LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 20

2019

Bate Stamp Numbers
00940881 – 00942726

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976–2019

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

VOLUME 20

2019

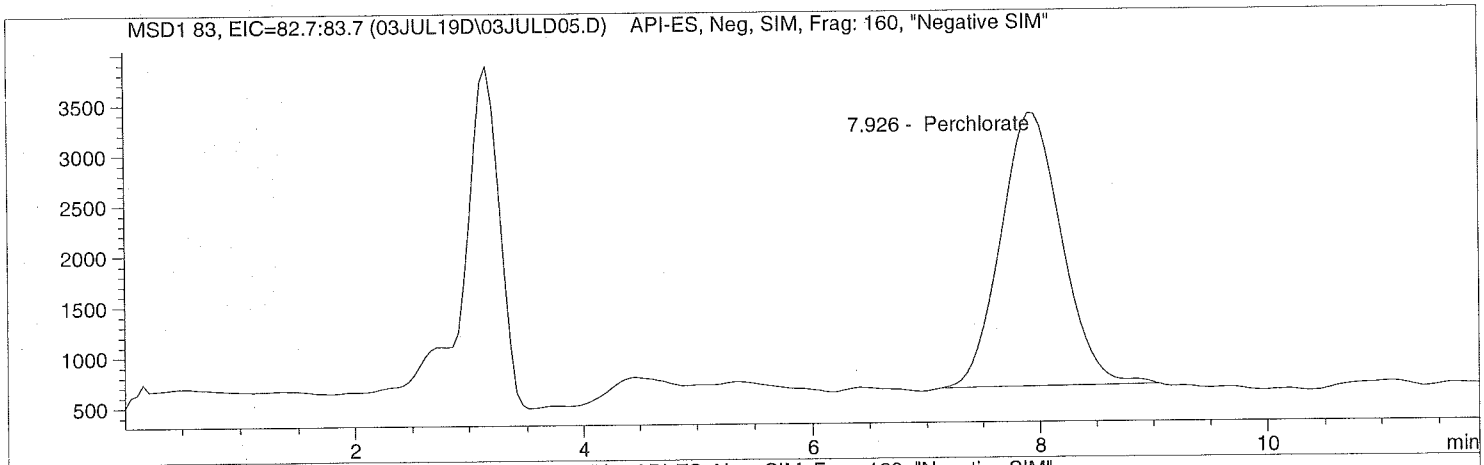
A. Title: Report (cont'd) – Quarterly Evaluation Report, 2nd Quarter (April–June) 2019 Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Bhate Environmental Associates, Inc.
Recipient: U.S. Army Corps of Engineers, Tulsa District
Date: November 4, 2019
Bate Stamp: 00940881 – 00942726

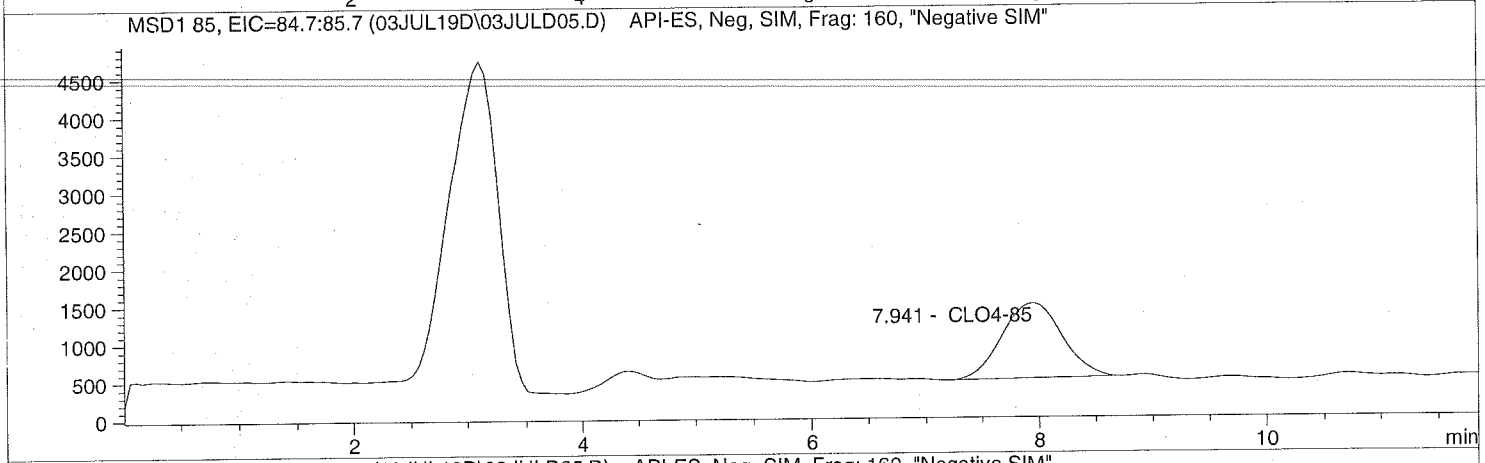
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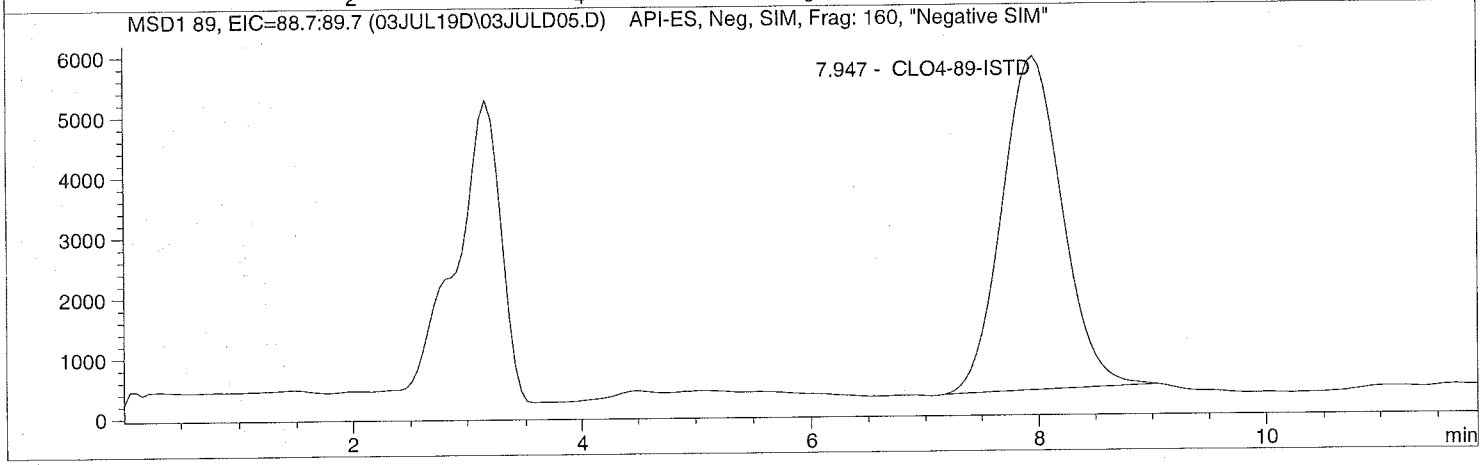
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Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD05.D Sample Name: 1918260001

Injection Date:	7/03/2019 09:17:08	Seq Line:	5
Sample Name:	1918260001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	BBA	100338.5	1.7270	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.941	PBA	36216.6	1.9135	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.947	PBA	203376.5	5.0000	CLO4-89-ISTD

*** End of Report ***

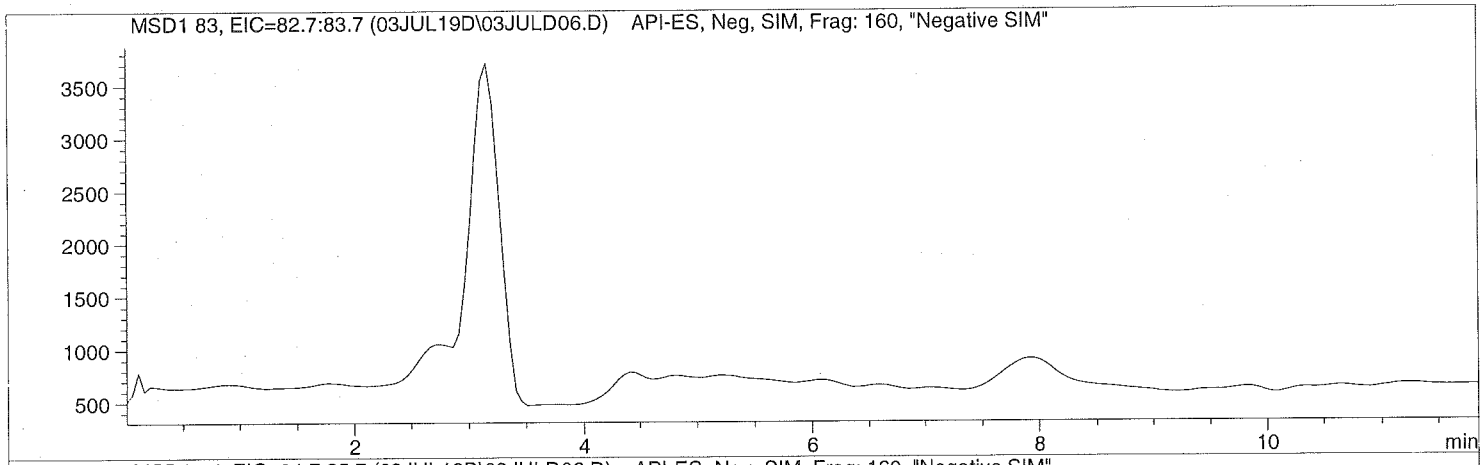
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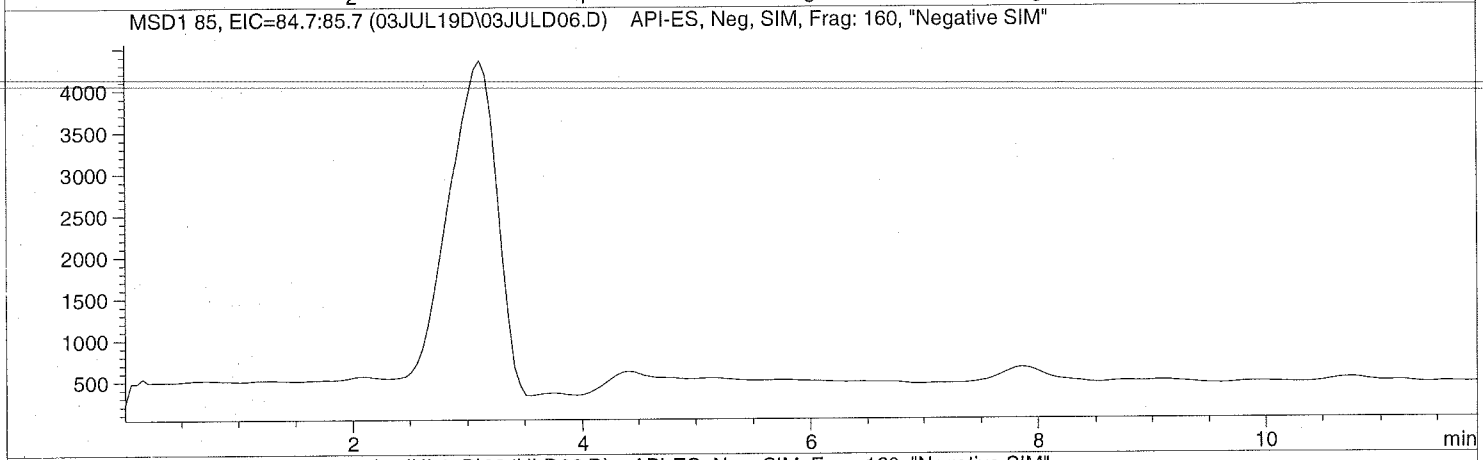
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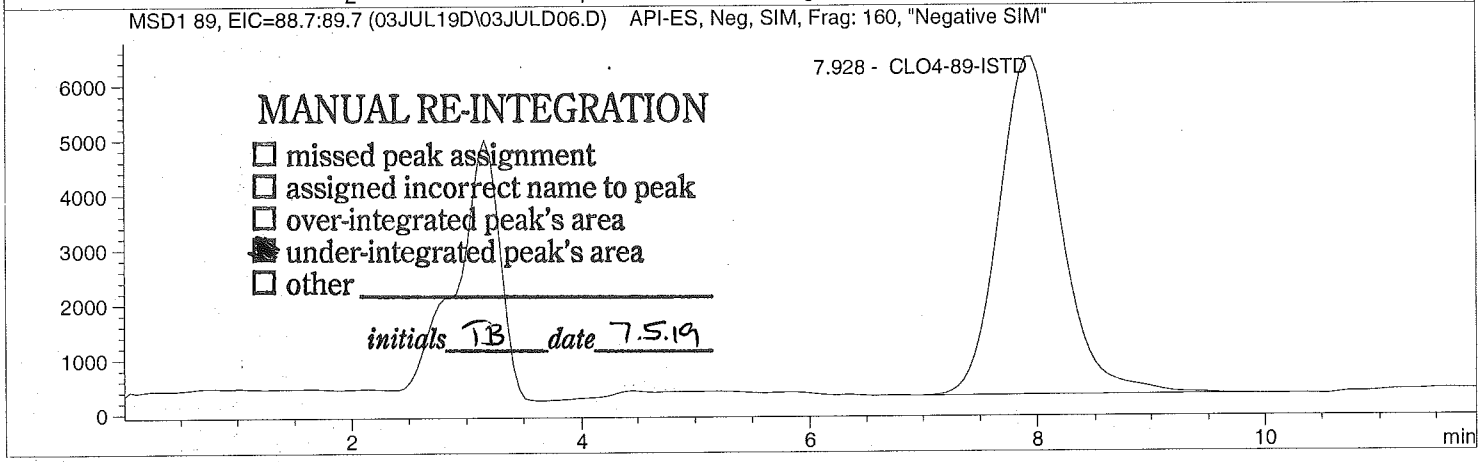
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Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ☐ other _____

initials TB *date* 7.5.19

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Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD06.D Sample Name: 1918260002

Injection Date:	7/03/2019 09:31:06	Seq Line:	6
Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.928	MM	230321.8	5.0000	CLO4-89-ISTD

*** End of Report ***

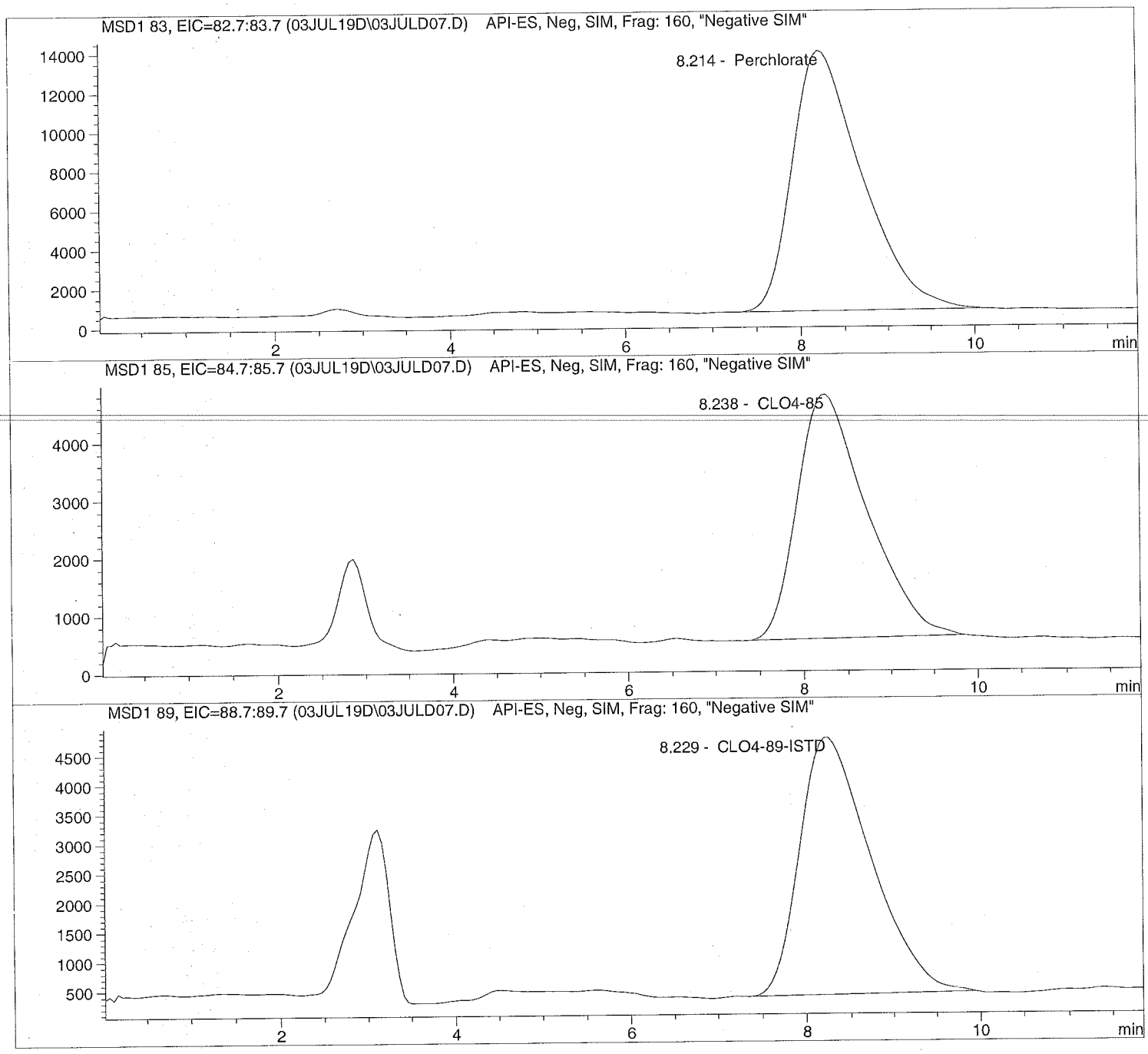
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD07.D Sample Name: 1918260003 10X

Injection Date:	7/03/2019 09:45:04	Seq Line:	7
Sample Name:	1918260003 10X	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD07.D Sample Name: 1918260003 10X

Injection Date:	7/03/2019 09:45:04	Seq Line:	7
Sample Name:	1918260003 10X	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.214	PBA	728769.6	94.5196	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.238	PBA	232603.6	100.3590	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.229	PBA	245205.1	50.0000	CLO4-89-ISTD

*** End of Report ***

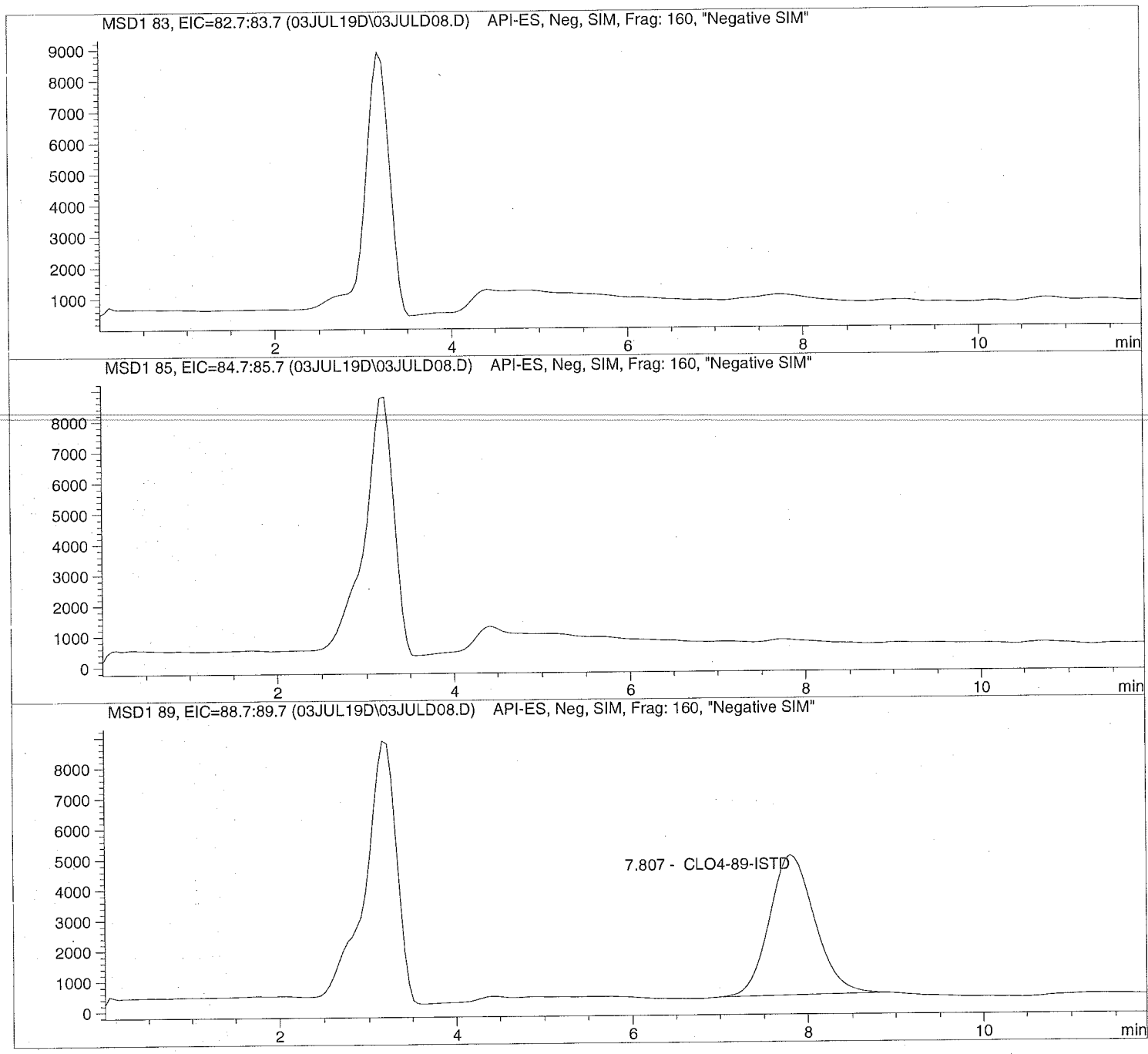
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Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD08.D Sample Name: 1918260004

Injection Date:	7/03/2019 09:58:59	Seq Line:	8
Sample Name:	1918260004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD08.D Sample Name: 1918260004

Injection Date:	7/03/2019 09:58:59	Seq Line:	8
Sample Name:	1918260004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.807	PBA	164595.2	5.0000	CLO4-89-ISTD

*** End of Report ***

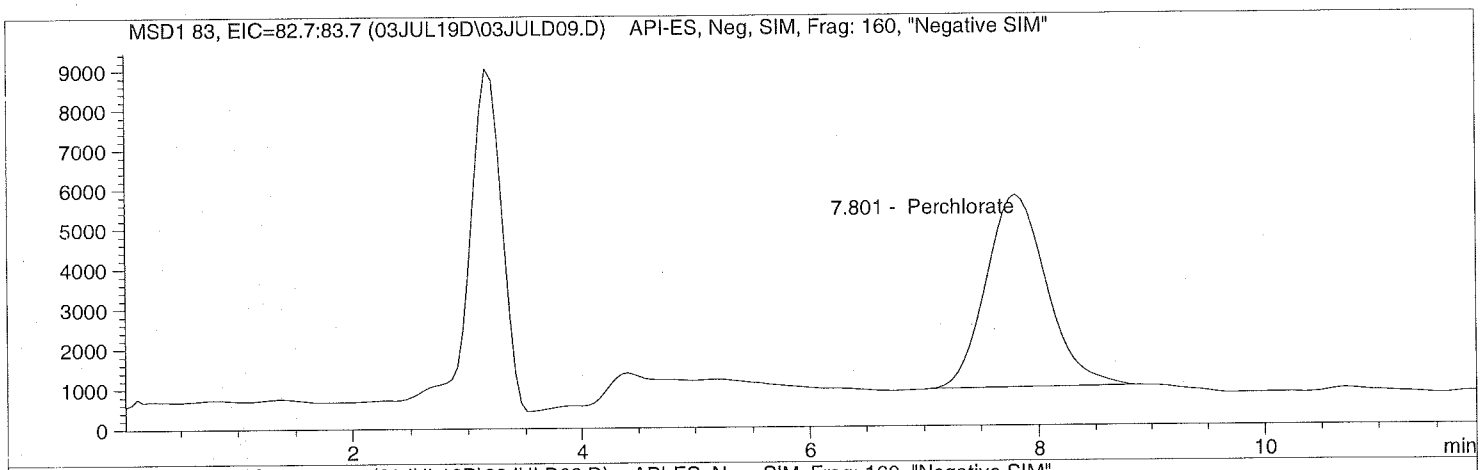
RIGHT SOLUTIONS | RIGHT PARTNER

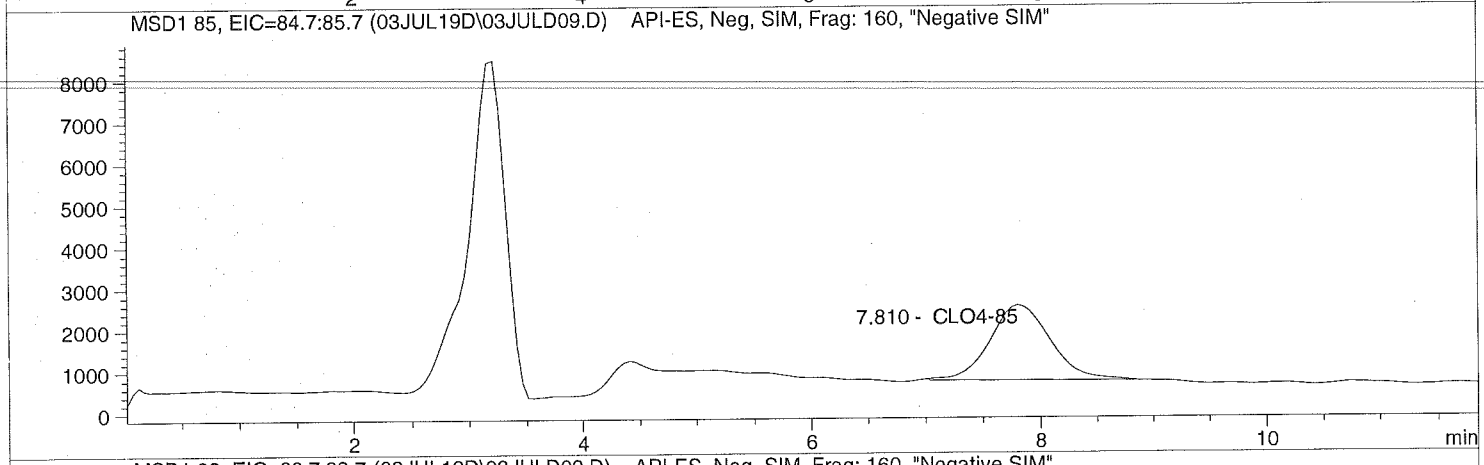
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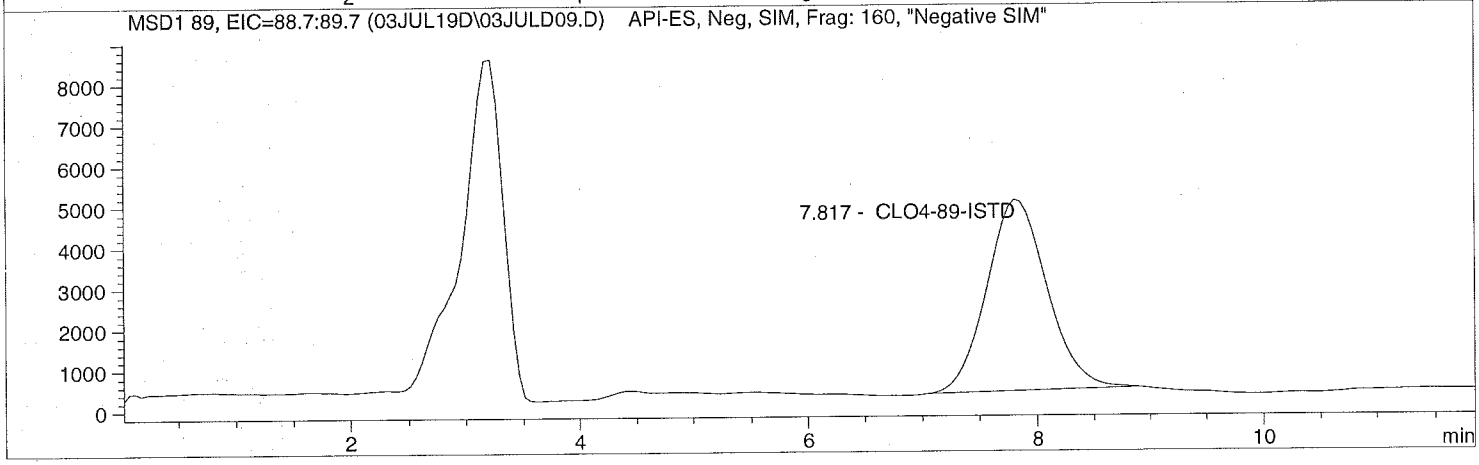
Injection Date:	7/03/2019 10:12:53	Seq Line:	9
Sample Name:	1918260005 MS	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD09.D Sample Name: 1918260005 MS

Injection Date:	7/03/2019 10:12:53	Seq Line:	9
Sample Name:	1918260005 MS	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.801	PBA	174594.0	3.4177	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.810	BBA	65605.9	4.1392	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.817	PBA	169734.3	5.0000	CLO4-89-ISTD

*** End of Report ***

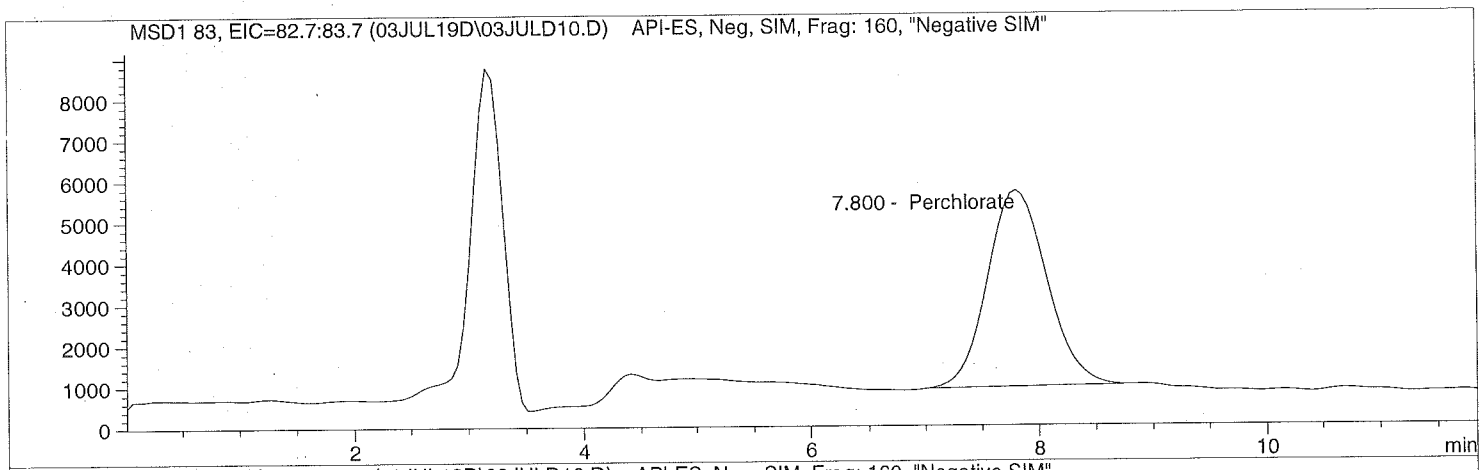
RIGHT SOLUTIONS | RIGHT PARTNER

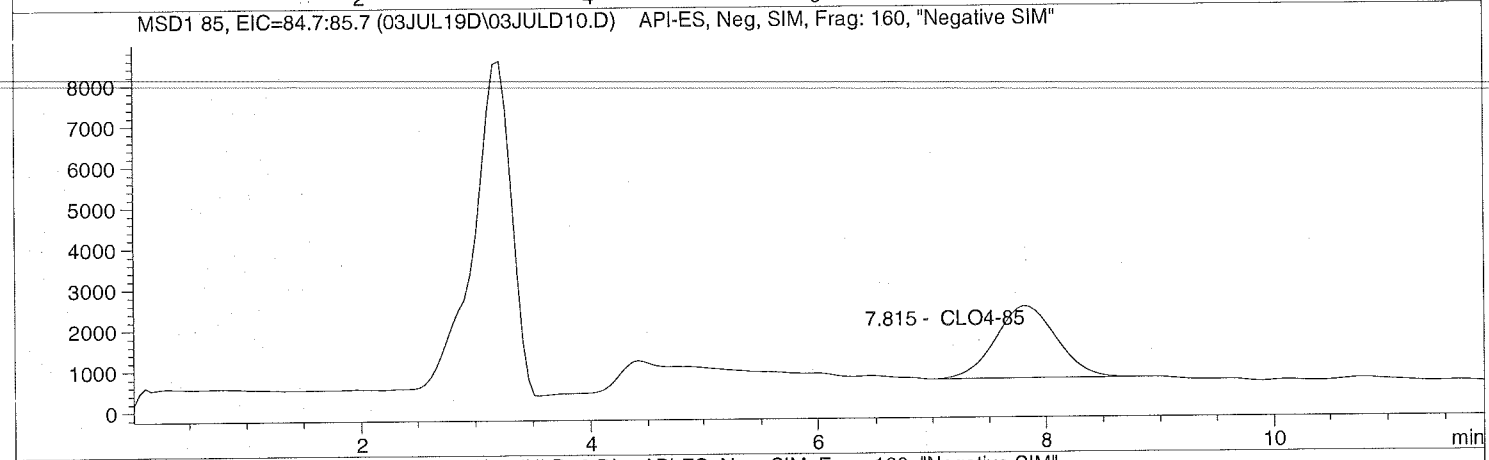
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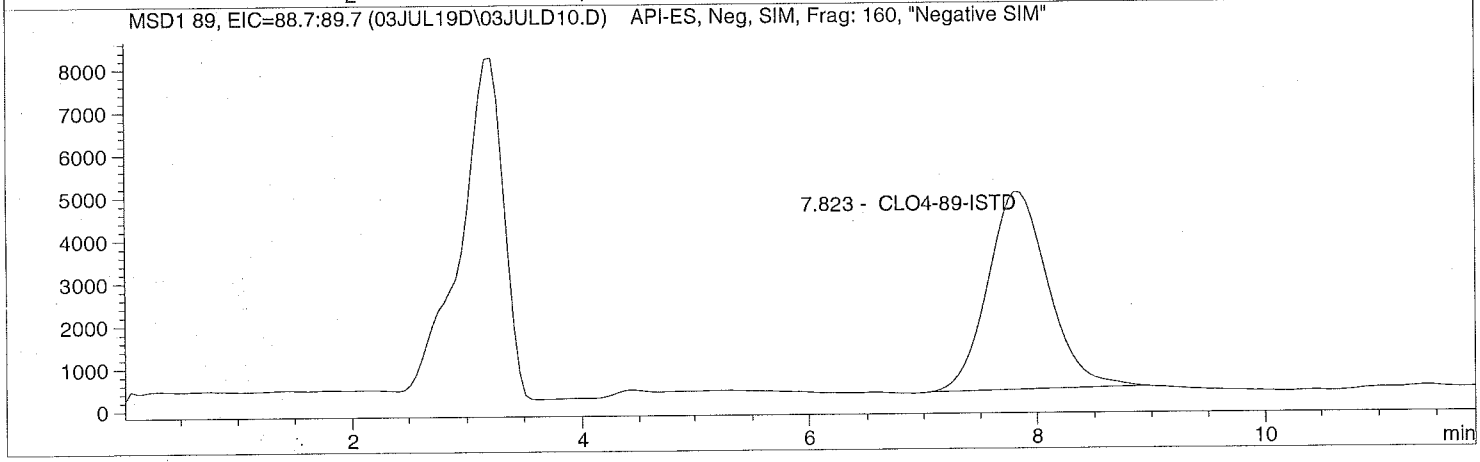
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Sample Name:	1918260006 MSD	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD10.D Sample Name: 1918260006 MSD

Injection Date:	7/03/2019 10:26:51	Seq Line:	10
Sample Name:	1918260006 MSD	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	172844.2	3.3651	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.815	PBA	65623.2	4.1144	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.823	PBA	170811.3	5.0000	CLO4-89-ISTD

*** End of Report ***

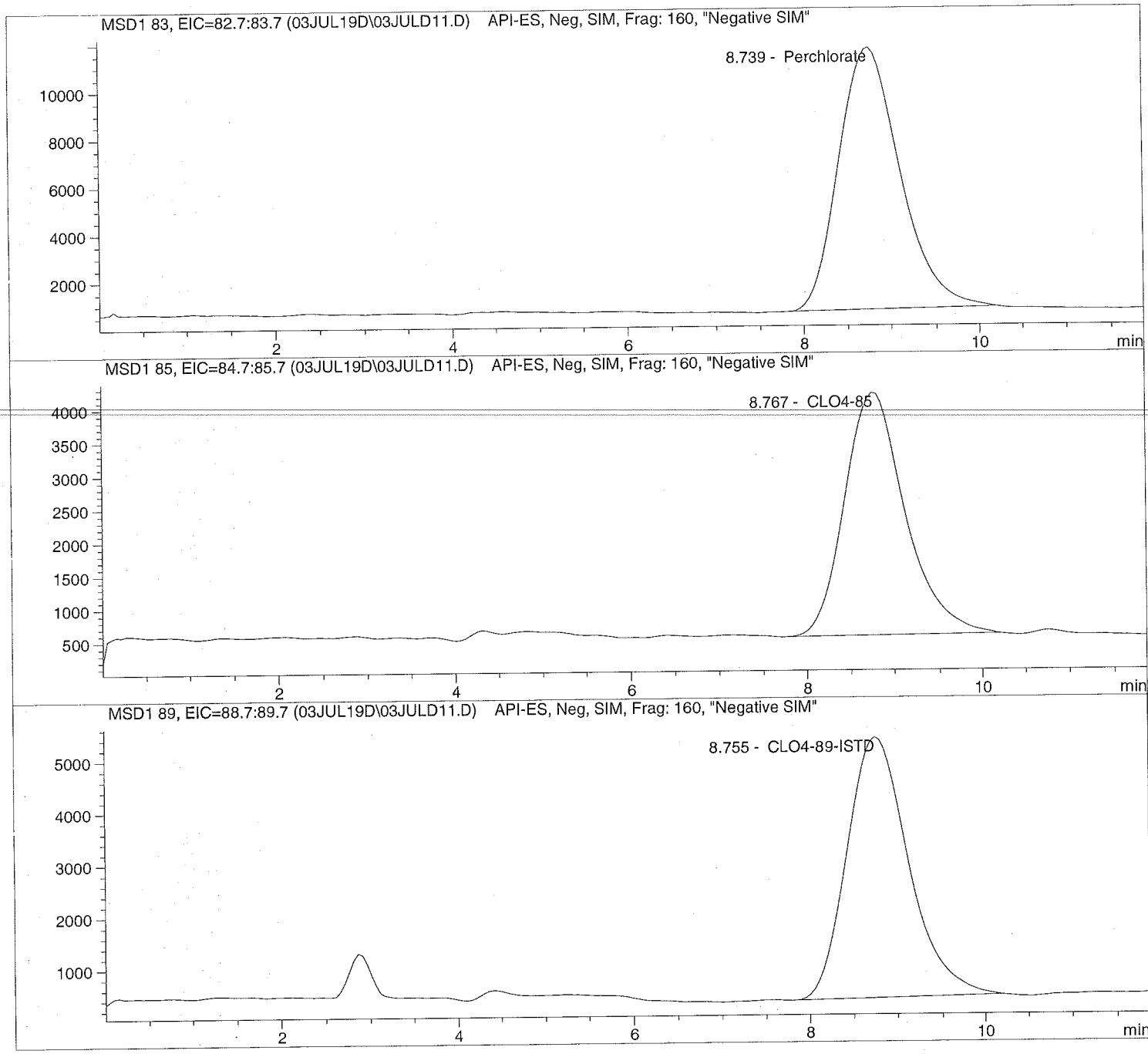
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD11.D Sample Name: 1918260007 1K

Injection Date:	7/03/2019 10:40:43	Seq Line:	11
Sample Name:	1918260007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD11.D Sample Name: 1918260007 1K

Injection Date:	7/03/2019 10:40:43	Seq Line:	11
Sample Name:	1918260007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.739	PBA	534660.9	7067.3228	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.767	PBA	175075.3	7652.5648	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	PBA	243259.9	5000.0000	CLO4-89-ISTD

*** End of Report ***

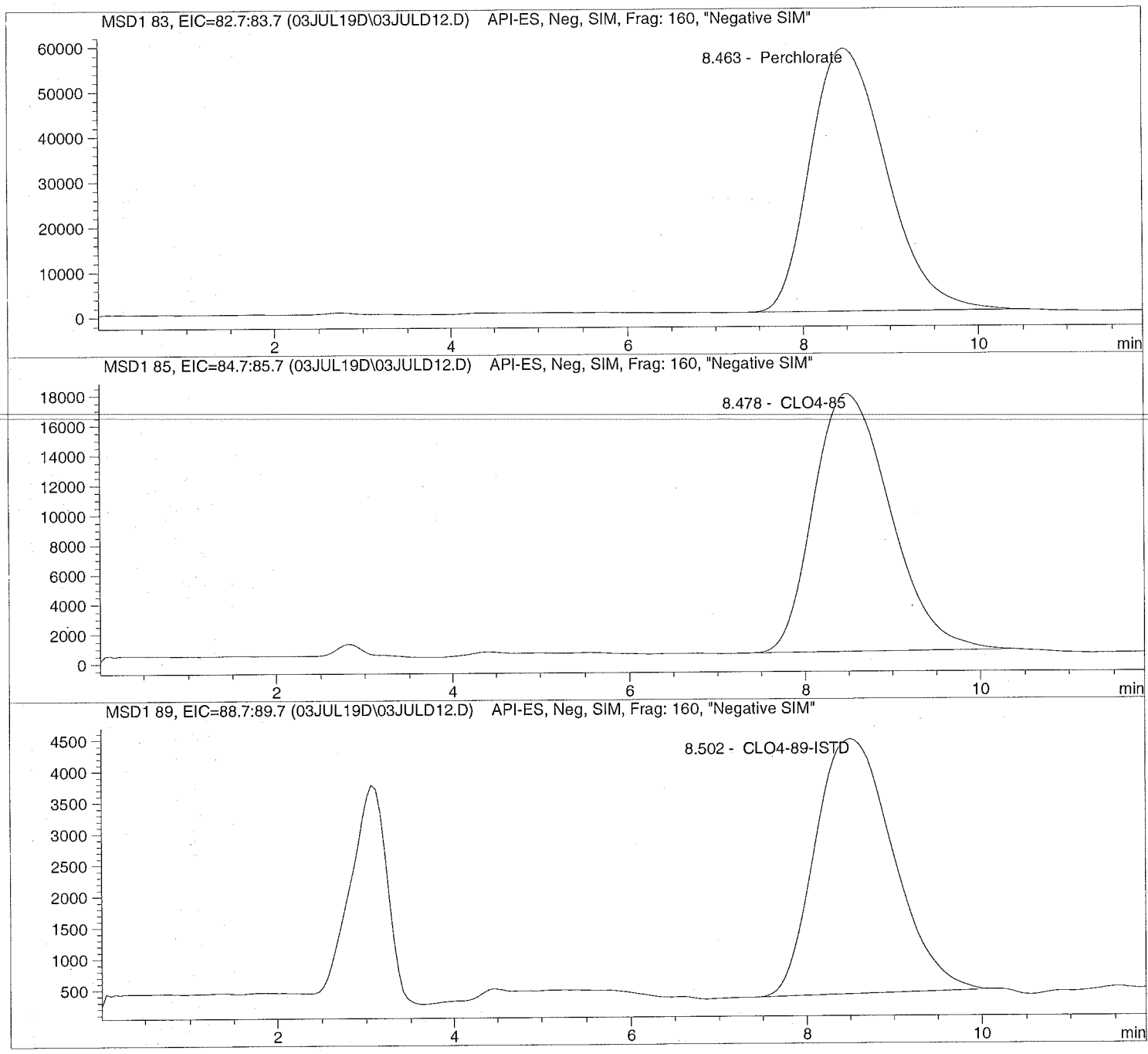
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD12.D Sample Name: 1918260008 10X

Injection Date:	7/03/2019 10:54:34	Seq Line:	12
Sample Name:	1918260008 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD12.D Sample Name: 1918260008 10X

Injection Date:	7/03/2019 10:54:34	Seq Line:	12
Sample Name:	1918260008 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.463	PBA	3531551.7	409.0141	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.478	PBA	1061081.0	414.8002	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	253420.0	50.0000	CLO4-89-ISTD

*** End of Report ***

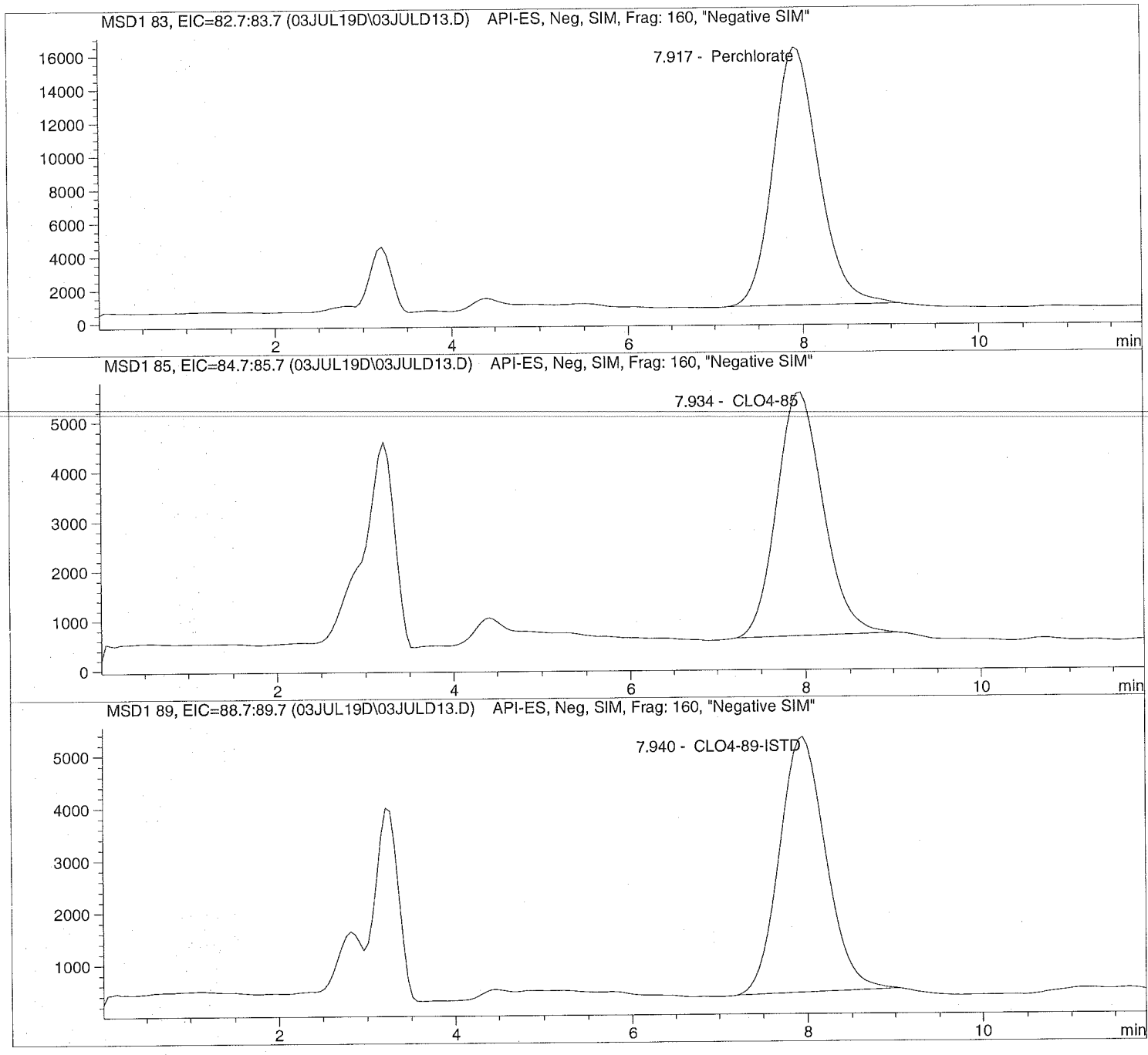
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD13.D Sample Name: 1918260009

Injection Date:	7/03/2019 11:08:30	Seq Line:	13
Sample Name:	1918260009	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD13.D Sample Name: 1918260009

Injection Date:	7/03/2019 11:08:30	Seq Line:	13
Sample Name:	1918260009	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.917	PBA	548800.2	9.8990	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.934	PBA	177271.9	10.6421	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.940	PBA	176004.6	5.0000	CLO4-89-ISTD

*** End of Report ***

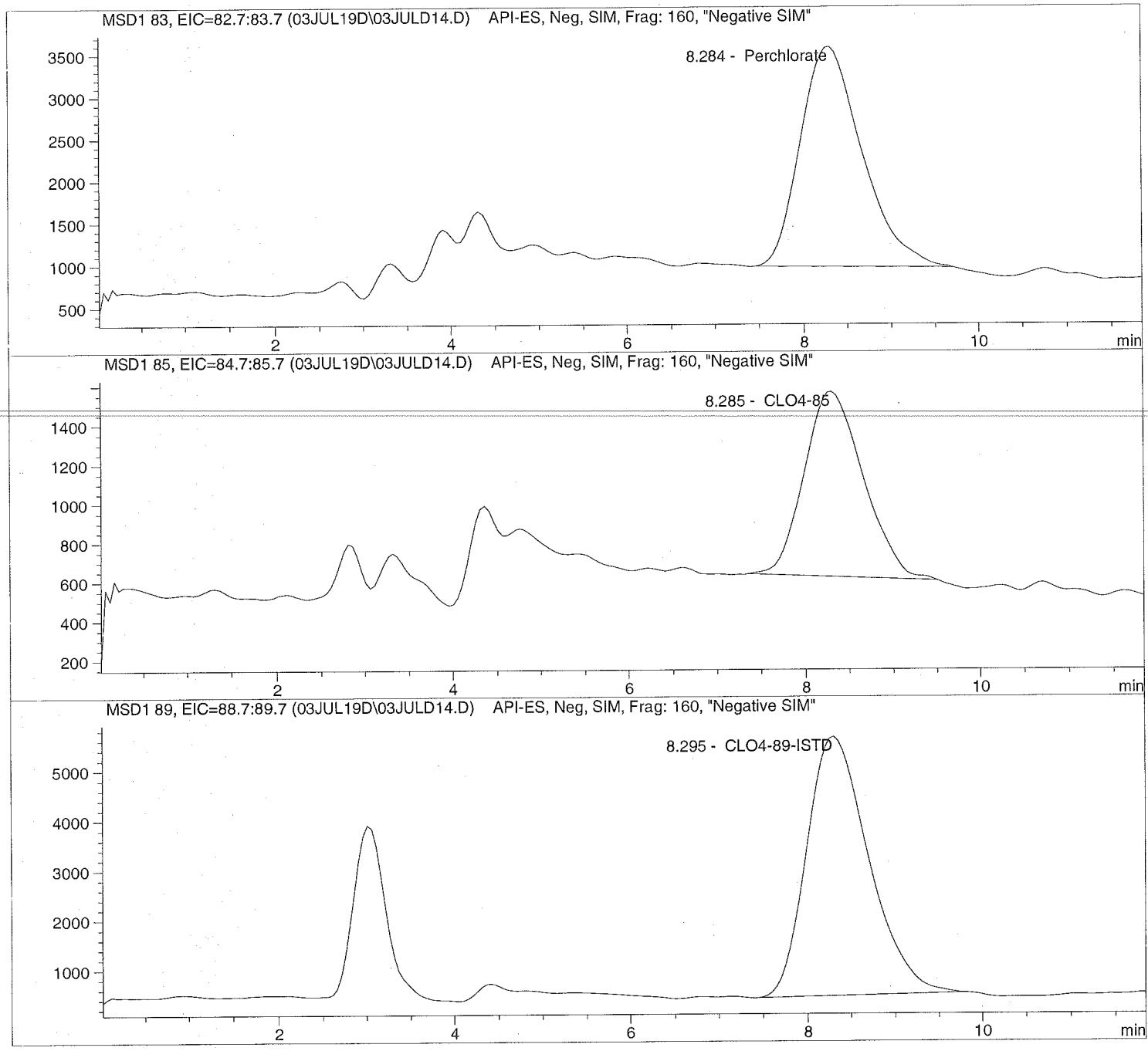
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD14.D Sample Name: 1918260010

Injection Date:	7/03/2019 11:22:22	Seq Line:	14
Sample Name:	1918260010	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD14.D Sample Name: 1918260010

Injection Date:	7/03/2019 11:22:22	Seq Line:	14
Sample Name:	1918260010	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.284	PBA	127410.9	1.7506	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.285	PBA	44045.2	1.8603	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.295	PBA	254426.4	5.0000	CLO4-89-ISTD

*** End of Report ***

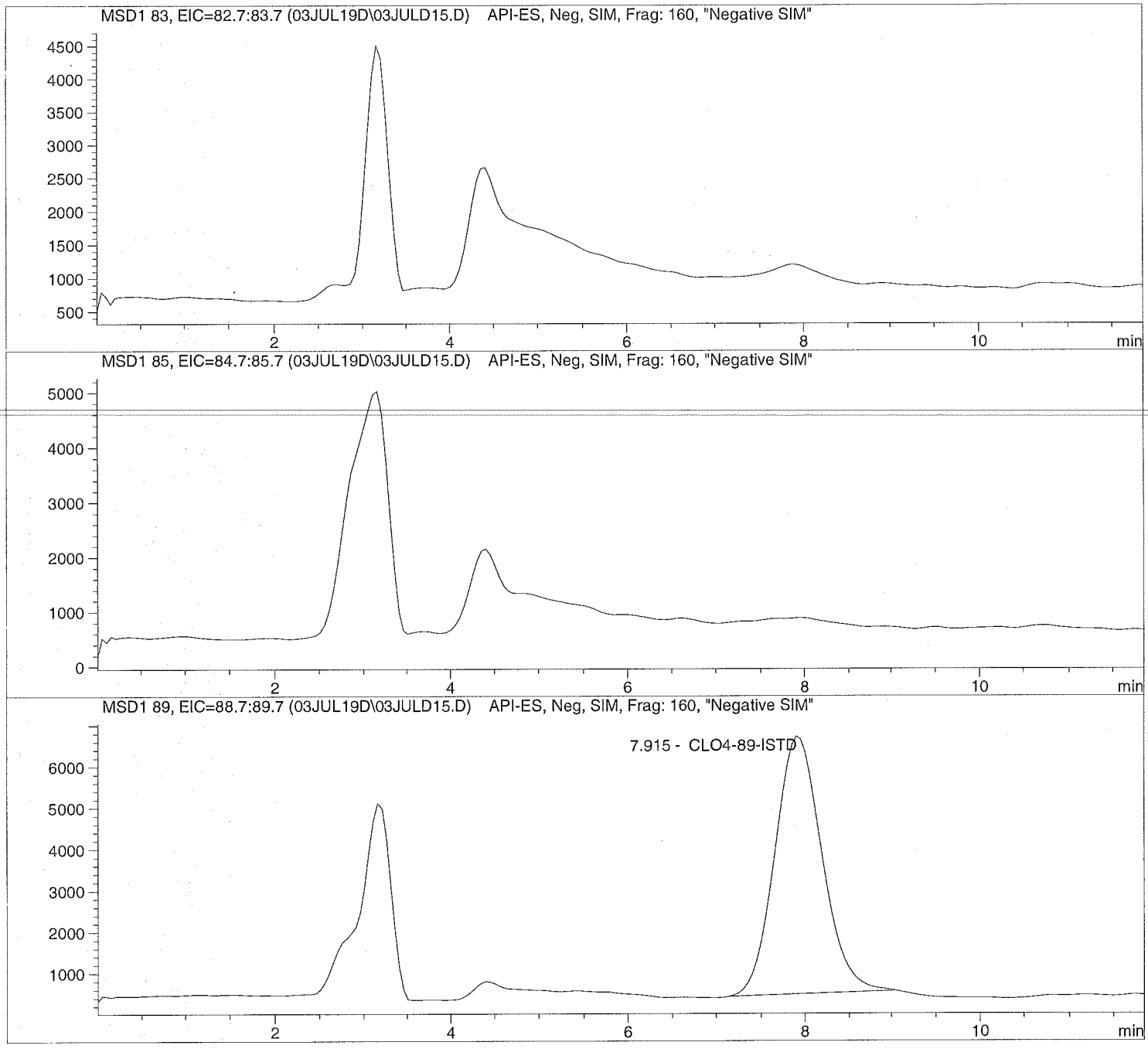
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD15.D Sample Name: 1918260011

Injection Date:	7/03/2019 11:36:14	Seq Line:	15
Sample Name:	1918260011	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD15.D Sample Name: 1918260011

Injection Date:	7/03/2019 11:36:14	Seq Line:	15
Sample Name:	1918260011	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.915	PBA	232350.5	5.0000	CLO4-89-ISTD

*** End of Report ***

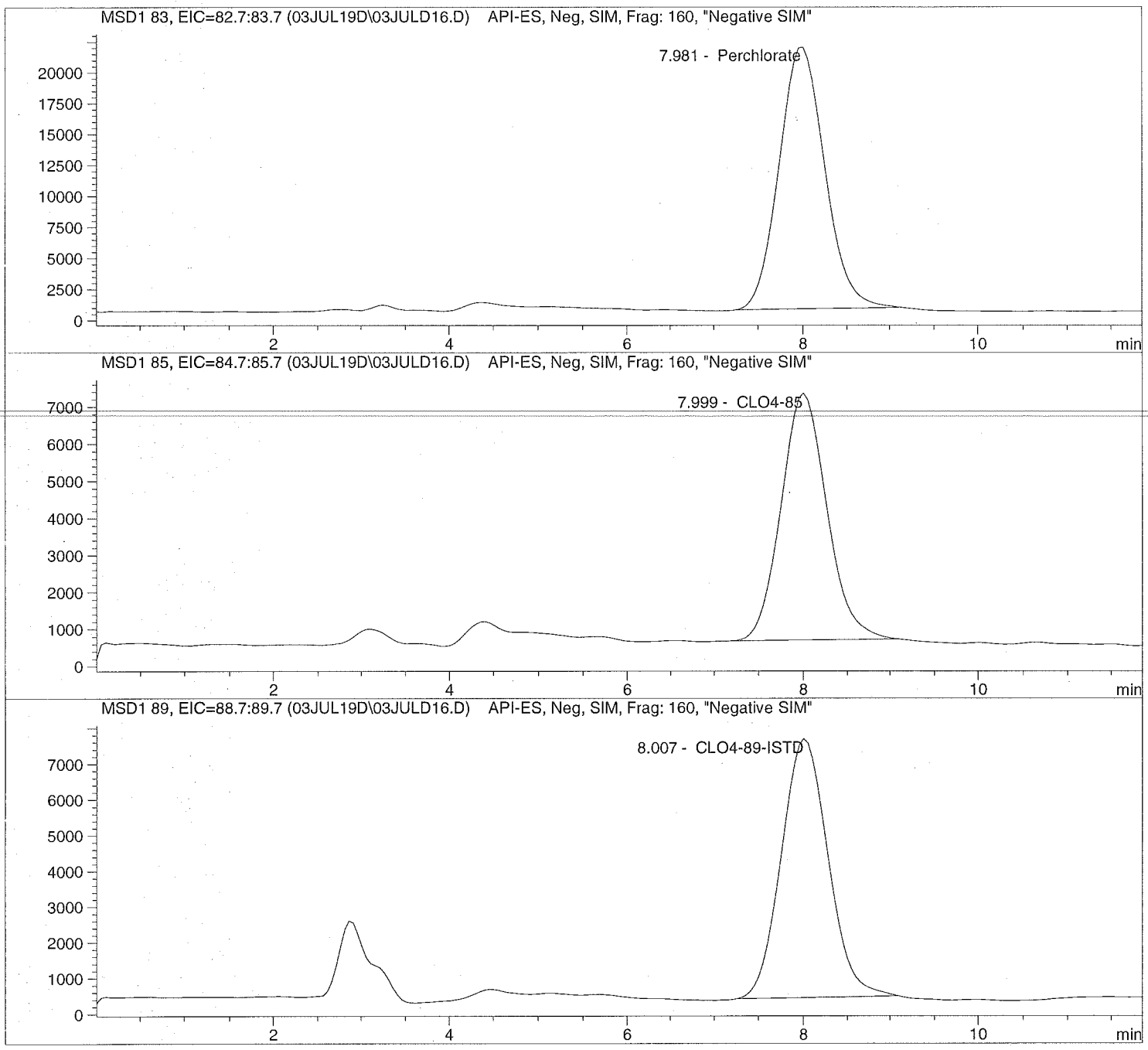
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD16.D Sample Name: 1918265001

Injection Date:	7/03/2019 11:50:13	Seq Line:	16
Sample Name:	1918265001	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD16.D Sample Name: 1918265001

Injection Date:	7/03/2019 11:50:13	Seq Line:	16
Sample Name:	1918265001	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.981	PBA	753597.0	9.0775	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.999	PBA	238015.1	9.5332	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.007	BBA	264420.9	5.0000	CLO4-89-ISTD

*** End of Report ***

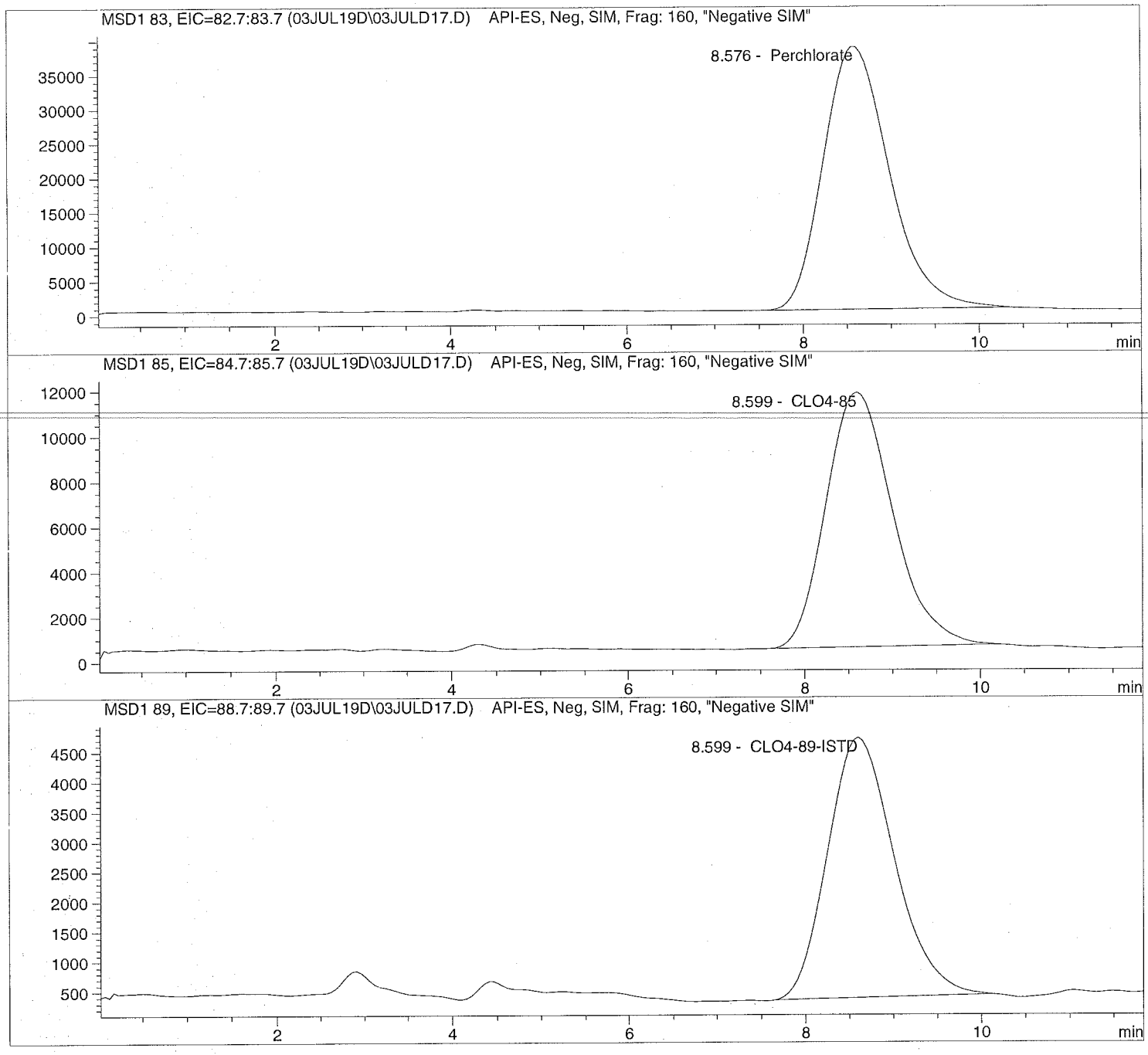
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD17.D Sample Name: 661794 CCV@25

Injection Date:	7/03/2019 12:04:07	Seq Line:	17
Sample Name:	661794 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD17.D Sample Name: 661794 CCV@25

Injection Date:	7/03/2019 12:04:07	Seq Line:	17
Sample Name:	661794 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.576	PBA	1992507.0	26.3322	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.599	PBA	592974.3	26.4065	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.599	PBA	229484.4	5.0000	CLO4-89-ISTD

*** End of Report ***

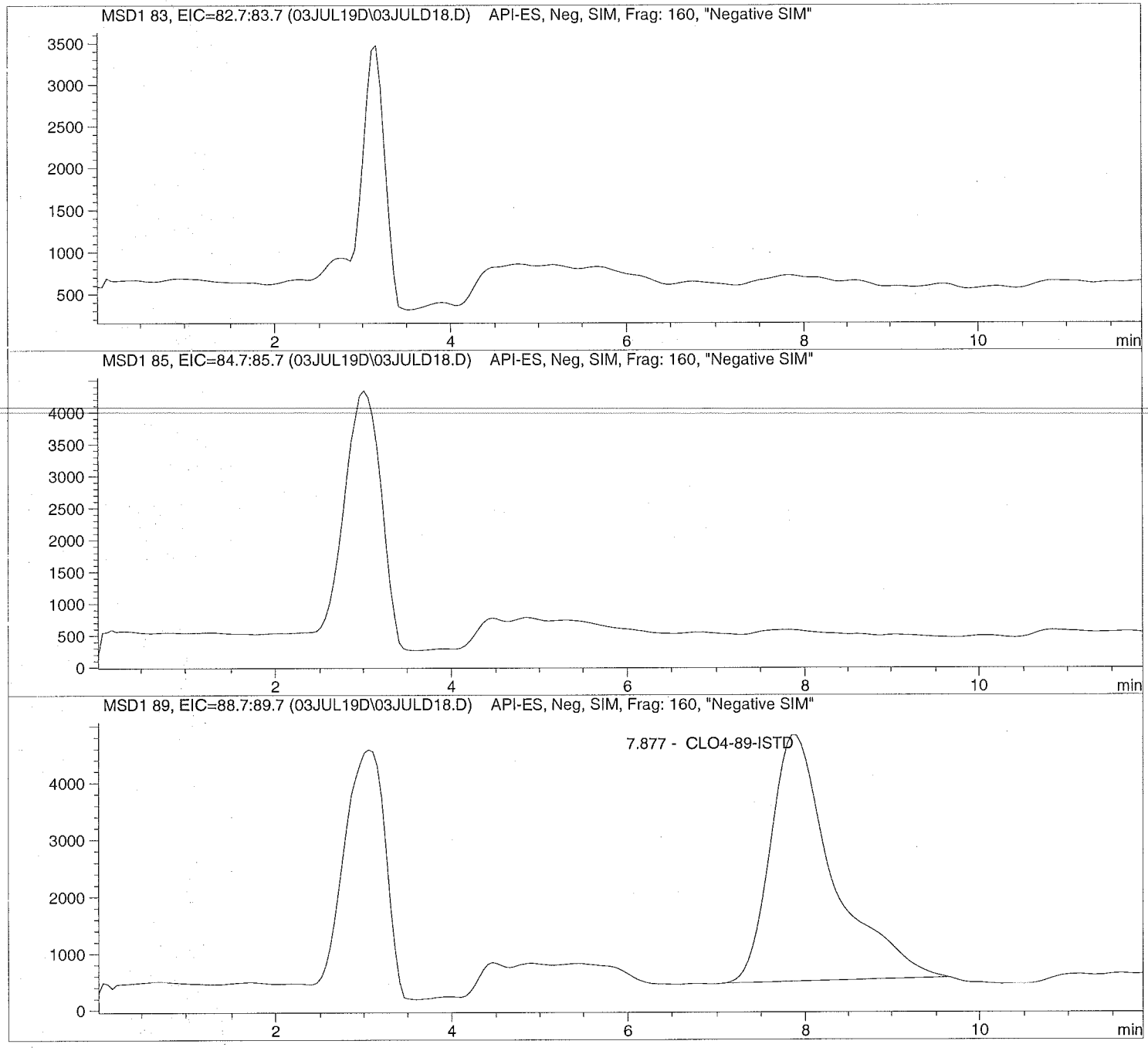
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD18.D Sample Name: 1918265002

Injection Date:	7/03/2019 12:18:01	Seq Line:	18
Sample Name:	1918265002	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD18.D Sample Name: 1918265002

Injection Date:	7/03/2019 12:18:01	Seq Line:	18
Sample Name:	1918265002	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.877	PBA	214730.0	5.0000	CLO4-89-ISTD

*** End of Report ***

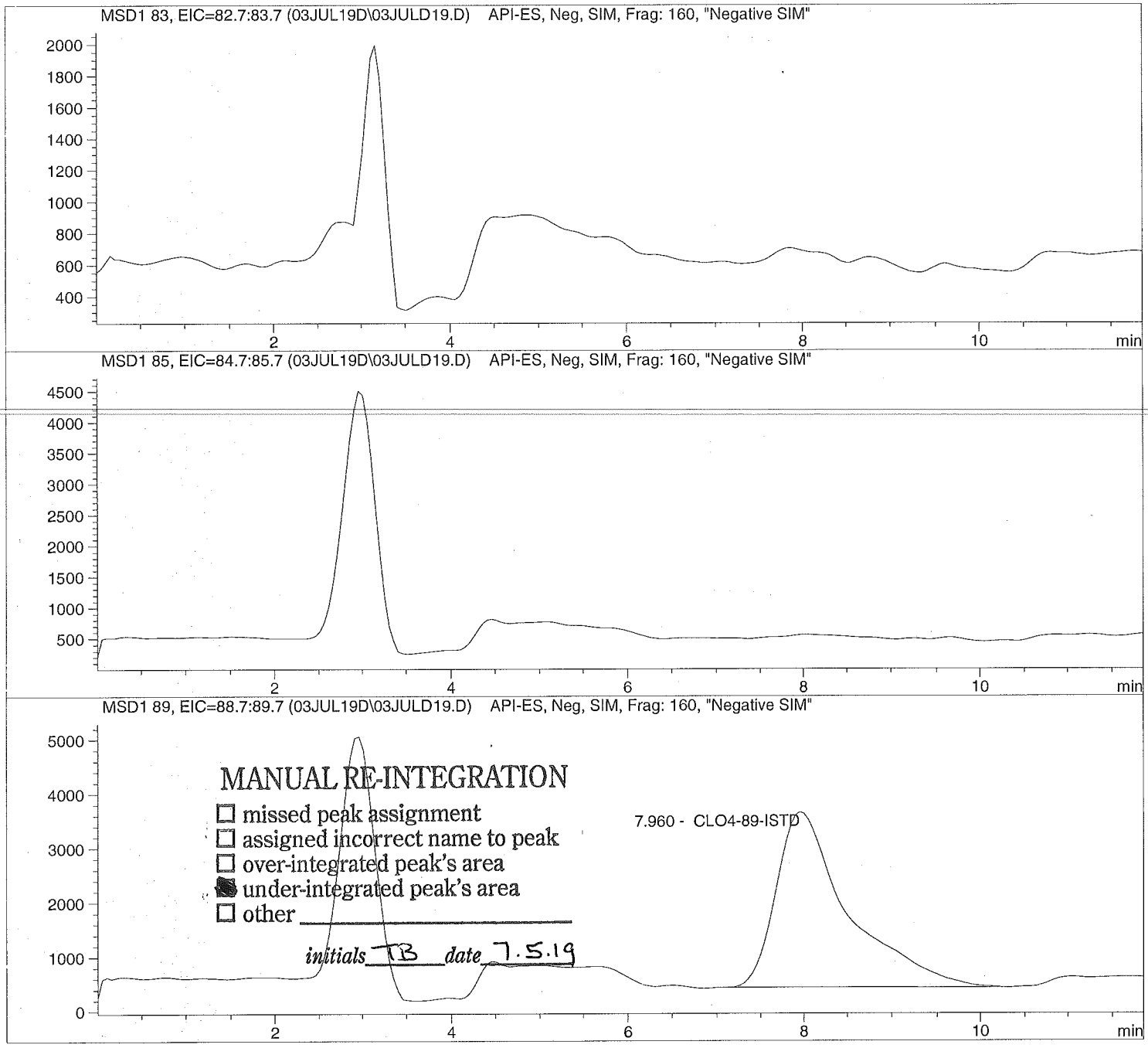
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.960	MM	183014.2	5.0000	CLO4-89-ISTD

*** End of Report ***

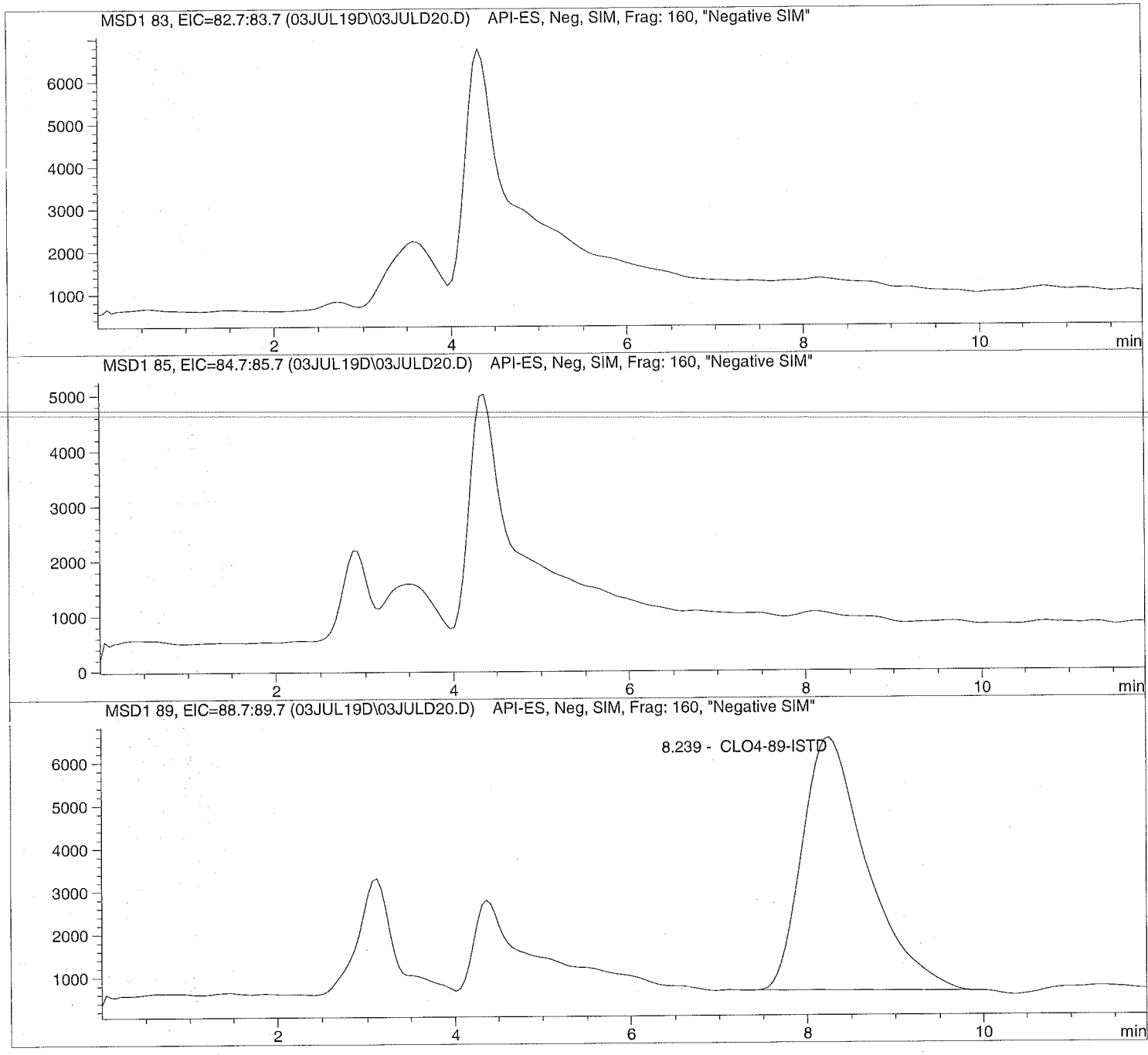
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD20.D Sample Name: 1918265004

Injection Date:	7/03/2019 12:45:47	Seq Line:	20
Sample Name:	1918265004	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD20.D Sample Name: 1918265004

Injection Date:	7/03/2019 12:45:47	Seq Line:	20
Sample Name:	1918265004	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.239	PBA	299495.5	5.0000	CLO4-89-ISTD

*** End of Report ***

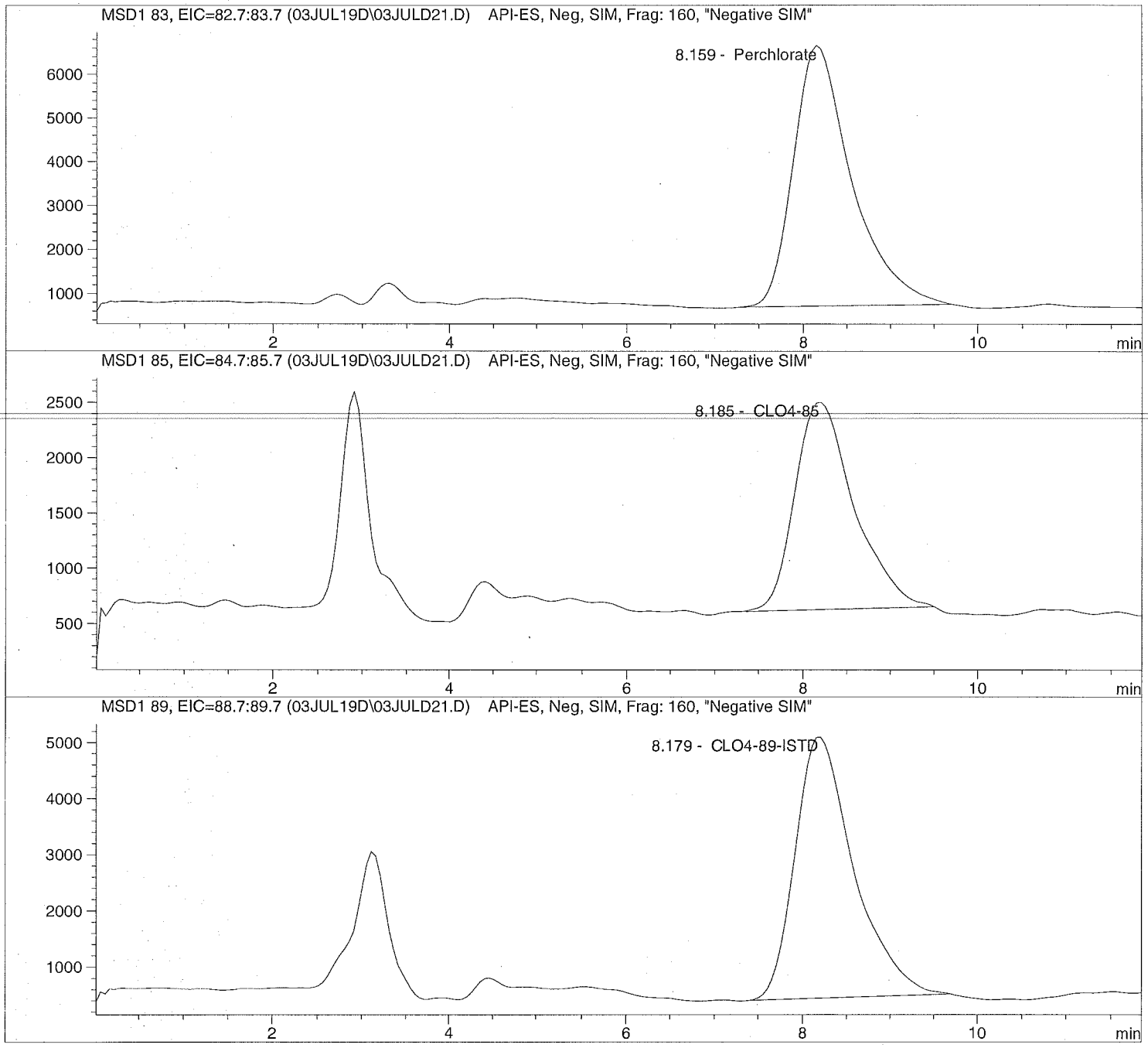
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD21.D Sample Name: 1918265005

Injection Date:	7/03/2019 12:59:40	Seq Line:	21
Sample Name:	1918265005	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD21.D Sample Name: 1918265005

Injection Date:	7/03/2019 12:59:40	Seq Line:	21
Sample Name:	1918265005	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.159	PBA	273037.3	4.1459	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.185	BBA	87704.6	4.3341	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.179	PBA	216624.0	5.0000	CLO4-89-ISTD

*** End of Report ***

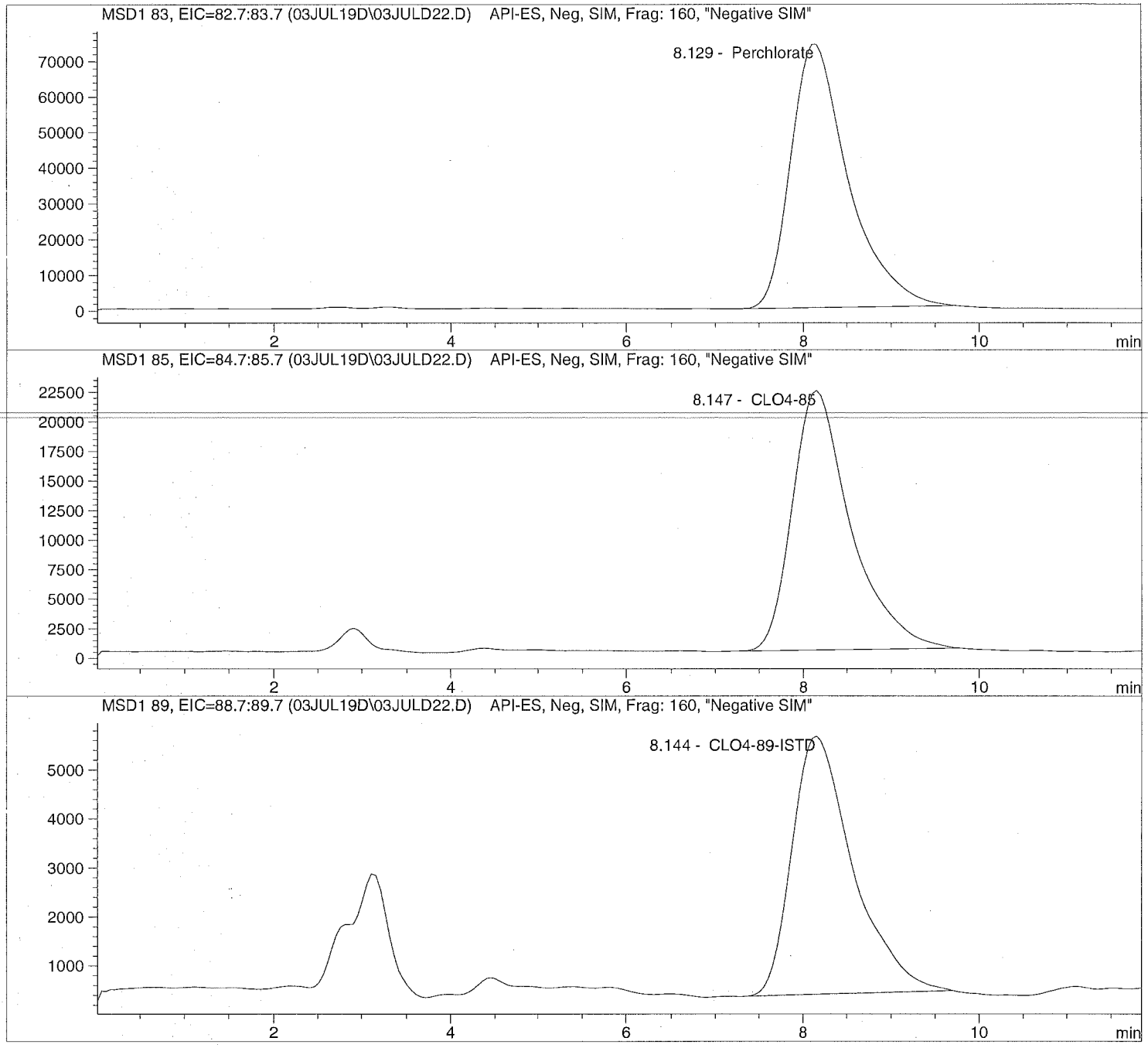
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD22.D Sample Name: 1918265006

Injection Date:	7/03/2019 13:13:42	Seq Line:	22
Sample Name:	1918265006	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD22.D Sample Name: 1918265006

Injection Date:	7/03/2019 13:13:42	Seq Line:	22
Sample Name:	1918265006	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.129	PBA	3362889.2	39.0365	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.147	PBA	1014205.1	39.7190	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.144	PBA	253872.0	5.0000	CLO4-89-ISTD

*** End of Report ***

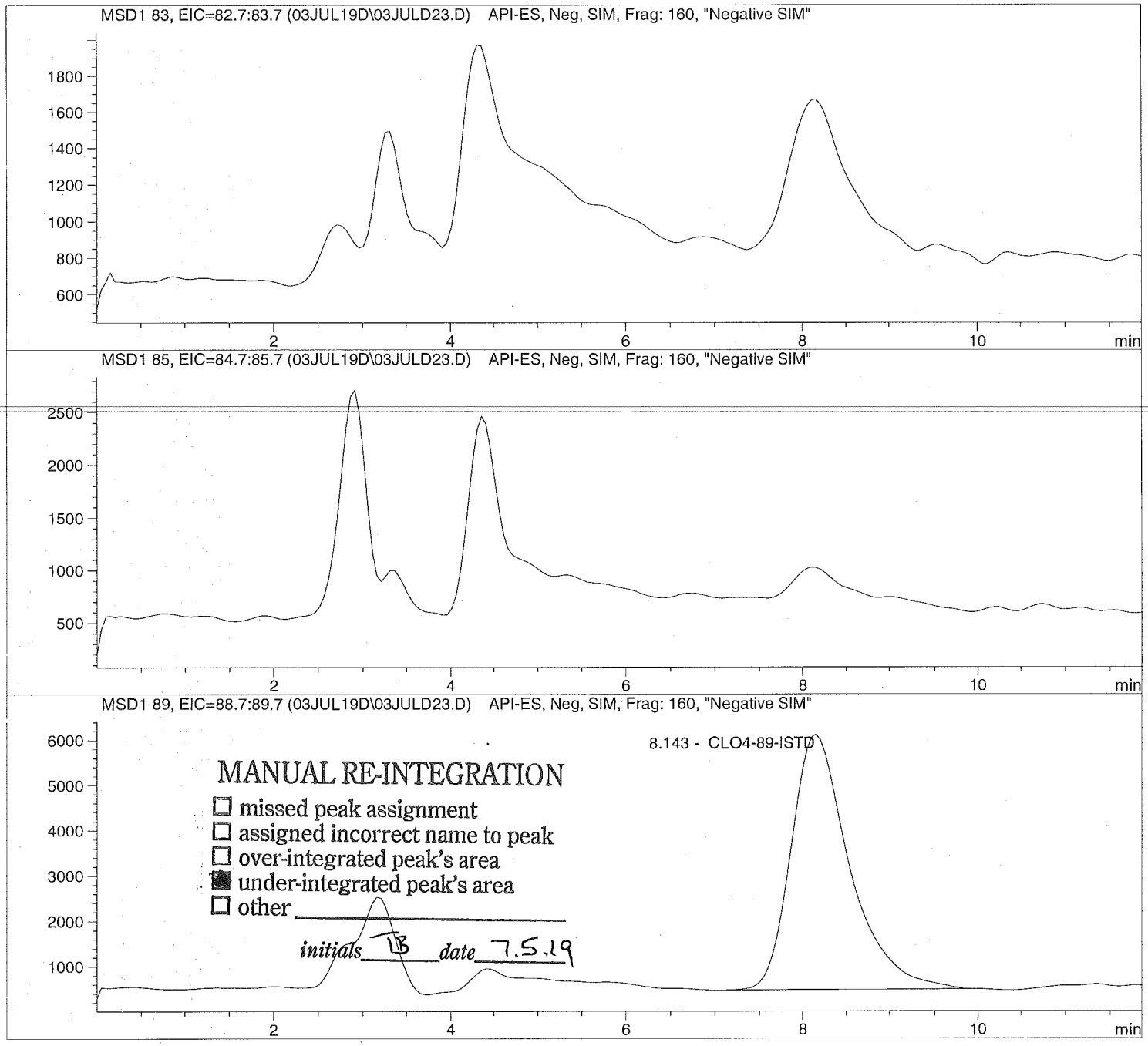
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.143	MM	263295.0	5.0000	CLO4-89-ISTD

*** End of Report ***

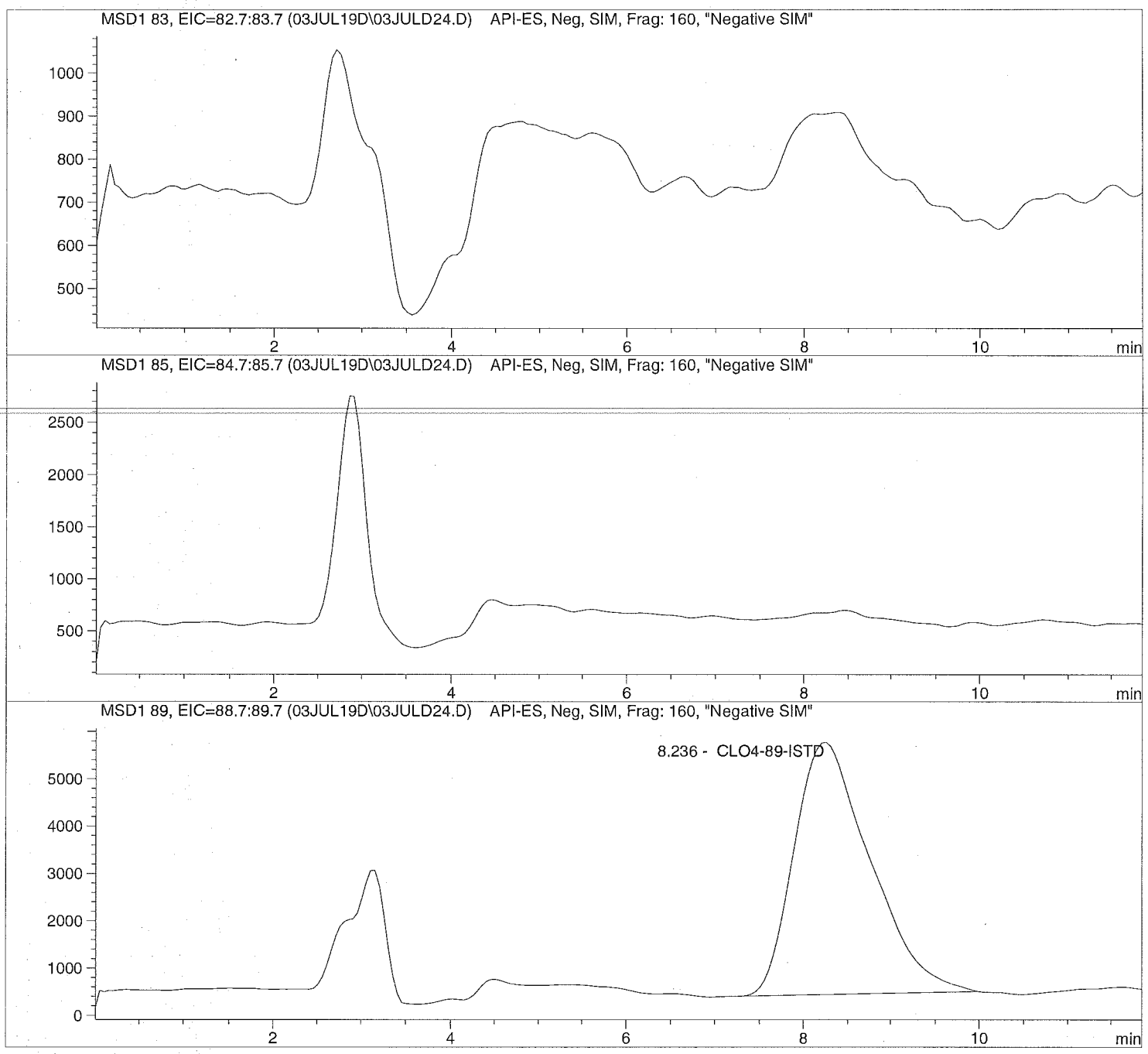
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD24.D Sample Name: 1918265008

Injection Date:	7/03/2019 13:41:31	Seq Line:	24
Sample Name:	1918265008	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD24.D Sample Name: 1918265008

Injection Date:	7/03/2019 13:41:31	Seq Line:	24
Sample Name:	1918265008	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.236	PBA	321651.0	5.0000	CLO4-89-ISTD

*** End of Report ***

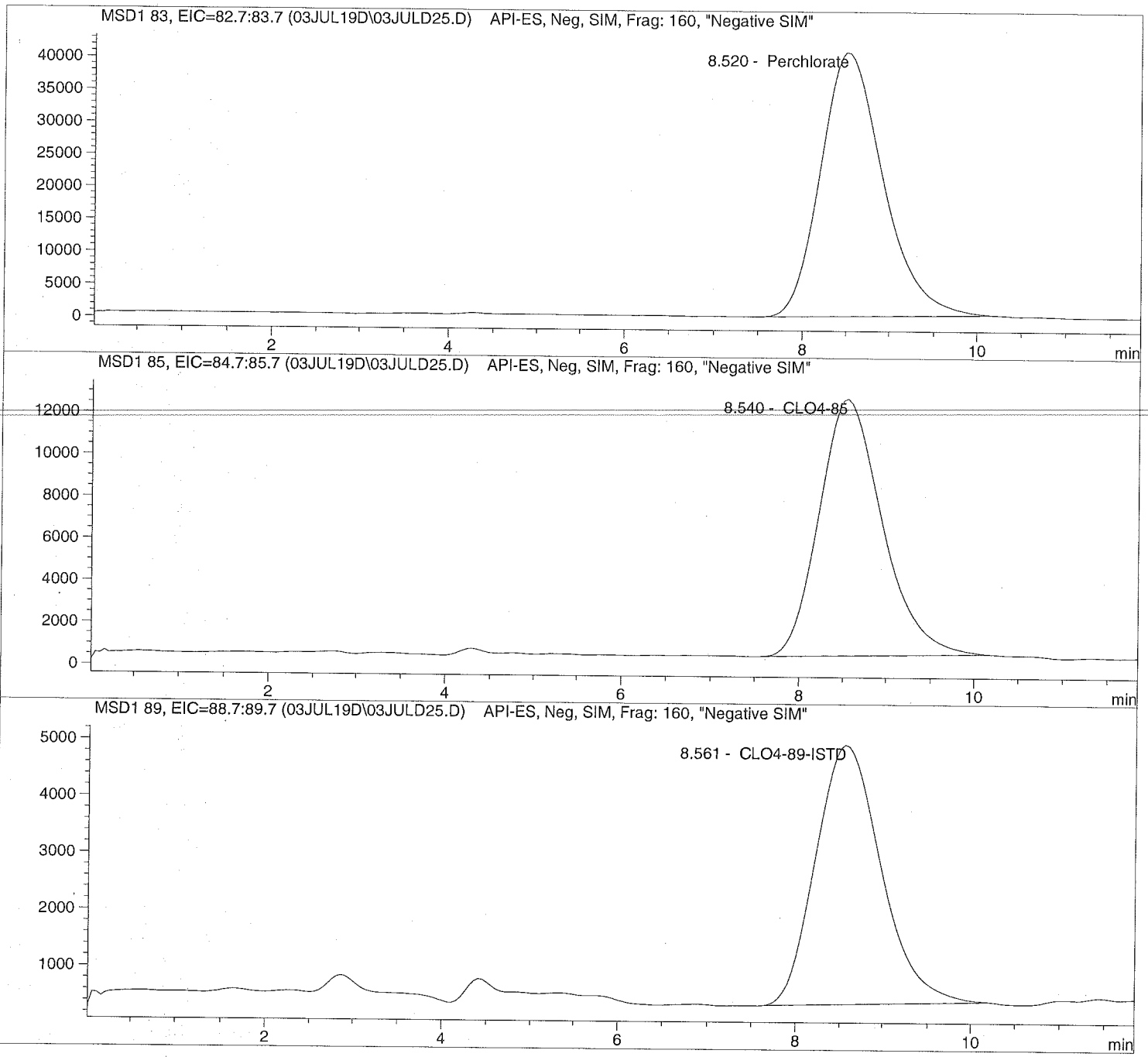
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD25.D Sample Name: 661795 CCV@25

Injection Date:	7/03/2019 13:55:26	Seq Line:	25
Sample Name:	661795 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD25.D Sample Name: 661795 CCV@25

Injection Date:	7/03/2019 13:55:26	Seq Line:	25
Sample Name:	661795 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.520	PBA	2028657.1	25.8170	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.540	PBA	616067.7	26.3876	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.561	PBA	238601.3	5.0000	CLO4-89-ISTD

*** End of Report ***

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

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Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

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RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

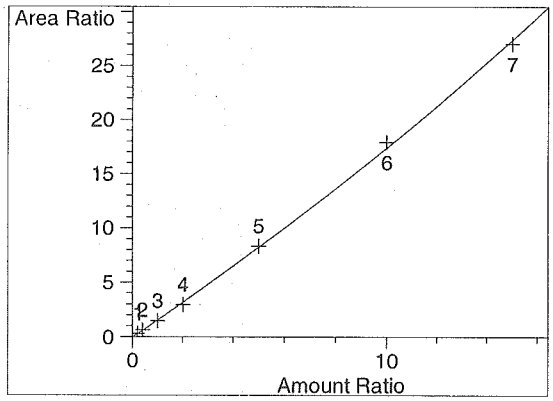
No Entries in table

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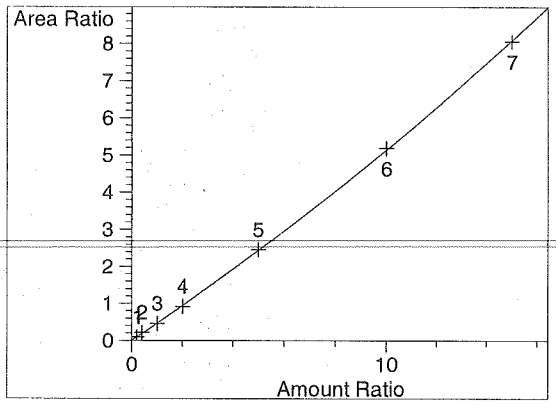
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Calibration Curves

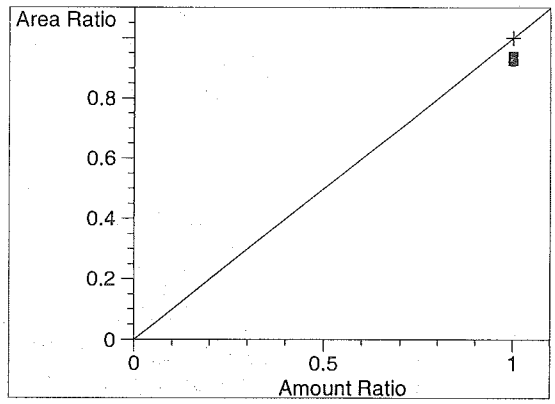
==========



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

==========

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Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

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Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

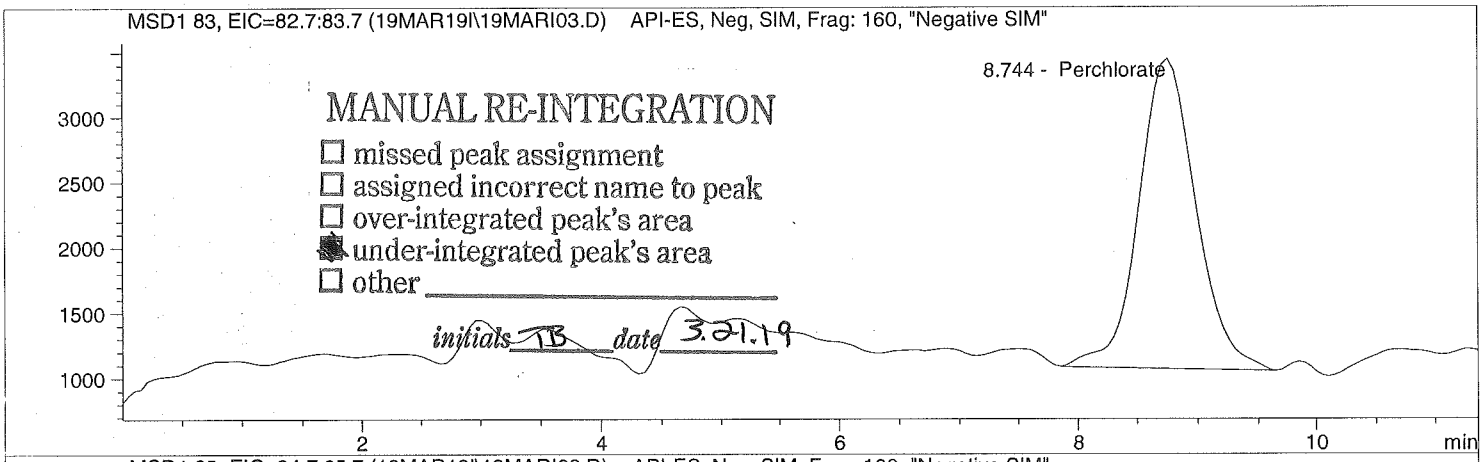
RIGHT SOLUTIONS | RIGHT PARTNER

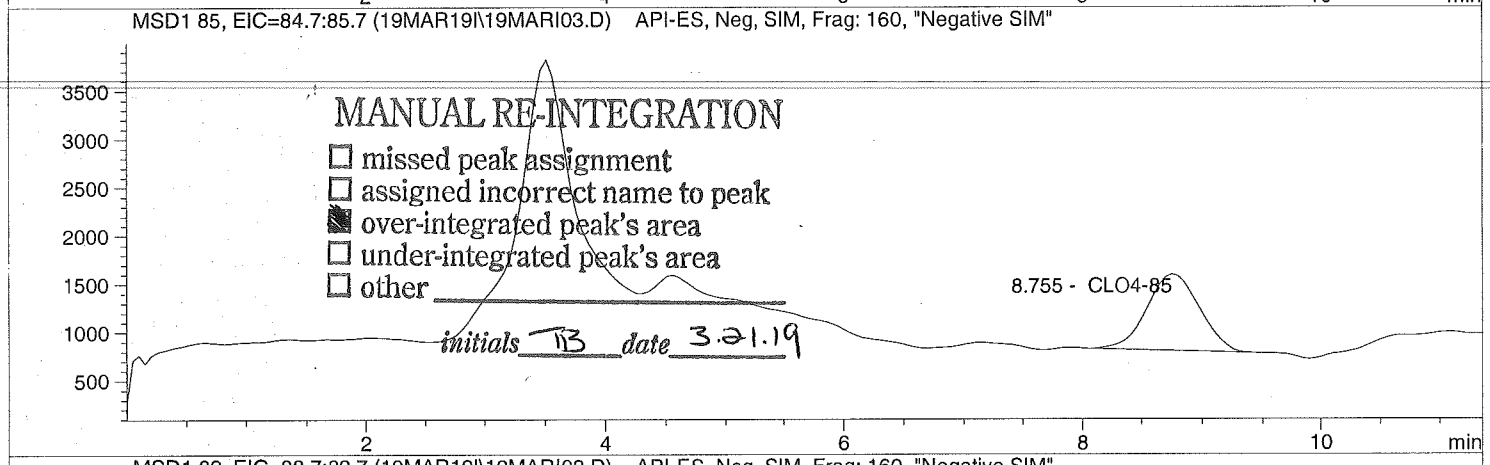
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

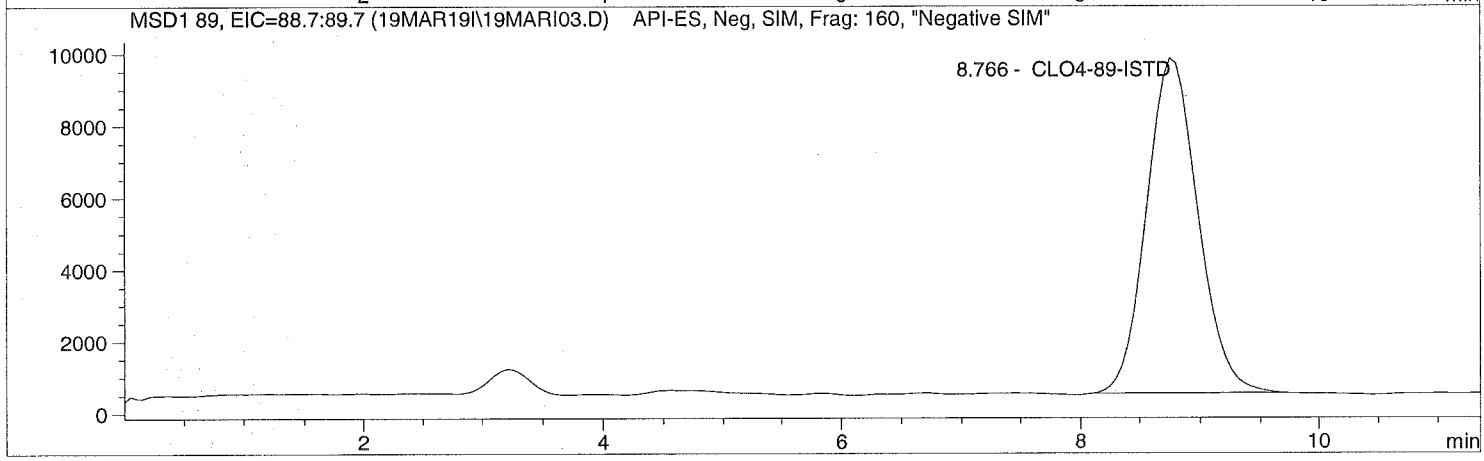
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

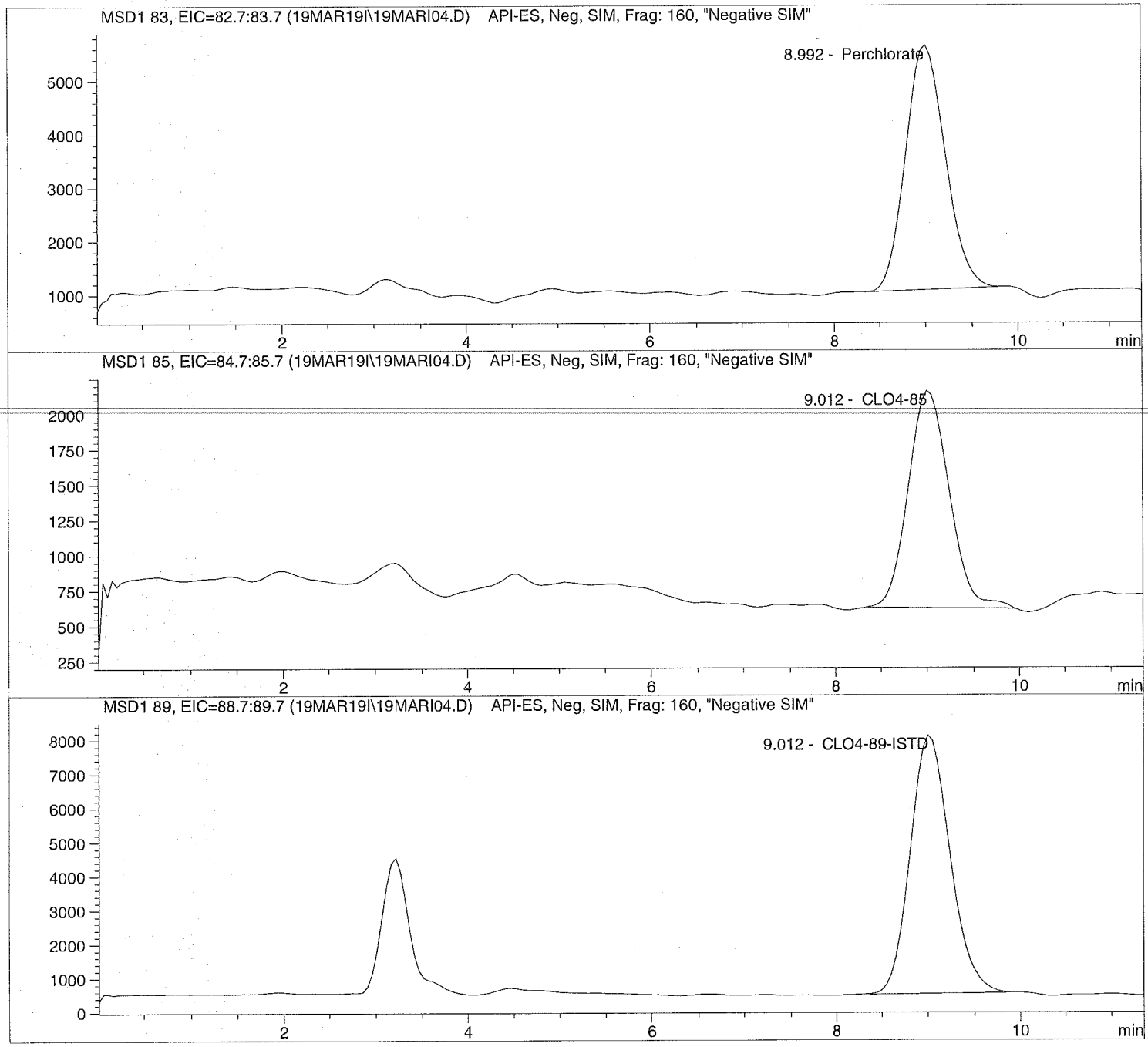
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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

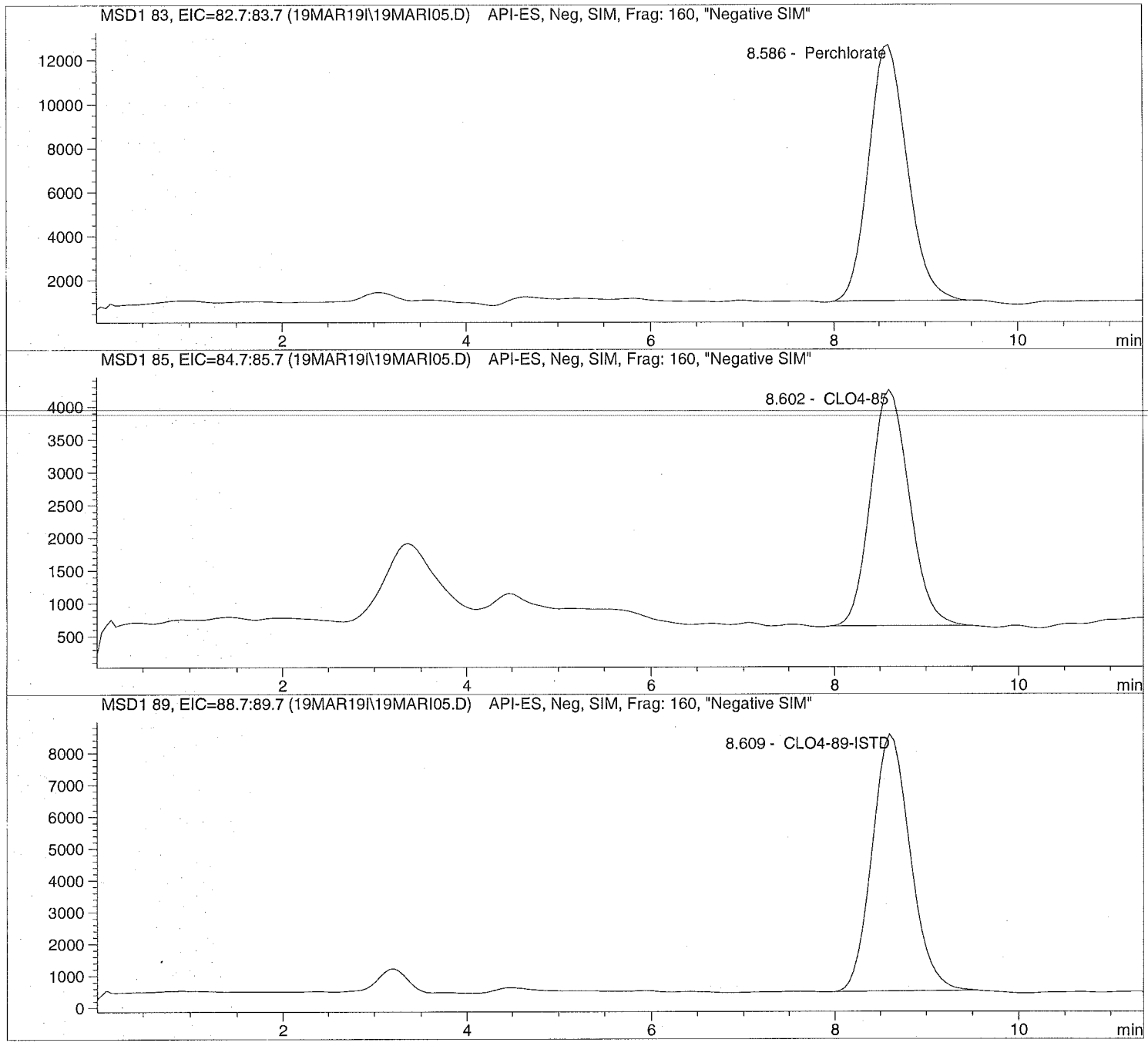
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

*** End of Report ***

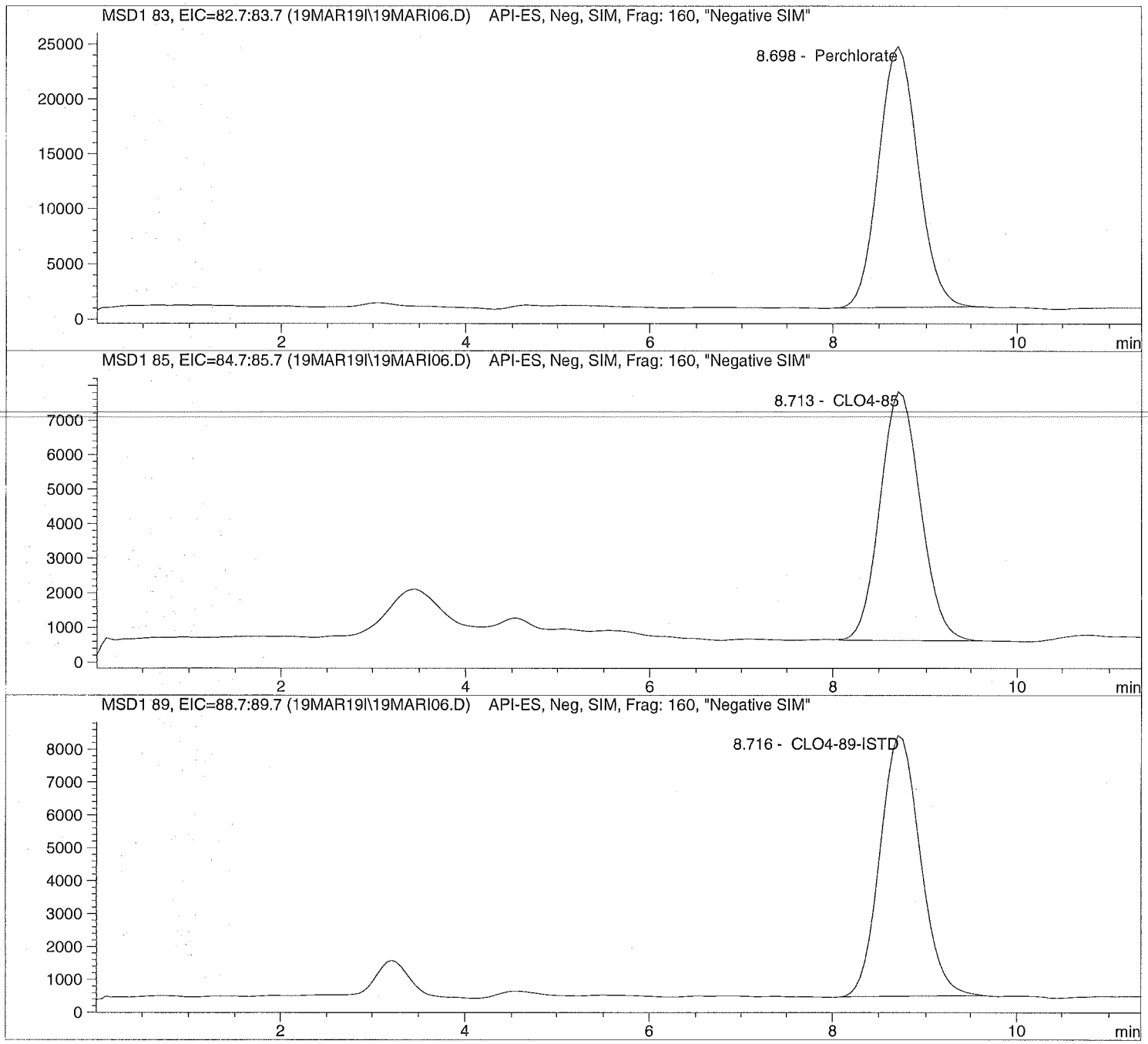
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

*** End of Report ***

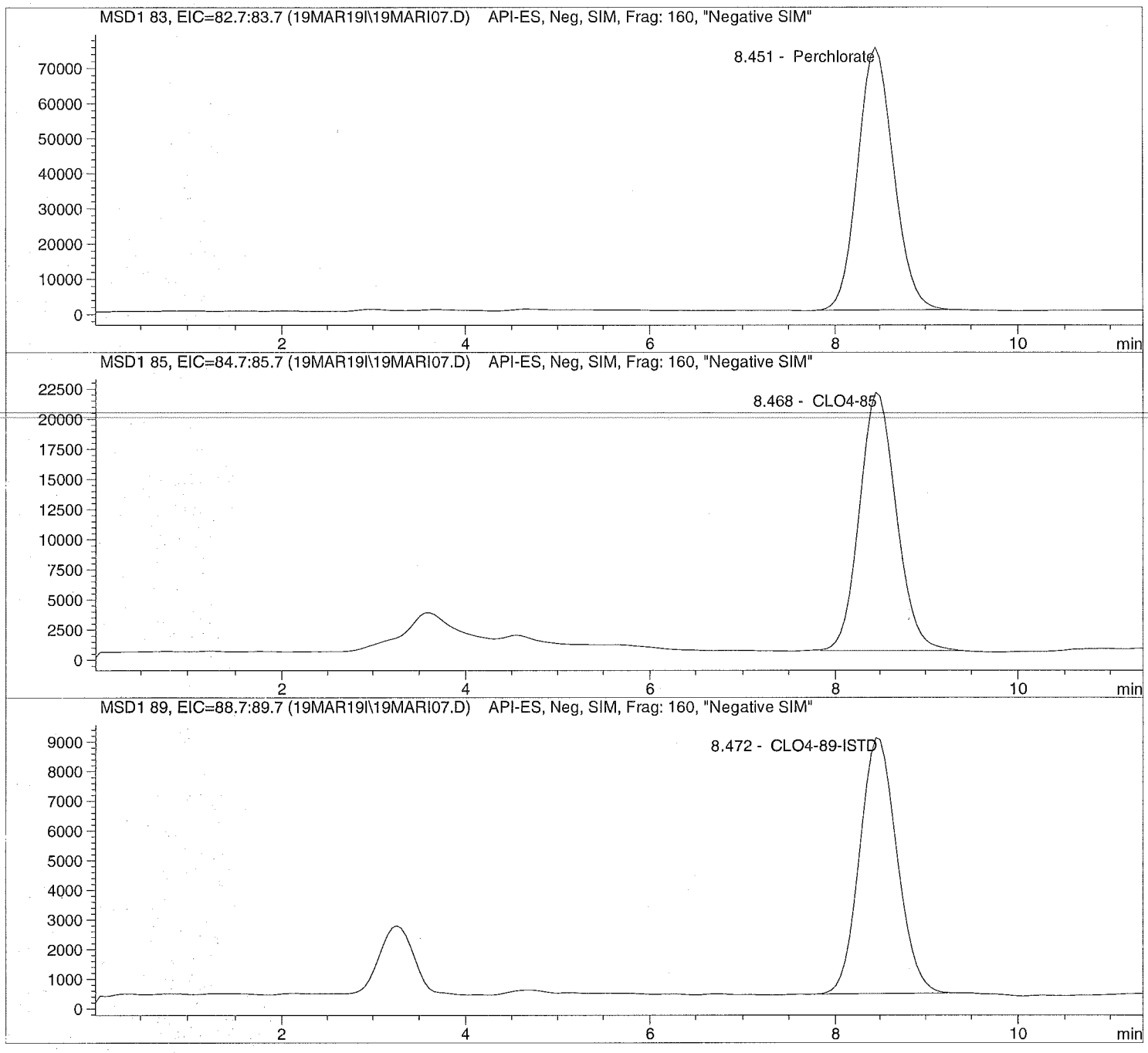
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

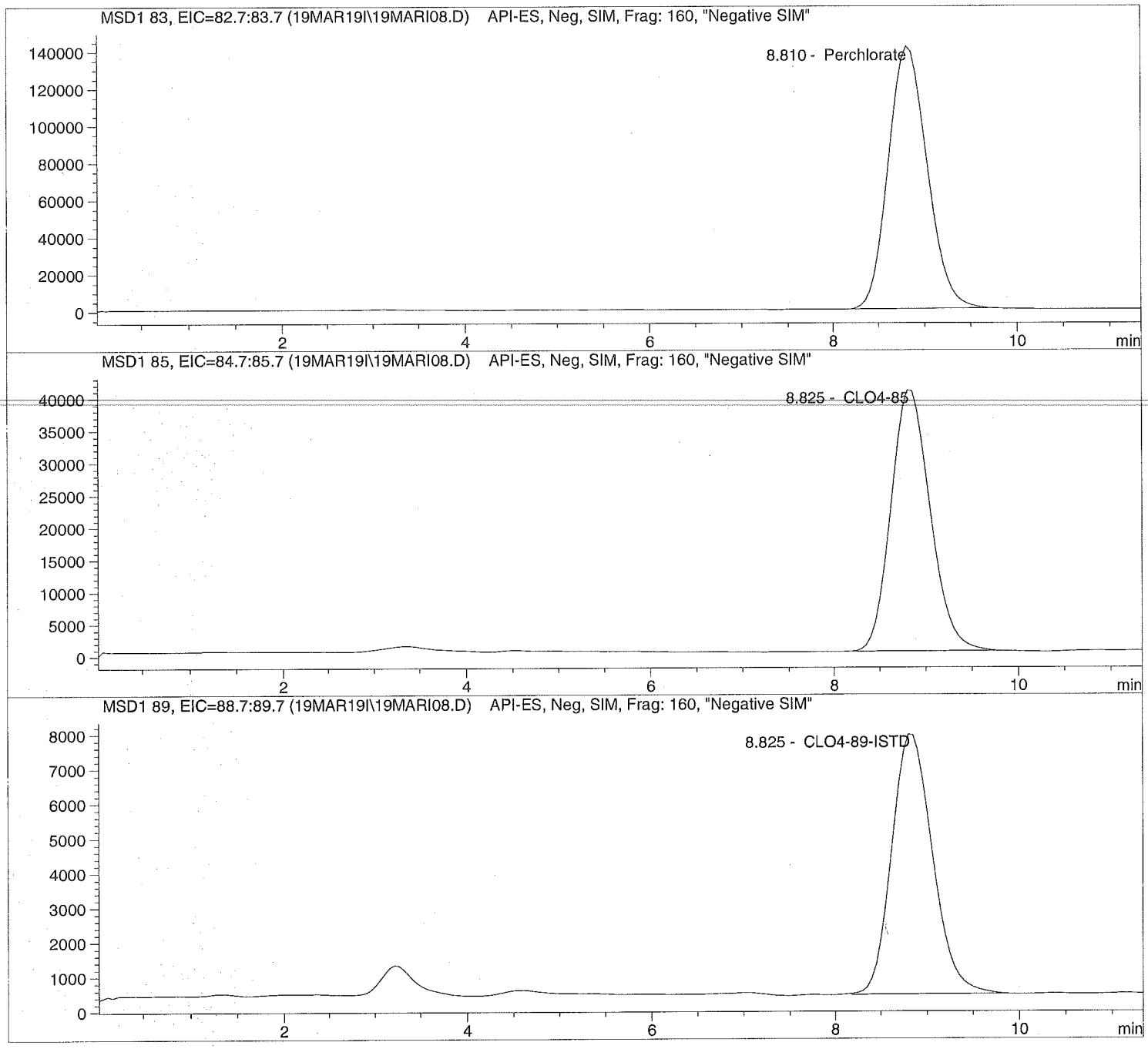
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

*** End of Report ***

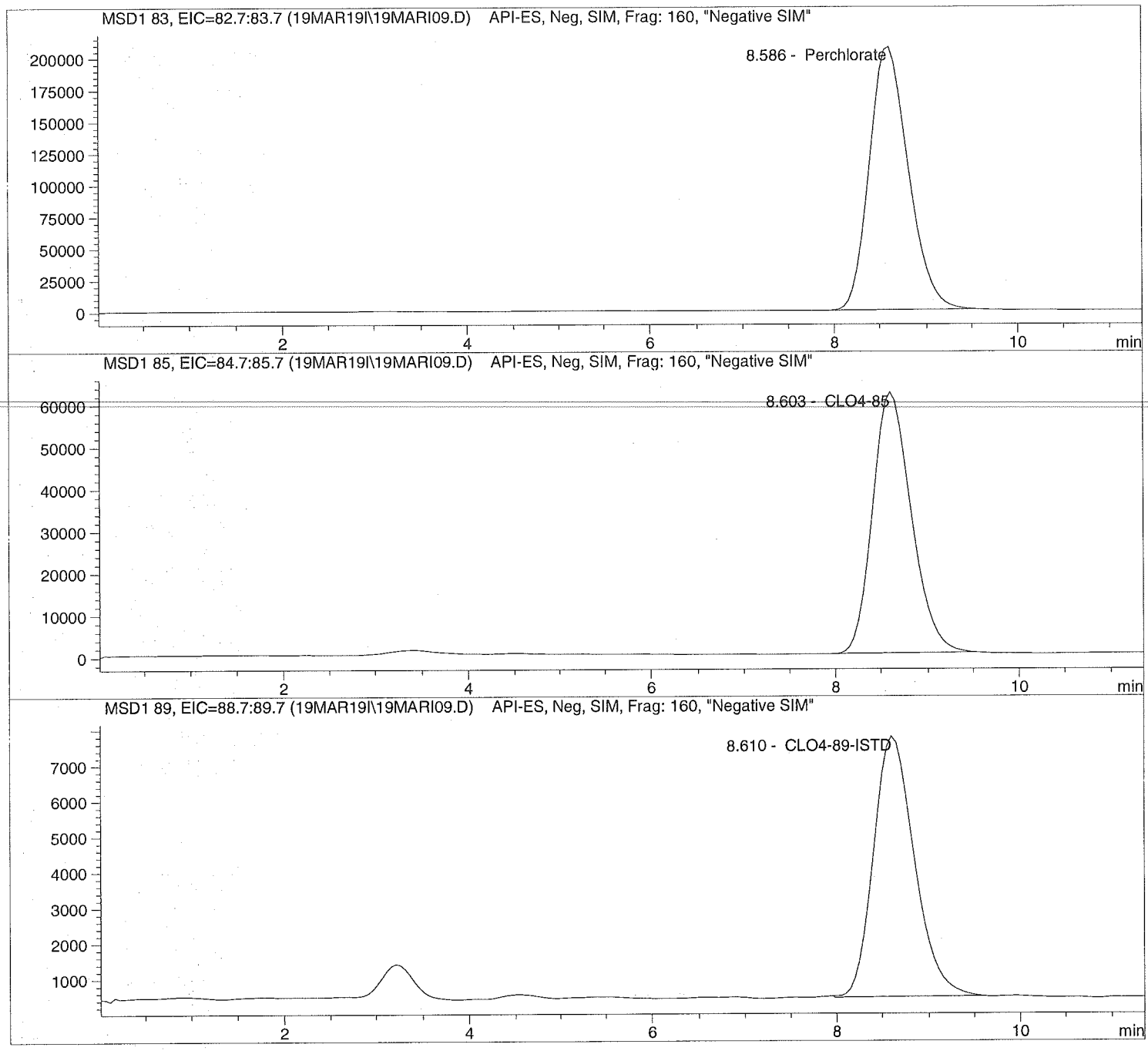
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

*** End of Report ***

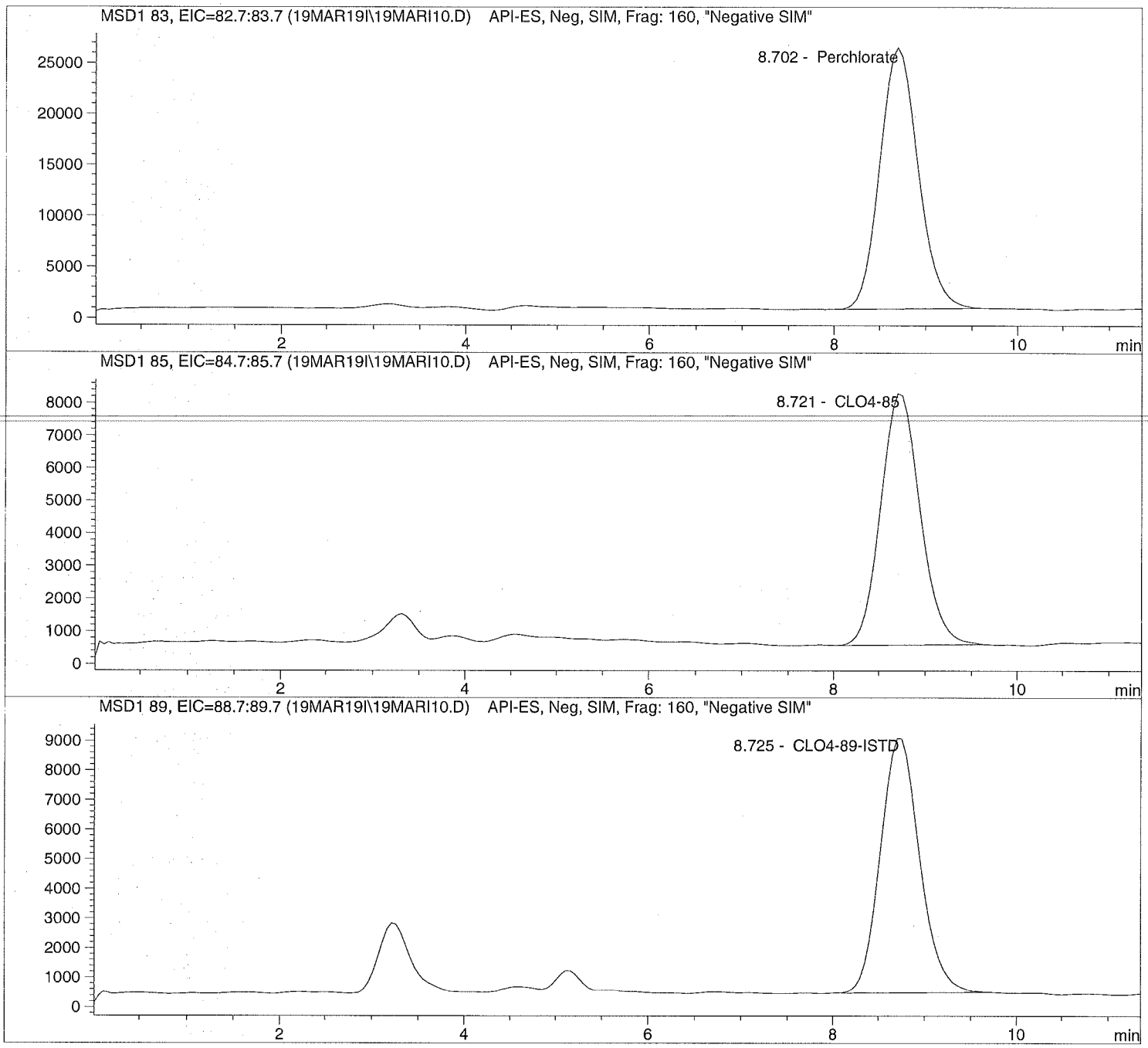
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Unmodified

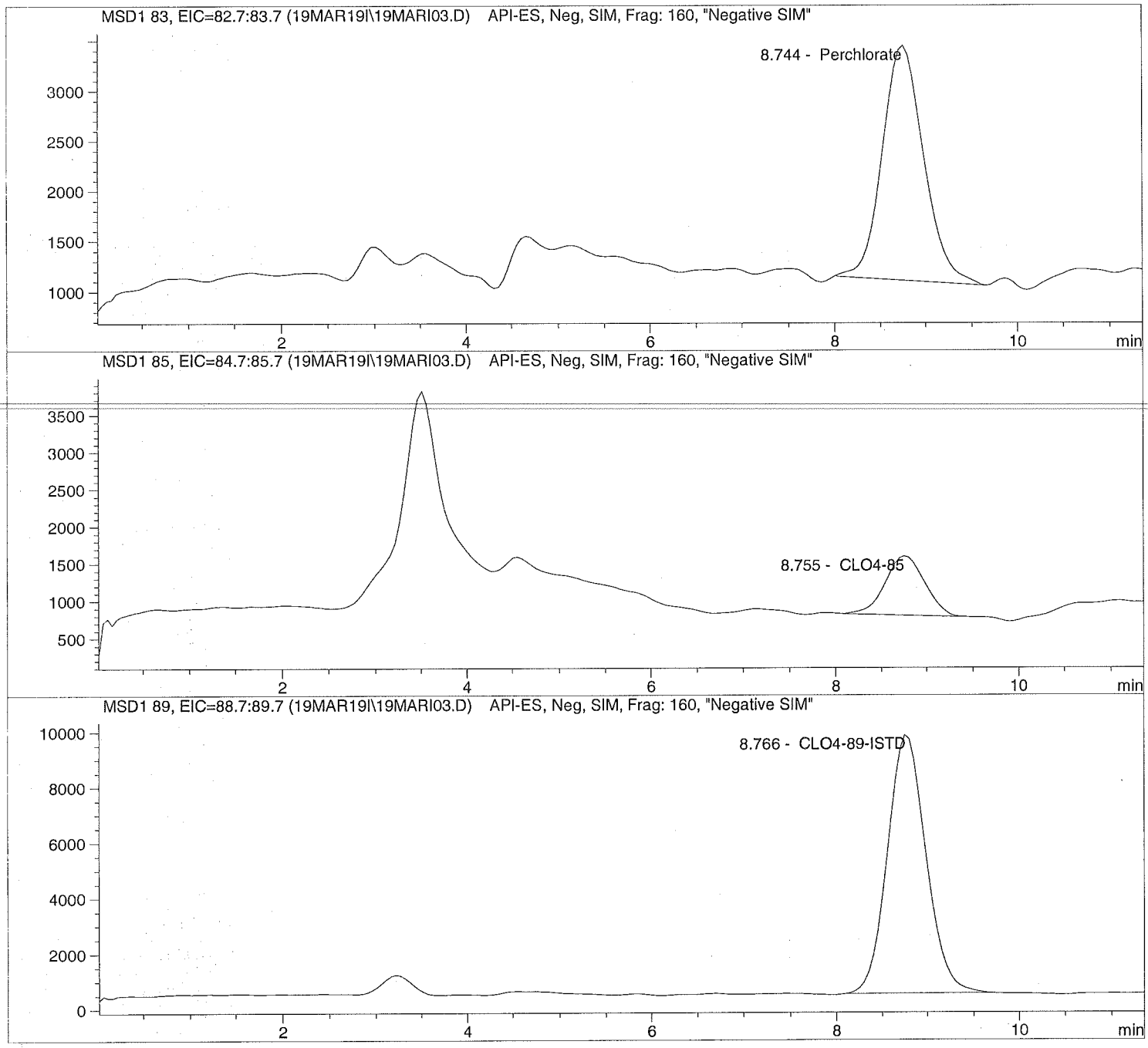
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

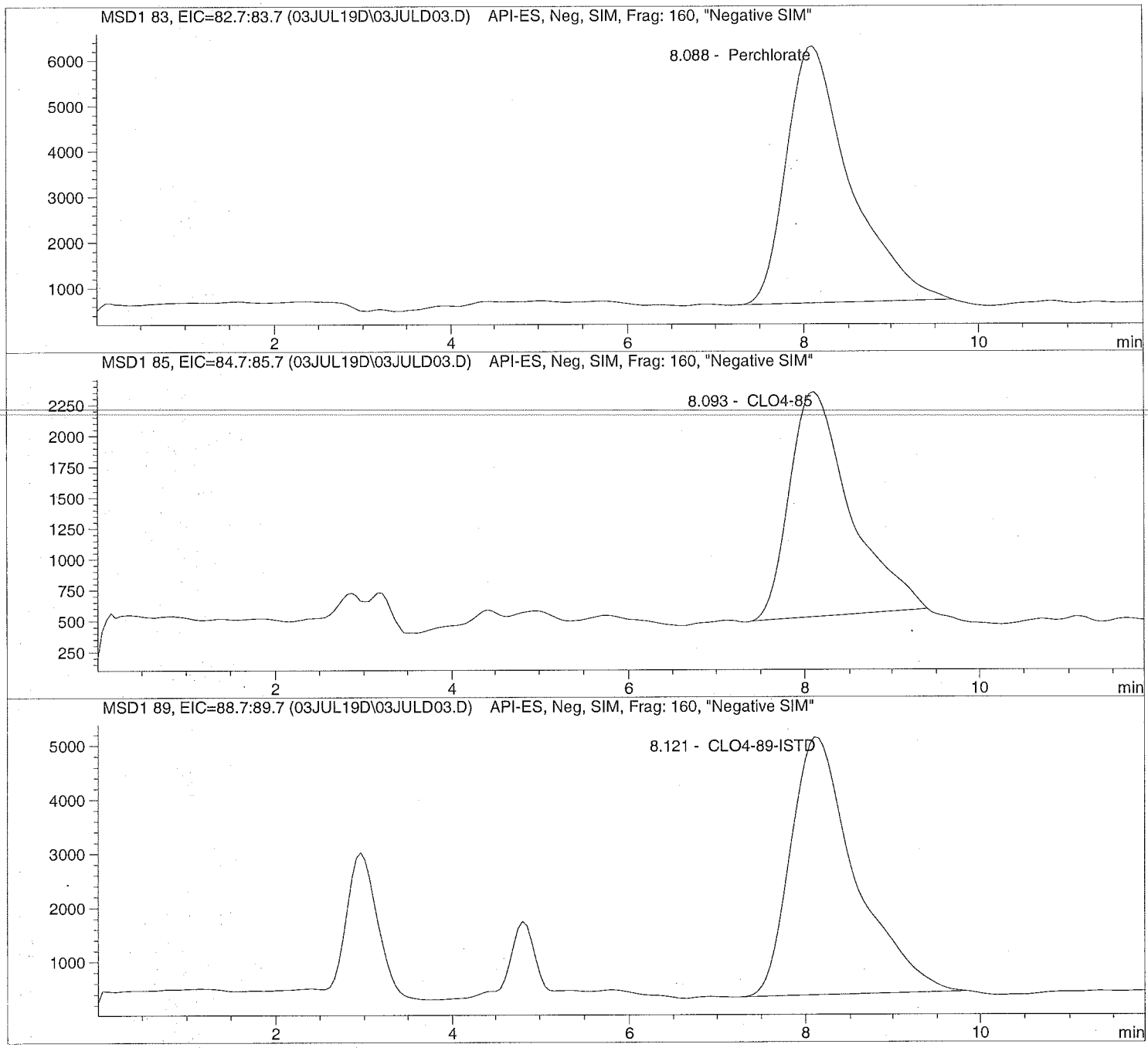
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD03.D Sample Name: 661791 ICS@4.0

Injection Date:	7/03/2019 08:49:21	Seq Line:	3
Sample Name:	661791 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD03.D Sample Name: 661791 ICS@4.0

Injection Date:	7/03/2019 08:49:21	Seq Line:	3
Sample Name:	661791 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.088	PBA	281076.3	3.8527	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.093	PBA	86599.9	3.8525	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.121	PBA	240851.1	5.0000	CLO4-89-ISTD

*** End of Report ***

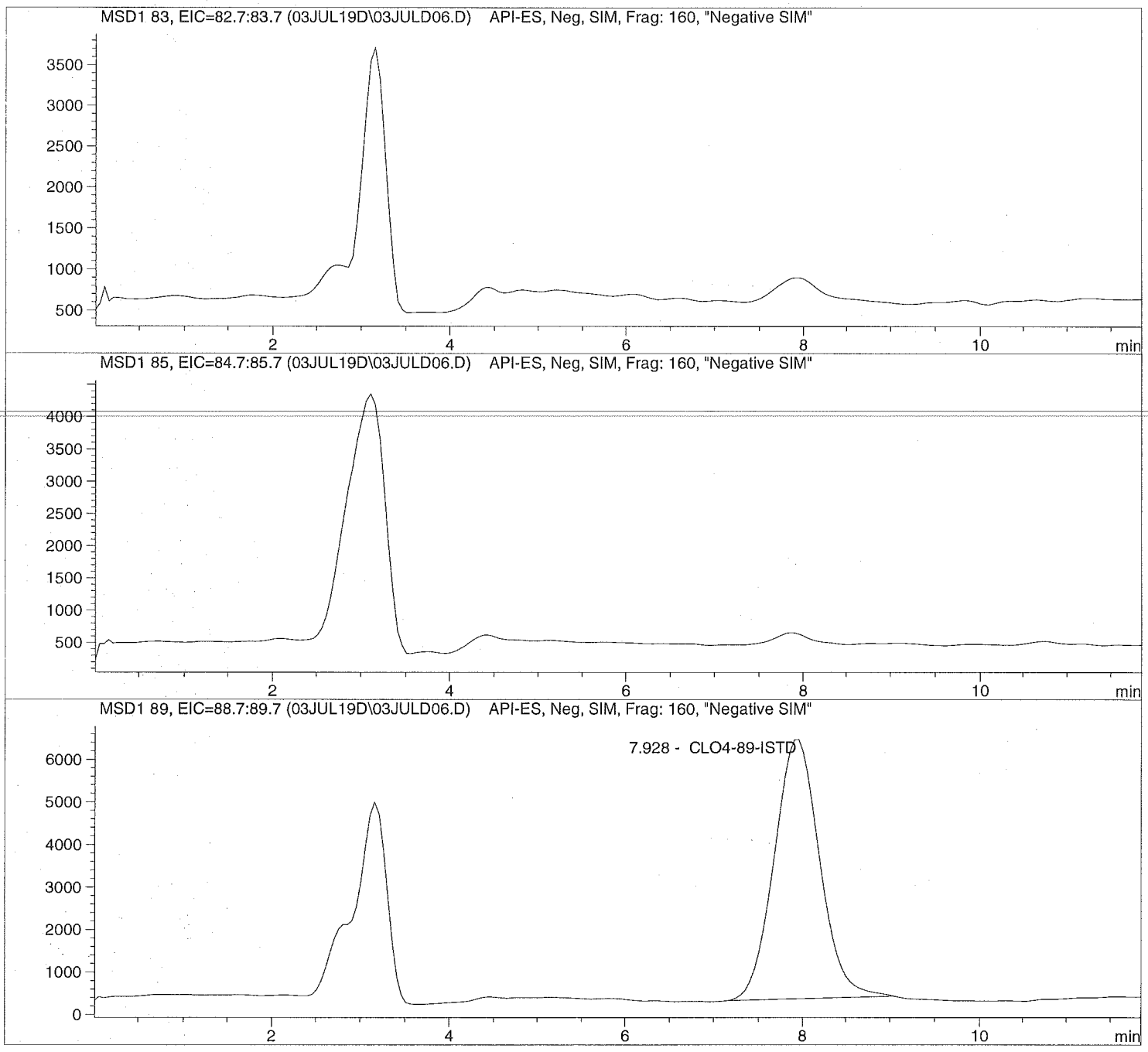
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD06.D Sample Name: 1918260002

Injection Date:	7/03/2019 09:31:06	Seq Line:	6
Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD06.D Sample Name: 1918260002

Injection Date:	7/03/2019 09:31:06	Seq Line:	6
Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.928	PBA	220839.0	5.0000	CLO4-89-ISTD

*** End of Report ***

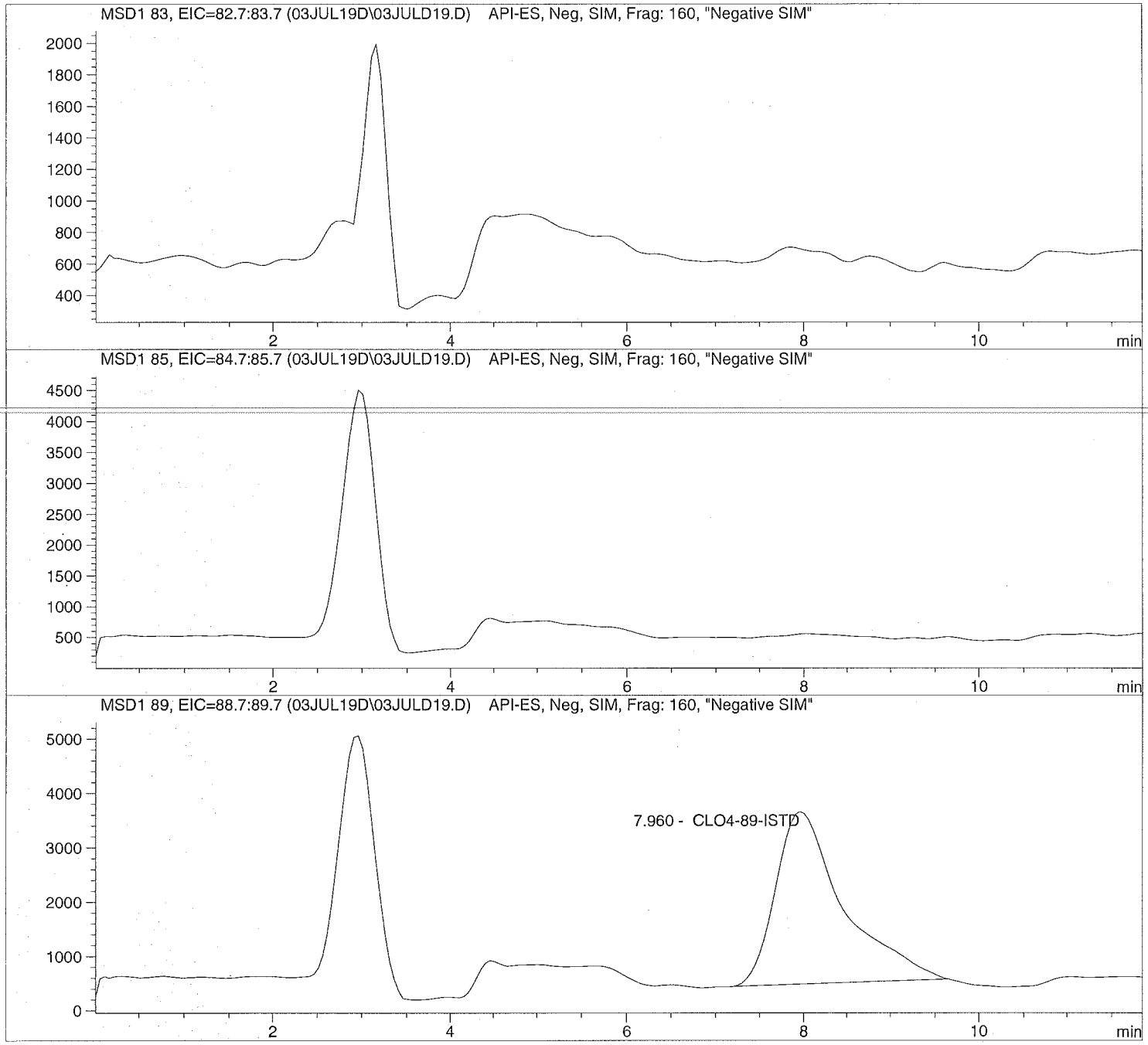
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.960	PBA	169691.9	5.0000	CLO4-89-ISTD

*** End of Report ***

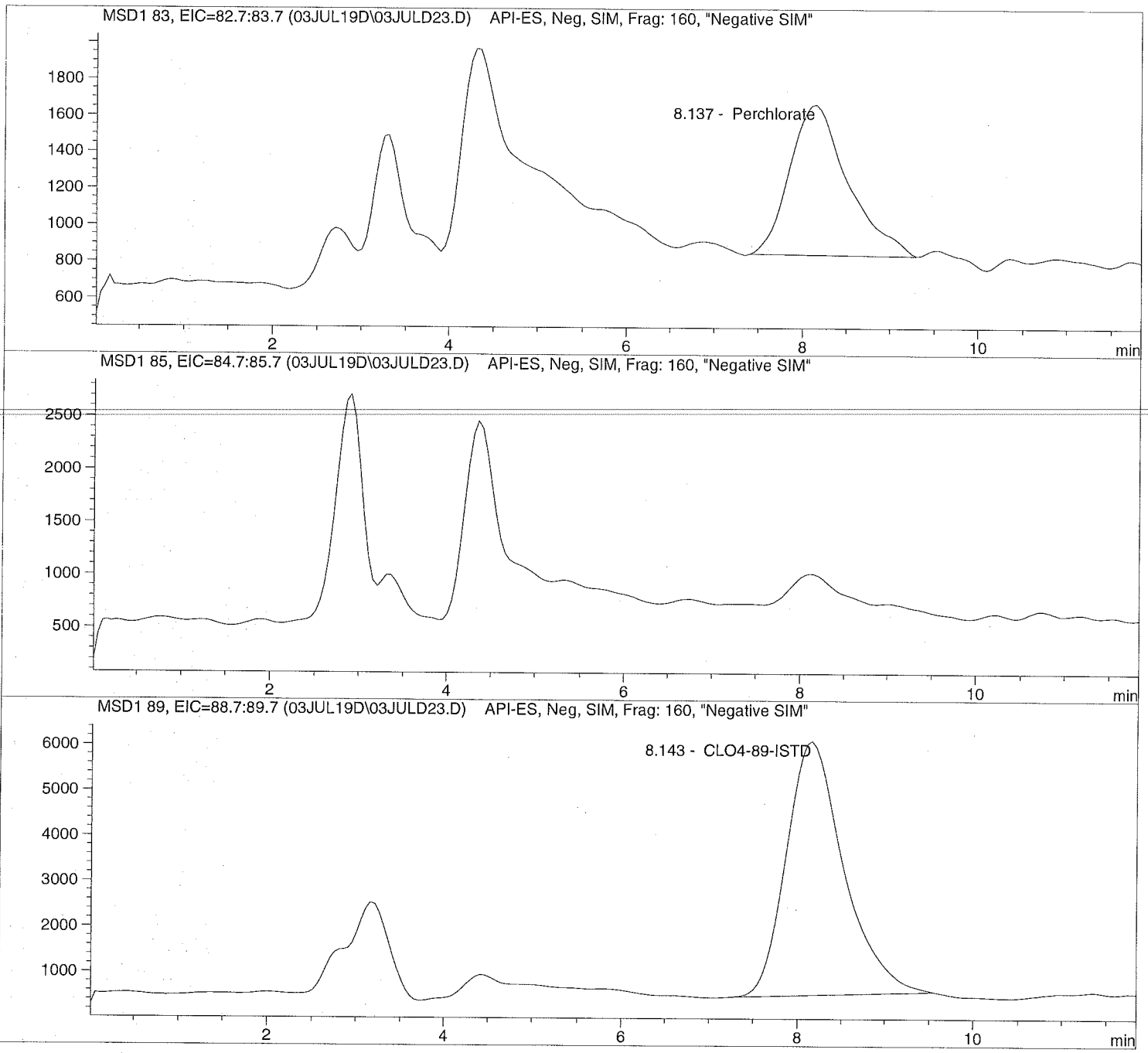
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.137	PBA	37849.4	0.6340	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.143	PBA	253241.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 16, 2019

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

Work Order: **HS19061164**

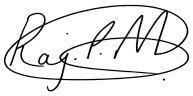
Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

ALS Environmental received 6 sample(s) on Jun 21, 2019 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,



Generated By: RJ.MODASHIA
RJ Modashia
Project Manager

ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061164

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061164-01	AWD-1_062019	Water		20-Jun-2019 07:45	21-Jun-2019 09:00	☐
HS19061164-02	120_062019	Water		20-Jun-2019 09:25	21-Jun-2019 09:00	☐
HS19061164-03	MW14_062019	Water		20-Jun-2019 10:45	21-Jun-2019 09:00	☐
HS19061164-04	MW14_062019_a	Water		20-Jun-2019 10:45	21-Jun-2019 09:00	☐
HS19061164-05	MW12_062019	Water		20-Jun-2019 12:30	21-Jun-2019 09:00	☐
HS19061164-06	Trip blank	Water	C&G-050119-179	20-Jun-2019 00:00	21-Jun-2019 09:00	☑

Revision:1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18 24
Work Order: HS19061164

Work Order Comments

• Revised to correct the reporting limit for Mercury.

