 197 | 1 | nogas | -50.847 | -50.847 | -226.21 | 7 | -762.70 | 2000 | |
| Na | 23 | 2 | He | 79243.679 | 79243.679 | 4.67 | 86797535 | 0.09 | 200000 | |
| Mg | 24 | 2 | He | 31846.831 | 31846.831 | 4.66 | 20527623 | 0.16 | 200000 | |
| Al | 27 | 2 | He | 87.501 | 87.501 | 4.44 | 42621 | 0.21 | 2000 | |
| K | 39 | 2 | He | 11279.442 | 11279.442 | 1.07 | 9779946 | 0.12 | 200000 | |
| Ca | 43 | 2 | He | 51792.100 | 51792.100 | 2.24 | 117741 | 43.99 | 200000 | |
| Ca | 44 | 2 | He | 55395.470 | 55395.470 | 1.18 | 2083436 | 2.66 | 200000 | |
| V | 51 | 2 | He | 98.713 | 98.713 | 3.26 | 432123 | 0.02 | 2000 | |
| Cr | 52 | 2 | He | 99.425 | 99.425 | 2.48 | 460356 | 0.02 | 2000 | |
| Mn | 55 | 2 | He | 163.184 | 163.184 | 4.63 | 627631 | 0.03 | 2000 | |
| Fe | 56 | 2 | He | 20161.733 | 20161.733 | 6.65 | 86633874 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 95.511 | 95.511 | 1.61 | 585165 | 0.02 | 2000 | |

# Sample Report

| Ni | 60 | 2 | He | 95.798 | 95.798 | 3.85 | 148376 | 0.06 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu | 63 | 2 | He | 97.786 | 97.786 | 7.52 | 374608 | 0.03 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Zn | 66 | 2 | He | 101.937 | 101.937 | 3.77 | 100517 | 0.10 | 2000 | |
| As | 75 | 2 | He | 107.374 | 107.374 | 2.16 | 106677 | 0.10 | 2000 | |
| Sb | 121 | 2 | He | 110.448 | 110.448 | 1.30 | 431386 | 0.03 | 2000 | |
| Se | 78 | 2 | He | 103.791 | 103.791 | 3.31 | 9583 | 1.08 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1334309 | 4.25 | 1658792 | 80.44 | 70 | 125 | |
| In | 115 | 1 | nogas | 1200672 | 0.83 | 1398610 | 85.85 | 70 | 125 | |
| Li | 6 | 1 | nogas | 309535 | 2.98 | 581094 | 53.27 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1009995 | 4.52 | 1069547 | 94.43 | 70 | 125 | |
| Ge | 72 | 2 | He | 680192 | 1.67 | 766661 | 88.72 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 181_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:21:34-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 124.407 | 2.682 | 182931 | 0.99 | 100 | 124.4 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 120.289 | 5.544 | 102669 | 1.65 | 500 | 24.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10027.986 | 1.713 | 75411762 | 2.05 | 10000 | 100.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9931.959 | 1.953 | 50006027 | 2.20 | 10000 | 99.3 | 90 | 110 | |
| Al | 27 | 1 | nogas | 75.126 | 3.385 | 619331 | 3.03 | 100 | 75.1 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 57.149 | 3.703 | 83826 | 0.55 | 500 | 11.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9415.583 | 2.105 | 73534391 | 2.53 | 10000 | 94.2 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9007.447 | 1.458 | 127445 | 1.75 | 10000 | 90.1 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 12504.770 | 1.266 | 2932027 | 0.91 | 10000 | 125.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Ti | 47 | 1 | nogas | 81.687 | 3.848 | 60371 | 2.44 | 100 | 81.7 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 1 | nogas | 91.144 | 4.374 | 952690 | 2.87 | 100 | 91.1 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 95.247 | 4.754 | 811081 | 4.13 | 100 | 95.2 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 95.915 | 5.488 | 995329 | 5.46 | 100 | 95.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9974.439 | 4.017 | 85267904 | 4.11 | 10000 | 99.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 94.605 | 1.484 | 841710 | 2.57 | 100 | 94.6 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 89.125 | 1.686 | 193504 | 0.33 | 100 | 89.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Cu | 63 | 1 | nogas | 90.286 | 3.704 | 472789 | 3.09 | 100 | 90.3 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.365 | 3.487 | 148180 | 2.30 | 100 | 98.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 99.953 | 2.736 | 202713 | 2.56 | 100 | 100.0 | 90 | 110 | |
| Se | 77 | 1 | nogas | 55.918 | 6.163 | 10423 | 1.34 | 100 | 55.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 106.740 | 2.094 | 9853 | 0.71 | 100 | 106.7 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 90.215 | 4.139 | 958800 | 2.98 | 100 | 90.2 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 91.329 | 4.214 | 192049 | 2.86 | 100 | 91.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 108.901 | 3.817 | 559304 | 3.55 | 100 | 108.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 109.286 | 2.413 | 115781 | 4.28 | 100 | 109.3 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 89.042 | 0.837 | 283779 | 1.96 | 100 | 89.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Sb | 121 | 1 | nogas | 113.284 | 4.424 | 537176 | 3.37 | 100 | 113.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 137 | 1 | nogas | 110.607 | 4.129 | 169068 | 1.79 | 100 | 110.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 205 | 1 | nogas | 99.562 | 9.611 | 881933 | 1.90 | 100 | 99.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 97.373 | 8.302 | 624127 | 1.52 | 100 | 97.4 | 90 | 110 | |
| U | 238 | 1 | nogas | 85.762 | 13.194 | 1072158 | 5.93 | 100 | 85.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Li | 7 | 1 | nogas | 117.649 | 2.883 | 407483 | 2.72 | 100 | 117.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 182.616 | 3.817 | 1878568 | 1.50 | 5000 | 3.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 108.485 | 2.353 | 99780 | 4.03 | 100 | 108.5 | 90 | 110 | |
| La | 139 | 1 | nogas | 154.572 | 11.741 | 190 | 10.53 | 100 | 154.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 137.711 | 221.523 | 17 | 91.65 | 100 | 137.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 102.047 | 9.095 | 369446 | 1.69 | 100 | 102.0 | 90 | 110 | |
| Na | 23 | 2 | He | 9487.277 | 6.035 | 10385943 | 5.08 | 10000 | 94.9 | 90 | 110 | |
| Mg | 24 | 2 | He | 9215.239 | 4.471 | 5827765 | 4.66 | 10000 | 92.2 | 90 | 110 | |
| Al | 27 | 2 | He | 76.592 | 4.982 | 36775 | 5.89 | 100 | 76.6 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9083.506 | 2.239 | 7766072 | 3.11 | 10000 | 90.8 | 90 | 110 | |
| Ca | 43 | 2 | He | 9103.286 | 0.948 | 20335 | 1.96 | 10000 | 91.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 9658.461 | 4.269 | 358212 | 2.77 | 10000 | 96.6 | 90 | 110 | |
| V | 51 | 2 | He | 97.664 | 2.199 | 419334 | 1.65 | 100 | 97.7 | 90 | 110 | |
| Cr | 52 | 2 | He | 93.463 | 0.668 | 424667 | 1.06 | 100 | 93.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 94.062 | 4.213 | 355217 | 4.33 | 100 | 94.1 | 90 | 110 | |
| Fe | 56 | 2 | He | 9757.446 | 2.374 | 41129120 | 3.33 | 10000 | 97.6 | 90 | 110 | |
| Co | 59 | 2 | He | 98.208 | 1.514 | 589965 | 1.15 | 100 | 98.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.298 | 5.018 | 149024 | 3.64 | 100 | 98.3 | 90 | 110 | |
| Cu | 63 | 2 | He | 98.374 | 4.435 | 369542 | 2.97 | 100 | 98.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.098 | 3.051 | 95856 | 1.99 | 100 | 99.1 | 90 | 110 | |
| As | 75 | 2 | He | 102.890 | 1.503 | 100277 | 2.35 | 100 | 102.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 109.166 | 2.558 | 418116 | 2.79 | 100 | 109.2 | 90 | 110 | |
| Se | 78 | 2 | He | 100.063 | 2.319 | 9072 | 1.68 | 100 | 100.1 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1347204 | 1.47 | 1658792 | 81.22 | 70 | 125 | |
| In | 115 | 1 | nogas | 1133795 | 2.45 | 1398610 | 81.07 | 70 | 125 | |
| Li | 6 | 1 | nogas | 319951 | 3.63 | 581094 | 55.06 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1003976 | 8.13 | 1069547 | 93.87 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 666987 | 1.45 | 766661 | 87.00 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 182_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:23:48-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 014CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.068 | 69.4 | 107 | 66.5 | 1 | |
| B | 11 | 1 | nogas | 12.983 | 5.8 | 14312 | 4.8 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 203.571 | 8.0 | 2829144 | 0.8 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 5.724 | 23.9 | 32336 | 16.9 | 100 | |
| Al | 27 | 1 | nogas | -0.251 | -11.7 | 9576 | 4.2 | 5 | |
| P | 31 | 1 | nogas | -23.025 | -13.4 | 36977 | 1.7 | 10 | |
| K | 39 | 1 | nogas | -10.636 | -178.7 | 3289340 | 2.0 | 100 | |
| Ca | 43 | 1 | nogas | 22.106 | 5.0 | 1047 | 3.6 | 100 | |
| Ca | 44 | 1 | nogas | 2526.683 | 5.6 | 675476 | 1.6 | 100 | CCB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.388 | 5.0 | 427 | 3.6 | 2.5 | |
| V | 51 | 1 | nogas | -0.518 | -33.9 | 30934 | 6.1 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.432 | -0.6 | 11494 | 3.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.129 | 67.9 | 12438 | 4.1 | 2.5 | |
| Fe | 56 | 1 | nogas | 0.829 | 747.9 | 705581 | 5.4 | 100 | |
| Co | 59 | 1 | nogas | 0.041 | 13.1 | 593 | 5.4 | 2.5 | |
| Ni | 60 | 1 | nogas | -7.136 | -0.7 | 1997 | 4.3 | 2.5 | |
| Cu | 63 | 1 | nogas | -5.959 | -0.6 | 2684 | 7.1 | 2 | |
| Zn | 66 | 1 | nogas | -0.703 | -2.4 | 630 | 1.6 | 2.5 | |
| As | 75 | 1 | nogas | -4.842 | -3.2 | 9956 | 2.0 | 2.5 | |
| Se | 77 | 1 | nogas | -34.352 | -2.5 | 3020 | 5.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.947 | -29.1 | 167 | 12.5 | 2 | |
| Sr | 88 | 1 | nogas | 0.118 | 19.7 | 1803 | 10.9 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.360 | -32.2 | 843 | 25.4 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.054 | 38.1 | 320 | 32.6 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.021 | 55.5 | 43 | 26.6 | 1 | |
| Sn | 118 | 1 | nogas | 0.415 | 31.3 | 2354 | 18.1 | 5 | |
| Sb | 121 | 1 | nogas | 0.325 | 33.3 | 2100 | 21.6 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.102 | 46.2 | 343 | 19.8 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.321 | 71.4 | 2960 | 74.6 | 1 | |
| Pb | 208 | 1 | nogas | 0.064 | 35.5 | 607 | 27.3 | 2.5 | |
| U | 238 | 1 | nogas | 0.048 | 51.0 | 663 | 50.7 | 2.5 | |
| Si | 28 | 1 | nogas | -58.552 | -15.6 | 964952 | 0.5 | 5 | |
| La | 139 | 1 | nogas | 11.609 | 236.0 | 47 | 61.9 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 17.265 | 1179.1 | 10 | 100.0 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 164.435 | 5.7 | 416527 | 1.0 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 3.403 | 15.4 | 2700 | 11.3 | 100 | |
| Al | 27 | 2 | He | -1.427 | -7.7 | 683 | 8.8 | 5 | |
| K | 39 | 2 | He | -19.329 | -40.7 | 213513 | 1.7 | 100 | |
| Ca | 43 | 2 | He | 4.802 | 334.0 | 63 | 59.8 | 100 | |
| Ca | 44 | 2 | He | 228.278 | 7.2 | 11554 | 3.9 | 100 | CCB Main CR1 Failed |
| V | 51 | 2 | He | 0.124 | 14.9 | 1551 | 5.4 | 2.5 | |
| Cr | 52 | 2 | He | 0.096 | 33.3 | 4284 | 2.9 | 2.5 | |
| Mn | 55 | 2 | He | 0.234 | 30.9 | 2154 | 12.3 | 2.5 | |
| Fe | 56 | 2 | He | 3.275 | 2.9 | 30180 | 2.0 | 100 | |
| Co | 59 | 2 | He | 0.029 | 30.6 | 240 | 21.6 | 2.5 | |
| Ni | 60 | 2 | He | -6.344 | -0.7 | 853 | 9.5 | 2.5 | |
| Cu | 63 | 2 | He | -4.398 | -0.3 | 1433 | 4.6 | 2 | |
| Zn | 66 | 2 | He | -0.339 | -25.7 | 403 | 21.4 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| As | 75 | 2 | He | -0.126 | -39.9 | 237 | 20.5 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.209 | 12.2 | 1297 | 7.9 | 2.5 | |
| Se | 78 | 2 | He | 0.248 | 92.5 | 335 | 5.4 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1329492 | 3.23 | 1658792 | 80.15 | 70 | 125 | |
| In | 115 | 1 | nogas | 1209730 | 4.75 | 1398610 | 86.50 | 70 | 125 | |
| Li | 6 | 1 | nogas | 312168 | 3.52 | 581094 | 53.72 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1006318 | 4.60 | 1069547 | 94.09 | 70 | 125 | |
| Ge | 72 | 2 | He | 699348 | 1.62 | 766661 | 91.22 | 70 | 125 | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 193CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:57:14-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 10 | 1000.00 |
| B | 11 | 1 | nogas | 6151 | 0.07 |
| Na | 23 | 1 | nogas | 2479605 | 0.00 |
| Mg | 24 | 1 | nogas | 5469 | 0.26 |
| Al | 27 | 1 | nogas | 11444 | 0.02 |
| P | 31 | 1 | nogas | 36276 | 0.01 |
| K | 39 | 1 | nogas | 3137767 | 0.00 |
| Ca | 43 | 1 | nogas | 990 | 1.07 |
| Ca | 44 | 1 | nogas | 672488 | 0.00 |
| Ti | 47 | 1 | nogas | 280 | 5.10 |
| V | 51 | 1 | nogas | 34206 | 0.01 |
| Cr | 52 | 1 | nogas | 11404 | 0.04 |
| Mn | 55 | 1 | nogas | 13939 | 0.01 |
| Fe | 56 | 1 | nogas | 611074 | 0.00 |
| Co | 59 | 1 | nogas | 247 | 3.80 |
| Ni | 60 | 1 | nogas | 1630 | 0.67 |
| Cu | 63 | 1 | nogas | 1997 | 0.26 |
| Zn | 66 | 1 | nogas | 580 | 1.30 |
| As | 75 | 1 | nogas | 9283 | 0.06 |
| Se | 77 | 1 | nogas | 3177 | 0.30 |
| Se | 82 | 1 | nogas | 170 | 15.08 |
| Sr | 88 | 1 | nogas | 767 | 1.93 |
| Mo | 95 | 1 | nogas | 337 | 3.57 |
| Ag | 107 | 1 | nogas | 50 | 40.00 |
| Cd | 111 | 1 | nogas | 13 | 859.23 |
| Sn | 118 | 1 | nogas | 690 | 1.93 |
| Sb | 121 | 1 | nogas | 307 | 4.43 |
| Ba | 137 | 1 | nogas | 283 | 8.48 |
| Tl | 205 | 1 | nogas | 63 | 14.39 |
| Pb | 208 | 1 | nogas | 173 | 18.33 |
| Li | 7 | 1 | nogas | 22664 | 0.01 |
| Si | 28 | 1 | nogas | 958814 | 0.00 |
| La | 139 | 1 | nogas | 43 | 61.49 |
| Na | 23 | 2 | He | 369617 | 0.00 |
| Mg | 24 | 2 | He | 743 | 3.91 |
| Al | 27 | 2 | He | 767 | 1.70 |
| K | 39 | 2 | He | 206201 | 0.00 |
| Ca | 43 | 2 | He | 57 | 95.14 |
| Ca | 44 | 2 | He | 11417 | 0.05 |
| V | 51 | 2 | He | 1571 | 0.52 |
| Cr | 52 | 2 | He | 4167 | 0.09 |
| Mn | 55 | 2 | He | 2777 | 0.17 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 15640 | 0.04 |
| Co | 59 | 2 | He | 100 | 78.10 |
| Ni | 60 | 2 | He | 713 | 0.23 |
| Cu | 63 | 2 | He | 1007 | 1.60 |
| Zn | 66 | 2 | He | 427 | 4.27 |
| As | 75 | 2 | He | 211 | 4.81 |
| Sb | 121 | 2 | He | 207 | 11.07 |
| Se | 78 | 2 | He | 337 | 5.07 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1368896 | 0.67 |
| In | 115 | 1 | nogas | 1163100 | 0.79 |
| Li | 6 | 1 | nogas | 315825 | 1.52 |
| Bi | 209 | 1 | nogas | 1006853 | 7.36 |
| Ge | 72 | 2 | He | 669421 | 1.14 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 194CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T22:59:28-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 3870 | 0.06 |
| B | 11 | 1 | nogas | 16398 | 0.01 |
| Na | 23 | 1 | nogas | 4041273 | 0.00 |
| Mg | 24 | 1 | nogas | 993330 | 0.00 |
| Al | 27 | 1 | nogas | 38293 | 0.02 |
| P | 31 | 1 | nogas | 41073 | 0.01 |
| K | 39 | 1 | nogas | 4441726 | 0.00 |
| Ca | 43 | 1 | nogas | 3337 | 0.14 |
| Ca | 44 | 1 | nogas | 715638 | 0.00 |
| Ti | 47 | 1 | nogas | 1633 | 0.71 |
| V | 51 | 1 | nogas | 55130 | 0.01 |
| Cr | 52 | 1 | nogas | 26397 | 0.00 |
| Mn | 55 | 1 | nogas | 34301 | 0.01 |
| Fe | 56 | 1 | nogas | 2358187 | 0.00 |
| Co | 59 | 1 | nogas | 17182 | 0.02 |
| Ni | 60 | 1 | nogas | 5661 | 0.11 |
| Cu | 63 | 1 | nogas | 11337 | 0.01 |
| Zn | 66 | 1 | nogas | 4774 | 0.16 |
| As | 75 | 1 | nogas | 13572 | 0.03 |
| Se | 77 | 1 | nogas | 3220 | 0.21 |
| Se | 82 | 1 | nogas | 413 | 6.66 |
| Sr | 88 | 1 | nogas | 22305 | 0.02 |
| Mo | 95 | 1 | nogas | 4787 | 0.12 |
| Ag | 107 | 1 | nogas | 10443 | 0.06 |
| Cd | 111 | 1 | nogas | 2287 | 0.27 |
| Sn | 118 | 1 | nogas | 12842 | 0.01 |
| Sb | 121 | 1 | nogas | 10353 | 0.05 |
| Ba | 137 | 1 | nogas | 3851 | 0.16 |
| Tl | 205 | 1 | nogas | 16689 | 0.01 |
| Pb | 208 | 1 | nogas | 12612 | 0.04 |
| Si | 28 | 1 | nogas | 1522581 | 0.00 |
| La | 139 | 1 | nogas | 30 | 400.62 |
| Na | 23 | 2 | He | 579849 | 0.00 |
| Mg | 24 | 2 | He | 111471 | 0.00 |
| Al | 27 | 2 | He | 2200 | 0.57 |
| K | 39 | 2 | He | 353790 | 0.00 |
| Ca | 43 | 2 | He | 490 | 3.56 |
| Ca | 44 | 2 | He | 18984 | 0.01 |
| V | 51 | 2 | He | 9553 | 0.03 |
| Cr | 52 | 2 | He | 12401 | 0.05 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 10767 | 0.00 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 837021 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 11694 | 0.06 |
| Ni | 60 | 2 | He | 3914 | 0.12 |
| Cu | 63 | 2 | He | 8609 | 0.06 |
| Zn | 66 | 2 | He | 2804 | 0.16 |
| As | 75 | 2 | He | 2123 | 0.16 |
| Sb | 121 | 2 | He | 8319 | 0.09 |
| Se | 78 | 2 | He | 495 | 0.42 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1380589 | 5.07 | 1368896 | 100.85 | 70 | 125 | |
| In | 115 | 1 | nogas | 1174136 | 4.48 | 1163100 | 100.95 | 70 | 125 | |
| Li | 6 | 1 | nogas | 316812 | 2.04 | 315825 | 100.31 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1015646 | 6.35 | 1006853 | 100.87 | 70 | 125 | |
| Ge | 72 | 2 | He | 676788 | 4.05 | 669421 | 101.10 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 195CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:01:44-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 8996 | 0.01 |
| B | 11 | 1 | nogas | 31698 | 0.00 |
| Na | 23 | 1 | nogas | 5983491 | 0.00 |
| Mg | 24 | 1 | nogas | 2434611 | 0.00 |
| Al | 27 | 1 | nogas | 65145 | 0.00 |
| P | 31 | 1 | nogas | 50480 | 0.00 |
| K | 39 | 1 | nogas | 6512013 | 0.00 |
| Ca | 43 | 1 | nogas | 7608 | 0.05 |
| Ca | 44 | 1 | nogas | 774034 | 0.00 |
| Ti | 47 | 1 | nogas | 3694 | 0.19 |
| V | 51 | 1 | nogas | 81366 | 0.01 |
| Cr | 52 | 1 | nogas | 49945 | 0.00 |
| Mn | 55 | 1 | nogas | 63506 | 0.00 |
| Fe | 56 | 1 | nogas | 4738182 | 0.00 |
| Co | 59 | 1 | nogas | 42342 | 0.00 |
| Ni | 60 | 1 | nogas | 12038 | 0.06 |
| Cu | 63 | 1 | nogas | 25039 | 0.03 |
| Zn | 66 | 1 | nogas | 10347 | 0.05 |
| As | 75 | 1 | nogas | 19591 | 0.01 |
| Se | 77 | 1 | nogas | 3637 | 0.23 |
| Se | 82 | 1 | nogas | 723 | 1.53 |
| Sr | 88 | 1 | nogas | 55127 | 0.00 |
| Mo | 95 | 1 | nogas | 11524 | 0.04 |
| Ag | 107 | 1 | nogas | 27116 | 0.01 |
| Cd | 111 | 1 | nogas | 5594 | 0.08 |
| Sn | 118 | 1 | nogas | 18284 | 0.03 |
| Sb | 121 | 1 | nogas | 25393 | 0.01 |
| Ba | 137 | 1 | nogas | 8679 | 0.07 |
| Tl | 205 | 1 | nogas | 41806 | 0.01 |
| Pb | 208 | 1 | nogas | 30306 | 0.02 |
| Si | 28 | 1 | nogas | 1976116 | 0.00 |
| La | 139 | 1 | nogas | 30 | 111.11 |
| Na | 23 | 2 | He | 854677 | 0.00 |
| Mg | 24 | 2 | He | 272731 | 0.00 |
| Al | 27 | 2 | He | 3584 | 0.08 |
| K | 39 | 2 | He | 586422 | 0.00 |
| Ca | 43 | 2 | He | 1050 | 1.43 |
| Ca | 44 | 2 | He | 29625 | 0.01 |
| V | 51 | 2 | He | 21241 | 0.01 |
| Cr | 52 | 2 | He | 26183 | 0.01 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 22201 | 0.02 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 2124347 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 28995 | 0.01 |
| Ni | 60 | 2 | He | 7992 | 0.07 |
| Cu | 63 | 2 | He | 18680 | 0.02 |
| Zn | 66 | 2 | He | 6698 | 0.09 |
| As | 75 | 2 | He | 5241 | 0.07 |
| Sb | 121 | 2 | He | 20479 | 0.03 |
| Se | 78 | 2 | He | 731 | 1.27 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1346235 | 2.31 | 1368896 | 98.34 | 70 | 125 | |
| In | 115 | 1 | nogas | 1152449 | 2.20 | 1163100 | 99.08 | 70 | 125 | |
| Li | 6 | 1 | nogas | 317759 | 1.31 | 315825 | 100.61 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1005117 | 5.19 | 1006853 | 99.83 | 70 | 125 | |
| Ge | 72 | 2 | He | 678993 | 1.03 | 669421 | 101.43 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 196CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:03:58-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 17478 | 0.02 |
| B | 11 | 1 | nogas | 57229 | 0.00 |
| Na | 23 | 1 | nogas | 9311185 | 0.00 |
| Mg | 24 | 1 | nogas | 4842982 | 0.00 |
| Al | 27 | 1 | nogas | 82173 | 0.01 |
| P | 31 | 1 | nogas | 63513 | 0.00 |
| K | 39 | 1 | nogas | 9792809 | 0.00 |
| Ca | 43 | 1 | nogas | 13295 | 0.02 |
| Ca | 44 | 1 | nogas | 862088 | 0.00 |
| Ti | 47 | 1 | nogas | 7228 | 0.02 |
| V | 51 | 1 | nogas | 127055 | 0.00 |
| Cr | 52 | 1 | nogas | 90184 | 0.00 |
| Mn | 55 | 1 | nogas | 105725 | 0.00 |
| Fe | 56 | 1 | nogas | 8811478 | 0.00 |
| Co | 59 | 1 | nogas | 82738 | 0.00 |
| Ni | 60 | 1 | nogas | 19898 | 0.02 |
| Cu | 63 | 1 | nogas | 47075 | 0.01 |
| Zn | 66 | 1 | nogas | 14620 | 0.03 |
| As | 75 | 1 | nogas | 28998 | 0.00 |
| Se | 77 | 1 | nogas | 4284 | 0.14 |
| Se | 82 | 1 | nogas | 1117 | 1.15 |
| Sr | 88 | 1 | nogas | 103288 | 0.00 |
| Mo | 95 | 1 | nogas | 21357 | 0.01 |
| Ag | 107 | 1 | nogas | 52884 | 0.01 |
| Cd | 111 | 1 | nogas | 11684 | 0.01 |
| Sn | 118 | 1 | nogas | 32672 | 0.00 |
| Sb | 121 | 1 | nogas | 49932 | 0.00 |
| Ba | 137 | 1 | nogas | 16258 | 0.02 |
| Tl | 205 | 1 | nogas | 82772 | 0.00 |
| Pb | 208 | 1 | nogas | 61052 | 0.00 |
| Si | 28 | 1 | nogas | 2833358 | 0.00 |
| La | 139 | 1 | nogas | 30 | 111.11 |
| Na | 23 | 2 | He | 1351376 | 0.00 |
| Mg | 24 | 2 | He | 542587 | 0.00 |
| Al | 27 | 2 | He | 4824 | 0.11 |
| K | 39 | 2 | He | 902601 | 0.00 |
| Ca | 43 | 2 | He | 2140 | 0.33 |
| Ca | 44 | 2 | He | 46247 | 0.00 |
| V | 51 | 2 | He | 42022 | 0.00 |
| Cr | 52 | 2 | He | 46034 | 0.01 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 36849 | 0.00 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 4010719 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 58134 | 0.01 |
| Ni | 60 | 2 | He | 15000 | 0.04 |
| Cu | 63 | 2 | He | 36923 | 0.00 |
| Zn | 66 | 2 | He | 9643 | 0.06 |
| As | 75 | 2 | He | 9743 | 0.02 |
| Sb | 121 | 2 | He | 40399 | 0.01 |
| Se | 78 | 2 | He | 1177 | 0.05 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1347398 | 3.13 | 1368896 | 98.43 | 70 | 125 | |
| In | 115 | 1 | nogas | 1166152 | 1.56 | 1163100 | 100.26 | 70 | 125 | |
| Li | 6 | 1 | nogas | 318694 | 1.65 | 315825 | 100.91 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 984539 | 5.20 | 1006853 | 97.78 | 70 | 125 | |
| Ge | 72 | 2 | He | 645243 | 3.33 | 669421 | 96.39 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 197CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:06:14-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 185255 | 0.00 |
| B | 11 | 1 | nogas | 333156 | 0.00 |
| Na | 23 | 1 | nogas | 74661435 | 0.00 |
| Mg | 24 | 1 | nogas | 49877781 | 0.00 |
| Al | 27 | 1 | nogas | 645200 | 0.00 |
| P | 31 | 1 | nogas | 199641 | 0.00 |
| K | 39 | 1 | nogas | 72605622 | 0.00 |
| Ca | 43 | 1 | nogas | 127929 | 0.00 |
| Ca | 44 | 1 | nogas | 2897414 | 0.00 |
| Ti | 47 | 1 | nogas | 62063 | 0.00 |
| V | 51 | 1 | nogas | 953415 | 0.00 |
| Cr | 52 | 1 | nogas | 780243 | 0.00 |
| Mn | 55 | 1 | nogas | 992438 | 0.00 |
| Fe | 56 | 1 | nogas | 86013669 | 0.00 |
| Co | 59 | 1 | nogas | 866428 | 0.00 |
| Ni | 60 | 1 | nogas | 194969 | 0.00 |
| Cu | 63 | 1 | nogas | 460033 | 0.00 |
| Zn | 66 | 1 | nogas | 144358 | 0.00 |
| As | 75 | 1 | nogas | 197793 | 0.00 |
| Se | 77 | 1 | nogas | 10787 | 0.03 |
| Se | 82 | 1 | nogas | 9560 | 0.03 |
| Sr | 88 | 1 | nogas | 1016586 | 0.00 |
| Mo | 95 | 1 | nogas | 202340 | 0.00 |
| Ag | 107 | 1 | nogas | 555427 | 0.00 |
| Cd | 111 | 1 | nogas | 116051 | 0.00 |
| Sn | 118 | 1 | nogas | 300963 | 0.00 |
| Sb | 121 | 1 | nogas | 507111 | 0.00 |
| Ba | 137 | 1 | nogas | 165949 | 0.00 |
| Tl | 205 | 1 | nogas | 852995 | 0.00 |
| Pb | 208 | 1 | nogas | 627327 | 0.00 |
| Si | 28 | 1 | nogas | 6369975 | 0.00 |
| La | 139 | 1 | nogas | 193 | 16.35 |
| Na | 23 | 2 | He | 9748895 | 0.00 |
| Mg | 24 | 2 | He | 5579215 | 0.00 |
| Al | 27 | 2 | He | 38669 | 0.01 |
| K | 39 | 2 | He | 7833675 | 0.00 |
| Ca | 43 | 2 | He | 20786 | 0.02 |
| Ca | 44 | 2 | He | 356094 | 0.00 |
| V | 51 | 2 | He | 411230 | 0.00 |
| Cr | 52 | 2 | He | 427396 | 0.00 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 365631 | 0.00 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 41919099 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 573218 | 0.00 |
| Ni | 60 | 2 | He | 141861 | 0.00 |
| Cu | 63 | 2 | He | 351131 | 0.00 |
| Zn | 66 | 2 | He | 95053 | 0.00 |
| As | 75 | 2 | He | 100783 | 0.00 |
| Sb | 121 | 2 | He | 412213 | 0.00 |
| Se | 78 | 2 | He | 8768 | 0.05 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1303832 | 1.95 | 1368896 | 95.25 | 70 | 125 | |
| In | 115 | 1 | nogas | 1162581 | 1.20 | 1163100 | 99.96 | 70 | 125 | |
| Li | 6 | 1 | nogas | 328119 | 1.24 | 315825 | 103.89 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 986960 | 7.21 | 1006853 | 98.02 | 70 | 125 | |
| Ge | 72 | 2 | He | 681844 | 1.60 | 669421 | 101.86 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 198CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:08:28-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 336688 | 0.00 |
| B | 11 | 1 | nogas | 1033862 | 0.00 |
| Na | 23 | 1 | nogas | 137860945 | 0.00 |
| Mg | 24 | 1 | nogas | 94975383 | 0.00 |
| Al | 27 | 1 | nogas | 1385721 | 0.00 |
| P | 31 | 1 | nogas | 550717 | 0.00 |
| K | 39 | 1 | nogas | 127422153 | 0.00 |
| Ca | 43 | 1 | nogas | 228183 | 0.00 |
| Ca | 44 | 1 | nogas | 4470162 | 0.00 |
| Ti | 47 | 1 | nogas | 126951 | 0.00 |
| V | 51 | 1 | nogas | 1860147 | 0.00 |
| Cr | 52 | 1 | nogas | 1566206 | 0.00 |
| Mn | 55 | 1 | nogas | 1997312 | 0.00 |
| Fe | 56 | 1 | nogas | 166644929 | 0.00 |
| Co | 59 | 1 | nogas | 1754938 | 0.00 |
| Ni | 60 | 1 | nogas | 376949 | 0.00 |
| Cu | 63 | 1 | nogas | 893910 | 0.00 |
| Zn | 66 | 1 | nogas | 271126 | 0.00 |
| As | 75 | 1 | nogas | 358443 | 0.00 |
| Se | 77 | 1 | nogas | 18463 | 0.03 |
| Se | 82 | 1 | nogas | 18520 | 0.02 |
| Sr | 88 | 1 | nogas | 2191654 | 0.00 |
| Mo | 95 | 1 | nogas | 418529 | 0.00 |
| Ag | 107 | 1 | nogas | 1024395 | 0.00 |
| Cd | 111 | 1 | nogas | 224524 | 0.00 |
| Sn | 118 | 1 | nogas | 654142 | 0.00 |
| Sb | 121 | 1 | nogas | 981242 | 0.00 |
| Ba | 137 | 1 | nogas | 302410 | 0.00 |
| Tl | 205 | 1 | nogas | 1617508 | 0.00 |
| Pb | 208 | 1 | nogas | 1211671 | 0.00 |
| Si | 28 | 1 | nogas | 33940925 | 0.00 |
| La | 139 | 1 | nogas | 283 | 1.90 |
| Na | 23 | 2 | He | 18154403 | 0.00 |
| Mg | 24 | 2 | He | 10304449 | 0.00 |
| Al | 27 | 2 | He | 75813 | 0.01 |
| K | 39 | 2 | He | 14228047 | 0.00 |
| Ca | 43 | 2 | He | 39491 | 0.01 |
| Ca | 44 | 2 | He | 674940 | 0.00 |
| V | 51 | 2 | He | 778083 | 0.00 |
| Cr | 52 | 2 | He | 836433 | 0.00 |

# Calibration Standard Report

| Mn | 55 | 2 | He | 691249 | 0.00 |
|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 77034149 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Co | 59 | 2 | He | 1100994 | 0.00 |
| Ni | 60 | 2 | He | 273823 | 0.00 |
| Cu | 63 | 2 | He | 684099 | 0.00 |
| Zn | 66 | 2 | He | 182378 | 0.00 |
| As | 75 | 2 | He | 192756 | 0.00 |
| Sb | 121 | 2 | He | 805797 | 0.00 |
| Se | 78 | 2 | He | 16562 | 0.01 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1269424 | 3.42 | 1368896 | 92.73 | 70 | 125 | |
| In | 115 | 1 | nogas | 1210780 | 4.17 | 1163100 | 104.10 | 70 | 125 | |
| Li | 6 | 1 | nogas | 332841 | 2.20 | 315825 | 105.39 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 987210 | 6.32 | 1006853 | 98.05 | 70 | 125 | |
| Ge | 72 | 2 | He | 651730 | 2.90 | 669421 | 97.36 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCV |
| Data File Name | 200_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:12:55-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 111.843 | 3.203 | 184366 | 2.70 | 100 | 111.8 | 90 | 110 | ICV Main CR1 Failed |
| B | 11 | 1 | nogas | 204.726 | 4.643 | 193255 | 3.28 | 500 | 40.9 | 90 | 110 | ICV Main CR1 Failed |
| Na | 23 | 1 | nogas | 10103.287 | 2.305 | 75223556 | 4.80 | 10000 | 101.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9941.418 | 0.774 | 50035778 | 3.17 | 10000 | 99.4 | 90 | 110 | |
| Al | 27 | 1 | nogas | 90.327 | 3.776 | 625274 | 2.22 | 100 | 90.3 | 90 | 110 | |
| P | 31 | 1 | nogas | 187.880 | 4.849 | 124679 | 2.98 | 500 | 37.6 | 90 | 110 | ICV Main CR1 Failed |
| K | 39 | 1 | nogas | 10639.805 | 1.973 | 70991535 | 0.44 | 10000 | 106.4 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10848.792 | 2.196 | 127600 | 1.45 | 10000 | 108.5 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10910.682 | 3.041 | 2807977 | 2.20 | 10000 | 109.1 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 95.814 | 5.741 | 60941 | 6.02 | 100 | 95.8 | 90 | 110 | |
| V | 51 | 1 | nogas | 100.422 | 3.636 | 955389 | 2.23 | 100 | 100.4 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 97.209 | 3.497 | 768459 | 3.33 | 100 | 97.2 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 94.295 | 2.232 | 951009 | 1.54 | 100 | 94.3 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9759.100 | 2.113 | 82462877 | 0.19 | 10000 | 97.6 | 90 | 110 | |
| Co | 59 | 1 | nogas | 95.682 | 2.075 | 841892 | 0.82 | 100 | 95.7 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 101.028 | 2.462 | 193162 | 0.37 | 100 | 101.0 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 104.432 | 1.758 | 472206 | 0.76 | 100 | 104.4 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 106.857 | 0.251 | 147953 | 2.15 | 100 | 106.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 105.316 | 3.478 | 197132 | 1.24 | 100 | 105.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 97.194 | 6.995 | 10560 | 4.30 | 100 | 97.2 | 90 | 110 | |
| Se | 82 | 1 | nogas | 99.753 | 5.890 | 9409 | 6.47 | 100 | 99.8 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 88.575 | 5.830 | 961180 | 5.66 | 100 | 88.6 | 90 | 110 | ICV Main CR1 Failed |
| Mo | 95 | 1 | nogas | 94.645 | 4.435 | 197760 | 3.58 | 100 | 94.6 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 103.617 | 2.941 | 541778 | 3.21 | 100 | 103.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 103.426 | 2.448 | 112470 | 3.00 | 100 | 103.4 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 93.963 | 3.008 | 290900 | 3.43 | 100 | 94.0 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 102.822 | 3.435 | 510313 | 4.11 | 100 | 102.8 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 112.988 | 2.214 | 167792 | 2.11 | 100 | 113.0 | 90 | 110 | ICV Main CR1 Failed |
| Tl | 205 | 1 | nogas | 103.251 | 7.326 | 859146 | 1.14 | 100 | 103.3 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.305 | 8.514 | 621873 | 1.66 | 100 | 100.3 | 90 | 110 | |
| U | 238 | 1 | nogas | 86.420 | 10.199 | 1068405 | 3.58 | 100 | 86.4 | 90 | 110 | ICV Main CR1 Failed |
| Li | 7 | 1 | nogas | 115.619 | 1.623 | 409593 | 1.98 | 100 | 115.6 | 90 | 110 | ICV Main CR1 Failed |
| Si | 28 | 1 | nogas | 934.591 | 4.189 | 3594401 | 1.51 | 5000 | 18.7 | 90 | 110 | ICV Main CR1 Failed |
| Ba | 135 | 1 | nogas | 109.492 | 1.724 | 97441 | 1.97 | 100 | 109.5 | 90 | 110 | |
| La | 139 | 1 | nogas | 147.447 | 14.333 | 220 | 12.03 | 100 | 147.4 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 41.322 | 173.205 | 3 | 173.21 | 100 | 41.3 | 90 | 110 | ICV Main CR1 Failed |
| Tl | 203 | 1 | nogas | 105.977 | 6.448 | 358911 | 1.09 | 100 | 106.0 | 90 | 110 | |
| Na | 23 | 2 | He | 10822.343 | 7.470 | 10071682 | 3.04 | 10000 | 108.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 10827.176 | 4.924 | 5660960 | 2.94 | 10000 | 108.3 | 90 | 110 | |
| Al | 27 | 2 | He | 95.129 | 2.832 | 36721 | 9.50 | 100 | 95.1 | 90 | 110 | |
| K | 39 | 2 | He | 10288.068 | 0.297 | 7545674 | 6.72 | 10000 | 102.9 | 90 | 110 | |
| Ca | 43 | 2 | He | 10175.957 | 6.705 | 20305 | 3.21 | 10000 | 101.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 10310.270 | 11.874 | 354824 | 4.78 | 10000 | 103.1 | 90 | 110 | |
| V | 51 | 2 | He | 105.284 | 7.925 | 413719 | 1.32 | 100 | 105.3 | 90 | 110 | |
| Cr | 52 | 2 | He | 103.680 | 1.318 | 437123 | 6.79 | 100 | 103.7 | 90 | 110 | |
| Mn | 55 | 2 | He | 103.783 | 2.055 | 363956 | 5.36 | 100 | 103.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 10330.340 | 4.975 | 40464479 | 3.25 | 10000 | 103.3 | 90 | 110 | |
| Co | 59 | 2 | He | 101.899 | 12.369 | 563469 | 5.65 | 100 | 101.9 | 90 | 110 | |
| Ni | 60 | 2 | He | 103.454 | 15.604 | 142211 | 8.87 | 100 | 103.5 | 90 | 110 | |
| Cu | 63 | 2 | He | 106.249 | 12.409 | 363928 | 6.19 | 100 | 106.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 104.702 | 3.126 | 96512 | 3.87 | 100 | 104.7 | 90 | 110 | |
| As | 75 | 2 | He | 101.778 | 4.332 | 98994 | 2.64 | 100 | 101.8 | 90 | 110 | |
| Sn | 118 | 2 | He | 89.830 | 5.635 | 233161 | 2.58 | 100 | 89.8 | 90 | 110 | ICV Main CR1 Failed |
| Sb | 121 | 2 | He | 101.240 | 10.011 | 408626 | 3.68 | 100 | 101.2 | 90 | 110 | |
| Se | 78 | 2 | He | 104.777 | 7.531 | 8880 | 0.67 | 100 | 104.8 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1281204 | 2.09 | 1368896 | 93.59 | 70 | 125 | |
| In | 115 | 1 | nogas | 1154100 | 0.56 | 1163100 | 99.23 | 70 | 125 | |
| Li | 6 | 1 | nogas | 318373 | 1.20 | 315825 | 100.81 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Bi | 209 | 1 | nogas | 1004130 | 7.21 | 1006853 | 99.73 | 70 | 125 | |
| Ge | 72 | 2 | He | 657942 | 6.77 | 669421 | 98.29 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 201SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:15:09-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 193CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 2.040 | 2.040 | 7.25 | 3604 | 0.06 | 2000 | |
| B | 11 | 1 | nogas | 29.785 | 29.785 | 6.24 | 24737 | 0.12 | 2000 | |
| Na | 23 | 1 | nogas | 231.180 | 231.180 | 2.30 | 3999622 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 202.063 | 202.063 | 4.00 | 999839 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 3.457 | 3.457 | 6.38 | 34931 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 236.191 | 236.191 | 16.30 | 4535315 | 0.01 | 200000 | |
| Ca | 43 | 1 | nogas | 254.907 | 254.907 | 7.38 | 3981 | 6.40 | 200000 | |
| Ca | 44 | 1 | nogas | 314.653 | 314.653 | 62.28 | 705830 | 0.04 | 200000 | |
| Ti | 47 | 1 | nogas | 2.331 | 2.331 | 19.38 | 1770 | 0.13 | 2000 | |
| V | 51 | 1 | nogas | 1.492 | 1.492 | 8.72 | 46705 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 2.015 | 2.015 | 7.51 | 26924 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 2.082 | 2.082 | 12.75 | 34417 | 0.01 | 2000 | |
| Fe | 56 | 1 | nogas | 213.970 | 213.970 | 6.45 | 2414958 | 0.01 | 200000 | |
| Co | 59 | 1 | nogas | 1.870 | 1.870 | 5.52 | 17025 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 2.365 | 2.365 | 7.19 | 5884 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 2.113 | 2.113 | 5.02 | 11624 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 2.254 | 2.254 | 15.50 | 4957 | 0.05 | 2000 | |
| As | 75 | 1 | nogas | 1.605 | 1.605 | 36.89 | 13275 | 0.01 | 2000 | |
| Se | 77 | 1 | nogas | -0.359 | -0.359 | -887.36 | 3000 | -0.01 | 2000 | |
| Se | 82 | 1 | nogas | 2.697 | 2.697 | 23.34 | 417 | 0.65 | 2000 | |
| Sr | 88 | 1 | nogas | 1.941 | 1.941 | 4.80 | 22205 | 0.01 | 2000 | |
| Mo | 95 | 1 | nogas | 2.327 | 2.327 | 9.00 | 5268 | 0.04 | 2000 | |
| Ag | 107 | 1 | nogas | 2.118 | 2.118 | 7.82 | 11331 | 0.02 | 2000 | |
| Cd | 111 | 1 | nogas | 2.273 | 2.273 | 5.05 | 2457 | 0.09 | 2000 | |
| Sn | 118 | 1 | nogas | 4.431 | 4.431 | 7.23 | 14213 | 0.03 | 2000 | |
| Sb | 121 | 1 | nogas | 2.173 | 2.173 | 9.94 | 11271 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 2.633 | 2.633 | 4.74 | 4137 | 0.06 | 2000 | |
| Tl | 205 | 1 | nogas | 2.453 | 2.453 | 1.00 | 20053 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 2.085 | 2.085 | 10.05 | 12775 | 0.02 | 2000 | |
| U | 238 | 1 | nogas | 1.941 | 1.941 | 5.93 | 23488 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 220.375 | 220.375 | 6.63 | 1565379 | 0.01 | 2000 | |
| La | 139 | 1 | nogas | 28.937 | 28.937 | 69.03 | 77 | 37.74 | 2000 | |
| Au | 197 | 1 | nogas | 80.983 | 80.983 | 87.45 | 7 | 1214.74 | 2000 | |
| Na | 23 | 2 | He | 204.461 | 204.461 | 11.61 | 575780 | 0.04 | 200000 | |
| Mg | 24 | 2 | He | 203.097 | 203.097 | 3.03 | 112756 | 0.18 | 200000 | |
| Al | 27 | 2 | He | 2.730 | 2.730 | 30.97 | 2204 | 0.12 | 2000 | |
| K | 39 | 2 | He | 192.964 | 192.964 | 9.44 | 358187 | 0.05 | 200000 | |
| Ca | 43 | 2 | He | 230.272 | 230.272 | 19.76 | 540 | 42.64 | 200000 | |
| Ca | 44 | 2 | He | 179.608 | 179.608 | 26.53 | 18119 | 0.99 | 200000 | |
| V | 51 | 2 | He | 1.753 | 1.753 | 9.13 | 9538 | 0.02 | 2000 | |

# Sample Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cr | 52 | 2 | He | 2.065 | 2.065 | 5.61 | 13412 | 0.02 | 2000 | |
| Mn | 55 | 2 | He | 1.960 | 1.960 | 1.51 | 10063 | 0.02 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Fe | 56 | 2 | He | 197.378 | 197.378 | 1.89 | 831425 | 0.02 | 200000 | |
| Co | 59 | 2 | He | 1.952 | 1.952 | 3.72 | 11541 | 0.02 | 2000 | |
| Ni | 60 | 2 | He | 1.941 | 1.941 | 7.69 | 3697 | 0.05 | 2000 | |
| Cu | 63 | 2 | He | 2.099 | 2.099 | 10.41 | 8579 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 2.030 | 2.030 | 18.35 | 2890 | 0.07 | 2000 | |
| As | 75 | 2 | He | 1.908 | 1.908 | 10.75 | 2168 | 0.09 | 2000 | |
| Sb | 121 | 2 | He | 2.122 | 2.122 | 6.29 | 9259 | 0.02 | 2000 | |
| Se | 78 | 2 | He | 1.819 | 1.819 | 24.91 | 504 | 0.36 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1308789 | 5.10 | 1368896 | 95.61 | 70 | 125 | |
| In | 115 | 1 | nogas | 1141466 | 0.99 | 1163100 | 98.14 | 70 | 125 | |
| Li | 6 | 1 | nogas | 311997 | 0.40 | 315825 | 98.79 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 980773 | 8.52 | 1006853 | 97.41 | 70 | 125 | |
| Ge | 72 | 2 | He | 692904 | 3.86 | 669421 | 103.51 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 202LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:17:25-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 5.107 | 5.931 | 9353 | 4.45 | 5 | 102.1 | 70 | 130 | |
| B | 11 | 1 | nogas | 48.930 | 5.590 | 38150 | 2.47 | 25 | 195.7 | 70 | 130 | LLICV Main CR1 Failed |
| Na | 23 | 1 | nogas | 504.017 | 7.561 | 6038545 | 1.78 | 500 | 100.8 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 473.498 | 4.621 | 2382107 | 1.18 | 500 | 94.7 | 70 | 130 | |
| Al | 27 | 1 | nogas | 7.394 | 3.794 | 62068 | 1.94 | 5 | 147.9 | 70 | 130 | LLICV Main CR1 Failed |
| P | 31 | 1 | nogas | 31.188 | 8.346 | 49845 | 0.52 | 25 | 124.8 | 70 | 130 | |
| K | 39 | 1 | nogas | 551.864 | 5.406 | 6576815 | 2.08 | 500 | 110.4 | 70 | 130 | |
| Ca | 43 | 1 | nogas | 577.479 | 4.786 | 7799 | 2.15 | 500 | 115.5 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 588.680 | 15.473 | 759574 | 0.37 | 500 | 117.7 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 4.921 | 12.374 | 3440 | 12.95 | 5 | 98.4 | 70 | 130 | |
| V | 51 | 1 | nogas | 4.596 | 4.698 | 75544 | 1.91 | 5 | 91.9 | 70 | 130 | |
| Cr | 52 | 1 | nogas | 5.008 | 2.597 | 50567 | 1.66 | 5 | 100.2 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.084 | 4.870 | 64697 | 3.23 | 5 | 101.7 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 491.368 | 5.933 | 4773694 | 3.27 | 500 | 98.3 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.615 | 2.682 | 41520 | 0.59 | 5 | 92.3 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 5.257 | 9.251 | 11444 | 6.10 | 5 | 105.1 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 5.114 | 4.563 | 25332 | 4.27 | 5 | 102.3 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 5.859 | 3.789 | 9966 | 3.02 | 5 | 117.2 | 70 | 130 | |
| As | 75 | 1 | nogas | 5.161 | 6.048 | 19668 | 0.81 | 5 | 103.2 | 70 | 130 | |
| Se | 77 | 1 | nogas | 12.835 | 18.869 | 4044 | 5.56 | 5 | 256.7 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 4.997 | 9.795 | 633 | 7.79 | 5 | 99.9 | 70 | 130 | |
| Sr | 88 | 1 | nogas | 4.908 | 5.518 | 54832 | 3.51 | 5 | 98.2 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.981 | 5.336 | 10890 | 4.61 | 5 | 99.6 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 5.017 | 4.186 | 26715 | 2.26 | 5 | 100.3 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 4.690 | 4.009 | 5221 | 3.36 | 5 | 93.8 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 5.847 | 4.910 | 19138 | 3.36 | 5 | 116.9 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.039 | 6.089 | 25694 | 4.20 | 5 | 100.8 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 5.487 | 4.058 | 8592 | 1.72 | 5 | 109.7 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 4.882 | 9.820 | 40439 | 3.11 | 5 | 97.6 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 4.872 | 7.320 | 30250 | 2.36 | 5 | 97.4 | 70 | 130 | |
| U | 238 | 1 | nogas | 4.592 | 8.043 | 56574 | 1.48 | 5 | 91.8 | 70 | 130 | |
| Li | 7 | 1 | nogas | 4.836 | 9.487 | 42012 | 2.74 | 5 | 96.7 | 70 | 130 | |
| Si | 28 | 1 | nogas | 372.051 | 2.231 | 2005123 | 0.88 | 25 | 1488.2 | 70 | 130 | LLICV Main CR1 Failed |
| La | 139 | 1 | nogas | -3.370 | -460.333 | 40 | 50.00 | 5 | -67.4 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 123.725 | 173.205 | 10 | 173.21 | 5 | 2474.5 | 70 | 130 | LLICV Main CR1 Failed |
| Na | 23 | 2 | He | 535.294 | 1.785 | 859657 | 1.11 | 500 | 107.1 | 70 | 130 | |
| Mg | 24 | 2 | He | 531.843 | 0.280 | 284210 | 1.55 | 500 | 106.4 | 70 | 130 | |
| Al | 27 | 2 | He | 7.003 | 13.155 | 3757 | 8.08 | 5 | 140.1 | 70 | 130 | LLICV Main CR1 Failed |
| K | 39 | 2 | He | 494.262 | 1.508 | 565152 | 2.17 | 500 | 98.9 | 70 | 130 | |
| Ca | 43 | 2 | He | 468.799 | 23.476 | 1007 | 21.08 | 500 | 93.8 | 70 | 130 | |
| Ca | 44 | 2 | He | 493.570 | 3.128 | 28243 | 0.62 | 500 | 98.7 | 70 | 130 | |
| V | 51 | 2 | He | 4.926 | 4.652 | 21887 | 2.90 | 5 | 98.5 | 70 | 130 | |
| Cr | 52 | 2 | He | 4.998 | 3.573 | 25409 | 3.55 | 5 | 100.0 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.061 | 3.909 | 20709 | 2.37 | 5 | 101.2 | 70 | 130 | |
| Fe | 56 | 2 | He | 505.238 | 2.522 | 2031955 | 1.23 | 500 | 101.0 | 70 | 130 | |
| Co | 59 | 2 | He | 4.933 | 1.295 | 28000 | 0.96 | 5 | 98.7 | 70 | 130 | |
| Ni | 60 | 2 | He | 4.968 | 9.201 | 7815 | 8.16 | 5 | 99.4 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.325 | 5.229 | 19571 | 3.96 | 5 | 106.5 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.813 | 1.616 | 6321 | 2.19 | 5 | 116.3 | 70 | 130 | |
| As | 75 | 2 | He | 4.905 | 1.357 | 5064 | 1.12 | 5 | 98.1 | 70 | 130 | |
| Sb | 121 | 2 | He | 4.709 | 4.202 | 19625 | 5.44 | 5 | 94.2 | 70 | 130 | |
| Se | 78 | 2 | He | 5.031 | 2.116 | 755 | 0.40 | 5 | 100.6 | 70 | 130 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1303189 | 2.06 | 1368896 | 95.20 | 70 | 125 | |
| In | 115 | 1 | nogas | 1179133 | 2.56 | 1163100 | 101.38 | 70 | 125 | |
| Li | 6 | 1 | nogas | 324263 | 2.29 | 315825 | 102.67 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 999298 | 7.08 | 1006853 | 99.25 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 669400 | 1.28 | 669421 | 100.00 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCB |
| Data File Name | 203_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:19:41-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.006 | 200.1 | 20 | 100.0 | 1 | |
| B | 11 | 1 | nogas | 8.283 | 15.3 | 11274 | 6.5 | 10 | |
| Na | 23 | 1 | nogas | -3.442 | -143.7 | 2397361 | 1.0 | 100 | |
| Mg | 24 | 1 | nogas | 0.095 | 206.9 | 5802 | 16.5 | 100 | |
| Al | 27 | 1 | nogas | -0.179 | -54.5 | 9363 | 2.0 | 5 | |
| P | 31 | 1 | nogas | 7.290 | 67.0 | 36964 | 1.0 | 10 | |
| K | 39 | 1 | nogas | 49.311 | 63.1 | 3208067 | 0.5 | 100 | |
| Ca | 43 | 1 | nogas | 1.939 | 262.1 | 937 | 1.6 | 100 | |
| Ca | 44 | 1 | nogas | 213.294 | 99.9 | 662831 | 1.0 | 100 | ICB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 0.001 | 8482.9 | 260 | 29.0 | 2.5 | |
| V | 51 | 1 | nogas | -0.128 | -75.0 | 30465 | 5.1 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.005 | -687.3 | 10500 | 2.9 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.185 | 49.0 | 14690 | 2.1 | 2.5 | |
| Fe | 56 | 1 | nogas | 6.391 | 77.8 | 616943 | 1.2 | 100 | |
| Co | 59 | 1 | nogas | 0.006 | 196.6 | 280 | 32.7 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.117 | 114.3 | 1473 | 12.3 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.085 | -47.4 | 1463 | 7.7 | 1 | |
| Zn | 66 | 1 | nogas | -1.033 | -6.3 | 367 | 23.2 | 2.5 | |
| As | 75 | 1 | nogas | -0.525 | -14.0 | 9139 | 5.8 | 2.5 | |
| Se | 77 | 1 | nogas | -1.814 | -63.5 | 2797 | 4.8 | 2.5 | |
| Se | 82 | 1 | nogas | 0.519 | 136.8 | 203 | 28.0 | 1 | |
| Sr | 88 | 1 | nogas | -0.011 | -112.9 | 583 | 17.3 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.009 | -343.6 | 293 | 20.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.021 | 36.1 | 157 | 25.8 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.006 | 153.2 | 20 | 50.0 | 1 | |
| Sn | 118 | 1 | nogas | 0.082 | 82.7 | 953 | 21.8 | 5 | |
| Sb | 121 | 1 | nogas | 0.048 | 32.7 | 520 | 18.5 | 2.5 | |
| Ba | 137 | 1 | nogas | -0.136 | -13.0 | 80 | 33.1 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.036 | 57.3 | 370 | 56.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.003 | 122.3 | 190 | 19.0 | 2.5 | |
| U | 238 | 1 | nogas | 0.008 | 12.0 | 113 | 10.2 | 2.5 | |
| Si | 28 | 1 | nogas | 33.372 | 59.8 | 980320 | 0.2 | 5 | ICB Main CR1 Failed |
| La | 139 | 1 | nogas | -30.336 | -31.0 | 7 | 173.2 | 2.5 | |
| Au | 197 | 1 | nogas | 84.580 | 86.6 | 7 | 86.6 | 2.5 | ICB Main CR1 Failed |
| Na | 23 | 2 | He | -4.620 | -284.3 | 366799 | 0.7 | 100 | |
| Mg | 24 | 2 | He | -0.346 | -9.3 | 560 | 1.8 | 100 | |
| Al | 27 | 2 | He | -1.323 | -5.9 | 593 | 8.5 | 5 | |
| K | 39 | 2 | He | 0.465 | 1056.4 | 207403 | 2.1 | 100 | |
| Ca | 43 | 2 | He | -8.093 | -69.3 | 40 | 25.0 | 100 | |
| Ca | 44 | 2 | He | -2.368 | -382.3 | 11400 | 6.0 | 100 | |
| V | 51 | 2 | He | -0.179 | -1.5 | 1526 | 3.0 | 2.5 | |
| Cr | 52 | 2 | He | -0.009 | -182.8 | 4147 | 2.4 | 2.5 | |
| Mn | 55 | 2 | He | -0.006 | -830.0 | 2770 | 6.5 | 2.5 | |
| Fe | 56 | 2 | He | 0.067 | 300.7 | 15961 | 2.3 | 100 | |

# Initial Calibration Blank (ICB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Co | 59 | 2 | He | 0.006 | 93.1 | 137 | 25.7 | 2.5 | |
| Ni | 60 | 2 | He | -0.175 | -23.2 | 617 | 5.7 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Cu | 63 | 2 | He | -0.038 | -45.0 | 837 | 3.7 | 1 | |
| Zn | 66 | 2 | He | -0.751 | -6.8 | 213 | 18.9 | 2.5 | |
| As | 75 | 2 | He | -0.034 | -87.8 | 179 | 19.1 | 2.5 | |
| Sb | 121 | 2 | He | 0.013 | 110.7 | 263 | 25.8 | 2.5 | |
| Se | 78 | 2 | He | -0.262 | -134.1 | 315 | 5.7 | 1 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1266527 | 5.41 | 1368896 | 92.52 | 70 | 125 | |
| In | 115 | 1 | nogas | 1175160 | 0.41 | 1163100 | 101.04 | 70 | 125 | |
| Li | 6 | 1 | nogas | 312228 | 1.33 | 315825 | 98.86 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 990878 | 7.99 | 1006853 | 98.41 | 70 | 125 | |
| Ge | 72 | 2 | He | 672505 | 3.58 | 669421 | 100.46 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 213_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:42:14-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 107.582 | 0.577 | 160531 | 2.23 | 100 | 107.6 | 90 | 110 | |
| B | 11 | 1 | nogas | 168.101 | 5.544 | 94280 | 2.62 | 500 | 33.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 11030.277 | 4.000 | 73069789 | 1.88 | 10000 | 110.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Mg | 24 | 1 | nogas | 10366.330 | 2.634 | 46570191 | 1.34 | 10000 | 103.7 | 90 | 110 | |
| Al | 27 | 1 | nogas | 92.137 | 3.394 | 559954 | 1.91 | 100 | 92.1 | 90 | 110 | |
| P | 31 | 1 | nogas | 103.563 | 9.724 | 73670 | 2.09 | 500 | 20.7 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 11081.310 | 5.010 | 64797541 | 2.69 | 10000 | 110.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 11348.034 | 4.280 | 117131 | 1.91 | 10000 | 113.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 1 | nogas | 11206.126 | 5.458 | 2516391 | 0.98 | 10000 | 112.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ti | 47 | 1 | nogas | 93.450 | 1.410 | 52205 | 2.51 | 100 | 93.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 97.617 | 3.923 | 816313 | 2.22 | 100 | 97.6 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 99.264 | 2.560 | 688900 | 2.01 | 100 | 99.3 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.545 | 5.110 | 898119 | 3.18 | 100 | 101.5 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10276.043 | 7.058 | 76152008 | 3.98 | 10000 | 102.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 98.801 | 3.621 | 763265 | 1.50 | 100 | 98.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 104.670 | 5.026 | 175609 | 1.47 | 100 | 104.7 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 106.675 | 3.396 | 423445 | 0.52 | 100 | 106.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 105.954 | 2.560 | 128856 | 3.53 | 100 | 106.0 | 90 | 110 | |
| As | 75 | 1 | nogas | 104.436 | 0.970 | 171879 | 3.72 | 100 | 104.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 99.085 | 5.687 | 9406 | 4.16 | 100 | 99.1 | 90 | 110 | |
| Se | 82 | 1 | nogas | 106.406 | 4.595 | 8799 | 2.81 | 100 | 106.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 93.422 | 5.253 | 889598 | 2.02 | 100 | 93.4 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 94.087 | 3.901 | 172680 | 3.67 | 100 | 94.1 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 101.358 | 1.572 | 465448 | 2.44 | 100 | 101.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 103.018 | 2.951 | 102169 | 2.57 | 100 | 103.0 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 90.797 | 2.057 | 256450 | 3.04 | 100 | 90.8 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 104.309 | 2.061 | 454555 | 1.91 | 100 | 104.3 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 107.402 | 6.850 | 145338 | 3.39 | 100 | 107.4 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 103.126 | 10.303 | 774346 | 4.08 | 100 | 103.1 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.930 | 7.942 | 565582 | 1.33 | 100 | 100.9 | 90 | 110 | |
| U | 238 | 1 | nogas | 85.333 | 8.661 | 953974 | 2.31 | 100 | 85.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Li | 7 | 1 | nogas | 103.943 | 0.821 | 347665 | 3.16 | 100 | 103.9 | 90 | 110 | |
| Si | 28 | 1 | nogas | 428.230 | 7.634 | 1872551 | 1.21 | 5000 | 8.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 106.766 | 7.367 | 86561 | 3.83 | 100 | 106.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 81.979 | 72.610 | 130 | 53.30 | 100 | 82.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 168.301 | 110.192 | 13 | 114.56 | 100 | 168.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 107.691 | 11.068 | 328933 | 5.34 | 100 | 107.7 | 90 | 110 | |
| Na | 23 | 2 | He | 10903.644 | 2.530 | 9667128 | 4.20 | 10000 | 109.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 10544.950 | 0.343 | 5248549 | 3.13 | 10000 | 105.4 | 90 | 110 | |
| Al | 27 | 2 | He | 89.420 | 3.478 | 32817 | 4.85 | 100 | 89.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 9698.638 | 2.961 | 6764998 | 0.86 | 10000 | 97.0 | 90 | 110 | |
| Ca | 43 | 2 | He | 9680.621 | 4.902 | 18387 | 2.79 | 10000 | 96.8 | 90 | 110 | |
| Ca | 44 | 2 | He | 9481.402 | 7.385 | 311972 | 3.92 | 10000 | 94.8 | 90 | 110 | |
| V | 51 | 2 | He | 104.454 | 2.721 | 391128 | 0.72 | 100 | 104.5 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.799 | 5.381 | 391908 | 5.73 | 100 | 97.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 97.859 | 1.531 | 326316 | 1.95 | 100 | 97.9 | 90 | 110 | |
| Fe | 56 | 2 | He | 9872.425 | 5.501 | 36770646 | 2.65 | 10000 | 98.7 | 90 | 110 | |
| Co | 59 | 2 | He | 99.192 | 7.836 | 523251 | 5.32 | 100 | 99.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.997 | 9.603 | 131284 | 6.66 | 100 | 100.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 104.152 | 4.350 | 340496 | 1.28 | 100 | 104.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 101.883 | 1.557 | 89392 | 4.77 | 100 | 101.9 | 90 | 110 | |
| As | 75 | 2 | He | 98.381 | 4.352 | 91004 | 1.14 | 100 | 98.4 | 90 | 110 | |
| Sb | 121 | 2 | He | 100.443 | 8.937 | 386103 | 5.88 | 100 | 100.4 | 90 | 110 | |
| Se | 78 | 2 | He | 103.612 | 3.858 | 8366 | 0.31 | 100 | 103.6 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1125576 | 3.93 | 1368896 | 82.23 | 70 | 125 | |
| In | 115 | 1 | nogas | 1053259 | 3.87 | 1163100 | 90.56 | 70 | 125 | |
| Li | 6 | 1 | nogas | 264317 | 2.60 | 315825 | 83.69 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 907210 | 6.94 | 1006853 | 90.10 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 625096 | 3.48 | 669421 | 93.38 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 214_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-21T23:44:27-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.057 | 20.4 | 97 | 15.8 | 1 | |
| B | 11 | 1 | nogas | 8.266 | 10.2 | 9956 | 3.1 | 10 | |
| Na | 23 | 1 | nogas | 263.761 | 9.0 | 4061200 | 1.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 21.336 | 11.0 | 105765 | 7.9 | 100 | |
| Al | 27 | 1 | nogas | -0.222 | -28.6 | 8756 | 7.0 | 5 | |
| P | 31 | 1 | nogas | -0.693 | -415.7 | 31948 | 1.8 | 10 | |
| K | 39 | 1 | nogas | 48.634 | 28.8 | 3087130 | 0.1 | 100 | |
| Ca | 43 | 1 | nogas | 19.958 | 69.9 | 1103 | 14.7 | 100 | |
| Ca | 44 | 1 | nogas | -229.276 | -44.5 | 554657 | 0.7 | 100 | |
| Ti | 47 | 1 | nogas | 0.046 | 450.3 | 277 | 45.2 | 2.5 | |
| V | 51 | 1 | nogas | -0.505 | -45.7 | 26024 | 8.7 | 2.5 | |
| Cr | 52 | 1 | nogas | 0.168 | 5.7 | 11394 | 2.2 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.490 | 0.4 | 17045 | 2.9 | 2.5 | |
| Fe | 56 | 1 | nogas | 23.089 | 12.3 | 728081 | 3.6 | 100 | |
| Co | 59 | 1 | nogas | 0.037 | 38.1 | 530 | 23.6 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.087 | 30.7 | 1370 | 1.9 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.070 | 46.0 | 2077 | 5.7 | 2 | |
| Zn | 66 | 1 | nogas | -0.706 | -8.3 | 780 | 12.4 | 2.5 | |
| As | 75 | 1 | nogas | -0.742 | -66.6 | 8412 | 7.6 | 2.5 | |
| Se | 77 | 1 | nogas | -2.031 | -291.2 | 2670 | 14.4 | 2.5 | |
| Se | 82 | 1 | nogas | 0.689 | 128.6 | 213 | 39.3 | 2 | |
| Sr | 88 | 1 | nogas | 0.708 | 8.6 | 7972 | 5.4 | 2.5 | |
| Mo | 95 | 1 | nogas | 0.164 | 54.5 | 627 | 29.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.043 | 7.2 | 257 | 6.0 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.064 | 27.4 | 77 | 19.9 | 1 | |
| Sn | 118 | 1 | nogas | 0.417 | 11.4 | 1840 | 2.5 | 5 | |
| Sb | 121 | 1 | nogas | 0.227 | 18.6 | 1347 | 15.7 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.050 | 80.6 | 330 | 10.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.371 | 54.6 | 3047 | 65.9 | 1 | |
| Pb | 208 | 1 | nogas | 0.078 | 35.8 | 620 | 38.0 | 2.5 | |
| U | 238 | 1 | nogas | 0.069 | 40.7 | 840 | 52.7 | 2.5 | |
| Si | 28 | 1 | nogas | 35.881 | 37.2 | 951214 | 1.1 | 5 | CCB Main CR1 Failed |
| La | 139 | 1 | nogas | 0.600 | 3328.0 | 40 | 50.0 | 2.5 | |
| Au | 197 | 1 | nogas | 188.853 | 173.2 | 17 | 173.2 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 265.179 | 8.5 | 586735 | 0.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 23.608 | 2.9 | 12775 | 4.1 | 100 | |
| Al | 27 | 2 | He | -1.177 | -14.0 | 620 | 12.8 | 5 | |
| K | 39 | 2 | He | 6.432 | 207.5 | 201966 | 1.4 | 100 | |
| Ca | 43 | 2 | He | 15.024 | 24.0 | 83 | 6.9 | 100 | |
| Ca | 44 | 2 | He | -6.415 | -187.5 | 10733 | 0.6 | 100 | |
| V | 51 | 2 | He | -0.223 | -10.7 | 1287 | 4.1 | 2.5 | |
| Cr | 52 | 2 | He | -0.012 | -569.1 | 3941 | 4.3 | 2.5 | |
| Mn | 55 | 2 | He | 0.428 | 24.5 | 4111 | 5.5 | 2.5 | |
| Fe | 56 | 2 | He | 8.172 | 13.7 | 46191 | 6.7 | 100 | |
| Co | 59 | 2 | He | 0.033 | 32.3 | 277 | 18.2 | 2.5 | |
| Ni | 60 | 2 | He | -0.332 | -24.1 | 377 | 25.5 | 2.5 | |
| Cu | 63 | 2 | He | 0.064 | 45.4 | 1143 | 11.4 | 2 | |
| Zn | 66 | 2 | He | -0.600 | -12.5 | 340 | 21.2 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| As | 75 | 2 | He | 0.046 | 77.3 | 247 | 14.2 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.154 | 18.8 | 803 | 11.2 | 2.5 | |
| Se | 78 | 2 | He | 0.451 | 66.6 | 358 | 3.5 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1218353 | 2.84 | 1368896 | 89.00 | 70 | 125 | |
| In | 115 | 1 | nogas | 1080028 | 5.74 | 1163100 | 92.86 | 70 | 125 | |
| Li | 6 | 1 | nogas | 276110 | 2.93 | 315825 | 87.42 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 929370 | 12.02 | 1006853 | 92.30 | 70 | 125 | |
| Ge | 72 | 2 | He | 641818 | 3.30 | 669421 | 95.88 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 222_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T00:02:39-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 108.170 | 4.083 | 181811 | 2.03 | 100 | 108.2 | 90 | 110 | |
| B | 11 | 1 | nogas | 166.645 | 4.684 | 105404 | 1.89 | 500 | 33.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10010.584 | 1.752 | 76514689 | 0.84 | 10000 | 100.1 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9737.906 | 2.233 | 50312779 | 1.45 | 10000 | 97.4 | 90 | 110 | |
| Al | 27 | 1 | nogas | 81.576 | 4.346 | 612186 | 2.82 | 100 | 81.6 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 91.044 | 5.366 | 84308 | 1.44 | 500 | 18.2 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 9954.920 | 3.330 | 72113414 | 4.28 | 10000 | 99.5 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10213.597 | 2.381 | 130101 | 3.50 | 10000 | 102.1 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9729.064 | 3.236 | 2783077 | 1.33 | 10000 | 97.3 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 90.276 | 1.567 | 62141 | 0.30 | 100 | 90.3 | 90 | 110 | |
| V | 51 | 1 | nogas | 93.232 | 1.283 | 962688 | 2.17 | 100 | 93.2 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 91.427 | 0.375 | 782918 | 1.64 | 100 | 91.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 90.477 | 0.839 | 988212 | 1.65 | 100 | 90.5 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9312.665 | 1.603 | 85194616 | 1.12 | 10000 | 93.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 89.303 | 3.128 | 850448 | 3.04 | 100 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ni | 60 | 1 | nogas | 94.677 | 3.677 | 195992 | 3.01 | 100 | 94.7 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 95.891 | 0.810 | 469468 | 1.83 | 100 | 95.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.184 | 0.377 | 148741 | 1.46 | 100 | 99.2 | 90 | 110 | |
| As | 75 | 1 | nogas | 100.404 | 2.544 | 204018 | 3.76 | 100 | 100.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 86.695 | 5.389 | 10540 | 2.20 | 100 | 86.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 95.912 | 5.281 | 9796 | 5.62 | 100 | 95.9 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 84.647 | 1.927 | 994046 | 1.19 | 100 | 84.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Mo | 95 | 1 | nogas | 86.185 | 1.664 | 194951 | 1.43 | 100 | 86.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Ag | 107 | 1 | nogas | 99.102 | 2.533 | 560924 | 4.14 | 100 | 99.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 105.411 | 2.433 | 116984 | 1.26 | 100 | 105.4 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 89.741 | 2.286 | 283577 | 1.32 | 100 | 89.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Sb | 121 | 1 | nogas | 97.793 | 1.819 | 525132 | 1.03 | 100 | 97.8 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 114.510 | 6.762 | 173392 | 3.28 | 100 | 114.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 205 | 1 | nogas | 107.259 | 13.686 | 899769 | 4.20 | 100 | 107.3 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.015 | 11.824 | 645015 | 2.03 | 100 | 103.0 | 90 | 110 | |
| U | 238 | 1 | nogas | 86.876 | 9.466 | 1087338 | 0.62 | 100 | 86.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Li | 7 | 1 | nogas | 103.823 | 3.758 | 391321 | 3.87 | 100 | 103.8 | 90 | 110 | |
| Si | 28 | 1 | nogas | 271.279 | 8.195 | 1817936 | 2.23 | 5000 | 5.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 110.829 | 4.699 | 100612 | 1.58 | 100 | 110.8 | 90 | 110 | CCV Main CR1-2 Failed |
| La | 139 | 1 | nogas | 144.368 | 19.633 | 220 | 12.03 | 100 | 144.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 0.000 | #DIV/0! | 0 | #DIV/0! | 100 | 0.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 109.342 | 11.310 | 373734 | 1.57 | 100 | 109.3 | 90 | 110 | |
| Na | 23 | 2 | He | 10963.233 | 7.349 | 10420904 | 1.97 | 10000 | 109.6 | 90 | 110 | |
| Mg | 24 | 2 | He | 10747.854 | 5.296 | 5741072 | 1.76 | 10000 | 107.5 | 90 | 110 | |
| Al | 27 | 2 | He | 92.255 | 6.741 | 36290 | 3.31 | 100 | 92.3 | 90 | 110 | |
| K | 39 | 2 | He | 10162.220 | 3.532 | 7609529 | 4.15 | 10000 | 101.6 | 90 | 110 | |
| Ca | 43 | 2 | He | 9895.705 | 2.984 | 20202 | 2.46 | 10000 | 99.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 10222.504 | 7.882 | 360299 | 2.57 | 10000 | 102.2 | 90 | 110 | |
| V | 51 | 2 | He | 104.479 | 5.281 | 420120 | 2.21 | 100 | 104.5 | 90 | 110 | |
| Cr | 52 | 2 | He | 102.802 | 3.657 | 442214 | 2.29 | 100 | 102.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 102.304 | 6.864 | 365976 | 3.44 | 100 | 102.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 10308.860 | 6.831 | 41228220 | 2.24 | 10000 | 103.1 | 90 | 110 | |
| Co | 59 | 2 | He | 101.113 | 7.260 | 572791 | 2.26 | 100 | 101.1 | 90 | 110 | |
| Ni | 60 | 2 | He | 103.807 | 9.397 | 146280 | 4.31 | 100 | 103.8 | 90 | 110 | |
| Cu | 63 | 2 | He | 104.413 | 8.227 | 366262 | 3.37 | 100 | 104.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 103.297 | 3.237 | 97283 | 2.11 | 100 | 103.3 | 90 | 110 | |
| As | 75 | 2 | He | 103.546 | 4.745 | 102892 | 1.46 | 100 | 103.5 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.778 | 6.355 | 420480 | 1.81 | 100 | 101.8 | 90 | 110 | |
| Se | 78 | 2 | He | 103.384 | 7.991 | 8959 | 3.28 | 100 | 103.4 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1386415 | 1.61 | 1368896 | 101.28 | 70 | 125 | |
| In | 115 | 1 | nogas | 1178568 | 3.49 | 1163100 | 101.33 | 70 | 125 | |
| Li | 6 | 1 | nogas | 297910 | 2.82 | 315825 | 94.33 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1018333 | 10.43 | 1006853 | 101.14 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 671991 | 5.34 | 669421 | 100.38 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 223_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T00:04:51-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.060 | 38.4 | 113 | 35.7 | 1 | |
| B | 11 | 1 | nogas | 11.480 | 16.4 | 12908 | 9.7 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 105.337 | 3.0 | 3252617 | 0.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 10.620 | 18.1 | 60117 | 16.9 | 100 | |
| Al | 27 | 1 | nogas | -0.297 | -11.4 | 9469 | 1.5 | 5 | |
| P | 31 | 1 | nogas | 2.491 | 117.8 | 38320 | 5.1 | 10 | |
| K | 39 | 1 | nogas | 14.023 | 143.3 | 3295680 | 0.4 | 100 | |
| Ca | 43 | 1 | nogas | 2.519 | 93.1 | 1043 | 6.8 | 100 | |
| Ca | 44 | 1 | nogas | -457.151 | -31.9 | 585803 | 1.6 | 100 | |
| Ti | 47 | 1 | nogas | 0.094 | 84.6 | 350 | 14.8 | 2.5 | |
| V | 51 | 1 | nogas | -0.179 | -76.1 | 33071 | 3.0 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.011 | -194.4 | 11534 | 2.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.037 | 130.4 | 14610 | 2.7 | 2.5 | |
| Fe | 56 | 1 | nogas | 12.660 | 50.6 | 737794 | 4.2 | 100 | |
| Co | 59 | 1 | nogas | 0.052 | 21.7 | 750 | 10.7 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.100 | -128.4 | 1183 | 22.6 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.095 | 65.7 | 2497 | 10.3 | 2 | |
| Zn | 66 | 1 | nogas | -0.843 | -8.8 | 690 | 17.6 | 2.5 | |
| As | 75 | 1 | nogas | -0.843 | -13.2 | 9459 | 2.7 | 2.5 | |
| Se | 77 | 1 | nogas | -1.190 | -101.8 | 3137 | 2.4 | 2.5 | |
| Se | 82 | 1 | nogas | 0.300 | 255.5 | 203 | 37.2 | 2 | |
| Sr | 88 | 1 | nogas | 0.193 | 21.4 | 3050 | 12.1 | 2.5 | |
| Mo | 95 | 1 | nogas | 0.158 | 54.9 | 697 | 24.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.062 | 38.9 | 400 | 30.3 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.034 | 95.2 | 53 | 71.0 | 1 | |
| Sn | 118 | 1 | nogas | 0.363 | 4.8 | 1913 | 5.8 | 5 | |
| Sb | 121 | 1 | nogas | 0.227 | 18.3 | 1533 | 10.8 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.103 | 85.8 | 457 | 27.6 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.355 | 56.8 | 3167 | 63.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.089 | 20.2 | 747 | 23.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.072 | 50.1 | 953 | 56.9 | 2.5 | |
| Si | 28 | 1 | nogas | -16.831 | -85.3 | 924103 | 1.0 | 5 | |
| La | 139 | 1 | nogas | 6.637 | 266.1 | 53 | 39.0 | 2.5 | CCB Main CR1 Failed |
| Au | 197 | 1 | nogas | 118.031 | 7.7 | 10 | 0.0 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 100.656 | 2.7 | 477414 | 0.6 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 9.827 | 6.9 | 6181 | 5.8 | 100 | |
| Al | 27 | 2 | He | -1.264 | -9.4 | 633 | 7.9 | 5 | |
| K | 39 | 2 | He | -4.076 | -96.4 | 210107 | 1.3 | 100 | |
| Ca | 43 | 2 | He | 8.711 | 127.3 | 77 | 30.1 | 100 | |
| Ca | 44 | 2 | He | -37.554 | -10.7 | 10487 | 2.0 | 100 | |
| V | 51 | 2 | He | -0.168 | -7.9 | 1618 | 2.7 | 2.5 | |
| Cr | 52 | 2 | He | -0.071 | -165.3 | 4001 | 13.1 | 2.5 | |
| Mn | 55 | 2 | He | -0.058 | -124.2 | 2660 | 9.1 | 2.5 | |
| Fe | 56 | 2 | He | 4.743 | 10.8 | 35733 | 5.2 | 100 | |
| Co | 59 | 2 | He | 0.028 | 14.9 | 270 | 9.8 | 2.5 | |
| Ni | 60 | 2 | He | -0.407 | -6.5 | 300 | 13.3 | 2.5 | |
| Cu | 63 | 2 | He | 0.092 | 56.9 | 1333 | 13.9 | 2 | |
| Zn | 66 | 2 | He | -0.529 | -24.1 | 433 | 27.7 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| As | 75 | 2 | He | 0.012 | 238.4 | 231 | 12.9 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.145 | 25.7 | 833 | 19.0 | 2.5 | |
| Se | 78 | 2 | He | 0.096 | 147.2 | 356 | 3.0 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1396639 | 3.92 | 1368896 | 102.03 | 70 | 125 | |
| In | 115 | 1 | nogas | 1222729 | 4.20 | 1163100 | 105.13 | 70 | 125 | |
| Li | 6 | 1 | nogas | 303318 | 0.87 | 315825 | 96.04 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1020195 | 8.03 | 1006853 | 101.33 | 70 | 125 | |
| Ge | 72 | 2 | He | 692086 | 0.68 | 669421 | 103.39 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 231_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T00:36:33-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 103.084 | 4.699 | 193533 | 0.51 | 100 | 103.1 | 90 | 110 | |
| B | 11 | 1 | nogas | 163.389 | 5.465 | 115565 | 1.63 | 500 | 32.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 9719.862 | 4.796 | 82317696 | 2.21 | 10000 | 97.2 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9333.716 | 5.083 | 53378689 | 2.59 | 10000 | 93.3 | 90 | 110 | |
| Al | 27 | 1 | nogas | 84.235 | 0.921 | 654958 | 1.80 | 100 | 84.2 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 94.108 | 4.149 | 89033 | 1.21 | 500 | 18.8 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10691.208 | 6.325 | 79935918 | 4.08 | 10000 | 106.9 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 11149.335 | 6.461 | 146932 | 4.37 | 10000 | 111.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 1 | nogas | 10624.494 | 5.699 | 3083519 | 2.36 | 10000 | 106.2 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 91.843 | 1.482 | 65512 | 1.32 | 100 | 91.8 | 90 | 110 | |
| V | 51 | 1 | nogas | 99.881 | 0.832 | 1066326 | 2.74 | 100 | 99.9 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 97.399 | 0.254 | 863611 | 2.32 | 100 | 97.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 96.945 | 4.624 | 1095603 | 2.50 | 100 | 96.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9837.847 | 4.177 | 93191046 | 2.12 | 10000 | 98.4 | 90 | 110 | |
| Co | 59 | 1 | nogas | 91.832 | 5.943 | 905652 | 4.00 | 100 | 91.8 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 99.839 | 4.923 | 214014 | 2.91 | 100 | 99.8 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 103.398 | 3.608 | 524186 | 1.60 | 100 | 103.4 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 104.598 | 1.292 | 162424 | 0.83 | 100 | 104.6 | 90 | 110 | |
| As | 75 | 1 | nogas | 102.746 | 3.011 | 215987 | 1.83 | 100 | 102.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | 104.020 | 10.079 | 12435 | 5.90 | 100 | 104.0 | 90 | 110 | |
| Se | 82 | 1 | nogas | 96.623 | 6.694 | 10217 | 4.79 | 100 | 96.6 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 89.009 | 5.260 | 1082584 | 3.22 | 100 | 89.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Mo | 95 | 1 | nogas | 88.507 | 5.508 | 207331 | 3.44 | 100 | 88.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ag | 107 | 1 | nogas | 100.725 | 3.835 | 590571 | 3.75 | 100 | 100.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 104.522 | 3.998 | 123056 | 4.10 | 100 | 104.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 91.157 | 1.843 | 305566 | 2.17 | 100 | 91.2 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.116 | 3.306 | 556970 | 1.33 | 100 | 100.1 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 110.595 | 2.077 | 177810 | 0.64 | 100 | 110.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 205 | 1 | nogas | 107.801 | 10.925 | 904759 | 2.87 | 100 | 107.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.901 | 8.114 | 632453 | 1.38 | 100 | 100.9 | 90 | 110 | |
| U | 238 | 1 | nogas | 87.413 | 9.824 | 1092274 | 2.11 | 100 | 87.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Li | 7 | 1 | nogas | 102.251 | 2.152 | 430985 | 2.69 | 100 | 102.3 | 90 | 110 | |
| Si | 28 | 1 | nogas | 266.380 | 1.672 | 1868710 | 1.44 | 5000 | 5.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 107.430 | 1.387 | 103521 | 2.00 | 100 | 107.4 | 90 | 110 | |
| La | 139 | 1 | nogas | 136.173 | 6.132 | 223 | 2.59 | 100 | 136.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 81.547 | 173.205 | 7 | 173.21 | 100 | 81.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 110.901 | 11.293 | 378580 | 3.06 | 100 | 110.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 2 | He | 10480.941 | 4.870 | 11100610 | 3.15 | 10000 | 104.8 | 90 | 110 | |
| Mg | 24 | 2 | He | 10529.625 | 4.632 | 6252025 | 2.89 | 10000 | 105.3 | 90 | 110 | |
| Al | 27 | 2 | He | 95.623 | 1.993 | 41792 | 1.60 | 100 | 95.6 | 90 | 110 | |
| K | 39 | 2 | He | 10742.816 | 5.467 | 8920731 | 4.50 | 10000 | 107.4 | 90 | 110 | |
| Ca | 43 | 2 | He | 10066.074 | 2.356 | 22842 | 3.99 | 10000 | 100.7 | 90 | 110 | |
| Ca | 44 | 2 | He | 9862.370 | 7.169 | 386991 | 4.55 | 10000 | 98.6 | 90 | 110 | |
| V | 51 | 2 | He | 103.149 | 3.366 | 461190 | 2.80 | 100 | 103.1 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.718 | 2.789 | 476883 | 2.94 | 100 | 99.7 | 90 | 110 | |
| Mn | 55 | 2 | He | 100.804 | 4.659 | 401003 | 3.02 | 100 | 100.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 10140.713 | 4.916 | 45104501 | 3.31 | 10000 | 101.4 | 90 | 110 | |
| Co | 59 | 2 | He | 98.159 | 4.128 | 618574 | 2.15 | 100 | 98.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 95.375 | 4.006 | 149688 | 0.75 | 100 | 95.4 | 90 | 110 | |
| Cu | 63 | 2 | He | 96.876 | 5.473 | 378187 | 3.67 | 100 | 96.9 | 90 | 110 | |
| Zn | 66 | 2 | He | 100.460 | 3.995 | 105178 | 4.18 | 100 | 100.5 | 90 | 110 | |
| As | 75 | 2 | He | 97.362 | 4.962 | 107526 | 3.04 | 100 | 97.4 | 90 | 110 | |
| Sb | 121 | 2 | He | 94.225 | 4.524 | 432859 | 2.32 | 100 | 94.2 | 90 | 110 | |
| Se | 78 | 2 | He | 102.717 | 4.593 | 9907 | 3.81 | 100 | 102.7 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1436789 | 2.11 | 1368896 | 104.96 | 70 | 125 | |
| In | 115 | 1 | nogas | 1249818 | 2.52 | 1163100 | 107.46 | 70 | 125 | |
| Li | 6 | 1 | nogas | 332998 | 4.46 | 315825 | 105.44 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1016114 | 9.35 | 1006853 | 100.92 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 746214 | 3.28 | 669421 | 111.47 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 232_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T00:38:47-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.075 | 81.6 | 150 | 76.9 | 1 | |
| B | 11 | 1 | nogas | 19.953 | 2.8 | 19300 | 4.0 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 126.561 | 6.0 | 3651267 | 2.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 9.615 | 28.9 | 58474 | 22.4 | 100 | |
| Al | 27 | 1 | nogas | -0.211 | -38.5 | 10340 | 5.0 | 5 | |
| P | 31 | 1 | nogas | 0.611 | 371.6 | 38183 | 2.4 | 10 | |
| K | 39 | 1 | nogas | 33.200 | 27.3 | 3511273 | 1.3 | 100 | |
| Ca | 43 | 1 | nogas | 21.808 | 50.0 | 1317 | 9.8 | 100 | |
| Ca | 44 | 1 | nogas | -557.664 | -10.5 | 577584 | 1.4 | 100 | |
| Ti | 47 | 1 | nogas | 0.097 | 108.3 | 360 | 19.4 | 2.5 | |
| V | 51 | 1 | nogas | 0.522 | 12.2 | 41056 | 2.6 | 2.5 | |
| Cr | 52 | 1 | nogas | 0.090 | 152.9 | 12678 | 8.6 | 2.5 | |
| Mn | 55 | 1 | nogas | -0.092 | -85.7 | 13532 | 6.8 | 2.5 | |
| Fe | 56 | 1 | nogas | 25.872 | 16.4 | 879631 | 3.6 | 100 | |
| Co | 59 | 1 | nogas | 0.055 | 45.1 | 800 | 29.6 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.056 | 48.9 | 1540 | 3.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.090 | 14.0 | 2537 | 1.6 | 2 | |
| Zn | 66 | 1 | nogas | -0.833 | -9.4 | 720 | 17.4 | 2.5 | |
| As | 75 | 1 | nogas | 0.523 | 12.6 | 12385 | 1.6 | 2.5 | |
| Se | 77 | 1 | nogas | 9.502 | 53.7 | 4144 | 11.4 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.042 | -327.2 | 173 | 8.8 | 2 | |
| Sr | 88 | 1 | nogas | 0.159 | 18.6 | 2720 | 12.2 | 2.5 | |
| Mo | 95 | 1 | nogas | 0.162 | 64.3 | 727 | 32.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.057 | 23.3 | 383 | 19.9 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.051 | 7.7 | 73 | 7.9 | 1 | |
| Sn | 118 | 1 | nogas | 0.379 | 12.7 | 1983 | 6.1 | 5 | |
| Sb | 121 | 1 | nogas | 0.233 | 19.8 | 1607 | 15.5 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.038 | 29.5 | 360 | 5.6 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.356 | 61.5 | 3154 | 69.3 | 1 | |
| Pb | 208 | 1 | nogas | 0.085 | 32.1 | 713 | 33.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.089 | 30.9 | 1143 | 37.8 | 2.5 | |
| Si | 28 | 1 | nogas | -6.029 | -76.3 | 981116 | 0.5 | 5 | |
| La | 139 | 1 | nogas | -4.450 | -312.4 | 40 | 43.3 | 2.5 | |
| Au | 197 | 1 | nogas | 251.409 | 173.2 | 23 | 173.2 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 125.967 | 7.1 | 530099 | 0.6 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 7.185 | 1.2 | 4997 | 1.3 | 100 | |
| Al | 27 | 2 | He | -1.322 | -37.4 | 647 | 32.5 | 5 | |
| K | 39 | 2 | He | 8.850 | 59.1 | 232406 | 0.3 | 100 | |
| Ca | 43 | 2 | He | -2.176 | -678.1 | 57 | 56.7 | 100 | |
| Ca | 44 | 2 | He | -43.274 | -14.5 | 10877 | 3.4 | 100 | |
| V | 51 | 2 | He | -0.097 | -18.8 | 2020 | 2.6 | 2.5 | |
| Cr | 52 | 2 | He | -0.137 | -34.0 | 3921 | 5.1 | 2.5 | |
| Mn | 55 | 2 | He | -0.328 | -21.0 | 1763 | 13.9 | 2.5 | |
| Fe | 56 | 2 | He | 4.377 | 7.3 | 36184 | 2.4 | 100 | |
| Co | 59 | 2 | He | 0.029 | 41.4 | 290 | 24.1 | 2.5 | |
| Ni | 60 | 2 | He | -0.389 | -8.5 | 343 | 13.1 | 2.5 | |
| Cu | 63 | 2 | He | 0.035 | 30.0 | 1193 | 3.4 | 2 | |
| Zn | 66 | 2 | He | -0.561 | -12.1 | 427 | 17.3 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| As | 75 | 2 | He | 0.052 | 69.5 | 288 | 14.5 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.118 | 15.0 | 760 | 10.4 | 2.5 | |
| Se | 78 | 2 | He | 0.626 | 20.0 | 425 | 2.3 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1428580 | 1.01 | 1368896 | 104.36 | 70 | 125 | |
| In | 115 | 1 | nogas | 1234153 | 1.98 | 1163100 | 106.11 | 70 | 125 | |
| Li | 6 | 1 | nogas | 324018 | 2.15 | 315825 | 102.59 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1009271 | 9.00 | 1006853 | 100.24 | 70 | 125 | |
| Ge | 72 | 2 | He | 731850 | 1.52 | 669421 | 109.33 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 240_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T00:56:49-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 102.419 | 4.784 | 188742 | 1.13 | 100 | 102.4 | 90 | 110 | |
| B | 11 | 1 | nogas | 152.751 | 6.184 | 106447 | 2.30 | 500 | 30.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 9930.889 | 3.291 | 79751541 | 2.60 | 10000 | 99.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9817.307 | 3.721 | 53273763 | 2.63 | 10000 | 98.2 | 90 | 110 | |
| Al | 27 | 1 | nogas | 82.807 | 3.269 | 665945 | 2.16 | 100 | 82.8 | 90 | 110 | CCV Main CR1-2 Failed |
| P | 31 | 1 | nogas | 87.210 | 2.341 | 88228 | 0.77 | 500 | 17.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 1 | nogas | 10036.707 | 2.424 | 77863802 | 1.25 | 10000 | 100.4 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10336.710 | 1.227 | 141072 | 1.03 | 10000 | 103.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9687.233 | 4.152 | 2973103 | 2.33 | 10000 | 96.9 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 86.532 | 5.725 | 63832 | 4.64 | 100 | 86.5 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 1 | nogas | 93.820 | 2.216 | 1037844 | 1.27 | 100 | 93.8 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 92.311 | 0.201 | 847055 | 0.91 | 100 | 92.3 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 91.601 | 1.048 | 1072031 | 1.07 | 100 | 91.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9418.586 | 1.885 | 92337187 | 1.20 | 10000 | 94.2 | 90 | 110 | |
| Co | 59 | 1 | nogas | 90.014 | 1.753 | 918675 | 0.79 | 100 | 90.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 93.454 | 2.759 | 207362 | 1.76 | 100 | 93.5 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 94.795 | 1.659 | 497356 | 0.93 | 100 | 94.8 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.082 | 0.333 | 159245 | 0.77 | 100 | 99.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 97.520 | 3.593 | 212615 | 2.35 | 100 | 97.5 | 90 | 110 | |
| Se | 77 | 1 | nogas | 91.804 | 1.715 | 11764 | 2.25 | 100 | 91.8 | 90 | 110 | |
| Se | 82 | 1 | nogas | 96.435 | 1.631 | 10553 | 1.23 | 100 | 96.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 83.147 | 0.794 | 1046586 | 0.31 | 100 | 83.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Mo | 95 | 1 | nogas | 84.821 | 1.161 | 205637 | 0.11 | 100 | 84.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Ag | 107 | 1 | nogas | 94.942 | 1.572 | 575708 | 0.96 | 100 | 94.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 104.655 | 0.424 | 122555 | 2.18 | 100 | 104.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 89.827 | 1.516 | 299565 | 3.55 | 100 | 89.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Sb | 121 | 1 | nogas | 95.404 | 1.625 | 549123 | 1.69 | 100 | 95.4 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 109.537 | 1.372 | 175204 | 2.57 | 100 | 109.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 104.985 | 8.720 | 886676 | 2.50 | 100 | 105.0 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.853 | 9.092 | 634932 | 2.85 | 100 | 100.9 | 90 | 110 | |
| U | 238 | 1 | nogas | 85.505 | 7.856 | 1074824 | 1.58 | 100 | 85.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Li | 7 | 1 | nogas | 100.987 | 2.768 | 418019 | 2.02 | 100 | 101.0 | 90 | 110 | |
| Si | 28 | 1 | nogas | 241.240 | 3.896 | 1848295 | 0.67 | 5000 | 4.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Ba | 135 | 1 | nogas | 107.288 | 2.783 | 102799 | 1.76 | 100 | 107.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 111.008 | 37.214 | 190 | 29.31 | 100 | 111.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 227.073 | 96.485 | 20 | 100.00 | 100 | 227.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Tl | 203 | 1 | nogas | 108.873 | 8.298 | 374224 | 2.92 | 100 | 108.9 | 90 | 110 | |
| Na | 23 | 2 | He | 10277.721 | 9.450 | 10795002 | 4.25 | 10000 | 102.8 | 90 | 110 | |
| Mg | 24 | 2 | He | 10443.395 | 7.033 | 6149071 | 1.80 | 10000 | 104.4 | 90 | 110 | |
| Al | 27 | 2 | He | 93.466 | 1.132 | 40606 | 4.36 | 100 | 93.5 | 90 | 110 | |
| K | 39 | 2 | He | 10452.254 | 0.438 | 8633884 | 5.54 | 10000 | 104.5 | 90 | 110 | |
| Ca | 43 | 2 | He | 10052.703 | 1.058 | 22661 | 5.61 | 10000 | 100.5 | 90 | 110 | |
| Ca | 44 | 2 | He | 9730.218 | 5.068 | 379276 | 0.81 | 10000 | 97.3 | 90 | 110 | |
| V | 51 | 2 | He | 102.468 | 7.872 | 454077 | 2.81 | 100 | 102.5 | 90 | 110 | |
| Cr | 52 | 2 | He | 100.544 | 3.561 | 477154 | 1.93 | 100 | 100.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.991 | 2.938 | 391270 | 4.18 | 100 | 99.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 9848.954 | 0.581 | 43544336 | 4.92 | 10000 | 98.5 | 90 | 110 | |
| Co | 59 | 2 | He | 93.480 | 3.767 | 584833 | 1.47 | 100 | 93.5 | 90 | 110 | |
| Ni | 60 | 2 | He | 93.023 | 8.916 | 144723 | 3.62 | 100 | 93.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.498 | 13.069 | 376685 | 7.75 | 100 | 97.5 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.824 | 6.385 | 103620 | 1.20 | 100 | 99.8 | 90 | 110 | |
| As | 75 | 2 | He | 98.182 | 3.303 | 107675 | 1.93 | 100 | 98.2 | 90 | 110 | |
| Sb | 121 | 2 | He | 93.509 | 3.873 | 426505 | 1.66 | 100 | 93.5 | 90 | 110 | |
| Se | 78 | 2 | He | 100.410 | 8.971 | 9605 | 3.43 | 100 | 100.4 | 90 | 110 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1485842 | 1.10 | 1368896 | 108.54 | 70 | 125 | |
| In | 115 | 1 | nogas | 1243005 | 2.50 | 1163100 | 106.87 | 70 | 125 | |
| Li | 6 | 1 | nogas | 326792 | 3.69 | 315825 | 103.47 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1019557 | 6.60 | 1006853 | 101.26 | 70 | 125 | |

Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 741210 | 5.18 | 669421 | 110.72 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 241_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T00:59:02-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.093 | 27.7 | 177 | 27.9 | 1 | |
| B | 11 | 1 | nogas | 10.873 | 5.4 | 13032 | 4.6 | 10 | CCB Main CR1 Failed |
| Na | 23 | 1 | nogas | 37.493 | 26.2 | 2898008 | 0.7 | 100 | |
| Mg | 24 | 1 | nogas | 7.927 | 27.9 | 48644 | 24.5 | 100 | |
| Al | 27 | 1 | nogas | -0.239 | -35.4 | 10076 | 6.6 | 5 | |
| P | 31 | 1 | nogas | 5.084 | 69.3 | 40358 | 3.8 | 10 | |
| K | 39 | 1 | nogas | 35.607 | 23.7 | 3508324 | 0.6 | 100 | |
| Ca | 43 | 1 | nogas | 22.833 | 21.6 | 1323 | 4.9 | 100 | |
| Ca | 44 | 1 | nogas | -449.287 | -9.3 | 598372 | 1.7 | 100 | |
| Ti | 47 | 1 | nogas | 0.085 | 138.6 | 350 | 23.4 | 2.5 | |
| V | 51 | 1 | nogas | -0.029 | -1146.9 | 35175 | 8.3 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.005 | -664.3 | 11794 | 3.5 | 2.5 | |
| Mn | 55 | 1 | nogas | -0.027 | -124.4 | 14166 | 3.6 | 2.5 | |
| Fe | 56 | 1 | nogas | 17.809 | 27.2 | 800051 | 6.3 | 100 | |
| Co | 59 | 1 | nogas | 0.071 | 13.0 | 953 | 10.5 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.057 | -36.4 | 1293 | 2.9 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.020 | 42.0 | 2174 | 1.0 | 2 | |
| Zn | 66 | 1 | nogas | -0.845 | -5.7 | 697 | 9.8 | 2.5 | |
| As | 75 | 1 | nogas | 0.010 | 312.3 | 11304 | 1.5 | 2.5 | |
| Se | 77 | 1 | nogas | 2.572 | 118.2 | 3517 | 6.7 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.876 | 21.9 | 267 | 7.8 | 2 | |
| Sr | 88 | 1 | nogas | 0.121 | 16.7 | 2257 | 11.3 | 2.5 | |
| Mo | 95 | 1 | nogas | 0.183 | 80.3 | 773 | 44.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.053 | 37.6 | 357 | 31.9 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.068 | 16.6 | 97 | 15.8 | 1 | |
| Sn | 118 | 1 | nogas | 0.363 | 17.9 | 2000 | 8.3 | 5 | |
| Sb | 121 | 1 | nogas | 0.386 | 17.9 | 2444 | 16.5 | 2.5 | |
| Ba | 137 | 1 | nogas | 0.046 | 48.7 | 387 | 5.4 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.384 | 53.8 | 3451 | 61.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.076 | 44.6 | 673 | 40.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.074 | 34.1 | 980 | 40.8 | 2.5 | |
| Si | 28 | 1 | nogas | -2.330 | -102.0 | 987514 | 1.5 | 5 | |
| La | 139 | 1 | nogas | -8.669 | -163.4 | 37 | 56.8 | 2.5 | |
| Au | 197 | 1 | nogas | 153.858 | 87.4 | 13 | 86.6 | 2.5 | CCB Main CR1 Failed |
| Na | 23 | 2 | He | 31.820 | 26.4 | 425324 | 0.9 | 100 | |
| Mg | 24 | 2 | He | 6.213 | 9.2 | 4321 | 5.8 | 100 | |
| Al | 27 | 2 | He | -1.512 | -9.3 | 553 | 12.0 | 5 | |
| K | 39 | 2 | He | 13.546 | 14.4 | 230455 | 1.4 | 100 | |
| Ca | 43 | 2 | He | 7.687 | 145.2 | 77 | 30.1 | 100 | |
| Ca | 44 | 2 | He | -22.381 | -22.0 | 11370 | 1.1 | 100 | |
| V | 51 | 2 | He | -0.125 | -22.2 | 1853 | 6.5 | 2.5 | |
| Cr | 52 | 2 | He | -0.105 | -38.6 | 3971 | 2.7 | 2.5 | |
| Mn | 55 | 2 | He | -0.283 | -16.1 | 1893 | 7.7 | 2.5 | |
| Fe | 56 | 2 | He | 4.938 | 7.2 | 37704 | 3.5 | 100 | |
| Co | 59 | 2 | He | 0.030 | 14.1 | 287 | 7.3 | 2.5 | |
| Ni | 60 | 2 | He | -0.411 | -10.3 | 303 | 21.2 | 2.5 | |
| Cu | 63 | 2 | He | 0.030 | 261.2 | 1140 | 23.4 | 2 | |
| Zn | 66 | 2 | He | -0.502 | -18.4 | 473 | 17.6 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| As | 75 | 2 | He | 0.055 | 32.3 | 283 | 8.5 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.313 | 1.1 | 1597 | 2.8 | 2.5 | |
| Se | 78 | 2 | He | 0.961 | 56.9 | 445 | 12.4 | 2 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1420485 | 1.13 | 1368896 | 103.77 | 70 | 125 | |
| In | 115 | 1 | nogas | 1280709 | 4.48 | 1163100 | 110.11 | 70 | 125 | |
| Li | 6 | 1 | nogas | 315378 | 3.43 | 315825 | 99.86 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1032219 | 8.17 | 1006853 | 102.52 | 70 | 125 | |
| Ge | 72 | 2 | He | 714172 | 1.92 | 669421 | 106.69 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV2 |
| Data File Name | 242SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T01:01:17-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 193CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Fail |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.017 | 0.017 | 126.50 | 183 | 0.01 | 2000 | |
| B | 11 | 1 | nogas | -7.082 | -7.082 | -7.97 | 8312 | -0.09 | 2000 | |
| Na | 23 | 1 | nogas | -249.331 | -249.331 | -9.23 | 2834643 | -0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 5.828 | 5.828 | 114.42 | 139346 | 0.00 | 200000 | |
| Al | 27 | 1 | nogas | 154.397 | 154.397 | 94.94 | 4796271 | 0.00 | 2000 | |
| K | 39 | 1 | nogas | -382.016 | -382.016 | -6.66 | 2113201 | -0.02 | 200000 | |
| Ca | 43 | 1 | nogas | -58.604 | -58.604 | -12.48 | 1037 | -5.65 | 200000 | |
| Ca | 44 | 1 | nogas | -2444.220 | -2444.220 | -7.75 | 611099 | -0.40 | 200000 | |
| Ti | 47 | 1 | nogas | 7.762 | 7.762 | 102.08 | 19894 | 0.04 | 2000 | |
| V | 51 | 1 | nogas | -3.276 | -3.276 | -4.10 | 7638 | -0.04 | 2000 | |
| Cr | 52 | 1 | nogas | -1.151 | -1.151 | -5.76 | 7297 | -0.02 | 2000 | |
| Mn | 55 | 1 | nogas | -0.912 | -0.912 | -17.16 | 16819 | -0.01 | 2000 | |
| Fe | 56 | 1 | nogas | -45.013 | -45.013 | -33.67 | 787731 | -0.01 | 200000 | |
| Co | 59 | 1 | nogas | 0.005 | 0.005 | 498.46 | 1093 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | -0.564 | -0.564 | -7.84 | 860 | -0.07 | 2000 | |
| Cu | 63 | 1 | nogas | -0.314 | -0.314 | -11.04 | 1953 | -0.02 | 2000 | |
| Zn | 66 | 1 | nogas | -1.179 | -1.179 | -7.18 | 697 | -0.17 | 2000 | |
| As | 75 | 1 | nogas | -5.461 | -5.461 | -1.79 | 2040 | -0.27 | 2000 | |
| Se | 77 | 1 | nogas | -36.702 | -36.702 | -1.78 | 443 | -8.28 | 2000 | |
| Se | 82 | 1 | nogas | 0.749 | 0.749 | 101.14 | 983 | 0.08 | 2000 | |
| Sr | 88 | 1 | nogas | 0.012 | 0.012 | 307.60 | 3538 | 0.00 | 2000 | |
| Mo | 95 | 1 | nogas | -0.039 | -0.039 | -217.21 | 930 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 0.014 | 0.014 | 90.89 | 497 | 0.00 | 2000 | |
| Cd | 111 | 1 | nogas | 0.026 | 0.026 | 188.44 | 143 | 0.02 | 2000 | |
| Sn | 118 | 1 | nogas | 0.071 | 0.071 | 216.70 | 3507 | 0.00 | 2000 | |
| Sb | 121 | 1 | nogas | 0.017 | 0.017 | 258.77 | 1527 | 0.00 | 2000 | |
| Ba | 137 | 1 | nogas | 0.349 | 0.349 | 188.09 | 2779 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 0.092 | 0.092 | 19.11 | 1077 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 0.095 | 0.095 | 29.20 | 1000 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 0.056 | 0.056 | 39.82 | 957 | 0.01 | 2000 | |
| Si | 28 | 1 | nogas | 363.727 | 363.727 | 118.41 | 7932973 | 0.00 | 2000 | |
| La | 139 | 1 | nogas | 365.247 | 365.247 | 111.18 | 1738 | 21.01 | 2000 | |
| Au | 197 | 1 | nogas | 44.348 | 44.348 | 173.21 | 3 | 1330.44 | 2000 | |
| Na | 23 | 2 | He | -290.887 | -290.887 | -13.21 | 407324 | -0.07 | 200000 | |
| Mg | 24 | 2 | He | 18.860 | 18.860 | 81.70 | 41501 | 0.05 | 200000 | |
| Al | 27 | 2 | He | 59.615 | 59.615 | 43.51 | 92079 | 0.06 | 2000 | |
| K | 39 | 2 | He | -221.735 | -221.735 | -11.73 | 179048 | -0.12 | 200000 | |
| Ca | 43 | 2 | He | -1.279 | -1.279 | -1660.64 | 203 | -0.63 | 200000 | |
| Ca | 44 | 2 | He | -239.634 | -239.634 | -13.34 | 12818 | -1.87 | 200000 | |
| V | 51 | 2 | He | -0.352 | -0.352 | -41.24 | 3221 | -0.01 | 2000 | |
| Cr | 52 | 2 | He | -0.691 | -0.691 | -24.98 | 4774 | -0.01 | 2000 | |
| Mn | 55 | 2 | He | -0.533 | -0.533 | -30.55 | 3434 | -0.02 | 2000 | |

# Sample Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fe | 56 | 2 | He | 19.916 | 19.916 | 68.05 | 369570 | 0.01 | 200000 | |
| Co | 59 | 2 | He | 0.113 | 0.113 | 92.43 | 2787 | 0.00 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ni | 60 | 2 | He | -0.428 | -0.428 | -32.38 | 987 | -0.04 | 2000 | |
| Cu | 63 | 2 | He | -0.085 | -0.085 | -142.53 | 2590 | 0.00 | 2000 | |
| Zn | 66 | 2 | He | -0.761 | -0.761 | -20.83 | 780 | -0.10 | 2000 | |
| As | 75 | 2 | He | -0.038 | -0.038 | -332.35 | 672 | -0.01 | 2000 | |
| Sb | 121 | 2 | He | 0.135 | 0.135 | 100.10 | 2897 | 0.00 | 2000 | |
| Se | 78 | 2 | He | -2.549 | -2.549 | -13.60 | 498 | -0.51 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 5776862 | 22.90 | 1368896 | 422.01 | 70 | 125 | ISTD Failed |
| In | 115 | 1 | nogas | 4821266 | 20.62 | 1163100 | 414.52 | 70 | 125 | ISTD Failed |
| Li | 6 | 1 | nogas | 1628531 | 21.59 | 315825 | 515.64 | 70 | 125 | ISTD Failed |
| Bi | 209 | 1 | nogas | 1275218 | 25.48 | 1006853 | 126.65 | 70 | 125 | ISTD Failed |
| Ge | 72 | 2 | He | 2800938 | 27.42 | 669421 | 418.41 | 70 | 125 | ISTD Failed |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV5 |
| Data File Name | 243LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T01:03:29-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.982 | 5.961 | 8662 | 6.01 | 5 | 99.6 | 70 | 130 | |
| B | 11 | 1 | nogas | 53.913 | 2.902 | 39296 | 2.38 | 25 | 215.7 | 70 | 130 | LLICV Main CR1 Failed |
| Na | 23 | 1 | nogas | 555.500 | 8.420 | 6639290 | 2.01 | 500 | 111.1 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 498.711 | 1.654 | 2604504 | 6.41 | 500 | 99.7 | 70 | 130 | |
| Al | 27 | 1 | nogas | 8.612 | 11.307 | 73157 | 8.66 | 5 | 172.2 | 70 | 130 | LLICV Main CR1 Failed |
| P | 31 | 1 | nogas | 35.678 | 17.967 | 53986 | 2.75 | 25 | 142.7 | 70 | 130 | LLICV Main CR1 Failed |
| K | 39 | 1 | nogas | 558.828 | 12.978 | 6865327 | 3.41 | 500 | 111.8 | 70 | 130 | |
| Ca | 43 | 1 | nogas | 573.428 | 7.657 | 8039 | 3.26 | 500 | 114.7 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 179.848 | 82.464 | 701913 | 0.42 | 500 | 36.0 | 70 | 130 | LLICV Main CR1 Failed |
| Ti | 47 | 1 | nogas | 5.378 | 7.925 | 3874 | 8.24 | 5 | 107.6 | 70 | 130 | |
| V | 51 | 1 | nogas | 4.744 | 4.719 | 79962 | 6.80 | 5 | 94.9 | 70 | 130 | |
| Cr | 52 | 1 | nogas | 5.034 | 5.517 | 52670 | 0.30 | 5 | 100.7 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.544 | 6.800 | 71956 | 3.11 | 5 | 110.9 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 521.712 | 4.394 | 5224137 | 1.23 | 500 | 104.3 | 70 | 130 | |
| Co | 59 | 1 | nogas | 4.876 | 5.886 | 45489 | 2.02 | 5 | 97.5 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.912 | 7.974 | 11184 | 3.35 | 5 | 98.2 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 5.366 | 5.848 | 27466 | 1.41 | 5 | 107.3 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 6.174 | 2.996 | 10807 | 5.25 | 5 | 123.5 | 70 | 130 | |
| As | 75 | 1 | nogas | 5.326 | 13.053 | 20716 | 4.26 | 5 | 106.5 | 70 | 130 | |
| Se | 77 | 1 | nogas | 9.586 | 67.200 | 3917 | 9.80 | 5 | 191.7 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 5.206 | 15.594 | 680 | 15.49 | 5 | 104.1 | 70 | 130 | |
| Sr | 88 | 1 | nogas | 5.210 | 1.240 | 60432 | 3.46 | 5 | 104.2 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 4.938 | 3.355 | 11211 | 3.21 | 5 | 98.8 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 4.965 | 5.272 | 27436 | 2.99 | 5 | 99.3 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 4.986 | 6.894 | 5858 | 8.12 | 5 | 99.7 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 5.925 | 4.270 | 20460 | 5.16 | 5 | 118.5 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.125 | 4.129 | 27142 | 4.52 | 5 | 102.5 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 5.399 | 4.971 | 8923 | 3.13 | 5 | 108.0 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 5.089 | 5.740 | 42070 | 2.80 | 5 | 101.8 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 5.126 | 3.981 | 31722 | 1.07 | 5 | 102.5 | 70 | 130 | |
| U | 238 | 1 | nogas | 4.640 | 6.983 | 56976 | 2.92 | 5 | 92.8 | 70 | 130 | |
| Li | 7 | 1 | nogas | 4.992 | 5.977 | 40451 | 2.28 | 5 | 99.8 | 70 | 130 | |
| Si | 28 | 1 | nogas | 354.812 | 7.518 | 2027795 | 1.23 | 25 | 1419.2 | 70 | 130 | LLICV Main CR1 Failed |
| La | 139 | 1 | nogas | 23.428 | 82.410 | 77 | 32.83 | 5 | 468.6 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 162.022 | 117.303 | 13 | 114.56 | 5 | 3240.4 | 70 | 130 | LLICV Main CR1 Failed |
| Na | 23 | 2 | He | 535.514 | 3.774 | 906293 | 0.70 | 500 | 107.1 | 70 | 130 | |
| Mg | 24 | 2 | He | 500.219 | 1.884 | 281863 | 2.98 | 500 | 100.0 | 70 | 130 | |
| Al | 27 | 2 | He | 6.825 | 8.127 | 3890 | 4.39 | 5 | 136.5 | 70 | 130 | LLICV Main CR1 Failed |
| K | 39 | 2 | He | 534.977 | 2.750 | 626829 | 1.48 | 500 | 107.0 | 70 | 130 | |
| Ca | 43 | 2 | He | 544.338 | 13.244 | 1223 | 11.69 | 500 | 108.9 | 70 | 130 | |
| Ca | 44 | 2 | He | 453.534 | 3.741 | 28333 | 0.71 | 500 | 90.7 | 70 | 130 | |
| V | 51 | 2 | He | 4.810 | 1.445 | 22595 | 2.57 | 5 | 96.2 | 70 | 130 | |
| Cr | 52 | 2 | He | 5.040 | 3.897 | 26964 | 1.81 | 5 | 100.8 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.481 | 1.722 | 23403 | 0.95 | 5 | 109.6 | 70 | 130 | |
| Fe | 56 | 2 | He | 539.173 | 2.201 | 2284796 | 0.70 | 500 | 107.8 | 70 | 130 | |
| Co | 59 | 2 | He | 4.925 | 1.281 | 29468 | 0.59 | 5 | 98.5 | 70 | 130 | |
| Ni | 60 | 2 | He | 4.231 | 7.034 | 7148 | 5.30 | 5 | 84.6 | 70 | 130 | |
| Cu | 63 | 2 | He | 4.787 | 1.953 | 18657 | 2.45 | 5 | 95.7 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.938 | 5.537 | 6788 | 6.02 | 5 | 118.8 | 70 | 130 | |
| As | 75 | 2 | He | 4.923 | 2.441 | 5356 | 0.87 | 5 | 98.5 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.301 | 3.202 | 23256 | 4.02 | 5 | 106.0 | 70 | 130 | |
| Se | 78 | 2 | He | 5.661 | 7.805 | 851 | 3.42 | 5 | 113.2 | 70 | 130 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1353237 | 4.10 | 1368896 | 98.86 | 70 | 125 | |
| In | 115 | 1 | nogas | 1243613 | 1.97 | 1163100 | 106.92 | 70 | 125 | |
| Li | 6 | 1 | nogas | 307635 | 0.63 | 315825 | 97.41 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 994123 | 4.36 | 1006853 | 98.74 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 705666 | 1.50 | 669421 | 105.41 | 70 | 125 | |

# Interference Check Solution A (ICS-A) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSA |
| Data File Name | 244ICSA.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T01:05:44-06:00 |
| Sample Type | ICSA |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.022 | 137.7 | 40 | 109.0 | 0 | ICSA Main CR1 Failed |
| B | 11 | 1 | nogas | 11.738 | 12.8 | 11180 | 6.9 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 1 | nogas | 86656.517 | 0.5 | 695762932 | 0.5 | 0 | |
| Mg | 24 | 1 | nogas | 78226.342 | 0.8 | 437095010 | 0.6 | 0 | |
| Al | 27 | 1 | nogas | 83996.949 | 3.7 | 565972565 | 1.4 | 0 | |
| P | 31 | 1 | nogas | 98649.607 | 3.0 | 47213244 | 1.7 | 0 | |
| K | 39 | 1 | nogas | 98495.544 | 4.3 | 626652931 | 2.1 | 0 | |
| Ca | 43 | 1 | nogas | 111913.138 | 4.5 | 1294660 | 2.5 | 0 | |
| Ca | 44 | 1 | nogas | 109074.451 | 2.8 | 22190331 | 1.0 | 0 | |
| Ti | 47 | 1 | nogas | 2331.566 | 1.4 | 1462539 | 1.7 | 0 | |
| V | 51 | 1 | nogas | 0.707 | 40.1 | 38118 | 5.1 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 1 | nogas | 1.111 | 13.1 | 19131 | 3.7 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 1 | nogas | 0.378 | 18.1 | 16641 | 2.9 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 1 | nogas | 95306.401 | 0.4 | 792874118 | 2.2 | 0 | |
| Co | 59 | 1 | nogas | 0.356 | 1.9 | 3334 | 3.6 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 1 | nogas | 1.685 | 3.2 | 4434 | 3.1 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 1 | nogas | 1.418 | 3.8 | 8179 | 4.5 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 1 | nogas | 3.937 | 4.9 | 7098 | 2.5 | 0 | ICSA Main CR1 Failed |
| As | 75 | 1 | nogas | 3.899 | 15.6 | 16952 | 8.3 | 0 | ICSA Main CR1 Failed |
| Se | 77 | 1 | nogas | 31.604 | 9.2 | 5391 | 5.7 | 0 | |
| Se | 82 | 1 | nogas | 0.361 | 309.4 | 190 | 53.4 | 0 | ICSA Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.871 | 8.6 | 10057 | 5.7 | 0 | ICSA Main CR1 Failed |
| Mo | 95 | 1 | nogas | 1955.895 | 2.5 | 4041940 | 1.7 | 0 | |
| Ag | 107 | 1 | nogas | 0.032 | 4.3 | 213 | 2.7 | 0 | ICSA Main CR1 Failed |
| Cd | 111 | 1 | nogas | 1.026 | 7.9 | 1140 | 7.2 | 0 | ICSA Main CR1 Failed |
| Sn | 118 | 1 | nogas | 0.231 | 34.9 | 1413 | 18.5 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 1 | nogas | 0.274 | 4.8 | 1630 | 1.6 | 0 | ICSA Main CR1 Failed |
| Ba | 137 | 1 | nogas | 0.292 | 16.2 | 720 | 9.1 | 0 | ICSA Main CR1 Failed |
| Tl | 205 | 1 | nogas | 0.040 | 60.3 | 393 | 56.6 | 0 | ICSA Main CR1 Failed |
| Pb | 208 | 1 | nogas | 0.110 | 2.7 | 840 | 6.6 | 0 | ICSA Main CR1 Failed |
| Si | 28 | 1 | nogas | 158.730 | 6.9 | 1342432 | 2.0 | 0 | |
| La | 139 | 1 | nogas | 104.541 | 55.5 | 170 | 41.2 | 0 | |
| Na | 23 | 2 | He | 106479.897 | 3.0 | 87728699 | 4.5 | 0 | |
| Mg | 24 | 2 | He | 104168.750 | 2.1 | 49764808 | 3.1 | 0 | |
| Al | 27 | 2 | He | 89222.384 | 3.7 | 30442056 | 2.8 | 0 | |
| K | 39 | 2 | He | 102448.647 | 5.8 | 66804032 | 3.1 | 0 | |
| Ca | 43 | 2 | He | 100763.559 | 7.5 | 183160 | 4.8 | 0 | |
| Ca | 44 | 2 | He | 106548.461 | 7.3 | 3261554 | 4.5 | 0 | |
| V | 51 | 2 | He | -0.126 | -20.0 | 1551 | 3.0 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 2 | He | 0.327 | 30.9 | 4981 | 7.9 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 2 | He | 0.473 | 15.4 | 3987 | 3.0 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 2 | He | 104425.420 | 2.9 | 373485194 | 1.1 | 0 | |
| Co | 59 | 2 | He | 0.333 | 13.3 | 1780 | 13.2 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 2 | He | 0.777 | 6.6 | 1747 | 6.0 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 2 | He | 1.139 | 12.9 | 4427 | 7.7 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 2 | He | 3.705 | 5.3 | 3911 | 6.9 | 0 | ICSA Main CR1 Failed |
| As | 75 | 2 | He | 0.160 | 16.9 | 331 | 5.1 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 2 | He | 0.301 | 8.1 | 1300 | 8.5 | 0 | ICSA Main CR1 Failed |
| Se | 78 | 2 | He | 0.744 | 37.7 | 357 | 3.1 | 0 | ICSA Main CR1 Failed |

# Interference Check Solution A (ICS-A) Report

# Interference Check Solution A (ICS-A) Report

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1268972 | 2.35 | 1368896 | 92.70 | 70 | 125 | |
| In | 115 | 1 | nogas | 1165594 | 0.72 | 1163100 | 100.21 | 70 | 125 | |
| Li | 6 | 1 | nogas | 259687 | 0.63 | 315825 | 82.22 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 983994 | 5.49 | 1006853 | 97.73 | 70 | 125 | |
| Ge | 72 | 2 | He | 600065 | 2.84 | 669421 | 89.64 | 70 | 125 | |

# Interference Check Solution AB (ICS-AB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSAB |
| Data File Name | 245ICSB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\122 |
| Acq Date Time | 2018-12-22T01:08:04-06:00 |
| Sample Type | ICSB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 193CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 126.424 | 3.480 | 170935 | 3.60 | 100 | 126.4 | 80 | 120 | ICSB Main CR1 Failed |
| B | 11 | 1 | nogas | 1078.250 | 5.760 | 522754 | 3.30 | 100 | 1078.2 | 80 | 120 | ICSB Main CR1 Failed |
| Na | 23 | 1 | nogas | 98530.713 | 1.495 | 694242949 | 3.60 | 100 | 98530.7 | 80 | 120 | |
| Mg | 24 | 1 | nogas | 93400.342 | 5.039 | 457757560 | 2.69 | 100 | 93400.3 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 1 | nogas | 85174.438 | 9.111 | 507776006 | 2.85 | 100 | 85174.4 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 1 | nogas | 117290.657 | 9.956 | 659430881 | 2.90 | 100 | 117290.7 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 126129.054 | 7.202 | 1292838 | 4.80 | 100 | 126129.1 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 1 | nogas | 122298.373 | 7.650 | 21956450 | 0.84 | 100 | 122298.4 | 80 | 120 | ICSB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 2527.455 | 9.798 | 1401376 | 2.35 | 100 | 2527.5 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 1 | nogas | 128.747 | 13.664 | 1062893 | 5.86 | 100 | 128.7 | 80 | 120 | ICSB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 119.980 | 7.550 | 829274 | 2.66 | 100 | 120.0 | 80 | 120 | |
| Mn | 55 | 1 | nogas | 109.487 | 4.821 | 967302 | 2.59 | 100 | 109.5 | 80 | 120 | |
| Fe | 56 | 1 | nogas | 110962.018 | 4.252 | 817977052 | 3.15 | 100 | 110962.0 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 1 | nogas | 113.452 | 10.377 | 873802 | 3.38 | 100 | 113.5 | 80 | 120 | |
| Ni | 60 | 1 | nogas | 117.949 | 11.434 | 197133 | 3.93 | 100 | 117.9 | 80 | 120 | |
| Cu | 63 | 1 | nogas | 113.383 | 8.562 | 449036 | 1.53 | 100 | 113.4 | 80 | 120 | |
| Zn | 66 | 1 | nogas | 117.307 | 1.353 | 142600 | 5.90 | 100 | 117.3 | 80 | 120 | |
| As | 75 | 1 | nogas | 124.503 | 7.340 | 202742 | 0.70 | 100 | 124.5 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 77 | 1 | nogas | 138.299 | 9.809 | 12071 | 1.58 | 100 | 138.3 | 80 | 120 | |
| Se | 82 | 1 | nogas | 115.196 | 7.637 | 9499 | 1.18 | 100 | 115.2 | 80 | 120 | |
| Sr | 88 | 1 | nogas | 118.967 | 12.322 | 1128727 | 5.16 | 100 | 119.0 | 80 | 120 | |
| Mo | 95 | 1 | nogas | 2182.025 | 7.168 | 3991691 | 1.36 | 100 | 2182.0 | 80 | 120 | ICSB Main CR1 Failed |
| Ag | 107 | 1 | nogas | 114.252 | 2.110 | 524922 | 5.31 | 100 | 114.3 | 80 | 120 | |
| Cd | 111 | 1 | nogas | 117.418 | 4.459 | 116817 | 0.53 | 100 | 117.4 | 80 | 120 | |
| Sn | 118 | 1 | nogas | 123.042 | 1.342 | 348676 | 3.69 | 100 | 123.0 | 80 | 120 | ICSB Main CR1 Failed |
| Sb | 121 | 1 | nogas | 120.626 | 6.458 | 524861 | 1.38 | 100 | 120.6 | 80 | 120 | ICSB Main CR1 Failed |
| Ba | 137 | 1 | nogas | 122.449 | 11.158 | 166028 | 6.61 | 100 | 122.4 | 80 | 120 | ICSB Main CR1 Failed |
| Tl | 205 | 1 | nogas | 115.481 | 11.428 | 844748 | 5.78 | 100 | 115.5 | 80 | 120 | |
| Pb | 208 | 1 | nogas | 114.364 | 6.167 | 625127 | 2.27 | 100 | 114.4 | 80 | 120 | |
| U | 238 | 1 | nogas | 114.188 | 6.111 | 1245441 | 0.53 | 100 | 114.2 | 80 | 120 | |
| Si | 28 | 1 | nogas | 6489.698 | 10.512 | 17186799 | 2.79 | 100 | 6489.7 | 80 | 120 | ICSB Main CR1 Failed |
| La | 139 | 1 | nogas | 164.378 | 30.114 | 220 | 25.31 | 100 | 164.4 | 80 | 120 | ICSB Main CR1 Failed |
| Na | 23 | 2 | He | 106675.766 | 1.748 | 87771249 | 2.03 | 100 | 106675.8 | 80 | 120 | ICSB Main CR1 Failed |
| Mg | 24 | 2 | He | 105749.366 | 1.692 | 50457656 | 1.20 | 100 | 105749.4 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 2 | He | 82644.107 | 1.949 | 28170357 | 0.24 | 100 | 82644.1 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 2 | He | 100908.704 | 3.067 | 65774816 | 1.76 | 100 | 100908.7 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 2 | He | 98769.173 | 1.943 | 179567 | 2.50 | 100 | 98769.2 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 2 | He | 102753.517 | 3.634 | 3147094 | 4.84 | 100 | 102753.5 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 2 | He | 111.882 | 3.139 | 401663 | 1.62 | 100 | 111.9 | 80 | 120 | |
| Cr | 52 | 2 | He | 109.368 | 1.532 | 419842 | 1.84 | 100 | 109.4 | 80 | 120 | |
| Mn | 55 | 2 | He | 105.271 | 0.533 | 336516 | 2.04 | 100 | 105.3 | 80 | 120 | |
| Fe | 56 | 2 | He | 103103.865 | 0.244 | 368505261 | 1.75 | 100 | 103103.9 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 2 | He | 108.625 | 3.936 | 550117 | 3.50 | 100 | 108.6 | 80 | 120 | |
| Ni | 60 | 2 | He | 108.489 | 6.268 | 136755 | 6.11 | 100 | 108.5 | 80 | 120 | |
| Cu | 63 | 2 | He | 111.534 | 2.475 | 349821 | 1.68 | 100 | 111.5 | 80 | 120 | |
| Zn | 66 | 2 | He | 114.510 | 3.815 | 96170 | 2.45 | 100 | 114.5 | 80 | 120 | |
| As | 75 | 2 | He | 109.554 | 2.756 | 97211 | 1.16 | 100 | 109.6 | 80 | 120 | |
| Sb | 121 | 2 | He | 113.067 | 2.476 | 417412 | 1.28 | 100 | 113.1 | 80 | 120 | |
| Se | 78 | 2 | He | 113.976 | 3.322 | 8798 | 1.63 | 100 | 114.0 | 80 | 120 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 1 | nogas | 1126790 | 7.19 | 1368896 | 82.31 | 70 | 125 | |
| In | 115 | 1 | nogas | 1057414 | 4.63 | 1163100 | 90.91 | 70 | 125 | |
| Li | 6 | 1 | nogas | 239531 | 2.64 | 315825 | 75.84 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 883841 | 6.26 | 1006853 | 87.78 | 70 | 125 | |
| Ge | 72 | 2 | He | 599352 | 1.73 | 669421 | 89.53 | 70 | 125 | |

# Tune Report

**Batch Folder** C:\Agilent\ICPMH\1\DATA\122118A.b
**Report Comment**
**Instrument Name** G3281A JP09420132

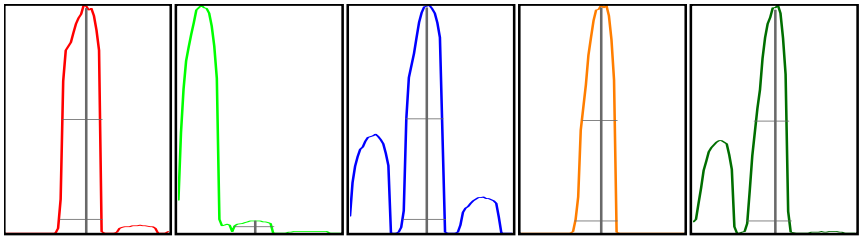
**[nogas]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 22681 | | | | NaN | - | |
| 24 | | 53340 | | | | NaN | - | |
| 59 | | 68237 | | | | NaN | - | |
| 115 | | 70830 | | | | NaN | - | |
| 208 | | 37989 | | | | NaN | - | |

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 0.89 | 5.00 | | | | |
| 24 | 1.08 | 5.00 | | | | |
| 59 | 0.57 | 5.00 | | | | |
| 115 | 1.28 | 5.00 | | | | |
| 208 | 0.22 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 23028 | 22582 | 22683 | 22564 | 22547 |
| 24 | 54293 | 53199 | 52900 | 52897 | 53411 |
| 59 | 68605 | 68505 | 68125 | 68334 | 67616 |
| 115 | 69571 | 71034 | 70266 | 71486 | 71794 |
| 208 | 38114 | 37893 | 38020 | 37971 | 37945 |

**Integration Time [sec]** 0.1



| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 3495.12 | 9.00 | 8.9 - 9.1 | | 0.69 | 0.782 | | |
| 24 | 8454.41 | 23.95 | 23.9 - 24.1 | | 0.67 | NaN | | |
| 59 | 11261.21 | 58.95 | 58.9 - 59.1 | | 0.64 | 0.769 | | |
| 115 | 12389.09 | 115.00 | 114.9 - 115.1 | | 0.60 | 0.754 | | |
| 208 | 6859.93 | 208.05 | 207.9 - 208.1 | | 0.58 | 0.770 | | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

**Tune Parameters**

**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.41 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.80 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.40 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 10.2 V | Deflect | 10.0 V |
| Extract 2 | -200.0 V | Cell Entrance | -30 V | Plate Bias | -40 V |
| Omega Bias | -100 V | Cell Exit | -50 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -8.0 V | He Flow | 0.0 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 180 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

**[He]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 659 | | | | NaN | - | |
| 24 | | 5277 | | | | NaN | - | |
| 59 | | 40403 | | | | NaN | - | |

# Tune Report

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 2.40 | 5.00 | | | | |
| 24 | 1.10 | 5.00 | | | | |
| 59 | 0.88 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 647 | 646 | 655 | 663 | 685 |
| 24 | 5199 | 5268 | 5336 | 5250 | 5332 |
| 59 | 40100 | 40705 | 40201 | 40141 | 40868 |

**Integration Time [sec]** 0.1

| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 106.41 | 8.95 | 8.9 - 9.1 | | 0.67 | 0.779 | | |
| 24 | 870.70 | 23.95 | 23.9 - 24.1 | | 0.66 | 0.755 | | |
| 59 | 6891.46 | 59.00 | 58.9 - 59.1 | | 0.61 | 0.750 | | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

**Tune Parameters**

**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.41 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.80 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.40 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 10.2 V | Deflect | 0.0 V |
| Extract 2 | -200.0 V | Cell Entrance | -40 V | Plate Bias | -60 V |
| Omega Bias | -100 V | Cell Exit | -60 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -18.0 V | He Flow | 3.5 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 180 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

# HS18121030 Cover Page

ALS WO# HS18121030

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- HS18121030 8260 Raw Data

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# WorkOrder: HS18121030

**LHAAP-58**

**Bhate Environmental Associates, Inc.**

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**28-Jan-2019**

# HS18121030 LHAAP58 Final

ALS WO# HS18121030

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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December 27, 2018

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS18121030**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 5 sample(s) on Dec 18, 2018 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

**Generated By: DAYNA.FISHER**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18121030

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS18121030-01 | 35AWW17_121718 | Groundwater | | 17-Dec-2018 09:05 | 18-Dec-2018 11:00 | ☐ |
| HS18121030-02 | 35AWW18_121718 | Groundwater | | 17-Dec-2018 09:55 | 18-Dec-2018 11:00 | ☐ |
| HS18121030-03 | 35AWW18_121718_a | Groundwater | | 17-Dec-2018 09:55 | 18-Dec-2018 11:00 | ☐ |
| HS18121030-04 | 35ASW03_121718 | Groundwater | | 17-Dec-2018 10:10 | 18-Dec-2018 11:00 | ☐ |
| HS18121030-05 | Trip Blank | Water | | 17-Dec-2018 00:00 | 18-Dec-2018 11:00 | ☐ |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18121030

**CASE NARRATIVE**

**GCMS Volatiles by Method SW8260**

**Batch ID: R329894**

**Sample ID: HS18120913-03MS**

- MS and MSD performed on an unrelated sample.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_121718
Collection Date: 17-Dec-2018 09:05

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_121718
Collection Date: 17-Dec-2018 09:05

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 18:57 |
| *Surr: 1,2-Dichloroethane-d4* | *99.3* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 18:57* |
| *Surr: 4-Bromofluorobenzene* | *96.3* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 18:57* |
| *Surr: Dibromofluoromethane* | *92.1* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 18:57* |
| *Surr: Toluene-d8* | *104* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 18:57* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718
Collection Date: 17-Dec-2018 09:55

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| **1,1-Dichloroethane** | **0.70** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 19:22 |
| **1,1-Dichloroethene** | **2.0** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 19:22 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718
Collection Date: 17-Dec-2018 09:55

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:22 |
| *Surr: 1,2-Dichloroethane-d4* | *99.4* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 19:22* |
| *Surr: 4-Bromofluorobenzene* | *97.2* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 19:22* |
| *Surr: Dibromofluoromethane* | *92.0* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 19:22* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 19:22* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718_a
Collection Date: 17-Dec-2018 09:55

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| **1,1-Dichloroethane** | **0.73** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 19:47 |
| **1,1-Dichloroethene** | **2.3** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 24-Dec-2018 19:47 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718_a
Collection Date: 17-Dec-2018 09:55

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 19:47 |
| *Surr: 1,2-Dichloroethane-d4* | *101* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 19:47* |
| *Surr: 4-Bromofluorobenzene* | *96.5* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 19:47* |
| *Surr: Dibromofluoromethane* | *91.9* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 19:47* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 19:47* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_121718
Collection Date: 17-Dec-2018 10:10

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| **Acetone** | **4.5** | | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 24-Dec-2018 20:12 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_121718
Collection Date: 17-Dec-2018 10:10

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 20:12 |
| *Surr: 1,2-Dichloroethane-d4* | *100* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 20:12* |
| *Surr: 4-Bromofluorobenzene* | *98.0* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 20:12* |
| *Surr: Dibromofluoromethane* | *92.7* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 20:12* |
| *Surr: Toluene-d8* | *107* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 20:12* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 17-Dec-2018 00:00

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-05
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 17-Dec-2018 00:00

**ANALYTICAL REPORT**
WorkOrder:HS18121030
Lab ID:HS18121030-05
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 24-Dec-2018 16:53 |
| *Surr: 1,2-Dichloroethane-d4* | *99.6* | | | **0** | *81-118* | *%REC* | *1* | *24-Dec-2018 16:53* |
| *Surr: 4-Bromofluorobenzene* | *96.7* | | | **0** | *85-114* | *%REC* | *1* | *24-Dec-2018 16:53* |
| *Surr: Dibromofluoromethane* | *92.2* | | | **0** | *80-119* | *%REC* | *1* | *24-Dec-2018 16:53* |
| *Surr: Toluene-d8* | *105* | | | **0** | *89-112* | *%REC* | *1* | *24-Dec-2018 16:53* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R329894 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Water | | |
| HS18121030-05 | Trip Blank | 17 Dec 2018 00:00 | | | 24 Dec 2018 16:53 | 1 |
| **Batch ID** R329894 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Groundwater | | |
| HS18121030-01 | 35AWW17_121718 | 17 Dec 2018 09:05 | | | 24 Dec 2018 18:57 | 1 |
| HS18121030-02 | 35AWW18_121718 | 17 Dec 2018 09:55 | | | 24 Dec 2018 19:22 | 1 |
| HS18121030-03 | 35AWW18_121718_a | 17 Dec 2018 09:55 | | | 24 Dec 2018 19:47 | 1 |
| HS18121030-04 | 35ASW03_121718 | 17 Dec 2018 10:10 | | | 24 Dec 2018 20:12 | 1 |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,1-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,3,5-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 2,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 2-Butanone | 1.0 | 2.0 | | | | | | | | U |
| 2-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 2-Hexanone | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 1.0 | 2.0 | | | | | | | | U |
| Acetone | 2.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 1.0 | 2.0 | | | | | | | | U |
| Carbon tetrachloride | 0.50 | 1.0 | | | | | | | | U |
| Chlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| Chloroethane | 0.50 | 1.0 | | | | | | | | U |
| Chloroform | 0.50 | 1.0 | | | | | | | | U |
| Chloromethane | 0.50 | 1.0 | | | | | | | | U |
| cis-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| cis-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Dibromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Dibromomethane | 0.50 | 1.0 | | | | | | | | U |
| Dichlorodifluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Ethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Hexachlorobutadiene | 1.0 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 0.50 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| n-Propylbenzene | 0.50 | 1.0 | | | | | | | | U |
| o-Xylene | 0.50 | 1.0 | | | | | | | | U |
| sec-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Styrene | 0.50 | 1.0 | | | | | | | | U |
| tert-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Tetrachloroethene | 0.50 | 1.0 | | | | | | | | U |
| Toluene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Trichloroethene | 0.50 | 1.0 | | | | | | | | U |
| Trichlorofluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Vinyl chloride | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *47.4* | *1.0* | *50* | *0* | *94.8* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.2* | *1.0* | *50* | *0* | *96.4* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *44.37* | *1.0* | *50* | *0* | *88.7* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *52.27* | *1.0* | *50* | *0* | *105* | *89 - 112* | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 20.16 | 1.0 | 20 | 0 | 101 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 21.11 | 1.0 | 20 | 0 | 106 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 20.07 | 1.0 | 20 | 0 | 100 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 21.18 | 1.0 | 20 | 0 | 106 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 21.09 | 1.0 | 20 | 0 | 105 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 20.42 | 1.0 | 20 | 0 | 102 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 20.99 | 1.0 | 20 | 0 | 105 | 78 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 20.31 | 1.0 | 20 | 0 | 102 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 20.24 | 1.0 | 20 | 0 | 101 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 21.21 | 1.0 | 20 | 0 | 106 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 22.29 | 1.0 | 20 | 0 | 111 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 18.25 | 1.0 | 20 | 0 | 91.2 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 21.18 | 1.0 | 20 | 0 | 106 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 20.6 | 1.0 | 20 | 0 | 103 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 21.54 | 1.0 | 20 | 0 | 108 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 20.78 | 1.0 | 20 | 0 | 104 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 22.13 | 1.0 | 20 | 0 | 111 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 20.97 | 1.0 | 20 | 0 | 105 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 21.09 | 1.0 | 20 | 0 | 105 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 20.29 | 1.0 | 20 | 0 | 101 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 22 | 1.0 | 20 | 0 | 110 | 60 - 139 | | | | |
| 2-Butanone | 38.79 | 2.0 | 40 | 0 | 97.0 | 56 - 143 | | | | |
| 2-Chlorotoluene | 21.45 | 1.0 | 20 | 0 | 107 | 79 - 122 | | | | |
| 2-Hexanone | 40.62 | 2.0 | 40 | 0 | 102 | 57 - 139 | | | | |
| 4-Chlorotoluene | 21.76 | 1.0 | 20 | 0 | 109 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 22.33 | 1.0 | 20 | 0 | 112 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 40.91 | 2.0 | 40 | 0 | 102 | 67 - 130 | | | | |
| Acetone | 40.17 | 2.0 | 40 | 0 | 100 | 39 - 160 | | | | |
| Benzene | 21.12 | 1.0 | 20 | 0 | 106 | 79 - 120 | | | | |
| Bromobenzene | 20.81 | 1.0 | 20 | 0 | 104 | 80 - 120 | | | | |
| Bromochloromethane | 21.94 | 1.0 | 20 | 0 | 110 | 78 - 123 | | | | |
| Bromodichloromethane | 21.19 | 1.0 | 20 | 0 | 106 | 79 - 125 | | | | |
| Bromoform | 18.69 | 1.0 | 20 | 0 | 93.4 | 66 - 130 | | | | |
| Bromomethane | 23.72 | 1.0 | 20 | 0 | 119 | 53 - 141 | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**LCS** Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 41.71 | 2.0 | 40 | 0 | 104 | 64 - 133 | | | | |
| Carbon tetrachloride | 20.11 | 1.0 | 20 | 0 | 101 | 72 - 136 | | | | |
| Chlorobenzene | 21 | 1.0 | 20 | 0 | 105 | 82 - 118 | | | | |
| Chloroethane | 21.28 | 1.0 | 20 | 0 | 106 | 60 - 138 | | | | |
| Chloroform | 21 | 1.0 | 20 | 0 | 105 | 79 - 124 | | | | |
| Chloromethane | 24 | 1.0 | 20 | 0 | 120 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 21.07 | 1.0 | 20 | 0 | 105 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 19.85 | 1.0 | 20 | 0 | 99.2 | 75 - 124 | | | | |
| Dibromochloromethane | 19.36 | 1.0 | 20 | 0 | 96.8 | 74 - 126 | | | | |
| Dibromomethane | 21.38 | 1.0 | 20 | 0 | 107 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 20.2 | 1.0 | 20 | 0 | 101 | 32 - 152 | | | | |
| Ethylbenzene | 21.65 | 1.0 | 20 | 0 | 108 | 79 - 121 | | | | |
| Hexachlorobutadiene | 19.46 | 1.0 | 20 | 0 | 97.3 | 66 - 134 | | | | |
| Isopropylbenzene | 22.24 | 1.0 | 20 | 0 | 111 | 72 - 131 | | | | |
| m,p-Xylene | 43.9 | 2.0 | 40 | 0 | 110 | 80 - 121 | | | | |
| Methylene chloride | 21.23 | 2.0 | 20 | 0 | 106 | 74 - 124 | | | | |
| Naphthalene | 19.59 | 1.0 | 20 | 0 | 98.0 | 61 - 128 | | | | |
| n-Butylbenzene | 22.04 | 1.0 | 20 | 0 | 110 | 75 - 128 | | | | |
| n-Propylbenzene | 22.34 | 1.0 | 20 | 0 | 112 | 76 - 126 | | | | |
| o-Xylene | 21.97 | 1.0 | 20 | 0 | 110 | 78 - 122 | | | | |
| sec-Butylbenzene | 22.08 | 1.0 | 20 | 0 | 110 | 77 - 126 | | | | |
| Styrene | 22.39 | 1.0 | 20 | 0 | 112 | 78 - 123 | | | | |
| tert-Butylbenzene | 22.16 | 1.0 | 20 | 0 | 111 | 78 - 124 | | | | |
| Tetrachloroethene | 20.33 | 1.0 | 20 | 0 | 102 | 74 - 129 | | | | |
| Toluene | 21.58 | 1.0 | 20 | 0 | 108 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 21.03 | 1.0 | 20 | 0 | 105 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 19.56 | 1.0 | 20 | 0 | 97.8 | 73 - 127 | | | | |
| Trichloroethene | 20.92 | 1.0 | 20 | 0 | 105 | 79 - 123 | | | | |
| Trichlorofluoromethane | 21.1 | 1.0 | 20 | 0 | 105 | 65 - 141 | | | | |
| Vinyl chloride | 21.62 | 1.0 | 20 | 0 | 108 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *52.09* | *1.0* | *50* | *0* | *104* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.83* | *1.0* | *50* | *0* | *104* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *50.79* | *1.0* | *50* | *0* | *102* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.79* | *1.0* | *50* | *0* | *102* | *89 - 112* | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 23.21 | 1.0 | 20 | 0 | 116 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 22.95 | 1.0 | 20 | 0 | 115 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 24.2 | 1.0 | 20 | 0 | 121 | 71 - 121 | | | | S |
| 1,1,2-Trichloroethane | 25.3 | 1.0 | 20 | 0 | 127 | 80 - 119 | | | | S |
| 1,1-Dichloroethane | 22.71 | 1.0 | 20 | 0 | 114 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 23.04 | 1.0 | 20 | 0 | 115 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 25.45 | 1.0 | 20 | 0 | 127 | 78 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 22.1 | 1.0 | 20 | 0 | 111 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 23.35 | 1.0 | 20 | 0 | 117 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 22.37 | 1.0 | 20 | 0 | 112 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 25.22 | 1.0 | 20 | 0 | 126 | 76 - 124 | | | | S |
| 1,2-Dibromo-3-chloropropane | 20.81 | 1.0 | 20 | 0 | 104 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 25.44 | 1.0 | 20 | 0 | 127 | 77 - 121 | | | | S |
| 1,2-Dichlorobenzene | 23.76 | 1.0 | 20 | 0 | 119 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 25.48 | 1.0 | 20 | 0 | 127 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 24.78 | 1.0 | 20 | 0 | 124 | 78 - 122 | | | | S |
| 1,3,5-Trimethylbenzene | 25.58 | 1.0 | 20 | 0 | 128 | 75 - 124 | | | | S |
| 1,3-Dichlorobenzene | 23.33 | 1.0 | 20 | 0 | 117 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 24.94 | 1.0 | 20 | 0 | 125 | 80 - 119 | | | | S |
| 1,4-Dichlorobenzene | 23.26 | 1.0 | 20 | 0 | 116 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 22.8 | 1.0 | 20 | 0 | 114 | 60 - 139 | | | | |
| 2-Butanone | 45.46 | 2.0 | 40 | 0 | 114 | 56 - 143 | | | | |
| 2-Chlorotoluene | 24.95 | 1.0 | 20 | 0 | 125 | 79 - 122 | | | | S |
| 2-Hexanone | 52.86 | 2.0 | 40 | 0 | 132 | 57 - 139 | | | | |
| 4-Chlorotoluene | 25.12 | 1.0 | 20 | 0 | 126 | 78 - 122 | | | | S |
| 4-Isopropyltoluene | 25.22 | 1.0 | 20 | 0 | 126 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 51.36 | 2.0 | 40 | 0 | 128 | 67 - 130 | | | | |
| Acetone | 51.25 | 2.0 | 40 | 0 | 128 | 39 - 160 | | | | |
| Benzene | 25.09 | 1.0 | 20 | 0 | 125 | 79 - 120 | | | | S |
| Bromobenzene | 23.78 | 1.0 | 20 | 0 | 119 | 80 - 120 | | | | |
| Bromochloromethane | 24.02 | 1.0 | 20 | 0 | 120 | 78 - 123 | | | | |
| Bromodichloromethane | 24.47 | 1.0 | 20 | 0 | 122 | 79 - 125 | | | | |
| Bromoform | 21.34 | 1.0 | 20 | 0 | 107 | 66 - 130 | | | | |
| Bromomethane | 24.97 | 1.0 | 20 | 0 | 125 | 53 - 141 | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MS** Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 43.18 | 2.0 | 40 | 0 | 108 | 64 - 133 | | | | |
| Carbon tetrachloride | 23.76 | 1.0 | 20 | 0 | 119 | 72 - 136 | | | | |
| Chlorobenzene | 24.99 | 1.0 | 20 | 0 | 125 | 82 - 118 | | | | S |
| Chloroethane | 21.76 | 1.0 | 20 | 0 | 109 | 60 - 138 | | | | |
| Chloroform | 22.96 | 1.0 | 20 | 0 | 115 | 79 - 124 | | | | |
| Chloromethane | 22.1 | 1.0 | 20 | 0 | 111 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 24.28 | 1.0 | 20 | 0 | 121 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 21.7 | 1.0 | 20 | 0 | 109 | 75 - 124 | | | | |
| Dibromochloromethane | 22.33 | 1.0 | 20 | 0 | 112 | 74 - 126 | | | | |
| Dibromomethane | 25.07 | 1.0 | 20 | 0 | 125 | 79 - 123 | | | | S |
| Dichlorodifluoromethane | 14.71 | 1.0 | 20 | 0 | 73.6 | 32 - 152 | | | | |
| Ethylbenzene | 25.65 | 1.0 | 20 | 0 | 128 | 79 - 121 | | | | S |
| Hexachlorobutadiene | 19.31 | 1.0 | 20 | 0 | 96.5 | 66 - 134 | | | | |
| Isopropylbenzene | 26.47 | 1.0 | 20 | 0 | 132 | 72 - 131 | | | | S |
| m,p-Xylene | 51.94 | 2.0 | 40 | 0 | 130 | 80 - 121 | | | | S |
| Methylene chloride | 22.91 | 2.0 | 20 | 0 | 115 | 74 - 124 | | | | |
| Naphthalene | 22.43 | 1.0 | 20 | 0 | 112 | 61 - 128 | | | | |
| n-Butylbenzene | 24.46 | 1.0 | 20 | 0 | 122 | 75 - 128 | | | | |
| n-Propylbenzene | 25.91 | 1.0 | 20 | 0 | 130 | 76 - 126 | | | | S |
| o-Xylene | 25.64 | 1.0 | 20 | 0 | 128 | 78 - 122 | | | | S |
| sec-Butylbenzene | 25.41 | 1.0 | 20 | 0 | 127 | 77 - 126 | | | | S |
| Styrene | 26.3 | 1.0 | 20 | 0 | 131 | 78 - 123 | | | | S |
| tert-Butylbenzene | 25.39 | 1.0 | 20 | 0 | 127 | 78 - 124 | | | | S |
| Tetrachloroethene | 24.22 | 1.0 | 20 | 0 | 121 | 74 - 129 | | | | |
| Toluene | 26.12 | 1.0 | 20 | 0 | 131 | 80 - 121 | | | | S |
| trans-1,2-Dichloroethene | 23.07 | 1.0 | 20 | 0 | 115 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 21.38 | 1.0 | 20 | 0 | 107 | 73 - 127 | | | | |
| Trichloroethene | 26.19 | 1.0 | 20 | 0 | 131 | 79 - 123 | | | | S |
| Trichlorofluoromethane | 22.5 | 1.0 | 20 | 0 | 113 | 65 - 141 | | | | |
| Vinyl chloride | 21.27 | 1.0 | 20 | 0 | 106 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *47.14* | *1.0* | *50* | *0* | *94.3* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.68* | *1.0* | *50* | *0* | *103* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *45.74* | *1.0* | *50* | *0* | *91.5* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *53.29* | *1.0* | *50* | *0* | *107* | *89 - 112* | | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 23.48 | 1.0 | 20 | 0 | 117 | 78 - 124 | 23.21 | 1.12 | 20 | |
| 1,1,1-Trichloroethane | 23.85 | 1.0 | 20 | 0 | 119 | 74 - 131 | 22.95 | 3.86 | 20 | |
| 1,1,2,2-Tetrachloroethane | 25.53 | 1.0 | 20 | 0 | 128 | 71 - 121 | 24.2 | 5.32 | 20 | S |
| 1,1,2-Trichloroethane | 25.33 | 1.0 | 20 | 0 | 127 | 80 - 119 | 25.3 | 0.11 | 20 | S |
| 1,1-Dichloroethane | 23.23 | 1.0 | 20 | 0 | 116 | 77 - 125 | 22.71 | 2.24 | 20 | |
| 1,1-Dichloroethene | 23.12 | 1.0 | 20 | 0 | 116 | 71 - 131 | 23.04 | 0.317 | 20 | |
| 1,1-Dichloropropene | 25.23 | 1.0 | 20 | 0 | 126 | 78 - 125 | 25.45 | 0.901 | 20 | S |
| 1,2,3-Trichlorobenzene | 23.31 | 1.0 | 20 | 0 | 117 | 69 - 129 | 22.1 | 5.31 | 20 | |
| 1,2,3-Trichloropropane | 24.69 | 1.0 | 20 | 0 | 123 | 73 - 122 | 23.35 | 5.58 | 20 | S |
| 1,2,4-Trichlorobenzene | 23.66 | 1.0 | 20 | 0 | 118 | 69 - 130 | 22.37 | 5.62 | 20 | |
| 1,2,4-Trimethylbenzene | 26.26 | 1.0 | 20 | 0 | 131 | 76 - 124 | 25.22 | 4.02 | 20 | S |
| 1,2-Dibromo-3-chloropropane | 22.44 | 1.0 | 20 | 0 | 112 | 62 - 128 | 20.81 | 7.53 | 20 | |
| 1,2-Dibromoethane | 25.59 | 1.0 | 20 | 0 | 128 | 77 - 121 | 25.44 | 0.588 | 20 | S |
| 1,2-Dichlorobenzene | 24.61 | 1.0 | 20 | 0 | 123 | 80 - 119 | 23.76 | 3.52 | 20 | S |
| 1,2-Dichloroethane | 25.75 | 1.0 | 20 | 0 | 129 | 73 - 128 | 25.48 | 1.02 | 20 | S |
| 1,2-Dichloropropane | 24.75 | 1.0 | 20 | 0 | 124 | 78 - 122 | 24.78 | 0.143 | 20 | S |
| 1,3,5-Trimethylbenzene | 26.32 | 1.0 | 20 | 0 | 132 | 75 - 124 | 25.58 | 2.86 | 20 | S |
| 1,3-Dichlorobenzene | 24.37 | 1.0 | 20 | 0 | 122 | 80 - 119 | 23.33 | 4.36 | 20 | S |
| 1,3-Dichloropropane | 25.46 | 1.0 | 20 | 0 | 127 | 80 - 119 | 24.94 | 2.04 | 20 | S |
| 1,4-Dichlorobenzene | 23.85 | 1.0 | 20 | 0 | 119 | 79 - 118 | 23.26 | 2.5 | 20 | S |
| 2,2-Dichloropropane | 22.69 | 1.0 | 20 | 0 | 113 | 60 - 139 | 22.8 | 0.477 | 20 | |
| 2-Butanone | 48.23 | 2.0 | 40 | 0 | 121 | 56 - 143 | 45.46 | 5.92 | 20 | |
| 2-Chlorotoluene | 25.59 | 1.0 | 20 | 0 | 128 | 79 - 122 | 24.95 | 2.53 | 20 | S |
| 2-Hexanone | 54.29 | 2.0 | 40 | 0 | 136 | 57 - 139 | 52.86 | 2.68 | 20 | |
| 4-Chlorotoluene | 25.92 | 1.0 | 20 | 0 | 130 | 78 - 122 | 25.12 | 3.12 | 20 | S |
| 4-Isopropyltoluene | 26.15 | 1.0 | 20 | 0 | 131 | 77 - 127 | 25.22 | 3.63 | 20 | S |
| 4-Methyl-2-pentanone | 53.35 | 2.0 | 40 | 0 | 133 | 67 - 130 | 51.36 | 3.81 | 20 | S |
| Acetone | 56.13 | 2.0 | 40 | 0 | 140 | 39 - 160 | 51.25 | 9.1 | 20 | |
| Benzene | 25.56 | 1.0 | 20 | 0 | 128 | 79 - 120 | 25.09 | 1.85 | 20 | S |
| Bromobenzene | 24.7 | 1.0 | 20 | 0 | 123 | 80 - 120 | 23.78 | 3.78 | 20 | S |
| Bromochloromethane | 24.56 | 1.0 | 20 | 0 | 123 | 78 - 123 | 24.02 | 2.24 | 20 | |
| Bromodichloromethane | 24.72 | 1.0 | 20 | 0 | 124 | 79 - 125 | 24.47 | 1.04 | 20 | |
| Bromoform | 21.74 | 1.0 | 20 | 0 | 109 | 66 - 130 | 21.34 | 1.83 | 20 | |
| Bromomethane | 24.74 | 1.0 | 20 | 0 | 124 | 53 - 141 | 24.97 | 0.929 | 20 | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

**MSD** Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 43.81 | 2.0 | 40 | 0 | 110 | 64 - 133 | 43.18 | 1.44 | 20 | |
| Carbon tetrachloride | 23.83 | 1.0 | 20 | 0 | 119 | 72 - 136 | 23.76 | 0.262 | 20 | |
| Chlorobenzene | 25.13 | 1.0 | 20 | 0 | 126 | 82 - 118 | 24.99 | 0.573 | 20 | S |
| Chloroethane | 22.25 | 1.0 | 20 | 0 | 111 | 60 - 138 | 21.76 | 2.2 | 20 | |
| Chloroform | 23.5 | 1.0 | 20 | 0 | 118 | 79 - 124 | 22.96 | 2.35 | 20 | |
| Chloromethane | 22.78 | 1.0 | 20 | 0 | 114 | 50 - 139 | 22.1 | 3.04 | 20 | |
| cis-1,2-Dichloroethene | 23.76 | 1.0 | 20 | 0 | 119 | 78 - 123 | 24.28 | 2.17 | 20 | |
| cis-1,3-Dichloropropene | 22.27 | 1.0 | 20 | 0 | 111 | 75 - 124 | 21.7 | 2.58 | 20 | |
| Dibromochloromethane | 22.83 | 1.0 | 20 | 0 | 114 | 74 - 126 | 22.33 | 2.25 | 20 | |
| Dibromomethane | 25.35 | 1.0 | 20 | 0 | 127 | 79 - 123 | 25.07 | 1.12 | 20 | S |
| Dichlorodifluoromethane | 15.5 | 1.0 | 20 | 0 | 77.5 | 32 - 152 | 14.71 | 5.21 | 20 | |
| Ethylbenzene | 25.77 | 1.0 | 20 | 0 | 129 | 79 - 121 | 25.65 | 0.469 | 20 | S |
| Hexachlorobutadiene | 19.88 | 1.0 | 20 | 0 | 99.4 | 66 - 134 | 19.31 | 2.89 | 20 | |
| Isopropylbenzene | 26.75 | 1.0 | 20 | 0 | 134 | 72 - 131 | 26.47 | 1.03 | 20 | S |
| m,p-Xylene | 52.36 | 2.0 | 40 | 0 | 131 | 80 - 121 | 51.94 | 0.81 | 20 | S |
| Methylene chloride | 23.35 | 2.0 | 20 | 0 | 117 | 74 - 124 | 22.91 | 1.88 | 20 | |
| Naphthalene | 23.92 | 1.0 | 20 | 0 | 120 | 61 - 128 | 22.43 | 6.43 | 20 | |
| n-Butylbenzene | 25.47 | 1.0 | 20 | 0 | 127 | 75 - 128 | 24.46 | 4.06 | 20 | |
| n-Propylbenzene | 26.51 | 1.0 | 20 | 0 | 133 | 76 - 126 | 25.91 | 2.27 | 20 | S |
| o-Xylene | 26.1 | 1.0 | 20 | 0 | 130 | 78 - 122 | 25.64 | 1.78 | 20 | S |
| sec-Butylbenzene | 26.21 | 1.0 | 20 | 0 | 131 | 77 - 126 | 25.41 | 3.1 | 20 | S |
| Styrene | 26.53 | 1.0 | 20 | 0 | 133 | 78 - 123 | 26.3 | 0.883 | 20 | S |
| tert-Butylbenzene | 26.17 | 1.0 | 20 | 0 | 131 | 78 - 124 | 25.39 | 3 | 20 | S |
| Tetrachloroethene | 24.34 | 1.0 | 20 | 0 | 122 | 74 - 129 | 24.22 | 0.488 | 20 | |
| Toluene | 25.86 | 1.0 | 20 | 0 | 129 | 80 - 121 | 26.12 | 0.978 | 20 | S |
| trans-1,2-Dichloroethene | 23.18 | 1.0 | 20 | 0 | 116 | 75 - 124 | 23.07 | 0.473 | 20 | |
| trans-1,3-Dichloropropene | 21.86 | 1.0 | 20 | 0 | 109 | 73 - 127 | 21.38 | 2.21 | 20 | |
| Trichloroethene | 25.67 | 1.0 | 20 | 0 | 128 | 79 - 123 | 26.19 | 2 | 20 | S |
| Trichlorofluoromethane | 22.74 | 1.0 | 20 | 0 | 114 | 65 - 141 | 22.5 | 1.05 | 20 | |
| Vinyl chloride | 21.67 | 1.0 | 20 | 0 | 108 | 58 - 137 | 21.27 | 1.89 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *47.33* | *1.0* | *50* | *0* | *94.7* | *81 - 118* | *47.14* | *0.404* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *51.76* | *1.0* | *50* | *0* | *104* | *85 - 114* | *51.68* | *0.153* | *20* | |
| *Surr: Dibromofluoromethane* | *45.85* | *1.0* | *50* | *0* | *91.7* | *80 - 119* | *45.74* | *0.237* | *20* | |
| *Surr: Toluene-d8* | *53.06* | *1.0* | *50* | *0* | *106* | *89 - 112* | *53.29* | *0.432* | *20* | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS18121030

**QC BATCH REPORT**

**Batch ID: R329894** **Instrument: VOA9** **Method: SW8260**

| The following samples were analyzed in this batch: | | | | |
|---|---|---|---|---|
| | HS18121030-01 | HS18121030-02 | HS18121030-03 | HS18121030-04 |
| | HS18121030-05 | | | |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** **HS18121030**

**QUALIFIERS, ACRONYMS, UNITS**

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| M | Manually integrated, see raw data for justification |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL/SDL |

| Acronym | Description |
|---|---|
| DCS | Detectability Check Study |
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SD | Serial Dilution |
| SDL | Sample Detection Limit |
| TRRP | Texas Risk Reduction Program |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| North Carolina | 624-2018 | 31-Dec-2018 |
| Arkansas | 88-0356 | 27-Mar-2019 |
| Texas | T10470231-18-21 | 30-Apr-2019 |
| North Dakota | R193 2018-2019 | 30-Apr-2019 |
| Illinois | 004438 | 29-Jun-2019 |
| Louisiana | 03087 | 30-Jun-2019 |
| Kentucky | 123043 - 2018 | 30-Apr-2019 |
| Kansas | E-10352 2018-2019 | 31-Jul-2019 |
| Oklahoma | 2018-156 | 31-Aug-2019 |

**ALS Houston, US** Date: 27-Dec-18

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS18121030

## SAMPLE TRACKING

| Lab Samp ID | Client Sample ID | Action | Date | Person | New Location |
|---|---|---|---|---|---|
| HS18121030-01 | 35AWW17_121718 | Login | 12/18/2018 5:49:38 PM | RPG | MET089 |
| HS18121030-01 | 35AWW17_121718 | Login | 12/18/2018 5:49:38 PM | RPG | VOA081 |
| HS18121030-02 | 35AWW18_121718 | Login | 12/18/2018 5:49:38 PM | RPG | MET089 |
| HS18121030-02 | 35AWW18_121718 | Login | 12/18/2018 5:49:38 PM | RPG | VOA081 |
| HS18121030-03 | 35AWW18_121718_a | Login | 12/18/2018 5:49:38 PM | RPG | VOA081 |
| HS18121030-04 | 35ASW03_121718 | Login | 12/18/2018 5:49:38 PM | RPG | MET089 |
| HS18121030-04 | 35ASW03_121718 | Login | 12/18/2018 5:49:38 PM | RPG | VOA081 |
| HS18121030-05 | Trip Blank | Login | 12/18/2018 5:49:38 PM | RPG | VOA081 |

**ALS Houston, US** Date: 27-Dec-18

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18121030
Date/Time Received: **18-Dec-2018 11:00**
Received by: **JRM**

Checklist completed by: *Raegen Giga* eSignature 18-Dec-2018 Date
Reviewed by: *RJ Modashia* eSignature 19-Dec-2018 Date

Matrices: **GW**
Carrier name: **FedEx Priority Overnight**

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | |
| Temperature(s)/Thermometer(s): | 1.8c/2.2c uc/c | IR 11 | |
| Cooler(s)/Kit(s): | 44410 | | |
| Date/Time sample(s) sent to storage: | 12/18/2018 18:02 | | |
| Water - VOA vials have zero headspace? | Yes ☑ | No ☐ | No VOA vials submitted ☐ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted by: | | | |

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION LIBRARY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

# Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

| Field Sample ID (30 Characters Max) | ERPIMS LOCID (15 Characters Max) | Date Collected (dd-mmm-yyyy) | Time Collected (Military) (hhmm) | Sample Depth (beginning - ending) | SA Code (2) | Sample Number (3) | Sample Matrix (4) | Number of containers | VOC | MEE | TOC | Carbon Dioxide | Total Phosphorous | Total Manganese & Iron | Dissolved Manganese & Iron | Sulfide | Arsenic | Ambient Blank Lot Control Number | Equipment Blank Lot Control Number | Trip Blank Lot Control Number | Cooler ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35AWW17_121718 | | 17DEC2018 | 0405 | - | N | | WG | 3 | X | | | | | | | | | | | | |
| 35AWW18_121718 | | 17DEC2018 | 0455 | - | N | | WG | 3 | X | | | | | | | | | | | | |
| 35AWW18_121718_a | | 17DEC2018 | 0455 | - | FD | | WG | 3 | X | | | | | | | | | | | | |
| 35AWW03_121718 | | 17DEC2018 | 1010 | | N | | WG | 3 | X | | | | | | | | | | | | |
| TRIP BLANK | | 17DEC2018 | | | TB | | W | 2 | X | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | |
| | | | | - | | | | | | | | | | | | | | | | | |

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS18121030
Bhate Environmental Associates, Inc.
LHAAP-58

COMMENTS:

Cooler 44410 Temp - 1.8 IRM CF0.4

Custody Transfers Prior to Receipt by Laboratory

| Relinquished by (Signed) | Date | Time | Received by (signed) | Date | Time |
|---|---|---|---|---|---|
| 1. Scott Beesinger | 12/17/18 | 1430 | 1. [illegible] | 12/18/18 | 11:00 |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed ____ Ex ____ Airbill ____ Number:

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

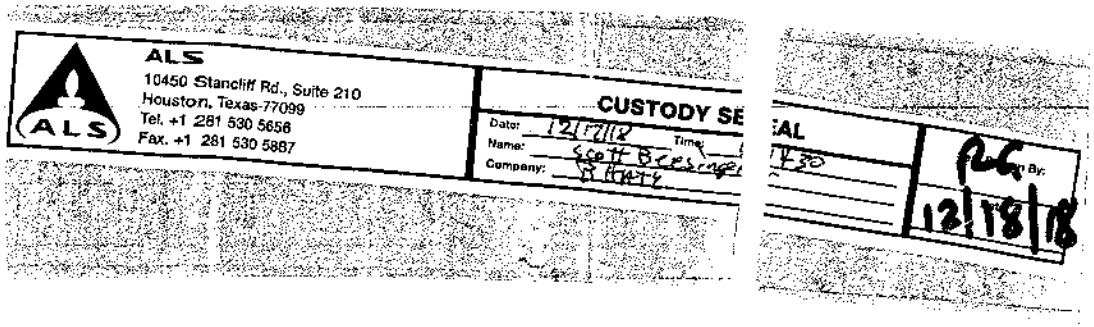
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

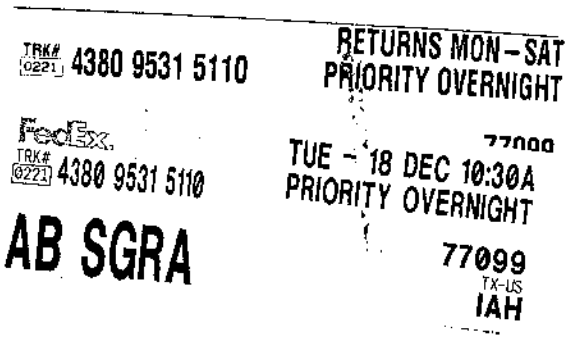
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by data (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

00948091


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas-77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SE
Date: 12/17/18
Time:
Name:
Company:
AL
By:
12/18/18


TRK# 0221 4380 9531 5110
RETURNS MON-SAT
PRIORITY OVERNIGHT
FedEx
TRK# 0221 4380 9531 5110
TUE - 18 DEC 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

# HS18121030  8260 Raw Data

ALS WO# HS18121030

# MSVOA09 -Logbook

**Batch:** 34002
**Date:** 12-21-2018
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 12-21-2018 01:25 pm | 1.00 | 50 mL | 50 mL | U122101.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD00.25 | ICAL1 | 12-21-2018 01:49 pm | 1.00 | 50 mL | 50 mL | U122102.D | Liquid | Y | NA |
| | *0.25 uL cal std/250 mL DI* | | | | | | | | | |
| 3 | VSTD00.5 | ICAL2 | 12-21-2018 02:14 pm | 1.00 | 50 mL | 50 mL | U122103.D | Liquid | Y | NA |
| | *0.5 uL cal std/250 mL DI* | | | | | | | | | |
| 4 | VSTD001 | ICAL3 | 12-21-2018 03:03 pm | 1.00 | 50 mL | 50 mL | U122104.D | Liquid | Y | NA |
| | *1 uL cal std/250 mL DI* | | | | | | | | | |
| 5 | VSTD002 | ICAL4 | 12-21-2018 03:28 pm | 1.00 | 50 mL | 50 mL | U122105.D | Liquid | Y | NA |
| | *2 uL cal std/250 mL DI* | | | | | | | | | |
| 6 | VSTD005 | ICAL5 | 12-21-2018 03:52 pm | 1.00 | 50 mL | 50 mL | U122106.D | Liquid | Y | NA |
| | *5 uL cal std/250 mL DI* | | | | | | | | | |
| 7 | VSTD020 | ICAL6 | 12-21-2018 04:17 pm | 1.00 | 50 mL | 50 mL | U122107.D | Liquid | Y | NA |
| | *4 uL cal std/50 mL DI* | | | | | | | | | |
| 8 | VSTD050 | ICAL7 | 12-21-2018 04:41 pm | 1.00 | 50 mL | 50 mL | U122108.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 9 | VSTD100 | ICAL8 | 12-21-2018 05:06 pm | 1.00 | 50 mL | 50 mL | U122109.D | Liquid | Y | NA |
| | *20 uL cal std/50 mL DI* | | | | | | | | | |
| 10 | VSTD150 | ICAL9 | 12-21-2018 05:31 pm | 1.00 | 50 mL | 50 mL | U122110.D | Liquid | Y | NA |
| | *30 uL cal std/50 mL DI* | | | | | | | | | |
| 11 | VSTD200 | ICAL | 12-21-2018 05:55 pm | 1.00 | 50 mL | 50 mL | U122111.D | Liquid | Y | NA |
| | *40 uL cal std/50 mL DI* | | | | | | | | | |
| 12 | BLANK | SAMP | 12-21-2018 06:20 pm | 1.00 | 50 mL | 50 mL | U122112.D | Liquid | Y | NA |
| | *Cleanup blk* | | | | | | | | | |
| 13 | VSTD050 | ICV | 12-21-2018 06:45 pm | 1.00 | 50 mL | 50 mL | U122113.D | Liquid | Y | NA |
| | *10 uL ICV std/50 mL DI* | | | | | | | | | |
| 14 | BLANK | SAMP | 12-21-2018 07:09 pm | 1.00 | 50 mL | 50 mL | U122114.D | Liquid | Y | NA |
| 15 | VLCSW-1812021 | LCS | 12-21-2018 07:34 pm | 1.00 | 50 mL | 50 mL | U122115.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 16 | BLANK | SAMP | 12-21-2018 07:59 pm | 1.00 | 50 mL | 50 mL | U122116.D | Liquid | Y | NA |
| 17 | VBLKW-181221 | MBLK | 12-21-2018 08:24 pm | 1.00 | 50 mL | 50 mL | U122117.D | Liquid | Y | NA |
| 18 | HS18120782-01 | SAMP | 12-21-2018 08:48 pm | 1.00 | 50 mL | 50 mL | U122118.D | Liquid | Y | <2 |
| 19 | HS18121172-01 | SAMP | 12-21-2018 09:13 pm | 1.00 | 50 mL | 50 mL | U122119.D | Liquid | Y | <2 |
| 20 | HS18120947-01 | SAMP | 12-21-2018 09:38 pm | 10.00 | 5 mL | 50 mL | U122120.D | Liquid | Y | <2 |
| 21 | HS18121172-01MS | MS | 12-21-2018 10:03 pm | 1.00 | 50 mL | 50 mL | U122121.D | Liquid | Y | <2 |
| | *3.5 uL cal std/40 mL Sample* | | | | | | | | | |
| 22 | HS18121172-01MSD | MSD | 12-21-2018 10:27 pm | 1.00 | 50 mL | 50 mL | U122122.D | Liquid | Y | <2 |
| | *3.5 uL cal std/40 mL Sample* | | | | | | | | | |
| 23 | HS18121172-02 | SAMP | 12-21-2018 10:52 pm | 1.00 | 50 mL | 50 mL | U122123.D | Liquid | Y | <2 |
| 24 | HS18121172-03 | SAMP | 12-21-2018 11:17 pm | 1.00 | 50 mL | 50 mL | U122124.D | Liquid | Y | <2 |
| 25 | HS18121172-04 | SAMP | 12-21-2018 11:42 pm | 1.00 | 50 mL | 50 mL | U122125.D | Liquid | Y | <2 |
| 26 | HS18121172-05 | SAMP | 12-22-2018 12:06 am | 1.00 | 50 mL | 50 mL | U122126.D | Liquid | Y | <2 |
| 27 | HS18121172-06 | SAMP | 12-22-2018 12:31 am | 1.00 | 50 mL | 50 mL | U122127.D | Liquid | Y | <2 |

# MSVOA09 -Logbook

| Chemical | Value |
|---|---|
| SURR SPK ID | 30502-52-03 |
| IS ID | 30502-52-04 |
| ICV STD ID | 30603-46-01 |
| LCS/MS ID | 30603-46-01 |
| CAL STD ID | 30502-56-01/02 |
| BFB ID | 30502-52-03 |

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 50.00 | 48.91 | 98 | 80-120 |
| trans-1,3-Dichloroprope | 50.00 | 48.93 | 98 | 80-120 |
| 1,3-Dichlorobenzene | 50.00 | 48.27 | 96 | 80-120 |
| 2,2-Dichloropropane | 50.00 | 53.09 | 106 | 80-120 |
| 1,1-Dichloropropene | 50.00 | 47.46 | 95 | 80-120 |
| Dibromomethane | 50.00 | 50.89 | 102 | 80-120 |
| 1,2-Dibromoethane | 50.00 | 51.16 | 102 | 80-120 |
| trans-1,2-Dichloroethen | 50.00 | 48.02 | 96 | 80-120 |
| 1,1,1,2-Tetrachloroetha | 50.00 | 48.43 | 97 | 80-120 |
| 1,1,1-Trichloroethane | 50.00 | 49.36 | 99 | 80-120 |
| 1,1,2,2-Tetrachloroetha | 50.00 | 49.55 | 99 | 80-120 |
| Freon TF | 50.00 | 45.07 | 90 | 80-120 |
| 1,1,2-Trichloroethane | 50.00 | 49.30 | 99 | 80-120 |
| 1,1-Dichloroethane | 50.00 | 47.96 | 96 | 80-120 |
| 1,1-Dichloroethene | 50.00 | 45.82 | 92 | 80-120 |
| Trichlorofluoromethane | 50.00 | 45.85 | 92 | 80-120 |
| 1,2,3-Trichlorobenzene | 50.00 | 47.80 | 96 | 80-120 |
| Toluene | 50.00 | 49.27 | 98 | 80-120 |
| 1,2,4-Trichlorobenzene | 50.00 | 50.37 | 101 | 80-120 |
| 1,2,4-Trimethylbenzene | 50.00 | 50.13 | 100 | 80-120 |
| Tetrachloroethene | 50.00 | 45.93 | 92 | 80-120 |
| Trichloroethene | 50.00 | 48.84 | 98 | 80-120 |
| 1,2-Dichlorobenzene | 50.00 | 48.36 | 97 | 80-120 |
| 1,2-Dichloroethane | 50.00 | 50.35 | 101 | 80-120 |
| 1,2-Dichloropropane | 50.00 | 49.19 | 98 | 80-120 |
| 1,3,5-Trimethylbenzene | 50.00 | 50.06 | 100 | 80-120 |
| 1,3-Dichloropropane | 50.00 | 49.40 | 99 | 80-120 |
| 1,4-Dichlorobenzene | 50.00 | 47.08 | 94 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 2-Butanone | 100.00 | 104.35 | 104 | 80-120 |
| 2-Chlorotoluene | 50.00 | 49.32 | 99 | 80-120 |
| 2-Hexanone | 100.00 | 109.16 | 109 | 80-120 |
| 4-Chlorotoluene | 50.00 | 49.71 | 99 | 80-120 |
| tert-Butylbenzene | 50.00 | 47.93 | 96 | 80-120 |
| 4-Methyl-2-Pentanone | 100.00 | 106.57 | 106 | 80-120 |
| Acetone | 100.00 | 114.45 | 114 | 80-120 |
| Benzene | 50.00 | 48.82 | 98 | 80-120 |
| Bromobenzene | 50.00 | 49.77 | 100 | 80-120 |
| Bromochloromethane | 50.00 | 56.76 | 114 | 80-120 |
| Bromodichloromethane | 50.00 | 52.06 | 104 | 80-120 |
| Bromoform | 50.00 | 47.92 | 96 | 80-120 |
| Bromomethane | 50.00 | 54.05 | 108 | 80-120 |
| Carbon Disulfide | 100.00 | 96.00 | 96 | 80-120 |
| Carbon Tetrachloride | 50.00 | 44.88 | 90 | 80-120 |
| Chlorobenzene | 50.00 | 48.25 | 96 | 80-120 |
| Chloroethane | 50.00 | 46.15 | 92 | 80-120 |
| Chloroform | 50.00 | 48.45 | 97 | 80-120 |
| Chloromethane | 50.00 | 48.96 | 98 | 80-120 |
| cis-1,2-Dichloroethene | 50.00 | 48.93 | 98 | 80-120 |
| Dibromochloromethane | 50.00 | 48.57 | 97 | 80-120 |
| Dichlorodifluoromethane | 50.00 | 46.21 | 92 | 80-120 |
| Ethylbenzene | 50.00 | 49.30 | 99 | 80-120 |
| Hexachlorobutadiene | 50.00 | 46.17 | 92 | 80-120 |
| Isopropylbenzene | 50.00 | 49.07 | 98 | 80-120 |
| m,p-Xylenes | 100.00 | 99.88 | 100 | 80-120 |
| Methylene Chloride | 50.00 | 49.75 | 100 | 80-120 |
| n-Butylbenzene | 50.00 | 46.94 | 94 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Matrix Spike - Sample No.: VSTD050

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| n-Propylbenzene | 50.00 | 49.11 | 98 | 80-120 |
| Naphthalene | 50.00 | 49.46 | 99 | 80-120 |
| o-Xylene | 50.00 | 49.89 | 100 | 80-120 |
| sec-Butylbenzene | 50.00 | 47.69 | 95 | 80-120 |
| Styrene | 50.00 | 52.73 | 105 | 80-120 |
| Vinyl Chloride | 50.00 | 46.02 | 92 | 80-120 |
| 1,2,3-Trichloropropane | 50.00 | 53.26 | 106 | 80-120 |
| p-Isopropyltoluene | 50.00 | 49.19 | 98 | 80-120 |
| 1,2-Dibromo-3-Chloropro | 50.00 | 49.92 | 100 | 80-120 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Lab File ID: U122101  BFB Injection Date: 12/21/18

Instrument ID: VOA9  BFB Injection Time: 1325

GC Column: DB624  ID: 0.25 (mm)  Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 19.6 |
| 75 | 30.0 - 60.0% of mass 95 | 50.4 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.0 |
| 173 | Less than 2.0% of mass 174 | 0.5 ( 0.8)1 |
| 174 | Greater than 50.0% of mass 95 | 66.8 |
| 175 | 5.0 - 9.0% of mass 174 | 5.1 ( 7.7)1 |
| 176 | 95.0 - 101.0% of mass 174 | 63.8 ( 95.6)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 ( 7.0)2 |

1-Value is % mass 174  2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD00.25 | VSTD00.25 | U122102 | 12/21/18 | 1349 |
| 02 | VSTD00.5 | VSTD00.5 | U122103 | 12/21/18 | 1414 |
| 03 | VSTD001 | VSTD001 | U122104 | 12/21/18 | 1503 |
| 04 | VSTD002 | VSTD002 | U122105 | 12/21/18 | 1528 |
| 05 | VSTD005 | VSTD005 | U122106 | 12/21/18 | 1552 |
| 06 | VSTD020 | VSTD020 | U122107 | 12/21/18 | 1617 |
| 07 | VSTD050 | VSTD050 | U122108 | 12/21/18 | 1641 |
| 08 | VSTD100 | VSTD100 | U122109 | 12/21/18 | 1706 |
| 09 | VSTD150 | VSTD150 | U122110 | 12/21/18 | 1731 |
| 10 | VSTD200 | VSTD200 | U122111 | 12/21/18 | 1755 |
| 11 | VSTD050 | VSTD050 | U122113 | 12/21/18 | 1845 |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF0.25: U122102  RF0.5: U122103  RF1: U122104
RF2: U122105  RF5: U122106  RF20: U122107

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | | 2152 | 7273 | 13732 | 38403 | 162454 |
| trans-1,3-Dichloropropene | | 1633 | 5668 | 10646 | 30725 | 135347 |
| 1,3-Dichlorobenzene | | 1.191 | 1.700 | 1.605 | 1.568 | 1.456 |
| 2,2-Dichloropropane | | 0.485 | 0.763 | 0.625 | 0.645 | 0.634 |
| 1,1-Dichloropropene | | 0.322 | 0.521 | 0.477 | 0.458 | 0.439 |
| Dibromomethane | | 0.143 | 0.229 | 0.212 | 0.217 | 0.208 |
| 1,2-Dibromoethane | | 0.251 | 0.393 | 0.345 | 0.364 | 0.358 |
| trans-1,2-Dichloroethene | | 0.432 | 0.724 | 0.620 | 0.614 | 0.598 |
| 1,1,1,2-Tetrachloroethane | | 1272 | 4208 | 8522 | 21878 | 89389 |
| 1,1,1-Trichloroethane | | 0.521 | 0.866 | 0.775 | 0.824 | 0.806 |
| 1,1,2,2-Tetrachloroethane | | 0.818 | 1.359 | 1.245 | 1.216 | 1.139 |
| Freon TF | | 0.306 | 0.503 | 0.450 | 0.439 | 0.408 |
| 1,1,2-Trichloroethane | | 0.224 | 0.351 | 0.317 | 0.320 | 0.302 |
| 1,1-Dichloroethane | | 0.726 | 1.305 | 1.174 | 1.154 | 1.100 |
| 1,1-Dichloroethene | | 0.403 | 0.563 | 0.526 | 0.486 | 0.447 |
| Trichlorofluoromethane | | 1919 | 7922 | 14026 | 37144 | 130957 |
| 1,2,3-Trichlorobenzene | | 1324 | 6631 | 12385 | 31113 | 126752 |
| Toluene | | 1.131 | 1.662 | 1.581 | 1.624 | 1.525 |
| 1,2,4-Trichlorobenzene | | 0.721 | 1.015 | 0.905 | 0.905 | 0.901 |
| 1,2,4-Trimethylbenzene | | 1.826 | 2.823 | 2.656 | 2.819 | 2.701 |
| Tetrachloroethene | | 0.219 | 0.326 | 0.277 | 0.272 | 0.254 |
| Trichloroethene | | 0.245 | 0.382 | 0.322 | 0.344 | 0.317 |
| 1,2-Dichlorobenzene | | 1.166 | 1.777 | 1.606 | 1.586 | 1.444 |
| 1,2-Dichloroethane | | 2385 | 8970 | 15708 | 41415 | 149131 |
| 1,2-Dichloropropane | | 0.265 | 0.415 | 0.367 | 0.371 | 0.353 |
| 1,3,5-Trimethylbenzene | | 1.672 | 2.689 | 2.445 | 2.682 | 2.616 |
| 1,3-Dichloropropane | | 0.478 | 0.748 | 0.679 | 0.708 | 0.655 |
| 1,4-Dichlorobenzene | | 1.357 | 1.906 | 1.683 | 1.662 | 1.508 |
| 2-Butanone | | 2109 | 6369 | 11299 | 29605 | 119433 |
| 2-Chlorotoluene | | 1.700 | 2.636 | 2.392 | 2.490 | 2.333 |
| 2-Hexanone | | 0.182 | 0.278 | 0.270 | 0.285 | 0.300 |
| 4-Chlorotoluene | | 1.938 | 2.990 | 2.793 | 2.876 | 2.698 |
| tert-Butylbenzene | | 1.429 | 2.338 | 2.197 | 2.340 | 2.218 |
| 4-Methyl-2-Pentanone | | 0.264 | 0.428 | 0.396 | 0.407 | 0.423 |
| Acetone | | 3366 | 5582 | 8219 | 19230 | 73380 |
| Benzene | | 0.975 | 1.562 | 1.399 | 1.435 | 1.337 |
| Bromobenzene | | 0.564 | 0.890 | 0.814 | 0.813 | 0.765 |
| Bromochloromethane | | 773 | 2865 | 5148 | 13786 | 51515 |
| Bromodichloromethane | | 0.250 | 0.393 | 0.362 | 0.383 | 0.380 |
| Bromoform | | 762 | 2343 | 4574 | 12962 | 53922 |
| Bromomethane | | 822 | 2293 | 4588 | 12245 | 47148 |
| Carbon Disulfide | | 1.468 | 2.043 | 1.806 | 1.808 | 1.714 |
| Carbon Tetrachloride | | 1510 | 5463 | 10077 | 26439 | 104210 |
| Chlorobenzene | | 0.762 | 1.142 | 1.012 | 1.020 | 0.962 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| Chloroethane | | 2753 | 3213 | 8179 | 22172 | 73150 |
| Chloroform | | 0.705 | 1.253 | 1.110 | 1.148 | 1.060 |
| Chloromethane | | 1695 | 4689 | 8693 | 20682 | 79075 |
| cis-1,2-Dichloroethene | | 0.459 | 0.806 | 0.684 | 0.699 | 0.678 |
| Dibromochloromethane | | 1194 | 4051 | 7740 | 20846 | 89836 |
| Dichlorodifluoromethane | | 2033 | 6583 | 11371 | 26580 | 98486 |
| Ethylbenzene | | 0.353 | 0.556 | 0.512 | 0.523 | 0.497 |
| Hexachlorobutadiene | | 0.453 | 0.398 | 0.322 | 0.324 | 0.310 |
| Isopropylbenzene | | 0.918 | 1.542 | 1.455 | 1.530 | 1.485 |
| m,p-Xylenes | | 0.432 | 0.668 | 0.621 | 0.648 | 0.629 |
| Methylene Chloride | | 3346 | 8113 | 13726 | 31487 | 109403 |
| n-Butylbenzene | | 1.993 | 2.818 | 2.596 | 2.666 | 2.520 |
| n-Propylbenzene | | 2.596 | 4.144 | 3.755 | 4.032 | 3.835 |
| Naphthalene | | 5535 | 16505 | 32897 | 91300 | 413229 |
| o-Xylene | | 0.413 | 0.703 | 0.613 | 0.642 | 0.637 |
| sec-Butylbenzene | | 2.047 | 3.385 | 3.201 | 3.334 | 3.199 |
| Styrene | | 0.640 | 1.035 | 0.996 | 1.084 | 1.092 |
| Vinyl Chloride | | 1815 | 6308 | 12656 | 29272 | 111713 |
| 1,2,3-Trichloropropane | | 0.777 | 1.295 | 1.203 | 1.184 | 1.156 |
| p-Isopropyltoluene | | 1.912 | 2.733 | 2.516 | 2.786 | 2.704 |
| 1,2-Dibromo-3-Chloropropane | | 272 | 861 | 1910 | 4931 | 22196 |
| 1,2-Dichloroethane-d4 | | 8601 | 10907 | 17881 | 38943 | 131494 |
| Dibromofluoromethane | | 6036 | 8005 | 12720 | 28568 | 98984 |
| Toluene-d8 | | 27052 | 32175 | 54444 | 117010 | 408521 |
| 4-Bromofluorobenzene | | 9627 | 12547 | 20092 | 42900 | 153183 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812103

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF50: U122108  RF100: U122109  RF150: U122110
RF200: U122111

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 449225 | 944095 | 1468956 | 1986544 |
| trans-1,3-Dichloropropene | 381258 | 811224 | 1271771 | 1721394 |
| 1,3-Dichlorobenzene | 1.440 | 1.476 | 1.485 | 1.441 |
| 2,2-Dichloropropane | 0.635 | 0.683 | 0.695 | 0.673 |
| 1,1-Dichloropropene | 0.427 | 0.455 | 0.457 | 0.448 |
| Dibromomethane | 0.207 | 0.207 | 0.205 | 0.205 |
| 1,2-Dibromoethane | 0.349 | 0.345 | 0.342 | 0.340 |
| trans-1,2-Dichloroethene | 0.564 | 0.579 | 0.576 | 0.559 |
| 1,1,1,2-Tetrachloroethane | 235446 | 493177 | 766622 | 1032567 |
| 1,1,1-Trichloroethane | 0.788 | 0.846 | 0.852 | 0.826 |
| 1,1,2,2-Tetrachloroethane | 1.127 | 1.090 | 1.080 | 1.060 |
| Freon TF | 0.397 | 0.445 | 0.445 | 0.434 |
| 1,1,2-Trichloroethane | 0.296 | 0.295 | 0.290 | 0.286 |
| 1,1-Dichloroethane | 1.058 | 1.079 | 1.066 | 1.028 |
| 1,1-Dichloroethene | 0.441 | 0.480 | 0.472 | 0.461 |
| Trichlorofluoromethane | 330010 | 753769 | 1146930 | 1561606 |
| 1,2,3-Trichlorobenzene | 334600 | 694931 | 1085027 | 1453309 |
| Toluene | 1.488 | 1.490 | 1.464 | 1.421 |
| 1,2,4-Trichlorobenzene | 0.926 | 0.982 | 1.001 | 0.974 |
| 1,2,4-Trimethylbenzene | 2.661 | 2.738 | 2.712 | 2.610 |
| Tetrachloroethene | 0.243 | 0.257 | 0.257 | 0.251 |
| Trichloroethene | 0.311 | 0.321 | 0.328 | 0.321 |
| 1,2-Dichlorobenzene | 1.442 | 1.463 | 1.459 | 1.417 |
| 1,2-Dichloroethane | 376591 | 747337 | 1129116 | 1504782 |
| 1,2-Dichloropropane | 0.350 | 0.357 | 0.353 | 0.348 |
| 1,3,5-Trimethylbenzene | 2.579 | 2.685 | 2.665 | 2.582 |
| 1,3-Dichloropropane | 0.642 | 0.630 | 0.620 | 0.613 |
| 1,4-Dichlorobenzene | 1.482 | 1.511 | 1.509 | 1.472 |
| 2-Butanone | 304044 | 587152 | 880878 | 1199902 |
| 2-Chlorotoluene | 2.295 | 2.323 | 2.315 | 2.248 |
| 2-Hexanone | 0.302 | 0.295 | 0.297 | 0.293 |
| 4-Chlorotoluene | 2.665 | 2.704 | 2.694 | 2.601 |
| tert-Butylbenzene | 2.197 | 2.301 | 2.300 | 2.225 |
| 4-Methyl-2-Pentanone | 0.427 | 0.421 | 0.419 | 0.415 |
| Acetone | 187964 | 331678 | 520533 | 723113 |
| Benzene | 1.319 | 1.335 | 1.317 | 1.294 |
| Bromobenzene | 0.765 | 0.778 | 0.792 | 0.773 |
| Bromochloromethane | 129496 | 244429 | 348533 | 453685 |
| Bromodichloromethane | 0.388 | 0.406 | 0.411 | 0.408 |
| Bromoform | 154855 | 331336 | 522892 | 718878 |
| Bromomethane | 117780 | 281859 | 444174 | 585856 |
| Carbon Disulfide | 1.656 | 1.742 | 1.730 | 1.622 |
| Carbon Tetrachloride | 274507 | 601960 | 939611 | 1268610 |
| Chlorobenzene | 0.940 | 0.949 | 0.943 | 0.916 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812103

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

LAB FILE ID:  RF50: U122108  RF100: U122109  RF150: U122110
RF200: U122111

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| Chloroethane | 179707 | 384958 | 684109 | 859472 |
| Chloroform | 1.027 | 1.035 | 1.016 | 0.978 |
| Chloromethane | 197328 | 441603 | 746873 | 1095269 |
| cis-1,2-Dichloroethene | 0.650 | 0.655 | 0.653 | 0.630 |
| Dibromochloromethane | 242061 | 512845 | 791728 | 1081017 |
| Dichlorodifluoromethane | 248322 | 553841 | 873891 | 1151588 |
| Ethylbenzene | 0.490 | 0.504 | 0.504 | 0.495 |
| Hexachlorobutadiene | 0.324 | 0.352 | 0.356 | |
| Isopropylbenzene | 1.450 | 1.506 | 1.482 | 1.428 |
| m,p-Xylenes | 0.612 | 0.626 | 0.616 | 0.600 |
| Methylene Chloride | 274258 | 554902 | 841220 | 1131189 |
| n-Butylbenzene | 2.535 | 2.661 | 2.637 | |
| n-Propylbenzene | 3.794 | 3.919 | 3.867 | 3.682 |
| Naphthalene | 1107938 | 2231968 | 3430934 | 4589381 |
| o-Xylene | 0.622 | 0.631 | 0.627 | 0.612 |
| sec-Butylbenzene | 3.182 | 3.378 | 3.341 | 3.190 |
| Styrene | 1.084 | 1.087 | 1.074 | 1.044 |
| Vinyl Chloride | 283791 | 629175 | 1000865 | 1348117 |
| 1,2,3-Trichloropropane | 1.210 | 1.222 | 1.246 | 1.245 |
| p-Isopropyltoluene | 2.733 | 2.856 | 2.837 | 2.735 |
| 1,2-Dibromo-3-Chloropropane | 61793 | 125814 | 200384 | 274280 |
| 1,2-Dichloroethane-d4 | 320796 | 635081 | 949266 | 1274051 |
| Dibromofluoromethane | 245007 | 495628 | 745399 | 1006329 |
| Toluene-d8 | 1010127 | 2029223 | 3016887 | 4010125 |
| 4-Bromofluorobenzene | 382581 | 764798 | 1153874 | 1540801 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812103

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349 1755

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | LINR | 2.529e-002 | 1.70725996 | | 0.9997580 | 0.9900000 |
| trans-1,3-Dichloropropene | LINR | 3.3e-002 | 1.96902158 | | 0.9995927 | 0.9900000 |
| 1,3-Dichlorobenzene | AVRG | | 1.48472992 | | 9.494 | 20.000 |
| 2,2-Dichloropropane | AVRG | | 0.64891526 | | 11.509 | 20.000 |
| 1,1-Dichloropropene | AVRG | | 0.44488137 | | 11.968 | 20.000 |
| Dibromomethane | AVRG | | 0.20390294 | | 11.744 | 20.000 |
| 1,2-Dibromoethane | AVRG | | 0.34310644 | | 11.102 | 20.000 |
| trans-1,2-Dichloroethene | AVRG | | 0.58526565 | | 12.993 | 20.000 |
| 1,1,1,2-Tetrachloroethane | LINR | 1.17e-002 | 3.11489679 | | 0.9998991 | 0.9900000 |
| 1,1,1-Trichloroethane | AVRG | | 0.78949465 | | 13.294 | 20.000 |
| 1,1,2,2-Tetrachloroethane | AVRG | | 1.12601556 | | 13.302 | 20.000 |
| Freon TF | AVRG | | 0.42507305 | | 12.611 | 20.000 |
| 1,1,2-Trichloroethane | AVRG | | 0.29788801 | | 11.475 | 20.000 |
| 1,1-Dichloroethane | AVRG | | 1.07678494 | | 14.456 | 20.000 |
| 1,1-Dichloroethene | AVRG | | 0.47540572 | | 9.911 | 20.000 |
| Trichlorofluoromethane | LINR | 1.25e-002 | 1.19826122 | | 0.9992799 | 0.9900000 |
| 1,2,3-Trichlorobenzene | LINR | 1.266e-002 | 1.04791842 | | 0.9997493 | 0.9900000 |
| Toluene | AVRG | | 1.48733738 | | 10.393 | 20.000 |
| 1,2,4-Trichlorobenzene | AVRG | | 0.92571167 | | 9.562 | 20.000 |
| 1,2,4-Trimethylbenzene | AVRG | | 2.61651384 | | 11.645 | 20.000 |
| Tetrachloroethene | AVRG | | 0.26176272 | | 11.269 | 20.000 |
| Trichloroethene | AVRG | | 0.32119921 | | 11.118 | 20.000 |
| 1,2-Dichlorobenzene | AVRG | | 1.48461871 | | 11.211 | 20.000 |
| 1,2-Dichloroethane | LINR | -1.47e-002 | 2.25247271 | | 0.9997943 | 0.9900000 |
| 1,2-Dichloropropane | AVRG | | 0.35329723 | | 11.023 | 20.000 |
| 1,3,5-Trimethylbenzene | AVRG | | 2.51283681 | | 12.919 | 20.000 |
| 1,3-Dichloropropane | AVRG | | 0.64163858 | | 11.739 | 20.000 |
| 1,4-Dichlorobenzene | AVRG | | 1.56545234 | | 10.298 | 20.000 |
| 2-Butanone | LINR | -4.87e-002 | 3.13274512 | | 0.9994657 | 0.9900000 |
| 2-Chlorotoluene | AVRG | | 2.30373097 | | 11.091 | 20.000 |
| 2-Hexanone | AVRG | | 0.27803053 | | 13.505 | 20.000 |
| 4-Chlorotoluene | AVRG | | 2.66220268 | | 11.134 | 20.000 |
| tert-Butylbenzene | AVRG | | 2.17187412 | | 13.092 | 20.000 |
| 4-Methyl-2-Pentanone | AVRG | | 0.40004668 | | 13.000 | 20.000 |
| Acetone | LINR | -6.05e-002 | 5.27806885 | | 0.9991782 | 0.9900000 |
| Benzene | AVRG | | 1.33049482 | | 11.804 | 20.000 |
| Bromobenzene | AVRG | | 0.77253354 | | 11.330 | 20.000 |
| Bromochloromethane | LINR | -6.22e-002 | 4.05290698 | | 0.9951390 | 0.9900000 |
| Bromodichloromethane | AVRG | | 0.37570006 | | 13.249 | 20.000 |
| Bromoform | LINR | 3.523e-002 | 4.49538839 | | 0.9994690 | 0.9900000 |
| Bromomethane | LINR | 2.677e-002 | 3.15194291 | | 0.9981331 | 0.9900000 |
| Carbon Disulfide | AVRG | | 1.73224763 | | 9.031 | 20.000 |
| Carbon Tetrachloride | LINR | 2.798e-002 | 2.67309140 | | 0.9994430 | 0.9900000 |
| Chlorobenzene | AVRG | | 0.96069061 | | 10.497 | 20.000 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812103

Instrument ID: VOA9  Calibration Date(s): 12/21/18 12/21/18

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1349  1755

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| Chloroethane | 2ORDR | 9.363e-003 | 2.27118996 | -8.34e-002 | 0.9953360 | 0.9900000 |
| Chloroform | AVRG | | 1.03699562 | | 14.439 | 20.000 |
| Chloromethane | LINR | 6.638e-002 | 1.75757606 | | 0.9946541 | 0.9900000 |
| cis-1,2-Dichloroethene | AVRG | | 0.65721728 | | 13.730 | 20.000 |
| Dibromochloromethane | LINR | 1.95e-002 | 2.98429229 | | 0.9998675 | 0.9900000 |
| Dichlorodifluoromethane | LINR | 9.706e-003 | 1.60963706 | | 0.9988360 | 0.9900000 |
| Ethylbenzene | AVRG | | 0.49273054 | | 11.389 | 20.000 |
| Hexachlorobutadiene | AVRG | | 0.35465839 | | 13.679 | 20.000 |
| Isopropylbenzene | AVRG | | 1.42182513 | | 13.532 | 20.000 |
| m,p-Xylenes | AVRG | | 0.60575037 | | 11.285 | 20.000 |
| Methylene Chloride | LINR | -2.41e-002 | 1.65721813 | | 0.9996145 | 0.9900000 |
| n-Butylbenzene | AVRG | | 2.55335964 | | 9.575 | 20.000 |
| n-Propylbenzene | AVRG | | 3.73602785 | | 12.044 | 20.000 |
| Naphthalene | 2ORDR | 1.313e-002 | 0.32140252 | 9.017e-004 | 0.9999007 | 0.9900000 |
| o-Xylene | AVRG | | 0.61109521 | | 12.917 | 20.000 |
| sec-Butylbenzene | AVRG | | 3.13985879 | | 13.327 | 20.000 |
| Styrene | AVRG | | 1.01526757 | | 14.203 | 20.000 |
| Vinyl Chloride | LINR | 1.938e-002 | 1.38661185 | | 0.9992348 | 0.9900000 |
| 1,2,3-Trichloropropane | AVRG | | 1.17088717 | | 13.058 | 20.000 |
| p-Isopropyltoluene | AVRG | | 2.64580193 | | 11.042 | 20.000 |
| 1,2-Dibromo-3-Chloropropane | LINR | 2.904e-002 | 5.59224209 | | 0.9995363 | 0.9900000 |
| 1,2-Dichloroethane-d4 | LINR | -4.34e-002 | 1.47435424 | | 0.9993295 | 0.9900000 |
| Dibromofluoromethane | LINR | -3.06e-002 | 1.86777807 | | 0.9996249 | 0.9900000 |
| Toluene-d8 | LINR | -3.57e-002 | 0.80216996 | | 0.9994439 | 0.9900000 |
| 4-Bromofluorobenzene | LINR | -2.86e-002 | 2.09274699 | | 0.9997553 | 0.9900000 |