Work Order Comments

• The analyses for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final Report attached

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142429

Sample ID: 120_062019 (HS19061164-02)

• The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: MW14_062019 (HS19061164-03)

• The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: MW14_062019_a (HS19061164-04)

• The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: LCSD-142429

• LCS/LCSD RPD recovered above the RPD limit. The individual recoveries met acceptance criteria (Surrogate 4-Terphenyl-d14)

GCMS Volatiles by Method SW8260

Batch ID: R341659

Sample ID: MW14_062019_a (HS19061164-04)

• 1,2-Dichloroethane-d4 (SURR) exceeded QC recovery limits due to matrix. Confirmed by re-analysis @ higher dilution.

Sample ID: CCV

• Bromoform and 1,2-Dibromo-3-Chloropropane exceeded %D limits for CCV. Samples are ND for these compounds./

Metals by Method SW6020

Batch ID: 142427

Sample ID: HS19060986-04MS

• MS and MSD are for an unrelated sample

Metals by Method SW7470

Batch ID: 142560

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD-1_062019
Collection Date: 20-Jun-2019 07:45

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM	**Method:SW8270SIM**					Prep:SW3510 / 25-Jun-2019		Analyst: LG
1,4-Dioxane	**0.99**		**0.050**	**0.050**	**0.050**	**ug/L**	5	28-Jun-2019 17:22
Surr: 2-Fluorobiphenyl	*80.4*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 17:22*
Surr: 4-Terphenyl-d14	*122*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 17:22*
Surr: Nitrobenzene-d5	*114*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 17:22*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 120_062019
Collection Date: 20-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-02
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	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
1,1,1-Trichloroethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
1,1,2,2-Tetrachloroethane	10	U	10	10	20	UG/L	20	01-Jul-2019 21:12
1,1,2-Trichloroethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
1,1-Dichloroethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
1,1-Dichloroethene	**78**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 21:12
1,1-Dichloropropene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
1,2,3-Trichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
1,2,3-Trichloropropane	10	U	10	10	20	UG/L	20	01-Jul-2019 21:12
1,2,4-Trichlorobenzene	10	U	10	10	20	UG/L	20	01-Jul-2019 21:12
1,2,4-Trimethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
1,2-Dibromo-3-chloropropane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
1,2-Dibromoethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
1,2-Dichlorobenzene	10	U	10	10	20	UG/L	20	01-Jul-2019 21:12
1,2-Dichloroethane	**17**	J	**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 21:12
1,2-Dichloropropane	10	U	10	10	20	UG/L	20	01-Jul-2019 21:12
1,3,5-Trimethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
1,3-Dichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
1,3-Dichloropropane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
1,4-Dichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
2,2-Dichloropropane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
2-Butanone	20	U	10	20	40	UG/L	20	01-Jul-2019 21:12
2-Chlorotoluene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
2-Hexanone	20	U	20	20	40	UG/L	20	01-Jul-2019 21:12
4-Chlorotoluene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
4-Isopropyltoluene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
4-Methyl-2-pentanone	20	U	14	20	40	UG/L	20	01-Jul-2019 21:12
Acetone	20	U	8.0	20	40	UG/L	20	01-Jul-2019 21:12
Benzene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
Bromobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
Bromochloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
Bromodichloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
Bromoform	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
Bromomethane	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
Carbon disulfide	20	U	12	20	40	UG/L	20	01-Jul-2019 21:12
Carbon tetrachloride	10	U	10	10	20	UG/L	20	01-Jul-2019 21:12
Chlorobenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Chloroethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Chloroform	**27**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 21:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 120_062019
Collection Date: 20-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
cis-1,2-Dichloroethene	**790**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 21:12
cis-1,3-Dichloropropene	10	U	2.0	10	20	UG/L	20	01-Jul-2019 21:12
Dibromochloromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Dibromomethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
Dichlorodifluoromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Ethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Hexachlorobutadiene	20	U	20	20	20	UG/L	20	01-Jul-2019 21:12
Isopropylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
m,p-Xylene	20	U	10	20	40	UG/L	20	01-Jul-2019 21:12
Methylene chloride	20	U	8.0	20	40	UG/L	20	01-Jul-2019 21:12
n-Butylbenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 21:12
n-Propylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Naphthalene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
o-Xylene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
sec-Butylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Styrene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
tert-Butylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Tetrachloroethene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Toluene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
trans-1,2-Dichloroethene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
trans-1,3-Dichloropropene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
Trichloroethene	**7,900**		**50**	**120**	**250**	**UG/L**	250	01-Jul-2019 21:36
Trichlorofluoromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 21:12
Vinyl chloride	10	U	4.0	10	20	UG/L	20	01-Jul-2019 21:12
Surr: 1,2-Dichloroethane-d4	*99.6*			**0**	*81-118*	*%REC*	*20*	*01-Jul-2019 21:12*
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*250*	*01-Jul-2019 21:36*
Surr: 4-Bromofluorobenzene	*93.6*			**0**	*85-114*	*%REC*	*250*	*01-Jul-2019 21:36*
Surr: 4-Bromofluorobenzene	*91.4*			**0**	*85-114*	*%REC*	*20*	*01-Jul-2019 21:12*
Surr: Dibromofluoromethane	*96.1*			**0**	*80-119*	*%REC*	*250*	*01-Jul-2019 21:36*
Surr: Dibromofluoromethane	*95.1*			**0**	*80-119*	*%REC*	*20*	*01-Jul-2019 21:12*
Surr: Toluene-d8	*98.5*			**0**	*89-112*	*%REC*	*20*	*01-Jul-2019 21:12*
Surr: Toluene-d8	*99.9*			**0**	*89-112*	*%REC*	*250*	*01-Jul-2019 21:36*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 25-Jun-2019		Analyst: LG
1,4-Dioxane	**9.9**		**0.50**	**0.50**	**0.50**	**ug/L**	50	28-Jun-2019 17:43
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*50*	*28-Jun-2019 17:43*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*50*	*28-Jun-2019 17:43*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*50*	*28-Jun-2019 17:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 120_062019
Collection Date: 20-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	05-Jul-2019 14:42

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW14_062019
Collection Date: 20-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-03
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	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
1,1,1-Trichloroethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
1,1,2,2-Tetrachloroethane	10	U	10	10	20	UG/L	20	01-Jul-2019 16:49
1,1,2-Trichloroethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
1,1-Dichloroethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
1,1-Dichloroethene	**130**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 16:49
1,1-Dichloropropene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
1,2,3-Trichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
1,2,3-Trichloropropane	10	U	10	10	20	UG/L	20	01-Jul-2019 16:49
1,2,4-Trichlorobenzene	10	U	10	10	20	UG/L	20	01-Jul-2019 16:49
1,2,4-Trimethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
1,2-Dibromo-3-chloropropane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
1,2-Dibromoethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
1,2-Dichlorobenzene	10	U	10	10	20	UG/L	20	01-Jul-2019 16:49
1,2-Dichloroethane	**100**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 16:49
1,2-Dichloropropane	10	U	10	10	20	UG/L	20	01-Jul-2019 16:49
1,3,5-Trimethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
1,3-Dichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
1,3-Dichloropropane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
1,4-Dichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
2,2-Dichloropropane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
2-Butanone	20	U	10	20	40	UG/L	20	01-Jul-2019 16:49
2-Chlorotoluene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
2-Hexanone	20	U	20	20	40	UG/L	20	01-Jul-2019 16:49
4-Chlorotoluene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
4-Isopropyltoluene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
4-Methyl-2-pentanone	20	U	14	20	40	UG/L	20	01-Jul-2019 16:49
Acetone	20	U	8.0	20	40	UG/L	20	01-Jul-2019 16:49
Benzene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
Bromobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
Bromochloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
Bromodichloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
Bromoform	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
Bromomethane	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
Carbon disulfide	20	U	12	20	40	UG/L	20	01-Jul-2019 16:49
Carbon tetrachloride	10	U	10	10	20	UG/L	20	01-Jul-2019 16:49
Chlorobenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Chloroethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Chloroform	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW14_062019
Collection Date: 20-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
cis-1,2-Dichloroethene	**1,800**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 16:49
cis-1,3-Dichloropropene	10	U	2.0	10	20	UG/L	20	01-Jul-2019 16:49
Dibromochloromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Dibromomethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
Dichlorodifluoromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Ethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Hexachlorobutadiene	20	U	20	20	20	UG/L	20	01-Jul-2019 16:49
Isopropylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
m,p-Xylene	20	U	10	20	40	UG/L	20	01-Jul-2019 16:49
Methylene chloride	20	U	8.0	20	40	UG/L	20	01-Jul-2019 16:49
n-Butylbenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 16:49
n-Propylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Naphthalene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
o-Xylene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
sec-Butylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Styrene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
tert-Butylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Tetrachloroethene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Toluene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
trans-1,2-Dichloroethene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
trans-1,3-Dichloropropene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
Trichloroethene	**11,000**		**50**	**120**	**250**	**UG/L**	250	01-Jul-2019 17:12
Trichlorofluoromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 16:49
Vinyl chloride	10	U	4.0	10	20	UG/L	20	01-Jul-2019 16:49
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*20*	*01-Jul-2019 16:49*
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*250*	*01-Jul-2019 17:12*
Surr: 4-Bromofluorobenzene	*94.2*			**0**	*85-114*	*%REC*	*20*	*01-Jul-2019 16:49*
Surr: 4-Bromofluorobenzene	*93.7*			**0**	*85-114*	*%REC*	*250*	*01-Jul-2019 17:12*
Surr: Dibromofluoromethane	*95.7*			**0**	*80-119*	*%REC*	*20*	*01-Jul-2019 16:49*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*250*	*01-Jul-2019 17:12*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*20*	*01-Jul-2019 16:49*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*250*	*01-Jul-2019 17:12*
SEMIVOLATILES SIM	**Method:SW8270SIM**					Prep:SW3510 / 25-Jun-2019		Analyst: LG
1,4-Dioxane	**280**		**10**	**10**	**10**	**ug/L**	1000	28-Jun-2019 18:03
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*1000*	*28-Jun-2019 18:03*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*1000*	*28-Jun-2019 18:03*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*1000*	*28-Jun-2019 18:03*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW14_062019
Collection Date: 20-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 25-Jun-2019		Analyst: JHD
Aluminum	**0.0408**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Jun-2019 18:22
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	27-Jun-2019 18:22
Arsenic	**0.00702**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	27-Jun-2019 18:22
Barium	**0.311**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Jun-2019 18:22
Beryllium	**0.000305**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	28-Jun-2019 16:01
Cadmium	**0.000877**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Jun-2019 18:22
Calcium	**122**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Jun-2019 18:22
Chromium	**0.0974**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	27-Jun-2019 18:22
Cobalt	**0.0252**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Jun-2019 18:22
Copper	**0.00394**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	27-Jun-2019 18:22
Iron	**128**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Jun-2019 18:22
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Jun-2019 18:22
Magnesium	**72.8**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Jun-2019 18:22
Manganese	**4.58**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	28-Jun-2019 16:03
Nickel	**0.158**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Jun-2019 18:22
Potassium	**14.0**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Jun-2019 18:22
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Jun-2019 18:22
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Jun-2019 18:22
Sodium	**449**		**0.140**	**0.500**	**2.00**	**mg/L**	10	28-Jun-2019 16:03
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Jun-2019 18:22
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Jun-2019 18:22
Zinc	**0.467**		**0.00200**	**0.00200**	**0.00500**	**mg/L**	1	27-Jun-2019 18:22
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 16:15
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	05-Jul-2019 14:42

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW14_062019_a
Collection Date: 20-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-04
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	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
1,1,1-Trichloroethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
1,1,2,2-Tetrachloroethane	10	U	10	10	20	UG/L	20	01-Jul-2019 17:36
1,1,2-Trichloroethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
1,1-Dichloroethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
1,1-Dichloroethene	**140**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 17:36
1,1-Dichloropropene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
1,2,3-Trichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
1,2,3-Trichloropropane	10	U	10	10	20	UG/L	20	01-Jul-2019 17:36
1,2,4-Trichlorobenzene	10	U	10	10	20	UG/L	20	01-Jul-2019 17:36
1,2,4-Trimethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
1,2-Dibromo-3-chloropropane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
1,2-Dibromoethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
1,2-Dichlorobenzene	10	U	10	10	20	UG/L	20	01-Jul-2019 17:36
1,2-Dichloroethane	**110**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 17:36
1,2-Dichloropropane	10	U	10	10	20	UG/L	20	01-Jul-2019 17:36
1,3,5-Trimethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
1,3-Dichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
1,3-Dichloropropane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
1,4-Dichlorobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
2,2-Dichloropropane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
2-Butanone	20	U	10	20	40	UG/L	20	01-Jul-2019 17:36
2-Chlorotoluene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
2-Hexanone	20	U	20	20	40	UG/L	20	01-Jul-2019 17:36
4-Chlorotoluene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
4-Isopropyltoluene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
4-Methyl-2-pentanone	20	U	14	20	40	UG/L	20	01-Jul-2019 17:36
Acetone	20	U	8.0	20	40	UG/L	20	01-Jul-2019 17:36
Benzene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
Bromobenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
Bromochloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
Bromodichloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
Bromoform	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
Bromomethane	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
Carbon disulfide	20	U	12	20	40	UG/L	20	01-Jul-2019 17:36
Carbon tetrachloride	10	U	10	10	20	UG/L	20	01-Jul-2019 17:36
Chlorobenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Chloroethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Chloroform	**25**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 17:36

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW14_062019_a
Collection Date: 20-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
cis-1,2-Dichloroethene	**2,000**		**4.0**	**10**	**20**	**UG/L**	20	01-Jul-2019 17:36
cis-1,3-Dichloropropene	10	U	2.0	10	20	UG/L	20	01-Jul-2019 17:36
Dibromochloromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Dibromomethane	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
Dichlorodifluoromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Ethylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Hexachlorobutadiene	20	U	20	20	20	UG/L	20	01-Jul-2019 17:36
Isopropylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
m,p-Xylene	20	U	10	20	40	UG/L	20	01-Jul-2019 17:36
Methylene chloride	20	U	8.0	20	40	UG/L	20	01-Jul-2019 17:36
n-Butylbenzene	10	U	8.0	10	20	UG/L	20	01-Jul-2019 17:36
n-Propylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Naphthalene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
o-Xylene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
sec-Butylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Styrene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
tert-Butylbenzene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Tetrachloroethene	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Toluene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
trans-1,2-Dichloroethene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
trans-1,3-Dichloropropene	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
Trichloroethene	**11,000**		**50**	**120**	**250**	**UG/L**	250	01-Jul-2019 22:00
Trichlorofluoromethane	10	U	6.0	10	20	UG/L	20	01-Jul-2019 17:36
Vinyl chloride	10	U	4.0	10	20	UG/L	20	01-Jul-2019 17:36
Surr: 1,2-Dichloroethane-d4	*120*	*S*		**0**	*81-118*	*%REC*	*20*	*01-Jul-2019 17:36*
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*250*	*01-Jul-2019 22:00*
Surr: 4-Bromofluorobenzene	*93.6*			**0**	*85-114*	*%REC*	*20*	*01-Jul-2019 17:36*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*250*	*01-Jul-2019 22:00*
Surr: Dibromofluoromethane	*110*			**0**	*80-119*	*%REC*	*20*	*01-Jul-2019 17:36*
Surr: Dibromofluoromethane	*95.8*			**0**	*80-119*	*%REC*	*250*	*01-Jul-2019 22:00*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*20*	*01-Jul-2019 17:36*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*250*	*01-Jul-2019 22:00*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 25-Jun-2019		Analyst: LG
1,4-Dioxane	**390**		**10**	**10**	**10**	**ug/L**	1000	28-Jun-2019 18:24
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*1000*	*28-Jun-2019 18:24*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*1000*	*28-Jun-2019 18:24*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*1000*	*28-Jun-2019 18:24*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW14_062019_a
Collection Date: 20-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 25-Jun-2019		Analyst: JHD
Aluminum	**0.0353**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Jun-2019 18:24
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	27-Jun-2019 18:24
Arsenic	**0.00636**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	27-Jun-2019 18:24
Barium	**0.297**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Jun-2019 18:24
Beryllium	**0.000276**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	28-Jun-2019 16:05
Cadmium	**0.000834**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Jun-2019 18:24
Calcium	**116**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Jun-2019 18:24
Chromium	**0.0866**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	27-Jun-2019 18:24
Cobalt	**0.0240**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Jun-2019 18:24
Copper	**0.00362**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	27-Jun-2019 18:24
Iron	**120**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Jun-2019 18:24
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Jun-2019 18:24
Magnesium	**68.8**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Jun-2019 18:24
Manganese	**4.81**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	28-Jun-2019 16:07
Nickel	**0.150**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Jun-2019 18:24
Potassium	**13.5**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Jun-2019 18:24
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Jun-2019 18:24
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Jun-2019 18:24
Sodium	**482**		**0.140**	**0.500**	**2.00**	**mg/L**	10	28-Jun-2019 16:07
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Jun-2019 18:24
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Jun-2019 18:24
Zinc	**0.439**		**0.00200**	**0.00200**	**0.00500**	**mg/L**	1	27-Jun-2019 18:24
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 16:16
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	05-Jul-2019 14:42

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW12_062019
Collection Date: 20-Jun-2019 12:30

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-05
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	01-Jul-2019 14:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,1-Dichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,2-Dichloroethane	**0.57**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 14:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 14:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 14:25
Acetone	**3.5**		**0.40**	**1.0**	**2.0**	**UG/L**	1	01-Jul-2019 14:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 14:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW12_062019
Collection Date: 20-Jun-2019 12:30

ANALYTICAL REPORT
WorkOrder:HS19061164
Lab ID:HS19061164-05
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	01-Jul-2019 14:25
cis-1,2-Dichloroethene	**15**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 14:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 14:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 14:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Trichloroethene	**160**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:25
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 14:25*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 14:25*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 14:25*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 14:25*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	05-Jul-2019 14:42

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

Batch ID: 142427 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061164-03	1	10	10 (mL)	1
HS19061164-04	1	10	10 (mL)	1

Batch ID: 142429 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061164-01	1	1000	1 (mL)	0.001
HS19061164-02	1	1000	1 (mL)	0.001
HS19061164-03	1	1000	1 (mL)	0.001
HS19061164-04	1	1000	1 (mL)	0.001

Batch ID: 142560 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061164-03	1	10 (mL)	10 (mL)	1
HS19061164-04	1	10 (mL)	10 (mL)	1

ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142427 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS19061164-03	MW14_062019	20 Jun 2019 10:45		25 Jun 2019 11:30	28 Jun 2019 16:03	10
HS19061164-03	MW14_062019	20 Jun 2019 10:45		25 Jun 2019 11:30	28 Jun 2019 16:01	1
HS19061164-03	MW14_062019	20 Jun 2019 10:45		25 Jun 2019 11:30	27 Jun 2019 18:22	1
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45		25 Jun 2019 11:30	28 Jun 2019 16:07	10
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45		25 Jun 2019 11:30	28 Jun 2019 16:05	1
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45		25 Jun 2019 11:30	27 Jun 2019 18:24	1
Batch ID: 142429 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS19061164-01	AWD-1_062019	20 Jun 2019 07:45		25 Jun 2019 16:16	28 Jun 2019 17:22	5
HS19061164-02	120_062019	20 Jun 2019 09:25		25 Jun 2019 16:16	28 Jun 2019 17:43	50
HS19061164-03	MW14_062019	20 Jun 2019 10:45		25 Jun 2019 16:16	28 Jun 2019 18:03	1000
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45		25 Jun 2019 16:16	28 Jun 2019 18:24	1000
Batch ID: 142560 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS19061164-03	MW14_062019	20 Jun 2019 10:45		28 Jun 2019 10:30	28 Jun 2019 16:15	1
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45		28 Jun 2019 10:30	28 Jun 2019 16:16	1
Batch ID: R341659 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061164-02	120_062019	20 Jun 2019 09:25			01 Jul 2019 21:36	250
HS19061164-02	120_062019	20 Jun 2019 09:25			01 Jul 2019 21:12	20
HS19061164-03	MW14_062019	20 Jun 2019 10:45			01 Jul 2019 17:12	250
HS19061164-03	MW14_062019	20 Jun 2019 10:45			01 Jul 2019 16:49	20
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45			01 Jul 2019 22:00	250
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45			01 Jul 2019 17:36	20
HS19061164-05	MW12_062019	20 Jun 2019 12:30			01 Jul 2019 14:25	1
Batch ID: R341906 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS19061164-02	120_062019	20 Jun 2019 09:25			05 Jul 2019 14:42	1
HS19061164-03	MW14_062019	20 Jun 2019 10:45			05 Jul 2019 14:42	1
HS19061164-04	MW14_062019_a	20 Jun 2019 10:45			05 Jul 2019 14:42	1
HS19061164-05	MW12_062019	20 Jun 2019 12:30			05 Jul 2019 14:42	1

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142427 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142427** Units: **mg/L** Analysis Date: **27-Jun-2019 17:22**
Client ID: Run ID: **ICPMS06_341376** SeqNo: **5145221** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002457	0.0100								J
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.001932	0.00500								J
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.02437	0.200								J
Thallium	0.000500	0.00200								U
Vanadium	0.001051	0.00500								J
Zinc	0.00200	0.00500								U

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142427 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142427** Units: **mg/L** Analysis Date: **27-Jun-2019 16:58**
Client ID: Run ID: **ICPMS06_341376** SeqNo: **5145214** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1091	0.0100	0.1	0	109	84 - 117				
Antimony	0.0559	0.00500	0.05	0	112	85 - 117				
Arsenic	0.05618	0.00500	0.05	0	112	84 - 116				
Barium	0.05364	0.00500	0.05	0	107	86 - 114				
Beryllium	0.05694	0.00200	0.05	0	114	83 - 121				
Cadmium	0.05632	0.00200	0.05	0	113	87 - 115				
Calcium	5.323	0.500	5	0	106	87 - 118				
Chromium	0.05591	0.00500	0.05	0	112	85 - 116				
Cobalt	0.05561	0.00500	0.05	0	111	86 - 115				
Copper	0.05732	0.00500	0.05	0	115	85 - 118				
Iron	5.504	0.200	5	0	110	87 - 118				
Lead	0.05401	0.00500	0.05	0	108	88 - 115				
Magnesium	5.42	0.200	5	0	108	83 - 118				
Manganese	0.05651	0.00500	0.05	0	113	87 - 115				
Nickel	0.05699	0.00500	0.05	0	114	85 - 117				
Potassium	5.366	0.200	5	0	107	87 - 115				
Selenium	0.05781	0.00500	0.05	0	116	80 - 120				
Silver	0.05393	0.00500	0.05	0	108	85 - 116				
Sodium	5.418	0.200	5	0	108	85 - 117				
Thallium	0.05098	0.00200	0.05	0	102	82 - 116				
Vanadium	0.05441	0.00500	0.05	0	109	86 - 115				
Zinc	0.05821	0.00500	0.05	0	116	83 - 119				

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142427 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19060986-04MS** Units: **mg/L** Analysis Date: **27-Jun-2019 17:03**
Client ID: Run ID: **ICPMS06_341376** SeqNo: **5145217** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.116	0.0100	0.1	0.01515	101	84 - 117				
Antimony	0.05308	0.00500	0.05	0.000258	106	85 - 117				
Arsenic	0.05627	0.00500	0.05	0.002036	108	84 - 116				
Barium	0.8428	0.00500	0.05	0.8565	-27.4	86 - 114				SO
Beryllium	0.05294	0.00200	0.05	0.000048	106	83 - 121				
Cadmium	0.05116	0.00200	0.05	0.000205	102	87 - 115				
Calcium	35.9	0.500	5	33.03	57.3	87 - 118				SO
Chromium	0.3735	0.00500	0.05	0.2809	185	85 - 116				SO
Cobalt	0.0563	0.00500	0.05	0.005607	101	86 - 115				
Copper	0.058	0.00500	0.05	0.005199	106	85 - 118				
Iron	7.669	0.200	5	2.556	102	87 - 118				
Lead	0.05089	0.00500	0.05	0.000094	102	88 - 115				
Magnesium	31.26	0.200	5	27.76	69.9	83 - 118				SO
Manganese	0.2154	0.00500	0.05	0.164	103	87 - 115				
Nickel	0.2401	0.00500	0.05	0.2011	78.0	85 - 117				SO
Potassium	7.654	0.200	5	2.639	100	87 - 115				
Selenium	0.05384	0.00500	0.05	0.000343	107	80 - 120				
Silver	0.04654	0.00500	0.05	0.000013	93.1	85 - 116				
Sodium	233.3	0.200	5	245	-233	85 - 117				SEO
Thallium	0.04975	0.00200	0.05	0.000043	99.4	82 - 116				
Vanadium	0.0572	0.00500	0.05	0.003781	107	86 - 115				
Zinc	0.07874	0.00500	0.05	0.03582	85.8	83 - 119				

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142427 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19060986-04MSD** Units: **mg/L** Analysis Date: **27-Jun-2019 17:05**
Client ID: Run ID: **ICPMS06_341376** SeqNo: **5145218** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1062	0.0100	0.1	0.01515	91.1	84 - 117	0.116	8.82	20	
Antimony	0.04965	0.00500	0.05	0.000258	98.8	85 - 117	0.05308	6.66	20	
Arsenic	0.05281	0.00500	0.05	0.002036	102	84 - 116	0.05627	6.34	20	
Barium	0.8139	0.00500	0.05	0.8565	-85.2	86 - 114	0.8428	3.49	20	SO
Beryllium	0.05024	0.00200	0.05	0.000048	100	83 - 121	0.05294	5.24	20	
Cadmium	0.04833	0.00200	0.05	0.000205	96.2	87 - 115	0.05116	5.7	20	
Calcium	33.36	0.500	5	33.03	6.56	87 - 118	35.9	7.33	20	SO
Cobalt	0.0531	0.00500	0.05	0.005607	95.0	86 - 115	0.0563	5.85	20	
Copper	0.05342	0.00500	0.05	0.005199	96.4	85 - 118	0.058	8.23	20	
Iron	7.023	0.200	5	2.556	89.3	87 - 118	7.669	8.8	20	
Lead	0.04808	0.00500	0.05	0.000094	96.0	88 - 115	0.05089	5.67	20	
Magnesium	28.94	0.200	5	27.76	23.5	83 - 118	31.26	7.71	20	SO
Manganese	0.1904	0.00500	0.05	0.164	52.8	87 - 115	0.2154	12.4	20	S
Nickel	0.2255	0.00500	0.05	0.2011	48.7	85 - 117	0.2401	6.29	20	SO
Potassium	7.309	0.200	5	2.639	93.4	87 - 115	7.654	4.62	20	
Selenium	0.05051	0.00500	0.05	0.000343	100	80 - 120	0.05384	6.37	20	
Silver	0.04575	0.00500	0.05	0.000013	91.5	85 - 116	0.04654	1.71	20	
Sodium	224.6	0.200	5	245	-407	85 - 117	233.3	3.8	20	SEO
Thallium	0.04905	0.00200	0.05	0.000043	98.0	82 - 116	0.04975	1.42	20	
Vanadium	0.05284	0.00500	0.05	0.003781	98.1	86 - 115	0.0572	7.93	20	
Zinc	0.08005	0.00500	0.05	0.03582	88.5	83 - 119	0.07874	1.66	20	

MSD Sample ID: **HS19060986-04MSD** Units: **mg/L** Analysis Date: **28-Jun-2019 15:07**
Client ID: Run ID: **ICPMS06_341483** SeqNo: **5145651** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	0.343	0.00500	0.05	0.2809	124	85 - 116	0.3735	8.51	20	SO

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142427 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19060986-04PDS** Units: **mg/L** Analysis Date: **27-Jun-2019 17:07**
Client ID: Run ID: **ICPMS06_341376** SeqNo: **5145219** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1008	0.0100	0.1	0.01515	85.7	80 - 120				
Antimony	0.08752	0.00500	0.1	0.000258	87.3	80 - 120				
Arsenic	0.09313	0.00500	0.1	0.002036	91.1	80 - 120				
Beryllium	0.09784	0.00200	0.1	0.000048	97.8	80 - 120				
Cadmium	0.09096	0.00200	0.1	0.000205	90.8	80 - 120				
Cobalt	0.09093	0.00500	0.1	0.005607	85.3	80 - 120				
Copper	0.09101	0.00500	0.1	0.005199	85.8	80 - 120				
Iron	10.93	0.200	10	2.556	83.8	80 - 120				
Lead	0.09017	0.00500	0.1	0.000094	90.1	80 - 120				
Potassium	11.36	0.200	10	2.639	87.2	80 - 120				
Selenium	0.09025	0.00500	0.1	0.000343	89.9	80 - 120				
Silver	0.08464	0.00500	0.1	0.000013	84.6	80 - 120				
Thallium	0.08892	0.00200	0.1	0.000043	88.9	80 - 120				
Vanadium	0.09309	0.00500	0.1	0.003781	89.3	80 - 120				
Zinc	0.1183	0.00500	0.1	0.03582	82.5	80 - 120				

PDS Sample ID: **HS19060986-04PDS** Units: **mg/L** Analysis Date: **28-Jun-2019 15:14**
Client ID: Run ID: **ICPMS06_341483** SeqNo: **5145655** PrepDate: **25-Jun-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	1.703	0.0500	1	0.7	100	80 - 120				
Calcium	129.7	5.00	100	26.89	103	80 - 120				
Chromium	1.283	0.0500	1	0.2283	105	80 - 120				
Iron	107.4	2.00	100	2.151	105	80 - 120				
Magnesium	125.2	2.00	100	22.92	102	80 - 120				
Manganese	1.175	0.0500	1	0.1367	104	80 - 120				
Nickel	1.217	0.0500	1	0.1678	105	80 - 120				
Potassium	106.9	2.00	100	2.16	105	80 - 120				
Sodium	299.8	2.00	100	202.9	96.9	80 - 120				

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142427 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19060986-04SD** Units: **mg/L** Analysis Date: **27-Jun-2019 17:02**
Client ID: Run ID: **ICPMS06_341376** SeqNo: **5145216** PrepDate: **25-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.01988	0.0500					0.01515	0	10	J
Antimony	0.00250	0.0250					0.000258	0	10	U
Arsenic	0.002183	0.0250					0.002036	0	10	J
Beryllium	0.00250	0.0100					0.000048	0	10	U
Cadmium	0.00250	0.0100					0.000205	0	10	U
Cobalt	0.004619	0.0250					0.005607	0	10	J
Copper	0.00500	0.0250					0.005199	0	10	U
Lead	0.00500	0.0250					0.000094	0	10	U
Selenium	0.0125	0.0250					0.000343	0	10	U
Silver	0.00250	0.0250					0.000013	0	10	U
Thallium	0.00250	0.0100					0.000043	0	10	U
Vanadium	0.01164	0.0250					0.003781	0	10	J
Zinc	0.038	0.0250					0.03582	6.07	10	

SD Sample ID: **HS19060986-04SD** Units: **mg/L** Analysis Date: **28-Jun-2019 15:13**
Client ID: Run ID: **ICPMS06_341483** SeqNo: **5145654** PrepDate: **25-Jun-2019** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Barium	0.6998	0.250					0.7	0.0306	10	
Calcium	27.1	25.0					26.89	0.761	10	
Chromium	0.234	0.250					0.2283	0	10	J
Iron	2.19	10.0					2.151	0	10	J
Magnesium	22.74	10.0					22.92	0.776	10	
Manganese	0.1567	0.250					0.1367	0	10	J
Nickel	0.1736	0.250					0.1678	0	10	J
Potassium	2.068	10.0					2.16	0	10	J
Sodium	207.1	10.0					202.9	2.06	10	

The following samples were analyzed in this batch: HS19061164-03 HS19061164-04

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142560 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142560** Units: **mg/L** Analysis Date: **28-Jun-2019 15:56**
Client ID: Run ID: **HG03_341562** SeqNo: **5147053** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142560** Units: **mg/L** Analysis Date: **28-Jun-2019 15:57**
Client ID: Run ID: **HG03_341562** SeqNo: **5147054** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00509	0.000200	0.005	0	102	80 - 120				

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **28-Jun-2019 16:01**
Client ID: Run ID: **HG03_341562** SeqNo: **5147056** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000513	0.000000200	5e-006	-0.0000000010	103	75 - 125				

MSD Sample ID: **HS19061486-01MSD** Units: **mg/L** Analysis Date: **28-Jun-2019 16:03**
Client ID: Run ID: **HG03_341562** SeqNo: **5147057** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000509	0.000000200	5e-006	-0.0000000010	102	75 - 125	0.000005130	0.783	20	

The following samples were analyzed in this batch: HS19061164-03 HS19061164-04

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: 142429 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142429** Units: **ug/L** Analysis Date: **27-Jun-2019 21:35**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146405** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.0702*	*0*	*0.08*	*0*	*87.7*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.0811*	*0*	*0.08*	*0*	*101*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07172*	*0*	*0.08*	*0*	*89.6*	*40 - 140*				

LCS Sample ID: **LCS-142429** Units: **ug/L** Analysis Date: **27-Jun-2019 21:56**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146406** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.0905	0.010	0.08	0	113	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07767*	*0*	*0.08*	*0*	*97.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08433*	*0*	*0.08*	*0*	*105*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08991*	*0*	*0.08*	*0*	*112*	*40 - 140*				

LCSD Sample ID: **LCSD-142429** Units: **ug/L** Analysis Date: **27-Jun-2019 22:17**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146407** PrepDate: **25-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.09101	0.010	0.08	0	114	40 - 140	0.0905	0.564	20	
Surr: 2-Fluorobiphenyl	*0.09652*	*0*	*0.08*	*0*	*121*	*40 - 140*	*0.07767*	*21.6*	*20*	R
Surr: 4-Terphenyl-d14	*0.09713*	*0*	*0.08*	*0*	*121*	*40 - 140*	*0.08433*	*14.1*	*20*	
Surr: Nitrobenzene-d5	*0.1084*	*0*	*0.08*	*0*	*135*	*40 - 140*	*0.08991*	*18.6*	*20*	

The following samples were analyzed in this batch: HS19061164-01 HS19061164-02 HS19061164-03 HS19061164-04

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 13:13**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149141** 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	1.0	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

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 13:13**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149141** 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	1.0	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	*50.46*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.58*	*1.0*	*50*	*0*	*95.2*	*85 - 114*				
Surr: Dibromofluoromethane	*47*	*1.0*	*50*	*0*	*94.0*	*80 - 119*				
Surr: Toluene-d8	*50.26*	*1.0*	*50*	*0*	*101*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 12:25**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149140** 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	20.11	1.0	20	0	101	78 - 124				
1,1,1-Trichloroethane	20.63	1.0	20	0	103	74 - 131				
1,1,2,2-Tetrachloroethane	22.67	1.0	20	0	113	71 - 121				
1,1,2-Trichloroethane	21.52	1.0	20	0	108	80 - 119				
1,1-Dichloroethane	20.18	1.0	20	0	101	77 - 125				
1,1-Dichloroethene	20.08	1.0	20	0	100	71 - 131				
1,1-Dichloropropene	19.97	1.0	20	0	99.9	78 - 125				
1,2,3-Trichlorobenzene	25.38	1.0	20	0	127	69 - 129				
1,2,3-Trichloropropane	22.97	1.0	20	0	115	73 - 122				
1,2,4-Trichlorobenzene	22.39	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	18.77	1.0	20	0	93.8	76 - 124				
1,2-Dibromo-3-chloropropane	24.24	1.0	20	0	121	62 - 128				
1,2-Dibromoethane	21.01	1.0	20	0	105	77 - 121				
1,2-Dichlorobenzene	20.29	1.0	20	0	101	80 - 119				
1,2-Dichloroethane	19.6	1.0	20	0	98.0	73 - 128				
1,2-Dichloropropane	20.22	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	18.12	1.0	20	0	90.6	75 - 124				
1,3-Dichlorobenzene	19.14	1.0	20	0	95.7	80 - 119				
1,3-Dichloropropane	20.91	1.0	20	0	105	80 - 119				
1,4-Dichlorobenzene	20.69	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	21.55	1.0	20	0	108	60 - 139				
2-Butanone	46.4	2.0	40	0	116	56 - 143				
2-Chlorotoluene	20.24	1.0	20	0	101	79 - 122				
2-Hexanone	42.95	2.0	40	0	107	57 - 139				
4-Chlorotoluene	20.21	1.0	20	0	101	78 - 122				
4-Isopropyltoluene	18.13	1.0	20	0	90.7	77 - 127				
4-Methyl-2-pentanone	42.21	2.0	40	0	106	67 - 130				
Acetone	51.9	2.0	40	0	130	39 - 160				
Benzene	20.86	1.0	20	0	104	79 - 120				
Bromobenzene	19.3	1.0	20	0	96.5	80 - 120				
Bromochloromethane	19.63	1.0	20	0	98.1	78 - 123				
Bromodichloromethane	20.78	1.0	20	0	104	79 - 125				
Bromoform	21.56	1.0	20	0	108	66 - 130				
Bromomethane	22.3	1.0	20	0	111	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 12:25**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.23	2.0	40	0	95.6	64 - 133				
Carbon tetrachloride	19.74	1.0	20	0	98.7	72 - 136				
Chlorobenzene	19.92	1.0	20	0	99.6	82 - 118				
Chloroethane	20.74	1.0	20	0	104	60 - 138				
Chloroform	24.47	1.0	20	0	122	79 - 124				
Chloromethane	18.24	1.0	20	0	91.2	50 - 139				
cis-1,2-Dichloroethene	20.8	1.0	20	0	104	78 - 123				
cis-1,3-Dichloropropene	20.13	1.0	20	0	101	75 - 124				
Dibromochloromethane	20.47	1.0	20	0	102	74 - 126				
Dibromomethane	20.24	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	20.65	1.0	20	0	103	32 - 152				
Ethylbenzene	19.49	1.0	20	0	97.4	79 - 121				
Hexachlorobutadiene	24.85	1.0	20	0	124	66 - 134				
Isopropylbenzene	18.53	1.0	20	0	92.6	72 - 131				
m,p-Xylene	38.92	2.0	40	0	97.3	80 - 121				
Methylene chloride	20.4	2.0	20	0	102	74 - 124				
Naphthalene	24.33	1.0	20	0	122	61 - 128				
n-Butylbenzene	18.77	1.0	20	0	93.9	75 - 128				
n-Propylbenzene	19.53	1.0	20	0	97.6	76 - 126				
o-Xylene	19.03	1.0	20	0	95.1	78 - 122				
sec-Butylbenzene	19.27	1.0	20	0	96.4	77 - 126				
Styrene	20.47	1.0	20	0	102	78 - 123				
tert-Butylbenzene	19.27	1.0	20	0	96.4	78 - 124				
Tetrachloroethene	19.09	1.0	20	0	95.4	74 - 129				
Toluene	19.9	1.0	20	0	99.5	80 - 121				
trans-1,2-Dichloroethene	20.71	1.0	20	0	104	75 - 124				
trans-1,3-Dichloropropene	20.46	1.0	20	0	102	73 - 127				
Trichloroethene	19.73	1.0	20	0	98.7	79 - 123				
Trichlorofluoromethane	20.37	1.0	20	0	102	65 - 141				
Vinyl chloride	19.04	1.0	20	0	95.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*56.59*	*1.0*	*50*	*0*	*113*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.46*	*1.0*	*50*	*0*	*109*	*85 - 114*				
Surr: Dibromofluoromethane	*54.8*	*1.0*	*50*	*0*	*110*	*80 - 119*				
Surr: Toluene-d8	*53.87*	*1.0*	*50*	*0*	*108*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061210-04MS** Units: **UG/L** Analysis Date: **01-Jul-2019 15:13**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149146** 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	17.02	1.0	20	0	85.1	78 - 124				
1,1,1-Trichloroethane	17.58	1.0	20	0	87.9	74 - 131				
1,1,2,2-Tetrachloroethane	18.62	1.0	20	0	93.1	71 - 121				
1,1,2-Trichloroethane	18.04	1.0	20	0	90.2	80 - 119				
1,1-Dichloroethane	16.54	1.0	20	0	82.7	77 - 125				
1,1-Dichloroethene	17.79	1.0	20	0	88.9	71 - 131				
1,1-Dichloropropene	18.36	1.0	20	0	91.8	78 - 125				
1,2,3-Trichlorobenzene	21.43	1.0	20	0	107	69 - 129				
1,2,3-Trichloropropane	18.9	1.0	20	0	94.5	73 - 122				
1,2,4-Trichlorobenzene	20.15	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	17.71	1.0	20	0	88.5	76 - 124				
1,2-Dibromo-3-chloropropane	20.52	1.0	20	0	103	62 - 128				
1,2-Dibromoethane	17.45	1.0	20	0	87.3	77 - 121				
1,2-Dichlorobenzene	17.28	1.0	20	0	86.4	80 - 119				
1,2-Dichloroethane	16.37	1.0	20	0	81.9	73 - 128				
1,2-Dichloropropane	16.77	1.0	20	0	83.8	78 - 122				
1,3,5-Trimethylbenzene	17.74	1.0	20	0	88.7	75 - 124				
1,3-Dichlorobenzene	17.27	1.0	20	0	86.4	80 - 119				
1,3-Dichloropropane	17.64	1.0	20	0	88.2	80 - 119				
1,4-Dichlorobenzene	18.24	1.0	20	0	91.2	79 - 118				
2,2-Dichloropropane	18.02	1.0	20	0	90.1	60 - 139				
2-Butanone	36.58	2.0	40	0	91.5	56 - 143				
2-Chlorotoluene	18.42	1.0	20	0	92.1	79 - 122				
2-Hexanone	35.46	2.0	40	0	88.6	57 - 139				
4-Chlorotoluene	18.55	1.0	20	0	92.8	78 - 122				
4-Isopropyltoluene	18.67	1.0	20	0	93.4	77 - 127				
4-Methyl-2-pentanone	34.54	2.0	40	0	86.4	67 - 130				
Acetone	41.91	2.0	40	0	105	39 - 160				
Benzene	17.59	1.0	20	0	88.0	79 - 120				
Bromobenzene	16.17	1.0	20	0	80.9	80 - 120				
Bromochloromethane	15.85	1.0	20	0	79.2	78 - 123				
Bromodichloromethane	17.02	1.0	20	0	85.1	79 - 125				
Bromoform	17.99	1.0	20	0	90.0	66 - 130				
Bromomethane	17.61	1.0	20	0	88.0	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061210-04MS** Units: **UG/L** Analysis Date: **01-Jul-2019 15:13**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149146** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	32.41	2.0	40	0	81.0	64 - 133				
Carbon tetrachloride	18.3	1.0	20	0	91.5	72 - 136				
Chlorobenzene	16.87	1.0	20	0	84.3	82 - 118				
Chloroethane	16.94	1.0	20	0	84.7	60 - 138				
Chloroform	16.72	1.0	20	0	83.6	79 - 124				
Chloromethane	16.11	1.0	20	0	80.6	50 - 139				
cis-1,2-Dichloroethene	16.73	1.0	20	0	83.7	78 - 123				
cis-1,3-Dichloropropene	16.21	1.0	20	0	81.1	75 - 124				
Dibromochloromethane	17.08	1.0	20	0	85.4	74 - 126				
Dibromomethane	16.7	1.0	20	0	83.5	79 - 123				
Dichlorodifluoromethane	16.34	1.0	20	0	81.7	32 - 152				
Ethylbenzene	17.84	1.0	20	0	89.2	79 - 121				
Hexachlorobutadiene	22.65	1.0	20	0	113	66 - 134				
Isopropylbenzene	18.4	1.0	20	0	92.0	72 - 131				
m,p-Xylene	35.55	2.0	40	0	88.9	80 - 121				
Methylene chloride	15.55	2.0	20	0	77.8	74 - 124				
Naphthalene	20.06	1.0	20	0	100	61 - 128				
n-Butylbenzene	19.2	1.0	20	0	96.0	75 - 128				
n-Propylbenzene	19.54	1.0	20	0	97.7	76 - 126				
o-Xylene	17.22	1.0	20	0	86.1	78 - 122				
sec-Butylbenzene	19.96	1.0	20	0	99.8	77 - 126				
Styrene	17.96	1.0	20	0	89.8	78 - 123				
tert-Butylbenzene	19.4	1.0	20	0	97.0	78 - 124				
Tetrachloroethene	18.1	1.0	20	0	90.5	74 - 129				
Toluene	17.4	1.0	20	0	87.0	80 - 121				
trans-1,2-Dichloroethene	17.08	1.0	20	0	85.4	75 - 124				
trans-1,3-Dichloropropene	16.44	1.0	20	0	82.2	73 - 127				
Trichloroethene	17.51	1.0	20	0	87.5	79 - 123				
Trichlorofluoromethane	17.76	1.0	20	0	88.8	65 - 141				
Vinyl chloride	16.34	1.0	20	0	81.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.83*	*1.0*	*50*	*0*	*99.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.6*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*47.78*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*50.33*	*1.0*	*50*	*0*	*101*	*89 - 112*				

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061210-04MSD** Units: **UG/L** Analysis Date: **01-Jul-2019 15:37**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149147** 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	17.11	1.0	20	0	85.5	78 - 124	17.02	0.548	20	
1,1,1-Trichloroethane	17.64	1.0	20	0	88.2	74 - 131	17.58	0.364	20	
1,1,2,2-Tetrachloroethane	19.75	1.0	20	0	98.8	71 - 121	18.62	5.89	20	
1,1,2-Trichloroethane	18.6	1.0	20	0	93.0	80 - 119	18.04	3.08	20	
1,1-Dichloroethane	16.64	1.0	20	0	83.2	77 - 125	16.54	0.573	20	
1,1-Dichloroethene	17.88	1.0	20	0	89.4	71 - 131	17.79	0.528	20	
1,1-Dichloropropene	18.5	1.0	20	0	92.5	78 - 125	18.36	0.808	20	
1,2,3-Trichlorobenzene	23.84	1.0	20	0	119	69 - 129	21.43	10.6	20	
1,2,3-Trichloropropane	19.4	1.0	20	0	97.0	73 - 122	18.9	2.62	20	
1,2,4-Trichlorobenzene	21.4	1.0	20	0	107	69 - 130	20.15	6.01	20	
1,2,4-Trimethylbenzene	17.75	1.0	20	0	88.7	76 - 124	17.71	0.222	20	
1,2-Dibromo-3-chloropropane	21.82	1.0	20	0	109	62 - 128	20.52	6.14	20	
1,2-Dibromoethane	17.94	1.0	20	0	89.7	77 - 121	17.45	2.74	20	
1,2-Dichlorobenzene	17.88	1.0	20	0	89.4	80 - 119	17.28	3.4	20	
1,2-Dichloroethane	16.83	1.0	20	0	84.1	73 - 128	16.37	2.75	20	
1,2-Dichloropropane	16.88	1.0	20	0	84.4	78 - 122	16.77	0.684	20	
1,3,5-Trimethylbenzene	17.58	1.0	20	0	87.9	75 - 124	17.74	0.943	20	
1,3-Dichlorobenzene	17.25	1.0	20	0	86.3	80 - 119	17.27	0.142	20	
1,3-Dichloropropane	18.28	1.0	20	0	91.4	80 - 119	17.64	3.57	20	
1,4-Dichlorobenzene	18.6	1.0	20	0	93.0	79 - 118	18.24	1.96	20	
2,2-Dichloropropane	17.75	1.0	20	0	88.7	60 - 139	18.02	1.53	20	
2-Butanone	39	2.0	40	0	97.5	56 - 143	36.58	6.4	20	
2-Chlorotoluene	18.34	1.0	20	0	91.7	79 - 122	18.42	0.454	20	
2-Hexanone	37.74	2.0	40	0	94.3	57 - 139	35.46	6.23	20	
4-Chlorotoluene	18.58	1.0	20	0	92.9	78 - 122	18.55	0.145	20	
4-Isopropyltoluene	18.44	1.0	20	0	92.2	77 - 127	18.67	1.25	20	
4-Methyl-2-pentanone	37.2	2.0	40	0	93.0	67 - 130	34.54	7.41	20	
Acetone	45.62	2.0	40	0	114	39 - 160	41.91	8.48	20	
Benzene	17.78	1.0	20	0	88.9	79 - 120	17.59	1.07	20	
Bromobenzene	16.29	1.0	20	0	81.4	80 - 120	16.17	0.725	20	
Bromochloromethane	16.28	1.0	20	0	81.4	78 - 123	15.85	2.68	20	
Bromodichloromethane	17.54	1.0	20	0	87.7	79 - 125	17.02	3.04	20	
Bromoform	18.5	1.0	20	0	92.5	66 - 130	17.99	2.8	20	
Bromomethane	17.59	1.0	20	0	88.0	53 - 141	17.61	0.0727	20	

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061210-04MSD** Units: **UG/L** Analysis Date: **01-Jul-2019 15:37**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149147** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	32.2	2.0	40	0	80.5	64 - 133	32.41	0.667	20	
Carbon tetrachloride	18.41	1.0	20	0	92.1	72 - 136	18.3	0.627	20	
Chlorobenzene	17.17	1.0	20	0	85.8	82 - 118	16.87	1.75	20	
Chloroethane	17.55	1.0	20	0	87.7	60 - 138	16.94	3.51	20	
Chloroform	16.87	1.0	20	0	84.4	79 - 124	16.72	0.903	20	
Chloromethane	15.3	1.0	20	0	76.5	50 - 139	16.11	5.15	20	
cis-1,2-Dichloroethene	17.11	1.0	20	0	85.6	78 - 123	16.73	2.24	20	
cis-1,3-Dichloropropene	16.68	1.0	20	0	83.4	75 - 124	16.21	2.82	20	
Dibromochloromethane	17.53	1.0	20	0	87.6	74 - 126	17.08	2.59	20	
Dibromomethane	17.52	1.0	20	0	87.6	79 - 123	16.7	4.78	20	
Dichlorodifluoromethane	16.36	1.0	20	0	81.8	32 - 152	16.34	0.128	20	
Ethylbenzene	17.63	1.0	20	0	88.2	79 - 121	17.84	1.18	20	
Hexachlorobutadiene	23.43	1.0	20	0	117	66 - 134	22.65	3.36	20	
Isopropylbenzene	18.34	1.0	20	0	91.7	72 - 131	18.4	0.344	20	
m,p-Xylene	35.63	2.0	40	0	89.1	80 - 121	35.55	0.201	20	
Methylene chloride	16.02	2.0	20	0	80.1	74 - 124	15.55	2.95	20	
Naphthalene	23.21	1.0	20	0	116	61 - 128	20.06	14.5	20	
n-Butylbenzene	19.2	1.0	20	0	96.0	75 - 128	19.2	0.0383	20	
n-Propylbenzene	19.2	1.0	20	0	96.0	76 - 126	19.54	1.78	20	
o-Xylene	17.44	1.0	20	0	87.2	78 - 122	17.22	1.29	20	
sec-Butylbenzene	20.03	1.0	20	0	100	77 - 126	19.96	0.311	20	
Styrene	17.9	1.0	20	0	89.5	78 - 123	17.96	0.32	20	
tert-Butylbenzene	19.25	1.0	20	0	96.2	78 - 124	19.4	0.794	20	
Tetrachloroethene	17.58	1.0	20	0	87.9	74 - 129	18.1	2.91	20	
Toluene	17.27	1.0	20	0	86.3	80 - 121	17.4	0.735	20	
trans-1,2-Dichloroethene	17.3	1.0	20	0	86.5	75 - 124	17.08	1.25	20	
trans-1,3-Dichloropropene	16.89	1.0	20	0	84.5	73 - 127	16.44	2.74	20	
Trichloroethene	17.2	1.0	20	0	86.0	79 - 123	17.51	1.78	20	
Trichlorofluoromethane	18.29	1.0	20	0	91.5	65 - 141	17.76	2.95	20	
Vinyl chloride	16.23	1.0	20	0	81.2	58 - 137	16.34	0.663	20	
Surr: 1,2-Dichloroethane-d4	*50.94*	*1.0*	*50*	*0*	*102*	*81 - 118*	*49.83*	*2.21*	*20*	
Surr: 4-Bromofluorobenzene	*50.71*	*1.0*	*50*	*0*	*101*	*85 - 114*	*50.6*	*0.217*	*20*	
Surr: Dibromofluoromethane	*49.23*	*1.0*	*50*	*0*	*98.5*	*80 - 119*	*47.78*	*2.99*	*20*	
Surr: Toluene-d8	*50.46*	*1.0*	*50*	*0*	*101*	*89 - 112*	*50.33*	*0.265*	*20*	

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061164

QC BATCH REPORT

Batch ID: R341659 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:	HS19061164-02	HS19061164-03	HS19061164-04	HS19061164-05

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061164**

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

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ALS Houston, US Date: 16-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061164
Date/Time Received: **21-Jun-2019 09:00**
Received by: **JRM**

Checklist completed by: *Paresh M. Giga* eSignature 21-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 23-Jun-2019 Date

Matrices: **Groundwater**
Carrier name: **FedEx**

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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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 U/c	IR11	
Cooler(s)/Kit(s):	44316		
Date/Time sample(s) sent to storage:	6/21/19 17:30		
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: Trip Blank logged in on hold

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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bhate ENVIRONMENTAL CONSULTING ENERGY

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

Chain of Custody and Analytical Request

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

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	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
AW21-062019		20Jun2019	0745	-	N		WG	1				✓				
120-062019		20Jun2019	0925	-	N		WG	5	✓	✓		✓				
MW14-062019		20Jun2019	1045	-	N		WG	6	✓	✓	✓	✓				
MW14-062019a		20Jun2019	1045		N		WG	6	✓	✓	✓	✓				
MW12-062019		20Jun2019	1230		N		WG	4	✓	✓						
				-												
				-												
				-												
				-												
				-												
				-												

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19061164
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Kenneth Moore	6/20/19	1430	1. SM	6/21/19	09:00
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 Stancliff 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

44316 SIC. 1.8C #11 CF-0.0

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00940993

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

44316

CUSTODY SEAL

Date: 6/20/19 Time: 1430
Name: SCOTT BEESINGER
Company: BHATE

Seal Broken By: EM
Date: 06/21/19

44316 JUN 21 2019

ORIGIN ID:SGRA (903) 920-5193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 24MAY19
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

44316

REF: ATLR-3J

AMA:

FedEx Express

FedEx
TRK# 0221 4809 7834 3159

FRI - 21 JUN 10:30A
PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

FID. 162785 20JUN19 GGGA 553C1/D216/0C0A

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Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1917698, 1917856, 1918052

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2266 (242597)

General Set Information: There were seventeen field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: The following samples were analyzed and reported from various dilutions as specified. 1917698001/02/04-08; 1918052001: 1:1,000. 1917698003; 1917856006/07: 1:100. 1918052002/03: 1:10,000. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 661480) was less than 1/2 the CRDL. The recovery for the LCS (661481) was within acceptable parameters.

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MS/MSD Analysis: MS/MSD was performed on samples 1917698005/06 (Client ID: MW5_061819). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 4.µg/L. The parent sample and the MS/MSD were analyzed and reported from 1:1,000 dilutions. The effective spike target was 4,000.µg/L. The MS/MSD percent recoveries and relative percent difference were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 661478) is reported from the analysis of the Laboratory Control Sample (LCS – 661481) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 01JULD15.

Thomas Bosch July 5, 2019
Analyst Date

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ANALYTICAL REPORT

Report Date: July 05, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918052**
Project ID: HS19061164
Purchase Order: HS19061164
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
120_062019	1918052001	06/20/19	06/22/19	
MW14_062019	1918052002	06/20/19	06/22/19	
MW14_062019_a	1918052003	06/20/19	06/22/19	
MW12_062019	1918052004	06/20/19	06/22/19	

ANALYTICAL REPORT

Workorder: 34-1918052
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **120_062019** | Sampling Site: NA | Collected: 06/20/2019
Lab ID: 1918052001 | Media: 125 mL Nalgene | Received: 06/22/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2266 (HBN: 242597) | **Percent Solid:** NA
Analyzed: 07/01/2019 13:16 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**13000**	1000	2000	4000	1000	

Sample ID: **MW14_062019** | Sampling Site: NA | Collected: 06/20/2019
Lab ID: 1918052002 | Media: 125 mL Nalgene | Received: 06/22/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2266 (HBN: 242597) | **Percent Solid:** NA
Analyzed: 07/01/2019 13:30 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**240000**	10000	20000	40000	10000	

Sample ID: **MW14_062019_a** | Sampling Site: NA | Collected: 06/20/2019
Lab ID: 1918052003 | Media: 125 mL Nalgene | Received: 06/22/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2266 (HBN: 242597) | **Percent Solid:** NA
Analyzed: 07/01/2019 13:44 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**230000**	10000	20000	40000	10000	

Sample ID: **MW12_062019** | Sampling Site: NA | Collected: 06/20/2019
Lab ID: 1918052004 | Media: 125 mL Nalgene | Received: 06/22/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2266 (HBN: 242597) | **Percent Solid:** NA
Analyzed: 07/01/2019 13:57 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

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ANALYTICAL REPORT

Workorder: 34-1918052
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Comments

Quality Control: EPA 6850, DoD QSM - (HBN: 242597)

The following samples were analyzed and reported from various dilutions as specified. 1917698001/02/04-08; 1918052001: 1:1,000. 1917698003; 1917856006/07: 1:100. 1918052002/03: 1:10,000. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/03/2019 09:40	/S/ Stephen Brose 07/05/2019 11:57

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

ANALYTICAL REPORT

Workorder: 34-1918052
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918052

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2266 (HBN: 242597)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 661480
Analyzed: 07/01/2019 09:16
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 661481
Analyzed: 07/01/2019 08:48
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.28	4.00	107	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1917698004	**MS:**	1917698005	**MSD:**	1917698006
Analyzed:	07/01/2019 10:12	**Analyzed:**	07/01/2019 10:28	**Analyzed:**	07/01/2019 10:43
Dilution:	1000	**Dilution:**	1000	**Dilution:**	1000
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	4400	8910	4000	113	78.8	123.8	8810	110	1.19	0.0	20.0

Comments

The following samples were analyzed and reported from various dilutions as specified. 1917698001/02/04-08; 1918052001: 1:1,000. 1917698003; 1917856006/07: 1:100. 1918052002/03: 1:10,000. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
07/03/2019 12:16	07/05/2019 11:57

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11649**

SUBCONTRACT TO:

1918052

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123 **Phone:** +1 801 266 7700

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:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19061164
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19061164-02**	**120_062019**	**Water**	**20 Jun 2019 09:25**
	SUB_Perch-6850			01 Jul 2019
2.	**HS19061164-03**	**MW14_062019**	**Water**	**20 Jun 2019 10:45**
	SUB_Perch-6850			01 Jul 2019
3.	**HS19061164-04**	**MW14_062019_a**	**Water**	**20 Jun 2019 10:45**
	SUB_Perch-6850			01 Jul 2019
4.	**HS19061164-05**	**MW12_062019**	**Water**	**20 Jun 2019 12:30**
	SUB_Perch-6850			01 Jul 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. Mussman Date/Time: 6/21/19 18:00

Received By: [signature] Date/Time: 6/22/19 905

Cooler ID(s): 9778 Temperature(s): 2°

ALS Environmental
CHAIN-OF-CUSTODY

Project / Job / Task: HS19061164 | ***Split:*** | **Workorder ID:** 1918052 | **Level:** ENV_LVL4

Client: ALS Environmental (Houston) | **Account:** 8101 | **Type:** 125Poly

Comments:

Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	06/20/2019 09:25	120_062019	1918052001		Water	A	1	A
2	06/20/2019 10:45	MW14_062019	1918052002		Water	A	1	A
3	06/20/2019 10:45	MW14_062019_a	1918052003		Water	A	1	A
4	06/20/2019 12:30	MW12_062019	1918052004		Water	A	1	A
5								
6								
7								
8								
9								
10								

Page 88 of 155

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Wafath Julie	06/22/2019 09:05	ALS Sample Receiving	Sample Login
[signature]	6/24/19 1400	GB	Storage
R-33-1	6/27/19 12:20	T. Bussell	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: HGS Houston

Project/Task/Site: 1918052

Date/Time of Receipt: 6/22/19 905

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Location Temp Taken:	Cooler/Between Samples
Container Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA		
	Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9713	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: _____ (Signature) Meredith Hopkins (Printed Name) 6/22/19 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

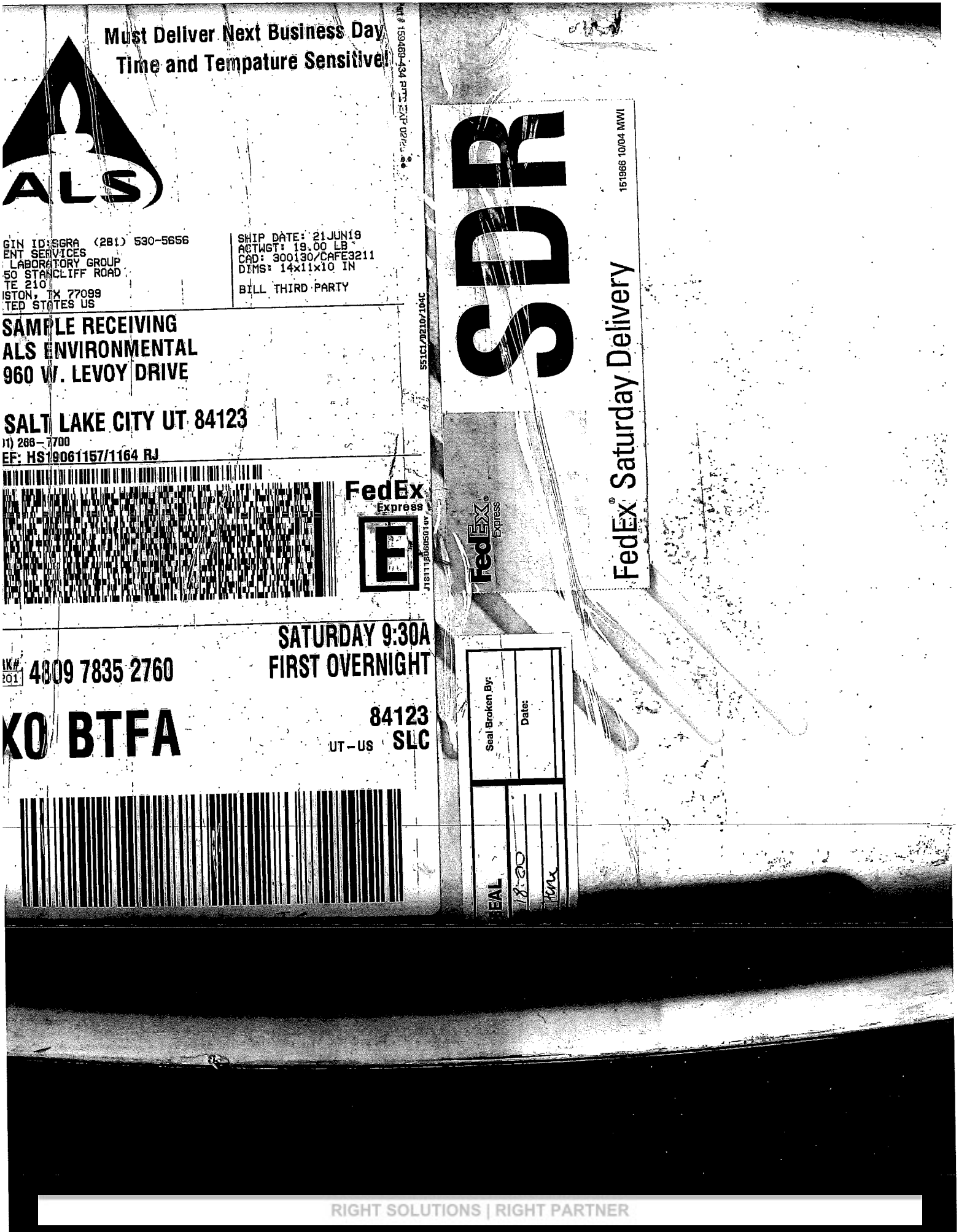
ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018

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00941005



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Batch Worklist

Batch: ELMS/ 2266 **Created:** 7/1/2019 08:25 **Instrument:** LCMS04 **HBN:** 242597
Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1917698 [ENV_LVL4]
Workorder: 1917856 [ENV_LVL4]
Workorder: 1918052 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	661477	CCV for HBN 242597 [ELMS/2266]				CCV	3		E685041C3Q	5311		7/3/2019	7/1/2019
2	661481	LCS for HBN 242597 [ELMS/2266]				LCS	3		E6850Q413Q	5311		7/3/2019	7/1/2019
3	661479	ICS for HBN 242597 [ELMS/2266]				ICS	3		E6850..D3Q	5311		7/3/2019	7/1/2019
4	661480	LMB for HBN 242597 [ELMS/2266]				LMB	3		E6850Q413Q	5311		7/3/2019	7/1/2019
5	1917698001	18CPTMW08SW_061819				SAMPLE	3	1917698001-A	E6850Q41.3	5480	7/16/2019	7/3/2019	7/1/2019
6	1917698002	MW5_061819				SAMPLE	3	1917698002-A	E6850Q41.3	5480	7/16/2019	7/3/2019	7/1/2019
7	1917698004	MW6_061819				SAMPLE	3	1917698004-A	E6850Q41.3	5480	7/16/2019	7/3/2019	7/1/2019
8	1917698005	MW6_061819MS				MS	3	1917698005-A	E6850Q413Q	5480		7/3/2019	7/1/2019
9	1917698006	MW6_061819MSD				MSD	3	1917698006-A	E6850Q413Q	5480		7/3/2019	7/1/2019
10	1917698007	109_061819				SAMPLE	3	1917698007-A	E6850Q41.3	5480	7/16/2019	7/3/2019	7/1/2019
13	1917856003	18CPTMW01DW_061919				SAMPLE	3	1917856003-A	E6850Q41.3	5480	7/17/2019	7/5/2019	7/1/2019
14	1917856004	18CPTMW015W_061919				SAMPLE	3	1917856004-A	E6850Q41.3	5480	7/17/2019	7/5/2019	7/1/2019
15	661482	CCV for HBN 242597 [ELMS/2266]				CCV	3		E685041C3Q	5311		7/3/2019	7/1/2019
16	1917856005	18CPTMW045W_061919				SAMPLE	3	1917856005-A	E6850Q41.3	5480	7/17/2019	7/5/2019	7/1/2019
17	1917856006	18CPTMW04_061919				SAMPLE	3	1917856006-A	E6850Q41.3	5480	7/17/2019	7/5/2019	7/1/2019
18	1917856007	MW1_061919				SAMPLE	3	1917856007-A	E6850Q41.3	5480	7/17/2019	7/5/2019	7/1/2019
19	1918052001	120_062019				SAMPLE	3	1918052001-A	E6850Q41.3	5480	7/18/2019	7/5/2019	7/1/2019
20	1918052002	MW14_062019				SAMPLE	3	1918052002-A	E6850Q41.3	5480	7/18/2019	7/5/2019	7/1/2019
21	1918052003	MW14_062019_a				SAMPLE	3	1918052003-A	E6850Q41.3	5480	7/18/2019	7/5/2019	7/1/2019
22	1918052004	MW12_062019				SAMPLE	3	1918052004-A	E6850Q41.3	5480	7/18/2019	7/5/2019	7/1/2019
23	1917698003	19CPTMW08DW_061819				SAMPLE	3	1917698003-A	E6850Q41.3	5480	7/16/2019	7/3/2019	7/1/2019
24	1917698008	MW21_061819				SAMPLE	3	1917698008-A	E6850Q41.3	5480	7/16/2019	7/3/2019	7/1/2019
25	1917856001	MW2_061919				SAMPLE	3	1917856001-A	E6850Q41.3	5480	7/17/2019	7/5/2019	7/1/2019
26	661483	CCV for HBN 242597 [ELMS/2266]				CCV	3		E685041C3Q	5311		7/3/2019	7/1/2019
27	1917856002	MW2_061919_a				SAMPLE	3	1917856002-A	E6850Q41.3	5480	7/17/2019	7/5/2019	7/1/2019
28	661478	RLVS for HBN 242597 [ELMS/2266				RLVS	3		E685041C3Q	5311		7/3/2019	7/1/2019
29	661661	CCV for HBN 242597 [ELMS/2266]				CCV	3		E685041C3Q	5311		7/3/2019	7/1/2019

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

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ALS Work Order #'s & Sample #( )'s: 1917698 (001-08), 1917856 (001-07), 1918052 (001-04)
ELMS Batch/HBN ID: 2266 (242597)
Prep Date: 06/27/2019 Analysis Date: 07/01/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\01JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 661481; Target = 4.0µg/L. ASTM type II water was used for LMB 661480.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on samples 1917698005/06 (Client ID: MW6_061819). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L. The parent sample and the MS/MSD were analyzed and reported from 1:1,000 dilutions. The effective spike target was 4,000.µg/L.

COMMENTS:

1) Results reported in µg/L. The following samples were analyzed and reported from various dilutions as specified. 1917698001/02/04-08; 1918052001: 1:1,000. 1917698003; 1917856006/07: 1:100. 1918052002/03: 1:10,000. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\242597-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 661478) is reported from the analysis of the Laboratory Control Sample (LCS – 661481) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 01JULD15.

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5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2266 HBN: 242597 Sample Set IDs if Applicable: 1917698/1917856/1918052	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Method Blanks analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness checked	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

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STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT	Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

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STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730
MFG: ALS/SLC
MFG Lot: TNB: 05/09/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 25 mL
Expires: 09/20/2019
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

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STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 43729	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 09/20/2018 09:09AM	Expires: 04/28/2026
MFG Lot: SDFF-012A	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date:	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ANAB ACCREDITED

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

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125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

AccuStandard

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015
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Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

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Batch Report: C:\HPCHEM\1\DATA\01JUL19D\01JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	661477 CCV@25	Vial 71	1	Control	1	1.94364e6	8.502	26.12624
*	661481 QC@4.0	Vial 72	1	Control	2	3.56116e5	8.215	4.27672
*	661479 ICS@4.0	Vial 73	1	Control	3	2.74101e5	8.013	3.76269
*	661480 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1917698001 1K	Vial 75	1	Sample	5	1.80575e6	8.547	2.30697e4
*	1917698002 1K	Vial 76	1	Sample	6	2.06010e6	8.593	2.58627e4
*	1917698004 1K	Vial 78	1	Sample	8	3.25841e5	8.618	4410.00331
*	1917698005 MS	Vial 79	1	Sample	9	6.67091e5	8.655	8914.28717
*	1917698006 MSD	Vial 80	1	Sample	10	6.51482e5	8.597	8808.96977
*	1917698007 1K	Vial 81	1	Sample	11	7.47888e5	8.647	1.04112e4
*	1917856001	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1917856002	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1917856003	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	1917856004	Vial 86	1	Sample	16	0.00000	0.000	0.00000
*	661482 CCV@25	Vial 71	1	Control	17	1.60409e6	8.558	25.00349
*	1917856005	Vial 87	1	Sample	18	0.00000	0.000	0.00000
*	1917856006 100	Vial 88	1	Sample	19	4.03838e5	8.639	621.06433
*	1917856007 100	Vial 89	1	Sample	20	4.34274e5	8.657	588.15812
*	1918052001 1K	Vial 90	1	Sample	21	9.58579e5	8.665	1.34755e4
*	1918052002 10K	Vial 91	1	Sample	22	1.70174e6	8.689	2.36511e5
*	1918052003 10K	Vial 92	1	Sample	23	1.68203e6	8.679	2.30798e5
*	1918052004	Vial 93	1	Sample	24	0.00000	0.000	0.00000
*	1917698003 100	Vial 94	1	Sample	25	3.02113e6	8.615	4300.62656
*	1917698008 1K	Vial 95	1	Sample	26	1.64048e6	8.691	2.37316e4
*	1917856001 RE	Vial 83	1	Sample	27	0.00000	0.000	0.00000
*	661483 CCV@25	Vial 71	1	Control	28	1.50603e6	8.597	25.41985
*	1917856002 RE	Vial 84	1	Sample	29	0.00000	0.000	0.00000
*	661661 CCV@25	Vial 71	1	Control	30	1.45949e6	8.576	25.10137

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	661477 CCV@25	Vial 71	1	Control	1	5.88479e5	8.517	26.62967
*	661481 QC@4.0	Vial 72	1	Control	2	1.16200e5	8.258	4.54646
*	661479 ICS@4.0	Vial 73	1	Control	3	8.51455e4	8.028	3.78922
*	661480 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1917698001 1K	Vial 75	1	Sample	5	5.48648e5	8.553	2.35743e4
*	1917698002 1K	Vial 76	1	Sample	6	6.20226e5	8.595	2.62187e4
*	1917698004 1K	Vial 78	1	Sample	8	1.08064e5	8.621	4769.85352
*	1917698005 MS	Vial 79	1	Sample	9	2.16450e5	8.652	9609.46002
*	1917698006 MSD	Vial 80	1	Sample	10	2.06556e5	8.628	9281.28672
*	1917698007 1K	Vial 81	1	Sample	11	2.34170e5	8.675	1.08652e4
*	1917856001	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1917856002	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1917856003	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	1917856004	Vial 86	1	Sample	16	0.00000	0.000	0.00000
*	661482 CCV@25	Vial 71	1	Control	17	4.85334e5	8.571	25.46167
*	1917856005	Vial 87	1	Sample	18	0.00000	0.000	0.00000
*	1917856006 100	Vial 88	1	Sample	19	1.32726e5	8.663	672.87107
*	1917856007 100	Vial 89	1	Sample	20	1.40119e5	8.663	624.82071
*	1918052001 1K	Vial 90	1	Sample	21	2.95207e5	8.681	1.38848e4
*	1918052002 10K	Vial 91	1	Sample	22	5.16167e5	8.701	2.41334e5
*	1918052003 10K	Vial 92	1	Sample	23	5.17000e5	8.701	2.38460e5
*	1918052004	Vial 93	1	Sample	24	0.00000	0.000	0.00000
*	1917698003 100	Vial 94	1	Sample	25	8.88076e5	8.626	4275.40488
*	1917698008 1K	Vial 95	1	Sample	26	4.99687e5	8.711	2.43133e4
*	1917856001 RE	Vial 83	1	Sample	27	0.00000	0.000	0.00000
*	661483 CCV@25	Vial 71	1	Control	28	4.53099e5	8.615	25.74994
*	1917856002 RE	Vial 84	1	Sample	29	0.00000	0.000	0.00000
*	661661 CCV@25	Vial 71	1	Control	30	4.45116e5	8.600	25.75597

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Batch Report: C:\HPCHEM\1\DATA\01JUL19D\01JUL19S.B

#	*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
	*	661477 CCV@25	Vial 71	1	Control	1	2.25730e5	8.518	5.00000
	*	661481 QC@4.0	Vial 72	1	Control	2	2.73485e5	8.237	5.00000
	*	661479 ICS@4.0	Vial 73	1	Control	3	2.40789e5	8.048	5.00000
	*	661480 LMB	Vial 74	1	Control	4	2.63576e5	8.496	5.00000
	*	1917698001 1K	Vial 75	1	Sample	5	2.39255e5	8.564	5000.00000
	*	1917698002 1K	Vial 76	1	Sample	6	2.41844e5	8.612	5000.00000
	*	1917698004 1K	Vial 78	1	Sample	8	2.42320e5	8.640	5000.00000
	*	1917698005 MS	Vial 79	1	Sample	9	2.38518e5	8.669	5000.00000
	*	1917698006 MSD	Vial 80	1	Sample	10	2.35827e5	8.629	5000.00000
	*	1917698007 1K	Vial 81	1	Sample	11	2.27615e5	8.679	5000.00000
	*	1917856001	Vial 83	1	Sample	13	9.31342e4	7.613	5.00000
	*	1917856002	Vial 84	1	Sample	14	8.79498e4	7.621	5.00000
	*	1917856003	Vial 85	1	Sample	15	2.30973e5	7.860	5.00000
	*	1917856004	Vial 86	1	Sample	16	2.08544e5	7.904	5.00000
	*	661482 CCV@25	Vial 71	1	Control	17	1.95182e5	8.589	5.00000
	*	1917856005	Vial 87	1	Sample	18	2.92027e5	7.936	5.00000
	*	1917856006 100	Vial 88	1	Sample	19	2.10142e5	8.654	500.00000
	*	1917856007 100	Vial 89	1	Sample	20	2.39145e5	8.684	500.00000
	*	1918052001 1K	Vial 90	1	Sample	21	2.23102e5	8.672	5000.00000
	*	1918052002 10K	Vial 91	1	Sample	22	2.19618e5	8.709	5.00000e4
	*	1918052003 10K	Vial 92	1	Sample	23	2.22758e5	8.695	5.00000e4
	*	1918052004	Vial 93	1	Sample	24	1.88746e5	7.876	5.00000
	*	1917698003 100	Vial 94	1	Sample	25	2.05249e5	8.640	500.00000
	*	1917698008 1K	Vial 95	1	Sample	26	2.10954e5	8.695	5000.00000
	*	1917856001 RE	Vial 83	1	Sample	27	1.44962e5	7.630	5.00000
	*	661483 CCV@25	Vial 71	1	Control	28	1.80070e5	8.618	5.00000
	*	1917856002 RE	Vial 84	1	Sample	29	1.42651e5	7.637	5.00000
	*	661661 CCV@25	Vial 71	1	Control	30	1.76854e5	8.601	5.00000

*** End of Report ***

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Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	661477 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	661481 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	661479 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	661480 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1917698001 1K	CLO4-AQN	1	Sample		
6	Vial 76	1917698002 1K	CLO4-AQN	1	Sample		
7	Vial 77	1917698003 1K	CLO4-AQN	1	Sample		
8	Vial 78	1917698004 1K	CLO4-AQN	1	Sample		
9	Vial 79	1917698005 MS	CLO4-AQN	1	Sample		
10	Vial 80	1917698006 MSD	CLO4-AQN	1	Sample		
11	Vial 81	1917698007 1K	CLO4-AQN	1	Sample		
12	Vial 82	1917698008 10K	CLO4-AQN	1	Sample		
13	Vial 83	1917856001	CLO4-AQN	1	Sample		
14	Vial 84	1917856002	CLO4-AQN	1	Sample		
15	Vial 85	1917856003	CLO4-AQN	1	Sample		
16	Vial 86	1917856004	CLO4-AQN	1	Sample		
17	Vial 71	661482 CCV@25	CLO4-AQN	1	Ctrl Samp		
18	Vial 87	1917856005	CLO4-AQN	1	Sample		
19	Vial 88	1917856006 100	CLO4-AQN	1	Sample		
20	Vial 89	1917856007 100	CLO4-AQN	1	Sample		
21	Vial 90	1918052001 1K	CLO4-AQN	1	Sample		
22	Vial 91	1918052002 10K	CLO4-AQN	1	Sample		
23	Vial 92	1918052003 10K	CLO4-AQN	1	Sample		
24	Vial 93	1918052004	CLO4-AQN	1	Sample		
25	Vial 94	1917698003 100	CLO4-AQN	1	Sample		
26	Vial 95	1917698008 1K	CLO4-AQN	1	Sample		
27	Vial 83	1917856001 RE	CLO4-AQN	1	Sample		
28	Vial 71	661483 CCV@25	CLO4-AQN	1	Ctrl Samp		
29	Vial 84	1917856002 RE	CLO4-AQN	1	Sample		
30	Vial 71	661661 CCV@25	CLO4-AQN	1	Ctrl Samp		

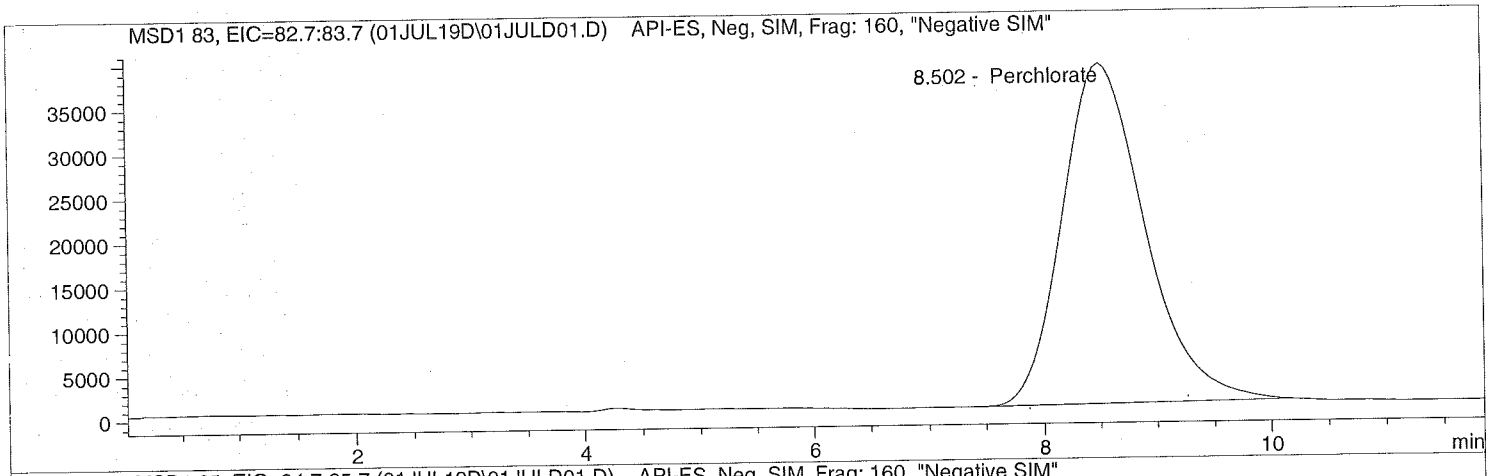
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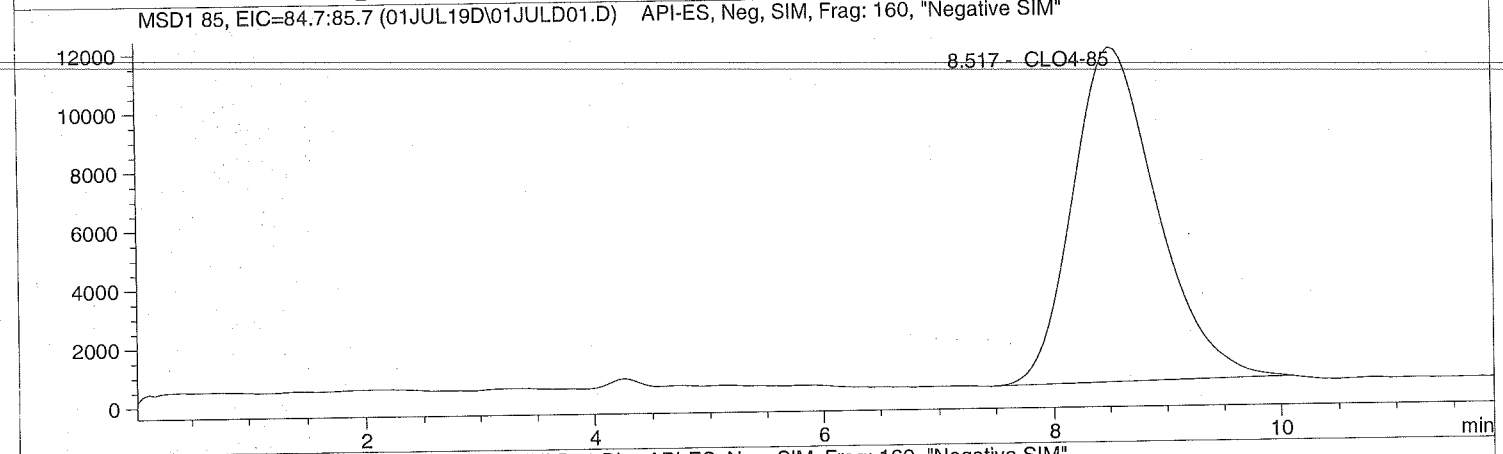
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD01.D Sample Name: 661477 CCV@25

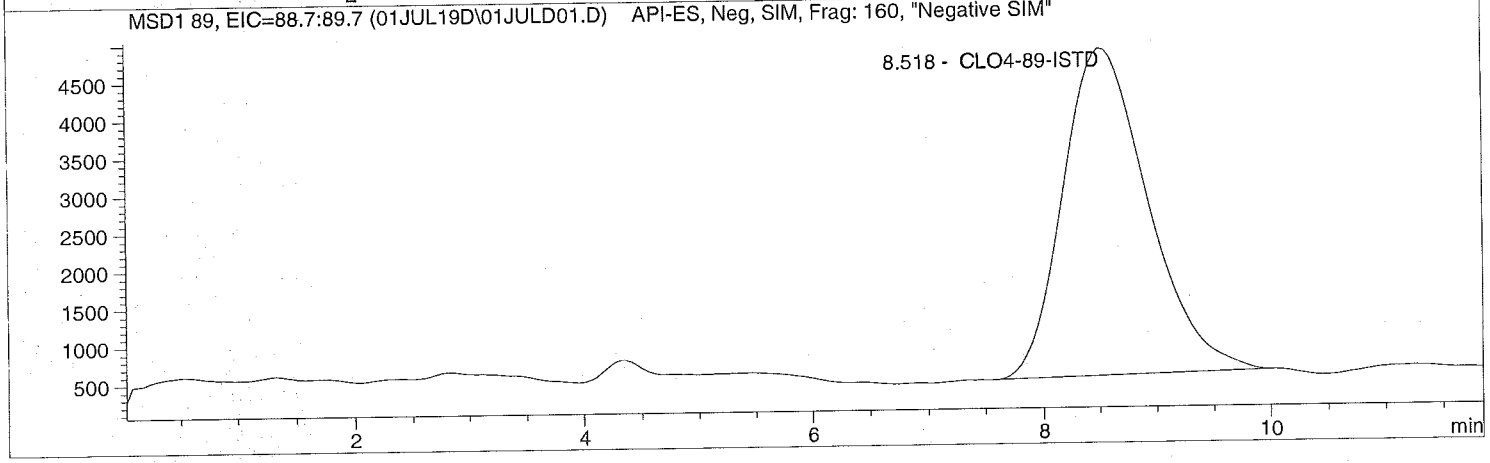
Injection Date:	7/01/2019 08:34:23	Seq Line:	1
Sample Name:	661477 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD01.D Sample Name: 661477 CCV@25

Injection Date:	7/01/2019 08:34:23	Seq Line:	1
Sample Name:	661477 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	1943636.6	26.1262	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.517	PBA	588479.1	26.6297	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.518	PBA	225730.5	5.0000	CLO4-89-ISTD

*** End of Report ***

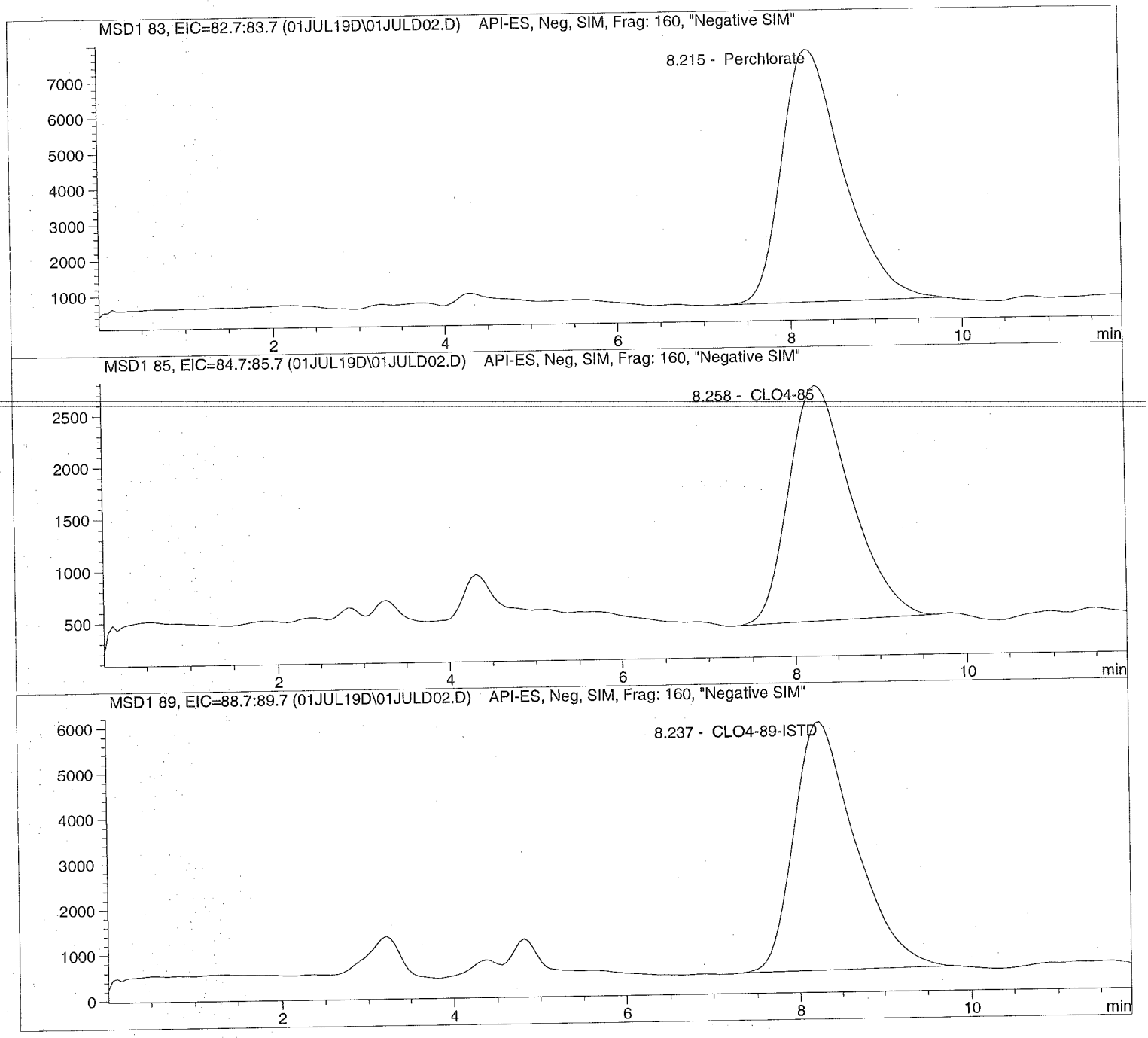
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD02.D Sample Name: 661481 QC@4.0

Injection Date:	7/01/2019 08:48:56	Seq Line:	2
Sample Name:	661481 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD02.D Sample Name: 661481 QC@4.0

Injection Date:	7/01/2019 08:48:56	Seq Line:	2
Sample Name:	661481 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.215	PBA	356116.2	4.2767	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.258	PBA	116199.5	4.5465	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.237	PBA	273484.5	5.0000	CLO4-89-ISTD

*** End of Report ***

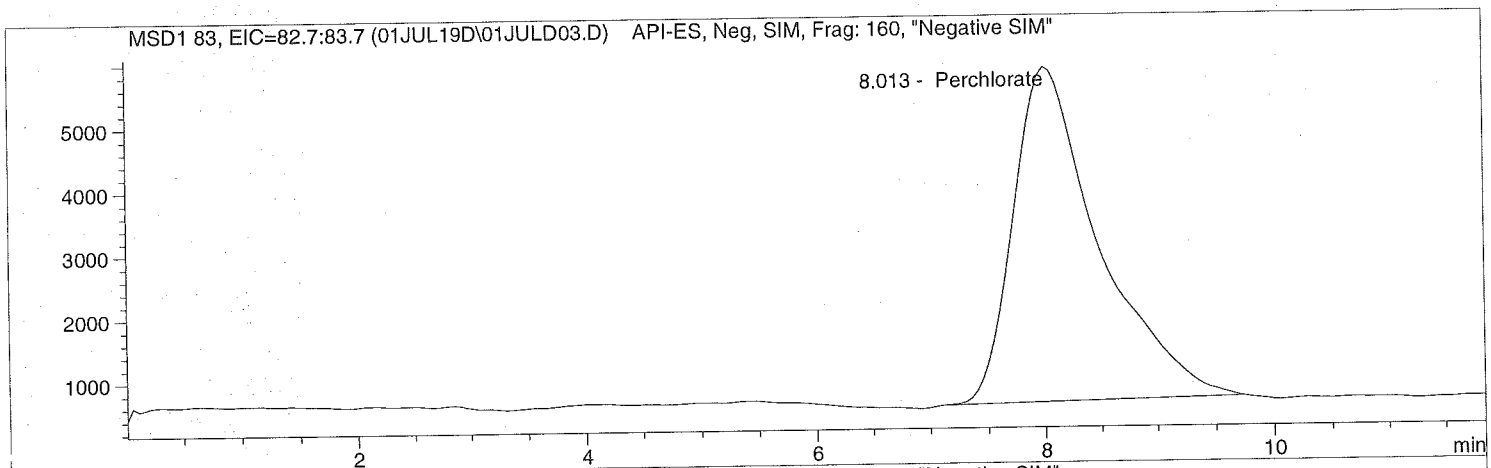
RIGHT SOLUTIONS | RIGHT PARTNER

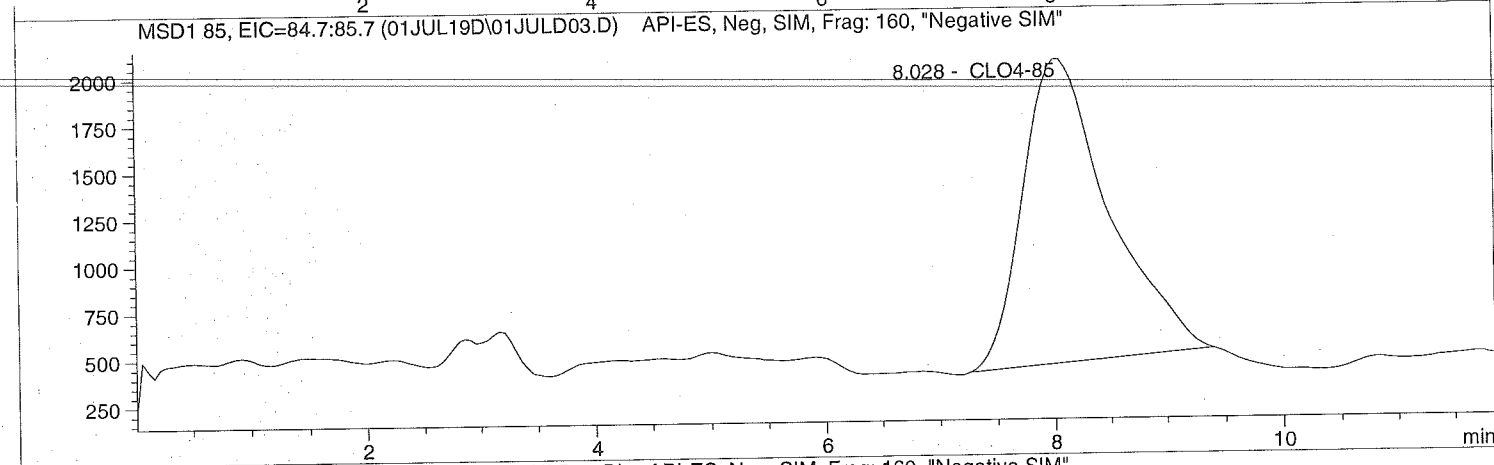
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD03.D Sample Name: 661479 ICS@4.0

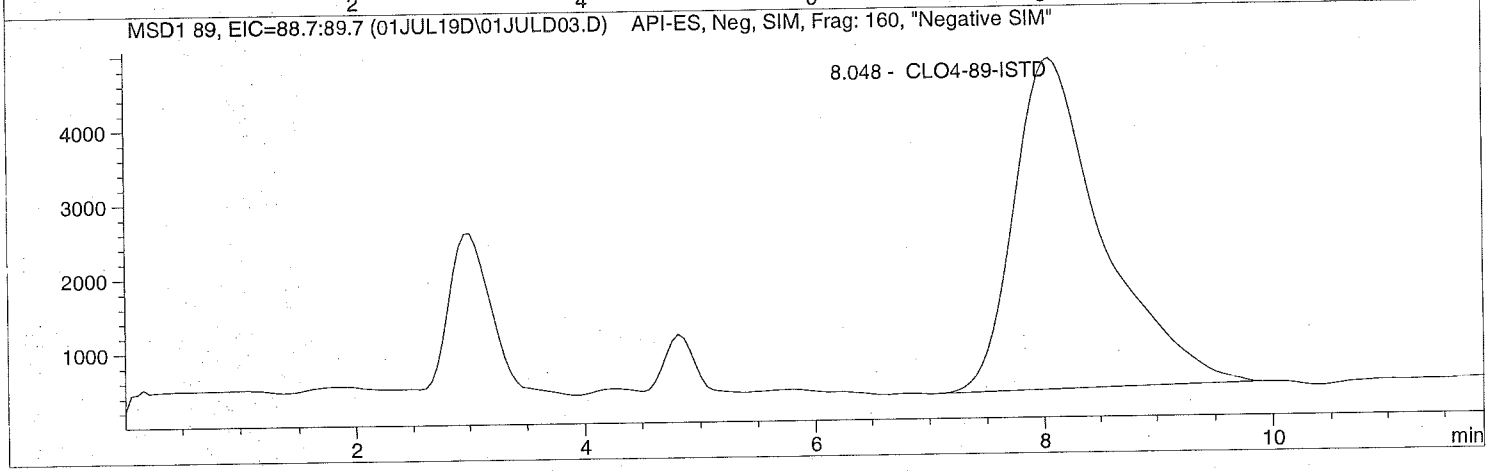
Injection Date:	7/01/2019 09:02:47	Seq Line:	3
Sample Name:	661479 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD03.D Sample Name: 661479 ICS@4.0

Injection Date:	7/01/2019 09:02:47	Seq Line:	3
Sample Name:	661479 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.013	BBA	274101.4	3.7627	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.028	PBA	85145.5	3.7892	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.048	PBA	240788.6	5.0000	CLO4-89-ISTD

*** End of Report ***

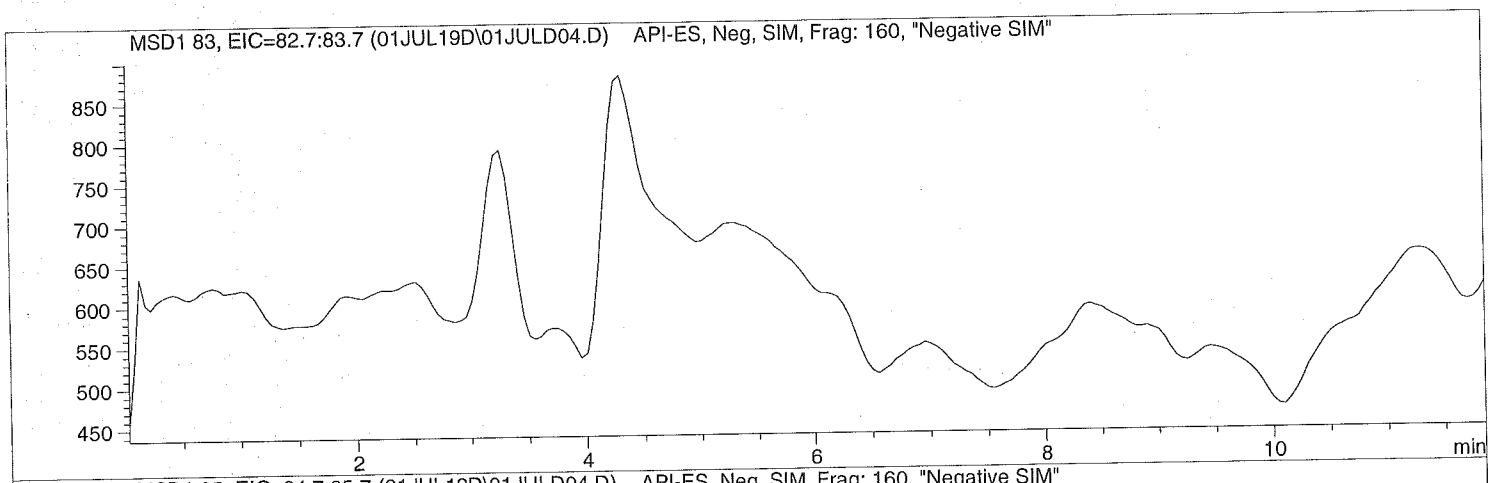
RIGHT SOLUTIONS | RIGHT PARTNER

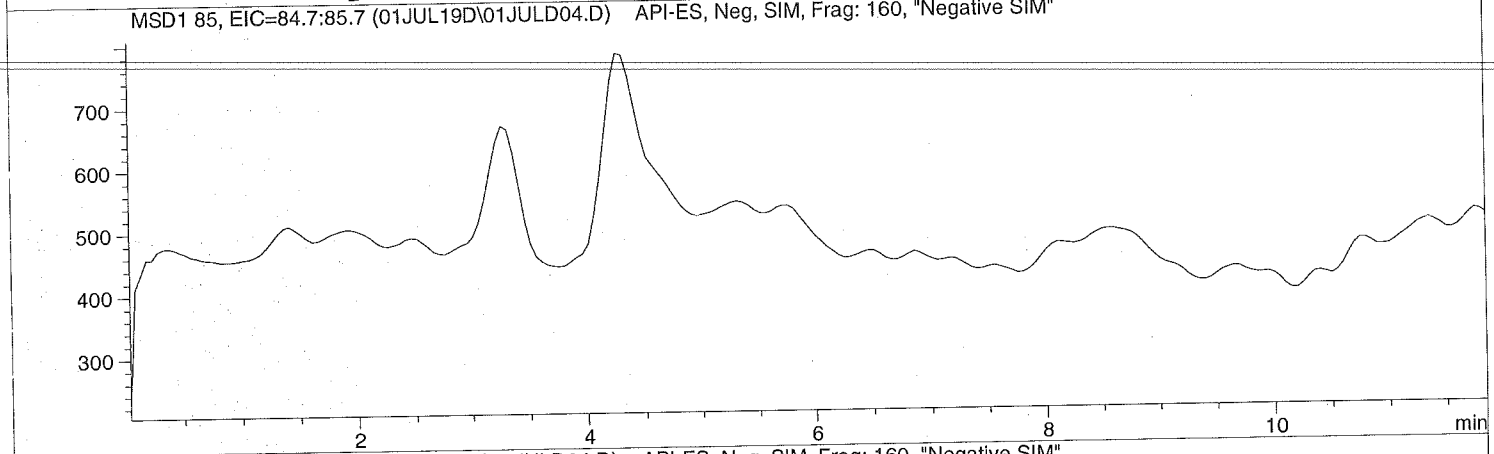
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD04.D Sample Name: 661480 LMB

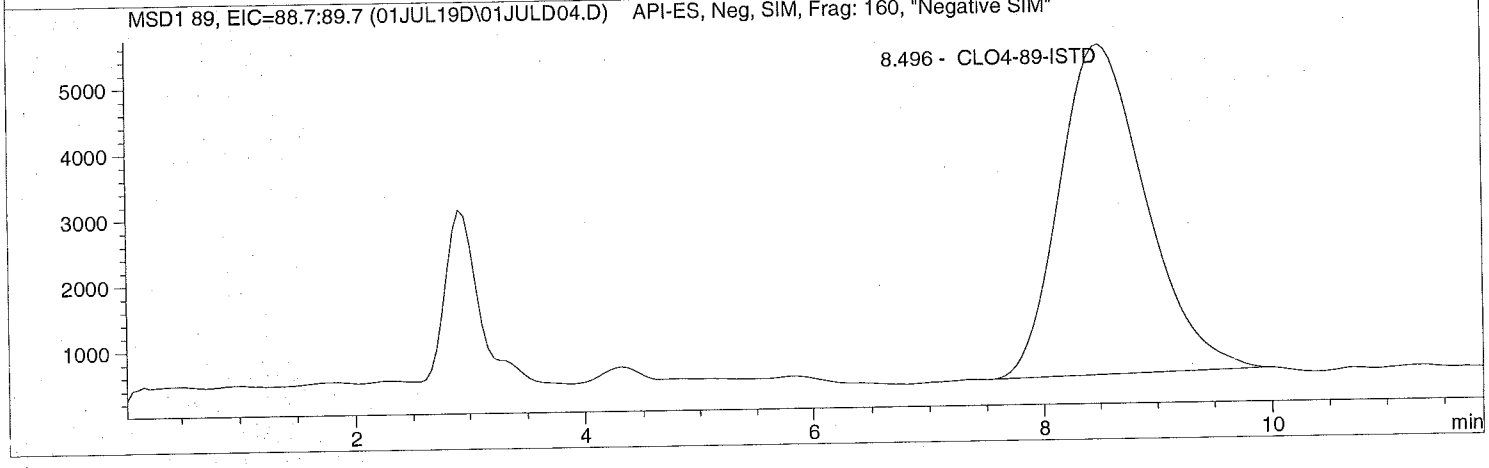
Injection Date:	7/01/2019 09:16:47	Seq Line:	4
Sample Name:	661480 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD04.D Sample Name: 661480 LMB

Injection Date:	7/01/2019 09:16:47	Seq Line:	4
Sample Name:	661480 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.496	PBA	263576.3	5.0000	CLO4-89-ISTD

*** End of Report ***

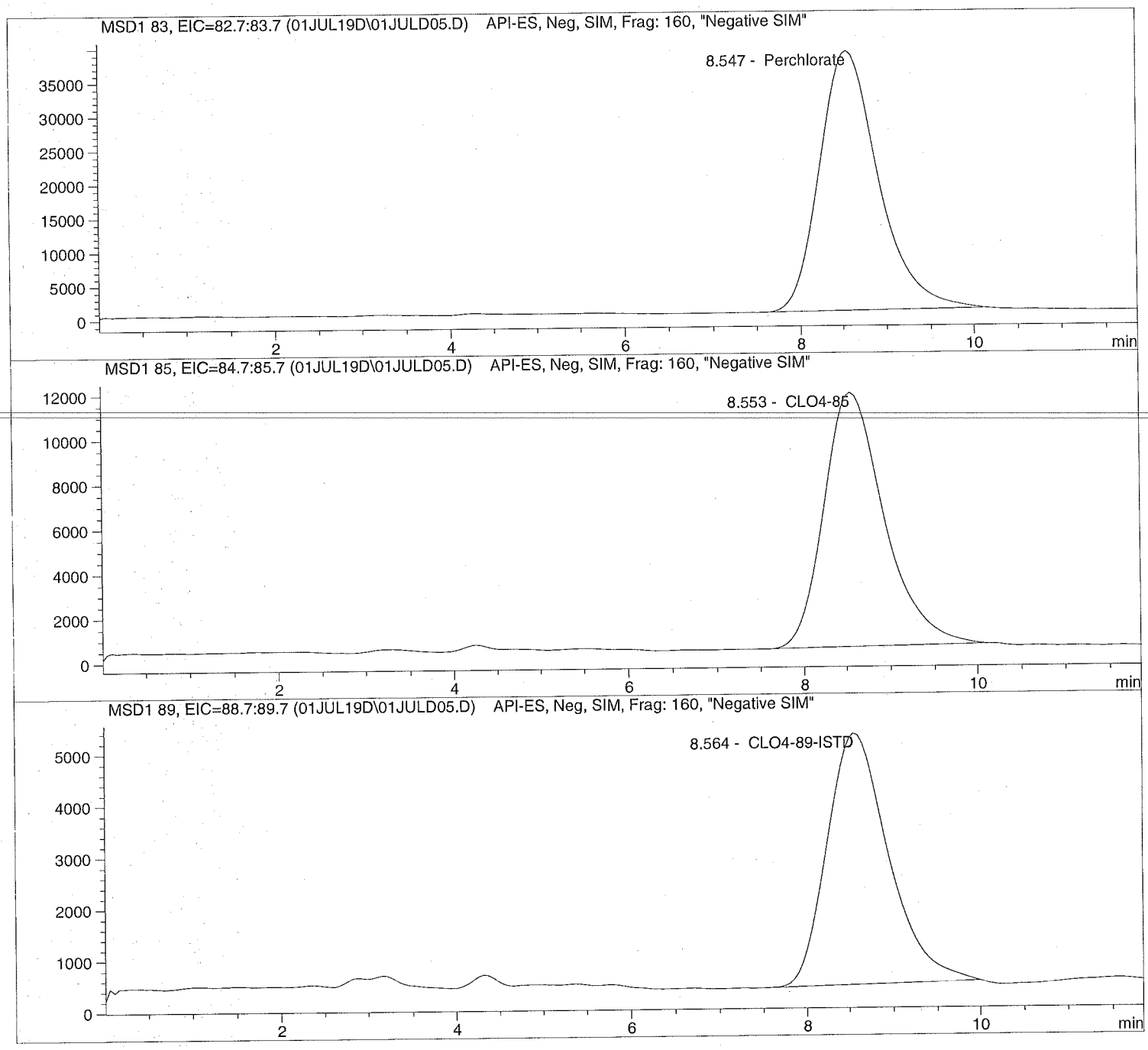
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD05.D Sample Name: 1917698001 1K

Injection Date:	7/01/2019 09:30:40	Seq Line:	5
Sample Name:	1917698001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD05.D Sample Name: 1917698001 1K

Injection Date:	7/01/2019 09:30:40	Seq Line:	5
Sample Name:	1917698001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.547	PBA	1805754.9	23069.7173	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.553	PBA	548647.9	23574.3344	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.564	PBA	239254.8	5000.0000	CLO4-89-ISTD

*** End of Report ***

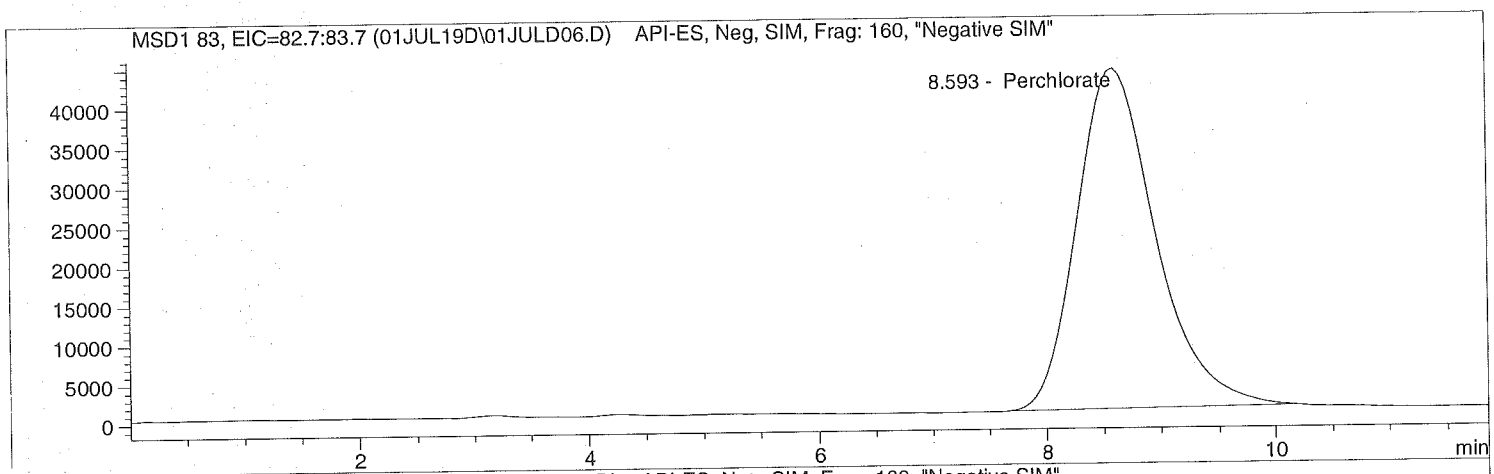
RIGHT SOLUTIONS | RIGHT PARTNER

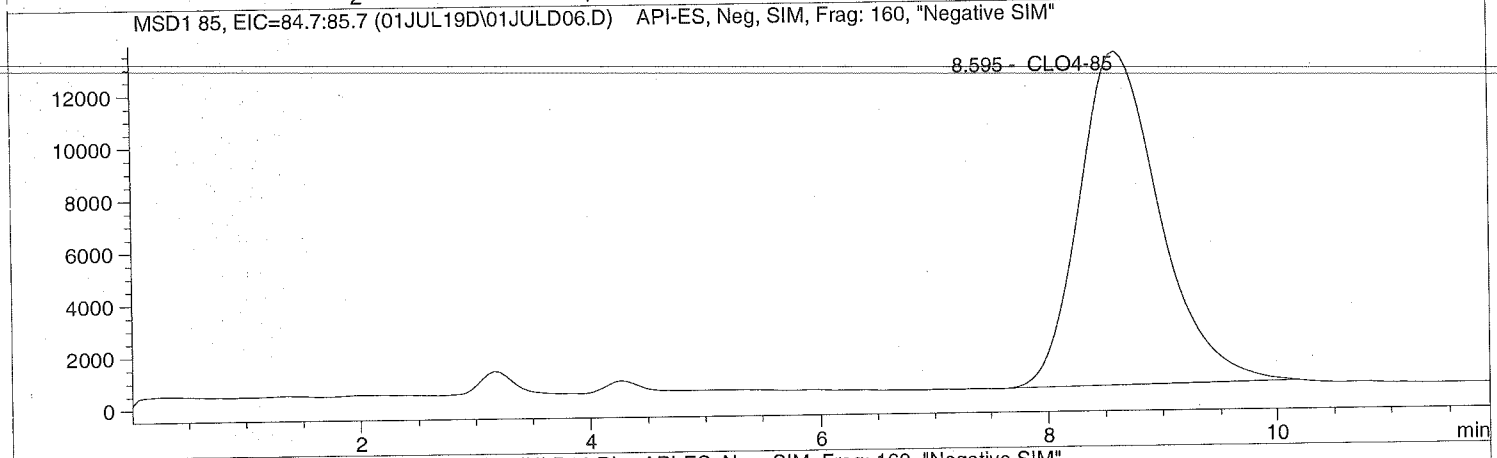
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD06.D Sample Name: 1917698002 1K

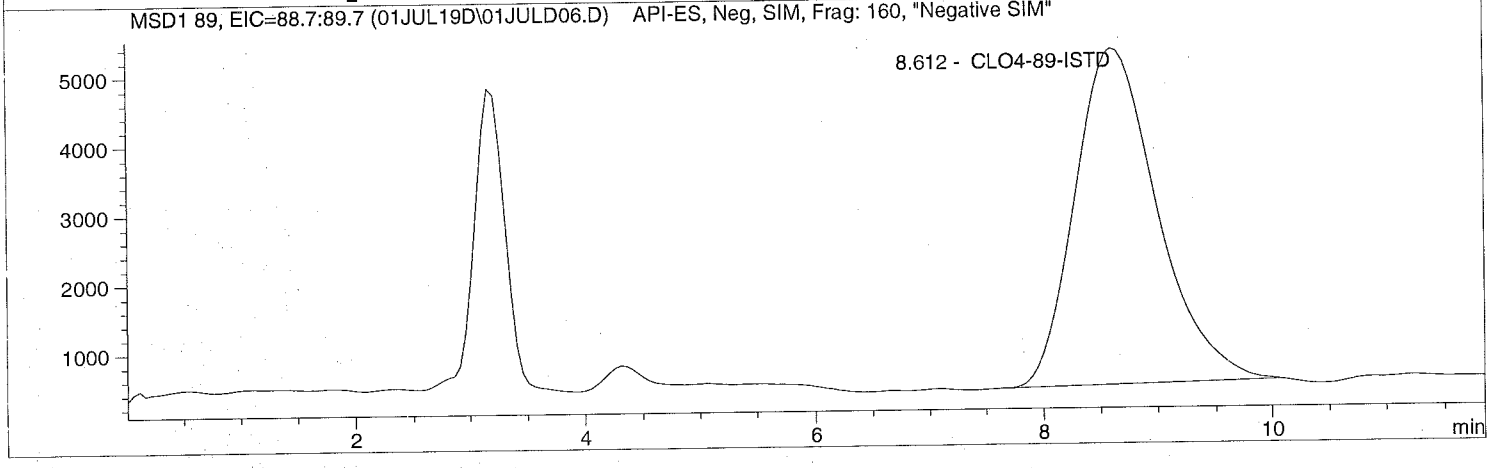
Injection Date:	7/01/2019 09:44:35	Seq Line:	6
Sample Name:	1917698002 1K	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD06.D Sample Name: 1917698002 1K

Injection Date:	7/01/2019 09:44:35	Seq Line:	6
Sample Name:	1917698002 1K	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.593	PBA	2060095.9	25862.7348	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.595	PBA	620225.7	26218.7320	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.612	PBA	241844.5	5000.0000	CLO4-89-ISTD

*** End of Report ***

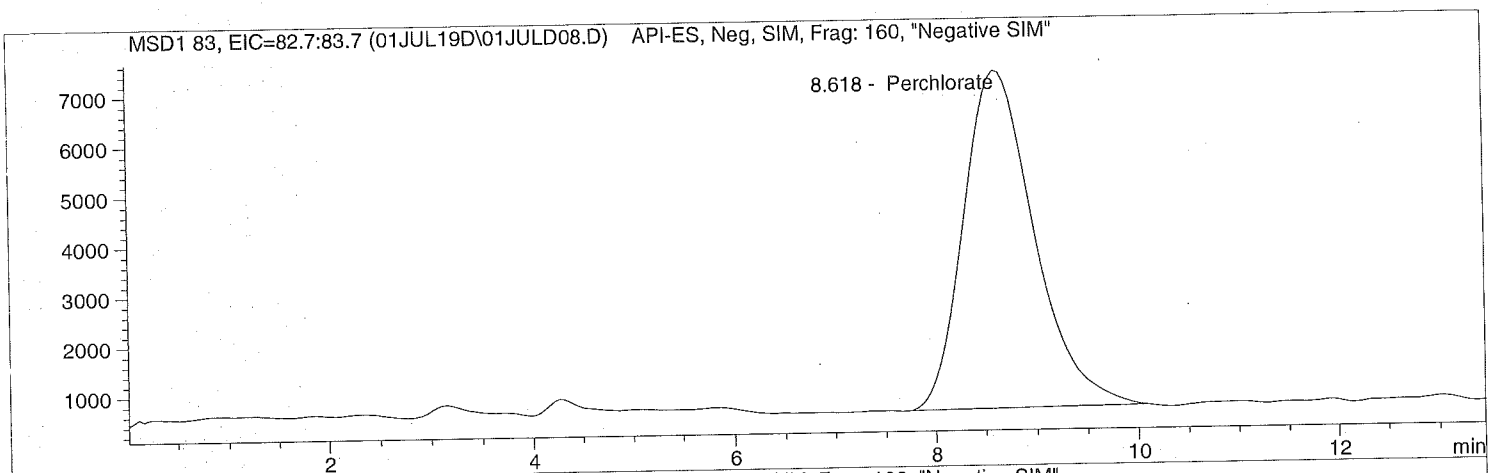
RIGHT SOLUTIONS | RIGHT PARTNER

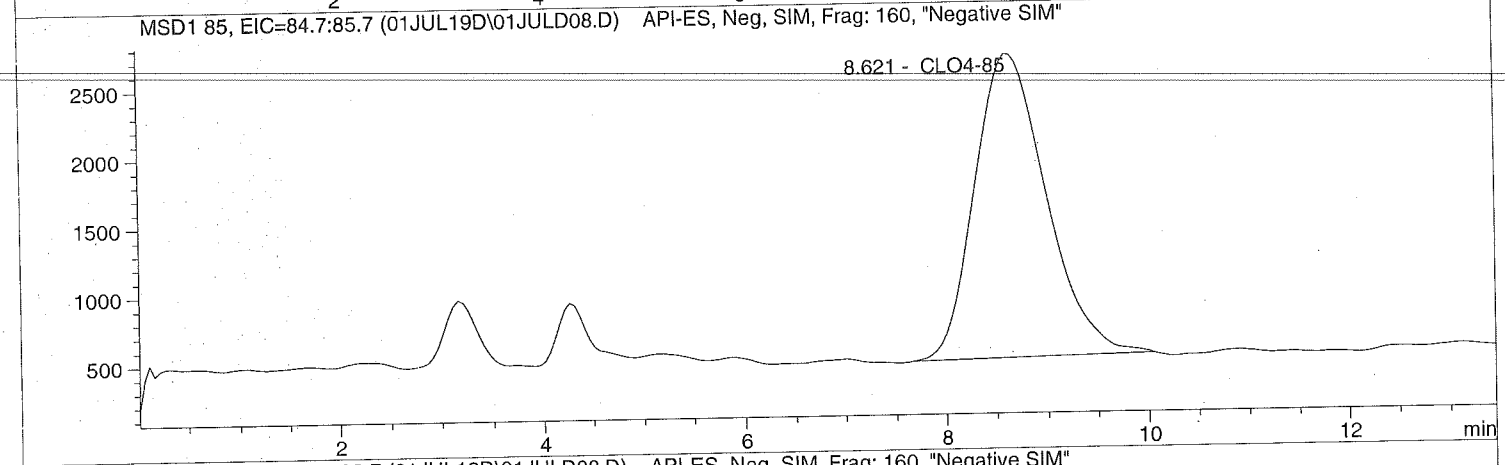
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD08.D Sample Name: 1917698004 1K

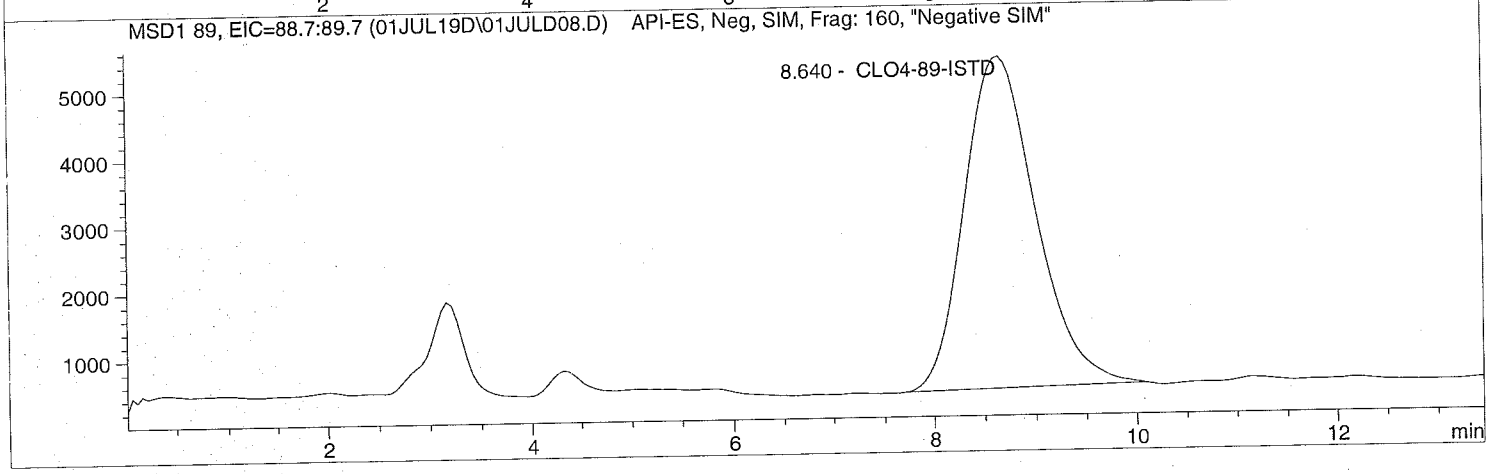
Injection Date:	7/01/2019 10:12:34	Seq Line:	8
Sample Name:	1917698004 1K	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD08.D Sample Name: 1917698004 1K

Injection Date:	7/01/2019 10:12:34	Seq Line:	8
Sample Name:	1917698004 1K	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.618	PBA	325841.4	4410.0033	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.621	PBA	108064.0	4769.8535	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.640	PBA	242319.7	5000.0000	CLO4-89-ISTD

*** End of Report ***

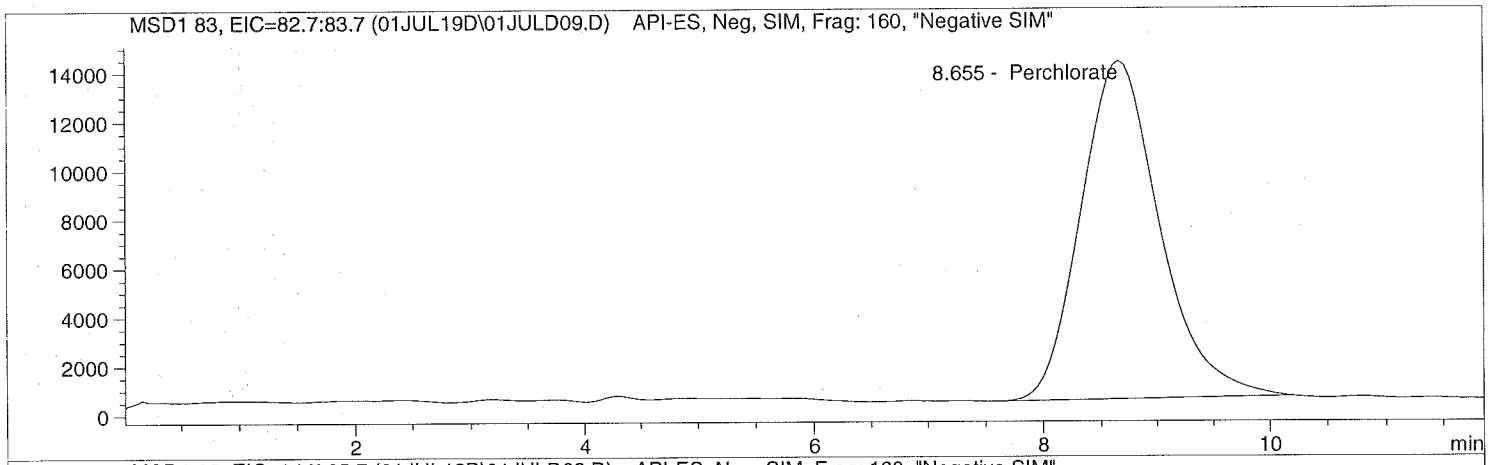
RIGHT SOLUTIONS | RIGHT PARTNER

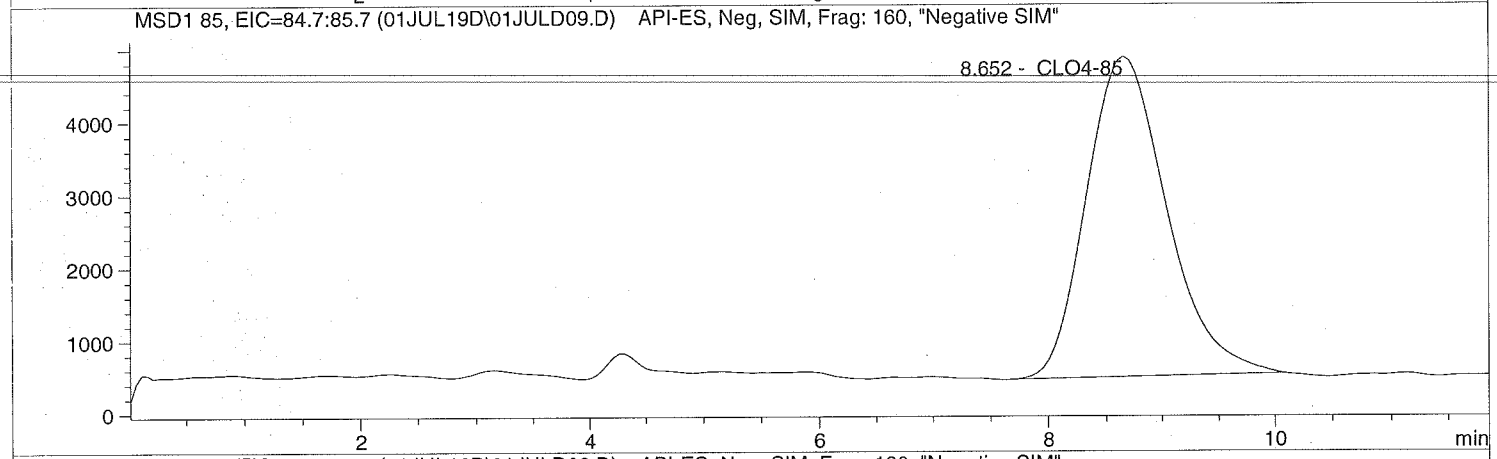
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD09.D Sample Name: 1917698005 MS

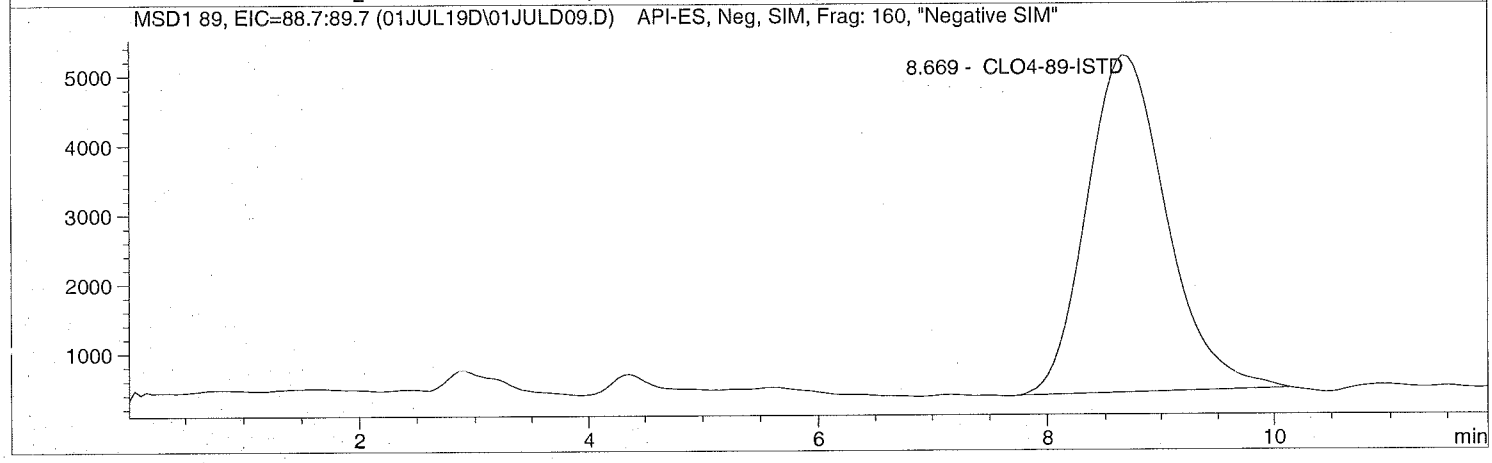
Injection Date:	7/01/2019 10:28:15	Seq Line:	9
Sample Name:	1917698005 MS	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD09.D Sample Name: 1917698005 MS

Injection Date:	7/01/2019 10:28:15	Seq Line:	9
Sample Name:	1917698005 MS	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.655	PBA	667091.1	8914.2872	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.652	PBA	216450.0	9609.4600	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.669	PBA	238517.6	5000.0000	CLO4-89-ISTD

*** End of Report ***

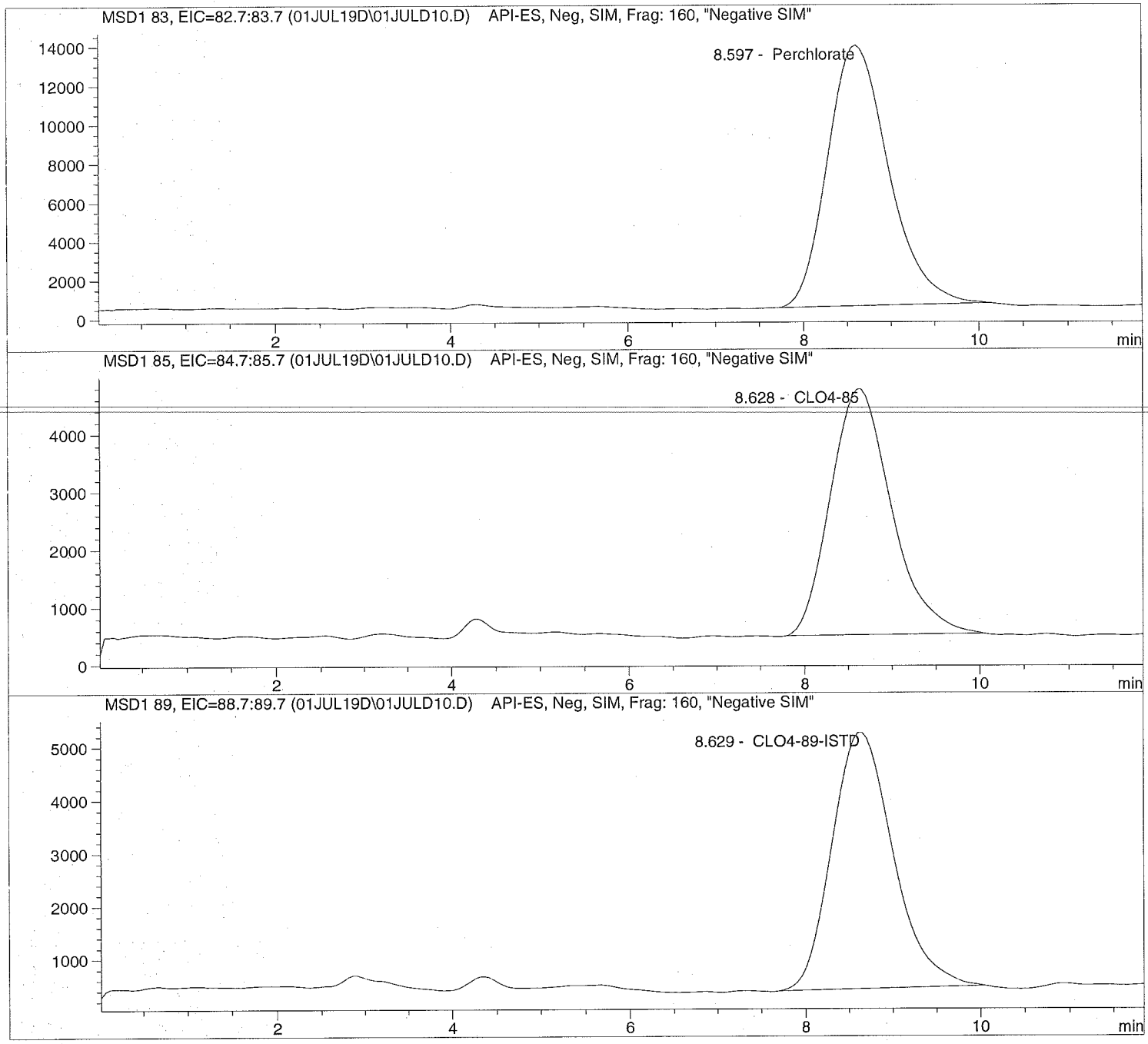
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD10.D Sample Name: 1917698006 MSD

Injection Date:	7/01/2019 10:43:07	Seq Line:	10
Sample Name:	1917698006 MSD	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD10.D Sample Name: 1917698006 MSD

Injection Date:	7/01/2019 10:43:07	Seq Line:	10
Sample Name:	1917698006 MSD	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.597	PBA	651481.5	8808.9698	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.628	BBA	206556.3	9281.2867	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.629	PBA	235827.1	5000.0000	CLO4-89-ISTD

*** End of Report ***

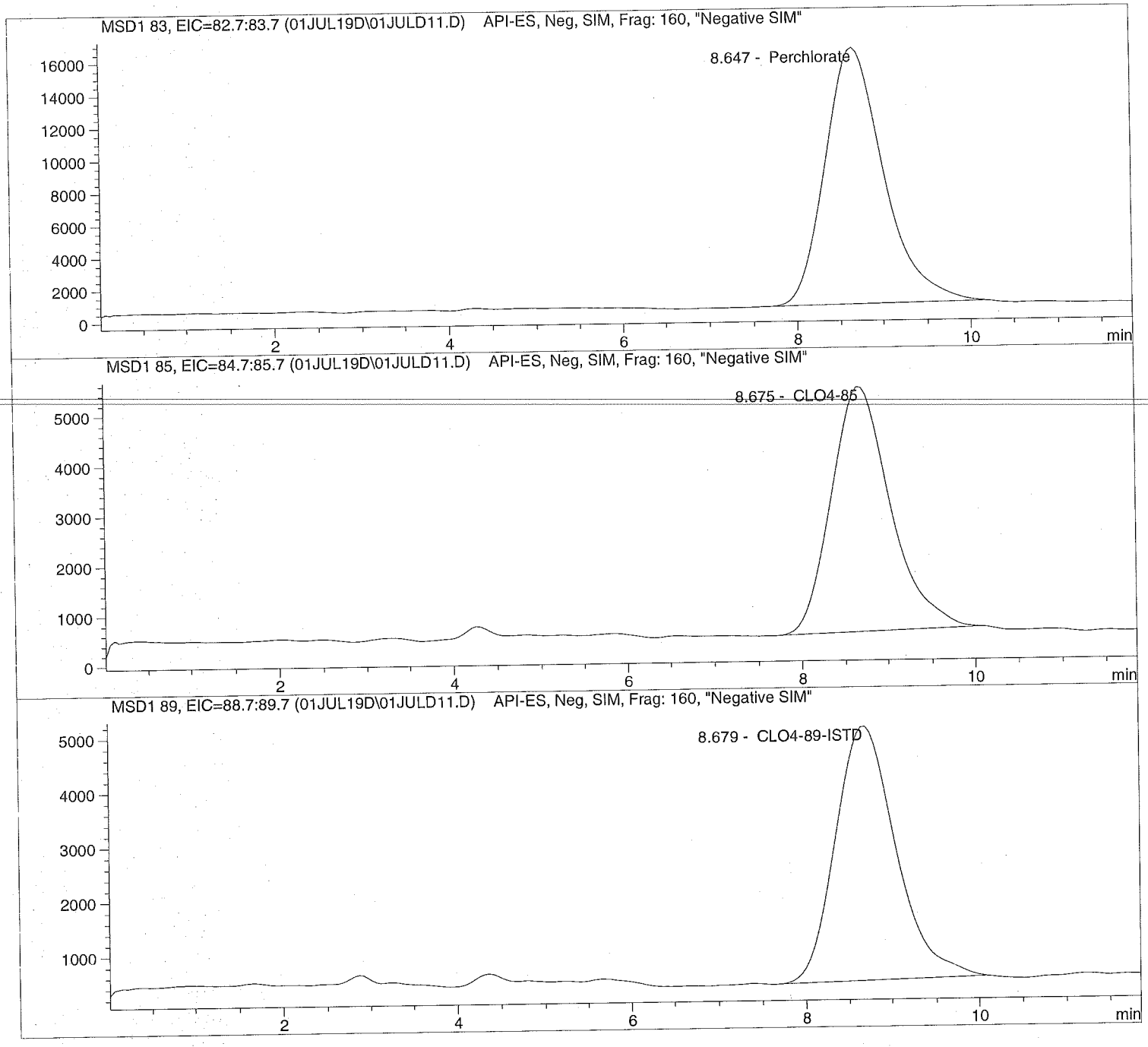
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD11.D Sample Name: 1917698007 1K

Injection Date:	7/01/2019 10:56:59	Seq Line:	11
Sample Name:	1917698007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD11.D Sample Name: 1917698007 1K

Injection Date:	7/01/2019 10:56:59	Seq Line:	11
Sample Name:	1917698007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.647	PBA	747887.6	10411.1564	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.675	PBA	234170.4	10865.1642	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.679	PBA	227614.9	5000.0000	CLO4-89-ISTD

*** End of Report ***

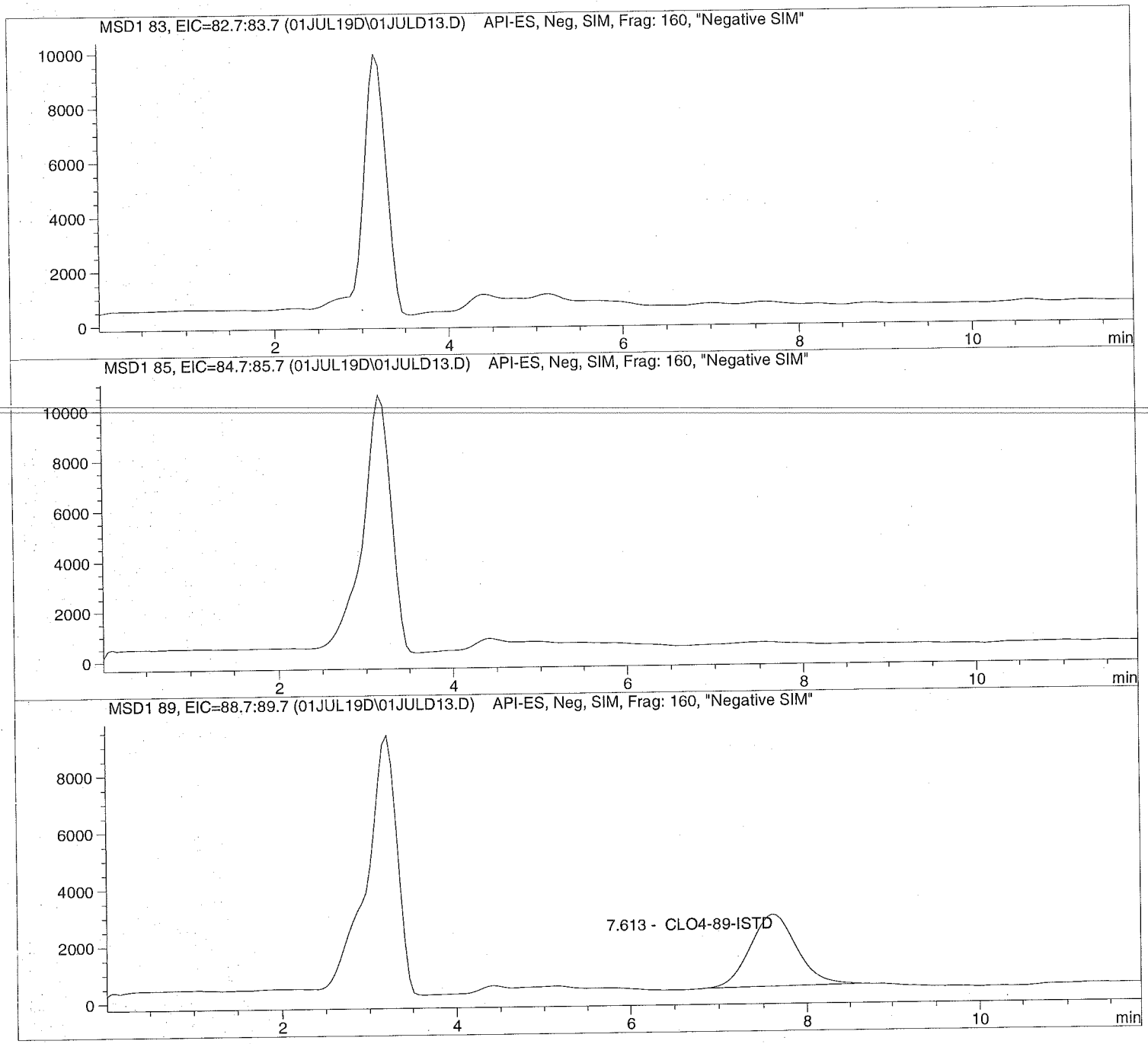
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD13.D Sample Name: 1917856001

Injection Date:	7/01/2019 11:24:46	Seq Line:	13
Sample Name:	1917856001	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD13.D Sample Name: 1917856001

Injection Date:	7/01/2019 11:24:46	Seq Line:	13
Sample Name:	1917856001	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.613	PBA	93134.2	5.0000	CLO4-89-ISTD

*** End of Report ***

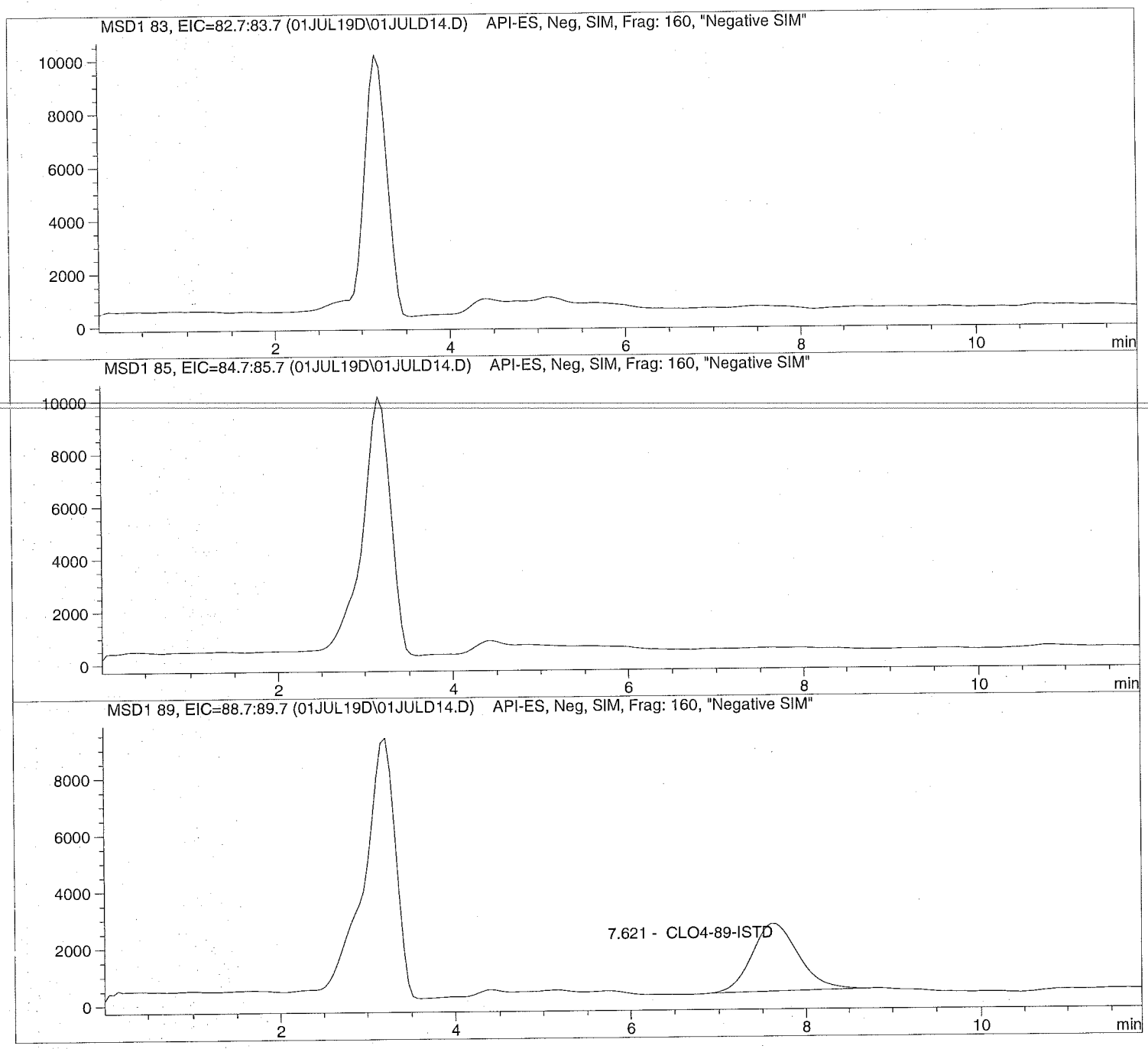
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD14.D Sample Name: 1917856002

Injection Date:	7/01/2019 11:38:38	Seq Line:	14
Sample Name:	1917856002	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD14.D Sample Name: 1917856002

Injection Date:	7/01/2019 11:38:38	Seq Line:	14
Sample Name:	1917856002	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.621	PBA	87949.8	5.0000	CLO4-89-ISTD

*** End of Report ***

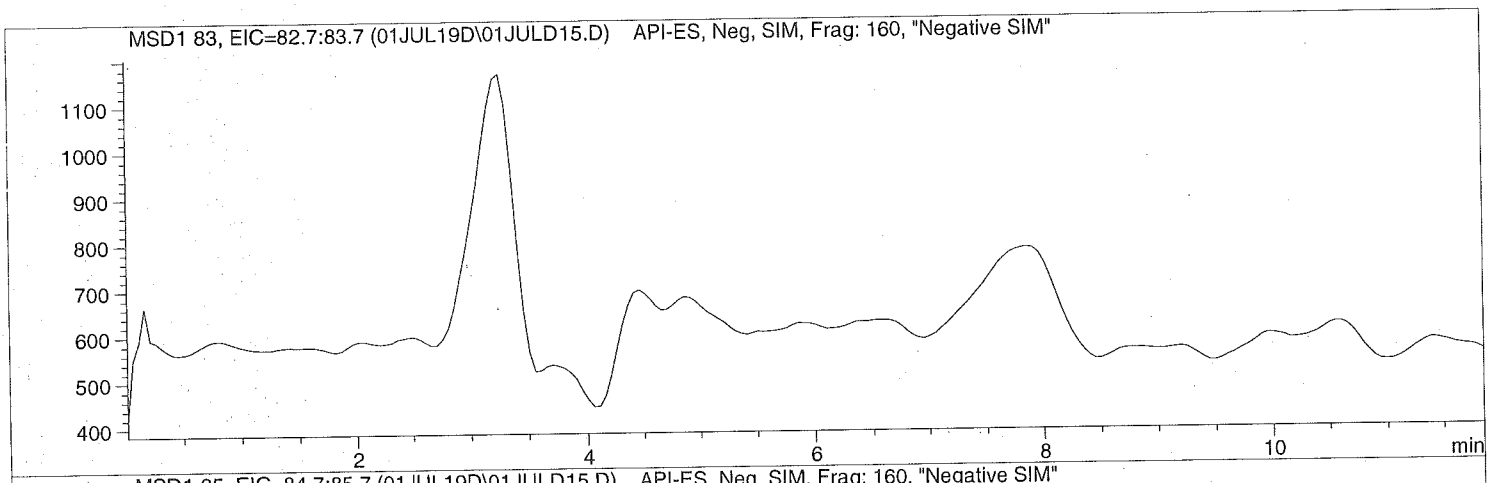
RIGHT SOLUTIONS | RIGHT PARTNER

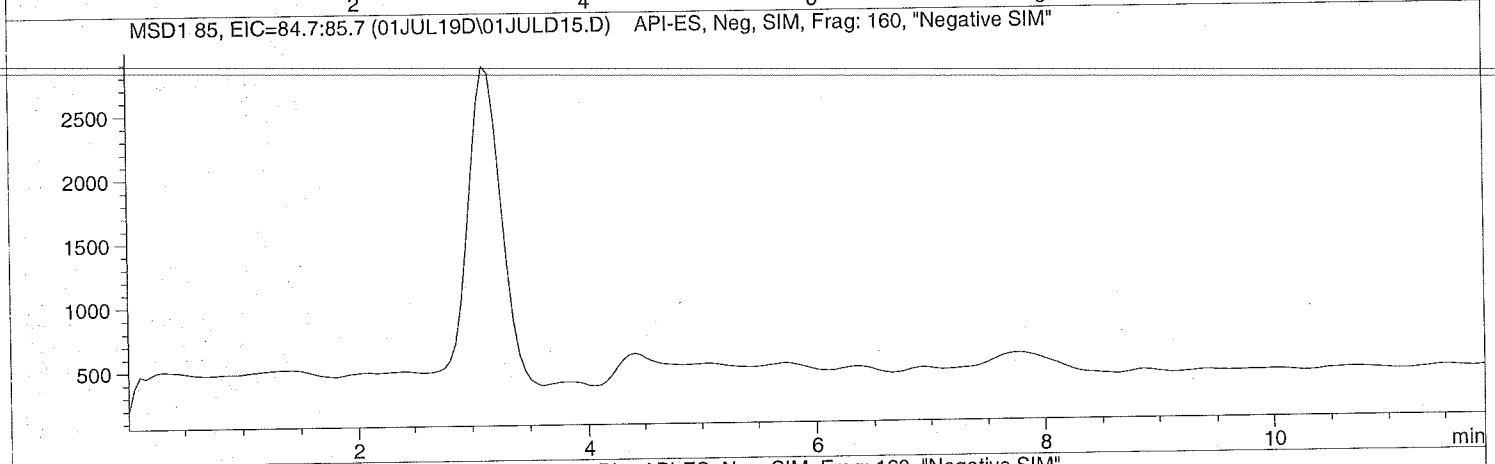
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD15.D Sample Name: 1917856003

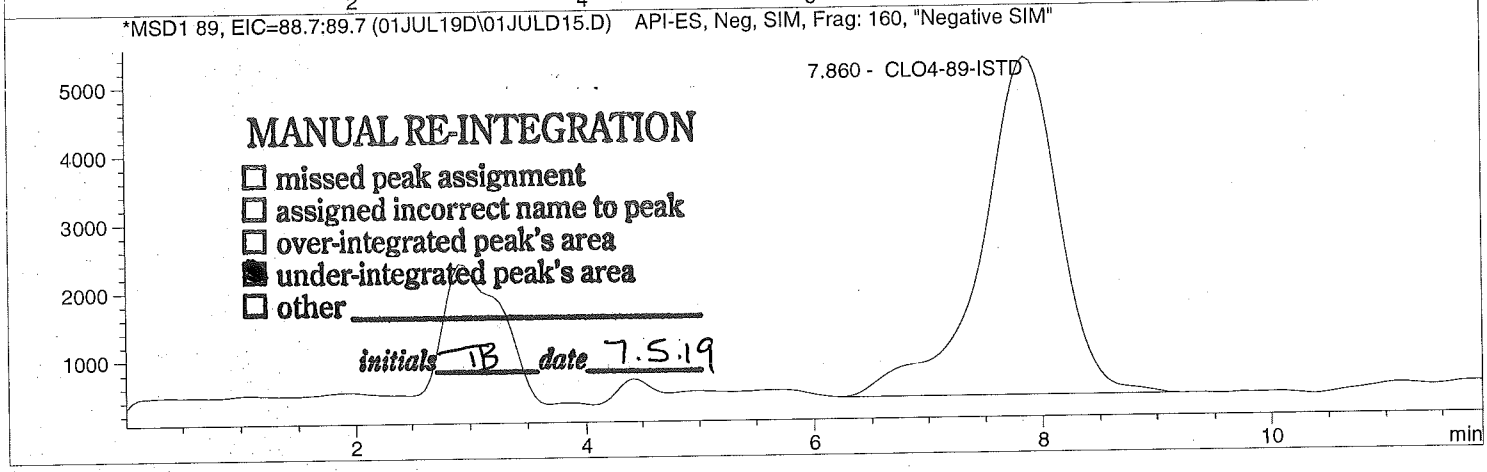
Injection Date:	7/01/2019 11:52:34	Seq Line:	15
Sample Name:	1917856003	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ☐ other _____

initials TB date 7.5.19

RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD15.D Sample Name: 1917856003

Injection Date:	7/01/2019 11:52:34	Seq Line:	15
Sample Name:	1917856003	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.860	MM	230973.5	5.0000	CLO4-89-ISTD

*** End of Report ***

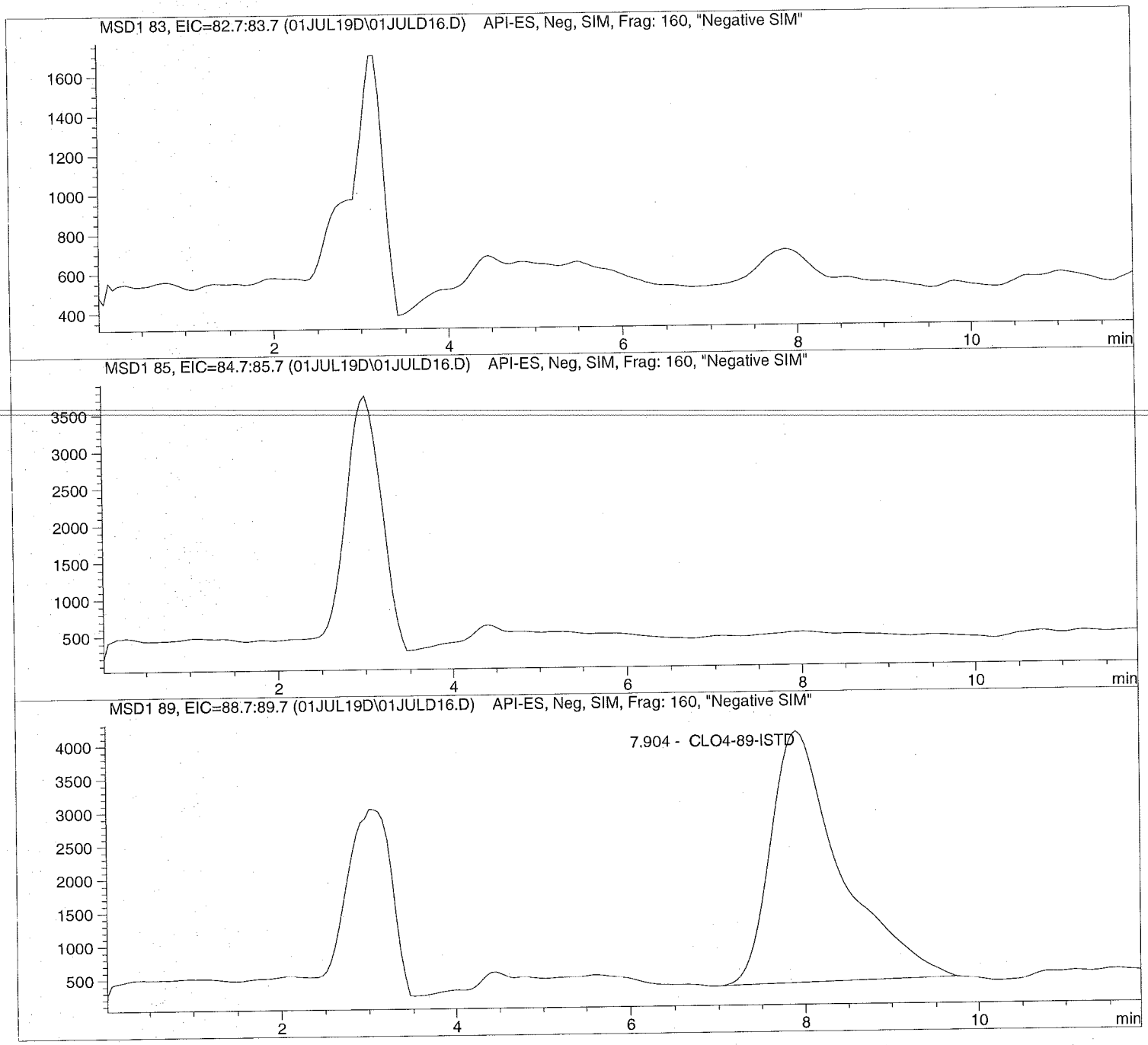
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD16.D Sample Name: 1917856004

Injection Date:	7/01/2019 12:06:28	Seq Line:	16
Sample Name:	1917856004	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD16.D Sample Name: 1917856004

Injection Date:	7/01/2019 12:06:28	Seq Line:	16
Sample Name:	1917856004	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.904	PBA	208544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

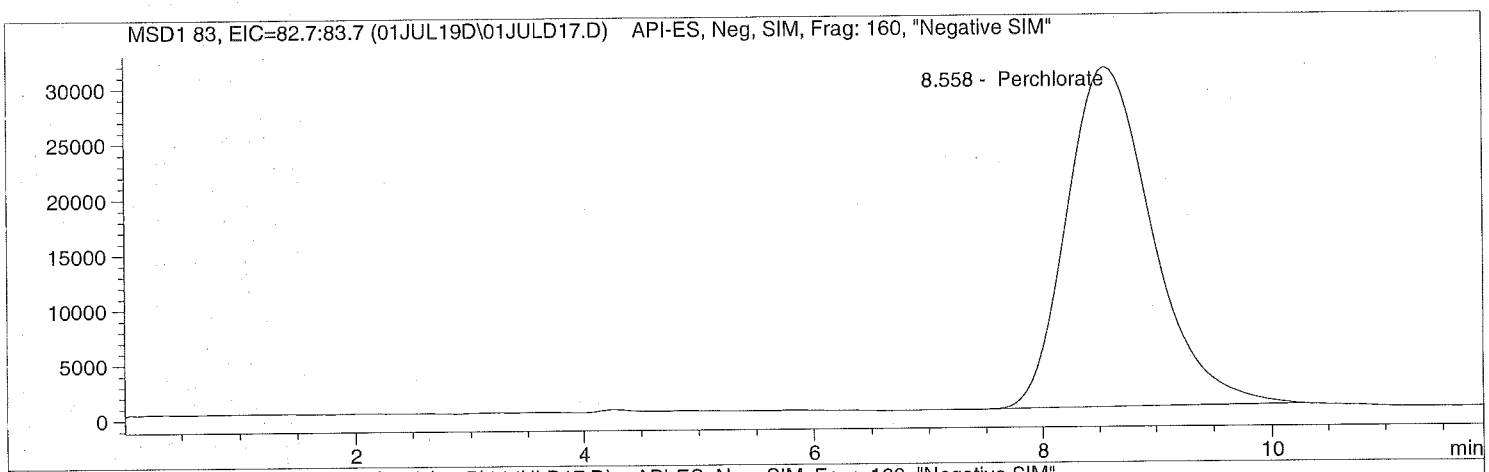
RIGHT SOLUTIONS | RIGHT PARTNER

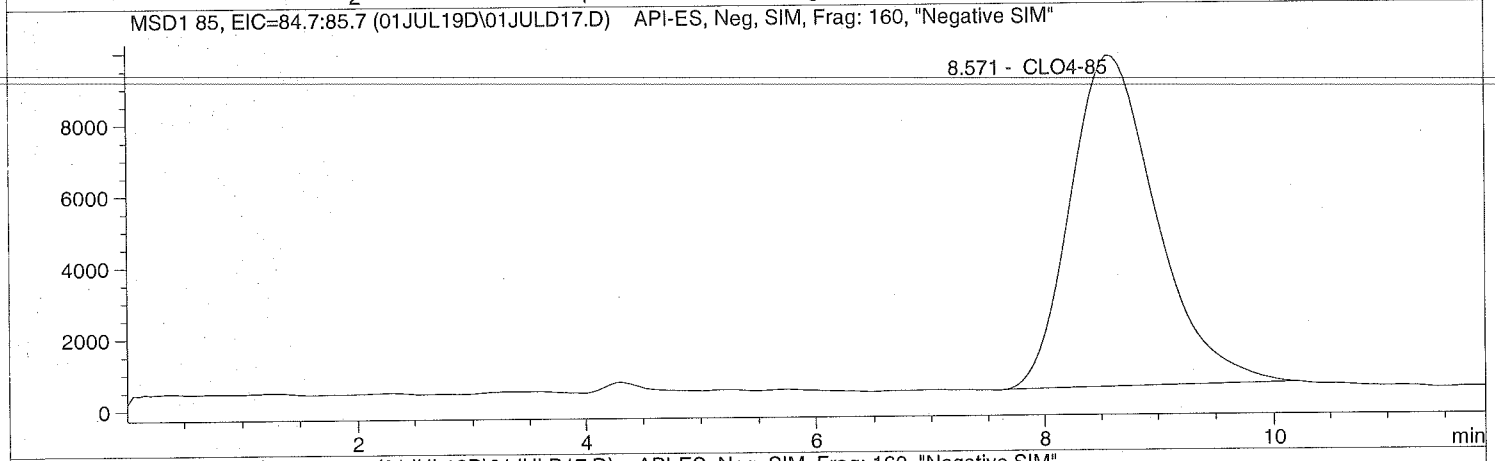
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD17.D Sample Name: 661482 CCV@25

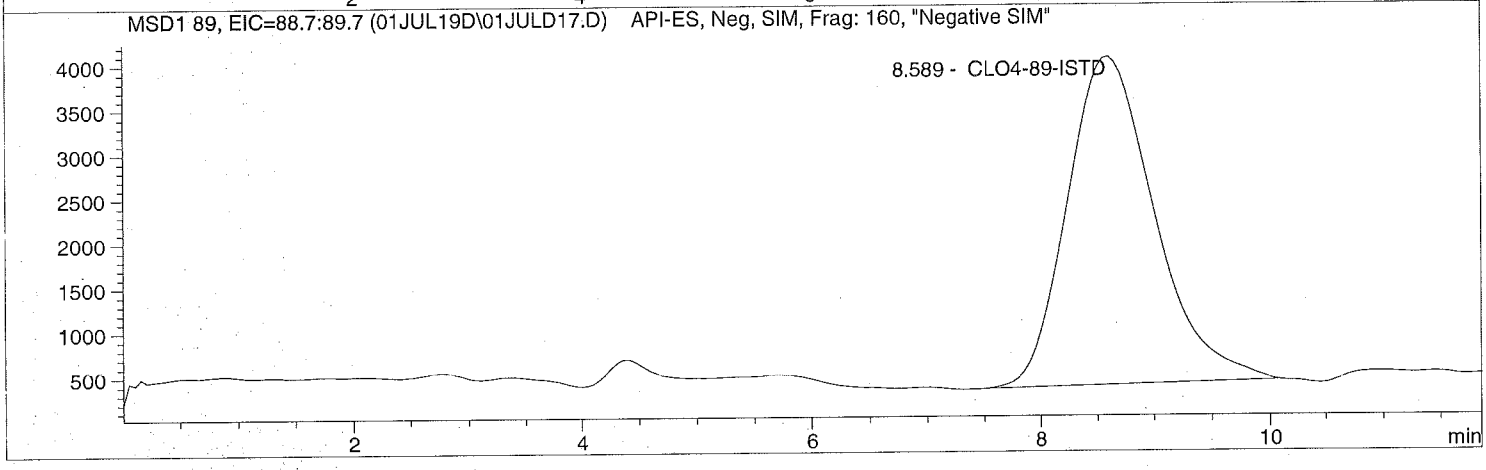
Injection Date:	7/01/2019 12:20:29	Seq Line:	17
Sample Name:	661482 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD17.D Sample Name: 661482 CCV@25

Injection Date:	7/01/2019 12:20:29	Seq Line:	17
Sample Name:	661482 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.558	PBA	1604090.1	25.0035	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.571	PBA	485334.3	25.4617	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.589	PBA	195182.3	5.0000	CLO4-89-ISTD

*** End of Report ***

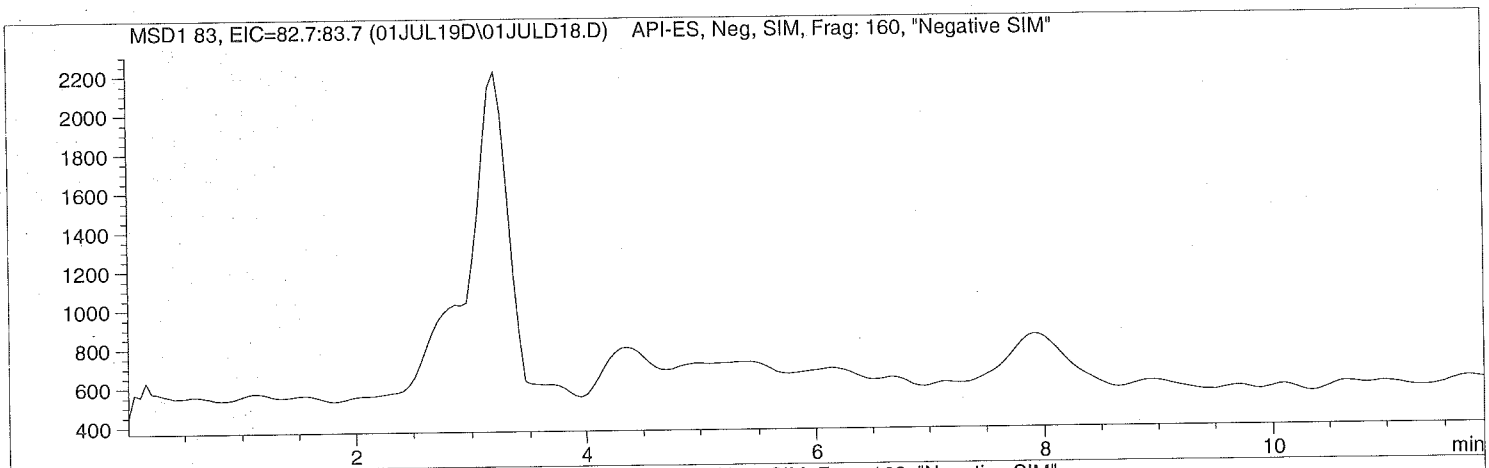
RIGHT SOLUTIONS | RIGHT PARTNER

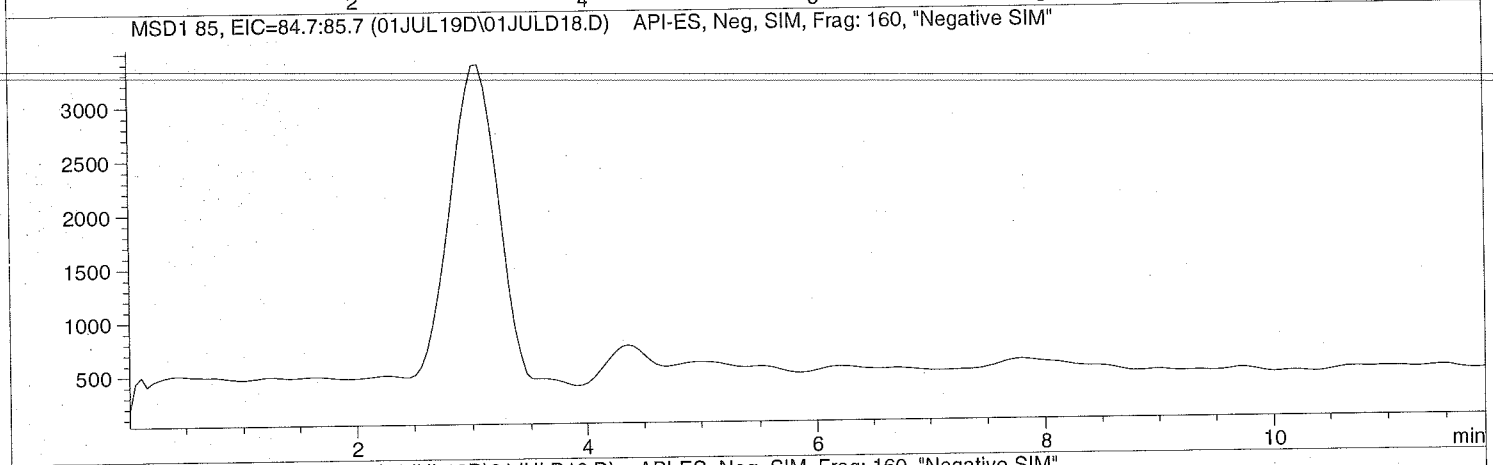
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD18.D Sample Name: 1917856005

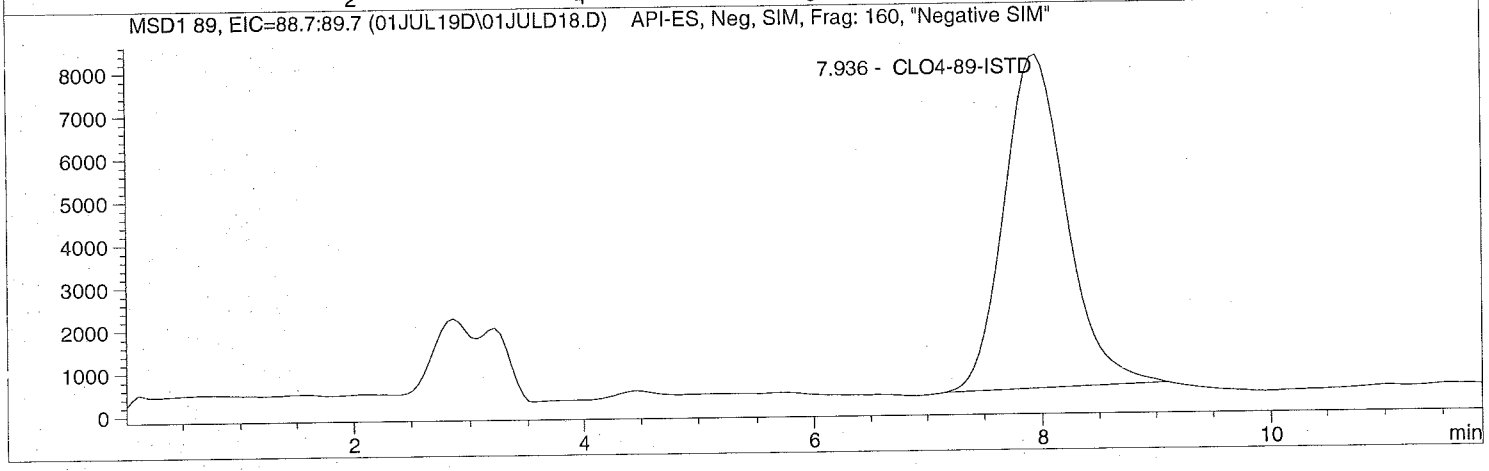
Injection Date:	7/01/2019 12:34:22	Seq Line:	18
Sample Name:	1917856005	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD18.D Sample Name: 1917856005

Injection Date:	7/01/2019 12:34:22	Seq Line:	18
Sample Name:	1917856005	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.936	PBA	292027.4	5.0000	CLO4-89-ISTD

*** End of Report ***

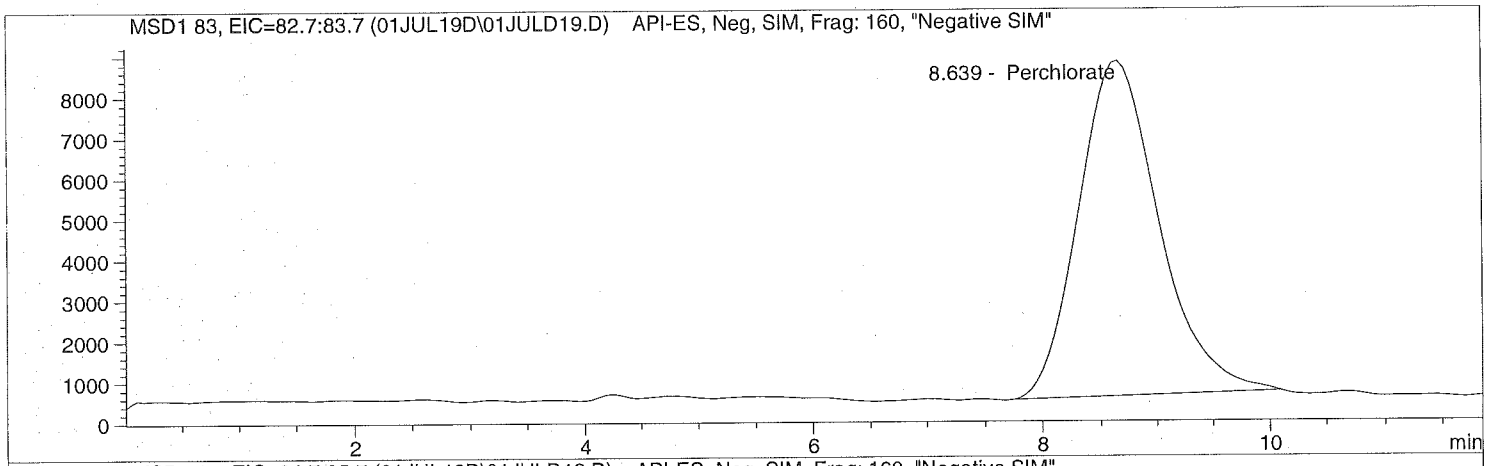
RIGHT SOLUTIONS | RIGHT PARTNER

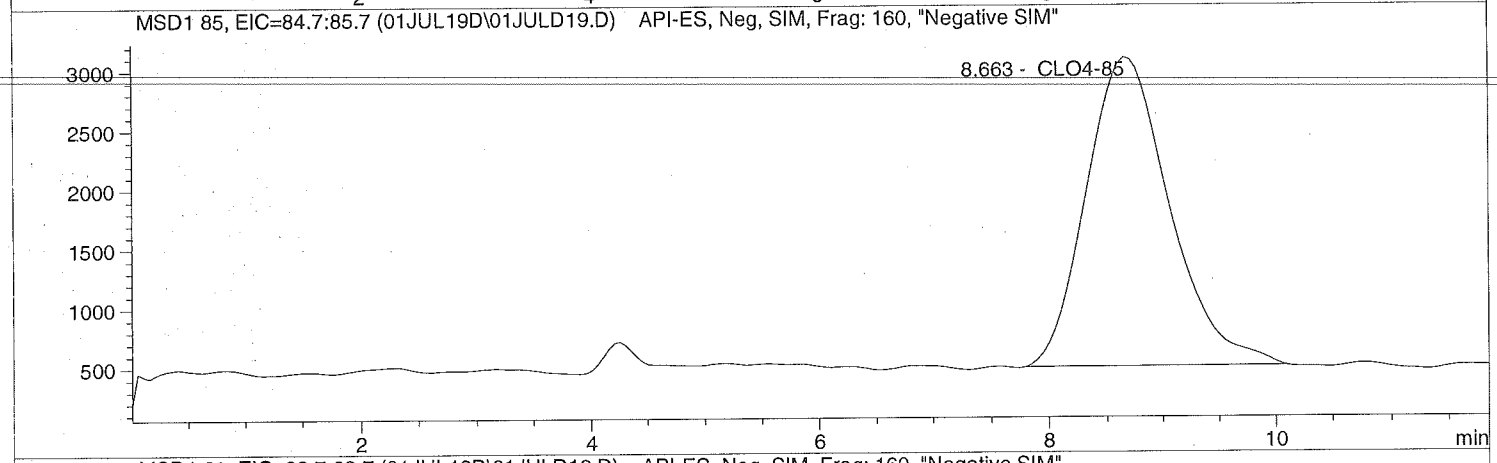
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD19.D Sample Name: 1917856006 100

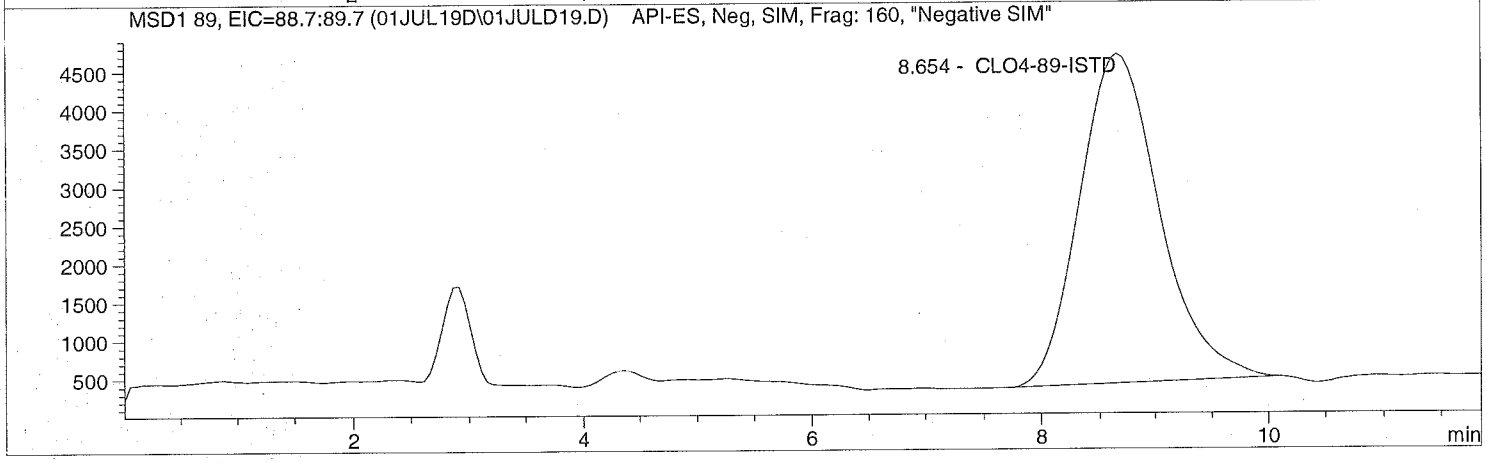
Injection Date:	7/01/2019 12:48:15	Seq Line:	19
Sample Name:	1917856006 100	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD19.D Sample Name: 1917856006 100

Injection Date:	7/01/2019 12:48:15	Seq Line:	19
Sample Name:	1917856006 100	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.639	PBA	403838.0	621.0643	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.663	BBA	132725.9	672.8711	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.654	PBA	210141.8	500.0000	CLO4-89-ISTD

*** End of Report ***

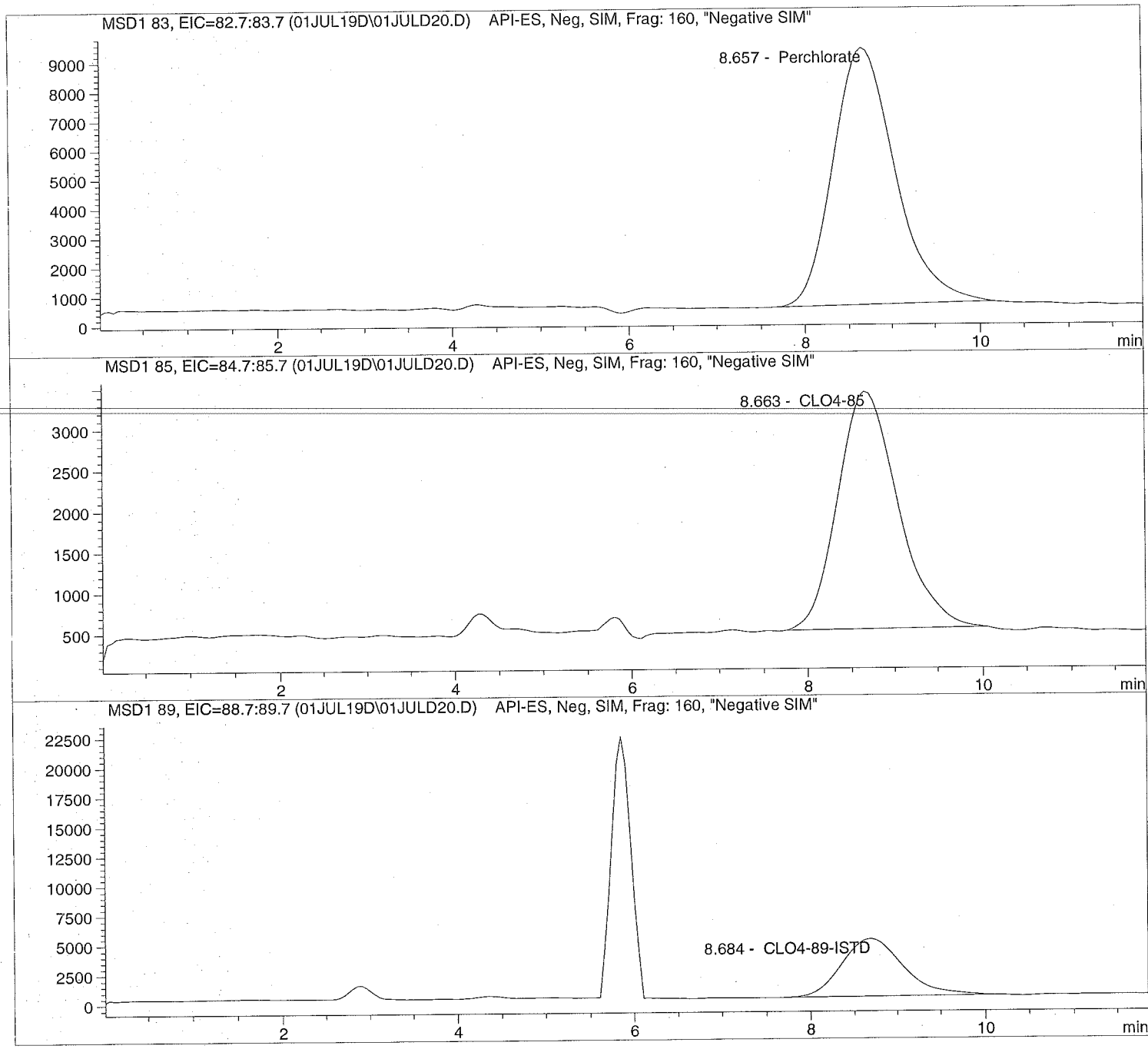
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD20.D Sample Name: 1917856007 100

Injection Date:	7/01/2019 13:02:10	Seq Line:	20
Sample Name:	1917856007 100	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD20.D Sample Name: 1917856007 100

Injection Date:	7/01/2019 13:02:10	Seq Line:	20
Sample Name:	1917856007 100	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.657	PBA	434273.7	588.1581	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.663	BBA	140119.4	624.8207	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.684	PBA	239145.3	500.0000	CLO4-89-ISTD

*** End of Report ***

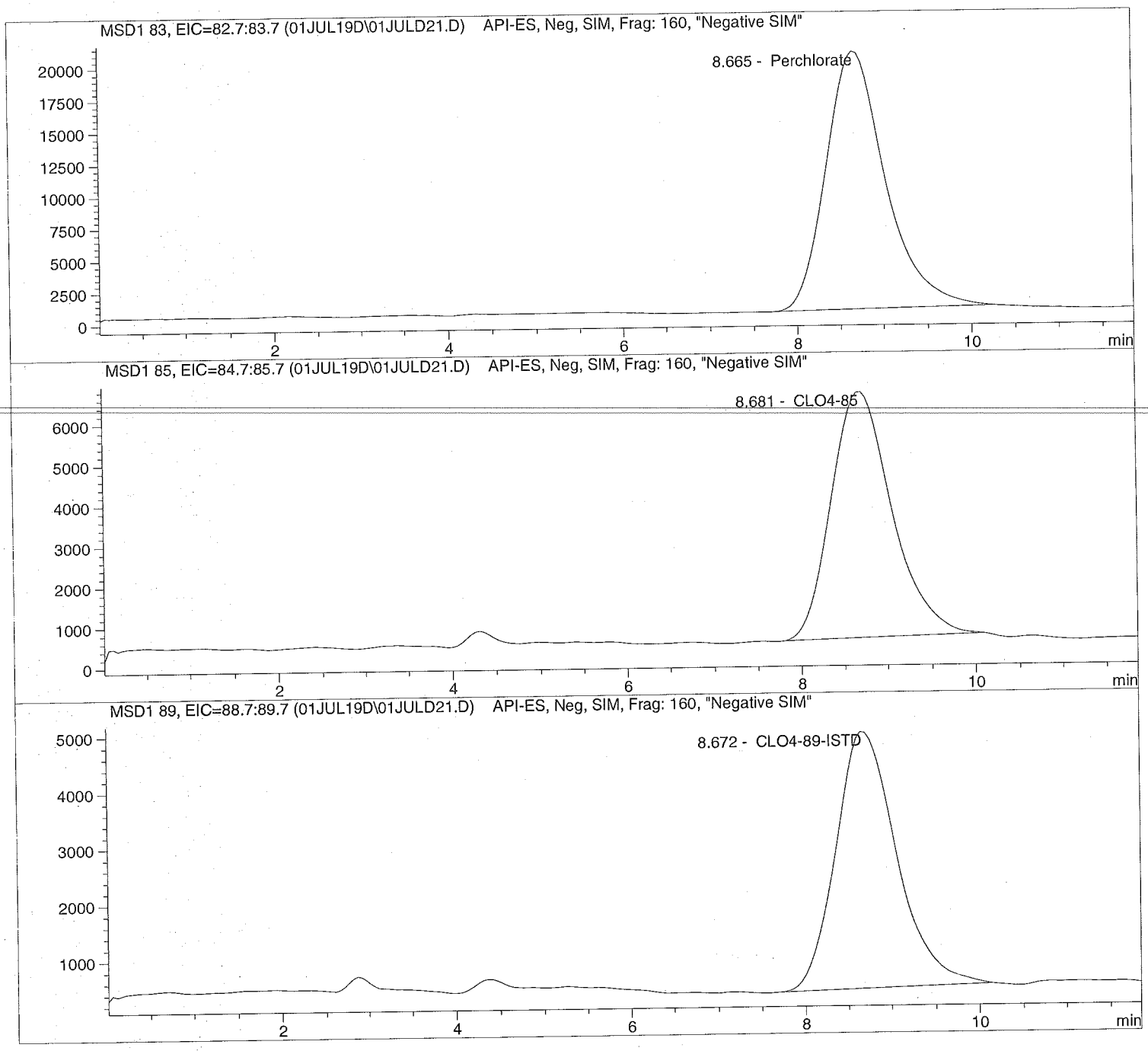
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD21.D Sample Name: 1918052001 1K

Injection Date:	7/01/2019 13:16:12	Seq Line:	21
Sample Name:	1918052001 1K	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD21.D Sample Name: 1918052001 1K

Injection Date:	7/01/2019 13:16:12	Seq Line:	21
Sample Name:	1918052001 1K	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.665	PBA	958578.9	13475.4930	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.681	PBA	295207.3	13884.7680	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.672	PBA	223102.2	5000.0000	CLO4-89-ISTD

*** End of Report ***

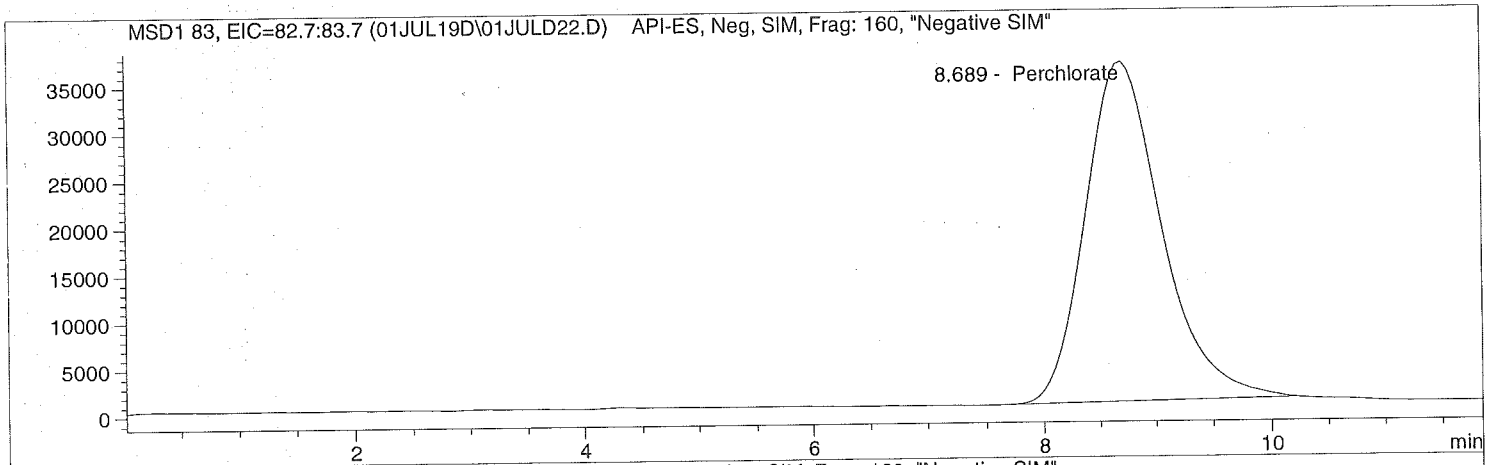
RIGHT SOLUTIONS | RIGHT PARTNER

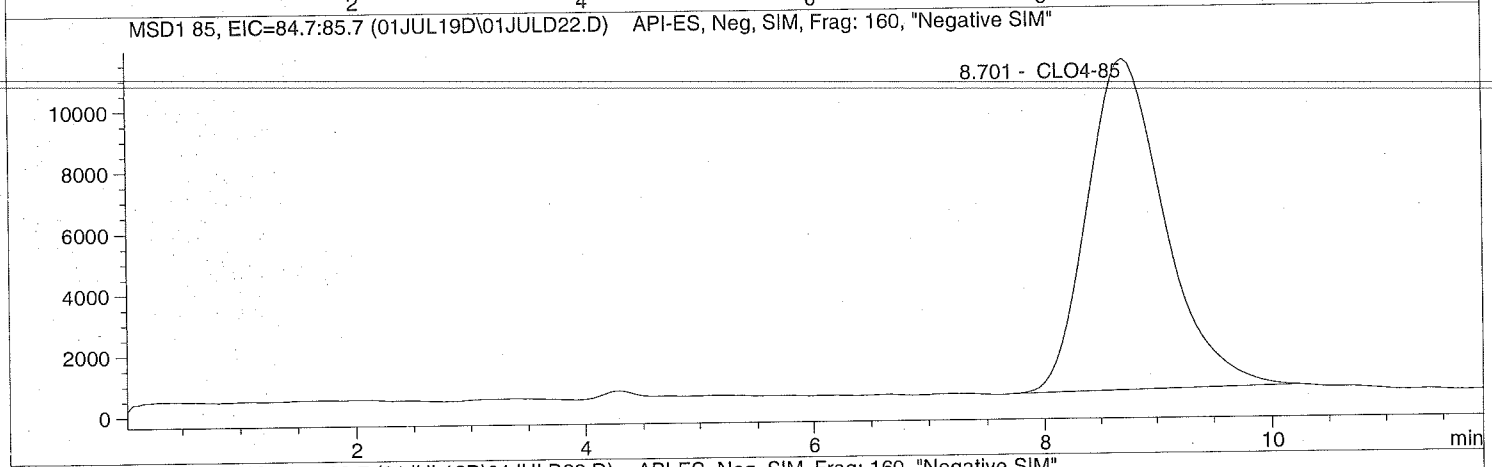
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD22.D Sample Name: 1918052002 10K

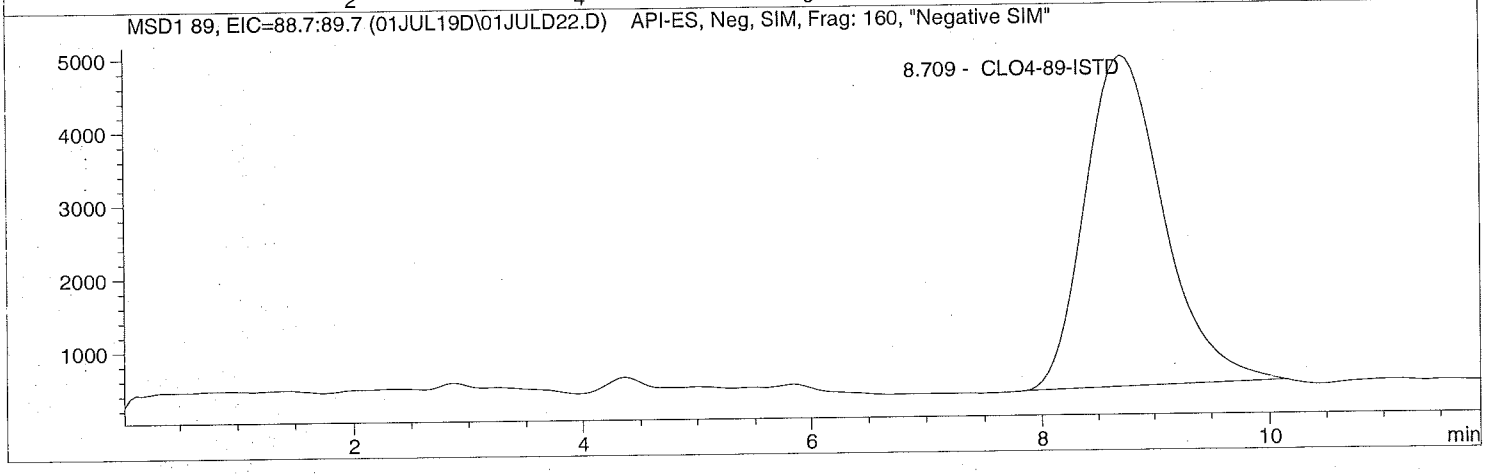
Injection Date:	7/01/2019 13:30:09	Seq Line:	22
Sample Name:	1918052002 10K	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD22.D Sample Name: 1918052002 10K

Injection Date:	7/01/2019 13:30:09	Seq Line:	22
Sample Name:	1918052002 10K	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.689	PBA	1701736.0	236511.4245	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.701	PBA	516167.1	241333.7557	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.709	PBA	219618.3	50000.0000	CLO4-89-ISTD

*** End of Report ***

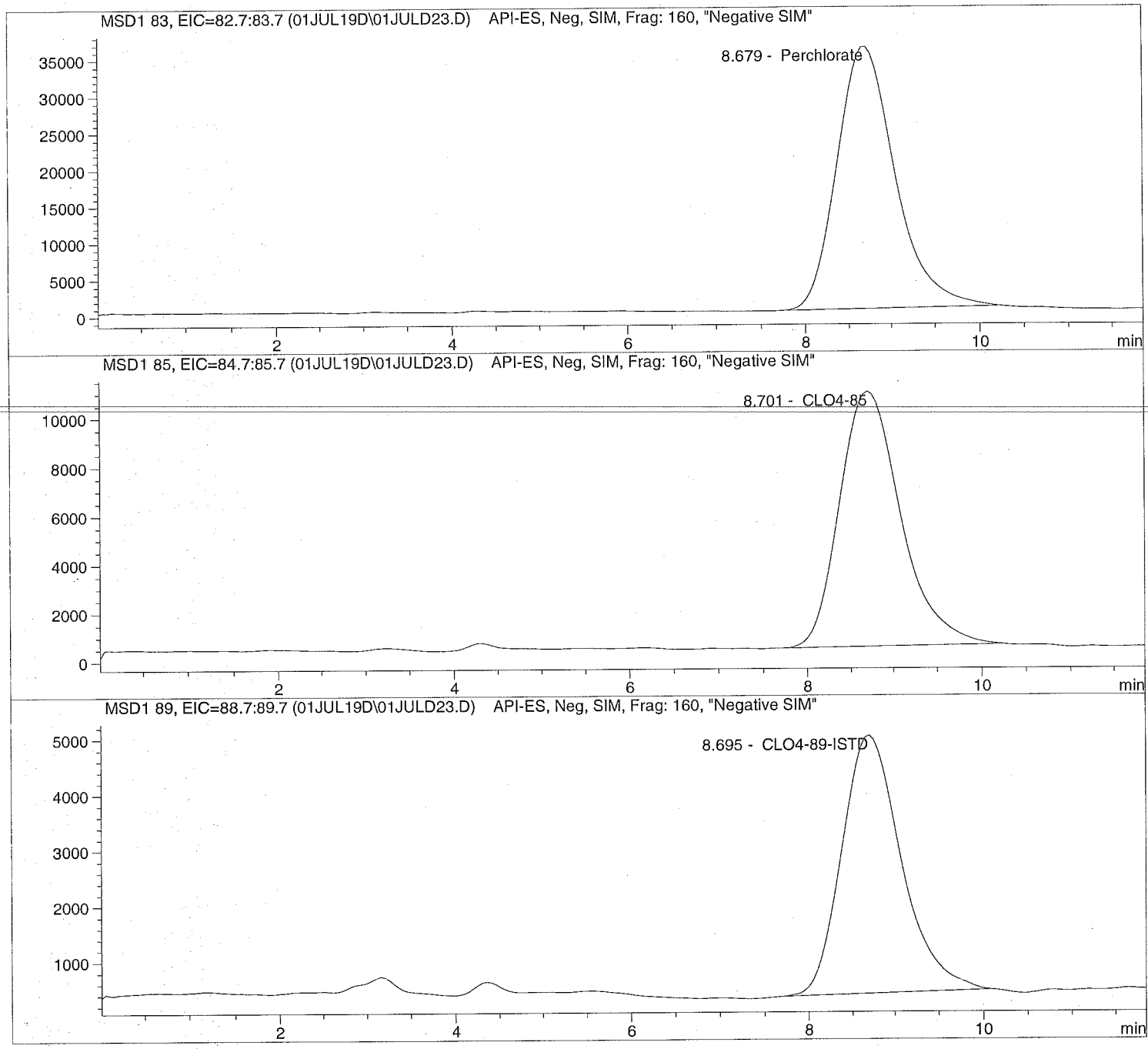
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD23.D Sample Name: 1918052003 10K

Injection Date:	7/01/2019 13:44:04	Seq Line:	23
Sample Name:	1918052003 10K	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD23.D Sample Name: 1918052003 10K

Injection Date:	7/01/2019 13:44:04	Seq Line:	23
Sample Name:	1918052003 10K	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.679	PBA	1682027.8	230798.4297	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.701	PBA	516999.9	238459.8445	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.695	PBA	222758.2	50000.0000	CLO4-89-ISTD

*** End of Report ***

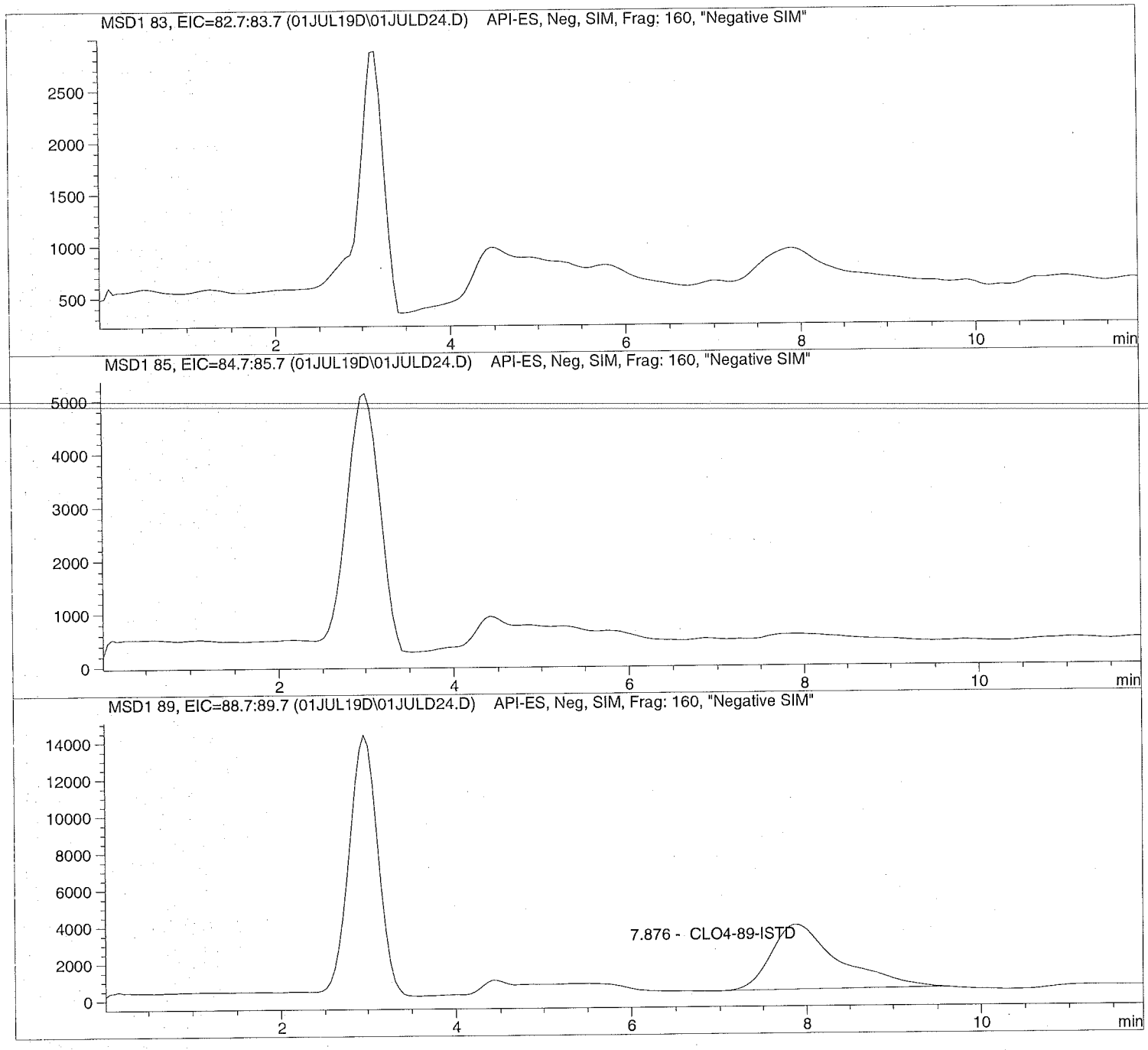
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD24.D Sample Name: 1918052004

Injection Date:	7/01/2019 13:57:58	Seq Line:	24
Sample Name:	1918052004	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD24.D Sample Name: 1918052004

Injection Date:	7/01/2019 13:57:58	Seq Line:	24
Sample Name:	1918052004	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.876	PBA	188746.5	5.0000	CLO4-89-ISTD

*** End of Report ***

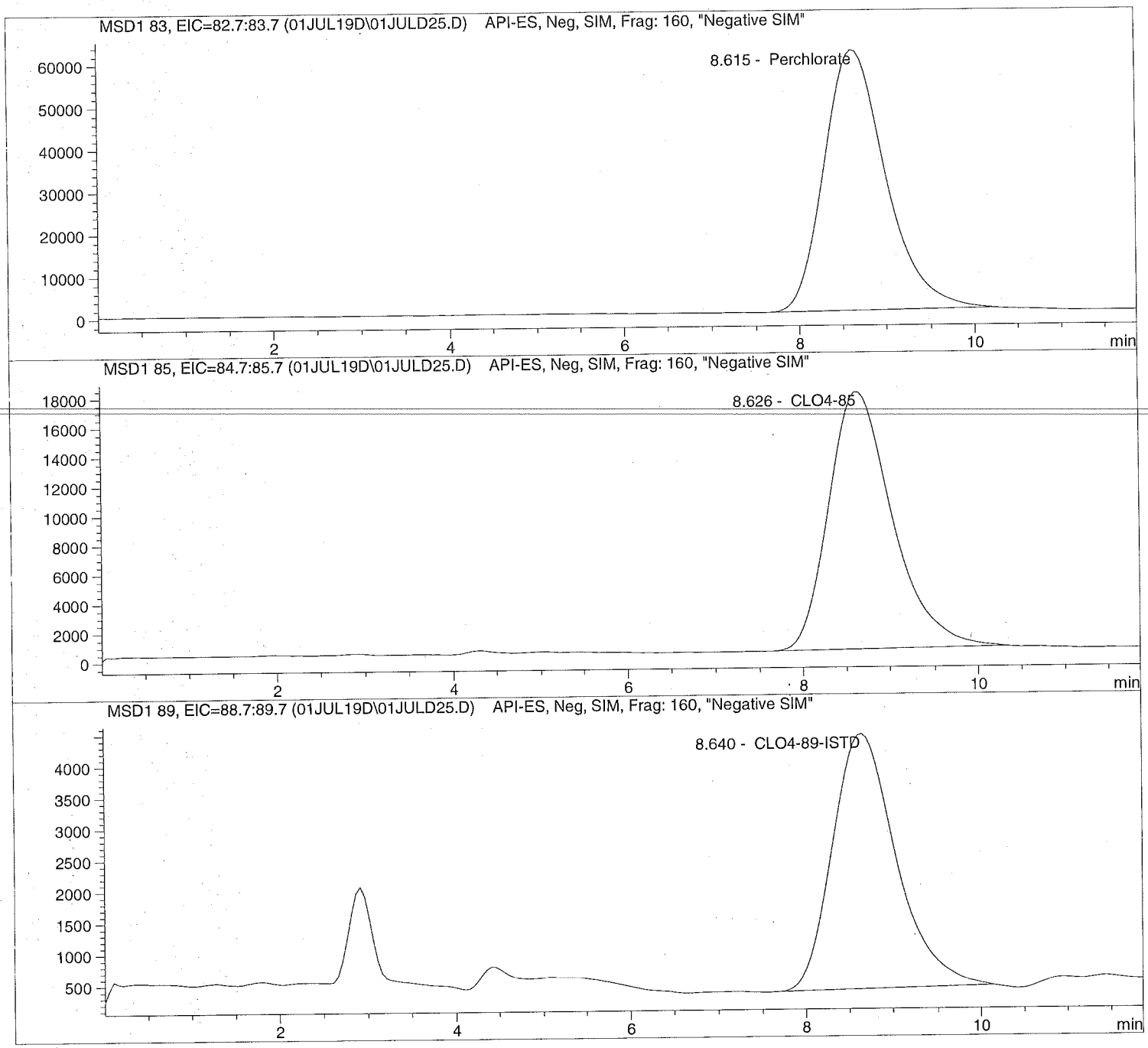
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD25.D Sample Name: 1917698003 100

Injection Date:	7/01/2019 14:11:59	Seq Line:	25
Sample Name:	1917698003 100	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD25.D Sample Name: 1917698003 100

Injection Date:	7/01/2019 14:11:59	Seq Line:	25
Sample Name:	1917698003 100	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.615	PBA	3021130.8	4300.6266	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.626	PBA	888075.5	4275.4049	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.640	PBA	205249.1	500.0000	CLO4-89-ISTD

*** End of Report ***

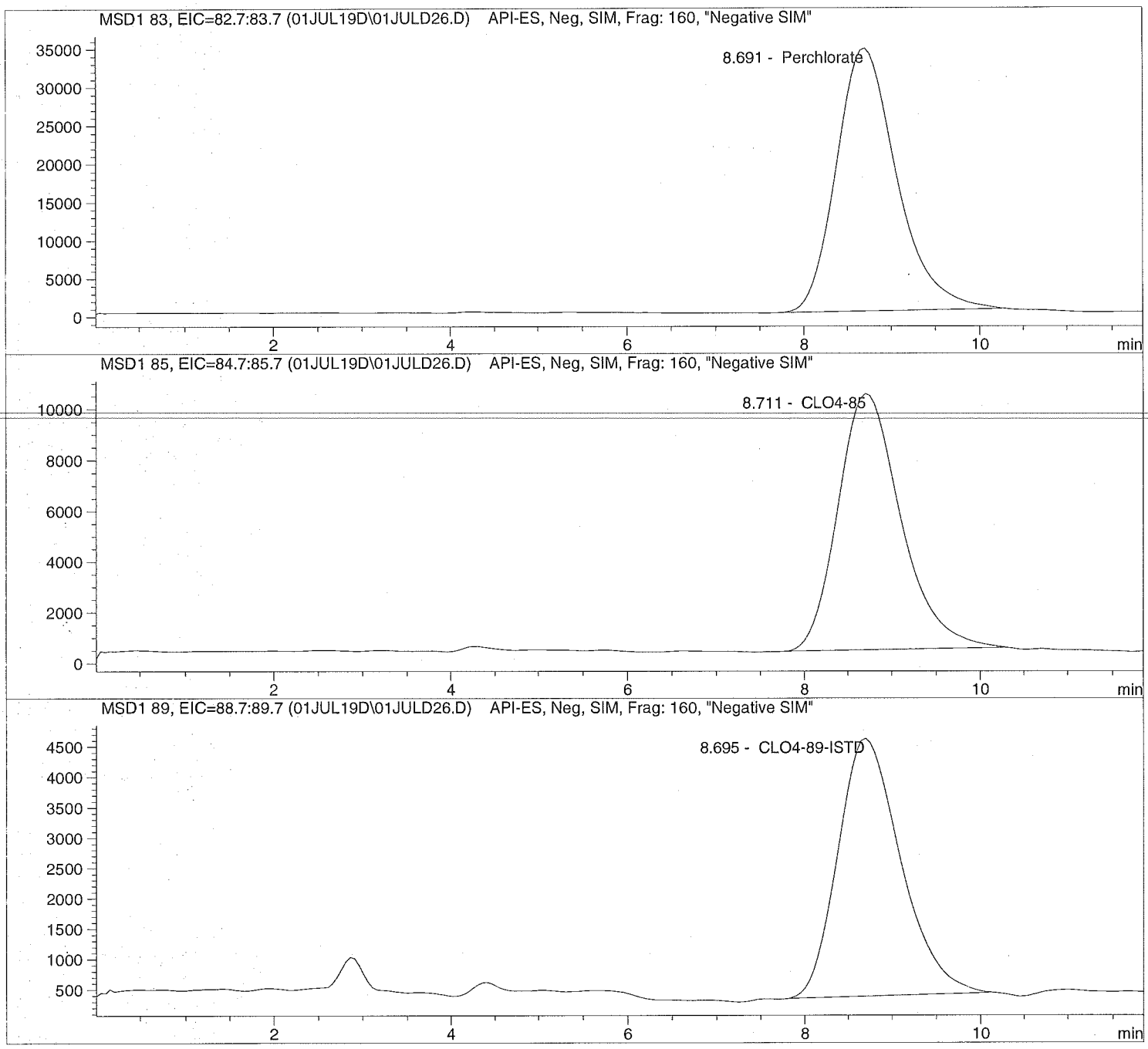
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD26.D Sample Name: 1917698008 1K

Injection Date:	7/01/2019 14:25:54	Seq Line:	26
Sample Name:	1917698008 1K	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD26.D Sample Name: 1917698008 1K

Injection Date:	7/01/2019 14:25:54	Seq Line:	26
Sample Name:	1917698008 1K	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.691	PBA	1640477.0	23731.5795	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.711	PBA	499687.1	24313.2650	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.695	PBA	210953.7	5000.0000	CLO4-89-ISTD

*** End of Report ***

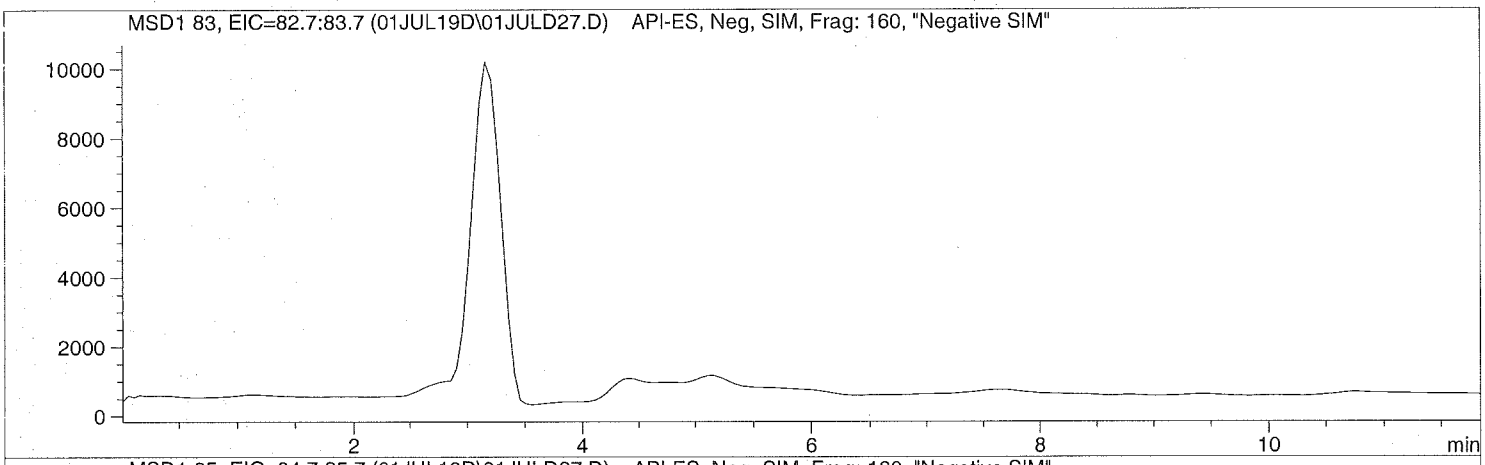
RIGHT SOLUTIONS | RIGHT PARTNER

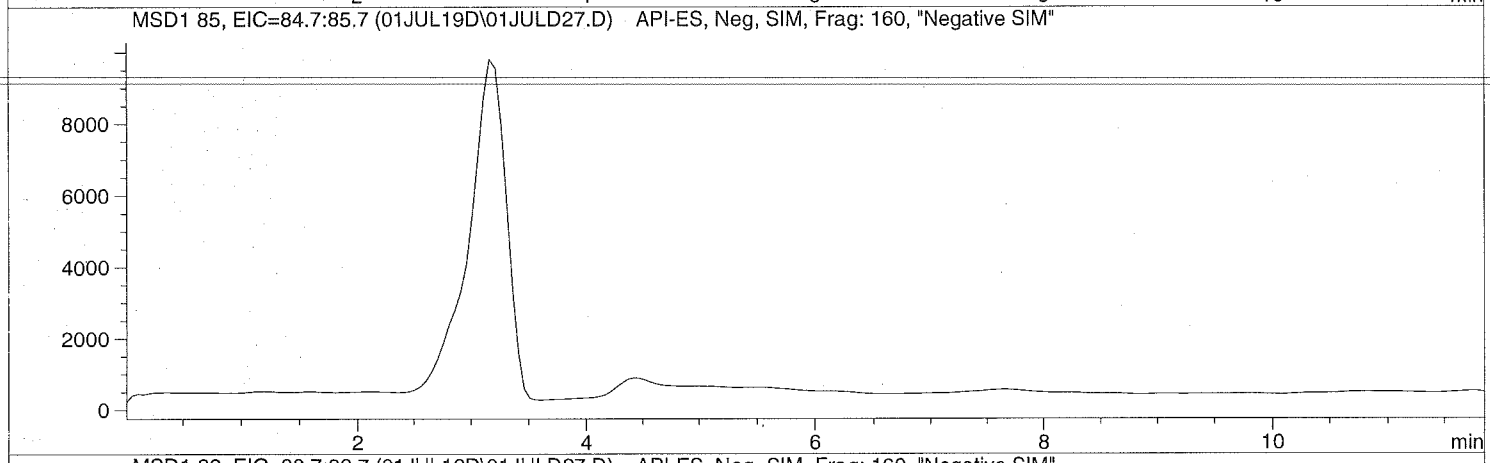
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD27.D Sample Name: 1917856001 RE

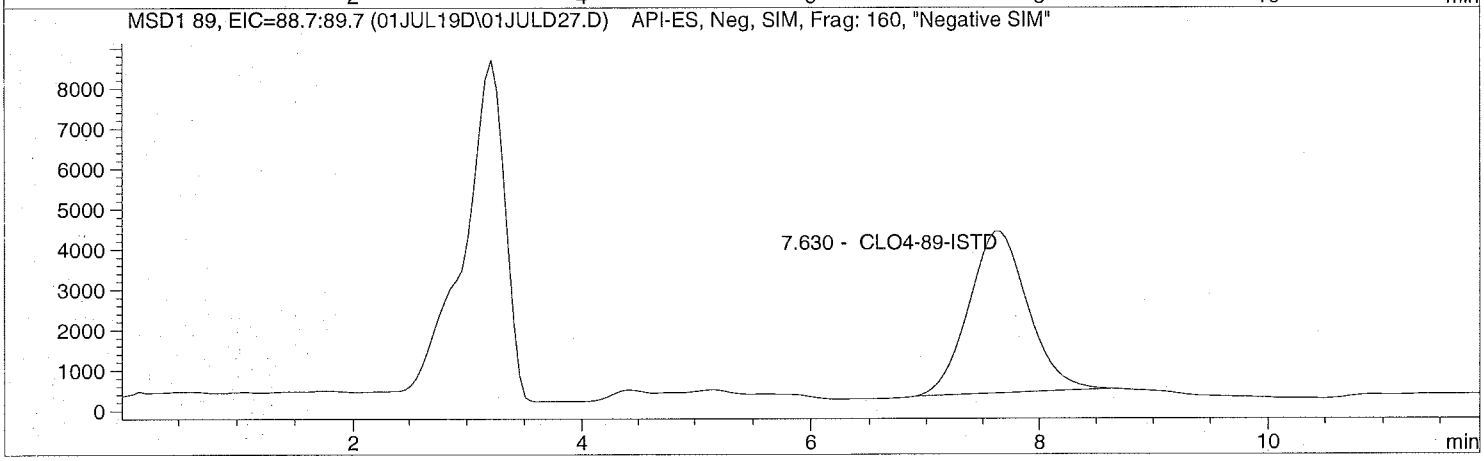
Injection Date:	7/01/2019 14:39:49	Seq Line:	27
Sample Name:	1917856001 RE	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD27.D Sample Name: 1917856001 RE

Injection Date:	7/01/2019 14:39:49	Seq Line:	27
Sample Name:	1917856001 RE	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.630	PBA	144962.0	5.0000	CLO4-89-ISTD

*** End of Report ***

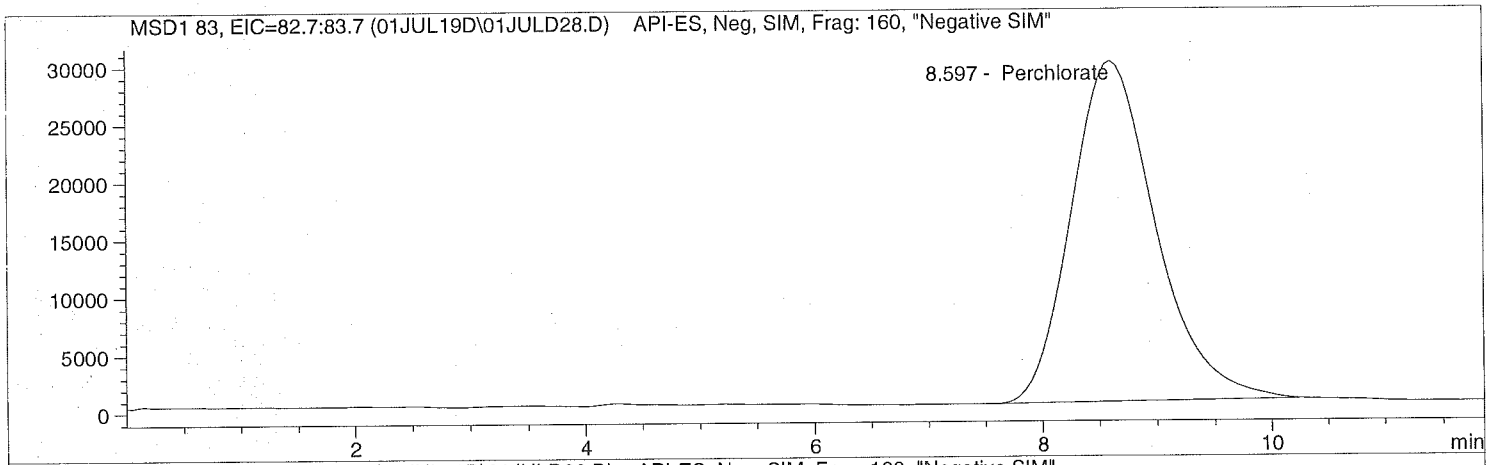
RIGHT SOLUTIONS | RIGHT PARTNER

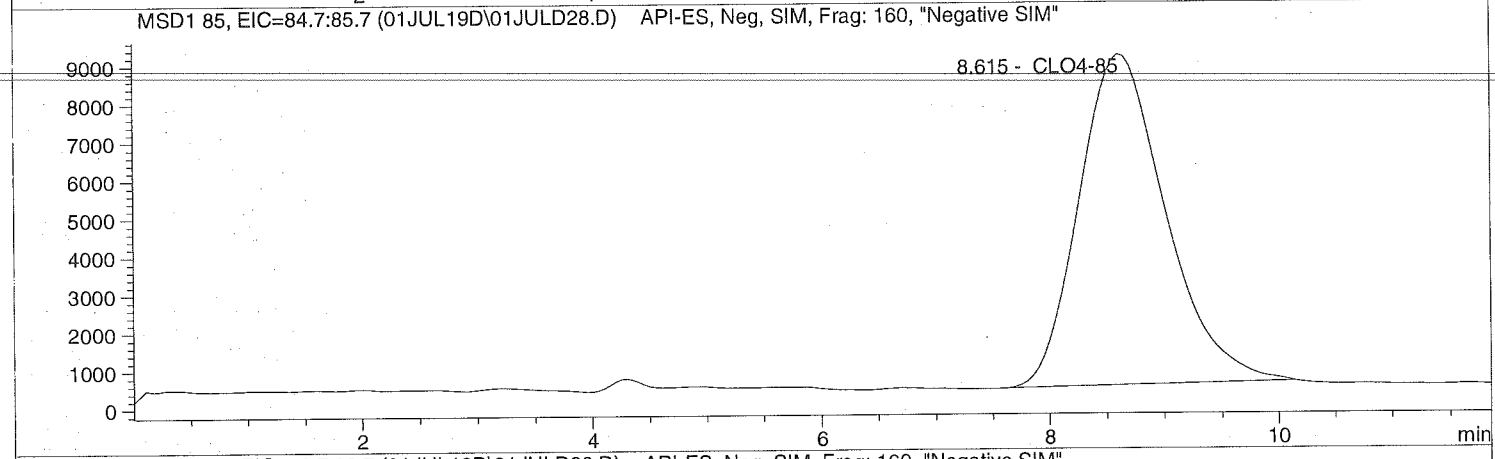
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD28.D Sample Name: 661483 CCV@25

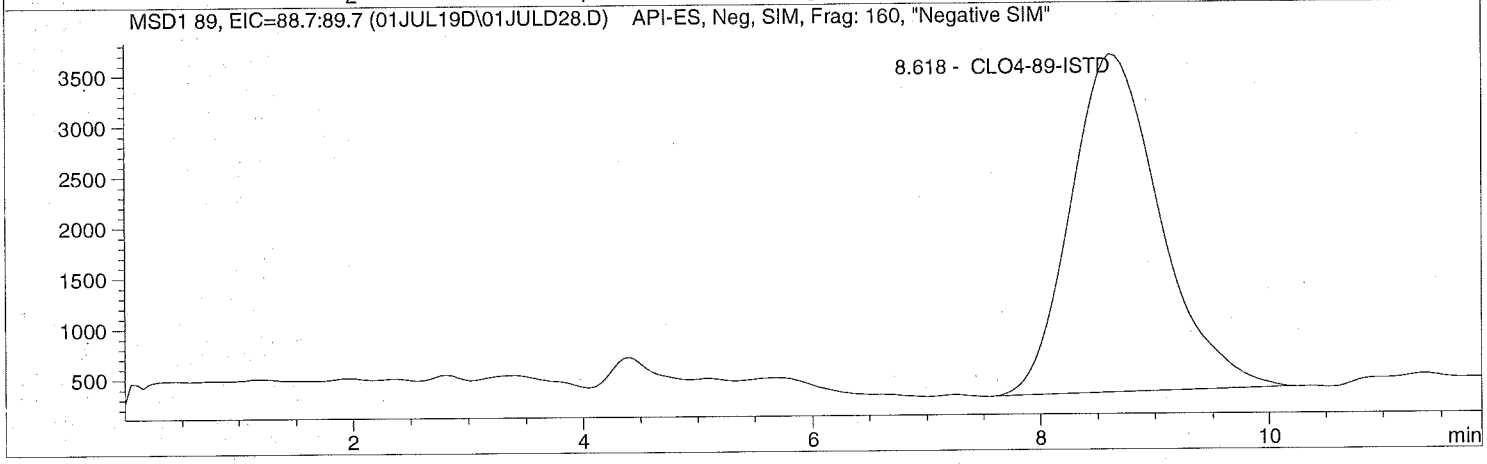
Injection Date:	7/01/2019 14:53:42	Seq Line:	28
Sample Name:	661483 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD28.D Sample Name: 661483 CCV@25

Injection Date:	7/01/2019 14:53:42	Seq Line:	28
Sample Name:	661483 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.597	PBA	1506029.6	25.4198	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.615	PBA	453099.1	25.7499	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.618	PBA	180069.9	5.0000	CLO4-89-ISTD

*** End of Report ***

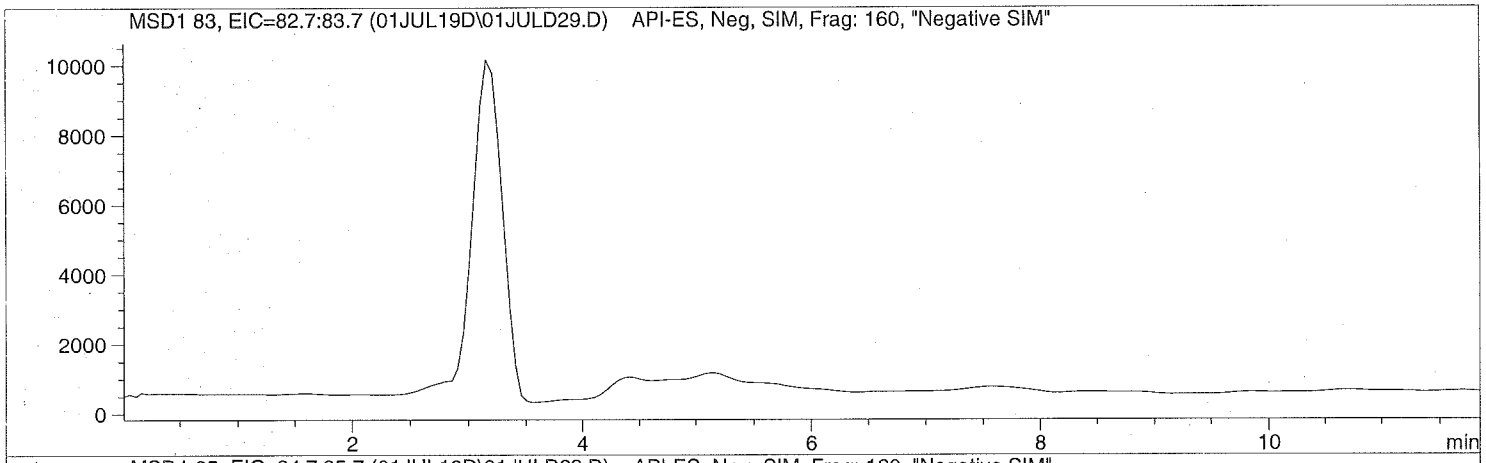
RIGHT SOLUTIONS | RIGHT PARTNER

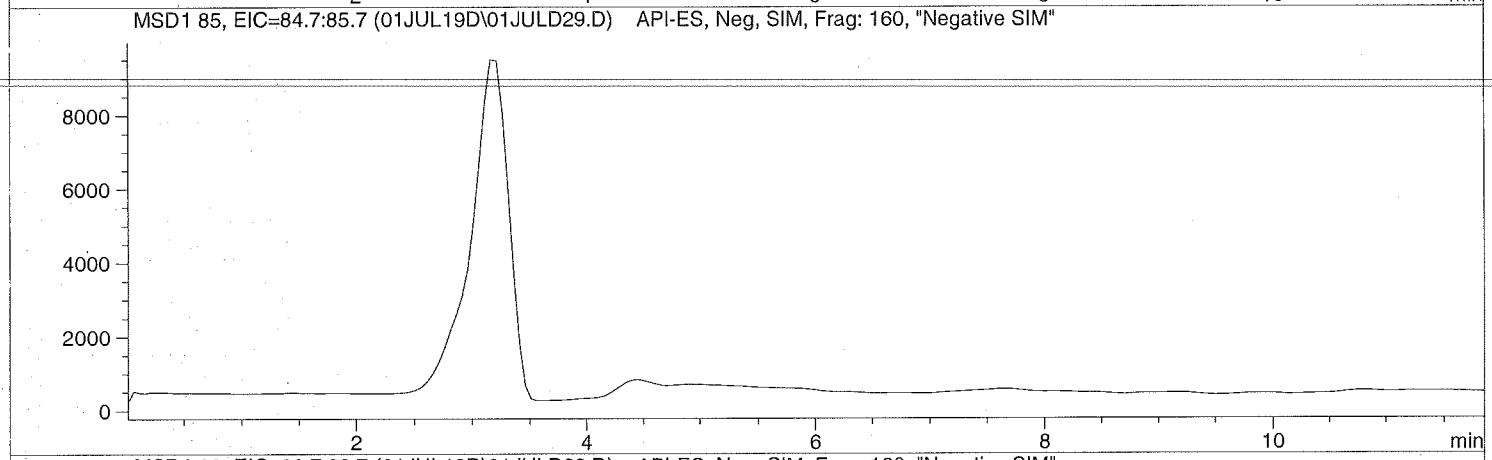
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD29.D Sample Name: 1917856002 RE

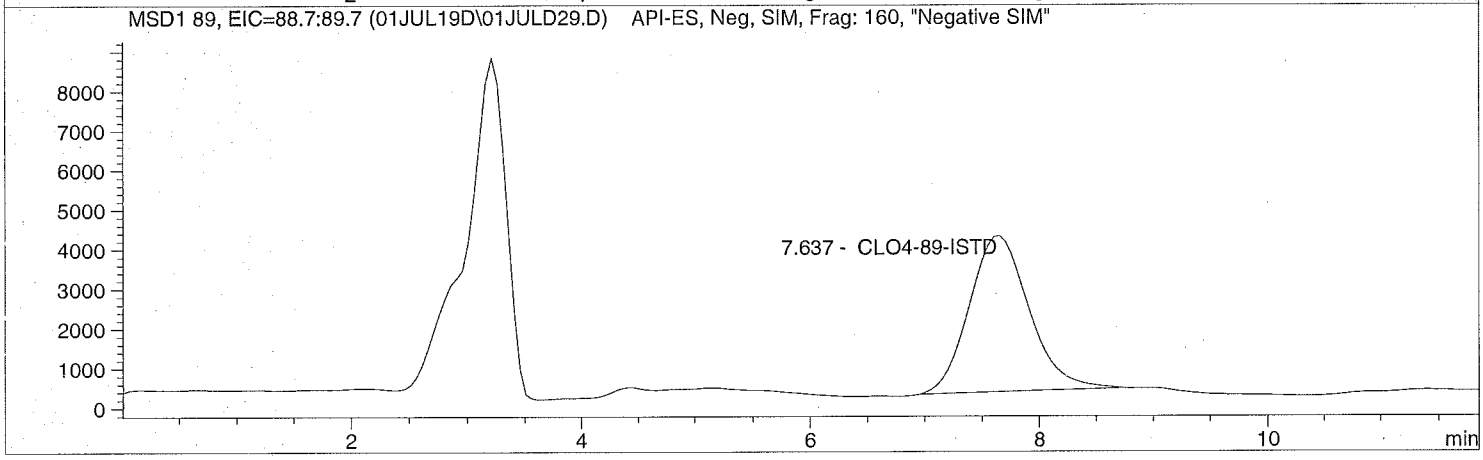
Injection Date:	7/01/2019 15:07:32	Seq Line:	29
Sample Name:	1917856002 RE	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD29.D Sample Name: 1917856002 RE

Injection Date:	7/01/2019 15:07:32	Seq Line:	29
Sample Name:	1917856002 RE	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.637	PBA	142651.0	5.0000	CLO4-89-ISTD

*** End of Report ***

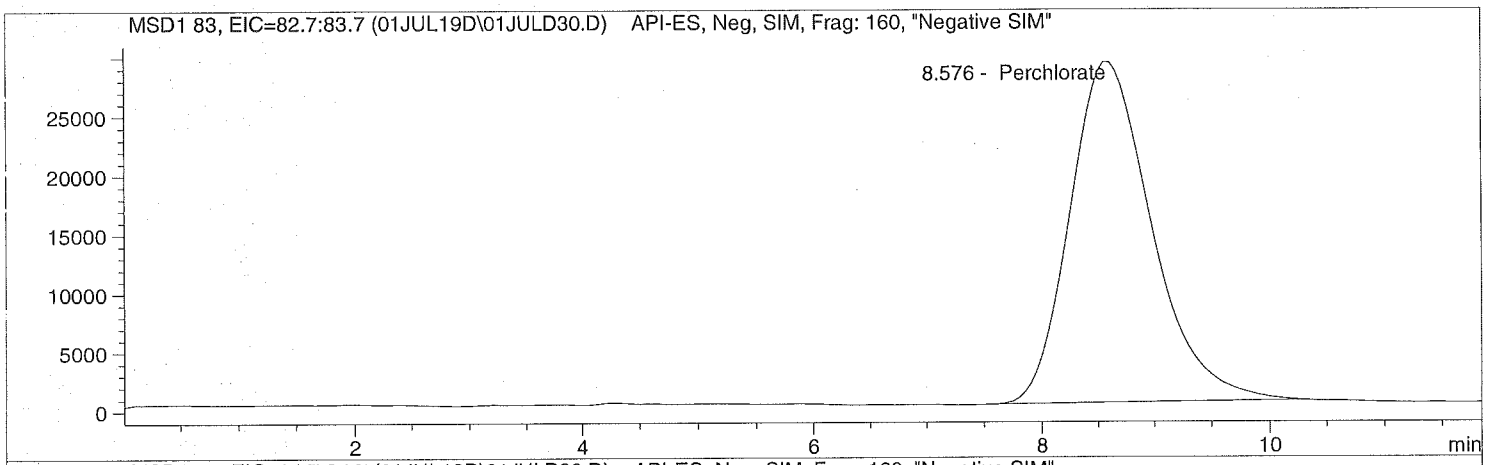
RIGHT SOLUTIONS | RIGHT PARTNER

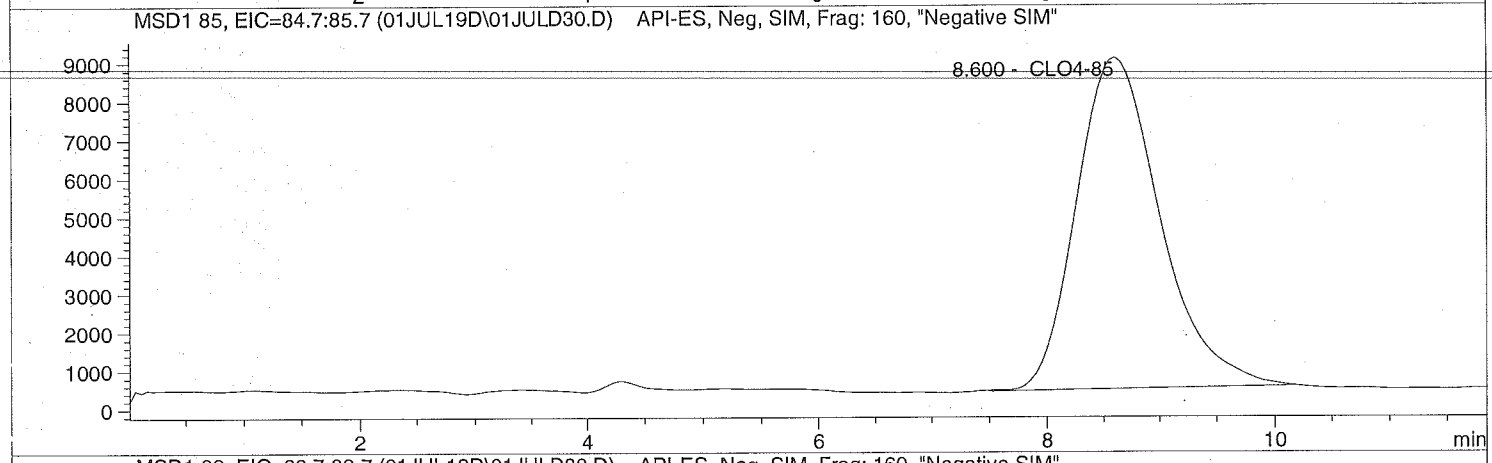
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD30.D Sample Name: 661661 CCV@25

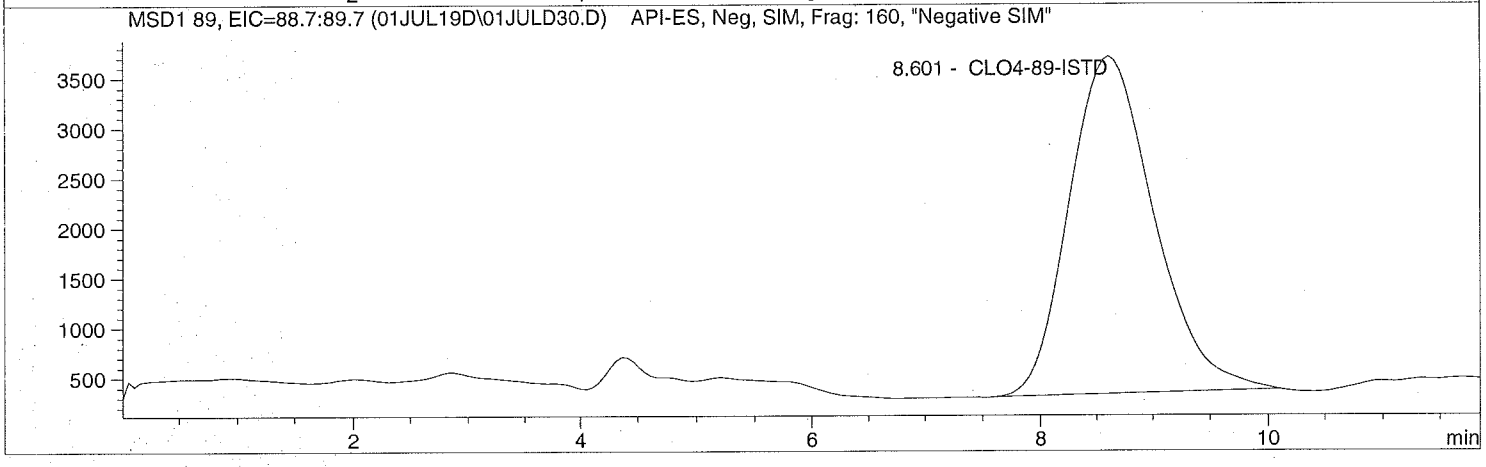
Injection Date:	7/01/2019 15:21:25	Seq Line:	30
Sample Name:	661661 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD30.D Sample Name: 661661 CCV@25

Injection Date:	7/01/2019 15:21:25	Seq Line:	30
Sample Name:	661661 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.576	PBA	1459488.9	25.1014	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.600	BBA	445116.2	25.7560	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.601	PBA	176853.7	5.0000	CLO4-89-ISTD

*** End of Report ***

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

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Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

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RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

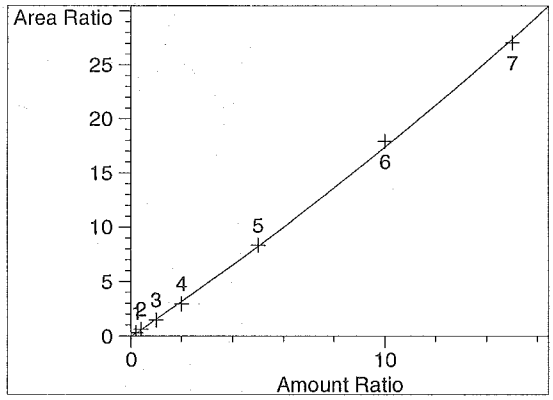
Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

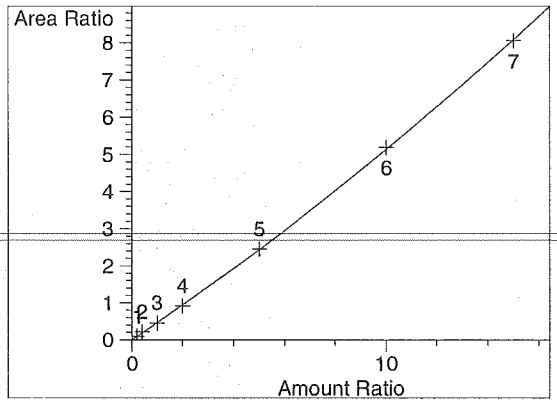
No Entries in table

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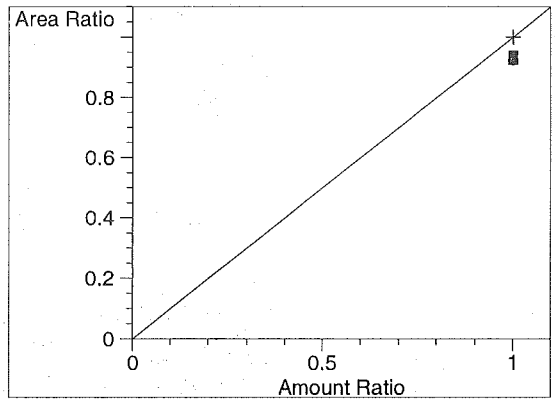
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: y = ax² + bx + c
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: y = ax² + bx + c
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: y = mx + b
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

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Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

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Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

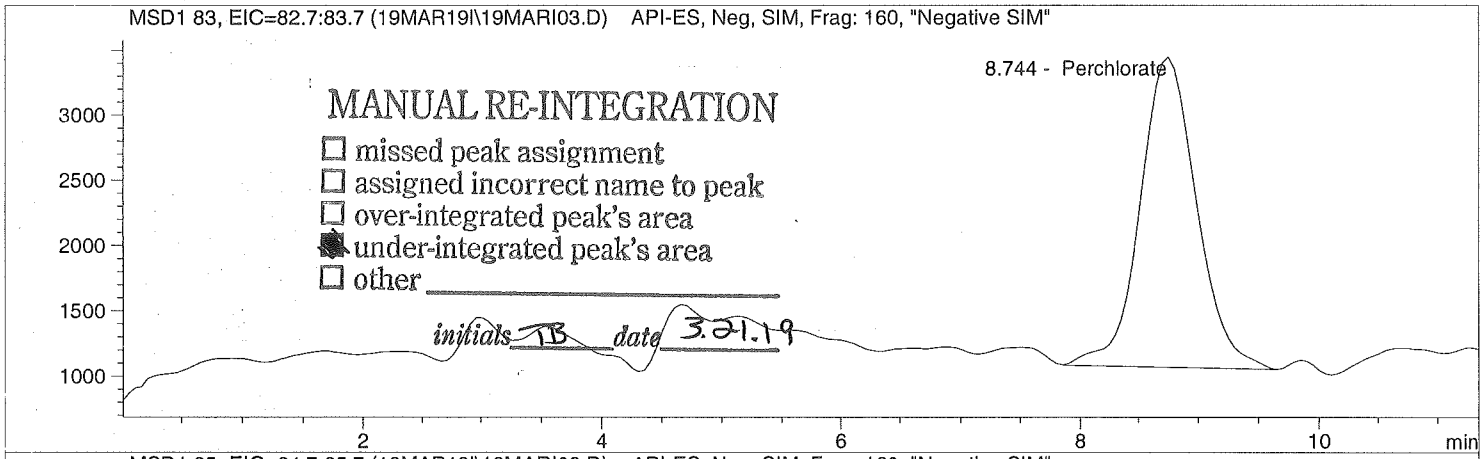
RIGHT SOLUTIONS | RIGHT PARTNER

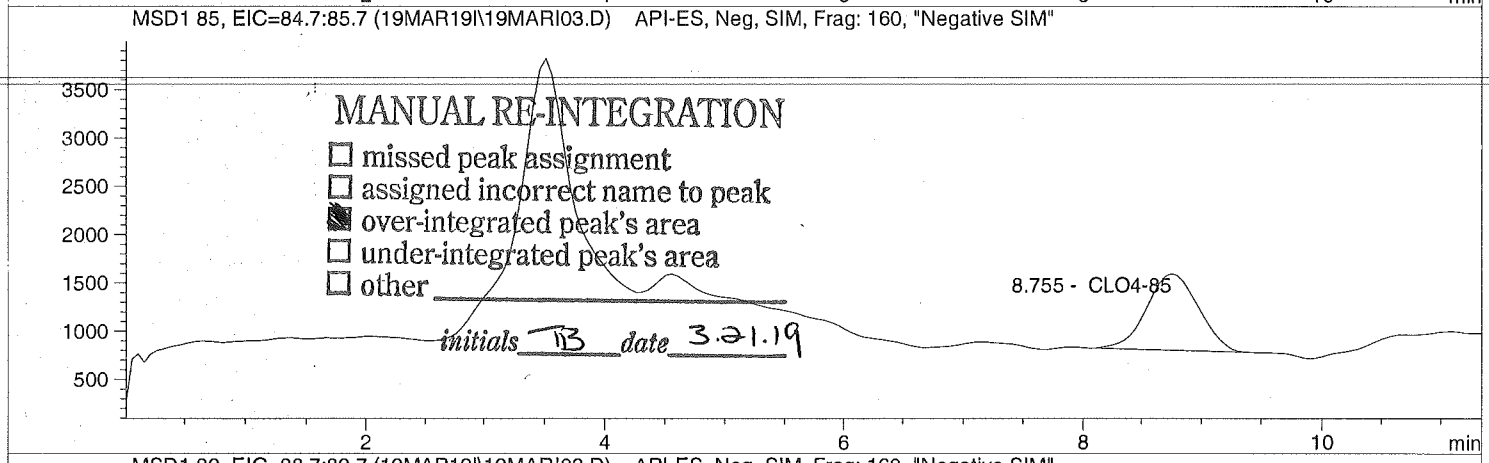
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

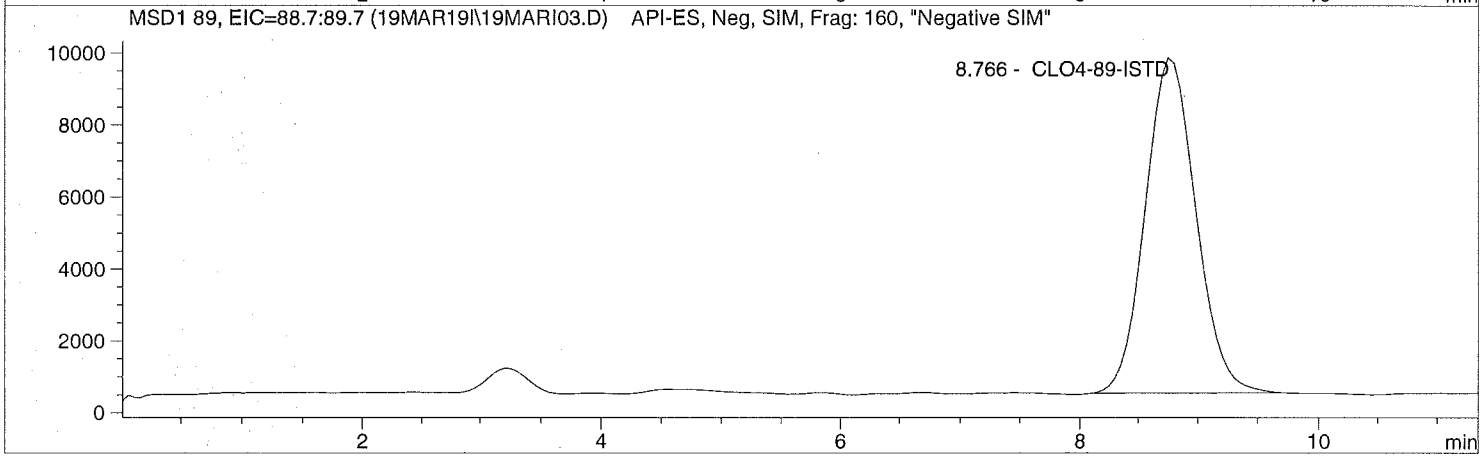
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

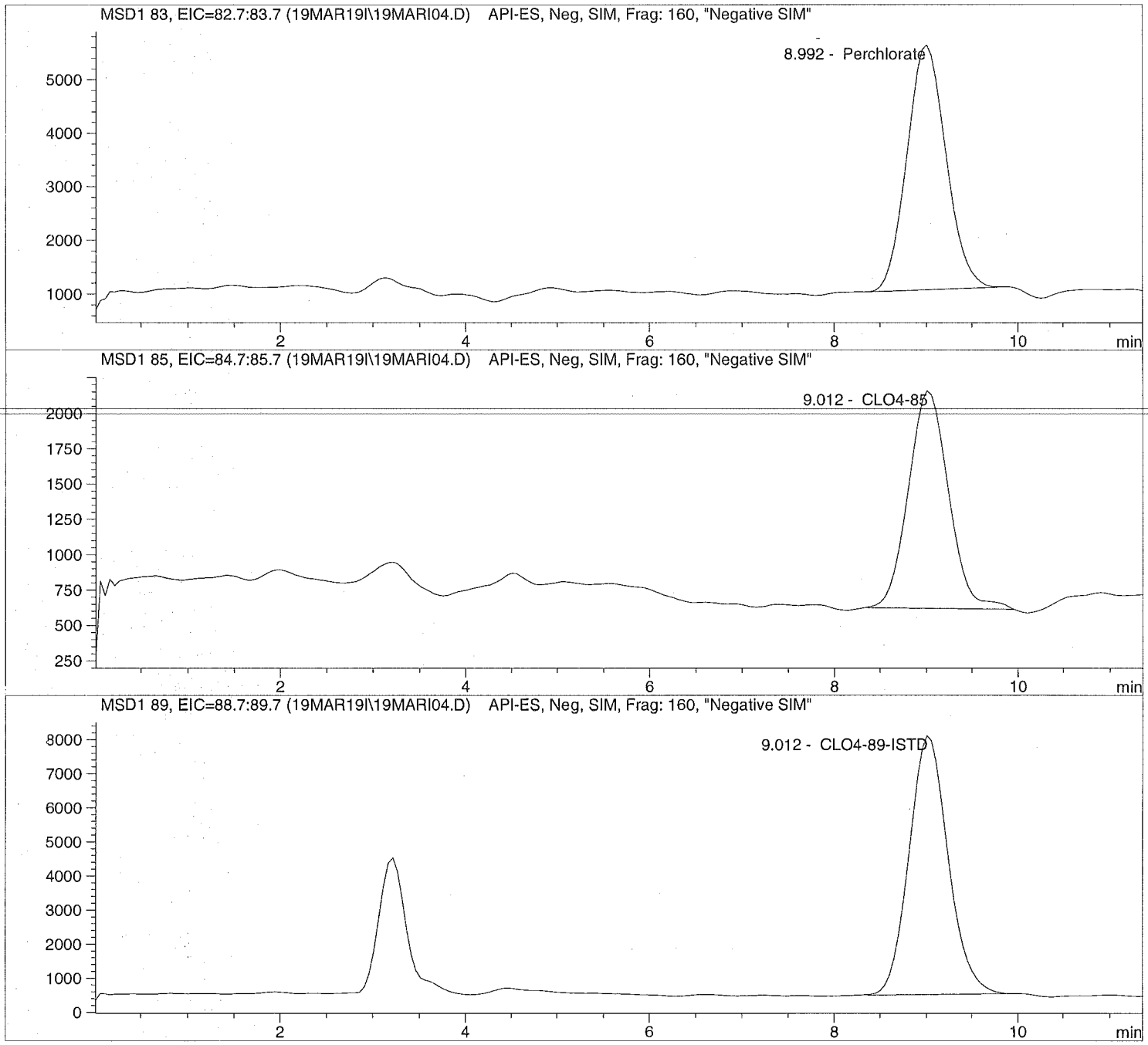
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

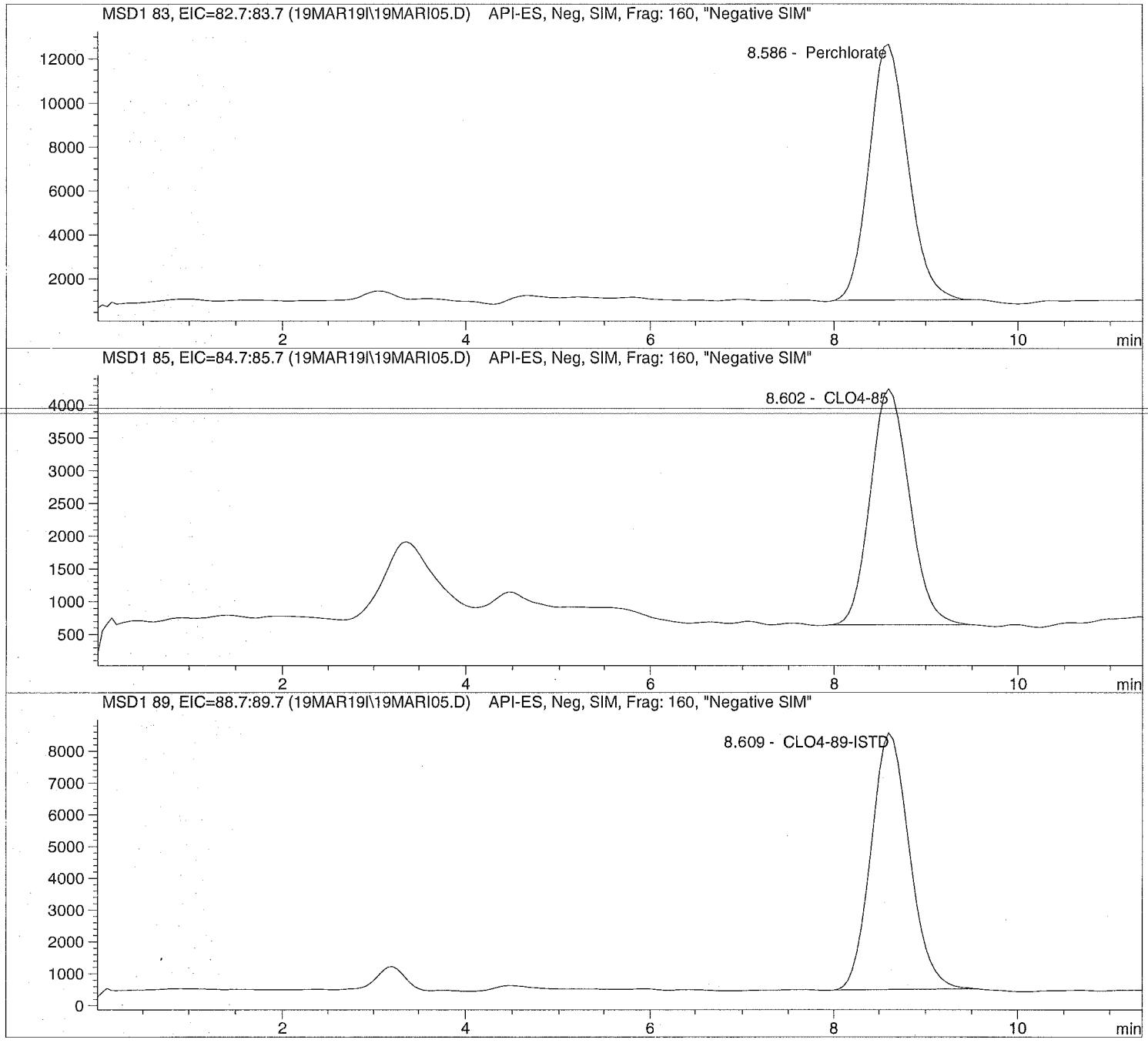
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