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

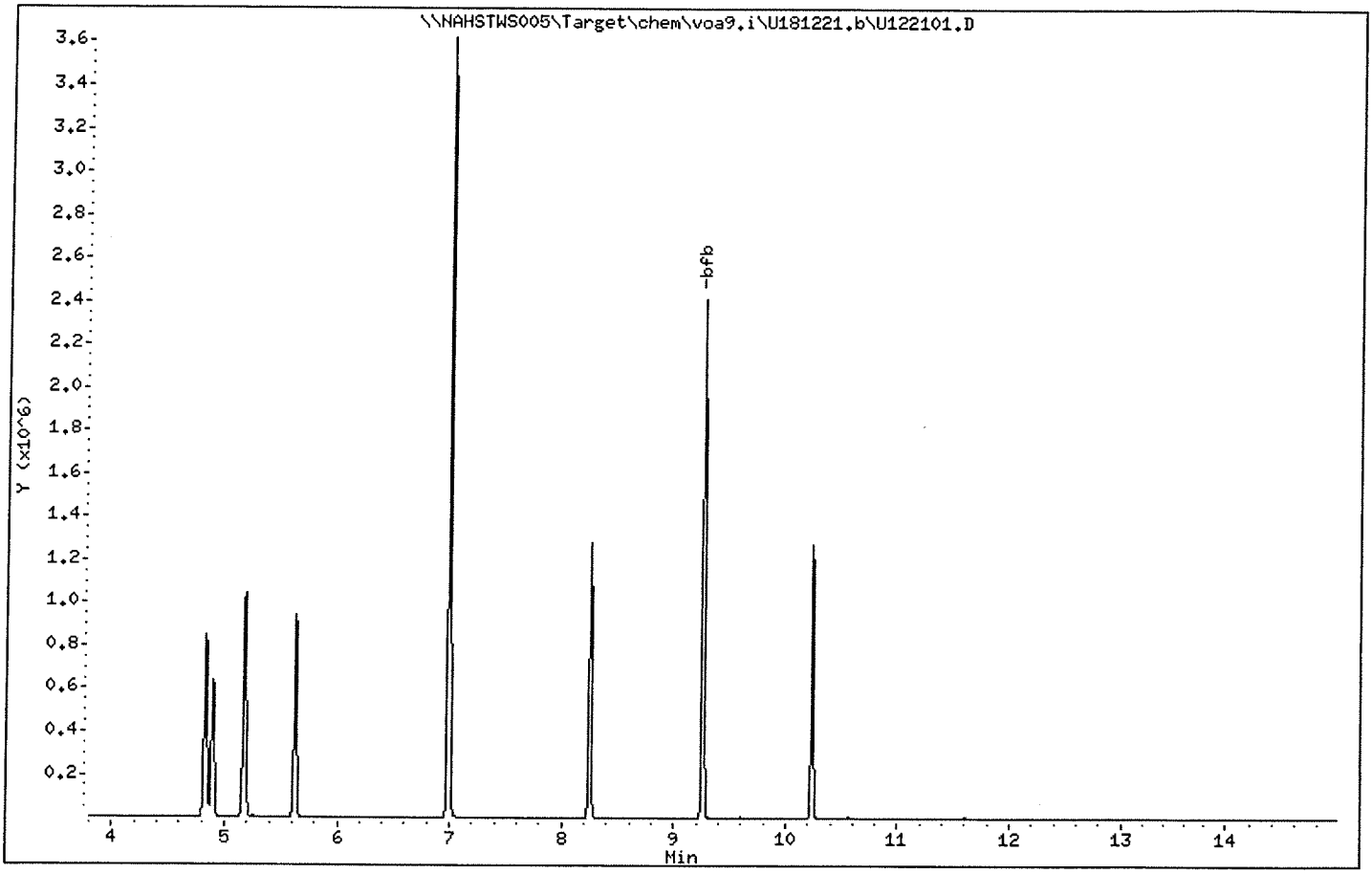
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

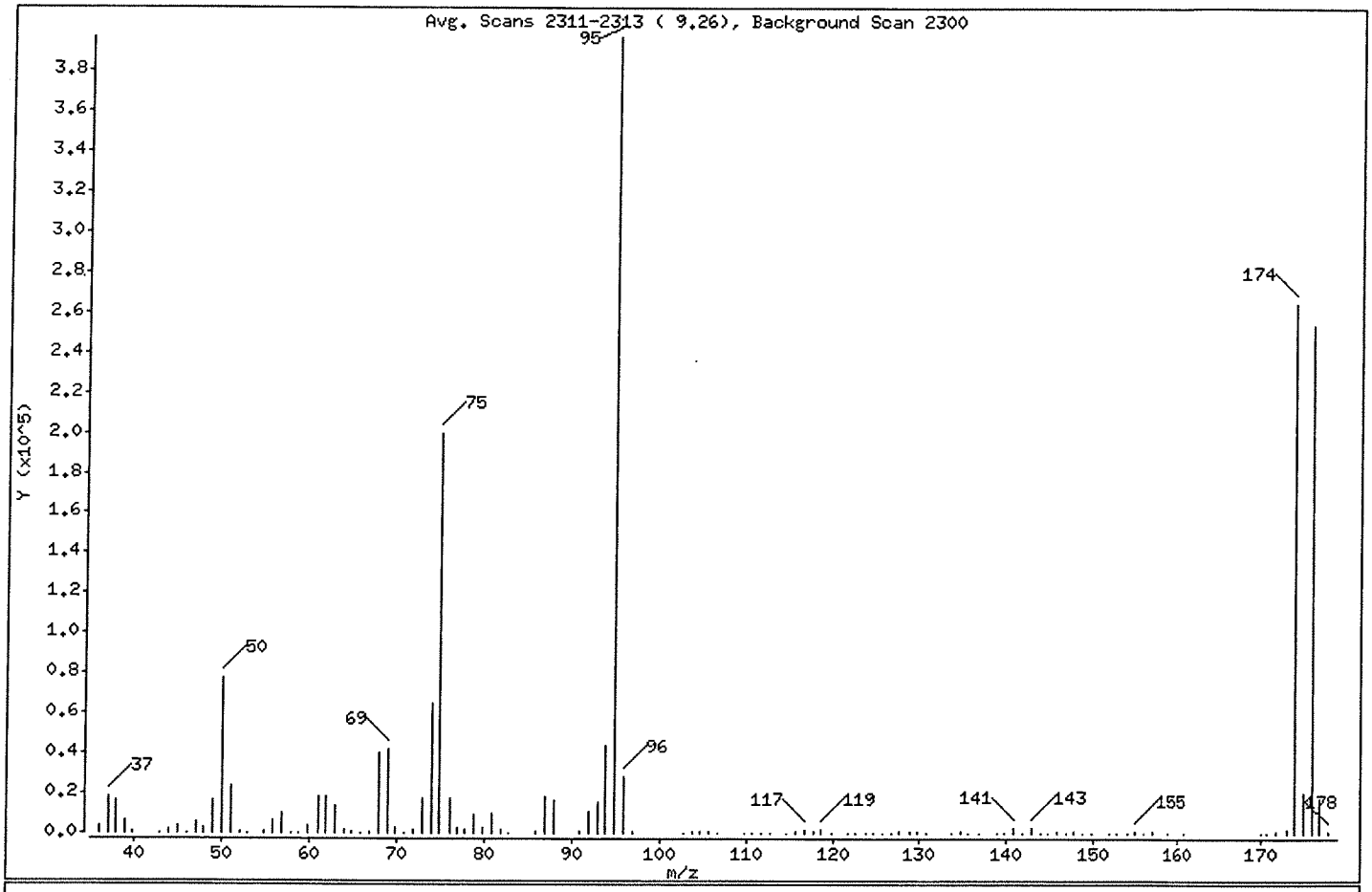
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 19.64 |
| 75 | 30.00 - 60.00% of mass 95 | 50.36 |
| 96 | 5.00 - 9.00% of mass 95 | 7.02 |
| 173 | Less than 2.00% of mass 174 | 0.53 ( 0.79) |
| 174 | Greater than 50.00% of mass 95 | 66.76 |
| 175 | 5.00 - 9.00% of mass 174 | 5.12 ( 7.67) |
| 176 | 95.00 - 101.00% of mass 174 | 63.79 ( 95.55) |
| 177 | 5.00 - 9.00% of mass 176 | 4.47 ( 7.01) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D



Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122101.D

Spectrum: Avg. Scans 2311-2313 ( 9.26), Background Scan 2300

Location of Maximum: 94.95

Number of points: 113

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 3522 | 67.90 | 40024 | 105.80 | 1268 | 141.70 | 302 |
| 37.00 | 18528 | 68.90 | 41568 | 106.80 | 285 | 142.80 | 2909 |
| 38.00 | 16159 | 69.90 | 3074 | 109.80 | 127 | 143.80 | 180 |
| 39.00 | 6598 | 70.90 | 134 | 110.70 | 307 | 144.70 | 380 |
| 39.90 | 601 | 71.90 | 2102 | 111.70 | 156 | 145.70 | 457 |
| 42.90 | 115 | 73.00 | 17344 | 112.80 | 260 | 146.70 | 229 |
| 43.90 | 2066 | 73.90 | 64968 | 114.70 | 321 | 147.70 | 676 |
| 45.00 | 3408 | 74.90 | 199680 | 115.70 | 1039 | 148.60 | 185 |
| 46.10 | 284 | 76.00 | 17352 | 116.80 | 1890 | 149.70 | 381 |
| 47.00 | 5059 | 76.90 | 2402 | 117.70 | 1164 | 151.70 | 195 |
| 47.90 | 2352 | 77.80 | 1696 | 118.70 | 1600 | 152.70 | 221 |
| 49.00 | 16317 | 78.90 | 8933 | 119.80 | 55 | 153.80 | 245 |
| 50.00 | 77856 | 79.90 | 2552 | 121.70 | 99 | 154.70 | 869 |
| 51.00 | 23912 | 80.90 | 9833 | 122.70 | 71 | 155.70 | 141 |
| 52.00 | 1198 | 81.90 | 1903 | 123.80 | 148 | 156.70 | 599 |
| 52.90 | 102 | 82.80 | 214 | 124.70 | 101 | 158.60 | 297 |
| 54.90 | 806 | 85.90 | 533 | 125.70 | 152 | 160.70 | 273 |
| 55.90 | 6021 | 86.90 | 18088 | 126.70 | 123 | 169.90 | 51 |
| 56.90 | 10148 | 87.90 | 16848 | 127.70 | 1127 | 170.60 | 105 |
| 57.90 | 434 | 90.80 | 1233 | 128.80 | 534 | 171.70 | 1051 |
| 58.70 | 68 | 91.90 | 10521 | 129.70 | 1152 | 172.80 | 2098 |
| 59.90 | 3925 | 92.90 | 15269 | 130.70 | 419 | 173.70 | 264704 |
| 61.00 | 18160 | 93.90 | 43328 | 133.70 | 53 | 174.70 | 20304 |
| 61.90 | 18216 | 94.90 | 396480 | 134.70 | 496 | 175.70 | 252928 |
| 63.00 | 13327 | 95.90 | 27824 | 135.60 | 96 | 176.70 | 17720 |
| 64.00 | 1507 | 96.90 | 709 | 136.70 | 369 | 177.70 | 520 |
| 64.90 | 816 | 102.80 | 137 | 138.90 | 62 | | |
| 65.80 | 130 | 103.80 | 1364 | 139.70 | 200 | | |
| 67.00 | 910 | 104.70 | 463 | 140.80 | 2707 | | |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 1
Report Date: 28-Jan-2019 11:36

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Lab Smp Id: VSTD00.25 Client Smp ID: VSTD00.25
Inj Date : 21-DEC-2018 13:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.25;VSTD00.25;1;1;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

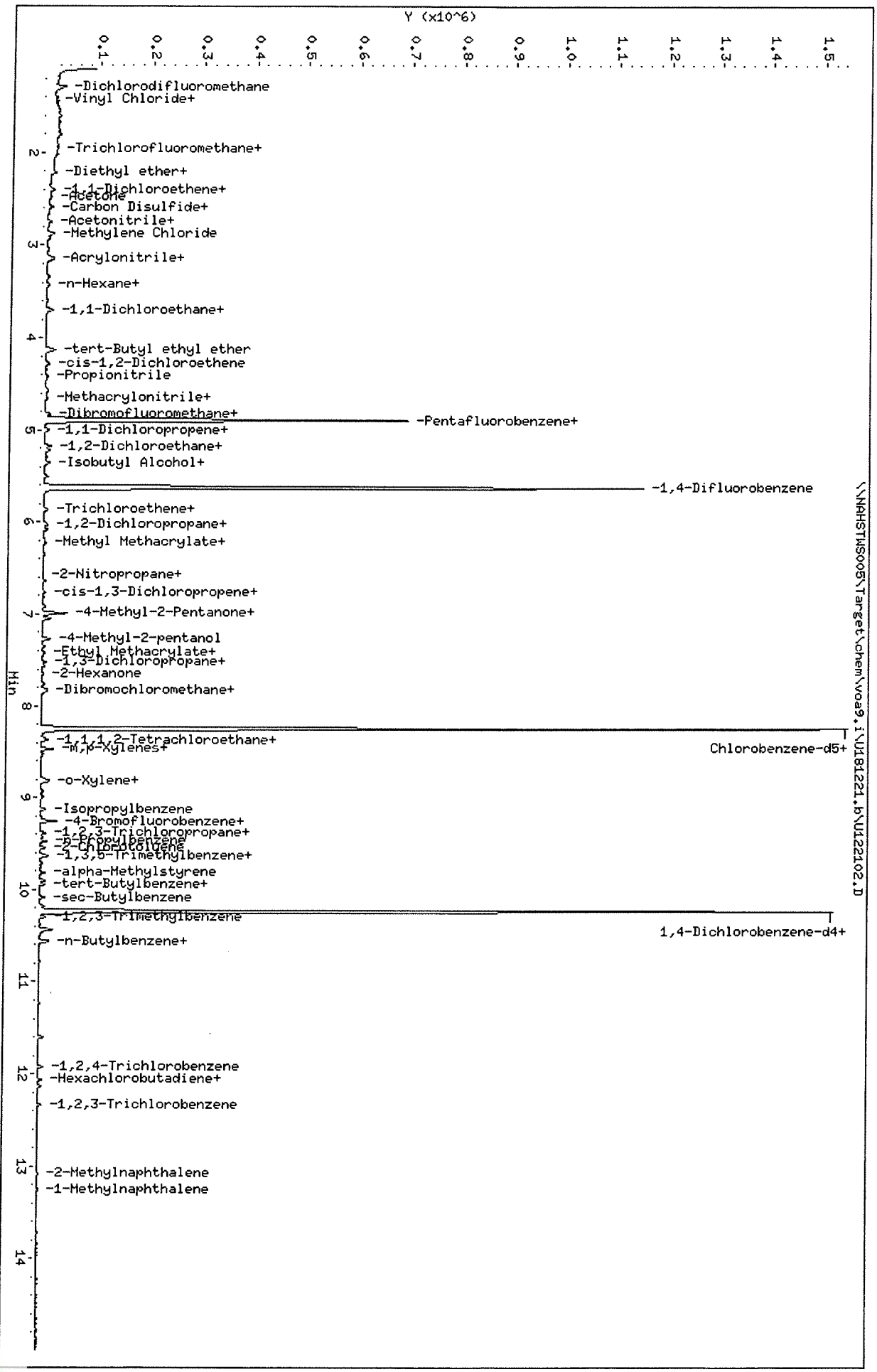
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.890 | (1.000) | 428138 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 818709 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 747851 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 340535 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.987) | 4885 | 0.25000 | (a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 7874 | 0.25000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.986 | 6.989 | (0.847) | 25629 | 0.25000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 9480 | 0.25000 | (a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1214 | 0.25000 | 0.83(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 2037 | 0.25000 | 0.30(a) |
| 138 Freon TF | 101 | 2.401 | 2.394 | (0.491) | 1292 | 0.25000 | 0.35(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 1492 | 0.25000 | 0.33(a) |
| 22 1,1-Dichloroethane | 63 | 3.601 | 3.597 | (0.736) | 2808 | 0.25000 | 0.30(Ta) |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.394 | (0.490) | 1606 | 0.25000 | 0.39(a) |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 2559 | 0.25000 | 0.35(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 2119 | 0.25000 | 0.95(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.430 | (0.921) | 2311 | 0.25000 | 0.28(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.926 | (1.165) | 1867 | 0.25000 | 0.29(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.940 | 9.943 | (0.971) | 5702 | 0.25000 | 0.31(a) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1463 | 0.25000 | 0.28(a) |
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 3604 | 0.25000 | 0.35(a) |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 2468 | 0.25000 | (a) |
| 42 1,2-Dichloropropane | 63 | 6.079 | 6.078 | (1.081) | 1752 | 0.25000 | 0.30(a) |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.628 | (0.940) | 5173 | 0.25000 | 0.30(a) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 3530 | 0.25000 | 0.34(a) |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 3033 | 0.25000 | 0.31(a) |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.258 | (1.002) | 4184 | 0.25000 | 0.39(a) |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.550 | (0.933) | 5370 | 0.25000 | 0.34(a) |
| 52 2-Hexanone | 43 | 7.649 | 7.653 | (0.927) | 2221 | 0.50000 | 0.53(a) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 6065 | 0.25000 | 0.33(a) |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.213 | (0.997) | 5637 | 0.25000 | 0.31(a) |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 3388 | 0.50000 | 0.56(a) |
| 10 Acetone | 43 | 2.480 | 2.476 | (0.507) | 3620 | 0.50000 | (a) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 7659 | 0.25000 | 0.35(a) |
| 74 Bromobenzene | 156 | 9.381 | 9.385 | (0.917) | 1549 | 0.25000 | 0.29(a) |
| 19 Carbon Disulfide | 76 | 2.588 | 2.585 | (0.529) | 12805 | 0.50000 | 0.86(a) |
| 34 Carbon Tetrachloride | 117 | 4.988 | 4.991 | (0.887) | 1501 | 0.25000 | 1.64(a) |
| 59 Chlorobenzene | 112 | 8.272 | 8.275 | (1.003) | 5314 | 0.25000 | 0.36(a) |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 3005 | 0.25000 | 0.33(a) |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 1960 | 0.25000 | 0.34(a) |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 2017 | 0.25000 | 1.47(a) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1084 | 0.25000 | 1.19(a) |
| 2 Dichlorodifluoromethane | 85 | 1.201 | 1.198 | (0.246) | 2264 | 0.25000 | 0.91(a) |
| 61 Ethylbenzene | 106 | 8.369 | 8.373 | (1.015) | 2474 | 0.25000 | 0.33(a) |
| 91 Hexachlorobutadiene | 225 | 12.061 | 12.065 | (1.178) | 1019 | 0.25000 | 0.42(a) |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 6811 | 0.25000 | 0.32(a) |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 5829 | 0.50000 | 0.64(a) |
| 17 Methylene Chloride | 84 | 2.870 | 2.866 | (0.586) | 3269 | 0.25000 | (a) |
| 87 n-Butylbenzene | 91 | 10.554 | 10.558 | (1.031) | 6526 | 0.25000 | 0.37(a) |
| 73 n-Propylbenzene | 91 | 9.475 | 9.479 | (0.926) | 8427 | 0.25000 | 0.33(a) |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 4657 | 0.25000 | 0.87(a) |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 2975 | 0.25000 | 0.32(a) |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.090 | (0.985) | 6928 | 0.25000 | 0.32(a) |
| 64 Styrene | 104 | 8.823 | 8.826 | (1.070) | 4467 | 0.25000 | 0.29(a) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 4611 | 0.25000 | 0.31(a) |
| 56 Tetrachloroethene | 164 | 7.522 | 7.525 | (0.912) | 1622 | 0.25000 | 0.41(a) |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 7336 | 0.25000 | 0.32(a) |
| 20 trans-1,2-Dichloroethene | 96 | 3.136 | 3.136 | (0.641) | 1833 | 0.25000 | 0.36(a) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 2028 | 0.25000 | 0.38(a) |
| 8 Trichlorofluoromethane | 101 | 1.955 | 1.944 | (0.400) | 2465 | 0.25000 | 0.97(a) |
| 5 Vinyl Chloride | 62 | 1.419 | 1.415 | (0.290) | 2098 | 0.25000 | 1.30(a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181221.b\U122102.D
Date : 21-DEC-2018 13:49
Client ID: VSTD00,25
Sample Info: VSTD00,25;VSTD00,25;1;1;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9,i\U181221.b\U122102.D

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 21-DEC-2018 14:14
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

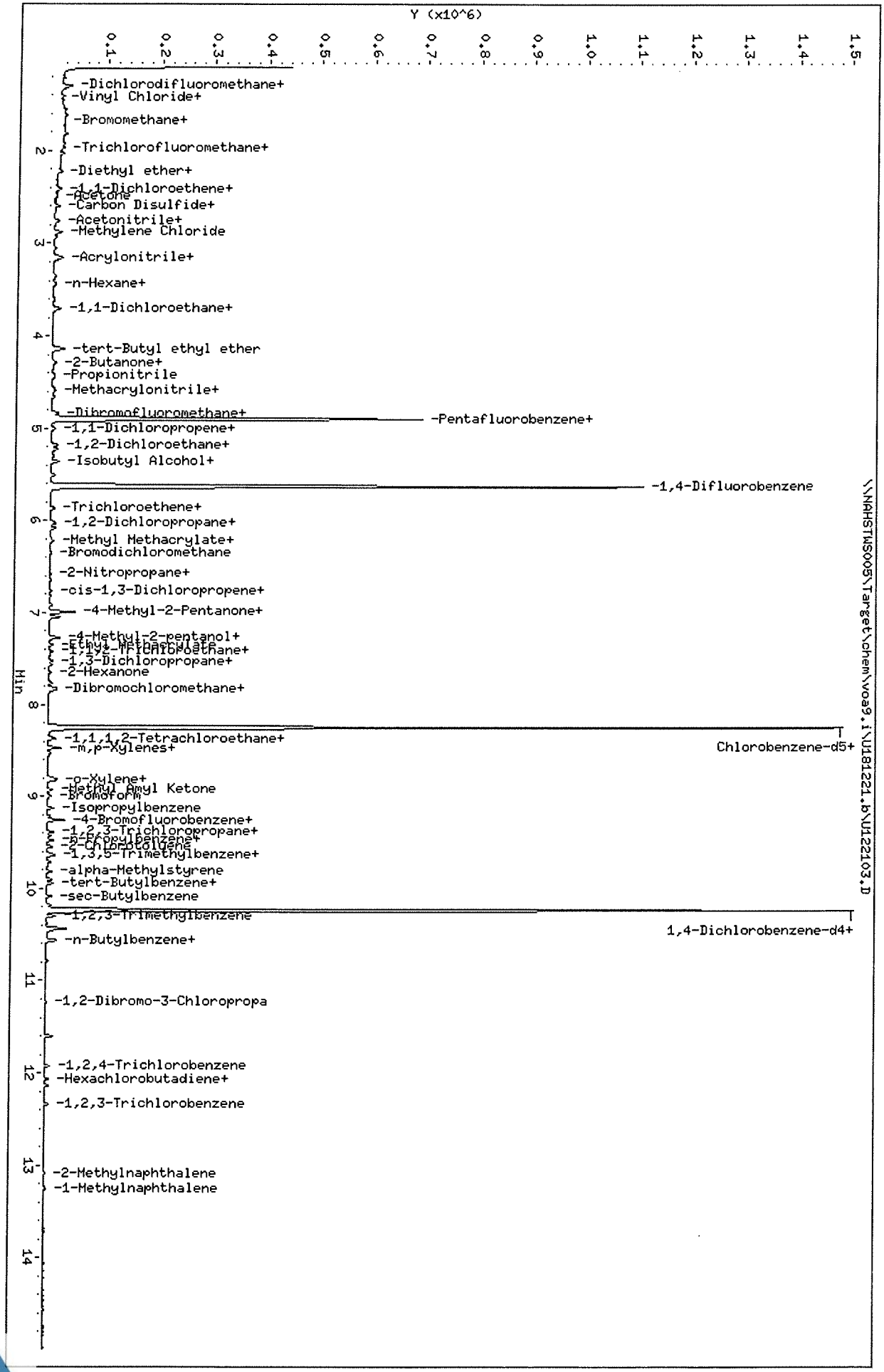
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 422356 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 796827 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 725774 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 333300 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 6036 | 0.50000 | (a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 8601 | 0.50000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 27052 | 0.50000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 9627 | 0.50000 | (a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1272 | 0.50000 | 0.85(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 2201 | 0.50000 | 0.33(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 2725 | 0.50000 | 0.36(aM) |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.493) | 1292 | 0.50000 | 0.35(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 1629 | 0.50000 | 0.37(a) |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 3066 | 0.50000 | 0.33(Ta) |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.492) | 1703 | 0.50000 | 0.42(a) |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 2565 | 0.50000 | 0.36(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1324 | 0.50000 | 0.84(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 2591 | 0.50000 | 0.33(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 2402 | 0.50000 | 0.38(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 6088 | 0.50000 | 0.34(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 272 | 0.50000 | 1.68(aM) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1825 | 0.50000 | 0.36(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 3885 | 0.50000 | 0.39(a) |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 2385 | 0.50000 | (a) |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 2114 | 0.50000 | 0.37(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 5574 | 0.50000 | 0.33(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 3970 | 0.50000 | 0.40(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 3471 | 0.50000 | 0.37(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 4522 | 0.50000 | 0.43(a) |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 2050 | 0.50000 | 0.37(aM) |
| 24 | 2-Butanone | 43 | 4.354 | 4.354 | (0.889) | 2109 | 1.00000 | (a) |
| 76 | 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 5666 | 0.50000 | 0.36(a) |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 2639 | 1.00000 | 0.65(a) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 6459 | 0.50000 | 0.36(a) |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 6372 | 0.50000 | 0.36(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 3831 | 1.00000 | 0.65(a) |
| 10 | Acetone | 43 | 2.491 | 2.491 | (0.509) | 3366 | 1.00000 | (a) |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 7772 | 0.50000 | 0.36(a) |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 1879 | 0.50000 | 0.36(a) |
| 29 | Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 773 | 0.50000 | (a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 1990 | 0.50000 | 0.33(aM) |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 762 | 0.50000 | 1.99(aM) |
| 6 | Bromomethane | 94 | 1.681 | 1.681 | (0.343) | 822 | 0.50000 | 1.64(a) |
| 19 | Carbon Disulfide | 76 | 2.596 | 2.596 | (0.530) | 12403 | 1.00000 | 0.84(a) |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 1510 | 0.50000 | 1.65(a) |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 5533 | 0.50000 | 0.39(a) |
| 7 | Chloroethane | 64 | 1.764 | 1.764 | (0.360) | 2753 | 0.50000 | 1.20(aM) |
| 28 | Chloroform | 83 | 4.662 | 4.662 | (0.952) | 2977 | 0.50000 | 0.33(a) |
| 3 | Chloromethane | 50 | 1.348 | 1.348 | (0.275) | 1695 | 0.50000 | 3.67(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.877) | 1939 | 0.50000 | 0.34(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 2152 | 0.50000 | 1.49(a) |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1194 | 0.50000 | 1.22(a) |
| 44 | Dibromomethane | 93 | 6.195 | 6.195 | (1.101) | 1143 | 0.50000 | 0.35(aM) |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.213 | (0.248) | 2033 | 0.50000 | 0.87(aM) |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 2560 | 0.50000 | 0.35(a) |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 1509 | 0.50000 | 0.63(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 6665 | 0.50000 | 0.32(a) |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 6264 | 1.00000 | 0.71(a) |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 3346 | 0.50000 | (a) |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 6644 | 0.50000 | 0.39(a) |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 8654 | 0.50000 | 0.34(a) |
| 92 | Naphthalene | 128 | 12.136 | 12.136 | (1.186) | 5535 | 0.50000 | 0.92(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 3001 | 0.50000 | 0.33(a) |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 6823 | 0.50000 | 0.32(a) |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 4646 | 0.50000 | 0.31(a) |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 4764 | 0.50000 | 0.32(a) |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 1587 | 0.50000 | 0.41(a) |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 8207 | 0.50000 | 0.38(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.151 | 3.151 | (0.643) | 1825 | 0.50000 | 0.36(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 1633 | 0.50000 | 1.85(aM) |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 1953 | 0.50000 | 0.38(a) |
| 8 | Trichlorofluoromethane | 101 | 1.966 | 1.966 | (0.402) | 1919 | 0.50000 | 0.89(a) |
| 5 | Vinyl Chloride | 62 | 1.430 | 1.430 | (0.292) | 1815 | 0.50000 | 1.26(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



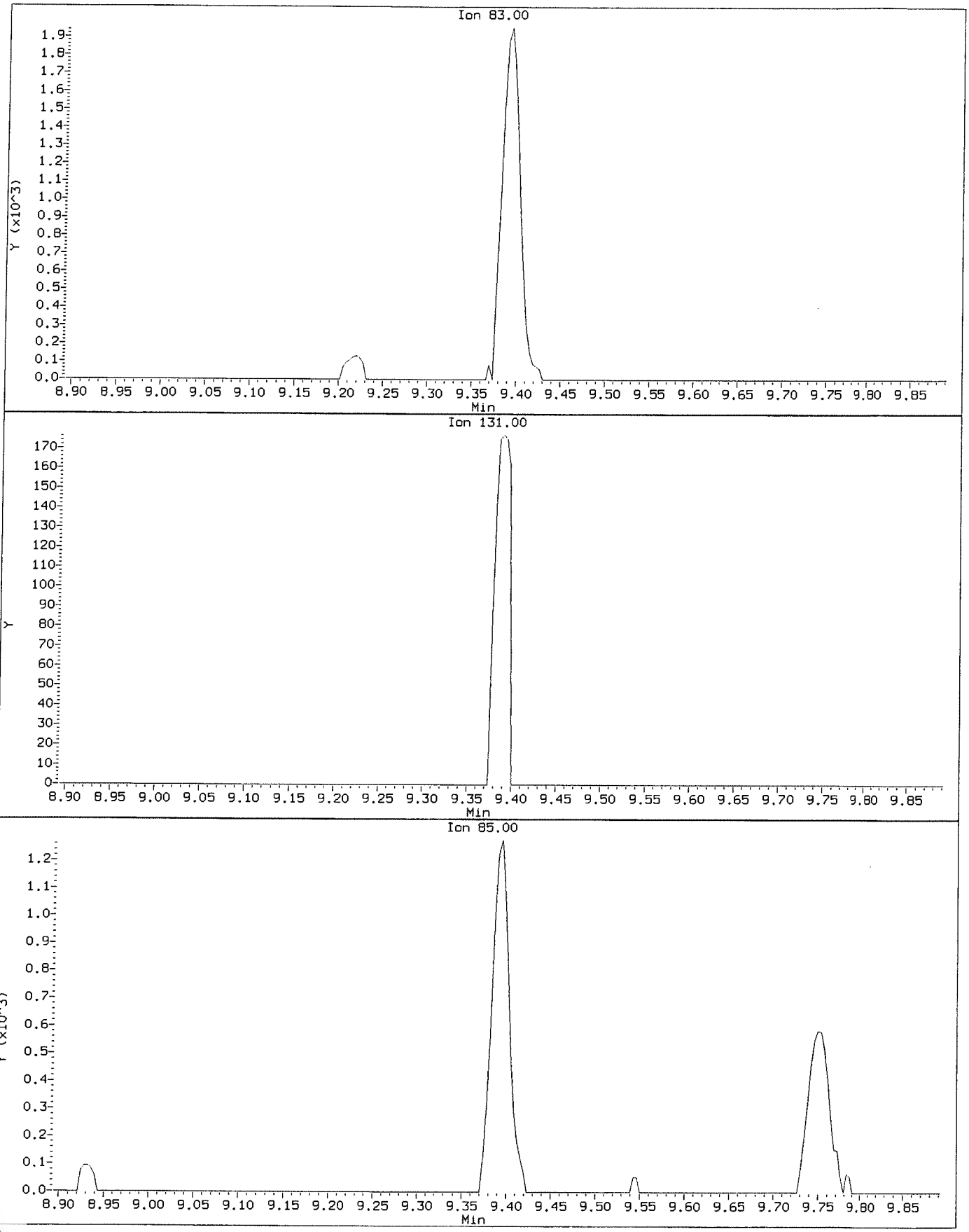

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Date : 21-DEC-2018 14:14
Client ID: VSTD00.5
Sample Info: VSTD00.5;VSTD00.5;1;2;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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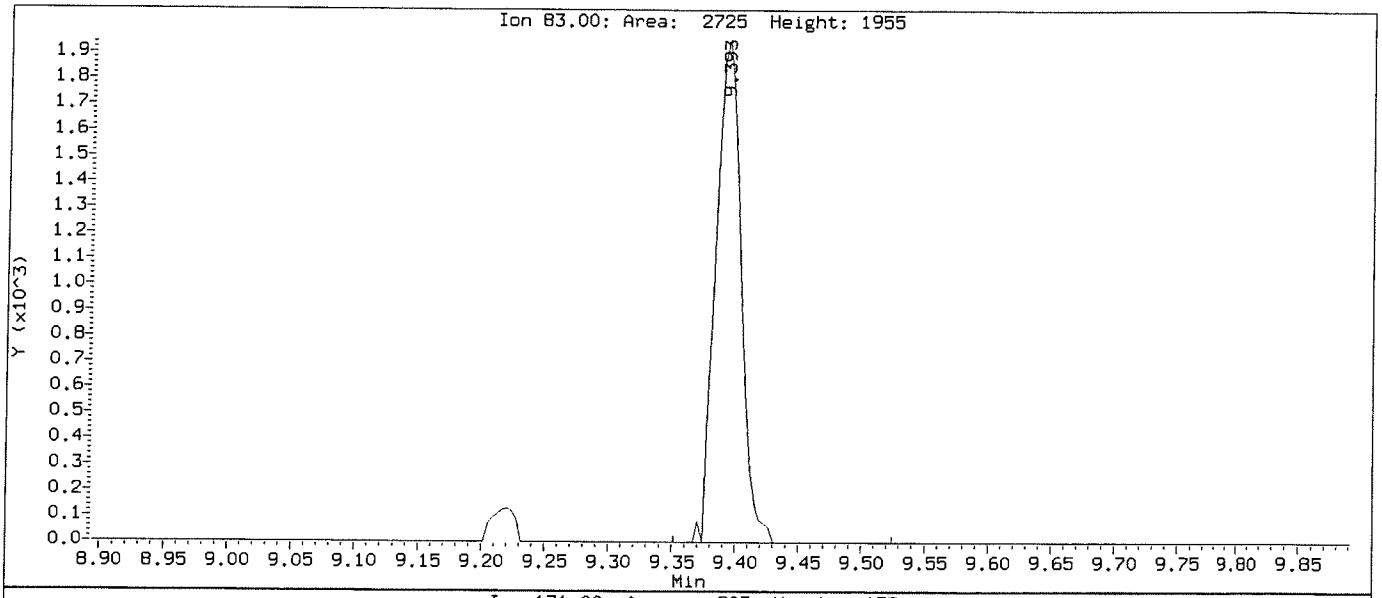
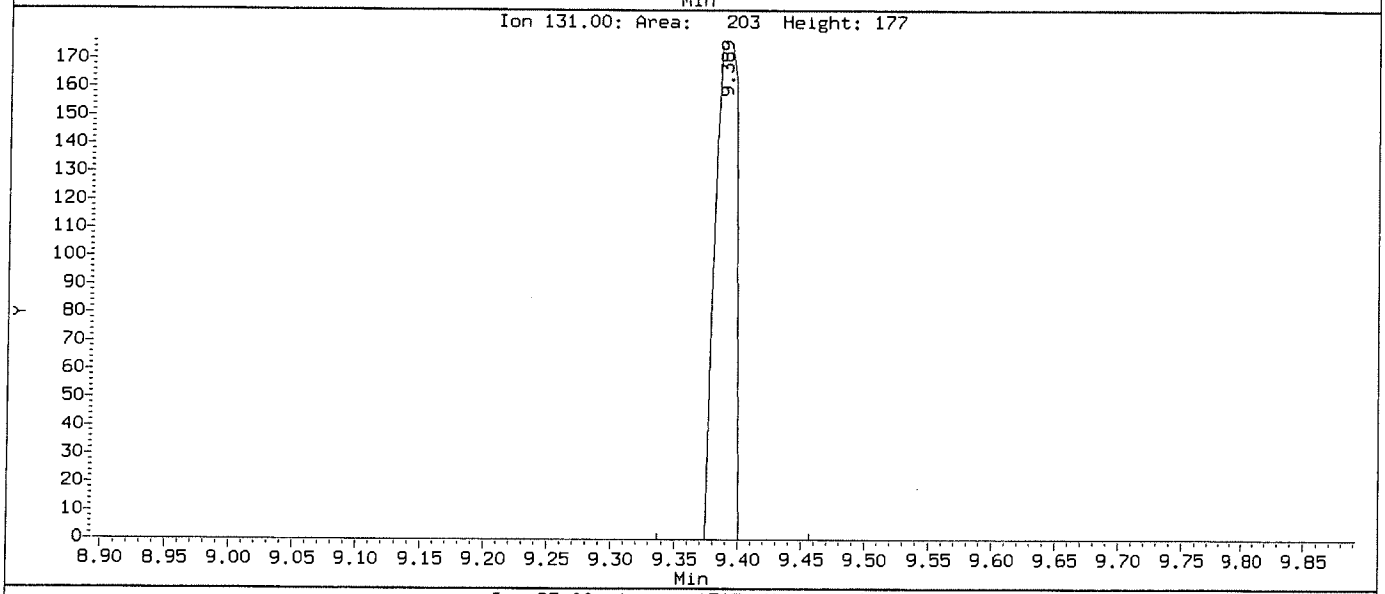
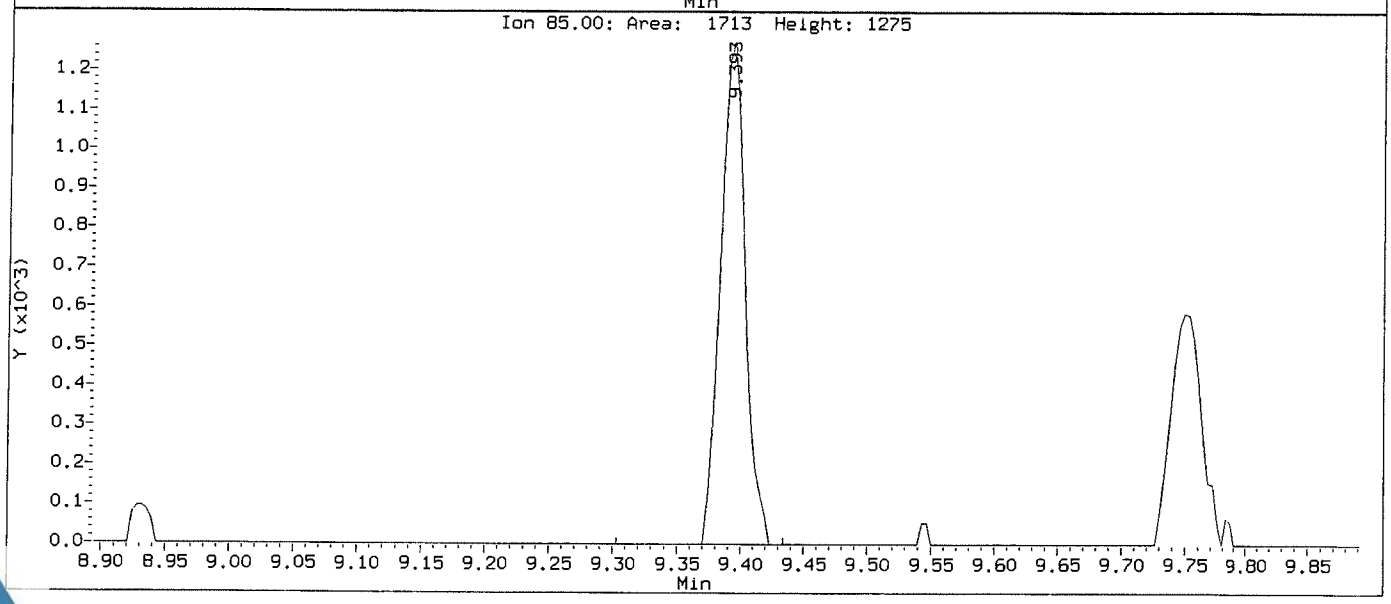
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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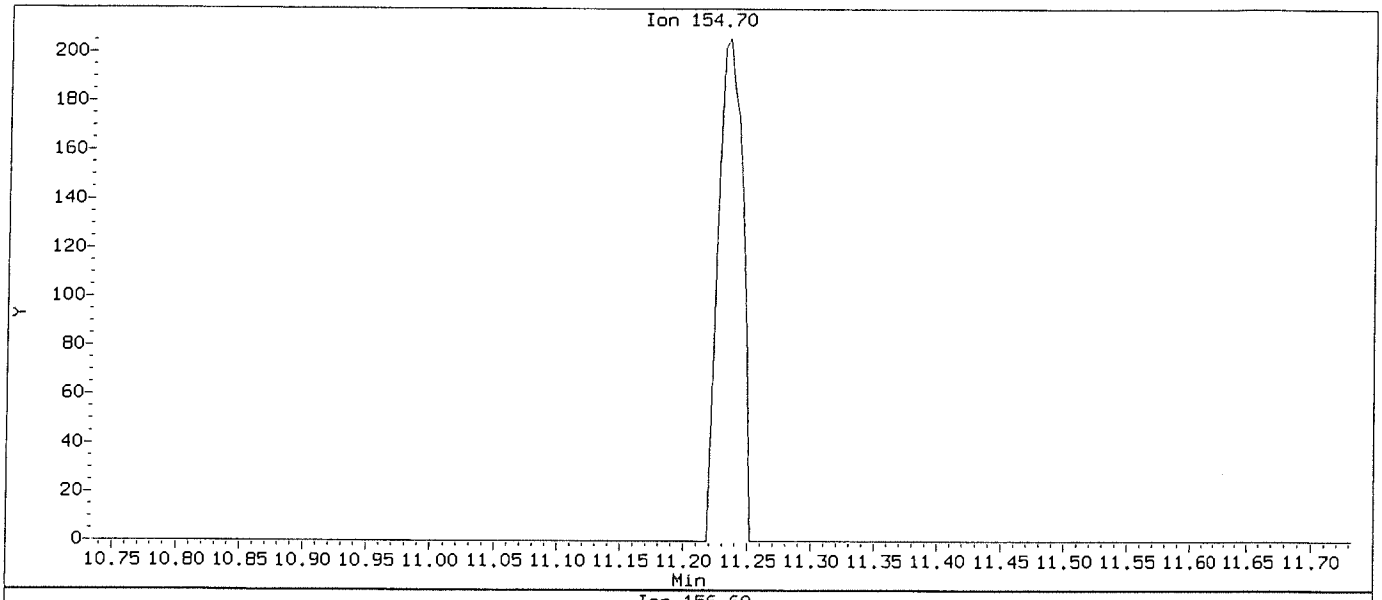
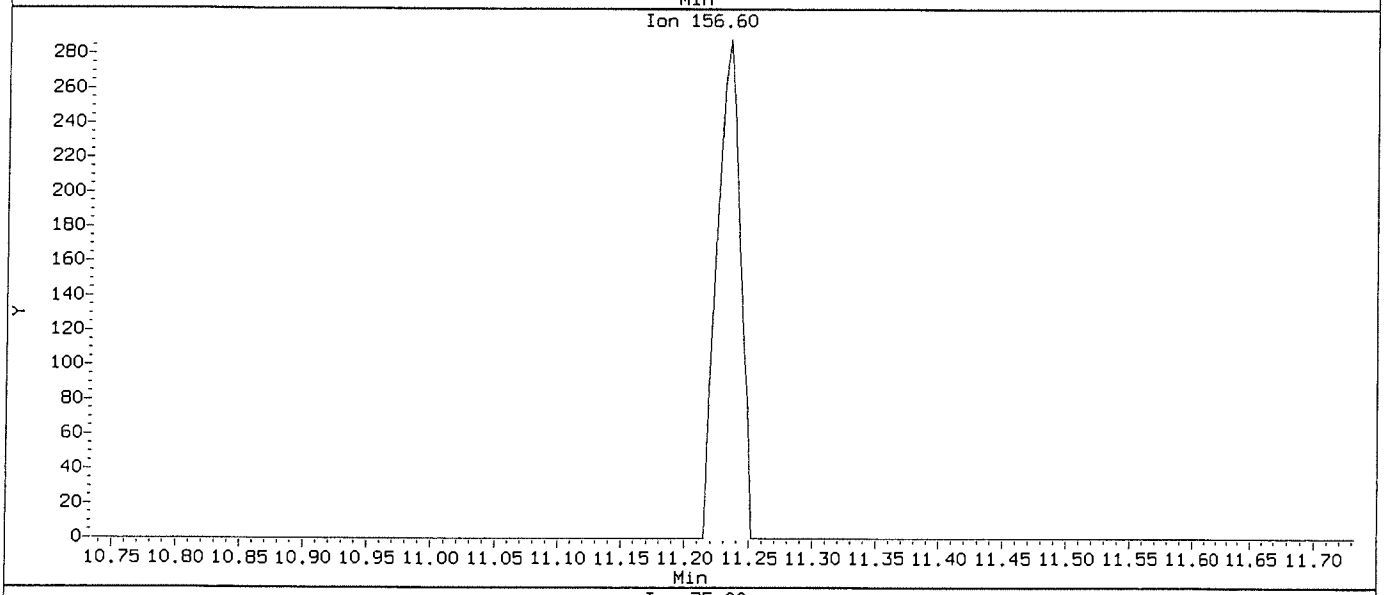
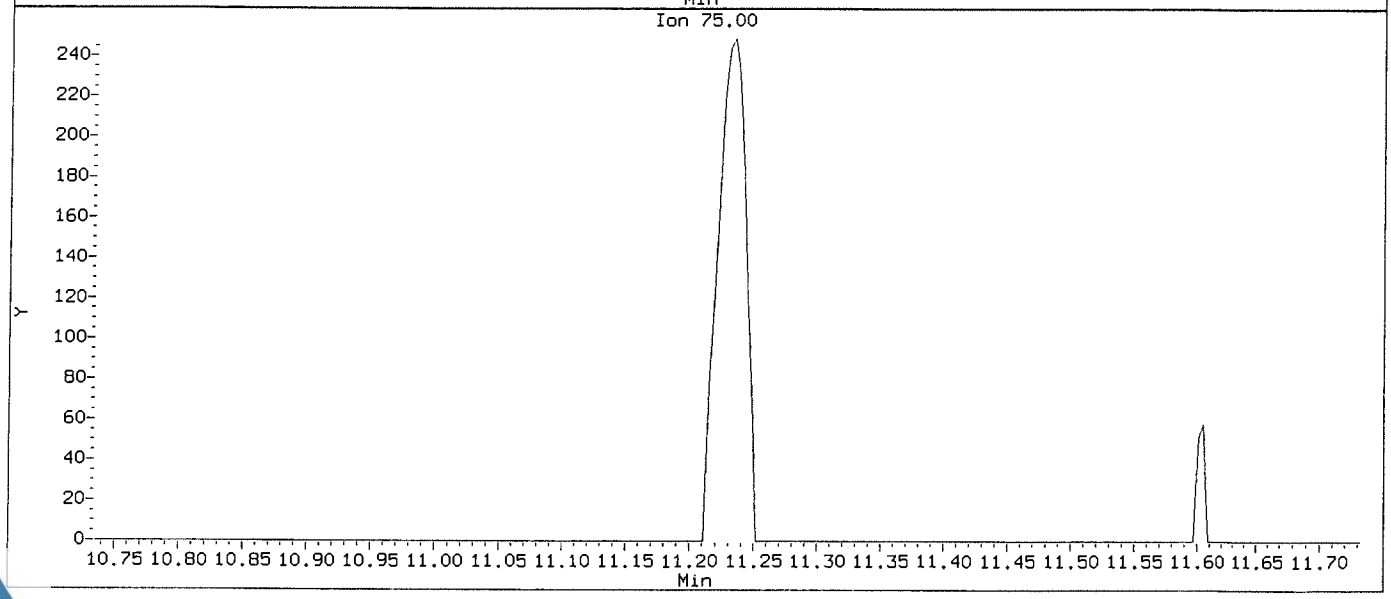
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

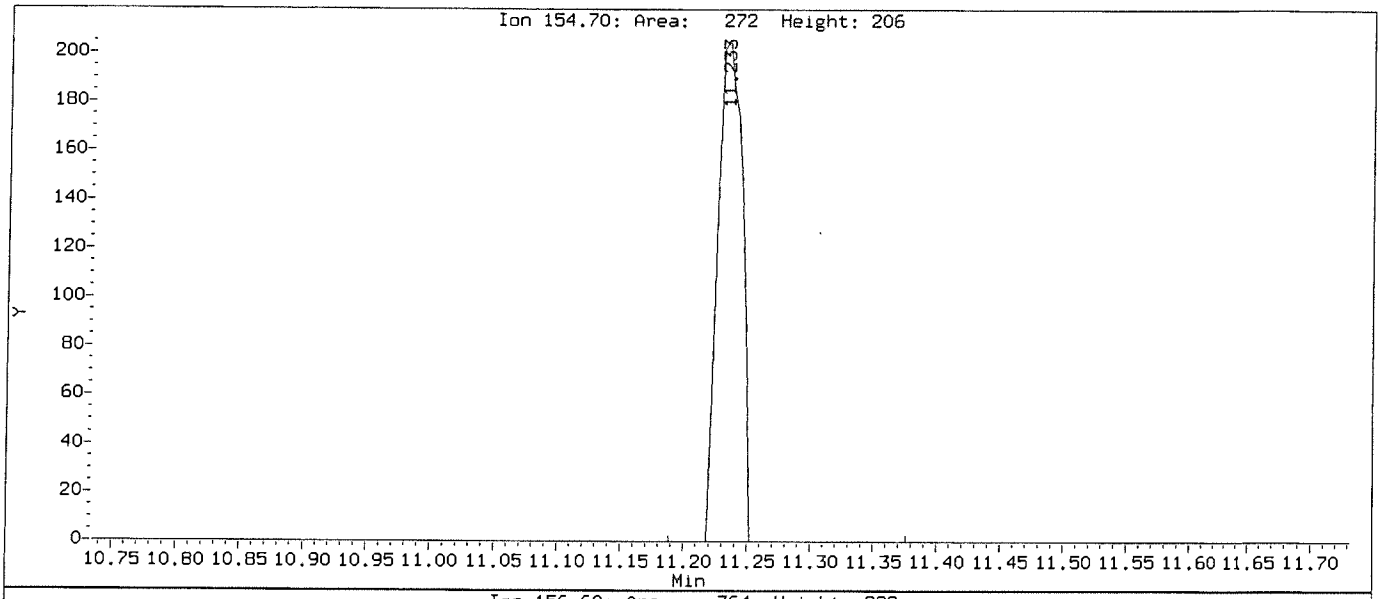


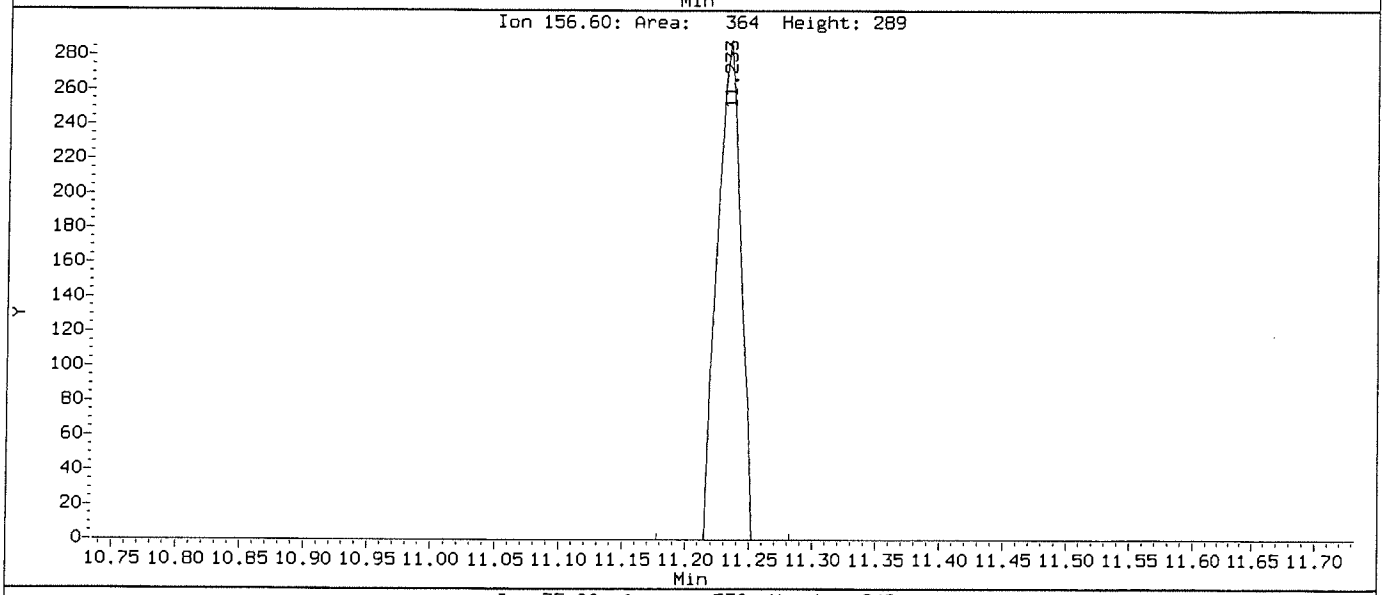



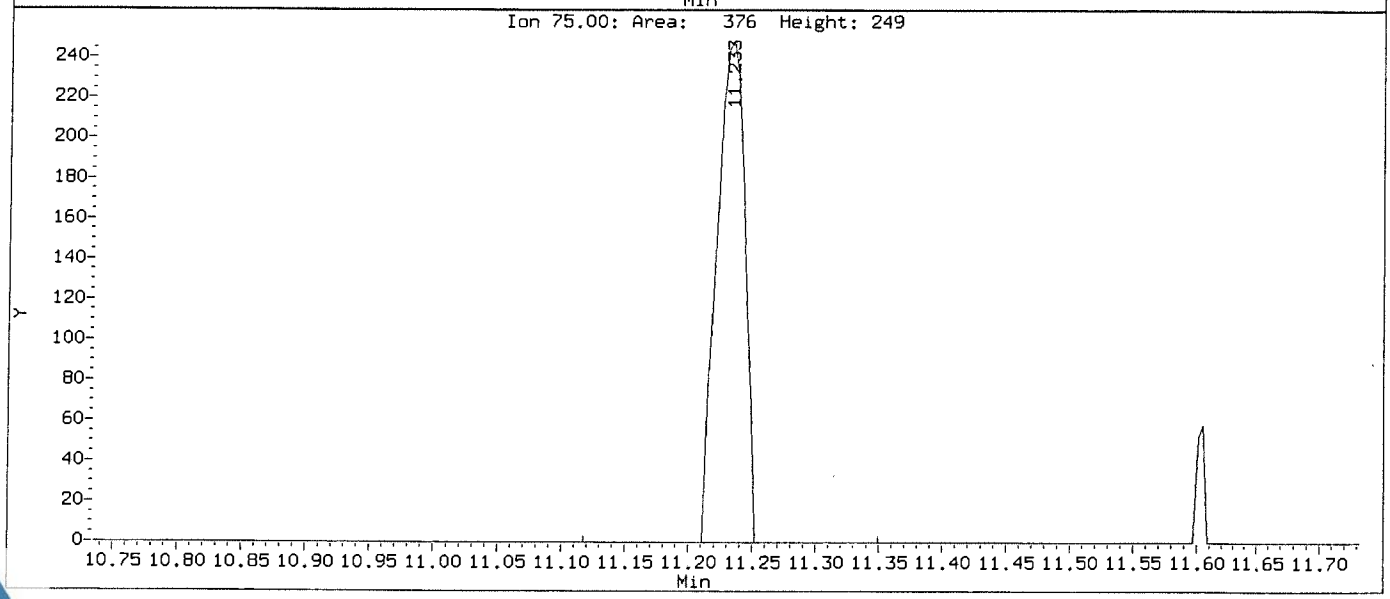



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

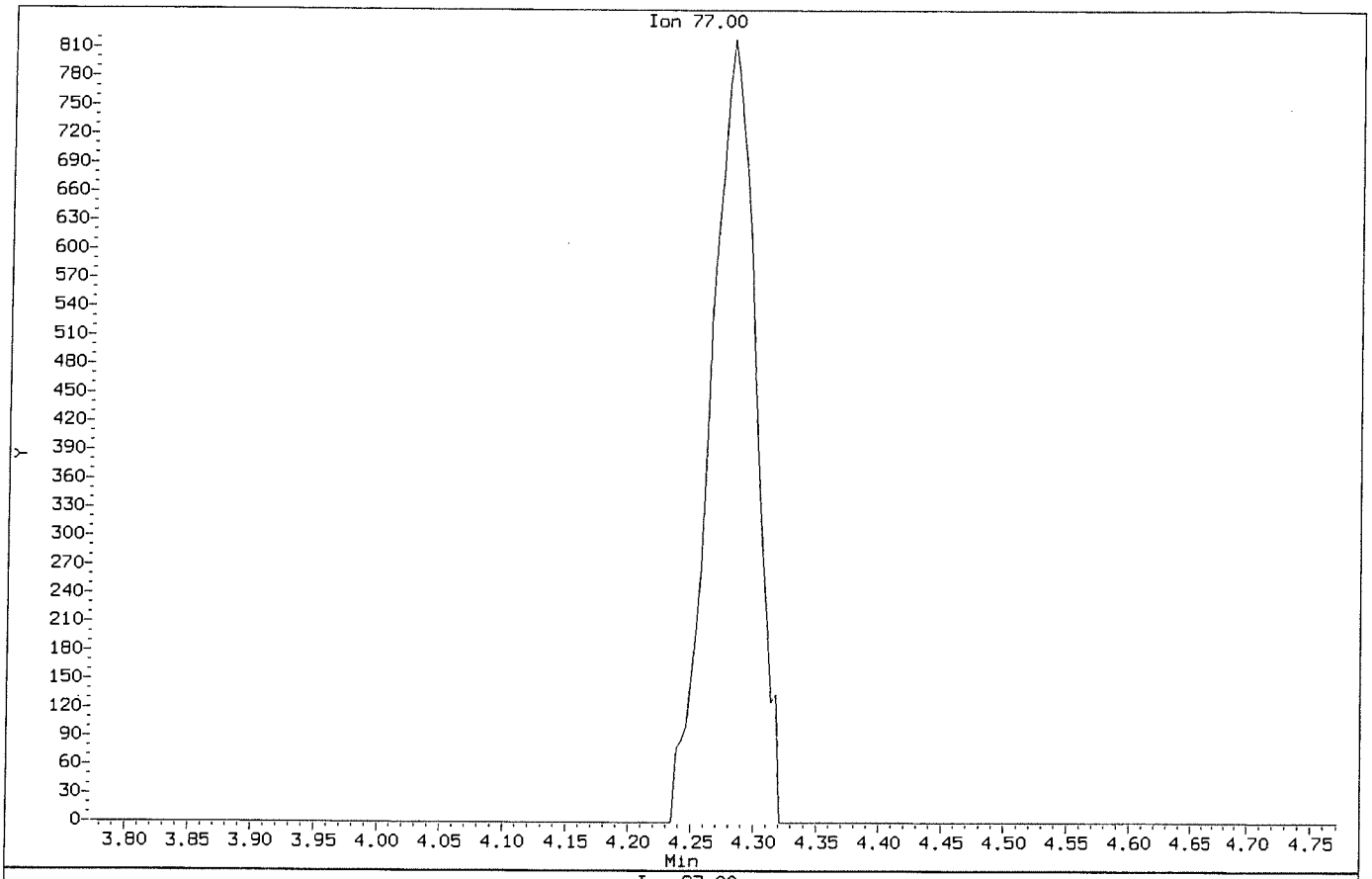


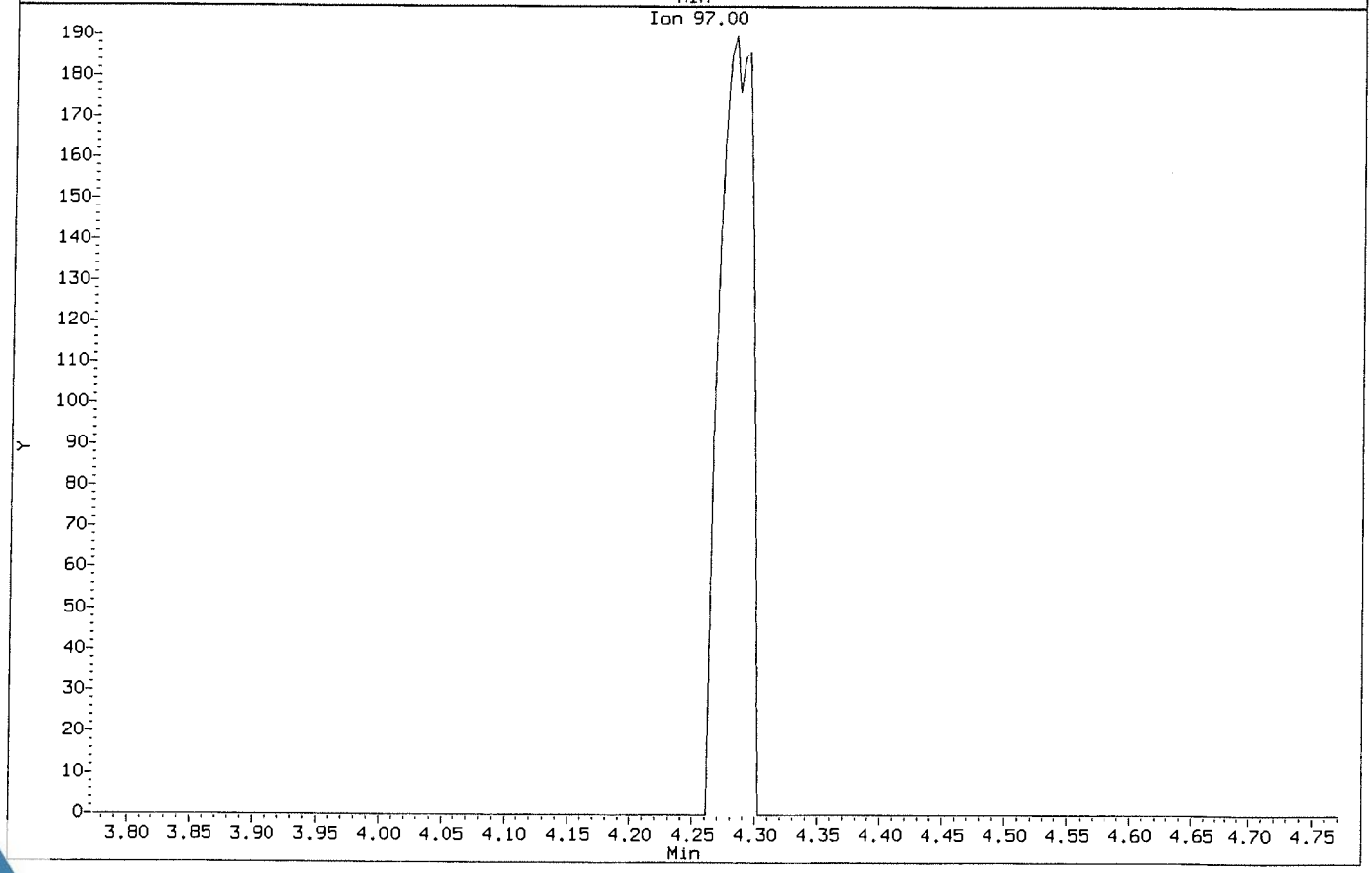



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

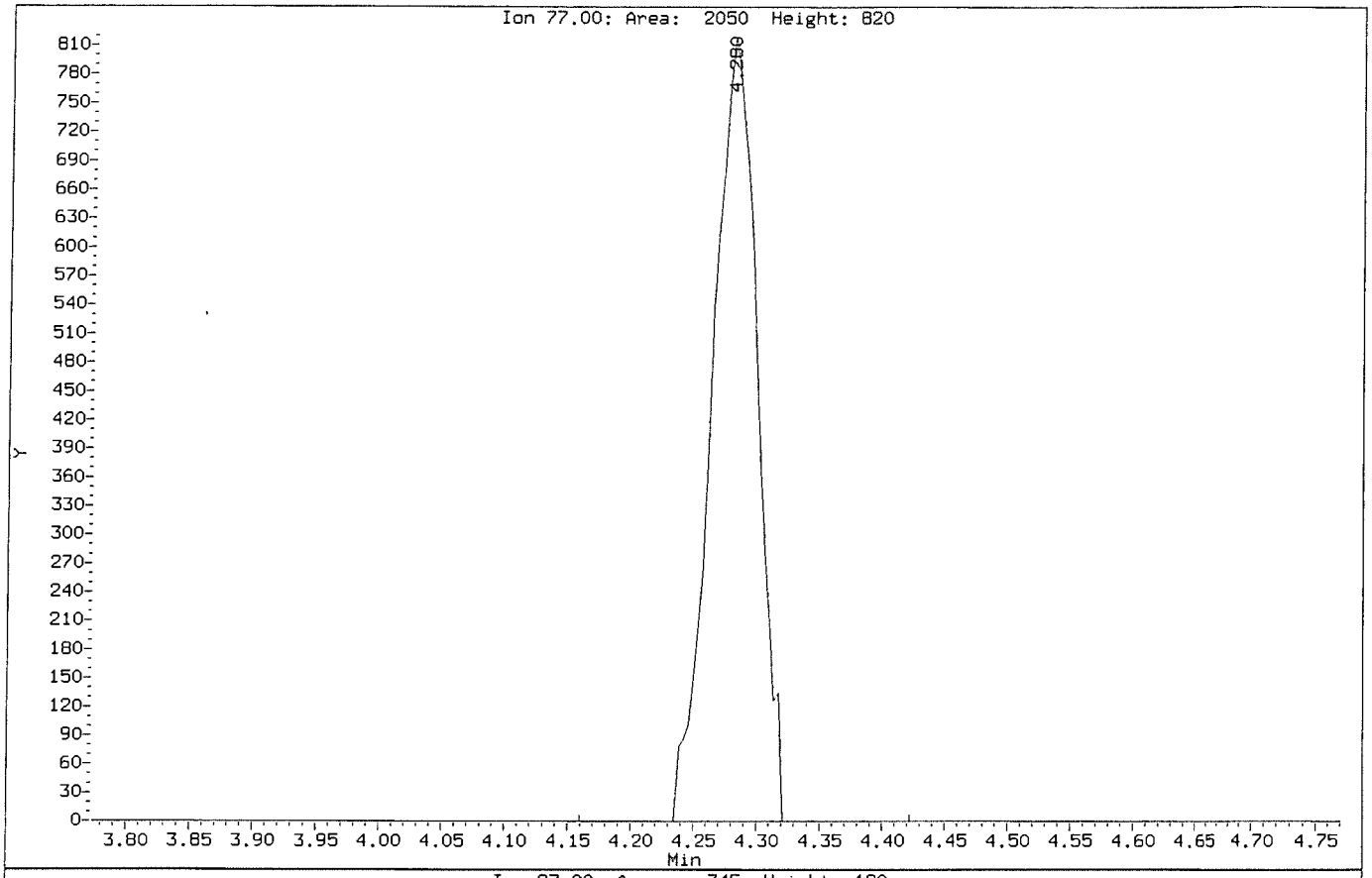
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

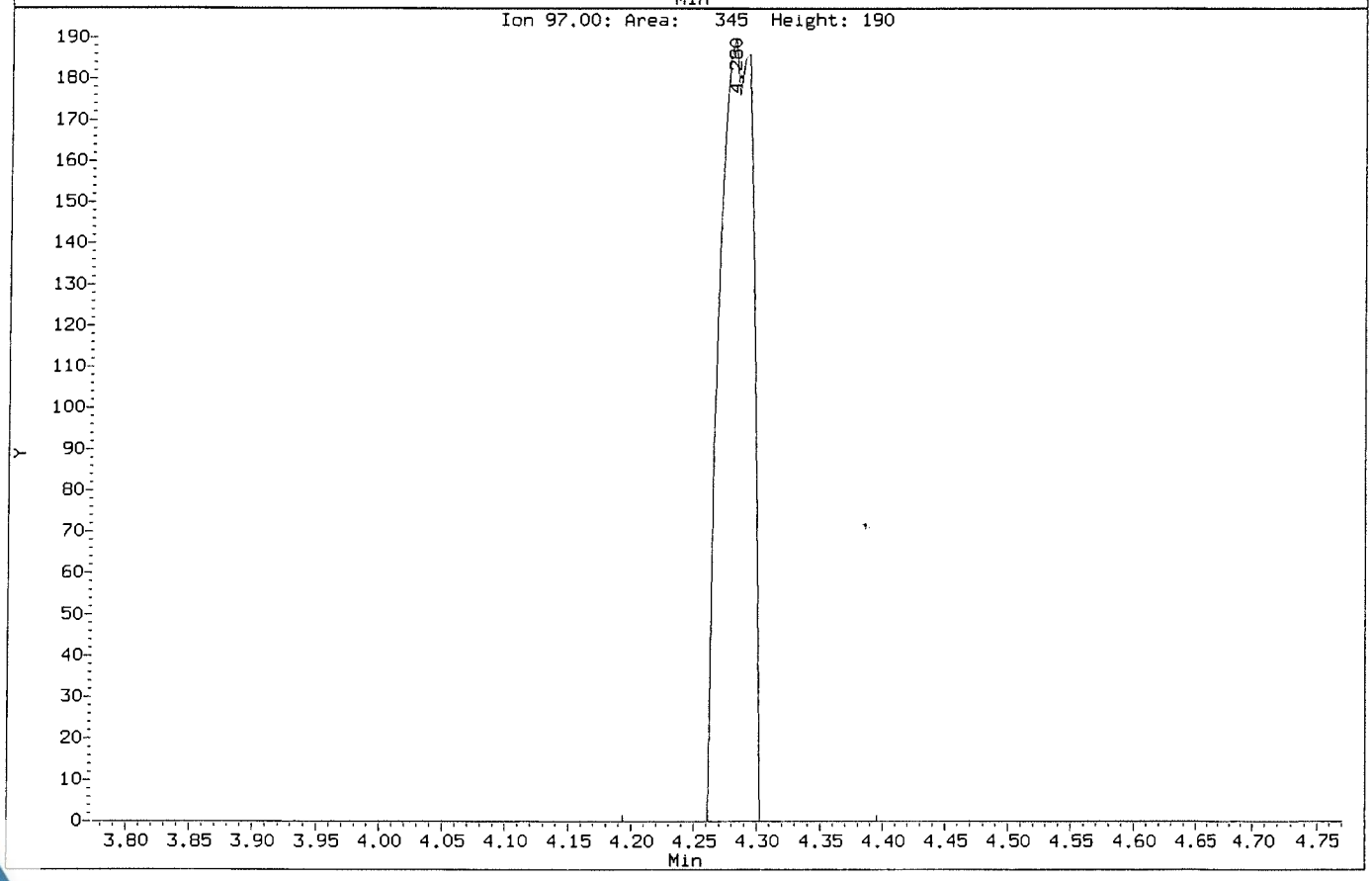


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

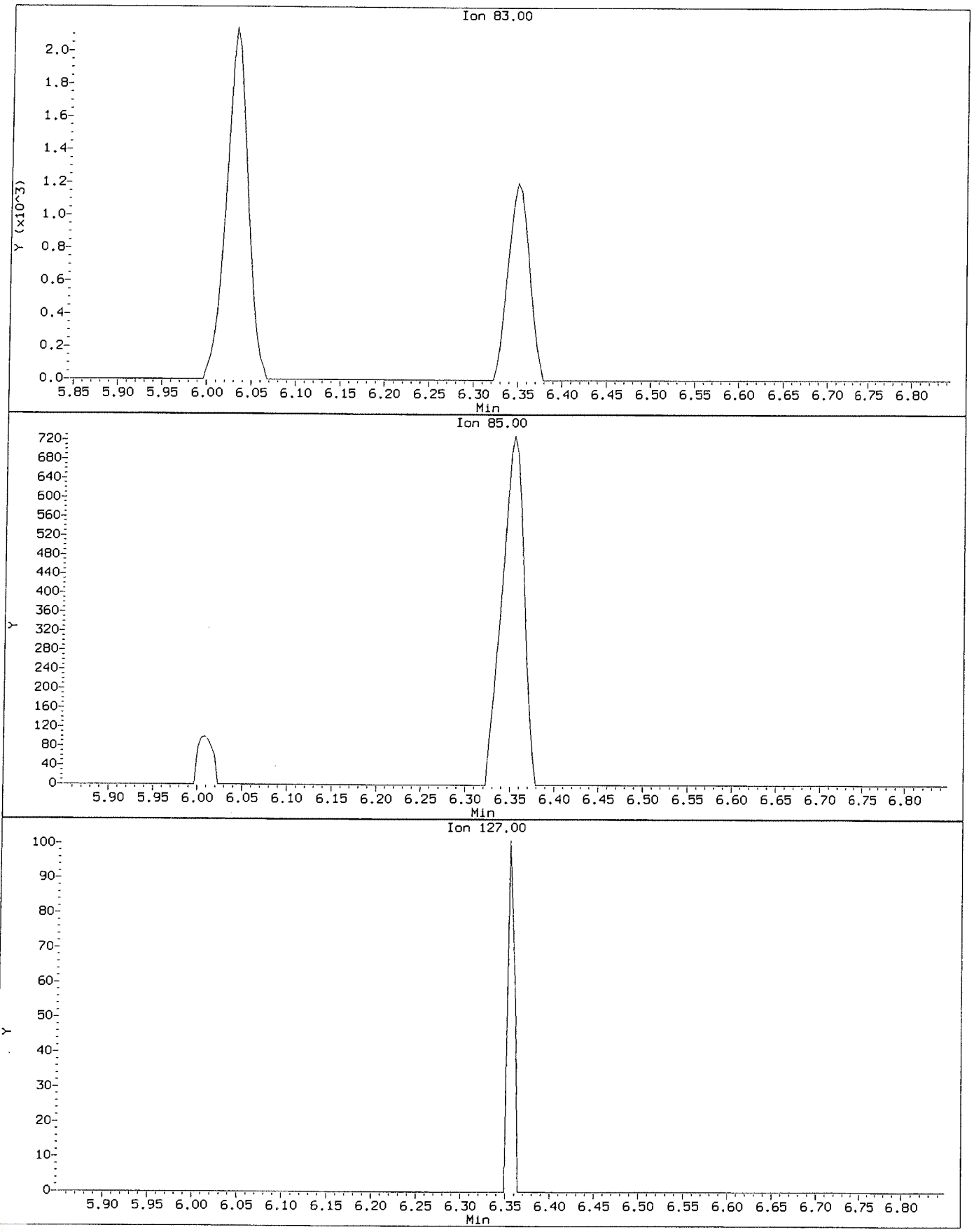
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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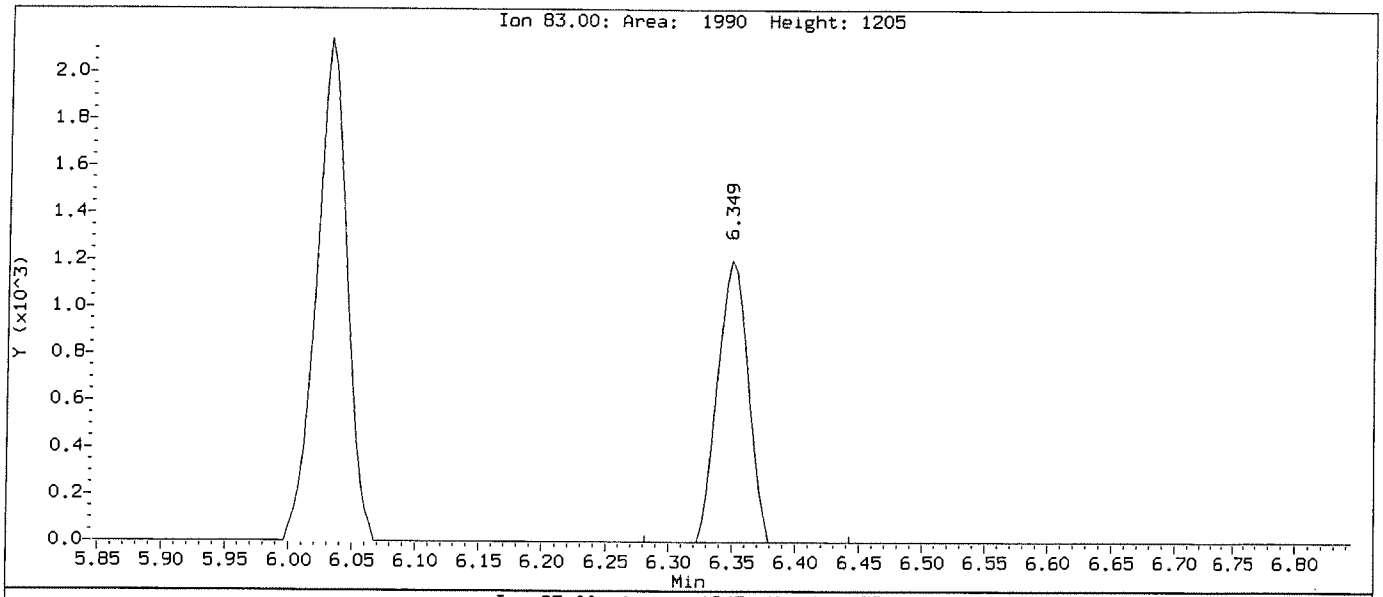
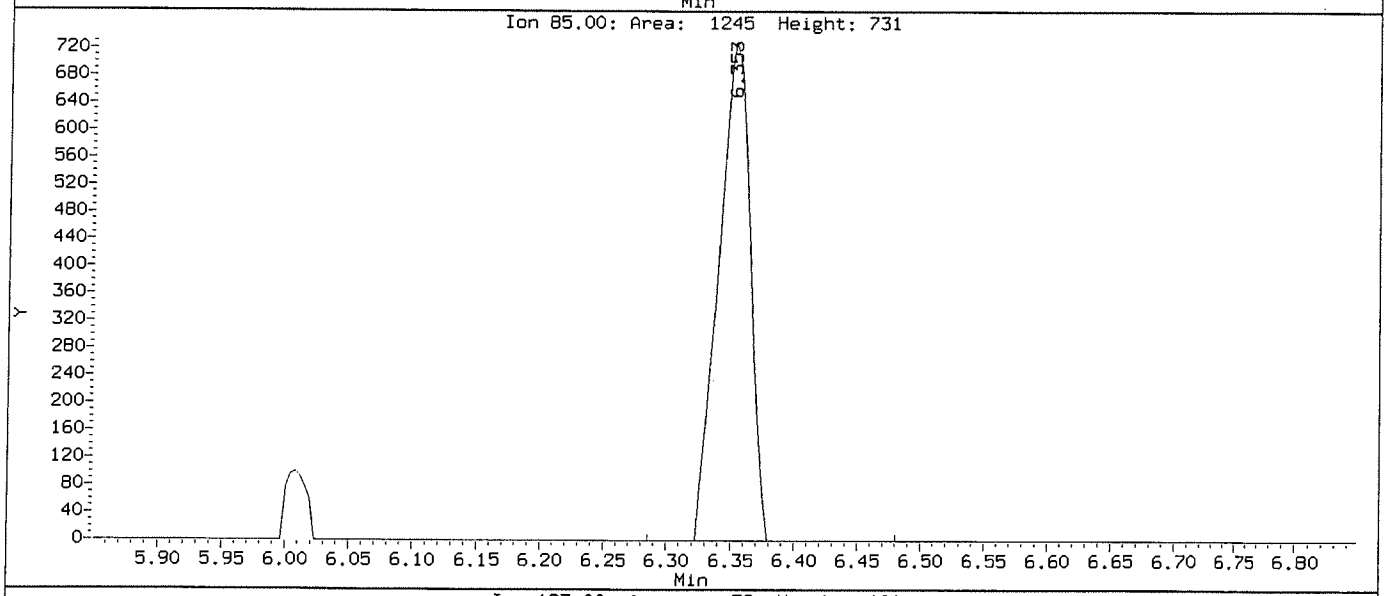
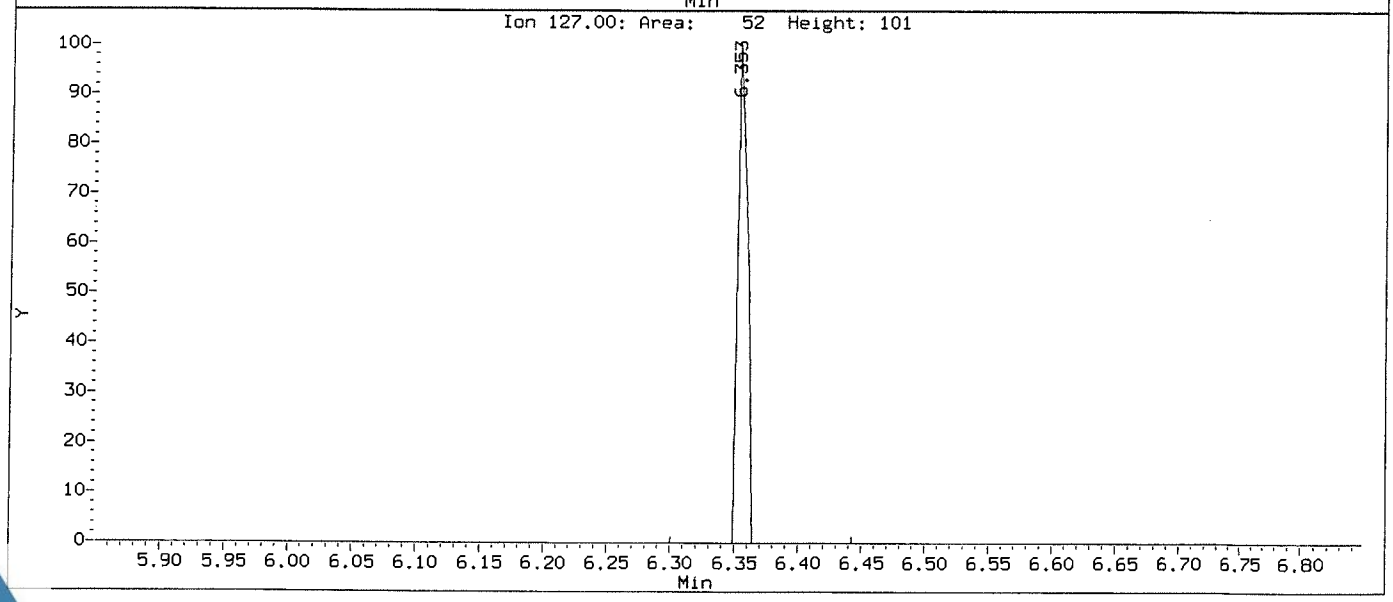
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4

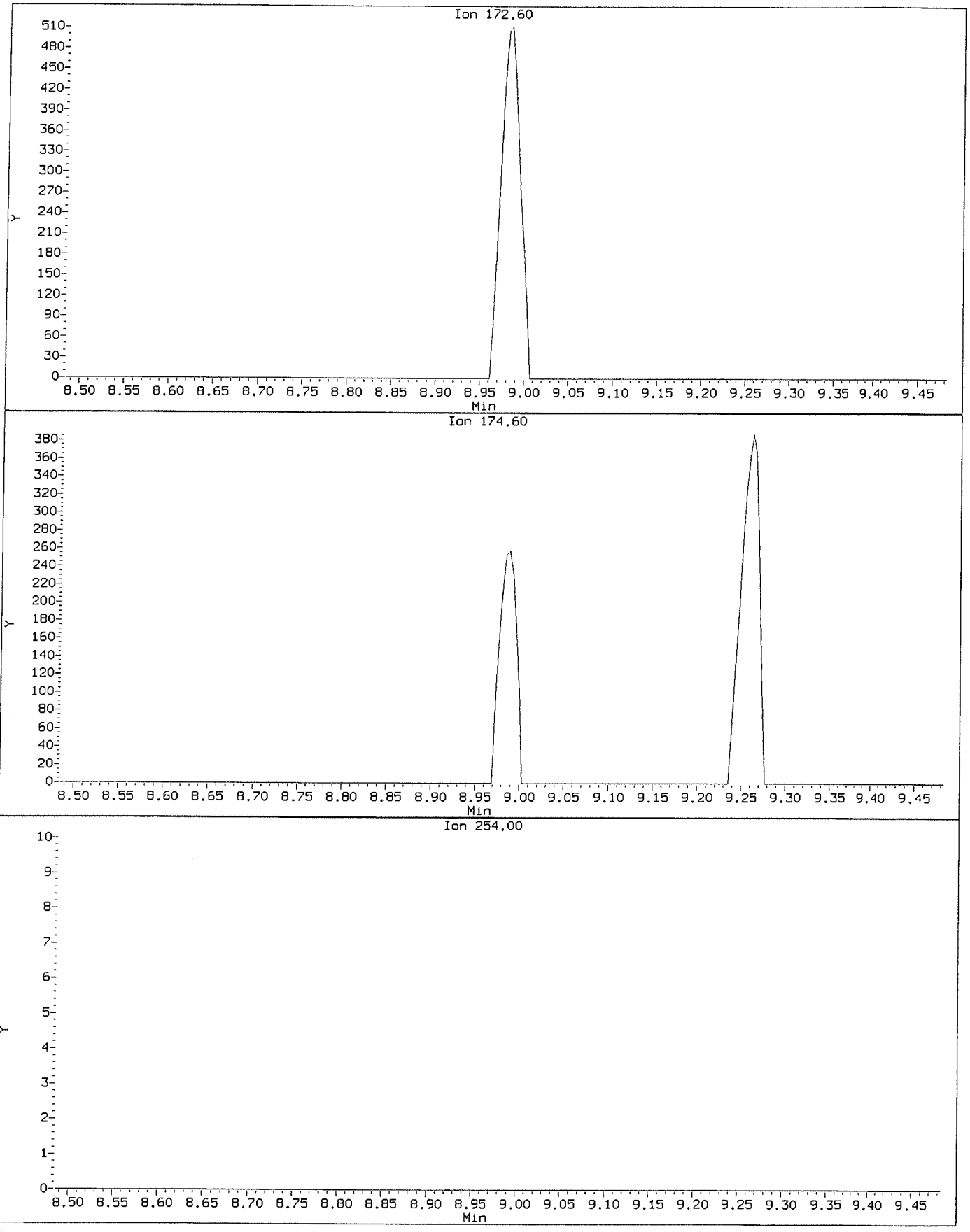


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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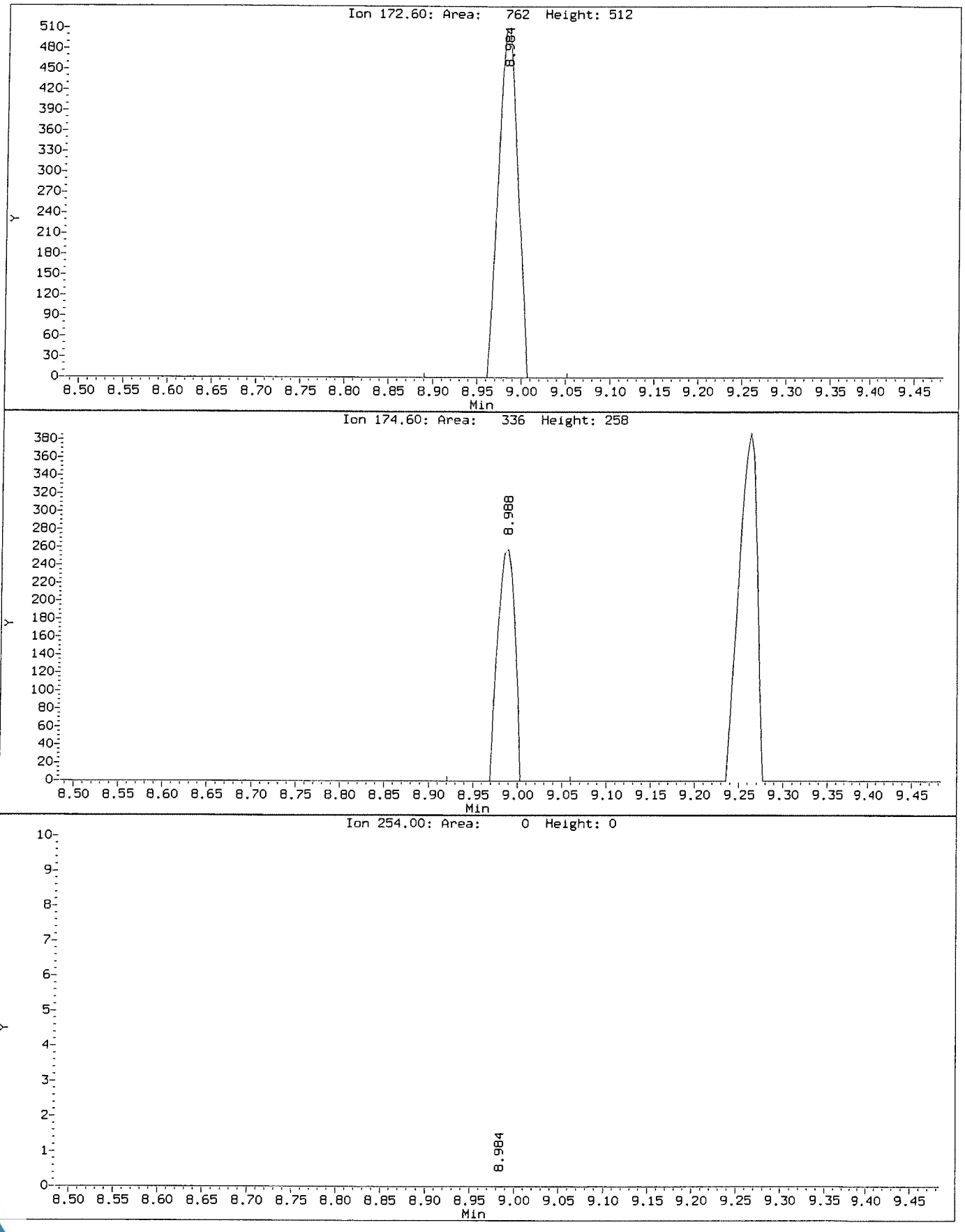
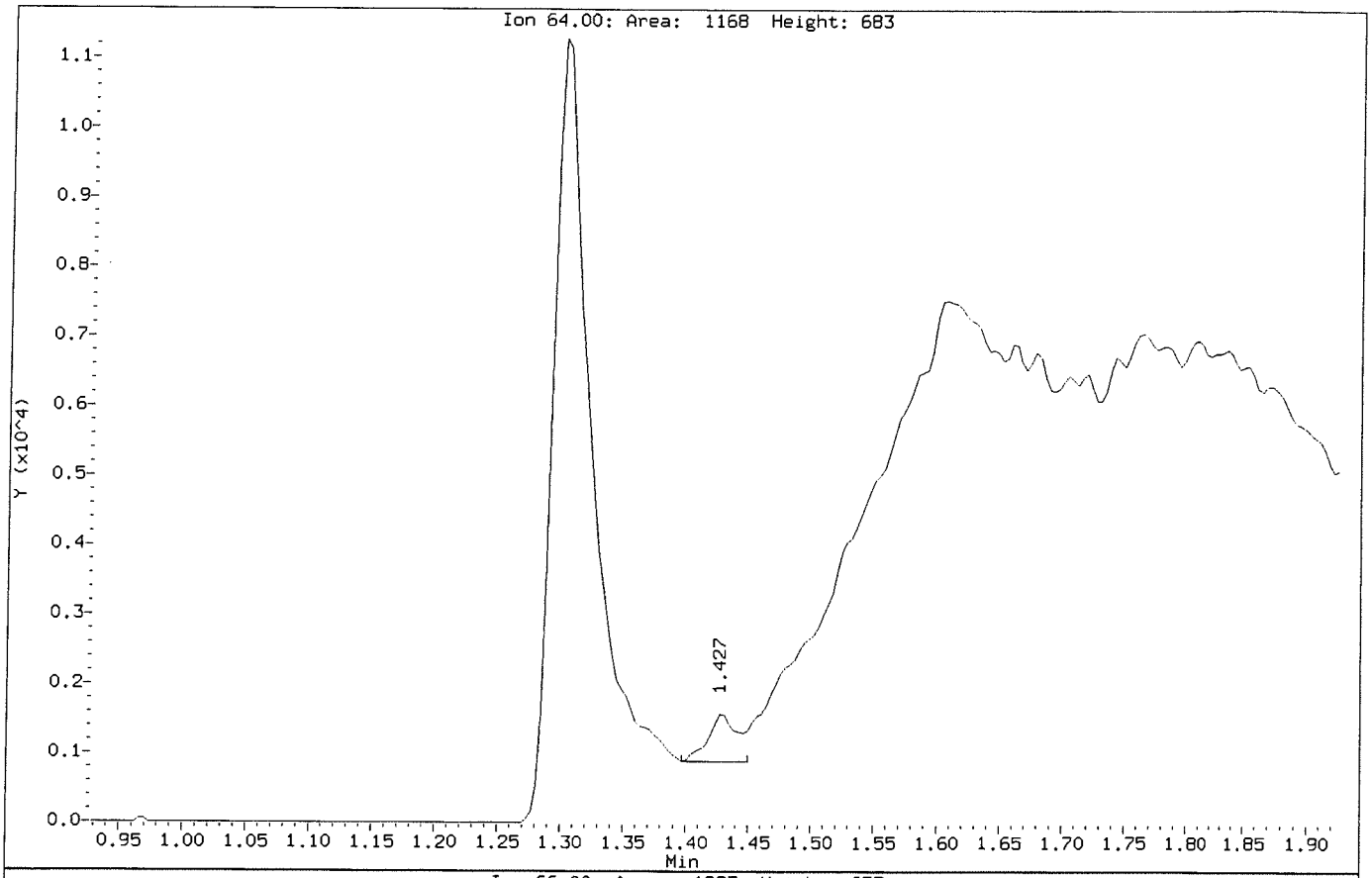
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

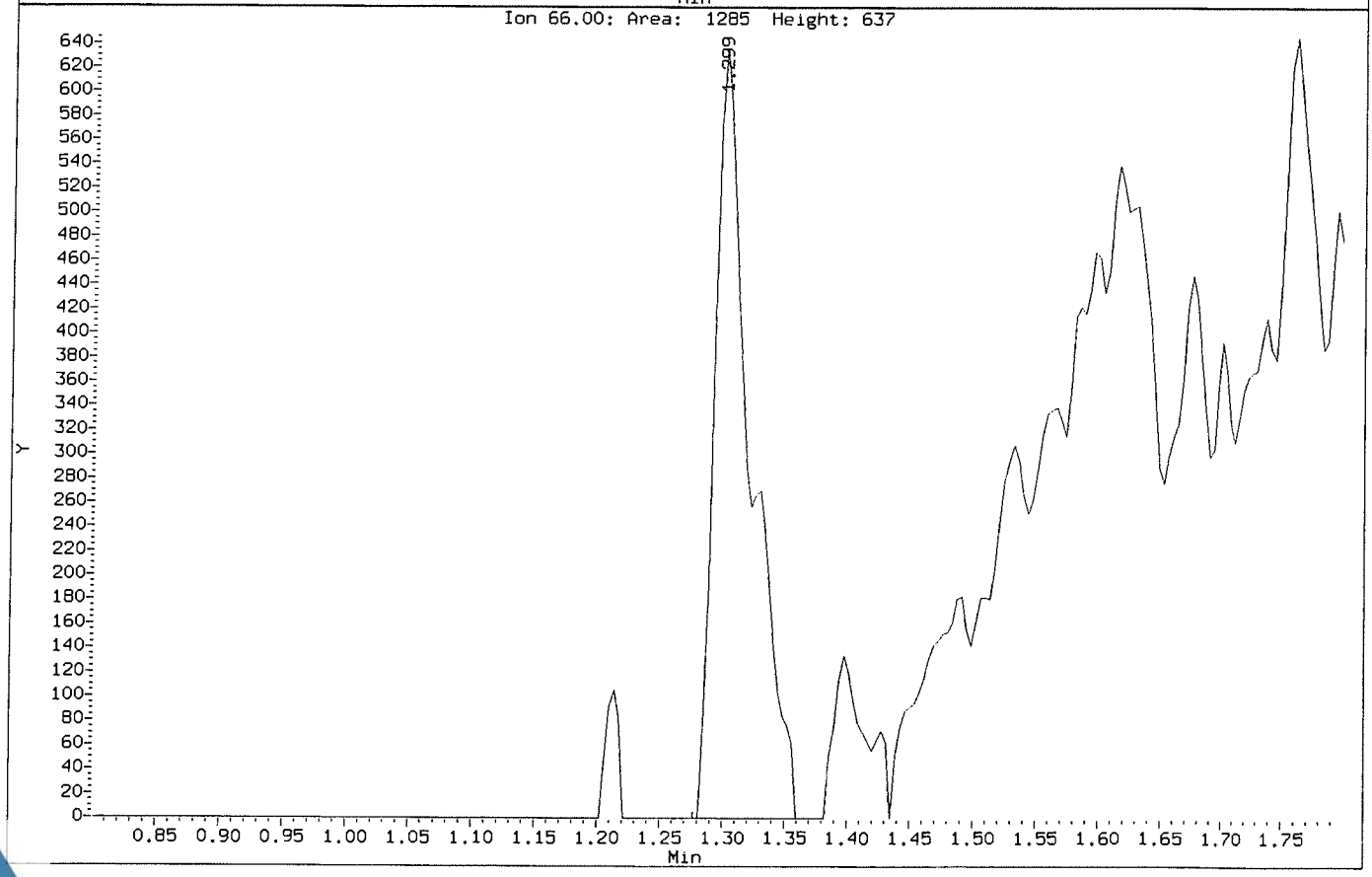
Compound: Bromoform
CAS Number: 75-25-2



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3



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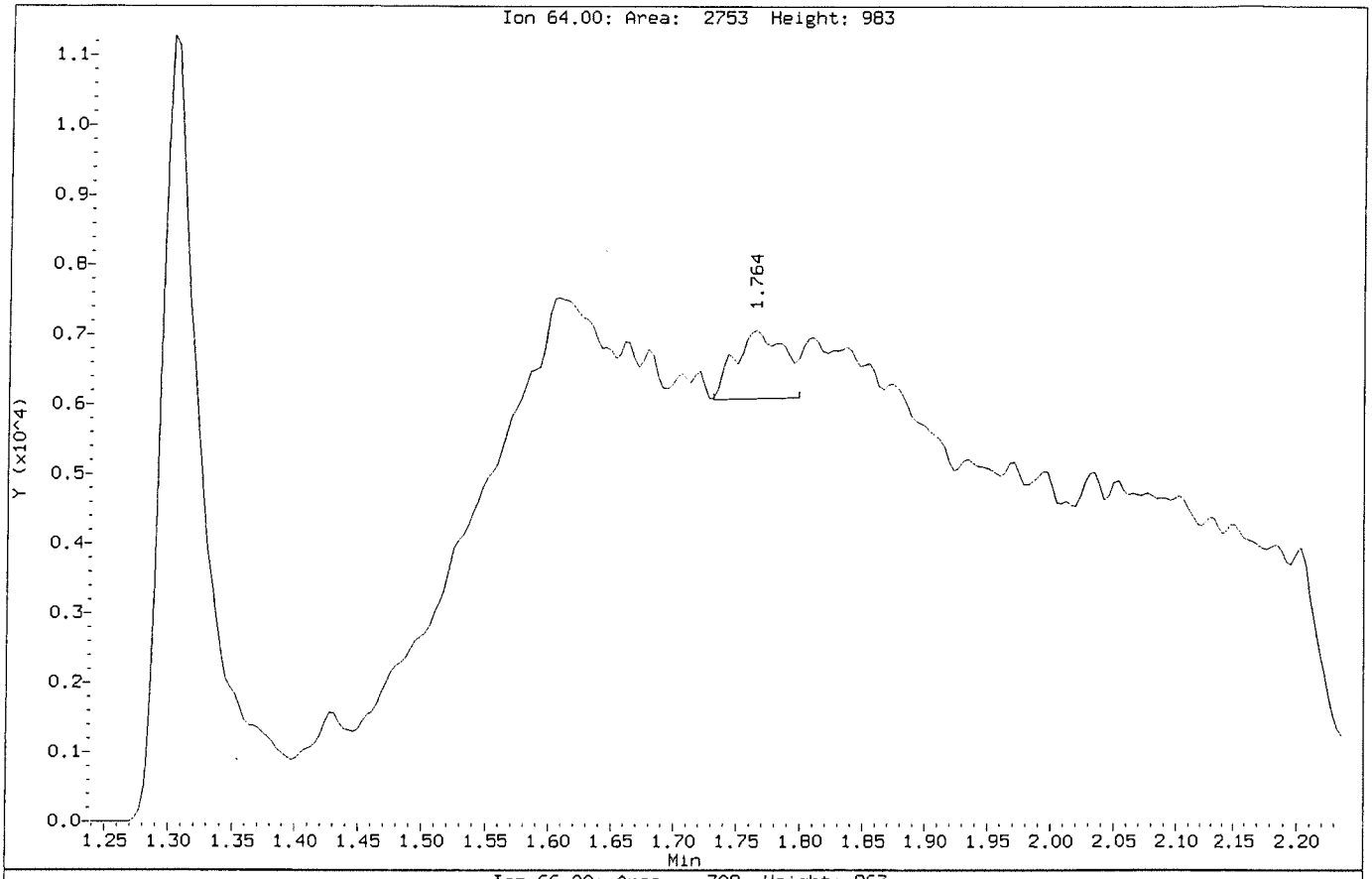
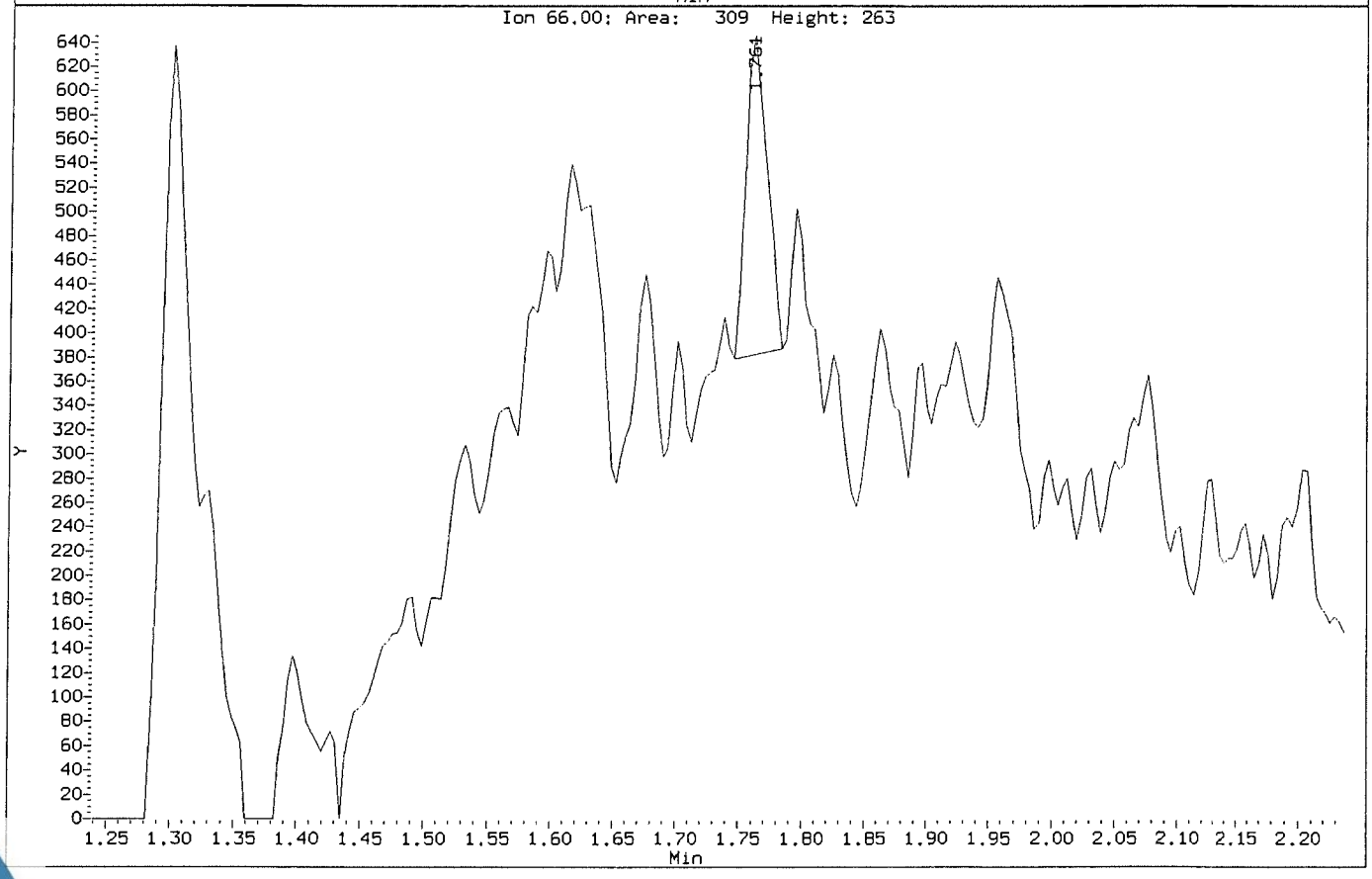
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3