*** End of Report ***

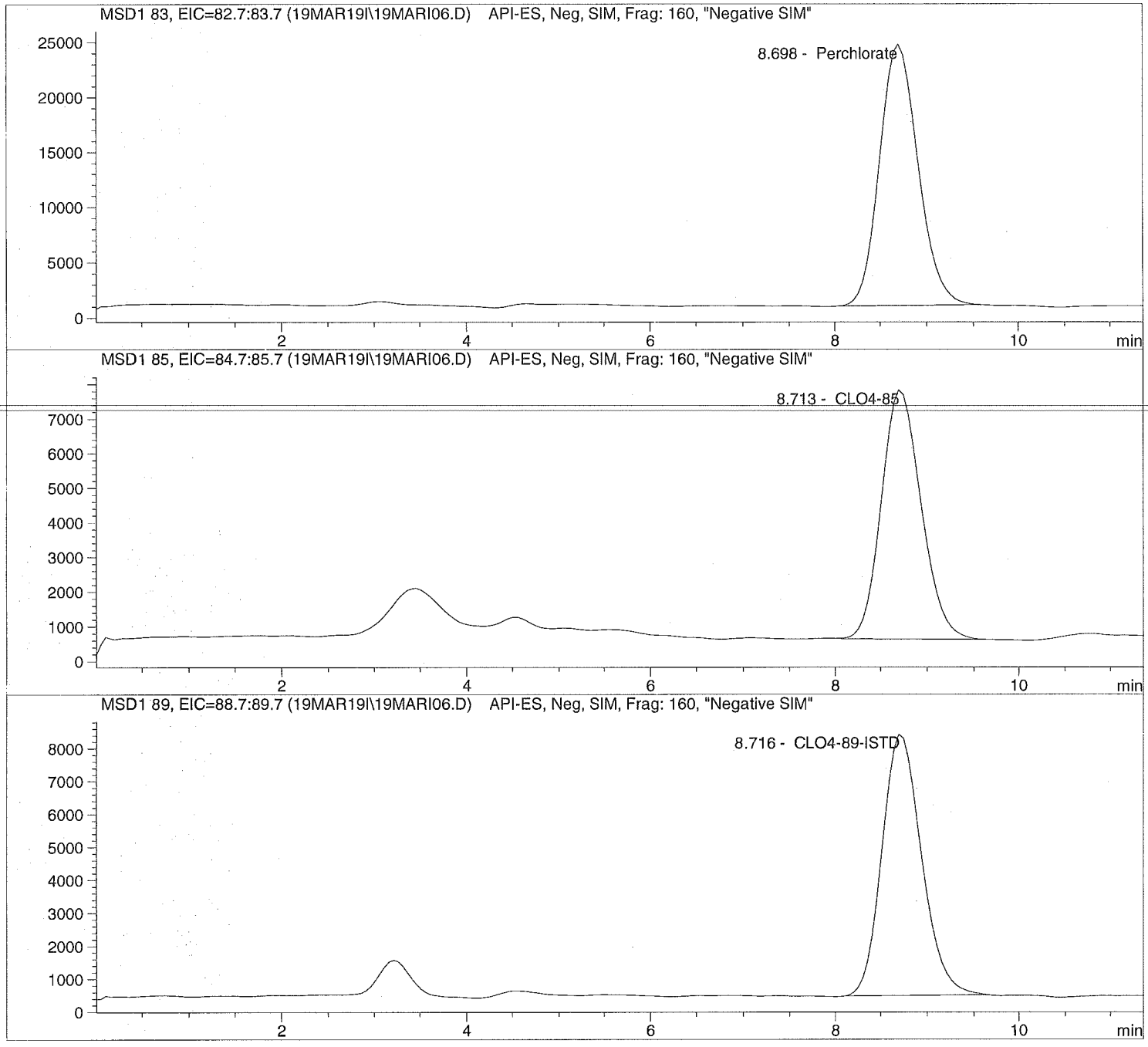
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

*** End of Report ***

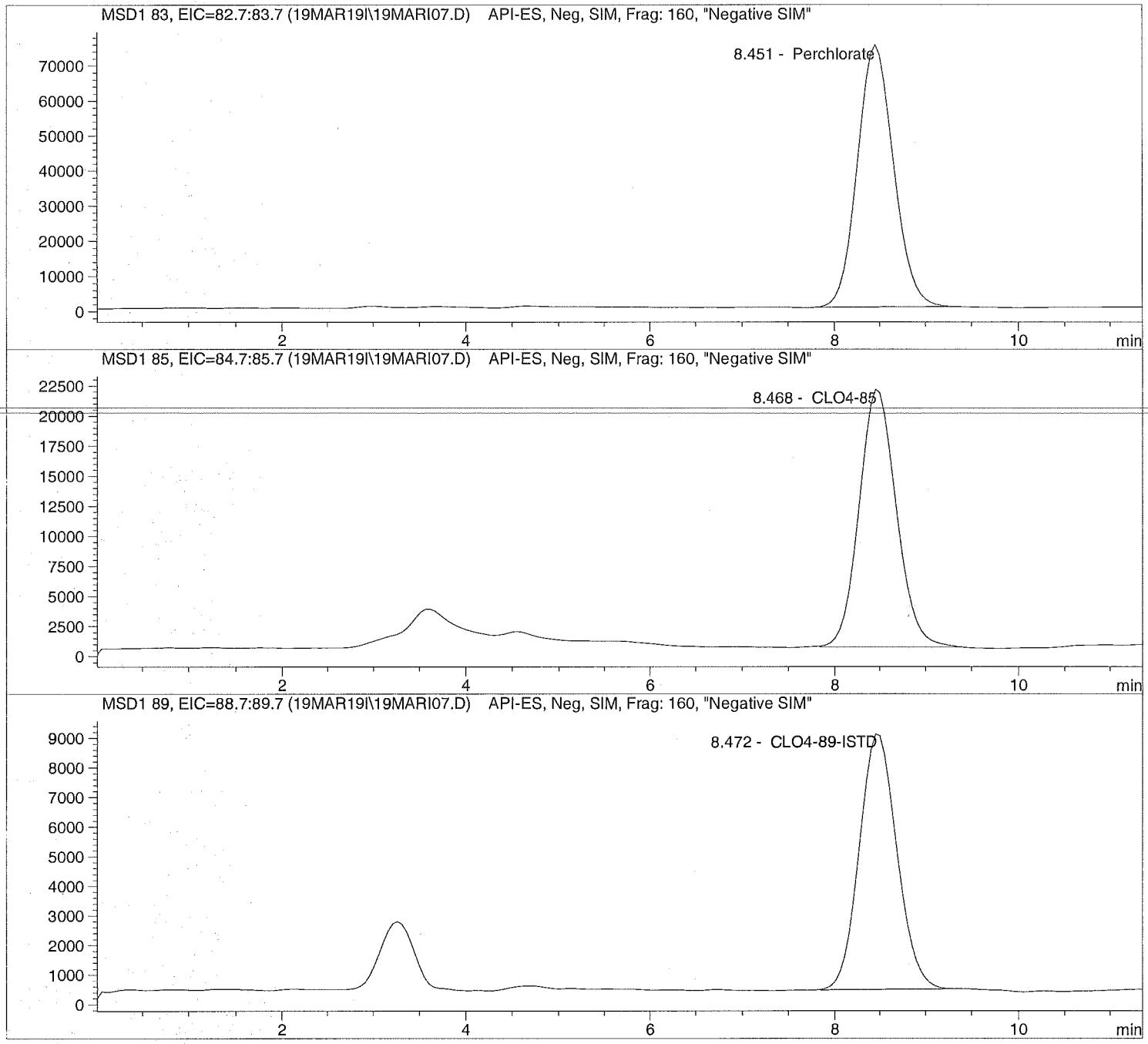
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

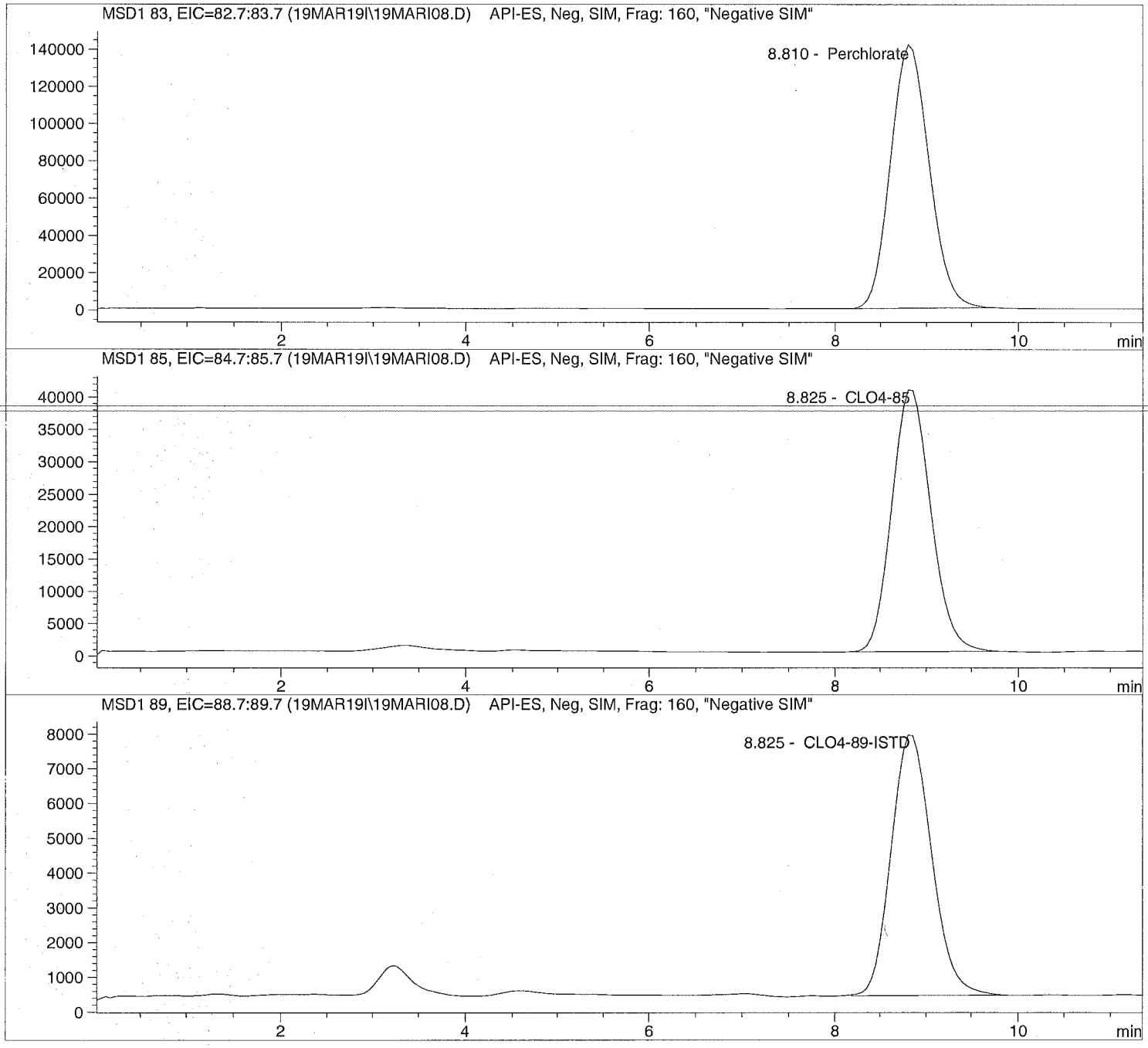
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

*** End of Report ***

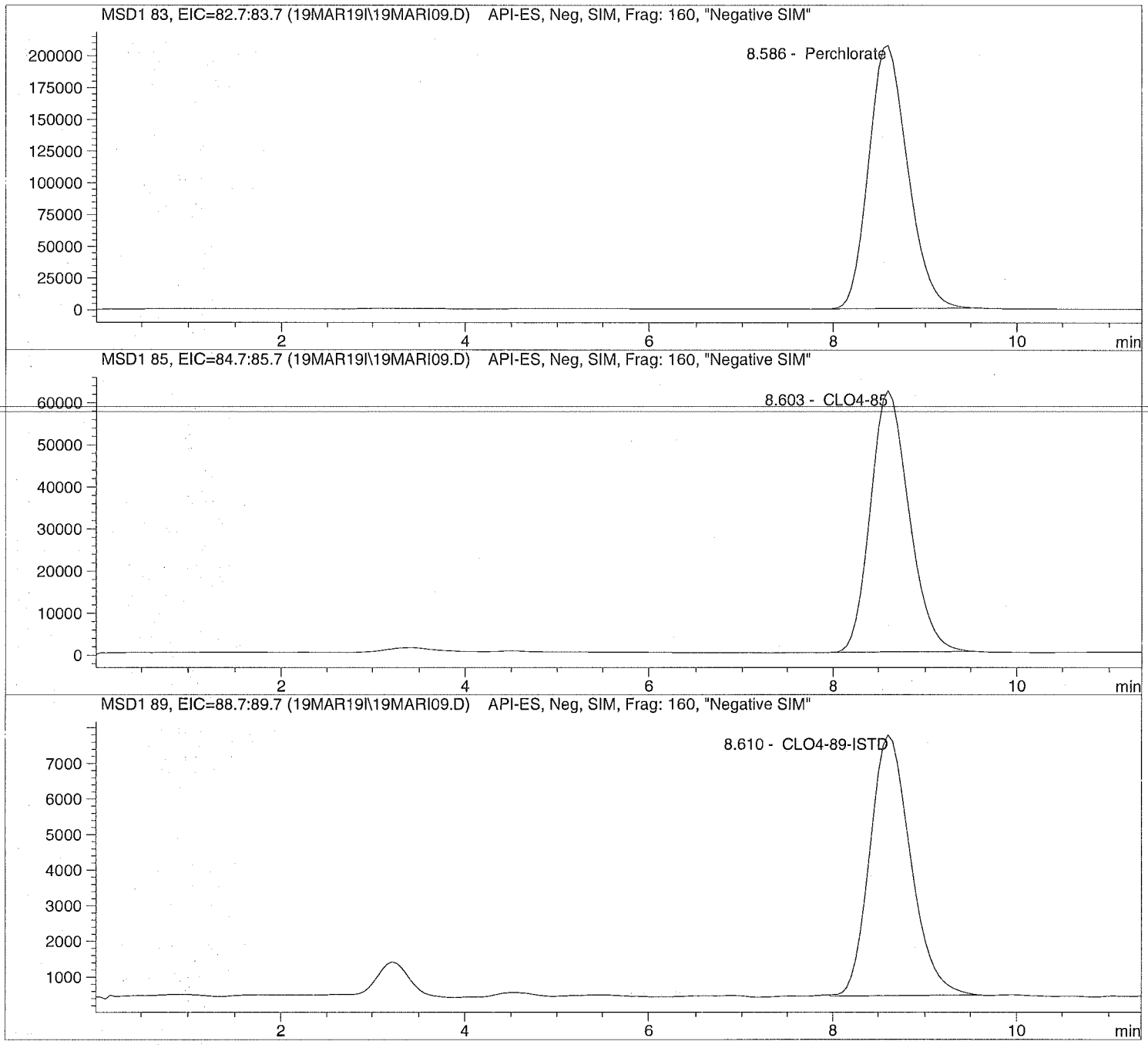
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

*** End of Report ***

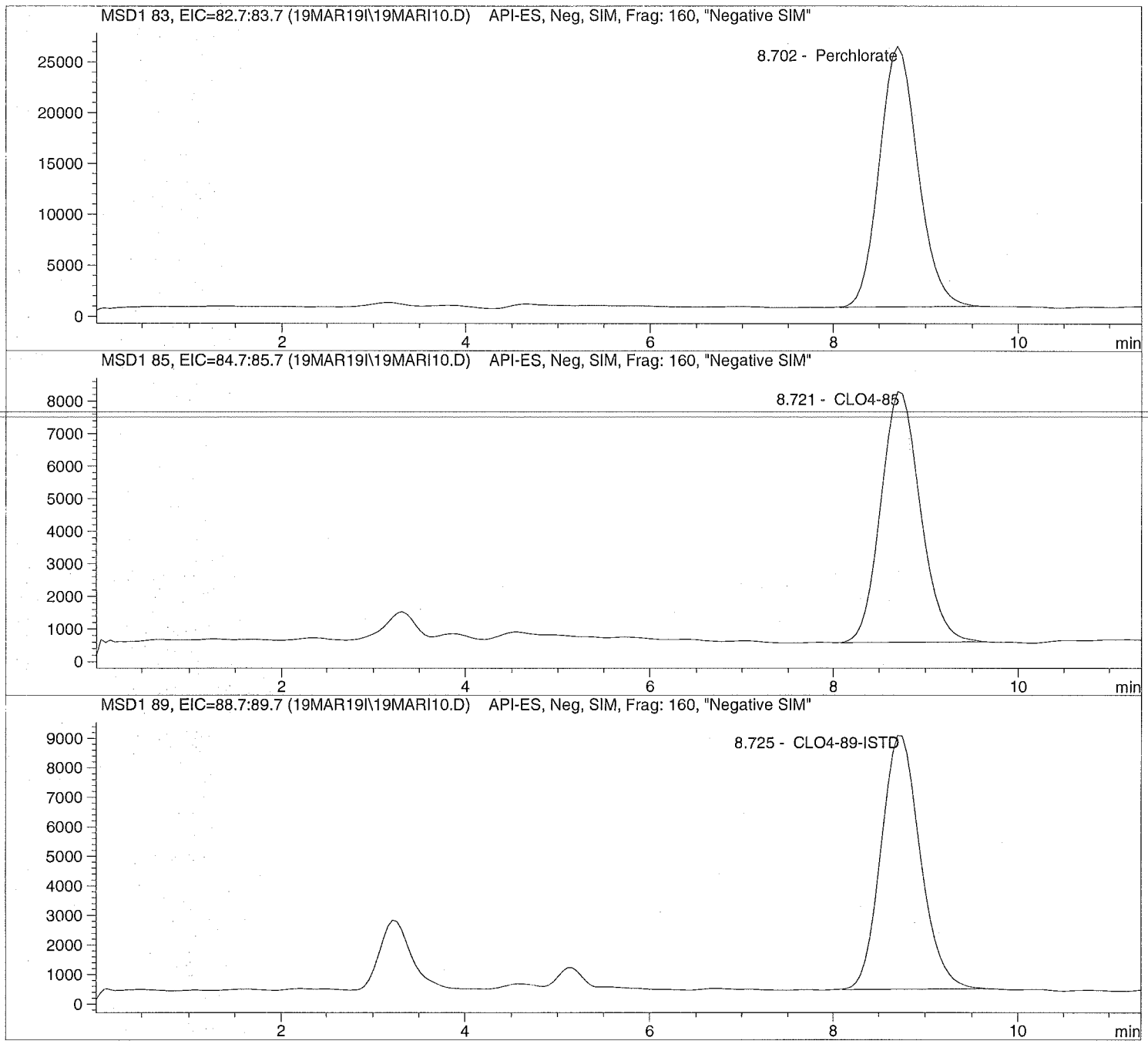
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Unmodified

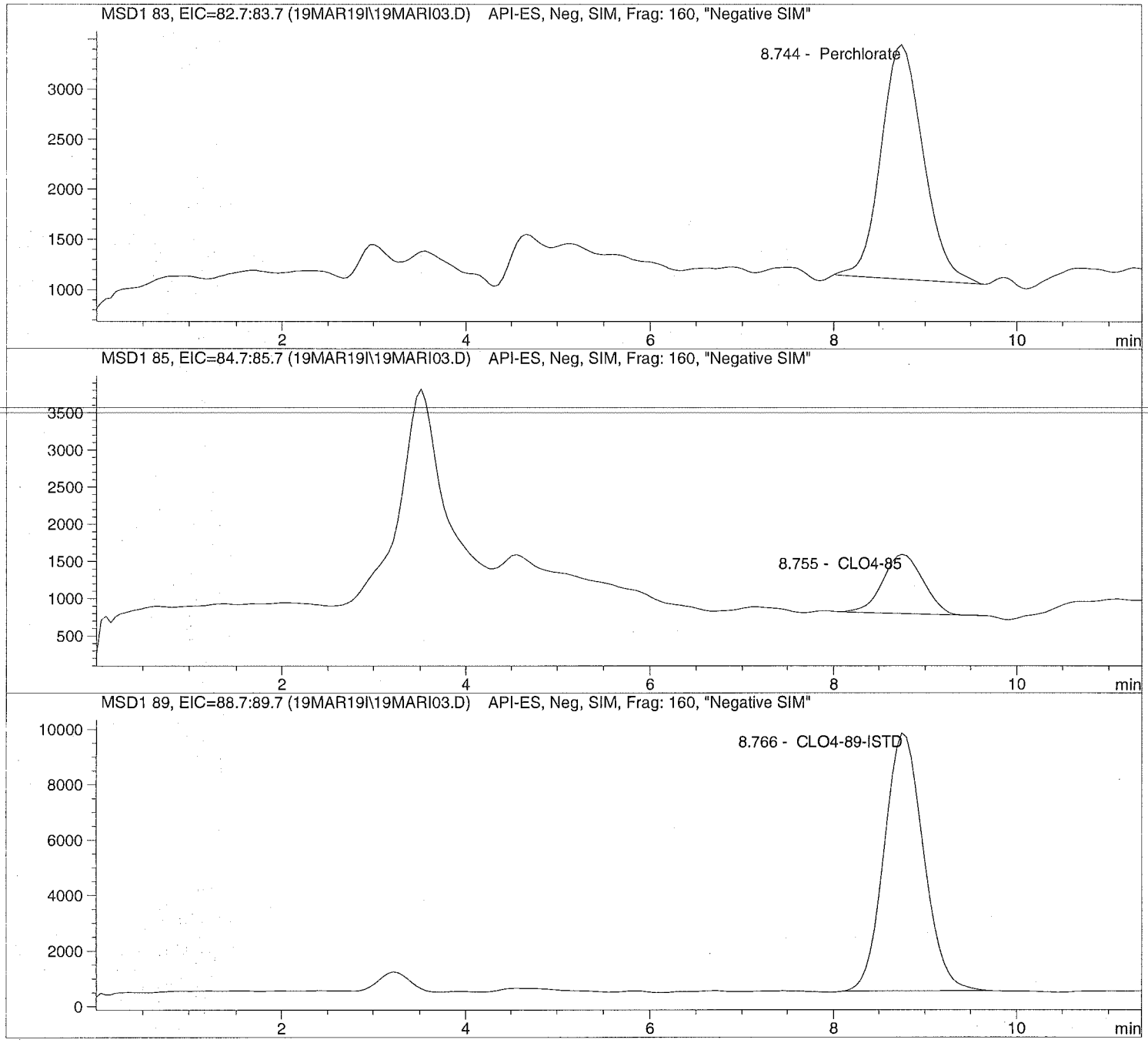
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

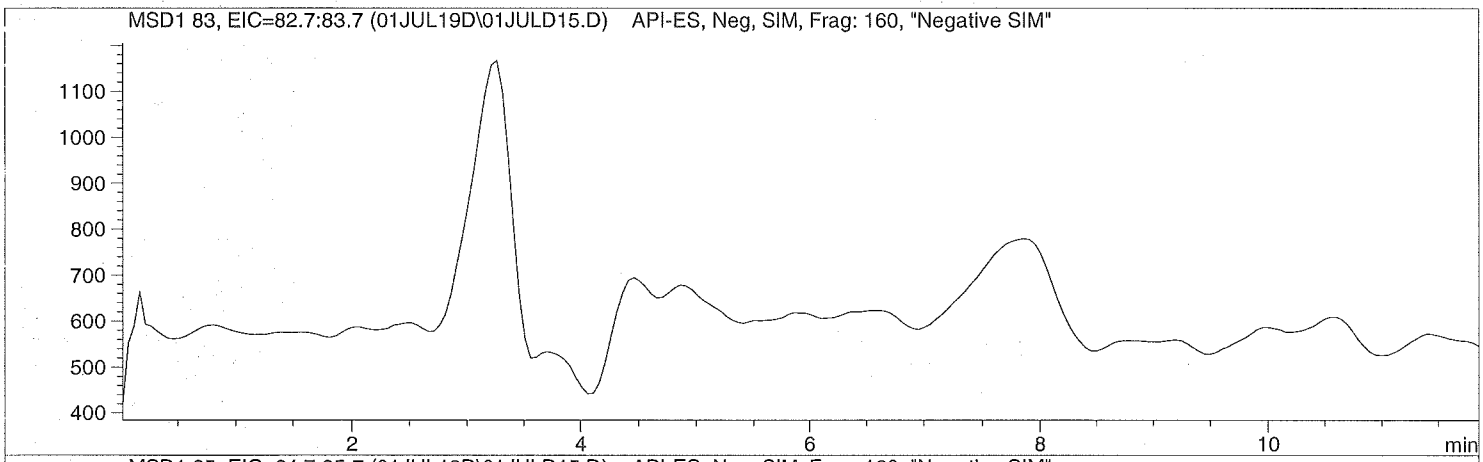
RIGHT SOLUTIONS | RIGHT PARTNER

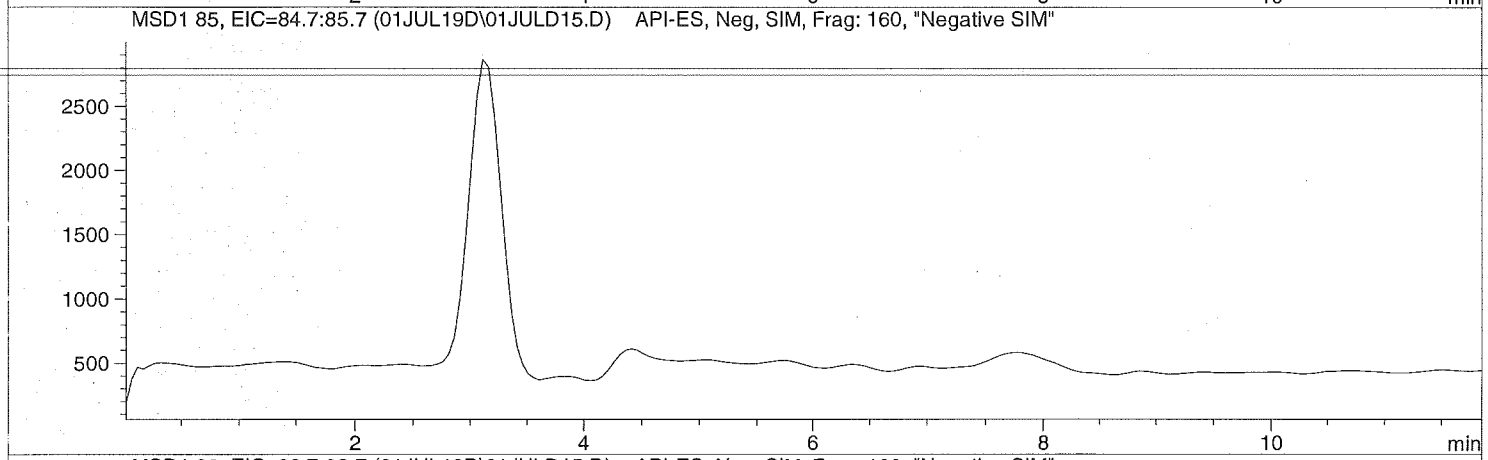
Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD15.D Sample Name: 1917856003

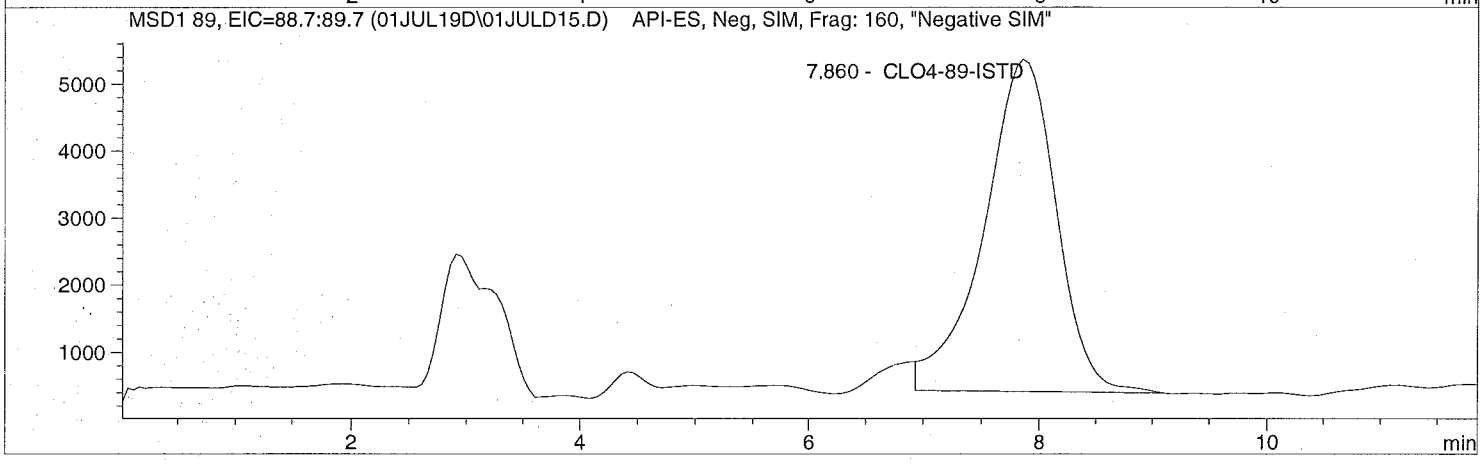
Injection Date:	7/01/2019 11:52:34	Seq Line:	15
Sample Name:	1917856003	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\01JUL19D\01JULD15.D Sample Name: 1917856003

Injection Date:	7/01/2019 11:52:34	Seq Line:	15
Sample Name:	1917856003	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.860	BBA	216713.3	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 15, 2019

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

Work Order: **HS19061210**

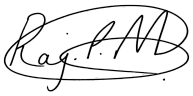
Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

ALS Environmental received 10 sample(s) on Jun 22, 2019 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061210

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061210-01	18CpTMW06_062119	Water		21-Jun-2019 07:10	22-Jun-2019 08:55	☐
HS19061210-02	18CpTMW06_062119_a	Water		21-Jun-2019 07:10	22-Jun-2019 08:55	☐
HS19061210-03	MW22_062119	Water		21-Jun-2019 08:00	22-Jun-2019 08:55	☐
HS19061210-04	CO1_062119	Water		21-Jun-2019 08:50	22-Jun-2019 08:55	☐
HS19061210-05	MW8_062119	Water		21-Jun-2019 09:40	22-Jun-2019 08:55	☐
HS19061210-06	18CpTMW15_062119	Water		21-Jun-2019 10:30	22-Jun-2019 08:55	☐
HS19061210-07	18CpTMW03SW_062119	Water		21-Jun-2019 07:50	22-Jun-2019 08:55	☐
HS19061210-08	AWD3_062119	Water		21-Jun-2019 09:00	22-Jun-2019 08:55	☐
HS19061210-09	CO8_062119	Water		21-Jun-2019 10:35	22-Jun-2019 08:55	☐
HS19061210-10	Trip blank	Water		21-Jun-2019 00:00	22-Jun-2019 08:55	☐

Revision:2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18 24
Work Order: HS19061210

Work Order Comments

- Revised to add Trip blank on 07/12/2019
- Revised to correct the reporting limit for Mercury

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142510

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

GCMS Volatiles by Method SW8260

Batch ID: R342424

Sample ID: Trip blank (HS19061210-10)

- Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated.

Batch ID: R341659

Sample ID: AWD3_062119 (HS19061210-08)

- Lowest practical dilution due to high concentration of non-target compound.

Sample ID: CCV

- Bromoform and 1,2-Dibromo-3-Chloropropane exceeded %D limits for CCV. Samples are ND for these compounds./

Metals by Method SW6020

Batch ID: 142750

Sample ID: HS19070016-05MS

- MS and MSD are for an unrelated sample

Metals by Method SW7470

Batch ID: 142615

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

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW06_062119
Collection Date: 21-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-01
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	01-Jul-2019 18:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 18:48
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 18:48
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 18:48
Acetone	**3.1**		**0.40**	**1.0**	**2.0**	**UG/L**	1	01-Jul-2019 18:48
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 18:48
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW06_062119
Collection Date: 21-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-01
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	01-Jul-2019 18:48
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 18:48
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 18:48
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 18:48
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 18:48
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Trichloroethene	**0.98**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 18:48
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 18:48
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 18:48*
Surr: 4-Bromofluorobenzene	*95.1*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 18:48*
Surr: Dibromofluoromethane	*96.6*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 18:48*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 18:48*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.46**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 05:11
Surr: 2-Fluorobiphenyl	*87.6*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:11*
Surr: 4-Terphenyl-d14	*122*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:11*
Surr: Nitrobenzene-d5	*109*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:11*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW06_062119_a
Collection Date: 21-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-02
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	01-Jul-2019 19:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 19:12
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 19:12
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 19:12
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 19:12
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 19:12
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW06_062119_a
Collection Date: 21-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-02
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	01-Jul-2019 19:12
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 19:12
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 19:12
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 19:12
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:12
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Trichloroethene	**0.88**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 19:12
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:12
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 19:12*
Surr: 4-Bromofluorobenzene	*95.4*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 19:12*
Surr: Dibromofluoromethane	*95.7*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 19:12*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 19:12*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.052**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 05:32
Surr: 2-Fluorobiphenyl	*82.0*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:32*
Surr: 4-Terphenyl-d14	*116*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:32*
Surr: Nitrobenzene-d5	*97.5*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:32*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW22_062119
Collection Date: 21-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-03
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	01-Jul-2019 14:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,2-Dichloroethane	**3.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 14:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 14:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 14:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 14:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 14:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW22_062119
Collection Date: 21-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-03
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	01-Jul-2019 14:49
cis-1,2-Dichloroethene	**0.90**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 14:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 14:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 14:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Trichloroethene	**230**		**2.0**	**5.0**	**10**	**UG/L**	10	01-Jul-2019 18:24
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:49
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 14:49*
Surr: 1,2-Dichloroethane-d4	*104*			**0**	*81-118*	*%REC*	*10*	*01-Jul-2019 18:24*
Surr: 4-Bromofluorobenzene	*94.9*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 14:49*
Surr: 4-Bromofluorobenzene	*94.0*			**0**	*85-114*	*%REC*	*10*	*01-Jul-2019 18:24*
Surr: Dibromofluoromethane	*93.8*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 14:49*
Surr: Dibromofluoromethane	*96.7*			**0**	*80-119*	*%REC*	*10*	*01-Jul-2019 18:24*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 14:49*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*01-Jul-2019 18:24*

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW22_062119
Collection Date: 21-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0158**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 16:08
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:43
Arsenic	**0.00145**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Barium	**0.683**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:43
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:43
Calcium	**76.1**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:43
Chromium	**0.0930**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Cobalt	**0.00142**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Copper	**0.00249**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Iron	**1.13**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:43
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:43
Magnesium	**34.5**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:43
Manganese	**0.0164**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Nickel	**0.179**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Potassium	**1.93**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:43
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:43
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 16:08
Sodium	**383**		**0.140**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 16:10
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:43
Vanadium	**0.00257**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
Zinc	**0.0241**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:43
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:24
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO1_062119
Collection Date: 21-Jun-2019 08:50

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-04
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	01-Jul-2019 13:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 13:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 13:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 13:37
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 13:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 13:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO1_062119
Collection Date: 21-Jun-2019 08:50

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-04
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	01-Jul-2019 13:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 13:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 13:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 13:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 13:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 13:37
Surr: 1,2-Dichloroethane-d4	*97.5*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 13:37*
Surr: 4-Bromofluorobenzene	*93.1*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 13:37*
Surr: Dibromofluoromethane	*92.6*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 13:37*
Surr: Toluene-d8	*99.6*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 13:37*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW8_062119
Collection Date: 21-Jun-2019 09:40

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-05
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	01-Jul-2019 14:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,2-Dichloroethane	**0.75**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 14:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 14:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 14:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 14:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 14:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW8_062119
Collection Date: 21-Jun-2019 09:40

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-05
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	01-Jul-2019 14:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 14:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 14:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 14:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 14:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Trichloroethene	**120**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 14:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 14:01
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 14:01*
Surr: 4-Bromofluorobenzene	*93.6*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 14:01*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 14:01*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 14:01*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.46**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 05:53
Surr: 2-Fluorobiphenyl	*88.3*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:53*
Surr: 4-Terphenyl-d14	*124*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:53*
Surr: Nitrobenzene-d5	*105*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 05:53*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW15_062119
Collection Date: 21-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-06
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	01-Jul-2019 19:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 19:36
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 19:36
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 19:36
Acetone	**5.0**		**0.40**	**1.0**	**2.0**	**UG/L**	1	01-Jul-2019 19:36
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 19:36
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW15_062119
Collection Date: 21-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-06
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	01-Jul-2019 19:36
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 19:36
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 19:36
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 19:36
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 19:36
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Trichloroethene	**2.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 19:36
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 19:36
Surr: 1,2-Dichloroethane-d4	*104*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 19:36*
Surr: 4-Bromofluorobenzene	*96.9*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 19:36*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 19:36*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 19:36*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.43**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 06:13
Surr: 2-Fluorobiphenyl	*97.4*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 06:13*
Surr: 4-Terphenyl-d14	*110*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 06:13*
Surr: Nitrobenzene-d5	*111*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 06:13*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW03SW_062119
Collection Date: 21-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-07
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	01-Jul-2019 20:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,2-Dichloroethane	**1.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 20:00
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 20:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 20:00
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 20:00
Acetone	**5.2**		**0.40**	**1.0**	**2.0**	**UG/L**	1	01-Jul-2019 20:00
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 20:00
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW03SW_062119
Collection Date: 21-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-07
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	01-Jul-2019 20:00
cis-1,2-Dichloroethene	**1.7**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 20:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 20:00
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 20:00
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 20:00
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:00
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Trichloroethene	**19**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 20:00
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:00
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 20:00*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 20:00*
Surr: Dibromofluoromethane	*95.6*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 20:00*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 20:00*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.67**		**0.050**	**0.050**	**0.050**	**ug/L**	5	28-Jun-2019 18:45
Surr: 2-Fluorobiphenyl	*83.3*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 18:45*
Surr: 4-Terphenyl-d14	*121*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 18:45*
Surr: Nitrobenzene-d5	*82.8*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 18:45*

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CpTMW03SW_062119
Collection Date: 21-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0446**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 16:12
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:46
Arsenic	**0.00272**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
Barium	**0.172**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:46
Cadmium	**0.000367**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:46
Calcium	**21.0**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:46
Chromium	**0.0163**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
Cobalt	**0.00263**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 00:46
Iron	**1.75**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:46
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:46
Magnesium	**7.22**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:46
Manganese	**0.0478**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
Nickel	**0.00956**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
Potassium	**233**		**0.180**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 16:15
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:46
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 16:12
Sodium	**265**		**0.140**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 16:15
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:46
Vanadium	**0.00183**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
Zinc	**0.0987**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:46
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:29
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD3_062119
Collection Date: 21-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-08
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	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,1-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
2-Butanone	10	U	5.0	10	20	UG/L	10	01-Jul-2019 20:48
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
2-Hexanone	10	U	10	10	20	UG/L	10	01-Jul-2019 20:48
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	01-Jul-2019 20:48
Acetone	10	U	4.0	10	20	UG/L	10	01-Jul-2019 20:48
Benzene	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Carbon disulfide	10	U	6.0	10	20	UG/L	10	01-Jul-2019 20:48
Carbon tetrachloride	**35**		**5.0**	**5.0**	**10**	**UG/L**	10	01-Jul-2019 20:48
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Chloroform	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD3_062119
Collection Date: 21-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-08
Matrix:Water

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	01-Jul-2019 20:48
cis-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	01-Jul-2019 20:48
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
m,p-Xylene	10	U	5.0	10	20	UG/L	10	01-Jul-2019 20:48
Methylene chloride	10	U	4.0	10	20	UG/L	10	01-Jul-2019 20:48
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jul-2019 20:48
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Styrene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Toluene	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Trichloroethene	**580**		**2.0**	**5.0**	**10**	**UG/L**	10	01-Jul-2019 20:48
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Vinyl chloride	5.0	U	2.0	5.0	10	UG/L	10	01-Jul-2019 20:48
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*10*	*01-Jul-2019 20:48*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*10*	*01-Jul-2019 20:48*
Surr: Dibromofluoromethane	*96.3*			**0**	*80-119*	*%REC*	*10*	*01-Jul-2019 20:48*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*10*	*01-Jul-2019 20:48*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD3_062119
Collection Date: 21-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.157**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 16:17
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:48
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:48
Barium	**0.0352**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:48
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:48
Calcium	**0.817**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:48
Chromium	**0.0808**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
Cobalt	**0.000846**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 00:48
Iron	**0.430**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:48
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:48
Magnesium	**0.586**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:48
Manganese	**0.00771**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
Nickel	**0.0253**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
Potassium	**0.746**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:48
Selenium	**0.00434**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 16:17
Sodium	**30.1**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:48
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:48
Vanadium	**0.00191**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
Zinc	**0.0177**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:48
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:34
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	06-Jul-2019 09:58

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO8_062119
Collection Date: 21-Jun-2019 10:35

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-09
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	01-Jul-2019 20:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 20:24
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jul-2019 20:24
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jul-2019 20:24
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 20:24
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jul-2019 20:24
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO8_062119
Collection Date: 21-Jun-2019 10:35

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-09
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	01-Jul-2019 20:24
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jul-2019 20:24
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jul-2019 20:24
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jul-2019 20:24
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jul-2019 20:24
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Trichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jul-2019 20:24
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jul-2019 20:24
Surr: 1,2-Dichloroethane-d4	*106*			**0**	*81-118*	*%REC*	*1*	*01-Jul-2019 20:24*
Surr: 4-Bromofluorobenzene	*96.4*			**0**	*85-114*	*%REC*	*1*	*01-Jul-2019 20:24*
Surr: Dibromofluoromethane	*98.1*			**0**	*80-119*	*%REC*	*1*	*01-Jul-2019 20:24*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*01-Jul-2019 20:24*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 06:55
Surr: 2-Fluorobiphenyl	*103*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 06:55*
Surr: 4-Terphenyl-d14	*98.8*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 06:55*
Surr: Nitrobenzene-d5	*107*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 06:55*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	10-Jul-2019 14:38

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip blank
Collection Date: 21-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-10
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	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,1,1-Trichloroethane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,1,2,2-Tetrachloroethane	0.50	HU	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,1,2-Trichloroethane	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,1-Dichloroethane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,1-Dichloroethene	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,1-Dichloropropene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2,3-Trichlorobenzene	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2,3-Trichloropropane	0.50	HU	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2,4-Trichlorobenzene	0.50	HU	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2,4-Trimethylbenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2-Dibromo-3-chloropropane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2-Dibromoethane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2-Dichlorobenzene	0.50	HU	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2-Dichloroethane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,2-Dichloropropane	0.50	HU	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,3,5-Trimethylbenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,3-Dichlorobenzene	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,3-Dichloropropane	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
1,4-Dichlorobenzene	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
2,2-Dichloropropane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
2-Butanone	1.0	HU	0.50	1.0	2.0	UG/L	1	15-Jul-2019 15:10
2-Chlorotoluene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
2-Hexanone	1.0	HU	1.0	1.0	2.0	UG/L	1	15-Jul-2019 15:10
4-Chlorotoluene	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
4-Isopropyltoluene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
4-Methyl-2-pentanone	1.0	HU	0.70	1.0	2.0	UG/L	1	15-Jul-2019 15:10
Acetone	1.0	HU	0.40	1.0	2.0	UG/L	1	15-Jul-2019 15:10
Benzene	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Bromobenzene	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Bromochloromethane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Bromodichloromethane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Bromoform	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Bromomethane	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Carbon disulfide	1.0	HU	0.60	1.0	2.0	UG/L	1	15-Jul-2019 15:10
Carbon tetrachloride	0.50	HU	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Chlorobenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Chloroethane	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Chloroform	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10

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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip blank
Collection Date: 21-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061210
Lab ID:HS19061210-10
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	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
cis-1,2-Dichloroethene	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
cis-1,3-Dichloropropene	0.50	HU	0.10	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Dibromochloromethane	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Dibromomethane	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Dichlorodifluoromethane	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Ethylbenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Hexachlorobutadiene	1.0	HU	1.0	1.0	1.0	UG/L	1	15-Jul-2019 15:10
Isopropylbenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
m,p-Xylene	1.0	HU	0.50	1.0	2.0	UG/L	1	15-Jul-2019 15:10
Methylene chloride	1.0	HU	0.40	1.0	2.0	UG/L	1	15-Jul-2019 15:10
n-Butylbenzene	0.50	HU	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:10
n-Propylbenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Naphthalene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
o-Xylene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
sec-Butylbenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Styrene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
tert-Butylbenzene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Tetrachloroethene	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Toluene	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
trans-1,2-Dichloroethene	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
trans-1,3-Dichloropropene	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Trichloroethene	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Trichlorofluoromethane	0.50	HU	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Vinyl chloride	0.50	HU	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:10
Surr: 1,2-Dichloroethane-d4	*95.0*			**0**	*81-118*	*%REC*	*1*	*15-Jul-2019 15:10*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*15-Jul-2019 15:10*
Surr: Dibromofluoromethane	*95.0*			**0**	*80-119*	*%REC*	*1*	*15-Jul-2019 15:10*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*15-Jul-2019 15:10*

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

Revision: 2

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

Batch ID: 142510 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061210-01	1	1000	1 (mL)	0.001
HS19061210-02	1	1000	1 (mL)	0.001
HS19061210-05	1	1000	1 (mL)	0.001
HS19061210-06	1	1000	1 (mL)	0.001
HS19061210-07	1	1000	1 (mL)	0.001
HS19061210-09	1	1000	1 (mL)	0.001

Batch ID: 142615 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061210-03	1	10 (mL)	10 (mL)	1
HS19061210-07	1	10 (mL)	10 (mL)	1
HS19061210-08	1	10 (mL)	10 (mL)	1

Batch ID: 142750 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061210-03	1	10	10 (mL)	1
HS19061210-07	1	10	10 (mL)	1
HS19061210-08	1	10	10 (mL)	1

ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142510 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS19061210-01	18CpTMW06_062119	21 Jun 2019 07:10		27 Jun 2019 14:45	28 Jun 2019 05:11	1
HS19061210-02	18CpTMW06_062119_a	21 Jun 2019 07:10		27 Jun 2019 14:45	28 Jun 2019 05:32	1
HS19061210-05	MW8_062119	21 Jun 2019 09:40		27 Jun 2019 14:45	28 Jun 2019 05:53	1
HS19061210-06	18CpTMW15_062119	21 Jun 2019 10:30		27 Jun 2019 14:45	28 Jun 2019 06:13	1
HS19061210-07	18CpTMW03SW_062119	21 Jun 2019 07:50		27 Jun 2019 14:45	28 Jun 2019 18:45	5
HS19061210-09	CO8_062119	21 Jun 2019 10:35		27 Jun 2019 14:45	28 Jun 2019 06:55	1
Batch ID: 142615 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS19061210-03	MW22_062119	21 Jun 2019 08:00		01 Jul 2019 10:30	01 Jul 2019 16:24	1
HS19061210-07	18CpTMW03SW_062119	21 Jun 2019 07:50		01 Jul 2019 10:30	01 Jul 2019 16:29	1
HS19061210-08	AWD3_062119	21 Jun 2019 09:00		01 Jul 2019 10:30	01 Jul 2019 16:34	1
Batch ID: 142750 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS19061210-03	MW22_062119	21 Jun 2019 08:00		05 Jul 2019 10:03	09 Jul 2019 16:10	10
HS19061210-03	MW22_062119	21 Jun 2019 08:00		05 Jul 2019 10:03	09 Jul 2019 16:08	1
HS19061210-03	MW22_062119	21 Jun 2019 08:00		05 Jul 2019 10:03	09 Jul 2019 00:43	1
HS19061210-07	18CpTMW03SW_062119	21 Jun 2019 07:50		05 Jul 2019 10:03	09 Jul 2019 16:15	10
HS19061210-07	18CpTMW03SW_062119	21 Jun 2019 07:50		05 Jul 2019 10:03	09 Jul 2019 16:12	1
HS19061210-07	18CpTMW03SW_062119	21 Jun 2019 07:50		05 Jul 2019 10:03	09 Jul 2019 00:46	1
HS19061210-08	AWD3_062119	21 Jun 2019 09:00		05 Jul 2019 10:03	09 Jul 2019 16:17	1
HS19061210-08	AWD3_062119	21 Jun 2019 09:00		05 Jul 2019 10:03	09 Jul 2019 00:48	1
Batch ID: R341659 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061210-01	18CpTMW06_062119	21 Jun 2019 07:10			01 Jul 2019 18:48	1
HS19061210-02	18CpTMW06_062119_a	21 Jun 2019 07:10			01 Jul 2019 19:12	1
HS19061210-03	MW22_062119	21 Jun 2019 08:00			01 Jul 2019 18:24	10
HS19061210-03	MW22_062119	21 Jun 2019 08:00			01 Jul 2019 14:49	1
HS19061210-04	CO1_062119	21 Jun 2019 08:50			01 Jul 2019 13:37	1
HS19061210-05	MW8_062119	21 Jun 2019 09:40			01 Jul 2019 14:01	1
HS19061210-06	18CpTMW15_062119	21 Jun 2019 10:30			01 Jul 2019 19:36	1
HS19061210-07	18CpTMW03SW_062119	21 Jun 2019 07:50			01 Jul 2019 20:00	1
HS19061210-08	AWD3_062119	21 Jun 2019 09:00			01 Jul 2019 20:48	10
HS19061210-09	CO8_062119	21 Jun 2019 10:35			01 Jul 2019 20:24	1

Revision: 2

ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R341930 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS19061210-01	18CpTMW06_062119	21 Jun 2019 07:10			06 Jul 2019 09:58	1
HS19061210-02	18CpTMW06_062119_a	21 Jun 2019 07:10			06 Jul 2019 09:58	1
HS19061210-03	MW22_062119	21 Jun 2019 08:00			06 Jul 2019 09:58	1
HS19061210-04	CO1_062119	21 Jun 2019 08:50			06 Jul 2019 09:58	1
HS19061210-05	MW8_062119	21 Jun 2019 09:40			06 Jul 2019 09:58	1
HS19061210-06	18CpTMW15_062119	21 Jun 2019 10:30			06 Jul 2019 09:58	1
HS19061210-07	18CpTMW03SW_062119	21 Jun 2019 07:50			06 Jul 2019 09:58	1
HS19061210-08	AWD3_062119	21 Jun 2019 09:00			06 Jul 2019 09:58	1
Batch ID: R342166 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS19061210-09	CO8_062119	21 Jun 2019 10:35			10 Jul 2019 14:38	1
Batch ID: R342424 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061210-10	Trip blank	21 Jun 2019 00:00			15 Jul 2019 15:10	1

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142615 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142615** Units: **mg/L** Analysis Date: **01-Jul-2019 16:21**
Client ID: Run ID: **HG03_341667** SeqNo: **5149453** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142615** Units: **mg/L** Analysis Date: **01-Jul-2019 16:22**
Client ID: Run ID: **HG03_341667** SeqNo: **5149454** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00513	0.000200	0.005	0	103	80 - 120				

MS Sample ID: **HS19061210-03MS** Units: **mg/L** Analysis Date: **01-Jul-2019 16:26**
Client ID: **MW22_062119** Run ID: **HG03_341667** SeqNo: **5149456** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000504	0.000000200	5e-006	0.0000000070	101	75 - 125				

MSD Sample ID: **HS19061210-03MSD** Units: **mg/L** Analysis Date: **01-Jul-2019 16:27**
Client ID: **MW22_062119** Run ID: **HG03_341667** SeqNo: **5149457** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000505	0.000000200	5e-006	0.0000000070	101	75 - 125	0.000005040	0.198	20	

The following samples were analyzed in this batch: HS19061210-03 HS19061210-07 HS19061210-08

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 14:46**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159142** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00500	0.0100								U
Antimony	0.00078	0.00500								J
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.000871	0.00500								J
Zinc	0.00250	0.00500								U

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:09**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157973** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01569	0.0100								
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0188	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.01316	0.00500								

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:11**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157974** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.105	0.0100	0.1	0	105	84 - 117				
Antimony	0.05026	0.00500	0.05	0	101	85 - 117				
Arsenic	0.05045	0.00500	0.05	0	101	84 - 116				
Barium	0.04898	0.00500	0.05	0	98.0	86 - 114				
Beryllium	0.0522	0.00200	0.05	0	104	83 - 121				
Cadmium	0.05062	0.00200	0.05	0	101	87 - 115				
Calcium	5.044	0.500	5	0	101	87 - 118				
Chromium	0.05022	0.00500	0.05	0	100	85 - 116				
Cobalt	0.05178	0.00500	0.05	0	104	86 - 115				
Copper	0.05054	0.00500	0.05	0	101	85 - 118				
Iron	5.157	0.200	5	0	103	87 - 118				
Lead	0.04892	0.00500	0.05	0	97.8	88 - 115				
Magnesium	5.207	0.200	5	0	104	83 - 118				
Manganese	0.05151	0.00500	0.05	0	103	87 - 115				
Nickel	0.05192	0.00500	0.05	0	104	85 - 117				
Potassium	5.01	0.200	5	0	100	87 - 115				
Selenium	0.05098	0.00500	0.05	0	102	80 - 120				
Sodium	5.131	0.200	5	0	103	85 - 117				
Thallium	0.04741	0.00200	0.05	0	94.8	82 - 116				
Vanadium	0.04942	0.00500	0.05	0	98.8	86 - 115				
Zinc	0.05405	0.00500	0.05	0	108	83 - 119				

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 16:22**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159203** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.05104	0.00500	0.05	0	102	85 - 116				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19070016-05MS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:18**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157977** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09637	0.0100	0.1	0.008457	87.9	84 - 117				
Antimony	0.04754	0.00500	0.05	0.000233	94.6	85 - 117				
Arsenic	0.04735	0.00500	0.05	0.000332	94.0	84 - 116				
Barium	0.5018	0.00500	0.05	0.443	118	86 - 114				SO
Beryllium	0.05054	0.00200	0.05	0.000285	101	83 - 121				
Cadmium	0.04557	0.00200	0.05	0.000354	90.4	87 - 115				
Calcium	15.22	0.500	5	10.34	97.6	87 - 118				
Chromium	0.1883	0.00500	0.05	0.1422	92.1	85 - 116				
Cobalt	0.05284	0.00500	0.05	0.004809	96.1	86 - 115				
Copper	0.05149	0.00500	0.05	0.004724	93.5	85 - 118				
Iron	5.767	0.200	5	1.003	95.3	87 - 118				
Lead	0.04574	0.00500	0.05	0.000066	91.3	88 - 115				
Magnesium	11.72	0.200	5	7.041	93.6	83 - 118				
Manganese	0.255	0.00500	0.05	0.2048	100	87 - 115				O
Nickel	0.6207	0.00500	0.05	0.5635	114	85 - 117				O
Potassium	5.81	0.200	5	0.934	97.5	87 - 115				
Selenium	0.05067	0.00500	0.05	0.000254	101	80 - 120				
Silver	0.05394	0.00500	0.05	0.000034	108	85 - 116				
Sodium	70.47	0.200	5	64.83	113	85 - 117				O
Thallium	0.04418	0.00200	0.05	0.000618	87.1	82 - 116				
Vanadium	0.0472	0.00500	0.05	0.001088	92.2	86 - 115				
Zinc	0.1359	0.00500	0.05	0.09015	91.5	83 - 119				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19070016-05MSD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:21**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157978** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0988	0.0100	0.1	0.008457	90.3	84 - 117	0.09637	2.49	20	
Antimony	0.04561	0.00500	0.05	0.000233	90.8	85 - 117	0.04754	4.15	20	
Arsenic	0.0475	0.00500	0.05	0.000332	94.3	84 - 116	0.04735	0.314	20	
Barium	0.5084	0.00500	0.05	0.443	131	86 - 114	0.5018	1.3	20	SO
Beryllium	0.05016	0.00200	0.05	0.000285	99.8	83 - 121	0.05054	0.751	20	
Cadmium	0.04804	0.00200	0.05	0.000354	95.4	87 - 115	0.04557	5.28	20	
Calcium	14.79	0.500	5	10.34	89.1	87 - 118	15.22	2.83	20	
Chromium	0.1943	0.00500	0.05	0.1422	104	85 - 116	0.1883	3.17	20	
Cobalt	0.05273	0.00500	0.05	0.004809	95.8	86 - 115	0.05284	0.201	20	
Copper	0.05346	0.00500	0.05	0.004724	97.5	85 - 118	0.05149	3.75	20	
Iron	5.694	0.200	5	1.003	93.8	87 - 118	5.767	1.28	20	
Lead	0.04407	0.00500	0.05	0.000066	88.0	88 - 115	0.04574	3.72	20	
Magnesium	11.29	0.200	5	7.041	85.1	83 - 118	11.72	3.73	20	
Manganese	0.2539	0.00500	0.05	0.2048	98.1	87 - 115	0.255	0.456	20	O
Nickel	0.6206	0.00500	0.05	0.5635	114	85 - 117	0.6207	0.00725	20	O
Potassium	5.591	0.200	5	0.934	93.1	87 - 115	5.81	3.84	20	
Selenium	0.0495	0.00500	0.05	0.000254	98.5	80 - 120	0.05067	2.33	20	
Silver	0.05636	0.00500	0.05	0.000034	113	85 - 116	0.05394	4.39	20	
Sodium	68.43	0.200	5	64.83	71.9	85 - 117	70.47	2.94	20	SO
Thallium	0.04256	0.00200	0.05	0.000618	83.9	82 - 116	0.04418	3.74	20	
Vanadium	0.04785	0.00500	0.05	0.001088	93.5	86 - 115	0.0472	1.37	20	
Zinc	0.1384	0.00500	0.05	0.09015	96.5	83 - 119	0.1359	1.82	20	

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19070016-05PDS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:23**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157979** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1004	0.0100	0.1	0.008457	92.0	80 - 120				
Antimony	0.08827	0.00500	0.1	0.000233	88.0	80 - 120				
Arsenic	0.1014	0.00500	0.1	0.000332	101	80 - 120				
Barium	0.5467	0.00500	0.1	0.443	104	80 - 120				O
Beryllium	0.09789	0.00200	0.1	0.000285	97.6	80 - 120				
Cadmium	0.09739	0.00200	0.1	0.000354	97.0	80 - 120				
Calcium	19.93	0.500	10	10.34	96.0	80 - 120				
Chromium	0.2417	0.00500	0.1	0.1422	99.5	80 - 120				
Cobalt	0.1061	0.00500	0.1	0.004809	101	80 - 120				
Copper	0.1034	0.00500	0.1	0.004724	98.7	80 - 120				
Iron	11.04	0.200	10	1.003	100	80 - 120				
Lead	0.09432	0.00500	0.1	0.000066	94.2	80 - 120				
Magnesium	16.83	0.200	10	7.041	97.9	80 - 120				
Manganese	0.3036	0.00500	0.1	0.2048	98.8	80 - 120				
Nickel	0.652	0.00500	0.1	0.5635	88.5	80 - 120				O
Potassium	10.66	0.200	10	0.934	97.2	80 - 120				
Selenium	0.1067	0.00500	0.1	0.000254	106	80 - 120				
Silver	0.1124	0.00500	0.1	0.000034	112	80 - 120				
Sodium	73.52	0.200	10	64.83	86.9	80 - 120				O
Thallium	0.09198	0.00200	0.1	0.000618	91.4	80 - 120				
Vanadium	0.101	0.00500	0.1	0.001088	99.9	80 - 120				
Zinc	0.1865	0.00500	0.1	0.09015	96.3	80 - 120				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19070016-05SD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:16**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157976** PrepDate: **05-Jul-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.0250	0.0500					0.008457	0	10	U
Antimony	0.00250	0.0250					0.000233	0	10	U
Arsenic	0.00250	0.0250					0.000332	0	10	U
Barium	0.4183	0.0250					0.443	5.57	10	
Beryllium	0.00250	0.0100					0.000285	0	10	U
Cadmium	0.00250	0.0100					0.000354	0	10	U
Calcium	10.41	2.50					10.34	0.714	10	
Chromium	0.1432	0.0250					0.1422	0.69	10	
Cobalt	0.005021	0.0250					0.004809	0	10	J
Copper	0.00500	0.0250					0.004724	0	10	U
Iron	1.017	1.00					1.003	1.35	10	
Lead	0.00500	0.0250					0.000066	0	10	U
Magnesium	6.942	1.00					7.041	1.41	10	
Manganese	0.2079	0.0250					0.2048	1.52	10	
Nickel	0.5877	0.0250					0.5635	4.3	10	
Potassium	0.9174	1.00					0.934	0	10	J
Selenium	0.0125	0.0250					0.000254	0	10	U
Silver	0.00250	0.0250					0.000034	0	10	U
Sodium	66.24	1.00					64.83	2.17	10	
Thallium	0.00250	0.0100					0.000618	0	10	U
Vanadium	0.00500	0.0250					0.001088	0	10	U
Zinc	0.08743	0.0250					0.09015	3.02	10	

The following samples were analyzed in this batch: HS19061210-03 HS19061210-07 HS19061210-08

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: 142510 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:37**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146408** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.0594*	*0*	*0.08*	*0*	*74.3*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08022*	*0*	*0.08*	*0*	*100*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07461*	*0*	*0.08*	*0*	*93.3*	*40 - 140*				

LCS Sample ID: **LCS-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:58**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146409** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08012	0.010	0.08	0	100	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07847*	*0*	*0.08*	*0*	*98.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08943*	*0*	*0.08*	*0*	*112*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08221*	*0*	*0.08*	*0*	*103*	*40 - 140*				

LCSD Sample ID: **LCSD-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 23:19**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146410** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07797	0.010	0.08	0	97.5	40 - 140	0.08012	2.72	20	
Surr: 2-Fluorobiphenyl	*0.07625*	*0*	*0.08*	*0*	*95.3*	*40 - 140*	*0.07847*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.09409*	*0*	*0.08*	*0*	*118*	*40 - 140*	*0.08943*	*5.08*	*20*	
Surr: Nitrobenzene-d5	*0.08067*	*0*	*0.08*	*0*	*101*	*40 - 140*	*0.08221*	*1.89*	*20*	

The following samples were analyzed in this batch: HS19061210-01 HS19061210-02 HS19061210-05 HS19061210-06 HS19061210-07 HS19061210-09

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 13:13**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149141** 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	1.0	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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 13:13**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149141** 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	1.0	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	*50.46*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.58*	*1.0*	*50*	*0*	*95.2*	*85 - 114*				
Surr: Dibromofluoromethane	*47*	*1.0*	*50*	*0*	*94.0*	*80 - 119*				
Surr: Toluene-d8	*50.26*	*1.0*	*50*	*0*	*101*	*89 - 112*				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 12:25**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149140** 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	20.11	1.0	20	0	101	78 - 124				
1,1,1-Trichloroethane	20.63	1.0	20	0	103	74 - 131				
1,1,2,2-Tetrachloroethane	22.67	1.0	20	0	113	71 - 121				
1,1,2-Trichloroethane	21.52	1.0	20	0	108	80 - 119				
1,1-Dichloroethane	20.18	1.0	20	0	101	77 - 125				
1,1-Dichloroethene	20.08	1.0	20	0	100	71 - 131				
1,1-Dichloropropene	19.97	1.0	20	0	99.9	78 - 125				
1,2,3-Trichlorobenzene	25.38	1.0	20	0	127	69 - 129				
1,2,3-Trichloropropane	22.97	1.0	20	0	115	73 - 122				
1,2,4-Trichlorobenzene	22.39	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	18.77	1.0	20	0	93.8	76 - 124				
1,2-Dibromo-3-chloropropane	24.24	1.0	20	0	121	62 - 128				
1,2-Dibromoethane	21.01	1.0	20	0	105	77 - 121				
1,2-Dichlorobenzene	20.29	1.0	20	0	101	80 - 119				
1,2-Dichloroethane	19.6	1.0	20	0	98.0	73 - 128				
1,2-Dichloropropane	20.22	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	18.12	1.0	20	0	90.6	75 - 124				
1,3-Dichlorobenzene	19.14	1.0	20	0	95.7	80 - 119				
1,3-Dichloropropane	20.91	1.0	20	0	105	80 - 119				
1,4-Dichlorobenzene	20.69	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	21.55	1.0	20	0	108	60 - 139				
2-Butanone	46.4	2.0	40	0	116	56 - 143				
2-Chlorotoluene	20.24	1.0	20	0	101	79 - 122				
2-Hexanone	42.95	2.0	40	0	107	57 - 139				
4-Chlorotoluene	20.21	1.0	20	0	101	78 - 122				
4-Isopropyltoluene	18.13	1.0	20	0	90.7	77 - 127				
4-Methyl-2-pentanone	42.21	2.0	40	0	106	67 - 130				
Acetone	51.9	2.0	40	0	130	39 - 160				
Benzene	20.86	1.0	20	0	104	79 - 120				
Bromobenzene	19.3	1.0	20	0	96.5	80 - 120				
Bromochloromethane	19.63	1.0	20	0	98.1	78 - 123				
Bromodichloromethane	20.78	1.0	20	0	104	79 - 125				
Bromoform	21.56	1.0	20	0	108	66 - 130				
Bromomethane	22.3	1.0	20	0	111	53 - 141				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190701** Units: **UG/L** Analysis Date: **01-Jul-2019 12:25**
Client ID: Run ID: **VOA6_341659** SeqNo: **5149140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.23	2.0	40	0	95.6	64 - 133				
Carbon tetrachloride	19.74	1.0	20	0	98.7	72 - 136				
Chlorobenzene	19.92	1.0	20	0	99.6	82 - 118				
Chloroethane	20.74	1.0	20	0	104	60 - 138				
Chloroform	24.47	1.0	20	0	122	79 - 124				
Chloromethane	18.24	1.0	20	0	91.2	50 - 139				
cis-1,2-Dichloroethene	20.8	1.0	20	0	104	78 - 123				
cis-1,3-Dichloropropene	20.13	1.0	20	0	101	75 - 124				
Dibromochloromethane	20.47	1.0	20	0	102	74 - 126				
Dibromomethane	20.24	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	20.65	1.0	20	0	103	32 - 152				
Ethylbenzene	19.49	1.0	20	0	97.4	79 - 121				
Hexachlorobutadiene	24.85	1.0	20	0	124	66 - 134				
Isopropylbenzene	18.53	1.0	20	0	92.6	72 - 131				
m,p-Xylene	38.92	2.0	40	0	97.3	80 - 121				
Methylene chloride	20.4	2.0	20	0	102	74 - 124				
Naphthalene	24.33	1.0	20	0	122	61 - 128				
n-Butylbenzene	18.77	1.0	20	0	93.9	75 - 128				
n-Propylbenzene	19.53	1.0	20	0	97.6	76 - 126				
o-Xylene	19.03	1.0	20	0	95.1	78 - 122				
sec-Butylbenzene	19.27	1.0	20	0	96.4	77 - 126				
Styrene	20.47	1.0	20	0	102	78 - 123				
tert-Butylbenzene	19.27	1.0	20	0	96.4	78 - 124				
Tetrachloroethene	19.09	1.0	20	0	95.4	74 - 129				
Toluene	19.9	1.0	20	0	99.5	80 - 121				
trans-1,2-Dichloroethene	20.71	1.0	20	0	104	75 - 124				
trans-1,3-Dichloropropene	20.46	1.0	20	0	102	73 - 127				
Trichloroethene	19.73	1.0	20	0	98.7	79 - 123				
Trichlorofluoromethane	20.37	1.0	20	0	102	65 - 141				
Vinyl chloride	19.04	1.0	20	0	95.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*56.59*	*1.0*	*50*	*0*	*113*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.46*	*1.0*	*50*	*0*	*109*	*85 - 114*				
Surr: Dibromofluoromethane	*54.8*	*1.0*	*50*	*0*	*110*	*80 - 119*				
Surr: Toluene-d8	*53.87*	*1.0*	*50*	*0*	*108*	*89 - 112*				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061210-04MS** Units: **UG/L** Analysis Date: **01-Jul-2019 15:13**
Client ID: **CO1_062119** Run ID: **VOA6_341659** SeqNo: **5149146** 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	17.02	1.0	20	0	85.1	78 - 124				
1,1,1-Trichloroethane	17.58	1.0	20	0	87.9	74 - 131				
1,1,2,2-Tetrachloroethane	18.62	1.0	20	0	93.1	71 - 121				
1,1,2-Trichloroethane	18.04	1.0	20	0	90.2	80 - 119				
1,1-Dichloroethane	16.54	1.0	20	0	82.7	77 - 125				
1,1-Dichloroethene	17.79	1.0	20	0	88.9	71 - 131				
1,1-Dichloropropene	18.36	1.0	20	0	91.8	78 - 125				
1,2,3-Trichlorobenzene	21.43	1.0	20	0	107	69 - 129				
1,2,3-Trichloropropane	18.9	1.0	20	0	94.5	73 - 122				
1,2,4-Trichlorobenzene	20.15	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	17.71	1.0	20	0	88.5	76 - 124				
1,2-Dibromo-3-chloropropane	20.52	1.0	20	0	103	62 - 128				
1,2-Dibromoethane	17.45	1.0	20	0	87.3	77 - 121				
1,2-Dichlorobenzene	17.28	1.0	20	0	86.4	80 - 119				
1,2-Dichloroethane	16.37	1.0	20	0	81.9	73 - 128				
1,2-Dichloropropane	16.77	1.0	20	0	83.8	78 - 122				
1,3,5-Trimethylbenzene	17.74	1.0	20	0	88.7	75 - 124				
1,3-Dichlorobenzene	17.27	1.0	20	0	86.4	80 - 119				
1,3-Dichloropropane	17.64	1.0	20	0	88.2	80 - 119				
1,4-Dichlorobenzene	18.24	1.0	20	0	91.2	79 - 118				
2,2-Dichloropropane	18.02	1.0	20	0	90.1	60 - 139				
2-Butanone	36.58	2.0	40	0	91.5	56 - 143				
2-Chlorotoluene	18.42	1.0	20	0	92.1	79 - 122				
2-Hexanone	35.46	2.0	40	0	88.6	57 - 139				
4-Chlorotoluene	18.55	1.0	20	0	92.8	78 - 122				
4-Isopropyltoluene	18.67	1.0	20	0	93.4	77 - 127				
4-Methyl-2-pentanone	34.54	2.0	40	0	86.4	67 - 130				
Acetone	41.91	2.0	40	0	105	39 - 160				
Benzene	17.59	1.0	20	0	88.0	79 - 120				
Bromobenzene	16.17	1.0	20	0	80.9	80 - 120				
Bromochloromethane	15.85	1.0	20	0	79.2	78 - 123				
Bromodichloromethane	17.02	1.0	20	0	85.1	79 - 125				
Bromoform	17.99	1.0	20	0	90.0	66 - 130				
Bromomethane	17.61	1.0	20	0	88.0	53 - 141				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061210-04MS** Units: **UG/L** Analysis Date: **01-Jul-2019 15:13**
Client ID: **CO1_062119** Run ID: **VOA6_341659** SeqNo: **5149146** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	32.41	2.0	40	0	81.0	64 - 133				
Carbon tetrachloride	18.3	1.0	20	0	91.5	72 - 136				
Chlorobenzene	16.87	1.0	20	0	84.3	82 - 118				
Chloroethane	16.94	1.0	20	0	84.7	60 - 138				
Chloroform	16.72	1.0	20	0	83.6	79 - 124				
Chloromethane	16.11	1.0	20	0	80.6	50 - 139				
cis-1,2-Dichloroethene	16.73	1.0	20	0	83.7	78 - 123				
cis-1,3-Dichloropropene	16.21	1.0	20	0	81.1	75 - 124				
Dibromochloromethane	17.08	1.0	20	0	85.4	74 - 126				
Dibromomethane	16.7	1.0	20	0	83.5	79 - 123				
Dichlorodifluoromethane	16.34	1.0	20	0	81.7	32 - 152				
Ethylbenzene	17.84	1.0	20	0	89.2	79 - 121				
Hexachlorobutadiene	22.65	1.0	20	0	113	66 - 134				
Isopropylbenzene	18.4	1.0	20	0	92.0	72 - 131				
m,p-Xylene	35.55	2.0	40	0	88.9	80 - 121				
Methylene chloride	15.55	2.0	20	0	77.8	74 - 124				
Naphthalene	20.06	1.0	20	0	100	61 - 128				
n-Butylbenzene	19.2	1.0	20	0	96.0	75 - 128				
n-Propylbenzene	19.54	1.0	20	0	97.7	76 - 126				
o-Xylene	17.22	1.0	20	0	86.1	78 - 122				
sec-Butylbenzene	19.96	1.0	20	0	99.8	77 - 126				
Styrene	17.96	1.0	20	0	89.8	78 - 123				
tert-Butylbenzene	19.4	1.0	20	0	97.0	78 - 124				
Tetrachloroethene	18.1	1.0	20	0	90.5	74 - 129				
Toluene	17.4	1.0	20	0	87.0	80 - 121				
trans-1,2-Dichloroethene	17.08	1.0	20	0	85.4	75 - 124				
trans-1,3-Dichloropropene	16.44	1.0	20	0	82.2	73 - 127				
Trichloroethene	17.51	1.0	20	0	87.5	79 - 123				
Trichlorofluoromethane	17.76	1.0	20	0	88.8	65 - 141				
Vinyl chloride	16.34	1.0	20	0	81.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.83*	*1.0*	*50*	*0*	*99.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.6*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*47.78*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*50.33*	*1.0*	*50*	*0*	*101*	*89 - 112*				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061210-04MSD** Units: **UG/L** Analysis Date: **01-Jul-2019 15:37**
Client ID: **CO1_062119** Run ID: **VOA6_341659** SeqNo: **5149147** 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	17.11	1.0	20	0	85.5	78 - 124	17.02	0.548	20	
1,1,1-Trichloroethane	17.64	1.0	20	0	88.2	74 - 131	17.58	0.364	20	
1,1,2,2-Tetrachloroethane	19.75	1.0	20	0	98.8	71 - 121	18.62	5.89	20	
1,1,2-Trichloroethane	18.6	1.0	20	0	93.0	80 - 119	18.04	3.08	20	
1,1-Dichloroethane	16.64	1.0	20	0	83.2	77 - 125	16.54	0.573	20	
1,1-Dichloroethene	17.88	1.0	20	0	89.4	71 - 131	17.79	0.528	20	
1,1-Dichloropropene	18.5	1.0	20	0	92.5	78 - 125	18.36	0.808	20	
1,2,3-Trichlorobenzene	23.84	1.0	20	0	119	69 - 129	21.43	10.6	20	
1,2,3-Trichloropropane	19.4	1.0	20	0	97.0	73 - 122	18.9	2.62	20	
1,2,4-Trichlorobenzene	21.4	1.0	20	0	107	69 - 130	20.15	6.01	20	
1,2,4-Trimethylbenzene	17.75	1.0	20	0	88.7	76 - 124	17.71	0.222	20	
1,2-Dibromo-3-chloropropane	21.82	1.0	20	0	109	62 - 128	20.52	6.14	20	
1,2-Dibromoethane	17.94	1.0	20	0	89.7	77 - 121	17.45	2.74	20	
1,2-Dichlorobenzene	17.88	1.0	20	0	89.4	80 - 119	17.28	3.4	20	
1,2-Dichloroethane	16.83	1.0	20	0	84.1	73 - 128	16.37	2.75	20	
1,2-Dichloropropane	16.88	1.0	20	0	84.4	78 - 122	16.77	0.684	20	
1,3,5-Trimethylbenzene	17.58	1.0	20	0	87.9	75 - 124	17.74	0.943	20	
1,3-Dichlorobenzene	17.25	1.0	20	0	86.3	80 - 119	17.27	0.142	20	
1,3-Dichloropropane	18.28	1.0	20	0	91.4	80 - 119	17.64	3.57	20	
1,4-Dichlorobenzene	18.6	1.0	20	0	93.0	79 - 118	18.24	1.96	20	
2,2-Dichloropropane	17.75	1.0	20	0	88.7	60 - 139	18.02	1.53	20	
2-Butanone	39	2.0	40	0	97.5	56 - 143	36.58	6.4	20	
2-Chlorotoluene	18.34	1.0	20	0	91.7	79 - 122	18.42	0.454	20	
2-Hexanone	37.74	2.0	40	0	94.3	57 - 139	35.46	6.23	20	
4-Chlorotoluene	18.58	1.0	20	0	92.9	78 - 122	18.55	0.145	20	
4-Isopropyltoluene	18.44	1.0	20	0	92.2	77 - 127	18.67	1.25	20	
4-Methyl-2-pentanone	37.2	2.0	40	0	93.0	67 - 130	34.54	7.41	20	
Acetone	45.62	2.0	40	0	114	39 - 160	41.91	8.48	20	
Benzene	17.78	1.0	20	0	88.9	79 - 120	17.59	1.07	20	
Bromobenzene	16.29	1.0	20	0	81.4	80 - 120	16.17	0.725	20	
Bromochloromethane	16.28	1.0	20	0	81.4	78 - 123	15.85	2.68	20	
Bromodichloromethane	17.54	1.0	20	0	87.7	79 - 125	17.02	3.04	20	
Bromoform	18.5	1.0	20	0	92.5	66 - 130	17.99	2.8	20	
Bromomethane	17.59	1.0	20	0	88.0	53 - 141	17.61	0.0727	20	

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061210-04MSD** Units: **UG/L** Analysis Date: **01-Jul-2019 15:37**
Client ID: **CO1_062119** Run ID: **VOA6_341659** SeqNo: **5149147** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	32.2	2.0	40	0	80.5	64 - 133	32.41	0.667	20	
Carbon tetrachloride	18.41	1.0	20	0	92.1	72 - 136	18.3	0.627	20	
Chlorobenzene	17.17	1.0	20	0	85.8	82 - 118	16.87	1.75	20	
Chloroethane	17.55	1.0	20	0	87.7	60 - 138	16.94	3.51	20	
Chloroform	16.87	1.0	20	0	84.4	79 - 124	16.72	0.903	20	
Chloromethane	15.3	1.0	20	0	76.5	50 - 139	16.11	5.15	20	
cis-1,2-Dichloroethene	17.11	1.0	20	0	85.6	78 - 123	16.73	2.24	20	
cis-1,3-Dichloropropene	16.68	1.0	20	0	83.4	75 - 124	16.21	2.82	20	
Dibromochloromethane	17.53	1.0	20	0	87.6	74 - 126	17.08	2.59	20	
Dibromomethane	17.52	1.0	20	0	87.6	79 - 123	16.7	4.78	20	
Dichlorodifluoromethane	16.36	1.0	20	0	81.8	32 - 152	16.34	0.128	20	
Ethylbenzene	17.63	1.0	20	0	88.2	79 - 121	17.84	1.18	20	
Hexachlorobutadiene	23.43	1.0	20	0	117	66 - 134	22.65	3.36	20	
Isopropylbenzene	18.34	1.0	20	0	91.7	72 - 131	18.4	0.344	20	
m,p-Xylene	35.63	2.0	40	0	89.1	80 - 121	35.55	0.201	20	
Methylene chloride	16.02	2.0	20	0	80.1	74 - 124	15.55	2.95	20	
Naphthalene	23.21	1.0	20	0	116	61 - 128	20.06	14.5	20	
n-Butylbenzene	19.2	1.0	20	0	96.0	75 - 128	19.2	0.0383	20	
n-Propylbenzene	19.2	1.0	20	0	96.0	76 - 126	19.54	1.78	20	
o-Xylene	17.44	1.0	20	0	87.2	78 - 122	17.22	1.29	20	
sec-Butylbenzene	20.03	1.0	20	0	100	77 - 126	19.96	0.311	20	
Styrene	17.9	1.0	20	0	89.5	78 - 123	17.96	0.32	20	
tert-Butylbenzene	19.25	1.0	20	0	96.2	78 - 124	19.4	0.794	20	
Tetrachloroethene	17.58	1.0	20	0	87.9	74 - 129	18.1	2.91	20	
Toluene	17.27	1.0	20	0	86.3	80 - 121	17.4	0.735	20	
trans-1,2-Dichloroethene	17.3	1.0	20	0	86.5	75 - 124	17.08	1.25	20	
trans-1,3-Dichloropropene	16.89	1.0	20	0	84.5	73 - 127	16.44	2.74	20	
Trichloroethene	17.2	1.0	20	0	86.0	79 - 123	17.51	1.78	20	
Trichlorofluoromethane	18.29	1.0	20	0	91.5	65 - 141	17.76	2.95	20	
Vinyl chloride	16.23	1.0	20	0	81.2	58 - 137	16.34	0.663	20	
Surr: 1,2-Dichloroethane-d4	*50.94*	*1.0*	*50*	*0*	*102*	*81 - 118*	*49.83*	*2.21*	*20*	
Surr: 4-Bromofluorobenzene	*50.71*	*1.0*	*50*	*0*	*101*	*85 - 114*	*50.6*	*0.217*	*20*	
Surr: Dibromofluoromethane	*49.23*	*1.0*	*50*	*0*	*98.5*	*80 - 119*	*47.78*	*2.99*	*20*	
Surr: Toluene-d8	*50.46*	*1.0*	*50*	*0*	*101*	*89 - 112*	*50.33*	*0.265*	*20*	

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R341659 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19061210-01	HS19061210-02	HS19061210-03	HS19061210-04
HS19061210-05	HS19061210-06	HS19061210-07	HS19061210-08
HS19061210-09			

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 13:10**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166706** 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	1.0	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

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 13:10**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166706** 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	1.0	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	*49.57*	*1.0*	*50*	*0*	*99.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.04*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*49.56*	*1.0*	*50*	*0*	*99.1*	*80 - 119*				
Surr: Toluene-d8	*55.68*	*1.0*	*50*	*0*	*111*	*89 - 112*				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 11:59**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166705** 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	23.08	1.0	20	0	115	78 - 124				
1,1,1-Trichloroethane	20.55	1.0	20	0	103	74 - 131				
1,1,2,2-Tetrachloroethane	21.83	1.0	20	0	109	71 - 121				
1,1,2-Trichloroethane	22.64	1.0	20	0	113	80 - 119				
1,1-Dichloroethane	21.04	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	19.8	1.0	20	0	99.0	71 - 131				
1,1-Dichloropropene	21.29	1.0	20	0	106	78 - 125				
1,2,3-Trichlorobenzene	19.96	1.0	20	0	99.8	69 - 129				
1,2,3-Trichloropropane	20.27	1.0	20	0	101	73 - 122				
1,2,4-Trichlorobenzene	20.69	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	21.91	1.0	20	0	110	76 - 124				
1,2-Dibromo-3-chloropropane	20.59	1.0	20	0	103	62 - 128				
1,2-Dibromoethane	22.03	1.0	20	0	110	77 - 121				
1,2-Dichlorobenzene	21.64	1.0	20	0	108	80 - 119				
1,2-Dichloroethane	21.68	1.0	20	0	108	73 - 128				
1,2-Dichloropropane	22.98	1.0	20	0	115	78 - 122				
1,3,5-Trimethylbenzene	21.81	1.0	20	0	109	75 - 124				
1,3-Dichlorobenzene	22.13	1.0	20	0	111	80 - 119				
1,3-Dichloropropane	22.31	1.0	20	0	112	80 - 119				
1,4-Dichlorobenzene	21.13	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	21.18	1.0	20	0	106	60 - 139				
2-Butanone	46.06	2.0	40	0	115	56 - 143				
2-Chlorotoluene	21.23	1.0	20	0	106	79 - 122				
2-Hexanone	45.11	2.0	40	0	113	57 - 139				
4-Chlorotoluene	21.32	1.0	20	0	107	78 - 122				
4-Isopropyltoluene	22.03	1.0	20	0	110	77 - 127				
4-Methyl-2-pentanone	44.64	2.0	40	0	112	67 - 130				
Acetone	54.2	2.0	40	0	136	39 - 160				
Benzene	21.8	1.0	20	0	109	79 - 120				
Bromobenzene	22.31	1.0	20	0	112	80 - 120				
Bromochloromethane	21.02	1.0	20	0	105	78 - 123				
Bromodichloromethane	22.31	1.0	20	0	112	79 - 125				
Bromoform	22.62	1.0	20	0	113	66 - 130				
Bromomethane	24.56	1.0	20	0	123	53 - 141				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 11:59**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166705** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	42.96	2.0	40	0	107	64 - 133				
Carbon tetrachloride	20.69	1.0	20	0	103	72 - 136				
Chlorobenzene	22.26	1.0	20	0	111	82 - 118				
Chloroethane	19.53	1.0	20	0	97.6	60 - 138				
Chloroform	21.85	1.0	20	0	109	79 - 124				
Chloromethane	21.86	1.0	20	0	109	50 - 139				
cis-1,2-Dichloroethene	21.2	1.0	20	0	106	78 - 123				
cis-1,3-Dichloropropene	22.97	1.0	20	0	115	75 - 124				
Dibromochloromethane	22.9	1.0	20	0	115	74 - 126				
Dibromomethane	21.79	1.0	20	0	109	79 - 123				
Dichlorodifluoromethane	20.91	1.0	20	0	105	32 - 152				
Ethylbenzene	22.45	1.0	20	0	112	79 - 121				
Hexachlorobutadiene	23.73	1.0	20	0	119	66 - 134				
Isopropylbenzene	22.67	1.0	20	0	113	72 - 131				
m,p-Xylene	45.25	2.0	40	0	113	80 - 121				
Methylene chloride	20.66	2.0	20	0	103	74 - 124				
Naphthalene	18.45	1.0	20	0	92.3	61 - 128				
n-Butylbenzene	23.5	1.0	20	0	118	75 - 128				
n-Propylbenzene	21.56	1.0	20	0	108	76 - 126				
o-Xylene	22.24	1.0	20	0	111	78 - 122				
sec-Butylbenzene	21.67	1.0	20	0	108	77 - 126				
Styrene	22.78	1.0	20	0	114	78 - 123				
tert-Butylbenzene	21.61	1.0	20	0	108	78 - 124				
Tetrachloroethene	23.77	1.0	20	0	119	74 - 129				
Toluene	22.66	1.0	20	0	113	80 - 121				
trans-1,2-Dichloroethene	21.15	1.0	20	0	106	75 - 124				
trans-1,3-Dichloropropene	22.36	1.0	20	0	112	73 - 127				
Trichloroethene	21.49	1.0	20	0	107	79 - 123				
Trichlorofluoromethane	19.87	1.0	20	0	99.3	65 - 141				
Vinyl chloride	19.88	1.0	20	0	99.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.08*	*1.0*	*50*	*0*	*98.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.54*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*49.16*	*1.0*	*50*	*0*	*98.3*	*80 - 119*				
Surr: Toluene-d8	*51.11*	*1.0*	*50*	*0*	*102*	*89 - 112*				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19070656-99MS** Units: **UG/L** Analysis Date: **15-Jul-2019 15:58**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167080** 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	22.19	1.0	20	0	111	78 - 124				
1,1,1-Trichloroethane	20.93	1.0	20	0	105	74 - 131				
1,1,2,2-Tetrachloroethane	21.31	1.0	20	0	107	71 - 121				
1,1,2-Trichloroethane	21.42	1.0	20	0	107	80 - 119				
1,1-Dichloroethane	19.94	1.0	20	0	99.7	77 - 125				
1,1-Dichloroethene	19.89	1.0	20	0	99.4	71 - 131				
1,1-Dichloropropene	21.77	1.0	20	0	109	78 - 125				
1,2,3-Trichlorobenzene	20	1.0	20	0	100.0	69 - 129				
1,2,3-Trichloropropane	19.55	1.0	20	0	97.7	73 - 122				
1,2,4-Trichlorobenzene	20.88	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	22.01	1.0	20	0	110	76 - 124				
1,2-Dibromo-3-chloropropane	20.38	1.0	20	0	102	62 - 128				
1,2-Dibromoethane	21.35	1.0	20	0	107	77 - 121				
1,2-Dichlorobenzene	21.3	1.0	20	0	107	80 - 119				
1,2-Dichloroethane	20.74	1.0	20	0	104	73 - 128				
1,2-Dichloropropane	21.01	1.0	20	0	105	78 - 122				
1,3,5-Trimethylbenzene	22.34	1.0	20	0	112	75 - 124				
1,3-Dichlorobenzene	21.82	1.0	20	0	109	80 - 119				
1,3-Dichloropropane	21.23	1.0	20	0	106	80 - 119				
1,4-Dichlorobenzene	20.63	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	20.62	1.0	20	0	103	60 - 139				
2-Butanone	46.35	2.0	40	7.115	98.1	56 - 143				
2-Chlorotoluene	21.8	1.0	20	0	109	79 - 122				
2-Hexanone	41.12	2.0	40	0	103	57 - 139				
4-Chlorotoluene	21.3	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	22.48	1.0	20	0	112	77 - 127				
4-Methyl-2-pentanone	42.61	2.0	40	0	107	67 - 130				
Acetone	37.96	2.0	40	0	94.9	39 - 160				
Benzene	21.01	1.0	20	0	105	79 - 120				
Bromobenzene	21.94	1.0	20	0	110	80 - 120				
Bromochloromethane	19.37	1.0	20	0	96.9	78 - 123				
Bromodichloromethane	20.89	1.0	20	0	104	79 - 125				
Bromoform	21.69	1.0	20	0	108	66 - 130				
Bromomethane	20.3	1.0	20	0	101	53 - 141				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19070656-99MS** Units: **UG/L** Analysis Date: **15-Jul-2019 15:58**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167080** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	42.12	2.0	40	0	105	64 - 133				
Carbon tetrachloride	21.53	1.0	20	0	108	72 - 136				
Chlorobenzene	21.44	1.0	20	0	107	82 - 118				
Chloroethane	18.08	1.0	20	0	90.4	60 - 138				
Chloroform	20.3	1.0	20	0	102	79 - 124				
Chloromethane	20.45	1.0	20	0	102	50 - 139				
cis-1,2-Dichloroethene	19.61	1.0	20	0	98.0	78 - 123				
cis-1,3-Dichloropropene	21.18	1.0	20	0	106	75 - 124				
Dibromochloromethane	21.69	1.0	20	0	108	74 - 126				
Dibromomethane	19.78	1.0	20	0	98.9	79 - 123				
Dichlorodifluoromethane	15.49	1.0	20	0	77.5	32 - 152				
Ethylbenzene	22.57	1.0	20	0	113	79 - 121				
Hexachlorobutadiene	20.96	1.0	20	0	105	66 - 134				
Isopropylbenzene	23.29	1.0	20	0	116	72 - 131				
m,p-Xylene	45.27	2.0	40	0	113	80 - 121				
Methylene chloride	19.09	2.0	20	0	95.5	74 - 124				
Naphthalene	18.74	1.0	20	0	93.7	61 - 128				
n-Butylbenzene	23.43	1.0	20	0	117	75 - 128				
n-Propylbenzene	22.6	1.0	20	0	113	76 - 126				
o-Xylene	21.81	1.0	20	0	109	78 - 122				
sec-Butylbenzene	22.65	1.0	20	0	113	77 - 126				
Styrene	22.07	1.0	20	0	110	78 - 123				
tert-Butylbenzene	22.57	1.0	20	0	113	78 - 124				
Tetrachloroethene	24.52	1.0	20	0	123	74 - 129				
Toluene	22.62	1.0	20	0	113	80 - 121				
trans-1,2-Dichloroethene	20.36	1.0	20	0	102	75 - 124				
trans-1,3-Dichloropropene	20.06	1.0	20	0	100	73 - 127				
Trichloroethene	21.75	1.0	20	1.3	102	79 - 123				
Trichlorofluoromethane	19.75	1.0	20	0	98.8	65 - 141				
Vinyl chloride	17.97	1.0	20	0	89.9	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.57*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.96*	*1.0*	*50*	*0*	*108*	*85 - 114*				
Surr: Dibromofluoromethane	*51.4*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*55.82*	*1.0*	*50*	*0*	*112*	*89 - 112*				

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19070656-99MSD** Units: **UG/L** Analysis Date: **15-Jul-2019 16:22**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167081** 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	22.48	1.0	20	0	112	78 - 124	22.19	1.31	20	
1,1,1-Trichloroethane	20.66	1.0	20	0	103	74 - 131	20.93	1.33	20	
1,1,2,2-Tetrachloroethane	22.12	1.0	20	0	111	71 - 121	21.31	3.75	20	
1,1,2-Trichloroethane	22.14	1.0	20	0	111	80 - 119	21.42	3.32	20	
1,1-Dichloroethane	19.77	1.0	20	0	98.8	77 - 125	19.94	0.854	20	
1,1-Dichloroethene	19.87	1.0	20	0	99.3	71 - 131	19.89	0.107	20	
1,1-Dichloropropene	21.58	1.0	20	0	108	78 - 125	21.77	0.865	20	
1,2,3-Trichlorobenzene	21.32	1.0	20	0	107	69 - 129	20	6.39	20	
1,2,3-Trichloropropane	20.07	1.0	20	0	100	73 - 122	19.55	2.63	20	
1,2,4-Trichlorobenzene	21.47	1.0	20	0	107	69 - 130	20.88	2.78	20	
1,2,4-Trimethylbenzene	22.09	1.0	20	0	110	76 - 124	22.01	0.371	20	
1,2-Dibromo-3-chloropropane	20.51	1.0	20	0	103	62 - 128	20.38	0.633	20	
1,2-Dibromoethane	21.74	1.0	20	0	109	77 - 121	21.35	1.84	20	
1,2-Dichlorobenzene	21.77	1.0	20	0	109	80 - 119	21.3	2.17	20	
1,2-Dichloroethane	21.09	1.0	20	0	105	73 - 128	20.74	1.68	20	
1,2-Dichloropropane	21.54	1.0	20	0	108	78 - 122	21.01	2.49	20	
1,3,5-Trimethylbenzene	22.25	1.0	20	0	111	75 - 124	22.34	0.412	20	
1,3-Dichlorobenzene	22.15	1.0	20	0	111	80 - 119	21.82	1.49	20	
1,3-Dichloropropane	21.81	1.0	20	0	109	80 - 119	21.23	2.73	20	
1,4-Dichlorobenzene	21.29	1.0	20	0	106	79 - 118	20.63	3.15	20	
2,2-Dichloropropane	20.26	1.0	20	0	101	60 - 139	20.62	1.75	20	
2-Butanone	47.81	2.0	40	7.115	102	56 - 143	46.35	3.1	20	
2-Chlorotoluene	21.74	1.0	20	0	109	79 - 122	21.8	0.277	20	
2-Hexanone	43.06	2.0	40	0	108	57 - 139	41.12	4.6	20	
4-Chlorotoluene	21.37	1.0	20	0	107	78 - 122	21.3	0.333	20	
4-Isopropyltoluene	22.46	1.0	20	0	112	77 - 127	22.48	0.0765	20	
4-Methyl-2-pentanone	44.2	2.0	40	0	110	67 - 130	42.61	3.65	20	
Acetone	39.46	2.0	40	0	98.7	39 - 160	37.96	3.89	20	
Benzene	21.3	1.0	20	0	107	79 - 120	21.01	1.37	20	
Bromobenzene	22.41	1.0	20	0	112	80 - 120	21.94	2.08	20	
Bromochloromethane	19.5	1.0	20	0	97.5	78 - 123	19.37	0.687	20	
Bromodichloromethane	20.98	1.0	20	0	105	79 - 125	20.89	0.413	20	
Bromoform	22.22	1.0	20	0	111	66 - 130	21.69	2.42	20	
Bromomethane	19.56	1.0	20	0	97.8	53 - 141	20.3	3.69	20	

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061210

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19070656-99MSD** Units: **UG/L** Analysis Date: **15-Jul-2019 16:22**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167081** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	41.77	2.0	40	0	104	64 - 133	42.12	0.843	20	
Carbon tetrachloride	21.34	1.0	20	0	107	72 - 136	21.53	0.868	20	
Chlorobenzene	21.78	1.0	20	0	109	82 - 118	21.44	1.6	20	
Chloroethane	18.46	1.0	20	0	92.3	60 - 138	18.08	2.08	20	
Chloroform	20.66	1.0	20	0	103	79 - 124	20.3	1.76	20	
Chloromethane	19.16	1.0	20	0	95.8	50 - 139	20.45	6.5	20	
cis-1,2-Dichloroethene	19.9	1.0	20	0	99.5	78 - 123	19.61	1.45	20	
cis-1,3-Dichloropropene	21.57	1.0	20	0	108	75 - 124	21.18	1.83	20	
Dibromochloromethane	21.78	1.0	20	0	109	74 - 126	21.69	0.436	20	
Dibromomethane	20.72	1.0	20	0	104	79 - 123	19.78	4.63	20	
Dichlorodifluoromethane	15.06	1.0	20	0	75.3	32 - 152	15.49	2.84	20	
Ethylbenzene	22.64	1.0	20	0	113	79 - 121	22.57	0.314	20	
Hexachlorobutadiene	21.26	1.0	20	0	106	66 - 134	20.96	1.39	20	
Isopropylbenzene	23.47	1.0	20	0	117	72 - 131	23.29	0.765	20	
m,p-Xylene	45.17	2.0	40	0	113	80 - 121	45.27	0.208	20	
Methylene chloride	19.2	2.0	20	0	96.0	74 - 124	19.09	0.533	20	
Naphthalene	20.18	1.0	20	0	101	61 - 128	18.74	7.38	20	
n-Butylbenzene	23.6	1.0	20	0	118	75 - 128	23.43	0.724	20	
n-Propylbenzene	22.52	1.0	20	0	113	76 - 126	22.6	0.355	20	
o-Xylene	21.84	1.0	20	0	109	78 - 122	21.81	0.127	20	
sec-Butylbenzene	22.53	1.0	20	0	113	77 - 126	22.65	0.536	20	
Styrene	22.39	1.0	20	0	112	78 - 123	22.07	1.45	20	
tert-Butylbenzene	22.68	1.0	20	0	113	78 - 124	22.57	0.48	20	
Tetrachloroethene	24.11	1.0	20	0	121	74 - 129	24.52	1.65	20	
Toluene	22.43	1.0	20	0	112	80 - 121	22.62	0.848	20	
trans-1,2-Dichloroethene	20.37	1.0	20	0	102	75 - 124	20.36	0.0286	20	
trans-1,3-Dichloropropene	20.9	1.0	20	0	105	73 - 127	20.06	4.1	20	
Trichloroethene	21.62	1.0	20	1.3	102	79 - 123	21.75	0.565	20	
Trichlorofluoromethane	19.75	1.0	20	0	98.7	65 - 141	19.75	0.0166	20	
Vinyl chloride	17.66	1.0	20	0	88.3	58 - 137	17.97	1.8	20	
Surr: 1,2-Dichloroethane-d4	*51.8*	*1.0*	*50*	*0*	*104*	*81 - 118*	*50.57*	*2.41*	*20*	
Surr: 4-Bromofluorobenzene	*53.88*	*1.0*	*50*	*0*	*108*	*85 - 114*	*53.96*	*0.148*	*20*	
Surr: Dibromofluoromethane	*51.96*	*1.0*	*50*	*0*	*104*	*80 - 119*	*51.4*	*1.08*	*20*	
Surr: Toluene-d8	*55.78*	*1.0*	*50*	*0*	*112*	*89 - 112*	*55.82*	*0.066*	*20*	

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP 18 24
WorkOrder:	HS19061210

QC BATCH REPORT

Batch ID:	**R342424 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch: HS19061210-10

Revision: 2

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061210**

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	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061210

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19061210-01	18CpTMW06_062119	Login	24/06/2019 10:40:51	RPG	Sub
HS19061210-01	18CpTMW06_062119	Login	24/06/2019 10:40:51	RPG	EXT004
HS19061210-01	18CpTMW06_062119	Login	24/06/2019 10:40:51	RPG	VOA257
HS19061210-04	CO1_062119	Login	24/06/2019 10:40:51	RPG	Sub
HS19061210-04	CO1_062119	Login	24/06/2019 10:40:51	RPG	VOA257
HS19061210-07	18CpTMW03SW_062119	Login	24/06/2019 10:40:51	RPG	MET081
HS19061210-07	18CpTMW03SW_062119	Login	24/06/2019 10:40:51	RPG	Sub
HS19061210-07	18CpTMW03SW_062119	Login	24/06/2019 10:40:51	RPG	EXT004
HS19061210-07	18CpTMW03SW_062119	Login	24/06/2019 10:40:51	RPG	VOA257
HS19061210-10	Trip blank	Login	24/06/2019 10:40:51	RPG	VOA257

Revision:2

ALS Houston, US Date: 15-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061210
Date/Time Received: **22-Jun-2019 08:55**
Received by: **PMG**

Checklist completed by: *Raegen Giga* eSignature 24-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 25-Jun-2019 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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	2.3c uc/c	IR 25
Cooler(s)/Kit(s):	3210	
Date/Time sample(s) sent to storage:	06/22/19 15:00	

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 CONSTRUCTION ENERGY

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

Chain of Custody and Analytical Request

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

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	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
18CPTMW06_062119		21 Jun 2019	0710	-	N		WG	5	X	X		X				
18CPTMW06_062119_a		21 Jun 2019	0710	-	FD		WG	5	X	X		X				
MW22_062119		21 Jun 2019	0900	-	N		WG	5	X	X	X					
Col_062119		21 Jun 2019	0850		N		WG	4	X	X						
Col_062119_MS		21 Jun 2019	0850		MS		WG	4	X	X						
Col_062119_MSD		21 Jun 2019	0850	-	SD		WG	4	X	X						
MW8_062119		21 Jun 2019	0940	-	N		WG	5	X	X		X				
18CPTMW15_062119		21 Jun 2019	1030	-	N		WG	5	X	X		X				
18CPTMW03SW_062119		21 Jun 2019	0750	-	N		WG	6	X	X	X	X				
AWD3_062119		21 Jun 2019	0900	-	N		WG	5	X	X	X					
C08_062119		21 Jun 2019	1035	-	N		WG	5	X	X		X				
TRIP BLANK		21 Jun 2019			TB		W	2	X							

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19061210
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/21/19	1130	1. ALC	6/22/19	08:55
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 Stancliff 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

3210 VIC: 2.3 425 Cliff 0.0

00941171

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

3210

CUSTODY SEAL

Date: 6/21/19 Time: 1130
Name: [illegible]
Company: [illegible]

Seal Broken By: AC
Date: 06/22/19

3210 JUN 2 2 2019

Must Deliver Next Business Day
Time and Tempature Sensitive!

3210

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: 24MAY19
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) 530-6656
REF: LHAAP/18/24 & SURFACE WATER - RJ

RMA:

FedEx Express

FedEx
TRK# 0221 4809 7834 3229

SATURDAY 12:00P
PRIORITY OVERNIGHT

77099
TX-US
IAH

X0 SGRA

FID 5195800 21JUN19 GGGA 553C1/D210/0C8A

Part # 150469-434 RNT2 EX - 07

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1918260, 1918265

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2268 (242714)

General Set Information: There were nineteen field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1918260003/08 were analyzed and reported from 1:10 dilutions. Field sample 1918260007 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 661792) was less than 1/2 the CRDL. The recovery for the LCS (661793) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 1918260005/06 (Client ID: CO1_062119). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The MS/MSD percent recoveries and relative percent difference were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 661790) is reported from the analysis of the Laboratory Control Sample (LCS – 661793) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 03JULD03/06/19/23.

Thomas Bosch July 5, 2019
Analyst Date

ANALYTICAL REPORT

Report Date: July 05, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918260**
Project ID: HS19061210
Purchase Order: HS19061210
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
18CPTMW06_062119	1918260001	06/21/19	06/25/19	
18CPTMW06_062119_a	1918260002	06/21/19	06/25/19	
MW22_062119	1918260003	06/21/19	06/25/19	
CO1_062119	1918260004	06/21/19	06/25/19	
MW8_062119	1918260007	06/21/19	06/25/19	
18CPTMW15_062119	1918260008	06/21/19	06/25/19	
18CPTMW03SW_062119	1918260009	06/21/19	06/25/19	
AWD3_062119	1918260010	06/21/19	06/25/19	
CO8_062119	1918260011	06/21/19	06/25/19	

Client QC ID *	Lab ID	Collect Date	Receive Date	Sampling Site
CO1_062119MS	1918260005	06/21/19	06/25/19	
CO1_062119MSD	1918260006	06/21/19	06/25/19	

***Client QC is reported as part of the Quality Control results report, if requested.**

ANALYTICAL REPORT

Workorder: 34-1918260
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18CPTMW06_062119** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260001 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 09:17 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	1.7	1.0	2.0	4.0	1	J

Sample ID: **18CPTMW06_062119_a** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260002 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 09:31 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **MW22_062119** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260003 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 09:45 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**95**	10	20	40	10	

Sample ID: **CO1_062119** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260004 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 09:58 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

ANALYTICAL REPORT

Workorder: 34-1918260
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **MW8_062119** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260007 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 10:40 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**7100**	1000	2000	4000	1000	

Sample ID: **18CPTMW15_062119** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260008 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 10:54 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**410**	10	20	40	10	

Sample ID: **18CPTMW03SW_062119** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260009 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 11:08 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**9.9**	1.0	2.0	4.0	1	

Sample ID: **AWD3_062119** | Sampling Site: NA | Collected: 06/21/2019
Lab ID: 1918260010 | Media: 125 mL Nalgene | Received: 06/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2268 (HBN: 242714) | **Percent Solid:** NA
Analyzed: 07/03/2019 11:22 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	1.8	1.0	2.0	4.0	1	J

ANALYTICAL REPORT

Workorder: 34-1918260
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **CO8_062119**	Sampling Site: NA	Collected: 06/21/2019
Lab ID: 1918260011	Media: 125 mL Nalgene	Received: 06/25/2019
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2268 (HBN: 242714)	**Percent Solid:** NA
	Analyzed: 07/03/2019 11:36	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Comments

Quality Control: EPA 6850, DoD QSM - (HBN: 242714)

Field samples 1918260003/08 were analyzed and reported from 1:10 dilutions. Field sample 1918260007 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/05/2019 11:10	/S/ Stephen Brose 07/05/2019 14:20

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1918260
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918260

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2268 (HBN: 242714)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 661792
Analyzed: 07/03/2019 09:03
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 661793
Analyzed: 07/03/2019 08:35
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.21	4.00	105	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

	Sample	MS	MSD
	1918260004	1918260005	1918260006
Analyzed:	07/03/2019 09:58	07/03/2019 10:12	07/03/2019 10:26
Dilution:	1	1	1
Units:	ug/L	ug/L	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	3.42	4	85.4	78.8	123.8	3.37	84.1	1.55	0.0	20.0

Comments

Field samples 1918260003/08 were analyzed and reported from 1:10 dilutions. Field sample 1918260007 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
07/05/2019 11:12	07/05/2019 14:20

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable



W 1918260

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11650**

1918260

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	HS19061210
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19061210-01**	**18CpTMW06_062119**	**Water**	**21 Jun 2019 07:10**
	SUB_Perch-6850			09 Jul 2019
2.	**HS19061210-02**	**18CpTMW06_062119_a**	**Water**	**21 Jun 2019 07:10**
	SUB_Perch-6850			09 Jul 2019
3.	**HS19061210-03**	**MW22_062119**	**Water**	**21 Jun 2019 08:00**
	SUB_Perch-6850			09 Jul 2019
4.	**HS19061210-04**	**CO1_062119**	**Water**	**21 Jun 2019 08:50**
	SUB_Perch-6850 Designated MS/MSD			09 Jul 2019
5.	**HS19061210-05**	**MW8_062119**	**Water**	**21 Jun 2019 09:40**
	SUB_Perch-6850			09 Jul 2019
6.	**HS19061210-06**	**18CpTMW15_062119**	**Water**	**21 Jun 2019 10:30**
	SUB_Perch-6850			09 Jul 2019
7.	**HS19061210-07**	**18CpTMW03SW_062119**	**Water**	**21 Jun 2019 07:50**
	SUB_Perch-6850			09 Jul 2019
8.	**HS19061210-08**	**AWD3_062119**	**Water**	**21 Jun 2019 09:00**
	SUB_Perch-6850			09 Jul 2019
9.	**HS19061210-09**	**CO8_062119**	**Water**	**21 Jun 2019 10:35**

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID: 11650**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
SUB_Perch-6850			09 Jul 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS19061210-04B = DESIGNATED MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. Mustard Date/Time: 6/24/19 18:00

Received By: Date/Time: 06-25-19 8:57

Cooler ID(s): Temperature(s):

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19061210	***Split:***	**Workorder ID:** 1918260	**Level:** ENV_LVL4	**Requested Analysis**	
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly		
Comments:			**Preservatives**		
			COOL		
			Containers		

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	06/21/2019 07:10	18CPTMW06_062119	1918260001		Water	A	1	A
2	06/21/2019 07:10	18CPTMW06_062119_a	1918260002		Water	A	1	A
3	06/21/2019 08:00	MW22_062119	1918260003		Water	A	1	A
4	06/21/2019 08:50	CO1_062119	1918260004		Water	A	1	A
5	06/21/2019 08:50	CO1_062119MS	1918260005	MS	Water	A	1	A
6	06/21/2019 08:50	CO1_062119MSD	1918260006	MSD	Water	A	1	A
7	06/21/2019 09:40	MW8_062119	1918260007		Water	A	1	A
8	06/21/2019 10:30	18CPTMW15_062119	1918260008		Water	A	1	A
9	06/21/2019 07:50	18CPTMW03SW_062119	1918260009		Water	A	1	A
10	06/21/2019 09:00	AWD3_062119	1918260010		Water	A	1	A

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ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath Jolie	06/25/2019 08:57	ALS Sample Receiving	Sample Login
Julie Womack	6/25/19 1400	SB	Storage
R.33.1	7.1.19/13:20	T. Bond	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00941183

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19061210	***Split:***	**Workorder ID:** 1918260	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives** COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Count	Requested Analysis: EPA 6850, DoD QSM
11	06/21/2019 10:35	CO8_062119	1918260011		Water	A	1	A
12								
13								
14								
15								
16								
17								
18								
19								
20								

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ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	06/25/2019 08:57	ALS Sample Receiving	Sample Login
Julie Warath	6/25/19 1400	SB	Storage
R-33-1	7-1-19/13:20	T. Bosch	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00941184

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 19182660

Date/Time of Receipt: 12-05-19 8:57

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Location Temp Taken:	Cooler/Between Samples
Container Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA		
	Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9784	1 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Jennifer Jassell (Signature) T. Vaitkus (Printed Name) 12-05-19 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____



Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 158469-434 RITZ EXP 0220

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 24JUN19
ACTWGT: 19.80 LB
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19061210/1157 RJ

5S1C1/0210/104C

FedEx Express

J181119060501aw

TRK# 0201 4809 7835 3035

TUE - 25 JUN 3:00P
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2268 **Created:** 7/2/2019 08:52 **Instrument:** **HBN:** 242714

Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1918260 [ENV_LVL4]

Workorder: 1918265 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	661789	CCV for HBN 242714 [ELMS/2268]				CCV	3		E685041C3Q	5311		7/5/2019	
2	661790	RLVS for HBN 242714 [ELMS/2268				RLVS	3		E685041C3Q	5311		7/5/2019	
3	661791	ICS for HBN 242714 [ELMS/2268]				ICS	3		E6850..D3Q	5311		7/5/2019	
4	661792	LMB for HBN 242714 [ELMS/2268]				LMB	3		E6850Q413Q	5311		7/5/2019	
5	661793	LCS for HBN 242714 [ELMS/2268]				LCS	3		E6850Q413Q	5311		7/5/2019	
6	1918260001	18CPTMW06_062119				SAMPLE	3	1918260001-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
7	1918260002	18CPTMW06_062119_a				SAMPLE	3	1918260002-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
8	1918260003	MW22_062119				SAMPLE	3	1918260003-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
9	1918260004	CO1_062119				SAMPLE	3	1918260004-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
10	1918260005	CO1_062119MS				MS	3	1918260005-A	E6850Q413Q	5480		7/5/2019	
11	1918260006	CO1_062119MSD				MSD	3	1918260006-A	E6850Q413Q	5480		7/5/2019	
12	1918260007	MW8_062119				SAMPLE	3	1918260007-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
13	1918260008	18CPTMW15_062119				SAMPLE	3	1918260008-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
14	1918260009	18CPTMW03SW_062119				SAMPLE	3	1918260009-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
15	1918260010	AWD3_062119				SAMPLE	3	1918260010-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
16	661794	CCV for HBN 242714 [ELMS/2268]				CCV	3		E685041C3Q	5311		7/5/2019	
17	1918260011	CO8_062119				SAMPLE	3	1918260011-A	E6850Q41.3	5480	7/19/2019	7/9/2019	
18	1918265001	18CPTMW10DW_062019				SAMPLE	3	1918265001-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
19	1918265002	18CPTMW10SW_062019				SAMPLE	3	1918265002-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
20	1918265003	18WW06_062019				SAMPLE	3	1918265003-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
21	1918265004	18WW02_062019				SAMPLE	3	1918265004-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
22	1918265005	18CPTMW19_062019				SAMPLE	3	1918265005-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
23	1918265006	18CPTMW19SW_062019				SAMPLE	3	1918265006-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
24	1918265007	18WW22_062019				SAMPLE	3	1918265007-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
25	1918265008	C04_062019				SAMPLE	3	1918265008-A	E6850Q41.3	5480	7/18/2019	7/5/2019	
26	661795	CCV for HBN 242714 [ELMS/2268]				CCV	3		E685041C3Q	5311		7/5/2019	



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1918260 (001-11), 1918265 (001-08)
ELMS Batch/HBN ID: 2268 (242714)
Prep Date: 07/01/2019 Analysis Date: 07/03/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\03JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 661793; Target = 4.0µg/L. ASTM type II water was used for LMB 661792.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on samples 1918260005/06 (Client ID: CO1_062119). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 1918260003/08 were analyzed and reported from 1:10 dilutions. Field sample 1918260007 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\242714-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 661790) is reported from the analysis of the Laboratory Control Sample (LCS – 661793) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 03JULD03/06/19/23.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2268 HBN: 242714 Sample Set IDs if Applicable: 1918260/1918265	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Method Blanks analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness checked	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 43659	Created By: Thomas Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 09/17/2018 09:09AM	Expires: 07/25/2020
MFG Lot: 218065075		Usable: No
Part ID: IC-PER-10X-1		Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration 1000 ug/mL
1	14797-73-0	Perchlorate	

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L	
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025	
MFG Lot: Not Provided		Usable: Yes	
Part ID: Not Provided		Lab Lot: LAB 109	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED TESTING LABORATORY

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

AccuStandard

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	661789 CCV@25	Vial 71	1	Control	1	2.23045e6	8.436	26.59001
*	661793 QC@4.0	Vial 72	1	Control	2	3.72011e5	8.228	4.20689
*	661791 ICS@4.0	Vial 73	1	Control	3	2.92755e5	8.090	3.90370
*	661792 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1918260001	Vial 75	1	Sample	5	1.00339e5	7.926	1.72705
*	1918260002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	1918260003 10X	Vial 77	1	Sample	7	7.28770e5	8.214	94.51960
*	1918260004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	1918260005 MS	Vial 79	1	Sample	9	1.74594e5	7.801	3.41772
*	1918260006 MSD	Vial 80	1	Sample	10	1.72844e5	7.800	3.36507
*	1918260007 1K	Vial 81	1	Sample	11	5.34661e5	8.739	7067.32278
*	1918260008 10X	Vial 82	1	Sample	12	3.53155e6	8.463	409.01406
*	1918260009	Vial 83	1	Sample	13	5.48800e5	7.917	9.89897
*	1918260010	Vial 84	1	Sample	14	1.27411e5	8.284	1.75055
*	1918260011	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	1918265001	Vial 86	1	Sample	16	7.53597e5	7.981	9.07754
*	661794 CCV@25	Vial 71	1	Control	17	1.99251e6	8.576	26.33220
*	1918265002	Vial 87	1	Sample	18	0.00000	0.000	0.00000
*	1918265003	Vial 88	1	Sample	19	0.00000	0.000	0.00000
*	1918265004	Vial 89	1	Sample	20	0.00000	0.000	0.00000
*	1918265005	Vial 90	1	Sample	21	2.73037e5	8.159	4.14589
*	1918265006	Vial 91	1	Sample	22	3.36289e6	8.129	39.03652
*	1918265007	Vial 92	1	Sample	23	0.00000	0.000	0.00000
*	1918265008	Vial 93	1	Sample	24	0.00000	0.000	0.00000
*	661795 CCV@25	Vial 71	1	Control	25	2.02866e6	8.520	25.81702

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	661789 CCV@25	Vial 71	1	Control	1	6.67744e5	8.470	26.81724
*	661793 QC@4.0	Vial 72	1	Control	2	1.20101e5	8.255	4.42244
*	661791 ICS@4.0	Vial 73	1	Control	3	9.57778e4	8.096	4.14544
*	661792 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1918260001	Vial 75	1	Sample	5	3.62166e4	7.941	1.91349
*	1918260002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	1918260003 10X	Vial 77	1	Sample	7	2.32604e5	8.238	100.35898
*	1918260004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	1918260005 MS	Vial 79	1	Sample	9	6.56059e4	7.810	4.13918
*	1918260006 MSD	Vial 80	1	Sample	10	6.56232e4	7.815	4.11436
*	1918260007 1K	Vial 81	1	Sample	11	1.75075e5	8.767	7652.56480
*	1918260008 10X	Vial 82	1	Sample	12	1.06108e6	8.478	414.80020
*	1918260009	Vial 83	1	Sample	13	1.77272e5	7.934	10.64208
*	1918260010	Vial 84	1	Sample	14	4.40452e4	8.285	1.86025
*	1918260011	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	1918265001	Vial 86	1	Sample	16	2.38015e5	7.999	9.53324
*	661794 CCV@25	Vial 71	1	Control	17	5.92974e5	8.599	26.40646
*	1918265002	Vial 87	1	Sample	18	0.00000	0.000	0.00000
*	1918265003	Vial 88	1	Sample	19	0.00000	0.000	0.00000
*	1918265004	Vial 89	1	Sample	20	0.00000	0.000	0.00000
*	1918265005	Vial 90	1	Sample	21	8.77046e4	8.185	4.33407
*	1918265006	Vial 91	1	Sample	22	1.01421e6	8.147	39.71903
*	1918265007	Vial 92	1	Sample	23	0.00000	0.000	0.00000
*	1918265008	Vial 93	1	Sample	24	0.00000	0.000	0.00000
*	661795 CCV@25	Vial 71	1	Control	25	6.16068e5	8.540	26.38763

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	661789 CCV@25	Vial 71	1	Control	1	2.54244e5	8.447	5.00000
*	661793 QC@4.0	Vial 72	1	Control	2	2.90663e5	8.255	5.00000

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	661791 ICS@4.0	Vial 73	1	Control	3	2.47418e5	8.122	5.00000
*	661792 LMB	Vial 74	1	Control	4	2.69965e5	8.571	5.00000
*	1918260001	Vial 75	1	Sample	5	2.03376e5	7.947	5.00000
*	1918260002	Vial 76	1	Sample	6	2.30322e5	7.928	5.00000
*	1918260003 10X	Vial 77	1	Sample	7	2.45205e5	8.229	50.00000
*	1918260004	Vial 78	1	Sample	8	1.64595e5	7.807	5.00000
*	1918260005 MS	Vial 79	1	Sample	9	1.69734e5	7.817	5.00000
*	1918260006 MSD	Vial 80	1	Sample	10	1.70811e5	7.823	5.00000
*	1918260007 1K	Vial 81	1	Sample	11	2.43260e5	8.755	5000.00000
*	1918260008 10X	Vial 82	1	Sample	12	2.53420e5	8.502	50.00000
*	1918260009	Vial 83	1	Sample	13	1.76005e5	7.940	5.00000
*	1918260010	Vial 84	1	Sample	14	2.54426e5	8.295	5.00000
*	1918260011	Vial 85	1	Sample	15	2.32351e5	7.915	5.00000
*	1918265001	Vial 86	1	Sample	16	2.64421e5	8.007	5.00000
*	661794 CCV@25	Vial 71	1	Control	17	2.29484e5	8.599	5.00000
*	1918265002	Vial 87	1	Sample	18	2.14730e5	7.877	5.00000
*	1918265003	Vial 88	1	Sample	19	1.83014e5	7.960	5.00000
*	1918265004	Vial 89	1	Sample	20	2.99495e5	8.239	5.00000
*	1918265005	Vial 90	1	Sample	21	2.16624e5	8.179	5.00000
*	1918265006	Vial 91	1	Sample	22	2.53872e5	8.144	5.00000
*	1918265007	Vial 92	1	Sample	23	2.63295e5	8.143	5.00000
*	1918265008	Vial 93	1	Sample	24	3.21651e5	8.236	5.00000
*	661795 CCV@25	Vial 71	1	Control	25	2.38601e5	8.561	5.00000

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

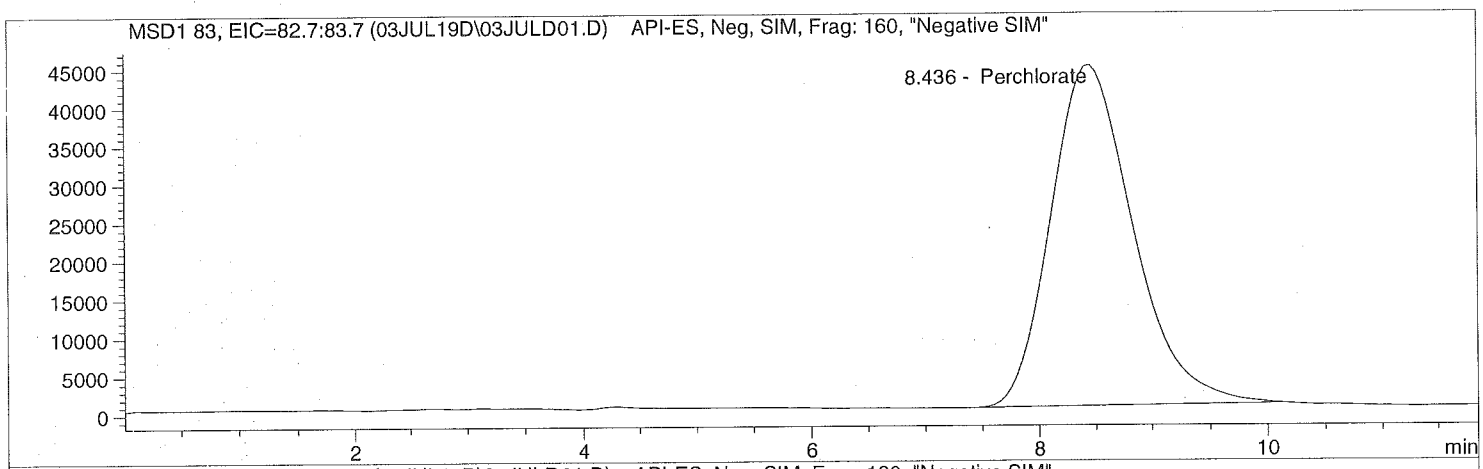
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1	Vial 71	661789 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	661793 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	661791 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	661792 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1918260001	CLO4-AQN	1	Sample		
6	Vial 76	1918260002	CLO4-AQN	1	Sample		
7	Vial 77	1918260003 10X	CLO4-AQN	1	Sample		
8	Vial 78	1918260004	CLO4-AQN	1	Sample		
9	Vial 79	1918260005 MS	CLO4-AQN	1	Sample		
10	Vial 80	1918260006 MSD	CLO4-AQN	1	Sample		
11	Vial 81	1918260007 1K	CLO4-AQN	1	Sample		
12	Vial 82	1918260008 10X	CLO4-AQN	1	Sample		
13	Vial 83	1918260009	CLO4-AQN	1	Sample		
14	Vial 84	1918260010	CLO4-AQN	1	Sample		
15	Vial 85	1918260011	CLO4-AQN	1	Sample		
16	Vial 86	1918265001	CLO4-AQN	1	Sample		
17	Vial 71	661794 CCV@25	CLO4-AQN	1	Ctrl Samp		
18	Vial 87	1918265002	CLO4-AQN	1	Sample		
19	Vial 88	1918265003	CLO4-AQN	1	Sample		
20	Vial 89	1918265004	CLO4-AQN	1	Sample		
21	Vial 90	1918265005	CLO4-AQN	1	Sample		
22	Vial 91	1918265006	CLO4-AQN	1	Sample		
23	Vial 92	1918265007	CLO4-AQN	1	Sample		
24	Vial 93	1918265008	CLO4-AQN	1	Sample		
25	Vial 71	661795 CCV@25	CLO4-AQN	1	Ctrl Samp		

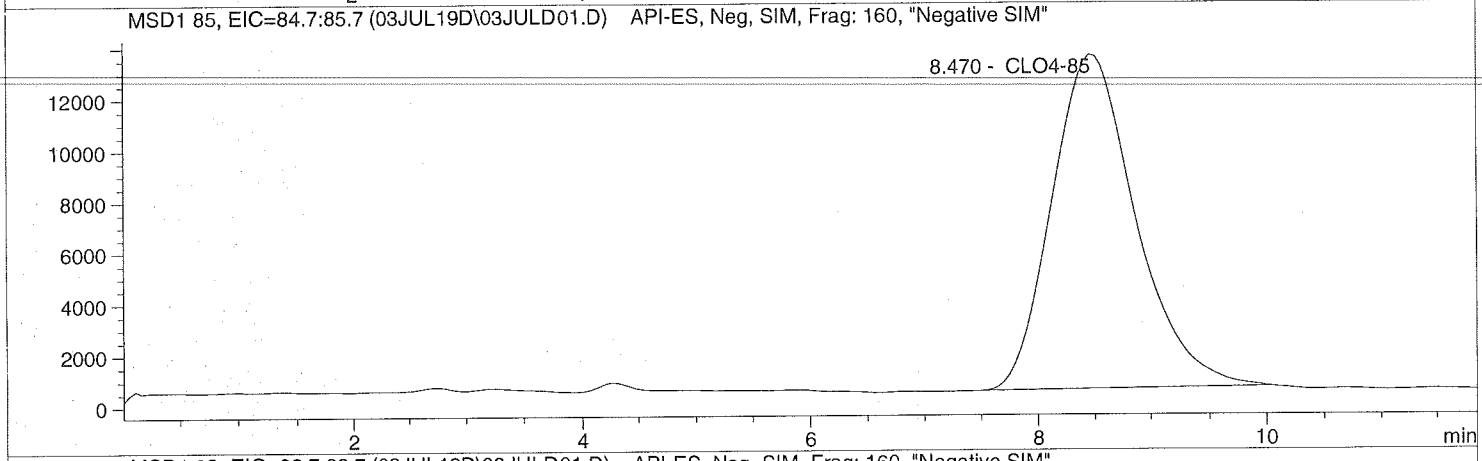
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD01.D Sample Name: 661789 CCV@25

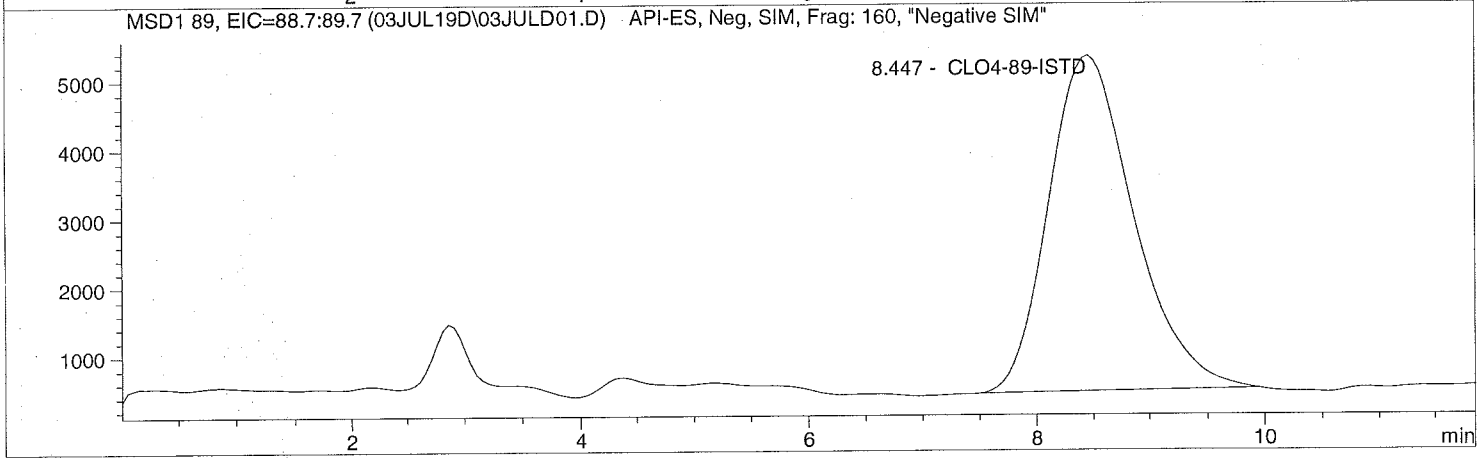
Injection Date:	7/03/2019 08:20:45	Seq Line:	1
Sample Name:	661789 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD01.D Sample Name: 661789 CCV@25

Injection Date:	7/03/2019 08:20:45	Seq Line:	1
Sample Name:	661789 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.436	PBA	2230452.0	26.5900	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.470	PBA	667744.2	26.8172	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.447	PBA	254244.0	5.0000	CLO4-89-ISTD

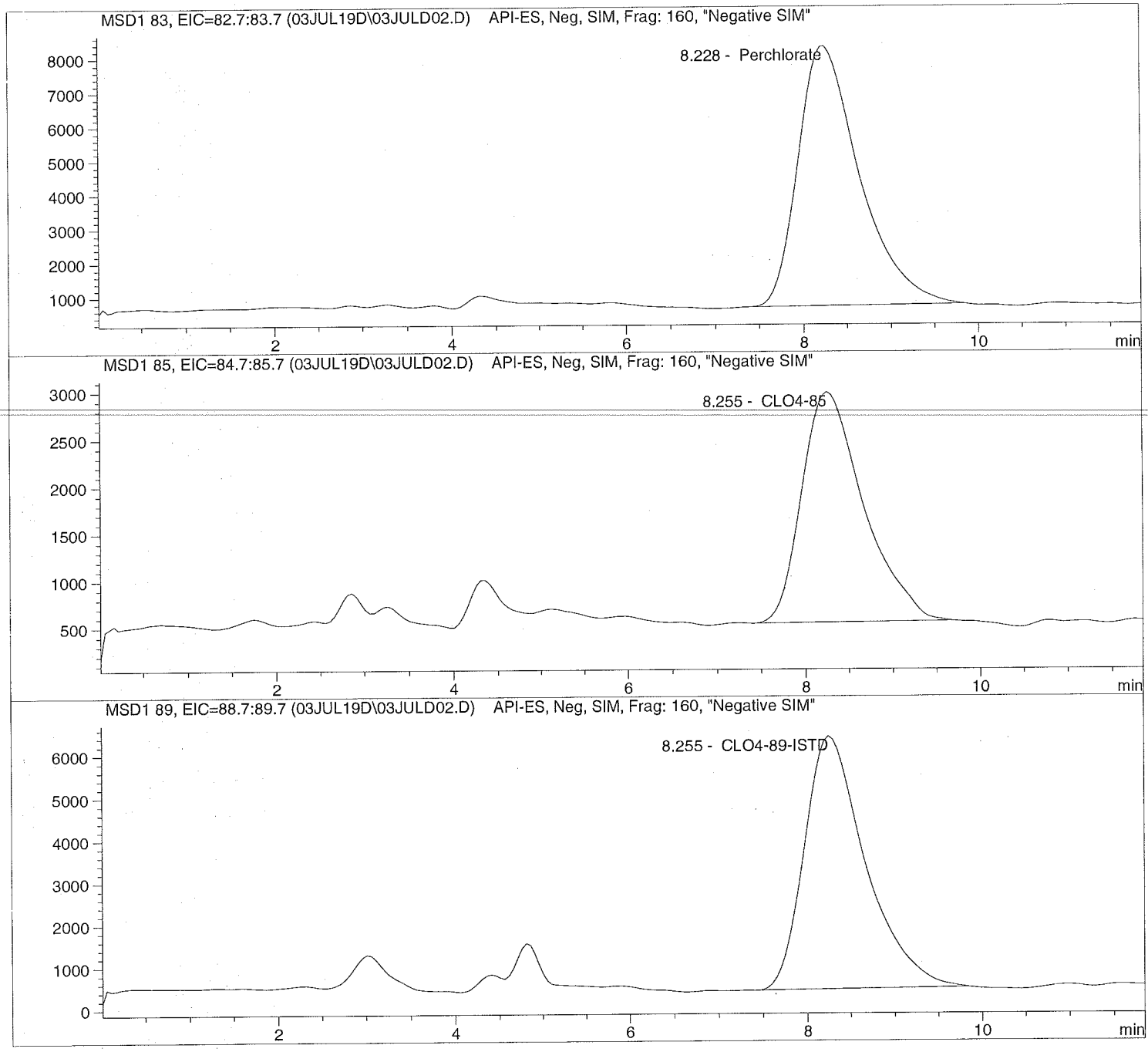
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD02.D Sample Name: 661793 QC@4.0

Injection Date:	7/03/2019 08:35:29	Seq Line:	2
Sample Name:	661793 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD02.D Sample Name: 661793 QC@4.0

Injection Date:	7/03/2019 08:35:29	Seq Line:	2
Sample Name:	661793 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.228	PBA	372011.4	4.2069	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.255	PBA	120100.8	4.4224	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.255	PBA	290663.2	5.0000	CLO4-89-ISTD

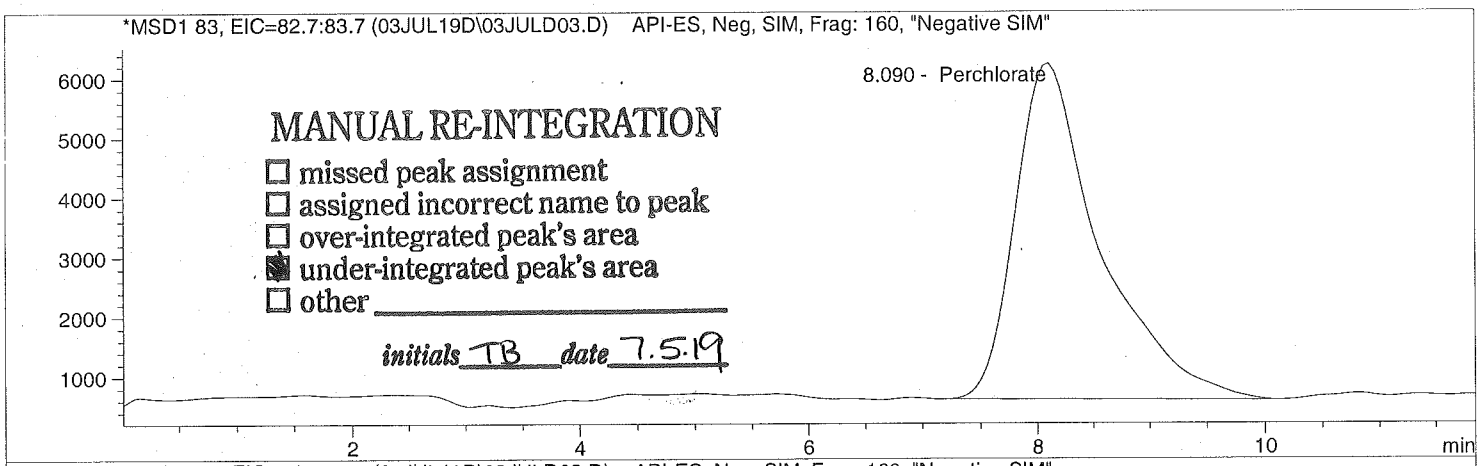
*** End of Report ***

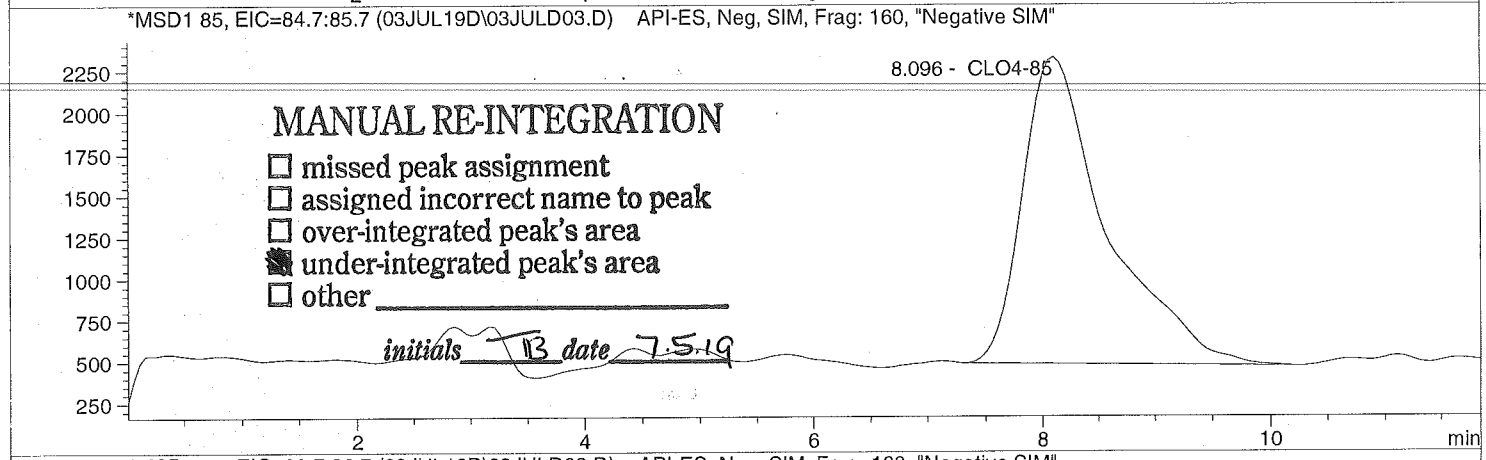
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD03.D Sample Name: 661791 ICS@4.0

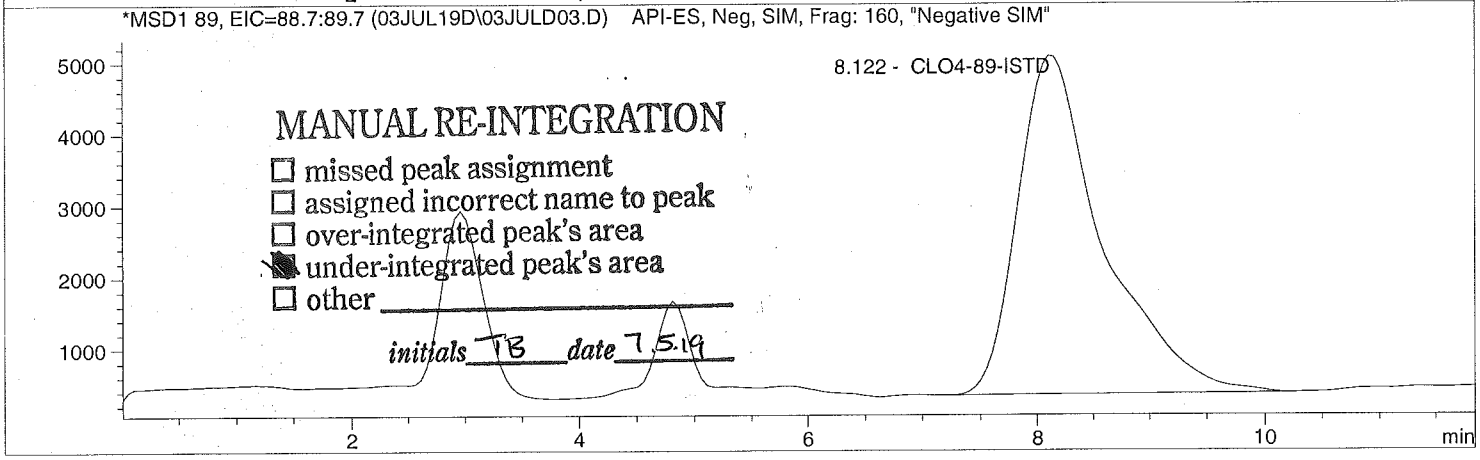
Injection Date:	7/03/2019 08:49:21	Seq Line:	3
Sample Name:	661791 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD03.D Sample Name: 661791 ICS@4.0

Injection Date:	7/03/2019 08:49:21	Seq Line:	3
Sample Name:	661791 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.090	MM	292755.3	3.9037	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.096	MM	95777.8	4.1454	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.122	MM	247417.5	5.0000	CLO4-89-ISTD

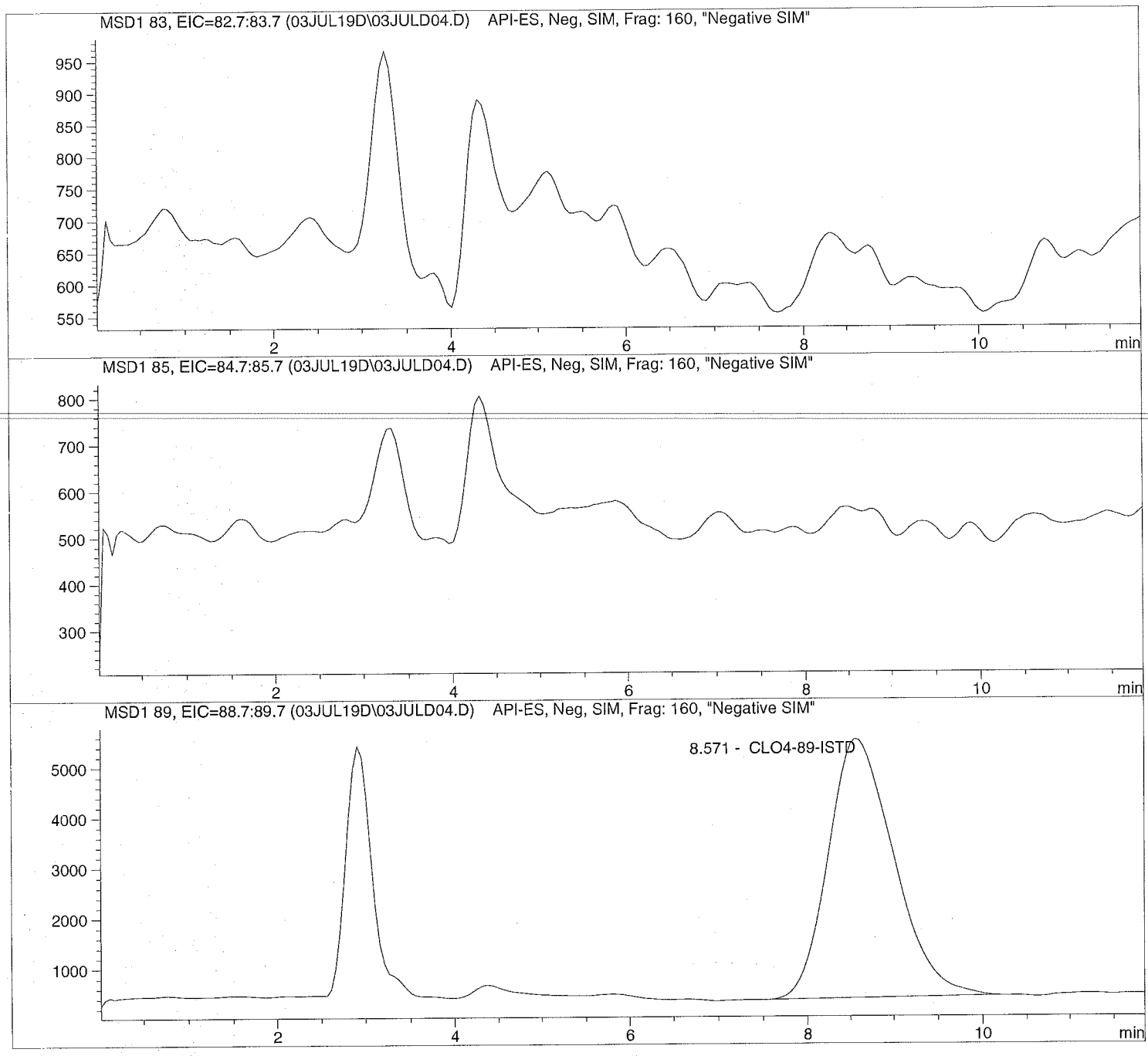
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD04.D Sample Name: 661792 LMB

Injection Date:	7/03/2019 09:03:15	Seq Line:	4
Sample Name:	661792 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD04.D Sample Name: 661792 LMB

Injection Date:	7/03/2019 09:03:15	Seq Line:	4
Sample Name:	661792 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.571	PBA	269964.7	5.0000	CLO4-89-ISTD

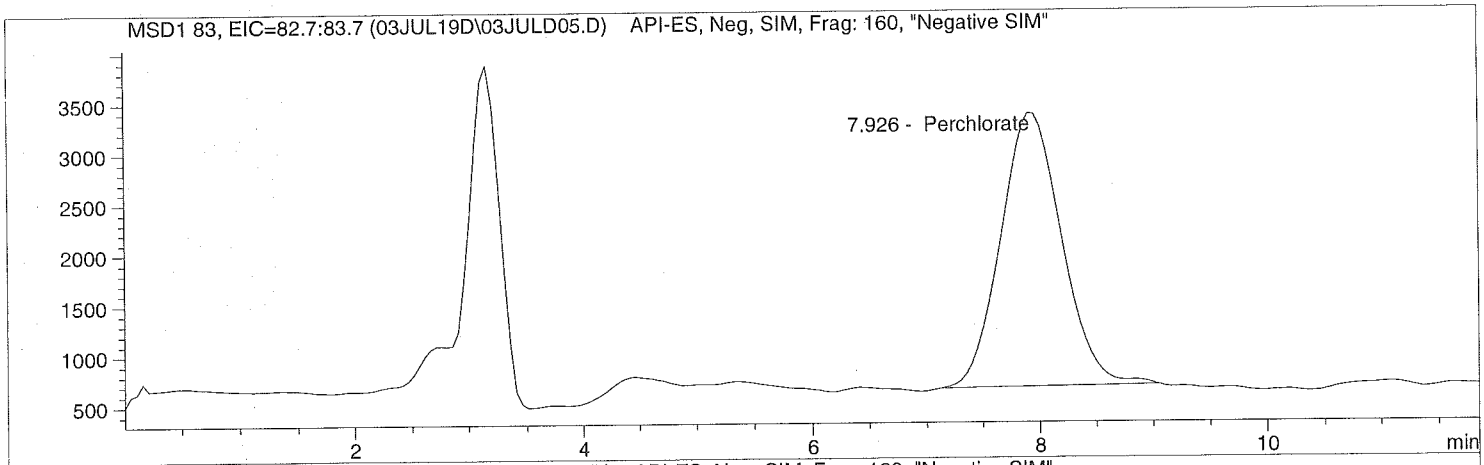
*** End of Report ***

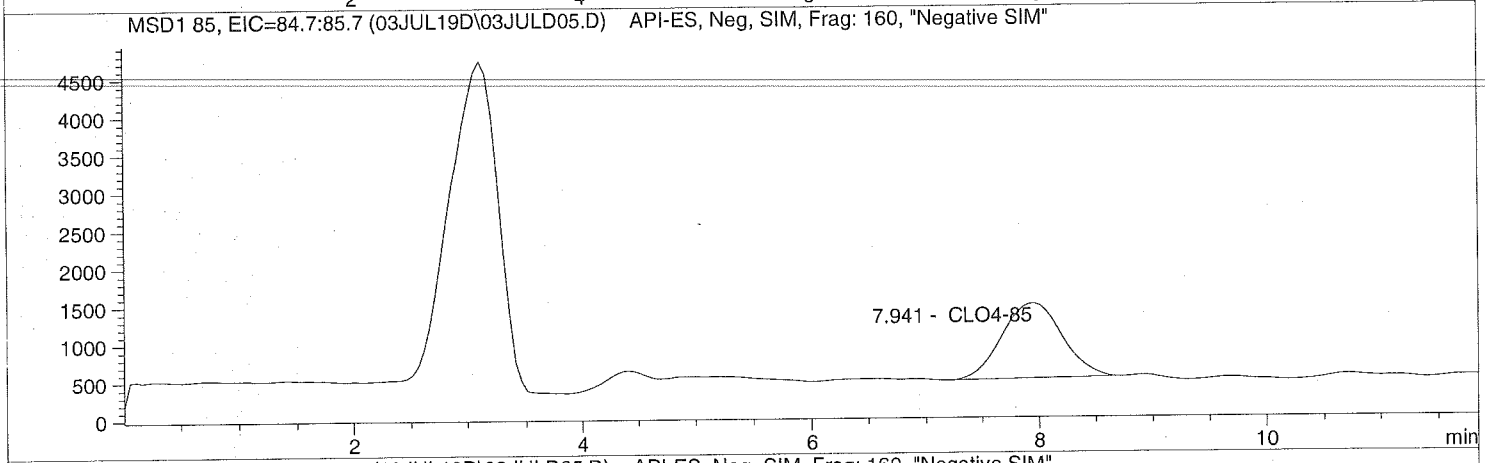
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD05.D Sample Name: 1918260001

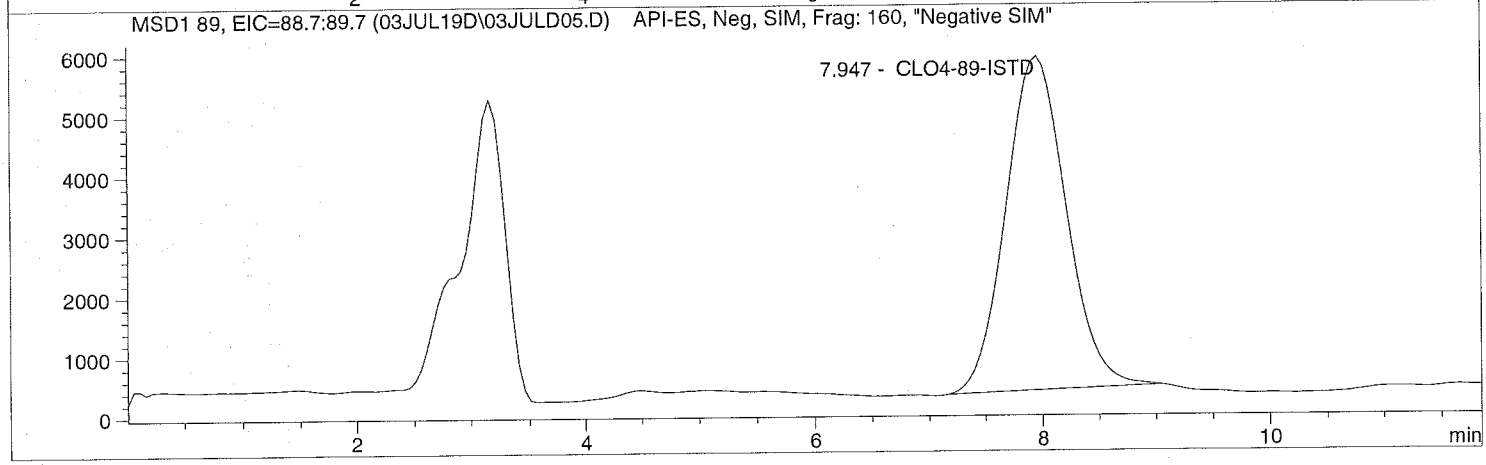
Injection Date:	7/03/2019 09:17:08	Seq Line:	5
Sample Name:	1918260001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD05.D Sample Name: 1918260001

Injection Date:	7/03/2019 09:17:08	Seq Line:	5
Sample Name:	1918260001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	BBA	100338.5	1.7270	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.941	PBA	36216.6	1.9135	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.947	PBA	203376.5	5.0000	CLO4-89-ISTD

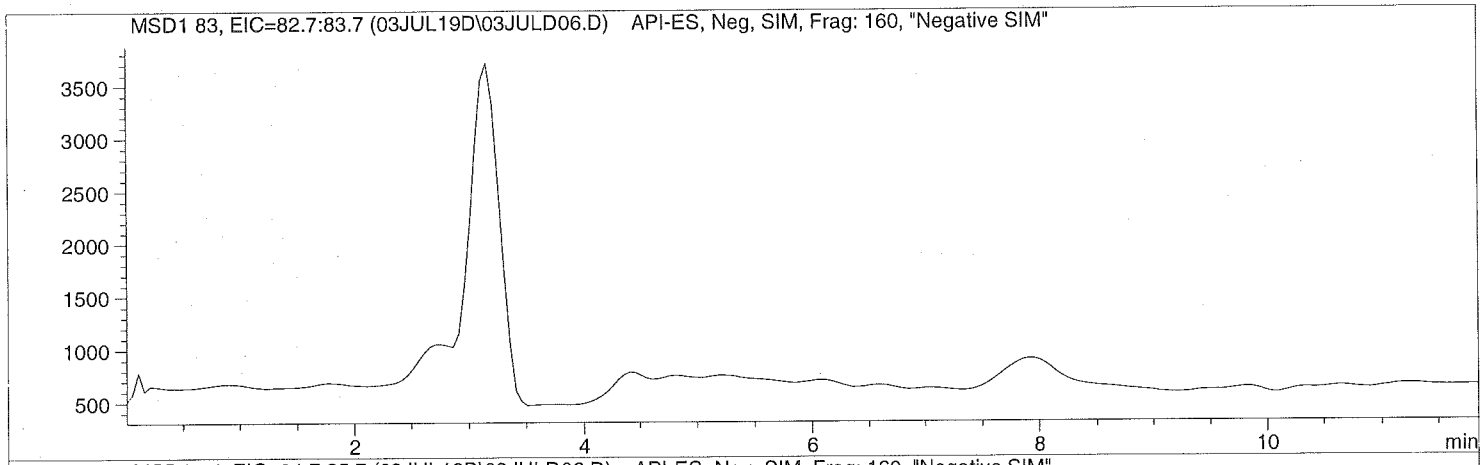
*** End of Report ***

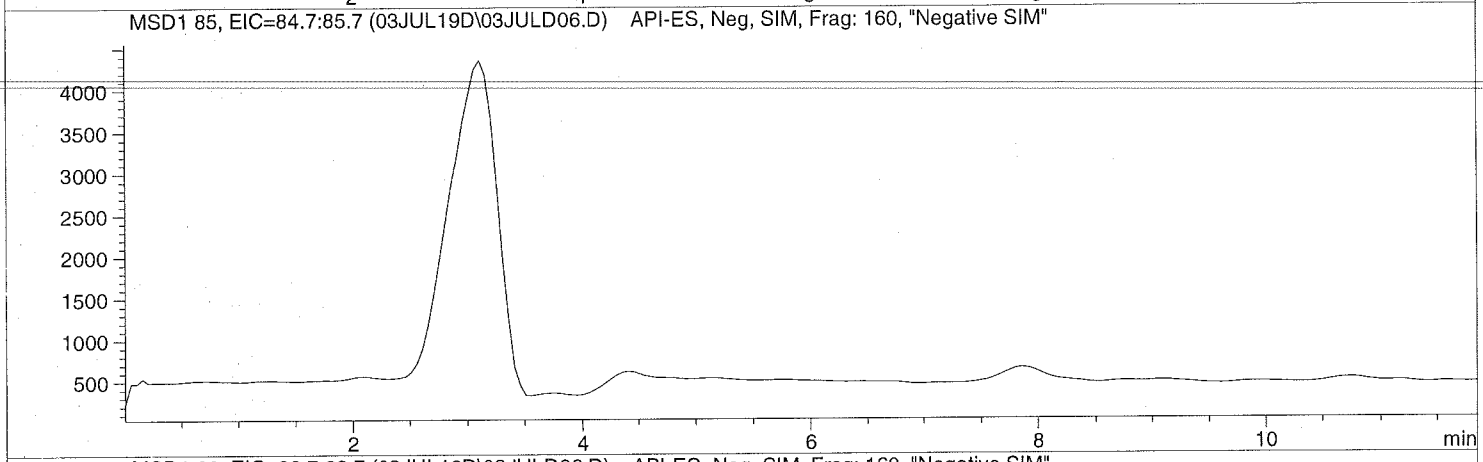
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD06.D Sample Name: 1918260002

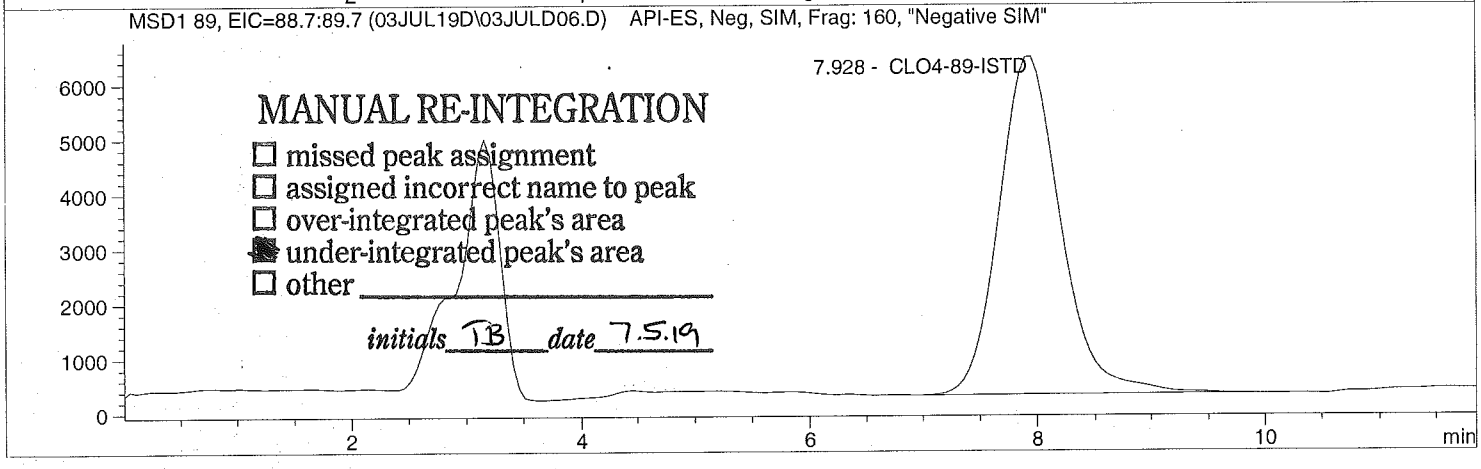
Injection Date:	7/03/2019 09:31:06	Seq Line:	6
Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







MANUAL RE-INTEGRATION

- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ☐ other _____

initials TB *date* 7.5.19

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD06.D Sample Name: 1918260002

Injection Date:	7/03/2019 09:31:06	Seq Line:	6
Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.928	MM	230321.8	5.0000	CLO4-89-ISTD

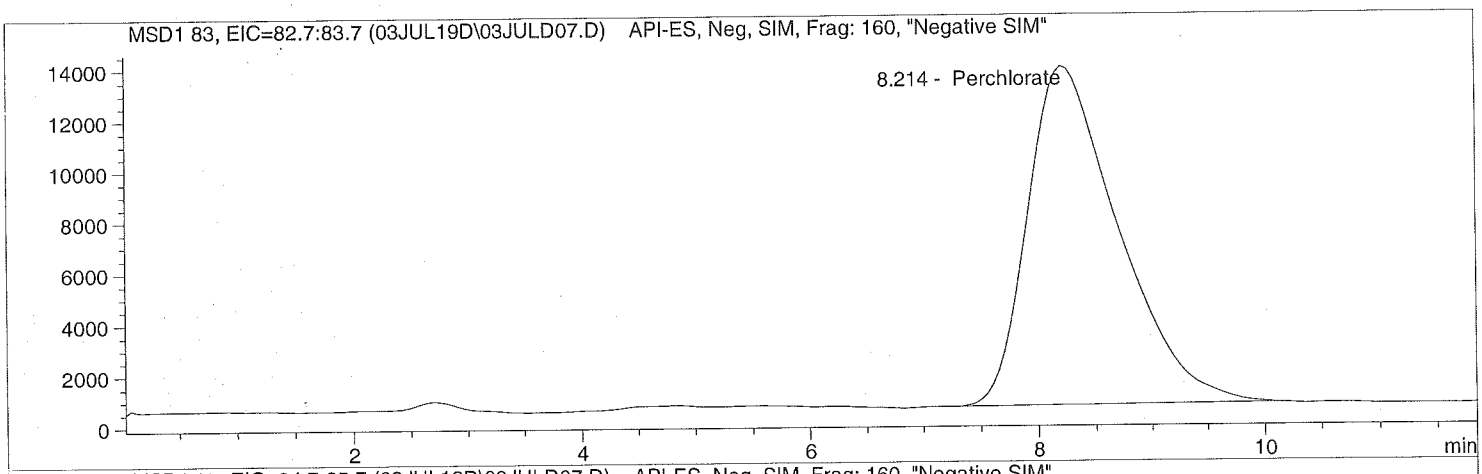
*** End of Report ***

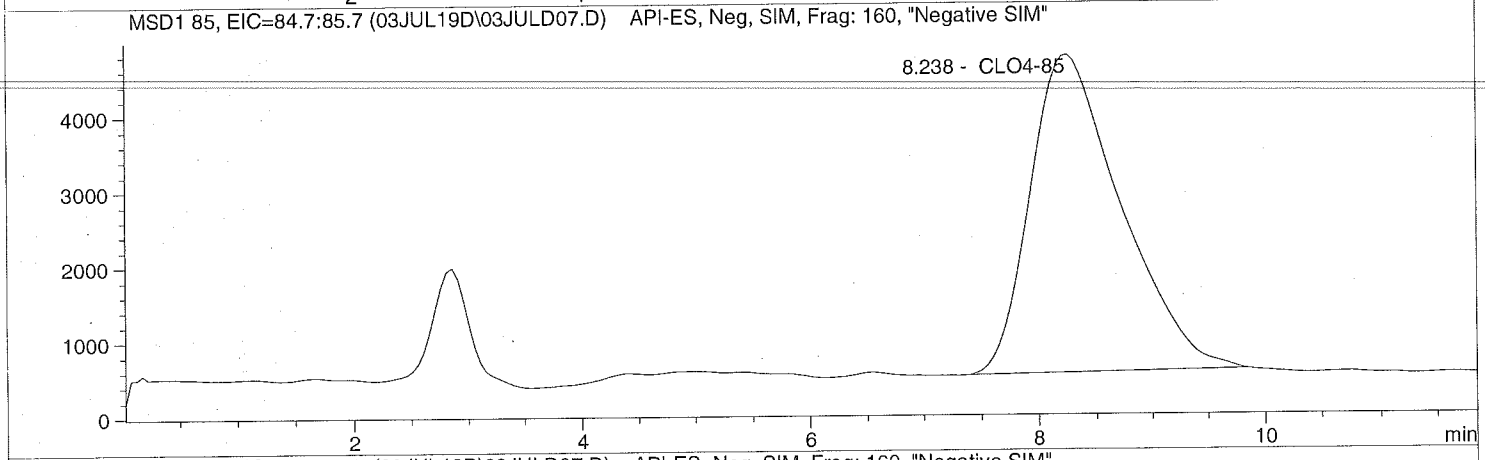
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD07.D Sample Name: 1918260003 10X

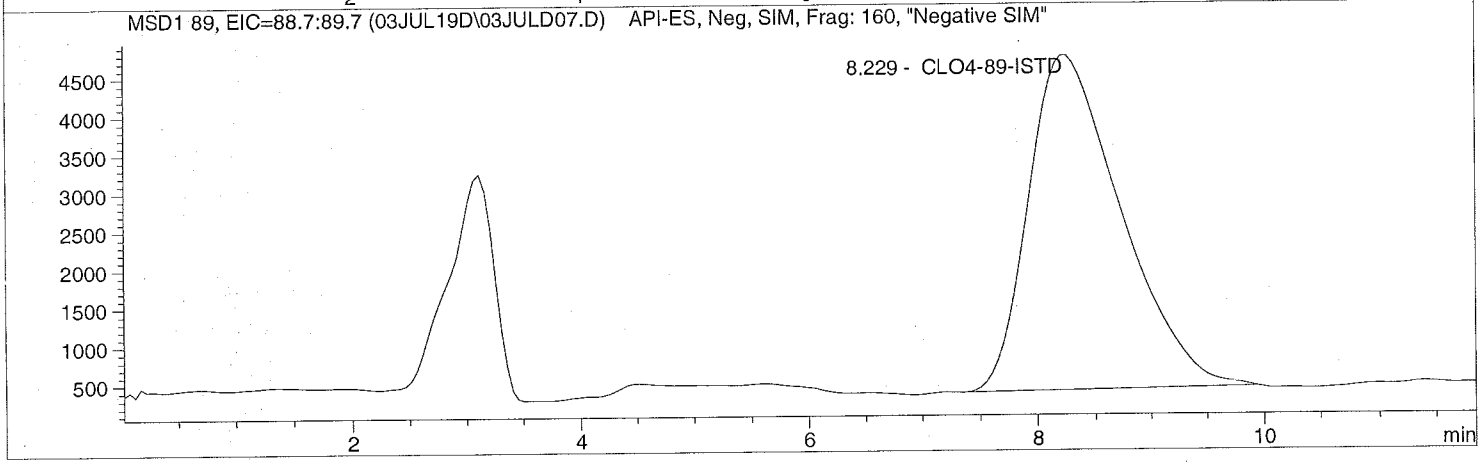
Injection Date:	7/03/2019 09:45:04	Seq Line:	7
Sample Name:	1918260003 10X	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD07.D Sample Name: 1918260003 10X

Injection Date:	7/03/2019 09:45:04	Seq Line:	7
Sample Name:	1918260003 10X	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.214	PBA	728769.6	94.5196	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.238	PBA	232603.6	100.3590	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.229	PBA	245205.1	50.0000	CLO4-89-ISTD

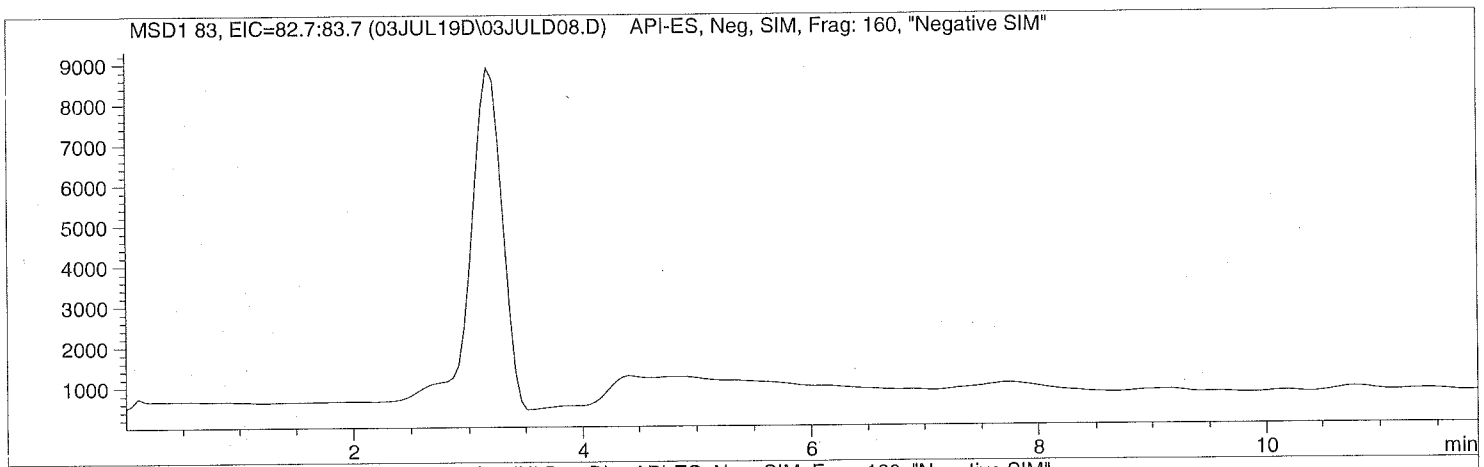
*** End of Report ***

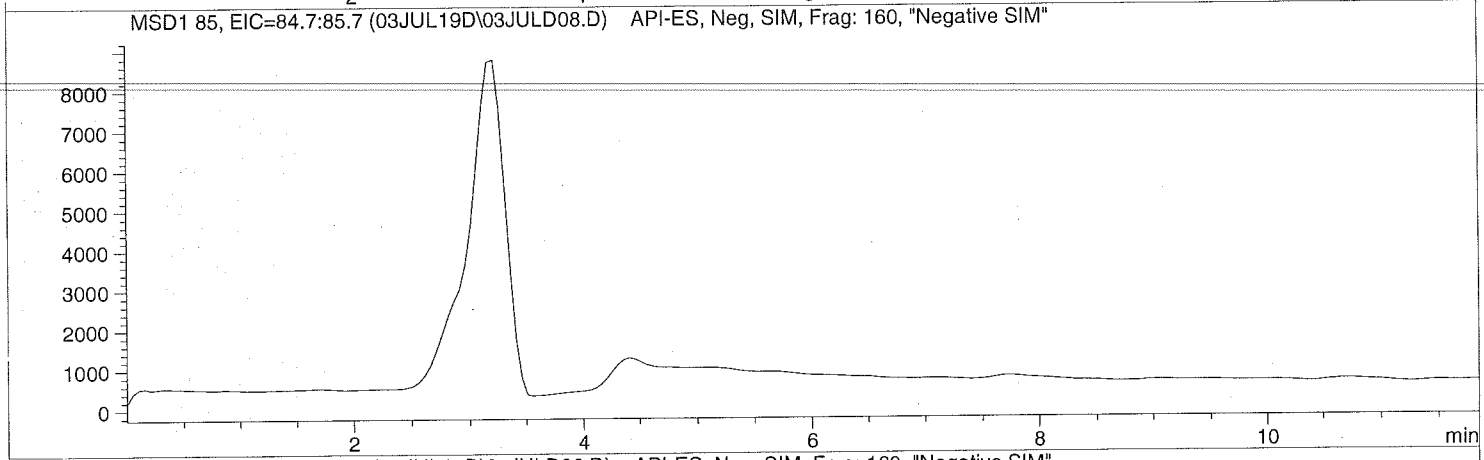
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD08.D Sample Name: 1918260004

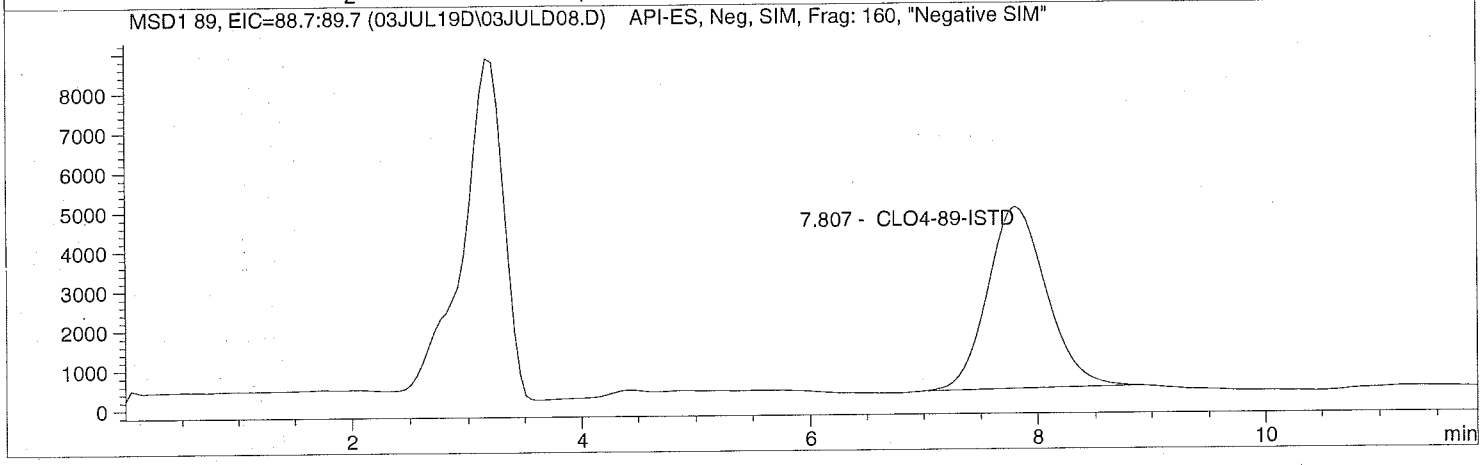
Injection Date:	7/03/2019 09:58:59	Seq Line:	8
Sample Name:	1918260004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD08.D Sample Name: 1918260004

Injection Date:	7/03/2019 09:58:59	Seq Line:	8
Sample Name:	1918260004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.807	PBA	164595.2	5.0000	CLO4-89-ISTD

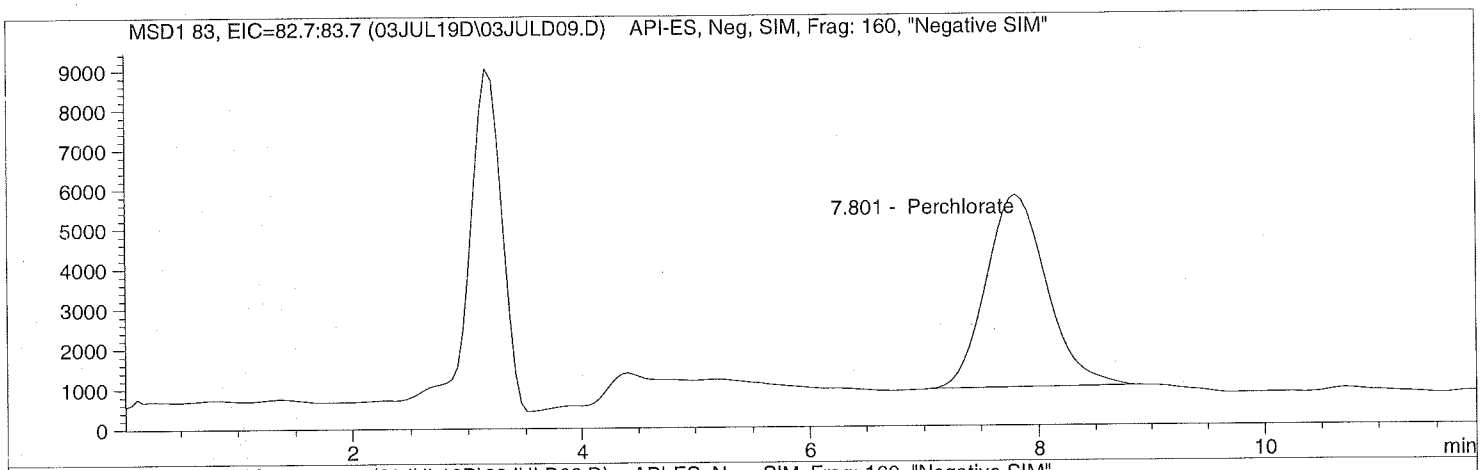
*** End of Report ***

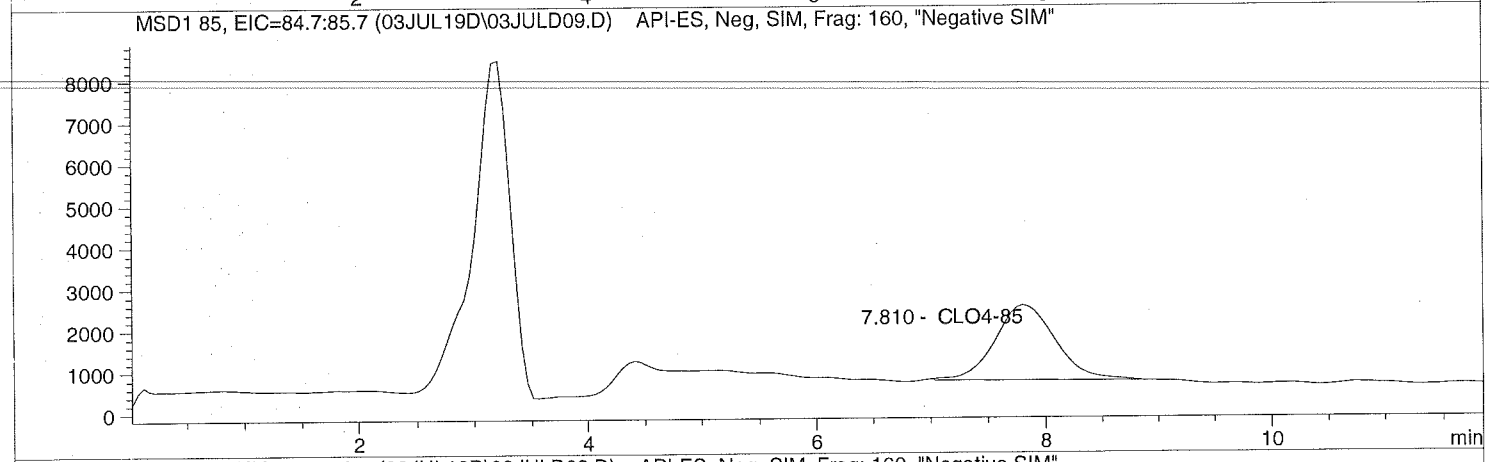
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD09.D Sample Name: 1918260005 MS

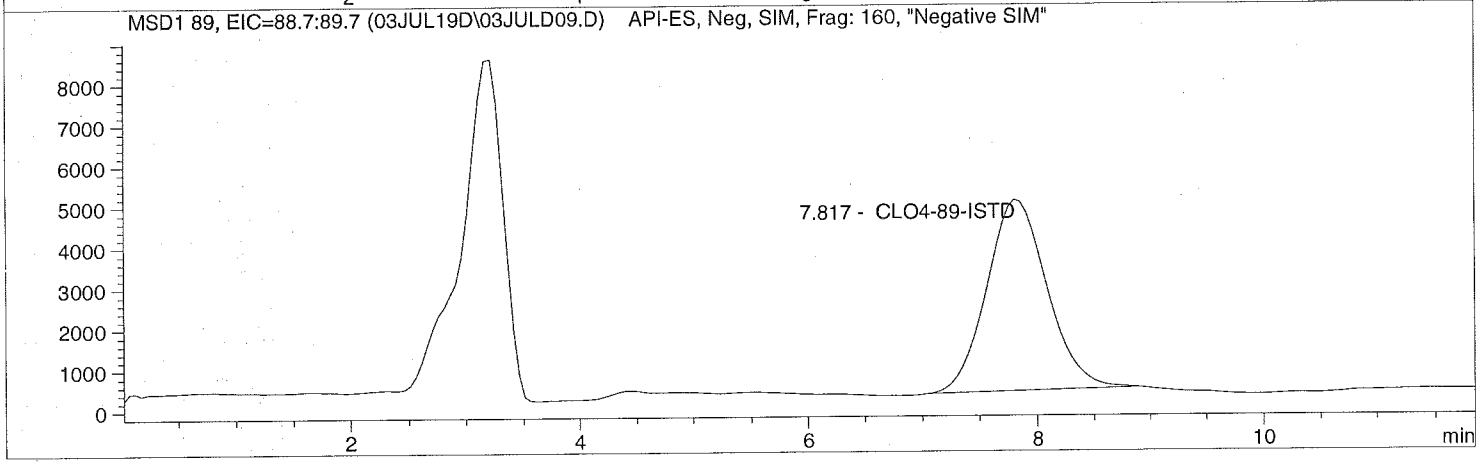
Injection Date:	7/03/2019 10:12:53	Seq Line:	9
Sample Name:	1918260005 MS	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD09.D Sample Name: 1918260005 MS

Injection Date:	7/03/2019 10:12:53	Seq Line:	9
Sample Name:	1918260005 MS	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.801	PBA	174594.0	3.4177	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.810	BBA	65605.9	4.1392	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.817	PBA	169734.3	5.0000	CLO4-89-ISTD

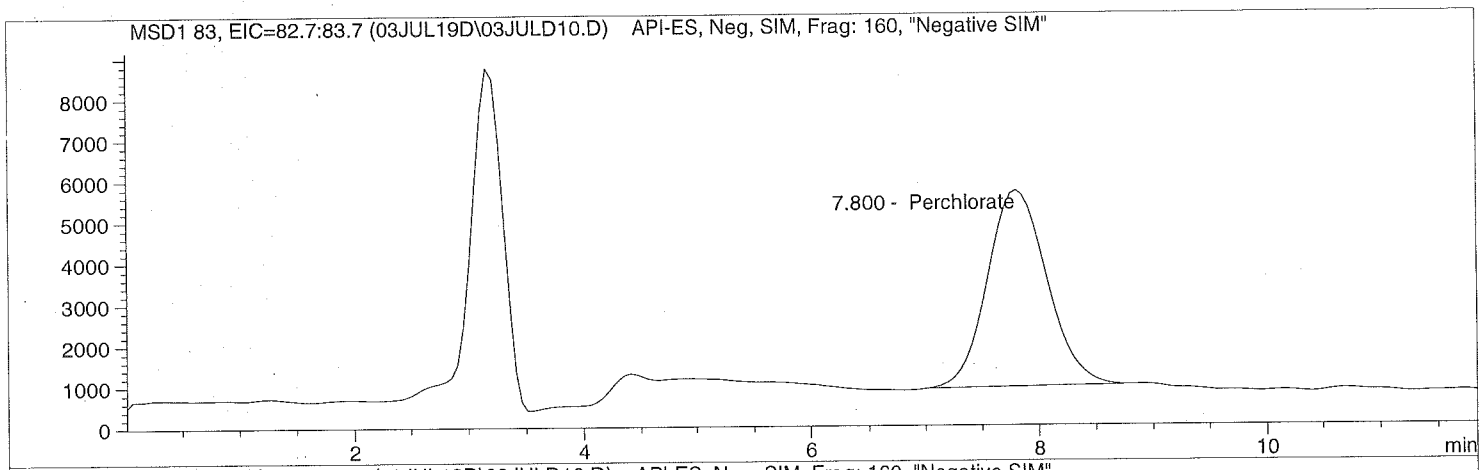
*** End of Report ***

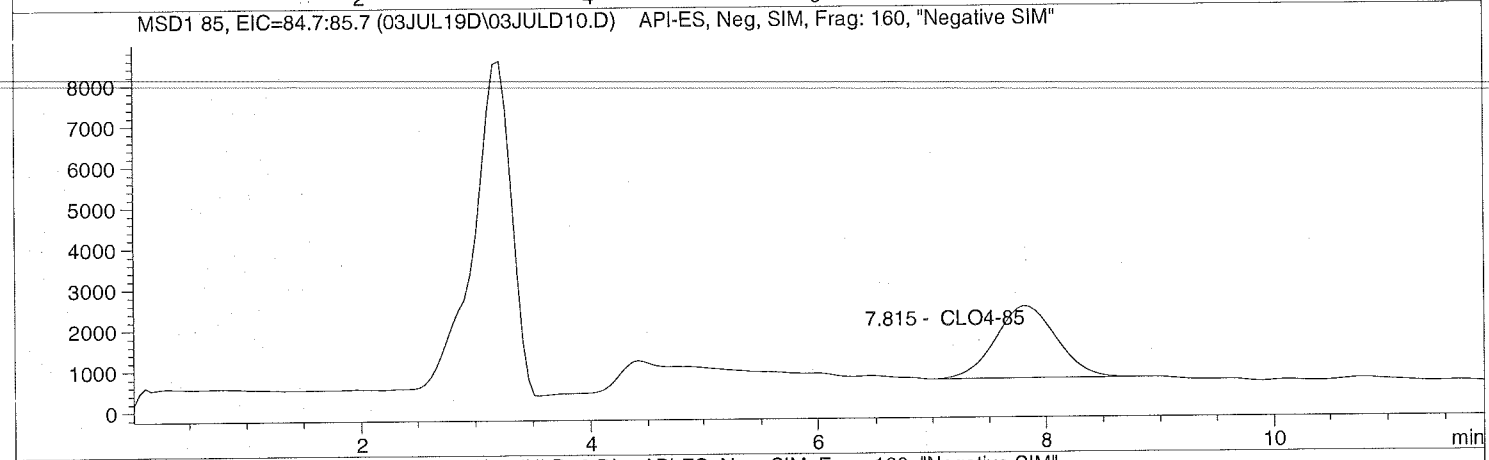
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD10.D Sample Name: 1918260006 MSD

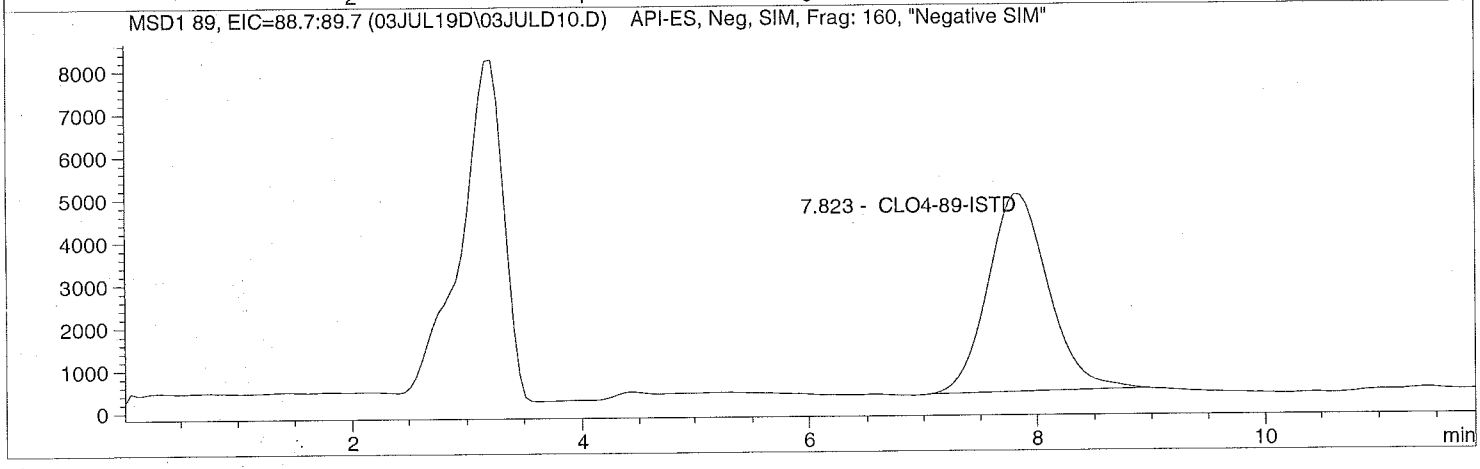
Injection Date:	7/03/2019 10:26:51	Seq Line:	10
Sample Name:	1918260006 MSD	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD10.D Sample Name: 1918260006 MSD

Injection Date:	7/03/2019 10:26:51	Seq Line:	10
Sample Name:	1918260006 MSD	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	172844.2	3.3651	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.815	PBA	65623.2	4.1144	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.823	PBA	170811.3	5.0000	CLO4-89-ISTD

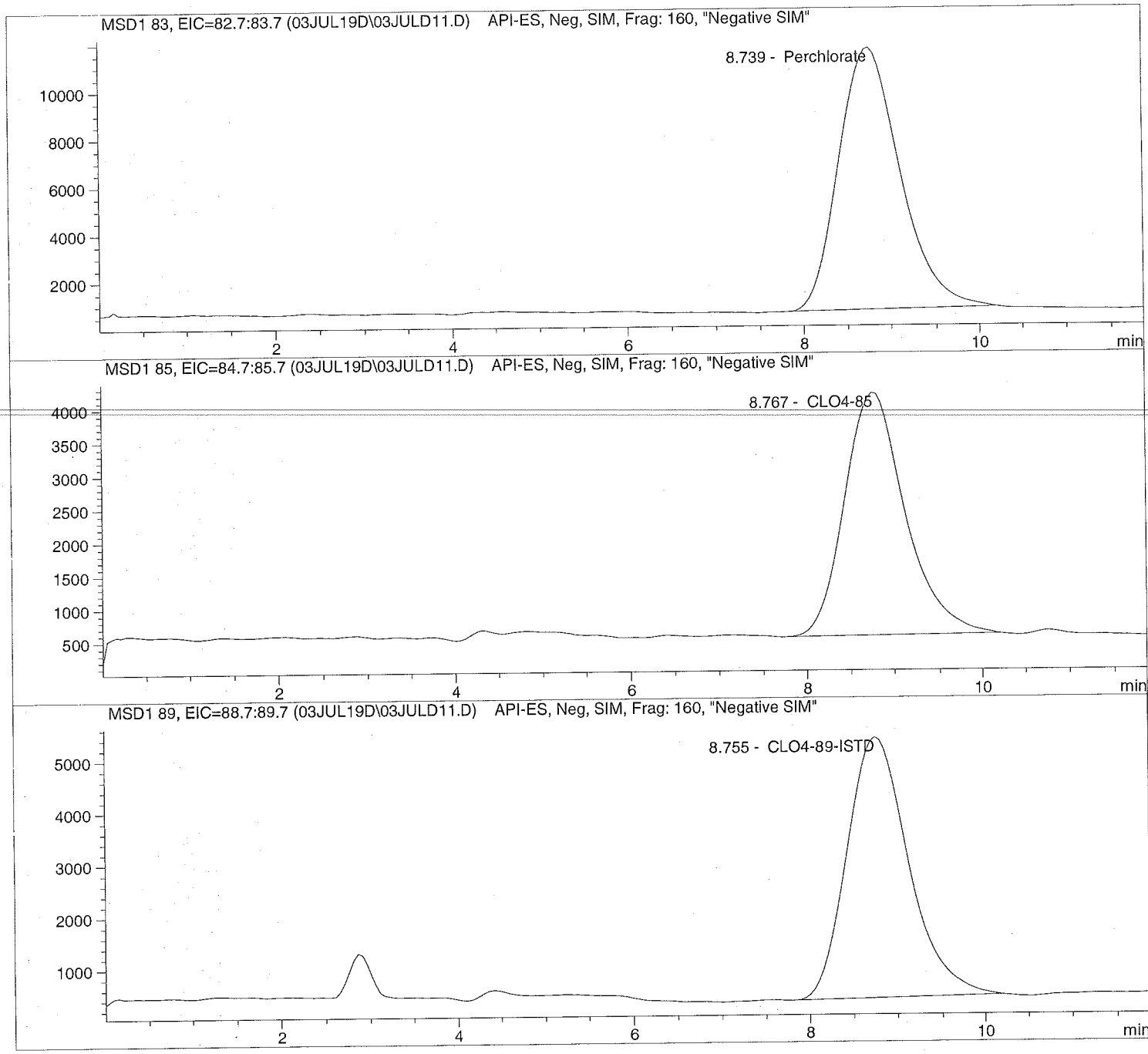
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD11.D Sample Name: 1918260007 1K

Injection Date:	7/03/2019 10:40:43	Seq Line:	11
Sample Name:	1918260007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD11.D Sample Name: 1918260007 1K

Injection Date:	7/03/2019 10:40:43	Seq Line:	11
Sample Name:	1918260007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.739	PBA	534660.9	7067.3228	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.767	PBA	175075.3	7652.5648	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	PBA	243259.9	5000.0000	CLO4-89-ISTD

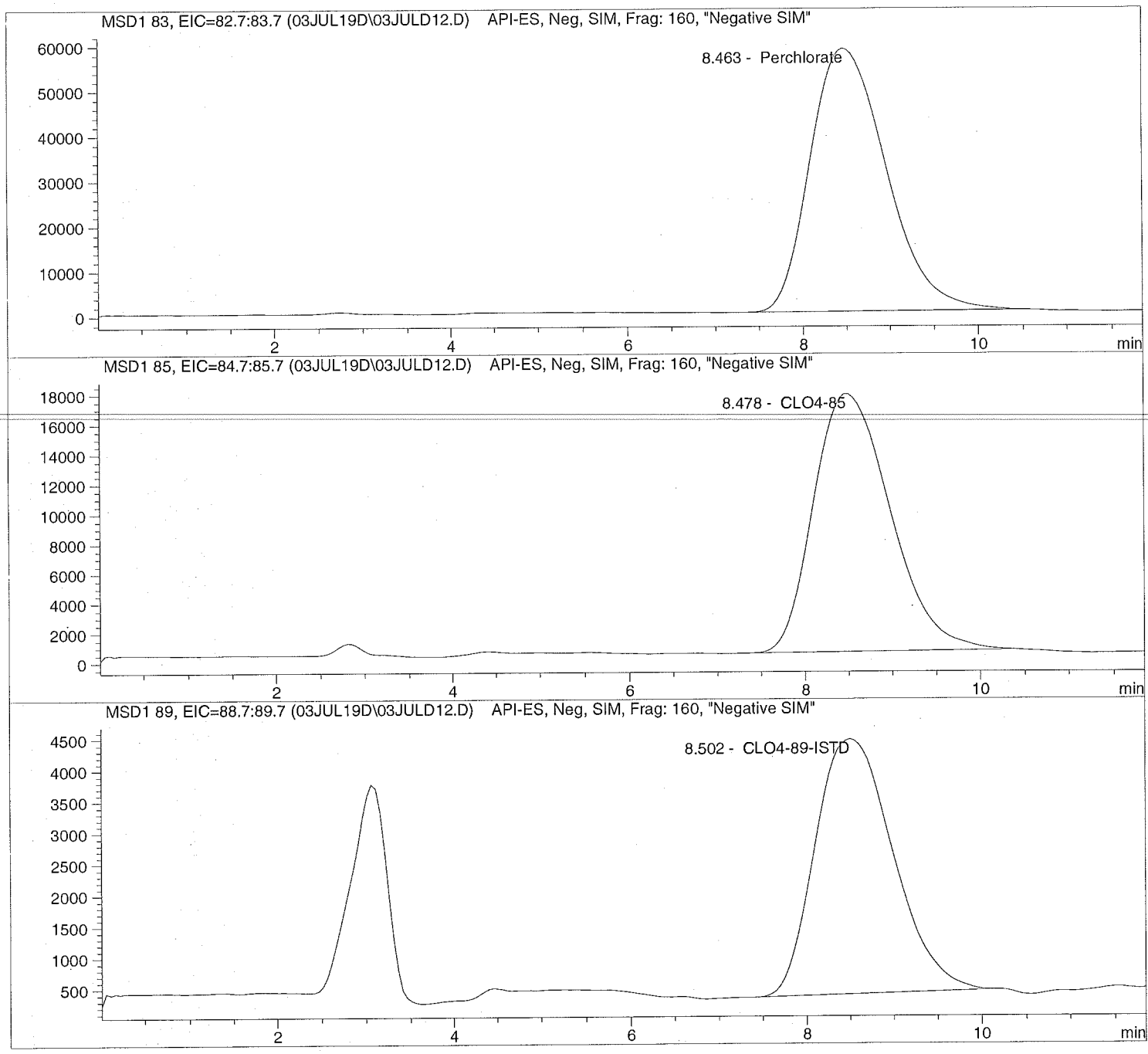
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD12.D Sample Name: 1918260008 10X

Injection Date:	7/03/2019 10:54:34	Seq Line:	12
Sample Name:	1918260008 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD12.D Sample Name: 1918260008 10X

Injection Date:	7/03/2019 10:54:34	Seq Line:	12
Sample Name:	1918260008 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.463	PBA	3531551.7	409.0141	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.478	PBA	1061081.0	414.8002	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	253420.0	50.0000	CLO4-89-ISTD

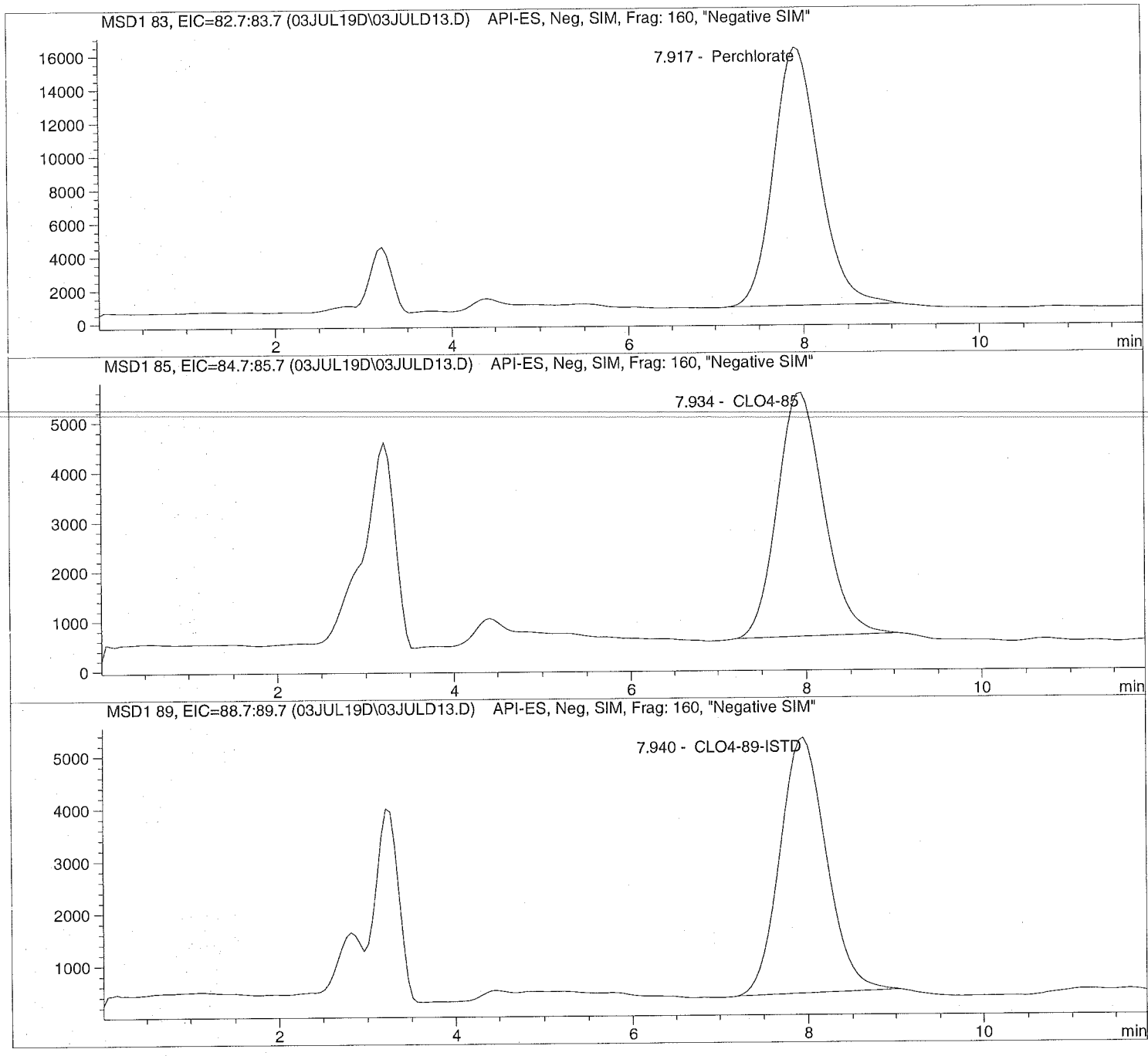
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD13.D Sample Name: 1918260009

Injection Date:	7/03/2019 11:08:30	Seq Line:	13
Sample Name:	1918260009	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD13.D Sample Name: 1918260009

Injection Date:	7/03/2019 11:08:30	Seq Line:	13
Sample Name:	1918260009	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.917	PBA	548800.2	9.8990	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.934	PBA	177271.9	10.6421	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.940	PBA	176004.6	5.0000	CLO4-89-ISTD

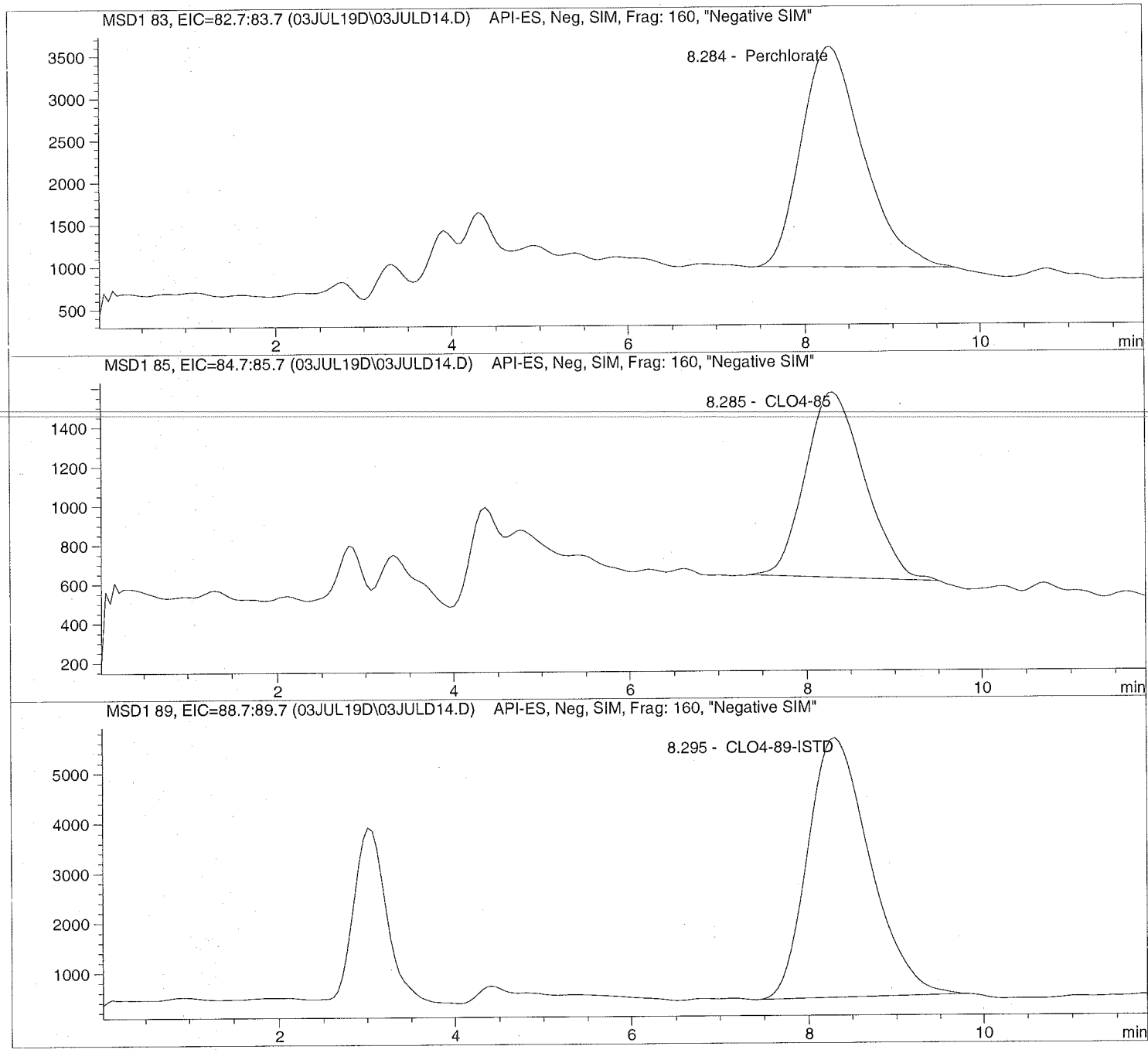
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD14.D Sample Name: 1918260010

Injection Date:	7/03/2019 11:22:22	Seq Line:	14
Sample Name:	1918260010	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD14.D Sample Name: 1918260010

Injection Date:	7/03/2019 11:22:22	Seq Line:	14
Sample Name:	1918260010	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.284	PBA	127410.9	1.7506	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.285	PBA	44045.2	1.8603	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.295	PBA	254426.4	5.0000	CLO4-89-ISTD

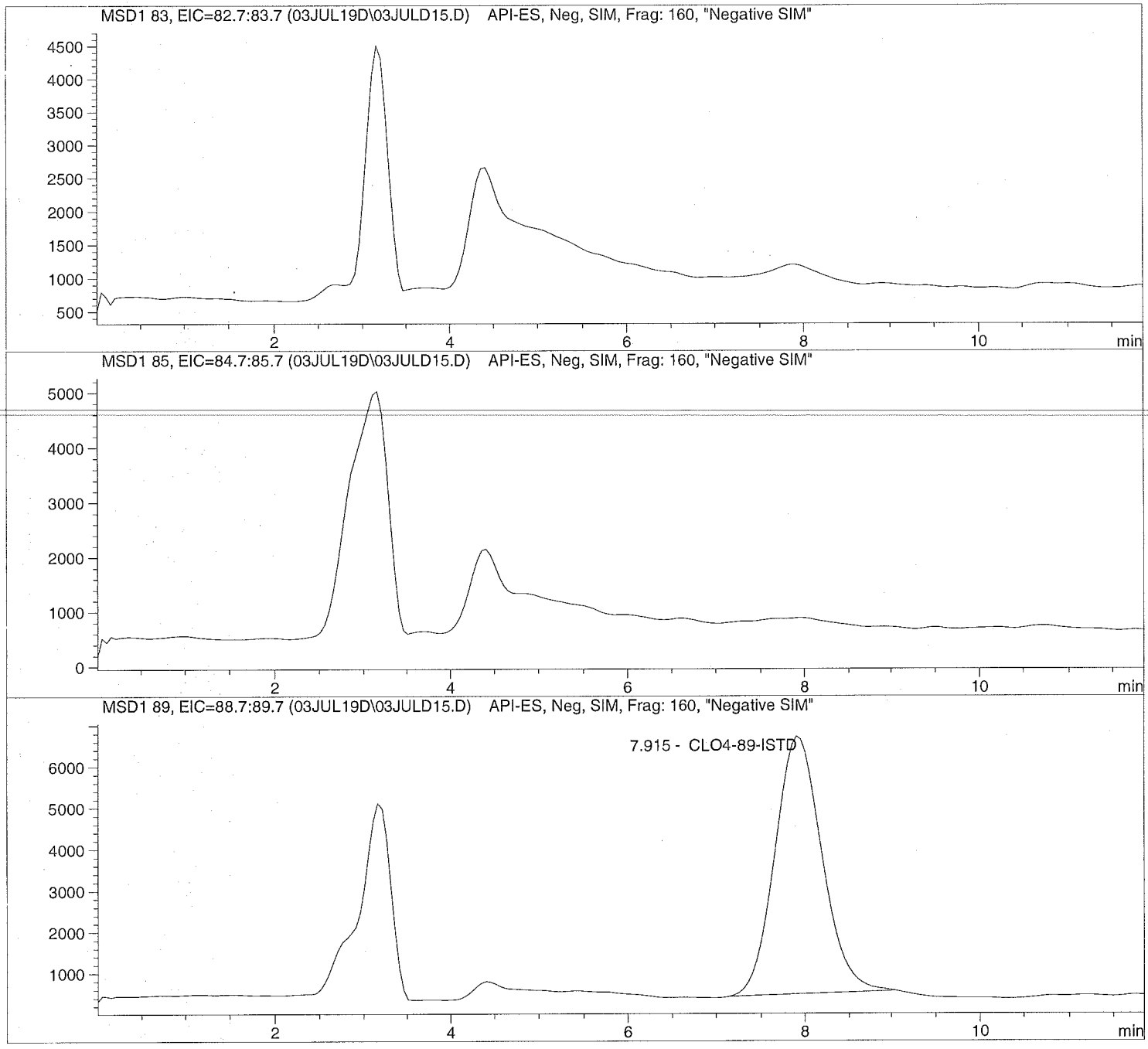
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD15.D Sample Name: 1918260011

Injection Date:	7/03/2019 11:36:14	Seq Line:	15
Sample Name:	1918260011	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD15.D Sample Name: 1918260011

Injection Date:	7/03/2019 11:36:14	Seq Line:	15
Sample Name:	1918260011	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.915	PBA	232350.5	5.0000	CLO4-89-ISTD

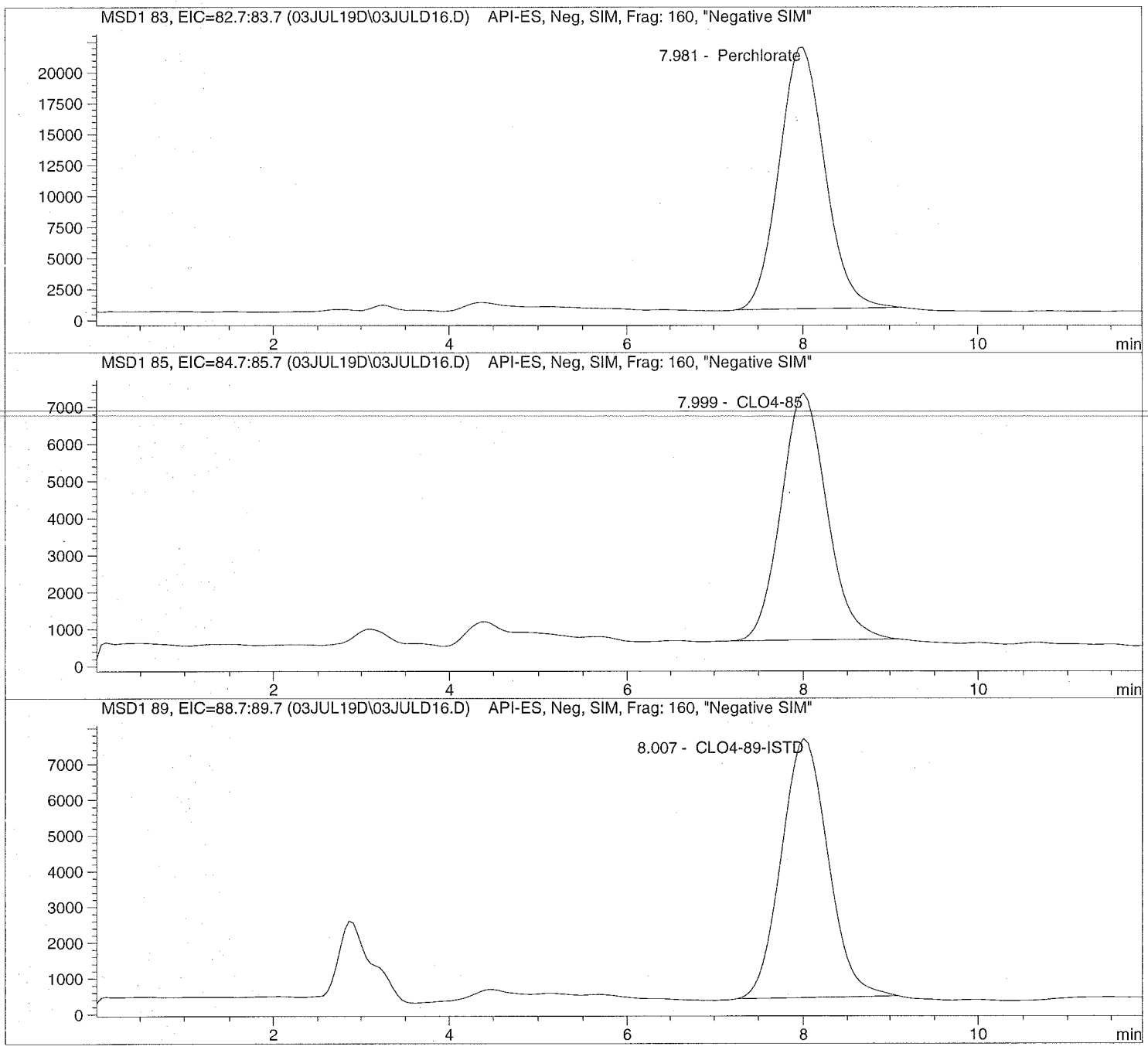
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD16.D Sample Name: 1918265001

Injection Date:	7/03/2019 11:50:13	Seq Line:	16
Sample Name:	1918265001	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD16.D Sample Name: 1918265001

Injection Date:	7/03/2019 11:50:13	Seq Line:	16
Sample Name:	1918265001	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.981	PBA	753597.0	9.0775	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.999	PBA	238015.1	9.5332	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.007	BBA	264420.9	5.0000	CLO4-89-ISTD

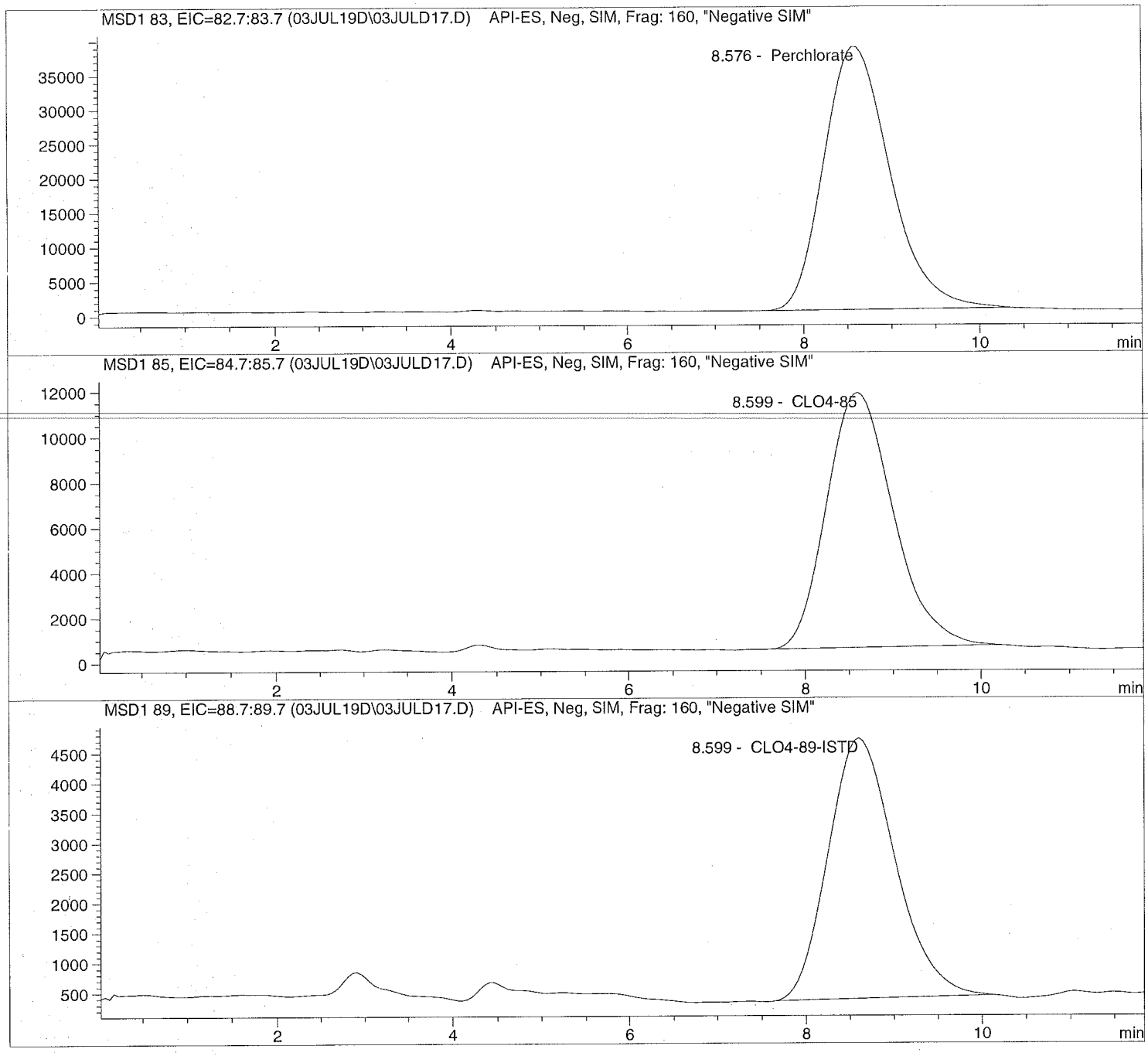
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD17.D Sample Name: 661794 CCV@25

Injection Date:	7/03/2019 12:04:07	Seq Line:	17
Sample Name:	661794 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD17.D Sample Name: 661794 CCV@25

Injection Date:	7/03/2019 12:04:07	Seq Line:	17
Sample Name:	661794 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.576	PBA	1992507.0	26.3322	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.599	PBA	592974.3	26.4065	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.599	PBA	229484.4	5.0000	CLO4-89-ISTD

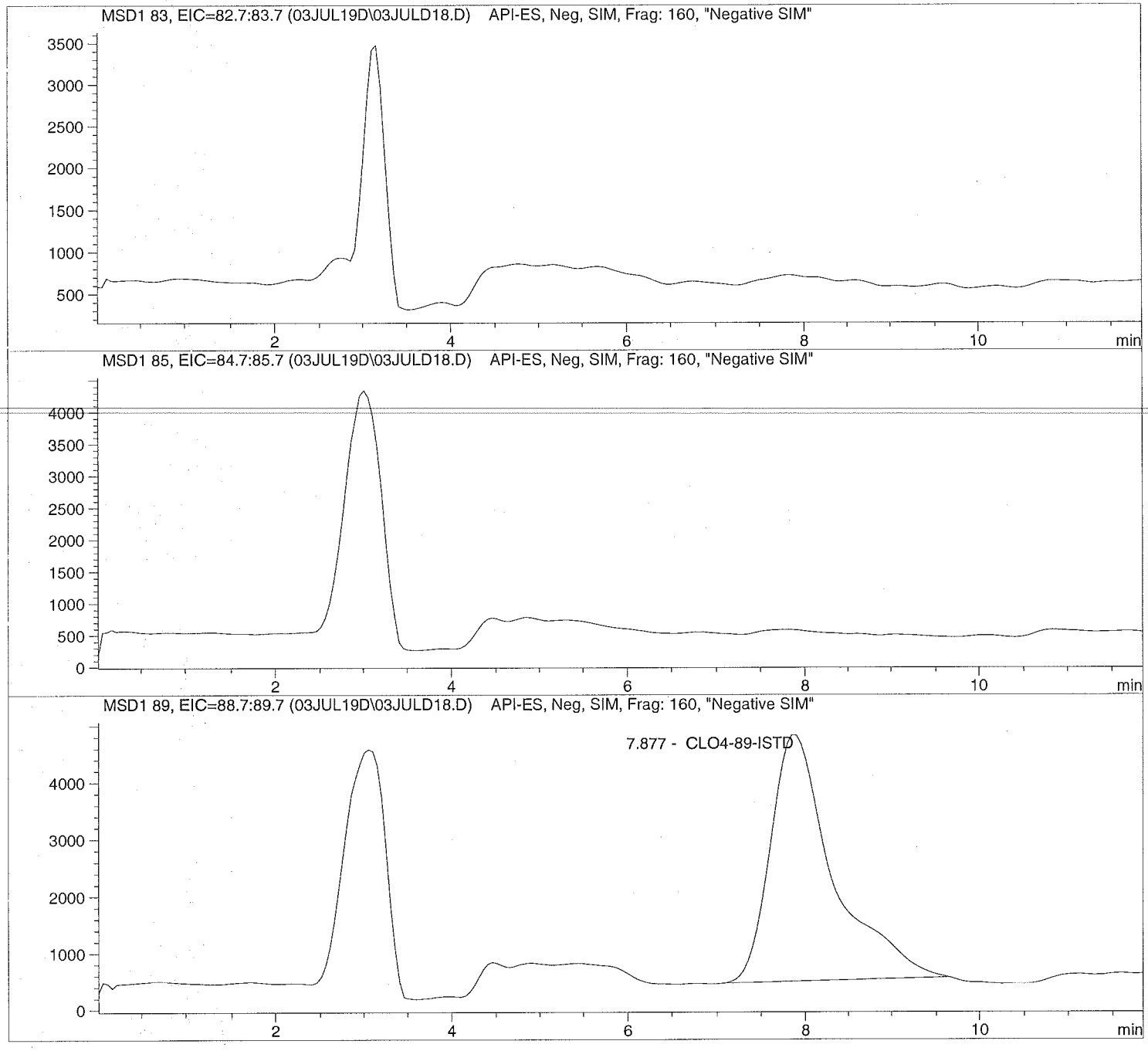
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD18.D Sample Name: 1918265002

Injection Date:	7/03/2019 12:18:01	Seq Line:	18
Sample Name:	1918265002	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD18.D Sample Name: 1918265002

Injection Date:	7/03/2019 12:18:01	Seq Line:	18
Sample Name:	1918265002	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.877	PBA	214730.0	5.0000	CLO4-89-ISTD

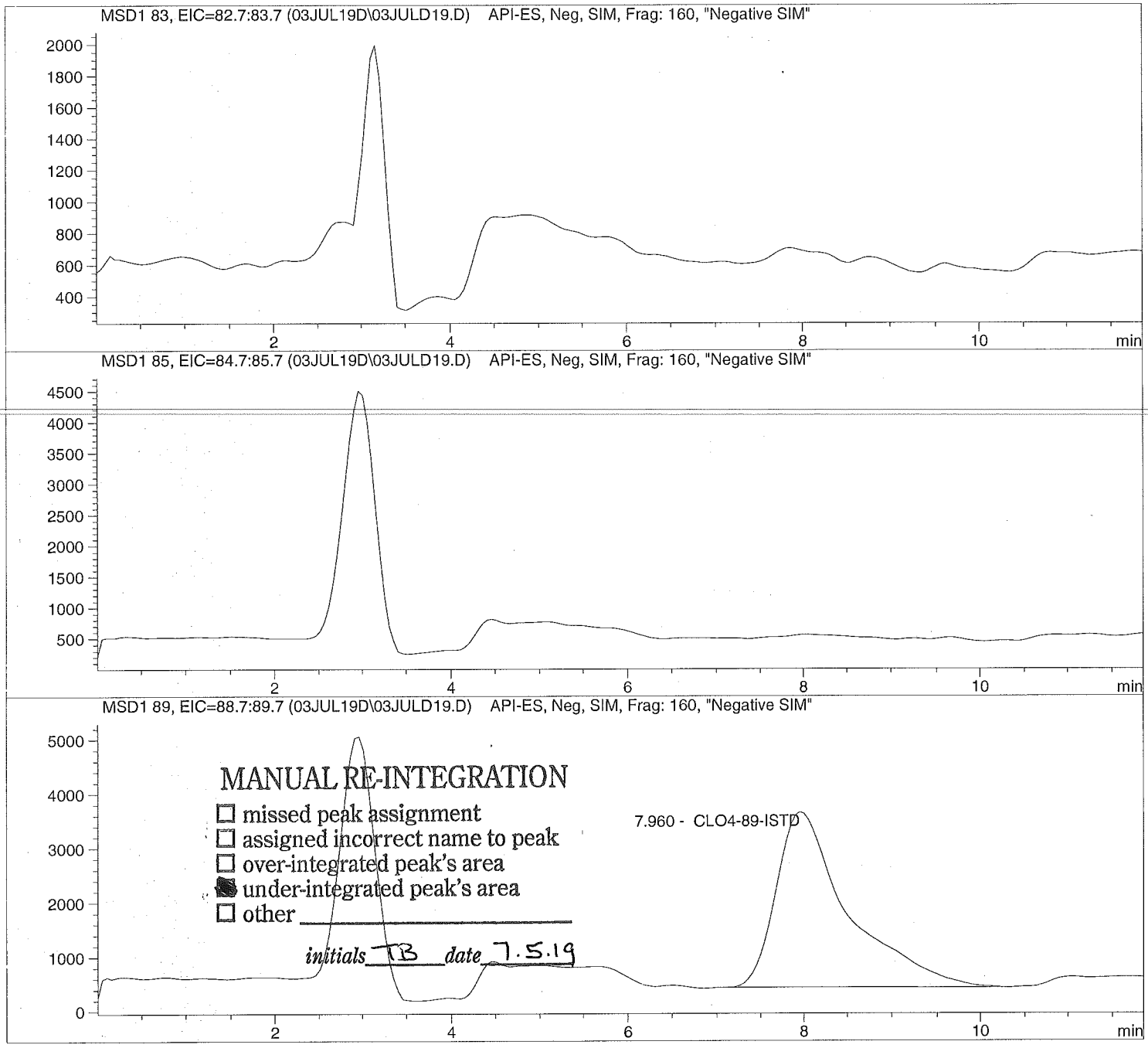
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.960	MM	183014.2	5.0000	CLO4-89-ISTD

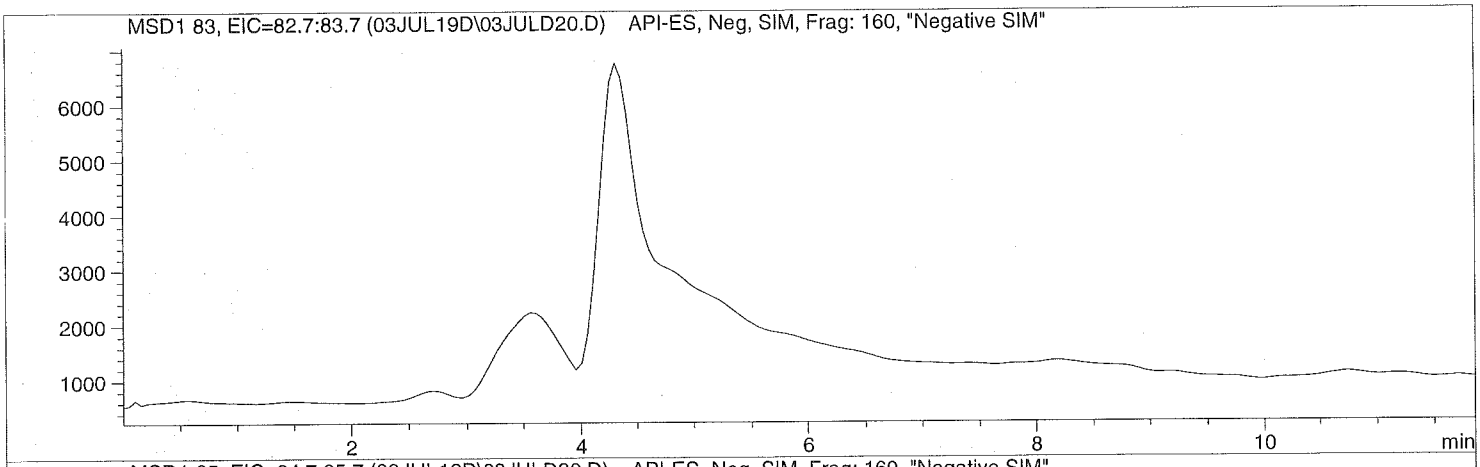
*** End of Report ***

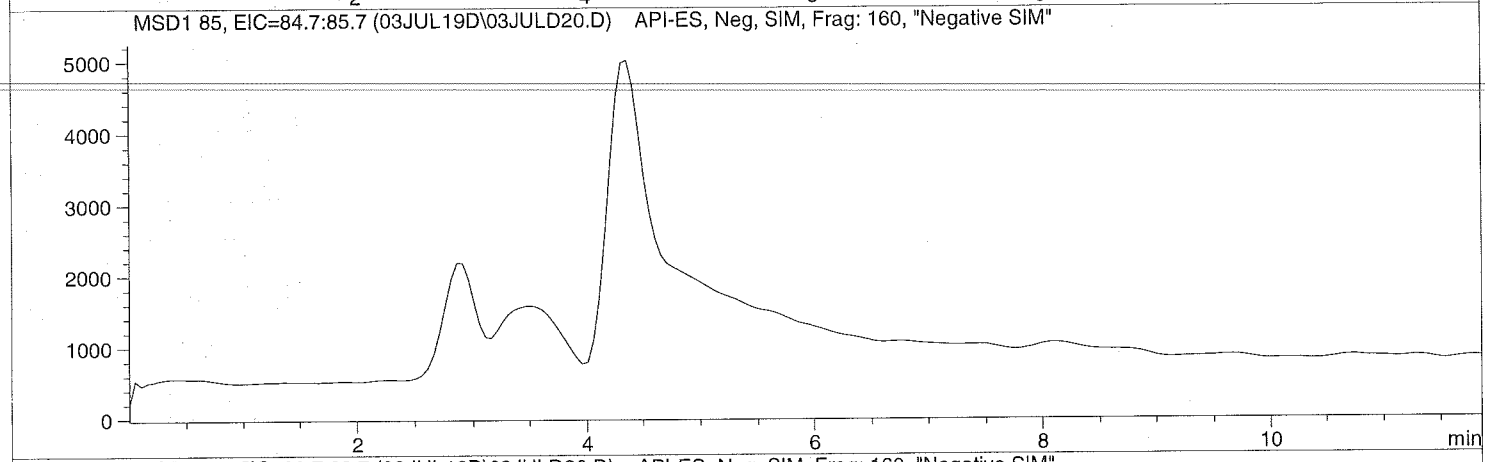
Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD20.D Sample Name: 1918265004

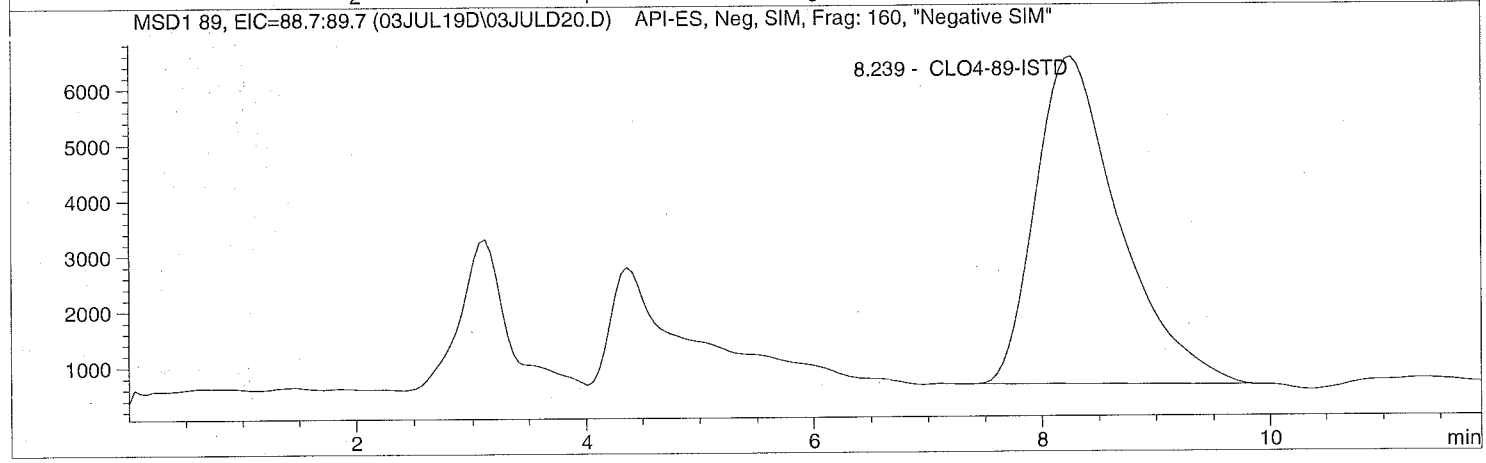
Injection Date:	7/03/2019 12:45:47	Seq Line:	20
Sample Name:	1918265004	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD20.D Sample Name: 1918265004

Injection Date:	7/03/2019 12:45:47	Seq Line:	20
Sample Name:	1918265004	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.239	PBA	299495.5	5.0000	CLO4-89-ISTD

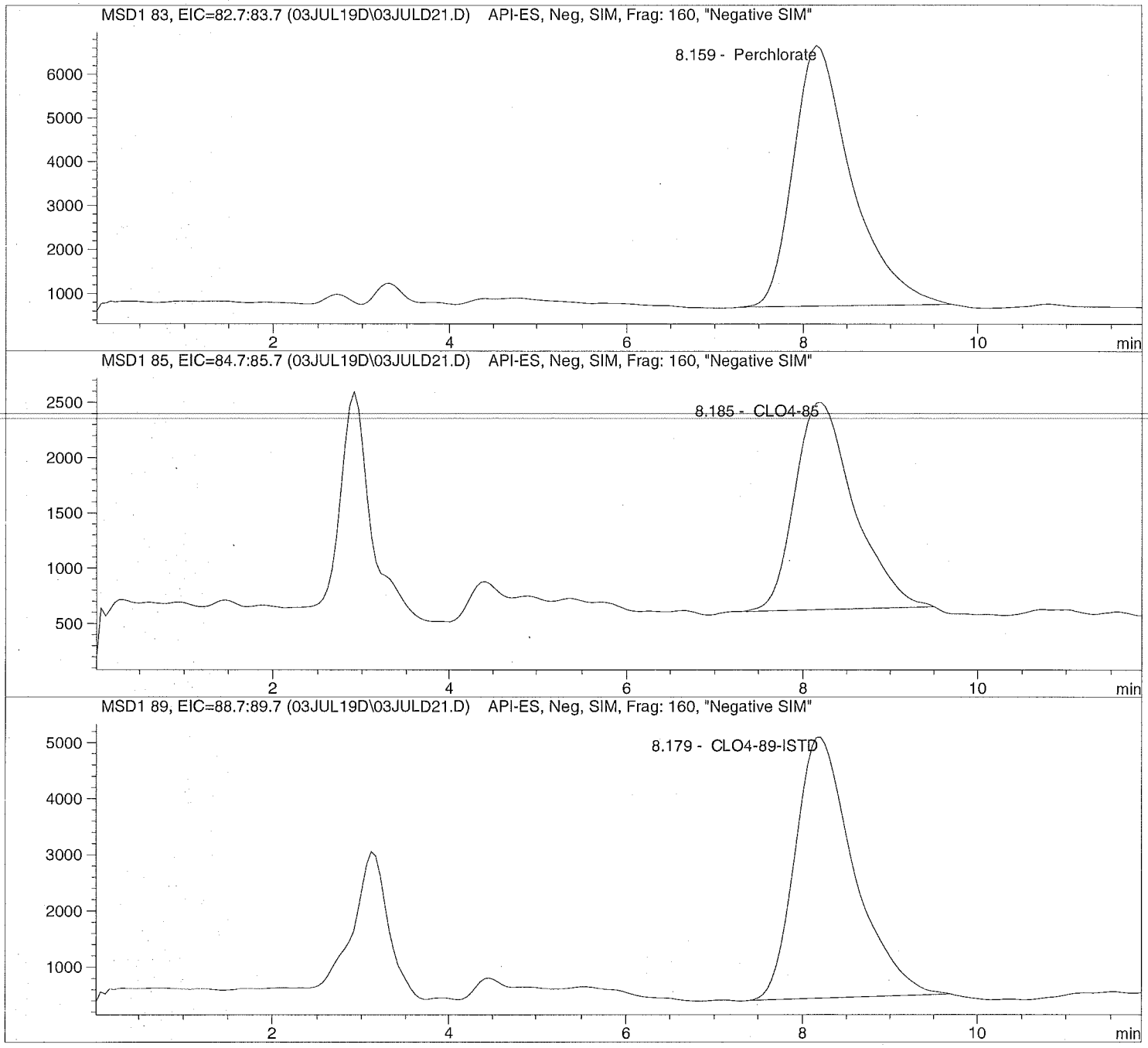
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD21.D Sample Name: 1918265005

Injection Date:	7/03/2019 12:59:40	Seq Line:	21
Sample Name:	1918265005	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD21.D Sample Name: 1918265005

Injection Date:	7/03/2019 12:59:40	Seq Line:	21
Sample Name:	1918265005	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.159	PBA	273037.3	4.1459	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.185	BBA	87704.6	4.3341	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.179	PBA	216624.0	5.0000	CLO4-89-ISTD

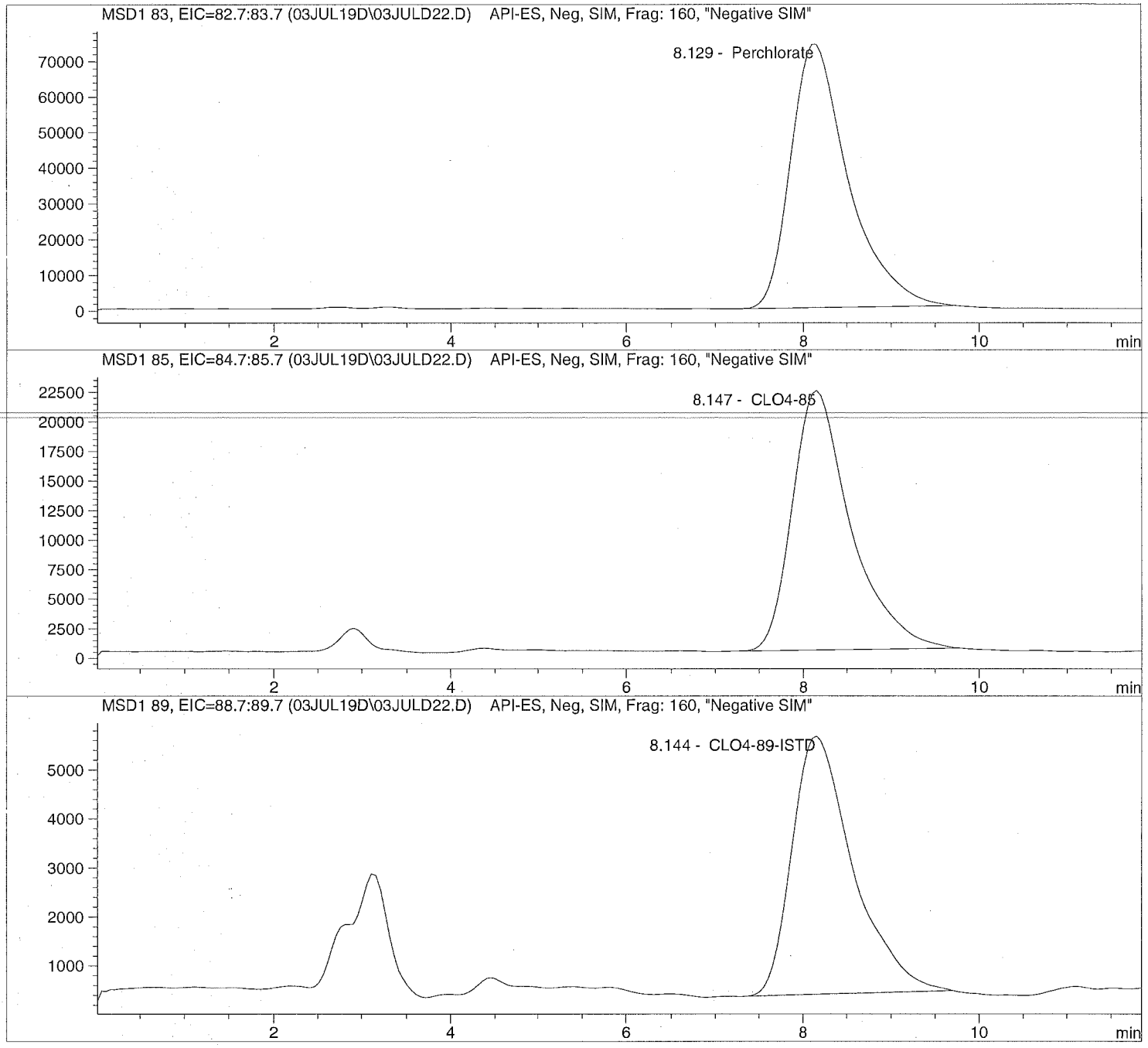
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD22.D Sample Name: 1918265006

Injection Date:	7/03/2019 13:13:42	Seq Line:	22
Sample Name:	1918265006	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD22.D Sample Name: 1918265006

Injection Date:	7/03/2019 13:13:42	Seq Line:	22
Sample Name:	1918265006	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.129	PBA	3362889.2	39.0365	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.147	PBA	1014205.1	39.7190	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.144	PBA	253872.0	5.0000	CLO4-89-ISTD

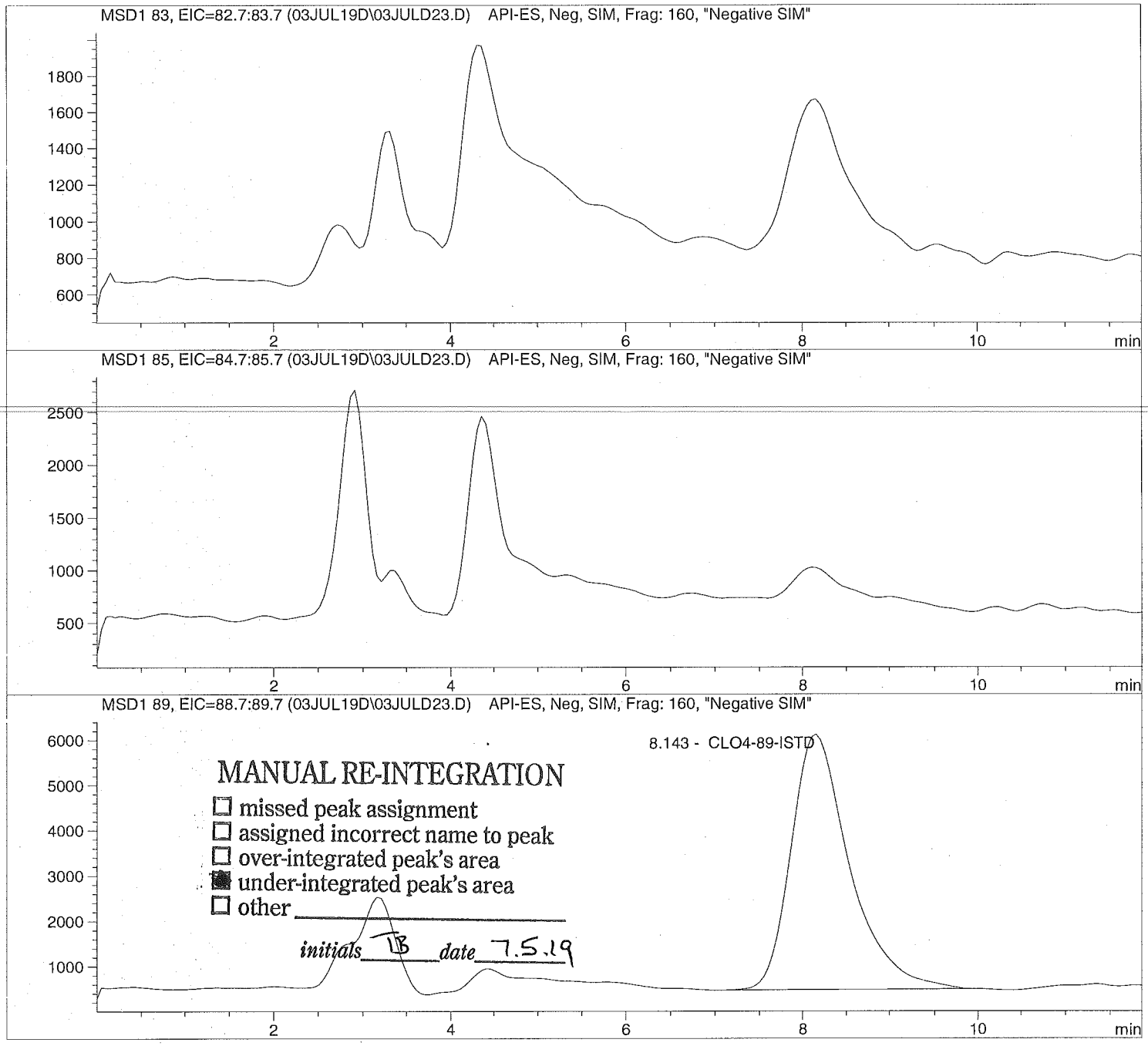
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.143	MM	263295.0	5.0000	CLO4-89-ISTD

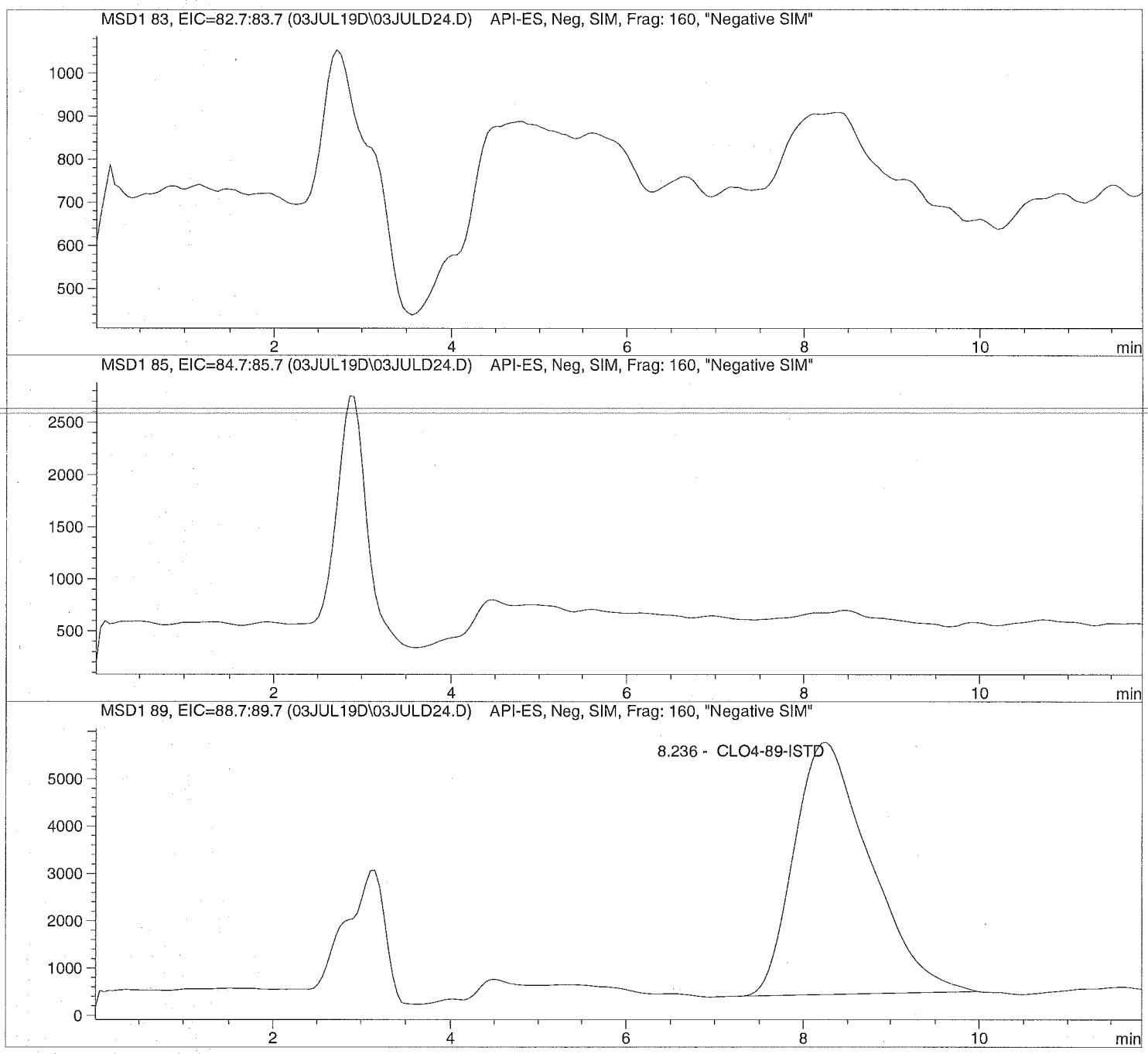
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD24.D Sample Name: 1918265008

Injection Date:	7/03/2019 13:41:31	Seq Line:	24
Sample Name:	1918265008	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD24.D Sample Name: 1918265008

Injection Date:	7/03/2019 13:41:31	Seq Line:	24
Sample Name:	1918265008	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.236	PBA	321651.0	5.0000	CLO4-89-ISTD

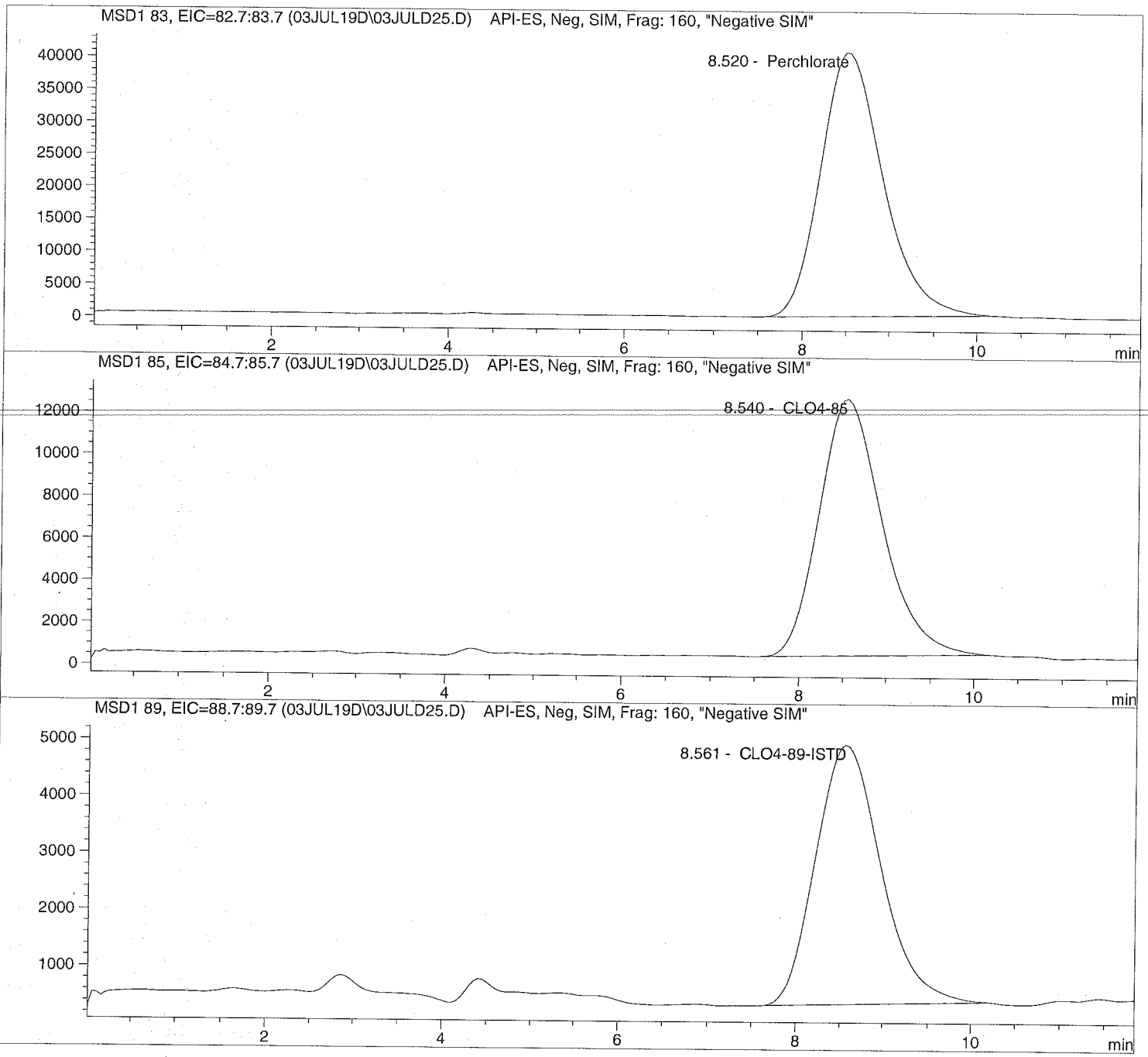
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD25.D Sample Name: 661795 CCV@25

Injection Date:	7/03/2019 13:55:26	Seq Line:	25
Sample Name:	661795 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD25.D Sample Name: 661795 CCV@25

Injection Date:	7/03/2019 13:55:26	Seq Line:	25
Sample Name:	661795 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.520	PBA	2028657.1	25.8170	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.540	PBA	616067.7	26.3876	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.561	PBA	238601.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

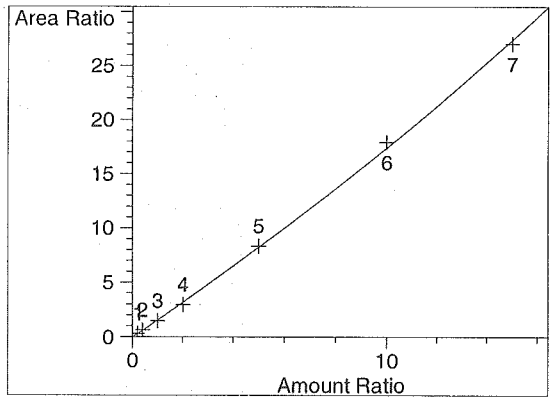
Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

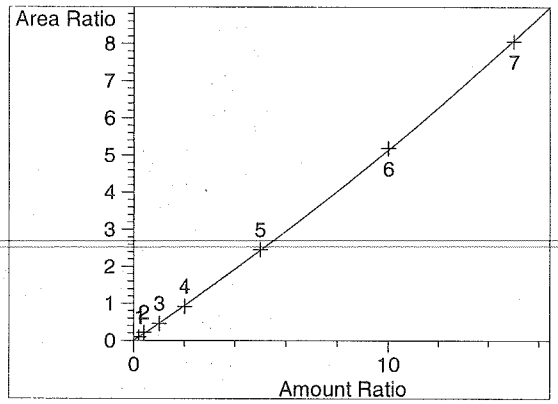
Peak Sum Table

No Entries in table

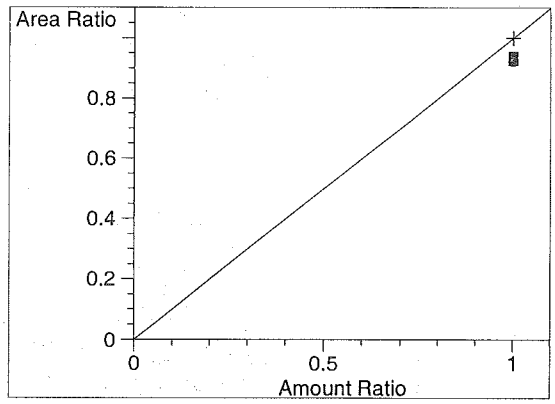
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

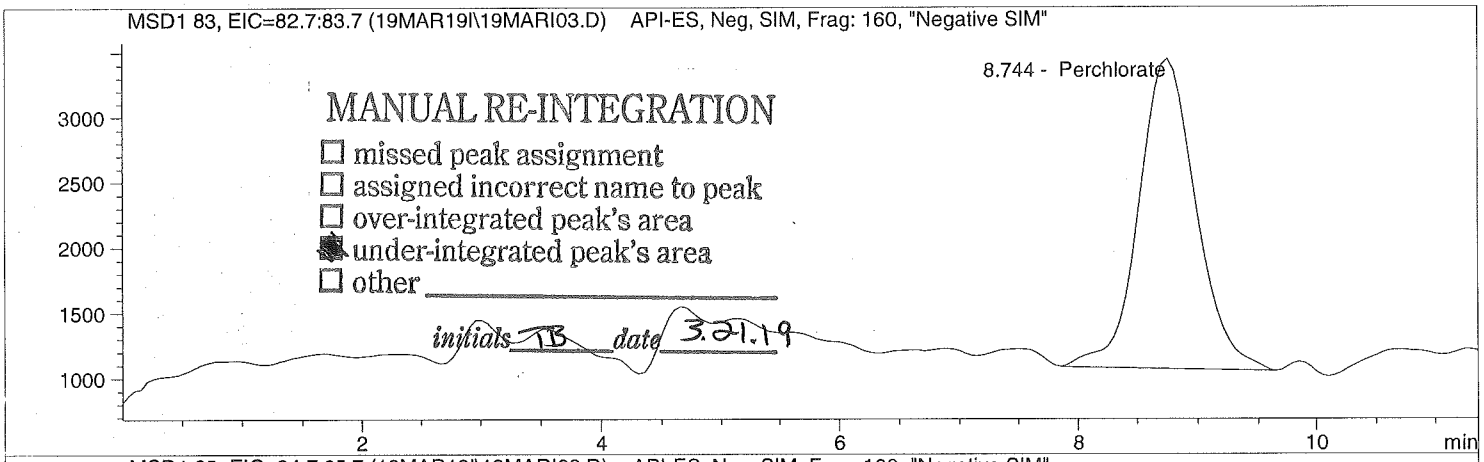
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

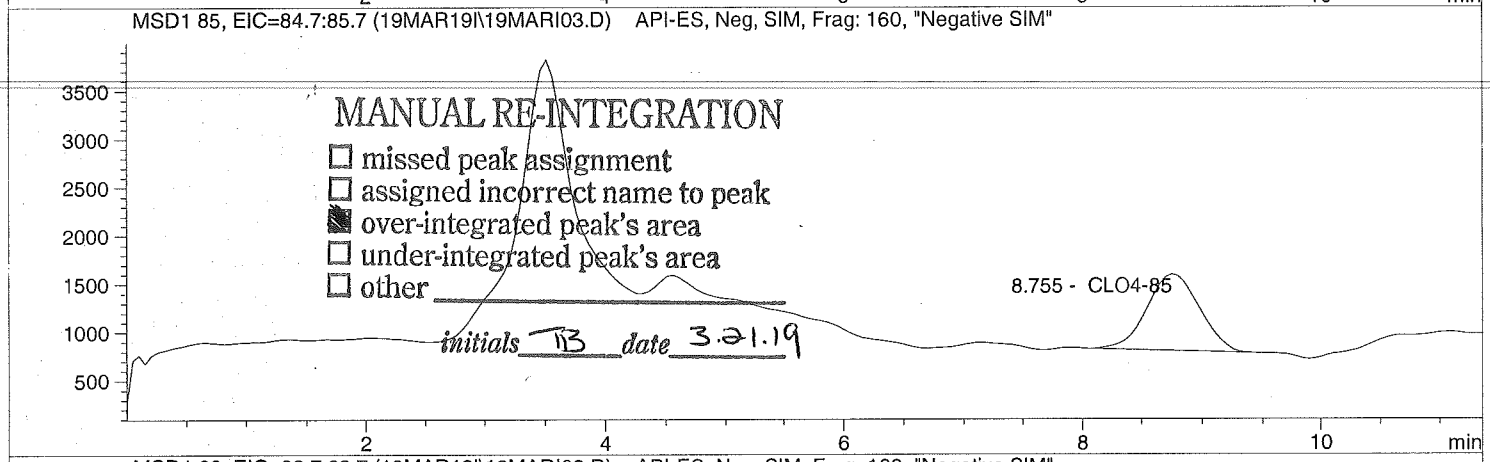
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

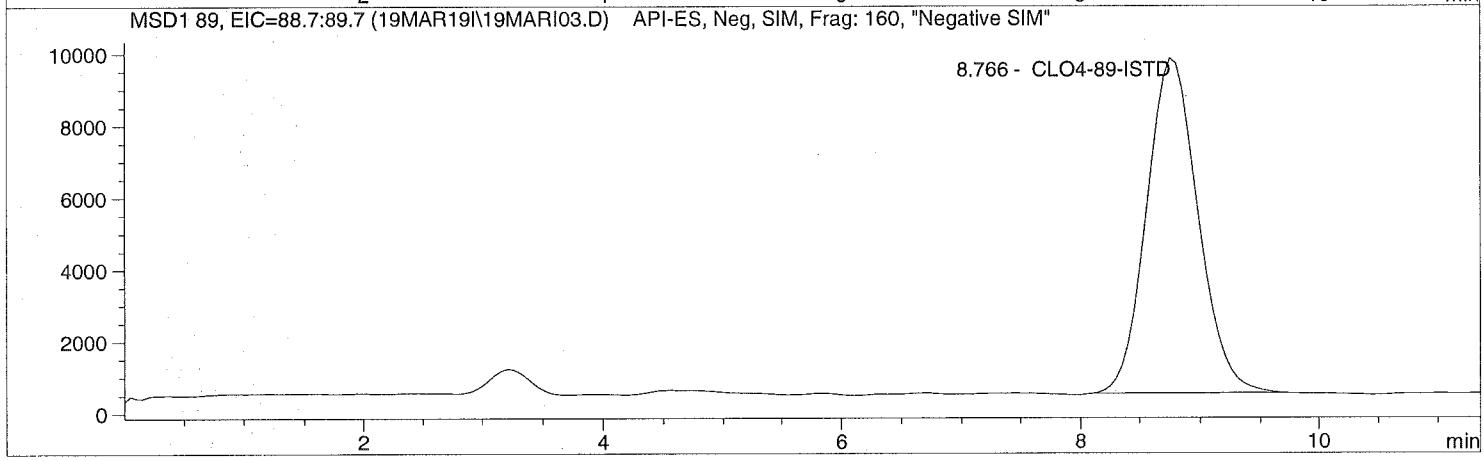
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

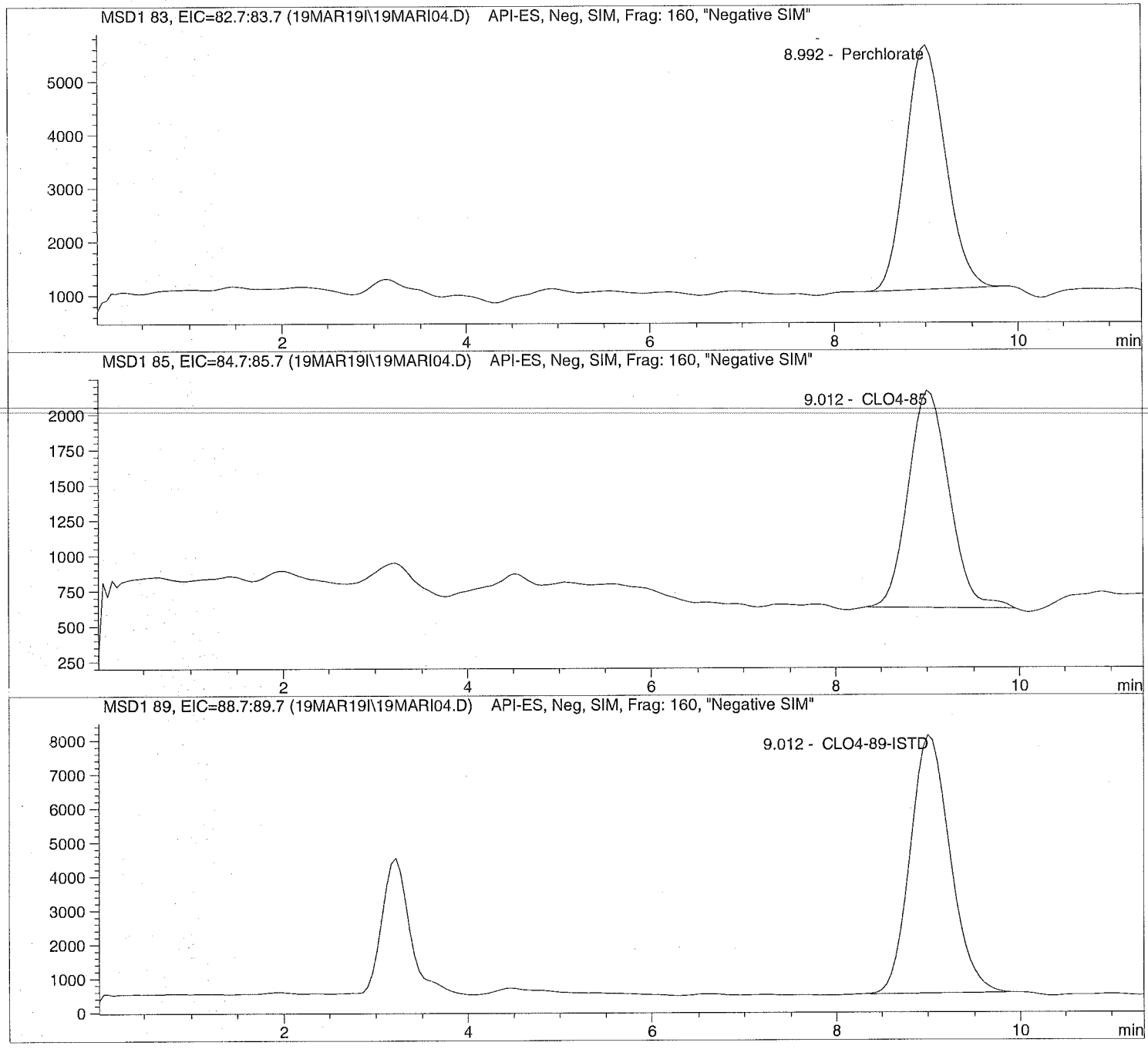
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

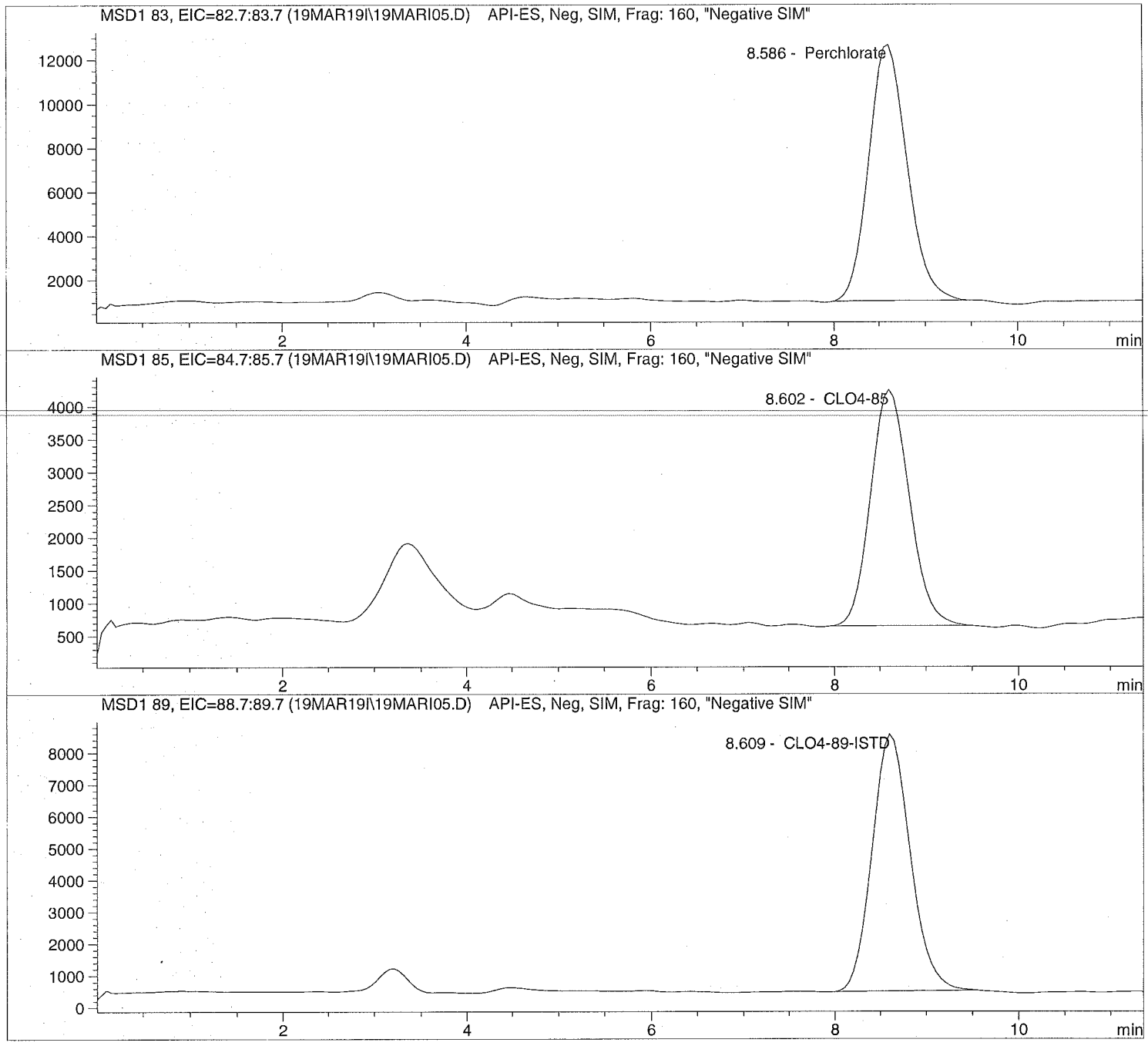
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

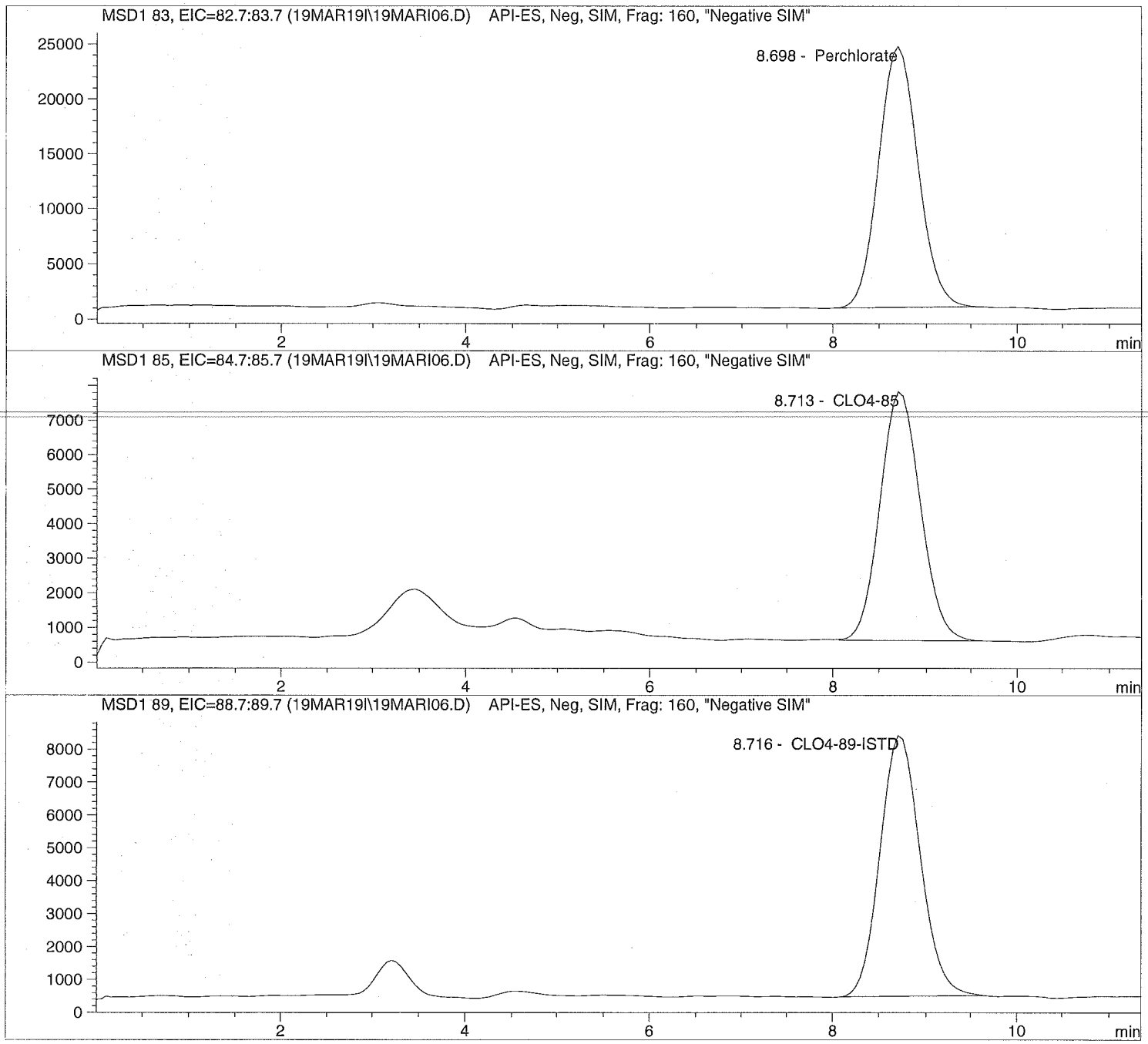
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