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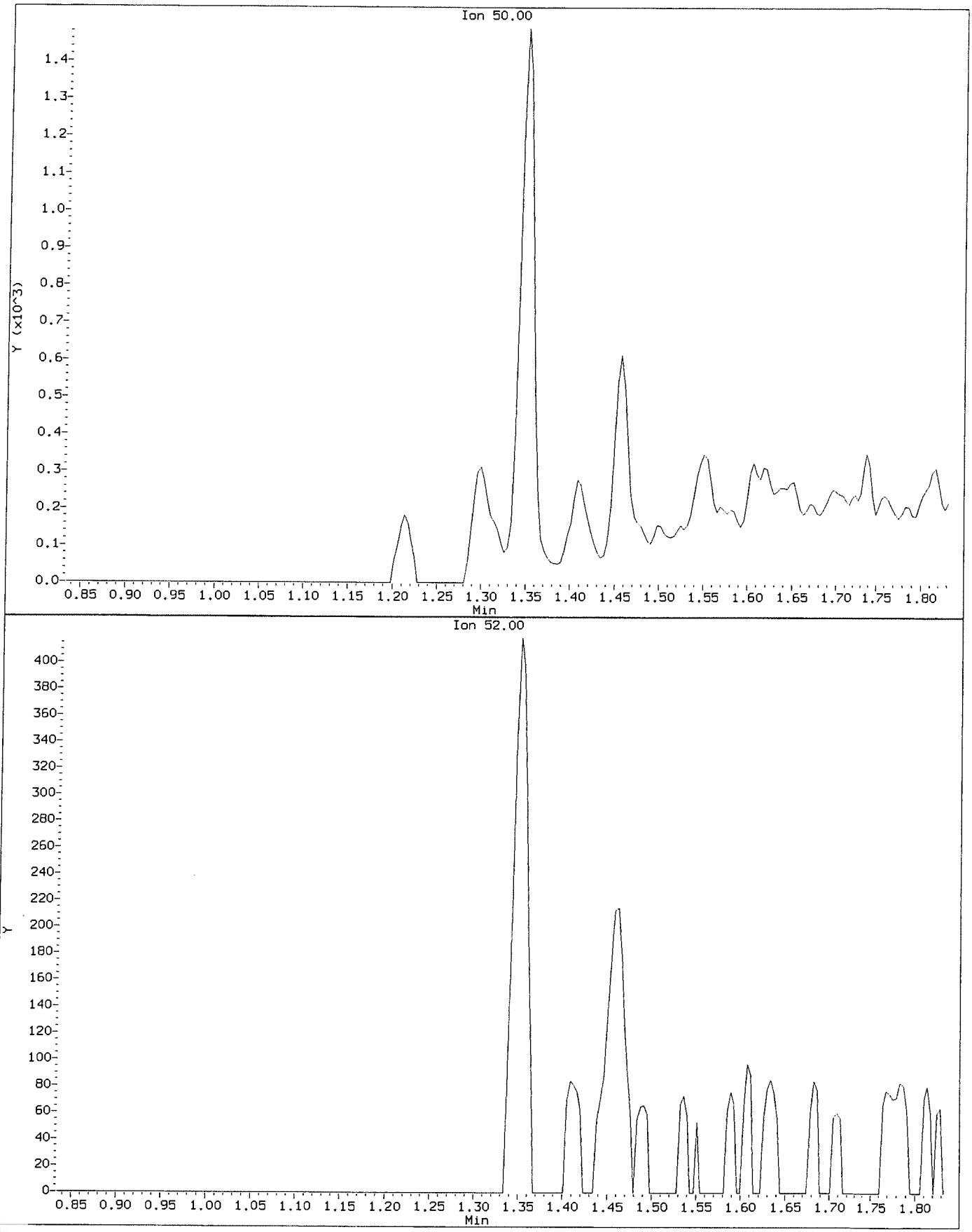
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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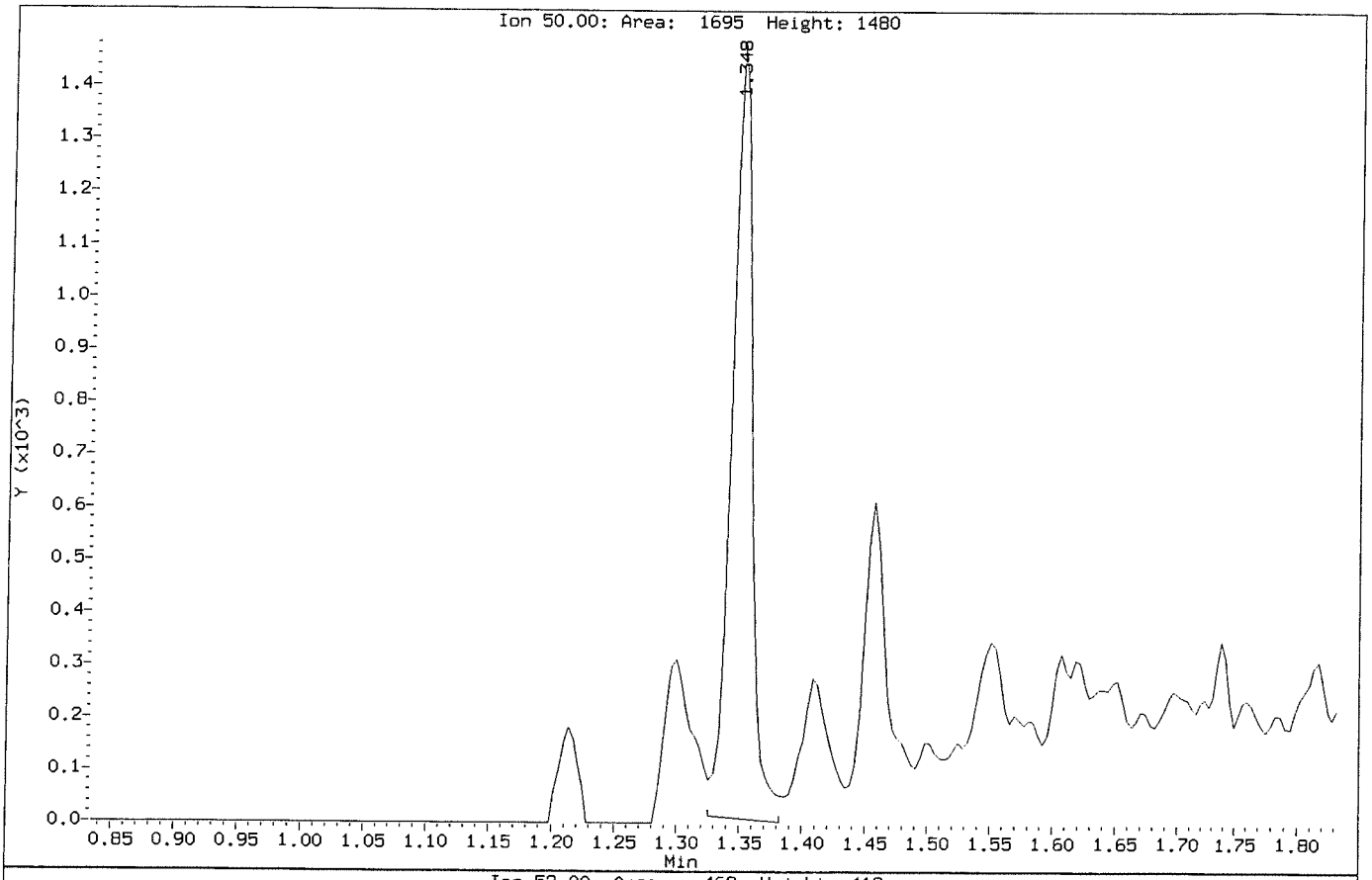
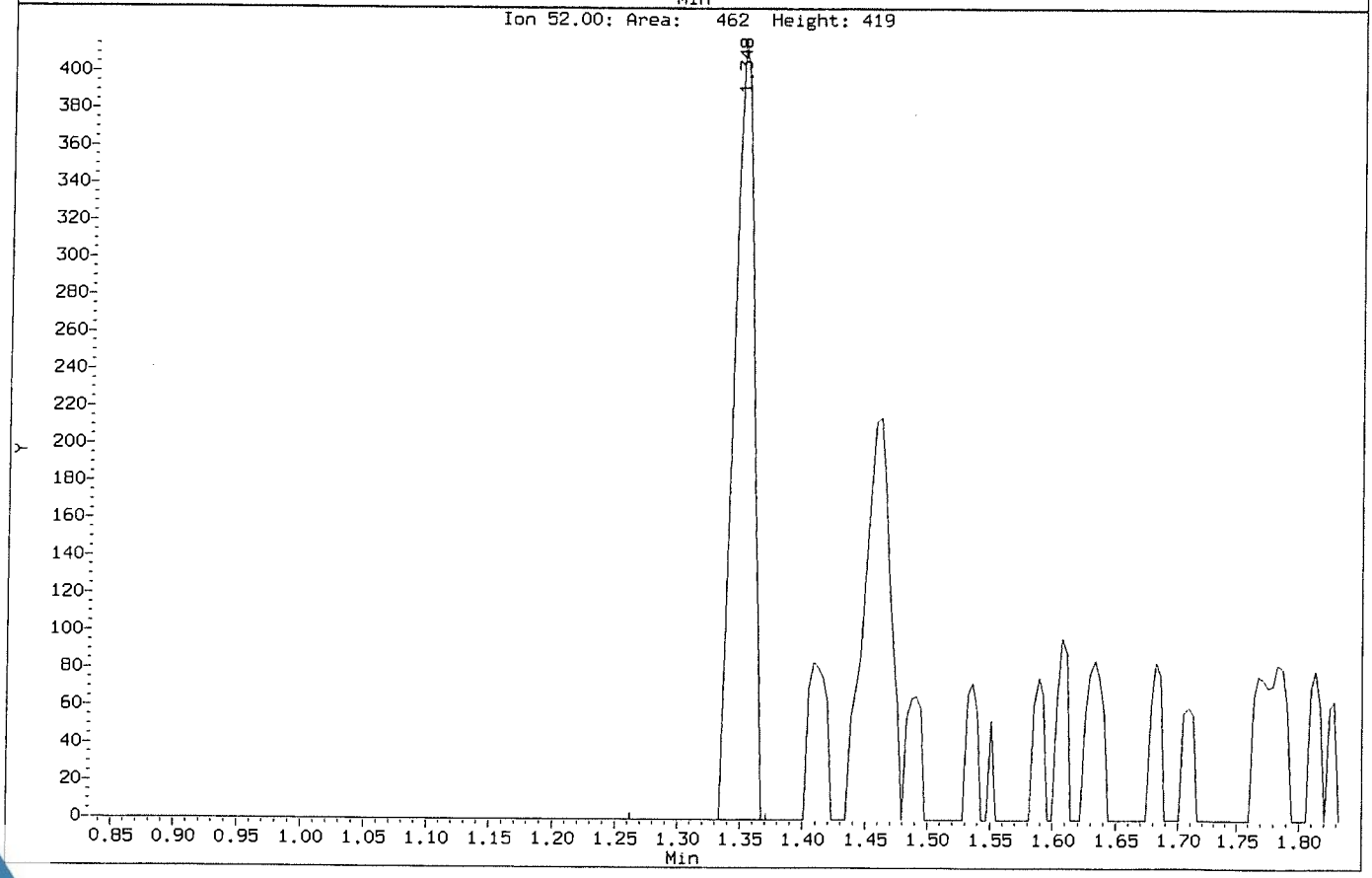
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

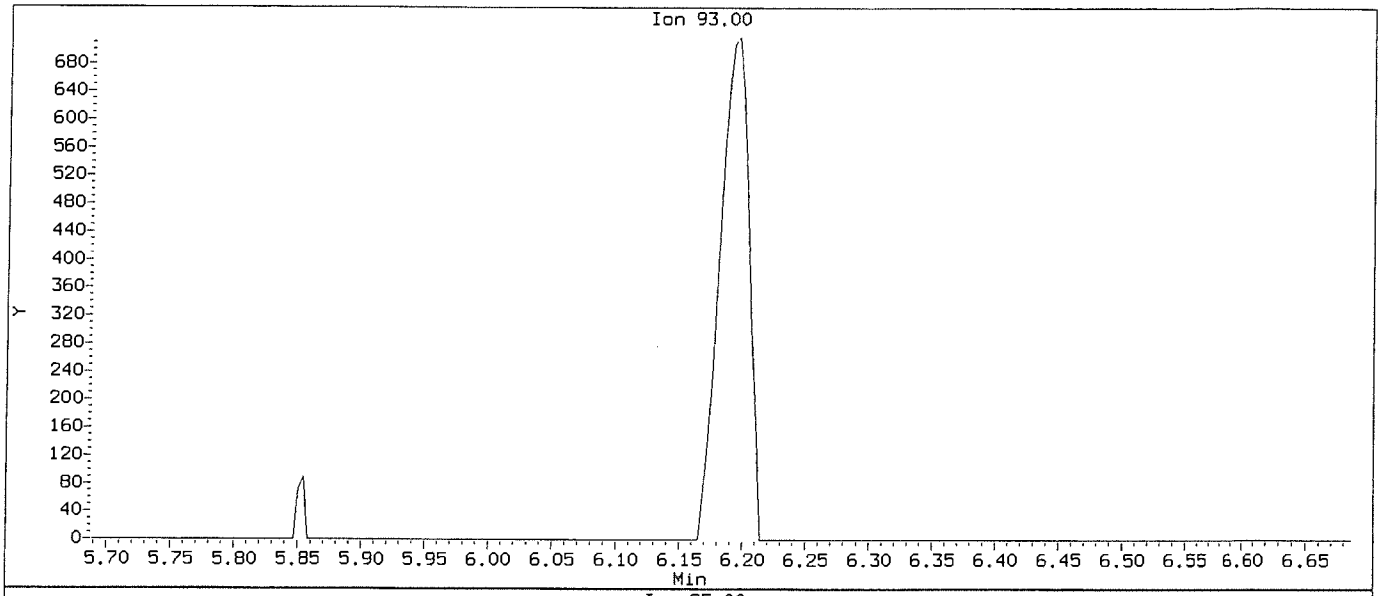
Compound: Chloromethane
CAS Number: 74-87-3

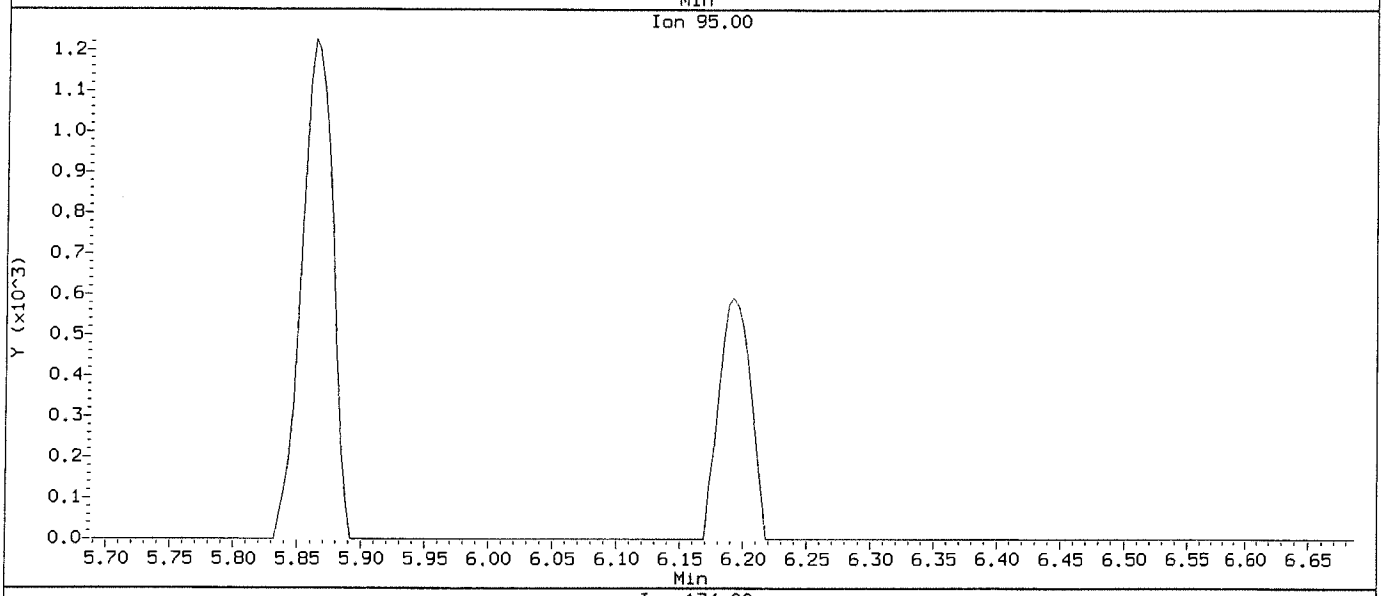


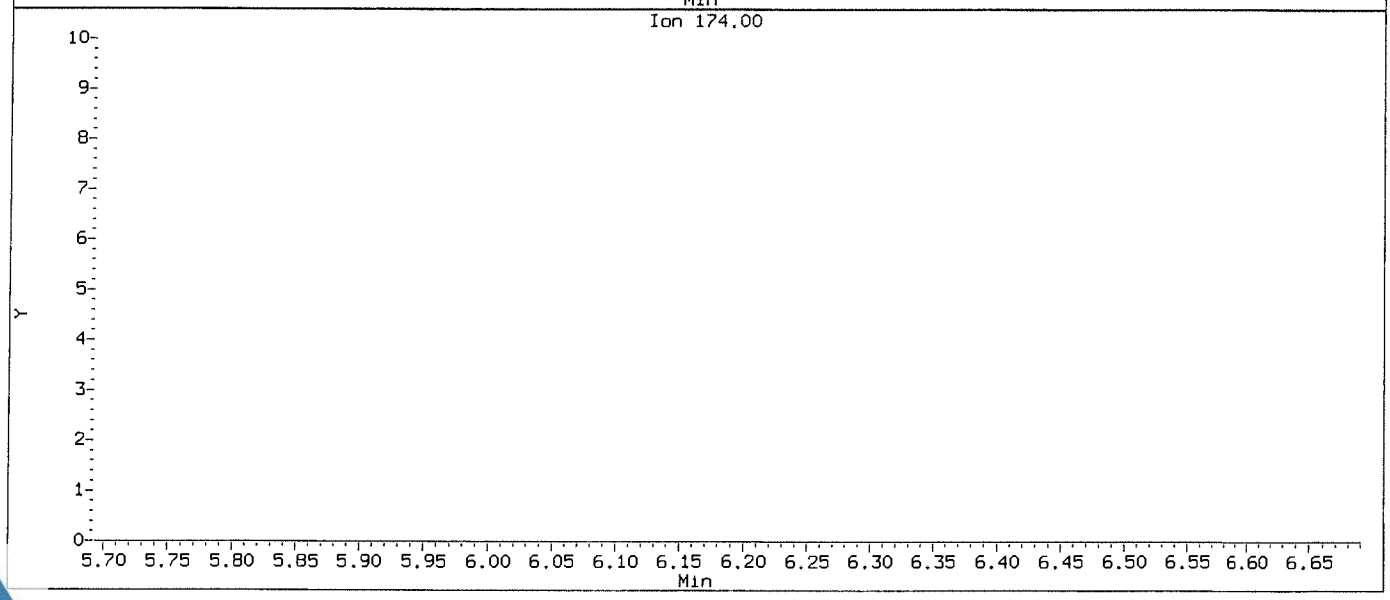



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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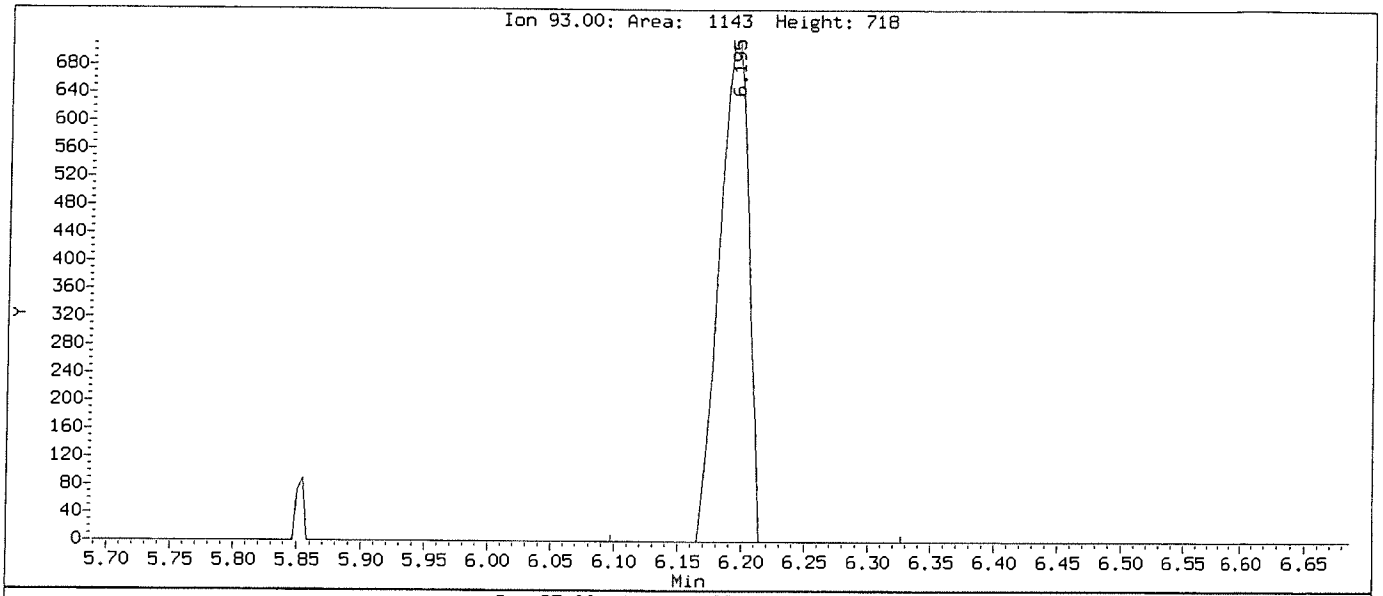
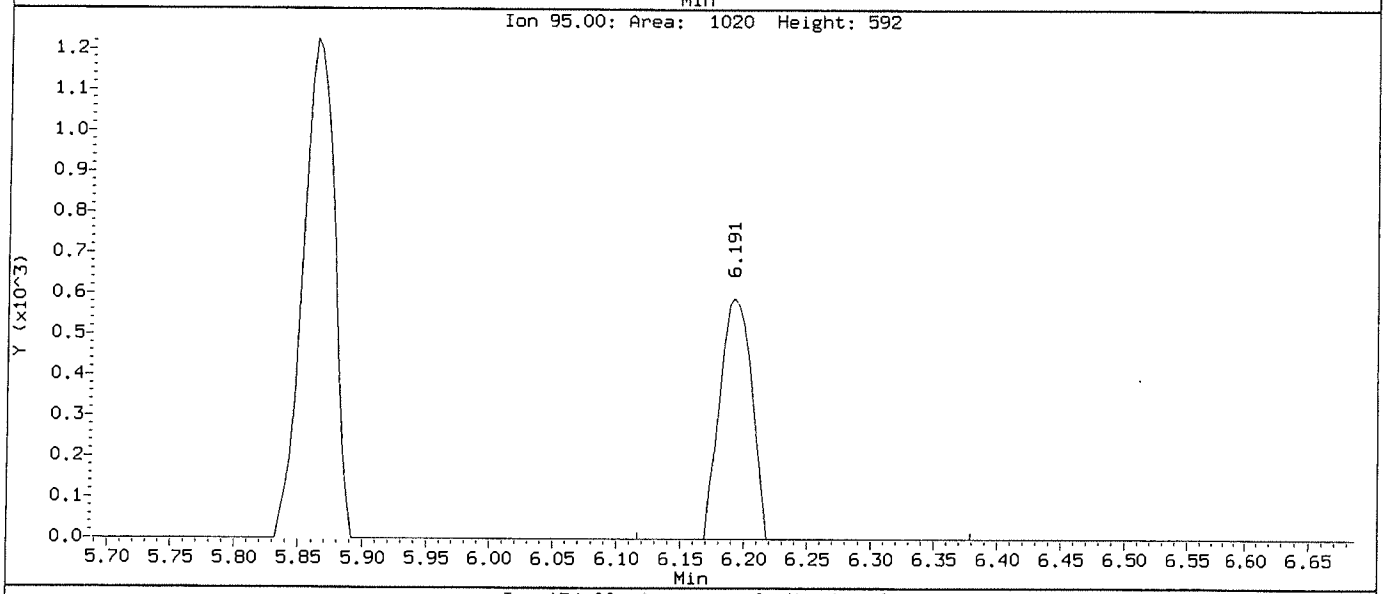
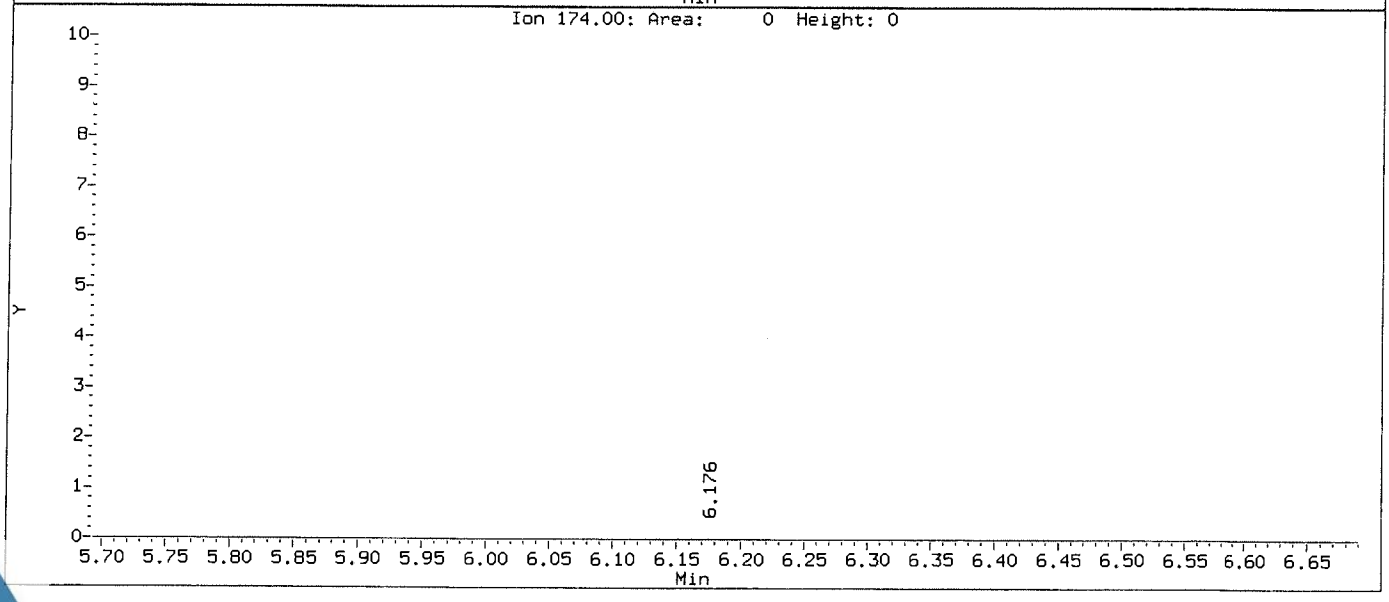
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3

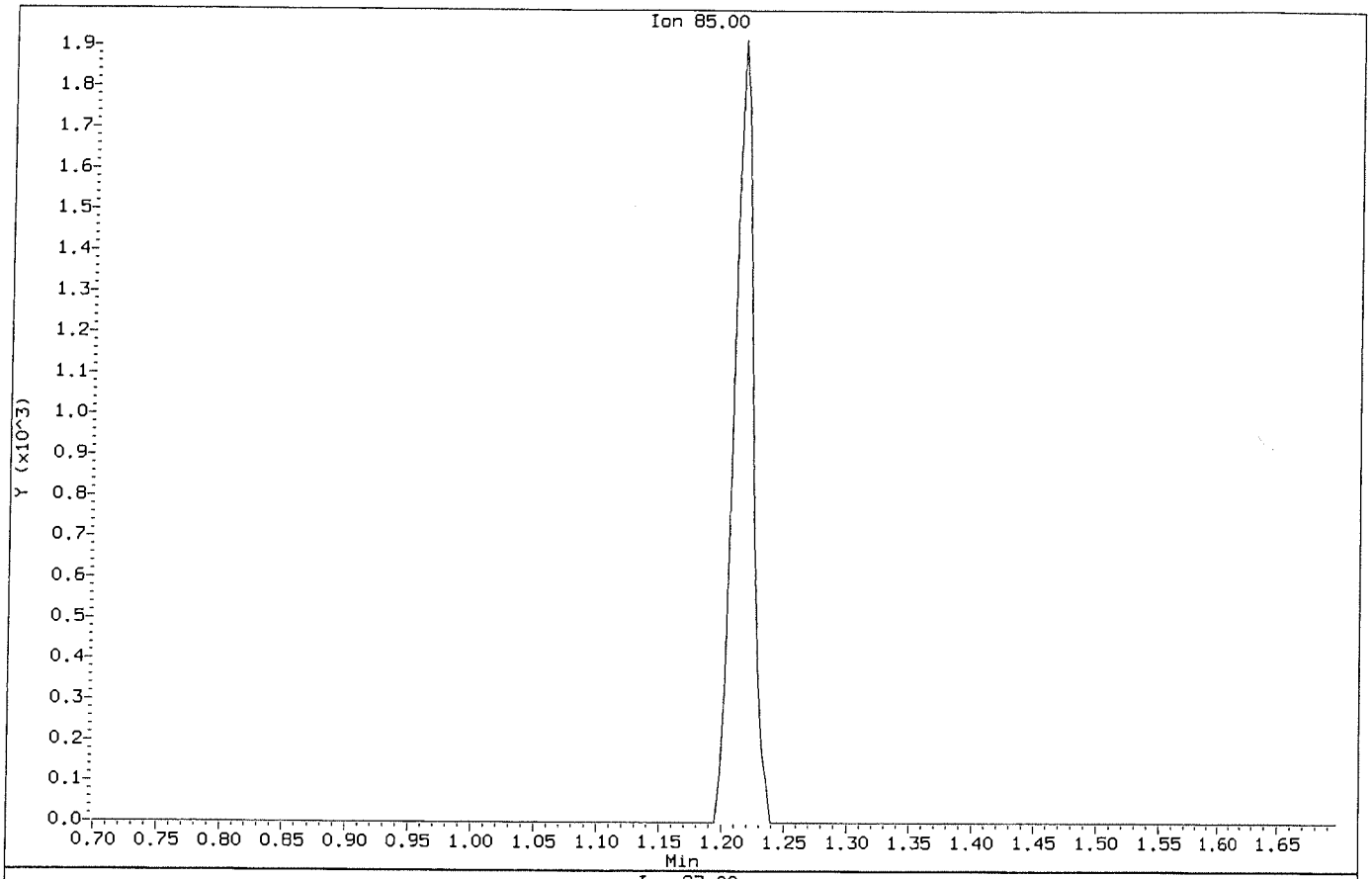


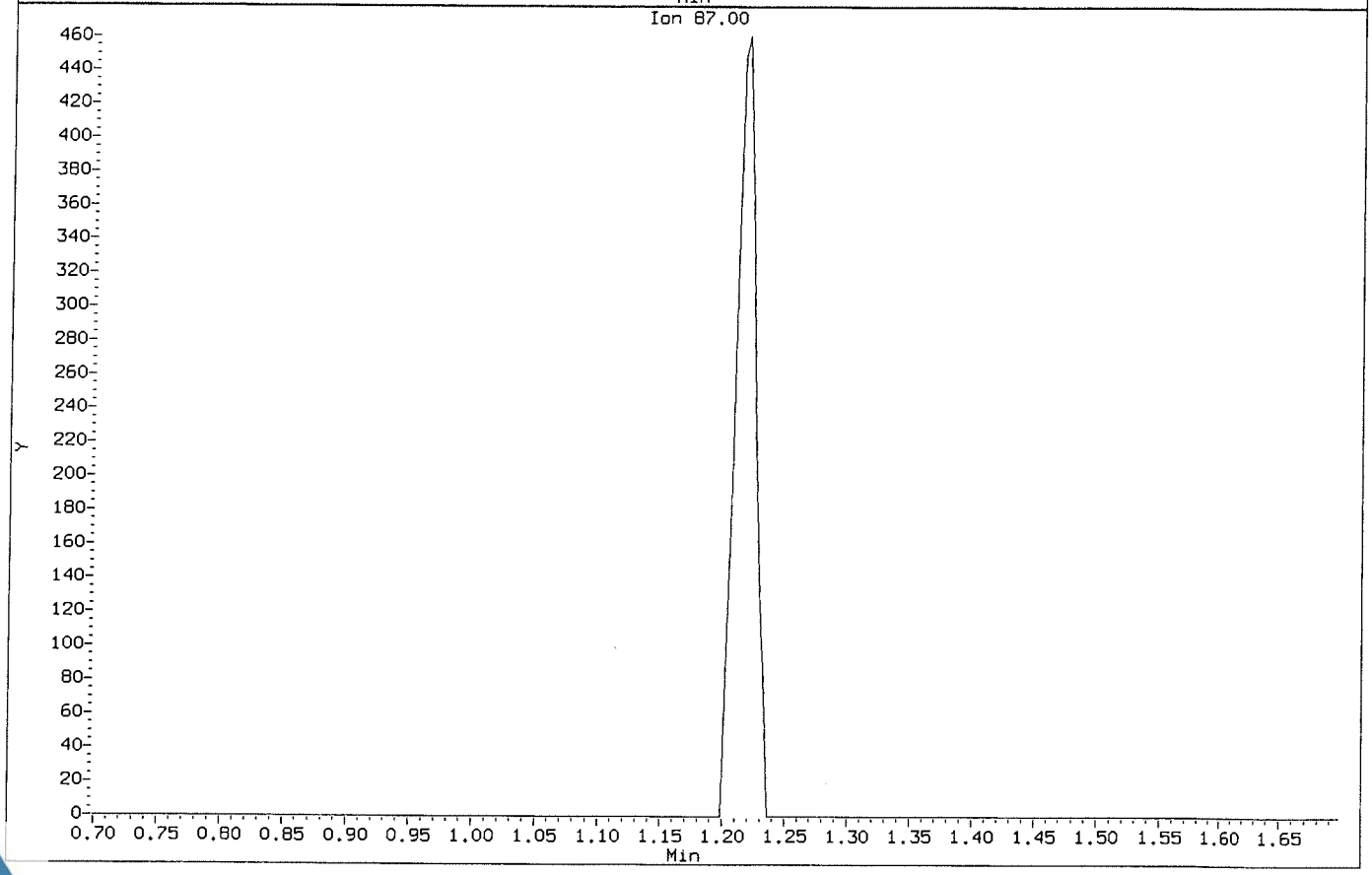



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

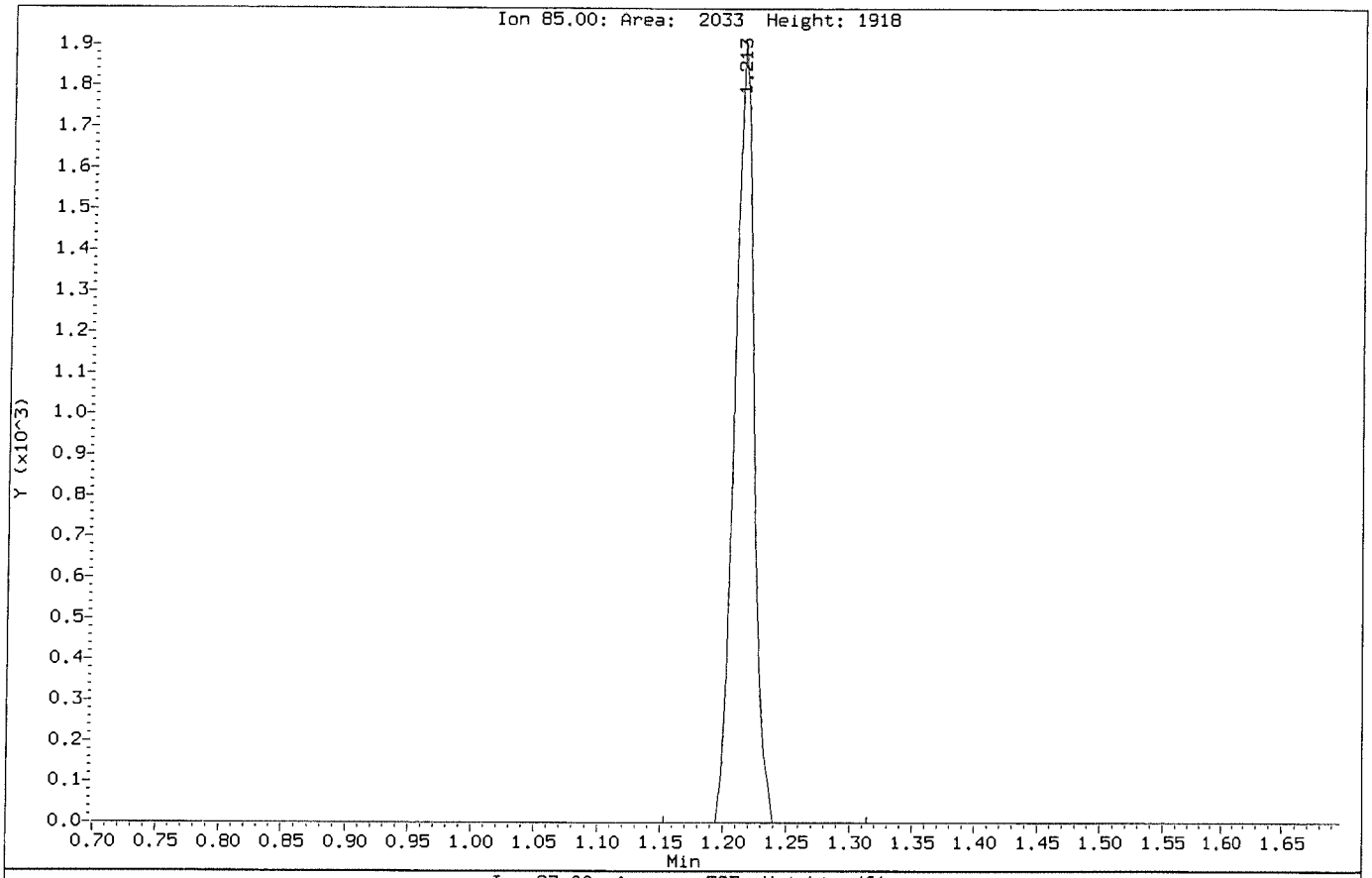
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

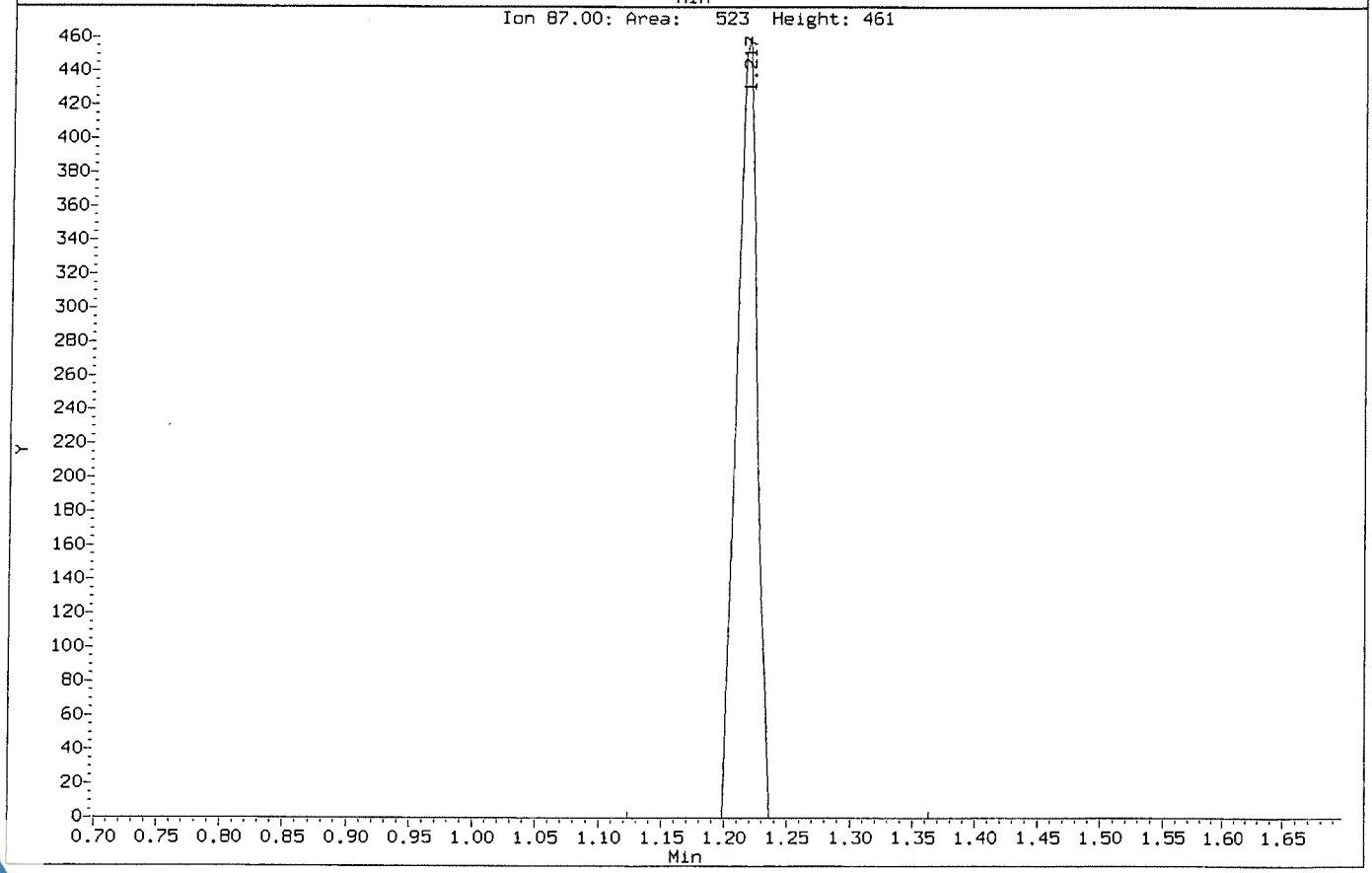


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

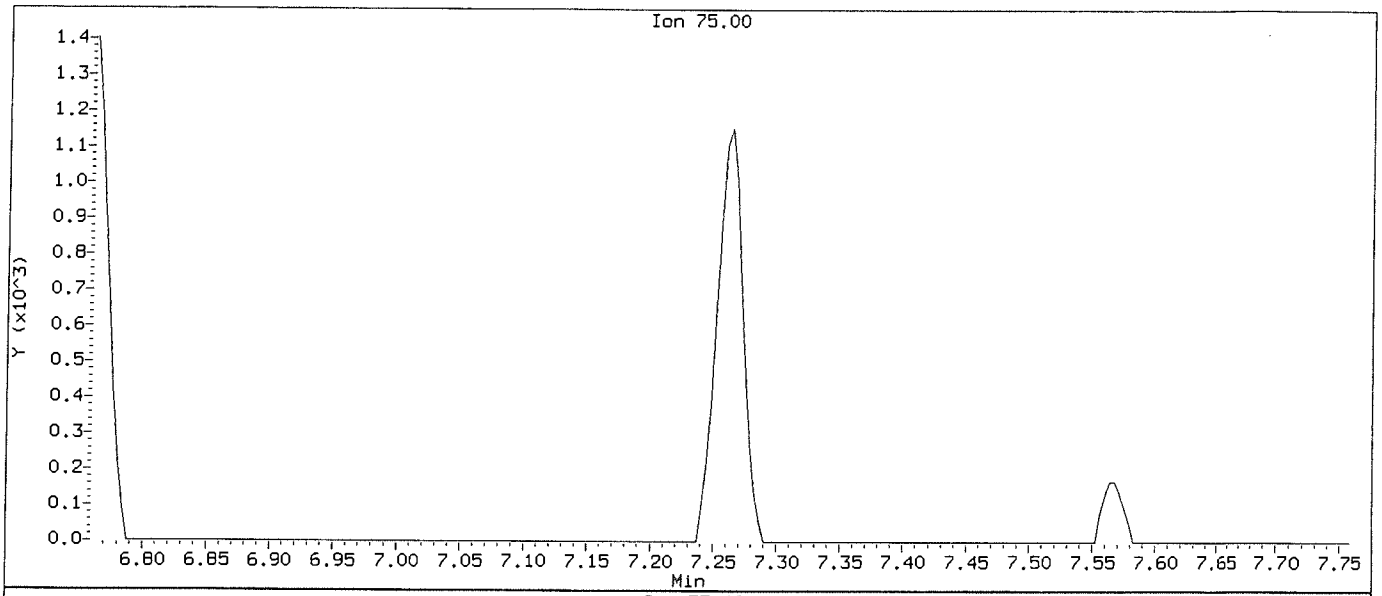
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

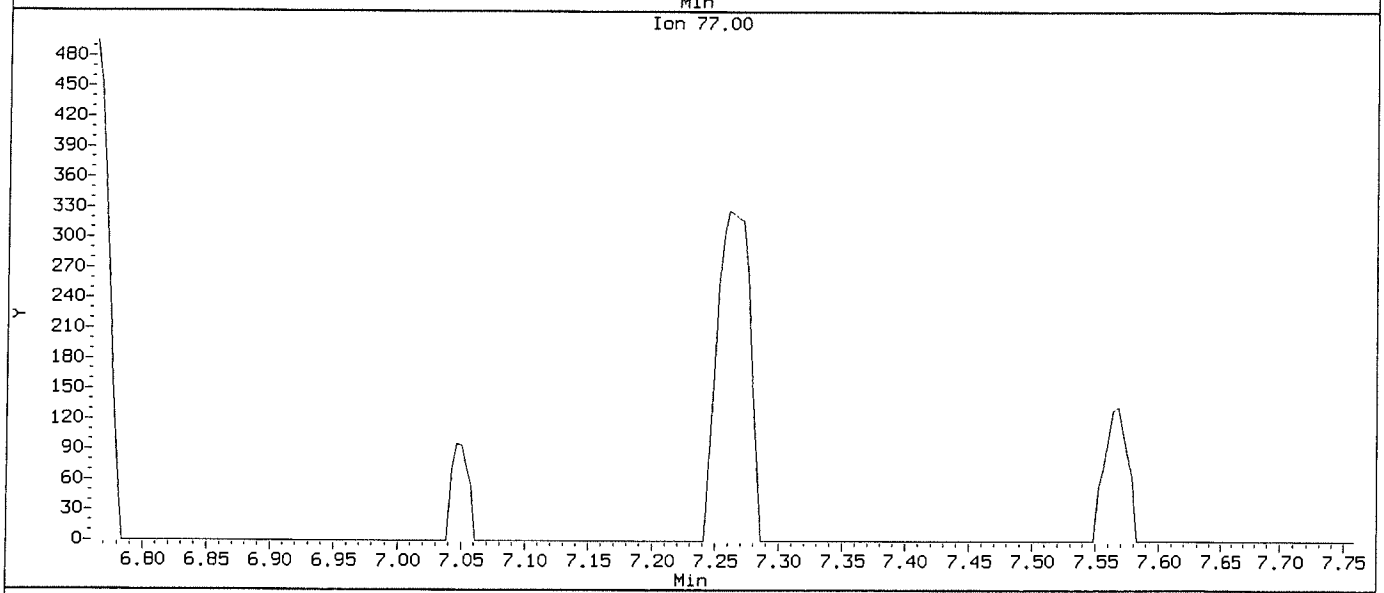


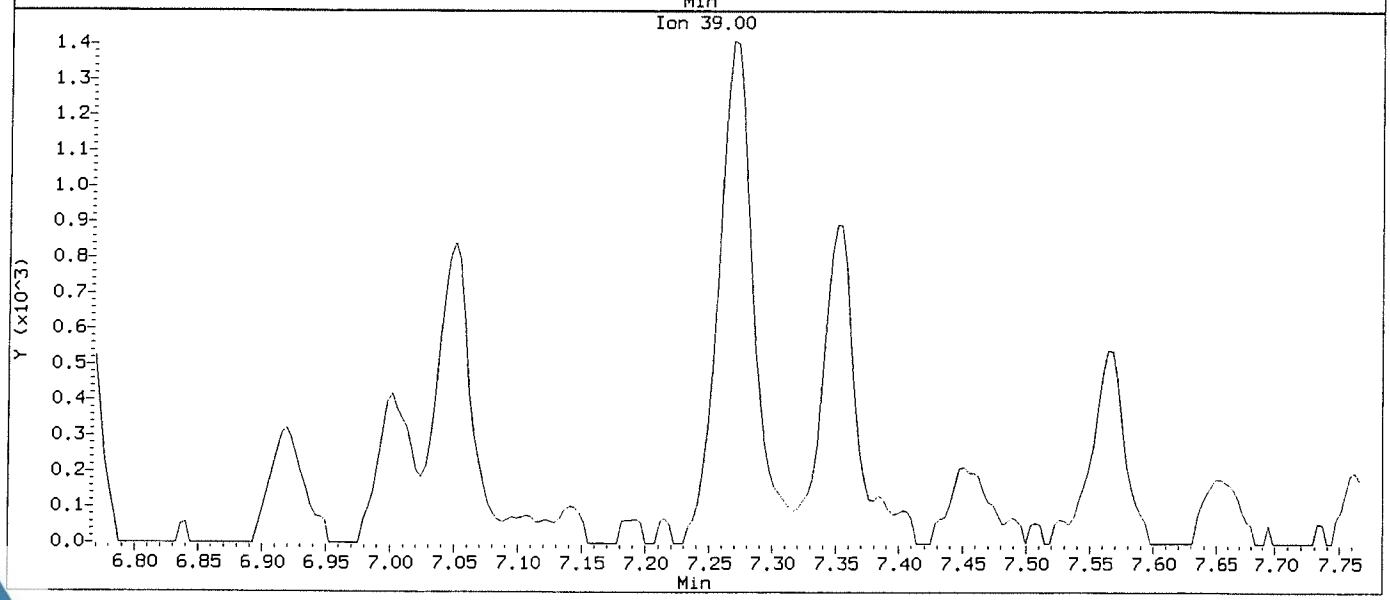



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6

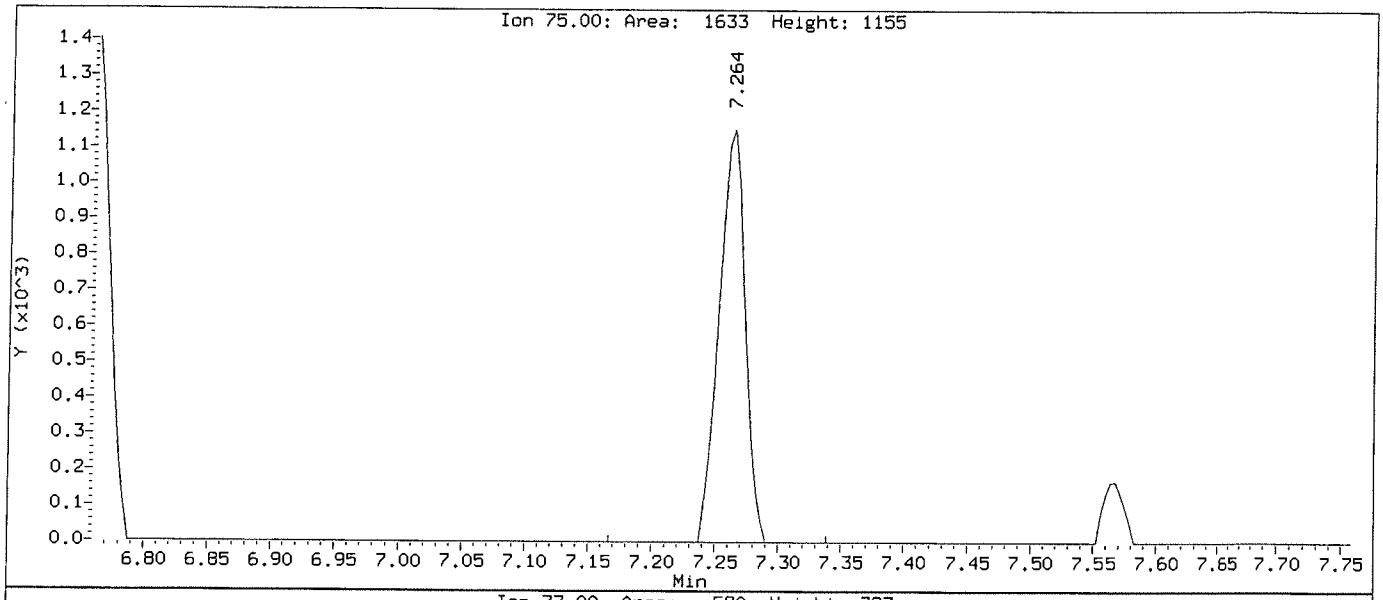


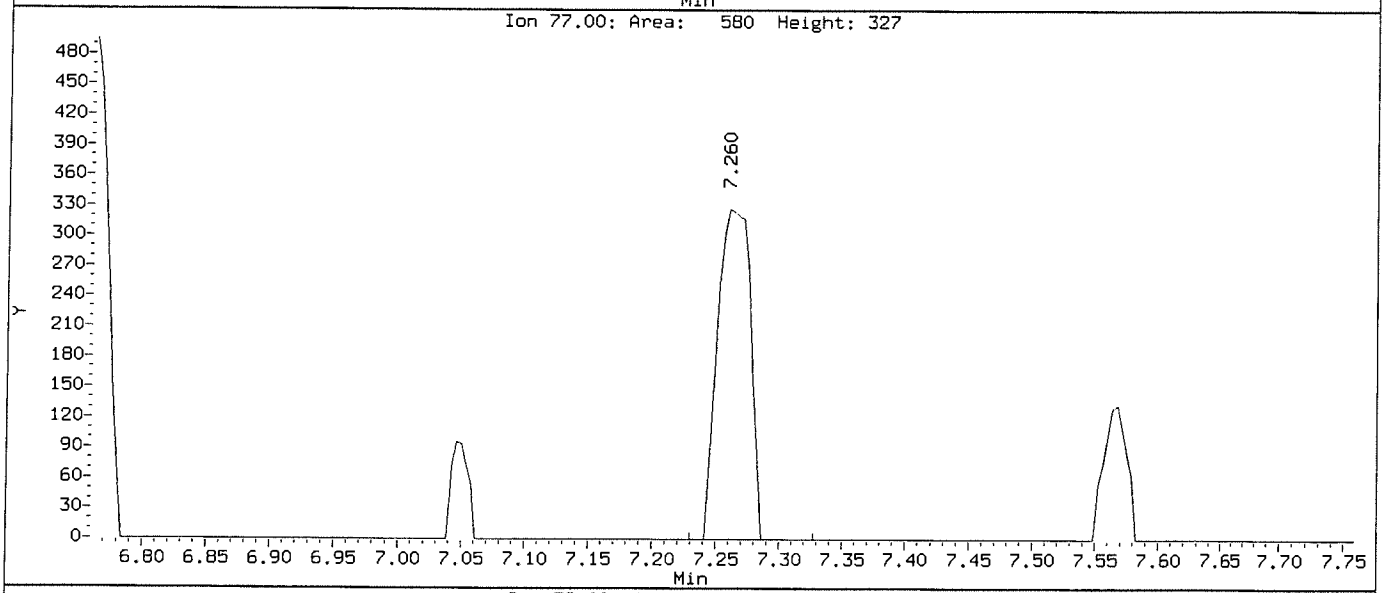



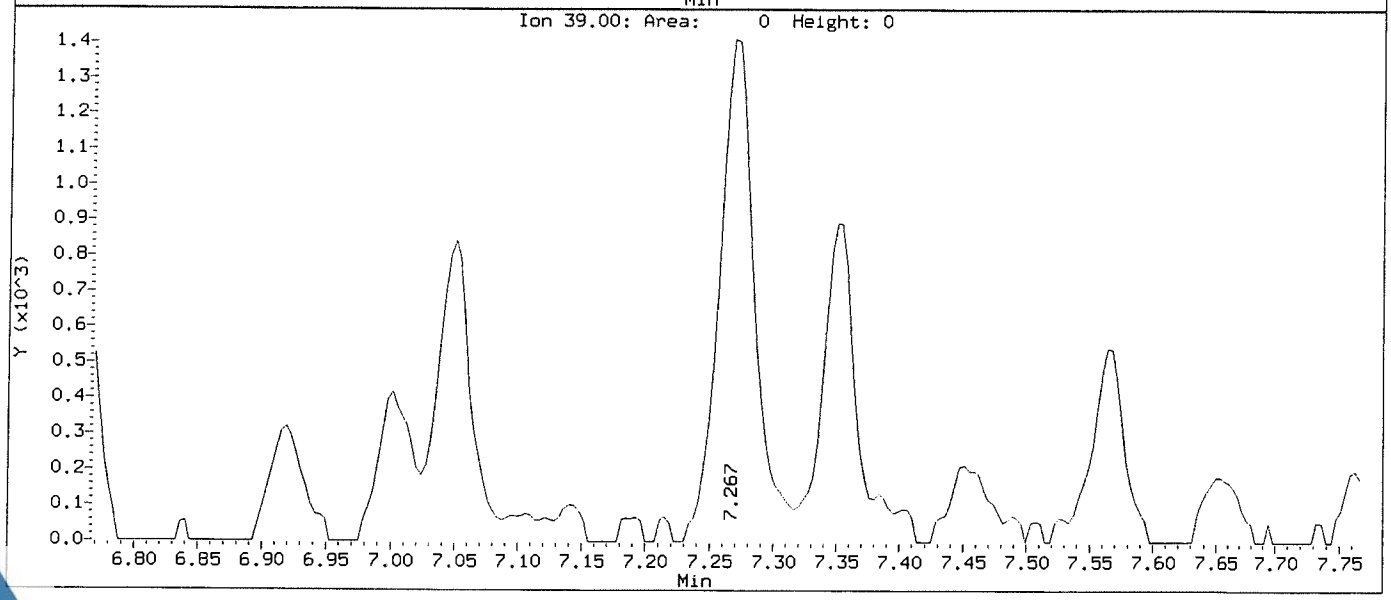



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 21-DEC-2018 15:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 14:14 Cal File: U122103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

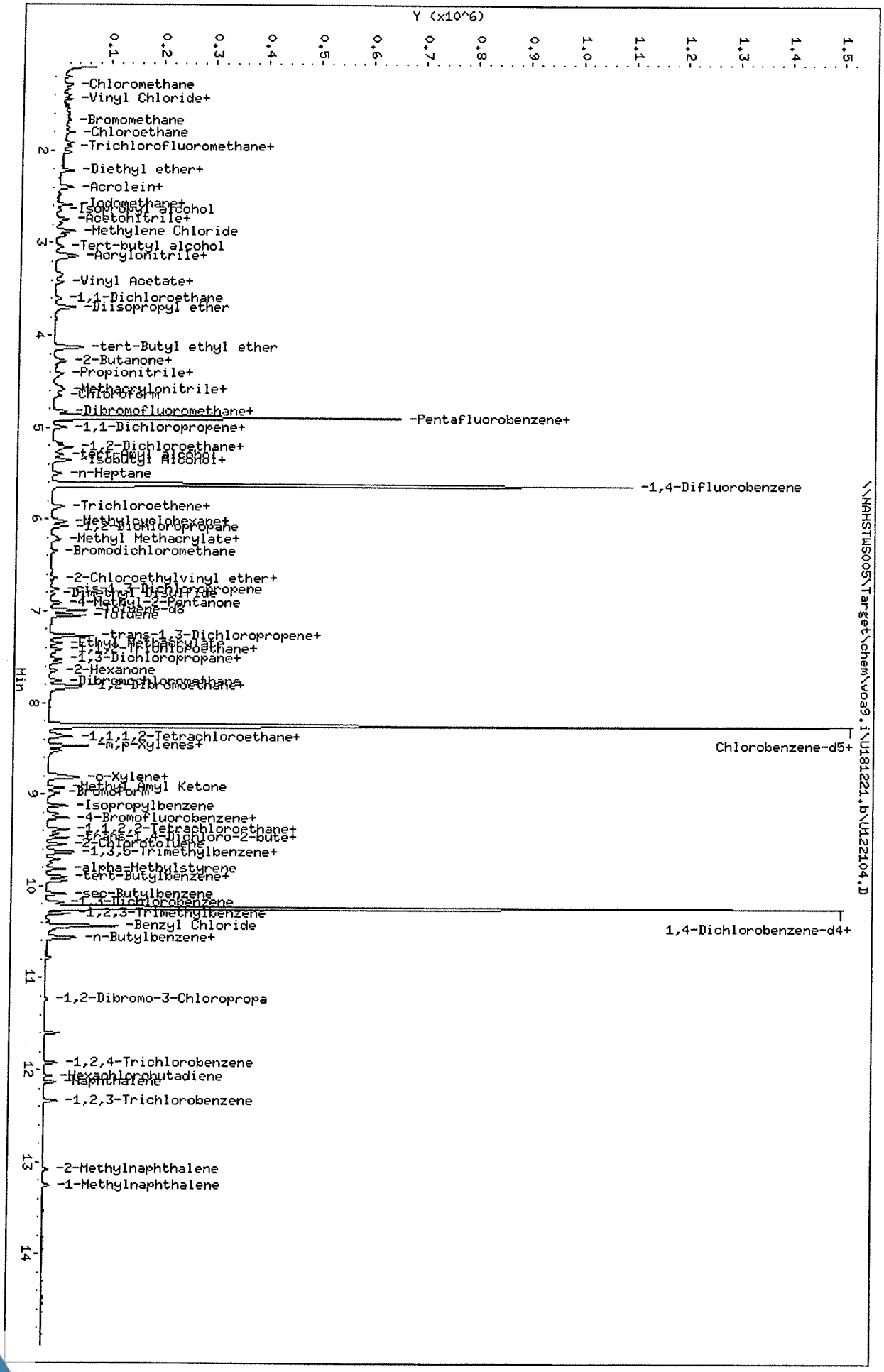
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 408613 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 790484 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 731112 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 336061 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.986) | 8005 | 1.00000 | 0.30(a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 10907 | 1.00000 | (a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 32175 | 1.00000 | (a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 12547 | 1.00000 | 0.36(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 4208 | 1.00000 | 1.48(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 7082 | 1.00000 | 1.09(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 9134 | 1.00000 | 1.20(a) |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 4108 | 1.00000 | 1.18(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 5137 | 1.00000 | 1.17(a) |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 10662 | 1.00000 | 1.21(a) |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 4598 | 1.00000 | 1.18(a) |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 8232 | 1.00000 | 1.17(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 6631 | 1.00000 | 1.66(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 8706 | 1.00000 | 1.10(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 6820 | 1.00000 | 1.09(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 18977 | 1.00000 | 1.07(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 861 | 1.00000 | 2.16(a) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 5748 | 1.00000 | 1.14(a) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 11945 | 1.00000 | 1.19(a) |
| 33 | 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 8970 | 1.00000 | 0.54(a) |
| 42 | 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 6565 | 1.00000 | 1.17(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 18075 | 1.00000 | 1.07(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 11430 | 1.00000 | 1.14(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 10939 | 1.00000 | 1.16(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 12811 | 1.00000 | 1.21(a) |
| 26 | 2,2-Dichloropropane | 77 | 4.272 | 4.272 | (0.873) | 6236 | 1.00000 | 1.17(a) |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 6369 | 2.00000 | 0.00(a) |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 17719 | 1.00000 | 1.14(a) |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 8136 | 2.00000 | 2.00(a) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 20099 | 1.00000 | 1.12(a) |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 18371 | 1.00000 | 1.03(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 12526 | 2.00000 | 2.14(a) |
| 10 | Acetone | 43 | 2.480 | 2.480 | (0.507) | 5582 | 2.00000 | 0.58(a) |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 24701 | 1.00000 | 1.17(a) |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 5982 | 1.00000 | 1.15(a) |
| 29 | Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 2865 | 1.00000 | (a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 6221 | 1.00000 | 1.04(aM) |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 2343 | 1.00000 | 2.48(Ta) |
| 6 | Bromomethane | 94 | 1.670 | 1.670 | (0.341) | 2293 | 1.00000 | 2.22(a) |
| 19 | Carbon Disulfide | 76 | 2.585 | 2.585 | (0.528) | 33391 | 2.00000 | 2.35(a) |
| 34 | Carbon Tetrachloride | 117 | 4.991 | 4.991 | (0.887) | 5463 | 1.00000 | 2.32(a) |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 16703 | 1.00000 | 1.18(a) |
| 7 | Chloroethane | 64 | 1.749 | 1.749 | (0.357) | 3213 | 1.00000 | 1.36(aM) |
| 28 | Chloroform | 83 | 4.654 | 4.654 | (0.951) | 10242 | 1.00000 | 1.20(a) |
| 3 | Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 4689 | 1.00000 | 4.32(a) |
| 27 | cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 6586 | 1.00000 | 1.22(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 7273 | 1.00000 | 2.04(a) |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 4051 | 1.00000 | 1.80(a) |
| 44 | Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 3627 | 1.00000 | 1.12(aM) |
| 2 | Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 6583 | 1.00000 | 1.78(a) |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 8132 | 1.00000 | 1.12(a) |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 2672 | 1.00000 | 1.12(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 22547 | 1.00000 | 1.08(a) |
| 62 | m,p-Xylenes | 106 | 8.470 | 8.470 | (1.027) | 19538 | 2.00000 | 2.20(a) |
| 17 | Methylene Chloride | 84 | 2.866 | 2.866 | (0.586) | 8113 | 1.00000 | 0.44(a) |
| 87 | n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 18944 | 1.00000 | 1.10(a) |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 27852 | 1.00000 | 1.10(a) |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 16505 | 1.00000 | 1.44(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 10277 | 1.00000 | 1.15(a) |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 22753 | 1.00000 | 1.07(a) |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 15133 | 1.00000 | 1.01(a) |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 15715 | 1.00000 | 1.07(a) |
| 56 | Tetrachloroethene | 164 | 7.522 | 7.522 | (0.912) | 4775 | 1.00000 | 1.24(a) |
| 50 | Toluene | 91 | 7.046 | 7.046 | (0.854) | 24298 | 1.00000 | 1.11(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 5920 | 1.00000 | 1.23(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 5668 | 1.00000 | 2.35(a) |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 6040 | 1.00000 | 1.18(a) |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 7922 | 1.00000 | 1.78(a) |
| 5 | Vinyl Chloride | 62 | 1.415 | 1.415 | (0.289) | 6308 | 1.00000 | 2.03(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



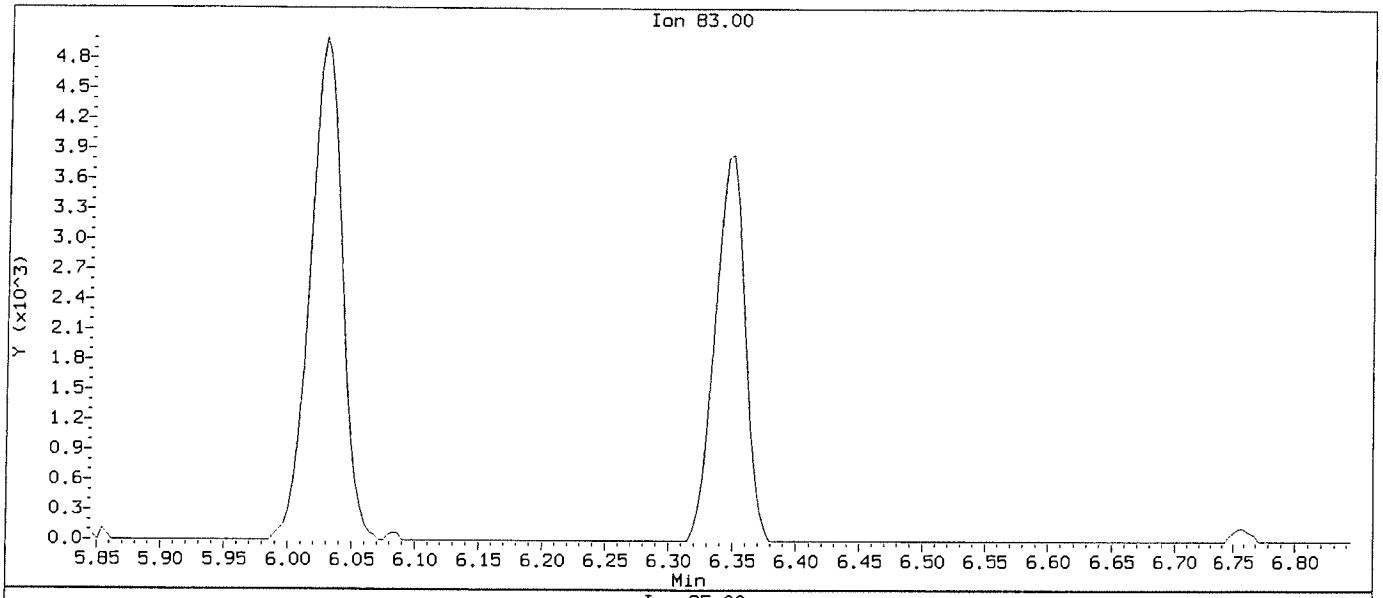

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Date : 21-DEC-2018 15:03
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

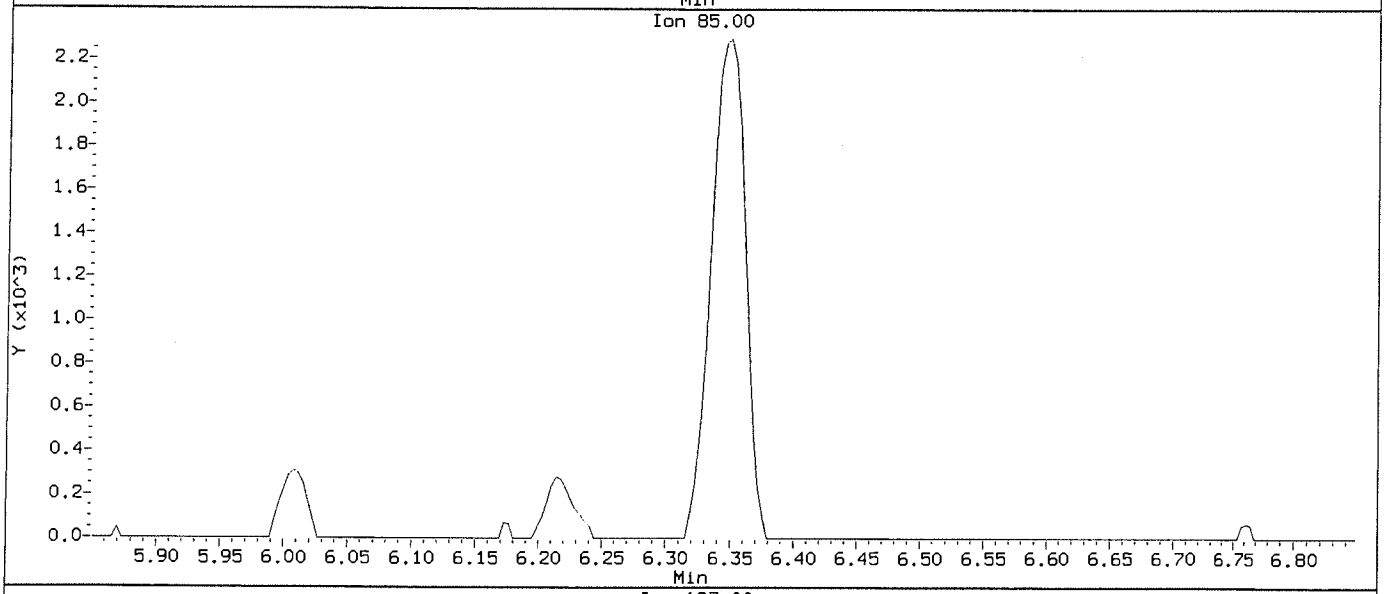
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D

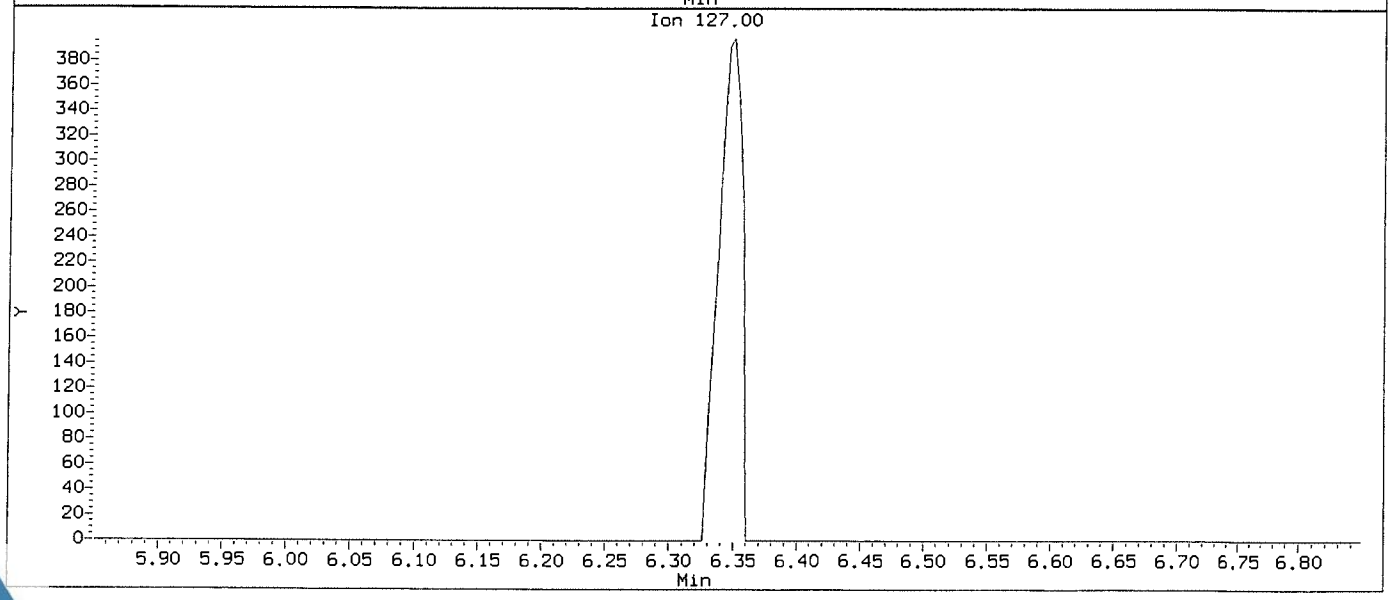
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4

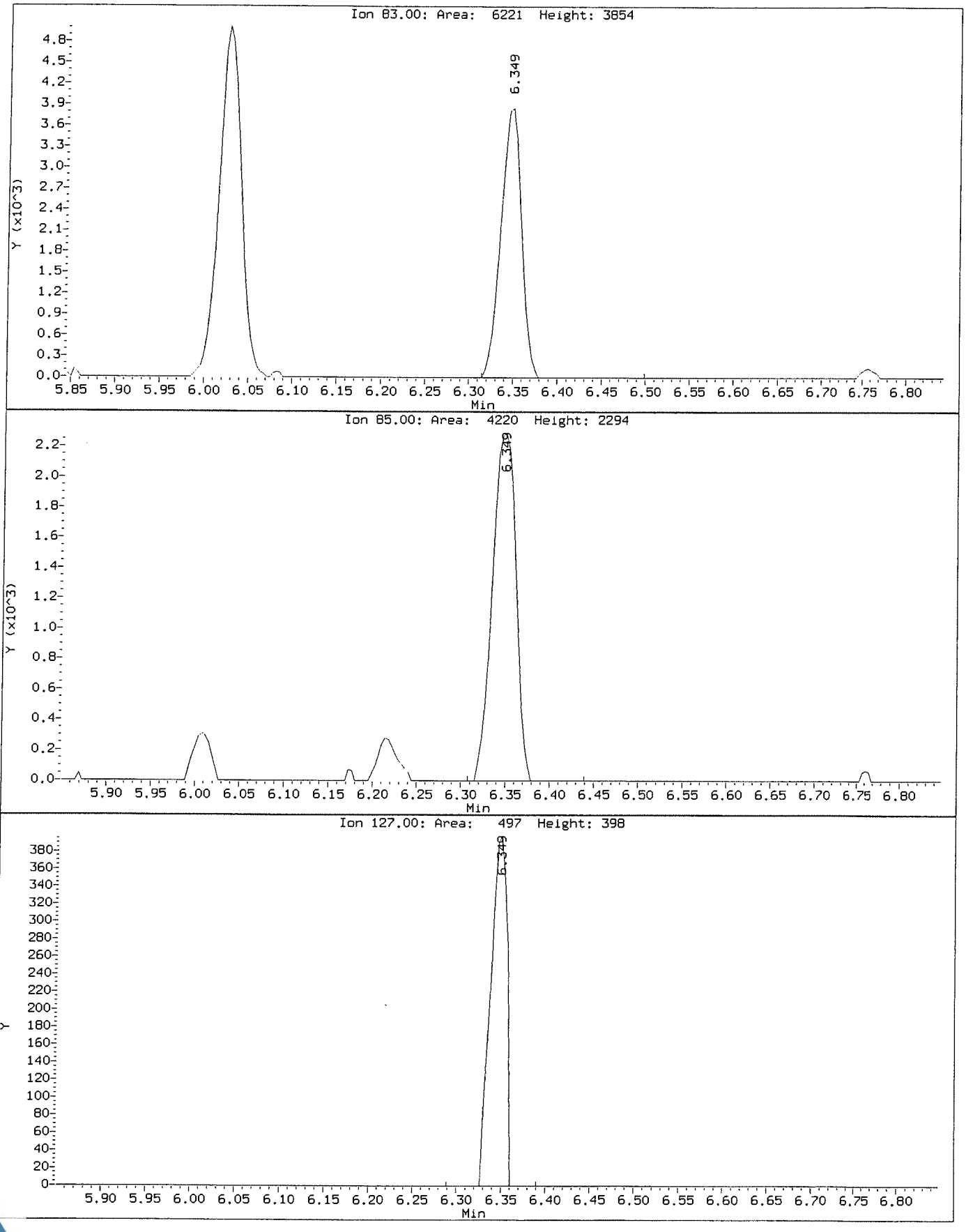


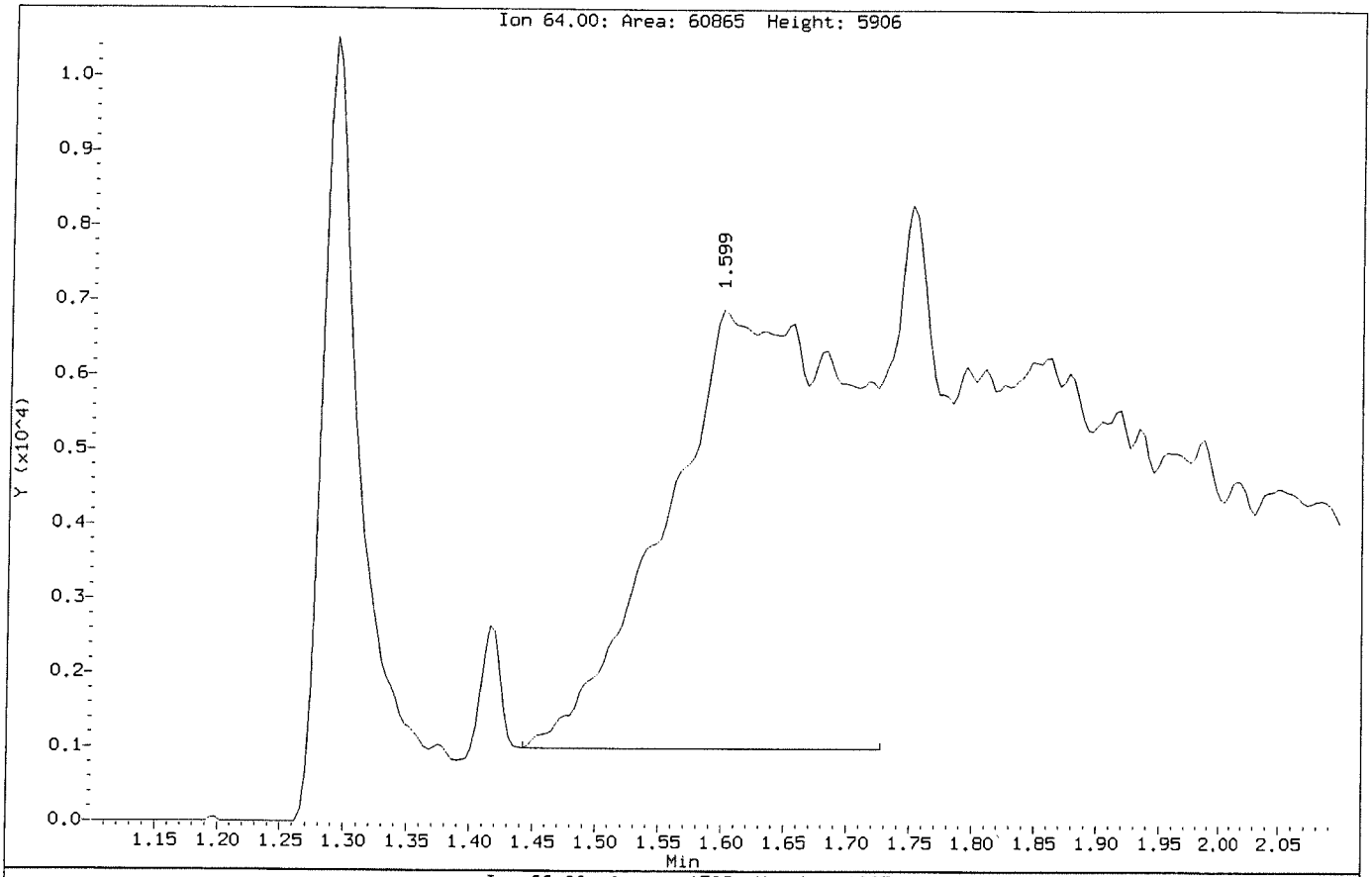
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

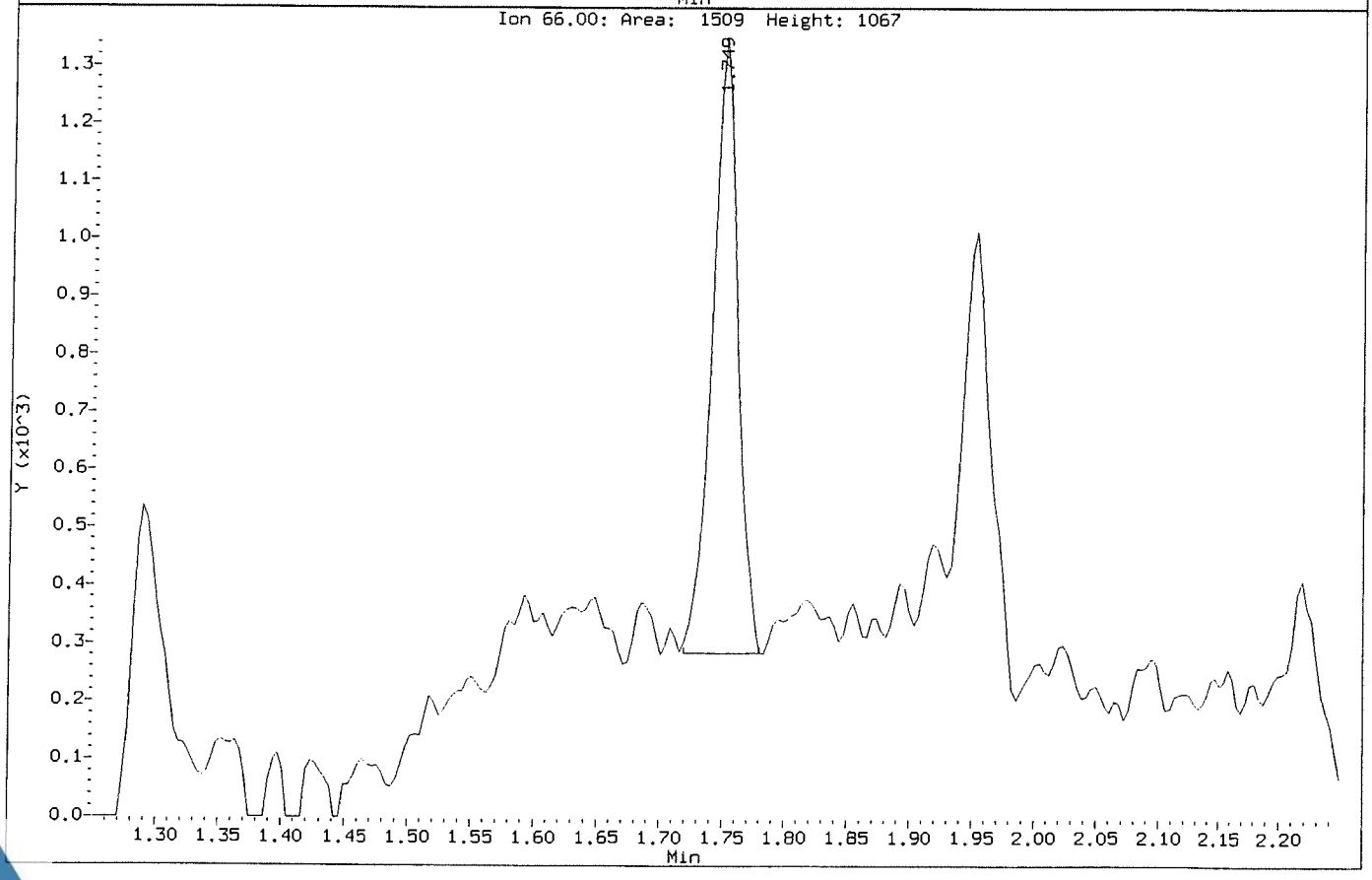
Compound: Bromodichloromethane
CAS Number: 75-27-4



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

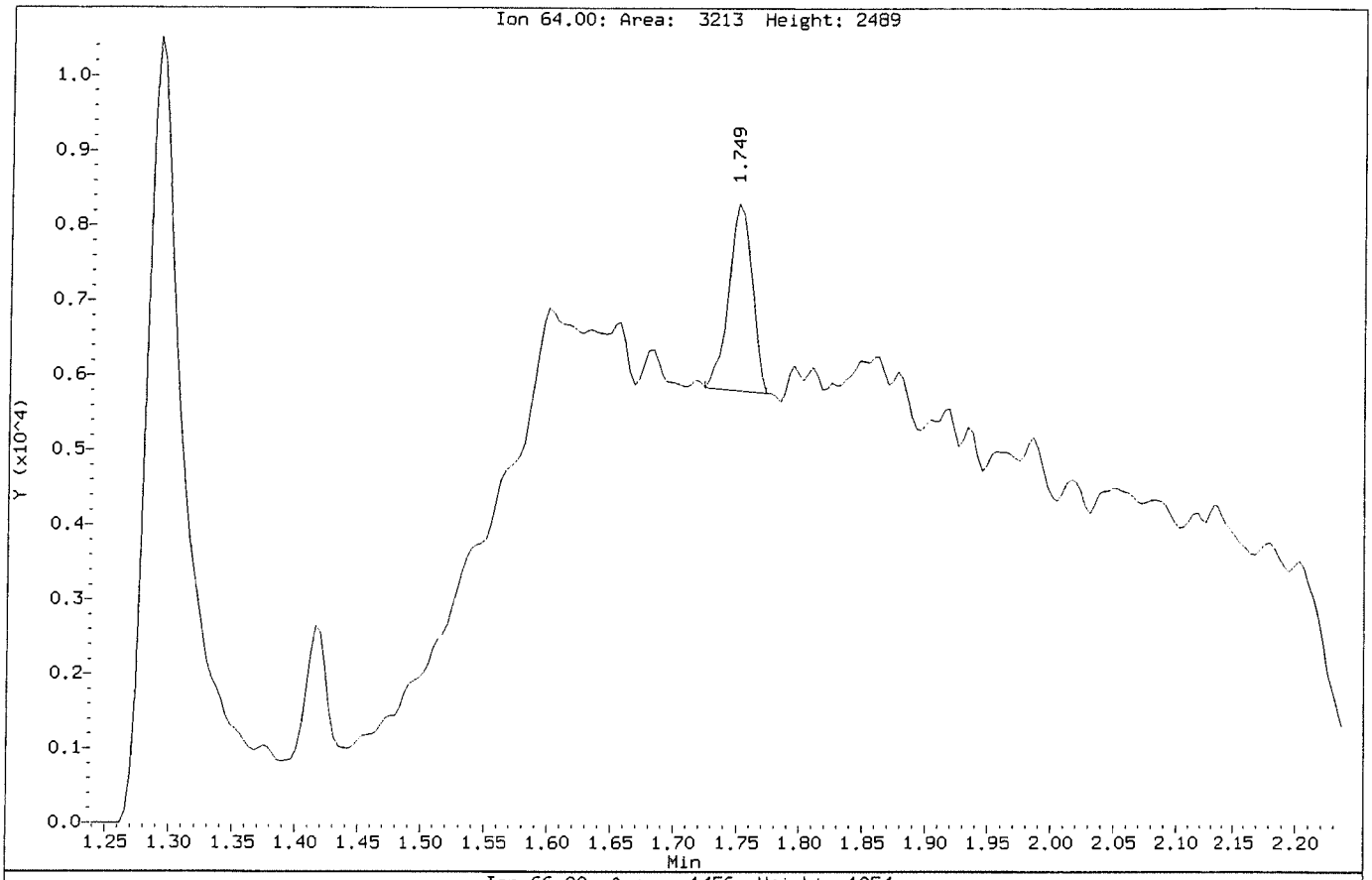
Compound: Chloroethane
CAS Number: 75-00-3

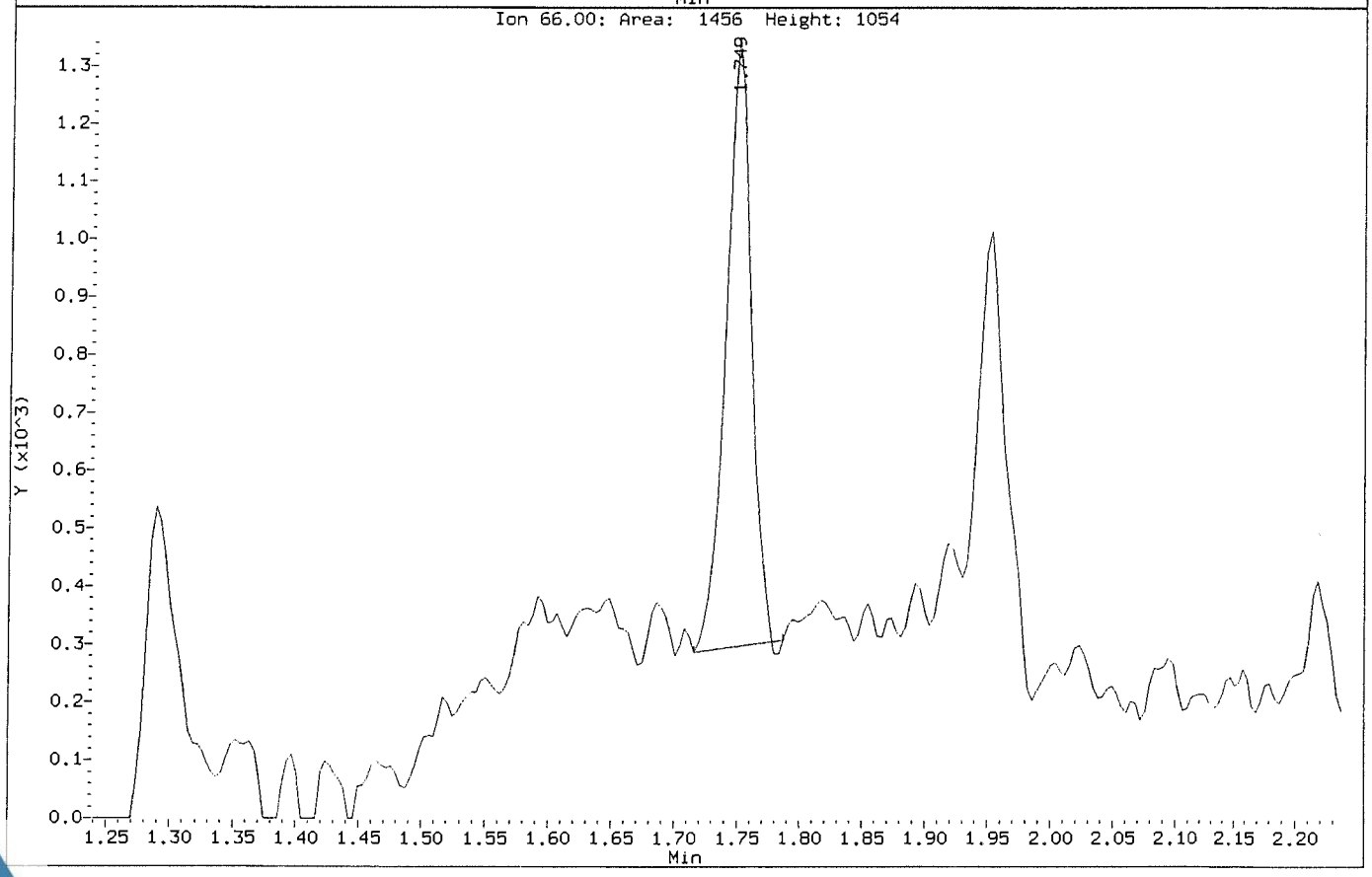


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

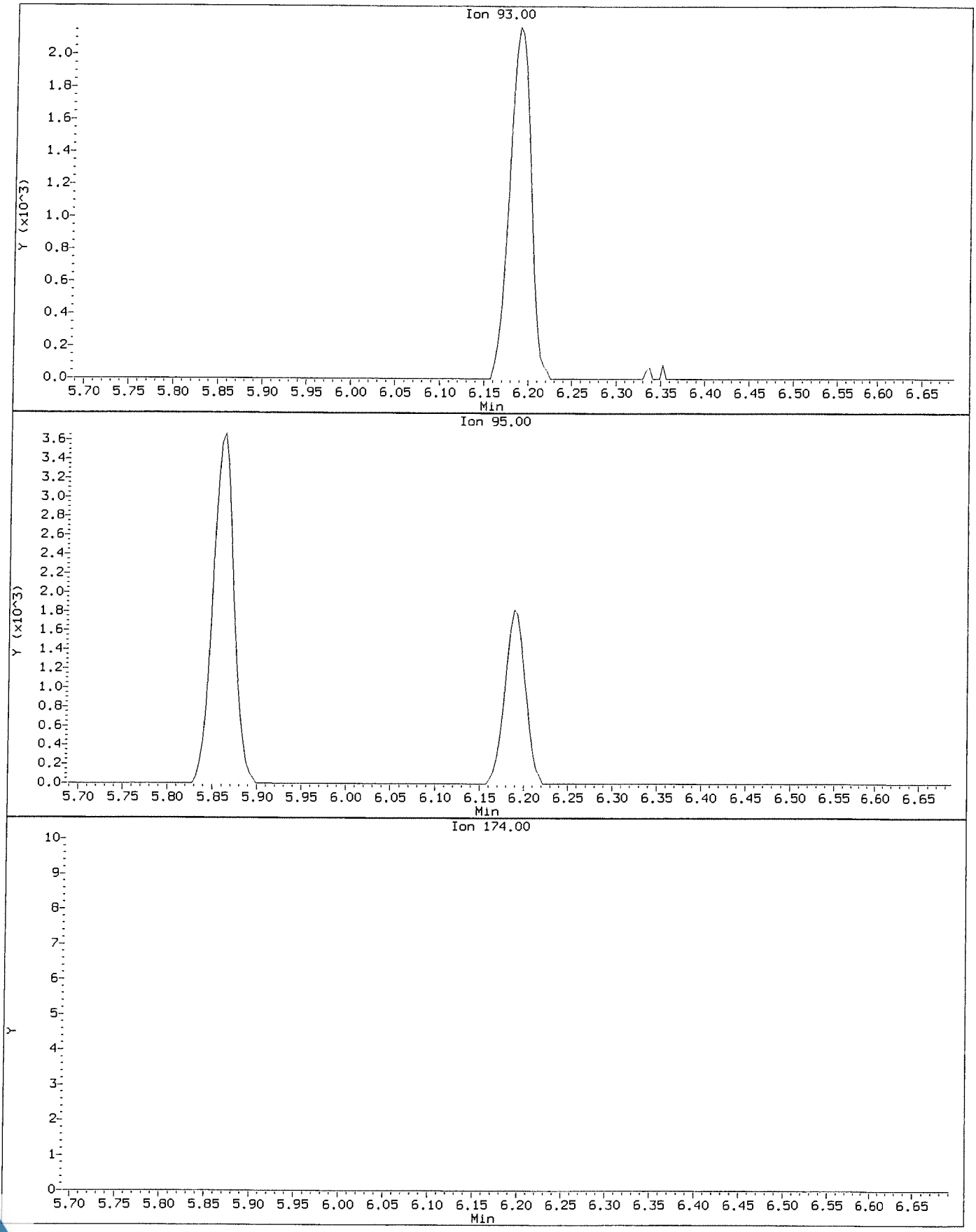
Compound: Chloroethane
CAS Number: 75-00-3



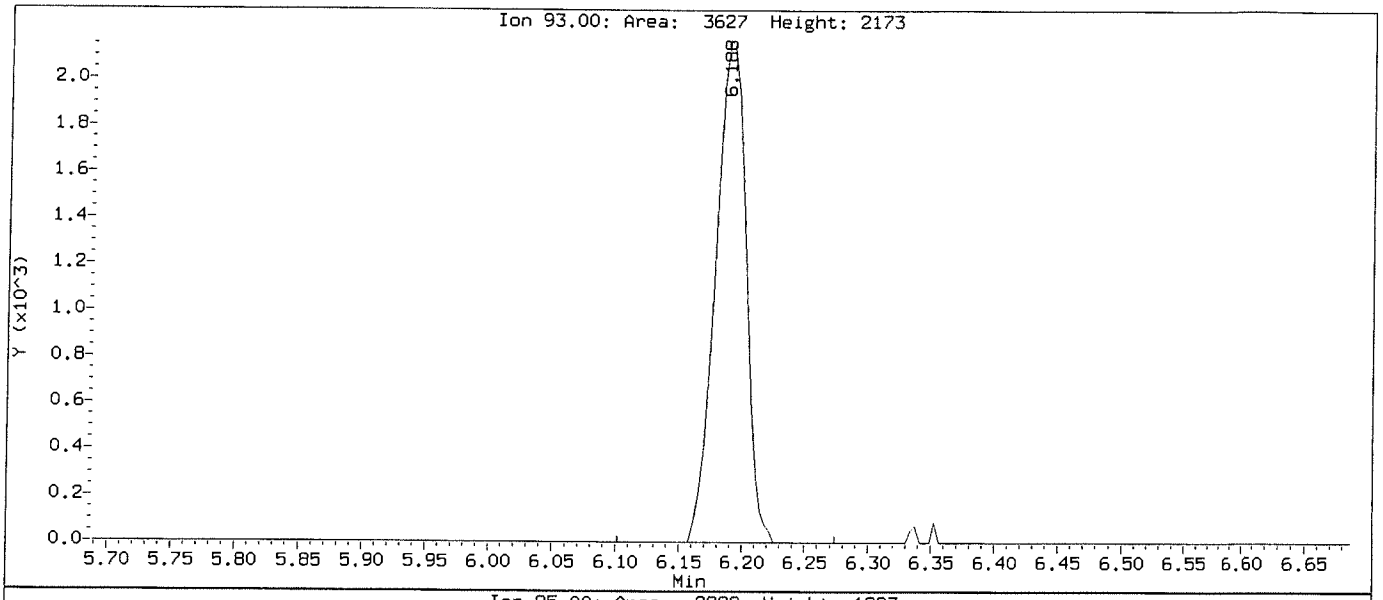
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

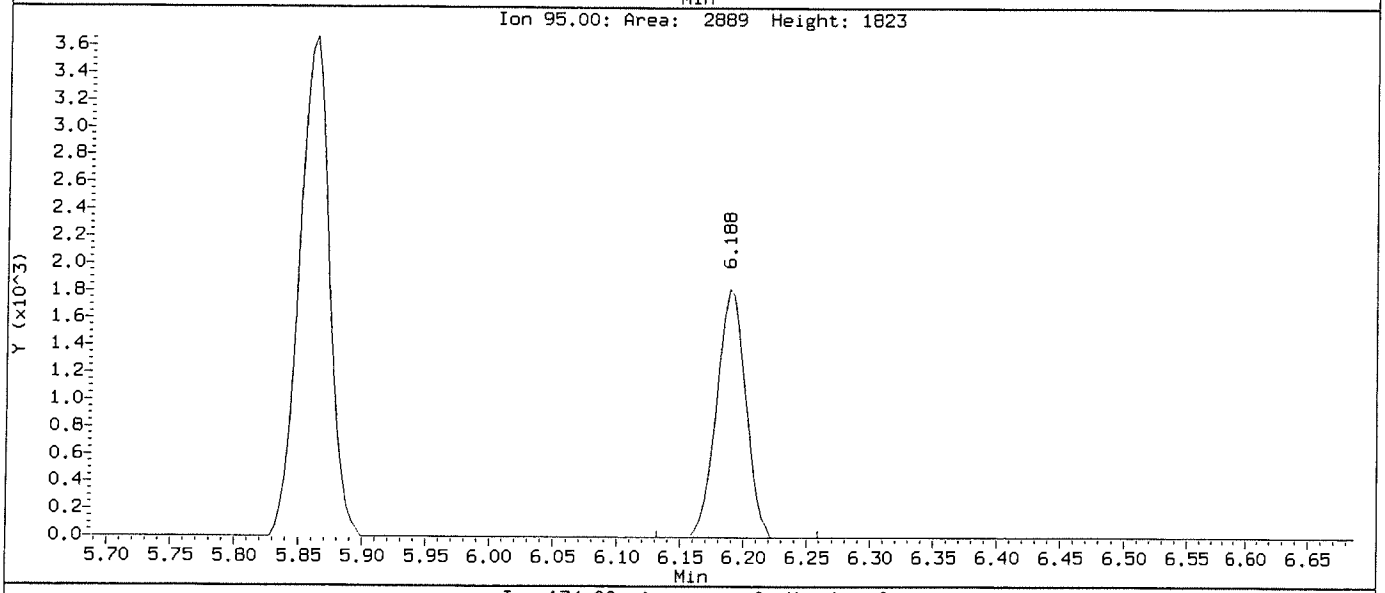
Compound: Dibromomethane
CAS Number: 74-95-3