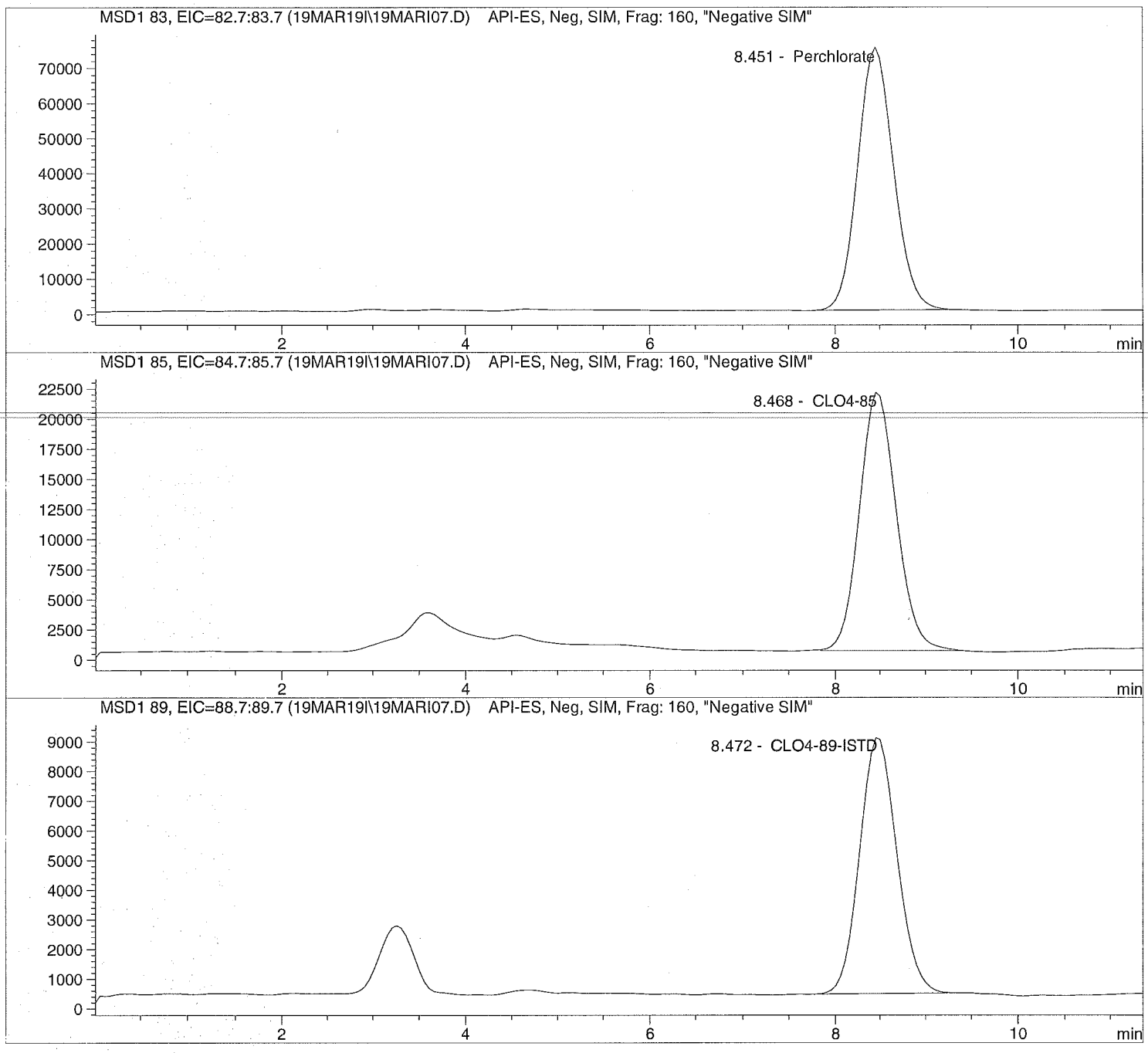
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

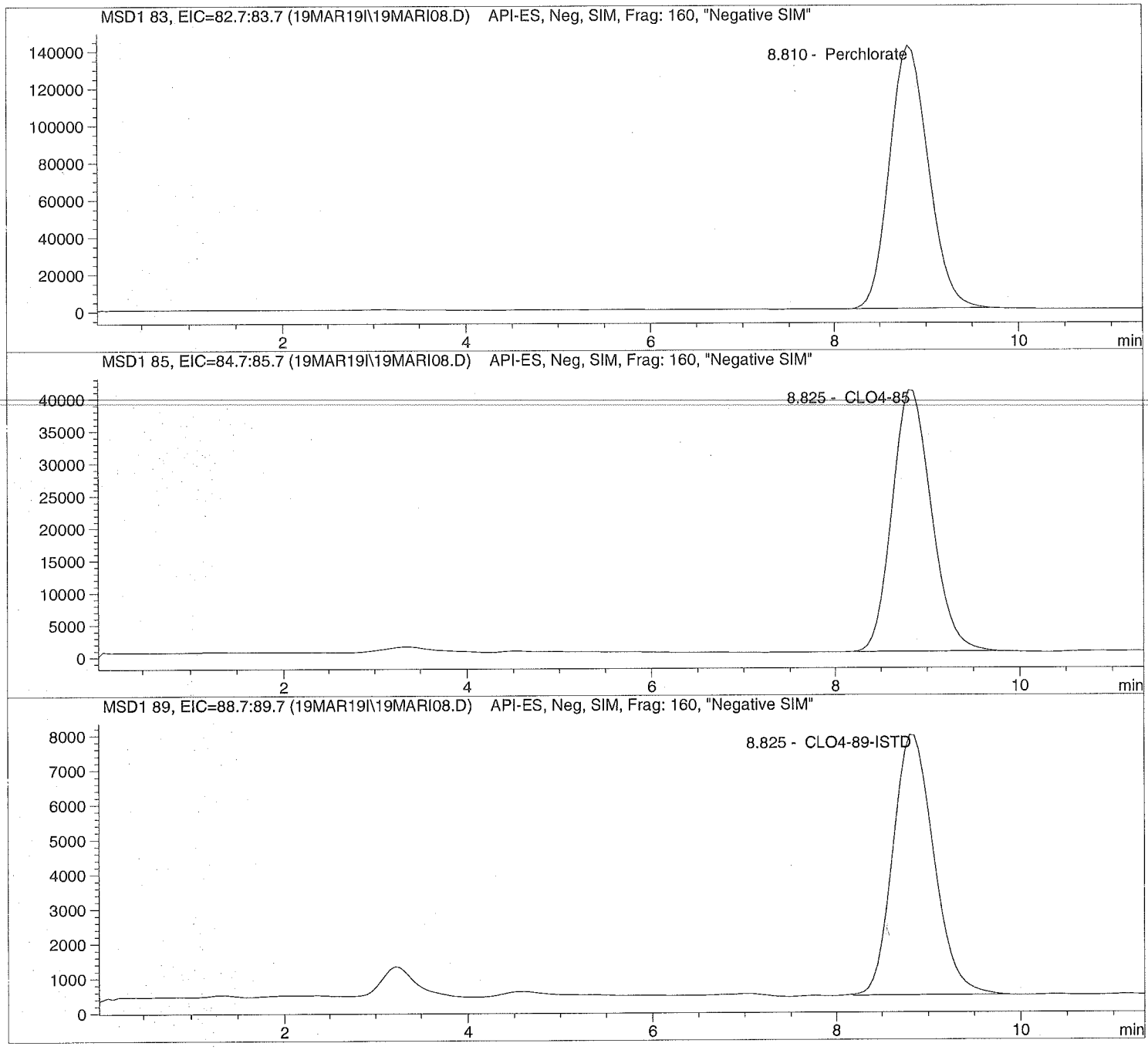
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

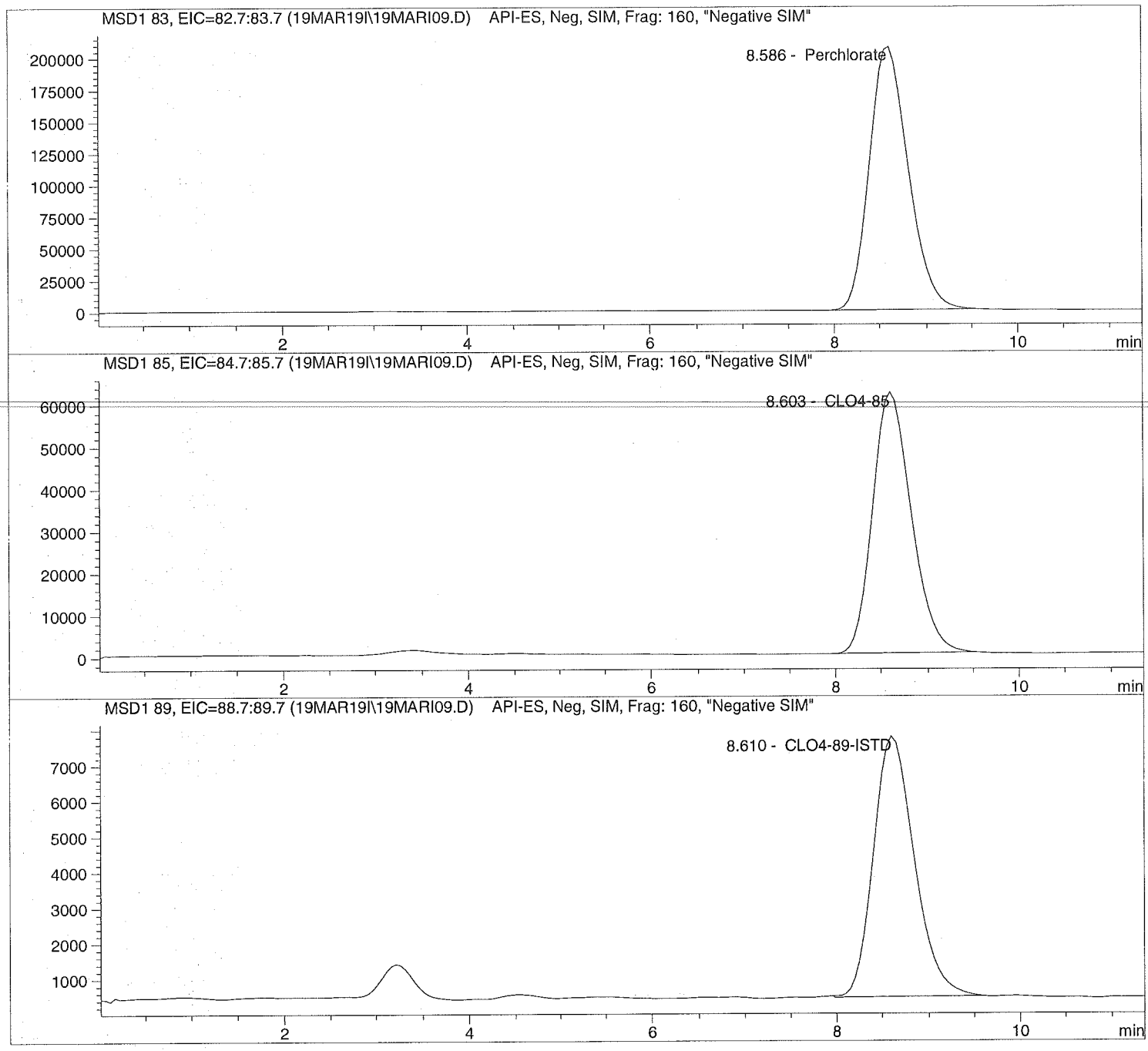
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

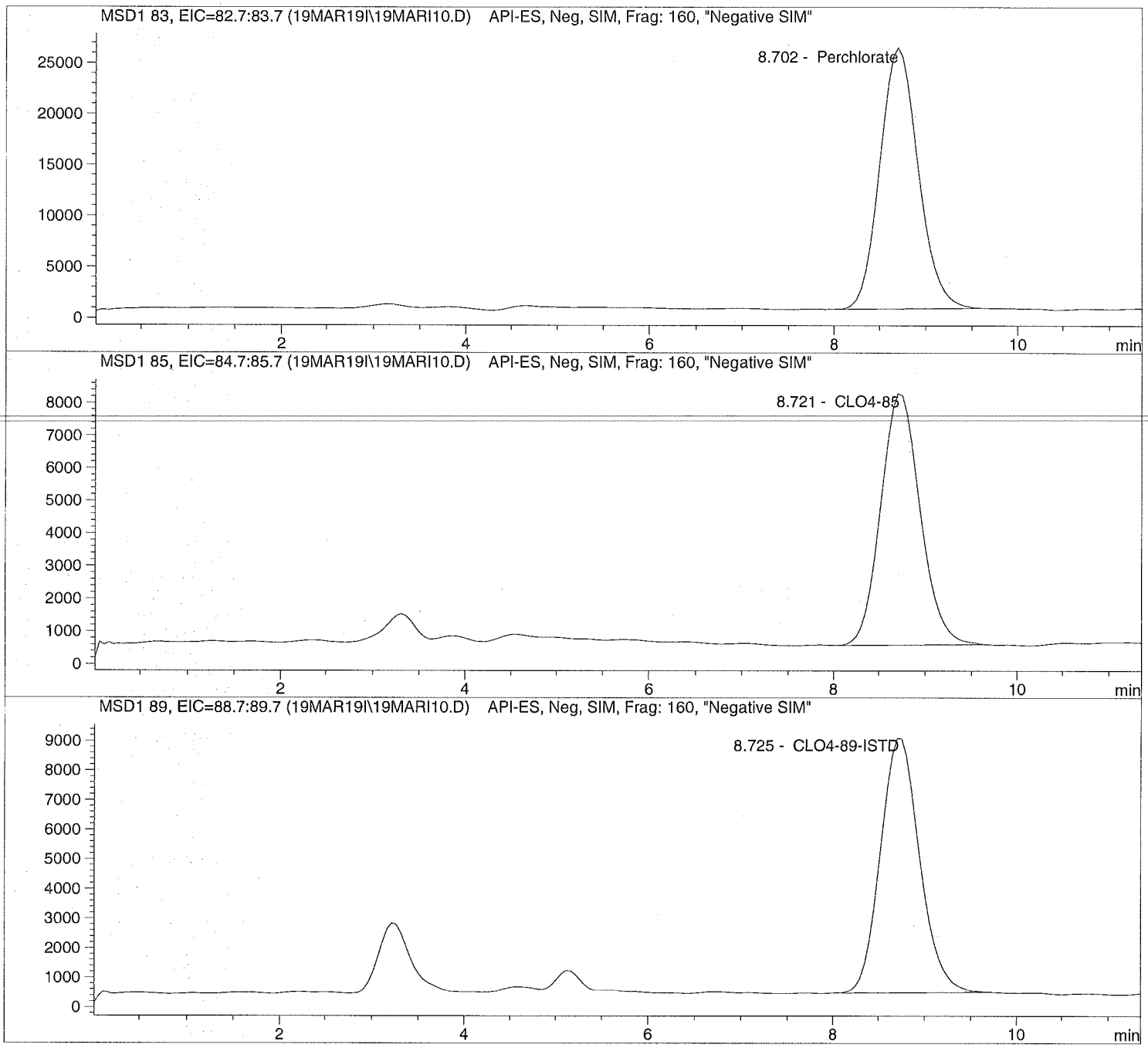
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

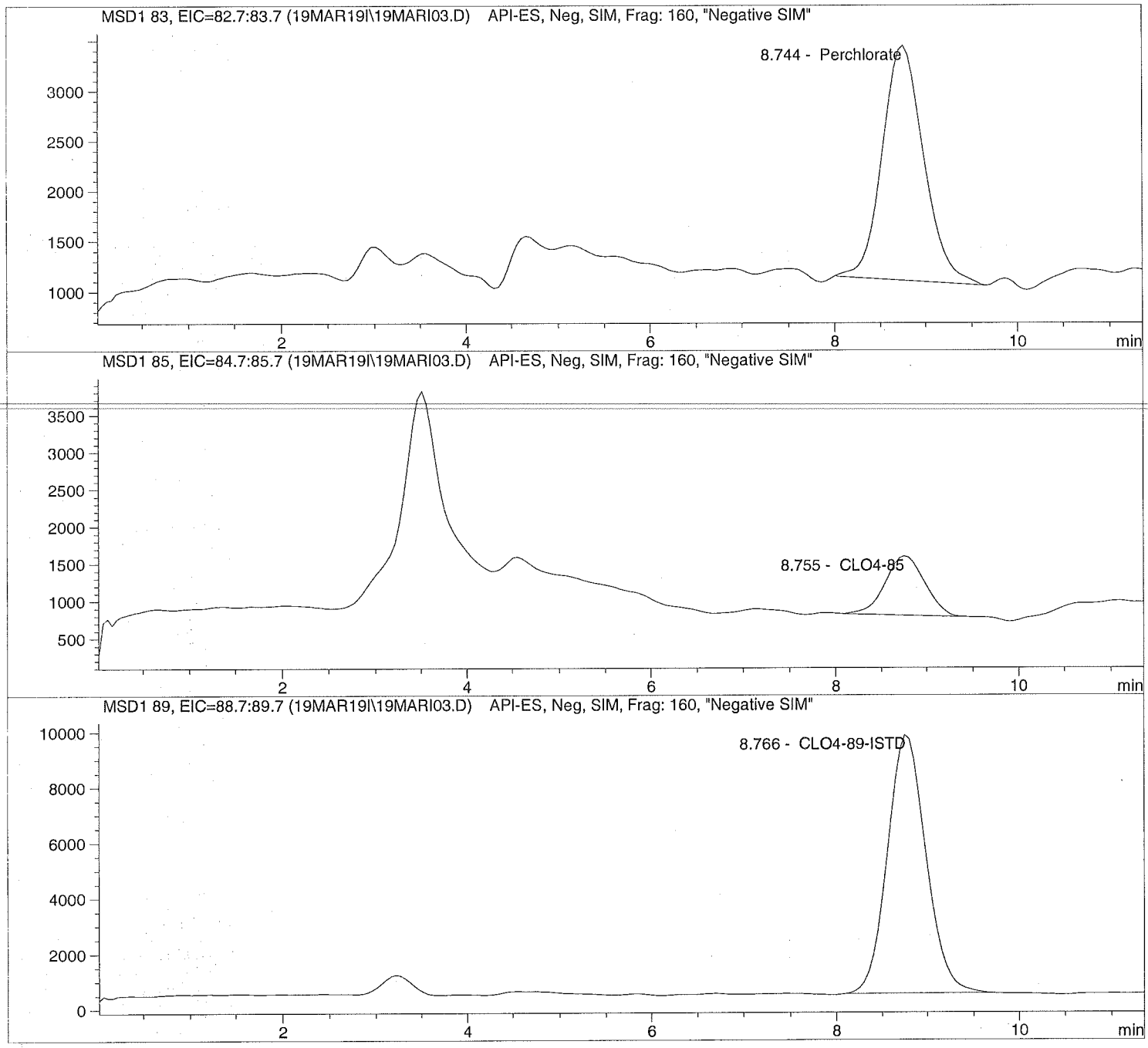
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

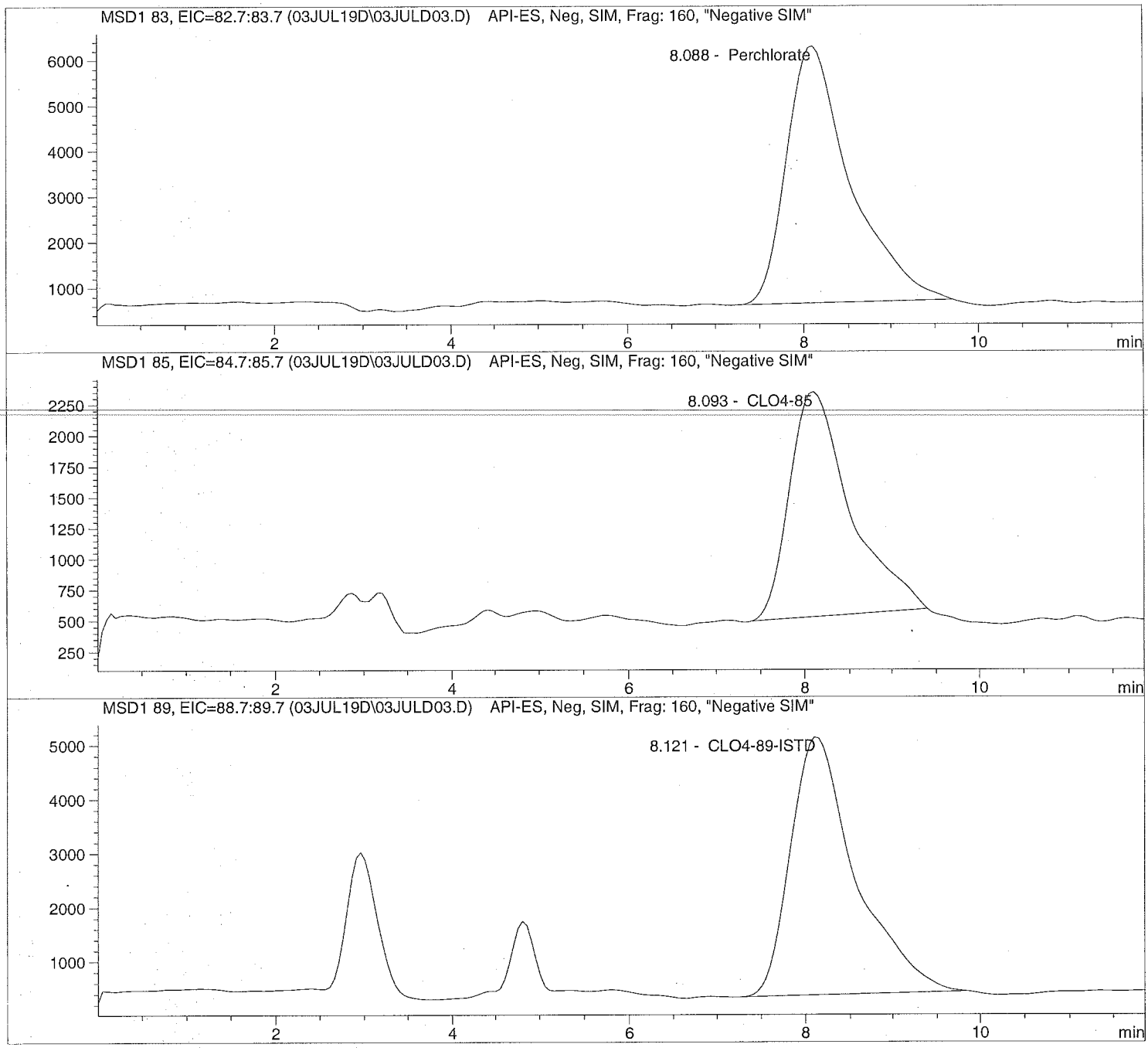
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD03.D Sample Name: 661791 ICS@4.0

Injection Date:	7/03/2019 08:49:21	Seq Line:	3
Sample Name:	661791 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD03.D Sample Name: 661791 ICS@4.0

Injection Date:	7/03/2019 08:49:21	Seq Line:	3
Sample Name:	661791 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.088	PBA	281076.3	3.8527	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.093	PBA	86599.9	3.8525	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.121	PBA	240851.1	5.0000	CLO4-89-ISTD

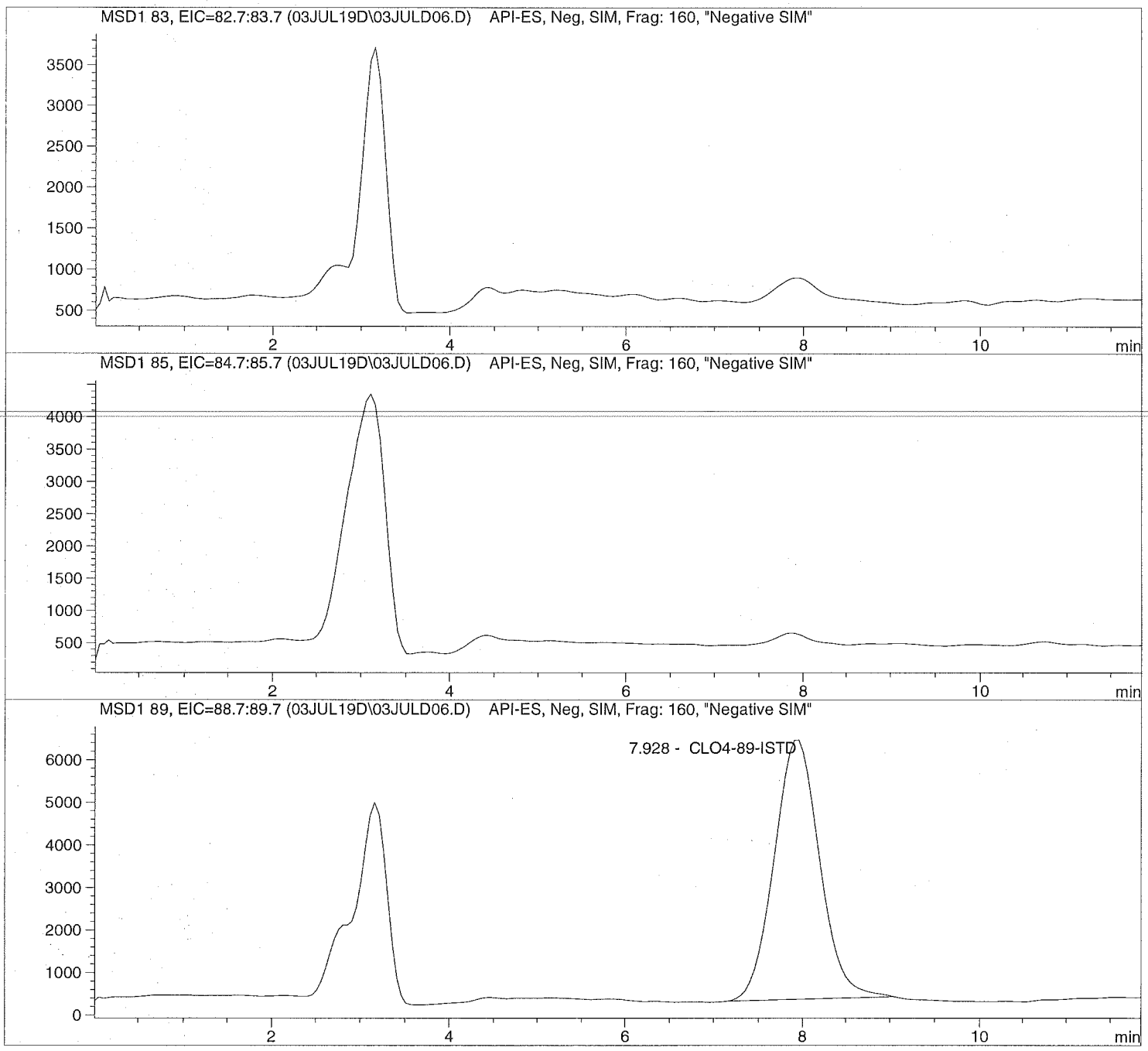
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD06.D Sample Name: 1918260002

Injection Date:	7/03/2019 09:31:06	Seq Line:	6
Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD06.D Sample Name: 1918260002

Injection Date:	7/03/2019 09:31:06	Seq Line:	6
Sample Name:	1918260002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.928	PBA	220839.0	5.0000	CLO4-89-ISTD

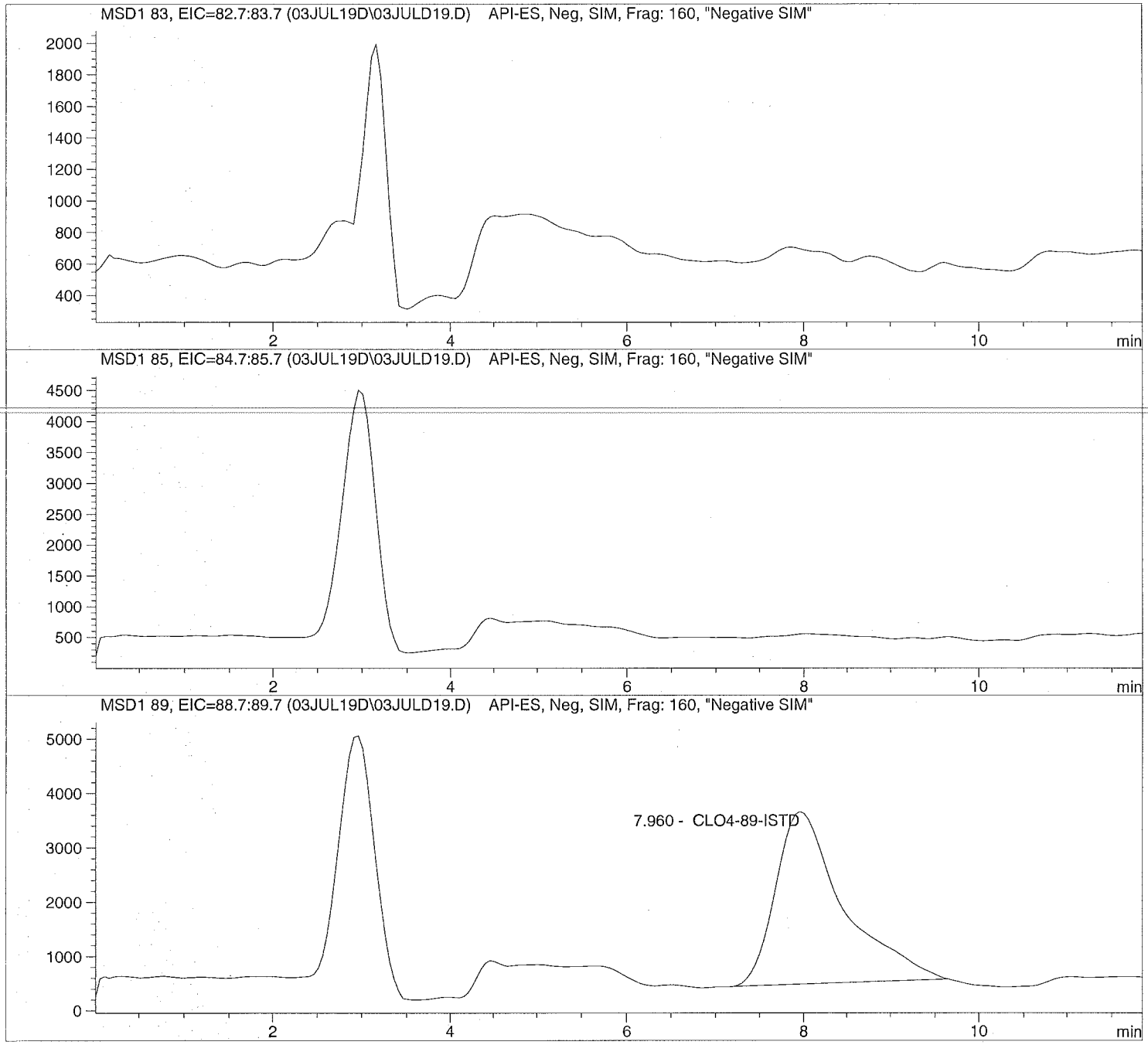
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD19.D Sample Name: 1918265003

Injection Date:	7/03/2019 12:31:53	Seq Line:	19
Sample Name:	1918265003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.960	PBA	169691.9	5.0000	CLO4-89-ISTD

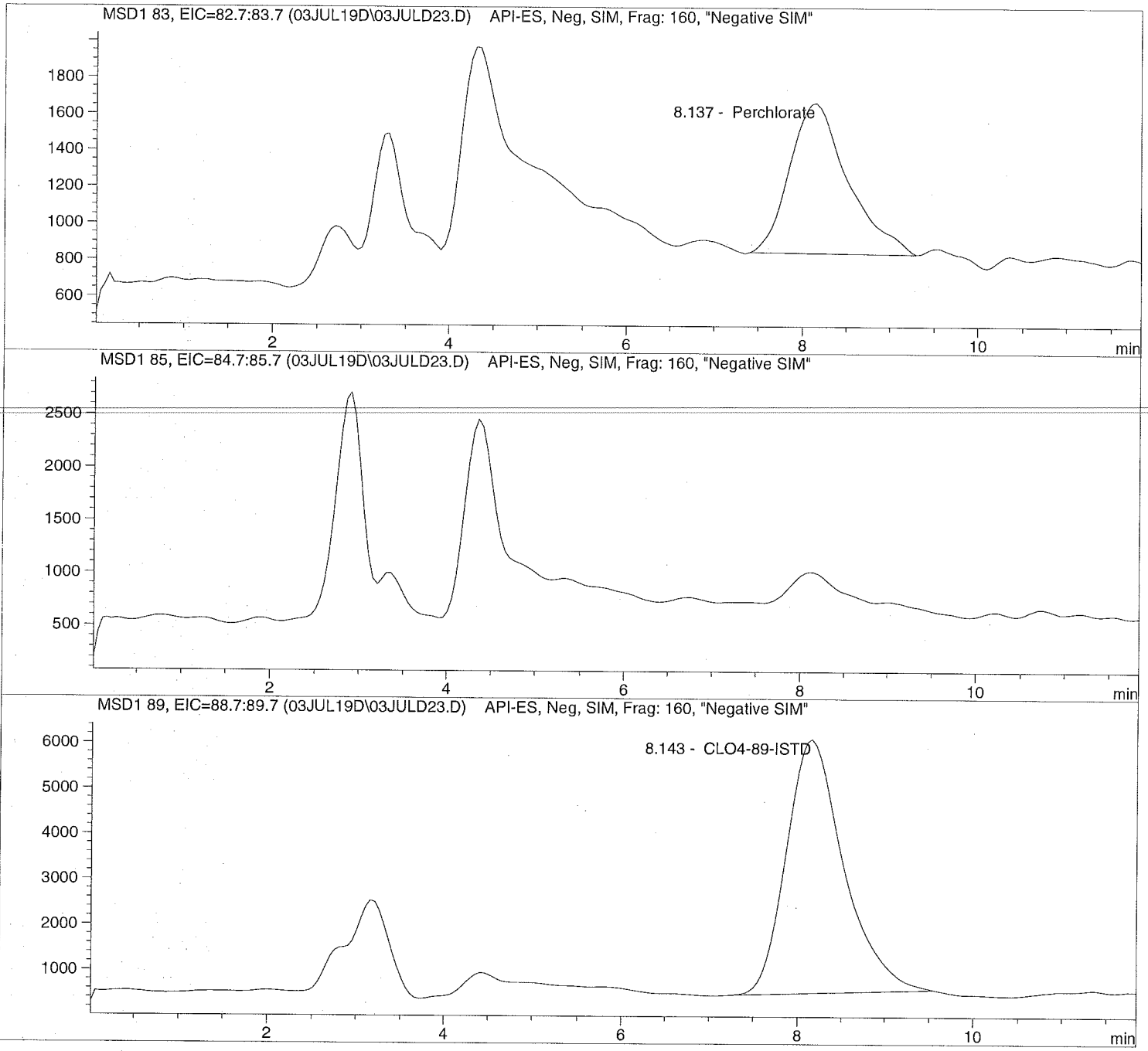
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\03JUL19D\03JULD23.D Sample Name: 1918265007

Injection Date:	7/03/2019 13:27:36	Seq Line:	23
Sample Name:	1918265007	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.137	PBA	37849.4	0.6340	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.143	PBA	253241.4	5.0000	CLO4-89-ISTD

*** End of Report ***

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 15, 2019

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

Work Order: **HS19061279**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

ALS Environmental received 10 sample(s) on Jun 25, 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: RJ.MODASHIA
RJ Modashia
Project Manager

ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061279

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061279-01	129_062419	Groundwater		24-Jun-2019 08:20	25-Jun-2019 09:00	☐
HS19061279-02	102_062419	Groundwater		24-Jun-2019 09:25	25-Jun-2019 09:00	☐
HS19061279-03	MW23_062419	Groundwater		24-Jun-2019 10:15	25-Jun-2019 09:00	☐
HS19061279-04	126_062419	Groundwater		24-Jun-2019 11:00	25-Jun-2019 09:00	☐
HS19061279-05	18ww03_062419	Groundwater		24-Jun-2019 12:00	25-Jun-2019 09:00	☐
HS19061279-06	18ww03_062419_a	Groundwater		24-Jun-2019 12:00	25-Jun-2019 09:00	☐
HS19061279-07	18ww18_062419	Groundwater		24-Jun-2019 13:00	25-Jun-2019 09:00	☐
HS19061279-08	18ww17_062419	Groundwater		24-Jun-2019 13:15	25-Jun-2019 09:00	☐
HS19061279-09	125_062419	Groundwater		24-Jun-2019 13:30	25-Jun-2019 09:00	☐
HS19061279-10	Trip Blank	Water	C&G-052219-08	24-Jun-2019 00:00	25-Jun-2019 09:00	☐

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061279

CASE NARRATIVE

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142510

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

GCMS Volatiles by Method SW8260

Batch ID: R341768

Sample ID: 125_062419 (HS19061279-09)

• Lowest practical dilution due to high concentration of non-target compound.

Sample ID: VLCSW-190702

• One sporadic marginal exceedance (Chloroform) for LCS. CCV is OK.

Metals by Method SW6020

Batch ID: 142750

Sample ID: HS19070016-05MS

• MS and MSD are for an unrelated sample

Metals by Method SW7470

Batch ID: 142615

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 129_062419
Collection Date: 24-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-01
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	02-Jul-2019 13:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,2-Dichloroethane	**15**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 13:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 13:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 13:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 13:38
Acetone	**4.0**		**0.40**	**1.0**	**2.0**	**UG/L**	1	02-Jul-2019 13:38
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 13:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Chloroform	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 13:38

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 129_062419
Collection Date: 24-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-01
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	02-Jul-2019 13:38
cis-1,2-Dichloroethene	**2.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 13:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 13:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 13:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 13:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 13:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Trichloroethene	**820**		**5.0**	**12**	**25**	**UG/L**	25	02-Jul-2019 15:14
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 13:38
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 13:38*
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*25*	*02-Jul-2019 15:14*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*25*	*02-Jul-2019 15:14*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 13:38*
Surr: Dibromofluoromethane	*97.5*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 13:38*
Surr: Dibromofluoromethane	*98.9*			**0**	*80-119*	*%REC*	*25*	*02-Jul-2019 15:14*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 13:38*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*02-Jul-2019 15:14*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**1.2**		**0.10**	**0.10**	**0.10**	**ug/L**	10	28-Jun-2019 19:26
Surr: 2-Fluorobiphenyl	*85.6*			**0**	*40-140*	*%REC*	*10*	*28-Jun-2019 19:26*
Surr: 4-Terphenyl-d14	*94.0*			**0**	*40-140*	*%REC*	*10*	*28-Jun-2019 19:26*
Surr: Nitrobenzene-d5	*114*			**0**	*40-140*	*%REC*	*10*	*28-Jun-2019 19:26*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 129_062419
Collection Date: 24-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**2.44**		**0.0180**	**0.0500**	**0.100**	**mg/L**	10	09-Jul-2019 17:47
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:50
Arsenic	**0.00120**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Barium	**0.119**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:50
Cadmium	**0.000738**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:50
Calcium	**4.49**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:50
Chromium	**0.00567**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Cobalt	**0.00936**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Copper	**0.00326**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Iron	**3.29**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:50
Lead	**0.00297**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Magnesium	**3.31**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:50
Manganese	**0.176**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Nickel	**0.00812**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Potassium	**0.647**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:50
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:50
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 17:45
Sodium	**69.6**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:50
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:50
Vanadium	**0.00659**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
Zinc	**0.0356**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:50
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:36
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 102_062419
Collection Date: 24-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-02
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	02-Jul-2019 12:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 12:26
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 12:26
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 12:26
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 12:26
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 12:26
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 102_062419
Collection Date: 24-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-02
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	02-Jul-2019 12:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 12:26
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 12:26
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 12:26
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:26
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:26
Surr: 1,2-Dichloroethane-d4	*99.6*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 12:26*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 12:26*
Surr: Dibromofluoromethane	*94.0*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 12:26*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 12:26*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 102_062419
Collection Date: 24-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**10.3**		**0.0360**	**0.100**	**0.200**	**mg/L**	20	09-Jul-2019 17:51
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:57
Arsenic	**0.00262**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Barium	**0.276**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Beryllium	**0.00113**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:57
Cadmium	**0.000225**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:57
Calcium	**3.53**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:57
Chromium	**0.0141**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Cobalt	**0.00925**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Copper	**0.0139**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Iron	**15.7**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:57
Lead	**0.0113**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Magnesium	**3.81**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:57
Manganese	**0.0964**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Nickel	**0.0255**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Potassium	**1.73**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:57
Selenium	**0.00243**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 17:49
Sodium	**17.0**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:57
Thallium	**0.000275**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:57
Vanadium	**0.0237**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
Zinc	**0.0748**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:57
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:38
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW23_062419
Collection Date: 24-Jun-2019 10:15

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-03
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	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,1,2,2-Tetrachloroethane	2.5	U	2.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,1-Dichloropropene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2,3-Trichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2,3-Trichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2,4-Trichlorobenzene	2.5	U	2.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2,4-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2-Dibromo-3-chloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2-Dichlorobenzene	2.5	U	2.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,2-Dichloroethane	**66**		**1.0**	**2.5**	**5.0**	**UG/L**	5	02-Jul-2019 13:14
1,2-Dichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,3,5-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,3-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,3-Dichloropropane	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
1,4-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
2-Butanone	5.0	U	2.5	5.0	10	UG/L	5	02-Jul-2019 13:14
2-Chlorotoluene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
2-Hexanone	5.0	U	5.0	5.0	10	UG/L	5	02-Jul-2019 13:14
4-Chlorotoluene	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
4-Isopropyltoluene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
4-Methyl-2-pentanone	5.0	U	3.5	5.0	10	UG/L	5	02-Jul-2019 13:14
Acetone	5.0	U	2.0	5.0	10	UG/L	5	02-Jul-2019 13:14
Benzene	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Bromobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Bromochloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Bromodichloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Bromoform	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Bromomethane	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Carbon disulfide	5.0	U	3.0	5.0	10	UG/L	5	02-Jul-2019 13:14
Carbon tetrachloride	2.5	U	2.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Chlorobenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Chloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Chloroform	**20**		**1.0**	**2.5**	**5.0**	**UG/L**	5	02-Jul-2019 13:14

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW23_062419
Collection Date: 24-Jun-2019 10:15

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
cis-1,2-Dichloroethene	**8.1**		**1.0**	**2.5**	**5.0**	**UG/L**	5	02-Jul-2019 13:14
cis-1,3-Dichloropropene	2.5	U	0.50	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Dibromochloromethane	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Dibromomethane	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Dichlorodifluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Ethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	UG/L	5	02-Jul-2019 13:14
Isopropylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
m,p-Xylene	5.0	U	2.5	5.0	10	UG/L	5	02-Jul-2019 13:14
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	02-Jul-2019 13:14
n-Butylbenzene	2.5	U	2.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
n-Propylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Naphthalene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
o-Xylene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
sec-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Styrene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
tert-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Tetrachloroethene	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Toluene	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
trans-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Trichloroethene	**2,600**		**10**	**25**	**50**	**UG/L**	50	02-Jul-2019 15:37
Trichlorofluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Vinyl chloride	2.5	U	1.0	2.5	5.0	UG/L	5	02-Jul-2019 13:14
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*5*	*02-Jul-2019 13:14*
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*50*	*02-Jul-2019 15:37*
Surr: 4-Bromofluorobenzene	*99.6*			**0**	*85-114*	*%REC*	*5*	*02-Jul-2019 13:14*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*50*	*02-Jul-2019 15:37*
Surr: Dibromofluoromethane	*99.8*			**0**	*80-119*	*%REC*	*5*	*02-Jul-2019 13:14*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*50*	*02-Jul-2019 15:37*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*02-Jul-2019 13:14*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*50*	*02-Jul-2019 15:37*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 126_062419
Collection Date: 24-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-04
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	02-Jul-2019 16:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 16:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 16:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 16:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 16:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 16:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 126_062419
Collection Date: 24-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-04
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	02-Jul-2019 16:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 16:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 16:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 16:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:25
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 16:25*
Surr: 4-Bromofluorobenzene	*95.0*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 16:25*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 16:25*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 16:25*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 07:36
Surr: 2-Fluorobiphenyl	*85.7*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 07:36*
Surr: 4-Terphenyl-d14	*98.5*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 07:36*
Surr: Nitrobenzene-d5	*98.3*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 07:36*

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

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 126_062419
Collection Date: 24-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0917**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 17:56
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:59
Arsenic	**0.00462**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:59
Barium	**10.4**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	09-Jul-2019 18:28
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:59
Cadmium	**0.000370**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:59
Calcium	**344**		**0.680**	**1.00**	**10.0**	**mg/L**	20	09-Jul-2019 18:28
Chromium	**0.000825**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:59
Cobalt	**0.00777**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:59
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 00:59
Iron	**4.05**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:59
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:59
Magnesium	**269**		**0.200**	**1.00**	**4.00**	**mg/L**	20	09-Jul-2019 18:28
Manganese	**0.150**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:59
Nickel	**0.0137**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:59
Potassium	**3.57**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:59
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:59
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:59
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 17:56
Sodium	**949**		**0.280**	**1.00**	**4.00**	**mg/L**	20	09-Jul-2019 18:28
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:59
Vanadium	**0.00257**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:59
Zinc	**0.0423**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:59
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:39
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww03_062419
Collection Date: 24-Jun-2019 12:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-05
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	02-Jul-2019 16:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 16:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 16:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 16:49
Acetone	**4.2**		**0.40**	**1.0**	**2.0**	**UG/L**	1	02-Jul-2019 16:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 16:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww03_062419
Collection Date: 24-Jun-2019 12:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-05
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	02-Jul-2019 16:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 16:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 16:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 16:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:49
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 16:49*
Surr: 4-Bromofluorobenzene	*93.8*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 16:49*
Surr: Dibromofluoromethane	*96.0*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 16:49*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 16:49*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 12:11
Surr: 2-Fluorobiphenyl	*102*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:11*
Surr: 4-Terphenyl-d14	*90.5*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:11*
Surr: Nitrobenzene-d5	*111*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:11*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww03_062419
Collection Date: 24-Jun-2019 12:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0156**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 18:00
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 01:01
Arsenic	**0.000834**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
Barium	**0.194**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:01
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:01
Calcium	**8.98**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 01:01
Chromium	**0.0540**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
Cobalt	**0.000142**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 01:01
Iron	**5.60**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:01
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 01:01
Magnesium	**6.34**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:01
Manganese	**0.117**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
Nickel	**0.00325**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
Potassium	**1.97**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:01
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 01:01
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 18:00
Sodium	**111**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:01
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:01
Vanadium	**0.00237**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
Zinc	**0.0171**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:01
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:41
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww03_062419_a
Collection Date: 24-Jun-2019 12:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-06
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	02-Jul-2019 17:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 17:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 17:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 17:13
Acetone	**2.4**		**0.40**	**1.0**	**2.0**	**UG/L**	1	02-Jul-2019 17:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 17:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww03_062419_a
Collection Date: 24-Jun-2019 12:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-06
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	02-Jul-2019 17:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 17:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 17:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 17:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:13
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 17:13*
Surr: 4-Bromofluorobenzene	*94.1*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 17:13*
Surr: Dibromofluoromethane	*96.6*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 17:13*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 17:13*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 12:32
Surr: 2-Fluorobiphenyl	*123*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:32*
Surr: 4-Terphenyl-d14	*124*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:32*
Surr: Nitrobenzene-d5	*106*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:32*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww03_062419_a
Collection Date: 24-Jun-2019 12:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0175**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 18:03
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 01:04
Arsenic	**0.000750**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:04
Barium	**0.185**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:04
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:04
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:04
Calcium	**8.70**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 01:04
Chromium	**0.0356**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:04
Cobalt	0.000500	U	0.000100	0.000500	0.00500	mg/L	1	09-Jul-2019 01:04
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 01:04
Iron	**5.40**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:04
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 01:04
Magnesium	**6.12**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:04
Manganese	**0.112**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:04
Nickel	**0.00335**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:04
Potassium	**1.85**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:04
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 01:04
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 18:03
Sodium	**106**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:04
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:04
Vanadium	**0.00240**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:04
Zinc	**0.0163**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:04
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:43
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww18_062419
Collection Date: 24-Jun-2019 13:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-07
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	02-Jul-2019 17:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 17:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 17:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 17:37
Acetone	**2.4**		**0.40**	**1.0**	**2.0**	**UG/L**	1	02-Jul-2019 17:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 17:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww18_062419
Collection Date: 24-Jun-2019 13:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-07
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	02-Jul-2019 17:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 17:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 17:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 17:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 17:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 17:37
Surr: 1,2-Dichloroethane-d4	*104*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 17:37*
Surr: 4-Bromofluorobenzene	*95.7*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 17:37*
Surr: Dibromofluoromethane	*97.8*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 17:37*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 17:37*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 12:53
Surr: 2-Fluorobiphenyl	*78.1*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:53*
Surr: 4-Terphenyl-d14	*106*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:53*
Surr: Nitrobenzene-d5	*110*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 12:53*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww18_062419
Collection Date: 24-Jun-2019 13:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0389**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 18:30
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 01:06
Arsenic	**0.00567**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:06
Barium	**1.34**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:06
Beryllium	**0.000322**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 01:06
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:06
Calcium	**58.2**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 01:06
Chromium	**0.00520**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:06
Cobalt	**0.000122**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:06
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 01:06
Iron	**113**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:06
Lead	**0.000647**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:06
Magnesium	**36.3**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:06
Manganese	**2.33**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	09-Jul-2019 18:05
Nickel	**0.00103**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:06
Potassium	**3.49**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:06
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 01:06
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 18:30
Sodium	**148**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:06
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:06
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 01:06
Zinc	**0.0145**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:06
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:44
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww17_062419
Collection Date: 24-Jun-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-08
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	02-Jul-2019 14:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 14:02
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 14:02
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 14:02
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 14:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 14:02
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww17_062419
Collection Date: 24-Jun-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-08
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	02-Jul-2019 14:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 14:02
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 14:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 14:02
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 14:02
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Trichloroethene	**34**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 14:02
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 14:02
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 14:02*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 14:02*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 14:02*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 14:02*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18ww17_062419
Collection Date: 24-Jun-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0219**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 18:33
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 01:08
Arsenic	**0.00328**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Barium	**4.13**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	09-Jul-2019 18:46
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:08
Cadmium	**0.000710**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 01:08
Calcium	**371**		**0.680**	**1.00**	**10.0**	**mg/L**	20	09-Jul-2019 18:46
Chromium	**1.80**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Cobalt	**0.0122**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Copper	**0.109**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Iron	**25.2**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:08
Lead	**0.00130**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Magnesium	**249**		**0.200**	**1.00**	**4.00**	**mg/L**	20	09-Jul-2019 18:46
Manganese	**0.308**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Nickel	**0.886**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Potassium	**1.55**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:08
Selenium	**0.00181**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Silver	**0.000215**	J	**0.000200**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 18:33
Sodium	**1,270**		**0.280**	**1.00**	**4.00**	**mg/L**	20	09-Jul-2019 18:46
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:08
Vanadium	**0.0203**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
Zinc	**0.185**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:08
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:46
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 125_062419
Collection Date: 24-Jun-2019 13:30

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-09
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	02-Jul-2019 12:50
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,1-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
2-Butanone	10	U	5.0	10	20	UG/L	10	02-Jul-2019 12:50
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
2-Hexanone	10	U	10	10	20	UG/L	10	02-Jul-2019 12:50
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	02-Jul-2019 12:50
Acetone	10	U	4.0	10	20	UG/L	10	02-Jul-2019 12:50
Benzene	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Carbon disulfide	10	U	6.0	10	20	UG/L	10	02-Jul-2019 12:50
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Chloroform	**26**		**2.0**	**5.0**	**10**	**UG/L**	10	02-Jul-2019 12:50

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 125_062419
Collection Date: 24-Jun-2019 13:30

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-09
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	02-Jul-2019 12:50
cis-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	02-Jul-2019 12:50
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
m,p-Xylene	10	U	5.0	10	20	UG/L	10	02-Jul-2019 12:50
Methylene chloride	10	U	4.0	10	20	UG/L	10	02-Jul-2019 12:50
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	02-Jul-2019 12:50
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Styrene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Toluene	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Trichloroethene	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Vinyl chloride	5.0	U	2.0	5.0	10	UG/L	10	02-Jul-2019 12:50
Surr: 1,2-Dichloroethane-d4	*98.8*			**0**	*81-118*	*%REC*	*10*	*02-Jul-2019 12:50*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*10*	*02-Jul-2019 12:50*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*10*	*02-Jul-2019 12:50*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*02-Jul-2019 12:50*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 125_062419
Collection Date: 24-Jun-2019 13:30

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.324**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 18:37
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 01:10
Arsenic	**0.000450**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Barium	**0.0647**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:10
Cadmium	**0.000218**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 01:10
Calcium	**1.25**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 01:10
Chromium	**0.00412**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Cobalt	**0.000344**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 01:10
Iron	**0.466**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:10
Lead	**0.00128**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Magnesium	**0.937**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:10
Manganese	**0.00625**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Nickel	**0.00220**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Potassium	**0.321**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:10
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 01:10
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 18:37
Sodium	**28.8**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:10
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:10
Vanadium	**0.00142**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
Zinc	**0.0207**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:10
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 01-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	01-Jul-2019 16:48
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	**See Attached**		**0**	**0**	**0**	**NA**	1	12-Jul-2019 18:48

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 24-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-10
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	02-Jul-2019 12:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 12:02
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 12:02
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 12:02
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 12:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 12:02
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 24-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061279
Lab ID:HS19061279-10
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	02-Jul-2019 12:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 12:02
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 12:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 12:02
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 12:02
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 12:02
Surr: 1,2-Dichloroethane-d4	*99.3*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 12:02*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 12:02*
Surr: Dibromofluoromethane	*95.2*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 12:02*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 12:02*

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

RIGHT SOLUTIONS | RIGHT PARTNER

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

Batch ID: 142510 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061279-01	1	1000	1 (mL)	0.001
HS19061279-04	1	1000	1 (mL)	0.001
HS19061279-05	1	1000	1 (mL)	0.001
HS19061279-06	1	1000	1 (mL)	0.001
HS19061279-07	1	1000	1 (mL)	0.001

Batch ID: 142615 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061279-01	1	10 (mL)	10 (mL)	1
HS19061279-02	1	10 (mL)	10 (mL)	1
HS19061279-04	1	10 (mL)	10 (mL)	1
HS19061279-05	1	10 (mL)	10 (mL)	1
HS19061279-06	1	10 (mL)	10 (mL)	1
HS19061279-07	1	10 (mL)	10 (mL)	1
HS19061279-08	1	10 (mL)	10 (mL)	1
HS19061279-09	1	10 (mL)	10 (mL)	1

Batch ID: 142750 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061279-01	1	10	10 (mL)	1
HS19061279-02	1	10	10 (mL)	1
HS19061279-04	1	10	10 (mL)	1
HS19061279-05	1	10	10 (mL)	1
HS19061279-06	1	10	10 (mL)	1
HS19061279-07	1	10	10 (mL)	1
HS19061279-08	1	10	10 (mL)	1
HS19061279-09	1	10	10 (mL)	1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142510 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS19061279-01	129_062419	24 Jun 2019 08:20		27 Jun 2019 14:45	28 Jun 2019 19:26	10
HS19061279-04	126_062419	24 Jun 2019 11:00		27 Jun 2019 14:45	28 Jun 2019 07:36	1
HS19061279-05	18ww03_062419	24 Jun 2019 12:00		27 Jun 2019 14:45	28 Jun 2019 12:11	1
HS19061279-06	18ww03_062419_a	24 Jun 2019 12:00		27 Jun 2019 14:45	28 Jun 2019 12:32	1
HS19061279-07	18ww18_062419	24 Jun 2019 13:00		27 Jun 2019 14:45	28 Jun 2019 12:53	1
Batch ID: 142615 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19061279-01	129_062419	24 Jun 2019 08:20		01 Jul 2019 10:30	01 Jul 2019 16:36	1
HS19061279-02	102_062419	24 Jun 2019 09:25		01 Jul 2019 10:30	01 Jul 2019 16:38	1
HS19061279-04	126_062419	24 Jun 2019 11:00		01 Jul 2019 10:30	01 Jul 2019 16:39	1
HS19061279-05	18ww03_062419	24 Jun 2019 12:00		01 Jul 2019 10:30	01 Jul 2019 16:41	1
HS19061279-06	18ww03_062419_a	24 Jun 2019 12:00		01 Jul 2019 10:30	01 Jul 2019 16:43	1
HS19061279-07	18ww18_062419	24 Jun 2019 13:00		01 Jul 2019 10:30	01 Jul 2019 16:44	1
HS19061279-08	18ww17_062419	24 Jun 2019 13:15		01 Jul 2019 10:30	01 Jul 2019 16:46	1
HS19061279-09	125_062419	24 Jun 2019 13:30		01 Jul 2019 10:30	01 Jul 2019 16:48	1
Batch ID: 142750 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19061279-01	129_062419	24 Jun 2019 08:20		05 Jul 2019 10:03	09 Jul 2019 17:47	10
HS19061279-01	129_062419	24 Jun 2019 08:20		05 Jul 2019 10:03	09 Jul 2019 17:45	1
HS19061279-01	129_062419	24 Jun 2019 08:20		05 Jul 2019 10:03	09 Jul 2019 00:50	1
HS19061279-02	102_062419	24 Jun 2019 09:25		05 Jul 2019 10:03	09 Jul 2019 17:51	20
HS19061279-02	102_062419	24 Jun 2019 09:25		05 Jul 2019 10:03	09 Jul 2019 17:49	1
HS19061279-02	102_062419	24 Jun 2019 09:25		05 Jul 2019 10:03	09 Jul 2019 00:57	1
HS19061279-04	126_062419	24 Jun 2019 11:00		05 Jul 2019 10:03	09 Jul 2019 18:28	20
HS19061279-04	126_062419	24 Jun 2019 11:00		05 Jul 2019 10:03	09 Jul 2019 17:56	1
HS19061279-04	126_062419	24 Jun 2019 11:00		05 Jul 2019 10:03	09 Jul 2019 00:59	1
HS19061279-05	18ww03_062419	24 Jun 2019 12:00		05 Jul 2019 10:03	09 Jul 2019 18:00	1
HS19061279-05	18ww03_062419	24 Jun 2019 12:00		05 Jul 2019 10:03	09 Jul 2019 01:01	1
HS19061279-06	18ww03_062419_a	24 Jun 2019 12:00		05 Jul 2019 10:03	09 Jul 2019 18:03	1
HS19061279-06	18ww03_062419_a	24 Jun 2019 12:00		05 Jul 2019 10:03	09 Jul 2019 01:04	1
HS19061279-07	18ww18_062419	24 Jun 2019 13:00		05 Jul 2019 10:03	09 Jul 2019 18:30	1
HS19061279-07	18ww18_062419	24 Jun 2019 13:00		05 Jul 2019 10:03	09 Jul 2019 18:05	10
HS19061279-07	18ww18_062419	24 Jun 2019 13:00		05 Jul 2019 10:03	09 Jul 2019 01:06	1
HS19061279-08	18ww17_062419	24 Jun 2019 13:15		05 Jul 2019 10:03	09 Jul 2019 18:46	20
HS19061279-08	18ww17_062419	24 Jun 2019 13:15		05 Jul 2019 10:03	09 Jul 2019 18:33	1
HS19061279-08	18ww17_062419	24 Jun 2019 13:15		05 Jul 2019 10:03	09 Jul 2019 01:08	1
HS19061279-09	125_062419	24 Jun 2019 13:30		05 Jul 2019 10:03	09 Jul 2019 18:37	1
HS19061279-09	125_062419	24 Jun 2019 13:30		05 Jul 2019 10:03	09 Jul 2019 01:10	1
Batch ID: R341768 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061279-10	Trip Blank	24 Jun 2019 00:00			02 Jul 2019 12:02	1

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ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R341768 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19061279-01	129_062419	24 Jun 2019 08:20			02 Jul 2019 15:14	25
HS19061279-01	129_062419	24 Jun 2019 08:20			02 Jul 2019 13:38	1
HS19061279-02	102_062419	24 Jun 2019 09:25			02 Jul 2019 12:26	1
HS19061279-03	MW23_062419	24 Jun 2019 10:15			02 Jul 2019 15:37	50
HS19061279-03	MW23_062419	24 Jun 2019 10:15			02 Jul 2019 13:14	5
HS19061279-04	126_062419	24 Jun 2019 11:00			02 Jul 2019 16:25	1
HS19061279-05	18ww03_062419	24 Jun 2019 12:00			02 Jul 2019 16:49	1
HS19061279-06	18ww03_062419_a	24 Jun 2019 12:00			02 Jul 2019 17:13	1
HS19061279-07	18ww18_062419	24 Jun 2019 13:00			02 Jul 2019 17:37	1
HS19061279-08	18ww17_062419	24 Jun 2019 13:15			02 Jul 2019 14:02	1
HS19061279-09	125_062419	24 Jun 2019 13:30			02 Jul 2019 12:50	10
Batch ID: R342378 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19061279-01	129_062419	24 Jun 2019 08:20			12 Jul 2019 18:48	1
HS19061279-02	102_062419	24 Jun 2019 09:25			12 Jul 2019 18:48	1
HS19061279-03	MW23_062419	24 Jun 2019 10:15			12 Jul 2019 18:48	1
HS19061279-04	126_062419	24 Jun 2019 11:00			12 Jul 2019 18:48	1
HS19061279-05	18ww03_062419	24 Jun 2019 12:00			12 Jul 2019 18:48	1
HS19061279-06	18ww03_062419_a	24 Jun 2019 12:00			12 Jul 2019 18:48	1
HS19061279-07	18ww18_062419	24 Jun 2019 13:00			12 Jul 2019 18:48	1
HS19061279-08	18ww17_062419	24 Jun 2019 13:15			12 Jul 2019 18:48	1
HS19061279-09	125_062419	24 Jun 2019 13:30			12 Jul 2019 18:48	1

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142615 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142615** Units: **mg/L** Analysis Date: **01-Jul-2019 16:21**
Client ID: Run ID: **HG03_341667** SeqNo: **5149453** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142615** Units: **mg/L** Analysis Date: **01-Jul-2019 16:22**
Client ID: Run ID: **HG03_341667** SeqNo: **5149454** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00513	0.000200	0.005	0	103	80 - 120				

MS Sample ID: **HS19061210-03MS** Units: **mg/L** Analysis Date: **01-Jul-2019 16:26**
Client ID: Run ID: **HG03_341667** SeqNo: **5149456** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000504	0.000000200	5e-006	0.0000000070	101	75 - 125				

MSD Sample ID: **HS19061210-03MSD** Units: **mg/L** Analysis Date: **01-Jul-2019 16:27**
Client ID: Run ID: **HG03_341667** SeqNo: **5149457** PrepDate: **01-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000505	0.000000200	5e-006	0.0000000070	101	75 - 125	0.000005040	0.198	20	

The following samples were analyzed in this batch:

HS19061279-01	HS19061279-02	HS19061279-04	HS19061279-05
HS19061279-06	HS19061279-07	HS19061279-08	HS19061279-09

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:09**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157973** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01569	0.0100								
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0188	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.01316	0.00500								

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 14:46**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159142** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00500	0.0100								U
Antimony	0.00078	0.00500								J
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.000871	0.00500								J
Zinc	0.00250	0.00500								U

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:11**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157974** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.105	0.0100	0.1	0	105	84 - 117				
Antimony	0.05026	0.00500	0.05	0	101	85 - 117				
Arsenic	0.05045	0.00500	0.05	0	101	84 - 116				
Barium	0.04898	0.00500	0.05	0	98.0	86 - 114				
Beryllium	0.0522	0.00200	0.05	0	104	83 - 121				
Cadmium	0.05062	0.00200	0.05	0	101	87 - 115				
Calcium	5.044	0.500	5	0	101	87 - 118				
Chromium	0.05022	0.00500	0.05	0	100	85 - 116				
Cobalt	0.05178	0.00500	0.05	0	104	86 - 115				
Copper	0.05054	0.00500	0.05	0	101	85 - 118				
Iron	5.157	0.200	5	0	103	87 - 118				
Lead	0.04892	0.00500	0.05	0	97.8	88 - 115				
Magnesium	5.207	0.200	5	0	104	83 - 118				
Manganese	0.05151	0.00500	0.05	0	103	87 - 115				
Nickel	0.05192	0.00500	0.05	0	104	85 - 117				
Potassium	5.01	0.200	5	0	100	87 - 115				
Selenium	0.05098	0.00500	0.05	0	102	80 - 120				
Sodium	5.131	0.200	5	0	103	85 - 117				
Thallium	0.04741	0.00200	0.05	0	94.8	82 - 116				
Vanadium	0.04942	0.00500	0.05	0	98.8	86 - 115				
Zinc	0.05405	0.00500	0.05	0	108	83 - 119				

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 16:22**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159203** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.05104	0.00500	0.05	0	102	85 - 116				

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19070016-05MS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:18**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157977** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09637	0.0100	0.1	0.008457	87.9	84 - 117				
Antimony	0.04754	0.00500	0.05	0.000233	94.6	85 - 117				
Arsenic	0.04735	0.00500	0.05	0.000332	94.0	84 - 116				
Barium	0.5018	0.00500	0.05	0.443	118	86 - 114				SO
Beryllium	0.05054	0.00200	0.05	0.000285	101	83 - 121				
Cadmium	0.04557	0.00200	0.05	0.000354	90.4	87 - 115				
Calcium	15.22	0.500	5	10.34	97.6	87 - 118				
Chromium	0.1883	0.00500	0.05	0.1422	92.1	85 - 116				
Cobalt	0.05284	0.00500	0.05	0.004809	96.1	86 - 115				
Copper	0.05149	0.00500	0.05	0.004724	93.5	85 - 118				
Iron	5.767	0.200	5	1.003	95.3	87 - 118				
Lead	0.04574	0.00500	0.05	0.000066	91.3	88 - 115				
Magnesium	11.72	0.200	5	7.041	93.6	83 - 118				
Manganese	0.255	0.00500	0.05	0.2048	100	87 - 115				O
Nickel	0.6207	0.00500	0.05	0.5635	114	85 - 117				O
Potassium	5.81	0.200	5	0.934	97.5	87 - 115				
Selenium	0.05067	0.00500	0.05	0.000254	101	80 - 120				
Silver	0.05394	0.00500	0.05	0.000034	108	85 - 116				
Sodium	70.47	0.200	5	64.83	113	85 - 117				O
Thallium	0.04418	0.00200	0.05	0.000618	87.1	82 - 116				
Vanadium	0.0472	0.00500	0.05	0.001088	92.2	86 - 115				
Zinc	0.1359	0.00500	0.05	0.09015	91.5	83 - 119				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19070016-05MSD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:21**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157978** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0988	0.0100	0.1	0.008457	90.3	84 - 117	0.09637	2.49	20	
Antimony	0.04561	0.00500	0.05	0.000233	90.8	85 - 117	0.04754	4.15	20	
Arsenic	0.0475	0.00500	0.05	0.000332	94.3	84 - 116	0.04735	0.314	20	
Barium	0.5084	0.00500	0.05	0.443	131	86 - 114	0.5018	1.3	20	SO
Beryllium	0.05016	0.00200	0.05	0.000285	99.8	83 - 121	0.05054	0.751	20	
Cadmium	0.04804	0.00200	0.05	0.000354	95.4	87 - 115	0.04557	5.28	20	
Calcium	14.79	0.500	5	10.34	89.1	87 - 118	15.22	2.83	20	
Chromium	0.1943	0.00500	0.05	0.1422	104	85 - 116	0.1883	3.17	20	
Cobalt	0.05273	0.00500	0.05	0.004809	95.8	86 - 115	0.05284	0.201	20	
Copper	0.05346	0.00500	0.05	0.004724	97.5	85 - 118	0.05149	3.75	20	
Iron	5.694	0.200	5	1.003	93.8	87 - 118	5.767	1.28	20	
Lead	0.04407	0.00500	0.05	0.000066	88.0	88 - 115	0.04574	3.72	20	
Magnesium	11.29	0.200	5	7.041	85.1	83 - 118	11.72	3.73	20	
Manganese	0.2539	0.00500	0.05	0.2048	98.1	87 - 115	0.255	0.456	20	O
Nickel	0.6206	0.00500	0.05	0.5635	114	85 - 117	0.6207	0.00725	20	O
Potassium	5.591	0.200	5	0.934	93.1	87 - 115	5.81	3.84	20	
Selenium	0.0495	0.00500	0.05	0.000254	98.5	80 - 120	0.05067	2.33	20	
Silver	0.05636	0.00500	0.05	0.000034	113	85 - 116	0.05394	4.39	20	
Sodium	68.43	0.200	5	64.83	71.9	85 - 117	70.47	2.94	20	SO
Thallium	0.04256	0.00200	0.05	0.000618	83.9	82 - 116	0.04418	3.74	20	
Vanadium	0.04785	0.00500	0.05	0.001088	93.5	86 - 115	0.0472	1.37	20	
Zinc	0.1384	0.00500	0.05	0.09015	96.5	83 - 119	0.1359	1.82	20	

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19070016-05PDS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:23**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157979** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1004	0.0100	0.1	0.008457	92.0	80 - 120				
Antimony	0.08827	0.00500	0.1	0.000233	88.0	80 - 120				
Arsenic	0.1014	0.00500	0.1	0.000332	101	80 - 120				
Barium	0.5467	0.00500	0.1	0.443	104	80 - 120				O
Beryllium	0.09789	0.00200	0.1	0.000285	97.6	80 - 120				
Cadmium	0.09739	0.00200	0.1	0.000354	97.0	80 - 120				
Calcium	19.93	0.500	10	10.34	96.0	80 - 120				
Chromium	0.2417	0.00500	0.1	0.1422	99.5	80 - 120				
Cobalt	0.1061	0.00500	0.1	0.004809	101	80 - 120				
Copper	0.1034	0.00500	0.1	0.004724	98.7	80 - 120				
Iron	11.04	0.200	10	1.003	100	80 - 120				
Lead	0.09432	0.00500	0.1	0.000066	94.2	80 - 120				
Magnesium	16.83	0.200	10	7.041	97.9	80 - 120				
Manganese	0.3036	0.00500	0.1	0.2048	98.8	80 - 120				
Nickel	0.652	0.00500	0.1	0.5635	88.5	80 - 120				O
Potassium	10.66	0.200	10	0.934	97.2	80 - 120				
Selenium	0.1067	0.00500	0.1	0.000254	106	80 - 120				
Silver	0.1124	0.00500	0.1	0.000034	112	80 - 120				
Sodium	73.52	0.200	10	64.83	86.9	80 - 120				O
Thallium	0.09198	0.00200	0.1	0.000618	91.4	80 - 120				
Vanadium	0.101	0.00500	0.1	0.001088	99.9	80 - 120				
Zinc	0.1865	0.00500	0.1	0.09015	96.3	80 - 120				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19070016-05SD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:16**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157976** PrepDate: **05-Jul-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.0250	0.0500					0.008457	0	10	U
Antimony	0.00250	0.0250					0.000233	0	10	U
Arsenic	0.00250	0.0250					0.000332	0	10	U
Barium	0.4183	0.0250					0.443	5.57	10	
Beryllium	0.00250	0.0100					0.000285	0	10	U
Cadmium	0.00250	0.0100					0.000354	0	10	U
Calcium	10.41	2.50					10.34	0.714	10	
Chromium	0.1432	0.0250					0.1422	0.69	10	
Cobalt	0.005021	0.0250					0.004809	0	10	J
Copper	0.00500	0.0250					0.004724	0	10	U
Iron	1.017	1.00					1.003	1.35	10	
Lead	0.00500	0.0250					0.000066	0	10	U
Magnesium	6.942	1.00					7.041	1.41	10	
Manganese	0.2079	0.0250					0.2048	1.52	10	
Nickel	0.5877	0.0250					0.5635	4.3	10	
Potassium	0.9174	1.00					0.934	0	10	J
Selenium	0.0125	0.0250					0.000254	0	10	U
Silver	0.00250	0.0250					0.000034	0	10	U
Sodium	66.24	1.00					64.83	2.17	10	
Thallium	0.00250	0.0100					0.000618	0	10	U
Vanadium	0.00500	0.0250					0.001088	0	10	U
Zinc	0.08743	0.0250					0.09015	3.02	10	

The following samples were analyzed in this batch:

HS19061279-01	HS19061279-02	HS19061279-04	HS19061279-05
HS19061279-06	HS19061279-07	HS19061279-08	HS19061279-09

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: 142510 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:37**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146408** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.0594*	*0*	*0.08*	*0*	*74.3*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08022*	*0*	*0.08*	*0*	*100*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07461*	*0*	*0.08*	*0*	*93.3*	*40 - 140*				

LCS Sample ID: **LCS-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:58**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146409** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08012	0.010	0.08	0	100	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07847*	*0*	*0.08*	*0*	*98.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08943*	*0*	*0.08*	*0*	*112*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08221*	*0*	*0.08*	*0*	*103*	*40 - 140*				

LCSD Sample ID: **LCSD-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 23:19**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146410** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07797	0.010	0.08	0	97.5	40 - 140	0.08012	2.72	20	
Surr: 2-Fluorobiphenyl	*0.07625*	*0*	*0.08*	*0*	*95.3*	*40 - 140*	*0.07847*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.09409*	*0*	*0.08*	*0*	*118*	*40 - 140*	*0.08943*	*5.08*	*20*	
Surr: Nitrobenzene-d5	*0.08067*	*0*	*0.08*	*0*	*101*	*40 - 140*	*0.08221*	*1.89*	*20*	

The following samples were analyzed in this batch: HS19061279-01 HS19061279-04 HS19061279-05 HS19061279-06 HS19061279-07

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 11:38**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151546** 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	1.0	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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 11:38**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151546** 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	1.0	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	*48.37*	*1.0*	*50*	*0*	*96.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.48*	*1.0*	*50*	*0*	*95.0*	*85 - 114*				
Surr: Dibromofluoromethane	*46.31*	*1.0*	*50*	*0*	*92.6*	*80 - 119*				
Surr: Toluene-d8	*50.22*	*1.0*	*50*	*0*	*100*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 10:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151545** 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	19.88	1.0	20	0	99.4	78 - 124				
1,1,1-Trichloroethane	18.61	1.0	20	0	93.1	74 - 131				
1,1,2,2-Tetrachloroethane	21.7	1.0	20	0	108	71 - 121				
1,1,2-Trichloroethane	21.03	1.0	20	0	105	80 - 119				
1,1-Dichloroethane	19.31	1.0	20	0	96.5	77 - 125				
1,1-Dichloroethene	18.25	1.0	20	0	91.2	71 - 131				
1,1-Dichloropropene	18.58	1.0	20	0	92.9	78 - 125				
1,2,3-Trichlorobenzene	23.14	1.0	20	0	116	69 - 129				
1,2,3-Trichloropropane	18.92	1.0	20	0	94.6	73 - 122				
1,2,4-Trichlorobenzene	20.64	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	17.82	1.0	20	0	89.1	76 - 124				
1,2-Dibromo-3-chloropropane	22.28	1.0	20	0	111	62 - 128				
1,2-Dibromoethane	20.44	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	19.09	1.0	20	0	95.5	80 - 119				
1,2-Dichloroethane	18.92	1.0	20	0	94.6	73 - 128				
1,2-Dichloropropane	19.38	1.0	20	0	96.9	78 - 122				
1,3,5-Trimethylbenzene	17.15	1.0	20	0	85.8	75 - 124				
1,3-Dichlorobenzene	18.25	1.0	20	0	91.3	80 - 119				
1,3-Dichloropropane	20.81	1.0	20	0	104	80 - 119				
1,4-Dichlorobenzene	19.84	1.0	20	0	99.2	79 - 118				
2,2-Dichloropropane	19.77	1.0	20	0	98.8	60 - 139				
2-Butanone	44.92	2.0	40	0	112	56 - 143				
2-Chlorotoluene	19.2	1.0	20	0	96.0	79 - 122				
2-Hexanone	40.3	2.0	40	0	101	57 - 139				
4-Chlorotoluene	19.14	1.0	20	0	95.7	78 - 122				
4-Isopropyltoluene	16.8	1.0	20	0	84.0	77 - 127				
4-Methyl-2-pentanone	39.68	2.0	40	0	99.2	67 - 130				
Acetone	47.19	2.0	40	0	118	39 - 160				
Benzene	19.98	1.0	20	0	99.9	79 - 120				
Bromobenzene	18.71	1.0	20	0	93.6	80 - 120				
Bromochloromethane	19.36	1.0	20	0	96.8	78 - 123				
Bromodichloromethane	20.21	1.0	20	0	101	79 - 125				
Bromoform	21.67	1.0	20	0	108	66 - 130				
Bromomethane	20.75	1.0	20	0	104	53 - 141				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 10:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151545** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.79	2.0	40	0	89.5	64 - 133				
Carbon tetrachloride	18.07	1.0	20	0	90.3	72 - 136				
Chlorobenzene	19.29	1.0	20	0	96.5	82 - 118				
Chloroethane	18.27	1.0	20	0	91.4	60 - 138				
Chloroform	27.06	1.0	20	0	135	79 - 124				S
Chloromethane	17.7	1.0	20	0	88.5	50 - 139				
cis-1,2-Dichloroethene	20.04	1.0	20	0	100	78 - 123				
cis-1,3-Dichloropropene	19.46	1.0	20	0	97.3	75 - 124				
Dibromochloromethane	19.85	1.0	20	0	99.2	74 - 126				
Dibromomethane	20.01	1.0	20	0	100	79 - 123				
Dichlorodifluoromethane	18.31	1.0	20	0	91.5	32 - 152				
Ethylbenzene	18.31	1.0	20	0	91.5	79 - 121				
Hexachlorobutadiene	22.83	1.0	20	0	114	66 - 134				
Isopropylbenzene	17.5	1.0	20	0	87.5	72 - 131				
m,p-Xylene	37.16	2.0	40	0	92.9	80 - 121				
Methylene chloride	19.46	2.0	20	0	97.3	74 - 124				
Naphthalene	22.02	1.0	20	0	110	61 - 128				
n-Butylbenzene	17.1	1.0	20	0	85.5	75 - 128				
n-Propylbenzene	18.1	1.0	20	0	90.5	76 - 126				
o-Xylene	18.52	1.0	20	0	92.6	78 - 122				
sec-Butylbenzene	17.6	1.0	20	0	88.0	77 - 126				
Styrene	19.81	1.0	20	0	99.1	78 - 123				
tert-Butylbenzene	17.93	1.0	20	0	89.7	78 - 124				
Tetrachloroethene	17.9	1.0	20	0	89.5	74 - 129				
Toluene	19.07	1.0	20	0	95.4	80 - 121				
trans-1,2-Dichloroethene	19.56	1.0	20	0	97.8	75 - 124				
trans-1,3-Dichloropropene	20.02	1.0	20	0	100	73 - 127				
Trichloroethene	18.94	1.0	20	0	94.7	79 - 123				
Trichlorofluoromethane	17.56	1.0	20	0	87.8	65 - 141				
Vinyl chloride	17.16	1.0	20	0	85.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.7*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.55*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*50.71*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*49.5*	*1.0*	*50*	*0*	*99.0*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061279-02MS** Units: **UG/L** Analysis Date: **02-Jul-2019 14:26**
Client ID: **102_062419** Run ID: **VOA6_341768** SeqNo: **5151553** 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	18.03	1.0	20	0	90.2	78 - 124				
1,1,1-Trichloroethane	18.04	1.0	20	0	90.2	74 - 131				
1,1,2,2-Tetrachloroethane	17.83	1.0	20	0	89.1	71 - 121				
1,1,2-Trichloroethane	18.28	1.0	20	0	91.4	80 - 119				
1,1-Dichloroethane	16.8	1.0	20	0	84.0	77 - 125				
1,1-Dichloroethene	17.59	1.0	20	0	88.0	71 - 131				
1,1-Dichloropropene	19.29	1.0	20	0	96.5	78 - 125				
1,2,3-Trichlorobenzene	18.52	1.0	20	0	92.6	69 - 129				
1,2,3-Trichloropropane	18.32	1.0	20	0	91.6	73 - 122				
1,2,4-Trichlorobenzene	18.51	1.0	20	0	92.6	69 - 130				
1,2,4-Trimethylbenzene	18.55	1.0	20	0	92.7	76 - 124				
1,2-Dibromo-3-chloropropane	18.32	1.0	20	0	91.6	62 - 128				
1,2-Dibromoethane	17.49	1.0	20	0	87.4	77 - 121				
1,2-Dichlorobenzene	17.91	1.0	20	0	89.5	80 - 119				
1,2-Dichloroethane	16.42	1.0	20	0	82.1	73 - 128				
1,2-Dichloropropane	17.32	1.0	20	0	86.6	78 - 122				
1,3,5-Trimethylbenzene	18.27	1.0	20	0	91.4	75 - 124				
1,3-Dichlorobenzene	17.89	1.0	20	0	89.5	80 - 119				
1,3-Dichloropropane	17.94	1.0	20	0	89.7	80 - 119				
1,4-Dichlorobenzene	19.13	1.0	20	0	95.7	79 - 118				
2,2-Dichloropropane	18.56	1.0	20	0	92.8	60 - 139				
2-Butanone	34.72	2.0	40	0	86.8	56 - 143				
2-Chlorotoluene	19.37	1.0	20	0	96.9	79 - 122				
2-Hexanone	31.75	2.0	40	0	79.4	57 - 139				
4-Chlorotoluene	19.3	1.0	20	0	96.5	78 - 122				
4-Isopropyltoluene	19.37	1.0	20	0	96.8	77 - 127				
4-Methyl-2-pentanone	32.44	2.0	40	0	81.1	67 - 130				
Acetone	37.3	2.0	40	0	93.2	39 - 160				
Benzene	18.39	1.0	20	0	92.0	79 - 120				
Bromobenzene	17.14	1.0	20	0	85.7	80 - 120				
Bromochloromethane	16.05	1.0	20	0	80.2	78 - 123				
Bromodichloromethane	17.72	1.0	20	0	88.6	79 - 125				
Bromoform	17.73	1.0	20	0	88.6	66 - 130				
Bromomethane	17.74	1.0	20	0	88.7	53 - 141				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061279-02MS** Units: **UG/L** Analysis Date: **02-Jul-2019 14:26**
Client ID: **102_062419** Run ID: **VOA6_341768** SeqNo: **5151553** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	33.1	2.0	40	0	82.8	64 - 133				
Carbon tetrachloride	19.3	1.0	20	0	96.5	72 - 136				
Chlorobenzene	17.94	1.0	20	0	89.7	82 - 118				
Chloroethane	16.25	1.0	20	0	81.3	60 - 138				
Chloroform	17.26	1.0	20	0	86.3	79 - 124				
Chloromethane	17.74	1.0	20	0	88.7	50 - 139				
cis-1,2-Dichloroethene	17.2	1.0	20	0	86.0	78 - 123				
cis-1,3-Dichloropropene	16.63	1.0	20	0	83.2	75 - 124				
Dibromochloromethane	17.38	1.0	20	0	86.9	74 - 126				
Dibromomethane	17.13	1.0	20	0	85.6	79 - 123				
Dichlorodifluoromethane	17.34	1.0	20	0	86.7	32 - 152				
Ethylbenzene	18.59	1.0	20	0	93.0	79 - 121				
Hexachlorobutadiene	21.22	1.0	20	0	106	66 - 134				
Isopropylbenzene	19.1	1.0	20	0	95.5	72 - 131				
m,p-Xylene	37.18	2.0	40	0	92.9	80 - 121				
Methylene chloride	15.9	2.0	20	0	79.5	74 - 124				
Naphthalene	17.16	1.0	20	0	85.8	61 - 128				
n-Butylbenzene	19.55	1.0	20	0	97.7	75 - 128				
n-Propylbenzene	20	1.0	20	0	100	76 - 126				
o-Xylene	17.95	1.0	20	0	89.8	78 - 122				
sec-Butylbenzene	20.61	1.0	20	0	103	77 - 126				
Styrene	18.46	1.0	20	0	92.3	78 - 123				
tert-Butylbenzene	20.24	1.0	20	0	101	78 - 124				
Tetrachloroethene	19.16	1.0	20	0	95.8	74 - 129				
Toluene	18.03	1.0	20	0	90.1	80 - 121				
trans-1,2-Dichloroethene	17.55	1.0	20	0	87.8	75 - 124				
trans-1,3-Dichloropropene	16.75	1.0	20	0	83.7	73 - 127				
Trichloroethene	18.63	1.0	20	0	93.1	79 - 123				
Trichlorofluoromethane	17.98	1.0	20	0	89.9	65 - 141				
Vinyl chloride	16.37	1.0	20	0	81.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.67*	*1.0*	*50*	*0*	*95.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.65*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*47.23*	*1.0*	*50*	*0*	*94.5*	*80 - 119*				
Surr: Toluene-d8	*48.99*	*1.0*	*50*	*0*	*98.0*	*89 - 112*				

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061279-02MSD** Units: **UG/L** Analysis Date: **02-Jul-2019 14:50**
Client ID: **102_062419** Run ID: **VOA6_341768** SeqNo: **5151554** 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	18.01	1.0	20	0	90.1	78 - 124	18.03	0.0865	20	
1,1,1-Trichloroethane	18.39	1.0	20	0	92.0	74 - 131	18.04	1.93	20	
1,1,2,2-Tetrachloroethane	18.7	1.0	20	0	93.5	71 - 121	17.83	4.76	20	
1,1,2-Trichloroethane	18.66	1.0	20	0	93.3	80 - 119	18.28	2.05	20	
1,1-Dichloroethane	17.35	1.0	20	0	86.8	77 - 125	16.8	3.26	20	
1,1-Dichloroethene	17.79	1.0	20	0	89.0	71 - 131	17.59	1.14	20	
1,1-Dichloropropene	19.11	1.0	20	0	95.6	78 - 125	19.29	0.936	20	
1,2,3-Trichlorobenzene	20.01	1.0	20	0	100	69 - 129	18.52	7.74	20	
1,2,3-Trichloropropane	18.82	1.0	20	0	94.1	73 - 122	18.32	2.72	20	
1,2,4-Trichlorobenzene	19.44	1.0	20	0	97.2	69 - 130	18.51	4.86	20	
1,2,4-Trimethylbenzene	18.6	1.0	20	0	93.0	76 - 124	18.55	0.272	20	
1,2-Dibromo-3-chloropropane	19.01	1.0	20	0	95.1	62 - 128	18.32	3.69	20	
1,2-Dibromoethane	18.08	1.0	20	0	90.4	77 - 121	17.49	3.33	20	
1,2-Dichlorobenzene	18.35	1.0	20	0	91.8	80 - 119	17.91	2.45	20	
1,2-Dichloroethane	17.01	1.0	20	0	85.0	73 - 128	16.42	3.48	20	
1,2-Dichloropropane	17.17	1.0	20	0	85.9	78 - 122	17.32	0.85	20	
1,3,5-Trimethylbenzene	18.34	1.0	20	0	91.7	75 - 124	18.27	0.352	20	
1,3-Dichlorobenzene	18.32	1.0	20	0	91.6	80 - 119	17.89	2.37	20	
1,3-Dichloropropane	18.22	1.0	20	0	91.1	80 - 119	17.94	1.56	20	
1,4-Dichlorobenzene	19.85	1.0	20	0	99.3	79 - 118	19.13	3.69	20	
2,2-Dichloropropane	18.5	1.0	20	0	92.5	60 - 139	18.56	0.293	20	
2-Butanone	36.4	2.0	40	0	91.0	56 - 143	34.72	4.73	20	
2-Chlorotoluene	19.38	1.0	20	0	96.9	79 - 122	19.37	0.0148	20	
2-Hexanone	33.92	2.0	40	0	84.8	57 - 139	31.75	6.59	20	
4-Chlorotoluene	19.53	1.0	20	0	97.6	78 - 122	19.3	1.14	20	
4-Isopropyltoluene	19.16	1.0	20	0	95.8	77 - 127	19.37	1.05	20	
4-Methyl-2-pentanone	34.11	2.0	40	0	85.3	67 - 130	32.44	5.02	20	
Acetone	38.91	2.0	40	0	97.3	39 - 160	37.3	4.23	20	
Benzene	18.33	1.0	20	0	91.7	79 - 120	18.39	0.339	20	
Bromobenzene	17.11	1.0	20	0	85.5	80 - 120	17.14	0.209	20	
Bromochloromethane	16.97	1.0	20	0	84.9	78 - 123	16.05	5.62	20	
Bromodichloromethane	18.02	1.0	20	0	90.1	79 - 125	17.72	1.67	20	
Bromoform	18.17	1.0	20	0	90.9	66 - 130	17.73	2.47	20	
Bromomethane	17.59	1.0	20	0	88.0	53 - 141	17.74	0.834	20	

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061279-02MSD** Units: **UG/L** Analysis Date: **02-Jul-2019 14:50**
Client ID: **102_062419** Run ID: **VOA6_341768** SeqNo: **5151554** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	33.18	2.0	40	0	83.0	64 - 133	33.1	0.239	20	
Carbon tetrachloride	19.29	1.0	20	0	96.5	72 - 136	19.3	0.0519	20	
Chlorobenzene	18.04	1.0	20	0	90.2	82 - 118	17.94	0.592	20	
Chloroethane	17.66	1.0	20	0	88.3	60 - 138	16.25	8.29	20	
Chloroform	17.58	1.0	20	0	87.9	79 - 124	17.26	1.83	20	
Chloromethane	16.74	1.0	20	0	83.7	50 - 139	17.74	5.81	20	
cis-1,2-Dichloroethene	17.71	1.0	20	0	88.5	78 - 123	17.2	2.9	20	
cis-1,3-Dichloropropene	17.24	1.0	20	0	86.2	75 - 124	16.63	3.63	20	
Dibromochloromethane	17.51	1.0	20	0	87.6	74 - 126	17.38	0.749	20	
Dibromomethane	17.5	1.0	20	0	87.5	79 - 123	17.13	2.13	20	
Dichlorodifluoromethane	16.92	1.0	20	0	84.6	32 - 152	17.34	2.41	20	
Ethylbenzene	18.48	1.0	20	0	92.4	79 - 121	18.59	0.622	20	
Hexachlorobutadiene	21.2	1.0	20	0	106	66 - 134	21.22	0.0826	20	
Isopropylbenzene	19.21	1.0	20	0	96.1	72 - 131	19.1	0.57	20	
m,p-Xylene	36.92	2.0	40	0	92.3	80 - 121	37.18	0.695	20	
Methylene chloride	16.19	2.0	20	0	81.0	74 - 124	15.9	1.84	20	
Naphthalene	18.92	1.0	20	0	94.6	61 - 128	17.16	9.76	20	
n-Butylbenzene	19.36	1.0	20	0	96.8	75 - 128	19.55	0.956	20	
n-Propylbenzene	20.01	1.0	20	0	100	76 - 126	20	0.0421	20	
o-Xylene	18.32	1.0	20	0	91.6	78 - 122	17.95	2.02	20	
sec-Butylbenzene	20.38	1.0	20	0	102	77 - 126	20.61	1.12	20	
Styrene	18.72	1.0	20	0	93.6	78 - 123	18.46	1.41	20	
tert-Butylbenzene	20.29	1.0	20	0	101	78 - 124	20.24	0.291	20	
Tetrachloroethene	18.91	1.0	20	0	94.5	74 - 129	19.16	1.35	20	
Toluene	18	1.0	20	0	90.0	80 - 121	18.03	0.169	20	
trans-1,2-Dichloroethene	17.99	1.0	20	0	90.0	75 - 124	17.55	2.49	20	
trans-1,3-Dichloropropene	17.13	1.0	20	0	85.7	73 - 127	16.75	2.28	20	
Trichloroethene	18.32	1.0	20	0	91.6	79 - 123	18.63	1.68	20	
Trichlorofluoromethane	18	1.0	20	0	90.0	65 - 141	17.98	0.106	20	
Vinyl chloride	16.22	1.0	20	0	81.1	58 - 137	16.37	0.923	20	
Surr: 1,2-Dichloroethane-d4	*48.93*	*1.0*	*50*	*0*	*97.9*	*81 - 118*	*47.67*	*2.6*	*20*	
Surr: 4-Bromofluorobenzene	*49.69*	*1.0*	*50*	*0*	*99.4*	*85 - 114*	*49.65*	*0.063*	*20*	
Surr: Dibromofluoromethane	*48.03*	*1.0*	*50*	*0*	*96.1*	*80 - 119*	*47.23*	*1.66*	*20*	
Surr: Toluene-d8	*49.1*	*1.0*	*50*	*0*	*98.2*	*89 - 112*	*48.99*	*0.233*	*20*	

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061279

QC BATCH REPORT

Batch ID: R341768 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19061279-01	HS19061279-02	HS19061279-03	HS19061279-04
HS19061279-05	HS19061279-06	HS19061279-07	HS19061279-08
HS19061279-09	HS19061279-10		

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ALS Houston, US Date: 15-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061279**

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

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ALS Houston, US Date: 15-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061279

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19061279-01	129_062419	Login	25/06/2019 11:07:19	NDR	MET100
HS19061279-01	129_062419	Login	25/06/2019 11:07:19	NDR	Sub
HS19061279-01	129_062419	Login	25/06/2019 11:07:19	NDR	VOA258

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ALS Houston, US Date: 15-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061279
Date/Time Received: **25-Jun-2019 09:00**
Received by: **JRM**

Checklist completed by: *Nilesh D. Ranchod* eSignature — 25-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature — 25-Jun-2019 Date

Matrices: **Groundwater**
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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	1.3c U/c	IR25
Cooler(s)/Kit(s):	44534	
Date/Time sample(s) sent to storage:	06/25/2019 11:45am	

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:

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bhate ENVIRONMENTAL CONSTRUCTION ENERGY

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

Chain of Custody and Analytical Request

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

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	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
129_062419		24-Jun-2019	0820	-	N		WG	6	X	X	X	X				
102_062419		24-Jun-2019	0925	-	N		WG	5	X	X	X					
MW23_062419		24-Jun-2019	1015	-	N		WG	4	X	X						
126_062419		24-Jun-2019	1100		N		WG	6	X	X	X	X				
18WW03_062419		24-Jun-2019	1200		N		WG	6	X	X	X	X				
18WW03_062419_a		24-Jun-2019	1200	-	FD		WG	6	X	X	X	X				
18WW18_062419		24-Jun-2019	1300	-	N		WG	6	X	X	X	X				
18WW17_062419		24-Jun-2019	1315	-	N		WG	5	X	X	X					
125_062419		24-Jun-2019	1330	-	N		WG	5	X	X	X					
TRIP BLANK		24-Jun-2019		-	TB		W	2	X							
				-												

Sample Analysis Requested (5) | Quality Assurance Samples (6)

COMMENTS: Cooler 44.535 IR25
Temp 1.3 CF00

HS19061279

Bhate Environmental Associates, Inc.
LHAAP 18 24

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	6/24/19	1430	S. Whitehead	6/25/19	09:00
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped

Method of Shipment: ____

____ Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stancliff 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.)

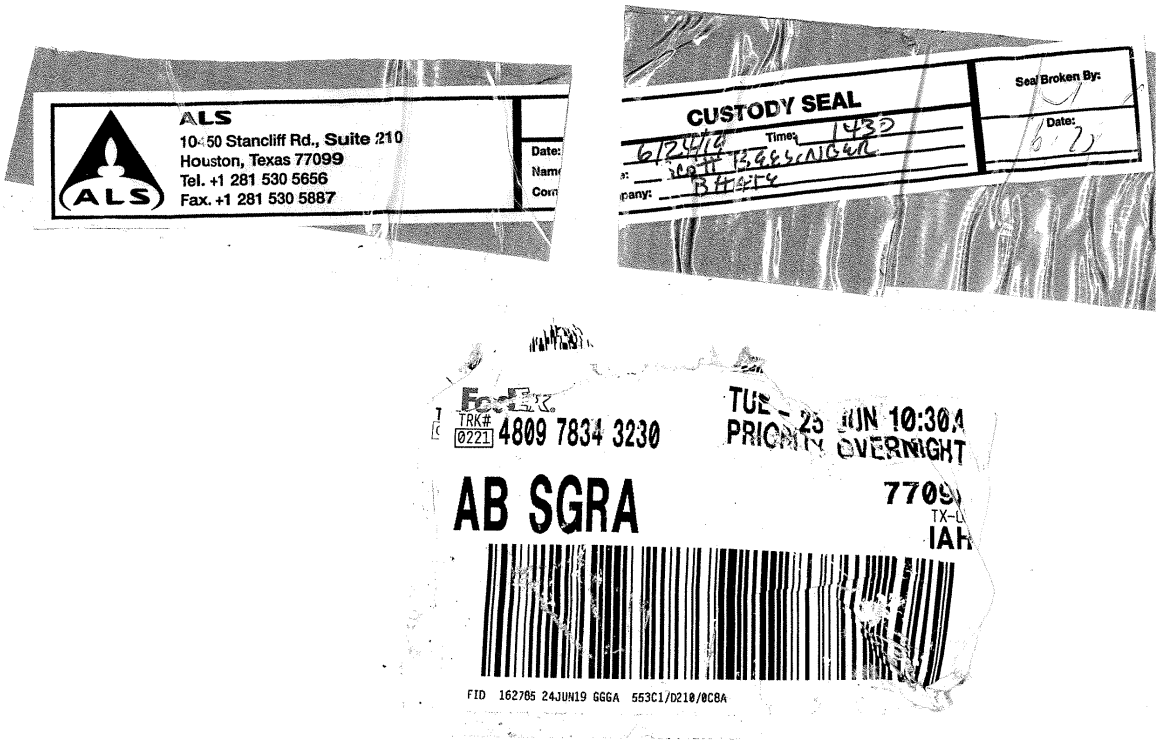
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

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

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Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1918373, 1918525, 1918682

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2269 (243227)

General Set Information: There were eighteen field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 662917) was less than 1/2 the CRDL. The recovery for the LCS (662918) was within acceptable parameters.

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MS/MSD Analysis: MS/MSD was performed on sample 1918373005 (Client ID: 18WW03_062419). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The MS/MSD percent recoveries and relative percent difference were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 662915) is reported from the analysis of the Laboratory Control Sample (LCS – 662918) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 10JULD13.

Thomas Bosch — July 11, 2019
Analyst — Date

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ANALYTICAL REPORT
Amended-20190712

Report Date: July 12, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918373**
Project ID: HS19061279
Purchase Order: HS19061279
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
129_062419	1918373001	06/24/19	06/26/19	
102_062419	1918373002	06/24/19	06/26/19	
MW23_062419	1918373003	06/24/19	06/26/19	
126_062419	1918373004	06/24/19	06/26/19	
18WW03_062419	1918373005	06/24/19	06/26/19	
18WW03_062419_a	1918373006	06/24/19	06/26/19	
18WW18_062419	1918373007	06/24/19	06/26/19	
18WW17_062419	1918373008	06/24/19	06/26/19	
125_062419	1918373009	06/24/19	06/26/19	

ANALYTICAL REPORT
Amended-20190712

Workorder: 34-1918373
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **129_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373001 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 09:45 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**4200**	1000	2000	4000	1000	

Sample ID: **102_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373002 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 09:59 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**33**	1.0	2.0	4.0	1	

Sample ID: **MW23_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373003 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 10:13 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**67000**	10000	20000	40000	10000	

Sample ID: **126_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373004 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 15:02 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	5.9	4.0	8.0	16	4	J

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ANALYTICAL REPORT
Amended-20190712

Workorder: 34-1918373
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18WW03_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373005 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 10:41 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW03_062419_a** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373006 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 11:23 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW18_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373007 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 11:36 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW17_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373008 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 11:50 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**85000**	10000	20000	40000	10000	

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ANALYTICAL REPORT
Amended-20190712

Workorder: 34-1918373
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **125_062419** | Sampling Site: NA | Collected: 06/24/2019
Lab ID: 1918373009 | Media: 125 mL Nalgene | Received: 06/26/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 12:04 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**260**	10	20	40	10	

Comments

Quality Control: EPA 6850, DoD QSM - (HBN: 243227)

Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/11/2019 10:28	/S/ Stephen Brose 07/11/2019 13:28

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT
Amended-20190712

Workorder: 34-1918373
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918373

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2269 (HBN: 243227)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 662917
Analyzed: 07/10/2019 09:31
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 662918
Analyzed: 07/10/2019 09:03
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.25	4.00	106	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1918373005	**MS:**	662919	**MSD:**	662920
Analyzed:	07/10/2019 10:41	**Analyzed:**	07/10/2019 10:55	**Analyzed:**	07/10/2019 11:09
Dilution:	1	**Dilution:**	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.87	4	122	78.8	123.8	4.01	100	19.3	0.0	20.0

Comments

Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch 07/11/2019 11:05	/S/ Stephen Brose 07/11/2019 13:28

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◓ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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ALS Environmental
CHAIN-OF-CUSTODY

Project / Job / Task: HS19061729	***Split:***	**Workorder ID:** 1918373	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850_DoD QSM
1	06/24/2019 08:20	129_062419	1918373001		Water	A	1	A
2	06/24/2019 09:25	102_062419	1918373002		Water	A	1	A
3	06/24/2019 10:15	MW23_062419	1918373003		Water	A	1	A
4	06/24/2019 11:00	126_062419	1918373004		Water	A	1	A
5	06/24/2019 12:00	18WW03_062419	1918373005		Water	A	1	A
6	06/24/2019 12:00	18WW03_062419_a	1918373006		Water	A	1	A
7	06/24/2019 13:00	18WW18_062419	1918373007		Water	A	1	A
8	06/24/2019 13:15	18WW17_062419	1918373008		Water	A	1	A
9	06/24/2019 13:30	125_062419	1918373009		Water	A	1	A
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	06/26/2019 10:17	ALS Sample Receiving	Sample Login
[signature]	06/26/19 1400	4C	Storage
R.33.1	07.08.19/16:30	T. Bond	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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00941358

W 1918373

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID: 11663**

SUBCONTRACT TO:

1918373

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	HS19061279
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19061279-01**	**129_062419**	**Groundwater**	**24 Jun 2019 08:20**
	SUB_Perch-6850			10 Jul 2019
2.	**HS19061279-02**	**102_062419**	**Groundwater**	**24 Jun 2019 09:25**
	SUB_Perch-6850			10 Jul 2019
3.	**HS19061279-03**	**MW23_062419**	**Groundwater**	**24 Jun 2019 10:15**
	SUB_Perch-6850			10 Jul 2019
4.	**HS19061279-04**	**126_062419**	**Groundwater**	**24 Jun 2019 11:00**
	SUB_Perch-6850			10 Jul 2019
5.	**HS19061279-05**	**18ww03_062419**	**Groundwater**	**24 Jun 2019 12:00**
	SUB_Perch-6850			10 Jul 2019
6.	**HS19061279-06**	**18ww03_062419_a**	**Groundwater**	**24 Jun 2019 12:00**
	SUB_Perch-6850			10 Jul 2019
7.	**HS19061279-07**	**18ww18_062419**	**Groundwater**	**24 Jun 2019 13:00**
	SUB_Perch-6850			10 Jul 2019
8.	**HS19061279-08**	**18ww17_062419**	**Groundwater**	**24 Jun 2019 13:15**
	SUB_Perch-6850			10 Jul 2019
9.	**HS19061279-09**	**125_062419**	**Groundwater**	**24 Jun 2019 13:30**

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11663**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
	SUB_Perch-6850		10 Jul 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: NR Date/Time: 6.25.19 18.00

Received By: Jennifer Fussell Date/Time: 06-26-19 10:17

Cooler ID(s): Temperature(s):

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ALS-SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 9118373

Date/Time of Receipt: 06-26-19 10:17

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Tamiya Tassell (Signature) T. Tantassell (Printed Name) 06-26-19 (Date)

CLIENT-RELATED INFORMATION

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018

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Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159469-434 RIT2 EXP 02/20

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 25JUN19
ACTWGT: 19.25 LB
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

551C1/D210/104C

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19061279 - RJ

FedEx Express

J161113060501uv

TRK# 0201 4809 7835 3425

WED - 26 JUN 10:30A
PRIORITY OVERNIGHT

AX BTFA

84123
UT-US SLC

Seal Broken By:
Date:

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Batch Worklist

Batch: ELMS/ 2269 Created: 7/10/2019 08:39 Instrument: HBN: 243227

Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 1918373 [ENV_LVL4]
Workorder: 1918525 [ENV_LVL4]
Workorder: 1918682 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	662914	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	
2	662915	RLVS for HBN 243227 [ELMS/2269				RLVS	3		E685041C3Q	5311		7/10/2019	
3	662916	ICS for HBN 243227 [ELMS/2269]				ICS	3		E6850..D3Q	5311		7/10/2019	
4	662917	LMB for HBN 243227 [ELMS/2269]				LMB	3		E6850Q413Q	5311		7/10/2019	
5	662918	LCS for HBN 243227 [ELMS/2269]				LCS	3		E6850Q413Q	5311		7/10/2019	
6	1918373001	129_062419				SAMPLE	3	1918373001-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
7	1918373002	102_062419				SAMPLE	3	1918373002-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
8	1918373003	MW23_062419				SAMPLE	3	1918373003-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
9	1918373004	126_062419				SAMPLE	3	1918373004-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
10	1918373005	18WW03_062419				SAMPLE	3	1918373005-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
11	662919	18WW03_062419(1918373005MS)				MS	3		E6850Q413Q	5311		7/10/2019	
12	662920	18WW03_062419(1918373005MSD)				MSD	3		E6850Q413Q	5311		7/10/2019	
13	1918373006	18WW03_062419_a				SAMPLE	3	1918373006-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
14	1918373007	18WW18_062419				SAMPLE	3	1918373007-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
15	1918373008	18WW17_062419				SAMPLE	3	1918373008-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
16	1918373009	125_062419				SAMPLE	3	1918373009-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
17	1918525001	18CPTMW14_062519				SAMPLE	3	1918525001-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
18	662921	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	
19	1918525002	18CPTMW24_062519				SAMPLE	3	1918525002-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
20	1918525003	18CPTMW07_062519				SAMPLE	3	1918525003-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
21	1918525004	MW3_062519				SAMPLE	3	1918525004-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
22	1918682001	AW04_062619				SAMPLE	3	1918682001-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
23	1918682002	AW04_062619_a				SAMPLE	3	1918682002-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
24	1918682003	18WW24_062619				SAMPLE	3	1918682003-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
25	1918682004	MW16_062619				SAMPLE	3	1918682004-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
26	1918682005	MW19_062619				SAMPLE	3	1918682005-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
27	662922	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

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ALS Work Order #'s & Sample #( )'s: 1918373 (001-09), 1918525 (001-04); 1918682 (001-05)
ELMS Batch/HBN ID: 2269 (243227)
Prep Date: 07/08/2019 Analysis Date: 07/10/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\10JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 662918; Target = 4.0µg/L. ASTM type II water was used for LMB 662917.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1918273005 (Client ID: 18WW03_062419). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\243227-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 662915) is reported from the analysis of the Laboratory Control Sample (LCS – 662918) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 10JULD13.

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5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2269 HBN: 243227 Sample Set IDs if Applicable: 1918373/1918525/1918682	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SD
Standards traceability checked and meets criteria	TB	SD
Standard curve coefficients evaluated and meet criteria	TB	SD
ICVs analyzed and meet acceptance criteria	TB	SD
CCVs analyzed and meet acceptance criteria	TB	SD
Method Blanks analyzed and meet acceptance criteria	TB	SD
Retention Time Windows checked	TB	SD
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SD
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SD
RLVS analyzed	TB	SD
Preparation and analysis hold times met	TB	SD
Preparation deviations and re-preparations noted when performed	TB	SD
Analysis deviations and re-analyses noted when performed	TB	SD
Sample dilution factors noted on reports	TB	SD
Electronic records in HBN transcription accuracy and completeness checked	TB	SD
Preparation and analysis calculations checked	TB	SD
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SD
Manual integrations checked	TB	SD

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STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
			1000 ug/mL
1	14797-73-0	Perchlorate	

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK	Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

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STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

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STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

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Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ANAB ACCREDITED

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Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: JCC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

AccuStandard®

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

OR-ORG/INO-001
Rev. 5/18

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Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

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ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

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Batch Report: C:\HPCHEM\1\DATA\10JUL19D\10JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	662914 CCV@25	Vial 71	1	Control	1	2.68575e6	8.115	26.05294
#*	662915 QC@4.0	Vial 72	1	Control	2	4.44100e5	7.955	4.24940
#*	662916 ICS@4.0	Vial 73	1	Control	3	3.60514e5	7.907	3.90243
#*	662917 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	1918373001 1K	Vial 75	1	Sample	5	4.64595e5	8.475	4196.25594
#*	1918373002	Vial 76	1	Sample	6	2.67439e6	8.256	32.95864
#*	1918373003 10K	Vial 77	1	Sample	7	7.50173e5	8.471	6.69552e4
#*	1918373004	Vial 78	1	Sample	8	9.59698e4	7.479	3.07958 RERUN
#*	1918373005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
#*	662919 183735S	Vial 80	1	Sample	10	3.55093e5	7.925	4.86521
#*	662920 183735D	Vial 81	1	Sample	11	3.66789e5	7.925	4.01055
#*	1918373006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1918373007	Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1918373008 10K	Vial 84	1	Sample	14	7.80844e5	8.547	8.50126e4
#*	1918373009 10	Vial 85	1	Sample	15	2.50033e6	8.517	259.32134
#*	1918525001 100	Vial 86	1	Sample	16	1.50160e6	8.459	1335.16188
#*	1918525002 10	Vial 87	1	Sample	18	8.01472e5	7.834	89.40283
#*	1918525003	Vial 88	1	Sample	19	9.97190e4	7.920	1.35329
#*	662921 CCV@25	Vial 71	1	Control	20	2.50454e6	8.326	26.47813
#*	1918525004 1K	Vial 89	1	Sample	21	9.11871e5	8.541	1.14090e4
#*	1918682001	Vial 90	1	Sample	22	2.47257e6	7.964	22.97557
#*	1918682002	Vial 91	1	Sample	23	2.64966e6	7.956	27.09987
#*	1918682003	Vial 92	1	Sample	24	0.00000	0.000	0.00000
#*	1918682004 100	Vial 93	1	Sample	25	3.17764e6	8.495	2867.69131
#*	1918682005	Vial 94	1	Sample	26	0.00000	0.000	0.00000
#*	1918373004 4X	Vial 95	1	Sample	27	1.13898e5	7.615	5.92026
*	662922 CCV@25	Vial 71	1	Control	28	2.33580e6	8.325	25.58048

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	662914 CCV@25	Vial 71	1	Control	1	8.00069e5	8.120	26.14885
#*	662915 QC@4.0	Vial 72	1	Control	2	1.43143e5	7.988	4.46175
#*	662916 ICS@4.0	Vial 73	1	Control	3	1.13240e5	7.926	3.97989
#*	662917 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	1918373001 1K	Vial 75	1	Sample	5	1.47350e5	8.502	4333.79914
#*	1918373002	Vial 76	1	Sample	6	8.00737e5	8.266	33.28426
#*	1918373003 10K	Vial 77	1	Sample	7	2.30473e5	8.475	6.80005e4
#*	1918373004	Vial 78	1	Sample	8	4.60480e4	7.515	4.72828
#*	1918373005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
#*	662919 183735S	Vial 80	1	Sample	10	1.12035e5	7.945	5.02607
#*	662920 183735D	Vial 81	1	Sample	11	1.15347e5	7.933	4.09972
#*	1918373006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1918373007	Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1918373008 10K	Vial 84	1	Sample	14	2.43153e5	8.561	8.79445e4
#*	1918373009 10	Vial 85	1	Sample	15	7.49555e5	8.537	261.83216
#*	1918525001 100	Vial 86	1	Sample	16	4.61812e5	8.478	1373.76036
#*	1918525002 10	Vial 87	1	Sample	18	2.59266e5	7.849	96.09405
#*	1918525003	Vial 88	1	Sample	19	3.44592e4	7.913	1.39474
#*	662921 CCV@25	Vial 71	1	Control	20	7.43673e5	8.350	26.49691
#*	1918525004 1K	Vial 89	1	Sample	21	2.92673e5	8.563	1.22133e4
#*	1918682001	Vial 90	1	Sample	22	7.38653e5	7.982	23.10212
#*	1918682002	Vial 91	1	Sample	23	7.84495e5	7.975	27.04927
#*	1918682003	Vial 92	1	Sample	24	0.00000	0.000	0.00000
#*	1918682004 100	Vial 93	1	Sample	25	9.49732e5	8.511	2888.99473
#*	1918682005	Vial 94	1	Sample	26	0.00000	0.000	0.00000
#*	1918373004 4X	Vial 95	1	Sample	27	4.50105e4	7.626	7.05823
*	662922 CCV@25	Vial 71	1	Control	28	6.93327e5	8.339	25.58423

RIGHT SOLUTIONS | RIGHT PARTNER

Batch Report: C:\HPCHEM\1\DATA\10JUL19D\10JUL19S.B

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	662914 CCV@25	Vial 71	1	Control	1	3.12850e5	8.129	5.00000
#*	662915 QC@4.0	Vial 72	1	Control	2	3.43351e5	7.987	5.00000
#*	662916 ICS@4.0	Vial 73	1	Control	3	3.04788e5	7.926	5.00000
#*	662917 LMB	Vial 74	1	Control	4	3.48541e5	8.334	5.00000
#*	1918373001 1K	Vial 75	1	Sample	5	3.63966e5	8.508	5000.00000
#*	1918373002	Vial 76	1	Sample	6	2.42366e5	8.286	5.00000
#*	1918373003 10K	Vial 77	1	Sample	7	3.61021e5	8.485	5.00000e4
#*	1918373004	Vial 78	1	Sample	8	1.04173e5	7.500	5.00000
#*	1918373005	Vial 79	1	Sample	9	2.68459e5	7.947	5.00000
#*	662919 183735S	Vial 80	1	Sample	10	2.38297e5	7.944	5.00000
#*	662920 183735D	Vial 81	1	Sample	11	3.01318e5	7.949	5.00000
#*	1918373006	Vial 82	1	Sample	12	2.95413e5	7.964	5.00000
#*	1918373007	Vial 83	1	Sample	13	2.56579e5	7.688	5.00000
#*	1918373008 10K	Vial 84	1	Sample	14	2.93278e5	8.572	5.00000e4
#*	1918373009 10	Vial 85	1	Sample	15	2.92692e5	8.542	50.00000
#*	1918525001 100	Vial 86	1	Sample	16	3.52862e5	8.475	500.00000
#*	1918525002 10	Vial 87	1	Sample	18	2.85701e5	7.853	50.00000
#*	1918525003	Vial 88	1	Sample	19	2.65508e5	7.924	5.00000
#*	662921 CCV@25	Vial 71	1	Control	20	2.86769e5	8.351	5.00000
#*	1918525004 1K	Vial 89	1	Sample	21	2.52353e5	8.562	5000.00000
#*	1918682001	Vial 90	1	Sample	22	3.29023e5	7.998	5.00000
#*	1918682002	Vial 91	1	Sample	23	2.95991e5	7.971	5.00000
#*	1918682003	Vial 92	1	Sample	24	3.47869e5	7.583	5.00000
#*	1918682004 100	Vial 93	1	Sample	25	3.34219e5	8.521	500.00000
#*	1918682005	Vial 94	1	Sample	26	2.68839e5	7.545	5.00000
#*	1918373004 4X	Vial 95	1	Sample	27	2.74118e5	7.639	20.00000
*	662922 CCV@25	Vial 71	1	Control	28	2.77422e5	8.334	5.00000

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\10JUL19D.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	662914 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	662915 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	662916 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	662917 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1918373001 1K	CLO4-AQN	1	Sample		
6	Vial 76	1918373002	CLO4-AQN	1	Sample		
7	Vial 77	1918373003 10K	CLO4-AQN	1	Sample		
8	Vial 78	1918373004	CLO4-AQN	1	Sample		
9	Vial 79	1918373005	CLO4-AQN	1	Sample		
10	Vial 80	662919 183735S	CLO4-AQN	1	Sample		
11	Vial 81	662920 183735D	CLO4-AQN	1	Sample		
12	Vial 82	1918373006	CLO4-AQN	1	Sample		
13	Vial 83	1918373007	CLO4-AQN	1	Sample		
14	Vial 84	1918373008 10K	CLO4-AQN	1	Sample		
15	Vial 85	1918373009 10	CLO4-AQN	1	Sample		
16	Vial 86	1918525001 100	CLO4-AQN	1	Sample		
17	Vial 71	662921 CCV@25	CLO4-AQN	1	Ctrl Samp		
18	Vial 87	1918525002 10	CLO4-AQN	1	Sample		
19	Vial 88	1918525003	CLO4-AQN	1	Sample		
20	Vial 71	662921 CCV@25	CLO4-AQN	1	Ctrl Samp		
21	Vial 89	1918525004 1K	CLO4-AQN	1	Sample		
22	Vial 90	1918682001	CLO4-AQN	1	Sample		
23	Vial 91	1918682002	CLO4-AQN	1	Sample		
24	Vial 92	1918682003	CLO4-AQN	1	Sample		
25	Vial 93	1918682004 100	CLO4-AQN	1	Sample		
26	Vial 94	1918682005	CLO4-AQN	1	Sample		
27	Vial 95	1918373004 4X	CLO4-AQN	1	Sample		
28	Vial 71	662922 CCV@25	CLO4-AQN	1	Ctrl Samp		

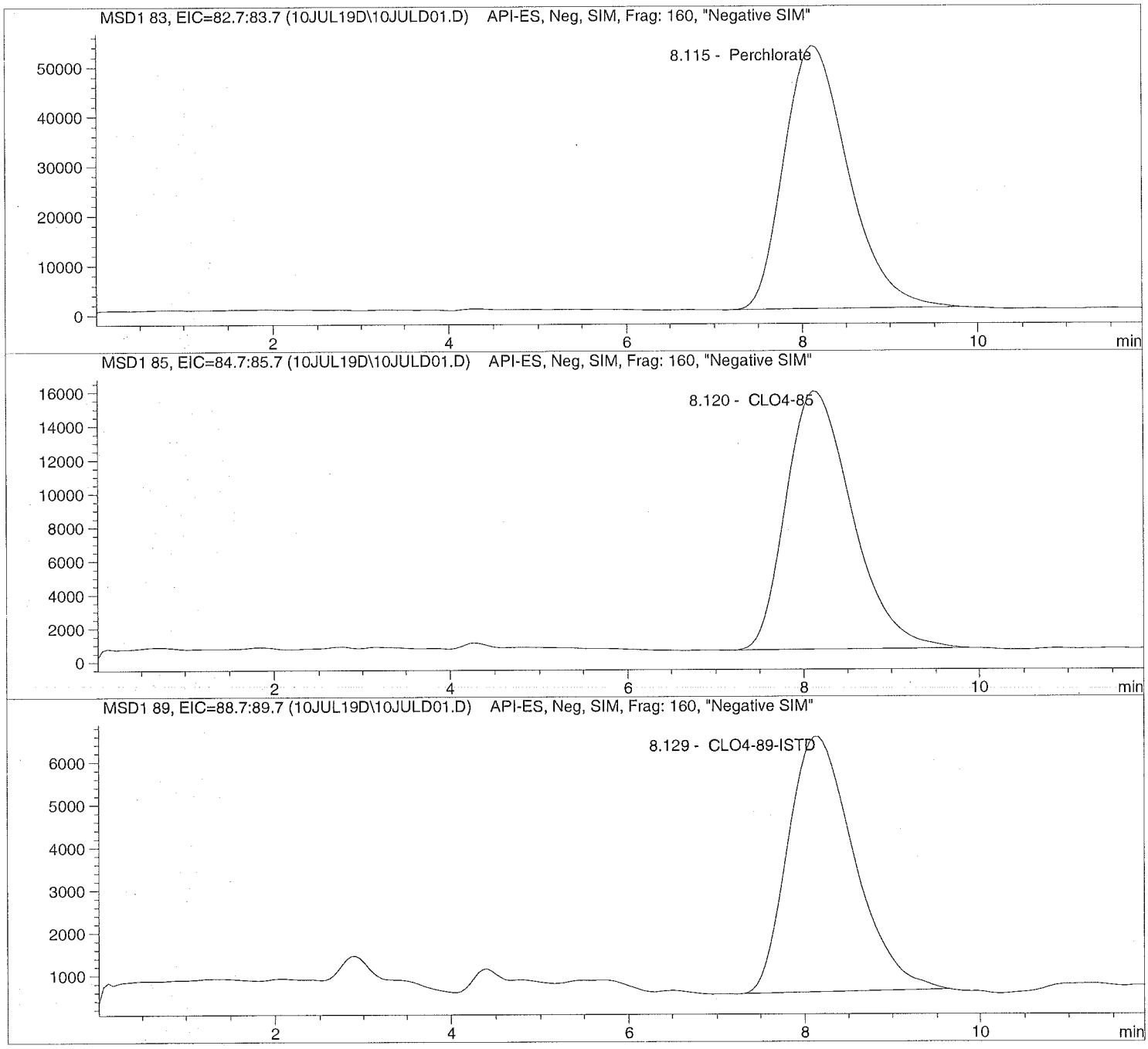
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD01.D Sample Name: 662914 CCV@25

Injection Date:	7/10/2019 08:48:22	Seq Line:	1
Sample Name:	662914 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD01.D Sample Name: 662914 CCV@25

Injection Date:	7/10/2019 08:48:22	Seq Line:	1
Sample Name:	662914 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.115	PBA	2685752.5	26.0529	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.120	PBA	800069.3	26.1488	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.129	PBA	312850.3	5.0000	CLO4-89-ISTD

*** End of Report ***

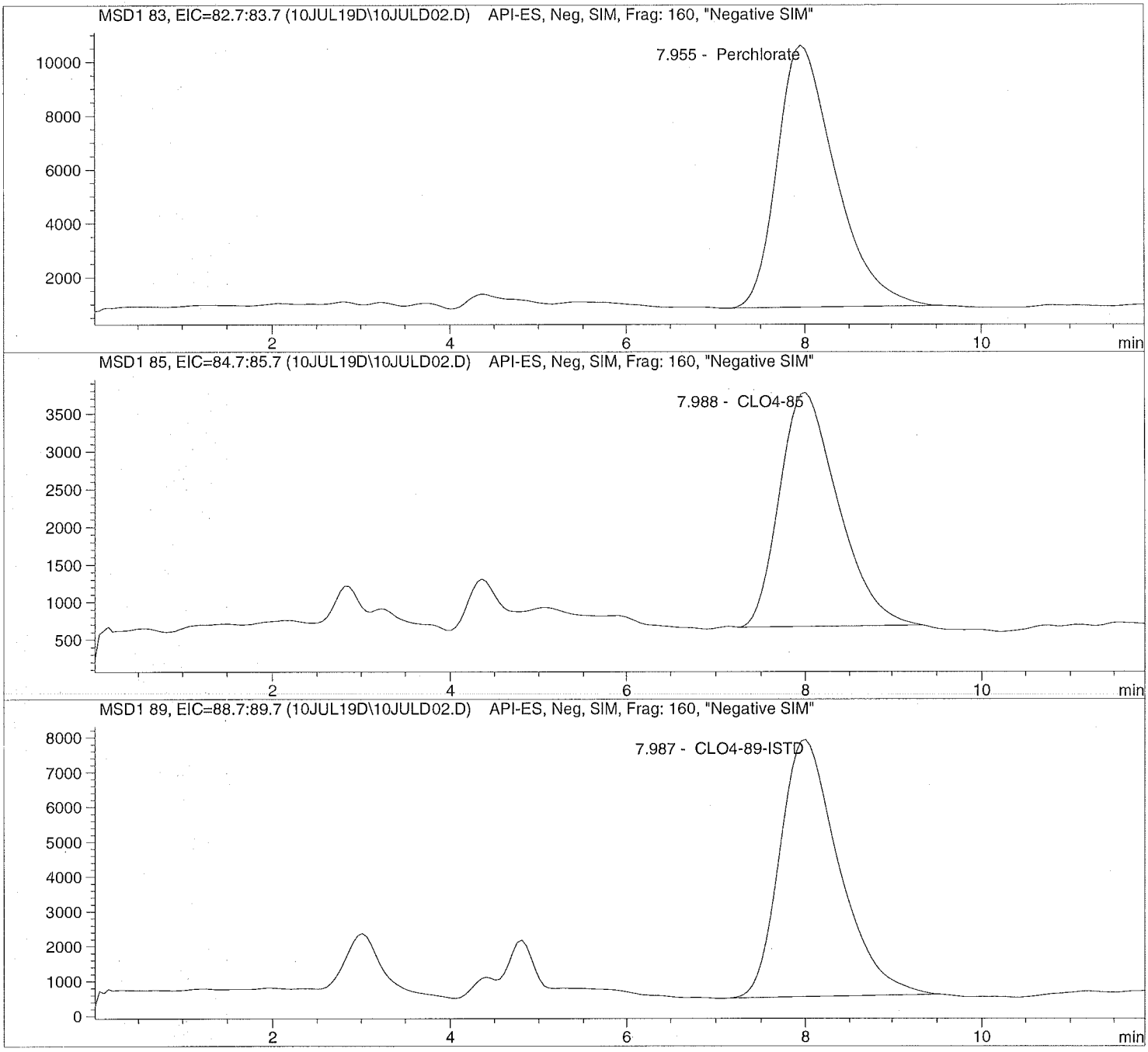
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD02.D Sample Name: 662915 QC@4.0

Injection Date:	7/10/2019 09:03:50	Seq Line:	2
Sample Name:	662915 QC@4.0	Location:	Vial 72
Acq Operator:	TNB RLVS	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD02.D Sample Name: 662915 QC@4.0

Injection Date:	7/10/2019 09:03:50	Seq Line:	2
Sample Name:	662915 QC@4.0	Location:	Vial 72
Acq Operator:	TNB RLVS	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.955	PBA	444100.1	4.2494	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.988	PBA	143143.3	4.4618	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.987	PBA	343351.4	5.0000	CLO4-89-ISTD

*** End of Report ***

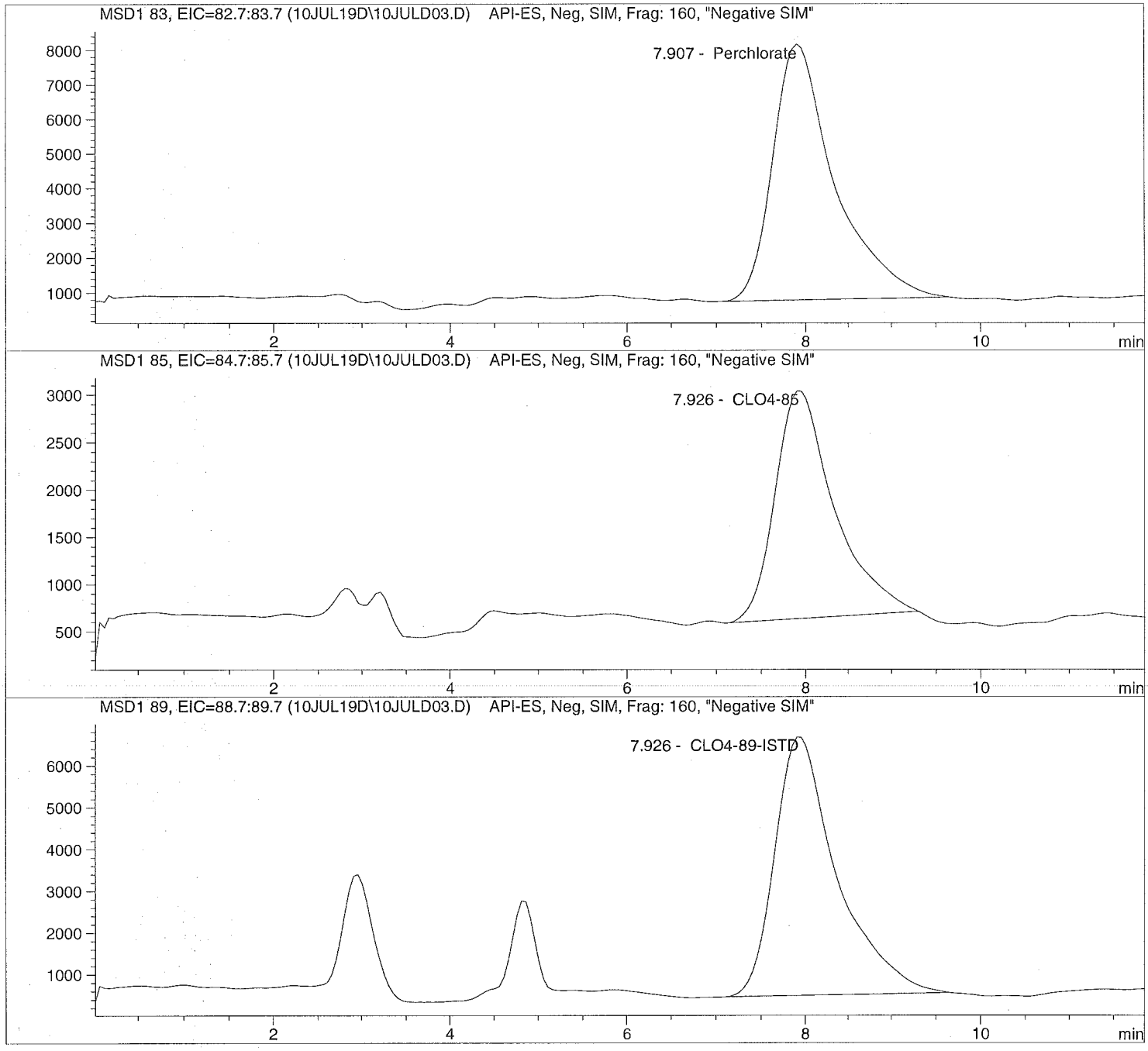
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD03.D Sample Name: 662916 ICS@4.0

Injection Date:	7/10/2019 09:17:42	Seq Line:	3
Sample Name:	662916 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD03.D Sample Name: 662916 ICS@4.0

Injection Date:	7/10/2019 09:17:42	Seq Line:	3
Sample Name:	662916 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.907	PBA	360514.4	3.9024	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	PBA	113239.5	3.9799	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	PBA	304787.5	5.0000	CLO4-89-ISTD

*** End of Report ***

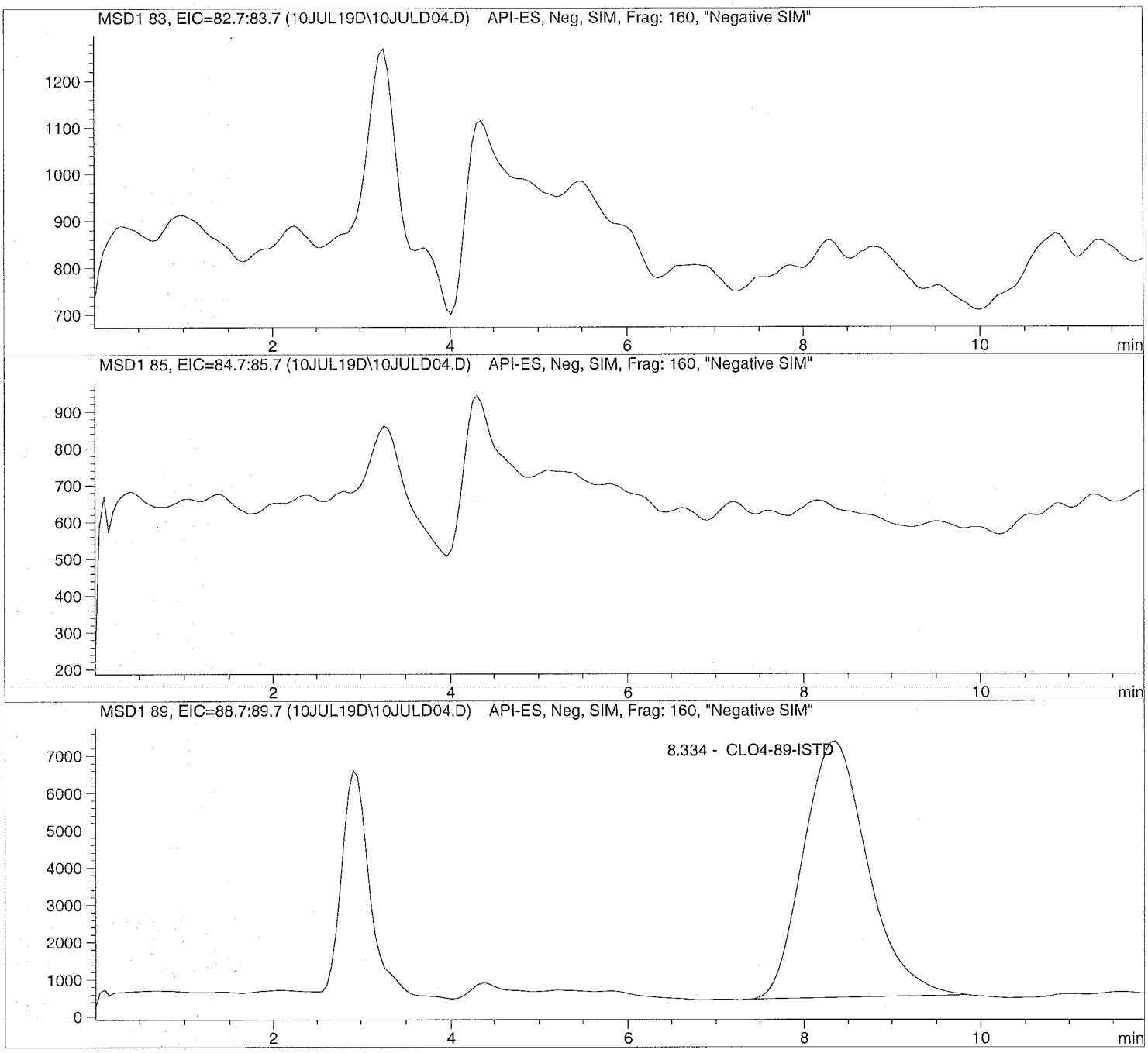
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD04.D Sample Name: 662917 LMB

Injection Date:	7/10/2019 09:31:38	Seq Line:	4
Sample Name:	662917 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD04.D Sample Name: 662917 LMB

Injection Date:	7/10/2019 09:31:38	Seq Line:	4
Sample Name:	662917 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.334	PBA	348541.0	5.0000	CLO4-89-ISTD

*** End of Report ***

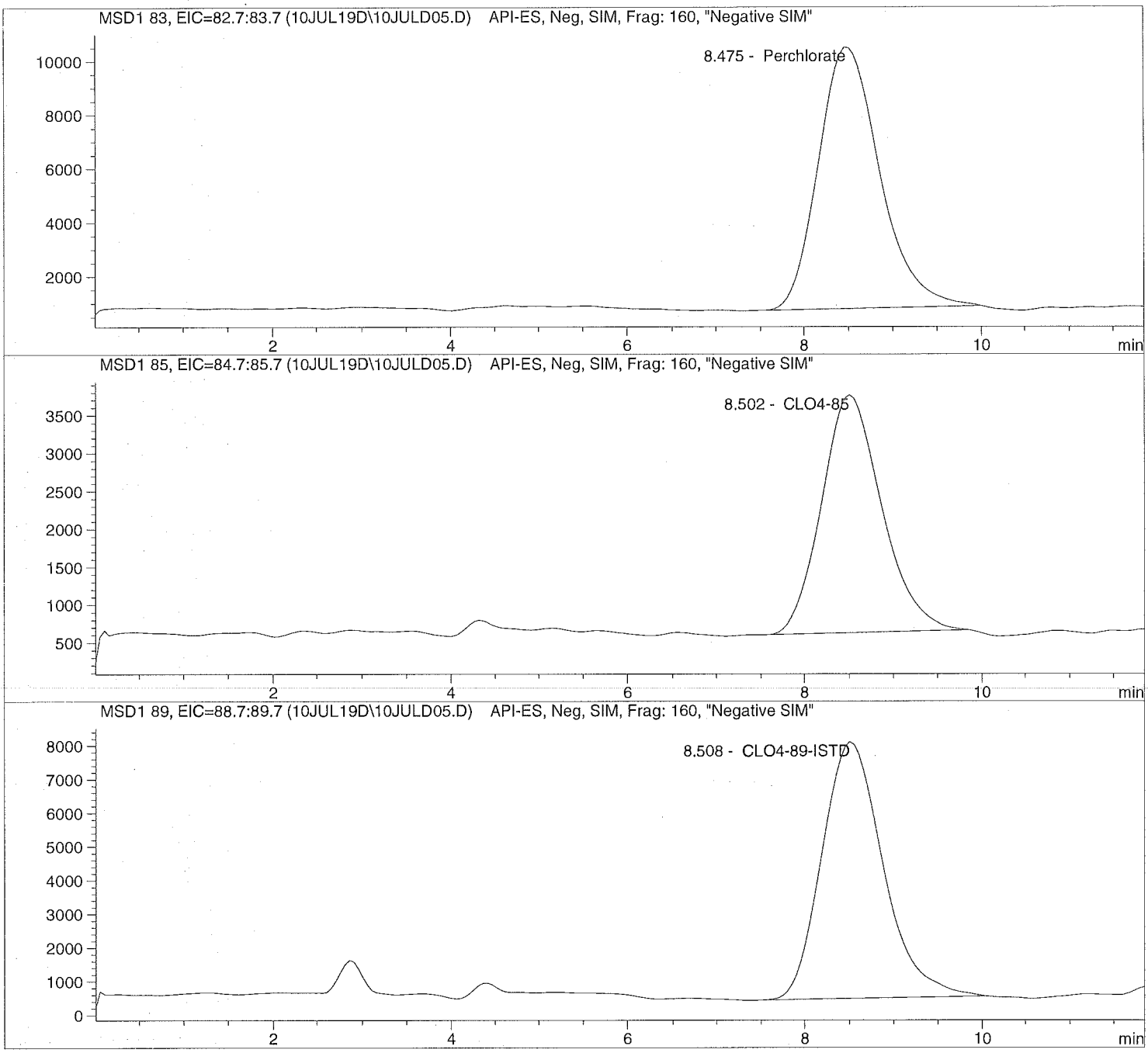
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD05.D Sample Name: 1918373001 1K