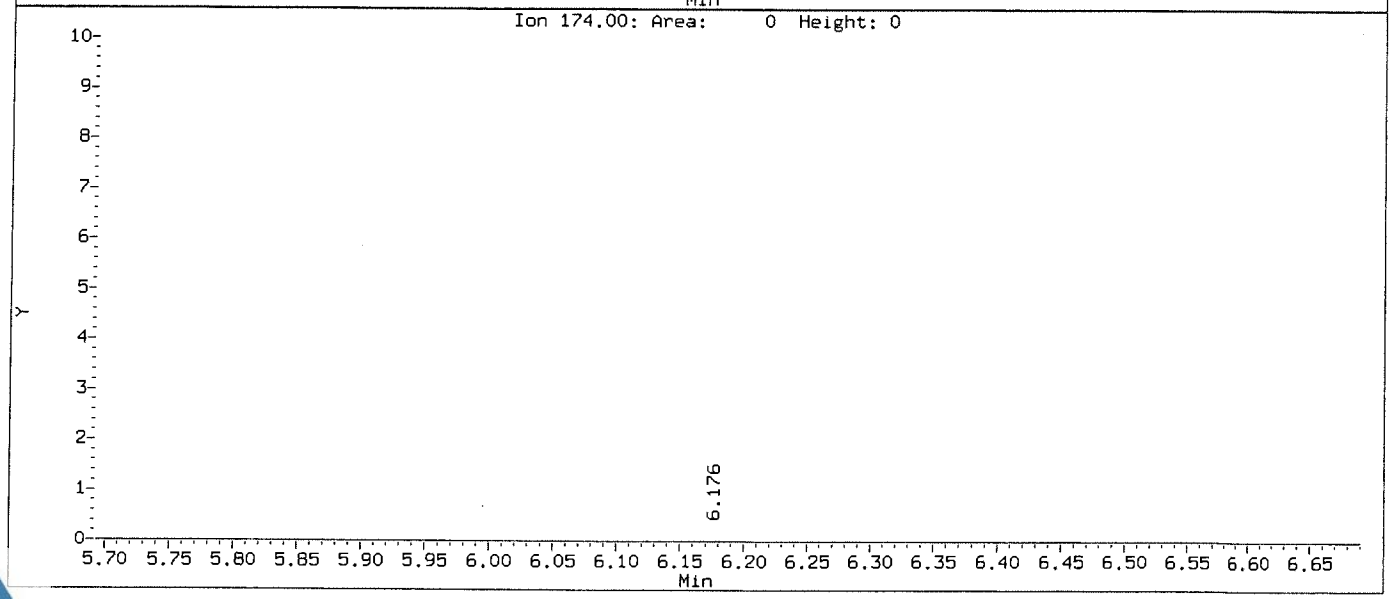


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 21-DEC-2018 15:28
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:03 Cal File: U122104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

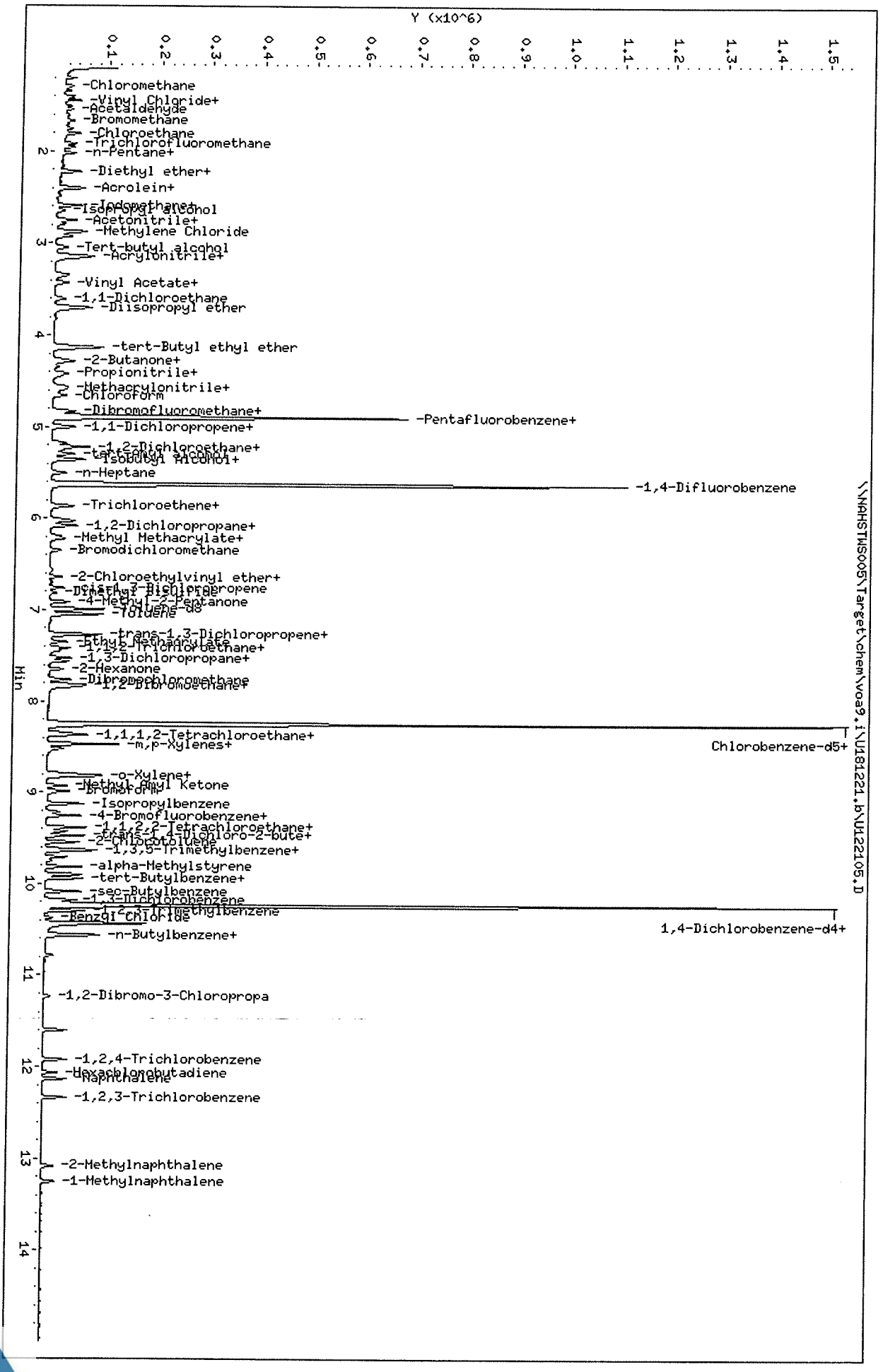
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 416245 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 790380 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 728875 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 340088 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 12720 | 2.00000 | 1.32(a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 17881 | 2.00000 | 0.99(a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 54444 | 2.00000 | 1.21(a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 20092 | 2.00000 | 1.45(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.347 | 8.347 | (1.012) | 8522 | 2.00000 | 2.40(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.827 | 4.827 | (0.986) | 12904 | 2.00000 | 1.96(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 16933 | 2.00000 | 2.21(a) |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 7489 | 2.00000 | 2.11(a) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 9254 | 2.00000 | 2.13(a) |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 19553 | 2.00000 | 2.18(a) |
| 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.491) | 8761 | 2.00000 | 2.21(a) |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 15087 | 2.00000 | 2.14(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 12385 | 2.00000 | 2.54(a) |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 16368 | 2.00000 | 2.05(a) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 12313 | 2.00000 | 1.95(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 36129 | 2.00000 | 2.03(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 1910 | 2.00000 | 3.02(a) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 10069 | 2.00000 | 2.01(a) |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 21852 | 2.00000 | 2.16(a) |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 15708 | 2.00000 | 1.50(a) |
| 42 | 1,2-Dichloropropane | 63 | 6.079 | 6.079 | (1.081) | 11593 | 2.00000 | 2.07(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 33264 | 2.00000 | 1.94(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 21833 | 2.00000 | 2.16(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 19804 | 2.00000 | 2.11(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 22897 | 2.00000 | 2.15(a) |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 10414 | 2.00000 | 1.92(a) |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 11299 | 4.00000 | 1.81(a) |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 32538 | 2.00000 | 2.07(a) |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 15773 | 4.00000 | 3.89(a) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 38000 | 2.00000 | 2.09(a) |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 34224 | 2.00000 | 1.90(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.915 | 6.915 | (0.838) | 23124 | 4.00000 | 3.96(a) |
| 10 | Acetone | 43 | 2.484 | 2.484 | (0.508) | 8219 | 4.00000 | 2.18(a) |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.928) | 44238 | 2.00000 | 2.10(a) |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 11074 | 2.00000 | 2.10(a) |
| 29 | Bromochloromethane | 128 | 4.557 | 4.557 | (0.931) | 5148 | 2.00000 | (a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 11433 | 2.00000 | 1.92(a) |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 4574 | 2.00000 | 3.17(Ta) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 4588 | 2.00000 | 3.07(a) |
| 19 | Carbon Disulfide | 76 | 2.589 | 2.589 | (0.529) | 60138 | 4.00000 | 4.17(a) |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 10077 | 2.00000 | 3.10(a) |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 29501 | 2.00000 | 2.10(a) |
| 7 | Chloroethane | 64 | 1.753 | 1.753 | (0.358) | 8179 | 2.00000 | 2.69(aM) |
| 28 | Chloroform | 83 | 4.658 | 4.658 | (0.952) | 18482 | 2.00000 | 2.14(a) |
| 3 | Chloromethane | 50 | 1.340 | 1.340 | (0.274) | 8693 | 2.00000 | 5.15 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 11391 | 2.00000 | 2.08(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 13732 | 2.00000 | 2.74(a) |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 7740 | 2.00000 | 2.55(a) |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 6690 | 2.00000 | 2.07(aM) |
| 2 | Dichlorodifluoromethane | 85 | 1.205 | 1.205 | (0.246) | 11371 | 2.00000 | 2.68(a) |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 14915 | 2.00000 | 2.07(a) |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 4376 | 2.00000 | 1.81(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 42416 | 2.00000 | 2.04(a) |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 36211 | 4.00000 | 4.10(a) |
| 17 | Methylene Chloride | 84 | 2.873 | 2.873 | (0.587) | 13726 | 2.00000 | 1.52(a) |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 35309 | 2.00000 | 2.03(a) |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 51078 | 2.00000 | 2.01(a) |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 32897 | 2.00000 | 2.21(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 17863 | 2.00000 | 2.00(a) |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 43551 | 2.00000 | 2.03(a) |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 29048 | 2.00000 | 1.96(a) |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 29889 | 2.00000 | 2.02(a) |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 8071 | 2.00000 | 2.11(a) |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 46092 | 2.00000 | 2.12(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.143 | 3.143 | (0.642) | 10325 | 2.00000 | 2.11(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 10646 | 2.00000 | 2.97(a) |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 10169 | 2.00000 | 2.00(a) |
| 8 | Trichlorofluoromethane | 101 | 1.955 | 1.955 | (0.400) | 14026 | 2.00000 | 2.64(a) |
| 5 | Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 12656 | 2.00000 | 3.07(a) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Date : 21-DEC-2018 15:28
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

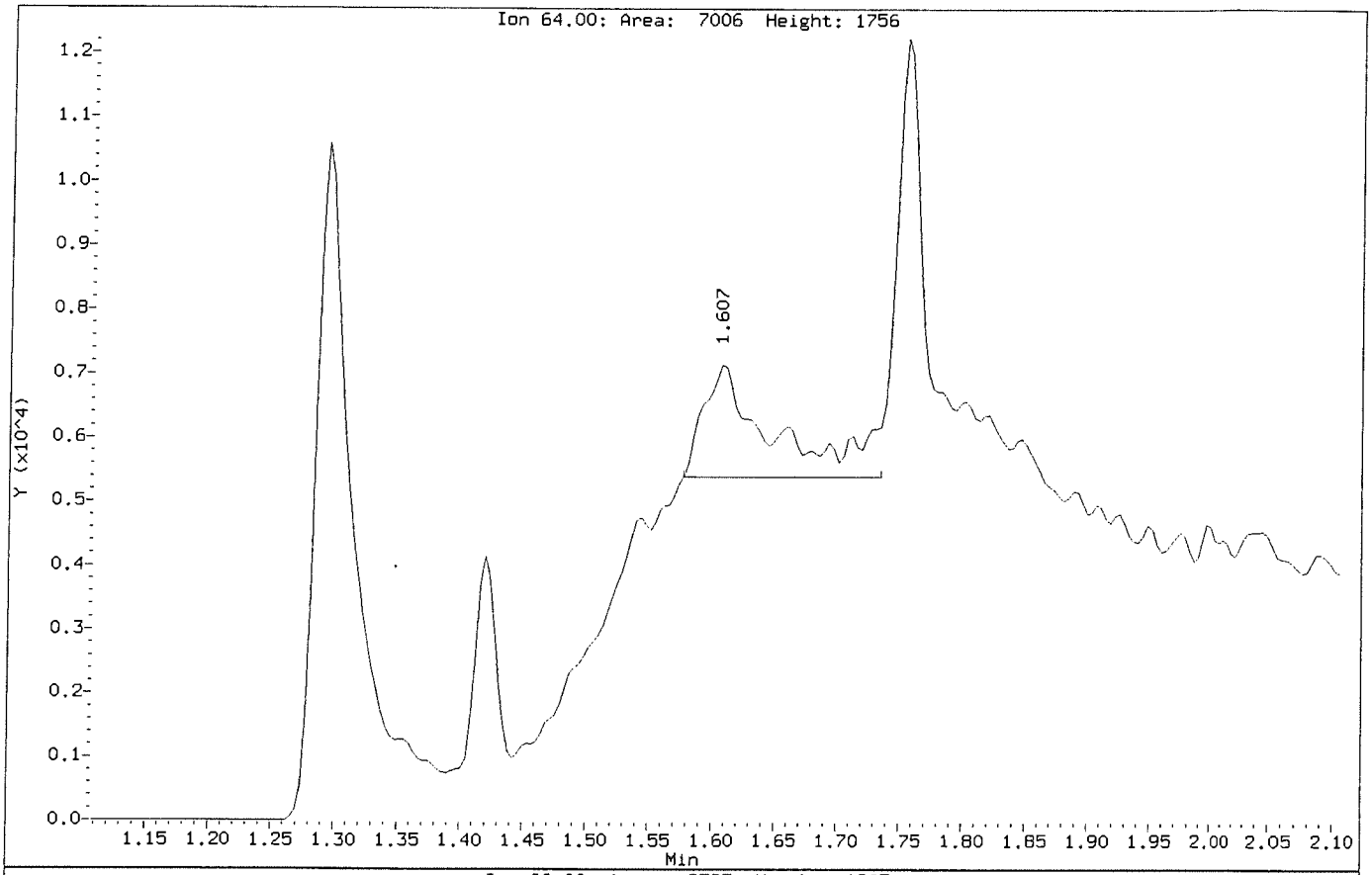
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

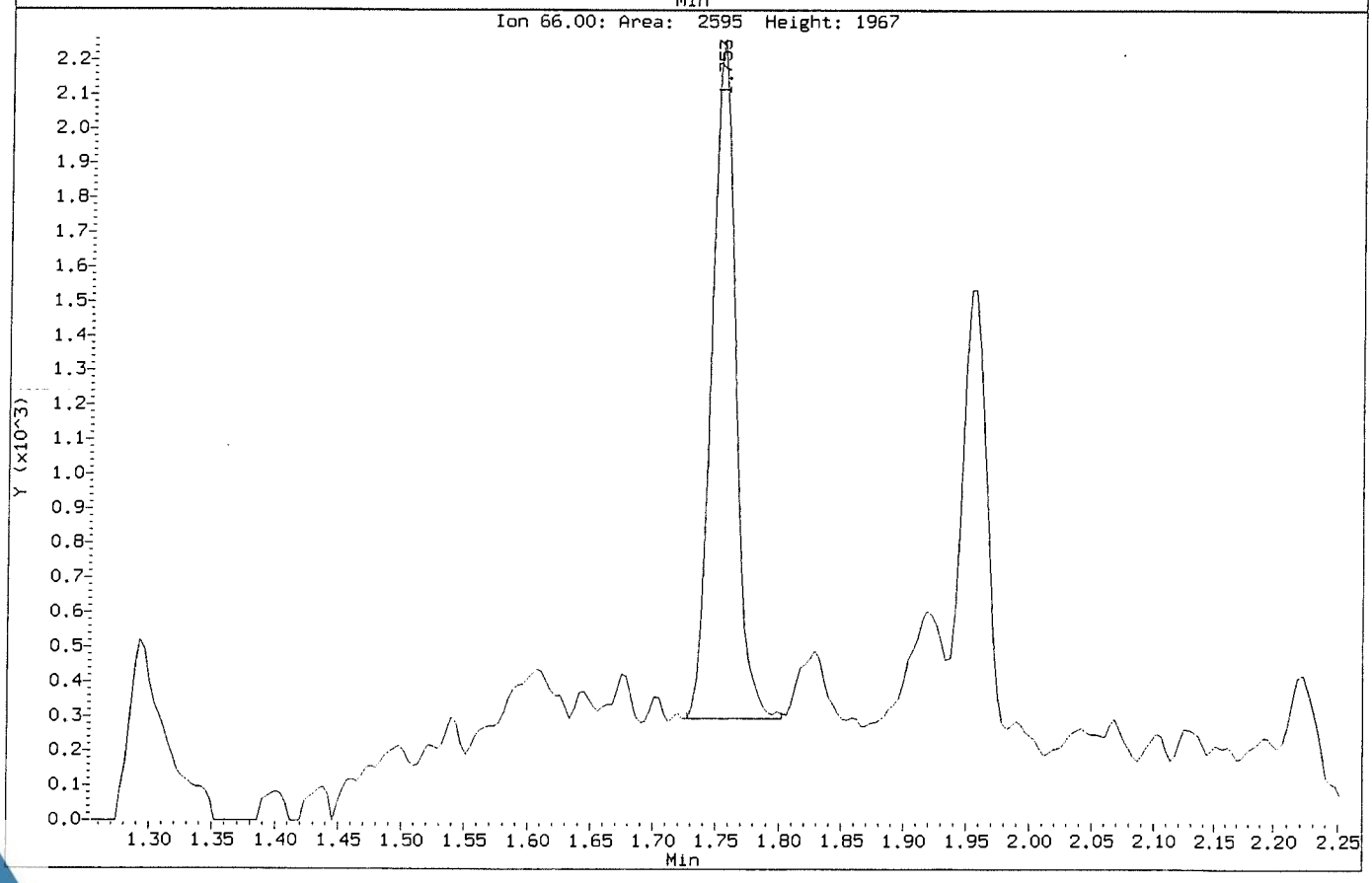
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D

Page 4

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3



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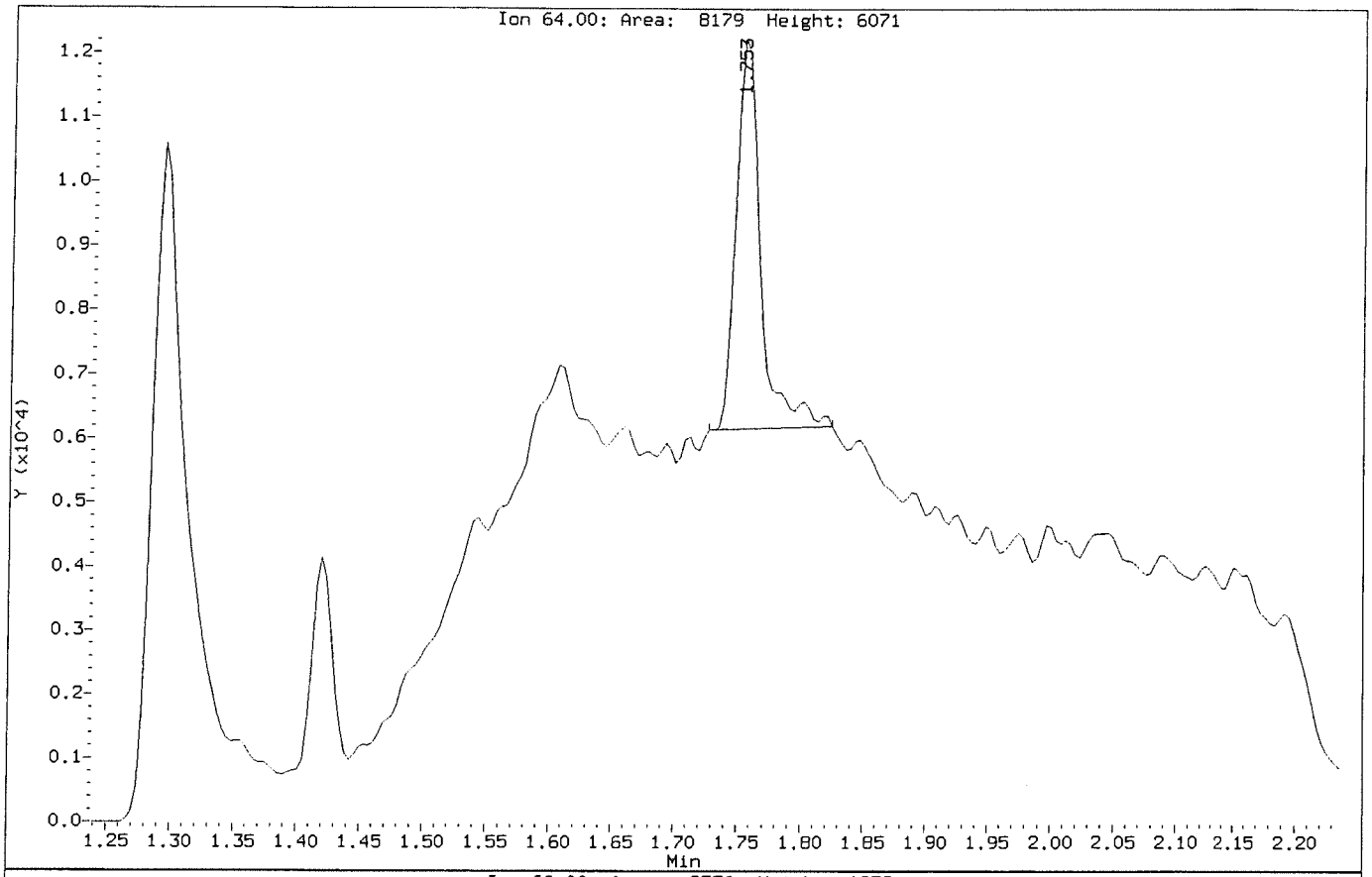
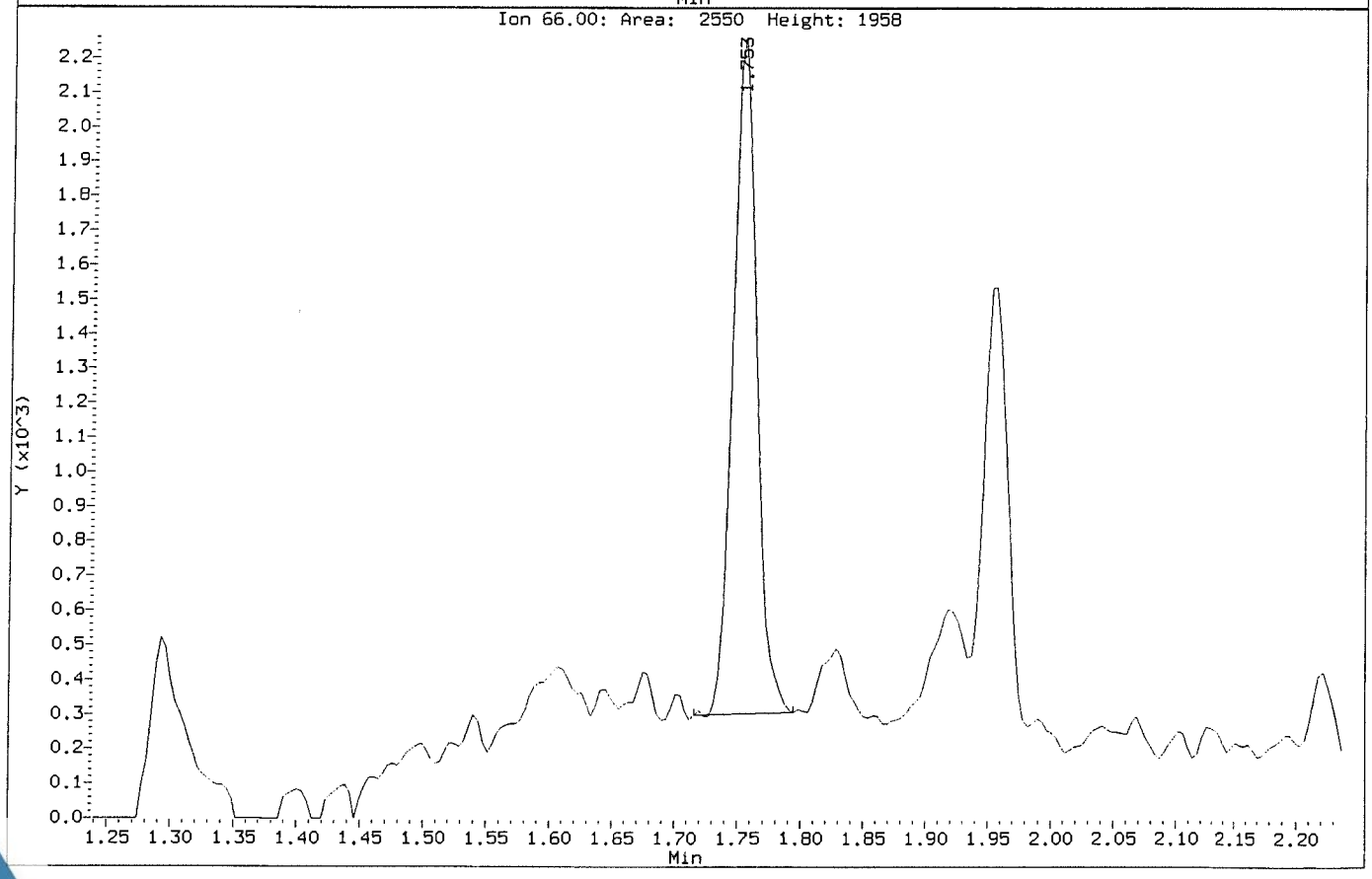
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

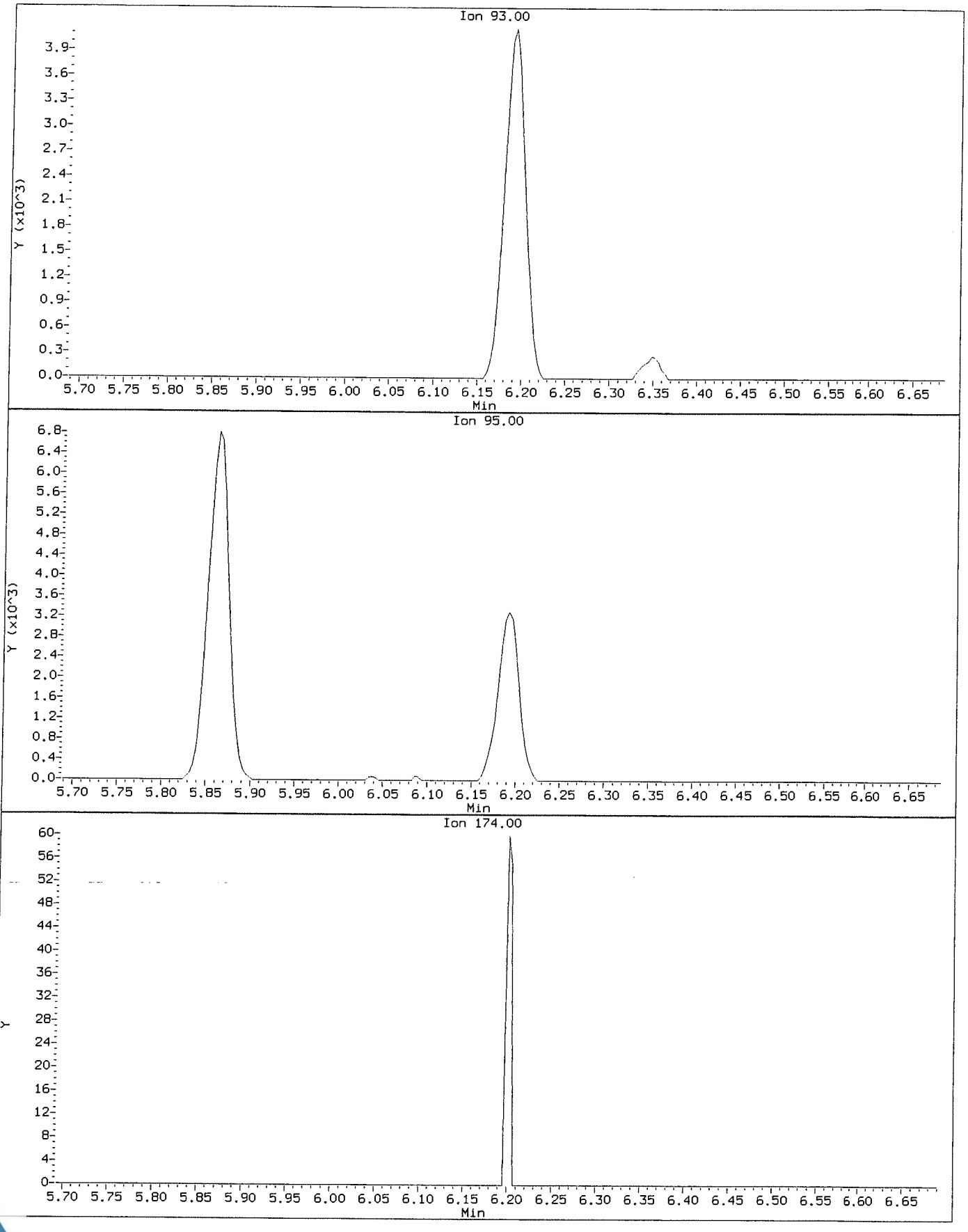
Compound: Chloroethane
CAS Number: 75-00-3



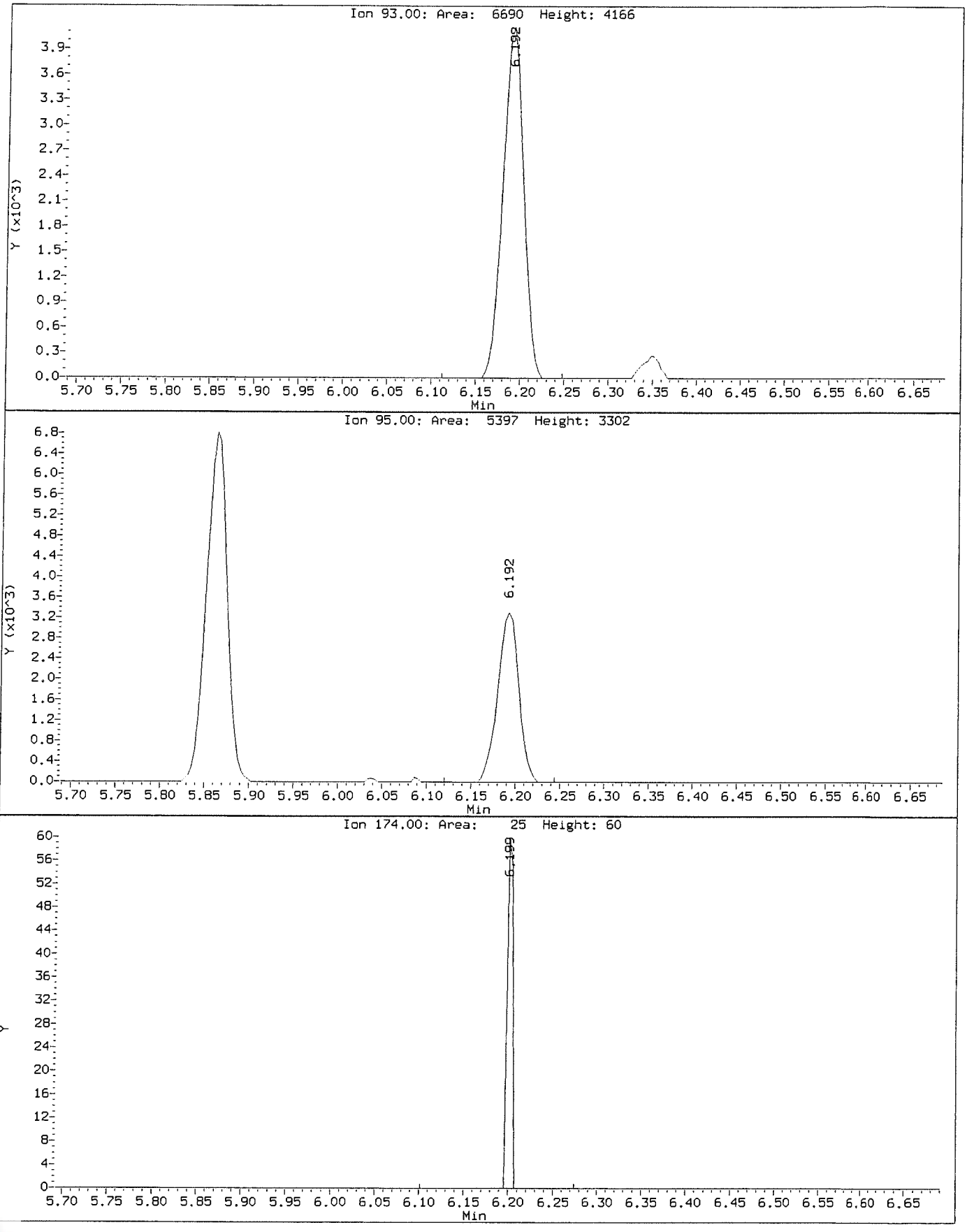
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 21-DEC-2018 15:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:28 Cal File: U122105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

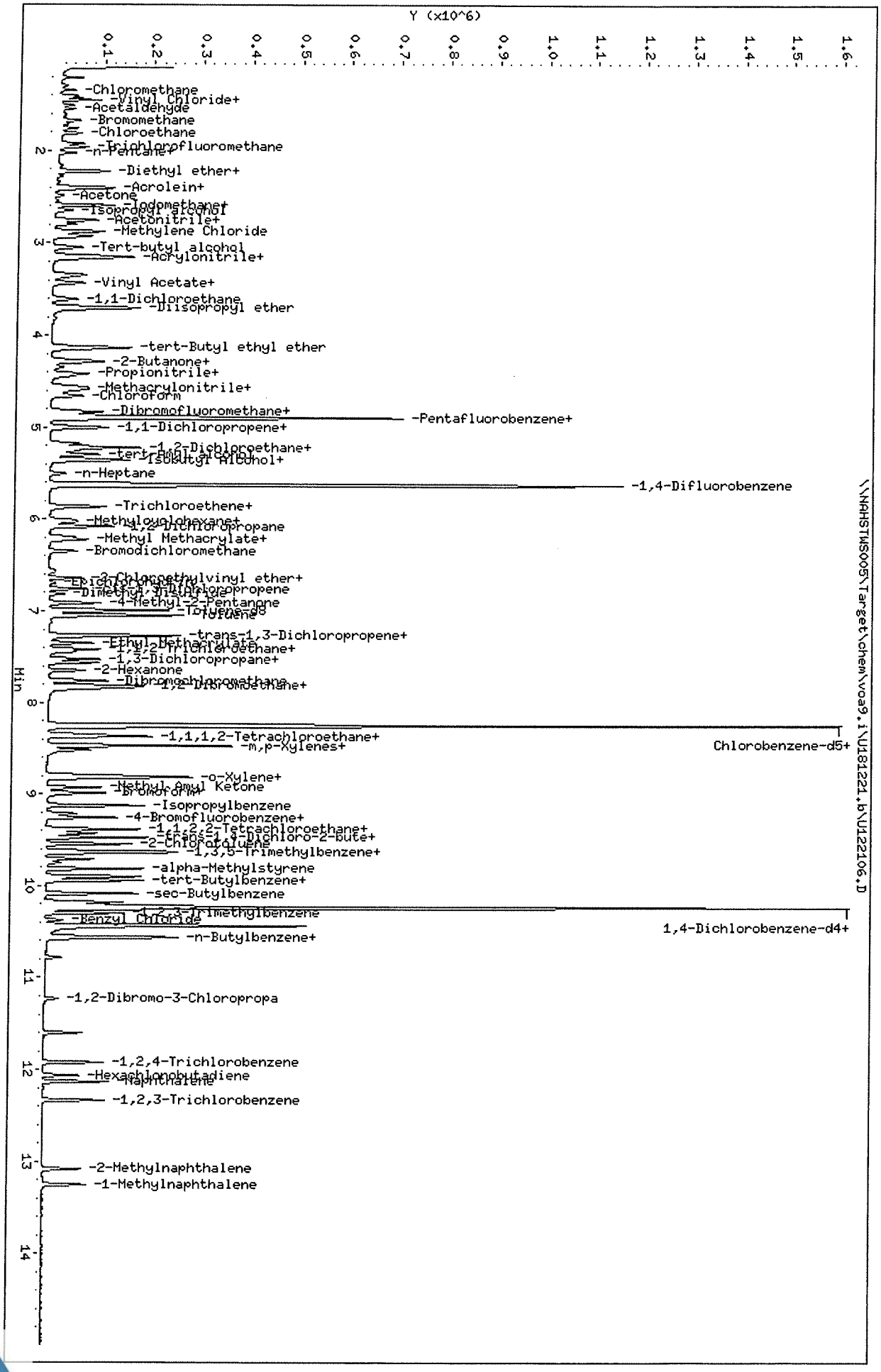
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.897 | (1.000) | 423551 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 811321 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 744062 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 348718 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.986) | 28568 | 5.00000 | 4.77(a) |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 38943 | 5.00000 | 4.60(a) |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 117010 | 5.00000 | 4.52(a) |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 42900 | 5.00000 | 4.60(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 21878 | 5.00000 | 5.16 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 34906 | 5.00000 | 5.21 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 42397 | 5.00000 | 5.39 |
| 138 Freon TF | 101 | 2.408 | 2.408 | (0.492) | 18593 | 5.00000 | 5.16 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 23788 | 5.00000 | 5.36 |
| 22 1,1-Dichloroethane | 63 | 3.608 | 3.608 | (0.737) | 48869 | 5.00000 | 5.35 |
| 11 1,1-Dichloroethene | 96 | 2.405 | 2.405 | (0.491) | 20607 | 5.00000 | 5.11 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 37139 | 5.00000 | 5.14 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 31113 | 5.00000 | 5.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 41282 | 5.00000 | 5.05 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 31564 | 5.00000 | 4.88(a) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 98307 | 5.00000 | 5.38 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 4931 | 5.00000 | 5.40 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 27067 | 5.00000 | 5.30 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 55324 | 5.00000 | 5.34 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 41415 | 5.00000 | 5.01 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 30107 | 5.00000 | 5.25 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 93516 | 5.00000 | 5.33 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 54677 | 5.00000 | 5.28 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 52651 | 5.00000 | 5.51 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 57942 | 5.00000 | 5.30 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.873) | 27335 | 5.00000 | 4.97(a) |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 29605 | 10.0000 | 8.51 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 86842 | 5.00000 | 5.40 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 42401 | 10.0000 | 10.24 |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 100274 | 5.00000 | 5.40 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 97160 | 5.00000 | 5.26 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 60636 | 10.0000 | 10.18 |
| 10 | Acetone | 43 | 2.487 | 2.487 | (0.508) | 19230 | 10.0000 | 8.95 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.928) | 116462 | 5.00000 | 5.39 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 28350 | 5.00000 | 5.26 |
| 29 | Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 13786 | 5.00000 | 3.48(a) |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 31104 | 5.00000 | 5.10 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 12962 | 5.00000 | 5.67(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 12245 | 5.00000 | 5.89 |
| 19 | Carbon Disulfide | 76 | 2.592 | 2.592 | (0.529) | 153199 | 10.0000 | 10.44 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.889) | 26439 | 5.00000 | 5.75 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 75901 | 5.00000 | 5.30 |
| 7 | Chloroethane | 64 | 1.756 | 1.756 | (0.359) | 22172 | 5.00000 | 6.40(M) |
| 28 | Chloroform | 83 | 4.657 | 4.657 | (0.951) | 48639 | 5.00000 | 5.53 |
| 3 | Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 20682 | 5.00000 | 7.61 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 29626 | 5.00000 | 5.32 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.760 | 6.760 | (1.202) | 38403 | 5.00000 | 5.30 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 20846 | 5.00000 | 5.15 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 17610 | 5.00000 | 5.32(M) |
| 2 | Dichlorodifluoromethane | 85 | 1.209 | 1.209 | (0.247) | 26580 | 5.00000 | 5.53 |
| 61 | Ethylbenzene | 106 | 8.372 | 8.372 | (1.015) | 38926 | 5.00000 | 5.30 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 11286 | 5.00000 | 4.56(a) |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 113805 | 5.00000 | 5.37 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 96419 | 10.0000 | 10.69 |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 31487 | 5.00000 | 4.95(a) |
| 87 | n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 92969 | 5.00000 | 5.22 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 140607 | 5.00000 | 5.39 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 91300 | 5.00000 | 4.86(a) |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 47745 | 5.00000 | 5.25 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 116270 | 5.00000 | 5.30 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 80690 | 5.00000 | 5.34 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 81608 | 5.00000 | 5.38 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 20249 | 5.00000 | 5.19 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 120808 | 5.00000 | 5.45 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 25998 | 5.00000 | 5.24 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 30725 | 5.00000 | 5.37 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.043) | 27950 | 5.00000 | 5.36 |
| 8 | Trichlorofluoromethane | 101 | 1.958 | 1.958 | (0.400) | 37144 | 5.00000 | 5.87 |
| 5 | Vinyl Chloride | 62 | 1.422 | 1.422 | (0.291) | 29272 | 5.00000 | 5.76 |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

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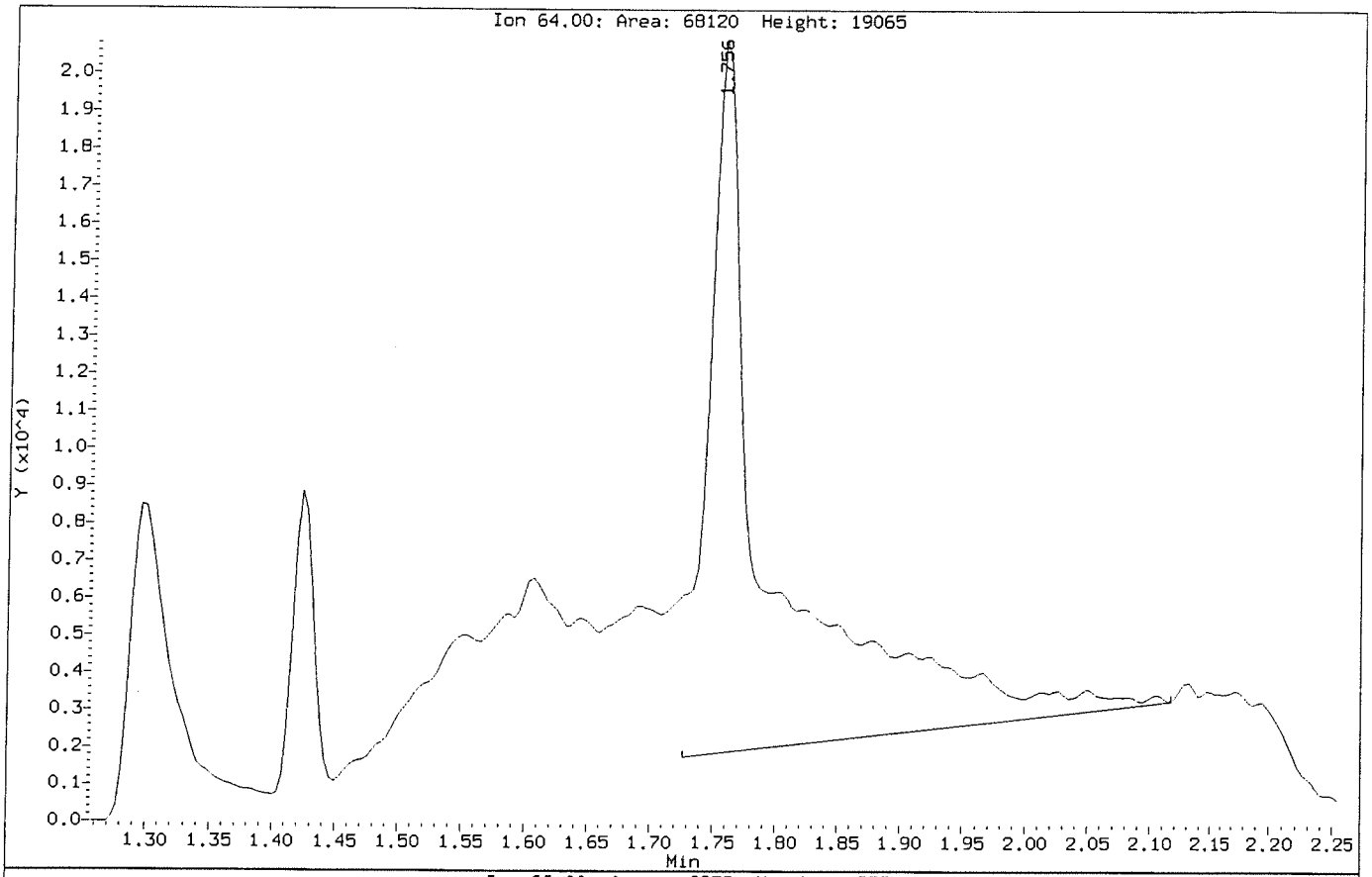
Date : 21-DEC-2018 15:52
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

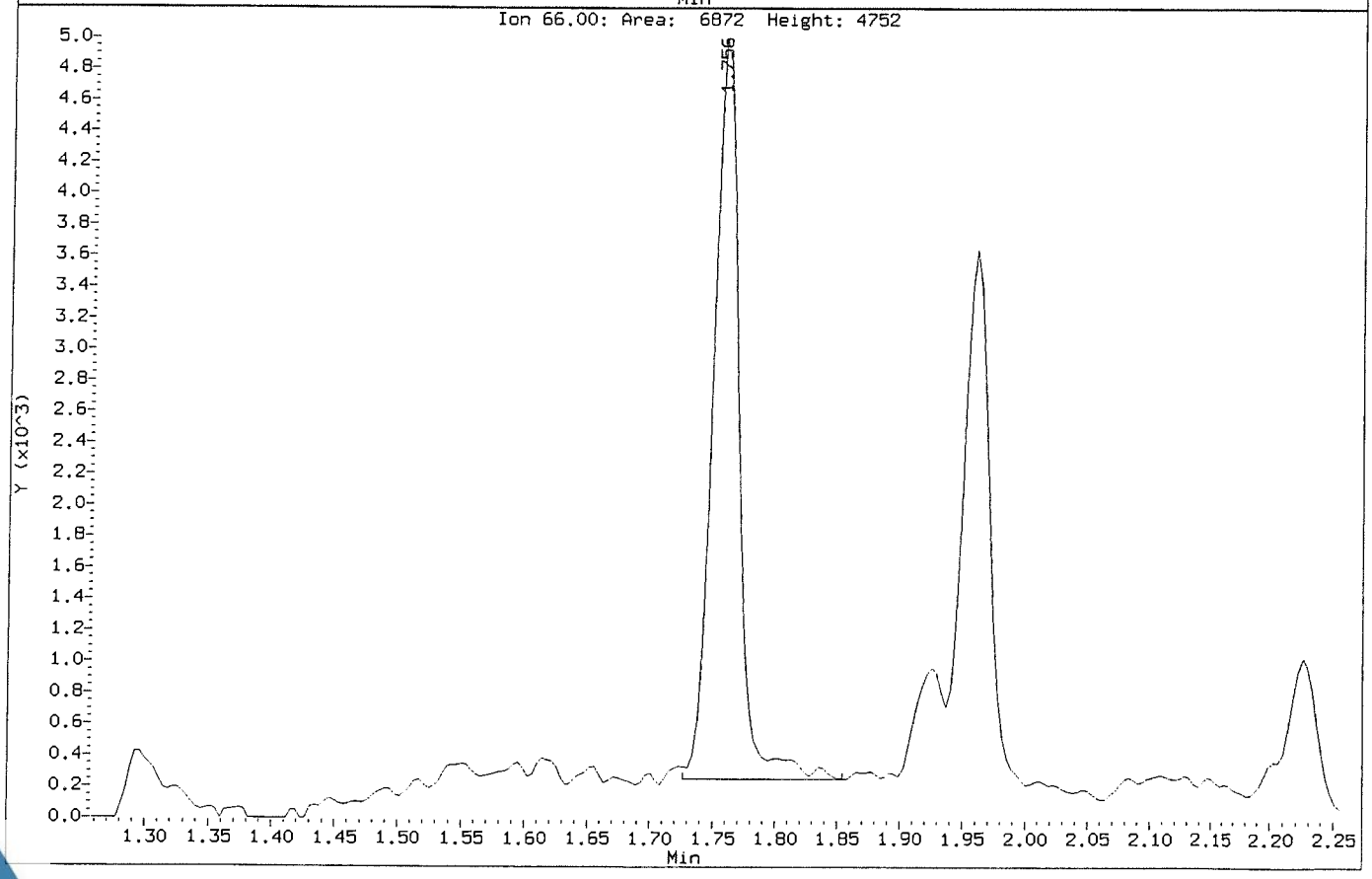
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Chloroethane
CAS Number: 75-00-3



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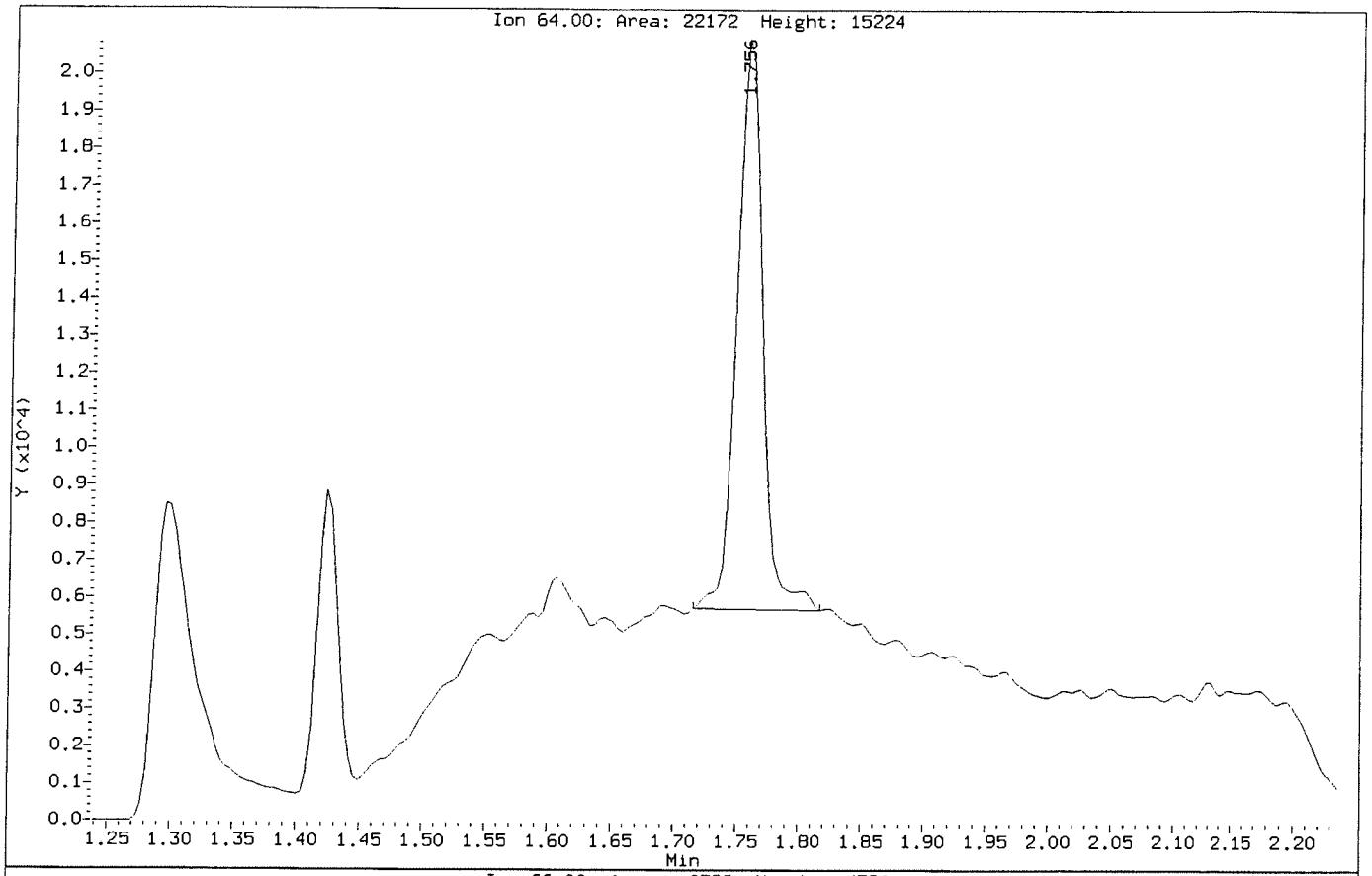
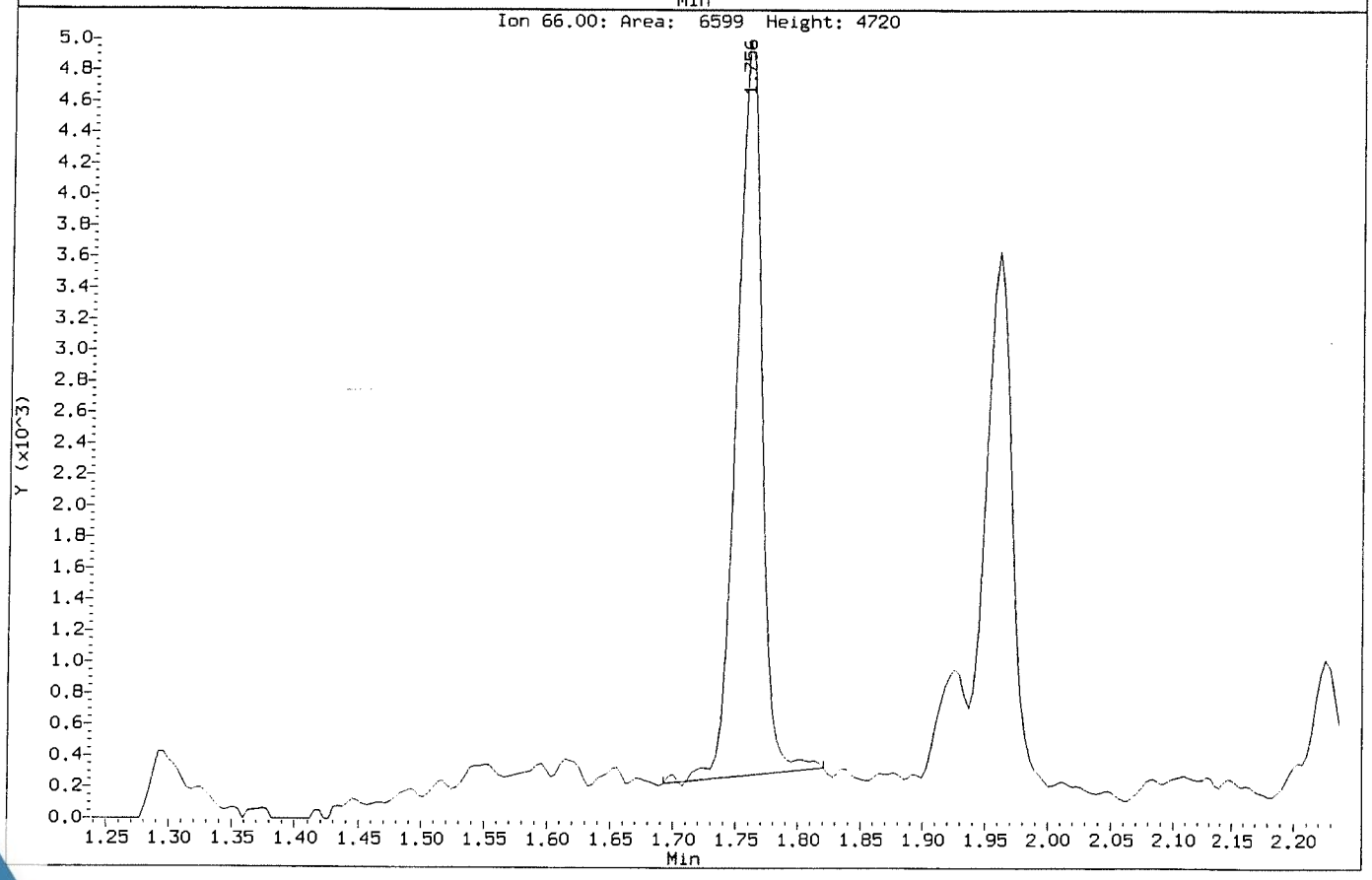
Client Sample ID: VSTD005

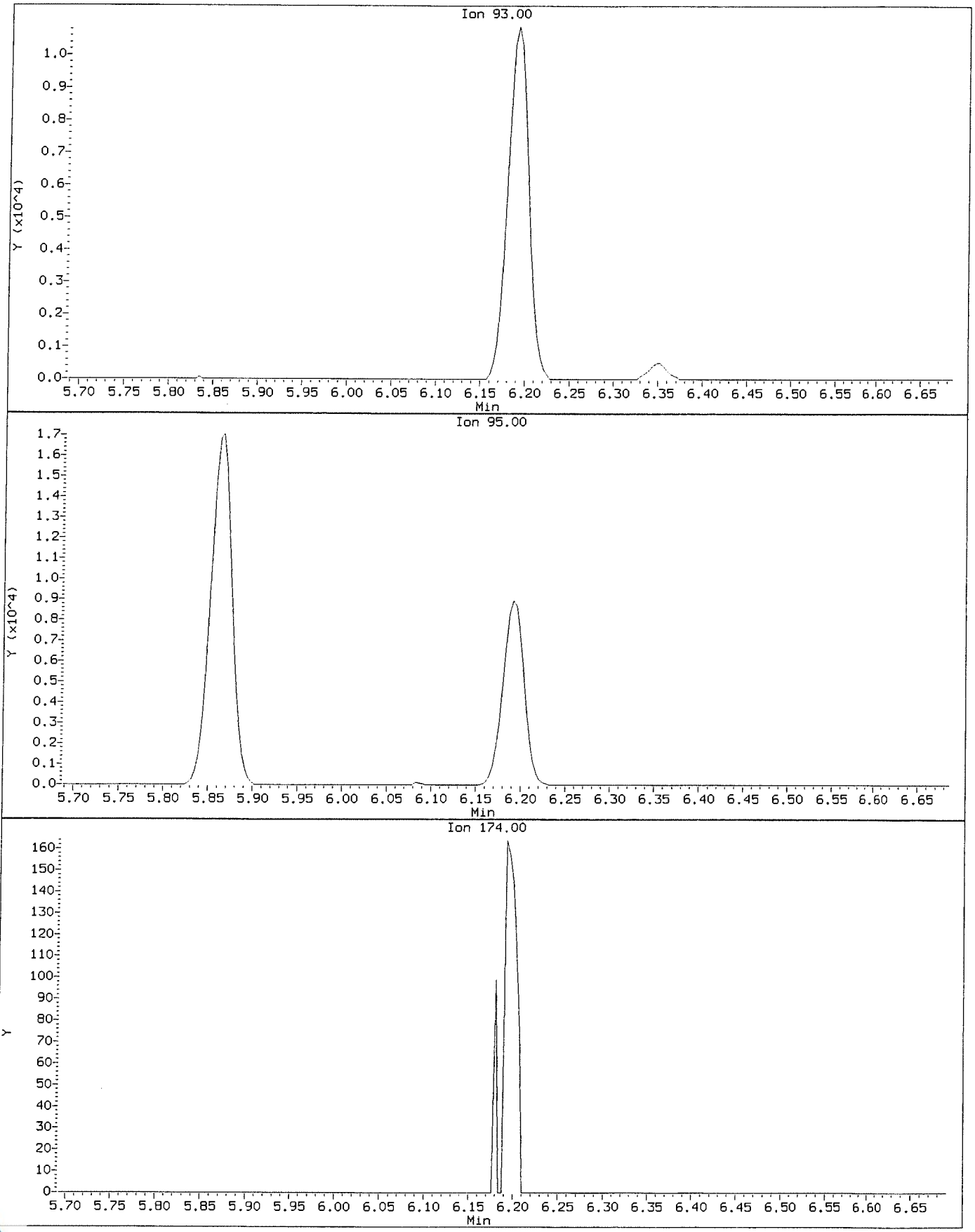
Compound: Chloroethane
CAS Number: 75-00-3



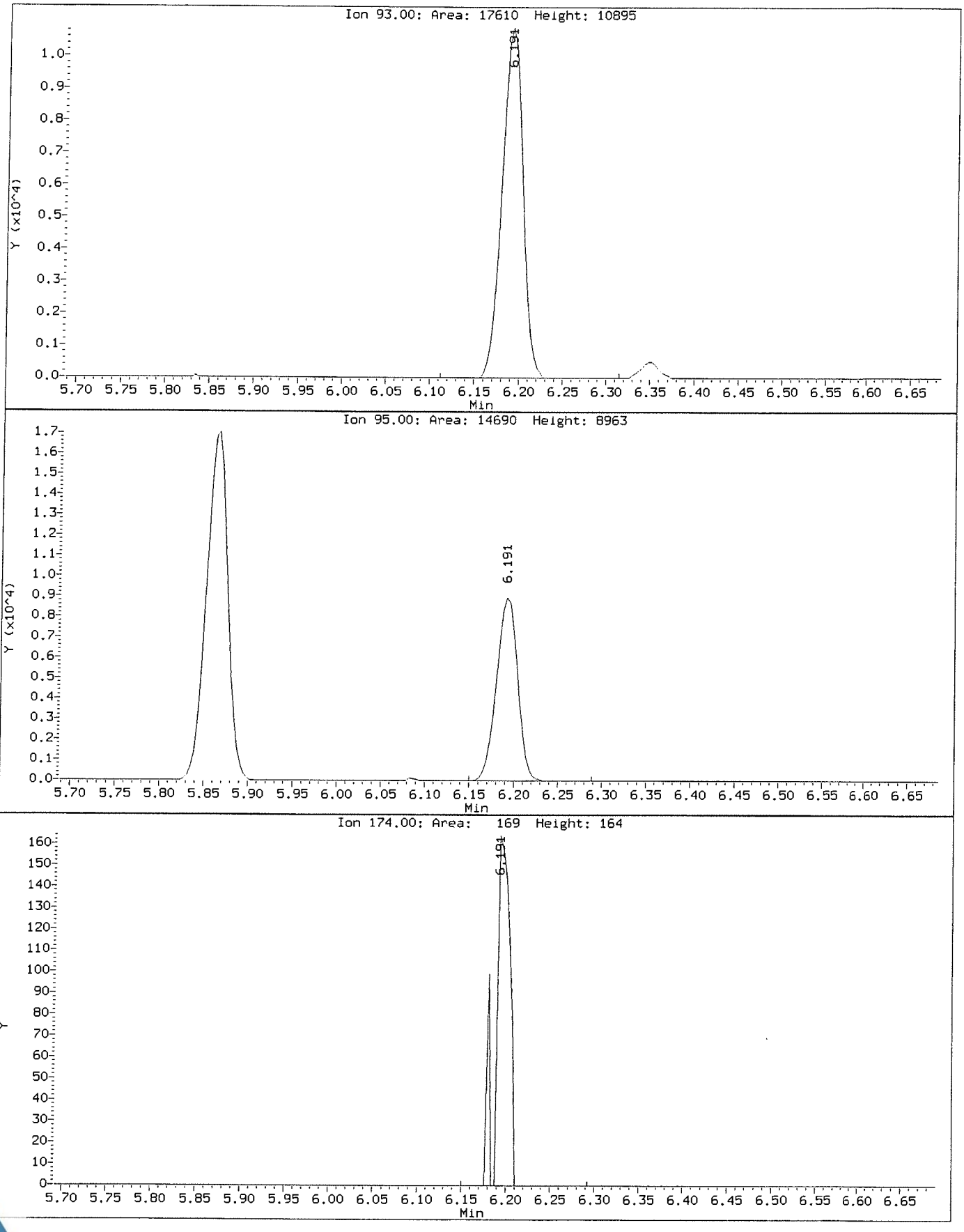
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 21-DEC-2018 16:17
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:52 Cal File: U122106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

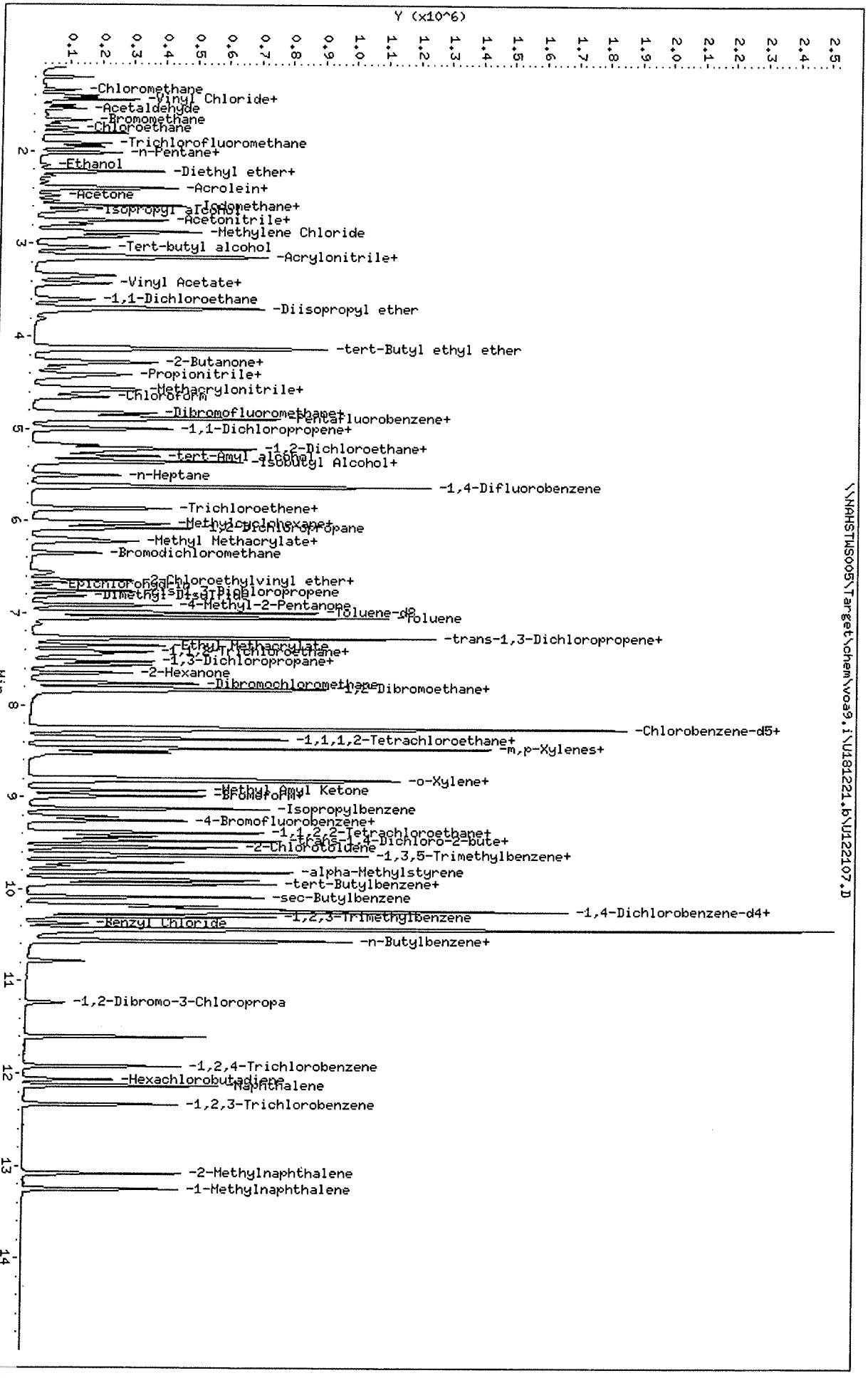
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 420221 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 802033 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 739775 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 359235 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 98984 | 20.0000 | 20.47 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 131494 | 20.0000 | 20.89 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 408521 | 20.0000 | 20.36 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 153183 | 20.0000 | 20.23 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 89389 | 20.0000 | 19.40 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 135496 | 20.0000 | 20.42 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 163701 | 20.0000 | 20.23 |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 68573 | 20.0000 | 19.19 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 89267 | 20.0000 | 20.25 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 184998 | 20.0000 | 20.44 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 75169 | 20.0000 | 18.81 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 140960 | 20.0000 | 19.75 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 126752 | 20.0000 | 19.12 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 166045 | 20.0000 | 19.73 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 129526 | 20.0000 | 19.47 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 388189 | 20.0000 | 20.64 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 22196 | 20.0000 | 18.72 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 105981 | 20.0000 | 20.87 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 207507 | 20.0000 | 19.45 |
| 33 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 149131 | 20.0000 | 20.20 |
| 42 1,2-Dichloropropane | 63 | 6.079 | 6.079 | (1.081) | 113309 | 20.0000 | 19.99 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 375852 | 20.0000 | 20.81 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 209196 | 20.0000 | 19.61 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 193920 | 20.0000 | 20.42 |
| 84 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 216649 | 20.0000 | 19.26 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 106667 | 20.0000 | 19.55 |
| 24 2-Butanone | 43 | 4.339 | 4.339 | (0.887) | 119433 | 40.0000 | 42.08 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 335289 | 20.0000 | 20.25 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 177404 | 40.0000 | 43.12 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 387760 | 20.0000 | 20.27 |
| 82 p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 388512 | 20.0000 | 20.43 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 250121 | 40.0000 | 42.25 |
| 10 Acetone | 43 | 2.480 | 2.480 | (0.507) | 73380 | 40.0000 | 43.05 |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 428833 | 20.0000 | 20.09 |
| 74 Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 109892 | 20.0000 | 19.79 |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 51515 | 20.0000 | 21.73 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 121760 | 20.0000 | 20.20 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 53922 | 20.0000 | 18.14(T) |
| 6 Bromomethane | 94 | 1.666 | 1.666 | (0.341) | 47148 | 20.0000 | 19.02 |
| 19 Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 576362 | 40.0000 | 39.58 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 104210 | 20.0000 | 18.76 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 284621 | 20.0000 | 20.02 |
| 7 Chloroethane | 64 | 1.749 | 1.749 | (0.357) | 73150 | 20.0000 | 20.10(M) |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.951) | 178122 | 20.0000 | 20.43 |
| 3 Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 79075 | 20.0000 | 19.85 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 114056 | 20.0000 | 20.64 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 162454 | 20.0000 | 18.55 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 89836 | 20.0000 | 19.09 |
| 44 Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 66878 | 20.0000 | 20.44 |
| 2 Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 98486 | 20.0000 | 19.34 |
| 61 Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 147187 | 20.0000 | 20.18 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 44482 | 20.0000 | 17.45 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 439477 | 20.0000 | 20.89 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 372108 | 40.0000 | 41.51 |
| 17 Methylene Chloride | 84 | 2.870 | 2.870 | (0.586) | 109403 | 20.0000 | 20.36 |
| 87 n-Butylbenzene | 91 | 10.554 | 10.554 | (1.031) | 362066 | 20.0000 | 19.73 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 551133 | 20.0000 | 20.53 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 413229 | 20.0000 | 19.20 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 188442 | 20.0000 | 20.84 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 459645 | 20.0000 | 20.37 |
| 64 Styrene | 104 | 8.823 | 8.823 | (1.070) | 323232 | 20.0000 | 21.51 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 318726 | 20.0000 | 20.42 |
| 56 Tetrachloroethene | 164 | 7.522 | 7.522 | (0.912) | 75128 | 20.0000 | 19.39 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 451178 | 20.0000 | 20.50 |
| 20 trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 100515 | 20.0000 | 20.43 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 135347 | 20.0000 | 18.26 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 101824 | 20.0000 | 19.76 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 130957 | 20.0000 | 19.29 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 111713 | 20.0000 | 19.39 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

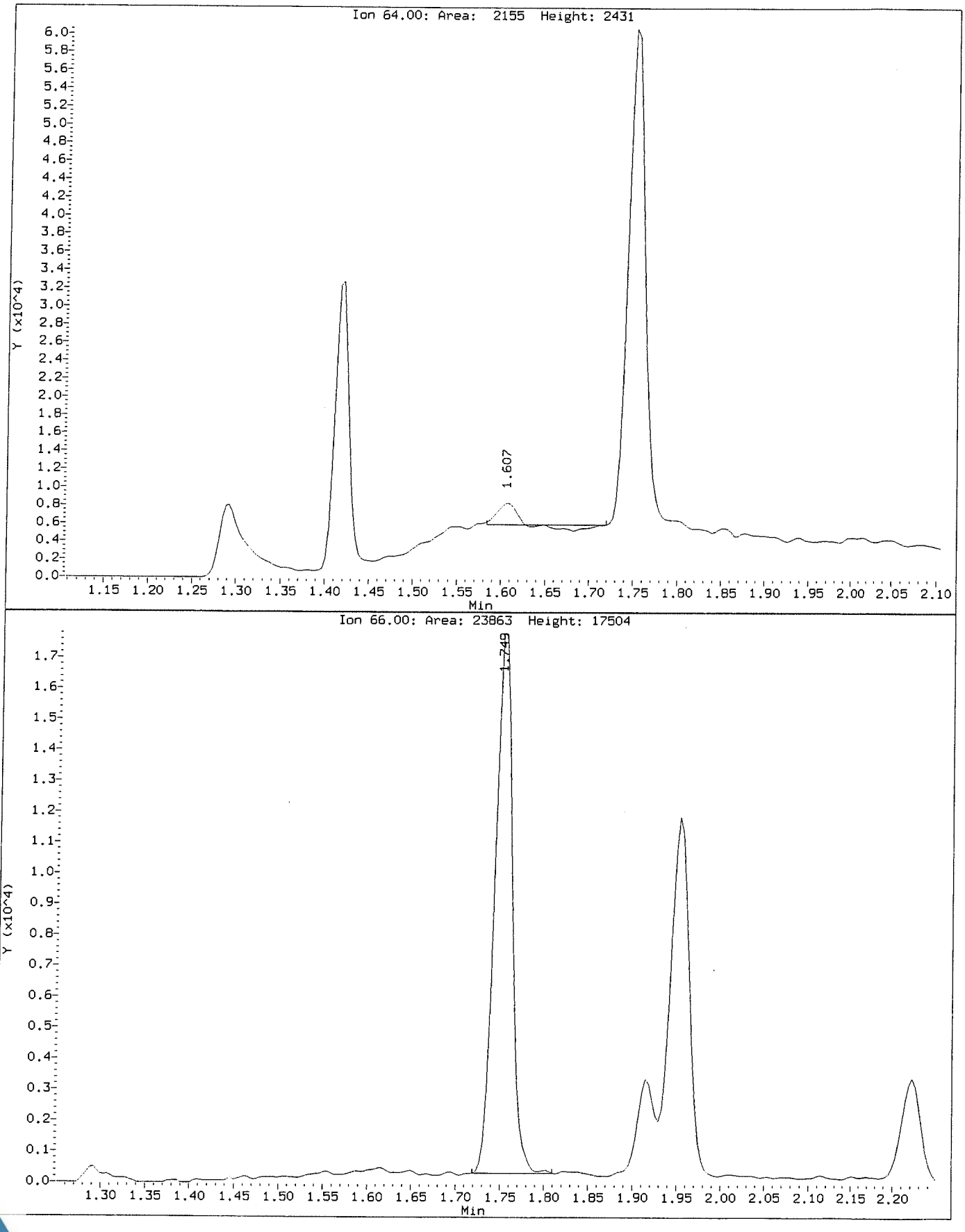



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Date : 21-DEC-2018 16:17
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

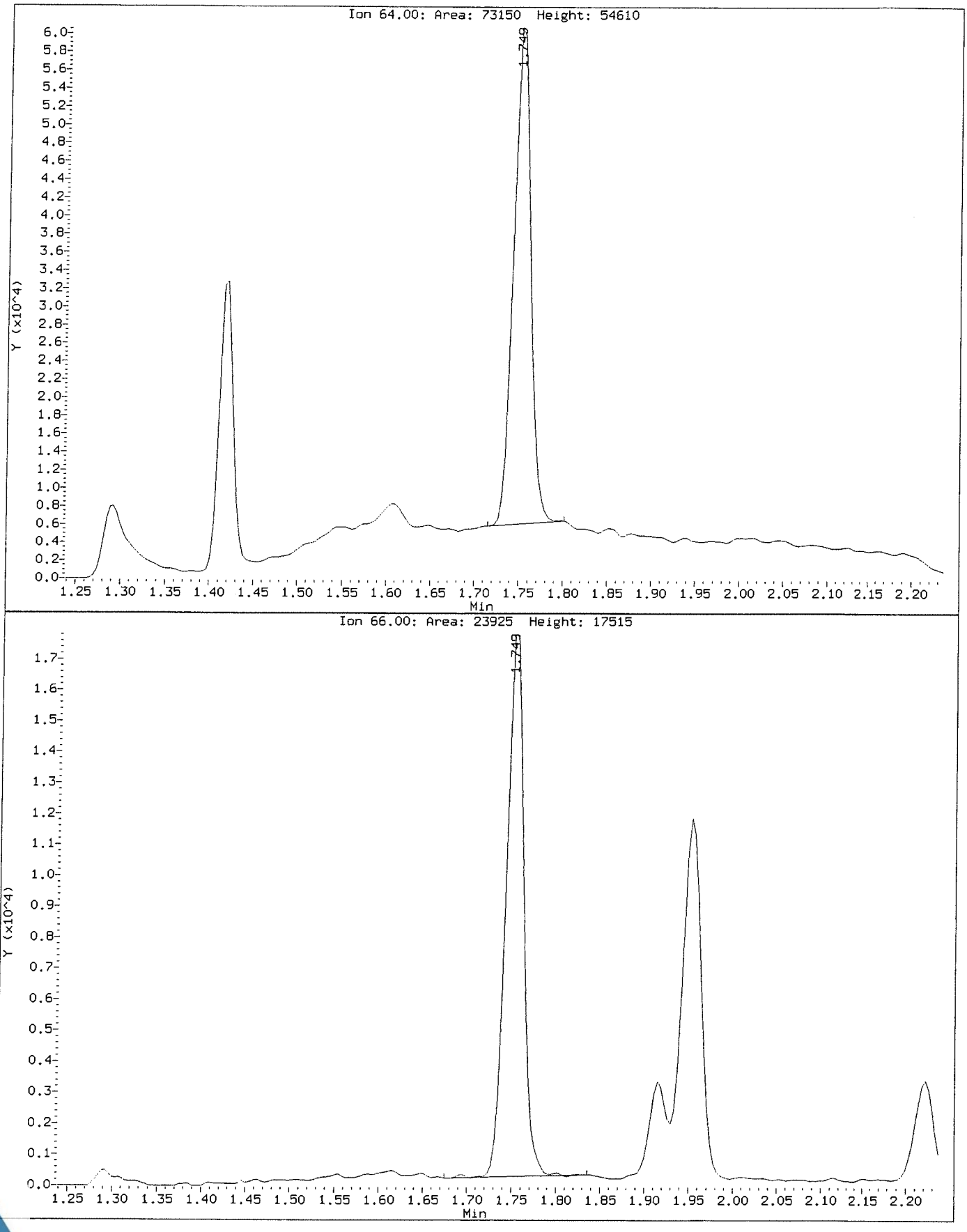
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 16:41
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:17 Cal File: U122107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

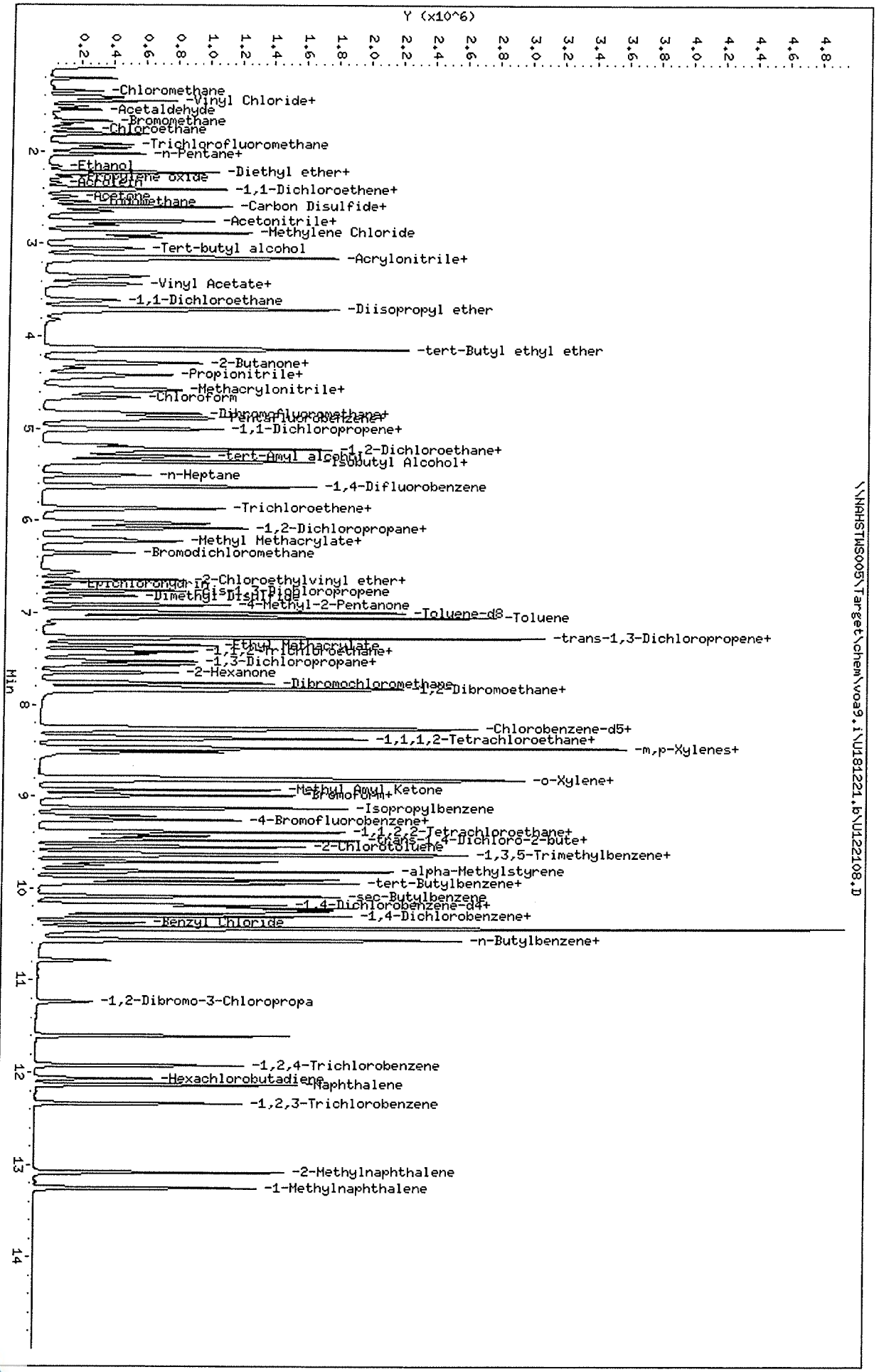
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.898 | (1.000) | 441118 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 822734 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 764792 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 367345 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 245007 | 50.0000 | 50.34 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 320796 | 50.0000 | 51.44 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 1010127 | 50.0000 | 51.19 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 382581 | 50.0000 | 50.91 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 235446 | 50.0000 | 48.53 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 347757 | 50.0000 | 49.92 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 414173 | 50.0000 | 50.06 |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.493) | 175022 | 50.0000 | 46.67 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 226615 | 50.0000 | 49.73 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 466899 | 50.0000 | 49.14 |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.492) | 194403 | 50.0000 | 46.35 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 351519 | 50.0000 | 48.01 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 334600 | 50.0000 | 48.35 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 444407 | 50.0000 | 51.66 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 340316 | 50.0000 | 50.03 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 977610 | 50.0000 | 50.85 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 61793 | 50.0000 | 48.48 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 266705 | 50.0000 | 50.81 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 529898 | 50.0000 | 48.58 |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 376591 | 50.0000 | 50.81 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 287570 | 50.0000 | 49.46 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 947470 | 50.0000 | 51.32 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 529098 | 50.0000 | 48.50 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 491255 | 50.0000 | 50.05 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 544274 | 50.0000 | 47.32 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.279 | (0.874) | 280126 | 50.0000 | 48.93 |
| 24 | 2-Butanone | 43 | 4.343 | 4.343 | (0.887) | 304044 | 100.000 | 105.52 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 843166 | 50.0000 | 49.81 |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 461299 | 100.000 | 108.47 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 978873 | 50.0000 | 50.04 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 1003937 | 50.0000 | 51.64 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 653234 | 100.000 | 106.75 |
| 10 | Acetone | 43 | 2.487 | 2.487 | (0.508) | 187964 | 100.000 | 109.42 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.927) | 1084861 | 50.0000 | 49.55 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 280874 | 50.0000 | 49.48 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.560 | (0.931) | 129496 | 50.0000 | 56.37 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 319701 | 50.0000 | 51.71 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 154855 | 50.0000 | 47.27(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 117780 | 50.0000 | 43.41 |
| 19 | Carbon Disulfide | 76 | 2.600 | 2.600 | (0.531) | 1460668 | 100.000 | 95.57 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.888) | 274507 | 50.0000 | 45.99 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 718560 | 50.0000 | 48.89 |
| 7 | Chloroethane | 64 | 1.760 | 1.760 | (0.359) | 179707 | 50.0000 | 46.03(M) |
| 28 | Chloroform | 83 | 4.661 | 4.661 | (0.952) | 453061 | 50.0000 | 49.52 |
| 3 | Chloromethane | 50 | 1.348 | 1.348 | (0.275) | 197328 | 50.0000 | 42.63 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.290 | (0.876) | 286659 | 50.0000 | 49.43 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 449225 | 50.0000 | 47.87 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 242061 | 50.0000 | 48.20 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.100) | 170556 | 50.0000 | 50.83 |
| 2 | Dichlorodifluoromethane | 85 | 1.213 | 1.213 | (0.248) | 248322 | 50.0000 | 45.79 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 374921 | 50.0000 | 49.74 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 119140 | 50.0000 | 45.72 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1109213 | 50.0000 | 51.00 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 936911 | 100.000 | 101.11 |
| 17 | Methylene Chloride | 84 | 2.877 | 2.877 | (0.587) | 274258 | 50.0000 | 50.31 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 931396 | 50.0000 | 49.64 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1393780 | 50.0000 | 50.77 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 1107938 | 50.0000 | 49.53 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 475748 | 50.0000 | 50.89 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1169025 | 50.0000 | 50.67 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 828798 | 50.0000 | 53.36 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 807157 | 50.0000 | 50.58 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 186057 | 50.0000 | 46.46 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 1138194 | 50.0000 | 50.03 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.147 | 3.147 | (0.643) | 248845 | 50.0000 | 48.19 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 381258 | 50.0000 | 47.27 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 255628 | 50.0000 | 48.36 |
| 8 | Trichlorofluoromethane | 101 | 1.962 | 1.962 | (0.401) | 330010 | 50.0000 | 45.44 |
| 5 | Vinyl Chloride | 62 | 1.426 | 1.426 | (0.291) | 283791 | 50.0000 | 45.57 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



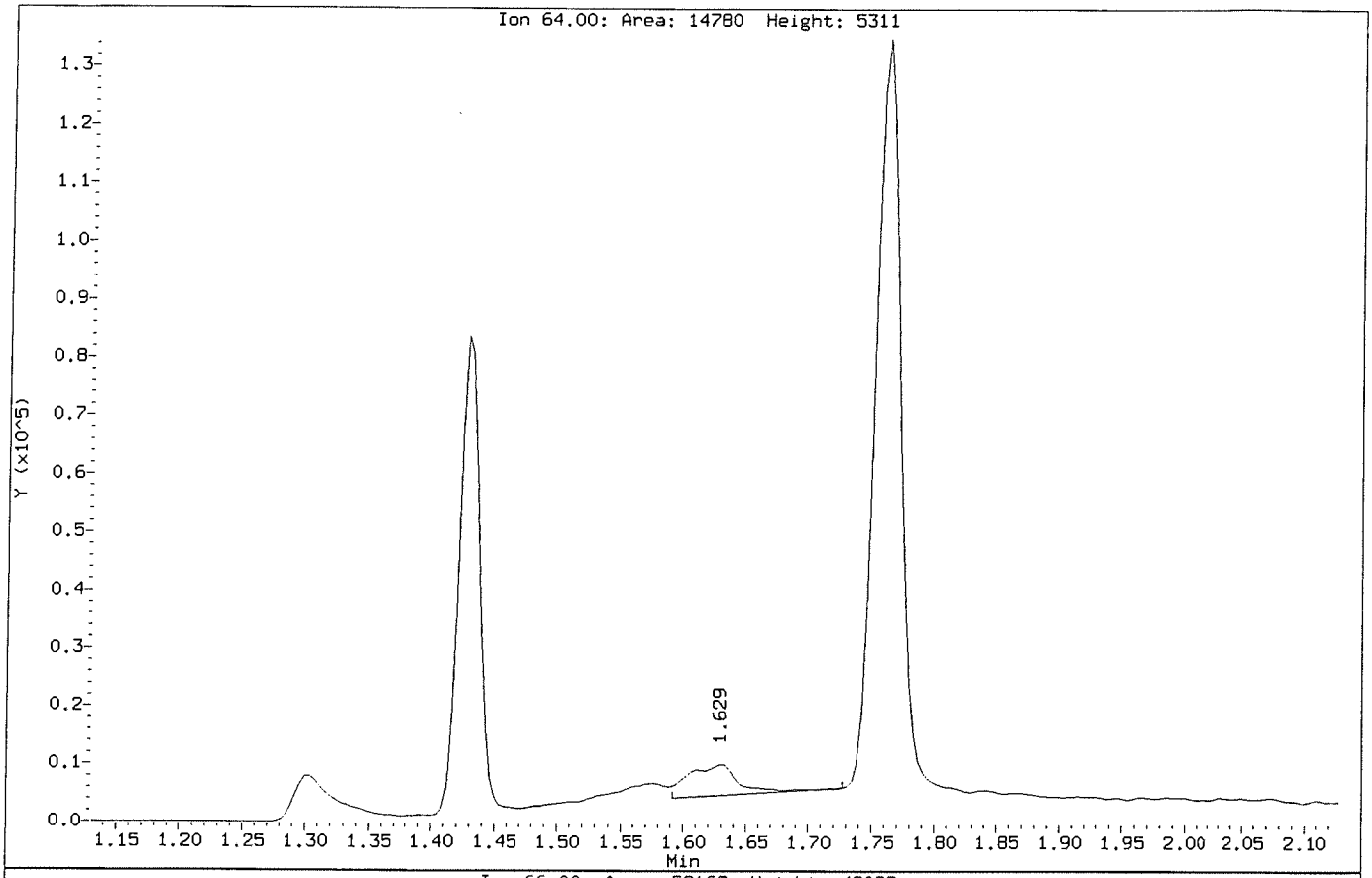

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Date : 21-DEC-2018 16:41
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

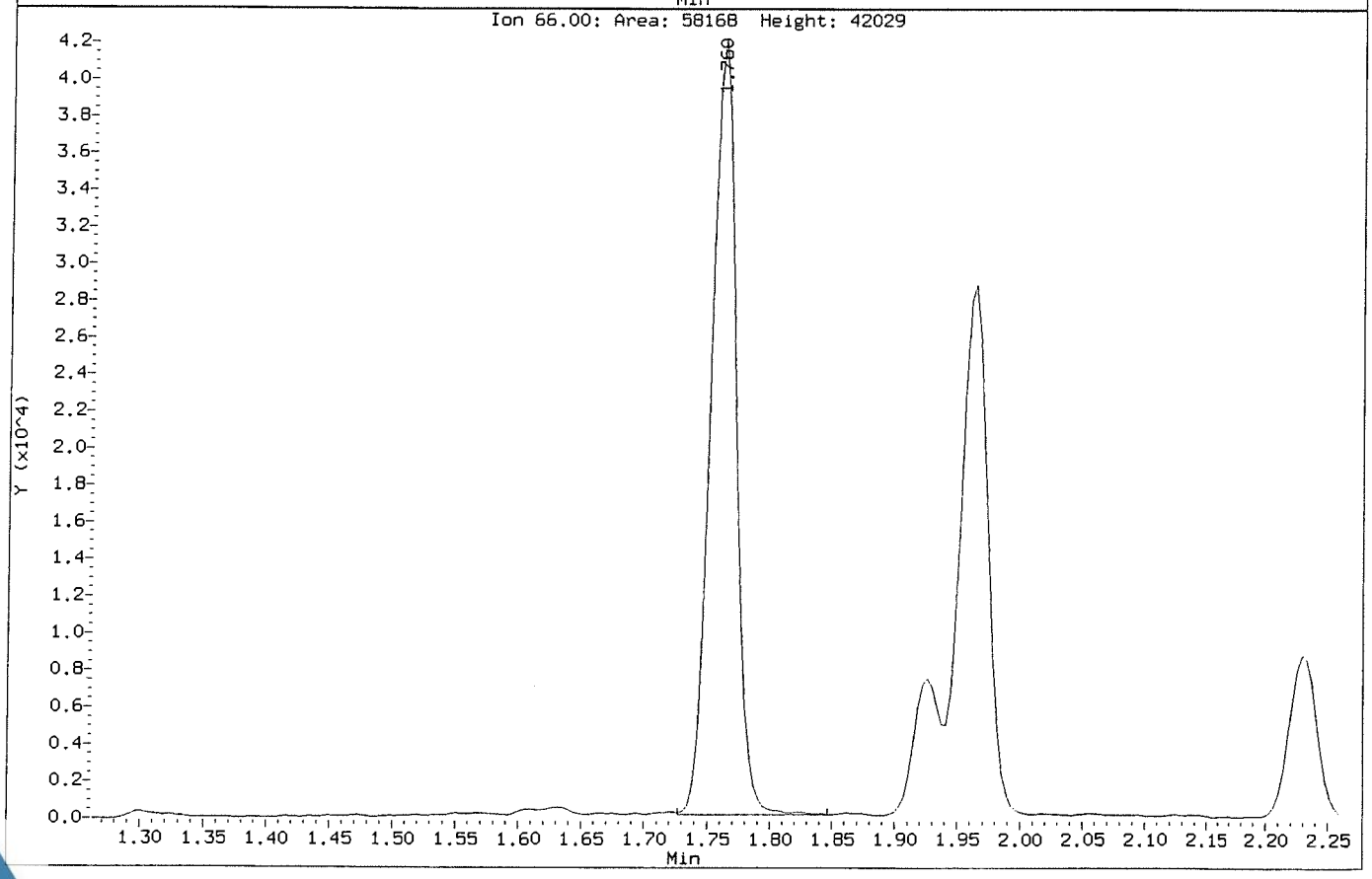
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122108.D
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

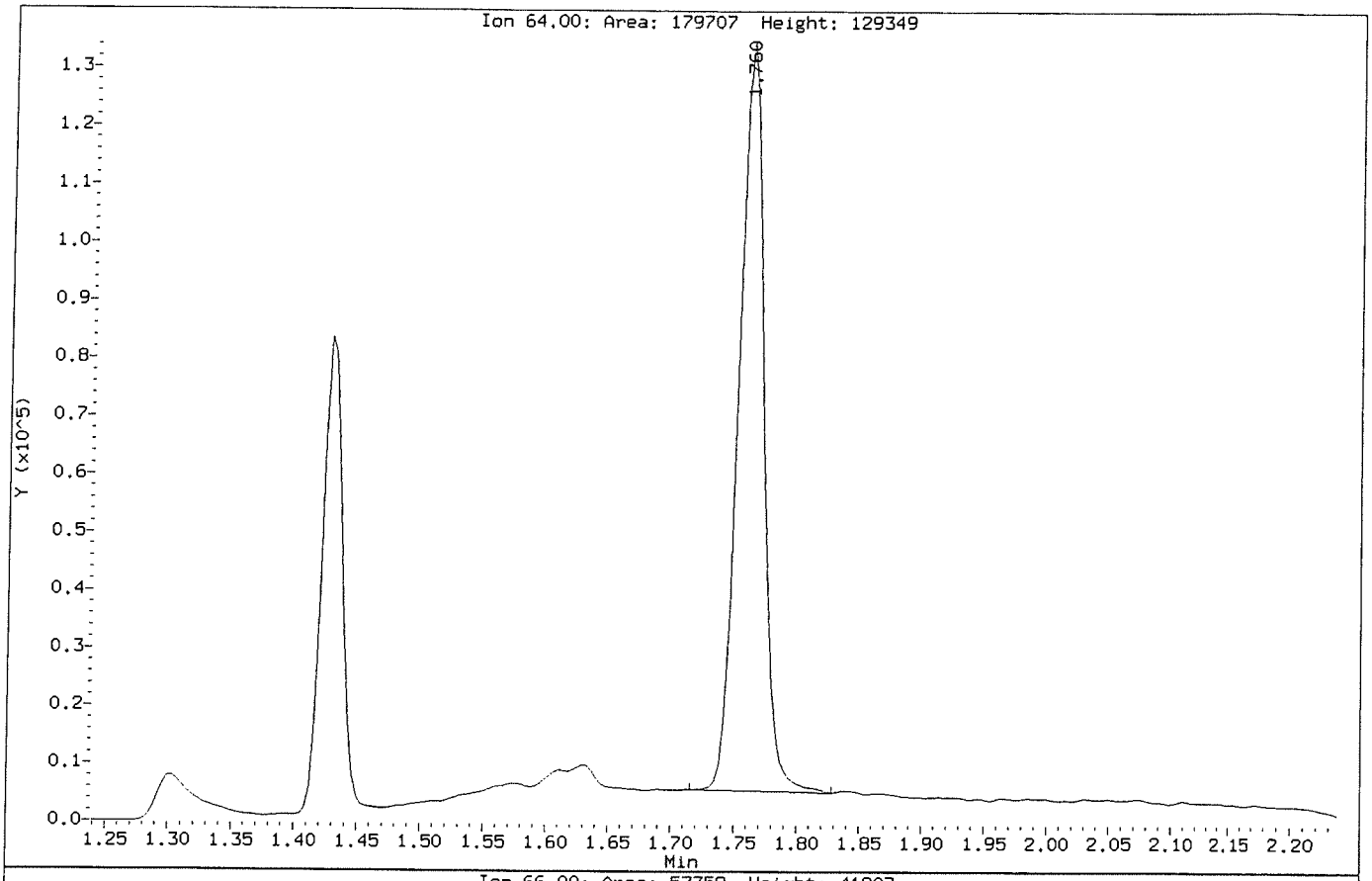
Compound: Chloroethane
CAS Number: 75-00-3

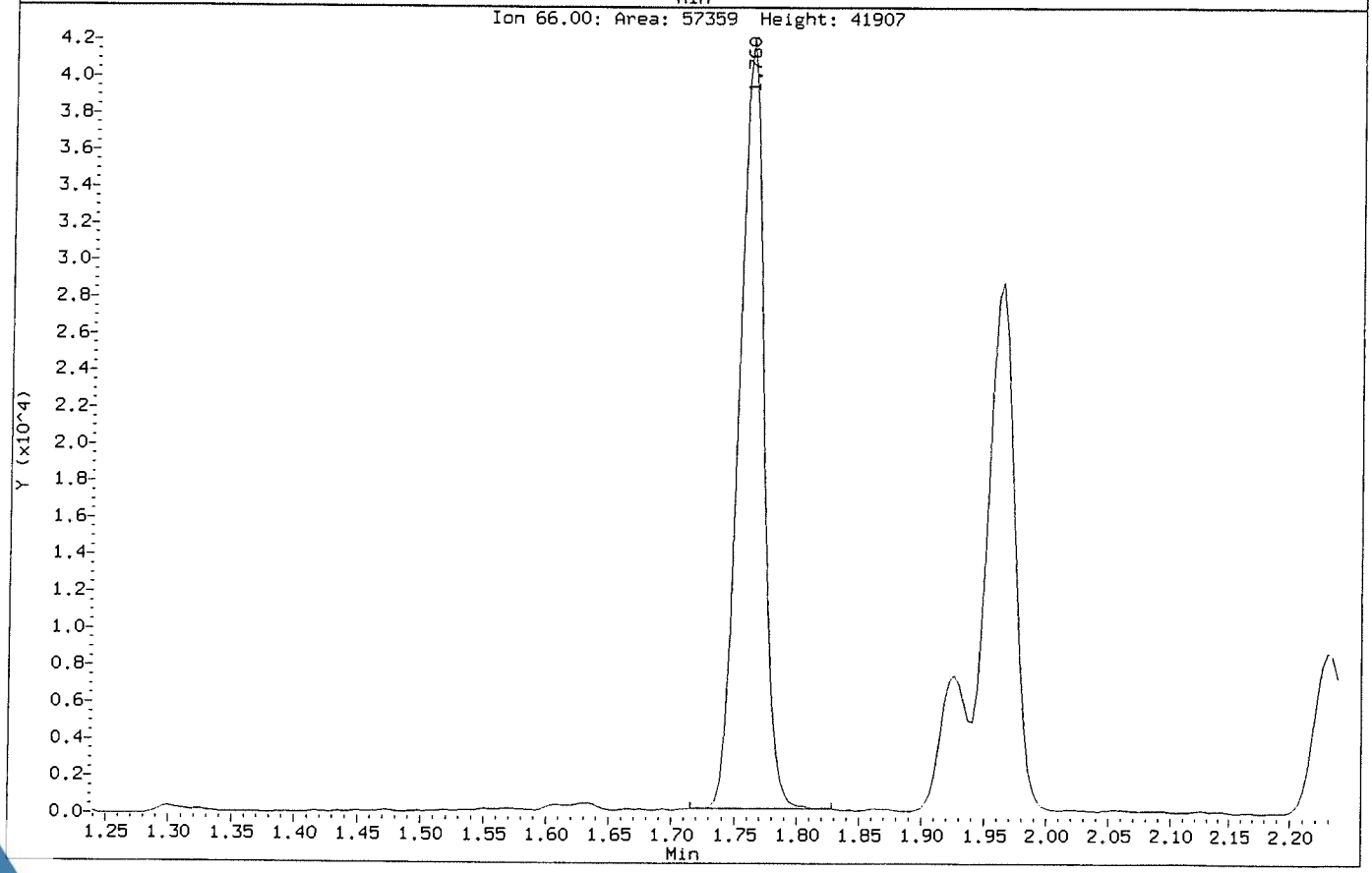


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 21-DEC-2018 17:06
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