Injection Date:	7/10/2019 09:45:31	Seq Line:	5
Sample Name:	1918373001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD05.D Sample Name: 1918373001 1K

Injection Date:	7/10/2019 09:45:31	Seq Line:	5
Sample Name:	1918373001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	464595.3	4196.2559	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	147349.9	4333.7991	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.508	PBA	363966.2	5000.0000	CLO4-89-ISTD

*** End of Report ***

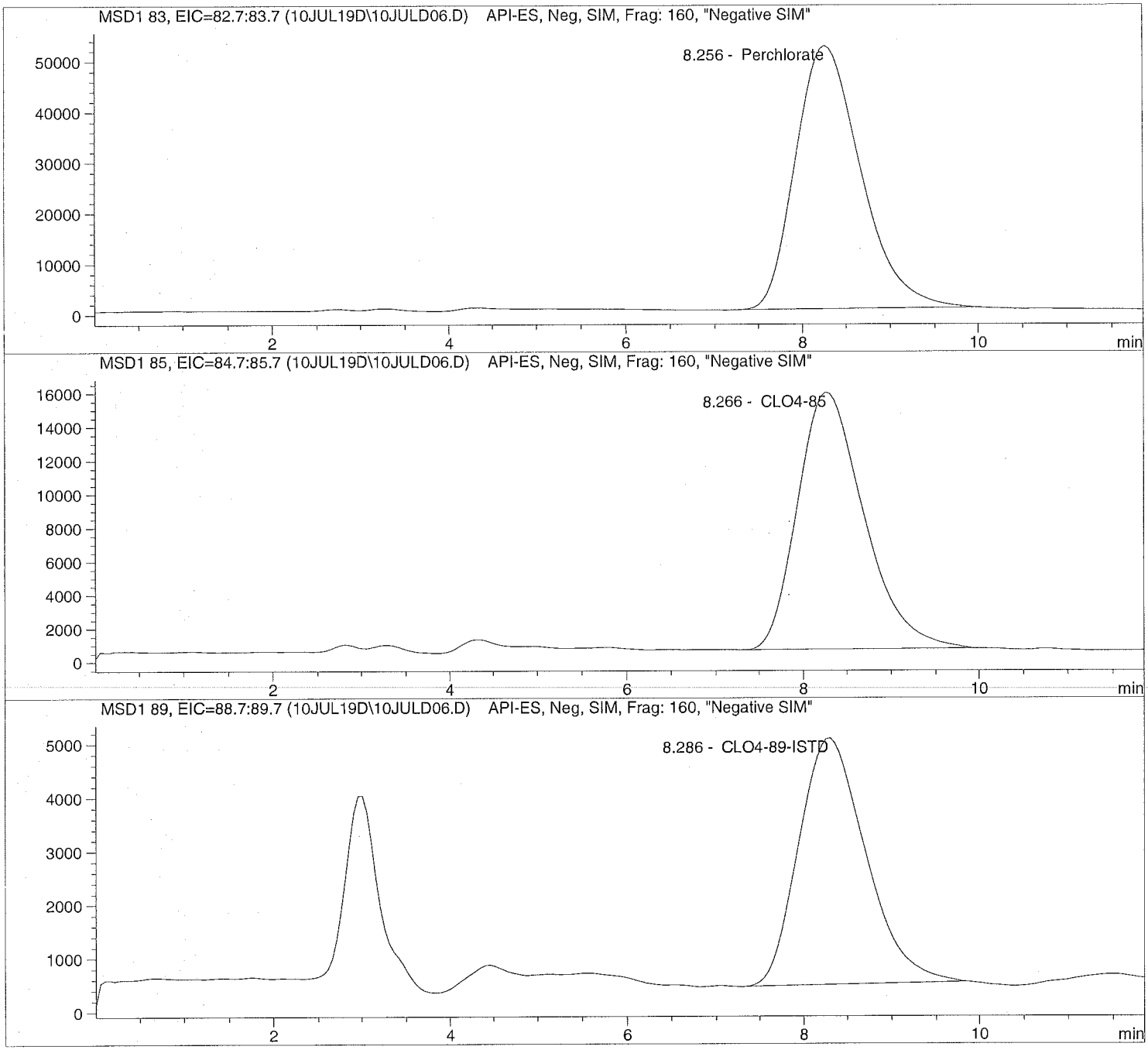
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD06.D Sample Name: 1918373002

Injection Date:	7/10/2019 09:59:30	Seq Line:	6
Sample Name:	1918373002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD06.D Sample Name: 1918373002

Injection Date:	7/10/2019 09:59:30	Seq Line:	6
Sample Name:	1918373002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.256	PBA	2674385.0	32.9586	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.266	PBA	800737.1	33.2843	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.286	PBA	242366.0	5.0000	CLO4-89-ISTD

*** End of Report ***

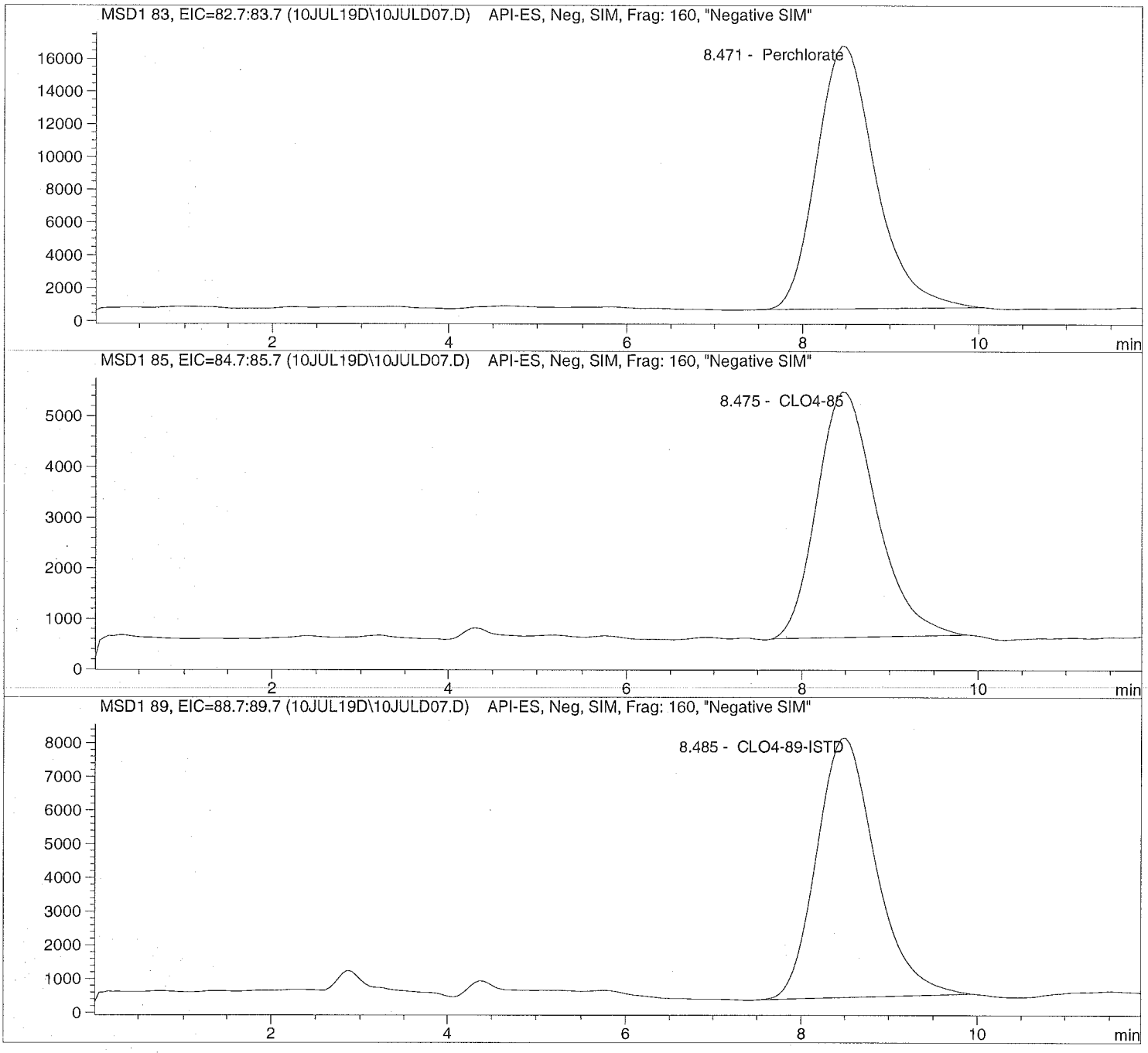
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD07.D Sample Name: 1918373003 10K

Injection Date:	7/10/2019 10:13:27	Seq Line:	7
Sample Name:	1918373003 10K	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD07.D Sample Name: 1918373003 10K

Injection Date:	7/10/2019 10:13:27	Seq Line:	7
Sample Name:	1918373003 10K	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.471	PBA	750172.8	66955.2143	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	230473.2	68000.4573	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.485	PBA	361021.3	50000.0000	CLO4-89-ISTD

*** End of Report ***

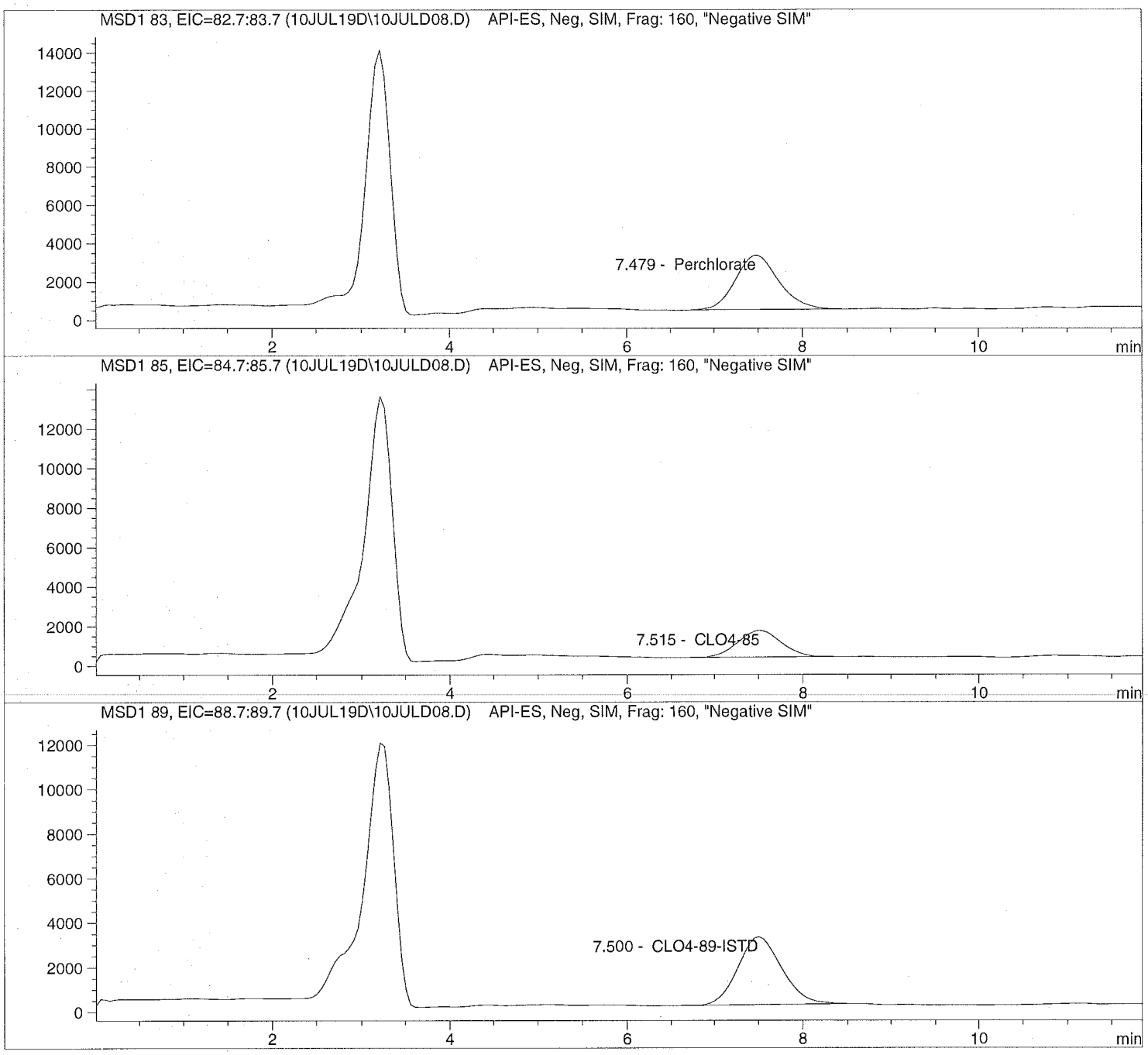
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD08.D Sample Name: 1918373004

Injection Date:	7/10/2019 10:27:21	Seq Line:	8
Sample Name:	1918373004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD08.D Sample Name: 1918373004

Injection Date:	7/10/2019 10:27:21	Seq Line:	8
Sample Name:	1918373004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.479	PBA	95969.8	3.0796	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.515	PBA	46048.0	4.7283	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.500	PBA	104173.2	5.0000	CLO4-89-ISTD

*** End of Report ***

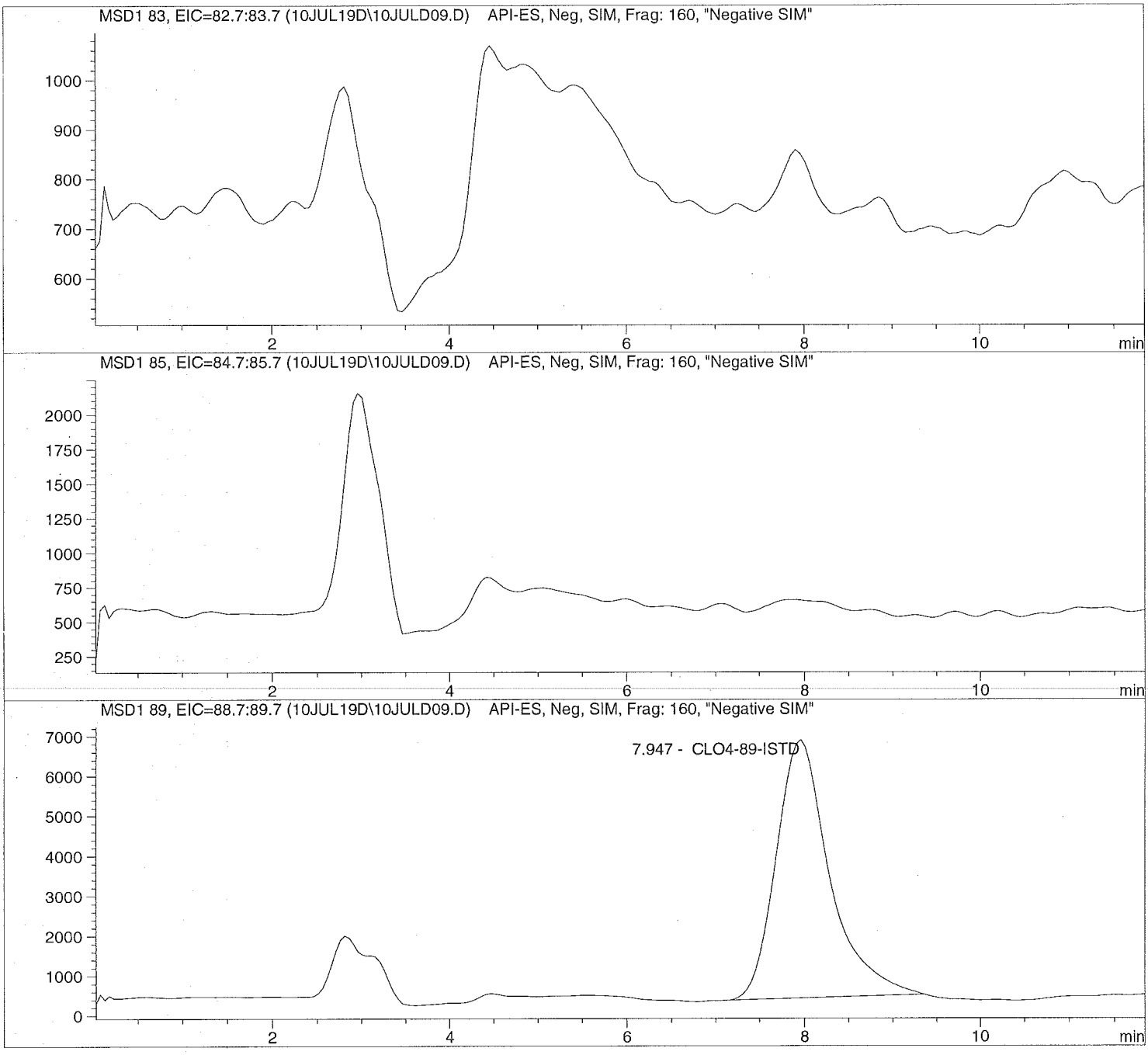
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD09.D Sample Name: 1918373005

Injection Date:	7/10/2019 10:41:15	Seq Line:	9
Sample Name:	1918373005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD09.D Sample Name: 1918373005

Injection Date:	7/10/2019 10:41:15	Seq Line:	9
Sample Name:	1918373005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.947	PBA	268458.6	5.0000	CLO4-89-ISTD

*** End of Report ***

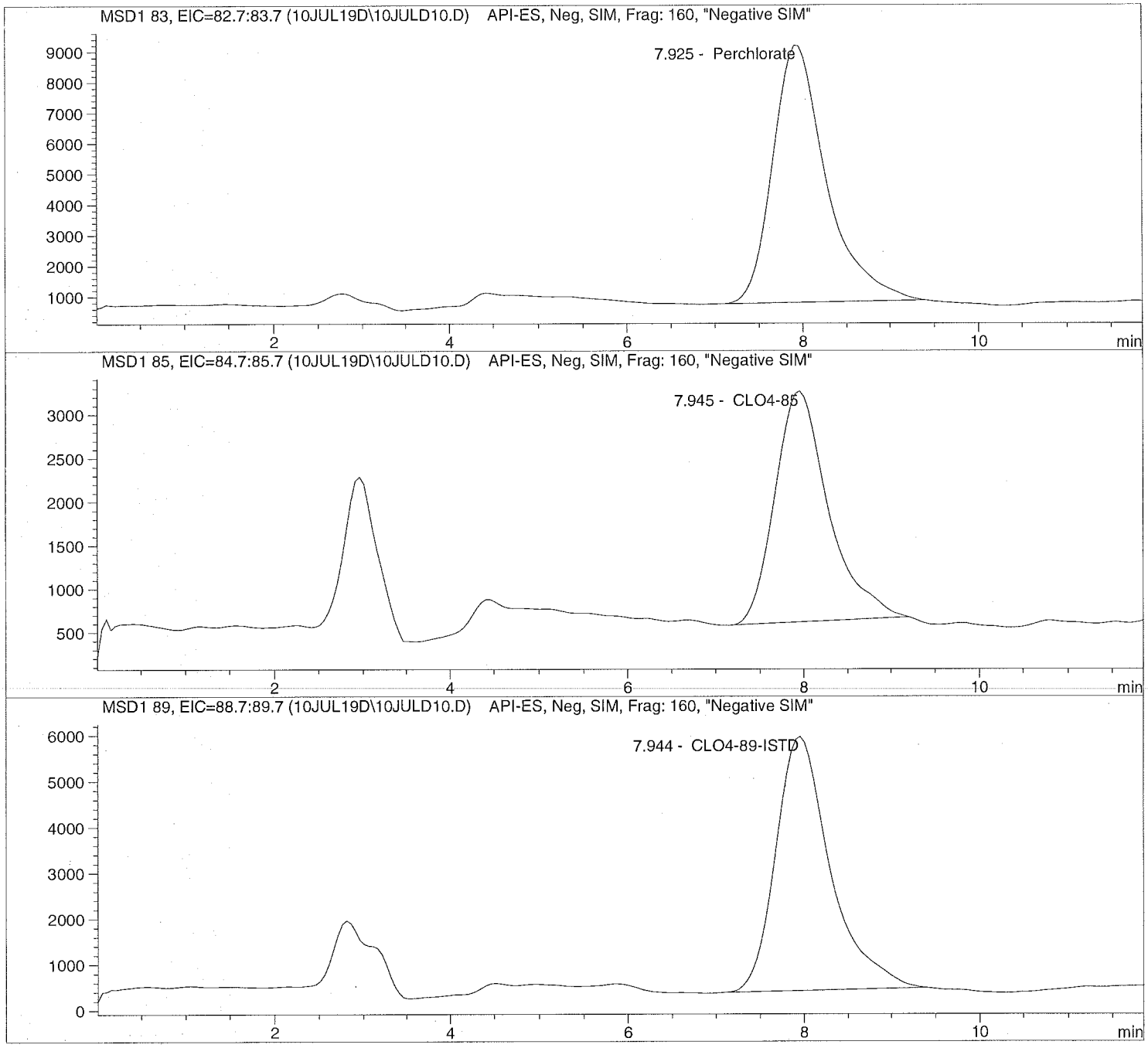
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD10.D Sample Name: 662919 183735S

Injection Date:	7/10/2019 10:55:10	Seq Line:	10
Sample Name:	662919 183735S	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD10.D Sample Name: 662919 183735S

Injection Date:	7/10/2019 10:55:10	Seq Line:	10
Sample Name:	662919 183735S	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.925	PBA	355093.0	4.8652	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.945	PBA	112035.2	5.0261	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.944	PBA	238297.3	5.0000	CLO4-89-ISTD

*** End of Report ***

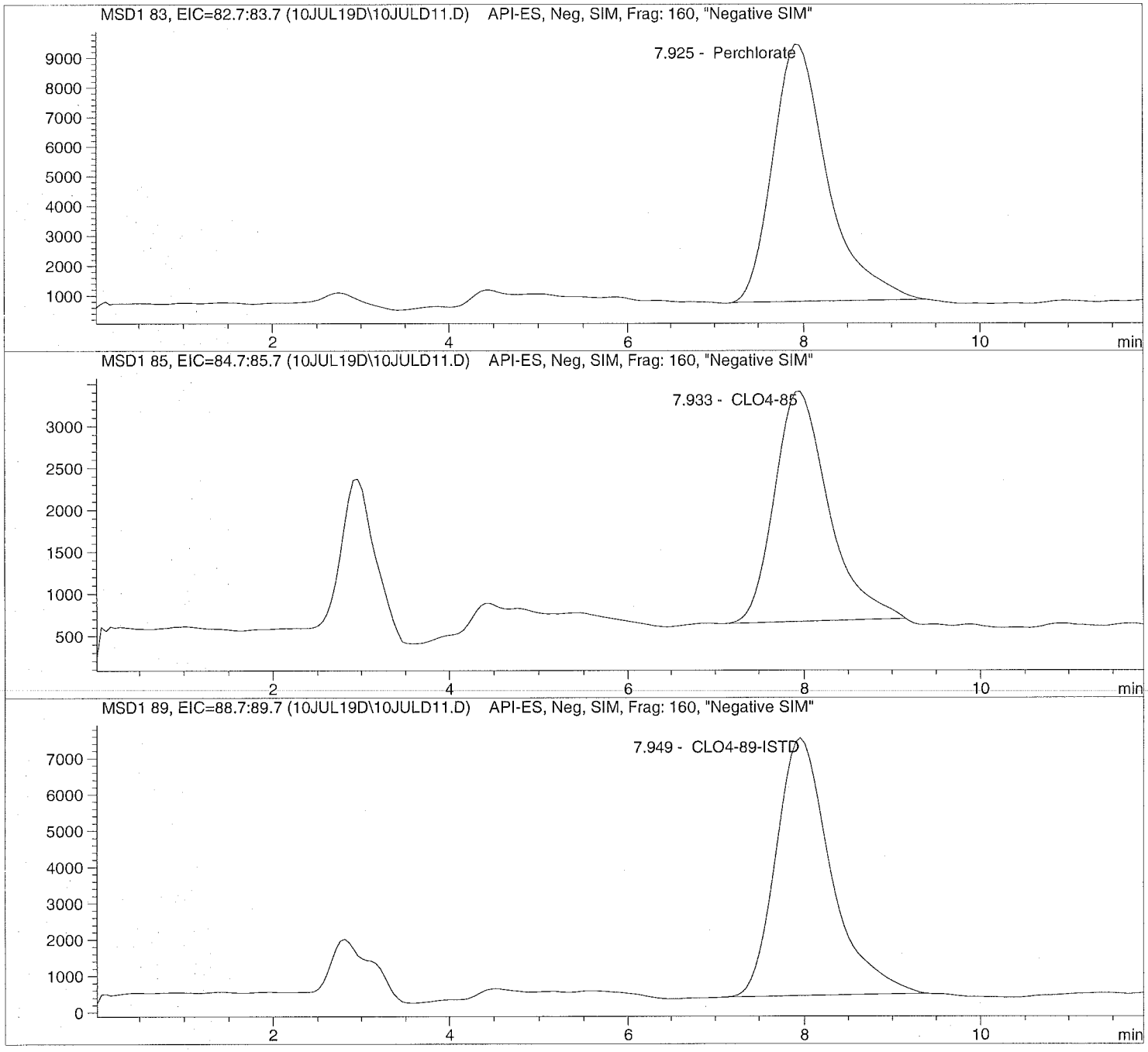
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RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD11.D Sample Name: 662920 183735D

Injection Date:	7/10/2019 11:09:12	Seq Line:	11
Sample Name:	662920 183735D	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD11.D Sample Name: 662920 183735D

Injection Date:	7/10/2019 11:09:12	Seq Line:	11
Sample Name:	662920 183735D	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.925	PBA	366789.0	4.0106	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.933	BBA	115346.9	4.0997	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.949	PBA	301317.7	5.0000	CLO4-89-ISTD

*** End of Report ***

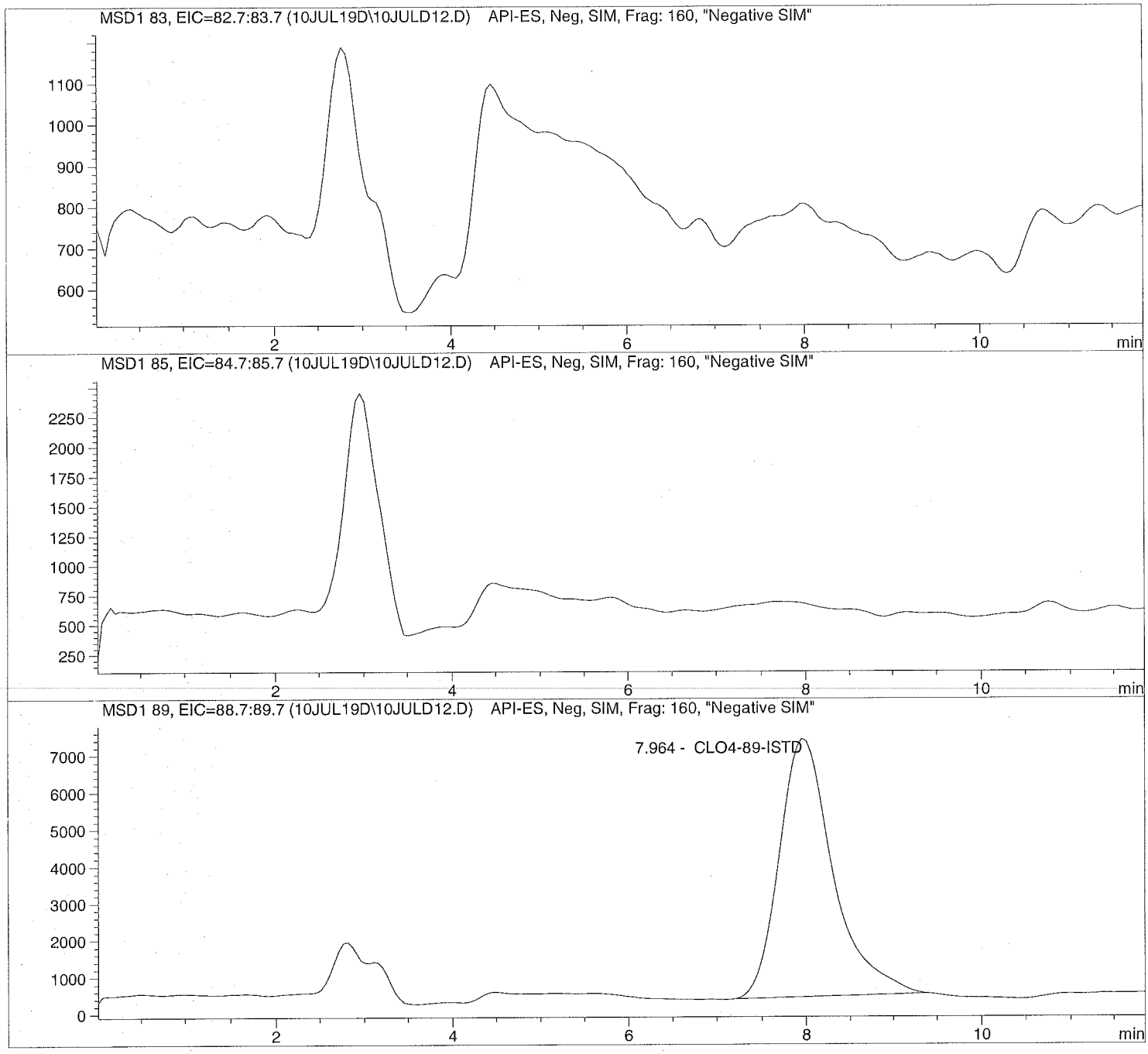
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD12.D Sample Name: 1918373006

Injection Date:	7/10/2019 11:23:04	Seq Line:	12
Sample Name:	1918373006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD12.D Sample Name: 1918373006

Injection Date:	7/10/2019 11:23:04	Seq Line:	12
Sample Name:	1918373006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.964	PBA	295412.9	5.0000	CLO4-89-ISTD

*** End of Report ***

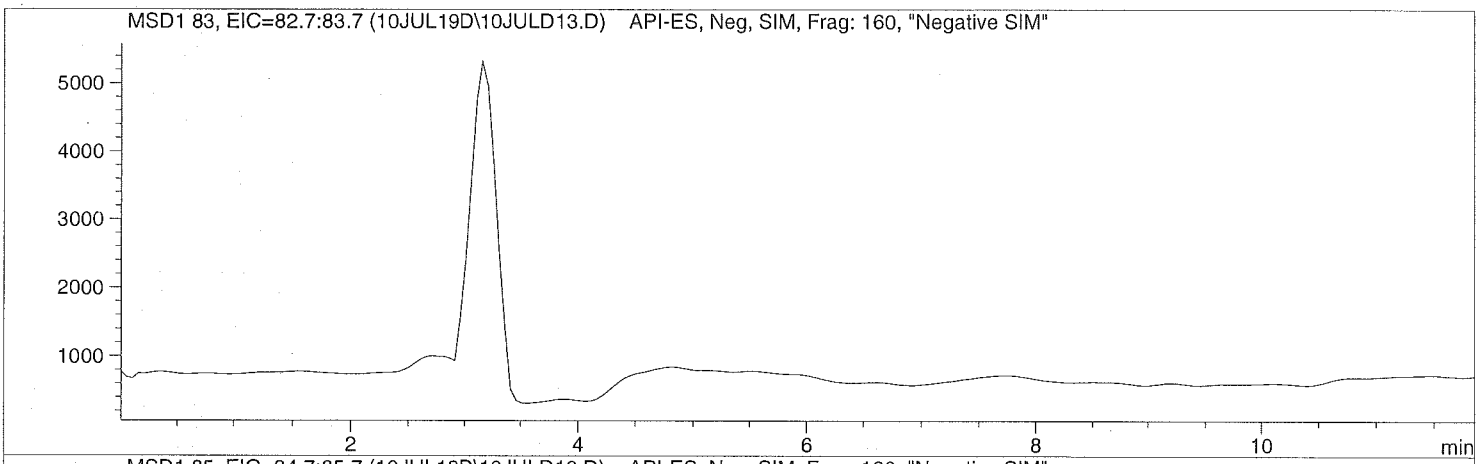
RIGHT SOLUTIONS | RIGHT PARTNER

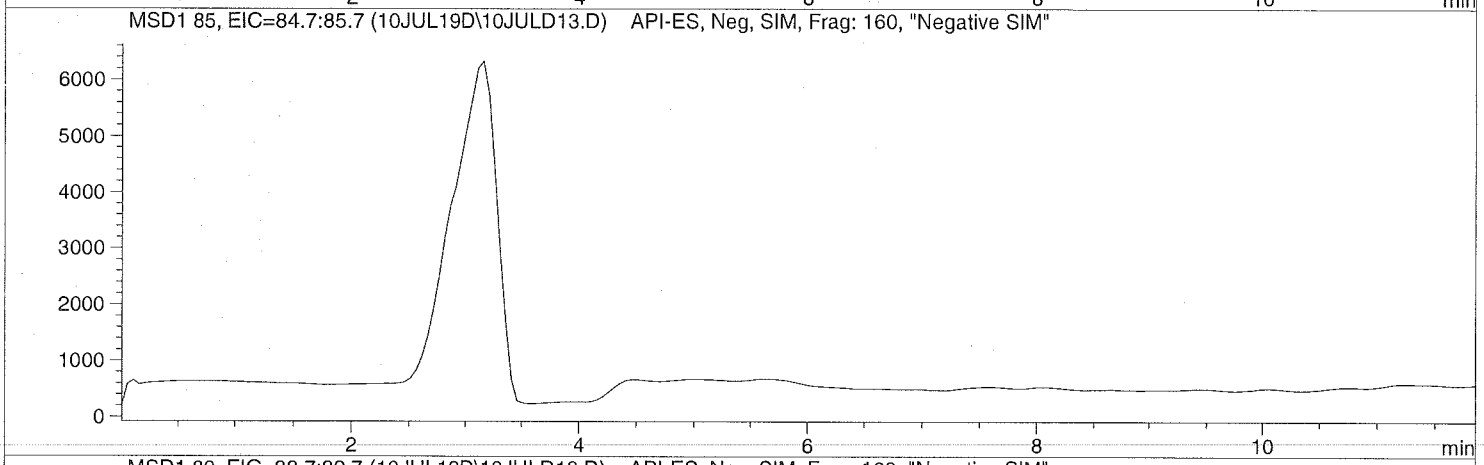
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

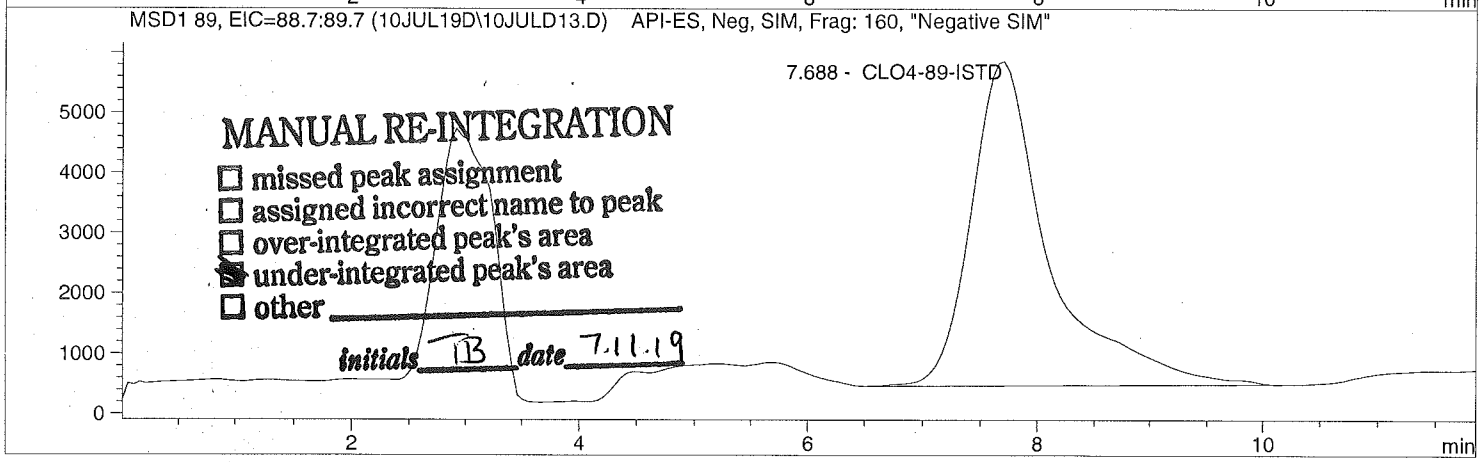
Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.688	MM	256579.0	5.0000	CLO4-89-ISTD

*** End of Report ***

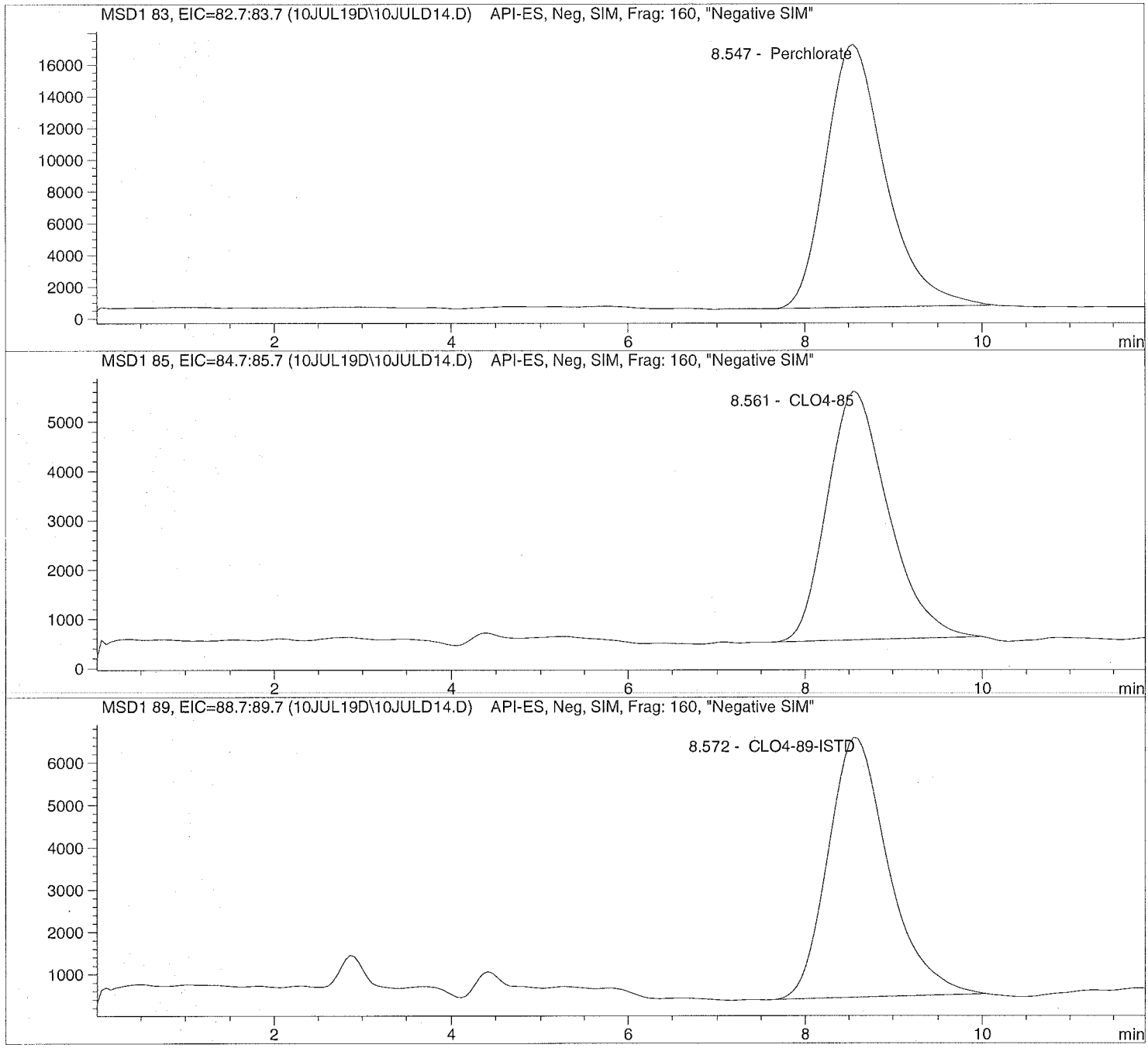
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD14.D Sample Name: 1918373008 10K

Injection Date:	7/10/2019 11:50:45	Seq Line:	14
Sample Name:	1918373008 10K	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD14.D Sample Name: 1918373008 10K

Injection Date:	7/10/2019 11:50:45	Seq Line:	14
Sample Name:	1918373008 10K	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.547	PBA	780844.1	85012.5764	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.561	PBA	243152.5	87944.5239	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.572	PBA	293278.4	50000.0000	CLO4-89-ISTD

*** End of Report ***

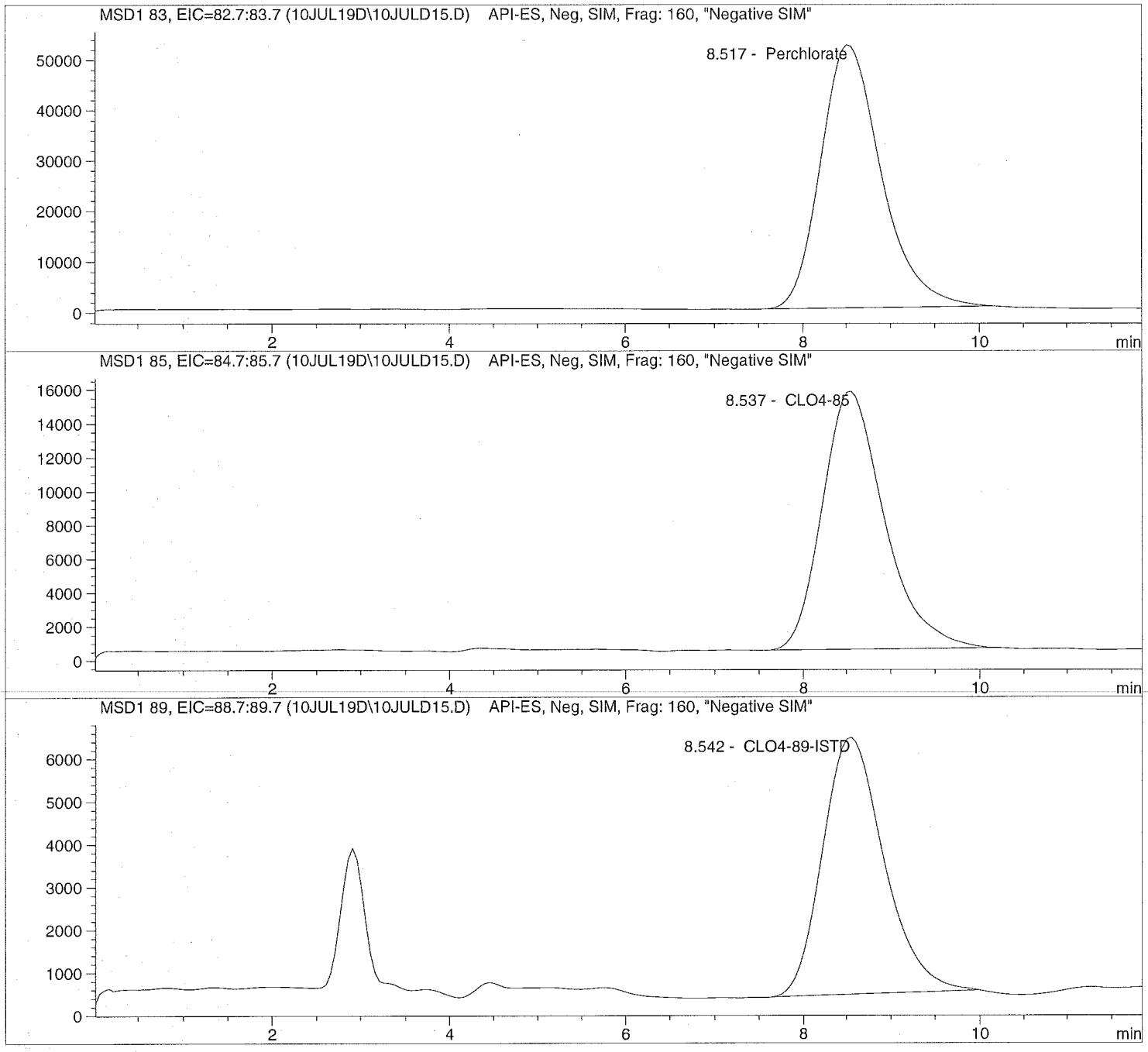
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD15.D Sample Name: 1918373009 10

Injection Date:	7/10/2019 12:04:37	Seq Line:	15
Sample Name:	1918373009 10	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD15.D Sample Name: 1918373009 10

Injection Date:	7/10/2019 12:04:37	Seq Line:	15
Sample Name:	1918373009 10	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.517	PBA	2500331.5	259.3213	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.537	PBA	749555.3	261.8322	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.542	PBA	292692.1	50.0000	CLO4-89-ISTD

*** End of Report ***

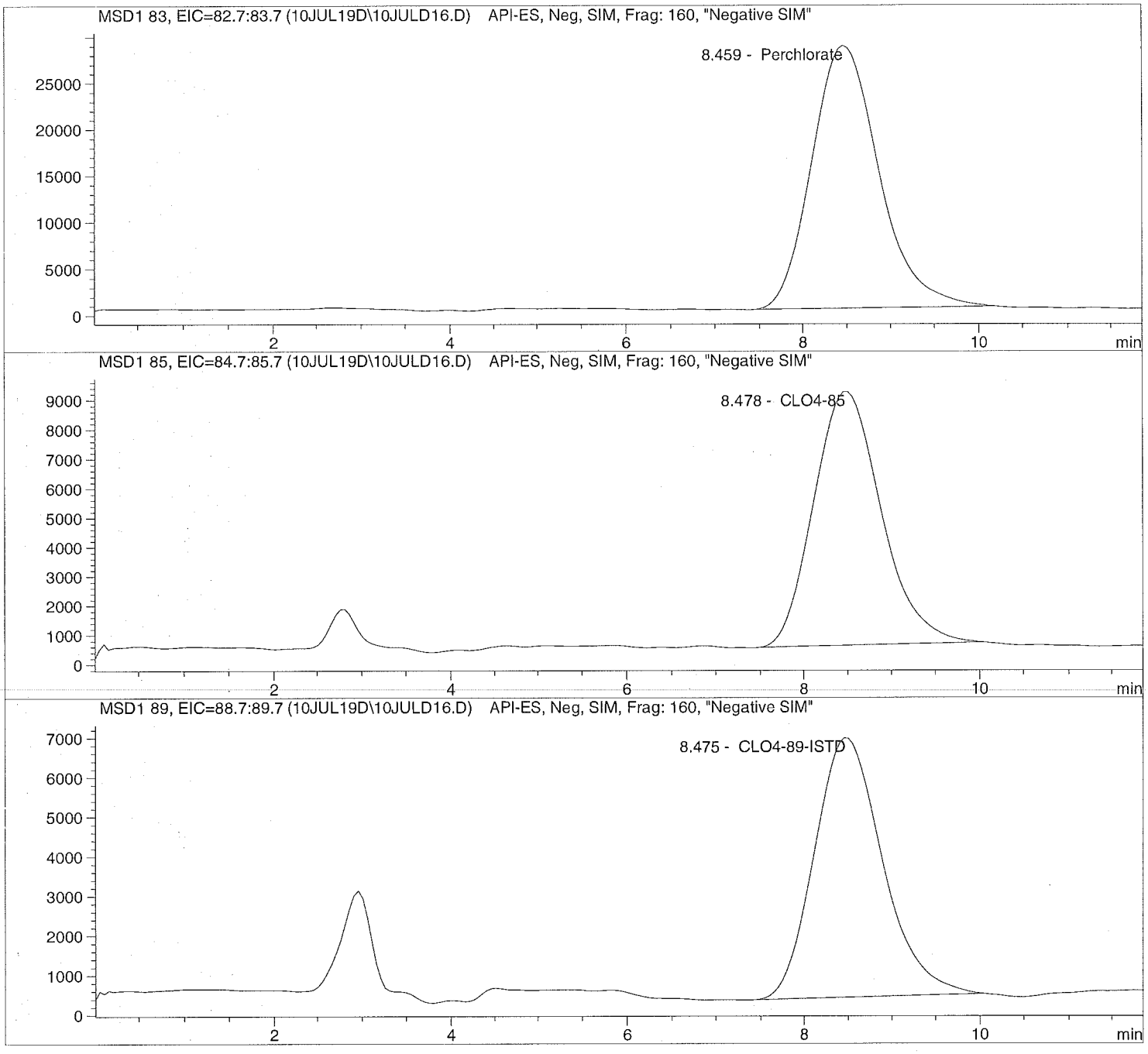
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD16.D Sample Name: 1918525001 100

Injection Date:	7/10/2019 12:18:38	Seq Line:	16
Sample Name:	1918525001 100	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD16.D Sample Name: 1918525001 100

Injection Date:	7/10/2019 12:18:38	Seq Line:	16
Sample Name:	1918525001 100	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.459	PBA	1501595.1	1335.1619	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.478	PBA	461811.6	1373.7604	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	352862.3	500.0000	CLO4-89-ISTD

*** End of Report ***

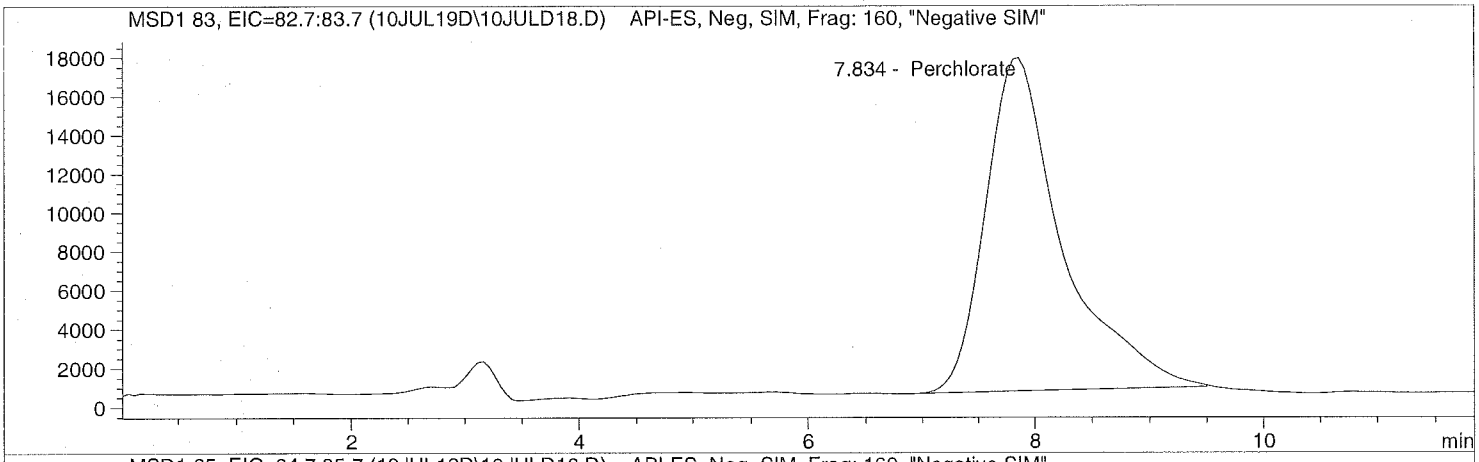
RIGHT SOLUTIONS | RIGHT PARTNER

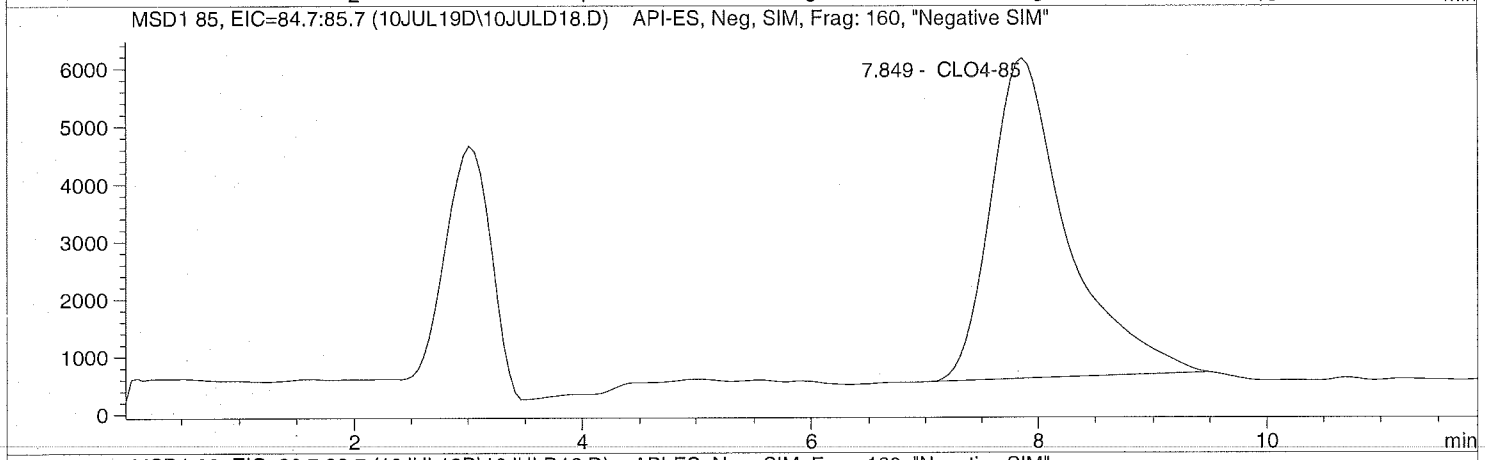
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD18.D Sample Name: 1918525002 10

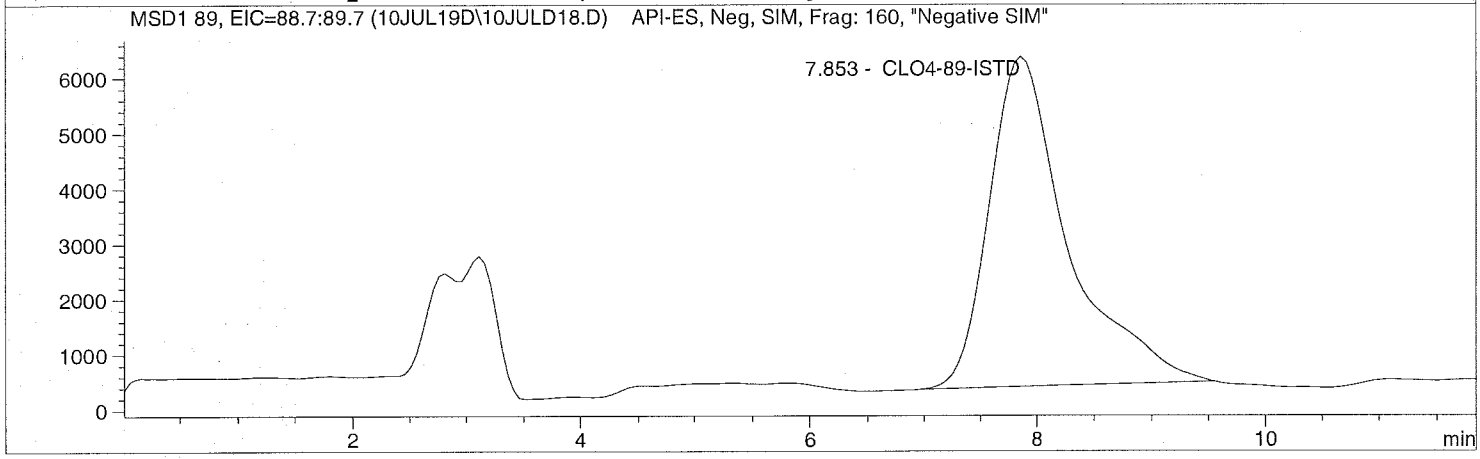
Injection Date:	7/10/2019 12:46:22	Seq Line:	18
Sample Name:	1918525002 10	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD18.D Sample Name: 1918525002 10

Injection Date:	7/10/2019 12:46:22	Seq Line:	18
Sample Name:	1918525002 10	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.834	PBA	801472.4	89.4028	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.849	PBA	259266.4	96.0941	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.853	PBA	285700.9	50.0000	CLO4-89-ISTD

*** End of Report ***

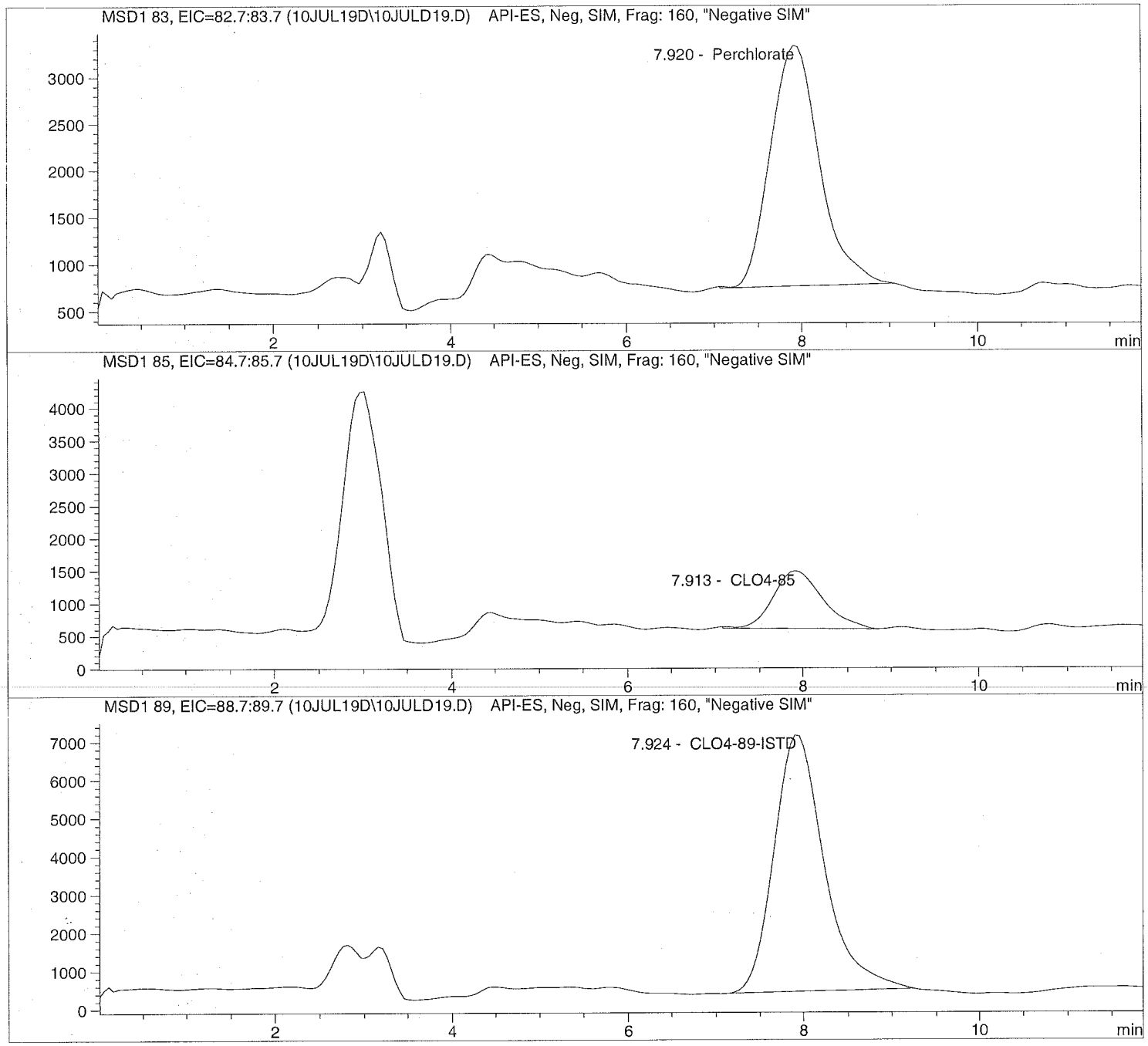
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD19.D Sample Name: 1918525003

Injection Date:	7/10/2019 13:00:15	Seq Line:	19
Sample Name:	1918525003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD19.D Sample Name: 1918525003

Injection Date:	7/10/2019 13:00:15	Seq Line:	19
Sample Name:	1918525003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.920	BBA	99719.0	1.3533	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.913	BBA	34459.2	1.3947	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.924	PBA	265508.1	5.0000	CLO4-89-ISTD

*** End of Report ***

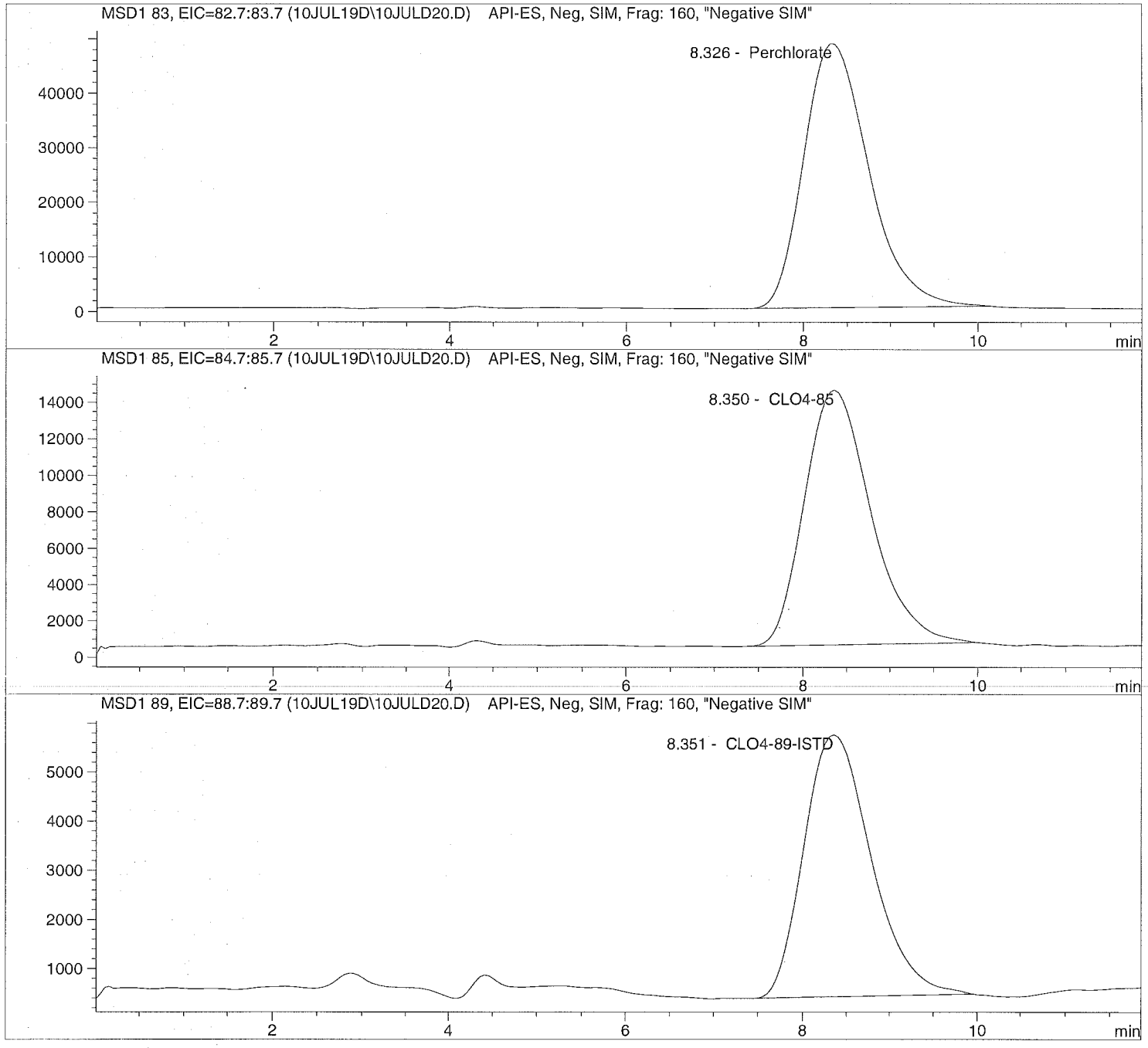
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD20.D Sample Name: 662921 CCV@25

Injection Date:	7/10/2019 13:15:33	Seq Line:	20
Sample Name:	662921 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD20.D Sample Name: 662921 CCV@25

Injection Date:	7/10/2019 13:15:33	Seq Line:	20
Sample Name:	662921 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.326	PBA	2504544.8	26.4781	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	PBA	743673.1	26.4969	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.351	PBA	286769.0	5.0000	CLO4-89-ISTD

*** End of Report ***

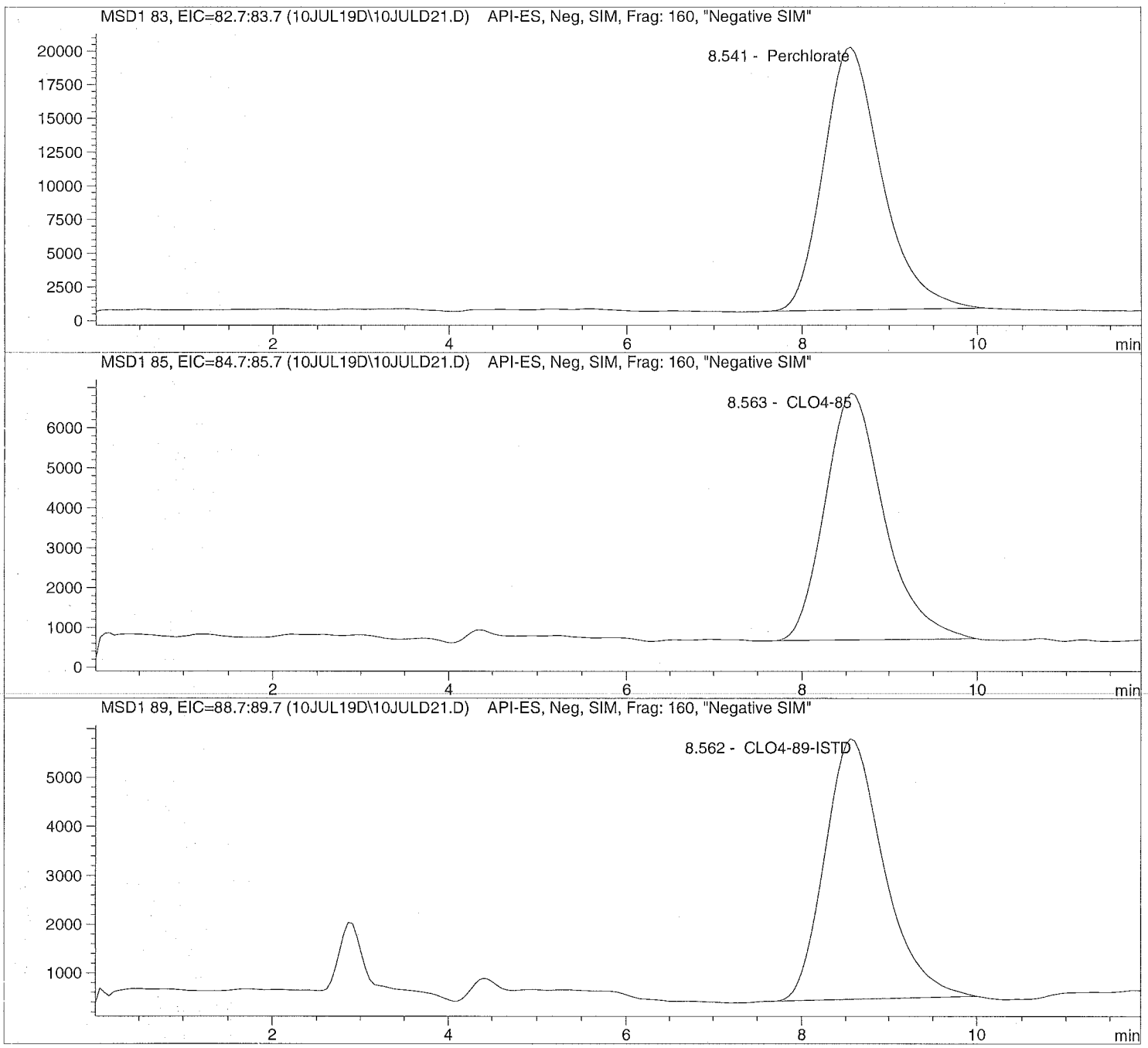
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD21.D Sample Name: 1918525004 1K

Injection Date:	7/10/2019 13:39:18	Seq Line:	21
Sample Name:	1918525004 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD21.D Sample Name: 1918525004 1K

Injection Date:	7/10/2019 13:39:18	Seq Line:	21
Sample Name:	1918525004 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.541	PBA	911870.8	11409.0284	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.563	PBA	292673.1	12213.3165	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.562	PBA	252353.5	5000.0000	CLO4-89-ISTD

*** End of Report ***

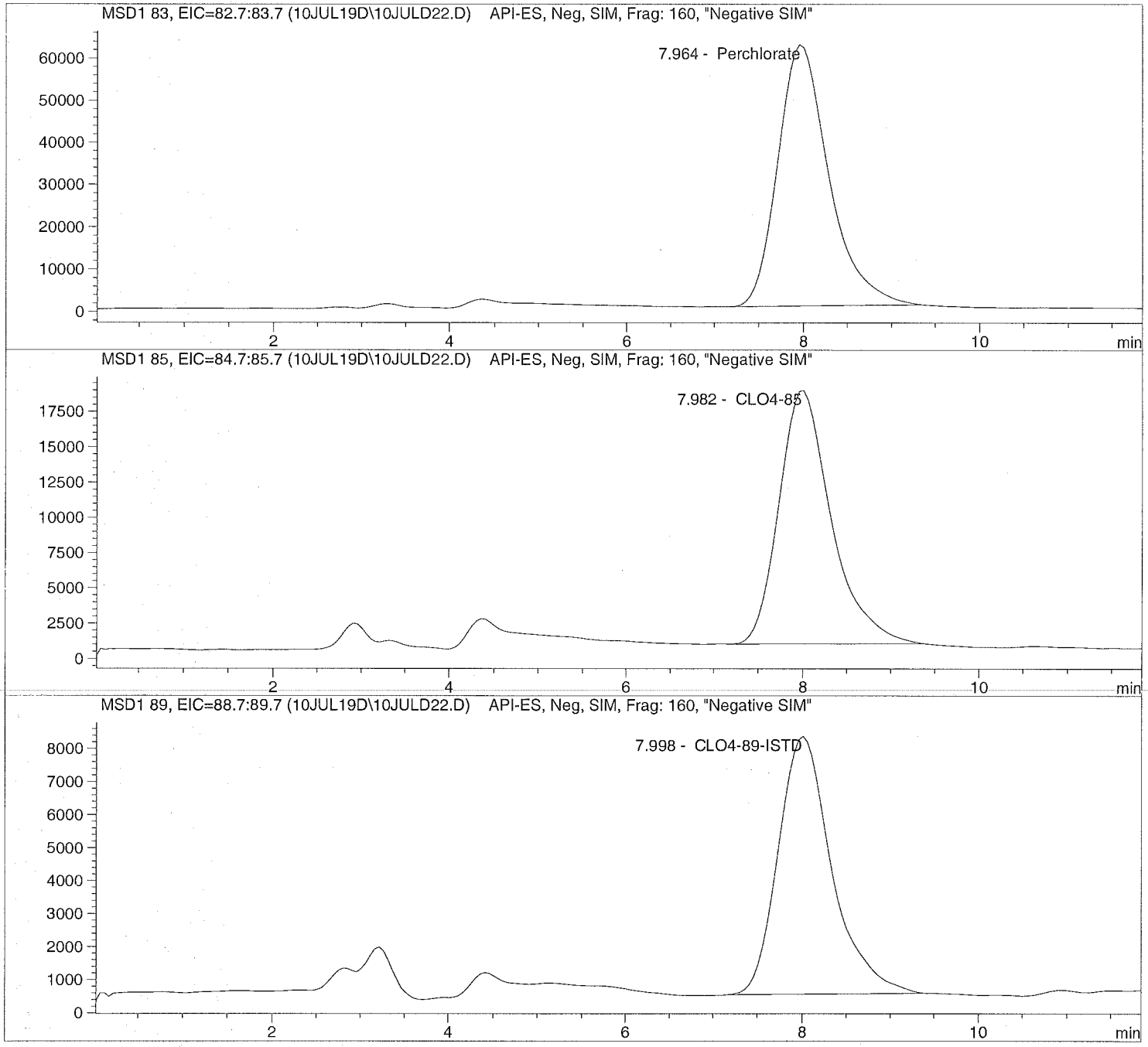
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD22.D Sample Name: 1918682001

Injection Date:	7/10/2019 13:53:14	Seq Line:	22
Sample Name:	1918682001	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD22.D Sample Name: 1918682001

Injection Date:	7/10/2019 13:53:14	Seq Line:	22
Sample Name:	1918682001	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.964	PBA	2472569.8	22.9756	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.982	PBA	738653.3	23.1021	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.998	PBA	329023.1	5.0000	CLO4-89-ISTD

*** End of Report ***

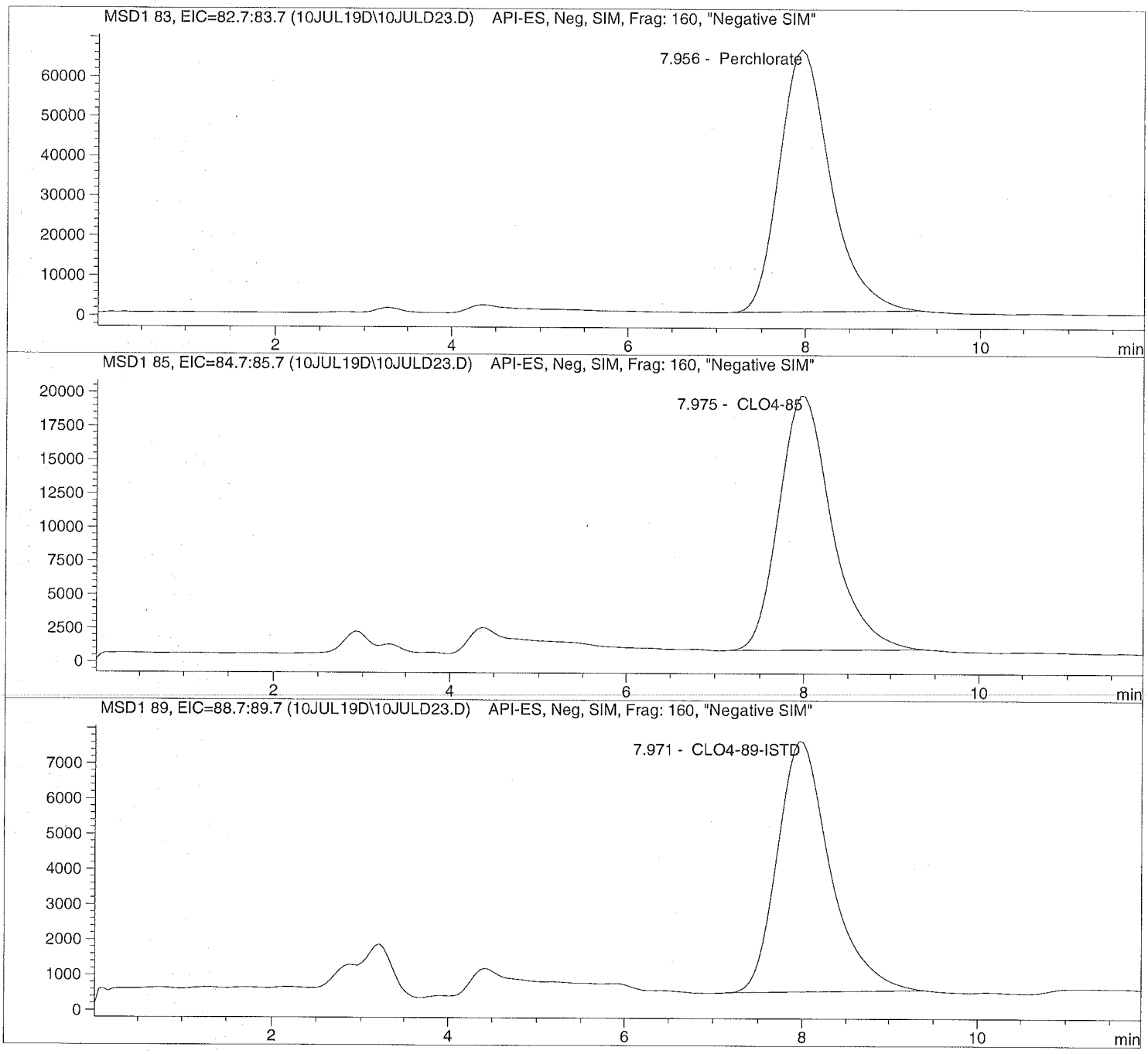
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD23.D Sample Name: 1918682002

Injection Date:	7/10/2019 14:07:09	Seq Line:	23
Sample Name:	1918682002	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD23.D Sample Name: 1918682002

Injection Date:	7/10/2019 14:07:09	Seq Line:	23
Sample Name:	1918682002	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.956	PBA	2649661.3	27.0999	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.975	PBA	784495.3	27.0493	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.971	PBA	295991.2	5.0000	CLO4-89-ISTD

*** End of Report ***

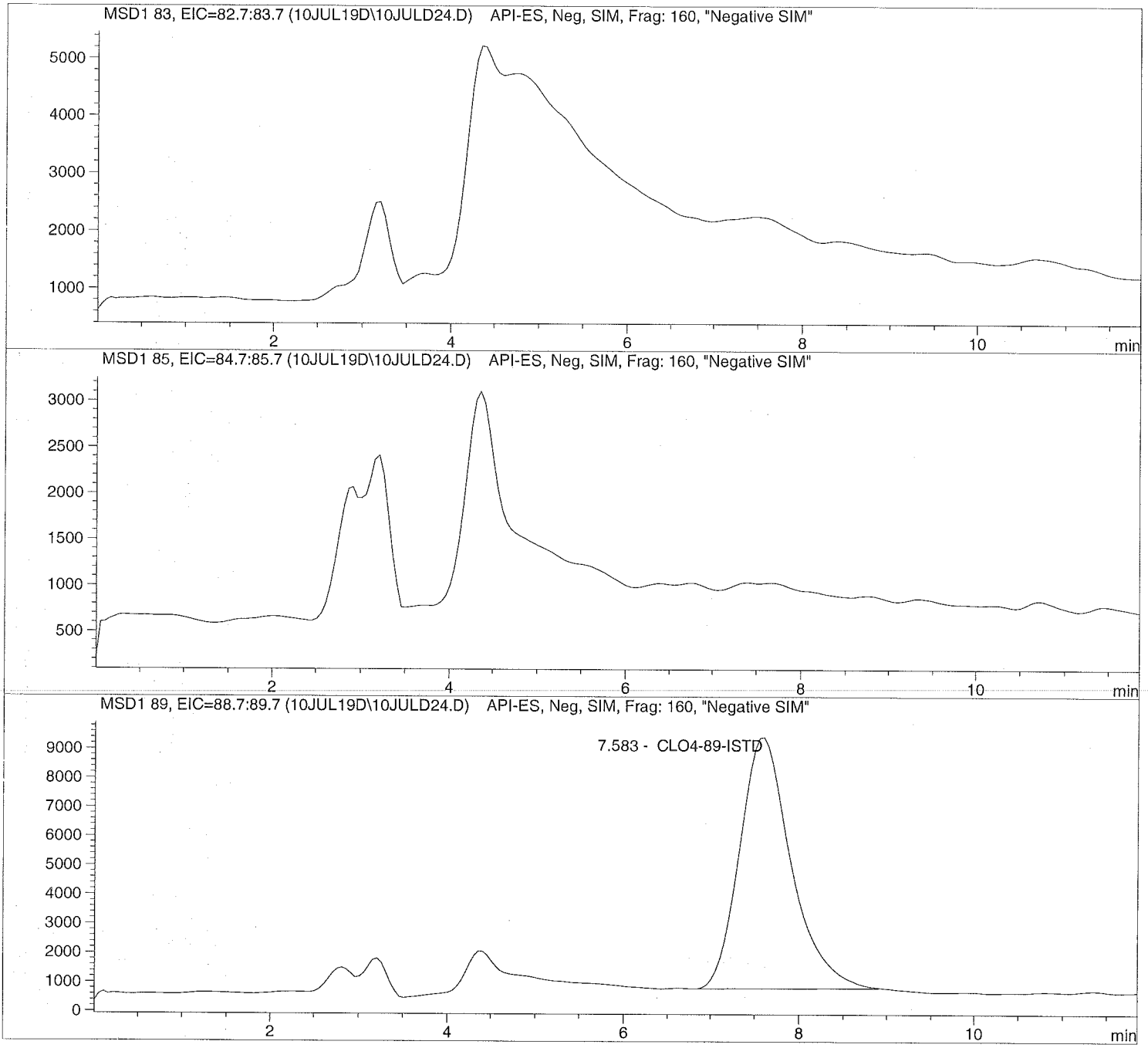
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD24.D Sample Name: 1918682003

Injection Date:	7/10/2019 14:20:59	Seq Line:	24
Sample Name:	1918682003	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD24.D Sample Name: 1918682003

Injection Date:	7/10/2019 14:20:59	Seq Line:	24
Sample Name:	1918682003	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.583	PBA	347868.7	5.0000	CLO4-89-ISTD

*** End of Report ***

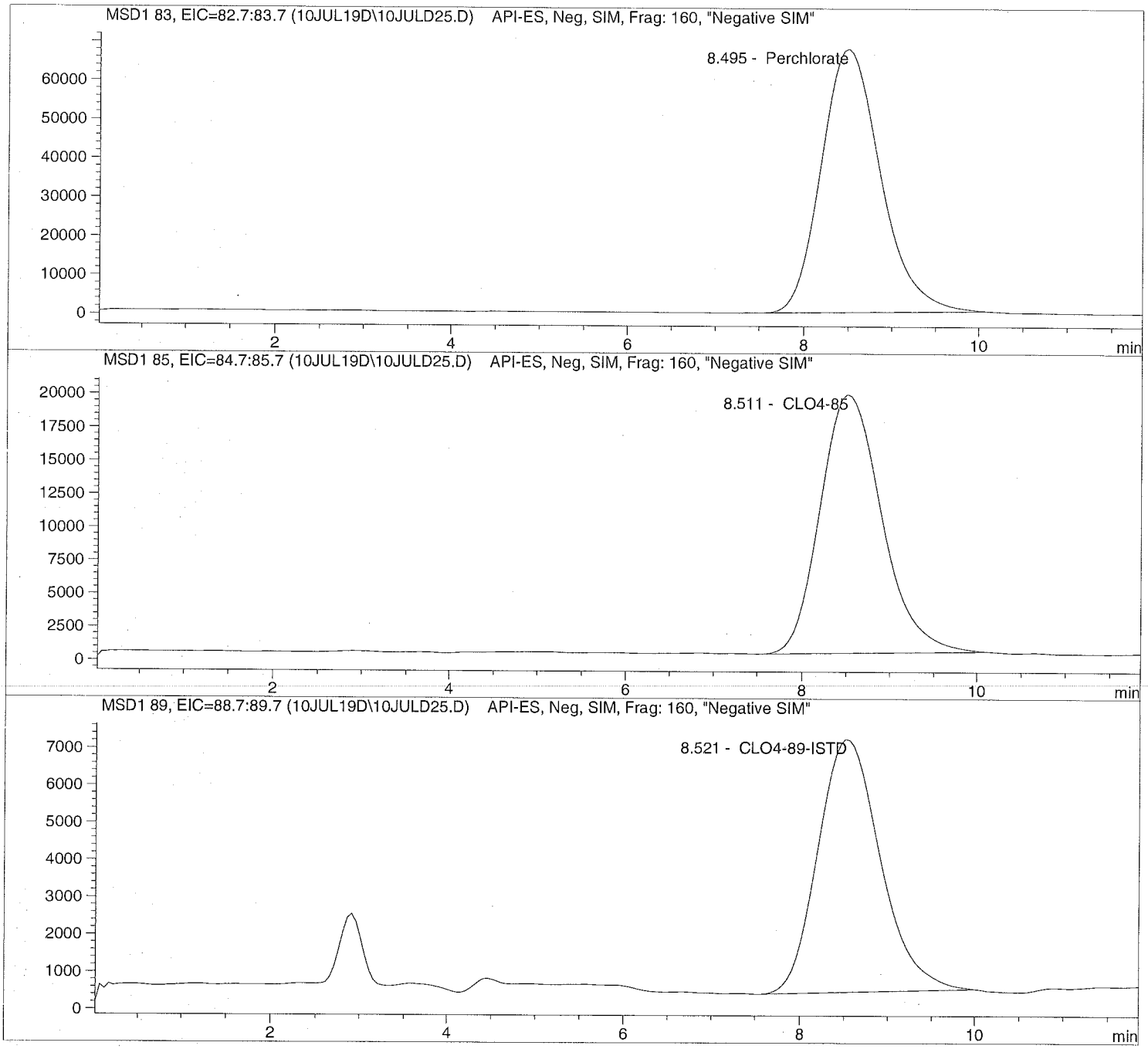
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD25.D Sample Name: 1918682004 100

Injection Date:	7/10/2019 14:34:49	Seq Line:	25
Sample Name:	1918682004 100	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD25.D Sample Name: 1918682004 100

Injection Date:	7/10/2019 14:34:49	Seq Line:	25
Sample Name:	1918682004 100	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.495	PBA	3177637.5	2867.6913	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.511	PBA	949731.6	2888.9947	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.521	PBA	334219.0	500.0000	CLO4-89-ISTD

*** End of Report ***

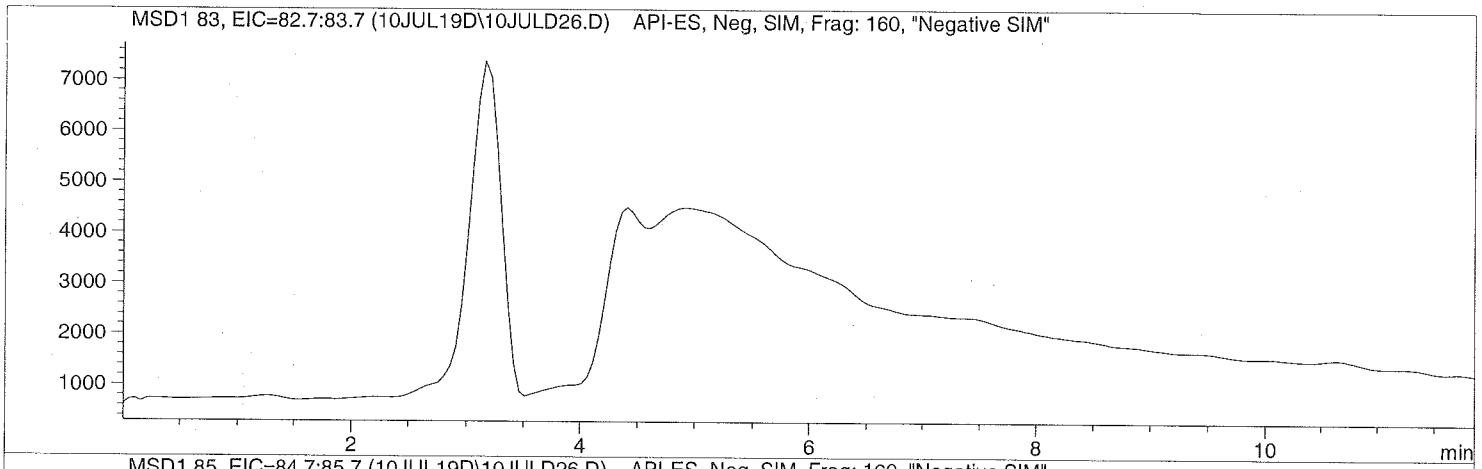
RIGHT SOLUTIONS | RIGHT PARTNER

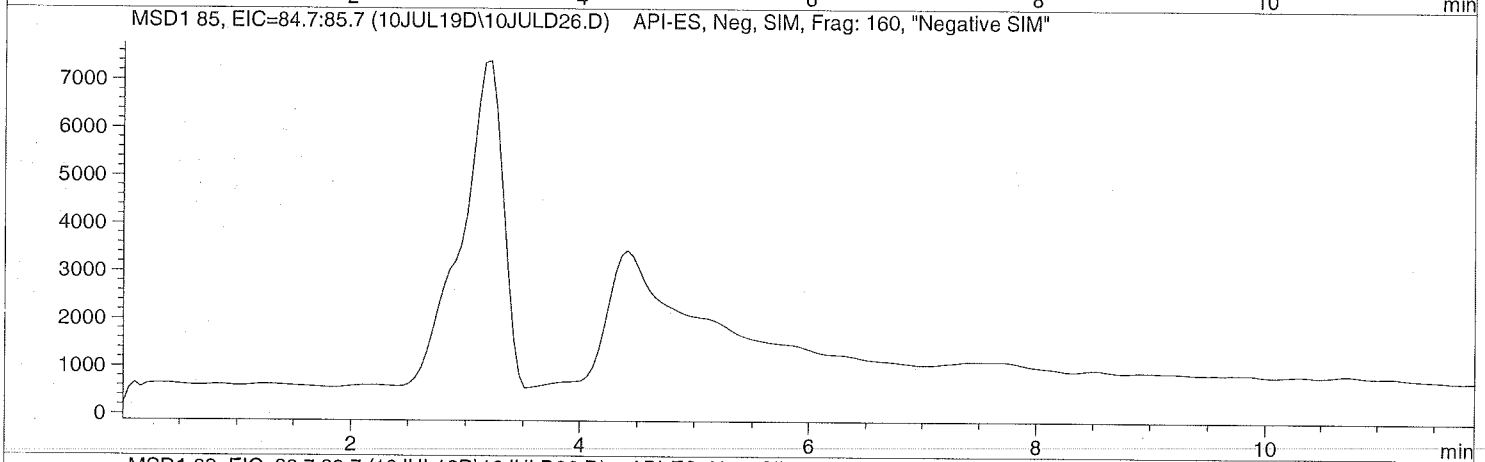
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD26.D Sample Name: 1918682005

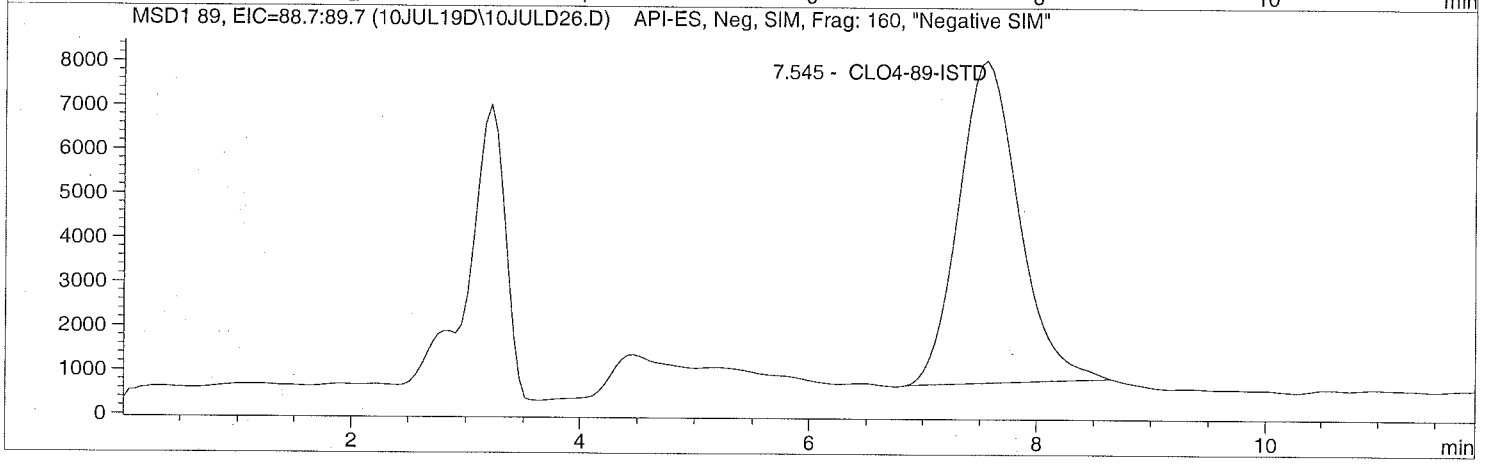
Injection Date:	7/10/2019 14:48:53	Seq Line:	26
Sample Name:	1918682005	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD26.D Sample Name: 1918682005

Injection Date:	7/10/2019 14:48:53	Seq Line:	26
Sample Name:	1918682005	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.545	PBA	268838.9	5.0000	CLO4-89-ISTD

*** End of Report ***

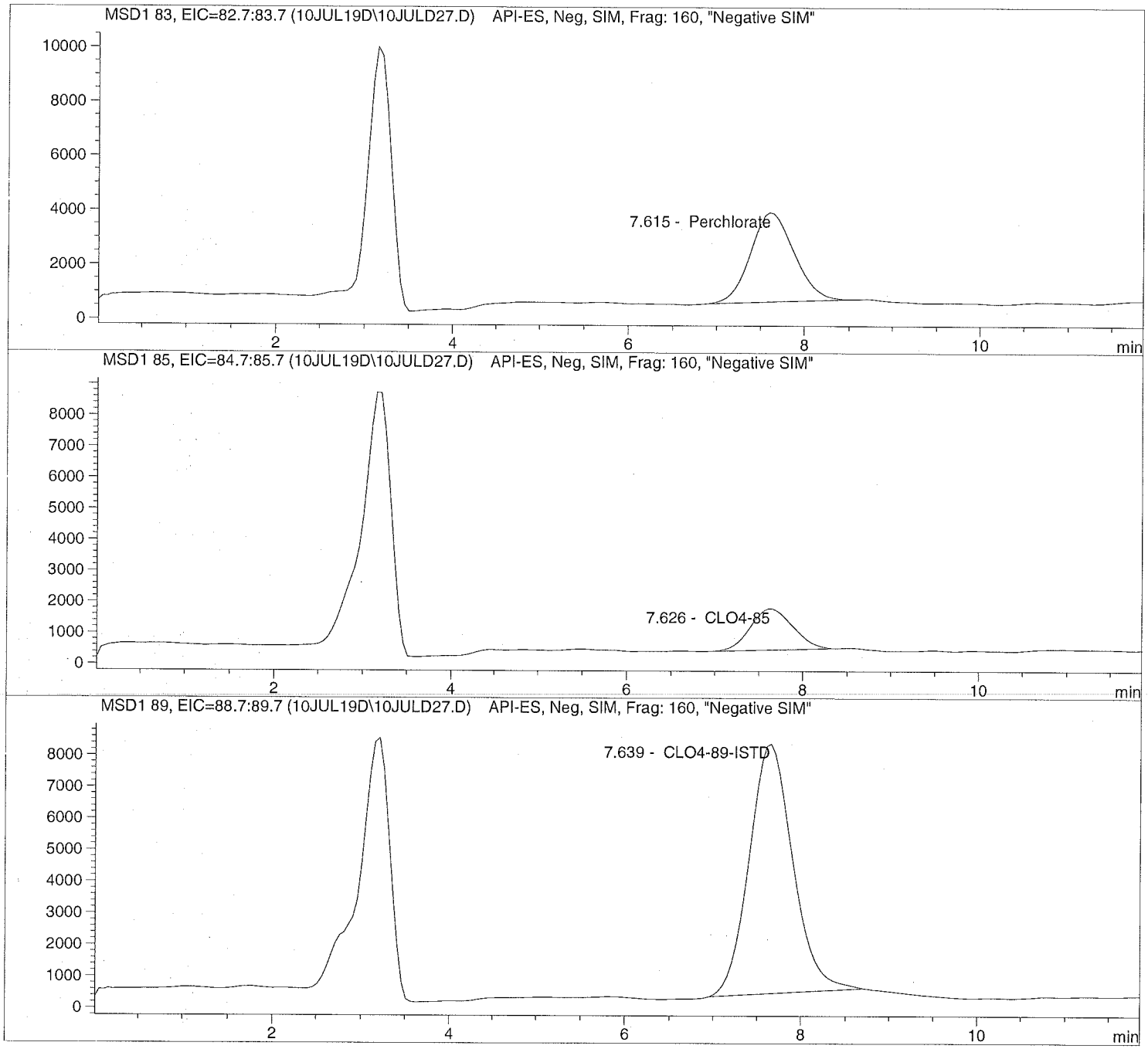
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD27.D Sample Name: 1918373004 4X

Injection Date:	7/10/2019 15:02:46	Seq Line:	27
Sample Name:	1918373004 4X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD27.D Sample Name: 1918373004 4X

Injection Date:	7/10/2019 15:02:46	Seq Line:	27
Sample Name:	1918373004 4X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	4.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.615	PBA	113897.9	5.9203	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.626	PBA	45010.5	7.0582	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.639	PBA	274117.7	20.0000	CLO4-89-ISTD

*** End of Report ***

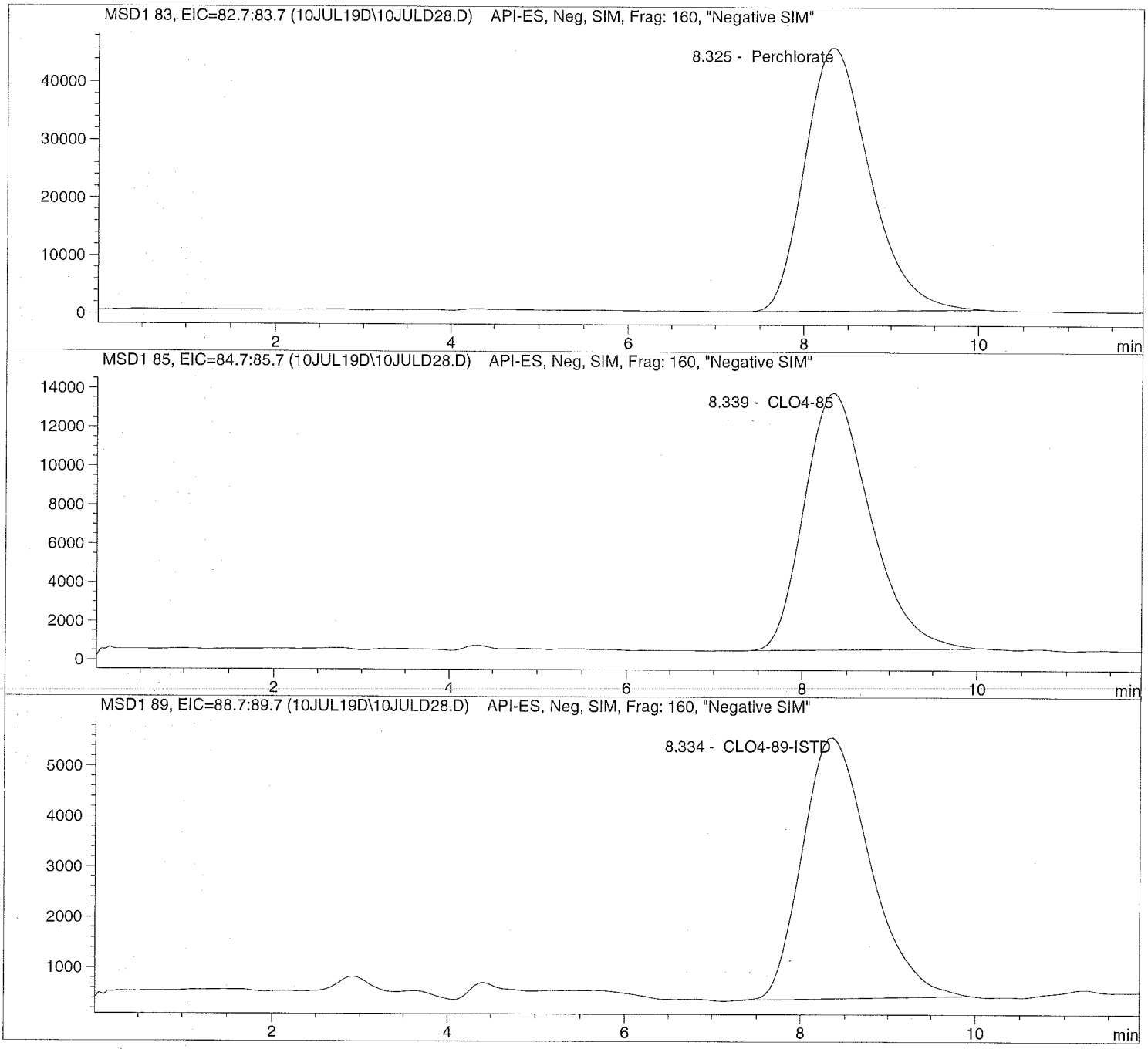
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD28.D Sample Name: 662922 CCV@25

Injection Date:	7/10/2019 15:16:39	Seq Line:	28
Sample Name:	662922 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD28.D Sample Name: 662922 CCV@25

Injection Date:	7/10/2019 15:16:39	Seq Line:	28
Sample Name:	662922 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.325	PBA	2335796.8	25.5805	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.339	PBA	693327.1	25.5842	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.334	PBA	277421.9	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

RIGHT SOLUTIONS | RIGHT PARTNER

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

RIGHT SOLUTIONS | RIGHT PARTNER

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

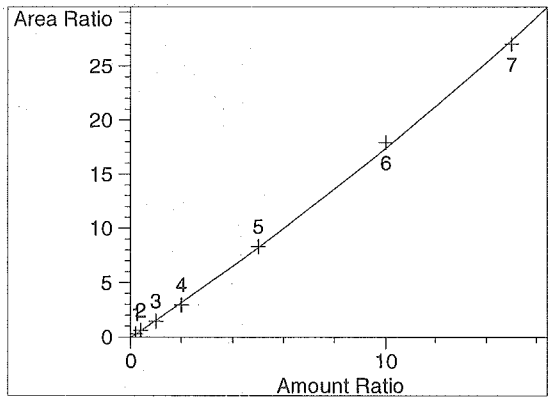
Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

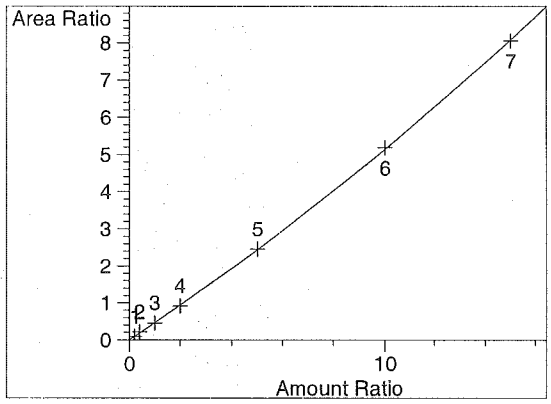
No Entries in table

RIGHT SOLUTIONS | RIGHT PARTNER

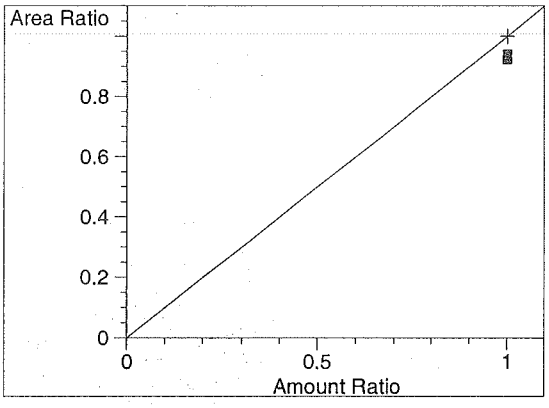
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

RIGHT SOLUTIONS | RIGHT PARTNER

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

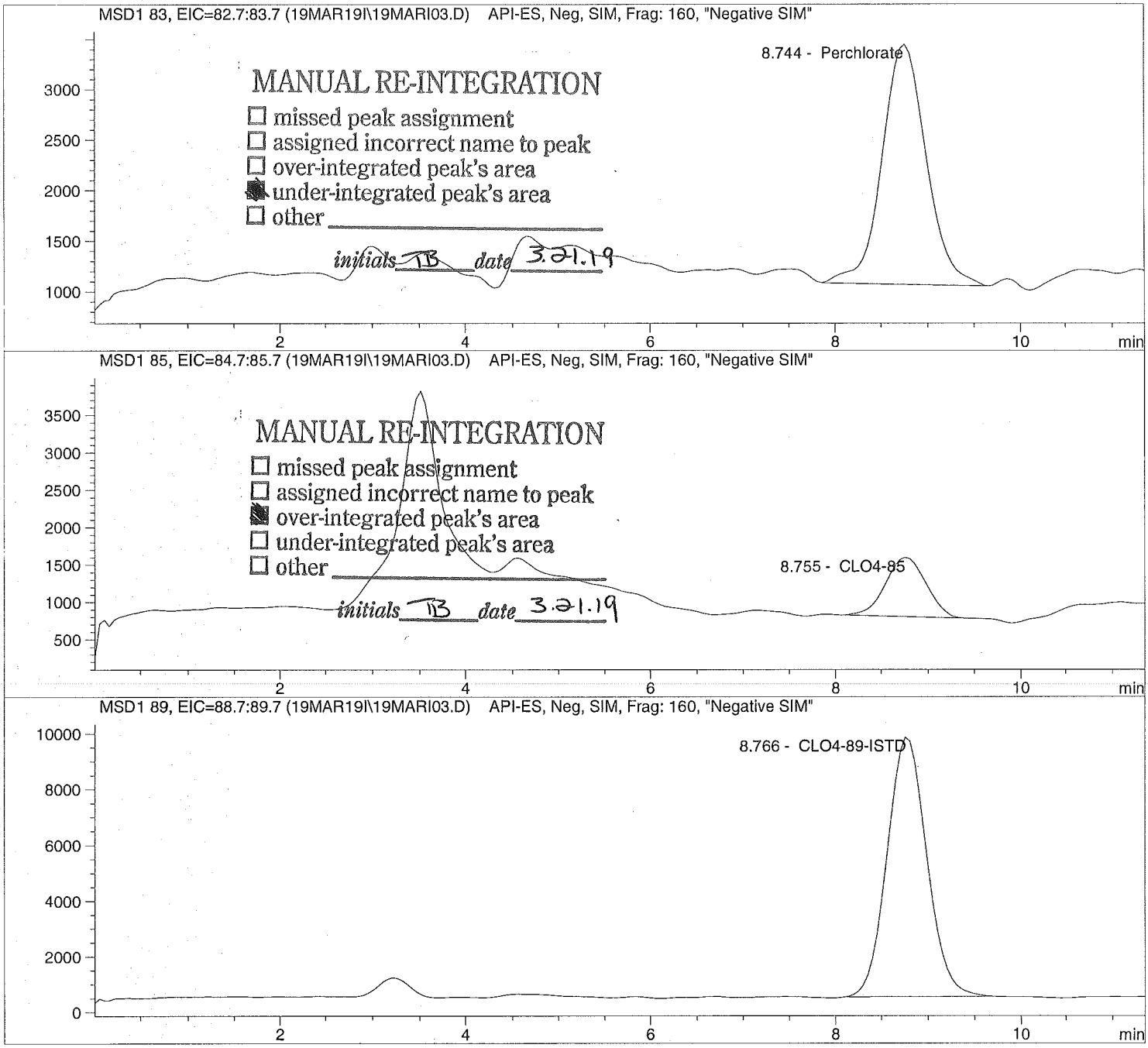
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

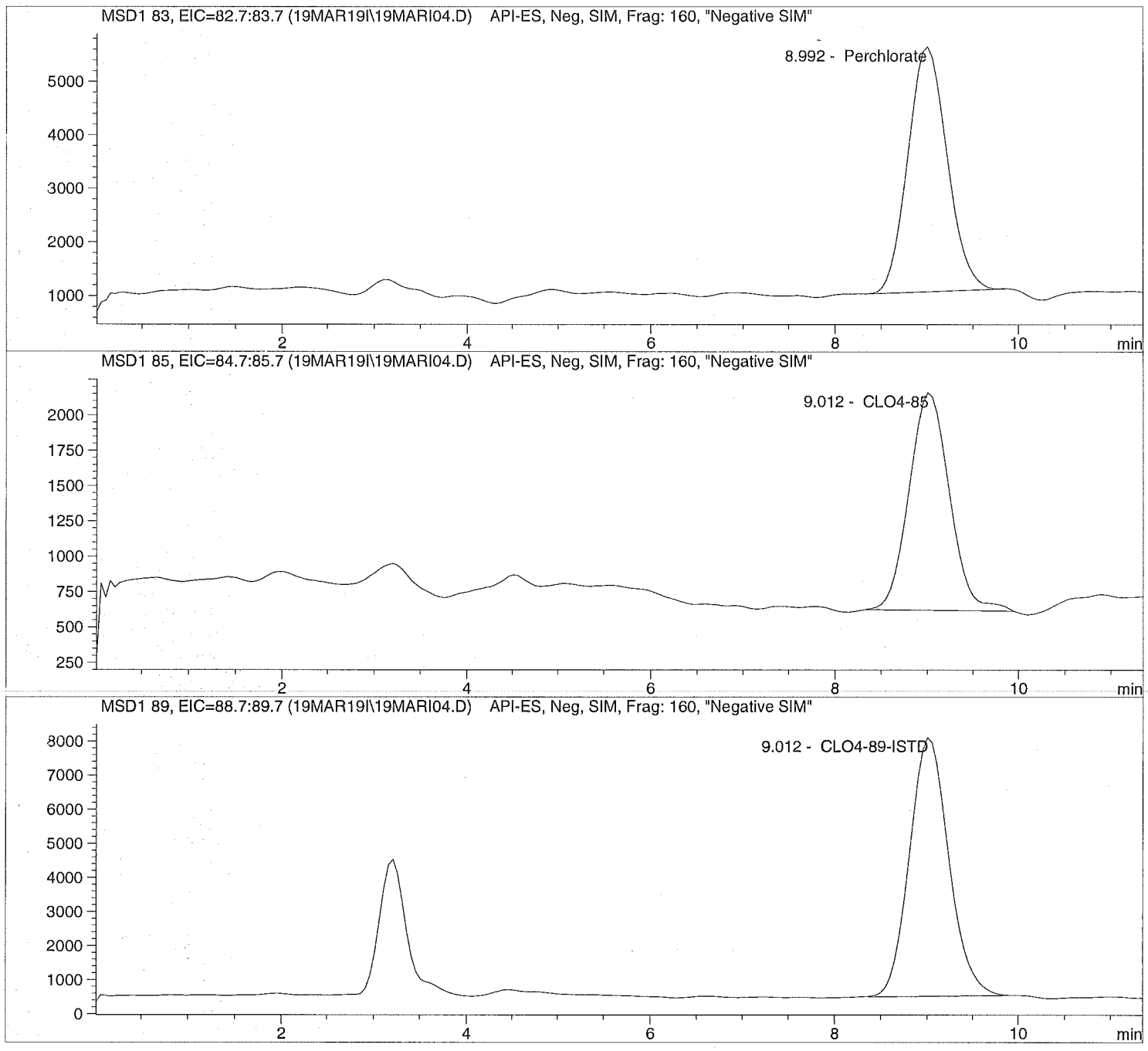
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

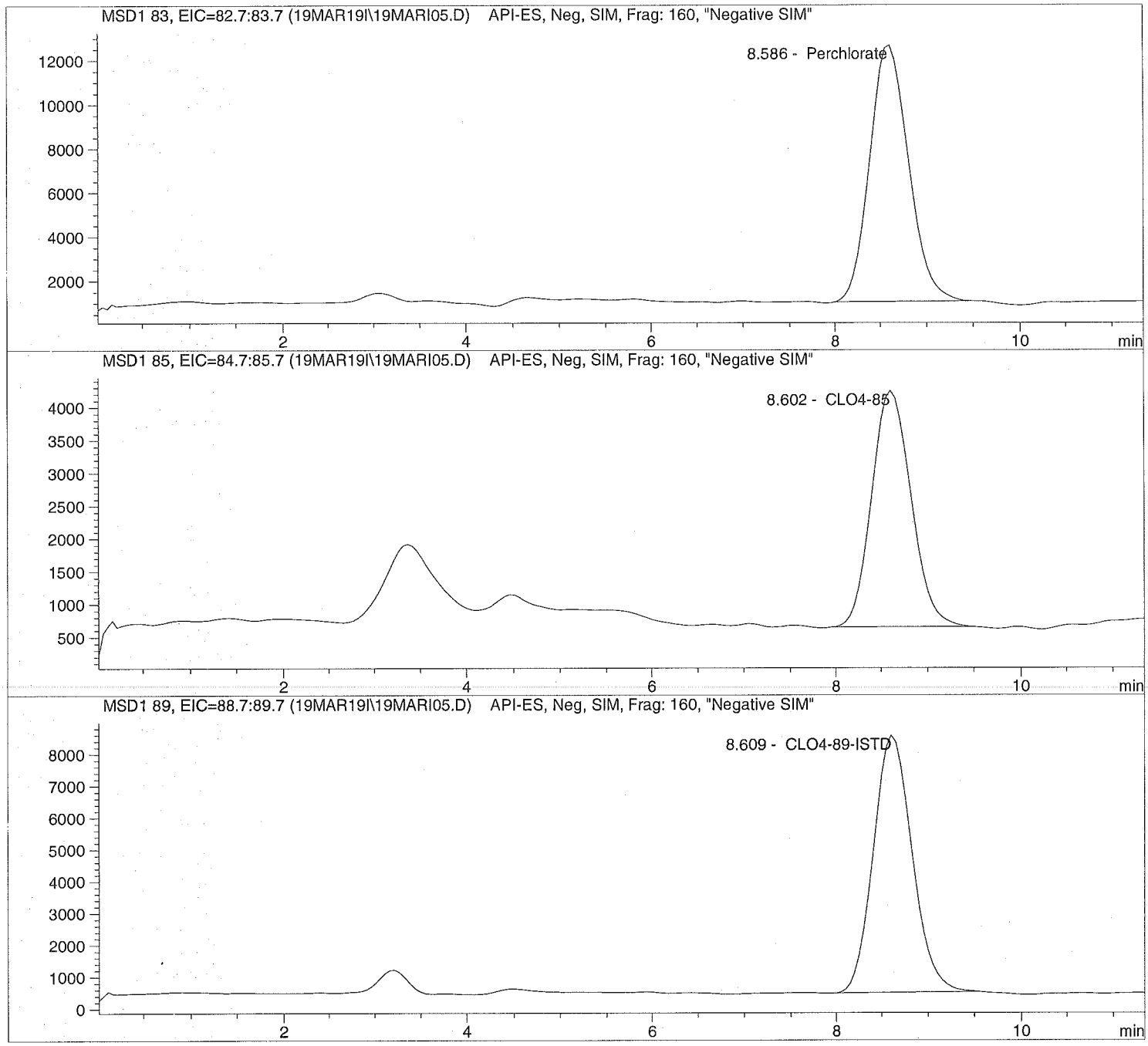
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

*** End of Report ***

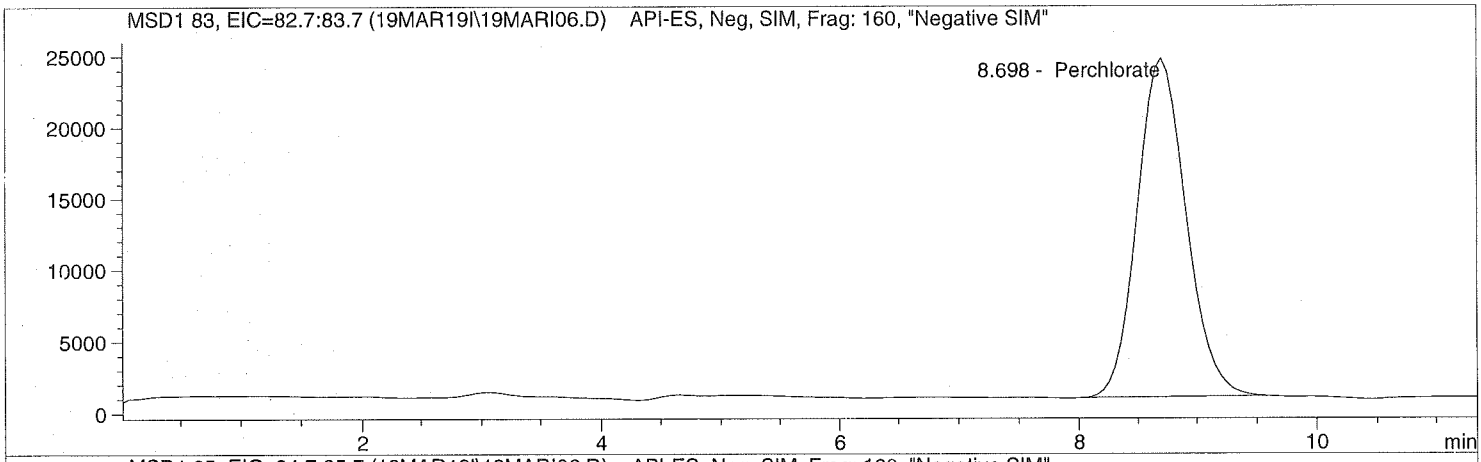
RIGHT SOLUTIONS | RIGHT PARTNER

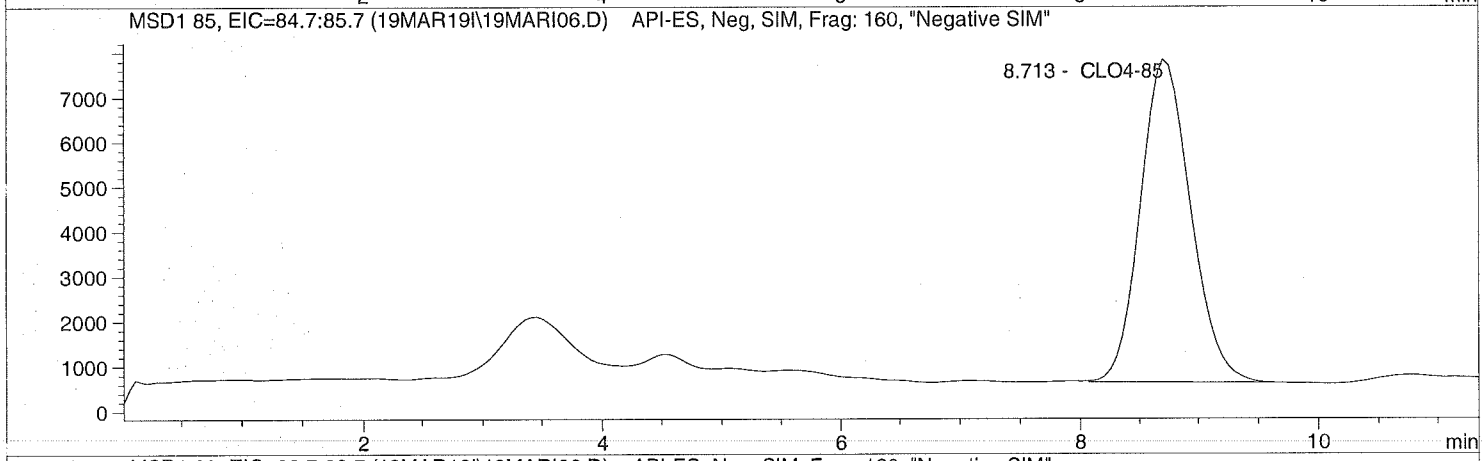
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

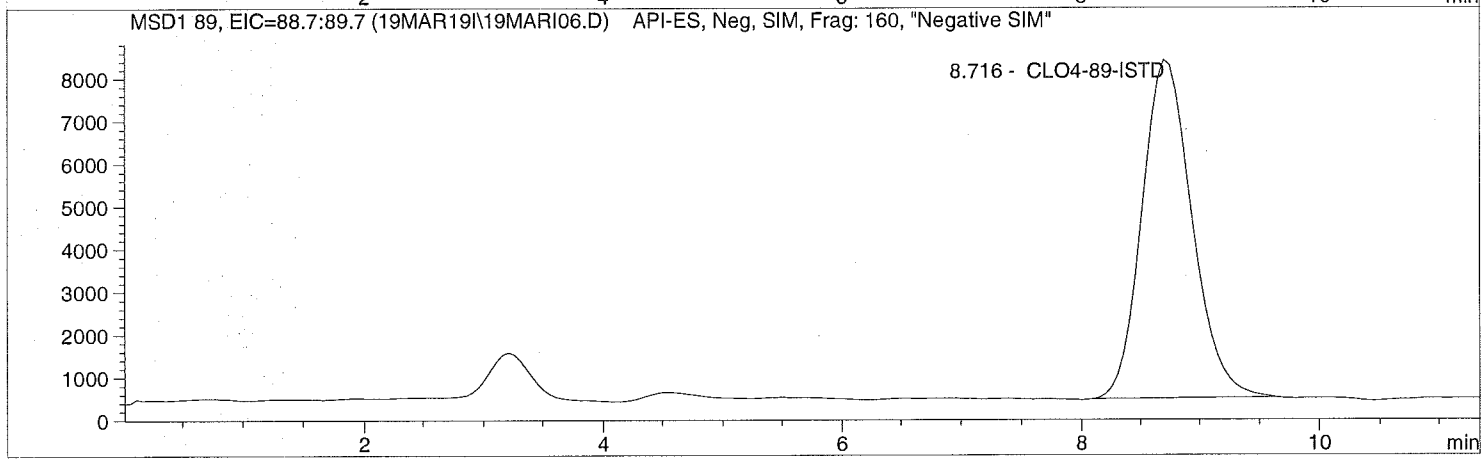
Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

*** End of Report ***

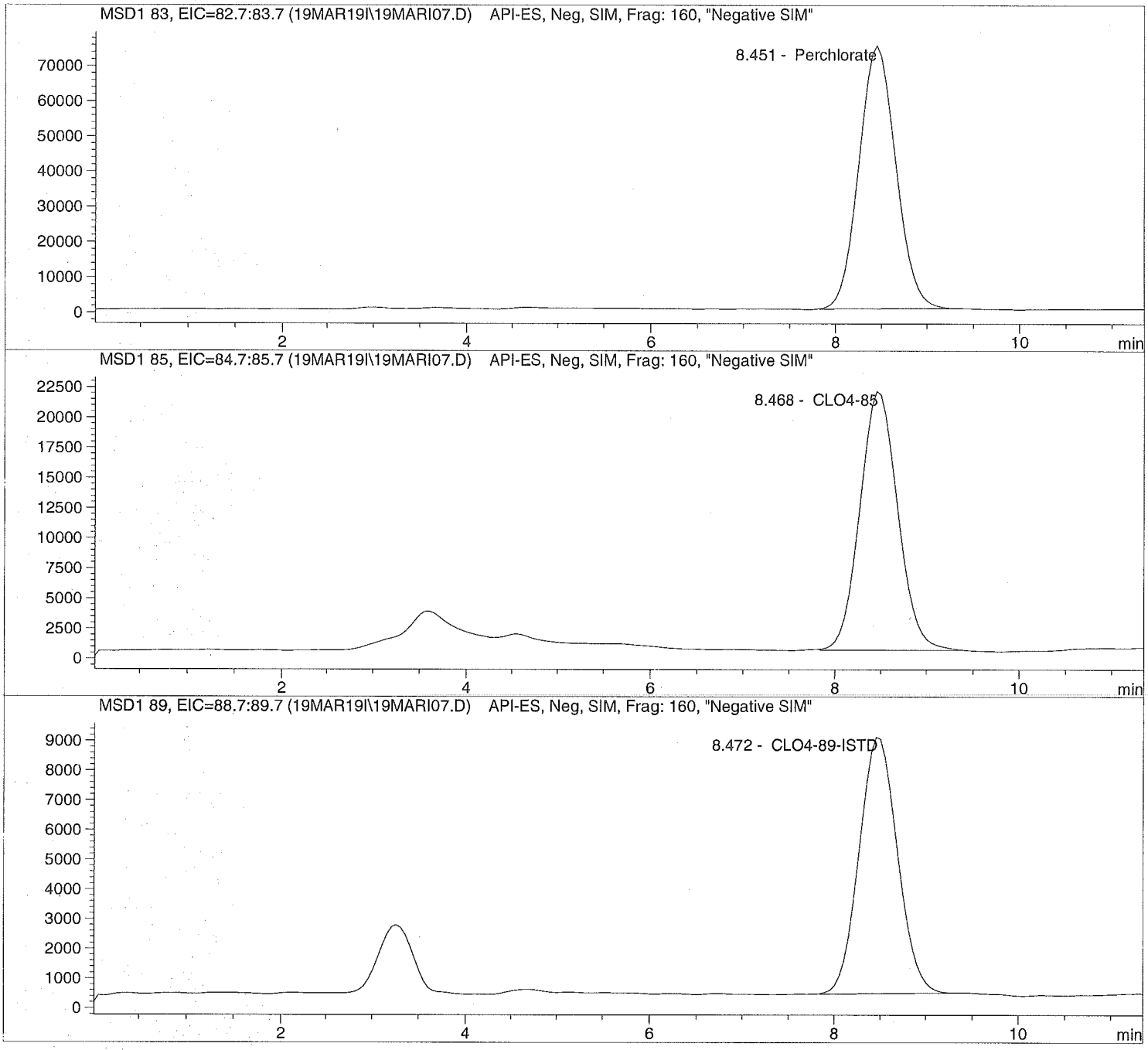
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

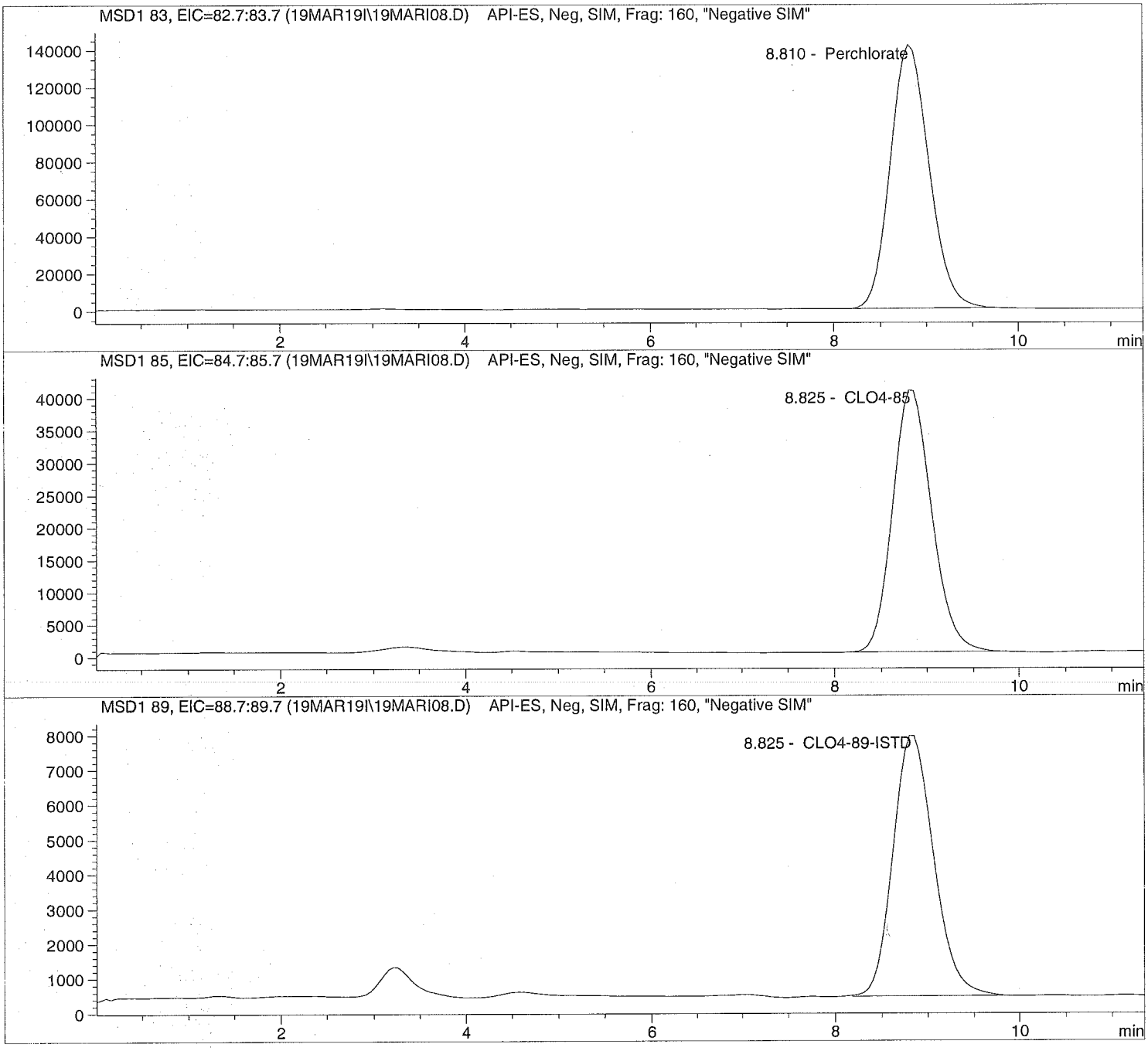
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

*** End of Report ***

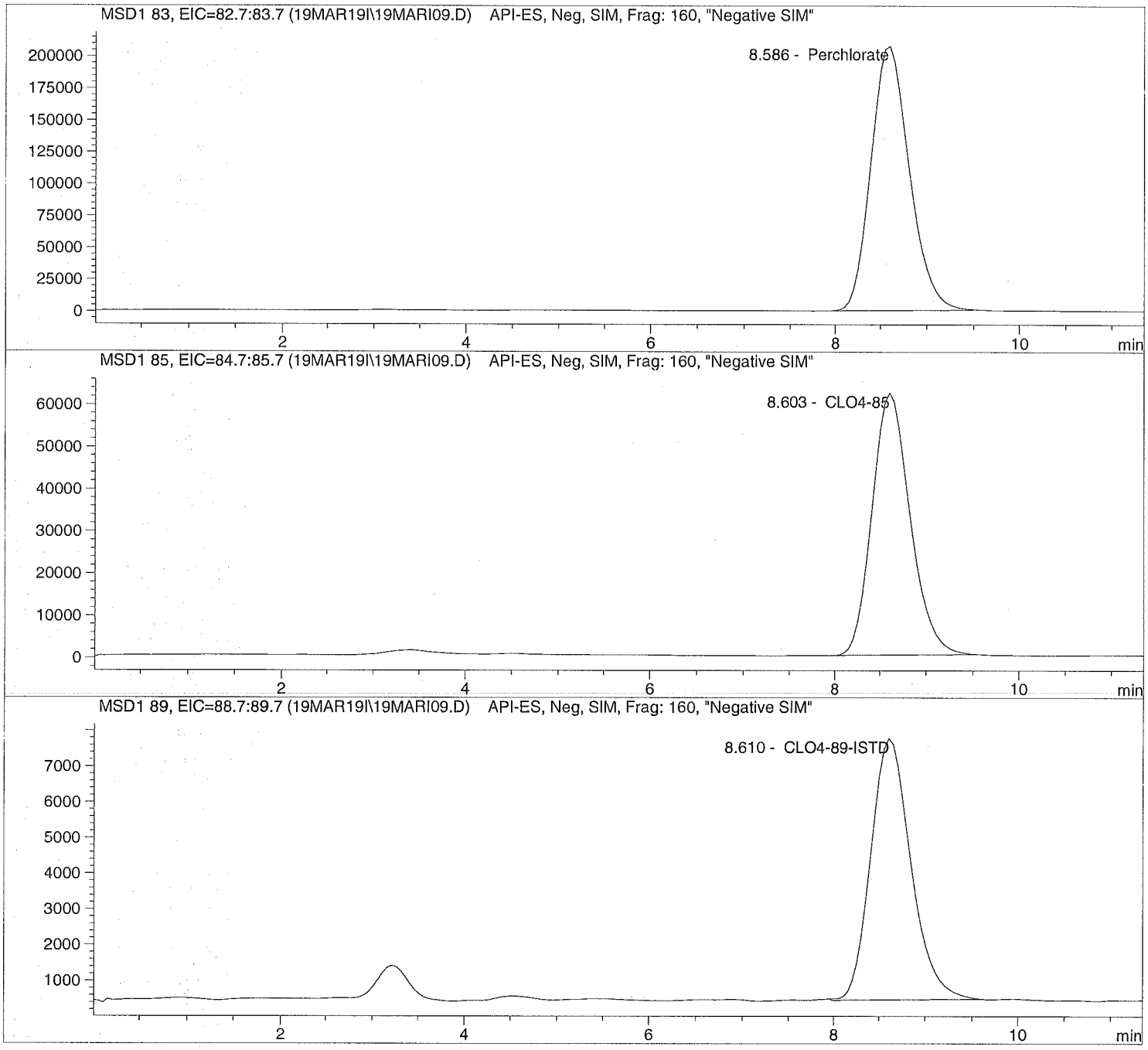
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

*** End of Report ***

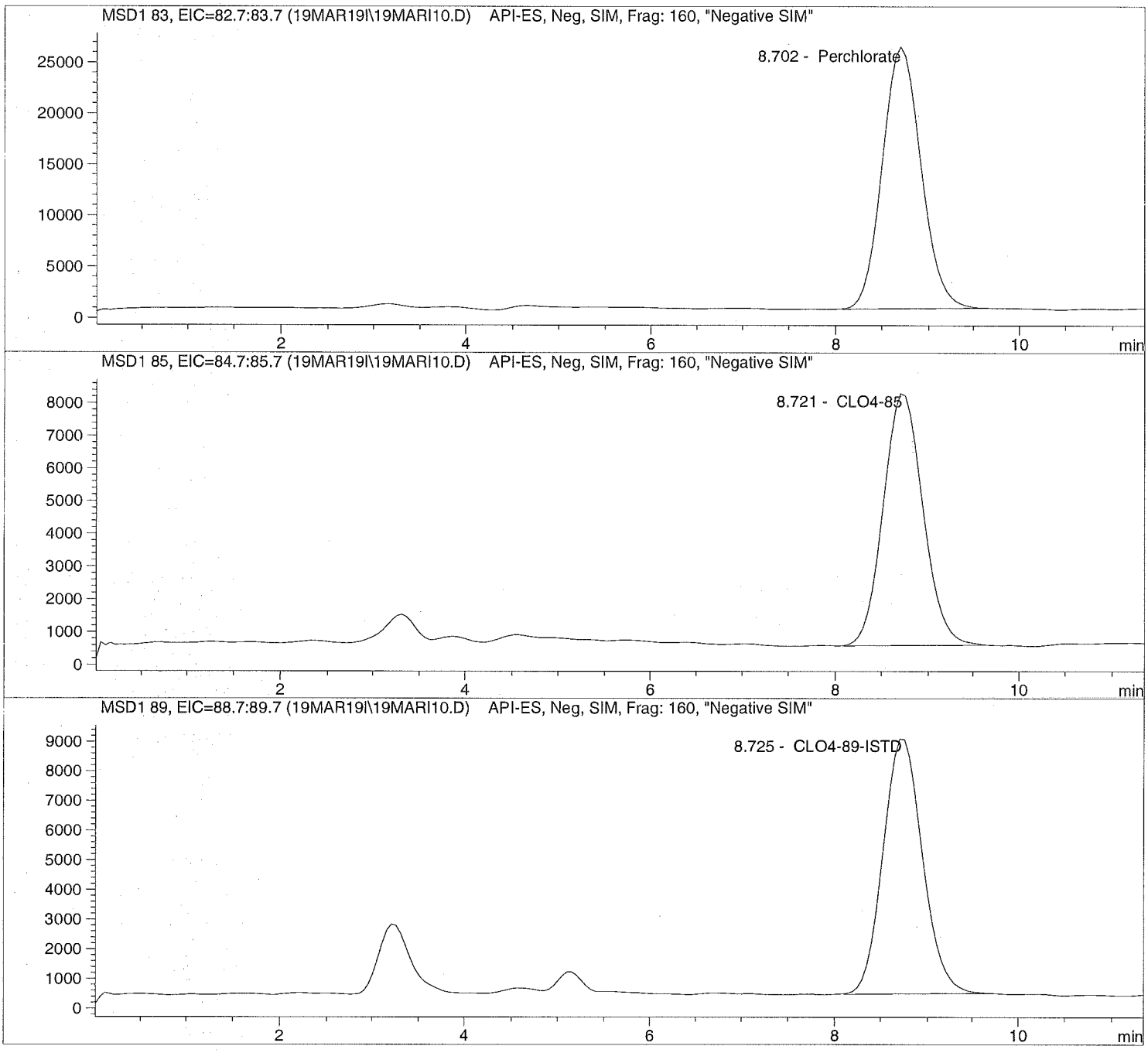
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Unmodified

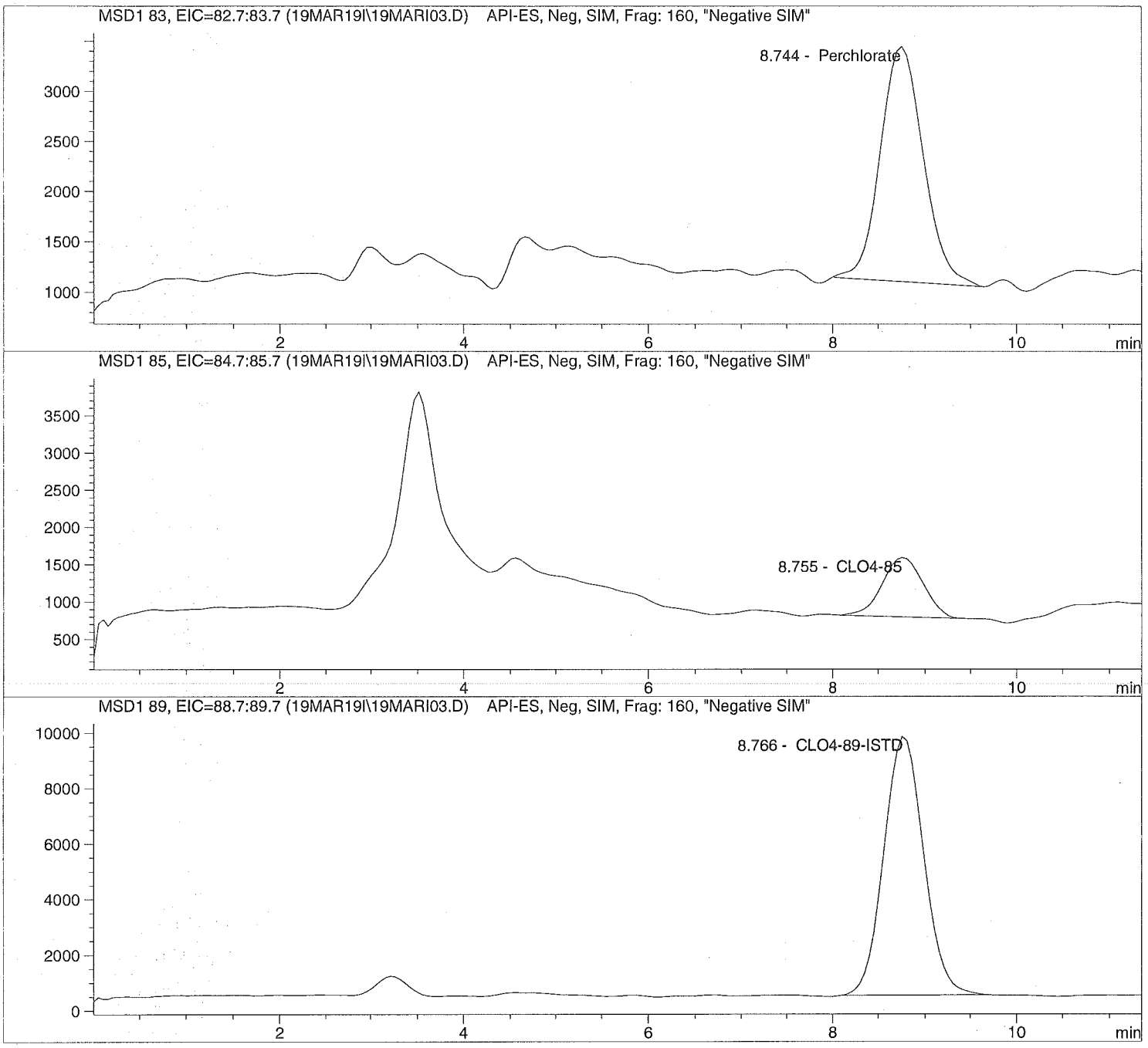
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

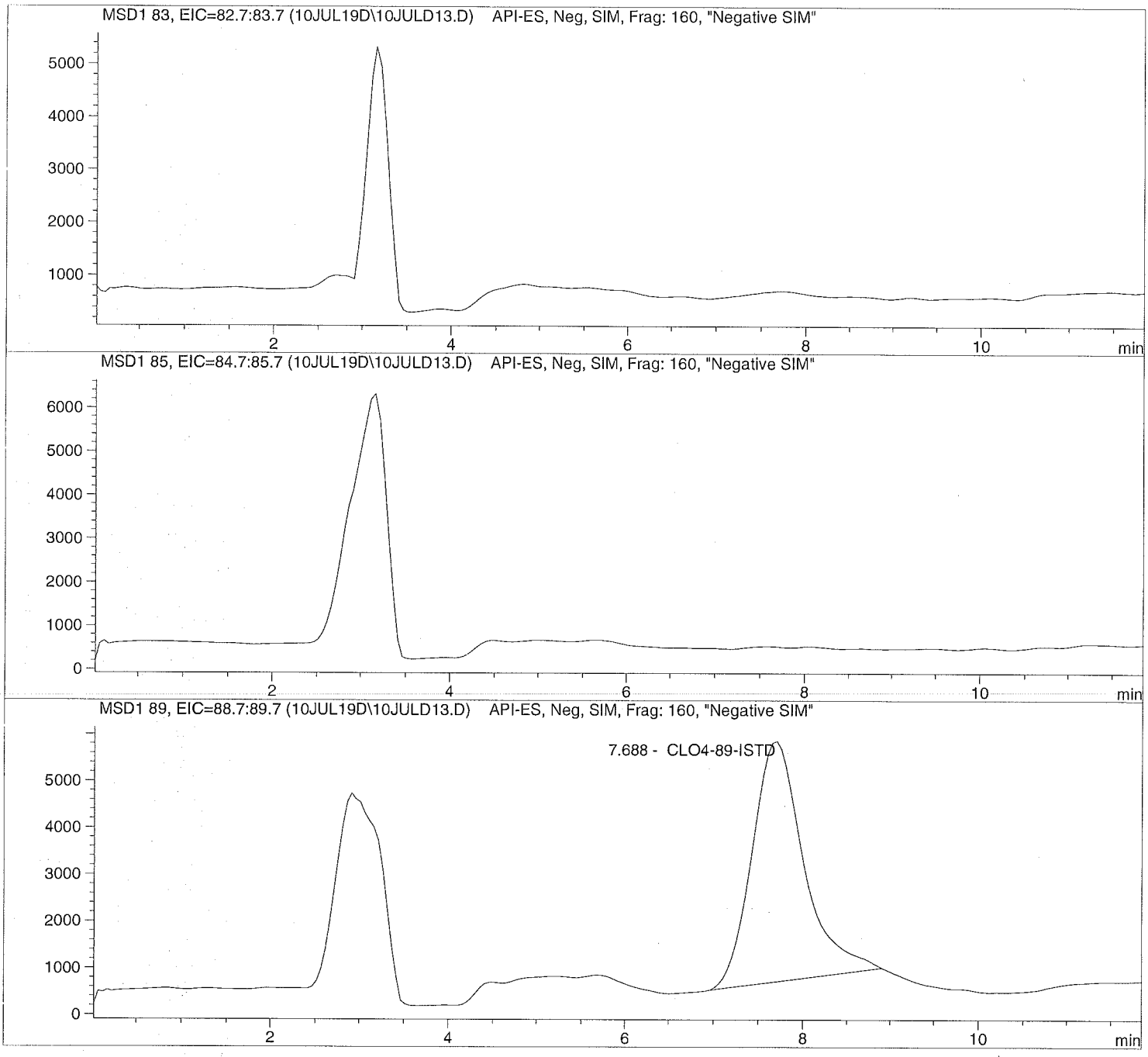
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.688	PBA	206768.2	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 12, 2019

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

Work Order: **HS19061383**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

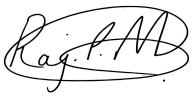
ALS Environmental received 5 sample(s) on Jun 26, 2019 for the analysis presented in the following report.