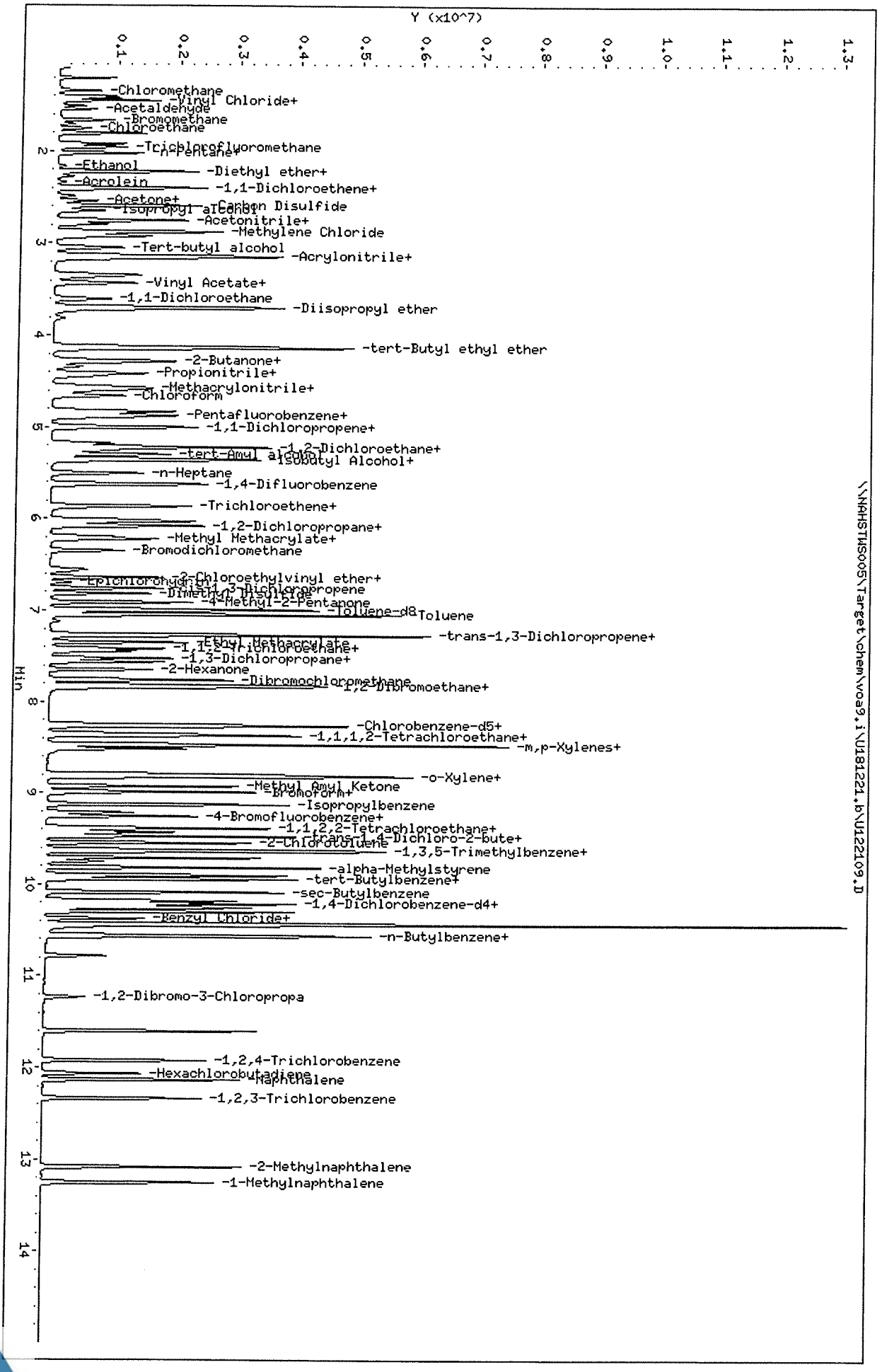
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.897 | (1.000) | 443466 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 822102 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.252 | 8.252 | (1.000) | 772888 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 368944 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.986) | 495628 | 100.000 | 102.84 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 635081 | 100.000 | 103.40 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 2029223 | 100.000 | 103.52 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 764798 | 100.000 | 102.11 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 493177 | 100.000 | 99.96 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.830 | (0.986) | 750490 | 100.000 | 107.17 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 804056 | 100.000 | 96.77 |
| 138 Freon TF | 101 | 2.404 | 2.404 | (0.491) | 394668 | 100.000 | 104.68 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.899) | 455612 | 100.000 | 98.94 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.736) | 956686 | 100.000 | 100.17 |
| 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.490) | 425292 | 100.000 | 100.86 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.006 | (0.890) | 748488 | 100.000 | 102.32 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 694931 | 100.000 | 99.32 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 901833 | 100.000 | 104.38 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.926 | 11.926 | (1.165) | 724973 | 100.000 | 106.13 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 2020622 | 100.000 | 104.65 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 125814 | 100.000 | 96.80 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.951) | 533692 | 100.000 | 100.62 |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 1079683 | 100.000 | 98.55 |
| 33 | 1,2-Dichloroethane | 62 | 5.253 | 5.253 | (0.934) | 747337 | 100.000 | 101.64 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 587293 | 100.000 | 101.10 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.628 | 9.628 | (0.941) | 1981203 | 100.000 | 106.84 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 1088889 | 100.000 | 99.39 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.916) | 974518 | 100.000 | 98.25 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.258 | 10.258 | (1.002) | 1115296 | 100.000 | 96.55 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.873) | 606051 | 100.000 | 105.30 |
| 24 | 2-Butanone | 43 | 4.339 | 4.339 | (0.886) | 587152 | 200.000 | 204.95(A) |
| 76 | 2-Chlorotoluene | 91 | 9.549 | 9.549 | (0.933) | 1714248 | 100.000 | 100.84 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 912444 | 200.000 | 212.30(A) |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 1995109 | 100.000 | 101.56 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 2107729 | 100.000 | 107.96 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 1301011 | 200.000 | 210.38(A) |
| 10 | Acetone | 43 | 2.483 | 2.483 | (0.507) | 331678 | 200.000 | 194.35 |
| 37 | Benzene | 78 | 5.220 | 5.220 | (0.928) | 2195227 | 100.000 | 100.34 |
| 74 | Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 573954 | 100.000 | 100.68 |
| 29 | Bromochloromethane | 128 | 4.556 | 4.556 | (0.930) | 244429 | 100.000 | 108.58 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 667511 | 100.000 | 108.05 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 331336 | 100.000 | 98.11(T) |
| 6 | Bromomethane | 94 | 1.666 | 1.666 | (0.340) | 281859 | 100.000 | 101.50 |
| 19 | Carbon Disulfide | 76 | 2.592 | 2.592 | (0.529) | 3090544 | 200.000 | 201.15(A) |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.999 | (0.889) | 601960 | 100.000 | 99.26 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 1466929 | 100.000 | 98.78 |
| 7 | Chloroethane | 64 | 1.752 | 1.752 | (0.358) | 384958 | 100.000 | 95.90(M) |
| 28 | Chloroform | 83 | 4.657 | 4.657 | (0.951) | 918394 | 100.000 | 99.85 |
| 3 | Chloromethane | 50 | 1.344 | 1.344 | (0.274) | 441603 | 100.000 | 90.82 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.286 | 4.286 | (0.875) | 580958 | 100.000 | 99.66 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.760 | 6.760 | (1.202) | 944095 | 100.000 | 99.29 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 512845 | 100.000 | 99.98 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 341140 | 100.000 | 101.75 |
| 2 | Dichlorodifluoromethane | 85 | 1.209 | 1.209 | (0.247) | 553841 | 100.000 | 100.99 |
| 61 | Ethylbenzene | 106 | 8.372 | 8.372 | (1.015) | 779796 | 100.000 | 102.38 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 259405 | 100.000 | 99.12 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 2327627 | 100.000 | 105.90 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 1935465 | 200.000 | 206.70(A) |
| 17 | Methylene Chloride | 84 | 2.873 | 2.873 | (0.587) | 554902 | 100.000 | 102.47 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 1963594 | 100.000 | 104.21 |
| 73 | n-Propylbenzene | 91 | 9.478 | 9.478 | (0.926) | 2891517 | 100.000 | 104.88 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 2231968 | 100.000 | 99.52 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 975544 | 100.000 | 103.27 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 2492415 | 100.000 | 107.57 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.069) | 1680613 | 100.000 | 107.08 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 1698031 | 100.000 | 105.95 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 397169 | 100.000 | 98.15 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.854) | 2304015 | 100.000 | 100.21 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.143 | 3.143 | (0.642) | 513822 | 100.000 | 98.98 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.291) | 811224 | 100.000 | 98.79 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 528149 | 100.000 | 100.00 |
| 8 | Trichlorofluoromethane | 101 | 1.955 | 1.955 | (0.399) | 753769 | 100.000 | 102.46 |
| 5 | Vinyl Chloride | 62 | 1.422 | 1.422 | (0.290) | 629175 | 100.000 | 99.33 |

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



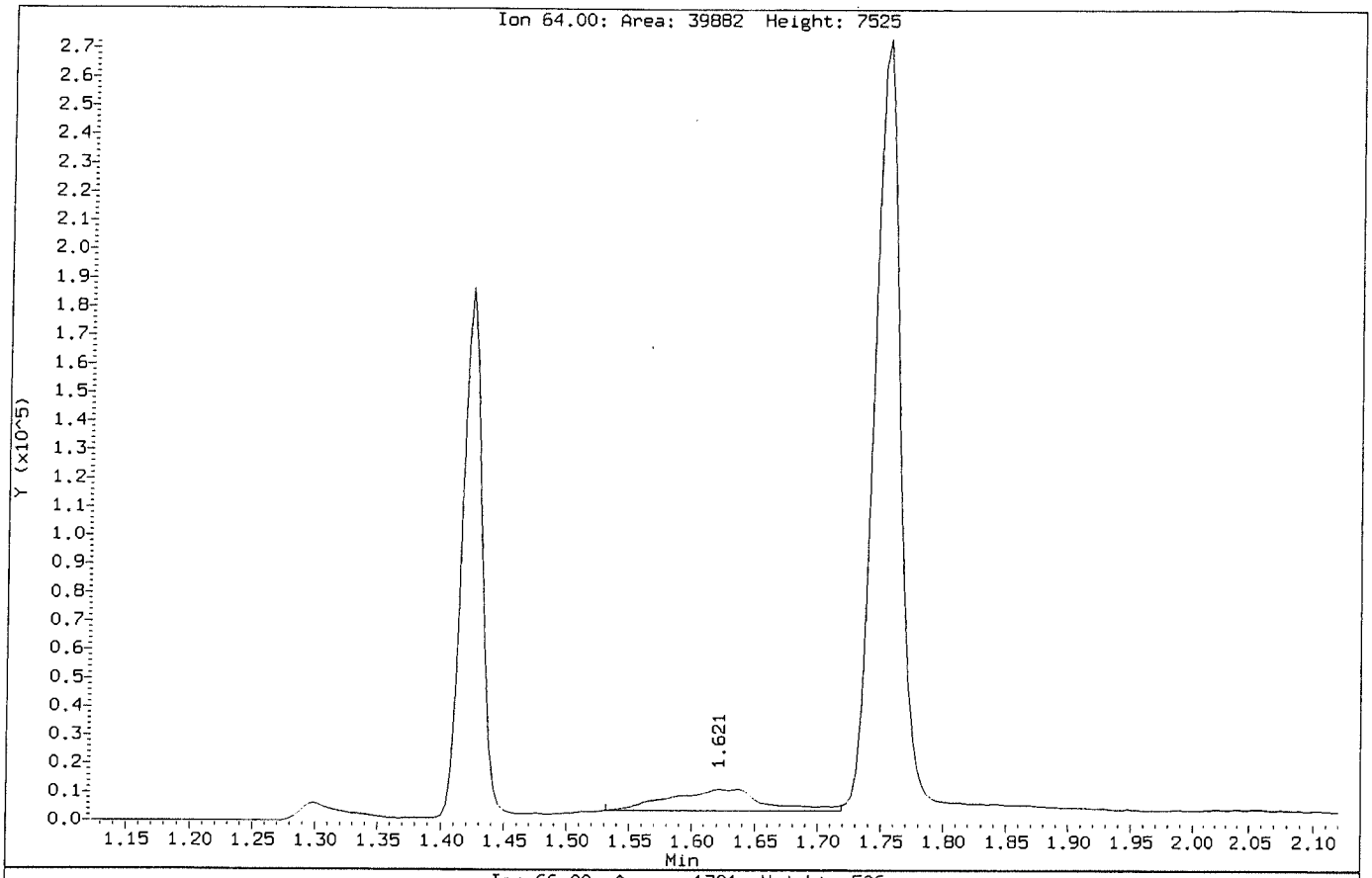

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Date : 21-DEC-2018 17:06
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

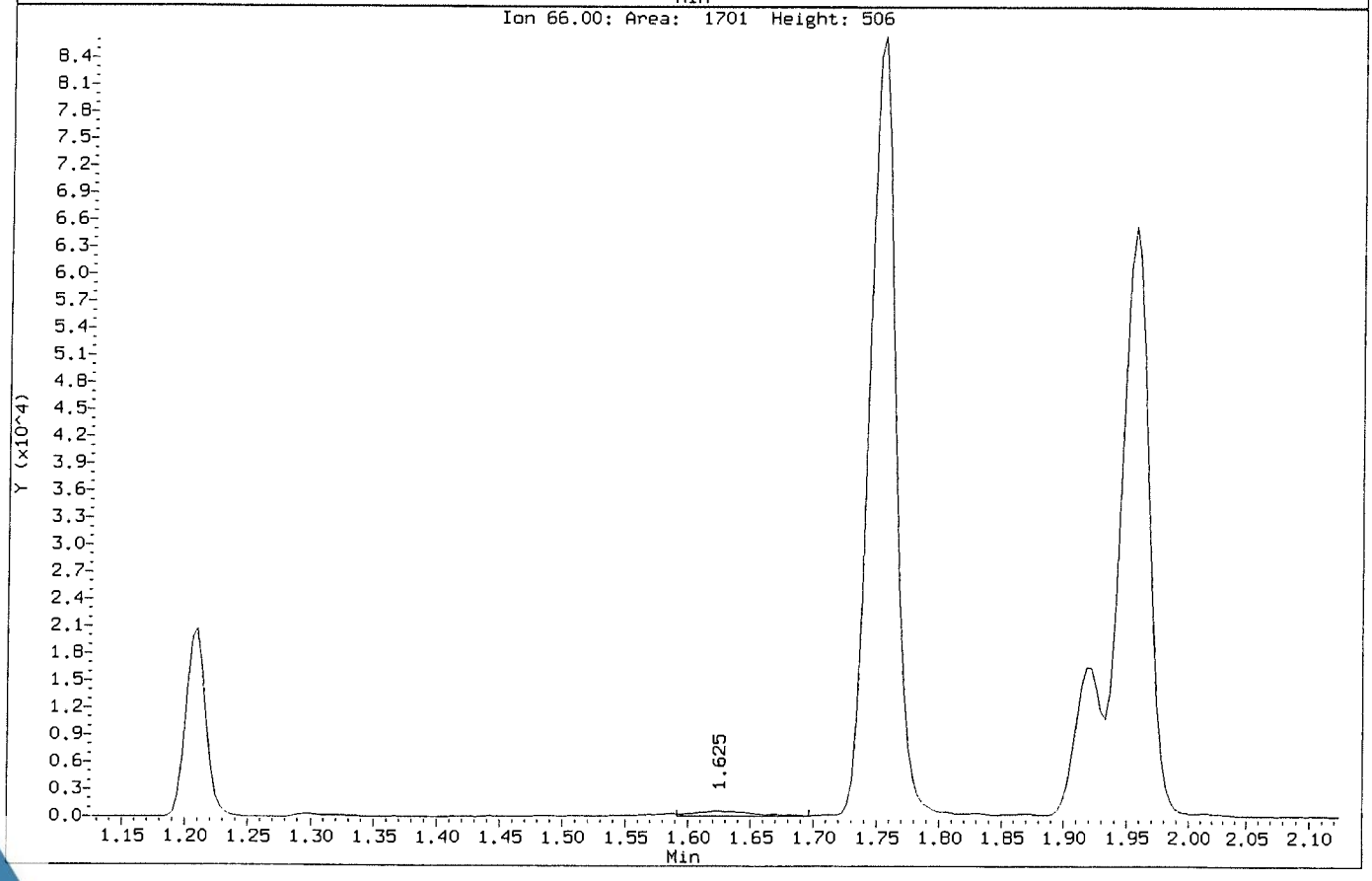
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

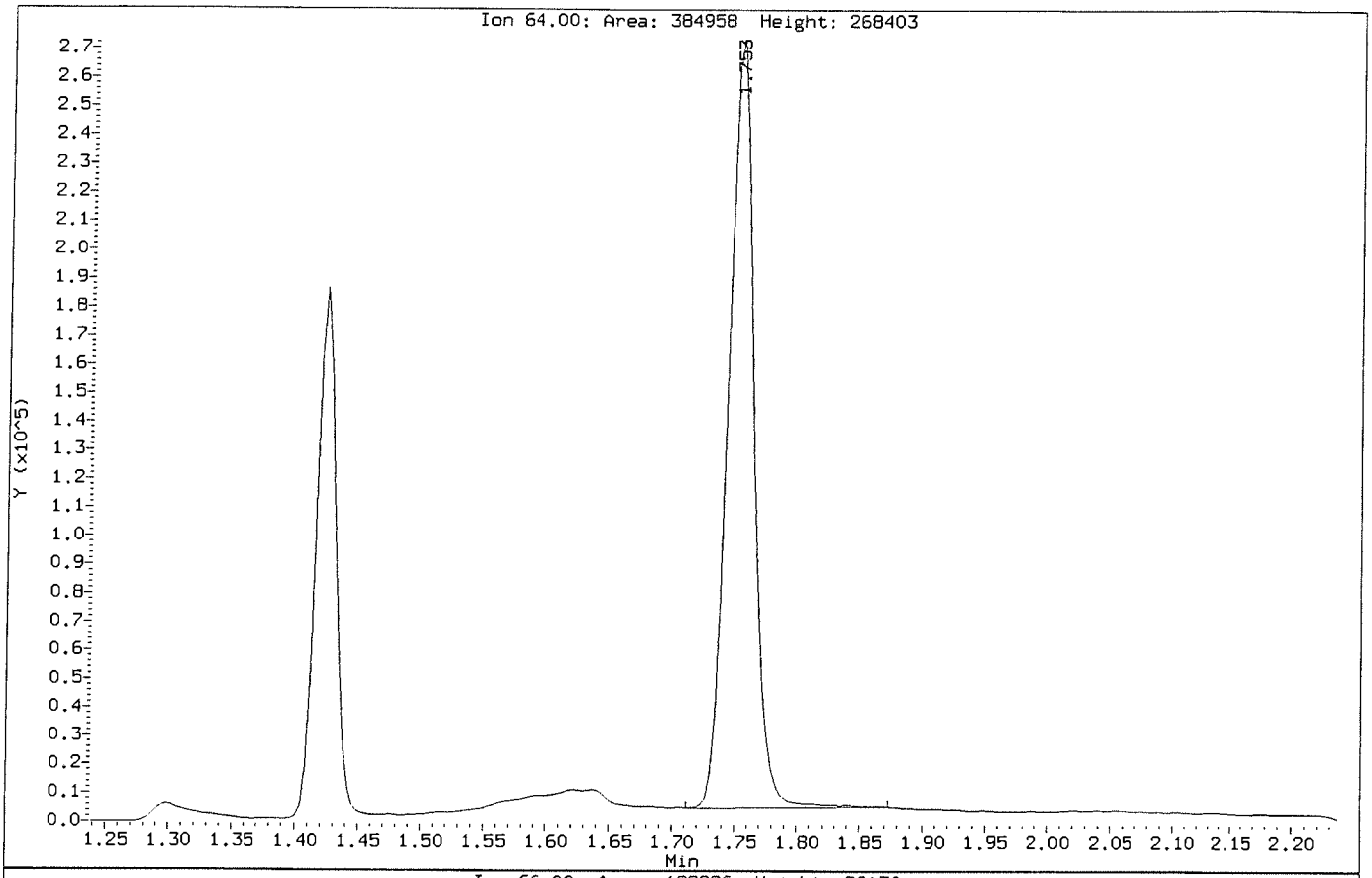
Compound: Chloroethane
CAS Number: 75-00-3

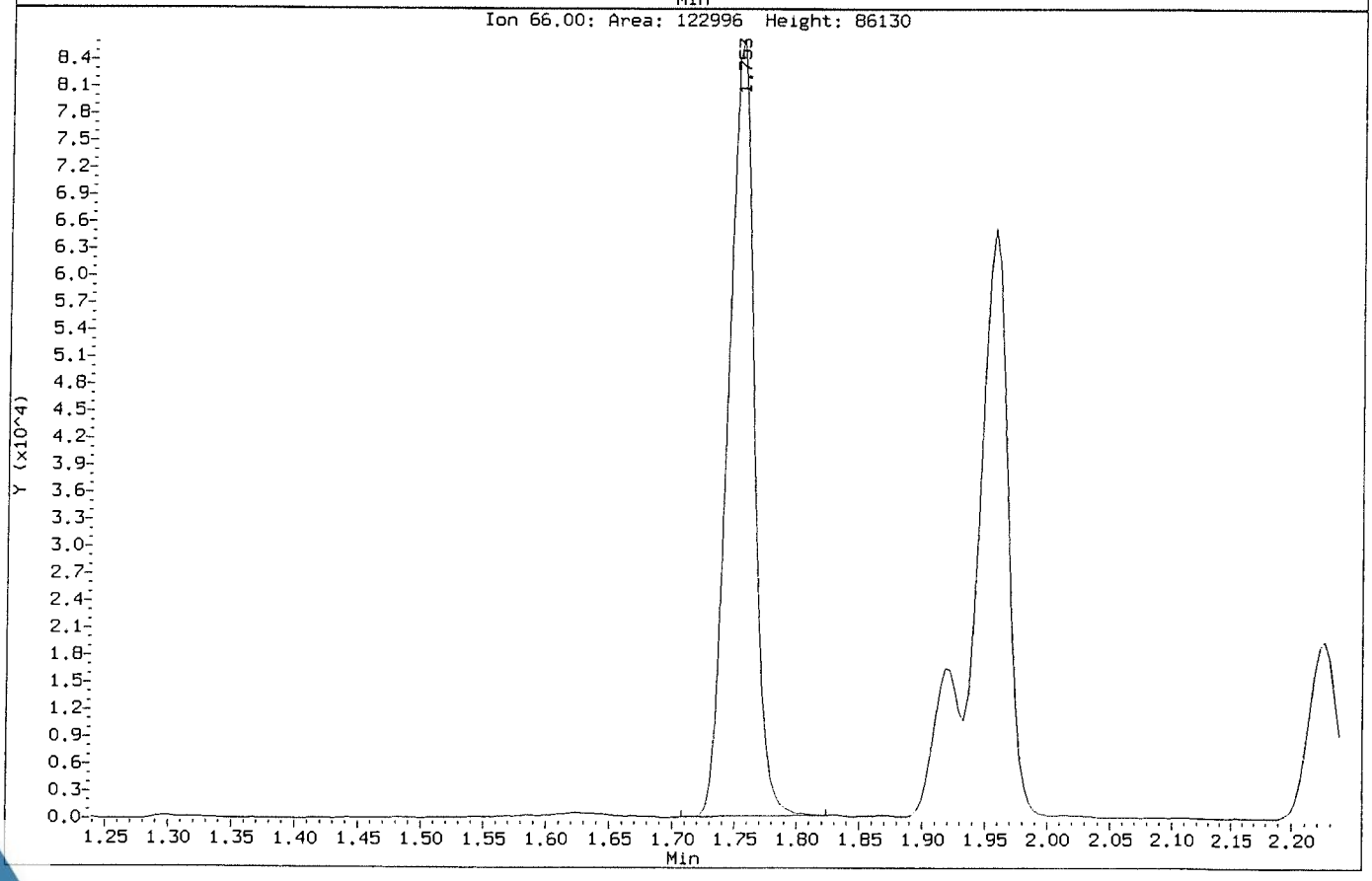


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3



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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 21-DEC-2018 17:31
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:06 Cal File: U122109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

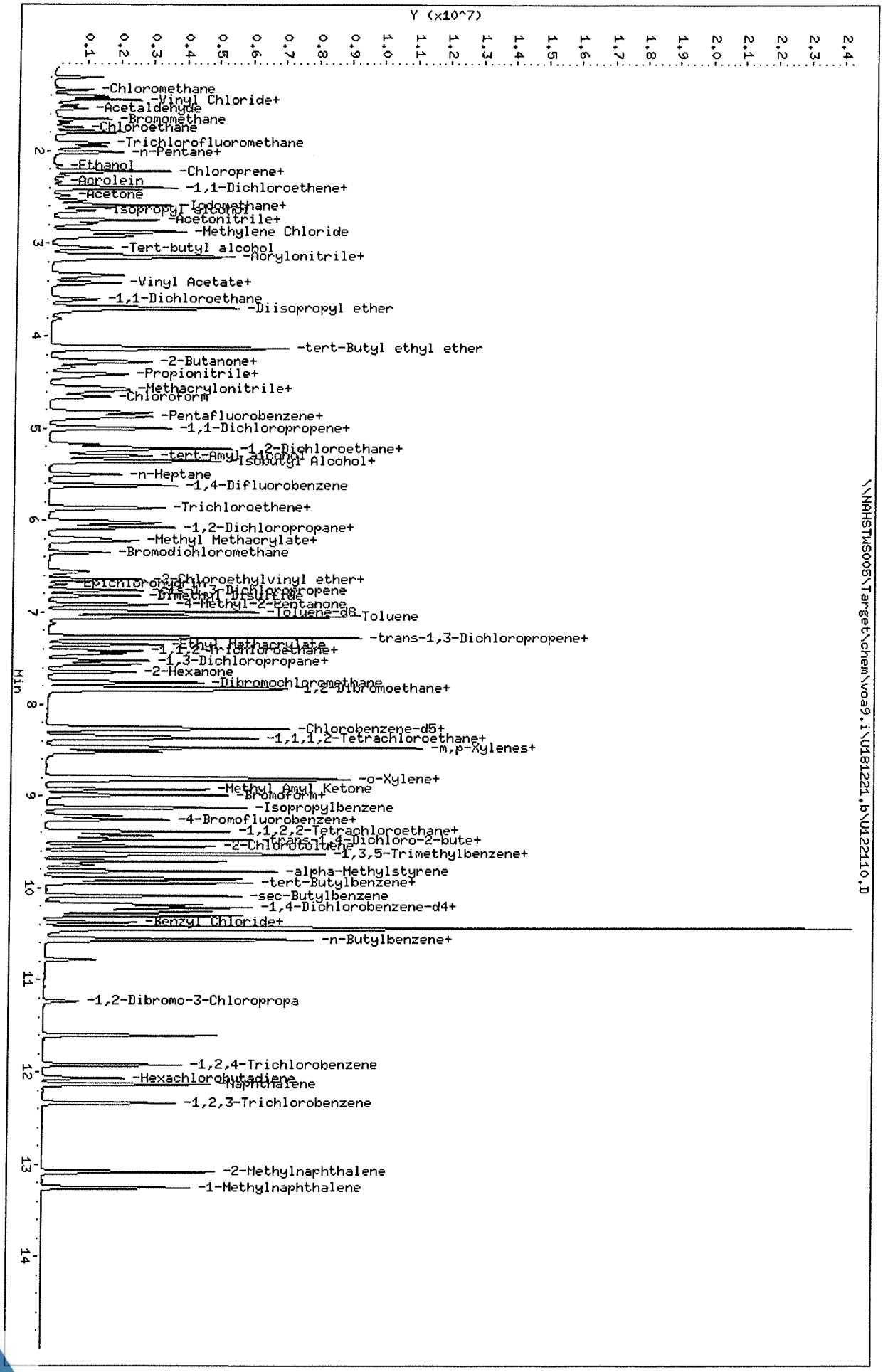
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 456327 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 837974 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 793198 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 374825 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.830 | (0.987) | 745399 | 150.000 | 151.02 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.175 | (1.057) | 949266 | 150.000 | 151.18 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 3016887 | 150.000 | 150.76 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 1153874 | 150.000 | 150.78 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 766622 | 150.000 | 151.11 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 1166981 | 150.000 | 161.96 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 1214939 | 150.000 | 143.93 |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 609198 | 150.000 | 157.03 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 689788 | 150.000 | 145.96 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.604 | (0.737) | 1459691 | 150.000 | 148.53 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.397 | (0.490) | 645721 | 150.000 | 148.82 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 1147997 | 150.000 | 153.96 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1085027 | 150.000 | 152.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 1401190 | 150.000 | 159.63 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 1126029 | 150.000 | 162.26 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 3050007 | 150.000 | 155.49 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 200384 | 150.000 | 150.93 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 815175 | 150.000 | 149.76 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 2
Report Date: 28-Jan-2019 11:25

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 1640210 | 150.000 | 147.37 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.254 | (0.934) | 1129116 | 150.000 | 151.01 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.082 | (1.081) | 888346 | 150.000 | 150.03 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 2996671 | 150.000 | 159.08 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 1669910 | 150.000 | 150.03 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 1476732 | 150.000 | 145.07 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 1696761 | 150.000 | 144.58 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.275 | (0.874) | 951402 | 150.000 | 160.64 |
| 24 | 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 880878 | 300.000 | 299.93(A) |
| 76 | 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 2603345 | 150.000 | 150.74 |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 1413890 | 300.000 | 320.56(A) |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 3029757 | 150.000 | 151.81 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 3190047 | 150.000 | 160.83 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 1993190 | 300.000 | 314.06(A) |
| 10 | Acetone | 43 | 2.480 | 2.480 | (0.507) | 520533 | 300.000 | 298.01(A) |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 3311929 | 150.000 | 148.52 |
| 74 | Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 890701 | 150.000 | 153.79 |
| 29 | Bromochloromethane | 128 | 4.557 | 4.557 | (0.931) | 348533 | 150.000 | 151.66 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 1032680 | 150.000 | 164.00 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 522892 | 150.000 | 149.93 |
| 6 | Bromomethane | 94 | 1.659 | 1.659 | (0.339) | 444174 | 150.000 | 154.73 |
| 19 | Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 4735575 | 300.000 | 299.54(A) |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 939611 | 150.000 | 151.26 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 2244427 | 150.000 | 147.26 |
| 7 | Chloroethane | 64 | 1.745 | 1.745 | (0.357) | 684109 | 150.000 | 161.33 |
| 28 | Chloroform | 83 | 4.658 | 4.658 | (0.952) | 1391091 | 150.000 | 146.98 |
| 3 | Chloromethane | 50 | 1.340 | 1.340 | (0.274) | 746873 | 150.000 | 147.15 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.287 | 4.287 | (0.876) | 893807 | 150.000 | 149.01 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 1468956 | 150.000 | 150.90 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 791728 | 150.000 | 149.91 |
| 44 | Dibromomethane | 93 | 6.191 | 6.191 | (1.101) | 516406 | 150.000 | 151.11 |
| 2 | Dichlorodifluoromethane | 85 | 1.205 | 1.205 | (0.246) | 873891 | 150.000 | 154.61 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 1198529 | 150.000 | 153.33 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 400552 | 150.000 | 150.65 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 3526393 | 150.000 | 156.34 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 2933161 | 300.000 | 305.23(A) |
| 17 | Methylene Chloride | 84 | 2.870 | 2.870 | (0.586) | 841220 | 150.000 | 151.54 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 2965307 | 150.000 | 154.91 |
| 73 | n-Propylbenzene | 91 | 9.479 | 9.479 | (0.926) | 4348220 | 150.000 | 155.25 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 3430934 | 150.000 | 151.53 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 1492877 | 150.000 | 153.99 |
| 81 | sec-Butylbenzene | 105 | 10.090 | 10.090 | (0.986) | 3757107 | 150.000 | 159.61 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.070) | 2556162 | 150.000 | 158.70 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 2586354 | 150.000 | 158.85 |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 610669 | 150.000 | 147.05 |
| 50 | Toluene | 91 | 7.049 | 7.049 | (0.855) | 3483930 | 150.000 | 147.65 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.140 | 3.140 | (0.642) | 789348 | 150.000 | 147.77 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.291) | 1271771 | 150.000 | 151.06 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 823329 | 150.000 | 152.94 |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 1146930 | 150.000 | 151.21 |
| 5 | Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 1000865 | 150.000 | 153.03 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Date : 21-DEC-2018 17:31
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 21-DEC-2018 17:55
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:31 Cal File: U122110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

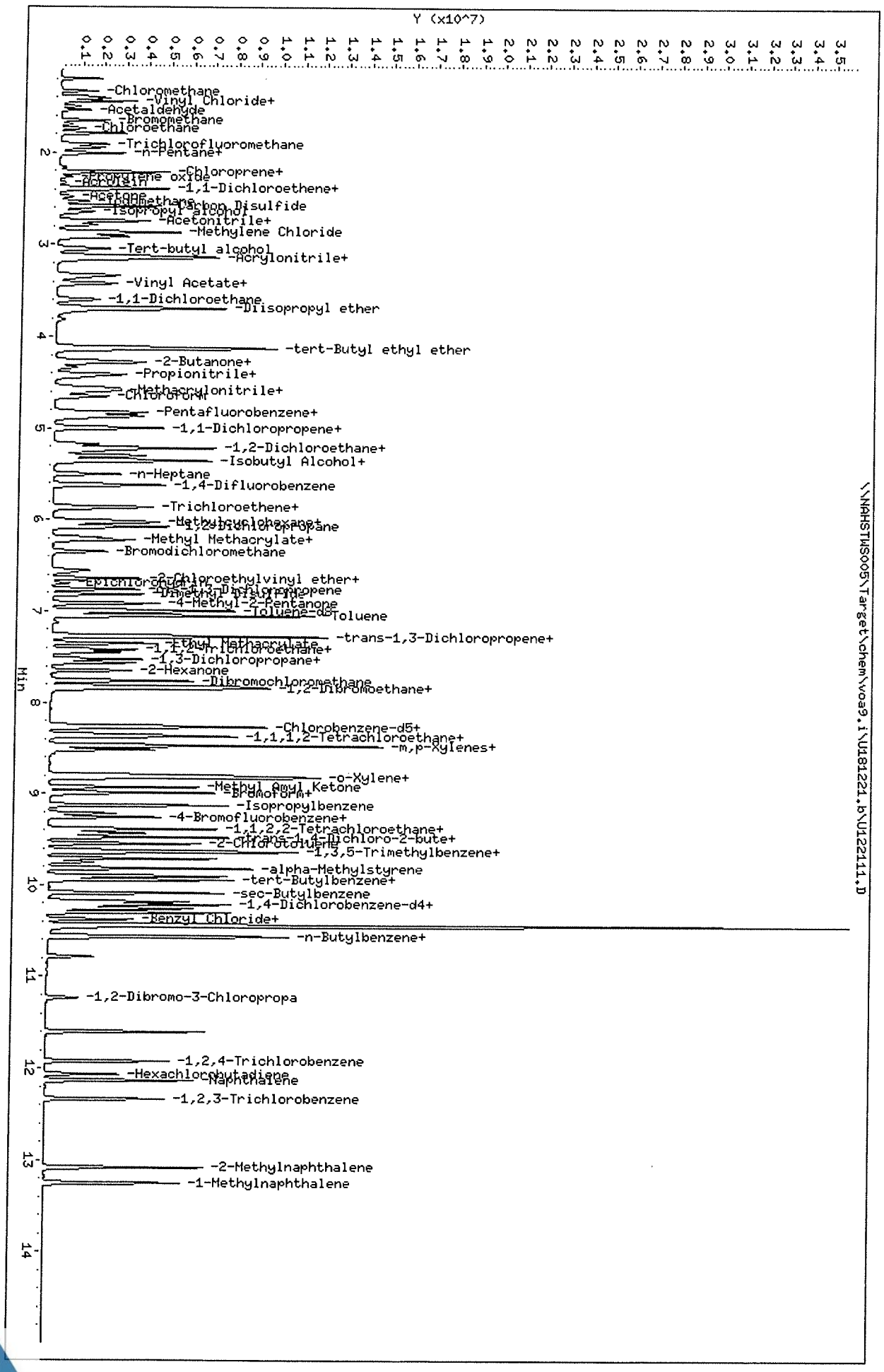
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.890 | 4.890 | (1.000) | 471928 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 852109 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 808162 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 383807 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.987) | 1006329 | 200.000 | 197.61 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.171 | (1.057) | 1274051 | 200.000 | 196.84 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 4010125 | 200.000 | 197.23 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 1540801 | 200.000 | 198.06 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 1032567 | 200.000 | 199.57 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.987) | 1558350 | 200.000 | 209.12(A) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 1627647 | 200.000 | 188.30 |
| 138 Freon TF | 101 | 2.394 | 2.394 | (0.490) | 818502 | 200.000 | 204.00(A) |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.900) | 922969 | 200.000 | 191.69 |
| 22 1,1-Dichloroethane | 63 | 3.597 | 3.597 | (0.736) | 1941260 | 200.000 | 191.00 |
| 11 1,1-Dichloroethene | 96 | 2.394 | 2.394 | (0.490) | 870210 | 200.000 | 193.93 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 1526453 | 200.000 | 201.33(A) |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 1453309 | 200.000 | 199.03 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 1910859 | 200.000 | 212.60(A) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.926 | 11.926 | (1.165) | 1495400 | 200.000 | 210.44(A) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 4007083 | 200.000 | 199.50 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 274280 | 200.000 | 201.27(A) |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 1097675 | 200.000 | 197.93 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 2176108 | 200.000 | 190.95 |
| 33 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 1504782 | 200.000 | 198.15 |
| 42 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 1186343 | 200.000 | 197.03 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.628 | 9.628 | (0.941) | 3964216 | 200.000 | 205.51(A) |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 2212350 | 200.000 | 194.11 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 1981022 | 200.000 | 191.01 |
| 84 1,4-Dichlorobenzene | 146 | 10.258 | 10.258 | (1.002) | 2259523 | 200.000 | 188.03 |
| 26 2,2-Dichloropropane | 77 | 4.272 | 4.272 | (0.874) | 1270502 | 200.000 | 207.43(A) |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.887) | 1199902 | 400.000 | 395.82(A) |
| 76 2-Chlorotoluene | 91 | 9.550 | 9.550 | (0.933) | 3451393 | 200.000 | 195.17 |
| 52 2-Hexanone | 43 | 7.653 | 7.653 | (0.928) | 1896004 | 400.000 | 421.90(A) |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 3993483 | 200.000 | 195.41 |
| 82 p-Isopropyltoluene | 119 | 10.213 | 10.213 | (0.998) | 4198944 | 200.000 | 206.74(A) |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 2681840 | 400.000 | 414.75(A) |
| 10 Acetone | 43 | 2.476 | 2.476 | (0.506) | 723113 | 400.000 | 401.34(A) |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 4410809 | 200.000 | 194.52 |
| 74 Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 1186255 | 200.000 | 200.04(A) |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.931) | 453685 | 200.000 | 191.69 |
| 39 Bromodichloromethane | 83 | 6.345 | 6.345 | (1.128) | 1391257 | 200.000 | 217.29(A) |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 718878 | 200.000 | 201.69(A) |
| 6 Bromomethane | 94 | 1.651 | 1.651 | (0.338) | 585856 | 200.000 | 196.98 |
| 19 Carbon Disulfide | 76 | 2.585 | 2.585 | (0.529) | 6125723 | 400.000 | 374.66(A) |
| 34 Carbon Tetrachloride | 117 | 4.991 | 4.991 | (0.887) | 1268610 | 200.000 | 200.38(A) |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 2961137 | 200.000 | 190.69 |
| 7 Chloroethane | 64 | 1.737 | 1.737 | (0.355) | 859472 | 200.000 | 193.44 |
| 28 Chloroform | 83 | 4.654 | 4.654 | (0.952) | 1846267 | 200.000 | 188.63 |
| 3 Chloromethane | 50 | 1.333 | 1.333 | (0.273) | 1095269 | 200.000 | 207.27(A) |
| 27 cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.876) | 1189323 | 200.000 | 191.72 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 1986544 | 200.000 | 200.27(A) |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 1081017 | 200.000 | 200.56(A) |
| 44 Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 698521 | 200.000 | 201.01(A) |
| 2 Dichlorodifluoromethane | 85 | 1.198 | 1.198 | (0.245) | 1151588 | 200.000 | 196.87 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 1600834 | 200.000 | 201.00(A) |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 534175 | 200.000 | 196.21 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 4617933 | 200.000 | 200.94(A) |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 3876248 | 400.000 | 395.90(A) |
| 17 Methylene Chloride | 84 | 2.866 | 2.866 | (0.586) | 1131189 | 200.000 | 197.41 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 3856663 | 200.000 | 196.76 |
| 73 n-Propylbenzene | 91 | 9.479 | 9.479 | (0.926) | 5652456 | 200.000 | 197.09 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 4589381 | 200.000 | 199.26 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 1977764 | 200.000 | 200.23(A) |
| 81 sec-Butylbenzene | 105 | 10.090 | 10.090 | (0.986) | 4898290 | 200.000 | 203.23(A) |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 3375201 | 200.000 | 205.67(A) |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 3416506 | 200.000 | 204.92(A) |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 811202 | 200.000 | 191.73 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 4594912 | 200.000 | 191.13 |
| 20 trans-1,2-Dichloroethene | 96 | 3.136 | 3.136 | (0.641) | 1055077 | 200.000 | 190.99 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 1721394 | 200.000 | 200.53(A) |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 1093007 | 200.000 | 199.67 |
| 8 Trichlorofluoromethane | 101 | 1.944 | 1.944 | (0.398) | 1561606 | 200.000 | 198.87 |
| 5 Vinyl Chloride | 62 | 1.415 | 1.415 | (0.289) | 1348117 | 200.000 | 199.01 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Date : 21-DEC-2018 17:55
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 18:45
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:55 Cal File: U122111.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

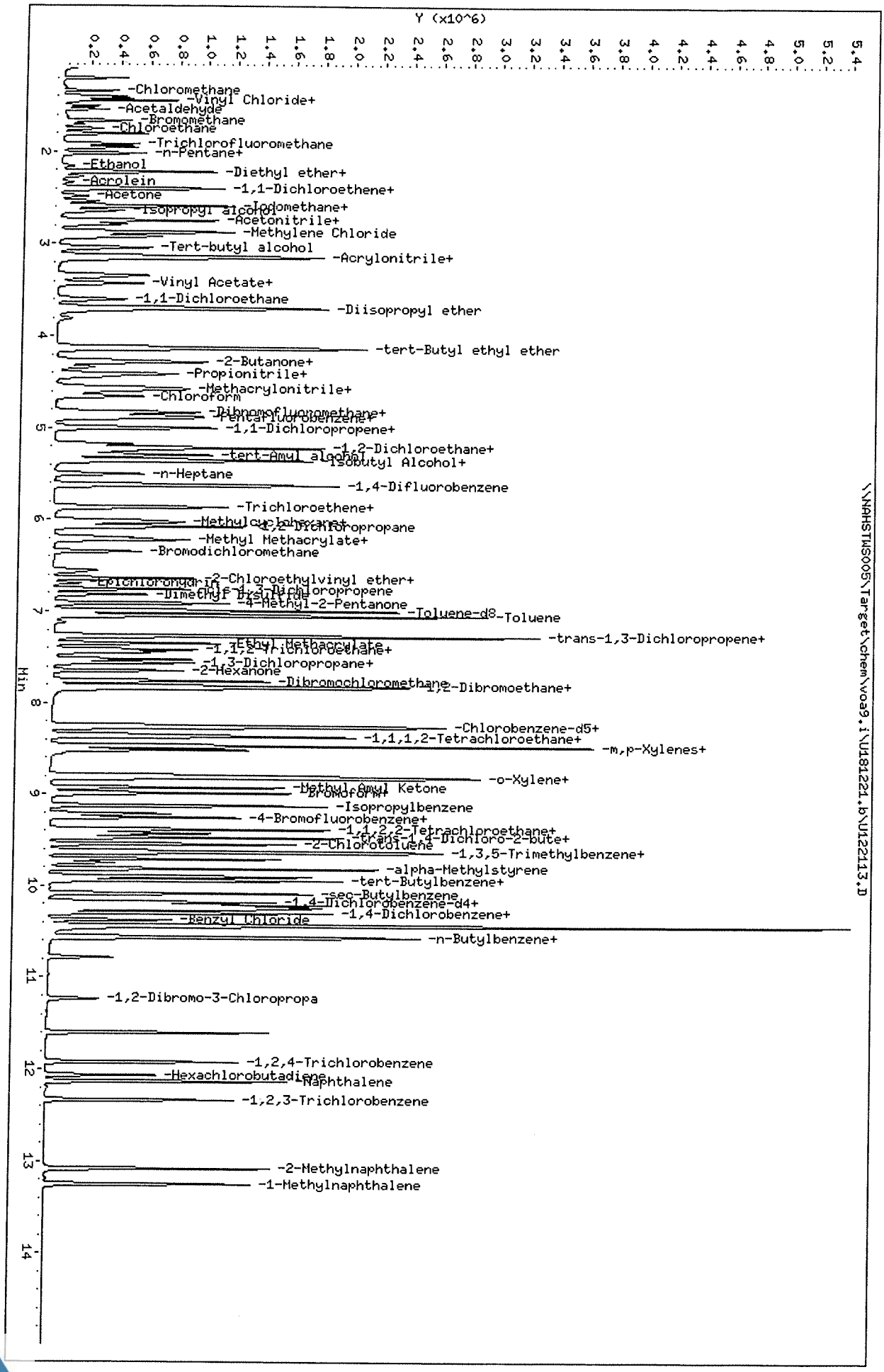
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.890 | (1.000) | 454236 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 837452 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 785431 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 375418 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.987) | 255609 | 51.0245 | 51.02 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 329809 | 51.3551 | 51.35 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 1045729 | 51.6161 | 51.61 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 396478 | 51.3902 | 51.39 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 241293 | 48.4317 | 48.43 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 354032 | 49.3608 | 49.36 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 418971 | 49.5558 | 49.55 |
| 138 Freon TF | 101 | 2.401 | 2.394 | (0.491) | 174050 | 45.0712 | 45.07 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.421 | (0.900) | 230741 | 49.3099 | 49.30 |
| 22 1,1-Dichloroethane | 63 | 3.604 | 3.597 | (0.737) | 469167 | 47.9609 | 47.96 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.394 | (0.490) | 197920 | 45.8262 | 45.82 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.003 | (0.889) | 353683 | 47.4657 | 47.46 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 338004 | 47.8072 | 47.80 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.430 | (0.921) | 468241 | 53.2610 | 53.26 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.926 | (1.165) | 350114 | 50.3719 | 50.37 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 985013 | 50.1388 | 50.13 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 65081 | 49.9244 | 49.92 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.952) | 275792 | 51.1699 | 51.16 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 2
Report Date: 28-Jan-2019 11:25

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.573 | 10.573 | (1.033) | 539129 | 48.3652 | 48.36 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 379863 | 50.3501 | 50.35 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 291083 | 49.1911 | 49.19 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.628 | (0.940) | 944583 | 50.0646 | 50.06 |
| 83 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 538150 | 48.2737 | 48.27 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 498006 | 49.4090 | 49.40 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.258 | (1.002) | 553425 | 47.0841 | 47.08 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.272 | (0.874) | 312995 | 53.0931 | 53.09 |
| 24 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 309683 | 104.354 | 104.35 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.550 | (0.933) | 853147 | 49.3227 | 49.32 |
| 52 2-Hexanone | 43 | 7.649 | 7.653 | (0.927) | 476780 | 109.166 | 109.16 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 993815 | 49.7187 | 49.71 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.213 | (0.997) | 977284 | 49.1947 | 49.19 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.914 | (0.838) | 669743 | 106.576 | 106.57 |
| 10 Acetone | 43 | 2.480 | 2.476 | (0.507) | 202203 | 114.452 | 114.45 |
| 37 Benzene | 78 | 5.216 | 5.216 | (0.927) | 1087936 | 48.8203 | 48.82 |
| 74 Bromobenzene | 156 | 9.381 | 9.385 | (0.917) | 288693 | 49.7707 | 49.77 |
| 29 Bromochloromethane | 128 | 4.553 | 4.553 | (0.930) | 134219 | 56.7663 | 56.76 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.345 | (1.129) | 327631 | 52.0660 | 52.06 |
| 66 Bromoform | 173 | 8.984 | 8.984 | (1.089) | 161326 | 47.9288 | 47.92(T) |
| 6 Bromomethane | 94 | 1.666 | 1.651 | (0.341) | 151955 | 54.0592 | 54.05 |
| 19 Carbon Disulfide | 76 | 2.588 | 2.585 | (0.529) | 1510901 | 96.0096 | 96.00 |
| 34 Carbon Tetrachloride | 117 | 4.995 | 4.991 | (0.888) | 272477 | 44.8853 | 44.88 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 728193 | 48.2531 | 48.25 |
| 7 Chloroethane | 64 | 1.752 | 1.737 | (0.358) | 185529 | 46.1546 | 46.15(M) |
| 28 Chloroform | 83 | 4.658 | 4.654 | (0.952) | 456472 | 48.4536 | 48.45 |
| 3 Chloromethane | 50 | 1.340 | 1.333 | (0.274) | 235959 | 48.9688 | 48.96 |
| 27 cis-1,2-Dichloroethene | 96 | 4.287 | 4.283 | (0.876) | 292150 | 48.9311 | 48.93 |
| 46 cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 467498 | 48.9175 | 48.91 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 250542 | 48.5723 | 48.57 |
| 44 Dibromomethane | 93 | 6.191 | 6.187 | (1.101) | 173822 | 50.8969 | 50.89 |
| 2 Dichlorodifluoromethane | 85 | 1.205 | 1.198 | (0.246) | 258081 | 46.2123 | 46.21 |
| 61 Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 381593 | 49.3007 | 49.30 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 122959 | 46.1748 | 46.17 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 1096015 | 49.0718 | 49.07 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 950452 | 99.8846 | 99.88 |
| 17 Methylene Chloride | 84 | 2.870 | 2.866 | (0.586) | 279368 | 49.7584 | 49.75 |
| 87 n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 900081 | 46.9488 | 46.94 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.479 | (0.926) | 1377655 | 49.1117 | 49.11 |
| 92 Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 1130612 | 49.4621 | 49.46 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 478939 | 49.8923 | 49.89 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.090 | (0.985) | 1124348 | 47.6920 | 47.69 |
| 64 Styrene | 104 | 8.826 | 8.826 | (1.070) | 841070 | 52.7368 | 52.73 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 781669 | 47.9339 | 47.93 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.525 | (0.912) | 188872 | 45.9327 | 45.93 |
| 50 Toluene | 91 | 7.046 | 7.046 | (0.854) | 1151259 | 49.2749 | 49.27 |
| 20 trans-1,2-Dichloroethene | 96 | 3.139 | 3.136 | (0.642) | 255368 | 48.0288 | 48.02 |
| 51 trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 402226 | 48.9357 | 48.93 |
| 38 Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 262761 | 48.8423 | 48.84 |
| 8 Trichlorofluoromethane | 101 | 1.951 | 1.944 | (0.399) | 342884 | 45.8511 | 45.85 |
| 5 Vinyl Chloride | 62 | 1.419 | 1.415 | (0.290) | 295169 | 46.0208 | 46.02 |

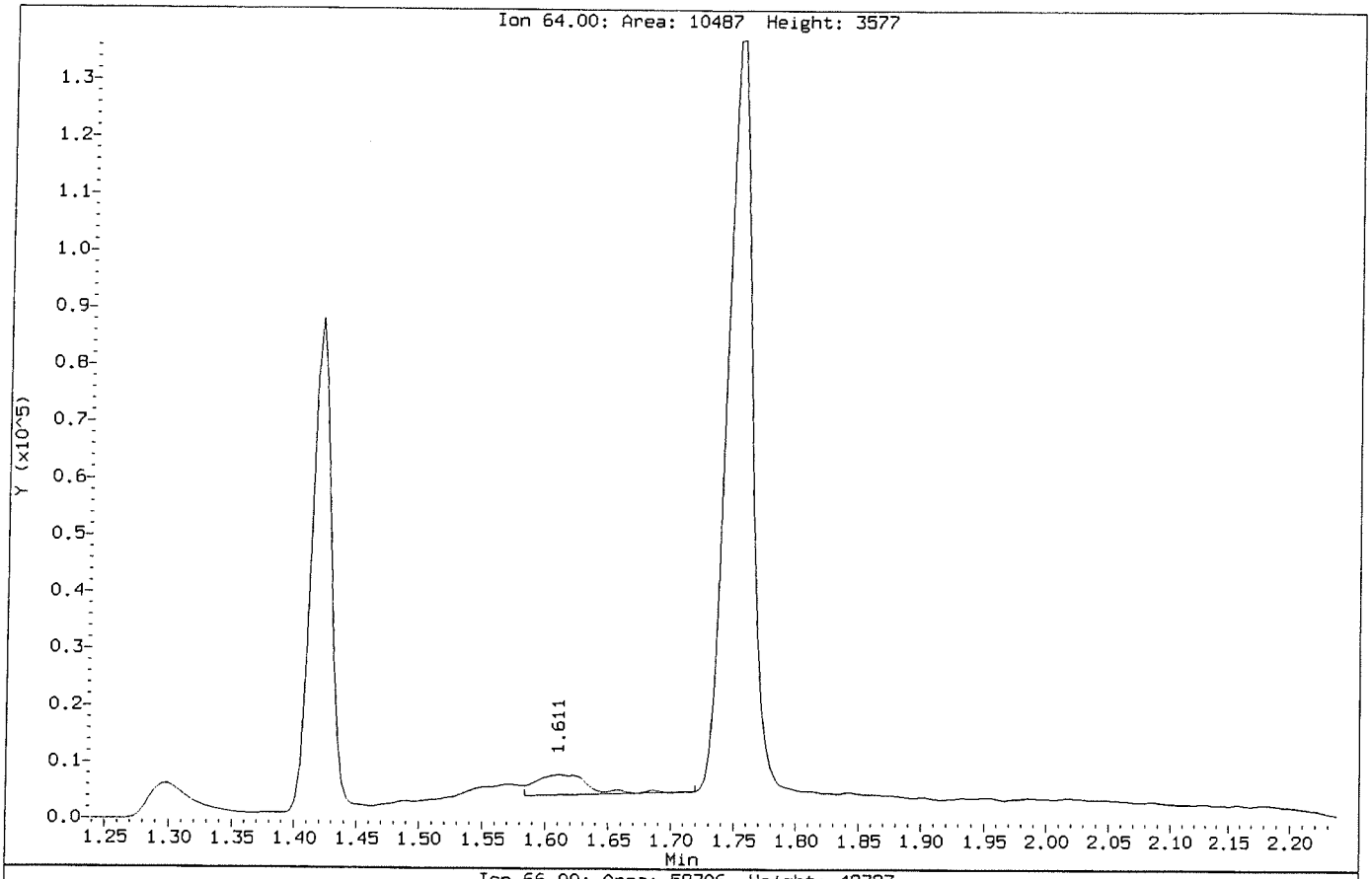
QC Flag Legend

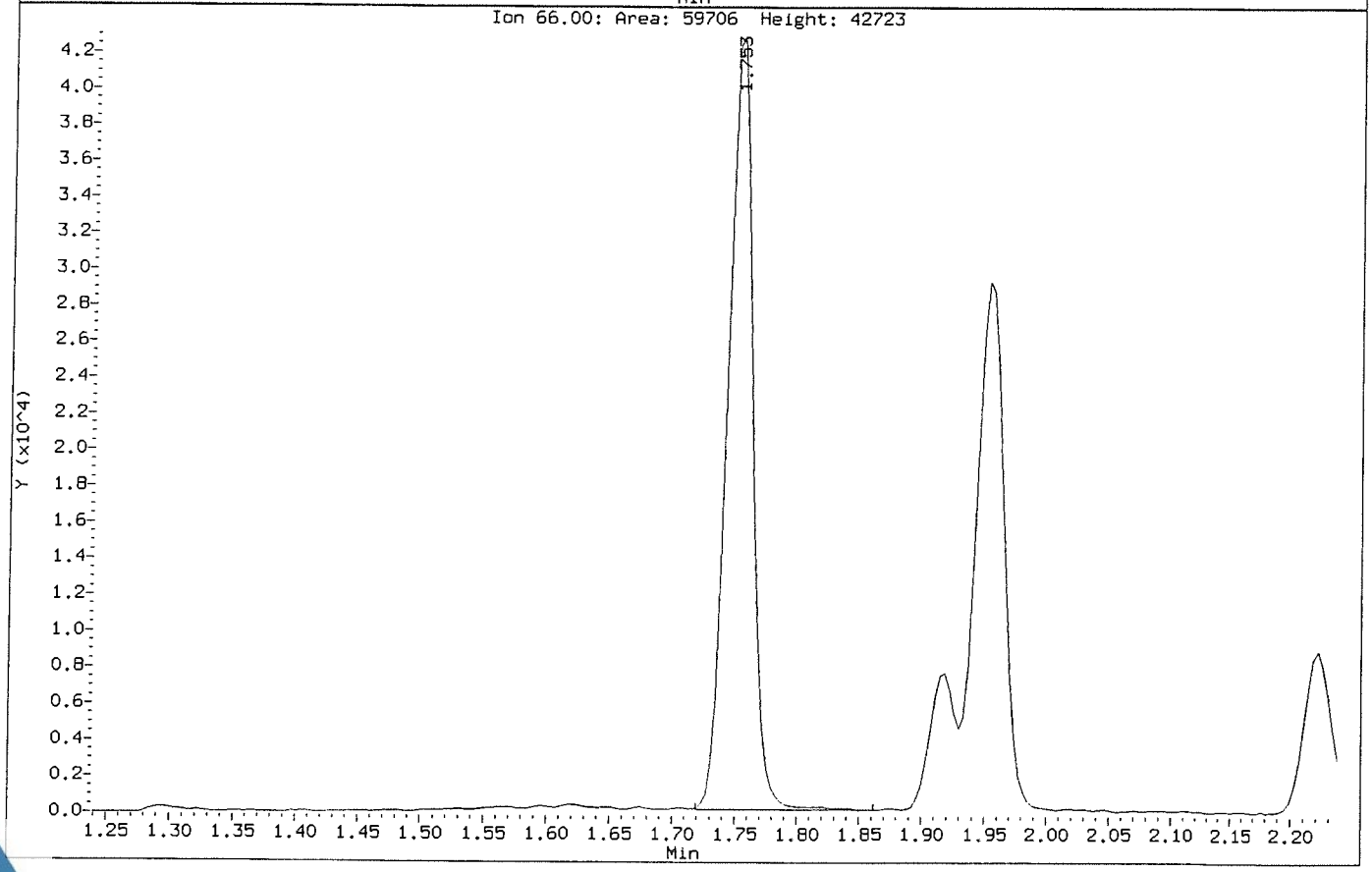
T - Target compound detected outside RT window.
M - Compound response manually integrated.


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Date : 21-DEC-2018 18:45
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Y (x10^6)
Min
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Ethanol
-Diethyl ether+
-Acrolein
-1,1-Dichloroethene+
-Acetone
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-Epichlorohydrin
-cis-1,3-Dichloropropene
-Dimethyl Disulfide
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-1,4-Dichlorobenzene+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

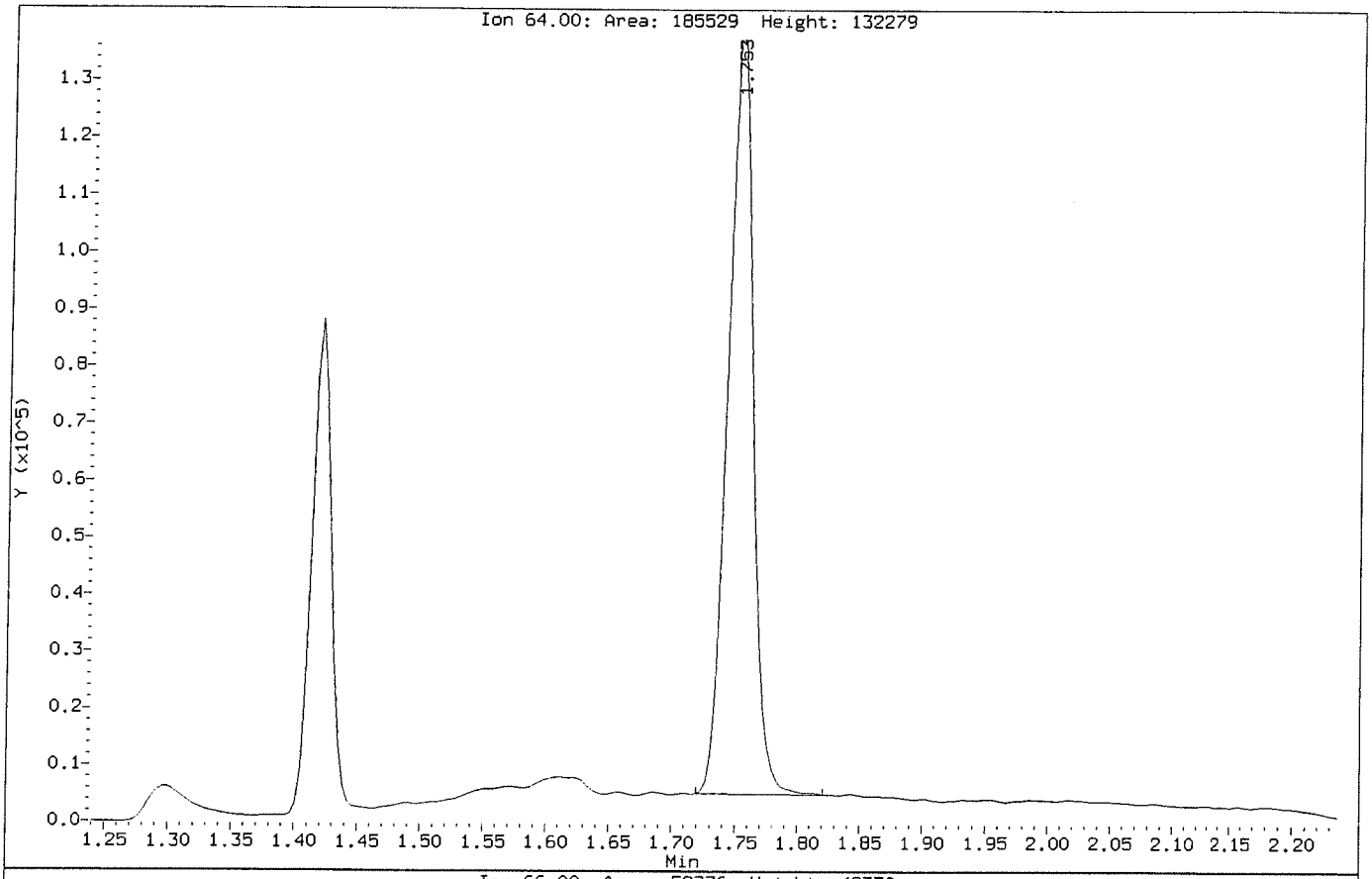
Compound: Chloroethane
CAS Number: 75-00-3

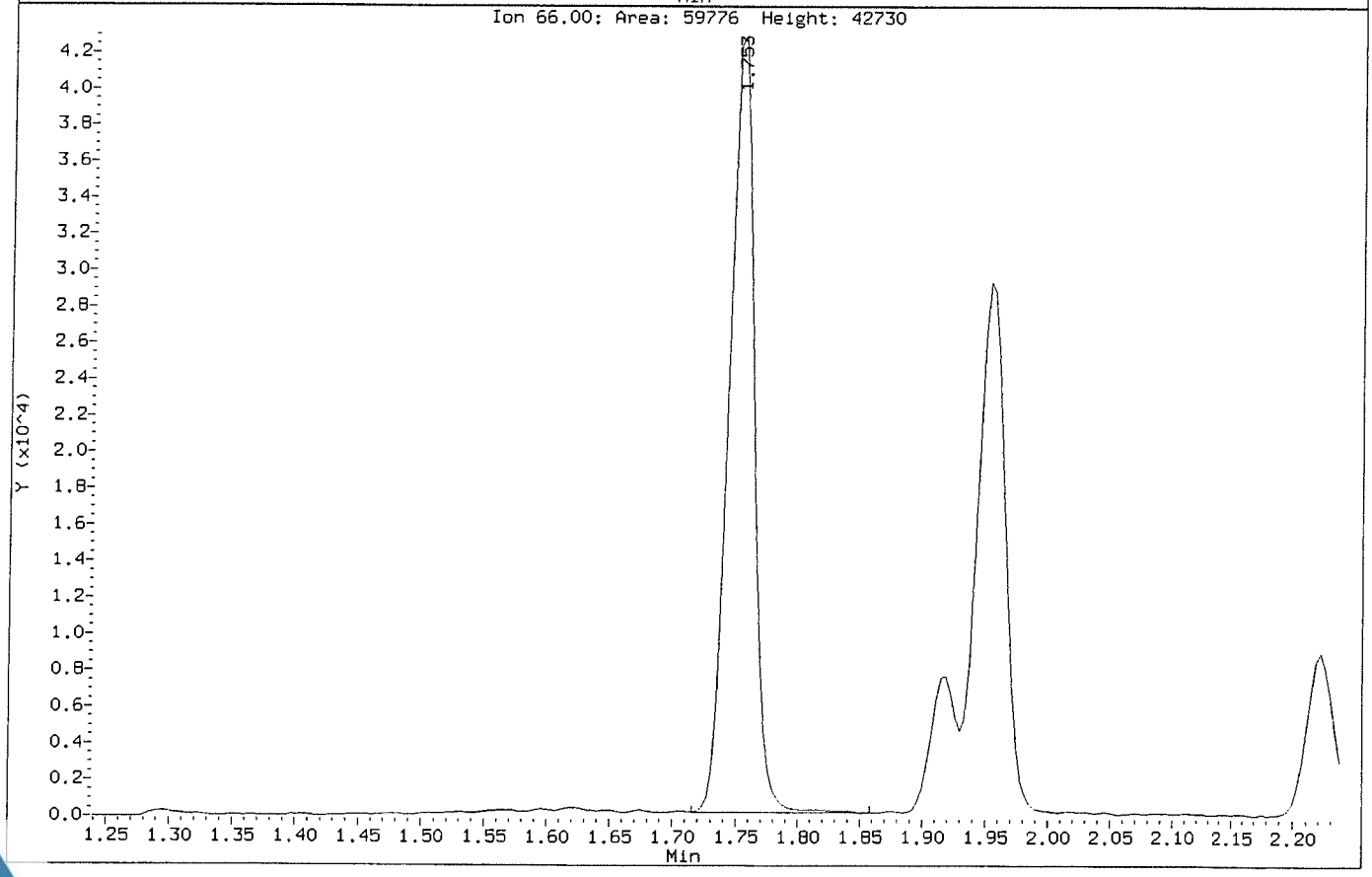


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



# MSVOA09 -Logbook

**Batch:** 34004
**Date:** 12-24-2018
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 12-24-2018 09:28 am | 1.00 | 50 mL | 50 mL | U122401.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD050 | CCV | 12-24-2018 09:52 am | 1.00 | 50 mL | 50 mL | U122402.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | VLCSW-1812024 | LCS | 12-24-2018 10:17 am | 1.00 | 50 mL | 50 mL | U122403.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 4 | BLANK | SAMP | 12-24-2018 10:41 am | 1.00 | 50 mL | 50 mL | U122404.D | Liquid | Y | NA |
| 5 | VBLKW-181224 | MBLK | 12-24-2018 11:06 am | 1.00 | 50 mL | 50 mL | U122405.D | Liquid | Y | NA |
| 6 | HS18120736-09 | SAMP | 12-24-2018 11:31 am | 1.00 | 50 mL | 50 mL | U122406.D | Liquid | Y | <2 |
| 7 | HS18120913-03 | SAMP | 12-24-2018 11:55 am | 1.00 | 50 mL | 50 mL | U122407.D | Liquid | Y | <2 |
| 8 | HS18120736-05 | SAMP | 12-24-2018 12:20 pm | 1.00 | 50 mL | 50 mL | U122408.D | Liquid | Y | <2 |
| 9 | HS18120736-06 | SAMP | 12-24-2018 12:45 pm | 1.00 | 50 mL | 50 mL | U122409.D | Liquid | Y | <2 |
| 10 | HS18120736-07 | SAMP | 12-24-2018 01:10 pm | 1.00 | 50 mL | 50 mL | U122410.D | Liquid | Y | <2 |
| 11 | HS18121093-02 | SAMP | 12-24-2018 01:35 pm | 1.00 | 50 mL | 50 mL | U122411.D | Liquid | Y | <2 |
| 12 | HS18120913-01 | SAMP | 12-24-2018 01:59 pm | 1.00 | 50 mL | 50 mL | U122412.D | Liquid | Y | <2 |
| 13 | HS18120913-02 | SAMP | 12-24-2018 02:24 pm | 1.00 | 50 mL | 50 mL | U122413.D | Liquid | Y | <2 |
| 14 | HS18121093-01 | SAMP | 12-24-2018 02:49 pm | 5.00 | 10 mL | 50 mL | U122414.D | Liquid | Y | <2 |
| 15 | HS18120913-03MS | MS | 12-24-2018 03:14 pm | 1.00 | 50 mL | 50 mL | U122415.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 16 | HS18120913-03MSD | MSD | 12-24-2018 03:39 pm | 1.00 | 50 mL | 50 mL | U122416.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 17 | HS18121093-01 | SAMP | 12-24-2018 04:03 pm | 50.00 | 1 mL | 50 mL | U122417.D | Liquid | Y | <2 |
| 18 | HS18120913-08 | SAMP | 12-24-2018 04:28 pm | 1.00 | 50 mL | 50 mL | U122418.D | Liquid | Y | <2 |
| 19 | HS18121030-05 | SAMP | 12-24-2018 04:53 pm | 1.00 | 50 mL | 50 mL | U122419.D | Liquid | Y | <2 |
| 20 | HS18120913-04 | SAMP | 12-24-2018 05:18 pm | 1.00 | 50 mL | 50 mL | U122420.D | Liquid | Y | <2 |
| 21 | HS18120913-05 | SAMP | 12-24-2018 05:43 pm | 1.00 | 50 mL | 50 mL | U122421.D | Liquid | Y | <2 |
| 22 | HS18120913-06 | SAMP | 12-24-2018 06:08 pm | 1.00 | 50 mL | 50 mL | U122422.D | Liquid | Y | <2 |
| 23 | HS18120913-07 | SAMP | 12-24-2018 06:32 pm | 1.00 | 50 mL | 50 mL | U122423.D | Liquid | Y | <2 |
| 24 | HS18121030-01 | SAMP | 12-24-2018 06:57 pm | 1.00 | 50 mL | 50 mL | U122424.D | Liquid | Y | <2 |
| 25 | HS18121030-02 | SAMP | 12-24-2018 07:22 pm | 1.00 | 50 mL | 50 mL | U122425.D | Liquid | Y | <2 |
| 26 | HS18121030-03 | SAMP | 12-24-2018 07:47 pm | 1.00 | 50 mL | 50 mL | U122426.D | Liquid | Y | <2 |
| 27 | HS18121030-04 | SAMP | 12-24-2018 08:12 pm | 1.00 | 50 mL | 50 mL | U122427.D | Liquid | Y | <2 |
| 28 | VSTD050-END | CCV | 12-24-2018 08:37 pm | 1.00 | 50 mL | 50 mL | U122428.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 29 | BFB | TUNE | 12-24-2018 09:01 pm | 1.00 | 50 mL | 50 mL | V122401.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 30 | VSTD050 | CCV | 12-24-2018 09:26 pm | 1.00 | 50 mL | 50 mL | V122402.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 31 | BLANK | SAMP | 12-24-2018 09:51 pm | 1.00 | 50 mL | 50 mL | V122403.D | Liquid | Y | NA |
| 32 | CCB | SAMP | 12-24-2018 10:16 pm | 1.00 | 50 mL | 50 mL | V122404.D | Liquid | Y | NA |
| | *CCB* | | | | | | | | | |
| 33 | VLCSW-1812024 | LCS | 12-24-2018 10:40 pm | 1.00 | 50 mL | 50 mL | V122405.D | Liquid | Y | NA |
| | *4 uL ICV std/50 mL DI* | | | | | | | | | |
| 34 | BLANK | SAMP | 12-24-2018 11:05 pm | 1.00 | 50 mL | 50 mL | V122406.D | Liquid | Y | NA |
| 35 | VBLKW-181224 | MBLK | 12-24-2018 11:30 pm | 1.00 | 50 mL | 50 mL | V122407.D | Liquid | Y | NA |
| 36 | HS18120845-05 | SAMP | 12-24-2018 11:55 pm | 1.00 | 50 mL | 50 mL | V122408.D | Liquid | Y | <2 |

# MSVOA09 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 37 | HS18120845-06 | SAMP | 12-25-2018 12:20 am | 1.00 | 50 mL | 50 mL | V122409.D | Liquid | Y | <2 |
| 38 | HS18121097-07 | SAMP | 12-25-2018 12:45 am | 1.00 | 50 mL | 50 mL | V122410.D | Liquid | Y | <2 |
| 39 | HS18121097-08 | SAMP | 12-25-2018 01:09 am | 1.00 | 50 mL | 50 mL | V122411.D | Liquid | Y | <2 |
| 40 | HS18121097-09 | SAMP | 12-25-2018 01:34 am | 1.00 | 50 mL | 50 mL | V122412.D | Liquid | Y | <2 |
| 41 | HS18121098-01 | SAMP | 12-25-2018 01:59 am | 1.00 | 50 mL | 50 mL | V122413.D | Liquid | Y | <2 |
| 42 | HS18121098-02 | SAMP | 12-25-2018 02:24 am | 1.00 | 50 mL | 50 mL | V122414.D | Liquid | Y | <2 |
| 43 | HS18121098-08 | SAMP | 12-25-2018 02:49 am | 1.00 | 50 mL | 50 mL | V122415.D | Liquid | Y | <2 |
| 44 | HS18121098-03 | SAMP | 12-25-2018 03:14 am | 1.00 | 50 mL | 50 mL | V122416.D | Liquid | Y | <2 |
| 45 | HS18121098-03MS | MS | 12-25-2018 03:38 am | 1.00 | 50 mL | 50 mL | V122417.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 46 | HS18121098-03MSD | MSD | 12-25-2018 04:03 am | 1.00 | 50 mL | 50 mL | V122418.D | Liquid | Y | <2 |
| | *3.5 uL cal std/43 mL Sample* | | | | | | | | | |
| 47 | HS18121068-09 | SAMP | 12-25-2018 04:28 am | 1.00 | 50 mL | 50 mL | V122419.D | Liquid | Y | <2 |
| 48 | HS18121097-01 | SAMP | 12-25-2018 04:53 am | 1.00 | 50 mL | 50 mL | V122420.D | Liquid | Y | <2 |
| 49 | HS18121097-02 | SAMP | 12-25-2018 05:18 am | 1.00 | 50 mL | 50 mL | V122421.D | Liquid | Y | <2 |
| 50 | HS18121097-03 | SAMP | 12-25-2018 05:43 am | 1.00 | 50 mL | 50 mL | V122422.D | Liquid | Y | <2 |
| 51 | HS18121097-04 | SAMP | 12-25-2018 06:07 am | 1.00 | 50 mL | 50 mL | V122423.D | Liquid | Y | <2 |
| 52 | HS18121097-05 | SAMP | 12-25-2018 06:32 am | 1.00 | 50 mL | 50 mL | V122424.D | Liquid | Y | <2 |
| 53 | HS18121097-06 | SAMP | 12-25-2018 06:57 am | 1.00 | 50 mL | 50 mL | V122425.D | Liquid | Y | <2 |
| 54 | HS18121098-04 | SAMP | 12-25-2018 07:22 am | 1.00 | 50 mL | 50 mL | V122426.D | Liquid | Y | <2 |
| 55 | HS18121098-05 | SAMP | 12-25-2018 07:47 am | 1.00 | 50 mL | 50 mL | V122427.D | Liquid | Y | <2 |
| 56 | HS18121098-06 | SAMP | 12-25-2018 08:11 am | 1.00 | 50 mL | 50 mL | V122428.D | Liquid | Y | <2 |
| 57 | HS18121098-07 | SAMP | 12-25-2018 08:36 am | 1.00 | 50 mL | 50 mL | V122429.D | Liquid | Y | <2 |

| Chemical | Value |
|---|---|
| SURR SPK ID | 30502-52-03 |
| IS ID | 30502-52-04 |
| ICV STD ID | 30603-46-01 |
| LCS/MS ID | 30603-46-01 |
| CAL STD ID | 30502-57-01/02 |
| BFB ID | 30502-52-03 |

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

| | CLIENT SAMPLE NO. | SMC1 (DCE)# | SMC2 # | SMC3 (TOL)# | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-181224 | 104 | 102 | 102 | 104 | 0 |
| 02 | VBLKW-181224 | 95 | 89 | 104 | 96 | 0 |
| 03 | HS18120913-0 | 94 | 91 | 106 | 103 | 0 |
| 04 | HS18120913-0 | 95 | 92 | 106 | 104 | 0 |
| 05 | HS18121030-0 | 100 | 92 | 105 | 97 | 0 |
| 06 | HS18121030-0 | 99 | 92 | 104 | 96 | 0 |
| 07 | HS18121030-0 | 99 | 92 | 106 | 97 | 0 |
| 08 | HS18121030-0 | 101 | 92 | 106 | 96 | 0 |
| 09 | HS18121030-0 | 100 | 93 | 107 | 98 | 0 |
| 10 | | | | | | |
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| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | ( 0-130) |
| SMC2 | = Dibromofluoromethane | ( 0-130) |
| SMC3 (TOL) | = Toluene-d8 | ( 0-130) |
| OTHER | = 4-Bromofluorobenzene | ( 0-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181224

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Lab File ID: U122405 Lab Sample ID: VBLKW-181224

Date Analyzed: 12/24/18 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

| | SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VLCSW-181224 | VLCSW-1812024 | U122403 | 1017 |
| 02 | HS18120913-0 | HS18120913-03M | U122415 | 1514 |
| 03 | HS18120913-0 | HS18120913-03M | U122416 | 1539 |
| 04 | HS18121030-0 | HS18121030-05 | U122419 | 1653 |
| 05 | HS18121030-0 | HS18121030-01 | U122424 | 1857 |
| 06 | HS18121030-0 | HS18121030-02 | U122425 | 1922 |
| 07 | HS18121030-0 | HS18121030-03 | U122426 | 1947 |
| 08 | HS18121030-0 | HS18121030-04 | U122427 | 2012 |
| 09 | | | | |
| 10 | | | | |
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COMMENTS:

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Lab File ID: U122401  BFB Injection Date: 12/24/18

Instrument ID: VOA9  BFB Injection Time: 0928

GC Column: DB624  ID: 0.25 (mm)  Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 19.5 |
| 75 | 30.0 - 60.0% of mass 95 | 50.9 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.1 |
| 173 | Less than 2.0% of mass 174 | 0.7 ( 1.0)1 |
| 174 | Greater than 50.0% of mass 95 | 66.6 |
| 175 | 5.0 - 9.0% of mass 174 | 4.9 ( 7.4)1 |
| 176 | 95.0 - 101.0% of mass 174 | 64.4 ( 96.7)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.4 ( 6.8)2 |

1-Value is % mass 174  2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 | U122402 | 12/24/18 | 0952 |
| 02 | VLCSW-181224 | VLCSW-1812024 | U122403 | 12/24/18 | 1017 |
| 03 | VBLKW-181224 | VBLKW-181224 | U122405 | 12/24/18 | 1106 |
| 04 | HS18120913-0 | HS18120913-03M | U122415 | 12/24/18 | 1514 |
| 05 | HS18120913-0 | HS18120913-03M | U122416 | 12/24/18 | 1539 |
| 06 | HS18121030-0 | HS18121030-05 | U122419 | 12/24/18 | 1653 |
| 07 | HS18121030-0 | HS18121030-01 | U122424 | 12/24/18 | 1857 |
| 08 | HS18121030-0 | HS18121030-02 | U122425 | 12/24/18 | 1922 |
| 09 | HS18121030-0 | HS18121030-03 | U122426 | 12/24/18 | 1947 |
| 10 | HS18121030-0 | HS18121030-04 | U122427 | 12/24/18 | 2012 |
| 11 | VSTD050-END | VSTD050-END | U122428 | 12/24/18 | 2037 |
| 12 | | | | | |
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FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 0952

Lab File ID: U122402  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times:  1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE | |
|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 46.969001 | 50.000000 | 0.5381928 | 0.2 | 6.06 | 20.00 | LINR | |
| trans-1,3-Dichloropropene | 46.115718 | 50.000000 | 0.4606842 | 0.1 | 7.77 | 20.00 | LINR | |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4492226 | 1.4492226 | 0.6 | 2.41 | 20.00 | AVRG | |
| 2,2-Dichloropropane | 0.6490000 | 0.5663916 | 0.5663916 | 0.1 | 12.73 | 20.00 | AVRG | |
| 1,1-Dichloropropene | 0.4450000 | 0.4256150 | 0.4256150 | 0.1 | 4.36 | 20.00 | AVRG | |
| Dibromomethane | 0.2040000 | 0.2144626 | 0.2144626 | 0.1 | -5.13 | 20.00 | AVRG | |
| 1,2-Dibromoethane | 0.3430000 | 0.3597016 | 0.3597016 | 0.1 | -4.87 | 20.00 | AVRG | |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5850593 | 0.5850593 | 0.1 | -0.01 | 20.00 | AVRG | |
| 1,1,1,2-Tetrachloroethane | 46.940910 | 50.000000 | 0.3043937 | 0.1 | 6.12 | 20.00 | LINR | |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7935465 | 0.7935465 | 0.1 | -0.58 | 20.00 | AVRG | |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1917002 | 1.1917002 | 0.3 | -5.83 | 20.00 | AVRG | |
| Freon TF | 0.4250000 | 0.3989719 | 0.3989719 | 0.1 | 6.12 | 20.00 | AVRG | |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3097296 | 0.3097296 | 0.1 | -3.94 | 20.00 | AVRG | |
| 1,1-Dichloroethane | 1.0770000 | 1.0983183 | 1.0983183 | 0.2 | -1.98 | 20.00 | AVRG | |
| 1,1-Dichloroethene | 0.4750000 | 0.4595711 | 0.4595711 | 0.1 | 3.25 | 20.00 | AVRG | |
| Trichlorofluoromethane | 44.085746 | 50.000000 | 0.7886797 | 0.1 | 11.83 | 20.00 | LINR | |
| 1,2,3-Trichlorobenzene | 43.749299 | 50.000000 | 0.9004990 | 0.1 | 12.50 | 20.00 | LINR | |
| Toluene | 1.4870000 | 1.4890724 | 1.4890724 | 0.4 | -0.14 | 20.00 | AVRG | |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9128821 | 0.9128821 | 0.2 | 1.42 | 20.00 | AVRG | |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6703840 | 2.6703840 | 0.1 | -2.08 | 20.00 | AVRG | |
| Tetrachloroethene | 0.2620000 | 0.2343416 | 0.2343416 | 0.2 | 10.56 | 20.00 | AVRG | |
| Trichloroethene | 0.3210000 | 0.3111153 | 0.3111153 | 0.2 | 3.08 | 20.00 | AVRG | |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4720949 | 1.4720949 | 0.4 | 0.80 | 20.00 | AVRG | |
| 1,2-Dichloroethane | 49.720294 | 50.000000 | 0.4762008 | 0.1 | 0.56 | 20.00 | LINR | |
| 1,2-Dichloropropane | 0.3530000 | 0.3595027 | 0.3595027 | 0.1 | -1.84 | 20.00 | AVRG | |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5708391 | 2.5708391 | 0.1 | -2.30 | 20.00 | AVRG | |
| 1,3-Dichloropropane | 0.6410000 | 0.6628423 | 0.6628423 | 0.1 | -3.41 | 20.00 | AVRG | |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4828544 | 1.4828544 | 0.4 | 5.31 | 20.00 | AVRG | |
| 2-Butanone | 87.524774 | 100.00000 | 0.3885447 | 0.1 | 12.48 | 20.00 | LINR | |
| 2-Chlorotoluene | 2.3040000 | 2.2915781 | 2.2915781 | 0.1 | 0.54 | 20.00 | AVRG | |
| 2-Hexanone | 0.2780000 | 0.3355379 | 0.3355379 | 0.1 | -20.70 | 20.00 | AVRG | <- |
| 4-Chlorotoluene | 2.6620000 | 2.6823399 | 2.6823399 | 0.1 | -0.76 | 20.00 | AVRG | |
| tert-Butylbenzene | 2.1720000 | 2.1680208 | 2.1680208 | 0.1 | 0.18 | 20.00 | AVRG | |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4671265 | 0.4671265 | 0.1 | -16.78 | 20.00 | AVRG | |
| Acetone | 88.945078 | 100.00000 | 0.2567717 | 0.1 | 11.05 | 20.00 | LINR | |
| Benzene | 1.3300000 | 1.3327330 | 1.3327330 | 0.5 | -0.20 | 20.00 | AVRG | |
| Bromobenzene | 0.7730000 | 0.7689868 | 0.7689868 | 0.1 | 0.52 | 20.00 | AVRG | |
| Bromochloromethane | 54.738270 | 50.000000 | 0.2995106 | 0.1 | -9.48 | 20.00 | LINR | |
| Bromodichloromethane | 0.3760000 | 0.3919790 | 0.3919790 | 0.2 | -4.25 | 20.00 | AVRG | |
| Bromoform | 43.625632 | 50.000000 | 0.2006203 | 0.1 | 12.75 | 20.00 | LINR | |
| Bromomethane | 48.433994 | 50.000000 | 0.3215455 | 0.1 | 3.13 | 20.00 | LINR | |
| Carbon Disulfide | 1.7320000 | 1.6738989 | 1.6738989 | 0.1 | 3.35 | 20.00 | AVRG | |



FORM VII VOA

# FORM 7B
# VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812103

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 0952

Lab File ID: U122402  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 42.908085 | 50.000000 | 0.3206431 | 0.1 | 14.18 | 20.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9517026 | 0.9517026 | 0.5 | 0.97 | 20.00 | AVRG |
| Chloroethane | 48.651727 | 50.000000 | 0.4376382 | 0.1 | 2.70 | 20.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0750225 | 1.0750225 | 0.2 | -3.67 | 20.00 | AVRG |
| Chloromethane | 48.105273 | 50.000000 | 0.5006841 | 0.1 | 3.79 | 20.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6738882 | 0.6738882 | 0.1 | -2.57 | 20.00 | AVRG |
| Dibromochloromethane | 46.378243 | 50.000000 | 0.3131343 | 0.1 | 7.24 | 20.00 | LINR |
| Dichlorodifluoromethane | 41.832474 | 50.000000 | 0.5469699 | 0.1 | 16.34 | 20.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4907710 | 0.4907710 | 0.1 | 0.45 | 20.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.3075225 | 0.3075225 | 0.1 | 13.37 | 20.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4345733 | 1.4345733 | 0.1 | -0.88 | 20.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6065328 | 0.6065328 | 0.1 | -0.09 | 20.00 | AVRG |
| Methylene Chloride | 49.161284 | 50.000000 | 0.6598726 | 0.1 | 1.68 | 20.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.4878949 | 2.4878949 | 0.5 | 2.55 | 20.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.7675955 | 3.7675955 | 0.1 | -0.84 | 20.00 | AVRG |
| Naphthalene | 42.625569 | 50.000000 | 3.1185011 | 0.2 | 14.75 | 20.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6247110 | 0.6247110 | 0.3 | -2.24 | 20.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.1149837 | 3.1149837 | 0.1 | 0.80 | 20.00 | AVRG |
| Styrene | 1.0150000 | 1.0920948 | 1.0920948 | 0.3 | -7.60 | 20.00 | AVRG |
| Vinyl Chloride | 44.382144 | 50.000000 | 0.6938894 | 0.1 | 11.24 | 20.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2984150 | 1.2984150 | 0.1 | -10.88 | 20.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6489186 | 2.6489186 | 0.1 | -0.11 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 40.205727 | 50.000000 | 0.1753790 | 0.05 | 19.59 | 20.00 | LINR |
| 1,2-Dichloroethane-d4 | 50.883328 | 50.000000 | 0.7752248 | 0.1 | -1.77 | 20.00 | LINR |
| Dibromofluoromethane | 51.294758 | 50.000000 | 0.5865296 | 0.1 | -2.59 | 20.00 | LINR |
| Toluene-d8 | 51.601871 | 50.000000 | 1.3137645 | 0.1 | -3.20 | 20.00 | LINR |
| 4-Bromofluorobenzene | 51.802881 | 50.000000 | 0.5048850 | 0.1 | -3.60 | 20.00 | LINR |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 2037

Lab File ID: U122428  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times:  1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 47.206327 | 50.000000 | 0.5381928 | 0.2 | 5.59 | 50.00 | LINR |
| trans-1,3-Dichloropropene | 47.004802 | 50.000000 | 0.4606842 | 0.1 | 5.99 | 50.00 | LINR |
| 1,3-Dichlorobenzene | 1.4850000 | 1.4492226 | 1.4492226 | 0.6 | 2.41 | 50.00 | AVRG |
| 2,2-Dichloropropane | 0.6490000 | 0.5663916 | 0.5663916 | 0.1 | 12.73 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.4450000 | 0.4256150 | 0.4256150 | 0.1 | 4.36 | 50.00 | AVRG |
| Dibromomethane | 0.2040000 | 0.2144626 | 0.2144626 | 0.1 | -5.13 | 50.00 | AVRG |
| 1,2-Dibromoethane | 0.3430000 | 0.3597016 | 0.3597016 | 0.1 | -4.87 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.5850000 | 0.5850593 | 0.5850593 | 0.1 | -0.01 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 47.992888 | 50.000000 | 0.3043937 | 0.1 | 4.01 | 50.00 | LINR |
| 1,1,1-Trichloroethane | 0.7890000 | 0.7935465 | 0.7935465 | 0.1 | -0.58 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 1.1260000 | 1.1917002 | 1.1917002 | 0.3 | -5.83 | 50.00 | AVRG |
| Freon TF | 0.4250000 | 0.3989719 | 0.3989719 | 0.1 | 6.12 | 50.00 | AVRG |
| 1,1,2-Trichloroethane | 0.2980000 | 0.3097296 | 0.3097296 | 0.1 | -3.94 | 50.00 | AVRG |
| 1,1-Dichloroethane | 1.0770000 | 1.0983183 | 1.0983183 | 0.2 | -1.98 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.4750000 | 0.4595711 | 0.4595711 | 0.1 | 3.25 | 50.00 | AVRG |
| Trichlorofluoromethane | 47.877448 | 50.000000 | 0.7886797 | 0.1 | 4.24 | 50.00 | LINR |
| 1,2,3-Trichlorobenzene | 47.815512 | 50.000000 | 0.9004990 | 0.1 | 4.37 | 50.00 | LINR |
| Toluene | 1.4870000 | 1.4890724 | 1.4890724 | 0.4 | -0.14 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 0.9260000 | 0.9128821 | 0.9128821 | 0.2 | 1.42 | 50.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.6160000 | 2.6703840 | 2.6703840 | 0.1 | -2.08 | 50.00 | AVRG |
| Tetrachloroethene | 0.2620000 | 0.2343416 | 0.2343416 | 0.2 | 10.56 | 50.00 | AVRG |
| Trichloroethene | 0.3210000 | 0.3111153 | 0.3111153 | 0.2 | 3.08 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.4840000 | 1.4720949 | 1.4720949 | 0.4 | 0.80 | 50.00 | AVRG |
| 1,2-Dichloroethane | 52.896221 | 50.000000 | 0.4762008 | 0.1 | -5.79 | 50.00 | LINR |
| 1,2-Dichloropropane | 0.3530000 | 0.3595027 | 0.3595027 | 0.1 | -1.84 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.5130000 | 2.5708391 | 2.5708391 | 0.1 | -2.30 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.6410000 | 0.6628423 | 0.6628423 | 0.1 | -3.41 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5660000 | 1.4828544 | 1.4828544 | 0.4 | 5.31 | 50.00 | AVRG |
| 2-Butanone | 119.28553 | 100.00000 | 0.3885447 | 0.1 | -19.28 | 50.00 | LINR |
| 2-Chlorotoluene | 2.3040000 | 2.2915781 | 2.2915781 | 0.1 | 0.54 | 50.00 | AVRG |
| 2-Hexanone | 0.2780000 | 0.3355379 | 0.3355379 | 0.1 | -20.70 | 50.00 | AVRG |
| 4-Chlorotoluene | 2.6620000 | 2.6823399 | 2.6823399 | 0.1 | -0.76 | 50.00 | AVRG |
| tert-Butylbenzene | 2.1720000 | 2.1680208 | 2.1680208 | 0.1 | 0.18 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4000000 | 0.4671265 | 0.4671265 | 0.1 | -16.78 | 50.00 | AVRG |
| Acetone | 132.50176 | 100.00000 | 0.2567717 | 0.1 | -32.50 | 50.00 | LINR |
| Benzene | 1.3300000 | 1.3327330 | 1.3327330 | 0.5 | -0.20 | 50.00 | AVRG |
| Bromobenzene | 0.7730000 | 0.7689868 | 0.7689868 | 0.1 | 0.52 | 50.00 | AVRG |
| Bromochloromethane | 57.582518 | 50.000000 | 0.2995106 | 0.1 | -15.16 | 50.00 | LINR |
| Bromodichloromethane | 0.3760000 | 0.3919790 | 0.3919790 | 0.2 | -4.25 | 50.00 | AVRG |
| Bromoform | 46.854942 | 50.000000 | 0.2006203 | 0.1 | 6.29 | 50.00 | LINR |
| Bromomethane | 52.013096 | 50.000000 | 0.3215455 | 0.1 | -4.03 | 50.00 | LINR |
| Carbon Disulfide | 1.7320000 | 1.6738989 | 1.6738989 | 0.1 | 3.35 | 50.00 | AVRG |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS1812103

Instrument ID: VOA9  Calibration Date: 12/24/18  Time: 2037

Lab File ID: U122428  Init. Calib. Date(s): 12/21/18  12/21/18

Init. Calib. Times: 1349  1755

GC Column: DB624  ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 44.254301 | 50.000000 | 0.3206431 | 0.1 | 11.49 | 50.00 | LINR |
| Chlorobenzene | 0.9610000 | 0.9517026 | 0.9517026 | 0.5 | 0.97 | 50.00 | AVRG |
| Chloroethane | 49.367103 | 50.000000 | 0.4376382 | 0.1 | 1.26 | 50.00 | 2RDR |
| Chloroform | 1.0370000 | 1.0750225 | 1.0750225 | 0.2 | -3.67 | 50.00 | AVRG |
| Chloromethane | 47.318479 | 50.000000 | 0.5006841 | 0.1 | 5.36 | 50.00 | LINR |
| cis-1,2-Dichloroethene | 0.6570000 | 0.6738882 | 0.6738882 | 0.1 | -2.57 | 50.00 | AVRG |
| Dibromochloromethane | 47.699067 | 50.000000 | 0.3131343 | 0.1 | 4.60 | 50.00 | LINR |
| Dichlorodifluoromethane | 44.506477 | 50.000000 | 0.5469699 | 0.1 | 10.99 | 50.00 | LINR |
| Ethylbenzene | 0.4930000 | 0.4907710 | 0.4907710 | 0.1 | 0.45 | 50.00 | AVRG |
| Hexachlorobutadiene | 0.3550000 | 0.3075225 | 0.3075225 | 0.1 | 13.37 | 50.00 | AVRG |
| Isopropylbenzene | 1.4220000 | 1.4345733 | 1.4345733 | 0.1 | -0.88 | 50.00 | AVRG |
| m,p-Xylenes | 0.6060000 | 0.6065328 | 0.6065328 | 0.1 | -0.09 | 50.00 | AVRG |
| Methylene Chloride | 53.474221 | 50.000000 | 0.6598726 | 0.1 | -6.95 | 50.00 | LINR |
| n-Butylbenzene | 2.5530000 | 2.4878949 | 2.4878949 | 0.5 | 2.55 | 50.00 | AVRG |
| n-Propylbenzene | 3.7360000 | 3.7675955 | 3.7675955 | 0.1 | -0.84 | 50.00 | AVRG |
| Naphthalene | 51.209442 | 50.000000 | 3.1185011 | 0.2 | -2.42 | 50.00 | 2RDR |
| o-Xylene | 0.6110000 | 0.6247110 | 0.6247110 | 0.3 | -2.24 | 50.00 | AVRG |
| sec-Butylbenzene | 3.1400000 | 3.1149837 | 3.1149837 | 0.1 | 0.80 | 50.00 | AVRG |
| Styrene | 1.0150000 | 1.0920948 | 1.0920948 | 0.3 | -7.60 | 50.00 | AVRG |
| Vinyl Chloride | 49.076608 | 50.000000 | 0.6938894 | 0.1 | 1.85 | 50.00 | LINR |
| 1,2,3-Trichloropropane | 1.1710000 | 1.2984150 | 1.2984150 | 0.1 | -10.88 | 50.00 | AVRG |
| p-Isopropyltoluene | 2.6460000 | 2.6489186 | 2.6489186 | 0.1 | -0.11 | 50.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 50.490014 | 50.000000 | 0.1753790 | 0.05 | -0.98 | 50.00 | LINR |
| 1,2-Dichloroethane-d4 | 54.978385 | 50.000000 | 0.7752248 | 0.1 | -9.96 | 50.00 | LINR |
| Dibromofluoromethane | 53.247810 | 50.000000 | 0.5865296 | 0.1 | -6.50 | 50.00 | LINR |
| Toluene-d8 | 50.908412 | 50.000000 | 1.3137645 | 0.1 | -1.82 | 50.00 | LINR |
| 4-Bromofluorobenzene | 51.400094 | 50.000000 | 0.5048850 | 0.1 | -2.80 | 50.00 | LINR |



FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Lab File ID (Standard): U122402  Date Analyzed: 12/24/18

Instrument ID: VOA9  Time Analyzed: 0952

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS1(DCB) AREA # | IS1(DCB) RT # | IS2(CBZ) AREA # | IS2(CBZ) RT # | IS3(DFB) AREA # | IS3(DFB) RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 352991 | 10.24 | 724498 | 8.25 | 785837 | 5.63 |
| | UPPER LIMIT | 705982 | 10.74 | 1448996 | 8.75 | 1571674 | 6.13 |
| | LOWER LIMIT | 176496 | 9.74 | 362249 | 7.75 | 392919 | 5.13 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181224 | 339524 | 10.24 | 703027 | 8.25 | 758509 | 5.63 |
| 02 | VBLKW-181224 | 263882 | 10.24 | 571876 | 8.25 | 632508 | 5.63 |
| 03 | HS18120913-0 | 266360 | 10.24 | 543870 | 8.25 | 594715 | 5.63 |
| 04 | HS18120913-0 | 254873 | 10.24 | 529623 | 8.25 | 576248 | 5.63 |
| 05 | HS18121030-0 | 230571 | 10.24 | 509471 | 8.25 | 561567 | 5.63 |
| 06 | HS18121030-0 | 228828 | 10.24 | 509775 | 8.25 | 556323 | 5.63 |
| 07 | HS18121030-0 | 230887 | 10.24 | 506429 | 8.25 | 562658 | 5.63 |
| 08 | HS18121030-0 | 225729 | 10.24 | 503685 | 8.25 | 560183 | 5.63 |
| 09 | HS18121030-0 | 223388 | 10.24 | 491539 | 8.25 | 547034 | 5.63 |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code: ALS-HS  Case No.:  SAS No.:  SDG No.: HS18121030

Lab File ID (Standard): U122402  Date Analyzed: 12/24/18

Instrument ID: VOA9  Time Analyzed: 0952

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 423354 | 4.89 | | | | |
| | UPPER LIMIT | 846708 | 5.39 | | | | |
| | LOWER LIMIT | 211677 | 4.39 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-181224 | 406772 | 4.90 | | | | |
| 02 | VBLKW-181224 | 360724 | 4.90 | | | | |
| 03 | HS18120913-0 | 345000 | 4.90 | | | | |
| 04 | HS18120913-0 | 331424 | 4.89 | | | | |
| 05 | HS18121030-0 | 314514 | 4.89 | | | | |
| 06 | HS18121030-0 | 313941 | 4.89 | | | | |
| 07 | HS18121030-0 | 317197 | 4.90 | | | | |
| 08 | HS18121030-0 | 312420 | 4.90 | | | | |
| 09 | HS18121030-0 | 308355 | 4.90 | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

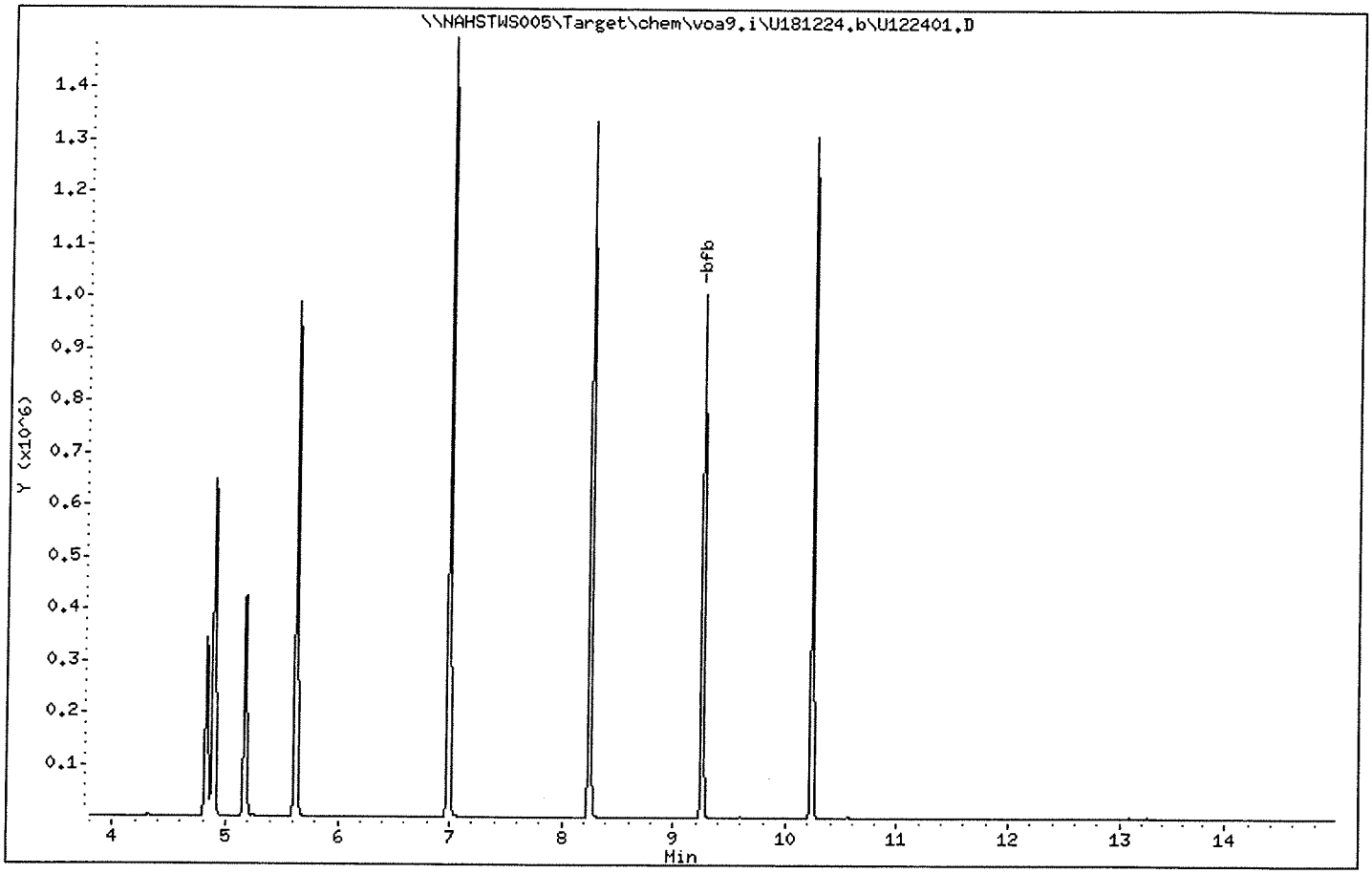
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

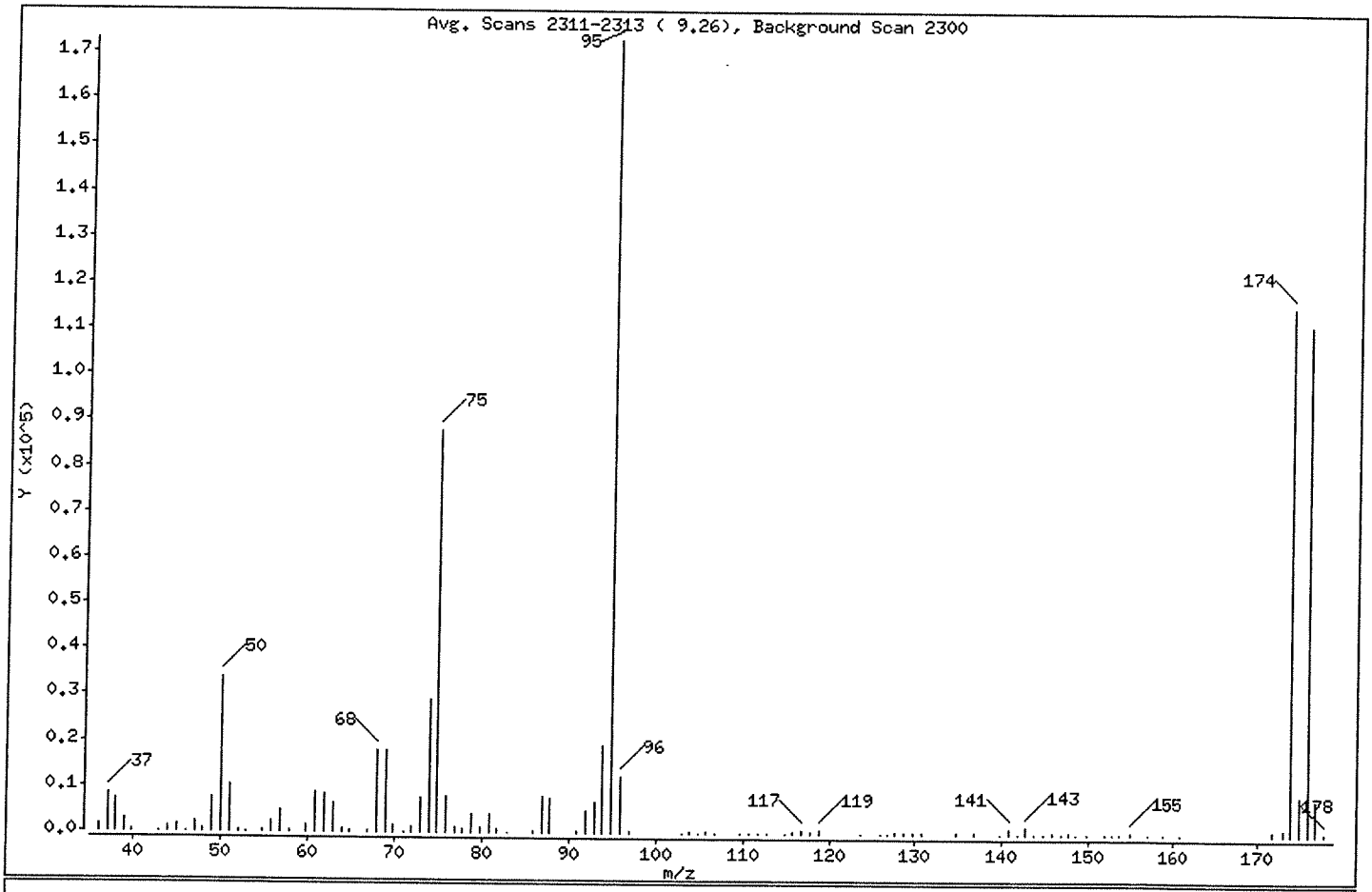
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| | | |
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 19.51 |
| 75 | 30.00 - 60.00% of mass 95 | 50.89 |
| 96 | 5.00 - 9.00% of mass 95 | 7.08 |
| 173 | Less than 2.00% of mass 174 | 0.66 ( 0.98) |
| 174 | Greater than 50.00% of mass 95 | 66.63 |
| 175 | 5.00 - 9.00% of mass 174 | 4.91 ( 7.37) |
| 176 | 95.00 - 101.00% of mass 174 | 64.42 ( 96.68) |
| 177 | 5.00 - 9.00% of mass 176 | 4.35 ( 6.75) |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D



Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122401.D

Spectrum: Avg. Scans 2311-2313 ( 9.26), Background Scan 2300

Location of Maximum: 94.90

Number of points: 101

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1458 | 66.90 | 489 | 96.90 | 358 | 141.70 | 125 |
| 37.00 | 8306 | 67.90 | 17736 | 102.90 | 83 | 142.70 | 1432 |
| 38.00 | 7224 | 68.90 | 17704 | 103.80 | 566 | 143.70 | 92 |
| 39.00 | 2852 | 69.90 | 1399 | 104.80 | 198 | 144.80 | 130 |
| 39.90 | 515 | 71.00 | 55 | 105.70 | 571 | 145.70 | 211 |
| 42.90 | 58 | 71.90 | 1002 | 106.70 | 150 | 146.80 | 93 |
| 43.90 | 1149 | 72.90 | 7684 | 109.70 | 67 | 147.60 | 307 |
| 45.00 | 1416 | 73.90 | 28936 | 110.70 | 106 | 148.50 | 71 |
| 46.00 | 144 | 74.90 | 87944 | 111.80 | 127 | 149.70 | 118 |
| 47.00 | 2331 | 75.90 | 7853 | 112.80 | 101 | 151.70 | 104 |
| 47.90 | 988 | 76.90 | 1152 | 114.80 | 164 | 152.70 | 119 |
| 48.90 | 7413 | 77.80 | 691 | 115.80 | 498 | 153.50 | 62 |
| 50.00 | 33712 | 78.90 | 3904 | 116.70 | 773 | 154.80 | 440 |
| 51.00 | 10257 | 79.90 | 1262 | 117.80 | 575 | 156.70 | 197 |
| 52.00 | 516 | 80.80 | 4127 | 118.80 | 642 | 158.60 | 130 |
| 52.90 | 79 | 81.80 | 955 | 123.70 | 117 | 160.70 | 97 |
| 54.90 | 360 | 83.00 | 125 | 125.90 | 58 | 171.70 | 672 |
| 55.90 | 2572 | 85.90 | 201 | 126.70 | 59 | 172.80 | 1133 |
| 57.00 | 4669 | 86.90 | 7827 | 127.70 | 540 | 173.70 | 115136 |
| 58.00 | 207 | 87.80 | 7508 | 128.70 | 266 | 174.70 | 8487 |
| 59.90 | 1649 | 90.80 | 470 | 129.70 | 553 | 175.70 | 111312 |
| 60.90 | 8598 | 91.90 | 4648 | 130.70 | 230 | 176.70 | 7518 |
| 61.90 | 8257 | 92.90 | 6773 | 134.70 | 224 | 177.70 | 226 |
| 62.90 | 6370 | 93.90 | 19208 | 136.80 | 276 | | |
| 63.90 | 787 | 94.90 | 172800 | 139.70 | 105 | | |
| 64.90 | 503 | 95.90 | 12233 | 140.70 | 1161 | | |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-DEC-2018 09:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

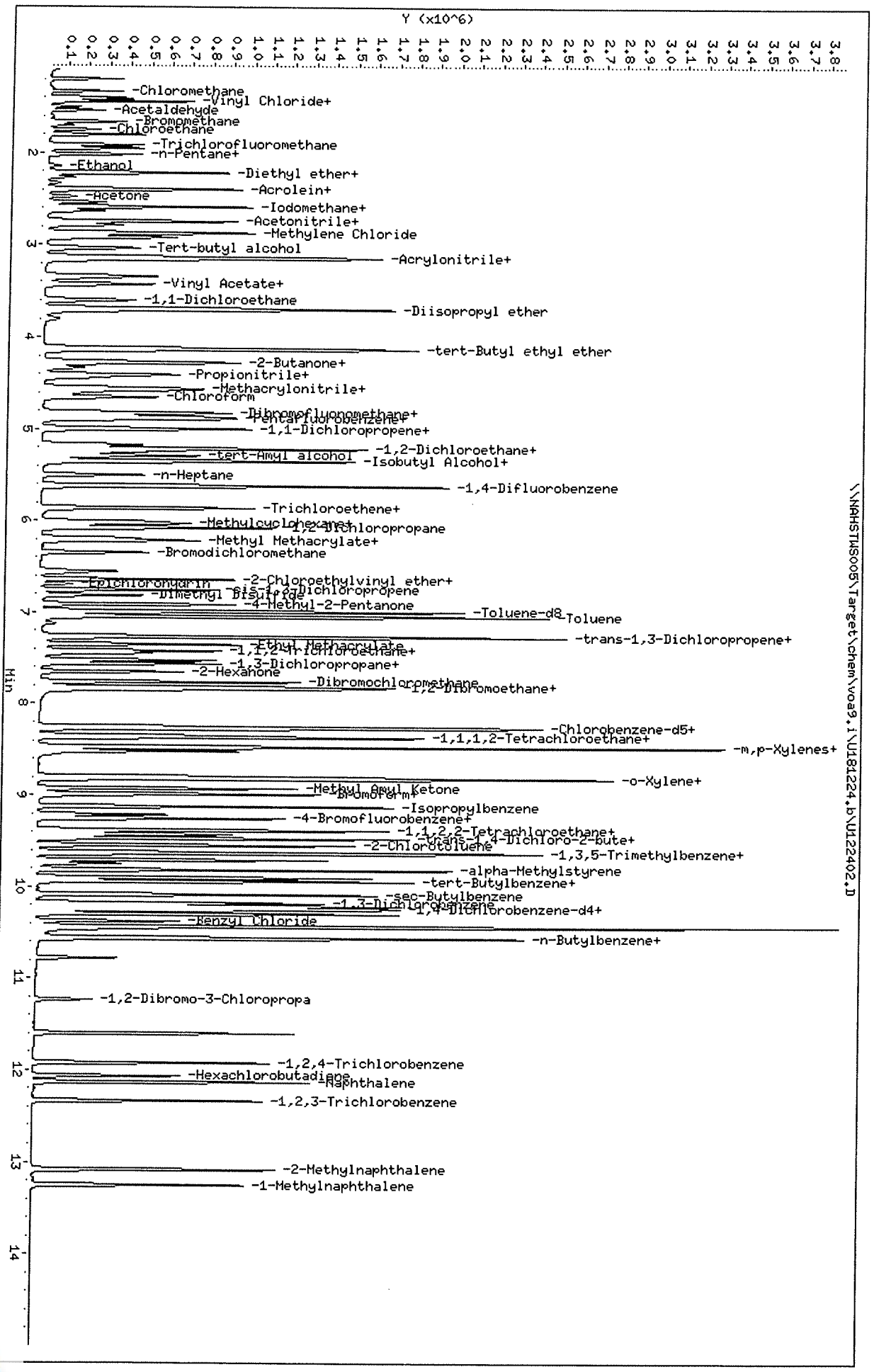
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 423354 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 785837 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 724498 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 352991 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.826 | 4.826 | (0.986) | 239456 | 50.0000 | 51.29 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.171 | 5.171 | (1.057) | 304677 | 50.0000 | 50.88 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 964346 | 50.0000 | 51.60 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 368577 | 50.0000 | 51.80 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 215639 | 50.0000 | 46.94 |
| 31 1,1,1-Trichloroethane | 97 | 4.826 | 4.826 | (0.986) | 316440 | 50.0000 | 47.33 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 355332 | 50.0000 | 44.69 |
| 138 Freon TF | 101 | 2.401 | 2.401 | (0.491) | 153951 | 50.0000 | 42.77 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 207577 | 50.0000 | 48.09 |
| 22 1,1-Dichloroethane | 63 | 3.600 | 3.600 | (0.736) | 433057 | 50.0000 | 47.49 |
| 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.491) | 181293 | 50.0000 | 45.03 |
| 32 1,1-Dichloropropene | 75 | 5.002 | 5.002 | (0.889) | 323333 | 50.0000 | 46.24 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 290474 | 50.0000 | 43.74 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 390574 | 50.0000 | 47.24 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 305143 | 50.0000 | 46.69 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 893982 | 50.0000 | 48.39 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 48924 | 50.0000 | 40.20 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 242501 | 50.0000 | 48.77 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 2
Report Date: 28-Jan-2019 14:34

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 486970 | 50.0000 | 46.46 |
| 33 | 1,2-Dichloroethane | 62 | 5.250 | 5.250 | (0.933) | 352056 | 50.0000 | 49.72 |
| 42 | 1,2-Dichloropropane | 63 | 6.078 | 6.078 | (1.081) | 267418 | 50.0000 | 48.16 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 854241 | 50.0000 | 48.15 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 487011 | 50.0000 | 46.46 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 448896 | 50.0000 | 48.28 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 501619 | 50.0000 | 45.38 |
| 26 | 2,2-Dichloropropane | 77 | 4.271 | 4.271 | (0.873) | 274613 | 50.0000 | 49.98 |
| 24 | 2-Butanone | 43 | 4.335 | 4.335 | (0.886) | 243142 | 100.000 | 87.52 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 777485 | 50.0000 | 47.80 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 368317 | 100.000 | 91.42 |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 907472 | 50.0000 | 48.28 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 884191 | 50.0000 | 47.33 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.910 | 6.910 | (0.838) | 534634 | 100.000 | 92.23 |
| 10 | Acetone | 43 | 2.476 | 2.476 | (0.506) | 147537 | 100.000 | 88.94 |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 1004828 | 50.0000 | 48.05 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 258984 | 50.0000 | 47.48 |
| 29 | Bromochloromethane | 128 | 4.552 | 4.552 | (0.930) | 120857 | 50.0000 | 54.73 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.129) | 296500 | 50.0000 | 50.21 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 134940 | 50.0000 | 43.62(T) |
| 6 | Bromomethane | 94 | 1.666 | 1.666 | (0.341) | 126513 | 50.0000 | 48.43 |
| 19 | Carbon Disulfide | 76 | 2.588 | 2.588 | (0.529) | 1200523 | 100.000 | 81.85 |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 244058 | 50.0000 | 42.90 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 671654 | 50.0000 | 48.24 |
| 7 | Chloroethane | 64 | 1.748 | 1.748 | (0.357) | 182521 | 50.0000 | 48.65 |
| 28 | Chloroform | 83 | 4.654 | 4.654 | (0.951) | 423382 | 50.0000 | 48.21 |
| 3 | Chloromethane | 50 | 1.336 | 1.336 | (0.273) | 215757 | 50.0000 | 48.10 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.283 | 4.283 | (0.875) | 268280 | 50.0000 | 48.21 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 420747 | 50.0000 | 46.96 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 220452 | 50.0000 | 46.37 |
| 44 | Dibromomethane | 93 | 6.187 | 6.187 | (1.100) | 155992 | 50.0000 | 48.67 |
| 2 | Dichlorodifluoromethane | 85 | 1.201 | 1.201 | (0.246) | 217496 | 50.0000 | 41.83 |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 346487 | 50.0000 | 48.53 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 111829 | 50.0000 | 44.66 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 987775 | 50.0000 | 47.94 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 860607 | 100.000 | 98.04 |
| 17 | Methylene Chloride | 84 | 2.869 | 2.869 | (0.586) | 257324 | 50.0000 | 49.16 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 832522 | 50.0000 | 46.18 |
| 73 | n-Propylbenzene | 91 | 9.474 | 9.474 | (0.926) | 1249543 | 50.0000 | 47.37 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 915226 | 50.0000 | 42.62 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 438615 | 50.0000 | 49.53 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 1017399 | 50.0000 | 45.89 |
| 64 | Styrene | 104 | 8.822 | 8.822 | (1.070) | 765253 | 50.0000 | 52.01 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 704838 | 50.0000 | 45.96 |
| 56 | Tetrachloroethene | 164 | 7.521 | 7.521 | (0.912) | 165998 | 50.0000 | 43.76 |
| 50 | Toluene | 91 | 7.045 | 7.045 | (0.854) | 1057144 | 50.0000 | 49.05 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.139 | 3.139 | (0.642) | 235322 | 50.0000 | 47.48 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 354926 | 50.0000 | 46.11 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 235763 | 50.0000 | 46.70 |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 307098 | 50.0000 | 44.08 |
| 5 | Vinyl Chloride | 62 | 1.419 | 1.419 | (0.290) | 265095 | 50.0000 | 44.38 |

QC Flag Legend

T - Target compound detected outside RT window.


Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122402.D
Date : 24-DEC-2018 09:52
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9,i
Operator: PC
Column diameter: 0.18
\\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122402.D
Y (x10^6)
Min
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Ethanol
-Diethyl ether+
-Acrolein+
-Acetone
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-Epichlorohydrin
-cis-1,3-Dichloropropene
-Dimethyl Disulfide
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,3-Dichlorobenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Lab Smp Id: VLCSW-1812024 Client Smp ID: VLCSW-181224
Inj Date : 24-DEC-2018 10:17
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812024;VLCSW-181224;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

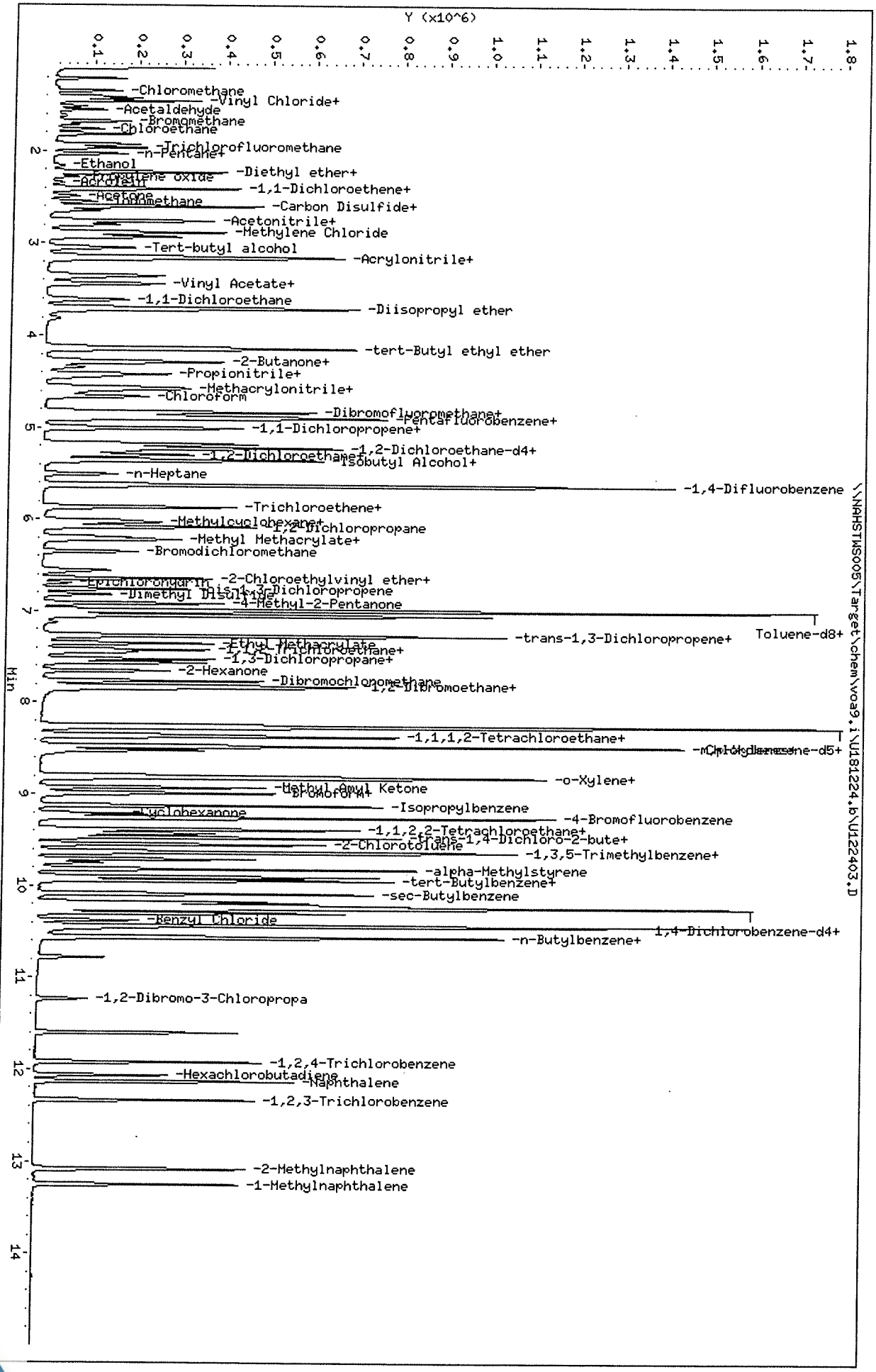
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.897 | 4.894 | (1.000) | 406772 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.628 | 5.625 | (1.000) | 758509 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 703027 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 339524 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.826 | (0.987) | 227871 | 50.7883 | 50.78 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.178 | 5.171 | (1.057) | 299407 | 52.0910 | 52.09 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 921570 | 50.7919 | 50.79 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 357826 | 51.8285 | 51.82 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 88375 | 20.1633 | 20.16 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.826 | (0.986) | 135603 | 21.1125 | 21.11 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 153489 | 20.0739 | 20.07 |
| 138 Freon TF | 101 | 2.412 | 2.401 | (0.493) | 72333 | 20.9166 | 20.91 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 88710 | 21.1796 | 21.17 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.600 | (0.737) | 184709 | 21.0852 | 21.08 |
| 11 1,1-Dichloroethene | 96 | 2.408 | 2.401 | (0.492) | 78960 | 20.4156 | 20.41 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.002 | (0.890) | 141680 | 20.9930 | 20.99 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 127493 | 20.3080 | 20.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 160947 | 20.2426 | 20.24 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.922 | 11.922 | (1.165) | 133328 | 21.2102 | 21.21 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 396053 | 22.2910 | 22.29 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 20393 | 18.2464 | 18.24 |
| 57 1,2-Dibromoethane | 107 | 7.851 | 7.851 | (0.952) | 102168 | 21.1780 | 21.17 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 2
Report Date: 28-Jan-2019 14:34

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 207631 | 20.5957 | 20.59 |
| 33 | 1,2-Dichloroethane | 62 | 5.257 | 5.250 | (0.934) | 150051 | 21.5444 | 21.54 |
| 42 | 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 111360 | 20.7777 | 20.77 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.624 | 9.624 | (0.940) | 377636 | 22.1314 | 22.13 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 211456 | 20.9736 | 20.97 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 190232 | 21.0858 | 21.08 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 215686 | 20.2900 | 20.28 |
| 26 | 2,2-Dichloropropane | 77 | 4.279 | 4.271 | (0.874) | 116146 | 22.0006 | 22.00 |
| 24 | 2-Butanone | 43 | 4.343 | 4.335 | (0.887) | 107059 | 38.7900 | 38.78 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 335605 | 21.4534 | 21.45 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 158802 | 40.6220 | 40.62 |
| 77 | 4-Chlorotoluene | 91 | 9.639 | 9.639 | (0.942) | 393315 | 21.7570 | 21.75 |
| 82 | p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 401121 | 22.3263 | 22.32 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.914 | 6.910 | (0.838) | 230112 | 40.9097 | 40.90 |
| 10 | Acetone | 43 | 2.487 | 2.476 | (0.508) | 66585 | 40.1746 | 40.17 |
| 37 | Benzene | 78 | 5.223 | 5.216 | (0.928) | 426379 | 21.1248 | 21.12 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 109171 | 20.8108 | 20.81 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.552 | (0.931) | 50277 | 21.9350 | 21.93 |
| 39 | Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 120773 | 21.1903 | 21.19 |
| 66 | Bromoform | 173 | 8.983 | 8.983 | (1.089) | 52936 | 18.6861 | 18.68 |
| 6 | Bromomethane | 94 | 1.681 | 1.666 | (0.343) | 57771 | 23.7209 | 23.72 |
| 19 | Carbon Disulfide | 76 | 2.599 | 2.588 | (0.531) | 587803 | 41.7101 | 41.71 |
| 34 | Carbon Tetrachloride | 117 | 4.999 | 4.995 | (0.888) | 106164 | 20.1057 | 20.10 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 283627 | 20.9972 | 20.99 |
| 7 | Chloroethane | 64 | 1.763 | 1.748 | (0.360) | 75051 | 21.2783 | 21.27(M) |
| 28 | Chloroform | 83 | 4.661 | 4.654 | (0.952) | 177187 | 21.0026 | 21.00 |
| 3 | Chloromethane | 50 | 1.347 | 1.336 | (0.275) | 95716 | 23.9974 | 23.99 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.290 | 4.283 | (0.876) | 112668 | 21.0722 | 21.07 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.760 | 6.757 | (1.201) | 165133 | 19.8487 | 19.84 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 86605 | 19.3564 | 19.35 |
| 44 | Dibromomethane | 93 | 6.191 | 6.187 | (1.100) | 66144 | 21.3834 | 21.38 |
| 2 | Dichlorodifluoromethane | 85 | 1.212 | 1.201 | (0.248) | 99637 | 20.1990 | 20.19 |
| 61 | Ethylbenzene | 106 | 8.372 | 8.369 | (1.015) | 150022 | 21.6543 | 21.65 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 46864 | 19.4594 | 19.45 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 444629 | 22.2408 | 22.24 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 373925 | 43.9025 | 43.90 |
| 17 | Methylene Chloride | 84 | 2.881 | 2.869 | (0.588) | 110110 | 21.2264 | 21.22 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 382218 | 22.0444 | 22.04 |
| 73 | n-Propylbenzene | 91 | 9.474 | 9.474 | (0.926) | 566860 | 22.3442 | 22.34 |
| 92 | Naphthalene | 128 | 12.132 | 12.132 | (1.185) | 398777 | 19.5931 | 19.59 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 188789 | 21.9718 | 21.97 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 470724 | 22.0778 | 22.07 |
| 64 | Styrene | 104 | 8.826 | 8.822 | (1.070) | 319620 | 22.3899 | 22.38 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 326809 | 22.1594 | 22.15 |
| 56 | Tetrachloroethene | 164 | 7.525 | 7.521 | (0.912) | 74823 | 20.3294 | 20.32 |
| 50 | Toluene | 91 | 7.049 | 7.045 | (0.855) | 451266 | 21.5785 | 21.57 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.150 | 3.139 | (0.643) | 100128 | 21.0291 | 21.02 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.259 | (1.290) | 137974 | 19.5584 | 19.55 |
| 38 | Trichloroethene | 130 | 5.864 | 5.861 | (1.042) | 101926 | 20.9180 | 20.91 |
| 8 | Trichlorofluoromethane | 101 | 1.966 | 1.951 | (0.401) | 138983 | 21.0959 | 21.09 |
| 5 | Vinyl Chloride | 62 | 1.430 | 1.419 | (0.292) | 121149 | 21.6176 | 21.61 |

QC Flag Legend

M - Compound response manually integrated.



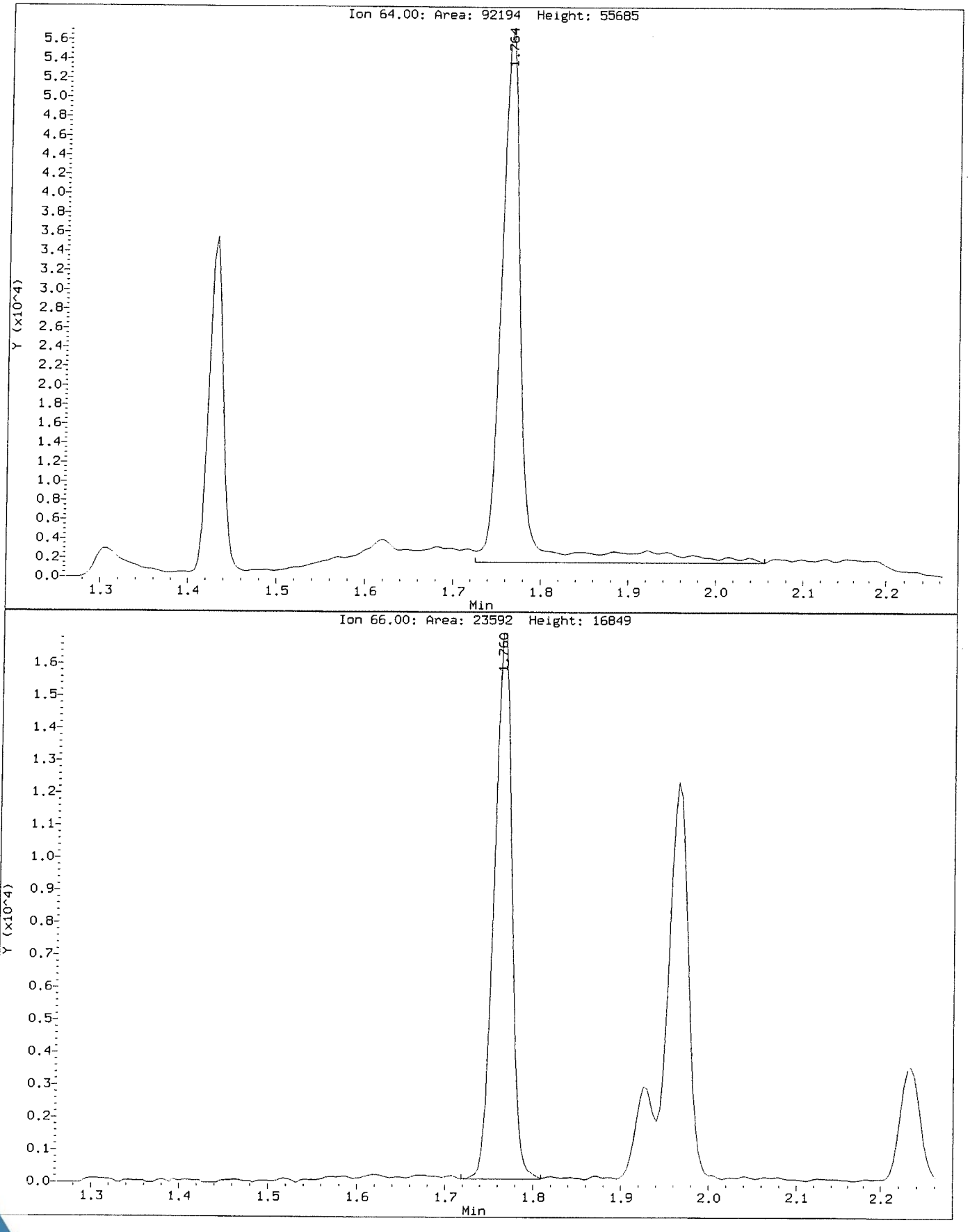

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Date : 24-DEC-2018 10:17
Client ID: VLCSW-181224
Sample Info: VLCSW-1812024;VLCSW-181224;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D

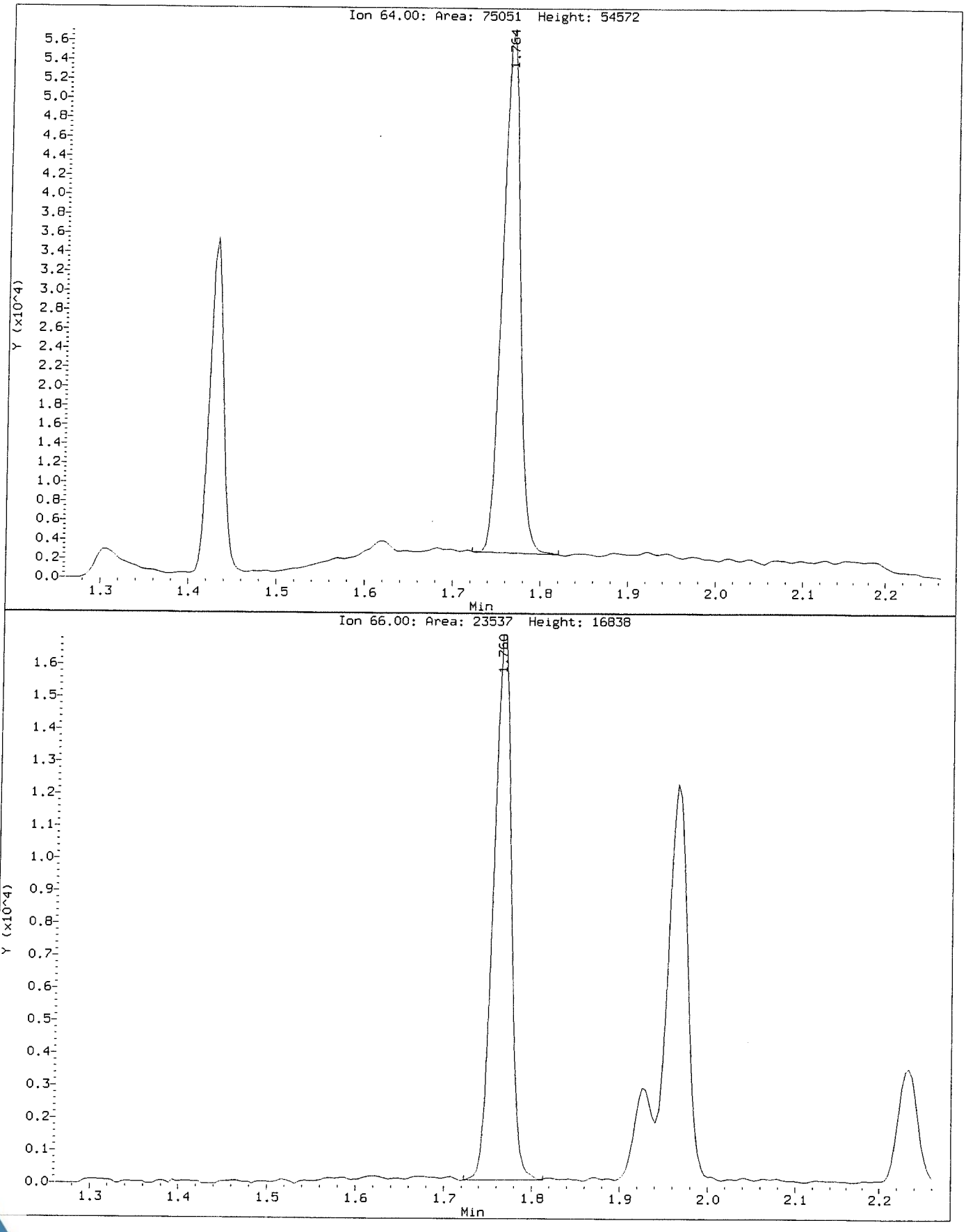
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D Page 1
Report Date: 28-Jan-2019 14:34

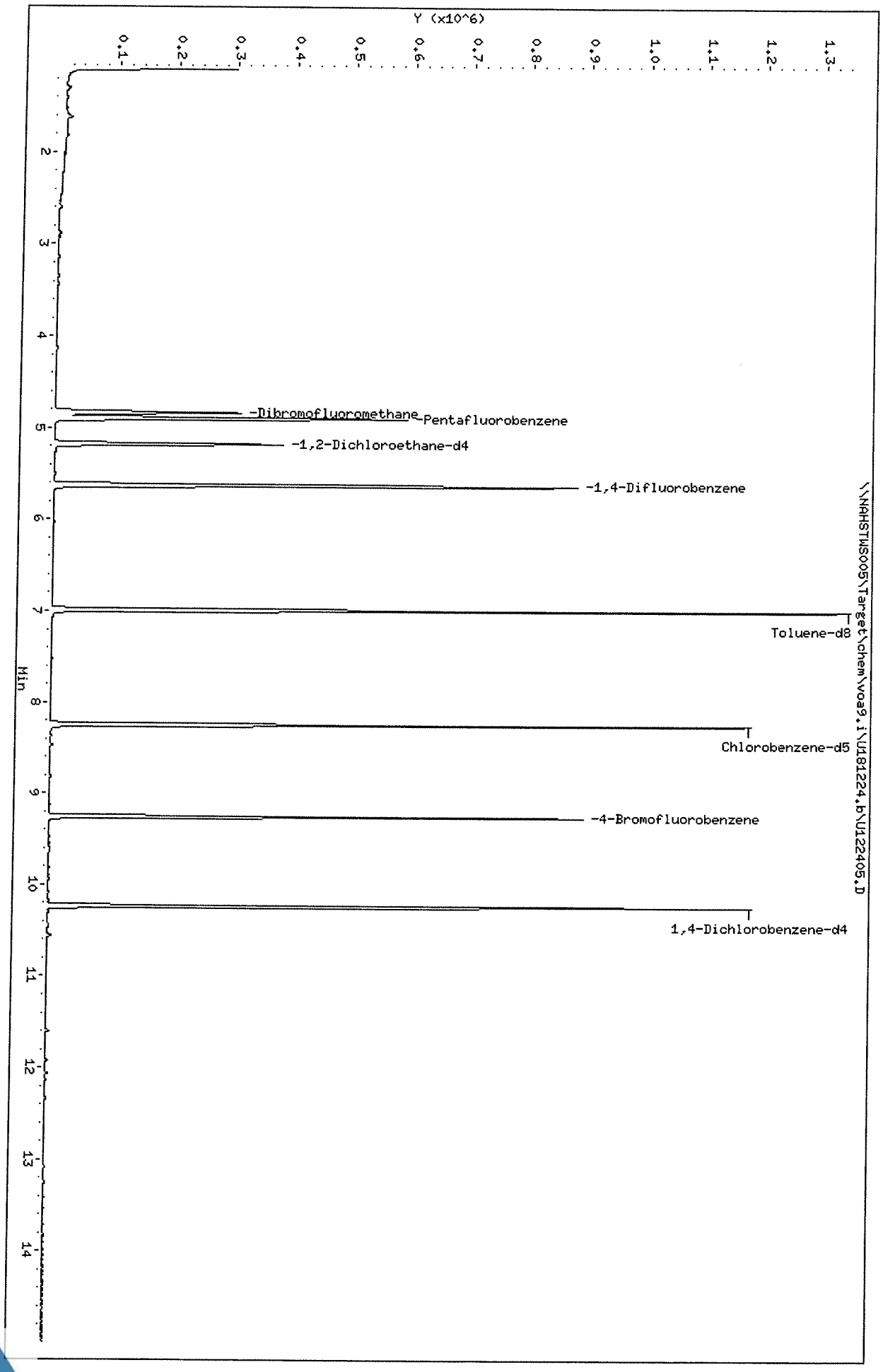
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Lab Smp Id: VBLKW-181224 Client Smp ID: VBLKW-181224
Inj Date : 24-DEC-2018 11:06
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-181224;VBLKW-181224;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.897 | 4.894 | (1.000) | 360724 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.628 | 5.625 | (1.000) | 632508 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 571876 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.235 | 10.235 | (1.000) | 263882 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.834 | 4.826 | (0.987) | 177273 | 44.3672 | 44.36 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.171 | (1.057) | 242561 | 47.4005 | 47.40 |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 770698 | 52.2682 | 52.26 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 271263 | 48.2038 | 48.20 |




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Date : 24-DEC-2018 11:06
Client ID: VBLKW-181224
Sample Info: VBLKW-181224;VBLKW-181224;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Lab Smp Id: HS18120913-03MS Client Smp ID: HS18120913-03MS
Inj Date : 24-DEC-2018 15:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MS;HS18120913-03MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

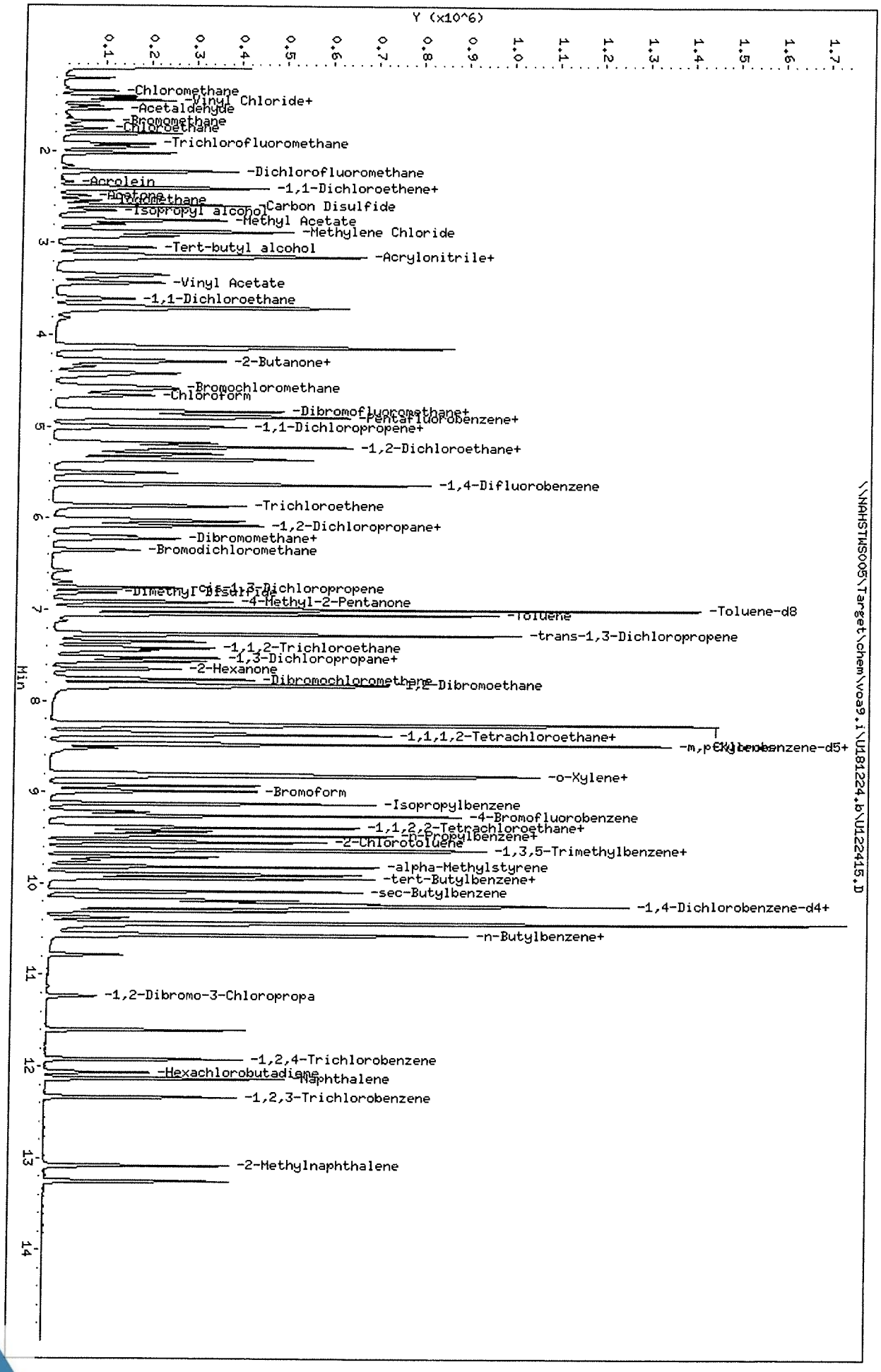
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.894 | (1.000) | 345000 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.625 | (1.000) | 594715 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 543870 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.235 | (1.000) | 266360 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.826 | (0.986) | 174630 | 45.7435 | 45.74 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.171 | (1.057) | 230784 | 47.1432 | 47.14 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.989 | (0.847) | 746782 | 53.2878 | 53.28 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.257 | (1.122) | 276028 | 51.6764 | 51.67 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 79024 | 23.2148 | 23.21 |
| 31 1,1,1-Trichloroethane | 97 | 4.830 | 4.826 | (0.986) | 124996 | 22.9455 | 22.94 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 145185 | 24.2035 | 24.20 |
| 138 Freon TF | 101 | 2.405 | 2.401 | (0.491) | 73723 | 25.1357 | 25.13 |
| 53 1,1,2-Trichloroethane | 83 | 7.420 | 7.420 | (0.900) | 81989 | 25.3033 | 25.30 |
| 22 1,1-Dichloroethane | 63 | 3.608 | 3.600 | (0.737) | 168755 | 22.7132 | 22.71 |
| 11 1,1-Dichloroethene | 96 | 2.401 | 2.401 | (0.490) | 75592 | 23.0442 | 23.04 |
| 32 1,1-Dichloropropene | 75 | 5.006 | 5.002 | (0.889) | 134692 | 25.4542 | 25.45 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 109130 | 22.1001 | 22.10 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 145667 | 23.3532 | 23.35 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.922 | (1.165) | 110324 | 22.3715 | 22.37 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.943 | 9.943 | (0.971) | 351572 | 25.2227 | 25.22 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 18444 | 20.8136 | 20.81 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 94955 | 25.4427 | 25.44 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 2
Report Date: 28-Jan-2019 14:34

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 10.569 | 10.569 | (1.033) | 187882 | 23.7559 | 23.75 |
| 33 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.933) | 138450 | 25.4836 | 25.48 |
| 42 1,2-Dichloropropane | 63 | 6.082 | 6.078 | (1.081) | 104134 | 24.7807 | 24.78 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.624 | (0.940) | 342429 | 25.5804 | 25.58 |
| 83 1,3-Dichlorobenzene | 146 | 10.179 | 10.179 | (0.995) | 184561 | 23.3342 | 23.33 |
| 54 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 174086 | 24.9430 | 24.94 |
| 84 1,4-Dichlorobenzene | 146 | 10.254 | 10.254 | (1.002) | 194001 | 23.2630 | 23.26 |
| 26 2,2-Dichloropropane | 77 | 4.275 | 4.271 | (0.873) | 102083 | 22.7990 | 22.79 |
| 24 2-Butanone | 43 | 4.343 | 4.335 | (0.887) | 105483 | 45.4559 | 45.45 |
| 76 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 306257 | 24.9549 | 24.95 |
| 52 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 159855 | 52.8577 | 52.85 |
| 77 4-Chlorotoluene | 91 | 9.640 | 9.639 | (0.942) | 356306 | 25.1237 | 25.12 |
| 82 p-Isopropyltoluene | 119 | 10.209 | 10.209 | (0.997) | 355401 | 25.2152 | 25.21 |
| 45 4-Methyl-2-Pentanone | 43 | 6.914 | 6.910 | (0.838) | 223482 | 51.3578 | 51.35 |
| 10 Acetone | 43 | 2.487 | 2.476 | (0.508) | 70952 | 51.2497 | 51.24 |
| 37 Benzene | 78 | 5.220 | 5.216 | (0.927) | 397101 | 25.0928 | 25.09 |
| 74 Bromobenzene | 156 | 9.385 | 9.381 | (0.917) | 97879 | 23.7834 | 23.78 |
| 29 Bromochloromethane | 128 | 4.556 | 4.552 | (0.930) | 46188 | 24.0179 | 24.01 |
| 39 Bromodichloromethane | 83 | 6.348 | 6.348 | (1.128) | 109342 | 24.4685 | 24.46 |
| 66 Bromoform | 173 | 8.984 | 8.983 | (1.089) | 47381 | 21.3431 | 21.34 |
| 6 Bromomethane | 94 | 1.670 | 1.666 | (0.341) | 51729 | 24.9684 | 24.96 |
| 19 Carbon Disulfide | 76 | 2.592 | 2.588 | (0.529) | 516135 | 43.1821 | 43.18 |
| 34 Carbon Tetrachloride | 117 | 4.999 | 4.995 | (0.888) | 99519 | 23.7645 | 23.76 |
| 59 Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 261122 | 24.9882 | 24.98 |
| 7 Chloroethane | 64 | 1.756 | 1.748 | (0.359) | 65153 | 21.7650 | 21.76(M) |
| 28 Chloroform | 83 | 4.658 | 4.654 | (0.951) | 164251 | 22.9552 | 22.95 |
| 3 Chloromethane | 50 | 1.344 | 1.336 | (0.274) | 73734 | 22.1006 | 22.10 |
| 27 cis-1,2-Dichloroethene | 96 | 4.290 | 4.283 | (0.876) | 110116 | 24.2824 | 24.28 |
| 46 cis-1,3-Dichloropropene | 75 | 6.761 | 6.757 | (1.201) | 142392 | 21.7030 | 21.70 |
| 55 Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 77822 | 22.3259 | 22.32 |
| 44 Dibromomethane | 93 | 6.191 | 6.187 | (1.100) | 60796 | 25.0676 | 25.06 |
| 2 Dichlorodifluoromethane | 85 | 1.209 | 1.201 | (0.247) | 60996 | 14.7145 | 14.71 |
| 61 Ethylbenzene | 106 | 8.373 | 8.369 | (1.015) | 137460 | 25.6473 | 25.64 |
| 91 Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 36483 | 19.3100 | 19.30 |
| 67 Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 409452 | 26.4747 | 26.47 |
| 62 m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 342200 | 51.9351 | 51.93 |
| 17 Methylene Chloride | 84 | 2.873 | 2.869 | (0.587) | 100414 | 22.9137 | 22.91 |
| 87 n-Butylbenzene | 91 | 10.554 | 10.558 | (1.031) | 332695 | 24.4588 | 24.45 |
| 73 n-Propylbenzene | 91 | 9.475 | 9.474 | (0.926) | 515682 | 25.9103 | 25.91 |
| 92 Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 359474 | 22.4263 | 22.42 |
| 63 o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 170427 | 25.6392 | 25.63 |
| 81 sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 425090 | 25.4139 | 25.41 |
| 64 Styrene | 104 | 8.826 | 8.822 | (1.070) | 290415 | 26.2974 | 26.29 |
| 78 tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 293816 | 25.3946 | 25.39 |
| 56 Tetrachloroethene | 164 | 7.525 | 7.521 | (0.912) | 68956 | 24.2180 | 24.21 |
| 50 Toluene | 91 | 7.049 | 7.045 | (0.855) | 422501 | 26.1152 | 26.11 |
| 20 trans-1,2-Dichloroethene | 96 | 3.143 | 3.139 | (0.642) | 93150 | 23.0664 | 23.06 |
| 51 trans-1,3-Dichloropropene | 75 | 7.263 | 7.259 | (1.290) | 119186 | 21.3804 | 21.38 |
| 38 Trichloroethene | 130 | 5.865 | 5.861 | (1.042) | 100047 | 26.1873 | 26.18 |
| 8 Trichlorofluoromethane | 101 | 1.959 | 1.951 | (0.400) | 125967 | 22.5008 | 22.50 |
| 5 Vinyl Chloride | 62 | 1.423 | 1.419 | (0.291) | 101003 | 21.2662 | 21.26 |

QC Flag Legend

M - Compound response manually integrated.

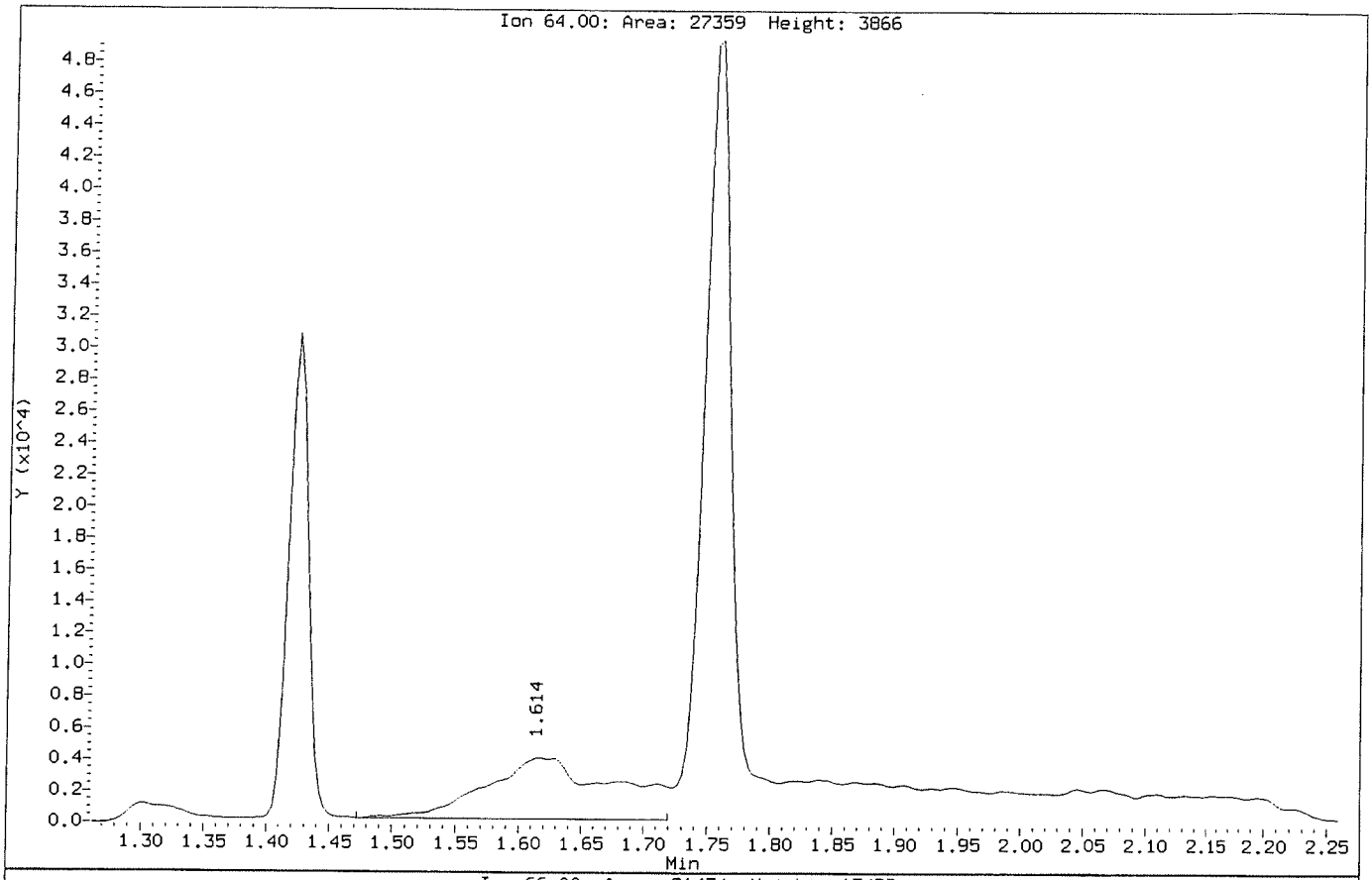


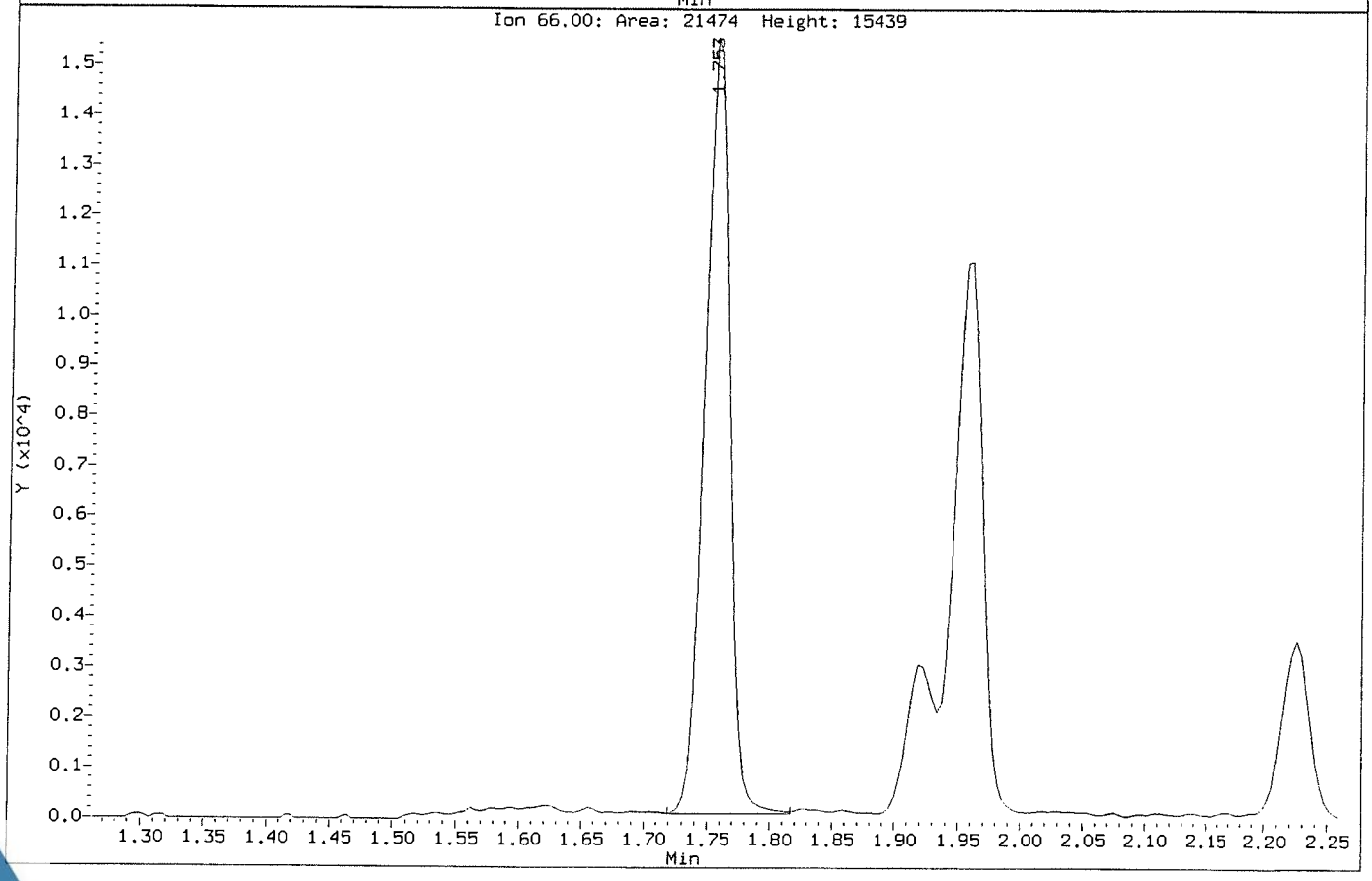

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Date : 24-DEC-2018 15:14
Client ID: HS18120913-03MS
Sample Info: HS18120913-03MS;HS18120913-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122415.D
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

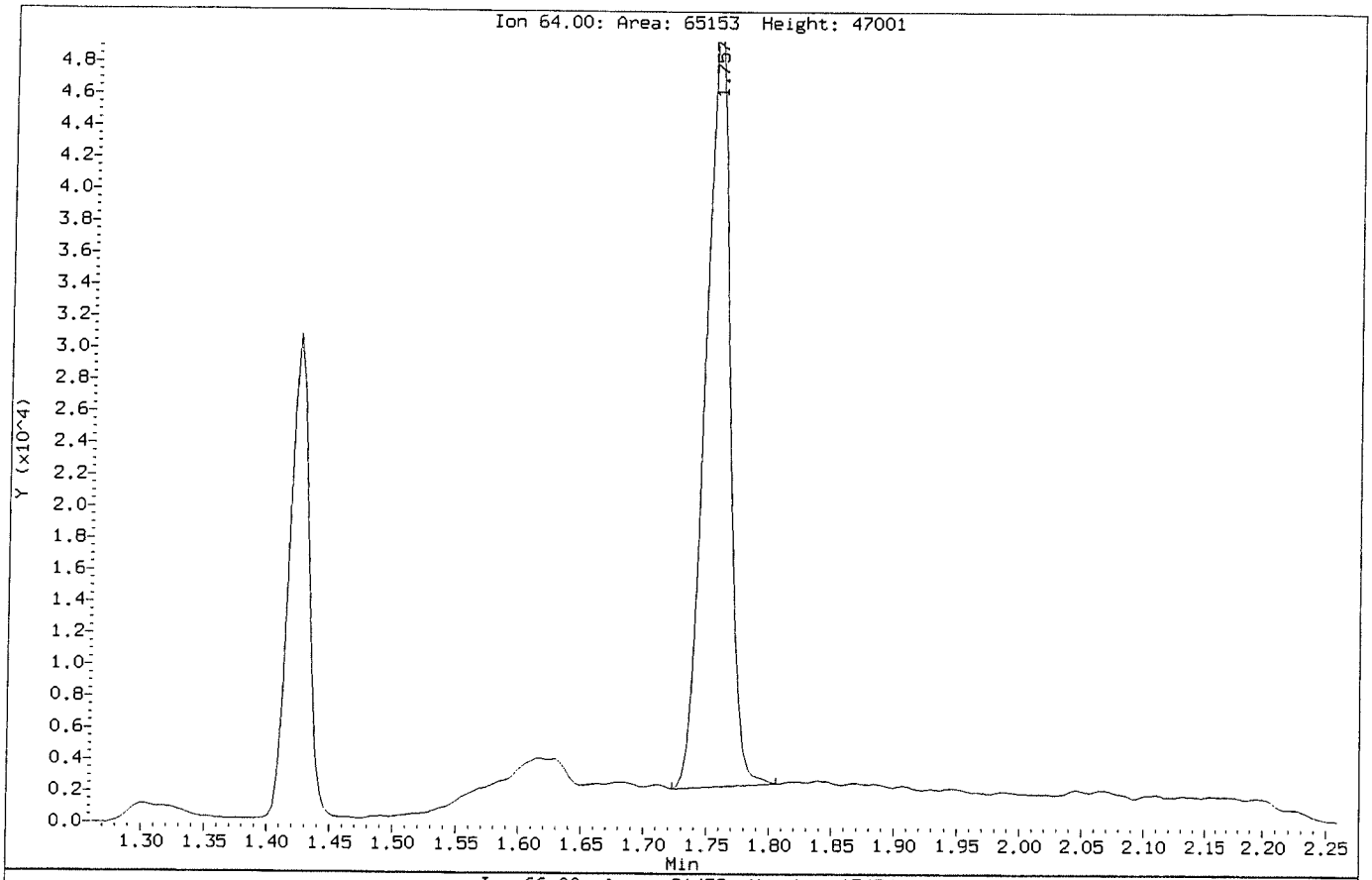
Compound: Chloroethane
CAS Number: 75-00-3

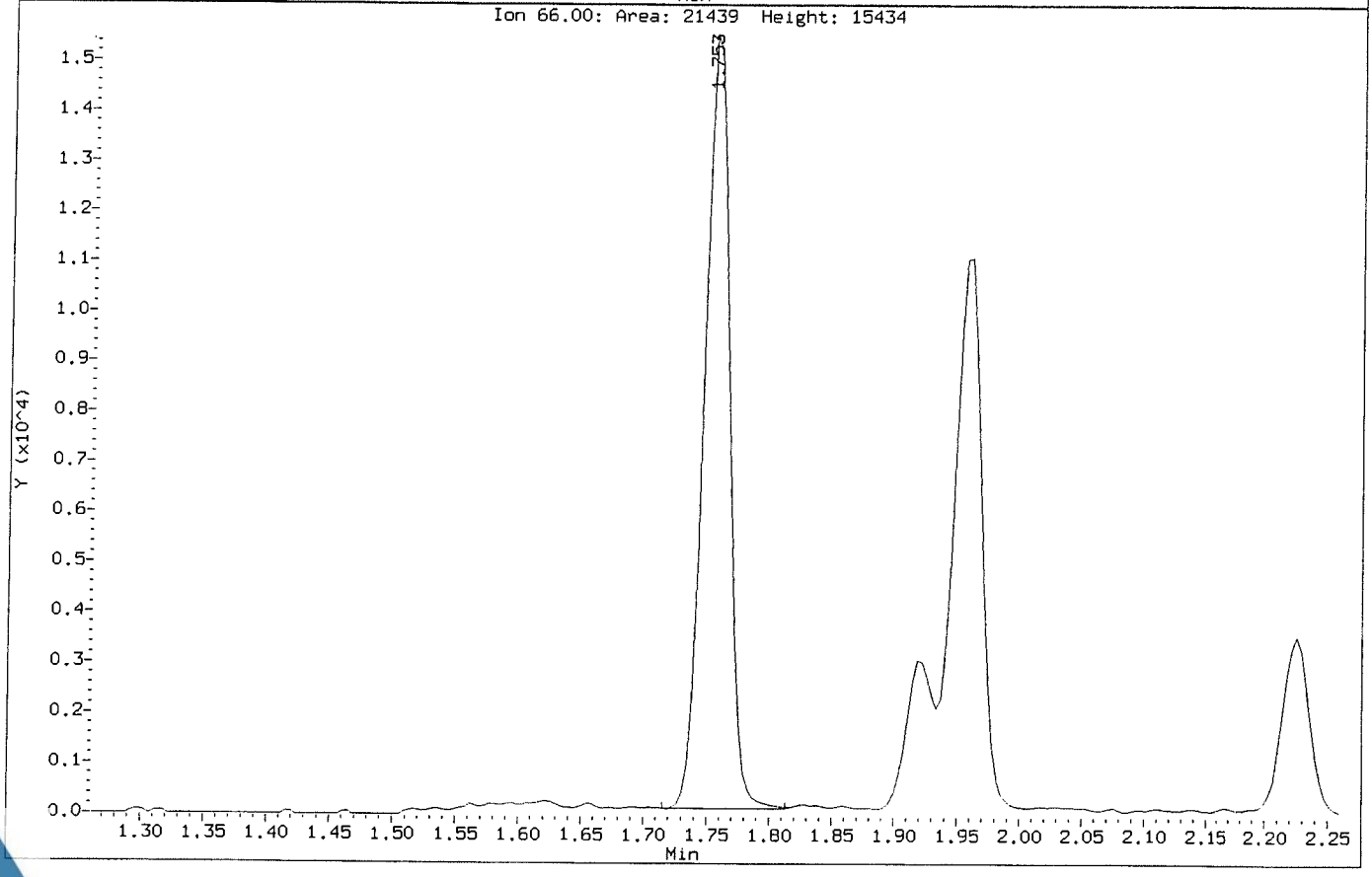


Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Lab Smp Id: HS18120913-03MSD Client Smp ID: HS18120913-03MSD
Inj Date : 24-DEC-2018 15:39
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MSD;HS18120913-03MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

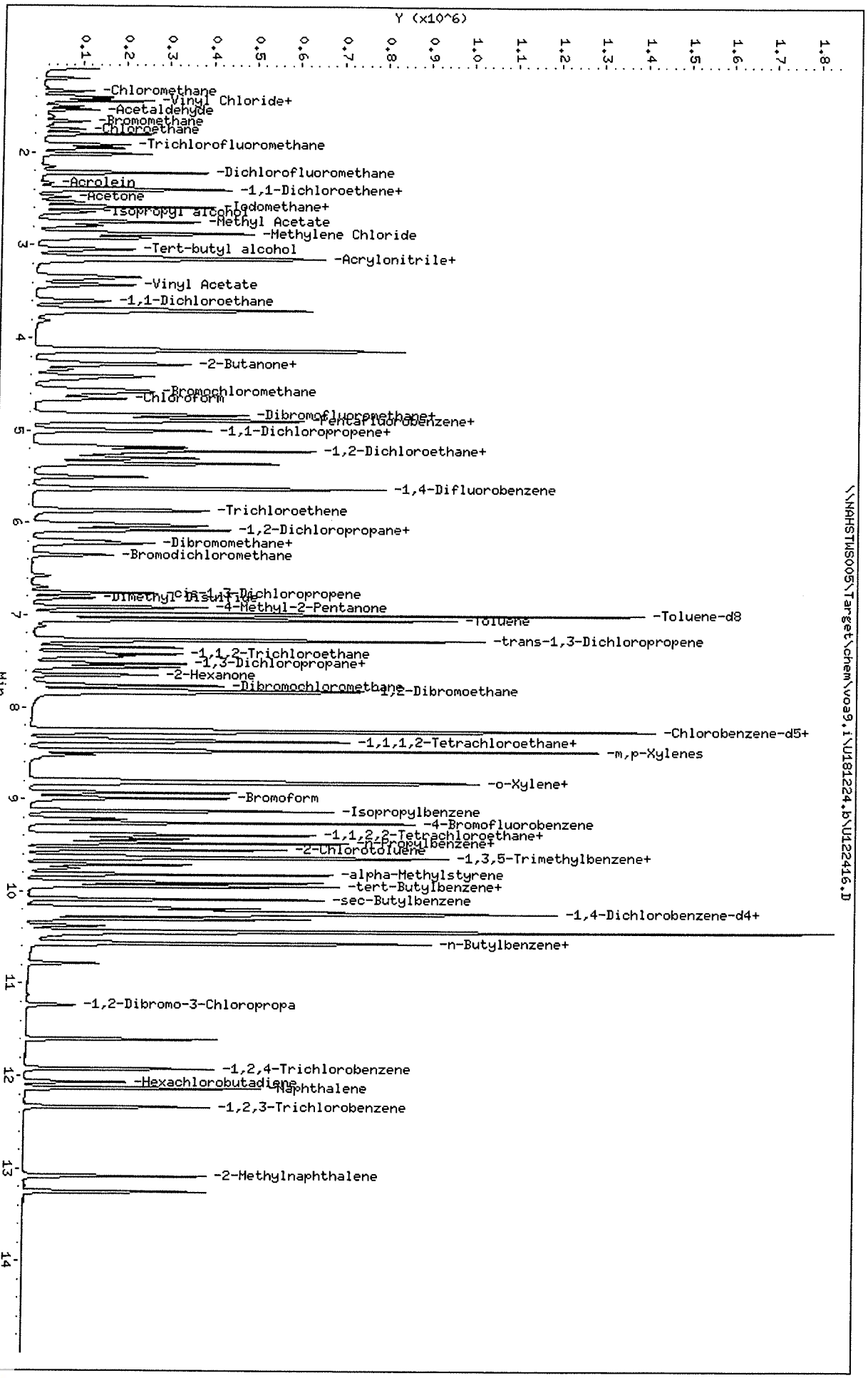
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.894 | (1.000) | 331424 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.625 | (1.000) | 576248 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.249 | (1.000) | 529623 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.235 | (1.000) | 254873 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.827 | 4.826 | (0.986) | 168144 | 45.8522 | 45.85 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.171 | (1.057) | 222561 | 47.3342 | 47.33 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.989 | (0.847) | 724188 | 53.0583 | 53.05 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.257 | (1.122) | 269198 | 51.7556 | 51.75 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 77847 | 23.4774 | 23.47 |
| 31 1,1,1-Trichloroethane | 97 | 4.827 | 4.826 | (0.986) | 124807 | 23.8493 | 23.84 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 146512 | 25.5255 | 25.52 |
| 138 Freon TF | 101 | 2.397 | 2.401 | (0.490) | 69274 | 24.5863 | 24.58 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.420 | (0.900) | 79929 | 25.3311 | 25.33 |
| 22 1,1-Dichloroethane | 63 | 3.601 | 3.600 | (0.736) | 165784 | 23.2274 | 23.22 |
| 11 1,1-Dichloroethene | 96 | 2.397 | 2.401 | (0.490) | 72848 | 23.1174 | 23.11 |
| 32 1,1-Dichloropropene | 75 | 5.003 | 5.002 | (0.889) | 129339 | 25.2259 | 25.22 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 110289 | 23.3059 | 23.30 |
| 71 1,2,3-Trichloropropane | 75 | 9.426 | 9.426 | (0.921) | 147392 | 24.6948 | 24.69 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.922 | (1.165) | 111669 | 23.6648 | 23.66 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.944 | 9.943 | (0.971) | 350216 | 26.2578 | 26.25 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 19134 | 22.4432 | 22.44 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.851 | (0.952) | 93013 | 25.5928 | 25.59 |

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 2
Report Date: 28-Jan-2019 14:34

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.570 | 10.569 | (1.033) | 186214 | 24.6061 | 24.60 |
| 33 | 1,2-Dichloroethane | 62 | 5.254 | 5.250 | (0.934) | 135491 | 25.7455 | 25.74 |
| 42 | 1,2-Dichloropropane | 63 | 6.079 | 6.078 | (1.081) | 100756 | 24.7452 | 24.74 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.624 | (0.940) | 337155 | 26.3216 | 26.32 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.179 | (0.995) | 184469 | 24.3737 | 24.37 |
| 54 | 1,3-Dichloropropane | 76 | 7.563 | 7.563 | (0.917) | 173022 | 25.4574 | 25.45 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.254 | (1.002) | 190330 | 23.8514 | 23.85 |
| 26 | 2,2-Dichloropropane | 77 | 4.275 | 4.271 | (0.874) | 97599 | 22.6905 | 22.69 |
| 24 | 2-Butanone | 43 | 4.339 | 4.335 | (0.887) | 107198 | 48.2282 | 48.22 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 300561 | 25.5945 | 25.59 |
| 52 | 2-Hexanone | 43 | 7.649 | 7.649 | (0.927) | 159891 | 54.2919 | 54.29 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.639 | (0.942) | 351762 | 25.9211 | 25.92 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.209 | (0.997) | 352635 | 26.1465 | 26.14 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.915 | 6.910 | (0.838) | 226082 | 53.3530 | 53.35 |
| 10 | Acetone | 43 | 2.480 | 2.476 | (0.507) | 74295 | 56.1349 | 56.13 |
| 37 | Benzene | 78 | 5.216 | 5.216 | (0.927) | 391973 | 25.5625 | 25.56 |
| 74 | Bromobenzene | 156 | 9.381 | 9.381 | (0.917) | 97267 | 24.6999 | 24.69 |
| 29 | Bromochloromethane | 128 | 4.553 | 4.552 | (0.930) | 45259 | 24.5612 | 24.56 |
| 39 | Bromodichloromethane | 83 | 6.349 | 6.348 | (1.129) | 107054 | 24.7242 | 24.72 |
| 66 | Bromoform | 173 | 8.984 | 8.983 | (1.089) | 47071 | 21.7383 | 21.73 |
| 6 | Bromomethane | 94 | 1.663 | 1.666 | (0.340) | 49208 | 24.7376 | 24.73 |
| 19 | Carbon Disulfide | 76 | 2.585 | 2.588 | (0.528) | 503010 | 43.8079 | 43.80 |
| 34 | Carbon Tetrachloride | 117 | 4.995 | 4.995 | (0.888) | 96698 | 23.8270 | 23.82 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 255742 | 25.1317 | 25.13 |
| 7 | Chloroethane | 64 | 1.749 | 1.748 | (0.357) | 64023 | 22.2494 | 22.24 (M) |
| 28 | Chloroform | 83 | 4.654 | 4.654 | (0.951) | 161546 | 23.5020 | 23.50 |
| 3 | Chloromethane | 50 | 1.337 | 1.336 | (0.273) | 73406 | 22.7829 | 22.78 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.287 | 4.283 | (0.876) | 103515 | 23.7619 | 23.76 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.757 | 6.757 | (1.201) | 141799 | 22.2701 | 22.27 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 77586 | 22.8337 | 22.83 |
| 44 | Dibromomethane | 93 | 6.191 | 6.187 | (1.101) | 59570 | 25.3492 | 25.34 |
| 2 | Dichlorodifluoromethane | 85 | 1.202 | 1.201 | (0.246) | 61834 | 15.5009 | 15.50 |
| 61 | Ethylbenzene | 106 | 8.369 | 8.369 | (1.015) | 134489 | 25.7680 | 25.76 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 35933 | 19.8760 | 19.87 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 402846 | 26.7483 | 26.74 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 335947 | 52.3577 | 52.35 |
| 17 | Methylene Chloride | 84 | 2.870 | 2.869 | (0.586) | 98201 | 23.3483 | 23.34 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 331532 | 25.4718 | 25.47 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.474 | (0.926) | 504768 | 26.5050 | 26.50 |
| 92 | Naphthalene | 128 | 12.133 | 12.132 | (1.185) | 367426 | 23.9167 | 23.91 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 168940 | 26.0992 | 26.09 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 419576 | 26.2148 | 26.21 |
| 64 | Styrene | 104 | 8.826 | 8.822 | (1.070) | 285317 | 26.5308 | 26.53 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 289715 | 26.1687 | 26.16 |
| 56 | Tetrachloroethene | 164 | 7.522 | 7.521 | (0.912) | 67478 | 24.3365 | 24.33 |
| 50 | Toluene | 91 | 7.046 | 7.045 | (0.854) | 407430 | 25.8611 | 25.86 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.140 | 3.139 | (0.642) | 89909 | 23.1759 | 23.17 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.259 | 7.259 | (1.291) | 118283 | 21.8584 | 21.85 |
| 38 | Trichloroethene | 130 | 5.861 | 5.861 | (1.042) | 95016 | 25.6675 | 25.66 |
| 8 | Trichlorofluoromethane | 101 | 1.951 | 1.951 | (0.399) | 122329 | 22.7392 | 22.73 |
| 5 | Vinyl Chloride | 62 | 1.415 | 1.419 | (0.289) | 98964 | 21.6711 | 21.67 |

QC Flag Legend

M - Compound response manually integrated.

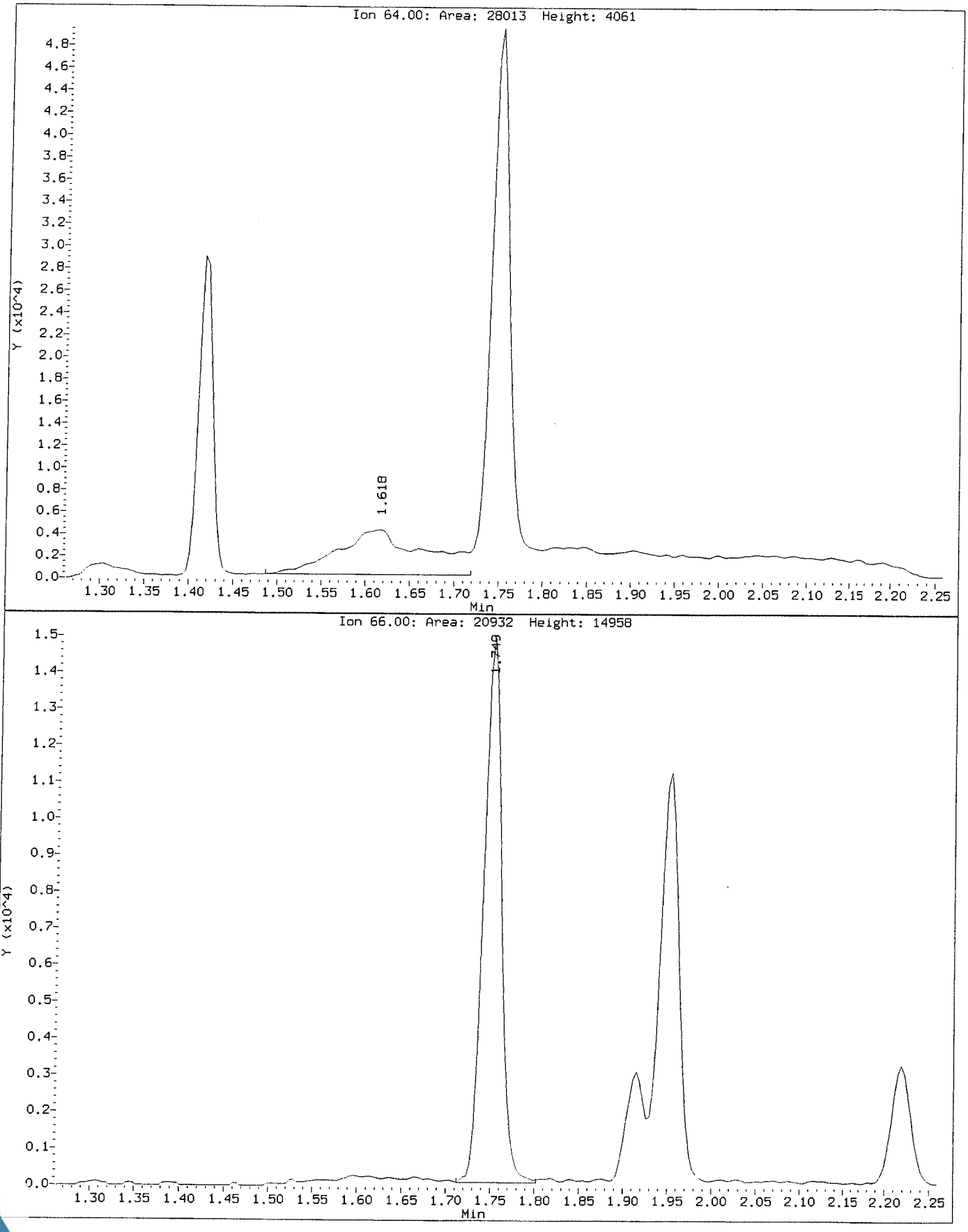



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Date : 24-DEC-2018 15:39
Client ID: HS18120913-03MSD
Sample Info: HS18120913-03MSD;HS18120913-03MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

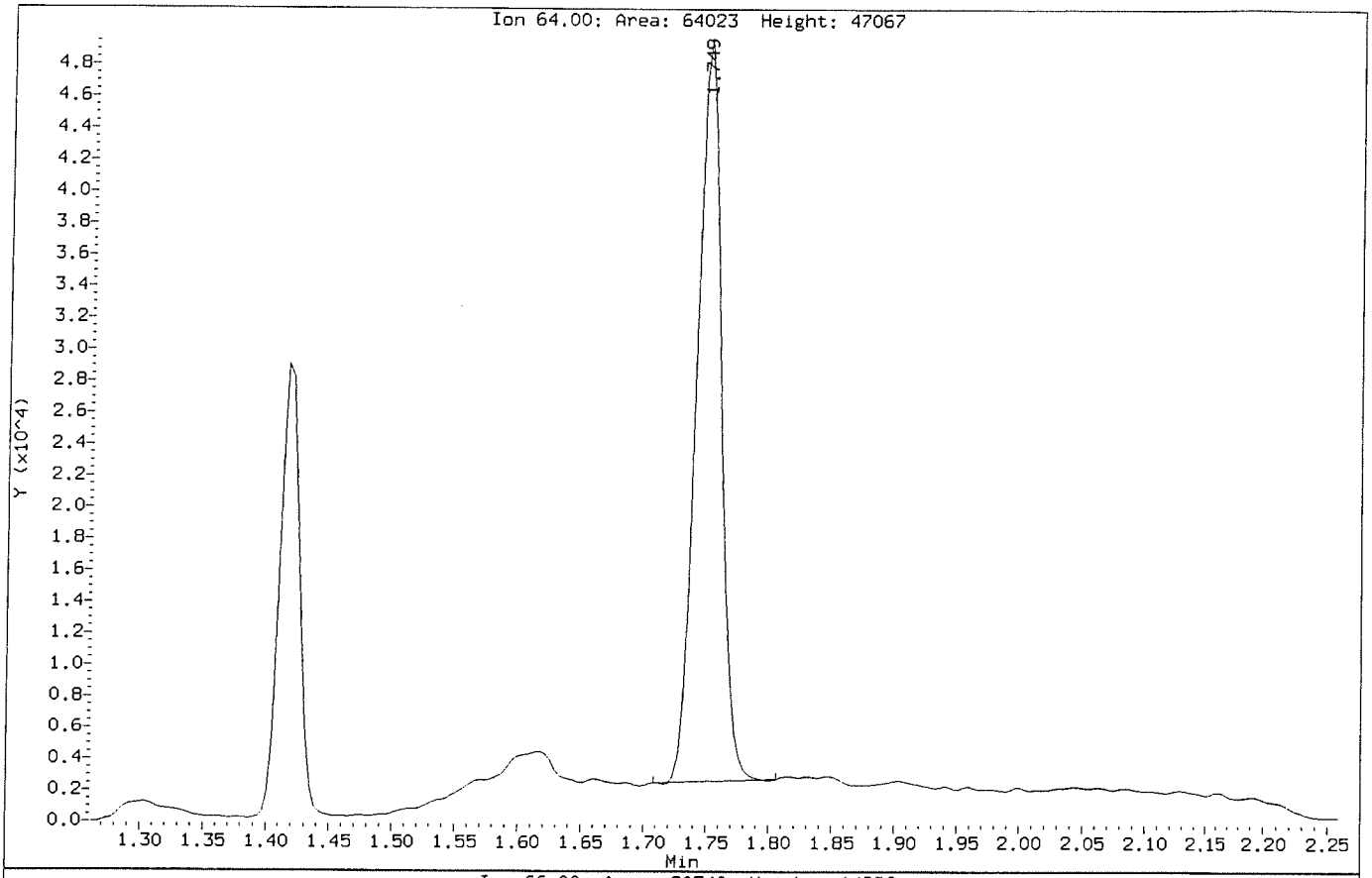
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122416.D
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

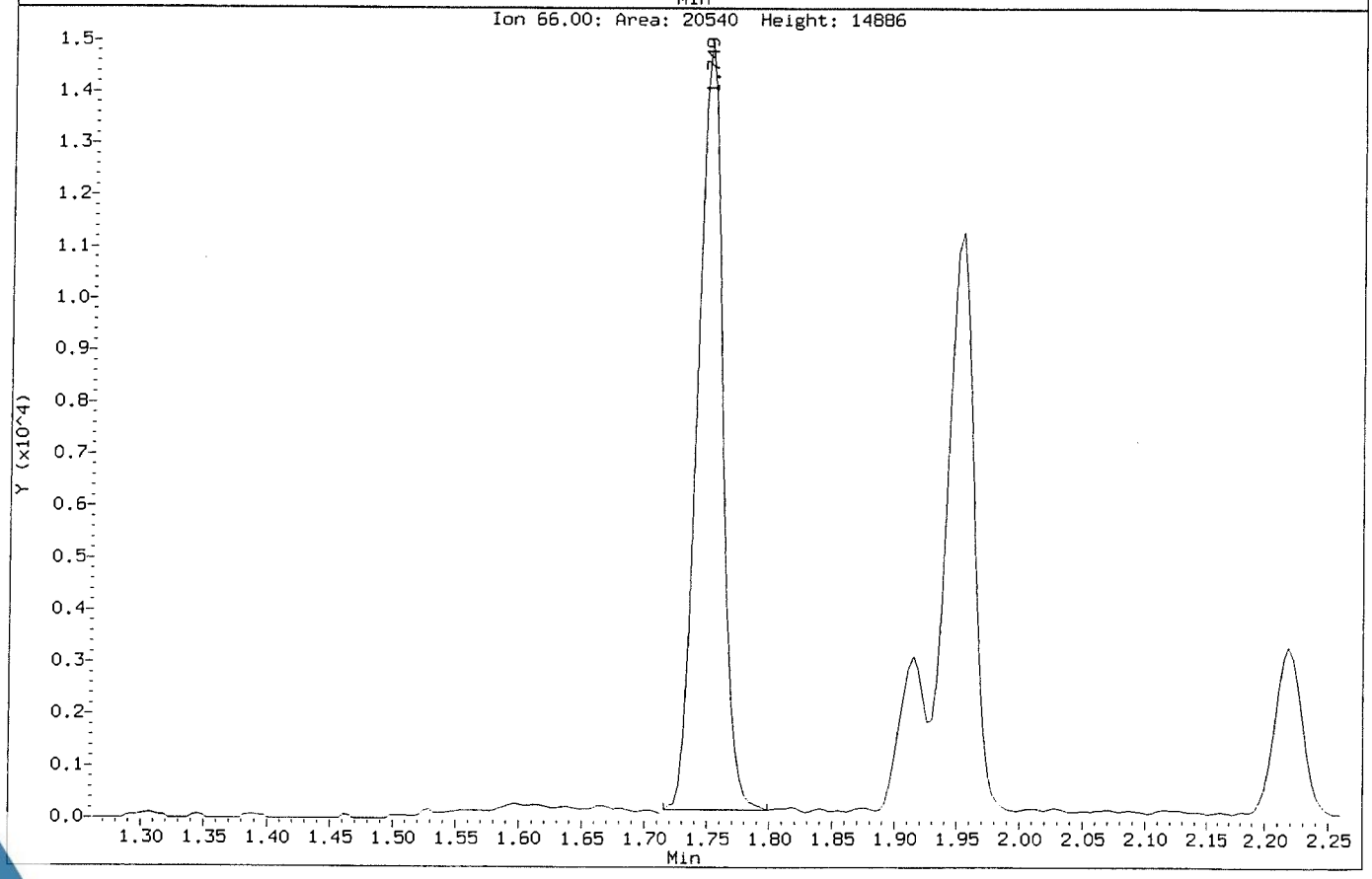
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3



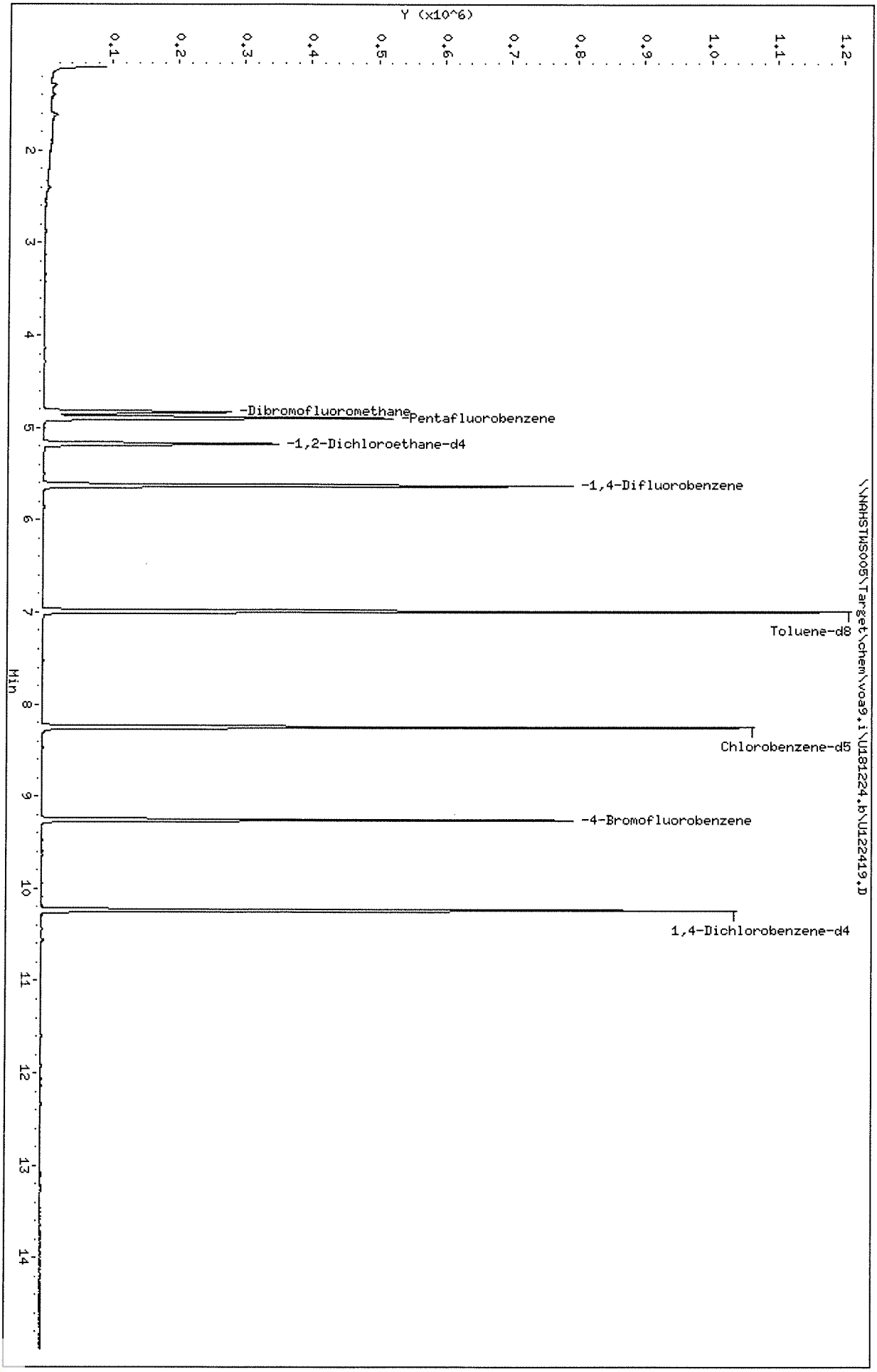
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122419.D
Lab Smp Id: HS18121030-05 Client Smp ID: HS18121030-05
Inj Date : 24-DEC-2018 16:53
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-05;HS18121030-05;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.902 | (1.000) | 314514 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 561567 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 509471 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 230571 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.987) | 160466 | 46.1198 | 46.11 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 221623 | 49.7759 | 49.77 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 689478 | 52.4950 | 52.49 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.258 | (1.122) | 242324 | 48.3398 | 48.33 |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Date : 24-DEC-2018 16:53
Client ID: HS18121030-05
Sample Info: HS18121030-05;HS18121030-05;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18
Page 2
Y (x10^6)
Min
-Dibromofluoromethane
Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122419.D

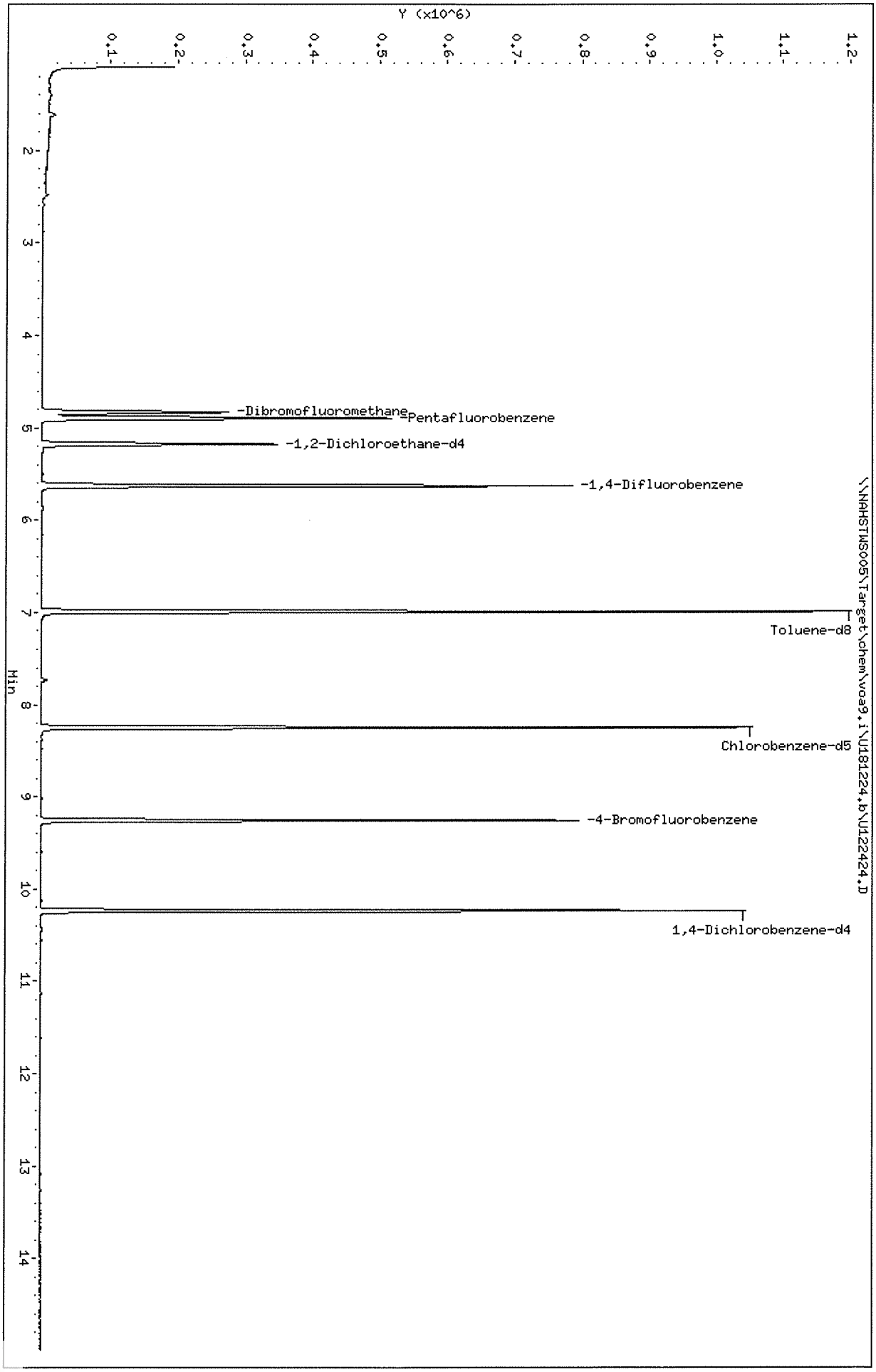
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122424.D
Lab Smp Id: HS18121030-01 Client Smp ID: HS18121030-01
Inj Date : 24-DEC-2018 18:57
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-01;HS18121030-01;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.894 | 4.902 | (1.000) | 313941 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.625 | 5.629 | (1.000) | 556323 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 509775 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 228828 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.830 | 4.834 | (0.987) | 159900 | 46.0384 | 46.03 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.175 | 5.179 | (1.057) | 220632 | 49.6380 | 49.63 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 685418 | 52.1432 | 52.14 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.258 | (1.122) | 241576 | 48.1566 | 48.15 |




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122424.D
Date : 24-DEC-2018 18:57
Client ID: HS18121030-01
Sample Info: HS18121030-01;HS18121030-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D
Lab Smp Id: HS18121030-02 Client Smp ID: HS18121030-02
Inj Date : 24-DEC-2018 19:22
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-02;HS18121030-02;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

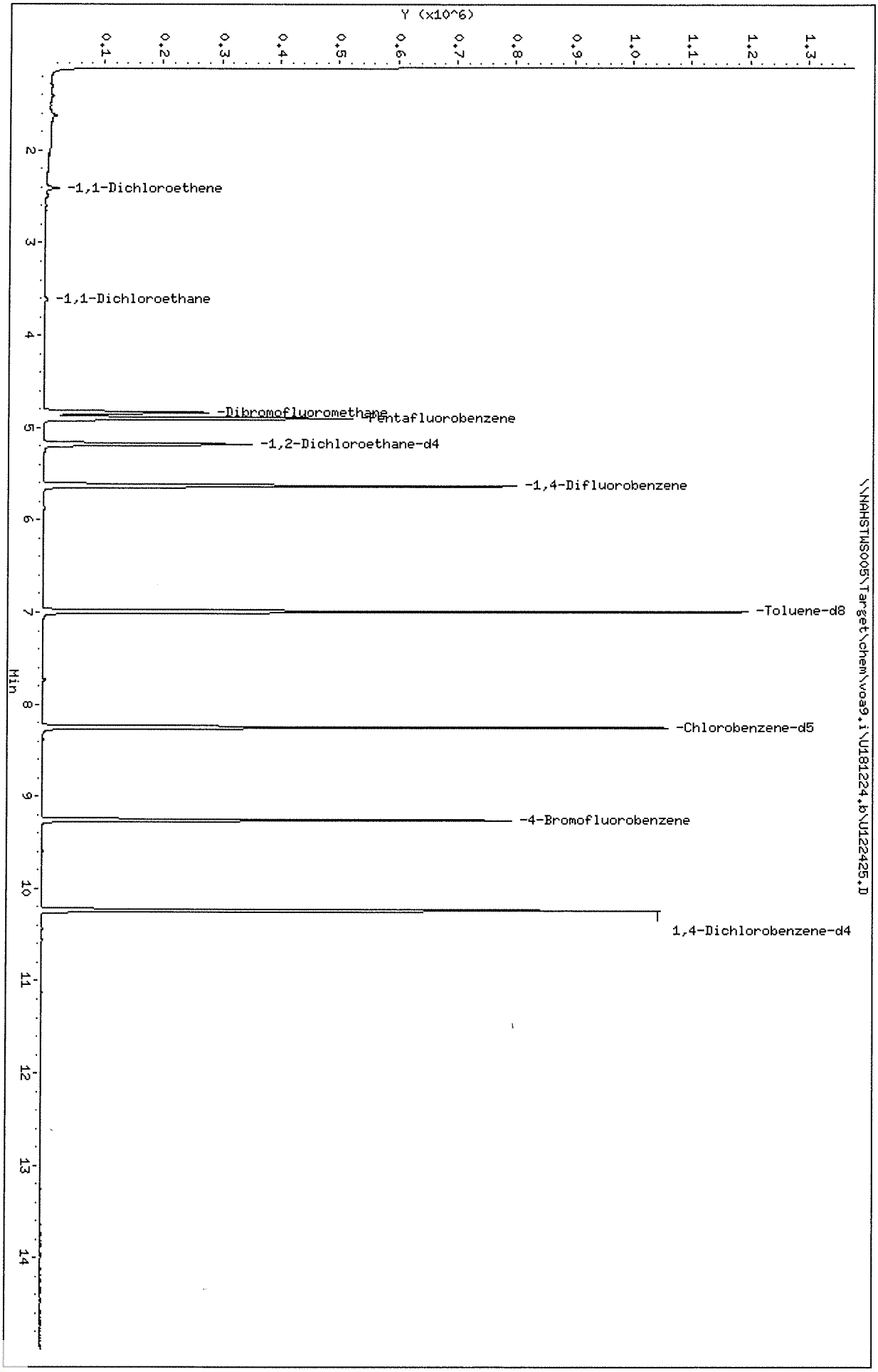
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.902 | (1.000) | 317197 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 562658 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.253 | 8.253 | (1.000) | 506429 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 230887 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 161512 | 46.0247 | 46.02 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 223173 | 49.6968 | 49.69 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 690520 | 52.9036 | 52.90 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 242036 | 48.5793 | 48.57 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 4797 | 0.70223 | 0.70(a) |
| 11 1,1-Dichloroethene | 96 | 2.408 | 2.409 | (0.492) | 6136 | 2.03452 | 2.03(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D
Date : 24-DEC-2018 19:22
Client ID: HS18121030-02
Sample Info: HS18121030-02;HS18121030-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D Page 3

Date : 24-DEC-2018 19:22

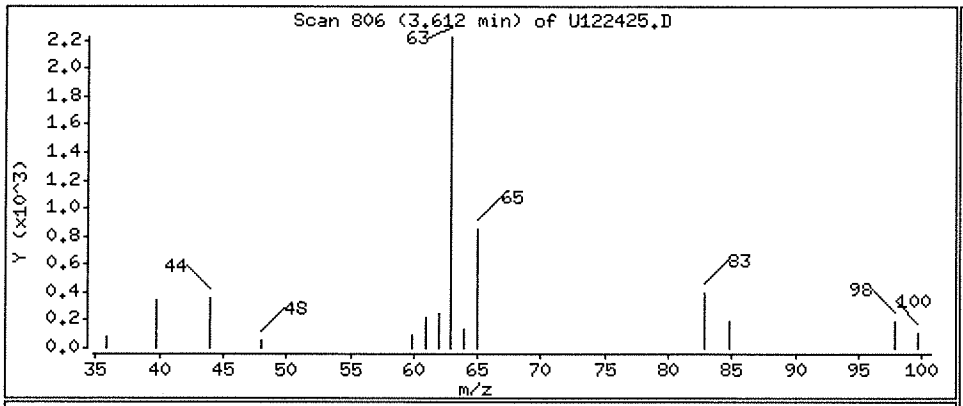
Client ID: HS18121030-02 Instrument: VOA9.i

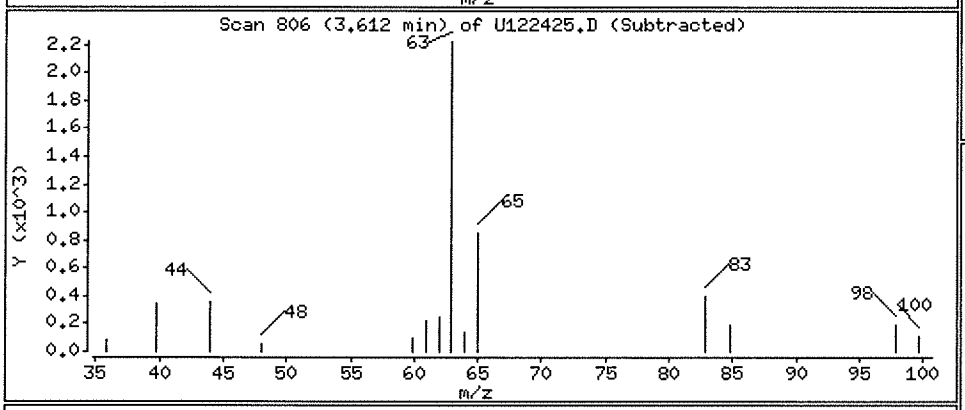
Sample Info: HS18121030-02;HS18121030-02;;;

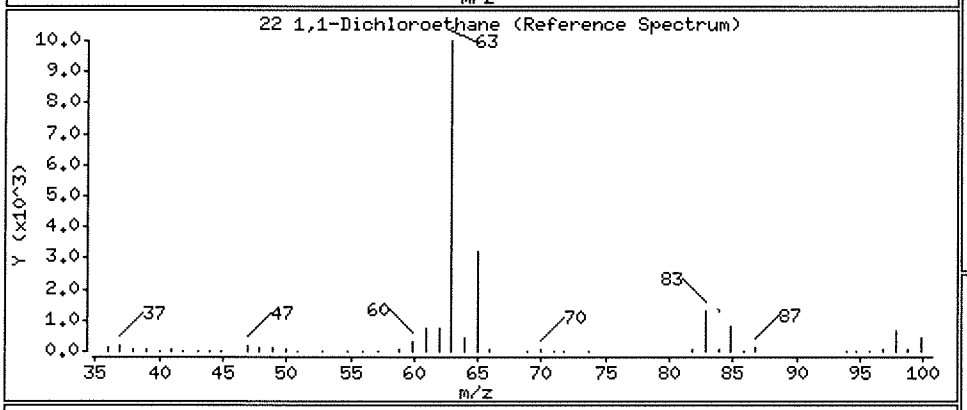
Purge Volume: 5.0 Operator: PC

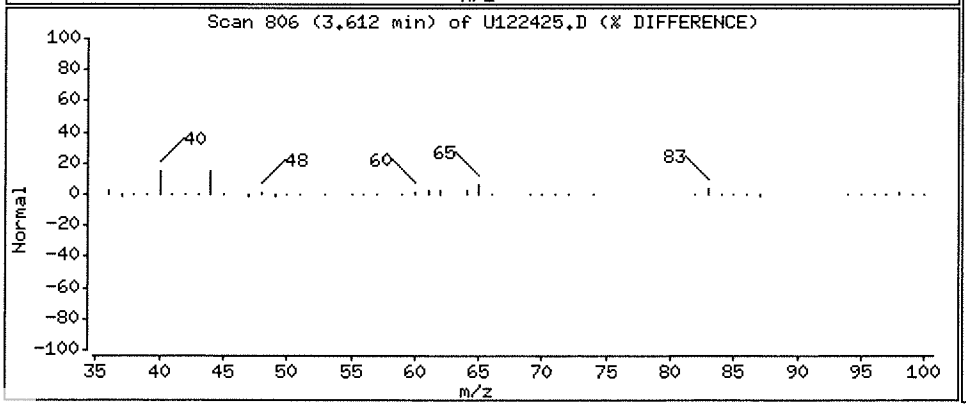
Column phase: DB624 Column diameter: 0.18

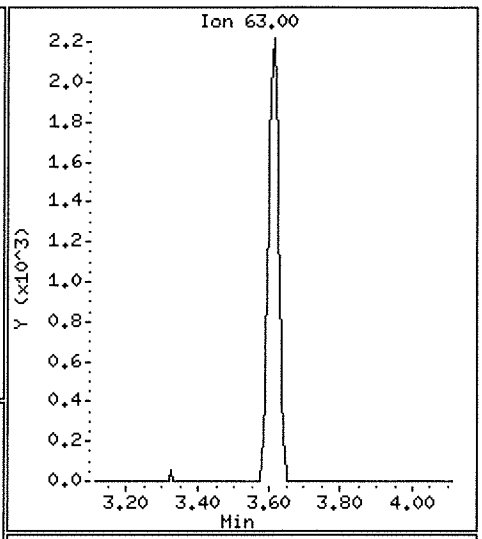
22 1,1-Dichloroethane Concentration: 0.70 ug/l

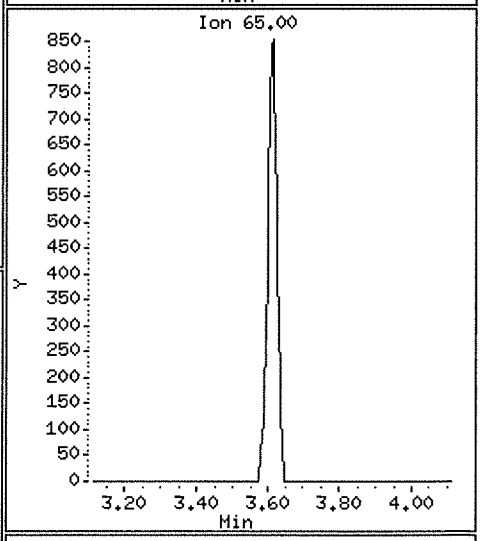


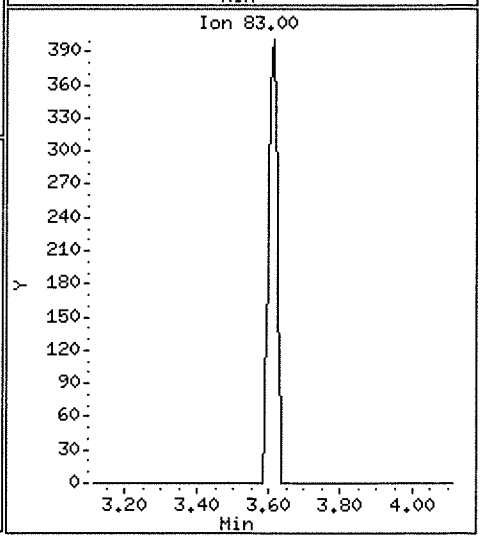



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D



Date : 24-DEC-2018 19:22

Client ID: HS18121030-02

Instrument: VOA9.i

Sample Info: HS18121030-02;HS18121030-02;;;

Purge Volume: 5.0

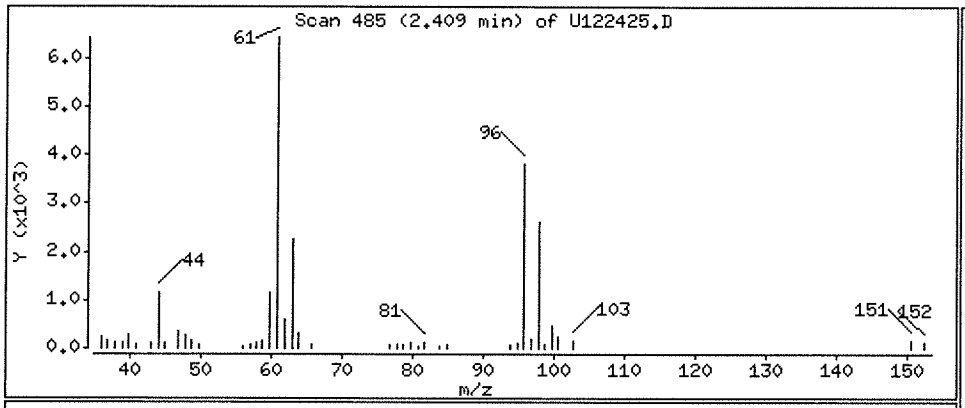
Operator: PC

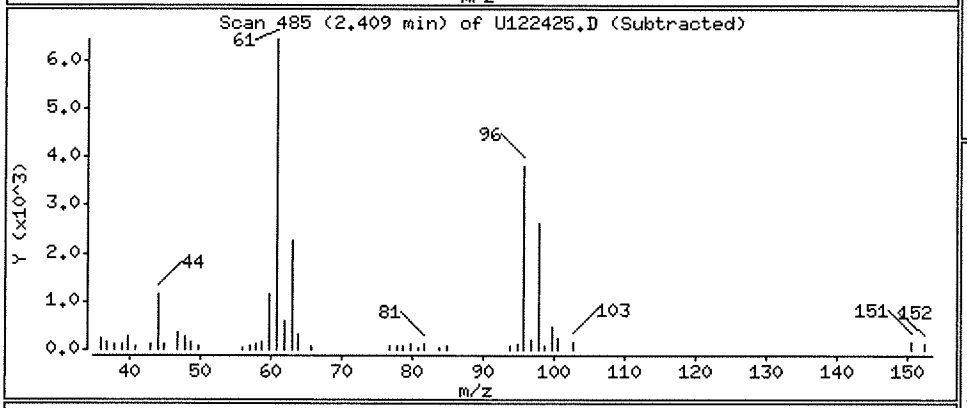
Column phase: DB624

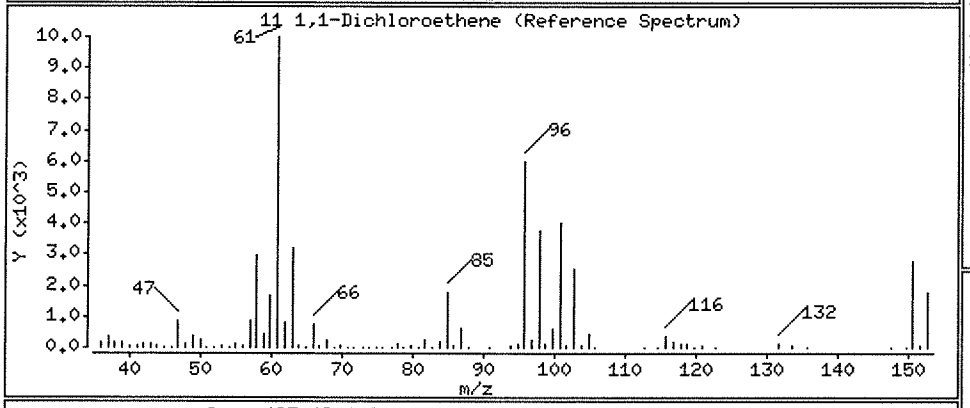
Column diameter: 0.18

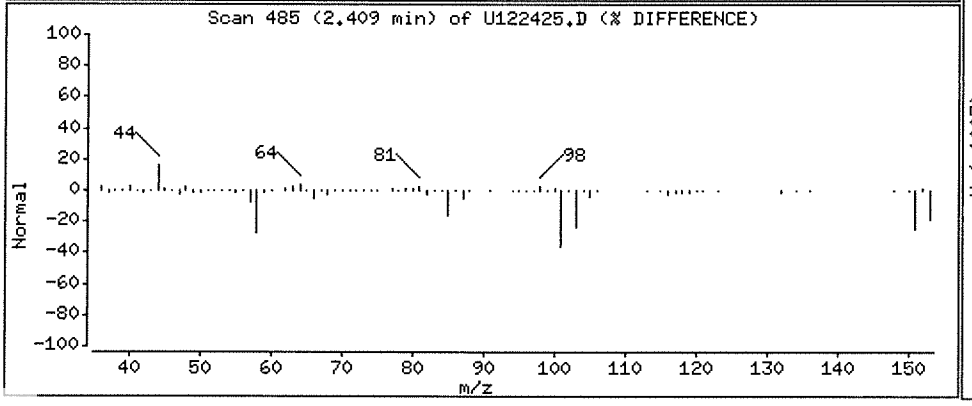
11 1,1-Dichloroethene

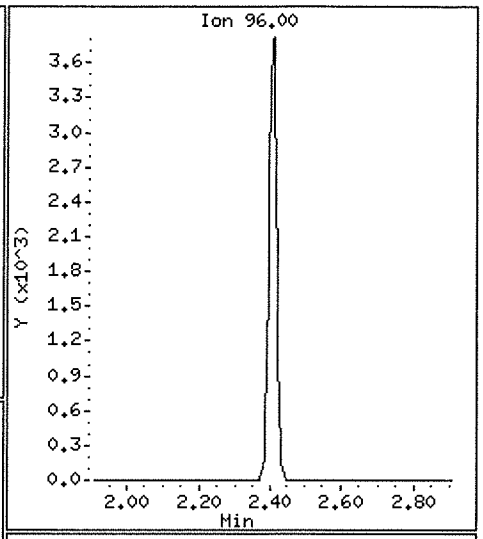
Concentration: 2.03 ug/l

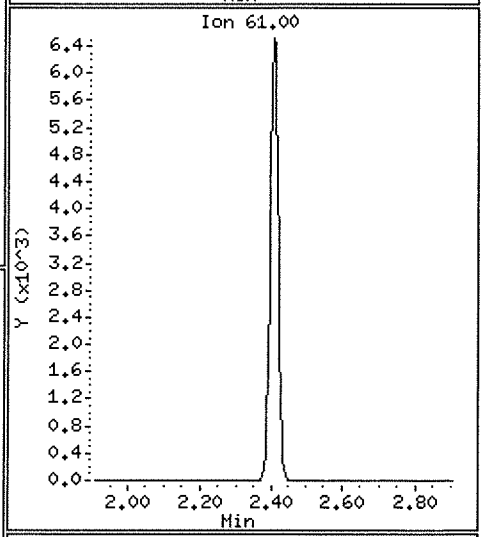


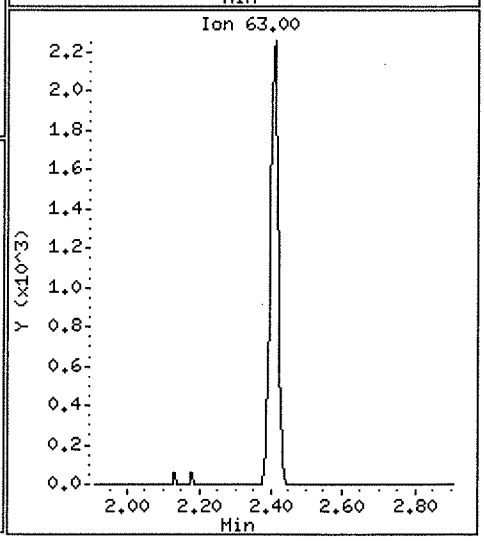



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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122426.D
Lab Smp Id: HS18121030-03 Client Smp ID: HS18121030-03
Inj Date : 24-DEC-2018 19:47
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-03;HS18121030-03;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

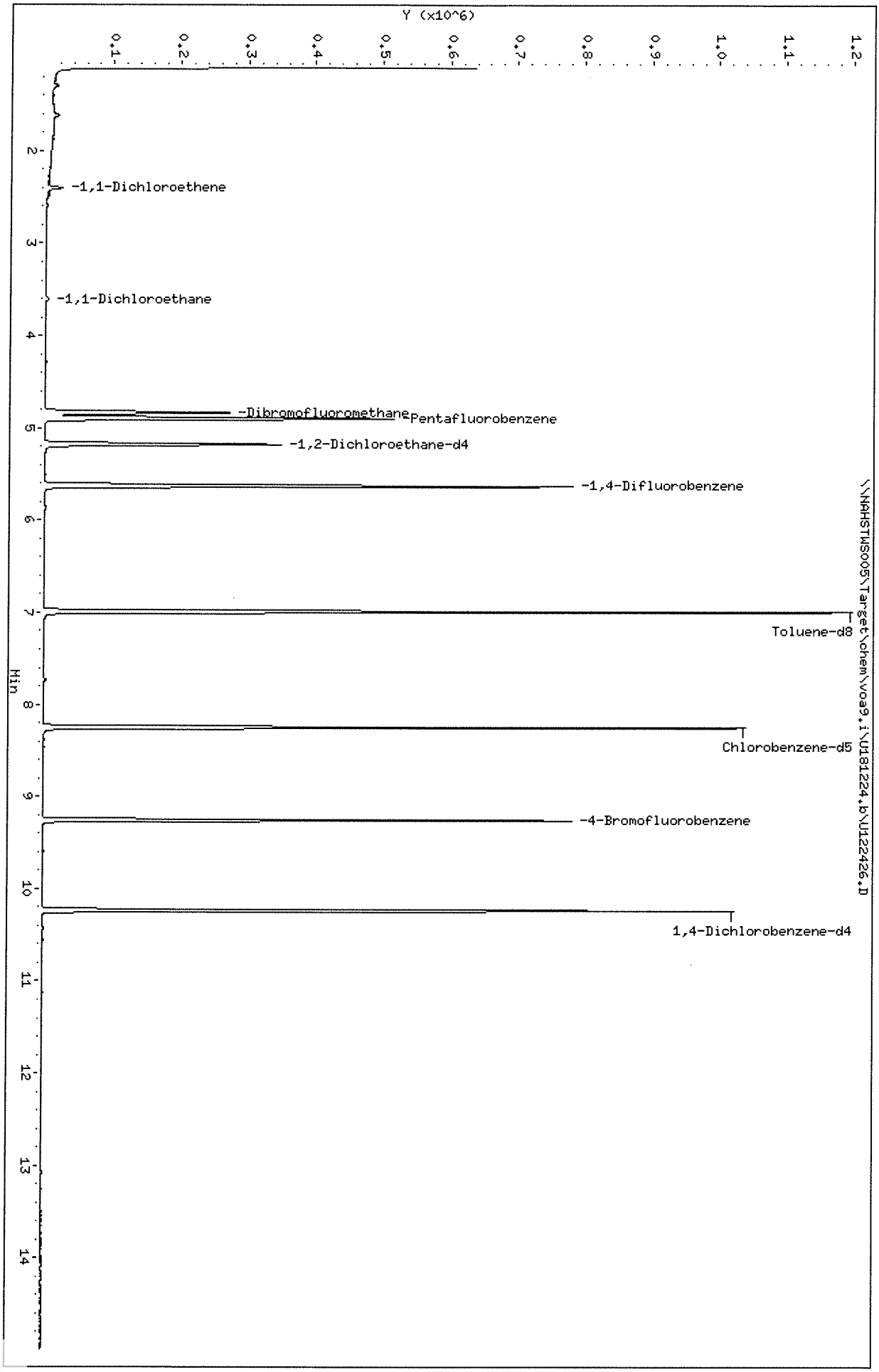
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.898 | 4.902 | (1.000) | 312420 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 560183 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 503685 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 225729 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 158833 | 45.9510 | 45.95 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 223511 | 50.5696 | 50.56 |
| $ 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 685861 | 52.8305 | 52.83 |
| $ 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 239184 | 48.2592 | 48.25 |
| 22 1,1-Dichloroethane | 63 | 3.608 | 3.612 | (0.737) | 4894 | 0.72739 | 0.72(a) |
| 11 1,1-Dichloroethene | 96 | 2.405 | 2.409 | (0.491) | 6702 | 2.25617 | 2.25(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122426,D
Date : 24-DEC-2018 19:47
Client ID: HS18121030-03
Sample Info: HS18121030-03;HS18121030-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122426.D



Date : 24-DEC-2018 19:47

Client ID: HS18121030-03

Instrument: VOA9.i

Sample Info: HS18121030-03;HS18121030-03;;;

Purge Volume: 5.0

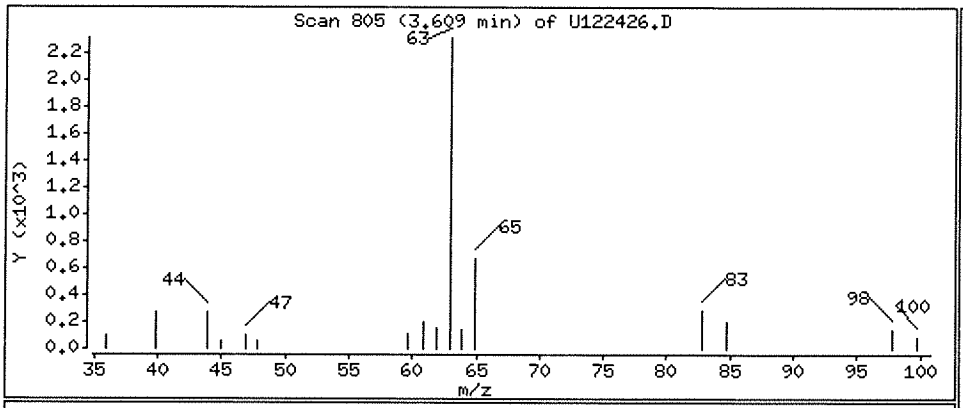
Operator: PC

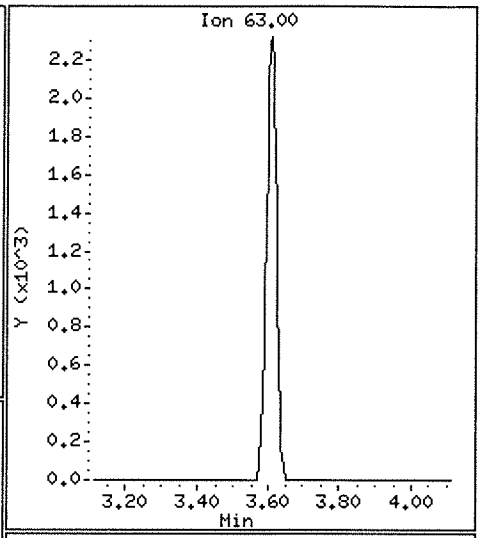
Column phase: DB624

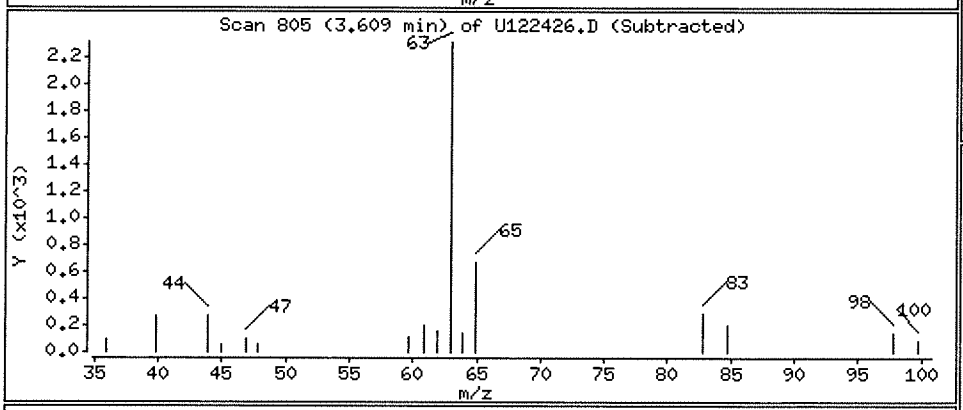
Column diameter: 0.18

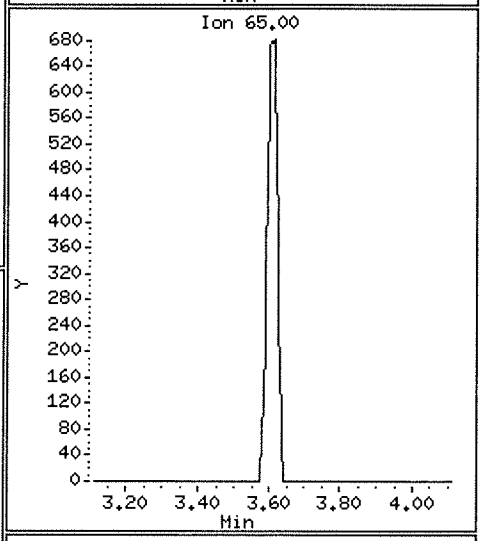
22 1,1-Dichloroethane

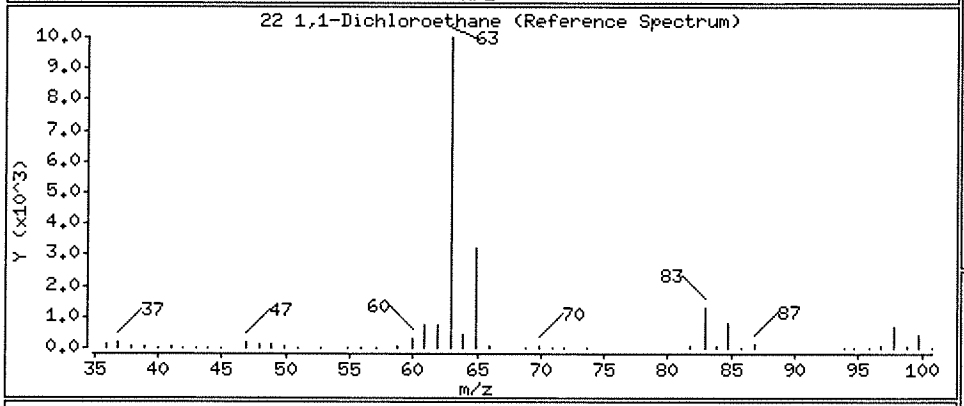
Concentration: 0.72 ug/l

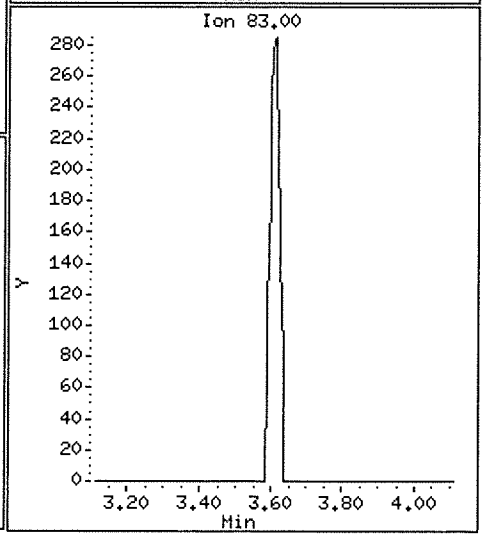


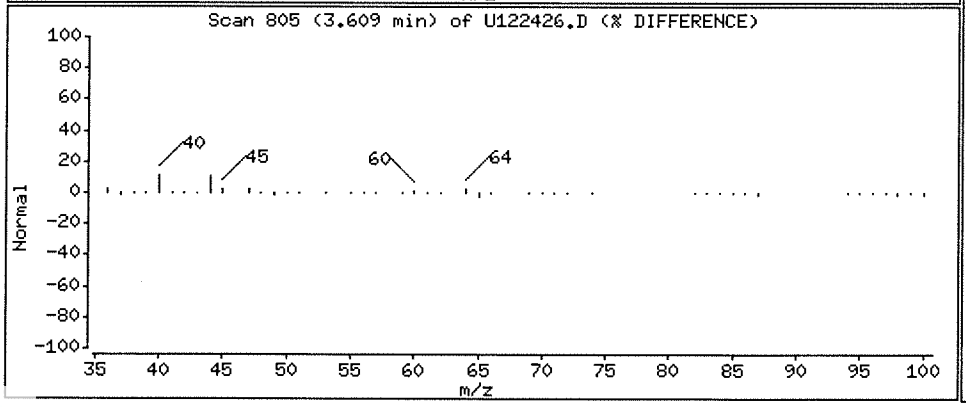



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122426.D



Date : 24-DEC-2018 19:47

Client ID: HS18121030-03

Instrument: VOA9.i

Sample Info: HS18121030-03;HS18121030-03;;;

Purge Volume: 5.0

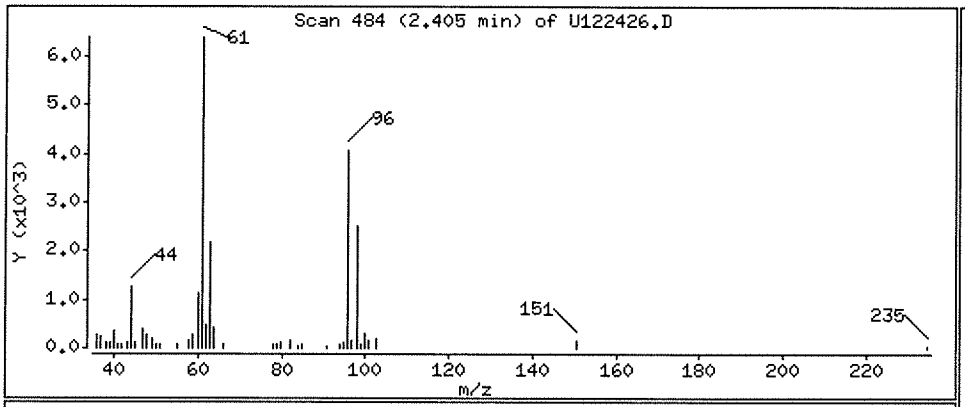
Operator: PC

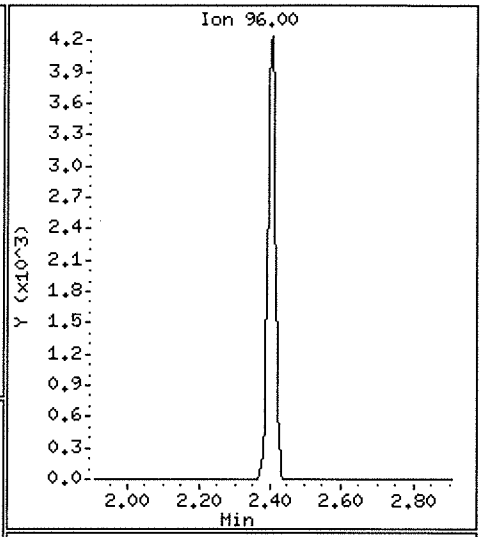
Column phase: DB624

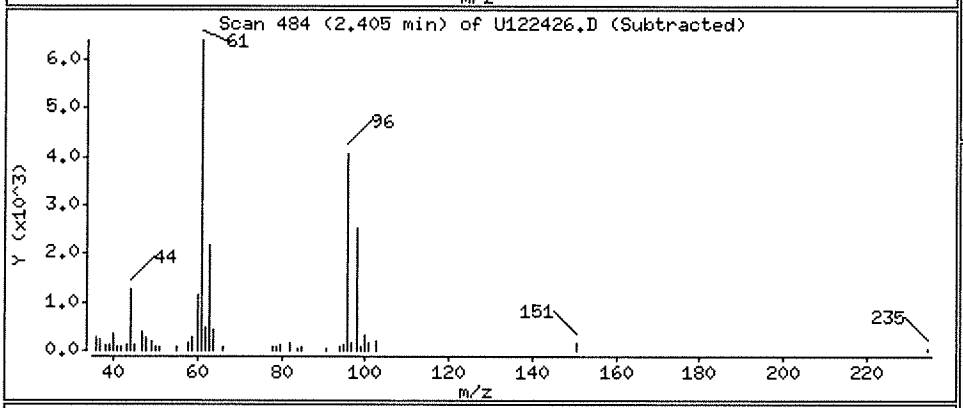
Column diameter: 0.18

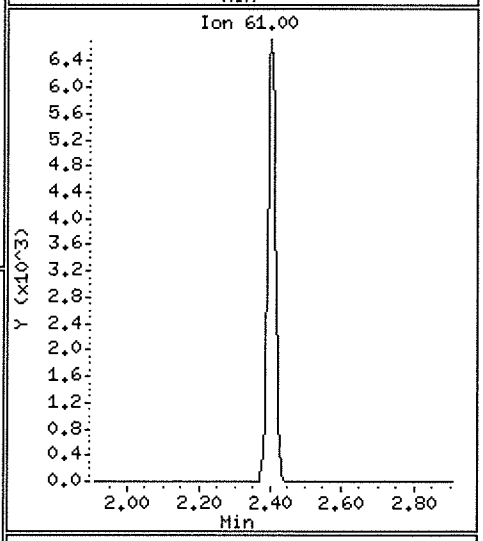
11 1,1-Dichloroethene

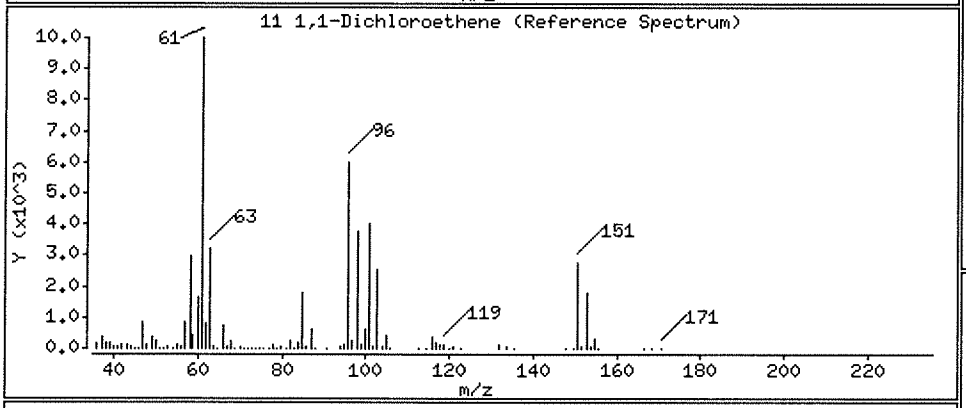
Concentration: 2.25 ug/l

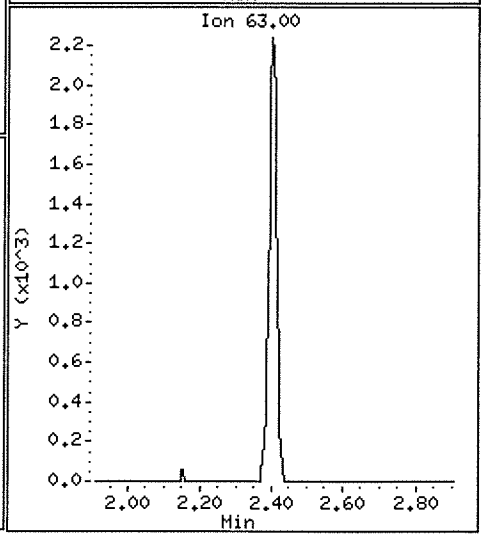


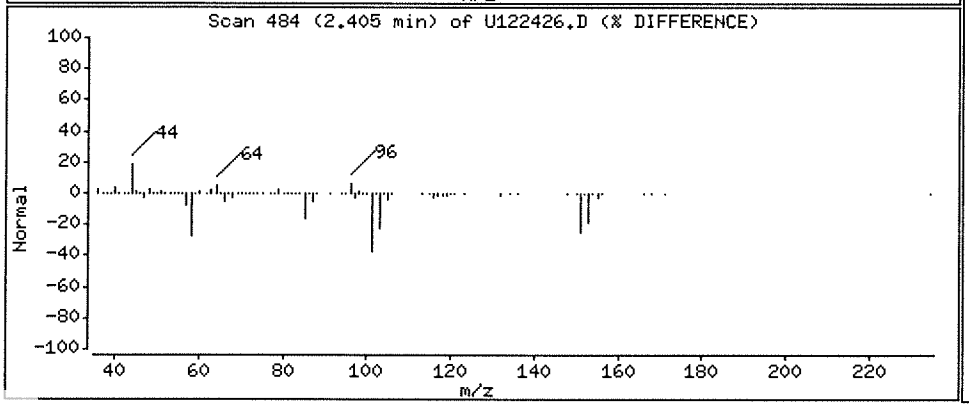



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122427.D Page 1
Report Date: 28-Jan-2019 14:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122427.D
Lab Smp Id: HS18121030-04 Client Smp ID: HS18121030-04
Inj Date : 24-DEC-2018 20:12
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-04;HS18121030-04;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

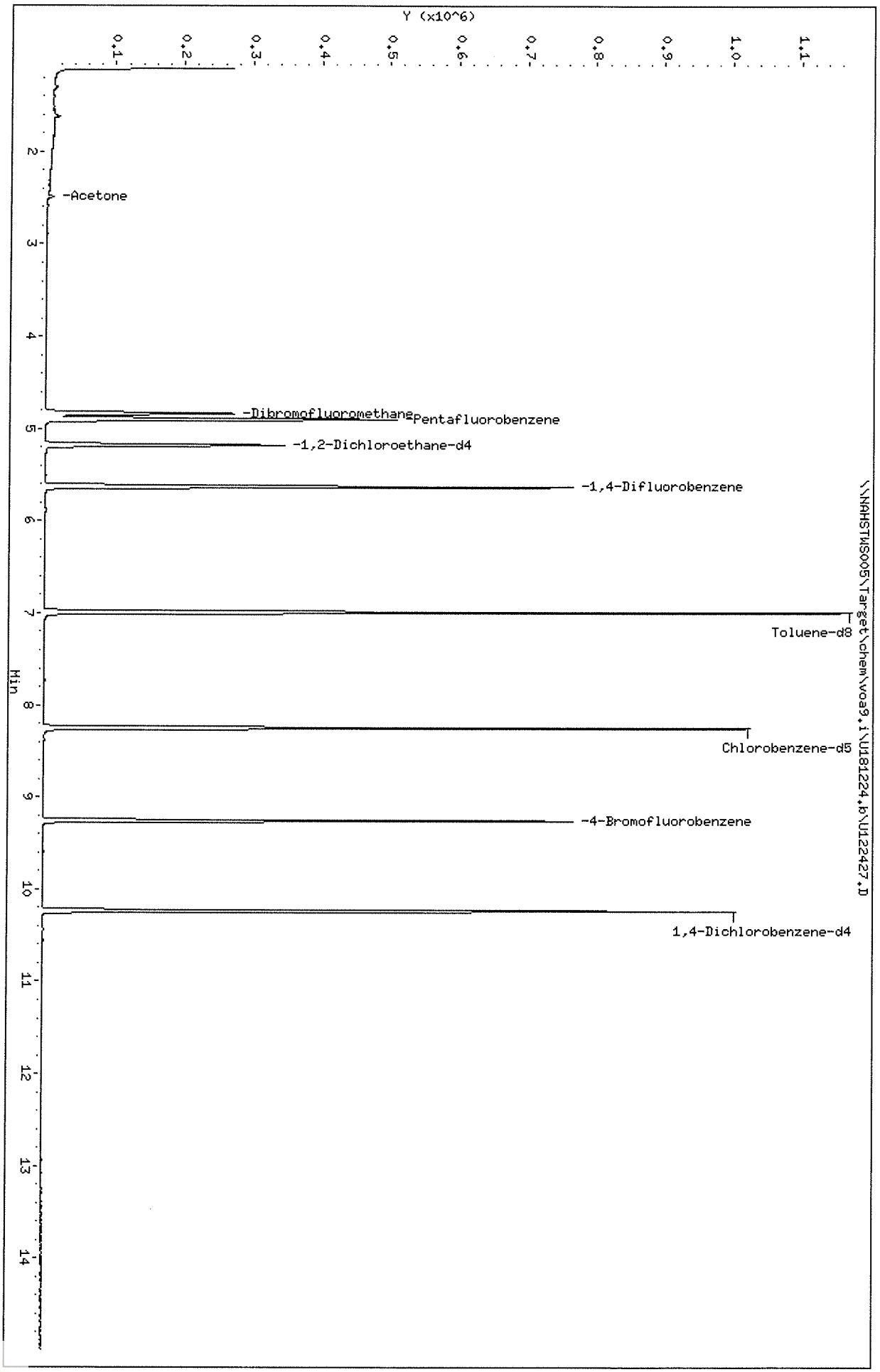
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.898 | 4.902 | (1.000) | 308355 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 547034 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 8.249 | 8.253 | (1.000) | 491539 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 223388 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.987) | 158088 | 46.3512 | 46.35 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 219114 | 50.2137 | 50.21 |
| $ | 48 Toluene-d8 | 98 | 6.989 | 6.990 | (0.847) | 677433 | 53.4923 | 53.49 |
| $ | 69 4-Bromofluorobenzene | 95 | 9.257 | 9.258 | (1.122) | 236873 | 48.9951 | 48.99 |
| | 10 Acetone | 43 | 2.487 | 2.491 | (0.508) | 8759 | 4.47222 | 4.47(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122427.D
Date : 24-DEC-2018 20:12
Client ID: HS18121030-04
Sample Info: HS18121030-04;HS18121030-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122427.D



Date : 24-DEC-2018 20:12

Client ID: HS18121030-04

Instrument: VOA9.i

Sample Info: HS18121030-04;HS18121030-04;;;

Purge Volume: 5.0

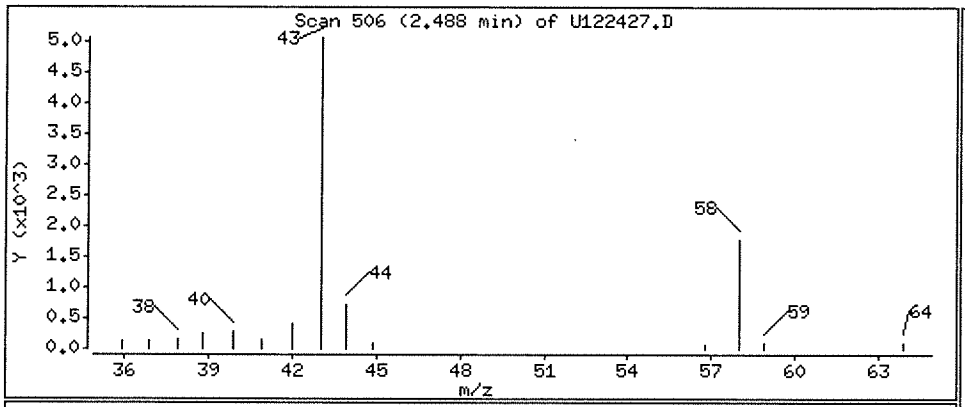
Operator: PC

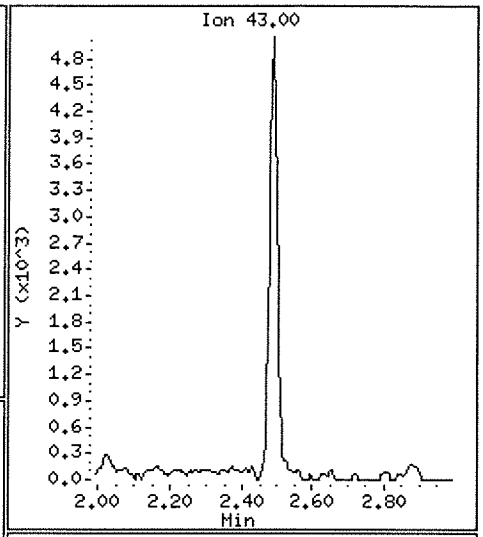
Column phase: DB624

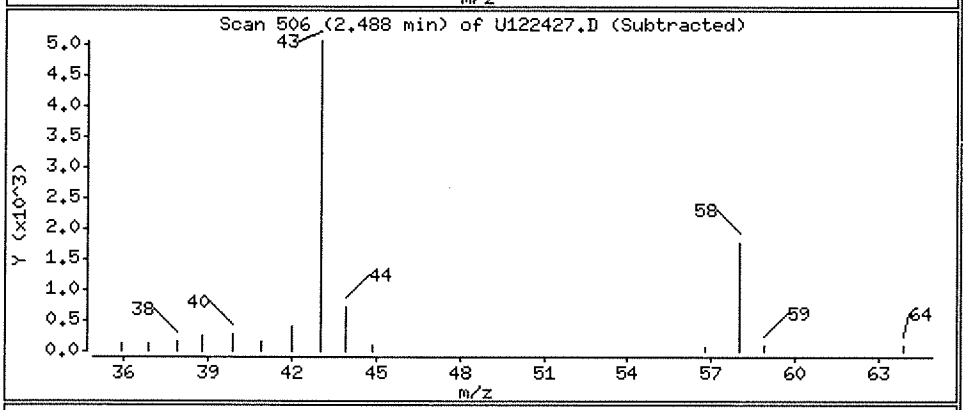
Column diameter: 0.18

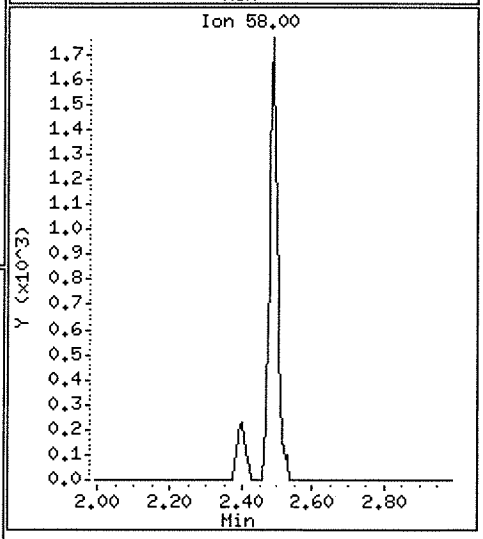
10 Acetone

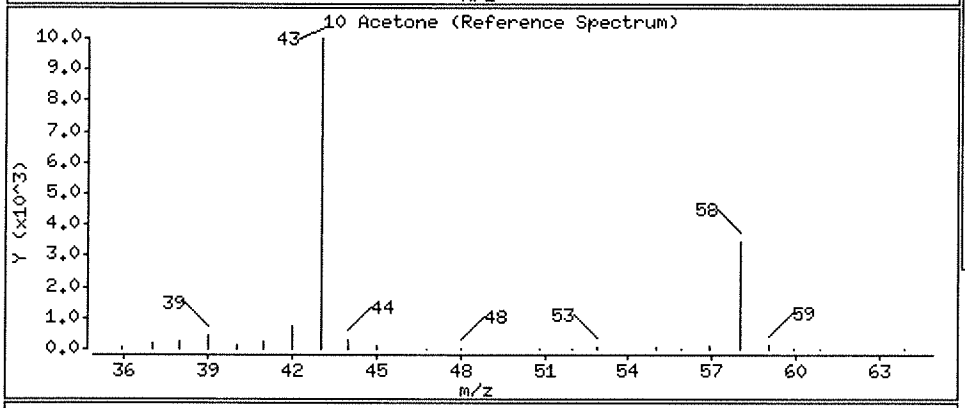
Concentration: 4.47 ug/l

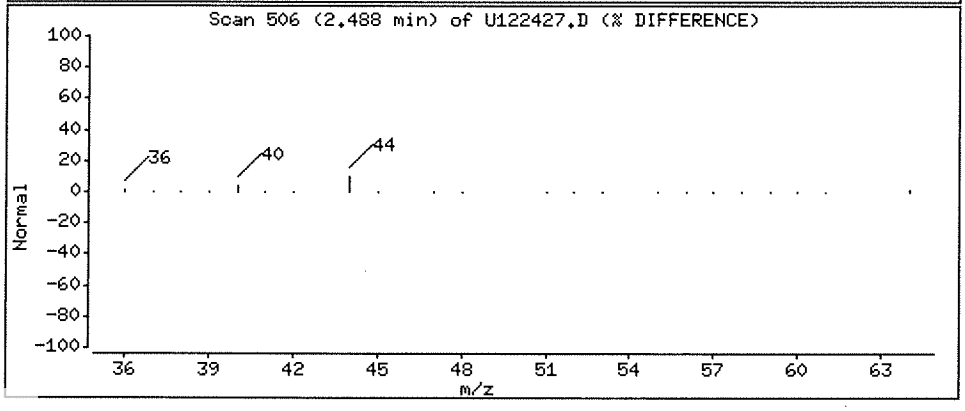


ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 24-DEC-2018 20:37
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

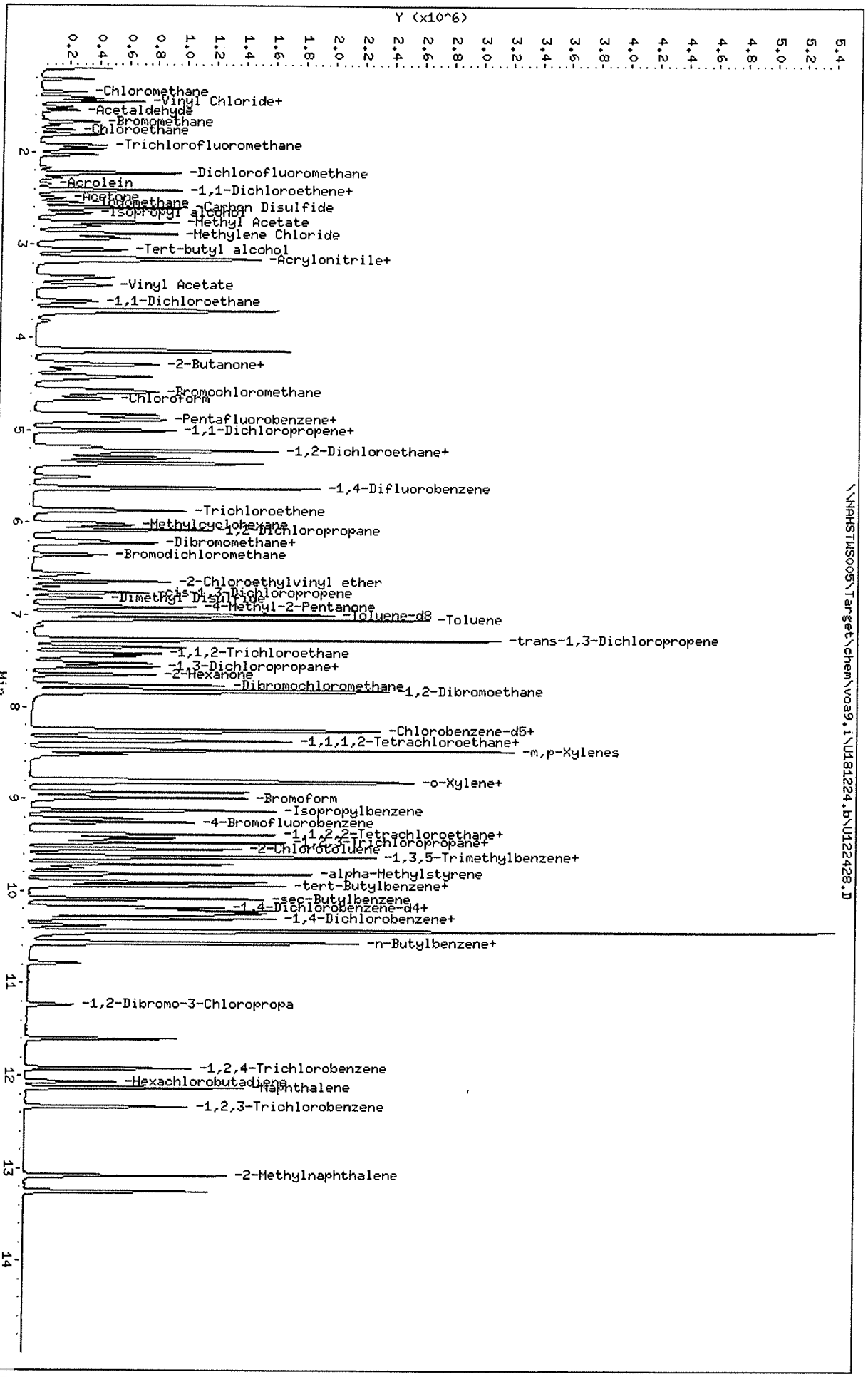
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.902 | 4.902 | (1.000) | 372728 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 5.629 | 5.629 | (1.000) | 712334 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 8.253 | 8.253 | (1.000) | 666433 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 10.236 | 10.236 | (1.000) | 318419 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.834 | 4.834 | (0.986) | 218616 | 50.0000 | 53.24 |
| $ 35 1,2-Dichloroethane-d4 | 65 | 5.179 | 5.179 | (1.057) | 288948 | 50.0000 | 54.97 |
| $ 48 Toluene-d8 | 98 | 6.990 | 6.990 | (0.847) | 875536 | 50.0000 | 50.90 |
| $ 69 4-Bromofluorobenzene | 95 | 9.258 | 9.258 | (1.122) | 336472 | 50.0000 | 51.40 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 8.350 | 8.350 | (1.012) | 202858 | 50.0000 | 47.99 |
| 31 1,1,1-Trichloroethane | 97 | 4.834 | 4.834 | (0.986) | 295777 | 50.0000 | 50.25 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 9.392 | 9.392 | (0.918) | 379460 | 50.0000 | 52.91 |
| 138 Freon TF | 101 | 2.412 | 2.412 | (0.492) | 148708 | 50.0000 | 46.92 |
| 53 1,1,2-Trichloroethane | 83 | 7.421 | 7.421 | (0.899) | 206414 | 50.0000 | 51.98 |
| 22 1,1-Dichloroethane | 63 | 3.612 | 3.612 | (0.737) | 409374 | 50.0000 | 50.99 |
| 11 1,1-Dichloroethene | 96 | 2.409 | 2.409 | (0.491) | 171295 | 50.0000 | 48.33 |
| 32 1,1-Dichloropropene | 75 | 5.010 | 5.010 | (0.890) | 303180 | 50.0000 | 47.83 |
| 93 1,2,3-Trichlorobenzene | 180 | 12.335 | 12.335 | (1.205) | 286736 | 50.0000 | 47.81 |
| 71 1,2,3-Trichloropropane | 75 | 9.430 | 9.430 | (0.921) | 413440 | 50.0000 | 55.44 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.923 | 11.923 | (1.165) | 290679 | 50.0000 | 49.30 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.944 | 9.944 | (0.971) | 850301 | 50.0000 | 51.02 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 11.233 | 11.233 | (1.097) | 55844 | 50.0000 | 50.49 |
| 57 1,2-Dibromoethane | 107 | 7.852 | 7.852 | (0.951) | 239717 | 50.0000 | 52.41 |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 10.570 | 10.570 | (1.033) | 468743 | 50.0000 | 49.57 |
| 33 | 1,2-Dichloroethane | 62 | 5.258 | 5.258 | (0.934) | 339214 | 50.0000 | 52.89 |
| 42 | 1,2-Dichloropropane | 63 | 6.086 | 6.086 | (1.081) | 256086 | 50.0000 | 50.87 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.625 | 9.625 | (0.940) | 818604 | 50.0000 | 51.15 |
| 83 | 1,3-Dichlorobenzene | 146 | 10.180 | 10.180 | (0.995) | 461460 | 50.0000 | 48.80 |
| 54 | 1,3-Dichloropropane | 76 | 7.567 | 7.567 | (0.917) | 441740 | 50.0000 | 51.65 |
| 84 | 1,4-Dichlorobenzene | 146 | 10.255 | 10.255 | (1.002) | 472169 | 50.0000 | 47.36 |
| 26 | 2,2-Dichloropropane | 77 | 4.283 | 4.283 | (0.874) | 211110 | 50.0000 | 43.64 |
| 24 | 2-Butanone | 43 | 4.347 | 4.347 | (0.887) | 289643 | 100.000 | 119.28 |
| 76 | 2-Chlorotoluene | 91 | 9.546 | 9.546 | (0.933) | 729682 | 50.0000 | 49.73 |
| 52 | 2-Hexanone | 43 | 7.653 | 7.653 | (0.927) | 447227 | 100.000 | 120.68 |
| 77 | 4-Chlorotoluene | 91 | 9.640 | 9.640 | (0.942) | 854108 | 50.0000 | 50.37 |
| 82 | p-Isopropyltoluene | 119 | 10.210 | 10.210 | (0.997) | 843466 | 50.0000 | 50.05 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.915 | 6.915 | (0.838) | 622617 | 100.000 | 116.76 |
| 10 | Acetone | 43 | 2.491 | 2.491 | (0.508) | 191412 | 100.000 | 132.50 |
| 37 | Benzene | 78 | 5.224 | 5.224 | (0.928) | 949351 | 50.0000 | 50.08 |
| 74 | Bromobenzene | 156 | 9.385 | 9.385 | (0.917) | 244860 | 50.0000 | 49.77 |
| 29 | Bromochloromethane | 128 | 4.560 | 4.560 | (0.930) | 111636 | 50.0000 | 57.58 |
| 39 | Bromodichloromethane | 83 | 6.352 | 6.352 | (1.129) | 279220 | 50.0000 | 52.16 |
| 66 | Bromoform | 173 | 8.984 | 8.984 | (1.089) | 133700 | 50.0000 | 46.85(T) |
| 6 | Bromomethane | 94 | 1.674 | 1.674 | (0.342) | 119849 | 50.0000 | 52.01 |
| 19 | Carbon Disulfide | 76 | 2.600 | 2.600 | (0.530) | 1247818 | 100.000 | 96.63 |
| 34 | Carbon Tetrachloride | 117 | 5.003 | 5.003 | (0.889) | 228405 | 50.0000 | 44.25 |
| 59 | Chlorobenzene | 112 | 8.275 | 8.275 | (1.003) | 634246 | 50.0000 | 49.53 |
| 7 | Chloroethane | 64 | 1.760 | 1.760 | (0.359) | 163120 | 50.0000 | 49.36(M) |
| 28 | Chloroform | 83 | 4.665 | 4.665 | (0.952) | 400691 | 50.0000 | 51.83 |
| 3 | Chloromethane | 50 | 1.352 | 1.352 | (0.276) | 186619 | 50.0000 | 47.31 |
| 27 | cis-1,2-Dichloroethene | 96 | 4.294 | 4.294 | (0.876) | 251177 | 50.0000 | 51.26 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.201) | 383373 | 50.0000 | 47.20 |
| 55 | Dibromochloromethane | 129 | 7.758 | 7.758 | (0.940) | 208683 | 50.0000 | 47.69 |
| 44 | Dibromomethane | 93 | 6.195 | 6.195 | (1.101) | 152769 | 50.0000 | 52.58 |
| 2 | Dichlorodifluoromethane | 85 | 1.217 | 1.217 | (0.248) | 203871 | 50.0000 | 44.50 |
| 61 | Ethylbenzene | 106 | 8.373 | 8.373 | (1.015) | 327066 | 50.0000 | 49.80 |
| 91 | Hexachlorobutadiene | 225 | 12.065 | 12.065 | (1.179) | 97921 | 50.0000 | 43.35 |
| 67 | Isopropylbenzene | 105 | 9.126 | 9.126 | (1.106) | 956047 | 50.0000 | 50.44 |
| 62 | m,p-Xylenes | 106 | 8.474 | 8.474 | (1.027) | 808427 | 100.000 | 100.12 |
| 17 | Methylene Chloride | 84 | 2.881 | 2.881 | (0.588) | 245953 | 50.0000 | 53.47 |
| 87 | n-Butylbenzene | 91 | 10.558 | 10.558 | (1.031) | 792193 | 50.0000 | 48.71 |
| 73 | n-Propylbenzene | 91 | 9.475 | 9.475 | (0.926) | 1199674 | 50.0000 | 50.42 |
| 92 | Naphthalene | 128 | 12.133 | 12.133 | (1.185) | 992990 | 50.0000 | 51.20 |
| 63 | o-Xylene | 106 | 8.811 | 8.811 | (1.068) | 416328 | 50.0000 | 51.11 |
| 81 | sec-Butylbenzene | 105 | 10.086 | 10.086 | (0.985) | 991870 | 50.0000 | 49.60 |
| 64 | Styrene | 104 | 8.826 | 8.826 | (1.069) | 727808 | 50.0000 | 53.78 |
| 78 | tert-Butylbenzene | 119 | 9.902 | 9.902 | (0.967) | 690339 | 50.0000 | 49.91 |
| 56 | Tetrachloroethene | 164 | 7.526 | 7.526 | (0.912) | 156173 | 50.0000 | 44.76 |
| 50 | Toluene | 91 | 7.050 | 7.050 | (0.854) | 992367 | 50.0000 | 50.05 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.151 | 3.151 | (0.643) | 218068 | 50.0000 | 49.98 |
| 51 | trans-1,3-Dichloropropene | 75 | 7.263 | 7.263 | (1.290) | 328161 | 50.0000 | 47.00 |
| 38 | Trichloroethene | 130 | 5.865 | 5.865 | (1.042) | 221618 | 50.0000 | 48.43 |
| 8 | Trichlorofluoromethane | 101 | 1.963 | 1.963 | (0.400) | 293963 | 50.0000 | 47.87 |
| 5 | Vinyl Chloride | 62 | 1.430 | 1.430 | (0.292) | 258632 | 50.0000 | 49.07 |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

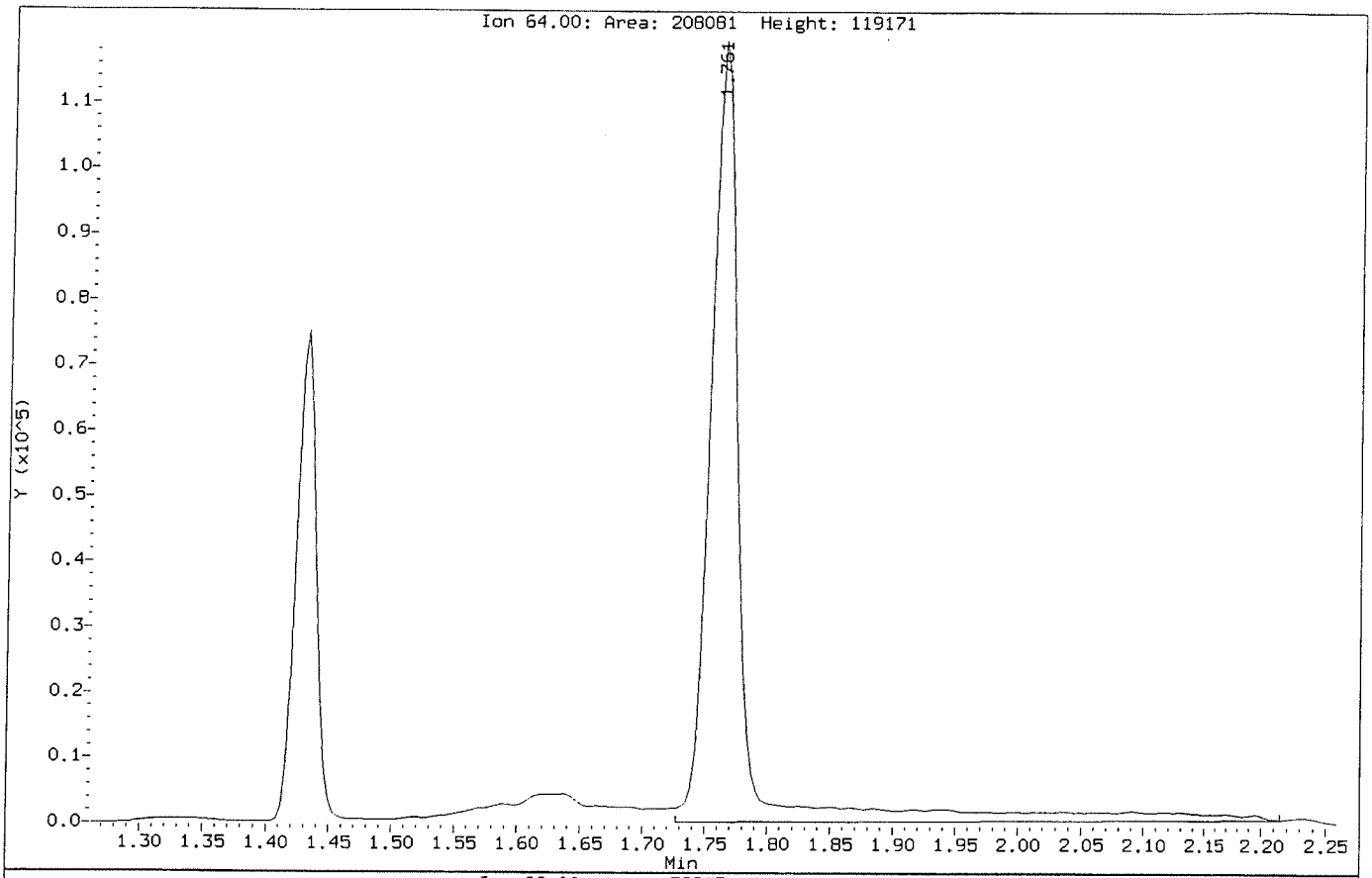


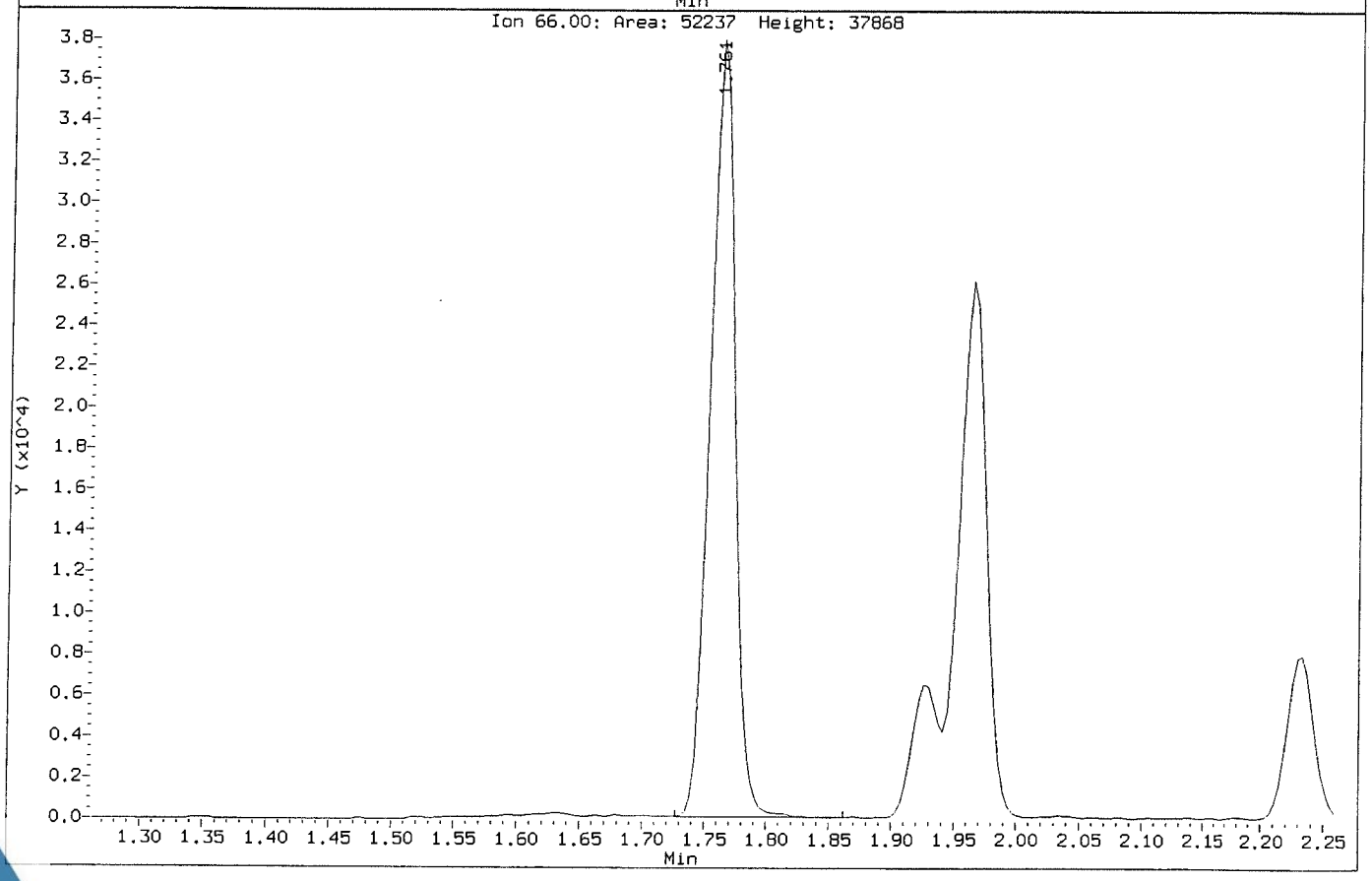

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Date : 24-DEC-2018 20:37
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3



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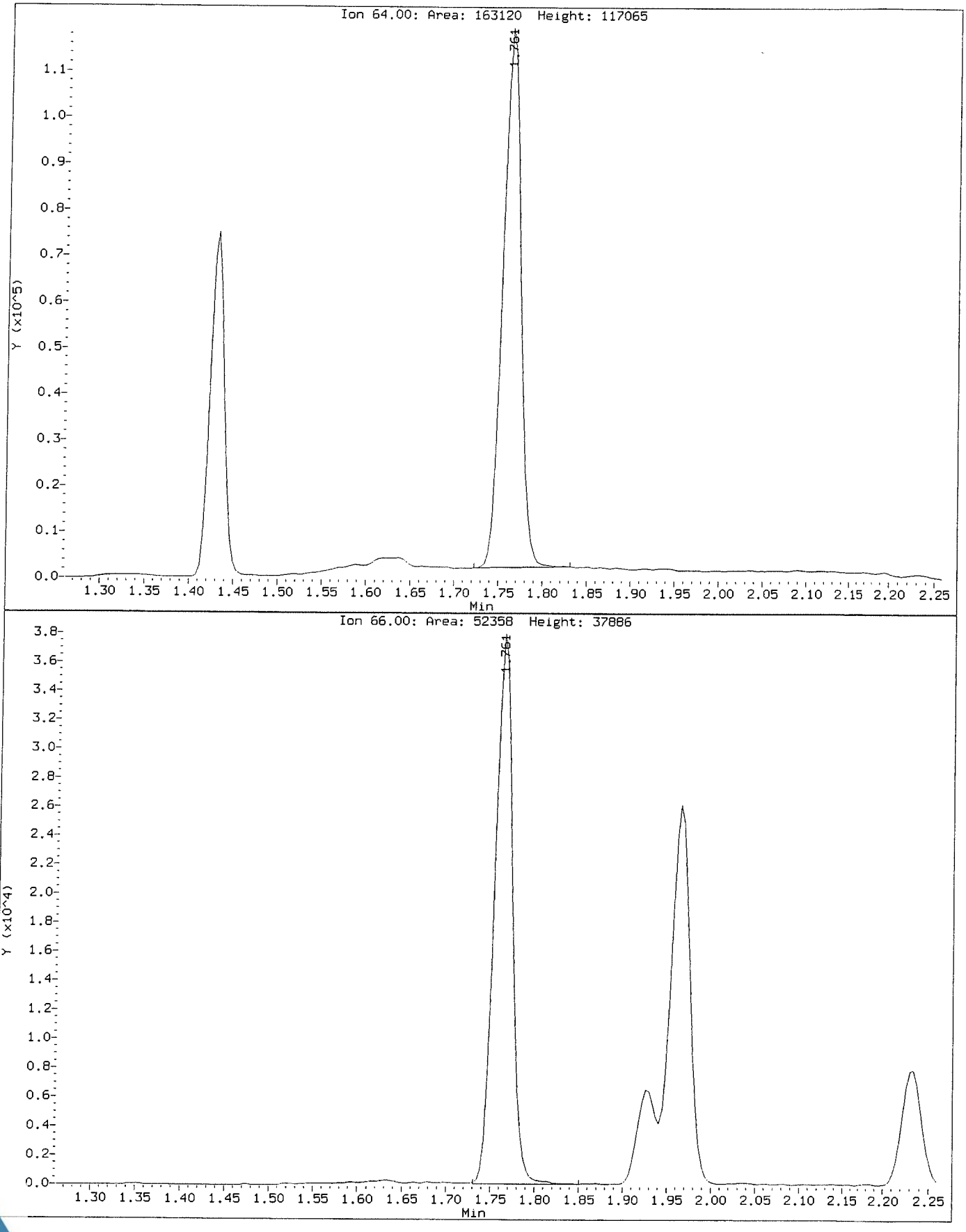
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3



# QUARTERLY CONTROL SUMMARY REPORT
# LHAAP-58 MARCH 2019
# WEST PLUME QUARTERLY PERFORMANCE SAMPLING EVENT
# LONGHORN ARMY AMMUNITION PLANT
# KARNACK, TEXAS

**April 2019**

*Prepared For:*

**Longhorn Army Ammunition Plant**
**Karnack, Texas**

*Under Contract To:*

**U.S. Army Corps of Engineers**
**Tulsa District**
**Tulsa, Oklahoma**

**Contract Number: W9128F-13-D-0012**
**Task Order Number: W912BV17F0150**

Prepared By:

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# 1 INTRODUCTION

Bhate reviewed one data package from ALS Environmental, Houston, Texas with the analyses for volatile fatty acids subcontracted to ALS Rochester, NY; total organic carbon subcontracted to ALS Kelso, WA; and the analyses of dissolved gases to ALS Simi Valley, CA. The dechlorinating bacteria analysis was subcontracted to Microbial Insights in Knoxville, TN. Groundwater samples were collected on March 19, 2019, from Site LHAAP-58 at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: [United States Environmental Protection Agency] *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017) and the *Final Basewide Uniform Federal Policy (UFP) – Quality Assurance Project Plan (QAPP) Longhorn Army Ammunition Plant* (Bhate, May 2018).

## 1.1 Intended Use of Data

The objective of sampling at LHAAP-58 in March 2019 was to complete a western plume quarterly event.

Analyses performed include:

- RSK-175 – Dissolved Gases
- SM5310C – Total Organic Carbon
- SW8260C - Volatile Organic Compounds (VOCs)
- SW9056A – Anions (chloride, nitrate, and sulfate)
- High Performance Liquid Chromatography (HPLC)-METACIDS – Volatile Fatty Acids (VFAs)
- CENSUS – Dechlorinating Bacteria (dehalococcoides [DHC]/dehalobacter [DHB])

**Table 1** lists the sample identification (ID) numbers and their associated laboratory package.

**Table 2** lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

## 1.2 Preservation and Holding Times

Sample ID data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time.

## 1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range.

### 1.3.1 Continuing Calibration Verifications

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; VFAs, dissolved gases, and TOC - 15%D.

The CCV for benzene and toluene were outside control limits associated with all samples. These compound were considered estimated and flagged "J/UJ". The CCV for pyruvic acid was below control limits. All samples were flagged "UJ".

## 1.4 Blanks

If the analyte result for an associated sample was less than 5X (10X for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5X the amount in the blank, no qualifier was applied.

No compounds were detected in the blanks.

## 1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

No surrogates were reported outside control limits.

## 1.6 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD recoveries were evaluated using limits defined in the project-specific QAPP Worksheet 15.

All sample recoveries were within control limits.

## 1.7 Matrix Spike (MS)/Matrix Spike Duplicate Sample (MSD)

MS/MSD recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4X the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

### 1.7.1 SW8260

The MS/MSD and/or relative percent difference (RPD) between multiple compounds in spike sample 35AWW20_031919 were outside control limits. Due to matrix effect, these compounds were flagged "J/UJ" (see Table 2).

### 1.7.2 RSK175

The MS/MSD recovery of spike sample 35AWW20_031919 were outside control limits for methane, ethane, and ethene. Due to matrix effect, these compounds were flagged "J/UJ".

## 1.8 Internal Standards

If the percent recovery (%R) for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

## 1.9 Field Precision

Precision is the measure of variability of individual sample measurements. Evaluation of field duplicates for precision was done using the RPD. The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater matrices.

### 1.9.1 Lab Precision

The laboratory RPD of sample 35AWW24_031919 was exceeded for total organic carbon. This compound was qualified as estimated, "J".

## 2.0 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (see Table 3). The data quality objectives have been met for the project.

**Table 1: Field Sample Identification and Laboratory Packages**

| Client Sample ID | Lab Package/ID | SM2320B | E365.3 | SM5310C | SW6020A | SW8260C | HPLC-METACIDS | SW9056A | RSK-175 | SM3500Fe | E376.1 | CENSUS | Arsenic 6020A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35AWW06_031919 | HS19031013 | | | X | | X | X | X | X | | | X | |
| 35AWW06_031919_a | HS19031013 | | | X | | X | X | X | X | | | | |
| 35AWW11_031919 | HS19031013 | | | X | | X | X | X | X | | | X | |
| 35AWW19_031919 | HS19031013 | | | X | | X | X | X | X | | | X | |
| 35AWW20_031919 | HS19031013 | | | X | | X | X | X | X | | | X | |
| 35AWW24_031919 | HS19031013 | | | X | | X | X | X | X | | | X | |
| LHSMW07_031919 | HS19031013 | | | X | | X | X | X | X | | | X | |

Notes:
MW – Monitoring Well
SM – Standard Method
SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
E – USEPA Method
HS - Houston

## Table 2: Qualified Analytical Data

| Client Sample ID Laboratory | Laboratory Package | Analyte Name | Result and Qualifier (µg/L) | Reason for Qualification |
|---|---|---|---|---|
| 35AWW06_031919 | HS19031013 | Benzene | 0.50 UJ | CCV |
| | | Toluene | 0.50 UJ | CCV |
| | | Pyruvic acid (mg/L) | 0.25 UJ | CCV |
| 35AWW06_031919_a | HS19031013 | Benzene | 0.50 UJ | CCV |
| | | Toluene | 0.50 UJ | CCV |
| | | Pyruvic acid (mg/L) | 0.25 UJ | CCV |
| 35AWW11_031919 | HS19031013 | Benzene | 0.50 UJ | CCV |
| | | Toluene | 0.50 UJ | CCV |
| | | Pyruvic acid (mg/L) | 0.50 UJ | CCV |
| 35AWW19_031919 | HS19031013 | Benzene | 0.50 UJ | CCV |
| | | Toluene | 0.50 UJ | CCV |
| | | Pyruvic acid (mg/L) | 0.10 UJ | CCV |
| 35AWW20_031919 | HS19031013 | 1,1,1,2-Tetrachloroethane | 0.50 UJ | MS/MSD/RPD |
| | | 1,1,1-Trichloroethane | 0.50 UJ | MS/MSD/RPD |
| | | 1,1,2-Trichloroethane | 38 J | MS/MSD/RPD |
| | | 1,1-Dichloropropene | 0.50 UJ | MS/MSD/RPD |
| | | 1,2,3-Trichlorobenzene | 0.50 UJ | MS/RPD |
| | | 1,2,4-Trichlorobenzene | 0.50 UJ | MS/MSD/RPD |
| | | 1,2,4-Trimethylbenzene | 0.50 UJ | MS/MSD/RPD |
| | | 1,2-Dibromoethane | 0.50 UJ | MS/RPD |
| | | 1,2-Dichlorobenzene | 7.6 J | MS/RPD |
| | | 1,2-Dichloroethane | 14 J | MS/RPD |
| | | 1,2-Dichloropropane | 0.50 UJ | MS/MSD/RPD |
| | | 1,3,5-Tirmethylbenzene | 0.50 UJ | MS/MSD/RPD |
| | | 1,3-Dichlorobenzene | 0.50 UJ | MS/MSD/RPD |
| | | 1,3-Dichloropropane | 0.50 UJ | MS/MSD/RPD |
| | | 1,4-Dichlorobenzene | 0.50 UJ | MS/MSD/RPD |
| | | 2,2-Dichloropropane | 0.50 UJ | MS/RPD |
| | | 2-Chlorotoluene | 0.50 UJ | MS/MSD/RPD |
| | | 4-Chlorotoluene | 0.50 UJ | MS/MSD/RPD |
| | | 4-Isopropyltoluene | 0.50 UJ | MS/MSD/RPD |
| | | Benzene | 3.0 J | MS/MSD/RPD/CCV |
| | | Bromobenzene | 0.50 UJ | MS/MSD |
| | | Bromochloromethane | 0.50 UJ | MS/MSD/RPD |
| | | Bromodichloromethane | 0.50 UJ | MS/MSD/RPD |
| | | Bromomethane | 0.50 UJ | MS/RPD |
| | | Carbon disulfide | 0.50 UJ | MS/RPD |
| | | Carbon tetrachloride | 0.50 UJ | MS |
| | | Chlorobenzene | 0.50 UJ | MS/MSD/RPD |
| | | Chloroform | 0.50 UJ | MS/MSD/RPD |
| | | Chloromethane | 0.50 UJ | MS/RPD |
| | | cis-1,2-Dichloroethene | 49 J | MS/MSD/RPD |
| | | cis-1,3-Dichloropropene | 0.50 UJ | MS/MSD/RPD |
| | | Dibromochloromethane | 0.50 UJ | MS/RPD |
| | | Dibromomethane | 0.50 UJ | MS/MSD/RPD |
| | | Ethylbenzene | 0.50 UJ | MS/MSD/RPD |
| | | Hexachlorobutadiene | 0.50 UJ | MS/MSD/RPD |
| | | Isopropylbenzene | 0.50 UJ | MS/MSD/RPD |
| | | m,p-Xylene | 0.50 UJ | MS/MSD/RPD |
| | | Methylene chloride | 0.50 UJ | MS/MSD/RPD |
| | | n-Butylbenzene | 0.50 UJ | MS/MSD/RPD |
| | | n-Propylbenzene | 0.50 UJ | MS/MSD/RPD |
| | | o-Xylene | 0.50 UJ | MS/MSD/RPD |
| | | sec-Butylbenzene | 0.50 UJ | MS/MSD/RPD |
| | | Styrene | 0.50 UJ | MS/MSD/RPD |
| | | tert-Butylbenzene | 0.50 UJ | MS/MSD |
| | | Tetrachloroethene | 0.50 UJ | MS/RPD |
| | | Toluene | 0.50 UJ | MS/MSD/RPD/CCV |
| | | trans-1,2-Dichloroethene | 4.9 J | MS/MSD/RPD |

| Client Sample ID Laboratory | Laboratory Package | Analyte Name | Result and Qualifier (µg/L) | Reason for Qualification |
|---|---|---|---|---|
| | | trans-1,3-Dichloropropene | 0.50 UJ | MS/MSD/RPD |
| | | Vinyl chloride | 54 J | MS |
| | | Methane | 840 J | MS/MSD |
| | | Ethane | 0.47 UJ | MS/MSD |
| | | Ethene | 0.94 J | MS/MSD |
| | | Pyruvic acid (mg/L) | 0.10 UJ | CCV |
| 35AWW24_031919 | HS19031013 | Benzene | 0.50 UJ | CCV |
| | | Toluene | 0.50 UJ | CCV |
| | | Total Organic Carbon (mg/L) | 1.68 J | Lab RPD > |
| | | Pyruvic acid (mg/L) | 0.10 UJ | CCV |
| LHSMW07_031919 | HS19031013 | Benzene | 0.50 UJ | CCV |
| | | Toluene | 0.50 UJ | CCV |
| | | Pyruvic acid (mg/L) | 0.10 UJ | CCV |

Notes:
mg/L – milligrams per liter
µg/L – micrograms per liter
J – Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ – The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
Lab RPD – the relative percent difference between sample and laboratory duplicate was outside control limits
MS/MSD/RPD – Matrix spike/duplicate/relative percent difference were outside control limits
CCV – continuing calibration verification outside control limits

## Table 3: Completeness by Method

| Method | No. of Rejected Results | % Completeness |
|---|---|---|
| SM5310C | 0 | 100 |
| SW8260C | 0 | 100 |
| HPLC-METACIDS | 0 | 100 |
| SW9056A | 0 | 100 |
| RSK-175 | 0 | 100 |
| CENSUS | 0 | 100 |

# HS19031013 LHAAP58 Final

ALS WO# HS19031013

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HS19031013 Wet Chem Raw Data

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# WorkOrder: HS19031013

**LHAAP-58**

**Bhate Environmental Associates, Inc.**

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**12-Apr-2019**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

April 12, 2019

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS19031013**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 8 sample(s) on Mar 20, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

**Generated By: JUMOKE.LAWAL**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 12-Apr-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS19031013

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS19031013-01 | 35AWW11_031919 | Groundwater | | 19-Mar-2019 08:15 | 20-Mar-2019 09:30 | ☐ |
| HS19031013-02 | 35AWW24_031919 | Groundwater | | 19-Mar-2019 09:15 | 20-Mar-2019 09:30 | ☐ |
| HS19031013-03 | 35AWW19_031919 | Groundwater | | 19-Mar-2019 10:10 | 20-Mar-2019 09:30 | ☐ |
| HS19031013-04 | LHSMW07_031919 | Groundwater | | 19-Mar-2019 11:05 | 20-Mar-2019 09:30 | ☐ |
| HS19031013-05 | 35AWW06_031919 | Groundwater | | 19-Mar-2019 12:05 | 20-Mar-2019 09:30 | ☐ |
| HS19031013-06 | 35AWW06_031919_a | Groundwater | | 19-Mar-2019 12:05 | 20-Mar-2019 09:30 | ☐ |
| HS19031013-07 | 35AWW20_031919 | Groundwater | | 19-Mar-2019 13:15 | 20-Mar-2019 09:30 | ☐ |
| HS19031013-08 | Trip Blank | Water | ALS-022719-68 | 19-Mar-2019 00:00 | 20-Mar-2019 09:30 | ☐ |

**ALS Houston, US** Date: 12-Apr-19

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** LHAAP-58
**Work Order:** HS19031013

## Work Order Comments

- The analysis for TOC was subcontracted to ALS in Kelso, WA. Final report attached.

The analyses for RSK and CO2 were subcontracted to ALS in Simi Valley, CA. Final report attached.

## GCMS Volatiles by Method SW8260

### Batch ID: R335378

**Sample ID: 35AWW20_031919 (HS19031013-07MS)**

- MS/MSD failed QC and RPDs limits for several compounds due to matrix.

**Sample ID: CCV_END**

- Benzene and Toluene exceeded %D recoveries for closing CCV due to carryover from previous sample .

**Sample ID: VLCSW-190326**

- 1,2,4_Trimethyl benzene exceeded QC limits for LCS. CCV is OK.

## WetChemistry by Method SW9056

### Batch ID: R336085

**Sample ID: 35AWW06_031919 (HS19031013-05)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Sulfate)

**Sample ID: 35AWW06_031919_a (HS19031013-06)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Sulfate)

### Batch ID: R335714

**Sample ID: 35AWW06_031919 (HS19031013-05)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

**Sample ID: 35AWW06_031919_a (HS19031013-06)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

- Opening and closing CCBs bracketing sample 35AWW06_031919_a(HS19031013-06) were greater than half the RL for Sulfate, due to samples that were very high/over-calibration range for Sulfate directly preceding the CCV/CCBs.

**Sample ID: 35AWW11_031919 (HS19031013-01)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

**Sample ID: 35AWW19_031919 (HS19031013-03)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

**Sample ID: 35AWW20_031919 (HS19031013-07)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

**Sample ID: LHSMW07_031919 (HS19031013-04)**

**ALS Houston, US** Date: 12-Apr-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**Work Order:** HS19031013

**CASE NARRATIVE**

## WetChemistry by Method SW9056

### Batch ID: R335714

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

**Sample ID: 35AWW20_031919 (HS19031013-07MS)**

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Sulfate)

**Sample ID: 35AWW20_031919 (HS19031013-07MSD)**

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Sulfate)

### Batch ID: R335875

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_031919
Collection Date: 19-Mar-2019 08:15

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| **2-Butanone** | **240** | | **0.50** | **1.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 16:15 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| **Acetone** | **260** | | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 16:15 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_031919
Collection Date: 19-Mar-2019 08:15

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:15 |
| *Surr: 1,2-Dichloroethane-d4* | *93.6* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 16:15* |
| *Surr: 4-Bromofluorobenzene* | *97.0* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 16:15* |
| *Surr: Dibromofluoromethane* | *91.2* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 16:15* |
| *Surr: Toluene-d8* | *109* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 16:15* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **2,150** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 02:01 |
| Nitrogen, Nitrate (As N) | 0.500 | U | 0.150 | 0.500 | 0.500 | mg/L | 5 | 20-Mar-2019 19:55 |
| **Sulfate** | **172** | | **1.00** | **2.50** | **2.50** | **mg/L** | 5 | 20-Mar-2019 19:55 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Apr-2019 19:36 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 12-Apr-2019 11:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_031919
Collection Date: 19-Mar-2019 09:15

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| **1,1-Dichloroethene** | **0.81** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 18:42 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_031919
Collection Date: 19-Mar-2019 09:15

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 18:42 |
| *Surr: 1,2-Dichloroethane-d4* | *90.5* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 18:42* |
| *Surr: 4-Bromofluorobenzene* | *97.4* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 18:42* |
| *Surr: Dibromofluoromethane* | *91.2* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 18:42* |
| *Surr: Toluene-d8* | *106* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 18:42* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **115** | | **1.00** | **2.50** | **2.50** | **mg/L** | 5 | 03-Apr-2019 02:15 |
| Nitrogen, Nitrate (As N) | 0.100 | U | 0.0300 | 0.100 | 0.100 | mg/L | 1 | 20-Mar-2019 19:41 |
| **Sulfate** | **70.0** | | **0.200** | **0.500** | **0.500** | **mg/L** | 1 | 20-Mar-2019 19:41 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Apr-2019 19:36 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 12-Apr-2019 11:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_031919
Collection Date: 19-Mar-2019 10:10

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| **1,1-Dichloroethane** | **0.97** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 19:06 |
| **1,1-Dichloroethene** | **3.6** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 19:06 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| **1,2-Dichloroethane** | **1.5** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 19:06 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_031919
Collection Date: 19-Mar-2019 10:10

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:06 |
| *Surr: 1,2-Dichloroethane-d4* | *92.0* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 19:06* |
| *Surr: 4-Bromofluorobenzene* | *98.5* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 19:06* |
| *Surr: Dibromofluoromethane* | *92.0* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 19:06* |
| *Surr: Toluene-d8* | *107* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 19:06* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **1,140** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 02:30 |
| Nitrogen, Nitrate (As N) | 0.500 | U | 0.150 | 0.500 | 0.500 | mg/L | 5 | 20-Mar-2019 20:10 |
| **Sulfate** | **994** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 02:30 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Apr-2019 19:36 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 12-Apr-2019 11:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_031919
Collection Date: 19-Mar-2019 11:05

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| **1,1-Dichloroethane** | **15** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 19:30 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| **1,2-Dichloroethane** | **0.95** | J | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 19:30 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP-58 WorkOrder:HS19031013
Sample ID: LHSMW07_031919 Lab ID:HS19031013-04
Collection Date: 19-Mar-2019 11:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| **Trichloroethene** | **1.1** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 19:30 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:30 |
| *Surr: 1,2-Dichloroethane-d4* | *92.7* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 19:30* |
| *Surr: 4-Bromofluorobenzene* | *101* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 19:30* |
| *Surr: Dibromofluoromethane* | *91.5* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 19:30* |
| *Surr: Toluene-d8* | *104* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 19:30* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **1,980** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 02:45 |
| Nitrogen, Nitrate (As N) | 0.500 | U | 0.150 | 0.500 | 0.500 | mg/L | 5 | 20-Mar-2019 20:25 |
| **Sulfate** | **2,390** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 02:45 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Apr-2019 19:36 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 12-Apr-2019 11:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919
Collection Date: 19-Mar-2019 12:05

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| **2-Butanone** | **62** | | **0.50** | **1.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 19:54 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| **2-Hexanone** | **6.6** | | **1.0** | **1.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 19:54 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| **Acetone** | **250** | | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 19:54 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919
Collection Date: 19-Mar-2019 12:05

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 19:54 |
| *Surr: 1,2-Dichloroethane-d4* | *94.1* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 19:54* |
| *Surr: 4-Bromofluorobenzene* | *98.6* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 19:54* |
| *Surr: Dibromofluoromethane* | *92.2* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 19:54* |
| *Surr: Toluene-d8* | *107* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 19:54* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **919** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 03:00 |
| Nitrogen, Nitrate (As N) | 0.500 | U | 0.150 | 0.500 | 0.500 | mg/L | 5 | 20-Mar-2019 20:39 |
| **Sulfate** | **2.33** | J | **1.00** | **2.50** | **2.50** | **mg/L** | 5 | 05-Apr-2019 14:54 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Apr-2019 19:36 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 12-Apr-2019 11:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919_a
Collection Date: 19-Mar-2019 12:05

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-06
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| **1,1-Dichloroethene** | **1.4** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 20:18 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| **2-Butanone** | **59** | | **0.50** | **1.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 20:18 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| **2-Hexanone** | **5.9** | | **1.0** | **1.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 20:18 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| **Acetone** | **240** | | **0.40** | **2.0** | **2.0** | **UG/L** | 1 | 26-Mar-2019 20:18 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919_a
Collection Date: 19-Mar-2019 12:05

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-06
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 20:18 |
| *Surr: 1,2-Dichloroethane-d4* | *92.6* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 20:18* |
| *Surr: 4-Bromofluorobenzene* | *100* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 20:18* |
| *Surr: Dibromofluoromethane* | *91.2* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 20:18* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 20:18* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **900** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 03:14 |
| Nitrogen, Nitrate (As N) | 0.500 | U | 0.150 | 0.500 | 0.500 | mg/L | 5 | 20-Mar-2019 20:54 |
| **Sulfate** | **2.13** | J | **1.00** | **2.50** | **2.50** | **mg/L** | 5 | 05-Apr-2019 15:08 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Apr-2019 19:36 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 12-Apr-2019 11:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| **1,1,2-Trichloroethane** | **38** | | **0.30** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| **1,1-Dichloroethane** | **190** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| **1,1-Dichloroethene** | **1,500** | | **5.0** | **12** | **25** | **UG/L** | 25 | 26-Mar-2019 17:54 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| **1,2-Dichlorobenzene** | **7.6** | | **0.50** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| **1,2-Dichloroethane** | **14** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| **Benzene** | **3.0** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| **cis-1,2-Dichloroethene** | **49** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| **trans-1,2-Dichloroethene** | **4.9** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| **Trichloroethene** | **180** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 16:39 |
| **Vinyl chloride** | **54** | | **0.20** | **0.50** | **1.0** | **UG/L** | 1 | 26-Mar-2019 16:39 |
| *Surr: 1,2-Dichloroethane-d4* | *95.6* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 16:39* |
| *Surr: 1,2-Dichloroethane-d4* | *90.9* | | | **0** | *81-118* | *%REC* | *25* | *26-Mar-2019 17:54* |
| *Surr: 4-Bromofluorobenzene* | *102* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 16:39* |
| *Surr: 4-Bromofluorobenzene* | *99.8* | | | **0** | *85-114* | *%REC* | *25* | *26-Mar-2019 17:54* |
| *Surr: Dibromofluoromethane* | *92.6* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 16:39* |
| *Surr: Dibromofluoromethane* | *91.1* | | | **0** | *80-119* | *%REC* | *25* | *26-Mar-2019 17:54* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 16:39* |
| *Surr: Toluene-d8* | *104* | | | **0** | *89-112* | *%REC* | *25* | *26-Mar-2019 17:54* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Chloride** | **1,090** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 04:13 |
| Nitrogen, Nitrate (As N) | 0.500 | U | 0.150 | 0.500 | 0.500 | mg/L | 5 | 20-Mar-2019 21:08 |
| **Sulfate** | **1,120** | | **10.0** | **25.0** | **25.0** | **mg/L** | 50 | 03-Apr-2019 04:13 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 04-Apr-2019 19:36 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 12-Apr-2019 11:32 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 19-Mar-2019 00:00

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-08
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Acetone | 2.0 | U | 0.40 | 2.0 | 2.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 19-Mar-2019 00:00

**ANALYTICAL REPORT**
WorkOrder:HS19031013
Lab ID:HS19031013-08
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | UG/L | 1 | 26-Mar-2019 15:27 |
| *Surr: 1,2-Dichloroethane-d4* | *90.5* | | | **0** | *81-118* | *%REC* | *1* | *26-Mar-2019 15:27* |
| *Surr: 4-Bromofluorobenzene* | *99.2* | | | **0** | *85-114* | *%REC* | *1* | *26-Mar-2019 15:27* |
| *Surr: Dibromofluoromethane* | *91.0* | | | **0** | *80-119* | *%REC* | *1* | *26-Mar-2019 15:27* |
| *Surr: Toluene-d8* | *107* | | | **0** | *89-112* | *%REC* | *1* | *26-Mar-2019 15:27* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Houston, US** Date: 12-Apr-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS19031013

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R335378 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Water | | |
| HS19031013-08 | Trip Blank | 19 Mar 2019 00:00 | | | 26 Mar 2019 15:27 | 1 |
| **Batch ID** R335378 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Groundwater | | |
| HS19031013-01 | 35AWW11_031919 | 19 Mar 2019 08:15 | | | 26 Mar 2019 16:15 | 1 |
| HS19031013-02 | 35AWW24_031919 | 19 Mar 2019 09:15 | | | 26 Mar 2019 18:42 | 1 |
| HS19031013-03 | 35AWW19_031919 | 19 Mar 2019 10:10 | | | 26 Mar 2019 19:06 | 1 |
| HS19031013-04 | LHSMW07_031919 | 19 Mar 2019 11:05 | | | 26 Mar 2019 19:30 | 1 |
| HS19031013-05 | 35AWW06_031919 | 19 Mar 2019 12:05 | | | 26 Mar 2019 19:54 | 1 |
| HS19031013-06 | 35AWW06_031919_a | 19 Mar 2019 12:05 | | | 26 Mar 2019 20:18 | 1 |
| HS19031013-07 | 35AWW20_031919 | 19 Mar 2019 13:15 | | | 26 Mar 2019 17:54 | 25 |
| HS19031013-07 | 35AWW20_031919 | 19 Mar 2019 13:15 | | | 26 Mar 2019 16:39 | 1 |
| **Batch ID** R335714 | **Test Name :** ANIONS BY SW9056A | | | **Matrix:** Groundwater | | |
| HS19031013-01 | 35AWW11_031919 | 19 Mar 2019 08:15 | | | 20 Mar 2019 19:55 | 5 |
| HS19031013-02 | 35AWW24_031919 | 19 Mar 2019 09:15 | | | 20 Mar 2019 19:41 | 1 |
| HS19031013-03 | 35AWW19_031919 | 19 Mar 2019 10:10 | | | 20 Mar 2019 20:10 | 5 |
| HS19031013-04 | LHSMW07_031919 | 19 Mar 2019 11:05 | | | 20 Mar 2019 20:25 | 5 |
| HS19031013-05 | 35AWW06_031919 | 19 Mar 2019 12:05 | | | 20 Mar 2019 20:39 | 5 |
| HS19031013-06 | 35AWW06_031919_a | 19 Mar 2019 12:05 | | | 20 Mar 2019 20:54 | 5 |
| HS19031013-07 | 35AWW20_031919 | 19 Mar 2019 13:15 | | | 20 Mar 2019 21:08 | 5 |
| **Batch ID** R335875 | **Test Name :** ANIONS BY SW9056A | | | **Matrix:** Groundwater | | |
| HS19031013-01 | 35AWW11_031919 | 19 Mar 2019 08:15 | | | 03 Apr 2019 02:01 | 50 |
| HS19031013-02 | 35AWW24_031919 | 19 Mar 2019 09:15 | | | 03 Apr 2019 02:15 | 5 |
| HS19031013-03 | 35AWW19_031919 | 19 Mar 2019 10:10 | | | 03 Apr 2019 02:30 | 50 |
| HS19031013-04 | LHSMW07_031919 | 19 Mar 2019 11:05 | | | 03 Apr 2019 02:45 | 50 |
| HS19031013-05 | 35AWW06_031919 | 19 Mar 2019 12:05 | | | 03 Apr 2019 03:00 | 50 |
| HS19031013-06 | 35AWW06_031919_a | 19 Mar 2019 12:05 | | | 03 Apr 2019 03:14 | 50 |
| HS19031013-07 | 35AWW20_031919 | 19 Mar 2019 13:15 | | | 03 Apr 2019 04:13 | 50 |
| **Batch ID** R335986 | **Test Name :** SUBCONTRACT ANALYSIS - RSK | | | **Matrix:** Groundwater | | |
| HS19031013-01 | 35AWW11_031919 | 19 Mar 2019 08:15 | | | 04 Apr 2019 19:36 | 1 |
| HS19031013-02 | 35AWW24_031919 | 19 Mar 2019 09:15 | | | 04 Apr 2019 19:36 | 1 |
| HS19031013-03 | 35AWW19_031919 | 19 Mar 2019 10:10 | | | 04 Apr 2019 19:36 | 1 |
| HS19031013-04 | LHSMW07_031919 | 19 Mar 2019 11:05 | | | 04 Apr 2019 19:36 | 1 |
| HS19031013-05 | 35AWW06_031919 | 19 Mar 2019 12:05 | | | 04 Apr 2019 19:36 | 1 |
| HS19031013-06 | 35AWW06_031919_a | 19 Mar 2019 12:05 | | | 04 Apr 2019 19:36 | 1 |
| HS19031013-07 | 35AWW20_031919 | 19 Mar 2019 13:15 | | | 04 Apr 2019 19:36 | 1 |
| **Batch ID** R336085 | **Test Name :** ANIONS BY SW9056A | | | **Matrix:** Groundwater | | |
| HS19031013-05 | 35AWW06_031919 | 19 Mar 2019 12:05 | | | 05 Apr 2019 14:54 | 5 |
| HS19031013-06 | 35AWW06_031919_a | 19 Mar 2019 12:05 | | | 05 Apr 2019 15:08 | 5 |

**ALS Houston, US** Date: 12-Apr-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS19031013

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R336479 | **Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS | | | | **Matrix:** Groundwater | |
| HS19031013-01 | 35AWW11_031919 | 19 Mar 2019 08:15 | | | 12 Apr 2019 11:32 | 1 |
| HS19031013-02 | 35AWW24_031919 | 19 Mar 2019 09:15 | | | 12 Apr 2019 11:32 | 1 |
| HS19031013-03 | 35AWW19_031919 | 19 Mar 2019 10:10 | | | 12 Apr 2019 11:32 | 1 |
| HS19031013-04 | LHSMW07_031919 | 19 Mar 2019 11:05 | | | 12 Apr 2019 11:32 | 1 |
| HS19031013-05 | 35AWW06_031919 | 19 Mar 2019 12:05 | | | 12 Apr 2019 11:32 | 1 |
| HS19031013-06 | 35AWW06_031919_a | 19 Mar 2019 12:05 | | | 12 Apr 2019 11:32 | 1 |
| HS19031013-07 | 35AWW20_031919 | 19 Mar 2019 13:15 | | | 12 Apr 2019 11:32 | 1 |

**ALS Houston, US** Date: 12-Apr-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS19031013

**QC BATCH REPORT NEW**

**Batch ID:** R335378 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-190325** Units: **UG/L** Analysis Date: **26-Mar-2019 15:03**
Client ID: Run ID: **VOA6_335378** SeqNo: **5008738** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,1-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,3,5-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| 2,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 2-Butanone | 1.0 | 2.0 | | | | | | | | U |
| 2-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 2-Hexanone | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 1.0 | 2.0 | | | | | | | | U |
| Acetone | 2.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

**ALS Houston, US** Date: 12-Apr-19

**Client:** Bhate Environmental Associates, Inc.
**Project:** LHAAP-58
**WorkOrder:** HS19031013

**QC BATCH REPORT NEW**

**Batch ID:** R335378 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-190325** Units: **UG/L** Analysis Date: **26-Mar-2019 15:03**
Client ID: Run ID: **VOA6_335378** SeqNo: **5008738** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 1.0 | 2.0 | | | | | | | | U |
| Carbon tetrachloride | 0.50 | 1.0 | | | | | | | | U |
| Chlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| Chloroethane | 0.50 | 1.0 | | | | | | | | U |
| Chloroform | 0.50 | 1.0 | | | | | | | | U |
| Chloromethane | 0.50 | 1.0 | | | | | | | | U |
| cis-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| cis-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Dibromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Dibromomethane | 0.50 | 1.0 | | | | | | | | U |
| Dichlorodifluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Ethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Hexachlorobutadiene | 1.0 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 0.50 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| n-Propylbenzene | 0.50 | 1.0 | | | | | | | | U |
| o-Xylene | 0.50 | 1.0 | | | | | | | | U |
| sec-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Styrene | 0.50 | 1.0 | | | | | | | | U |
| tert-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Tetrachloroethene | 0.50 | 1.0 | | | | | | | | U |
| Toluene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Trichloroethene | 0.50 | 1.0 | | | | | | | | U |
| Trichlorofluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Vinyl chloride | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *45.09* | *1.0* | *50* | *0* | *90.2* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.89* | *1.0* | *50* | *0* | *97.8* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *45.31* | *1.0* | *50* | *0* | *90.6* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *52.99* | *1.0* | *50* | *0* | *106* | *89 - 112* | | | | |