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: RJ.MODASHIA
RJ Modashia
Project Manager

ALS Houston, US Date: 12-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061383

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061383-01	18CPTMW14_062519	Water		25-Jun-2019 07:40	26-Jun-2019 08:50	☐
HS19061383-02	18CPTMW24_062519	Water		25-Jun-2019 09:25	26-Jun-2019 08:50	☐
HS19061383-03	18CPTMW07_062519	Water		25-Jun-2019 10:45	26-Jun-2019 08:50	☐
HS19061383-04	MW3_062519	Water		25-Jun-2019 12:35	26-Jun-2019 08:50	☐
HS19061383-05	Trip Blank	Water		25-Jun-2019 00:00	26-Jun-2019 08:50	☐

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061383

CASE NARRATIVE

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142510

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

GCMS Volatiles by Method SW8260

Batch ID: R341869

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

Batch ID: R341768

Sample ID: VLCSW-190702

• One sporadic marginal exceedance (Chloroform) for LCS. CCV is OK.

Metals by Method SW7470

Batch ID: 142558

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

Metals by Method SW6020

Batch ID: 142540

Sample ID: HS19061346-03MS

• MS/MSD and DUPs are for an unrelated sample

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP 18 24 WorkOrder:HS19061383
Sample ID: 18CPTMW14_062519 Lab ID:HS19061383-01
Collection Date: 25-Jun-2019 07:40 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	02-Jul-2019 20:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,2-Dichloroethane	**2.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 20:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 20:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 20:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 20:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 20:01
Benzene	**1.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 20:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 20:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Chloroform	**6.7**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 20:01

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP 18 24 WorkOrder:HS19061383
Sample ID: 18CPTMW14_062519 Lab ID:HS19061383-01
Collection Date: 25-Jun-2019 07:40 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	02-Jul-2019 20:01
cis-1,2-Dichloroethene	**51**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 20:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 20:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 20:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 20:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 20:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Tetrachloroethene	**1.1**		**0.30**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 20:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Trichloroethene	**700**		**5.0**	**12**	**25**	**UG/L**	25	02-Jul-2019 20:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 20:01
Surr: 1,2-Dichloroethane-d4	*95.7*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 20:01*
Surr: 1,2-Dichloroethane-d4	*93.9*			**0**	*81-118*	*%REC*	*25*	*02-Jul-2019 20:25*
Surr: 4-Bromofluorobenzene	*92.7*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 20:01*
Surr: 4-Bromofluorobenzene	*90.3*			**0**	*85-114*	*%REC*	*25*	*02-Jul-2019 20:25*
Surr: Dibromofluoromethane	*92.3*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 20:01*
Surr: Dibromofluoromethane	*91.4*			**0**	*80-119*	*%REC*	*25*	*02-Jul-2019 20:25*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 20:01*
Surr: Toluene-d8	*96.4*			**0**	*89-112*	*%REC*	*25*	*02-Jul-2019 20:25*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.13**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 13:13
Surr: 2-Fluorobiphenyl	*96.4*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:13*
Surr: 4-Terphenyl-d14	*104*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:13*
Surr: Nitrobenzene-d5	*107*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:13*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW14_062519
Collection Date: 25-Jun-2019 07:40

ANALYTICAL REPORT
WorkOrder:HS19061383
Lab ID:HS19061383-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.427**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 15:27
Antimony	**0.000513**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Arsenic	**0.00240**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Barium	**6.03**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	05-Jul-2019 15:30
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 15:27
Cadmium	**0.000243**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 15:27
Calcium	**466**		**0.680**	**1.00**	**10.0**	**mg/L**	20	05-Jul-2019 15:30
Chromium	**0.00598**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Cobalt	**0.0142**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Copper	**0.00130**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Iron	**2.89**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:27
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	03-Jul-2019 23:27
Magnesium	**157**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:27
Manganese	**0.793**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Nickel	**0.00836**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Potassium	**17.5**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:27
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 15:27
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 15:27
Sodium	**605**		**0.280**	**1.00**	**4.00**	**mg/L**	20	05-Jul-2019 15:30
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	03-Jul-2019 23:27
Vanadium	**0.00212**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
Zinc	**0.0184**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 15:27
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 14:01
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP 18 24 WorkOrder:HS19061383
Sample ID: 18CPTMW24_062519 Lab ID:HS19061383-02
Collection Date: 25-Jun-2019 09:25 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	02-Jul-2019 18:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 18:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 18:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 18:01
Acetone	**5.1**		**0.40**	**1.0**	**2.0**	**UG/L**	1	02-Jul-2019 18:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 18:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP 18 24 WorkOrder:HS19061383
Sample ID: 18CPTMW24_062519 Lab ID:HS19061383-02
Collection Date: 25-Jun-2019 09:25 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	02-Jul-2019 18:01
cis-1,2-Dichloroethene	**26**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 18:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 18:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 18:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 18:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Trichloroethene	**9.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 18:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:01
Surr: 1,2-Dichloroethane-d4	*97.8*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 18:01*
Surr: 4-Bromofluorobenzene	*95.2*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 18:01*
Surr: Dibromofluoromethane	*94.0*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 18:01*
Surr: Toluene-d8	*99.3*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 18:01*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 13:34
Surr: 2-Fluorobiphenyl	*82.5*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:34*
Surr: 4-Terphenyl-d14	*129*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:34*
Surr: Nitrobenzene-d5	*102*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:34*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW07_062519
Collection Date: 25-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061383
Lab ID:HS19061383-03
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	02-Jul-2019 18:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 18:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 18:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 18:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 18:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 18:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW07_062519
Collection Date: 25-Jun-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19061383
Lab ID:HS19061383-03
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	02-Jul-2019 18:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 18:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 18:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 18:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Trichloroethene	**0.66**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 18:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:25
Surr: 1,2-Dichloroethane-d4	*99.6*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 18:25*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 18:25*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 18:25*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 18:25*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.077**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 13:55
Surr: 2-Fluorobiphenyl	*85.1*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:55*
Surr: 4-Terphenyl-d14	*137*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:55*
Surr: Nitrobenzene-d5	*101*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 13:55*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW3_062519
Collection Date: 25-Jun-2019 12:35

ANALYTICAL REPORT
WorkOrder:HS19061383
Lab ID:HS19061383-04
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	02-Jul-2019 19:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,1-Dichloroethane	**1.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 19:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 19:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 19:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 19:37
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 19:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 19:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP 18 24 WorkOrder:HS19061383
Sample ID: MW3_062519 Lab ID:HS19061383-04
Collection Date: 25-Jun-2019 12:35 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	02-Jul-2019 19:37
cis-1,2-Dichloroethene	**52**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 19:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 19:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 19:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 19:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Tetrachloroethene	**0.70**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 19:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
trans-1,2-Dichloroethene	**0.99**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 19:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Trichloroethene	**240**		**1.0**	**2.5**	**5.0**	**UG/L**	5	03-Jul-2019 18:56
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:37
Vinyl chloride	**3.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Jul-2019 19:37
Surr: 1,2-Dichloroethane-d4	*96.2*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 19:37*
Surr: 1,2-Dichloroethane-d4	*95.5*			**0**	*81-118*	*%REC*	*5*	*03-Jul-2019 18:56*
Surr: 4-Bromofluorobenzene	*93.2*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 19:37*
Surr: 4-Bromofluorobenzene	*94.1*			**0**	*85-114*	*%REC*	*5*	*03-Jul-2019 18:56*
Surr: Dibromofluoromethane	*93.1*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 19:37*
Surr: Dibromofluoromethane	*92.7*			**0**	*80-119*	*%REC*	*5*	*03-Jul-2019 18:56*
Surr: Toluene-d8	*98.8*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 19:37*
Surr: Toluene-d8	*95.6*			**0**	*89-112*	*%REC*	*5*	*03-Jul-2019 18:56*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW3_062519
Collection Date: 25-Jun-2019 12:35

ANALYTICAL REPORT
WorkOrder:HS19061383
Lab ID:HS19061383-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.00644**	J	**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 15:32
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 15:32
Arsenic	**0.000625**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Barium	**0.370**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 15:32
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 15:32
Calcium	**26.5**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 15:32
Chromium	**0.00222**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Cobalt	**0.00313**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Copper	**0.00658**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Iron	**0.218**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:32
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	03-Jul-2019 23:29
Magnesium	**16.4**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:32
Manganese	**0.295**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Nickel	**0.00306**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Potassium	**1.56**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:32
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 15:32
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 15:32
Sodium	**254**		**0.140**	**0.500**	**2.00**	**mg/L**	10	05-Jul-2019 15:34
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	03-Jul-2019 23:29
Vanadium	**0.00152**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
Zinc	**0.0217**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 15:32
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 14:27
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 25-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061383
Lab ID:HS19061383-05
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	02-Jul-2019 16:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
2-Butanone	**2.4**		**0.50**	**1.0**	**2.0**	**UG/L**	1	02-Jul-2019 16:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 16:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 16:01
Acetone	**30**		**0.40**	**1.0**	**2.0**	**UG/L**	1	02-Jul-2019 16:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 16:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 25-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061383
Lab ID:HS19061383-05
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	02-Jul-2019 16:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 16:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 16:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 16:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 16:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 16:01
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 16:01*
Surr: 4-Bromofluorobenzene	*96.8*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 16:01*
Surr: Dibromofluoromethane	*96.8*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 16:01*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 16:01*

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

RIGHT SOLUTIONS | RIGHT PARTNER

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

Batch ID: 142510 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061383-01	1	1000	1 (mL)	0.001
HS19061383-02	1	1000	1 (mL)	0.001
HS19061383-03	1	1000	1 (mL)	0.001

Batch ID: 142540 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061383-01	1	10	10 (mL)	1
HS19061383-04	1	10	10 (mL)	1

Batch ID: 142558 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061383-01	1	10 (mL)	10 (mL)	1
HS19061383-04	1	10 (mL)	10 (mL)	1

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142510 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40		27 Jun 2019 14:45	28 Jun 2019 13:13	1
HS19061383-02	18CPTMW24_062519	25 Jun 2019 09:25		27 Jun 2019 14:45	28 Jun 2019 13:34	1
HS19061383-03	18CPTMW07_062519	25 Jun 2019 10:45		27 Jun 2019 14:45	28 Jun 2019 13:55	1
Batch ID: 142540 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40		28 Jun 2019 11:53	05 Jul 2019 15:30	20
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40		28 Jun 2019 11:53	05 Jul 2019 15:27	1
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40		28 Jun 2019 11:53	03 Jul 2019 23:27	1
HS19061383-04	MW3_062519	25 Jun 2019 12:35		28 Jun 2019 11:53	05 Jul 2019 15:34	10
HS19061383-04	MW3_062519	25 Jun 2019 12:35		28 Jun 2019 11:53	05 Jul 2019 15:32	1
HS19061383-04	MW3_062519	25 Jun 2019 12:35		28 Jun 2019 11:53	03 Jul 2019 23:29	1
Batch ID: 142558 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40		28 Jun 2019 09:30	28 Jun 2019 14:01	1
HS19061383-04	MW3_062519	25 Jun 2019 12:35		28 Jun 2019 09:30	28 Jun 2019 14:27	1
Batch ID: R341768 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40			02 Jul 2019 20:25	25
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40			02 Jul 2019 20:01	1
HS19061383-02	18CPTMW24_062519	25 Jun 2019 09:25			02 Jul 2019 18:01	1
HS19061383-03	18CPTMW07_062519	25 Jun 2019 10:45			02 Jul 2019 18:25	1
HS19061383-04	MW3_062519	25 Jun 2019 12:35			02 Jul 2019 19:37	1
HS19061383-05	Trip Blank	25 Jun 2019 00:00			02 Jul 2019 16:01	1
Batch ID: R341869 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061383-04	MW3_062519	25 Jun 2019 12:35			03 Jul 2019 18:56	5
Batch ID: R342274 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS19061383-01	18CPTMW14_062519	25 Jun 2019 07:40			11 Jul 2019 18:06	1
HS19061383-02	18CPTMW24_062519	25 Jun 2019 09:25			11 Jul 2019 18:06	1
HS19061383-03	18CPTMW07_062519	25 Jun 2019 10:45			11 Jul 2019 18:06	1
HS19061383-04	MW3_062519	25 Jun 2019 12:35			11 Jul 2019 18:06	1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142540 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142540** Units: **mg/L** Analysis Date: **03-Jul-2019 22:29**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153505** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00500	0.0100								U
Antimony	0.000681	0.00500								J
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.01186	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.001266	0.00500								J
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.0003	0.00200								J
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

MBLK Sample ID: **MBLK-142540** Units: **mg/L** Analysis Date: **03-Jul-2019 22:29**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153453** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.000500	0.00200								U

LCS Sample ID: **LCS-142540** Units: **mg/L** Analysis Date: **05-Jul-2019 15:15**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5154736** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09787	0.0100	0.1	0	97.9	84 - 117				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142540 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142540** Units: **mg/L** Analysis Date: **03-Jul-2019 22:32**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153506** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05383	0.00500	0.05	0	108	85 - 117				
Arsenic	0.05245	0.00500	0.05	0	105	84 - 116				
Barium	0.05166	0.00500	0.05	0	103	86 - 114				
Beryllium	0.05496	0.00200	0.05	0	110	83 - 121				
Cadmium	0.05422	0.00200	0.05	0	108	87 - 115				
Calcium	5.105	0.500	5	0	102	87 - 118				
Chromium	0.05235	0.00500	0.05	0	105	85 - 116				
Cobalt	0.0512	0.00500	0.05	0	102	86 - 115				
Copper	0.05502	0.00500	0.05	0	110	85 - 118				
Iron	5.218	0.200	5	0	104	87 - 118				
Lead	0.05087	0.00500	0.05	0	102	88 - 115				
Magnesium	5.306	0.200	5	0	106	83 - 118				
Manganese	0.05361	0.00500	0.05	0	107	87 - 115				
Nickel	0.05543	0.00500	0.05	0	111	85 - 117				
Potassium	5.29	0.200	5	0	106	87 - 115				
Selenium	0.05674	0.00500	0.05	0	113	80 - 120				
Silver	0.05366	0.00500	0.05	0	107	85 - 116				
Sodium	5.269	0.200	5	0	105	85 - 117				
Thallium	0.0526	0.00200	0.05	0	105	82 - 116				
Vanadium	0.05232	0.00500	0.05	0	105	86 - 115				
Zinc	0.05604	0.00500	0.05	0	112	83 - 119				

LCS Sample ID: **LCS-142540** Units: **mg/L** Analysis Date: **03-Jul-2019 22:32**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153454** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05245	0.00200	0.05	0	105	80 - 120				

MS Sample ID: **HS19061346-03MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:17**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5154737** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09696	0.0100	0.1	0.004265	92.7	84 - 117				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142540 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19061346-03MS** Units: **mg/L** Analysis Date: **03-Jul-2019 22:38**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153509** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05305	0.00500	0.05	0.000547	105	85 - 117				
Arsenic	0.05351	0.00500	0.05	0.002199	103	84 - 116				
Barium	0.132	0.00500	0.05	0.08242	99.1	86 - 114				
Beryllium	0.05172	0.00200	0.05	0.000032	103	83 - 121				
Cadmium	0.05073	0.00200	0.05	0.000015	101	87 - 115				
Calcium	105.6	0.500	5	103.7	38.2	87 - 118				SO
Chromium	0.05009	0.00500	0.05	0.000152	99.9	85 - 116				
Cobalt	0.04814	0.00500	0.05	0.000118	96.1	86 - 115				
Copper	0.0518	0.00500	0.05	0.00062	102	85 - 118				
Iron	5	0.200	5	0.007949	99.8	87 - 118				
Lead	0.04926	0.00500	0.05	0.000075	98.4	88 - 115				
Magnesium	17.17	0.200	5	12.7	89.4	83 - 118				
Manganese	0.06308	0.00500	0.05	0.01279	101	87 - 115				
Nickel	0.05122	0.00500	0.05	0.000763	101	85 - 117				
Potassium	6.362	0.200	5	1.524	96.8	87 - 115				
Selenium	0.05509	0.00500	0.05	0.002461	105	80 - 120				
Silver	0.0494	0.00500	0.05	0.000025	98.7	85 - 116				
Sodium	123.1	0.200	5	122.2	18.9	85 - 117				SO
Thallium	0.05049	0.00200	0.05	0.000385	100	82 - 116				
Vanadium	0.07219	0.00500	0.05	0.02152	101	86 - 115				
Zinc	0.05497	0.00500	0.05	0.002648	105	83 - 119				

MS Sample ID: **HS19061346-03MS** Units: **mg/L** Analysis Date: **03-Jul-2019 22:38**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153457** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05351	0.00200	0.05	0.002199	103	80 - 120				

MSD Sample ID: **HS19061346-03MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:20**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5154738** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09273	0.0100	0.1	0.004265	88.5	84 - 117	0.09696	4.46	20	

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142540 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19061346-03MSD** Units: **mg/L** Analysis Date: **03-Jul-2019 22:41**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153510** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05259	0.00500	0.05	0.000547	104	85 - 117	0.05305	0.863	20	
Arsenic	0.05239	0.00500	0.05	0.002199	100	84 - 116	0.05351	2.11	20	
Barium	0.1313	0.00500	0.05	0.08242	97.7	86 - 114	0.132	0.552	20	
Beryllium	0.05022	0.00200	0.05	0.000032	100	83 - 121	0.05172	2.96	20	
Cadmium	0.0501	0.00200	0.05	0.000015	100	87 - 115	0.05073	1.25	20	
Calcium	103.6	0.500	5	103.7	-1.86	87 - 118	105.6	1.91	20	SO
Chromium	0.04984	0.00500	0.05	0.000152	99.4	85 - 116	0.05009	0.494	20	
Cobalt	0.04768	0.00500	0.05	0.000118	95.1	86 - 115	0.04814	0.958	20	
Copper	0.05103	0.00500	0.05	0.00062	101	85 - 118	0.0518	1.5	20	
Iron	4.893	0.200	5	0.007949	97.7	87 - 118	5	2.15	20	
Lead	0.04824	0.00500	0.05	0.000075	96.3	88 - 115	0.04926	2.1	20	
Magnesium	16.99	0.200	5	12.7	85.7	83 - 118	17.17	1.1	20	
Manganese	0.0616	0.00500	0.05	0.01279	97.6	87 - 115	0.06308	2.36	20	
Nickel	0.05005	0.00500	0.05	0.000763	98.6	85 - 117	0.05122	2.31	20	
Potassium	6.179	0.200	5	1.524	93.1	87 - 115	6.362	2.92	20	
Selenium	0.05339	0.00500	0.05	0.002461	102	80 - 120	0.05509	3.14	20	
Silver	0.04859	0.00500	0.05	0.000025	97.1	85 - 116	0.0494	1.65	20	
Sodium	121.7	0.200	5	122.2	-10.4	85 - 117	123.1	1.2	20	SO
Thallium	0.04892	0.00200	0.05	0.000385	97.1	82 - 116	0.05049	3.16	20	
Vanadium	0.07031	0.00500	0.05	0.02152	97.6	86 - 115	0.07219	2.64	20	
Zinc	0.0538	0.00500	0.05	0.002648	102	83 - 119	0.05497	2.15	20	

MSD Sample ID: **HS19061346-03MSD** Units: **mg/L** Analysis Date: **03-Jul-2019 22:41**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153458** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05239	0.00200	0.05	0.002199	100	80 - 120	0.05351	2.11	20	

PDS Sample ID: **HS19061346-03PDS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:22**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5154739** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1056	0.0100	0.1	0.004265	101	80 - 120				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142540 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19061346-03PDS** Units: **mg/L** Analysis Date: **03-Jul-2019 22:43**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153511** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09518	0.00500	0.1	0.000547	94.6	80 - 120				
Arsenic	0.1005	0.00500	0.1	0.002199	98.3	80 - 120				
Barium	0.1835	0.00500	0.1	0.08242	101	80 - 120				
Beryllium	0.1076	0.00200	0.1	0.000032	108	80 - 120				
Cadmium	0.1018	0.00200	0.1	0.000015	102	80 - 120				
Calcium	105.8	0.500	10	103.7	20.9	80 - 120				SO
Chromium	0.09688	0.00500	0.1	0.000152	96.7	80 - 120				
Cobalt	0.09239	0.00500	0.1	0.000118	92.3	80 - 120				
Copper	0.09686	0.00500	0.1	0.00062	96.2	80 - 120				
Iron	9.598	0.200	10	0.007949	95.9	80 - 120				
Lead	0.1026	0.00500	0.1	0.000075	103	80 - 120				
Magnesium	21.04	0.200	10	12.7	83.3	80 - 120				
Manganese	0.1093	0.00500	0.1	0.01279	96.5	80 - 120				
Nickel	0.09655	0.00500	0.1	0.000763	95.8	80 - 120				
Potassium	10.82	0.200	10	1.524	92.9	80 - 120				
Selenium	0.1031	0.00500	0.1	0.002461	101	80 - 120				
Silver	0.09983	0.00500	0.1	0.000025	99.8	80 - 120				
Sodium	121.6	0.200	10	122.2	-5.86	80 - 120				SO
Thallium	0.1024	0.00200	0.1	0.000385	102	80 - 120				
Vanadium	0.1173	0.00500	0.1	0.02152	95.7	80 - 120				
Zinc	0.1014	0.00500	0.1	0.002648	98.8	80 - 120				

PDS Sample ID: **HS19061346-03PDS** Units: **mg/L** Analysis Date: **03-Jul-2019 22:43**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153459** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1005	0.00200	0.1	0.002199	98.3	75 - 125				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142540 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19061346-03SD** Units: **mg/L** Analysis Date: **03-Jul-2019 22:36**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153508** PrepDate: **28-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.0250	0.0500					0.004265	0	10	U
Antimony	0.00250	0.0250					0.000547	0	10	U
Arsenic	0.00250	0.0250					0.002199	0	10	U
Barium	0.08319	0.0250					0.08242	0.932	10	
Beryllium	0.00250	0.0100					0.000032	0	10	U
Cadmium	0.00250	0.0100					0.000015	0	10	U
Calcium	102.1	2.50					103.7	1.6	10	
Chromium	0.00250	0.0250					0.000152	0	10	U
Cobalt	0.00250	0.0250					0.000118	0	10	U
Copper	0.0125	0.0250					0.00062	0	10	U
Iron	0.250	1.00					0.007949	0	10	U
Lead	0.00500	0.0250					0.000075	0	10	U
Magnesium	12.93	1.00					12.7	1.81	10	
Manganese	0.01238	0.0250					0.01279	0	10	J
Nickel	0.00500	0.0250					0.000763	0	10	U
Potassium	1.437	1.00					1.524	5.68	10	
Selenium	0.0125	0.0250					0.002461	0	10	U
Silver	0.00250	0.0250					0.000025	0	10	U
Sodium	119.6	1.00					122.2	2.1	10	
Thallium	0.00250	0.0100					0.000385	0	10	U
Vanadium	0.02088	0.0250					0.02152	0	10	J
Zinc	0.0125	0.0250					0.002648	0	10	U

SD Sample ID: **HS19061346-03SD** Units: **mg/L** Analysis Date: **03-Jul-2019 22:36**
Client ID: Run ID: **ICPMS04_341787** SeqNo: **5153456** PrepDate: **28-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00250	0.0100					0.002199	0	10	U

The following samples were analyzed in this batch: HS19061383-01 HS19061383-04

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142558 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142558** Units: **mg/L** Analysis Date: **28-Jun-2019 13:58**
Client ID: Run ID: **HG03_341562** SeqNo: **5146995** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142558** Units: **mg/L** Analysis Date: **28-Jun-2019 13:59**
Client ID: Run ID: **HG03_341562** SeqNo: **5146996** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00514	0.000200	0.005	0	103	80 - 120				

MS Sample ID: **HS19061383-01MS** Units: **mg/L** Analysis Date: **28-Jun-2019 14:03**
Client ID: **18CPTMW14_062519** Run ID: **HG03_341562** SeqNo: **5146998** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000517	0.000000200	5e-006	-0.0000000010	103	75 - 125				

MSD Sample ID: **HS19061383-01MSD** Units: **mg/L** Analysis Date: **28-Jun-2019 14:05**
Client ID: **18CPTMW14_062519** Run ID: **HG03_341562** SeqNo: **5146999** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000514	0.000000200	5e-006	-0.0000000010	103	75 - 125	0.000005170	0.582	20	

The following samples were analyzed in this batch: HS19061383-01 HS19061383-04

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: 142510 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:37**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146408** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.0594*	*0*	*0.08*	*0*	*74.3*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08022*	*0*	*0.08*	*0*	*100*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07461*	*0*	*0.08*	*0*	*93.3*	*40 - 140*				

LCS Sample ID: **LCS-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:58**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146409** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08012	0.010	0.08	0	100	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07847*	*0*	*0.08*	*0*	*98.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08943*	*0*	*0.08*	*0*	*112*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08221*	*0*	*0.08*	*0*	*103*	*40 - 140*				

LCSD Sample ID: **LCSD-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 23:19**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146410** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07797	0.010	0.08	0	97.5	40 - 140	0.08012	2.72	20	
Surr: 2-Fluorobiphenyl	*0.07625*	*0*	*0.08*	*0*	*95.3*	*40 - 140*	*0.07847*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.09409*	*0*	*0.08*	*0*	*118*	*40 - 140*	*0.08943*	*5.08*	*20*	
Surr: Nitrobenzene-d5	*0.08067*	*0*	*0.08*	*0*	*101*	*40 - 140*	*0.08221*	*1.89*	*20*	

The following samples were analyzed in this batch: HS19061383-01 HS19061383-02 HS19061383-03

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 11:38**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151546** 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	1.0	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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 11:38**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151546** 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	1.0	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	*48.37*	*1.0*	*50*	*0*	*96.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.48*	*1.0*	*50*	*0*	*95.0*	*85 - 114*				
Surr: Dibromofluoromethane	*46.31*	*1.0*	*50*	*0*	*92.6*	*80 - 119*				
Surr: Toluene-d8	*50.22*	*1.0*	*50*	*0*	*100*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 10:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151545** 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	19.88	1.0	20	0	99.4	78 - 124				
1,1,1-Trichloroethane	18.61	1.0	20	0	93.1	74 - 131				
1,1,2,2-Tetrachloroethane	21.7	1.0	20	0	108	71 - 121				
1,1,2-Trichloroethane	21.03	1.0	20	0	105	80 - 119				
1,1-Dichloroethane	19.31	1.0	20	0	96.5	77 - 125				
1,1-Dichloroethene	18.25	1.0	20	0	91.2	71 - 131				
1,1-Dichloropropene	18.58	1.0	20	0	92.9	78 - 125				
1,2,3-Trichlorobenzene	23.14	1.0	20	0	116	69 - 129				
1,2,3-Trichloropropane	18.92	1.0	20	0	94.6	73 - 122				
1,2,4-Trichlorobenzene	20.64	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	17.82	1.0	20	0	89.1	76 - 124				
1,2-Dibromo-3-chloropropane	22.28	1.0	20	0	111	62 - 128				
1,2-Dibromoethane	20.44	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	19.09	1.0	20	0	95.5	80 - 119				
1,2-Dichloroethane	18.92	1.0	20	0	94.6	73 - 128				
1,2-Dichloropropane	19.38	1.0	20	0	96.9	78 - 122				
1,3,5-Trimethylbenzene	17.15	1.0	20	0	85.8	75 - 124				
1,3-Dichlorobenzene	18.25	1.0	20	0	91.3	80 - 119				
1,3-Dichloropropane	20.81	1.0	20	0	104	80 - 119				
1,4-Dichlorobenzene	19.84	1.0	20	0	99.2	79 - 118				
2,2-Dichloropropane	19.77	1.0	20	0	98.8	60 - 139				
2-Butanone	44.92	2.0	40	0	112	56 - 143				
2-Chlorotoluene	19.2	1.0	20	0	96.0	79 - 122				
2-Hexanone	40.3	2.0	40	0	101	57 - 139				
4-Chlorotoluene	19.14	1.0	20	0	95.7	78 - 122				
4-Isopropyltoluene	16.8	1.0	20	0	84.0	77 - 127				
4-Methyl-2-pentanone	39.68	2.0	40	0	99.2	67 - 130				
Acetone	47.19	2.0	40	0	118	39 - 160				
Benzene	19.98	1.0	20	0	99.9	79 - 120				
Bromobenzene	18.71	1.0	20	0	93.6	80 - 120				
Bromochloromethane	19.36	1.0	20	0	96.8	78 - 123				
Bromodichloromethane	20.21	1.0	20	0	101	79 - 125				
Bromoform	21.67	1.0	20	0	108	66 - 130				
Bromomethane	20.75	1.0	20	0	104	53 - 141				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 10:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151545** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.79	2.0	40	0	89.5	64 - 133				
Carbon tetrachloride	18.07	1.0	20	0	90.3	72 - 136				
Chlorobenzene	19.29	1.0	20	0	96.5	82 - 118				
Chloroethane	18.27	1.0	20	0	91.4	60 - 138				
Chloroform	27.06	1.0	20	0	135	79 - 124				S
Chloromethane	17.7	1.0	20	0	88.5	50 - 139				
cis-1,2-Dichloroethene	20.04	1.0	20	0	100	78 - 123				
cis-1,3-Dichloropropene	19.46	1.0	20	0	97.3	75 - 124				
Dibromochloromethane	19.85	1.0	20	0	99.2	74 - 126				
Dibromomethane	20.01	1.0	20	0	100	79 - 123				
Dichlorodifluoromethane	18.31	1.0	20	0	91.5	32 - 152				
Ethylbenzene	18.31	1.0	20	0	91.5	79 - 121				
Hexachlorobutadiene	22.83	1.0	20	0	114	66 - 134				
Isopropylbenzene	17.5	1.0	20	0	87.5	72 - 131				
m,p-Xylene	37.16	2.0	40	0	92.9	80 - 121				
Methylene chloride	19.46	2.0	20	0	97.3	74 - 124				
Naphthalene	22.02	1.0	20	0	110	61 - 128				
n-Butylbenzene	17.1	1.0	20	0	85.5	75 - 128				
n-Propylbenzene	18.1	1.0	20	0	90.5	76 - 126				
o-Xylene	18.52	1.0	20	0	92.6	78 - 122				
sec-Butylbenzene	17.6	1.0	20	0	88.0	77 - 126				
Styrene	19.81	1.0	20	0	99.1	78 - 123				
tert-Butylbenzene	17.93	1.0	20	0	89.7	78 - 124				
Tetrachloroethene	17.9	1.0	20	0	89.5	74 - 129				
Toluene	19.07	1.0	20	0	95.4	80 - 121				
trans-1,2-Dichloroethene	19.56	1.0	20	0	97.8	75 - 124				
trans-1,3-Dichloropropene	20.02	1.0	20	0	100	73 - 127				
Trichloroethene	18.94	1.0	20	0	94.7	79 - 123				
Trichlorofluoromethane	17.56	1.0	20	0	87.8	65 - 141				
Vinyl chloride	17.16	1.0	20	0	85.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.7*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.55*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*50.71*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*49.5*	*1.0*	*50*	*0*	*99.0*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061279-02MS** Units: **UG/L** Analysis Date: **02-Jul-2019 14:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151553** 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	18.03	1.0	20	0	90.2	78 - 124				
1,1,1-Trichloroethane	18.04	1.0	20	0	90.2	74 - 131				
1,1,2,2-Tetrachloroethane	17.83	1.0	20	0	89.1	71 - 121				
1,1,2-Trichloroethane	18.28	1.0	20	0	91.4	80 - 119				
1,1-Dichloroethane	16.8	1.0	20	0	84.0	77 - 125				
1,1-Dichloroethene	17.59	1.0	20	0	88.0	71 - 131				
1,1-Dichloropropene	19.29	1.0	20	0	96.5	78 - 125				
1,2,3-Trichlorobenzene	18.52	1.0	20	0	92.6	69 - 129				
1,2,3-Trichloropropane	18.32	1.0	20	0	91.6	73 - 122				
1,2,4-Trichlorobenzene	18.51	1.0	20	0	92.6	69 - 130				
1,2,4-Trimethylbenzene	18.55	1.0	20	0	92.7	76 - 124				
1,2-Dibromo-3-chloropropane	18.32	1.0	20	0	91.6	62 - 128				
1,2-Dibromoethane	17.49	1.0	20	0	87.4	77 - 121				
1,2-Dichlorobenzene	17.91	1.0	20	0	89.5	80 - 119				
1,2-Dichloroethane	16.42	1.0	20	0	82.1	73 - 128				
1,2-Dichloropropane	17.32	1.0	20	0	86.6	78 - 122				
1,3,5-Trimethylbenzene	18.27	1.0	20	0	91.4	75 - 124				
1,3-Dichlorobenzene	17.89	1.0	20	0	89.5	80 - 119				
1,3-Dichloropropane	17.94	1.0	20	0	89.7	80 - 119				
1,4-Dichlorobenzene	19.13	1.0	20	0	95.7	79 - 118				
2,2-Dichloropropane	18.56	1.0	20	0	92.8	60 - 139				
2-Butanone	34.72	2.0	40	0	86.8	56 - 143				
2-Chlorotoluene	19.37	1.0	20	0	96.9	79 - 122				
2-Hexanone	31.75	2.0	40	0	79.4	57 - 139				
4-Chlorotoluene	19.3	1.0	20	0	96.5	78 - 122				
4-Isopropyltoluene	19.37	1.0	20	0	96.8	77 - 127				
4-Methyl-2-pentanone	32.44	2.0	40	0	81.1	67 - 130				
Acetone	37.3	2.0	40	0	93.2	39 - 160				
Benzene	18.39	1.0	20	0	92.0	79 - 120				
Bromobenzene	17.14	1.0	20	0	85.7	80 - 120				
Bromochloromethane	16.05	1.0	20	0	80.2	78 - 123				
Bromodichloromethane	17.72	1.0	20	0	88.6	79 - 125				
Bromoform	17.73	1.0	20	0	88.6	66 - 130				
Bromomethane	17.74	1.0	20	0	88.7	53 - 141				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061279-02MS** Units: **UG/L** Analysis Date: **02-Jul-2019 14:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151553** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	33.1	2.0	40	0	82.8	64 - 133				
Carbon tetrachloride	19.3	1.0	20	0	96.5	72 - 136				
Chlorobenzene	17.94	1.0	20	0	89.7	82 - 118				
Chloroethane	16.25	1.0	20	0	81.3	60 - 138				
Chloroform	17.26	1.0	20	0	86.3	79 - 124				
Chloromethane	17.74	1.0	20	0	88.7	50 - 139				
cis-1,2-Dichloroethene	17.2	1.0	20	0	86.0	78 - 123				
cis-1,3-Dichloropropene	16.63	1.0	20	0	83.2	75 - 124				
Dibromochloromethane	17.38	1.0	20	0	86.9	74 - 126				
Dibromomethane	17.13	1.0	20	0	85.6	79 - 123				
Dichlorodifluoromethane	17.34	1.0	20	0	86.7	32 - 152				
Ethylbenzene	18.59	1.0	20	0	93.0	79 - 121				
Hexachlorobutadiene	21.22	1.0	20	0	106	66 - 134				
Isopropylbenzene	19.1	1.0	20	0	95.5	72 - 131				
m,p-Xylene	37.18	2.0	40	0	92.9	80 - 121				
Methylene chloride	15.9	2.0	20	0	79.5	74 - 124				
Naphthalene	17.16	1.0	20	0	85.8	61 - 128				
n-Butylbenzene	19.55	1.0	20	0	97.7	75 - 128				
n-Propylbenzene	20	1.0	20	0	100	76 - 126				
o-Xylene	17.95	1.0	20	0	89.8	78 - 122				
sec-Butylbenzene	20.61	1.0	20	0	103	77 - 126				
Styrene	18.46	1.0	20	0	92.3	78 - 123				
tert-Butylbenzene	20.24	1.0	20	0	101	78 - 124				
Tetrachloroethene	19.16	1.0	20	0	95.8	74 - 129				
Toluene	18.03	1.0	20	0	90.1	80 - 121				
trans-1,2-Dichloroethene	17.55	1.0	20	0	87.8	75 - 124				
trans-1,3-Dichloropropene	16.75	1.0	20	0	83.7	73 - 127				
Trichloroethene	18.63	1.0	20	0	93.1	79 - 123				
Trichlorofluoromethane	17.98	1.0	20	0	89.9	65 - 141				
Vinyl chloride	16.37	1.0	20	0	81.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.67*	*1.0*	*50*	*0*	*95.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.65*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*47.23*	*1.0*	*50*	*0*	*94.5*	*80 - 119*				
Surr: Toluene-d8	*48.99*	*1.0*	*50*	*0*	*98.0*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19061279-02MSD** Units: **UG/L** Analysis Date: **02-Jul-2019 14:50**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151554** 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	18.01	1.0	20	0	90.1	78 - 124	18.03	0.0865	20	
1,1,1-Trichloroethane	18.39	1.0	20	0	92.0	74 - 131	18.04	1.93	20	
1,1,2,2-Tetrachloroethane	18.7	1.0	20	0	93.5	71 - 121	17.83	4.76	20	
1,1,2-Trichloroethane	18.66	1.0	20	0	93.3	80 - 119	18.28	2.05	20	
1,1-Dichloroethane	17.35	1.0	20	0	86.8	77 - 125	16.8	3.26	20	
1,1-Dichloroethene	17.79	1.0	20	0	89.0	71 - 131	17.59	1.14	20	
1,1-Dichloropropene	19.11	1.0	20	0	95.6	78 - 125	19.29	0.936	20	
1,2,3-Trichlorobenzene	20.01	1.0	20	0	100	69 - 129	18.52	7.74	20	
1,2,3-Trichloropropane	18.82	1.0	20	0	94.1	73 - 122	18.32	2.72	20	
1,2,4-Trichlorobenzene	19.44	1.0	20	0	97.2	69 - 130	18.51	4.86	20	
1,2,4-Trimethylbenzene	18.6	1.0	20	0	93.0	76 - 124	18.55	0.272	20	
1,2-Dibromo-3-chloropropane	19.01	1.0	20	0	95.1	62 - 128	18.32	3.69	20	
1,2-Dibromoethane	18.08	1.0	20	0	90.4	77 - 121	17.49	3.33	20	
1,2-Dichlorobenzene	18.35	1.0	20	0	91.8	80 - 119	17.91	2.45	20	
1,2-Dichloroethane	17.01	1.0	20	0	85.0	73 - 128	16.42	3.48	20	
1,2-Dichloropropane	17.17	1.0	20	0	85.9	78 - 122	17.32	0.85	20	
1,3,5-Trimethylbenzene	18.34	1.0	20	0	91.7	75 - 124	18.27	0.352	20	
1,3-Dichlorobenzene	18.32	1.0	20	0	91.6	80 - 119	17.89	2.37	20	
1,3-Dichloropropane	18.22	1.0	20	0	91.1	80 - 119	17.94	1.56	20	
1,4-Dichlorobenzene	19.85	1.0	20	0	99.3	79 - 118	19.13	3.69	20	
2,2-Dichloropropane	18.5	1.0	20	0	92.5	60 - 139	18.56	0.293	20	
2-Butanone	36.4	2.0	40	0	91.0	56 - 143	34.72	4.73	20	
2-Chlorotoluene	19.38	1.0	20	0	96.9	79 - 122	19.37	0.0148	20	
2-Hexanone	33.92	2.0	40	0	84.8	57 - 139	31.75	6.59	20	
4-Chlorotoluene	19.53	1.0	20	0	97.6	78 - 122	19.3	1.14	20	
4-Isopropyltoluene	19.16	1.0	20	0	95.8	77 - 127	19.37	1.05	20	
4-Methyl-2-pentanone	34.11	2.0	40	0	85.3	67 - 130	32.44	5.02	20	
Acetone	38.91	2.0	40	0	97.3	39 - 160	37.3	4.23	20	
Benzene	18.33	1.0	20	0	91.7	79 - 120	18.39	0.339	20	
Bromobenzene	17.11	1.0	20	0	85.5	80 - 120	17.14	0.209	20	
Bromochloromethane	16.97	1.0	20	0	84.9	78 - 123	16.05	5.62	20	
Bromodichloromethane	18.02	1.0	20	0	90.1	79 - 125	17.72	1.67	20	
Bromoform	18.17	1.0	20	0	90.9	66 - 130	17.73	2.47	20	
Bromomethane	17.59	1.0	20	0	88.0	53 - 141	17.74	0.834	20	

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19061279-02MSD** Units: **UG/L** Analysis Date: **02-Jul-2019 14:50**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151554** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	33.18	2.0	40	0	83.0	64 - 133	33.1	0.239	20	
Carbon tetrachloride	19.29	1.0	20	0	96.5	72 - 136	19.3	0.0519	20	
Chlorobenzene	18.04	1.0	20	0	90.2	82 - 118	17.94	0.592	20	
Chloroethane	17.66	1.0	20	0	88.3	60 - 138	16.25	8.29	20	
Chloroform	17.58	1.0	20	0	87.9	79 - 124	17.26	1.83	20	
Chloromethane	16.74	1.0	20	0	83.7	50 - 139	17.74	5.81	20	
cis-1,2-Dichloroethene	17.71	1.0	20	0	88.5	78 - 123	17.2	2.9	20	
cis-1,3-Dichloropropene	17.24	1.0	20	0	86.2	75 - 124	16.63	3.63	20	
Dibromochloromethane	17.51	1.0	20	0	87.6	74 - 126	17.38	0.749	20	
Dibromomethane	17.5	1.0	20	0	87.5	79 - 123	17.13	2.13	20	
Dichlorodifluoromethane	16.92	1.0	20	0	84.6	32 - 152	17.34	2.41	20	
Ethylbenzene	18.48	1.0	20	0	92.4	79 - 121	18.59	0.622	20	
Hexachlorobutadiene	21.2	1.0	20	0	106	66 - 134	21.22	0.0826	20	
Isopropylbenzene	19.21	1.0	20	0	96.1	72 - 131	19.1	0.57	20	
m,p-Xylene	36.92	2.0	40	0	92.3	80 - 121	37.18	0.695	20	
Methylene chloride	16.19	2.0	20	0	81.0	74 - 124	15.9	1.84	20	
Naphthalene	18.92	1.0	20	0	94.6	61 - 128	17.16	9.76	20	
n-Butylbenzene	19.36	1.0	20	0	96.8	75 - 128	19.55	0.956	20	
n-Propylbenzene	20.01	1.0	20	0	100	76 - 126	20	0.0421	20	
o-Xylene	18.32	1.0	20	0	91.6	78 - 122	17.95	2.02	20	
sec-Butylbenzene	20.38	1.0	20	0	102	77 - 126	20.61	1.12	20	
Styrene	18.72	1.0	20	0	93.6	78 - 123	18.46	1.41	20	
tert-Butylbenzene	20.29	1.0	20	0	101	78 - 124	20.24	0.291	20	
Tetrachloroethene	18.91	1.0	20	0	94.5	74 - 129	19.16	1.35	20	
Toluene	18	1.0	20	0	90.0	80 - 121	18.03	0.169	20	
trans-1,2-Dichloroethene	17.99	1.0	20	0	90.0	75 - 124	17.55	2.49	20	
trans-1,3-Dichloropropene	17.13	1.0	20	0	85.7	73 - 127	16.75	2.28	20	
Trichloroethene	18.32	1.0	20	0	91.6	79 - 123	18.63	1.68	20	
Trichlorofluoromethane	18	1.0	20	0	90.0	65 - 141	17.98	0.106	20	
Vinyl chloride	16.22	1.0	20	0	81.1	58 - 137	16.37	0.923	20	
Surr: 1,2-Dichloroethane-d4	*48.93*	*1.0*	*50*	*0*	*97.9*	*81 - 118*	*47.67*	*2.6*	*20*	
Surr: 4-Bromofluorobenzene	*49.69*	*1.0*	*50*	*0*	*99.4*	*85 - 114*	*49.65*	*0.063*	*20*	
Surr: Dibromofluoromethane	*48.03*	*1.0*	*50*	*0*	*96.1*	*80 - 119*	*47.23*	*1.66*	*20*	
Surr: Toluene-d8	*49.1*	*1.0*	*50*	*0*	*98.2*	*89 - 112*	*48.99*	*0.233*	*20*	

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP 18 24
WorkOrder:	HS19061383

QC BATCH REPORT

Batch ID:	**R341768 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:	HS19061383-01	HS19061383-02	HS19061383-03	HS19061383-04
	HS19061383-05			

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 15:45**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153631** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.09*	*1.0*	*50*	*0*	*92.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.05*	*1.0*	*50*	*0*	*96.1*	*85 - 114*				
Surr: Dibromofluoromethane	*44.95*	*1.0*	*50*	*0*	*89.9*	*80 - 119*				
Surr: Toluene-d8	*48.5*	*1.0*	*50*	*0*	*97.0*	*89 - 112*				

LCS Sample ID: **VLCSW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 14:57**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153630** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	17.79	1.0	20	0	89.0	79 - 123				
Surr: 1,2-Dichloroethane-d4	*49.62*	*1.0*	*50*	*0*	*99.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.98*	*1.0*	*50*	*0*	*96.0*	*85 - 114*				
Surr: Dibromofluoromethane	*49.25*	*1.0*	*50*	*0*	*98.5*	*80 - 119*				
Surr: Toluene-d8	*45.94*	*1.0*	*50*	*0*	*91.9*	*89 - 112*				

MS Sample ID: **HS19061486-01MS** Units: **UG/L** Analysis Date: **03-Jul-2019 18:08**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153637** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	19.25	1.0	20	0	96.3	79 - 123				
Surr: 1,2-Dichloroethane-d4	*45.86*	*1.0*	*50*	*0*	*91.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.41*	*1.0*	*50*	*0*	*96.8*	*85 - 114*				
Surr: Dibromofluoromethane	*45.73*	*1.0*	*50*	*0*	*91.5*	*80 - 119*				
Surr: Toluene-d8	*47.34*	*1.0*	*50*	*0*	*94.7*	*89 - 112*				

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061383

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061486-01MSD** Units: **UG/L** Analysis Date: **03-Jul-2019 18:32**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153638** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	17.49	1.0	20	0	87.5	79 - 123	19.25	9.57	20	
Surr: 1,2-Dichloroethane-d4	*47.12*	*1.0*	*50*	*0*	*94.2*	*81 - 118*	*45.86*	*2.7*	*20*	
Surr: 4-Bromofluorobenzene	*48.48*	*1.0*	*50*	*0*	*97.0*	*85 - 114*	*48.41*	*0.13*	*20*	
Surr: Dibromofluoromethane	*46.14*	*1.0*	*50*	*0*	*92.3*	*80 - 119*	*45.73*	*0.893*	*20*	
Surr: Toluene-d8	*46.66*	*1.0*	*50*	*0*	*93.3*	*89 - 112*	*47.34*	*1.44*	*20*	

The following samples were analyzed in this batch: HS19061383-04

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061383**

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

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ALS Houston, US Date: 12-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061383
Date/Time Received: **26-Jun-2019 08:50**
Received by: **PMG**

Checklist completed by: *Paresh M. Giga* eSignature 26-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 26-Jun-2019 Date

Matrices: **Water**
Carrier name: **FedEx**

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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	2.7c U/C	IR11
Cooler(s)/Kit(s):	43642	
Date/Time sample(s) sent to storage:	6/26/19 16:10	

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:

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bhate
ENVIRONMENTAL CONSTRUCTION ENERGY

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

Page: 1 of 1

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

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)	Sample Analysis Requested (5): Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
18SITMW14-062519		25-Jun-2019	0740	-	N		WG	6	3	1	1	1				
18SITMW24-062519		25 Jun 2019	0925	-	N		WG	5	3	1		1				
18SITMW07-062519		25 Jun 2019	1045	-	N		WG	5	3	1		1				
MW3-062519		25 Jun 2019	1235		N		WG	6	3	1	1	1				
Trip Blank		25 Jun 2019			TB		WS	2								
				-												
				-												
				-												
				-												
				-												
				-												

HS19061383
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Kenneth Moore	6/25/19	1430	1. PMC	06/26/19	0850
2.			2. cooler # 43642		temp 2.7°C
3.			3.		IR 11

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped: Fedex No.:

Method of Shipment: Fedex

Fed Ex Airbill Number: 4891783932 73

Analytical Lab: ALS 10450 Stancliff 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

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00941505

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

43642

CUSTODY SEAL

Date: 6/25/19 Time: 1430
Name: Scott Beesiner
Company: BHATE

Seal Broken By: SM
Date: 06/26/19

43642 JUN 26 2019

Must Deliver Next Business Day
Time and Tempature Sensitive!

43642

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: 24MAY19
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON 77099
(281) 530-5656
REF: LHAAP/18/24 & SURFACE WATER - RJ

RMA:

FedEx Express

FedEx TRK# 0221 4809 7834 3273

WED - 26 JUN 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 162705 25JUN19 GGGA

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Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1918373, 1918525, 1918682

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2269 (243227)

General Set Information: There were eighteen field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 662917) was less than 1/2 the CRDL. The recovery for the LCS (662918) was within acceptable parameters.

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MS/MSD Analysis: MS/MSD was performed on sample 1918373005 (Client ID: 18WW03_062419). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The MS/MSD percent recoveries and relative percent difference were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 662915) is reported from the analysis of the Laboratory Control Sample (LCS – 662918) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 10JULD13.

Thomas Bosch — July 11, 2019
Analyst — Date

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ANALYTICAL REPORT

Report Date: July 11, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918525**
Project ID: HS19061383
Purchase Order: HS19061383
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
18CPTMW14_062519	1918525001	06/25/19	06/27/19	
18CPTMW24_062519	1918525002	06/25/19	06/27/19	
18CPTMW07_062519	1918525003	06/25/19	06/27/19	
MW3_062519	1918525004	06/25/19	06/27/19	

ANALYTICAL REPORT

Workorder: 34-1918525
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18CPTMW14_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918525001 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 12:18 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**1300**	100	200	400	100	

Sample ID: **18CPTMW24_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918525002 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 12:46 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**89**	10	20	40	10	

Sample ID: **18CPTMW07_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918525003 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 13:00 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	1.4	1.0	2.0	4.0	1	J

Sample ID: **MW3_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918525004 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 13:39 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**11000**	1000	2000	4000	1000	

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ANALYTICAL REPORT

Workorder: 34-1918525
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Comments

Quality Control: EPA 6850, DoD QSM - (HBN: 243227)

Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/11/2019 10:28	/S/ Stephen Brose 07/11/2019 13:28

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1918525
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918525

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2269 (HBN: 243227)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 662917
Analyzed: 07/10/2019 09:31
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 662918
Analyzed: 07/10/2019 09:03
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.25	4.00	106	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

	Sample	MS	MSD
	1918373005	662919	662920
Analyzed:	07/10/2019 10:41	07/10/2019 10:55	07/10/2019 11:09
Dilution:	1	1	1
Units:	ug/L	ug/L	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.87	4	122	78.8	123.8	4.01	100	19.3	0.0	20.0

Comments

Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch 07/11/2019 11:05	/S/ Stephen Brose 07/11/2019 13:28

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19061383	***Split:***	**Workorder ID:** 1918525	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	06/25/2019 07:40	18CPTMW14_062519	1918525001		Water	A	1	A
2	06/25/2019 09:25	18CPTMW24_062519	1918525002		Water	A	1	A
3	06/25/2019 10:45	18CPTMW07_062519	1918525003		Water	A	1	A
4	06/25/2019 12:25	MW3_062519	1918525004		Water	A	1	A
5								
6								
7								
8								
9								
10								

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ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Waratli, Julie	06/27/2019 09:07	ALS Sample Receiving	Sample Login
Julie Waratli 06/27/19 1400		LB	Storage
R-33.1	07-09.19/11:10	T.Bud	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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00941514

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

W 1918525

Subcontract Chain of Custody

SAMPLING STATE: Texas

COC ID: 11680

1918525

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS19061383
TSR: Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19061383-01**	**18CPTMW14_062519**	**Water**	**25 Jun 2019 07:40**
	SUB_Perch-6850			05 Jul 2019
2.	**HS19061383-02**	**18CPTMW24_062519**	**Water**	**25 Jun 2019 09:25**
	SUB_Perch-6850			05 Jul 2019
3.	**HS19061383-03**	**18CPTMW07_062519**	**Water**	**25 Jun 2019 10:45**
	SUB_Perch-6850			05 Jul 2019
4.	**HS19061383-04**	**MW3_062519**	**Water**	**25 Jun 2019 12:35**
	SUB_Perch-6850			05 Jul 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 6/26/19 1800.

Received By: _____ Date/Time: 06/27/19 0907

Cooler ID(s): _____ Temperature(s): _____

Custody Seal Intact RW

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ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ASL Houston

Project/Task/Site: 191525

Date/Time of Receipt: 062719 0907

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Location Temp Taken:	Cooler/Between Samples
Container Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA		
	Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9732	3 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: [signature] (Signature) Rebecca Wise (Printed Name) 062719 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018

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Must Deliver Next Business Day
Time and Tempature Sensitive!

ALS

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 26JUN19
ACTWGT: 18.70 LB
CAD: 3001307CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19061383-RJ

FedEx Express

TRK# 0201 4809 7835 3973

THU - 27 JUN 3:00P
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2269 Created: 7/10/2019 08:39 Instrument: HBN: 243227

Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 1918373 [ENV_LVL4]
Workorder: 1918525 [ENV_LVL4]
Workorder: 1918682 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	662914	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	
2	662915	RLVS for HBN 243227 [ELMS/2269				RLVS	3		E685041C3Q	5311		7/10/2019	
3	662916	ICS for HBN 243227 [ELMS/2269]				ICS	3		E6850..D3Q	5311		7/10/2019	
4	662917	LMB for HBN 243227 [ELMS/2269]				LMB	3		E6850Q413Q	5311		7/10/2019	
5	662918	LCS for HBN 243227 [ELMS/2269]				LCS	3		E6850Q413Q	5311		7/10/2019	
6	1918373001	129_062419				SAMPLE	3	1918373001-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
7	1918373002	102_062419				SAMPLE	3	1918373002-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
8	1918373003	MW23_062419				SAMPLE	3	1918373003-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
9	1918373004	126_062419				SAMPLE	3	1918373004-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
10	1918373005	18WW03_062419				SAMPLE	3	1918373005-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
11	662919	18WW03_062419(1918373005MS)				MS	3		E6850Q413Q	5311		7/10/2019	
12	662920	18WW03_062419(1918373005MSD)				MSD	3		E6850Q413Q	5311		7/10/2019	
13	1918373006	18WW03_062419_a				SAMPLE	3	1918373006-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
14	1918373007	18WW18_062419				SAMPLE	3	1918373007-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
15	1918373008	18WW17_062419				SAMPLE	3	1918373008-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
16	1918373009	125_062419				SAMPLE	3	1918373009-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
17	1918525001	18CPTMW14_062519				SAMPLE	3	1918525001-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
18	662921	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	
19	1918525002	18CPTMW24_062519				SAMPLE	3	1918525002-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
20	1918525003	18CPTMW07_062519				SAMPLE	3	1918525003-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
21	1918525004	MW3_062519				SAMPLE	3	1918525004-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
22	1918682001	AW04_062619				SAMPLE	3	1918682001-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
23	1918682002	AW04_062619_a				SAMPLE	3	1918682002-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
24	1918682003	18WW24_062619				SAMPLE	3	1918682003-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
25	1918682004	MW16_062619				SAMPLE	3	1918682004-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
26	1918682005	MW19_062619				SAMPLE	3	1918682005-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
27	662922	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	

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00941518

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

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ALS Work Order #'s & Sample #( )'s: 1918373 (001-09), 1918525 (001-04); 1918682 (001-05)
ELMS Batch/HBN ID: 2269 (243227)
Prep Date: 07/08/2019 Analysis Date: 07/10/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\10JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 662918; Target = 4.0µg/L. ASTM type II water was used for LMB 662917.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1918273005 (Client ID: 18WW03_062419). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\243227-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 662915) is reported from the analysis of the Laboratory Control Sample (LCS – 662918) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 10JULD13.

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5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2269 HBN: 243227 Sample Set IDs if Applicable: 1918373/1918525/1918682	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SD
Standards traceability checked and meets criteria	TB	SD
Standard curve coefficients evaluated and meet criteria	TB	SD
ICVs analyzed and meet acceptance criteria	TB	SD
CCVs analyzed and meet acceptance criteria	TB	SD
Method Blanks analyzed and meet acceptance criteria	TB	SD
Retention Time Windows checked	TB	SD
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SD
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SD
RLVS analyzed	TB	SD
Preparation and analysis hold times met	TB	SD
Preparation deviations and re-preparations noted when performed	TB	SD
Analysis deviations and re-analyses noted when performed	TB	SD
Sample dilution factors noted on reports	TB	SD
Electronic records in HBN transcription accuracy and completeness checked	TB	SD
Preparation and analysis calculations checked	TB	SD
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SD
Manual integrations checked	TB	SD

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STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 43659	Created By: Thomas Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 09/17/2018 09:09AM	Expires: 07/25/2020
MFG Lot: 218065075		Usable: No
Part ID: IC-PER-10X-1		Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration 1000 ug/mL
1	14797-73-0	Perchlorate	

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

ALSSTANDARDS V2.5
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STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

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STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ANAB ACCREDITED

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: JCC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

AccuStandard®

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

Not Standard

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

OR-ORG/INO-001
Rev. 5/18

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Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

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Batch Report: C:\HPCHEM\1\DATA\10JUL19D\10JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	662914 CCV@25	Vial 71	1	Control	1	2.68575e6	8.115	26.05294
#*	662915 QC@4.0	Vial 72	1	Control	2	4.44100e5	7.955	4.24940
#*	662916 ICS@4.0	Vial 73	1	Control	3	3.60514e5	7.907	3.90243
#*	662917 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	1918373001 1K	Vial 75	1	Sample	5	4.64595e5	8.475	4196.25594
#*	1918373002	Vial 76	1	Sample	6	2.67439e6	8.256	32.95864
#*	1918373003 10K	Vial 77	1	Sample	7	7.50173e5	8.471	6.69552e4
#*	1918373004	Vial 78	1	Sample	8	9.59698e4	7.479	3.07958 RERUN
#*	1918373005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
#*	662919 183735S	Vial 80	1	Sample	10	3.55093e5	7.925	4.86521
#*	662920 183735D	Vial 81	1	Sample	11	3.66789e5	7.925	4.01055
#*	1918373006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1918373007	Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1918373008 10K	Vial 84	1	Sample	14	7.80844e5	8.547	8.50126e4
#*	1918373009 10	Vial 85	1	Sample	15	2.50033e6	8.517	259.32134
#*	1918525001 100	Vial 86	1	Sample	16	1.50160e6	8.459	1335.16188
#*	1918525002 10	Vial 87	1	Sample	18	8.01472e5	7.834	89.40283
#*	1918525003	Vial 88	1	Sample	19	9.97190e4	7.920	1.35329
#*	662921 CCV@25	Vial 71	1	Control	20	2.50454e6	8.326	26.47813
#*	1918525004 1K	Vial 89	1	Sample	21	9.11871e5	8.541	1.14090e4
#*	1918682001	Vial 90	1	Sample	22	2.47257e6	7.964	22.97557
#*	1918682002	Vial 91	1	Sample	23	2.64966e6	7.956	27.09987
#*	1918682003	Vial 92	1	Sample	24	0.00000	0.000	0.00000
#*	1918682004 100	Vial 93	1	Sample	25	3.17764e6	8.495	2867.69131
#*	1918682005	Vial 94	1	Sample	26	0.00000	0.000	0.00000
#*	1918373004 4X	Vial 95	1	Sample	27	1.13898e5	7.615	5.92026
*	662922 CCV@25	Vial 71	1	Control	28	2.33580e6	8.325	25.58048

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	662914 CCV@25	Vial 71	1	Control	1	8.00069e5	8.120	26.14885
#*	662915 QC@4.0	Vial 72	1	Control	2	1.43143e5	7.988	4.46175
#*	662916 ICS@4.0	Vial 73	1	Control	3	1.13240e5	7.926	3.97989
#*	662917 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	1918373001 1K	Vial 75	1	Sample	5	1.47350e5	8.502	4333.79914
#*	1918373002	Vial 76	1	Sample	6	8.00737e5	8.266	33.28426
#*	1918373003 10K	Vial 77	1	Sample	7	2.30473e5	8.475	6.80005e4
#*	1918373004	Vial 78	1	Sample	8	4.60480e4	7.515	4.72828
#*	1918373005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
#*	662919 183735S	Vial 80	1	Sample	10	1.12035e5	7.945	5.02607
#*	662920 183735D	Vial 81	1	Sample	11	1.15347e5	7.933	4.09972
#*	1918373006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1918373007	Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1918373008 10K	Vial 84	1	Sample	14	2.43153e5	8.561	8.79445e4
#*	1918373009 10	Vial 85	1	Sample	15	7.49555e5	8.537	261.83216
#*	1918525001 100	Vial 86	1	Sample	16	4.61812e5	8.478	1373.76036
#*	1918525002 10	Vial 87	1	Sample	18	2.59266e5	7.849	96.09405
#*	1918525003	Vial 88	1	Sample	19	3.44592e4	7.913	1.39474
#*	662921 CCV@25	Vial 71	1	Control	20	7.43673e5	8.350	26.49691
#*	1918525004 1K	Vial 89	1	Sample	21	2.92673e5	8.563	1.22133e4
#*	1918682001	Vial 90	1	Sample	22	7.38653e5	7.982	23.10212
#*	1918682002	Vial 91	1	Sample	23	7.84495e5	7.975	27.04927
#*	1918682003	Vial 92	1	Sample	24	0.00000	0.000	0.00000
#*	1918682004 100	Vial 93	1	Sample	25	9.49732e5	8.511	2888.99473
#*	1918682005	Vial 94	1	Sample	26	0.00000	0.000	0.00000
#*	1918373004 4X	Vial 95	1	Sample	27	4.50105e4	7.626	7.05823
*	662922 CCV@25	Vial 71	1	Control	28	6.93327e5	8.339	25.58423

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Batch Report: C:\HPCHEM\1\DATA\10JUL19D\10JUL19S.B

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	662914 CCV@25	Vial 71	1	Control	1	3.12850e5	8.129	5.00000
#*	662915 QC@4.0	Vial 72	1	Control	2	3.43351e5	7.987	5.00000
#*	662916 ICS@4.0	Vial 73	1	Control	3	3.04788e5	7.926	5.00000
#*	662917 LMB	Vial 74	1	Control	4	3.48541e5	8.334	5.00000
#*	1918373001 1K	Vial 75	1	Sample	5	3.63966e5	8.508	5000.00000
#*	1918373002	Vial 76	1	Sample	6	2.42366e5	8.286	5.00000
#*	1918373003 10K	Vial 77	1	Sample	7	3.61021e5	8.485	5.00000e4
#*	1918373004	Vial 78	1	Sample	8	1.04173e5	7.500	5.00000
#*	1918373005	Vial 79	1	Sample	9	2.68459e5	7.947	5.00000
#*	662919 183735S	Vial 80	1	Sample	10	2.38297e5	7.944	5.00000
#*	662920 183735D	Vial 81	1	Sample	11	3.01318e5	7.949	5.00000
#*	1918373006	Vial 82	1	Sample	12	2.95413e5	7.964	5.00000
#*	1918373007	Vial 83	1	Sample	13	2.56579e5	7.688	5.00000
#*	1918373008 10K	Vial 84	1	Sample	14	2.93278e5	8.572	5.00000e4
#*	1918373009 10	Vial 85	1	Sample	15	2.92692e5	8.542	50.00000
#*	1918525001 100	Vial 86	1	Sample	16	3.52862e5	8.475	500.00000
#*	1918525002 10	Vial 87	1	Sample	18	2.85701e5	7.853	50.00000
#*	1918525003	Vial 88	1	Sample	19	2.65508e5	7.924	5.00000
#*	662921 CCV@25	Vial 71	1	Control	20	2.86769e5	8.351	5.00000
#*	1918525004 1K	Vial 89	1	Sample	21	2.52353e5	8.562	5000.00000
#*	1918682001	Vial 90	1	Sample	22	3.29023e5	7.998	5.00000
#*	1918682002	Vial 91	1	Sample	23	2.95991e5	7.971	5.00000
#*	1918682003	Vial 92	1	Sample	24	3.47869e5	7.583	5.00000
#*	1918682004 100	Vial 93	1	Sample	25	3.34219e5	8.521	500.00000
#*	1918682005	Vial 94	1	Sample	26	2.68839e5	7.545	5.00000
#*	1918373004 4X	Vial 95	1	Sample	27	2.74118e5	7.639	20.00000
*	662922 CCV@25	Vial 71	1	Control	28	2.77422e5	8.334	5.00000

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\10JUL19D.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	662914 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	662915 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	662916 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	662917 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1918373001 1K	CLO4-AQN	1	Sample		
6	Vial 76	1918373002	CLO4-AQN	1	Sample		
7	Vial 77	1918373003 10K	CLO4-AQN	1	Sample		
8	Vial 78	1918373004	CLO4-AQN	1	Sample		
9	Vial 79	1918373005	CLO4-AQN	1	Sample		
10	Vial 80	662919 183735S	CLO4-AQN	1	Sample		
11	Vial 81	662920 183735D	CLO4-AQN	1	Sample		
12	Vial 82	1918373006	CLO4-AQN	1	Sample		
13	Vial 83	1918373007	CLO4-AQN	1	Sample		
14	Vial 84	1918373008 10K	CLO4-AQN	1	Sample		
15	Vial 85	1918373009 10	CLO4-AQN	1	Sample		
16	Vial 86	1918525001 100	CLO4-AQN	1	Sample		
17	Vial 71	662921 CCV@25	CLO4-AQN	1	Ctrl Samp		
18	Vial 87	1918525002 10	CLO4-AQN	1	Sample		
19	Vial 88	1918525003	CLO4-AQN	1	Sample		
20	Vial 71	662921 CCV@25	CLO4-AQN	1	Ctrl Samp		
21	Vial 89	1918525004 1K	CLO4-AQN	1	Sample		
22	Vial 90	1918682001	CLO4-AQN	1	Sample		
23	Vial 91	1918682002	CLO4-AQN	1	Sample		
24	Vial 92	1918682003	CLO4-AQN	1	Sample		
25	Vial 93	1918682004 100	CLO4-AQN	1	Sample		
26	Vial 94	1918682005	CLO4-AQN	1	Sample		
27	Vial 95	1918373004 4X	CLO4-AQN	1	Sample		
28	Vial 71	662922 CCV@25	CLO4-AQN	1	Ctrl Samp		

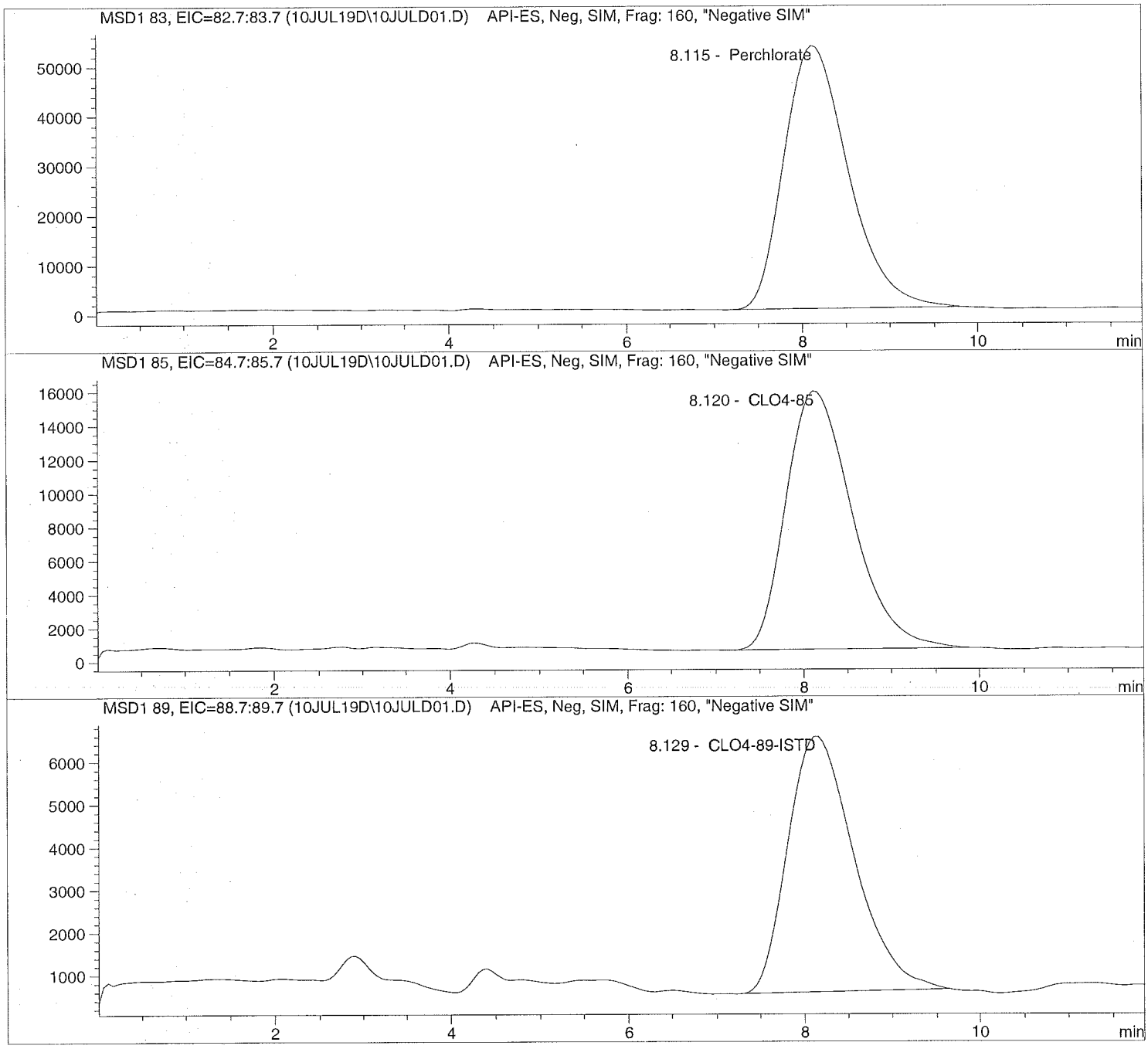
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD01.D Sample Name: 662914 CCV@25

Injection Date:	7/10/2019 08:48:22	Seq Line:	1
Sample Name:	662914 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD01.D Sample Name: 662914 CCV@25

Injection Date:	7/10/2019 08:48:22	Seq Line:	1
Sample Name:	662914 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.115	PBA	2685752.5	26.0529	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.120	PBA	800069.3	26.1488	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.129	PBA	312850.3	5.0000	CLO4-89-ISTD

*** End of Report ***

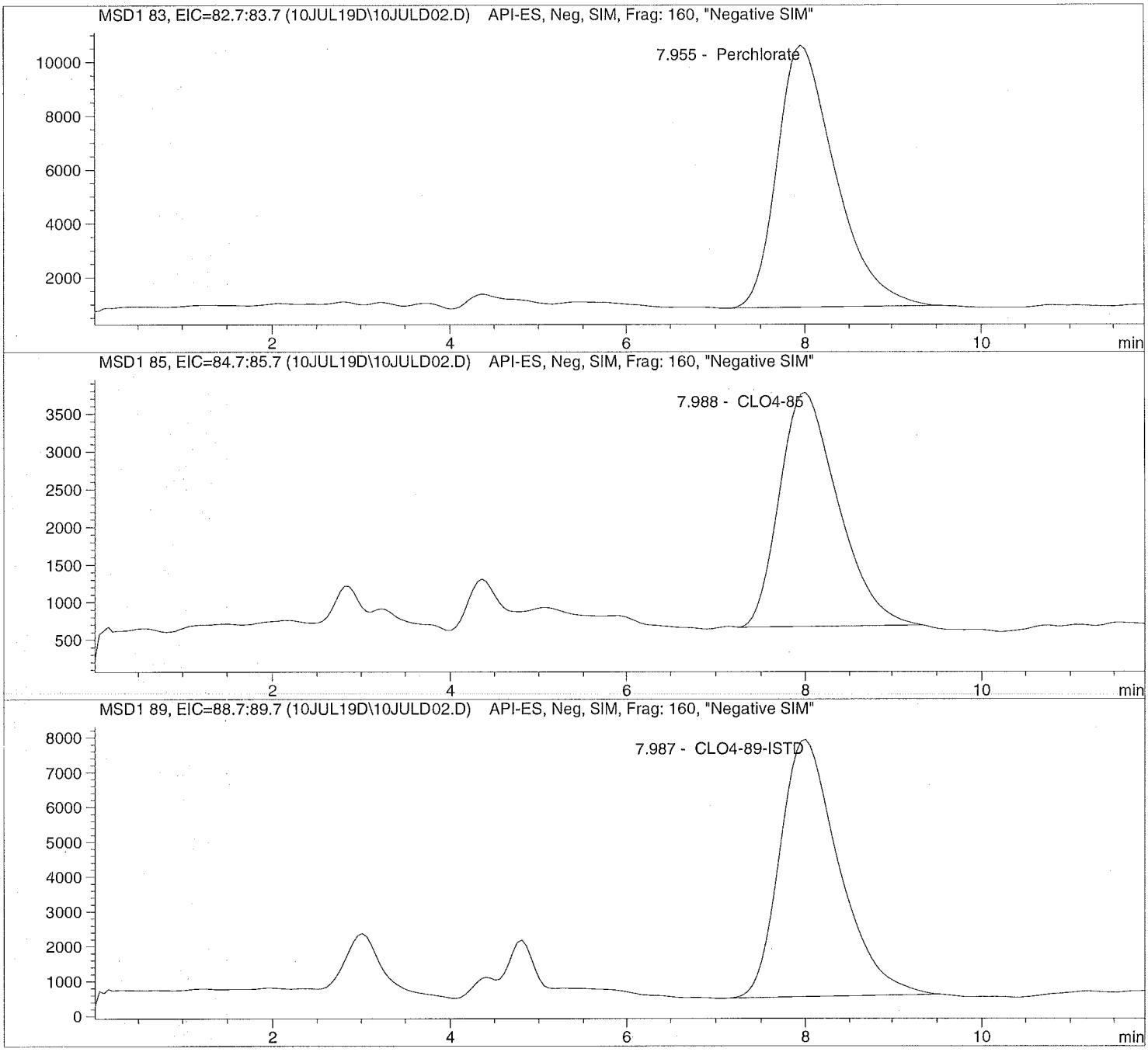
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD02.D Sample Name: 662915 QC@4.0

Injection Date:	7/10/2019 09:03:50	Seq Line:	2
Sample Name:	662915 QC@4.0	Location:	Vial 72
Acq Operator:	TNB RLVS	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD02.D Sample Name: 662915 QC@4.0

Injection Date:	7/10/2019 09:03:50	Seq Line:	2
Sample Name:	662915 QC@4.0	Location:	Vial 72
Acq Operator:	TNB RLVS	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.955	PBA	444100.1	4.2494	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.988	PBA	143143.3	4.4618	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.987	PBA	343351.4	5.0000	CLO4-89-ISTD

*** End of Report ***

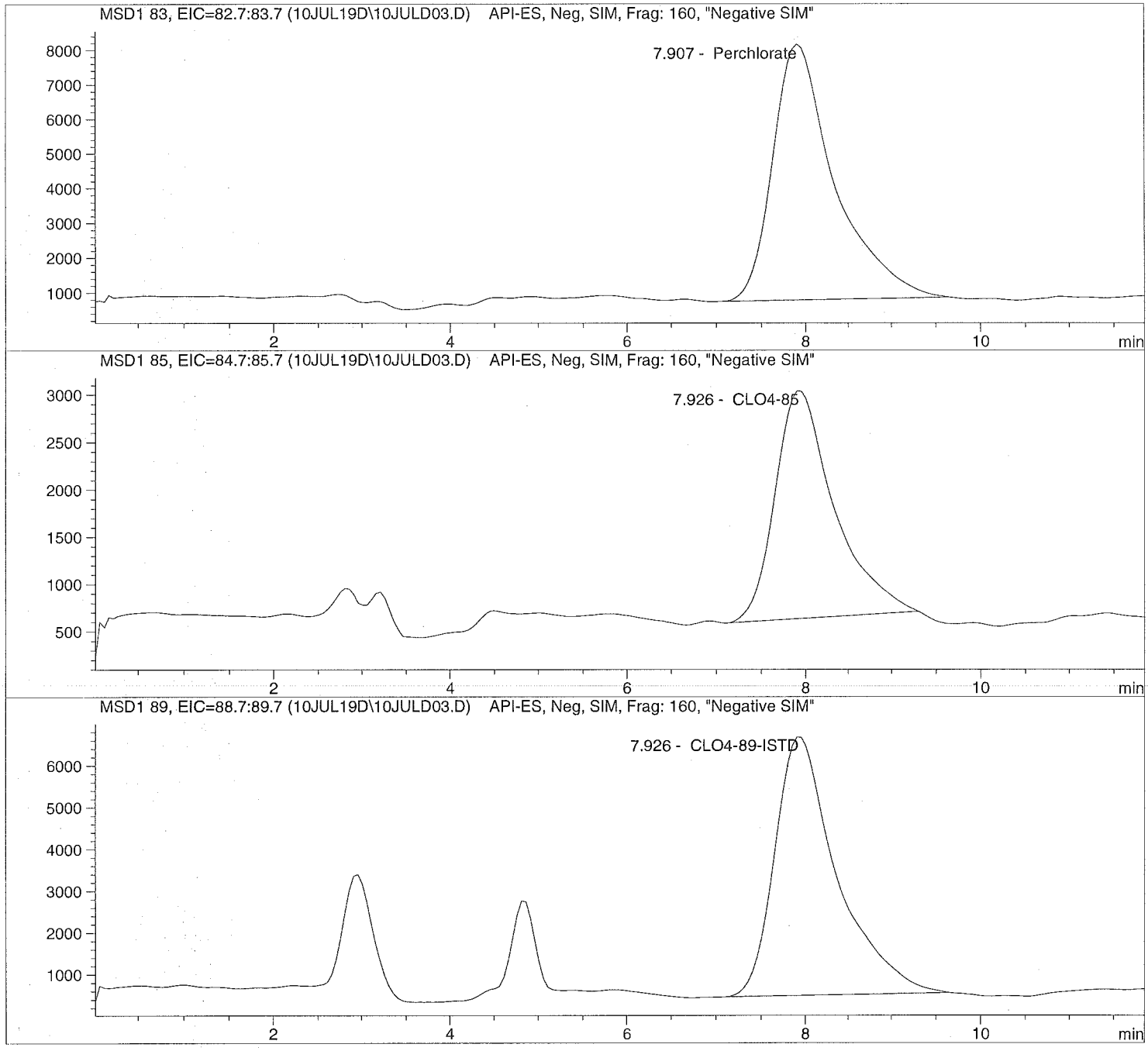
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD03.D Sample Name: 662916 ICS@4.0

Injection Date:	7/10/2019 09:17:42	Seq Line:	3
Sample Name:	662916 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD03.D Sample Name: 662916 ICS@4.0

Injection Date:	7/10/2019 09:17:42	Seq Line:	3
Sample Name:	662916 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.907	PBA	360514.4	3.9024	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	PBA	113239.5	3.9799	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	PBA	304787.5	5.0000	CLO4-89-ISTD

*** End of Report ***

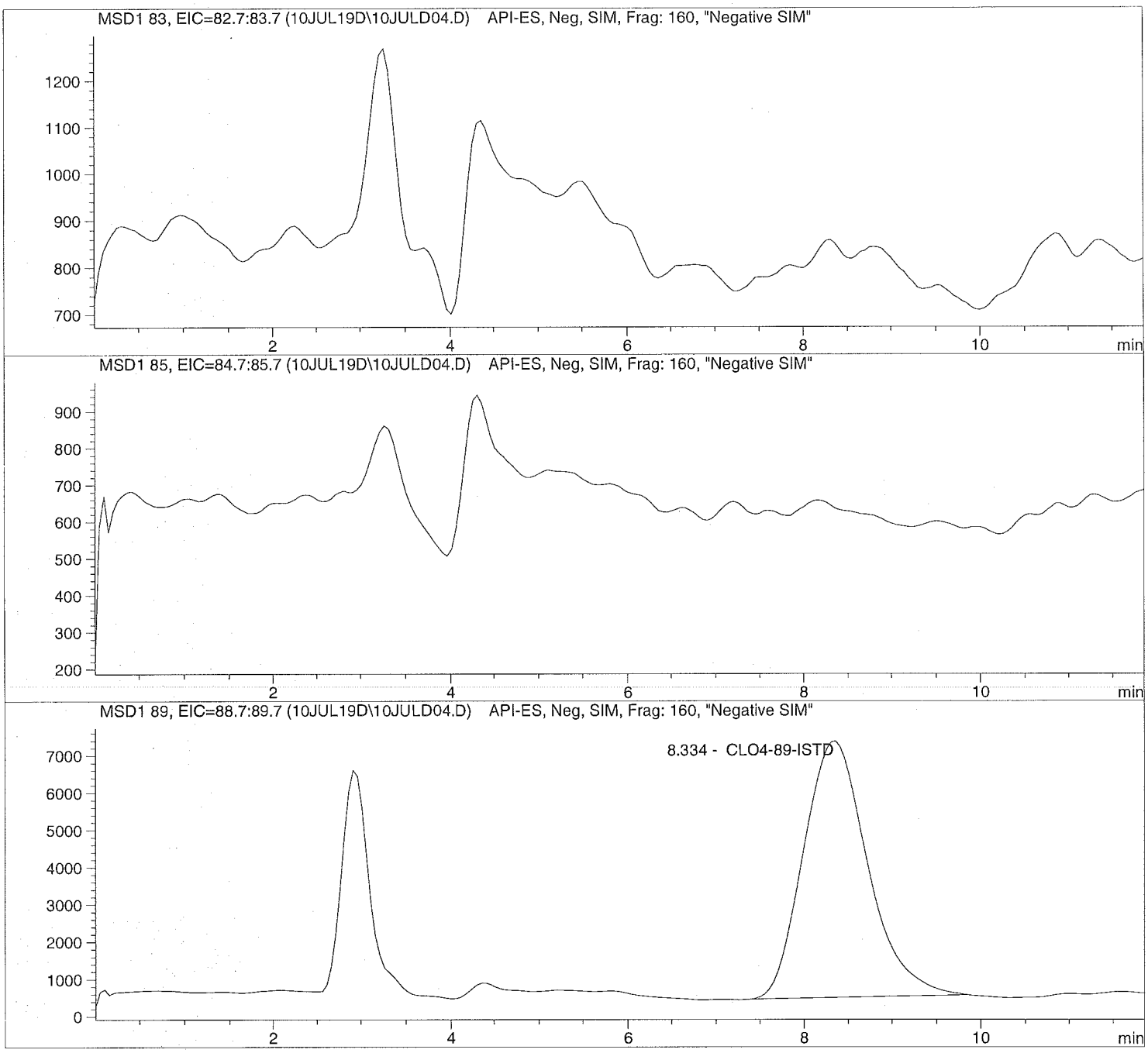
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD04.D Sample Name: 662917 LMB

Injection Date:	7/10/2019 09:31:38	Seq Line:	4
Sample Name:	662917 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD04.D Sample Name: 662917 LMB

Injection Date:	7/10/2019 09:31:38	Seq Line:	4
Sample Name:	662917 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.334	PBA	348541.0	5.0000	CLO4-89-ISTD

*** End of Report ***

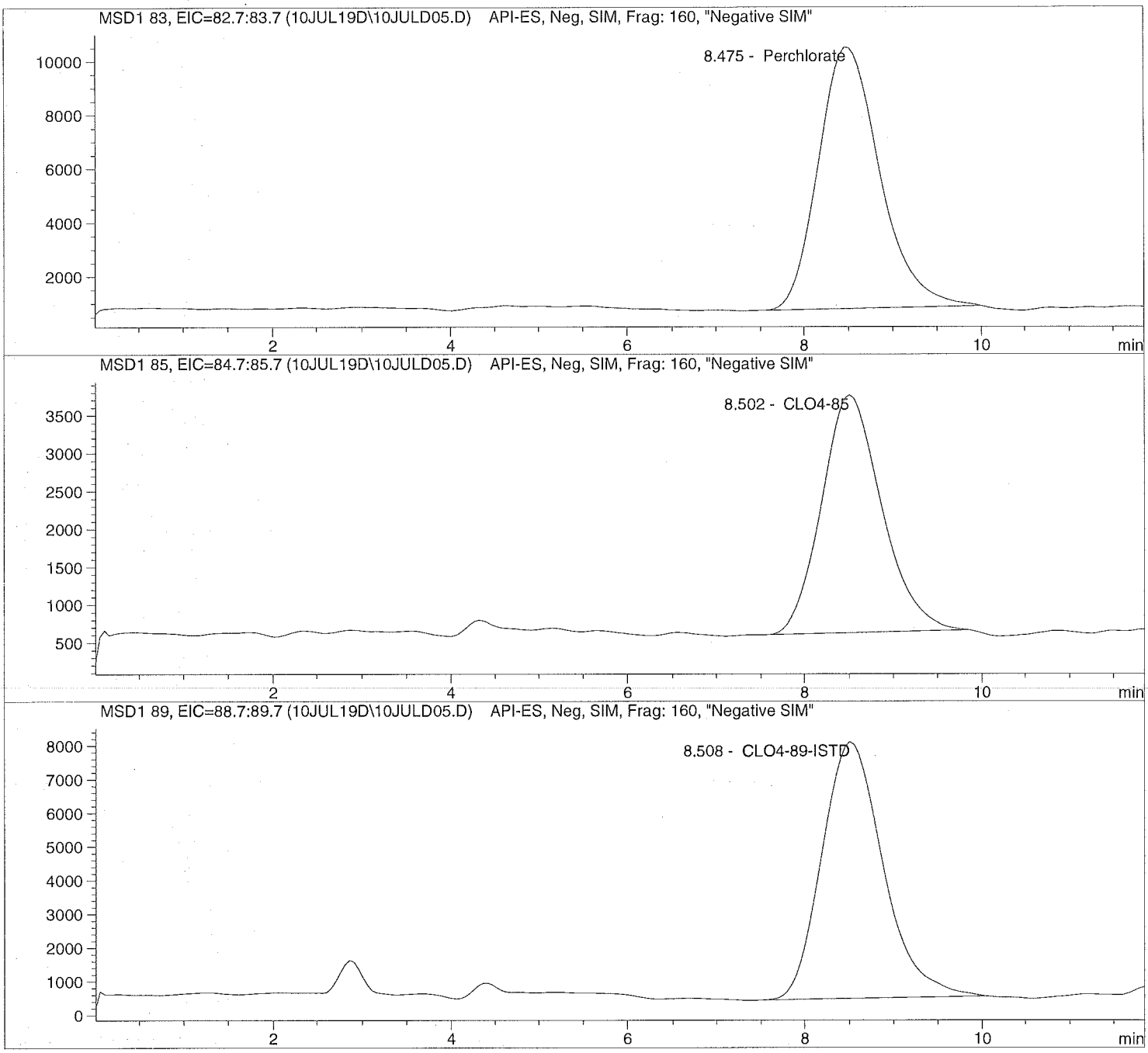
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD05.D Sample Name: 1918373001 1K

Injection Date:	7/10/2019 09:45:31	Seq Line:	5
Sample Name:	1918373001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD05.D Sample Name: 1918373001 1K

Injection Date:	7/10/2019 09:45:31	Seq Line:	5
Sample Name:	1918373001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	464595.3	4196.2559	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	147349.9	4333.7991	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.508	PBA	363966.2	5000.0000	CLO4-89-ISTD

*** End of Report ***

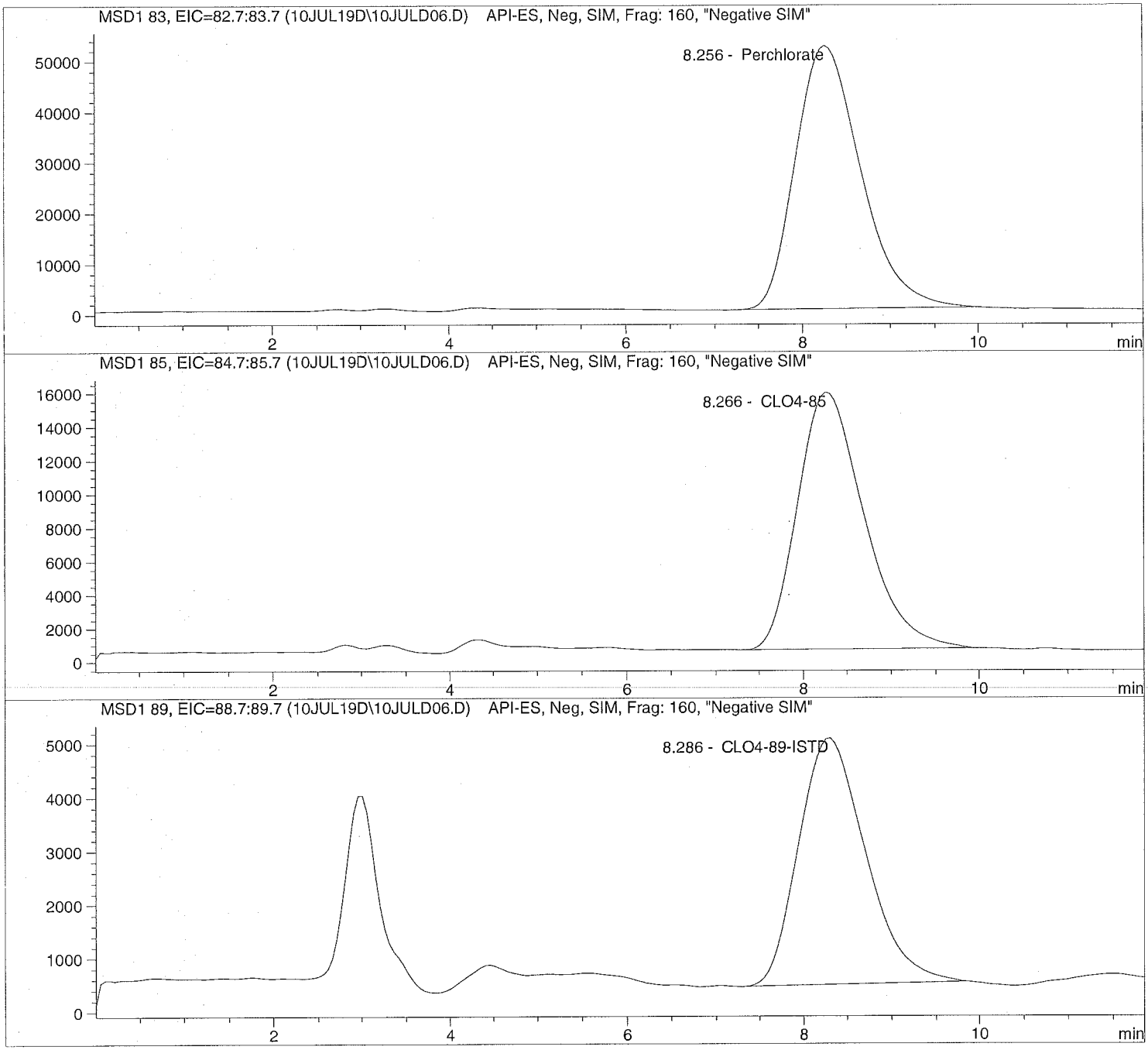
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD06.D Sample Name: 1918373002

Injection Date:	7/10/2019 09:59:30	Seq Line:	6
Sample Name:	1918373002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD06.D Sample Name: 1918373002

Injection Date:	7/10/2019 09:59:30	Seq Line:	6
Sample Name:	1918373002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.256	PBA	2674385.0	32.9586	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.266	PBA	800737.1	33.2843	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.286	PBA	242366.0	5.0000	CLO4-89-ISTD

*** End of Report ***

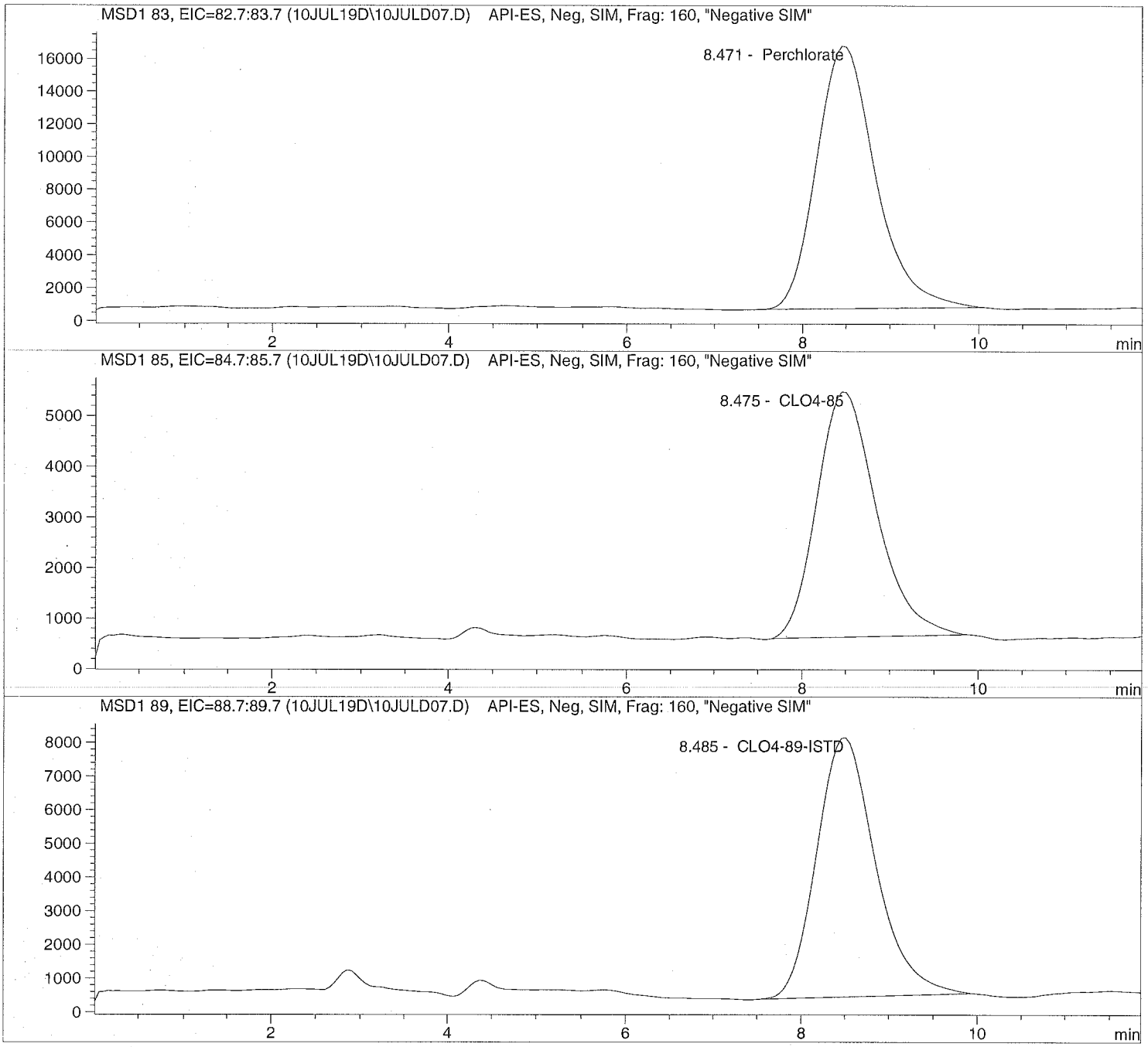
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD07.D Sample Name: 1918373003 10K

Injection Date:	7/10/2019 10:13:27	Seq Line:	7
Sample Name:	1918373003 10K	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD07.D Sample Name: 1918373003 10K

Injection Date:	7/10/2019 10:13:27	Seq Line:	7
Sample Name:	1918373003 10K	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.471	PBA	750172.8	66955.2143	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	230473.2	68000.4573	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.485	PBA	361021.3	50000.0000	CLO4-89-ISTD

*** End of Report ***

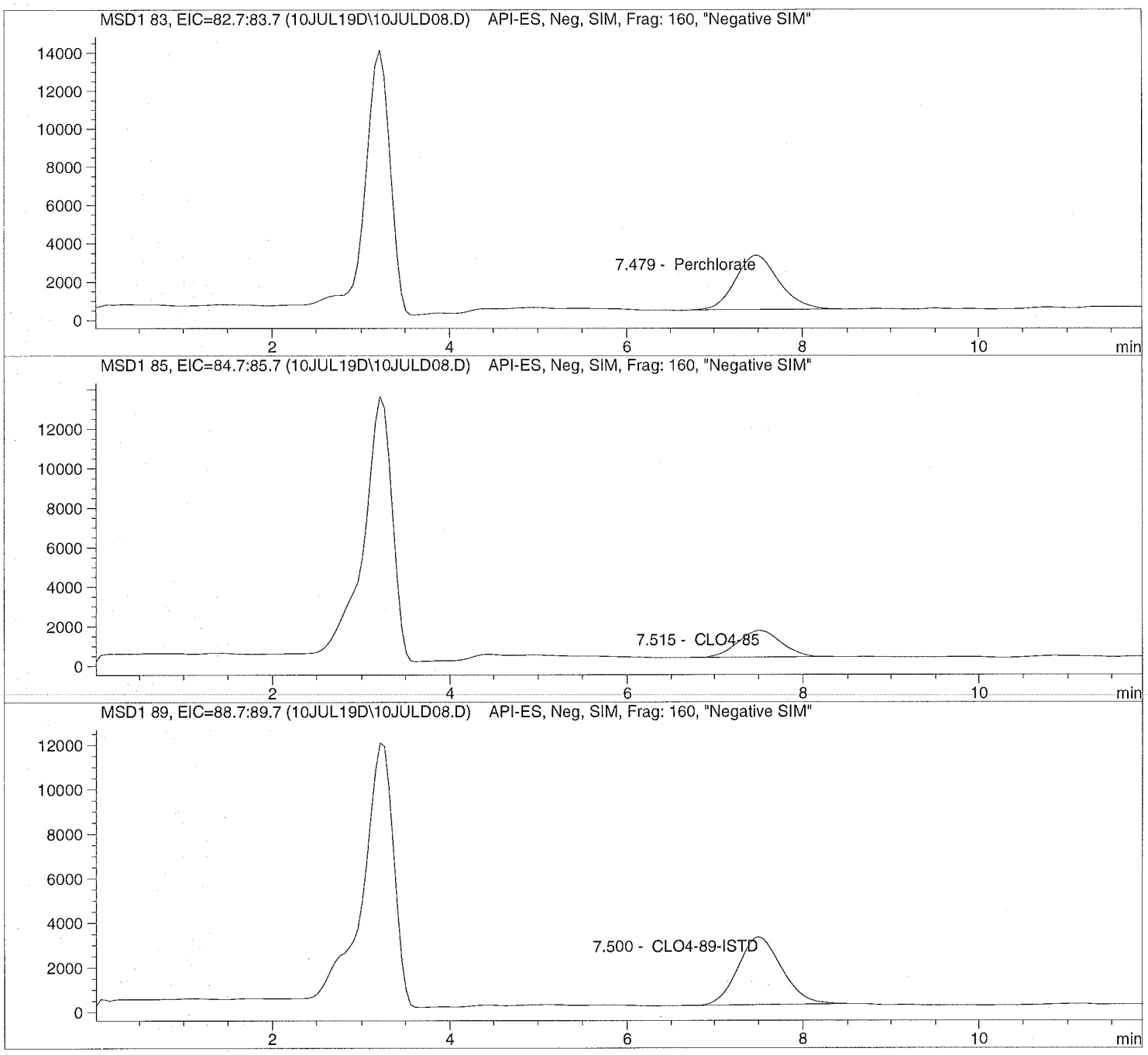
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD08.D Sample Name: 1918373004

Injection Date:	7/10/2019 10:27:21	Seq Line:	8
Sample Name:	1918373004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD08.D Sample Name: 1918373004

Injection Date:	7/10/2019 10:27:21	Seq Line:	8
Sample Name:	1918373004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.479	PBA	95969.8	3.0796	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.515	PBA	46048.0	4.7283	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.500	PBA	104173.2	5.0000	CLO4-89-ISTD

*** End of Report ***

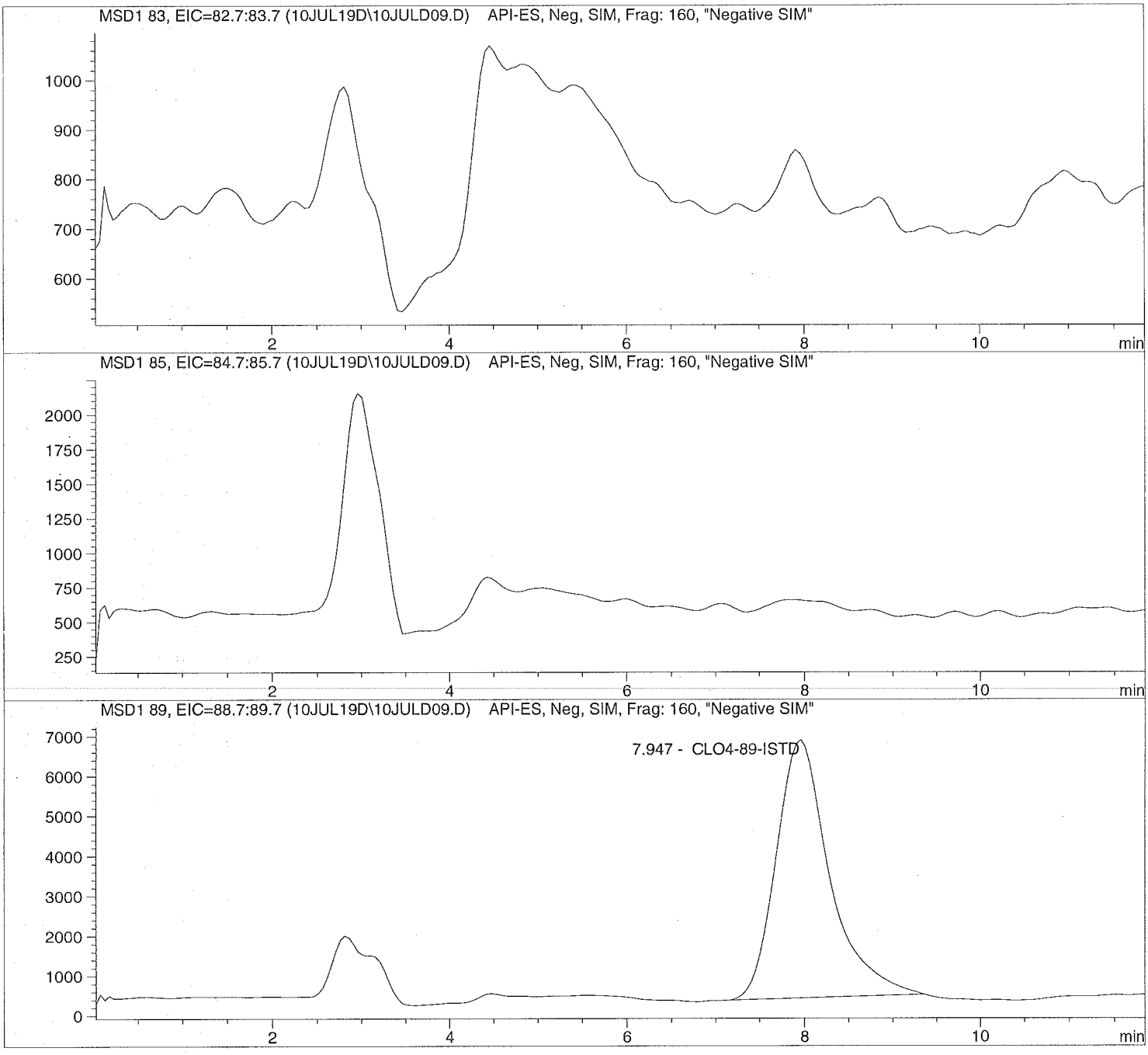
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD09.D Sample Name: 1918373005

Injection Date:	7/10/2019 10:41:15	Seq Line:	9
Sample Name:	1918373005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD09.D Sample Name: 1918373005

Injection Date:	7/10/2019 10:41:15	Seq Line:	9
Sample Name:	1918373005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.947	PBA	268458.6	5.0000	CLO4-89-ISTD

*** End of Report ***

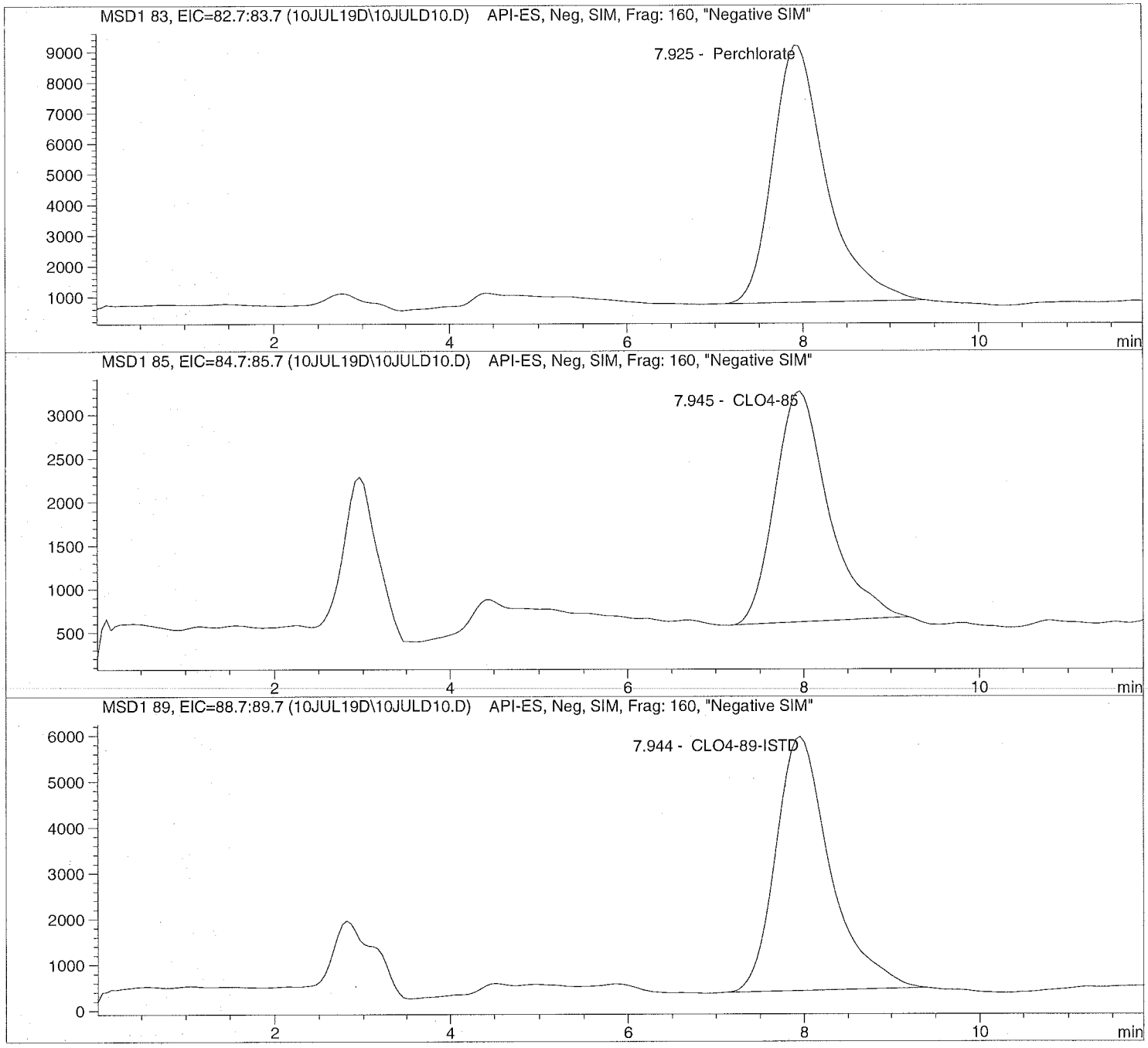
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD10.D Sample Name: 662919 183735S

Injection Date:	7/10/2019 10:55:10	Seq Line:	10
Sample Name:	662919 183735S	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD10.D Sample Name: 662919 183735S

Injection Date:	7/10/2019 10:55:10	Seq Line:	10
Sample Name:	662919 183735S	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.925	PBA	355093.0	4.8652	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.945	PBA	112035.2	5.0261	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.944	PBA	238297.3	5.0000	CLO4-89-ISTD

*** End of Report ***

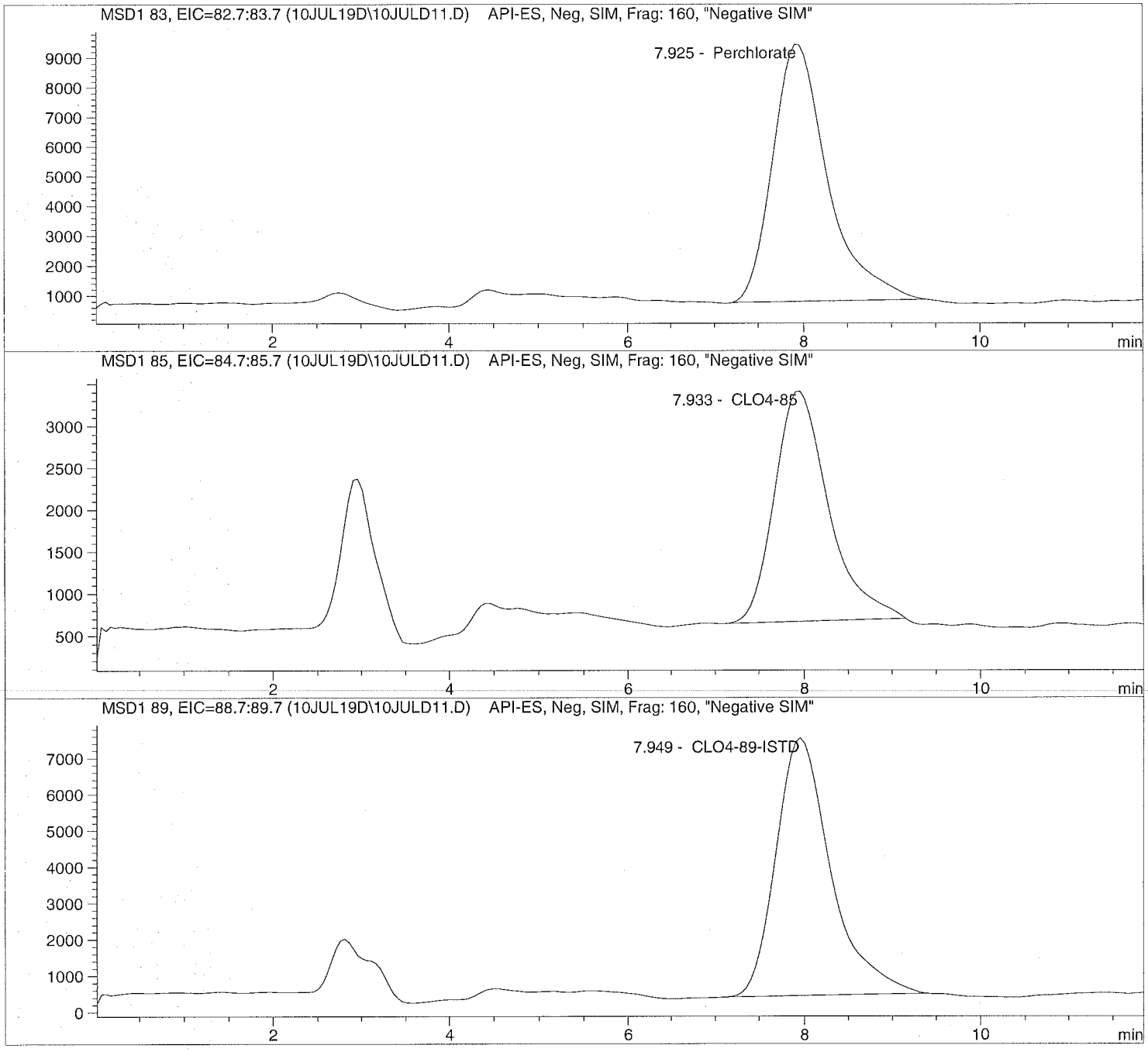
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD11.D Sample Name: 662920 183735D

Injection Date:	7/10/2019 11:09:12	Seq Line:	11
Sample Name:	662920 183735D	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD11.D Sample Name: 662920 183735D

Injection Date:	7/10/2019 11:09:12	Seq Line:	11
Sample Name:	662920 183735D	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.925	PBA	366789.0	4.0106	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.933	BBA	115346.9	4.0997	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.949	PBA	301317.7	5.0000	CLO4-89-ISTD

*** End of Report ***

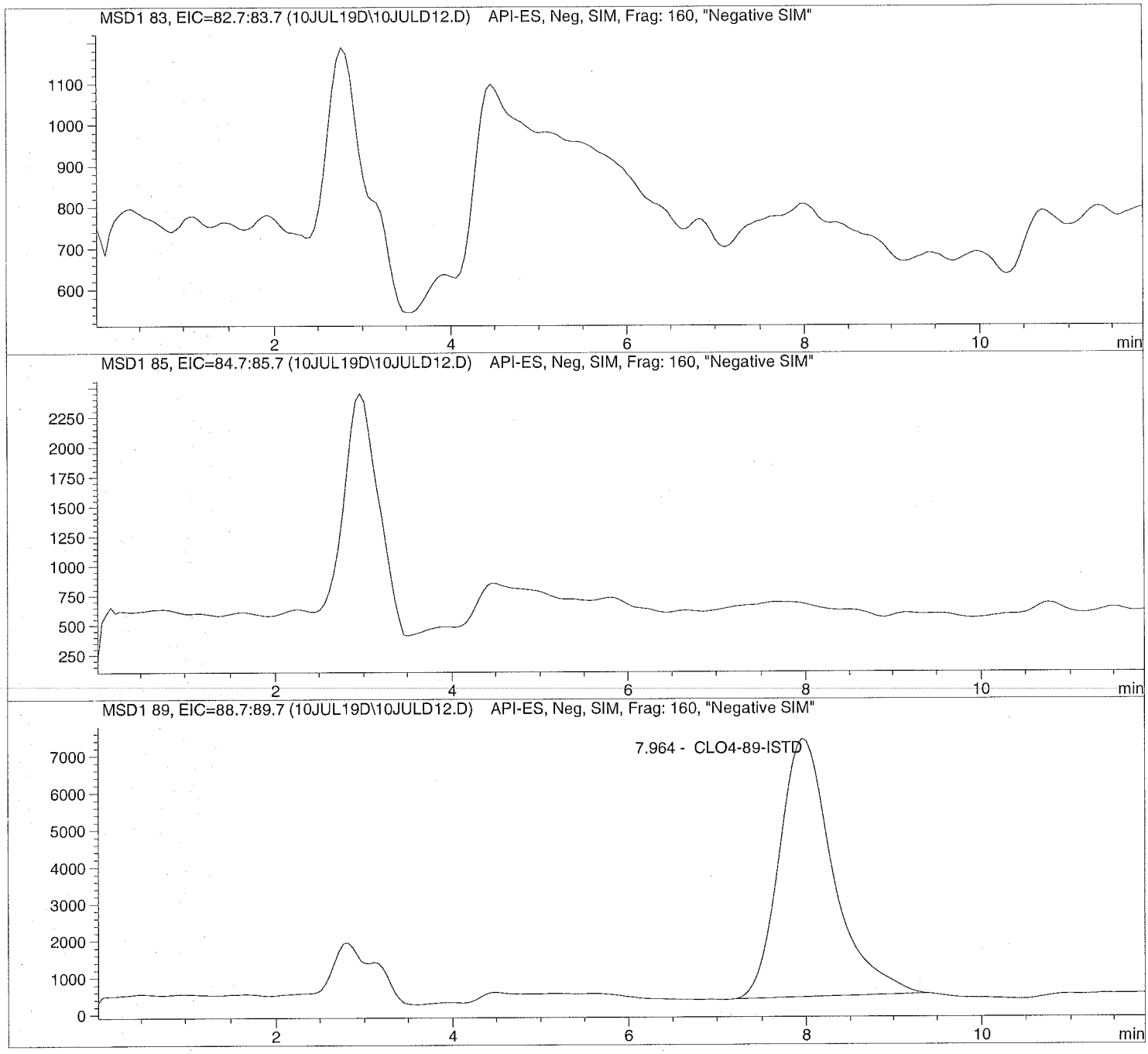
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD12.D Sample Name: 1918373006

Injection Date:	7/10/2019 11:23:04	Seq Line:	12
Sample Name:	1918373006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD12.D Sample Name: 1918373006

Injection Date:	7/10/2019 11:23:04	Seq Line:	12
Sample Name:	1918373006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.964	PBA	295412.9	5.0000	CLO4-89-ISTD

*** End of Report ***

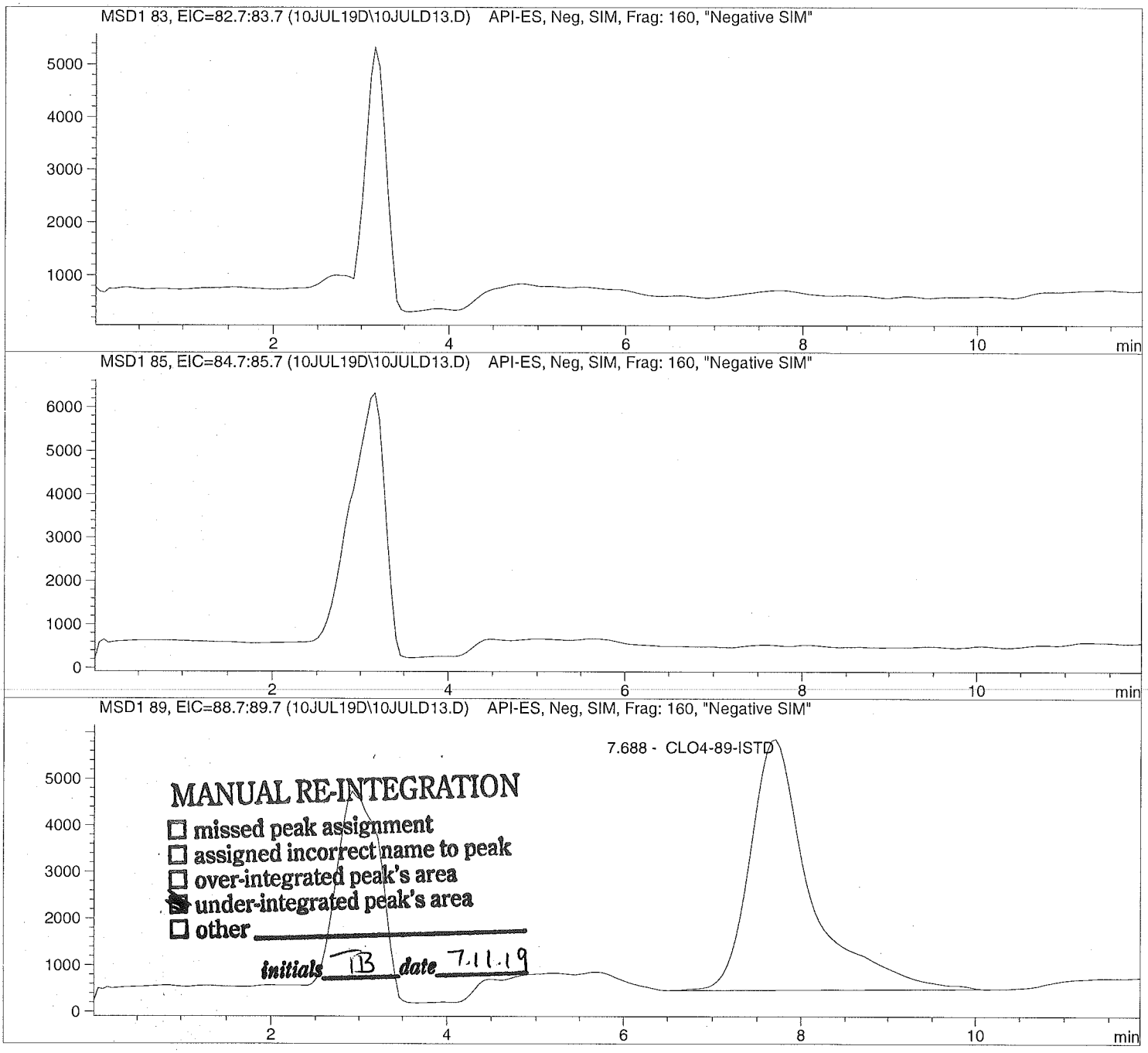
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.688	MM	256579.0	5.0000	CLO4-89-ISTD

*** End of Report ***

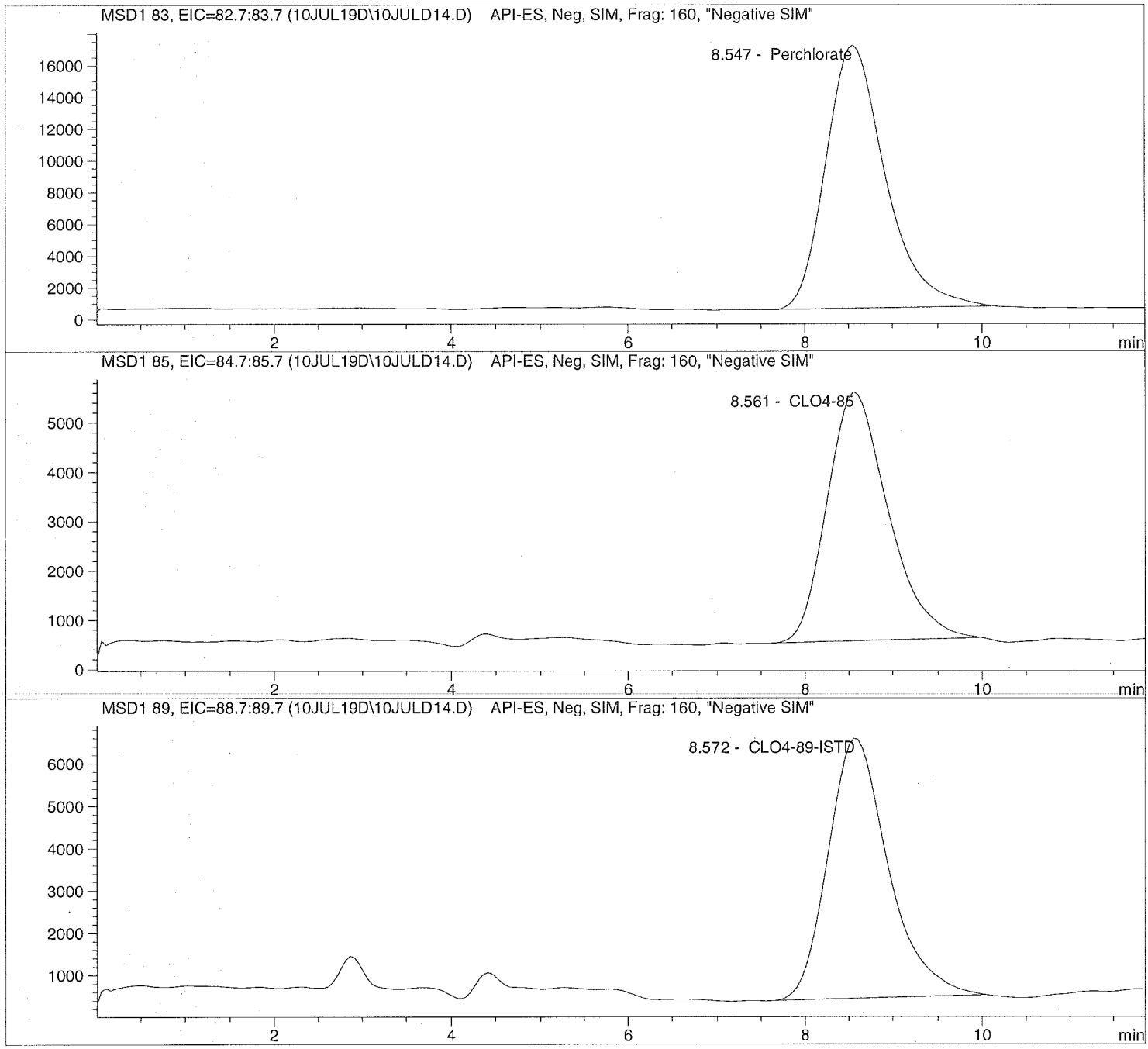
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD14.D Sample Name: 1918373008 10K

Injection Date:	7/10/2019 11:50:45	Seq Line:	14
Sample Name:	1918373008 10K	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD14.D Sample Name: 1918373008 10K

Injection Date:	7/10/2019 11:50:45	Seq Line:	14
Sample Name:	1918373008 10K	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.547	PBA	780844.1	85012.5764	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.561	PBA	243152.5	87944.5239	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.572	PBA	293278.4	50000.0000	CLO4-89-ISTD

*** End of Report ***

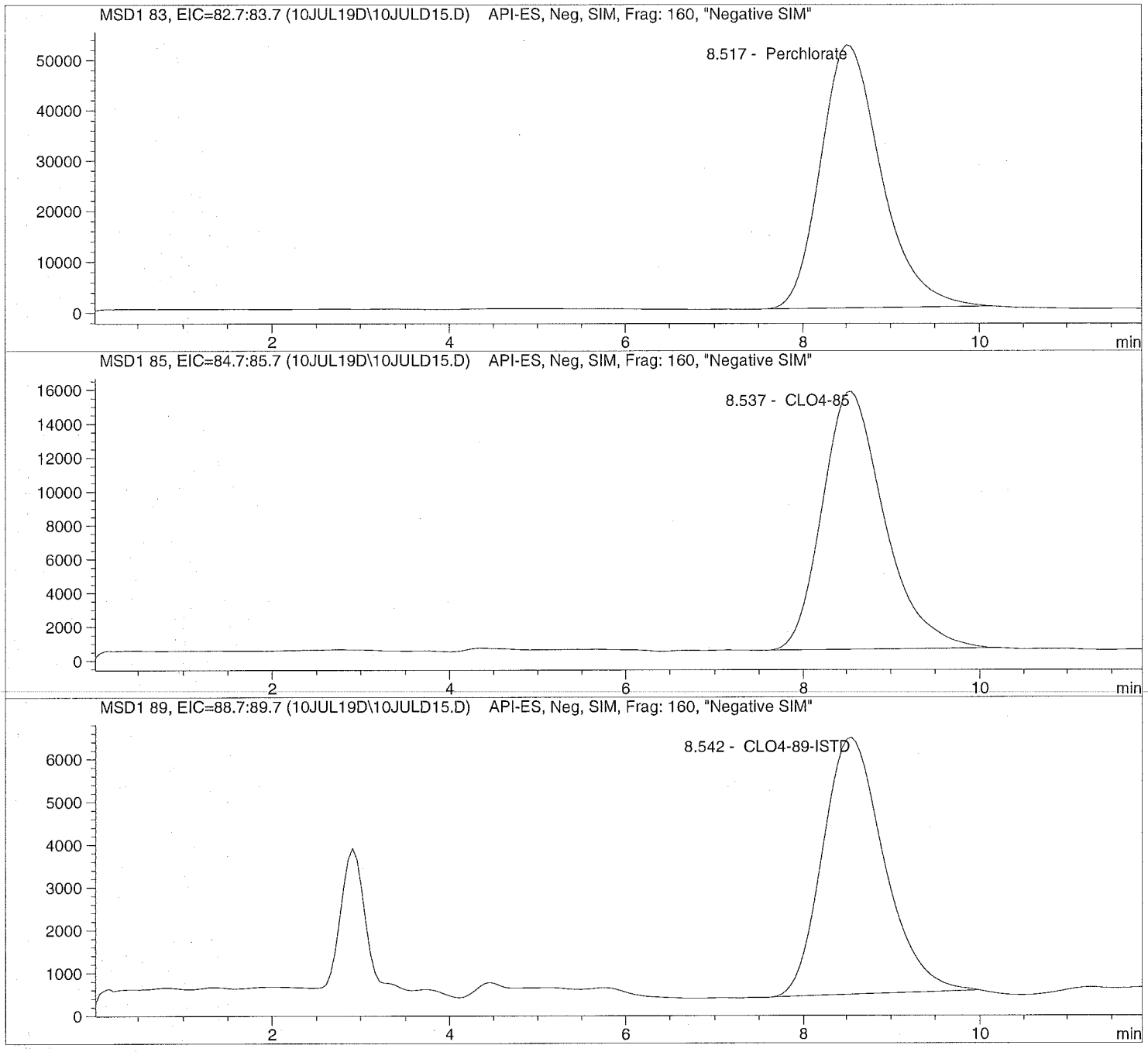
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD15.D Sample Name: 1918373009 10

Injection Date:	7/10/2019 12:04:37	Seq Line:	15
Sample Name:	1918373009 10	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD15.D Sample Name: 1918373009 10

Injection Date:	7/10/2019 12:04:37	Seq Line:	15
Sample Name:	1918373009 10	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.517	PBA	2500331.5	259.3213	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.537	PBA	749555.3	261.8322	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.542	PBA	292692.1	50.0000	CLO4-89-ISTD

*** End of Report ***

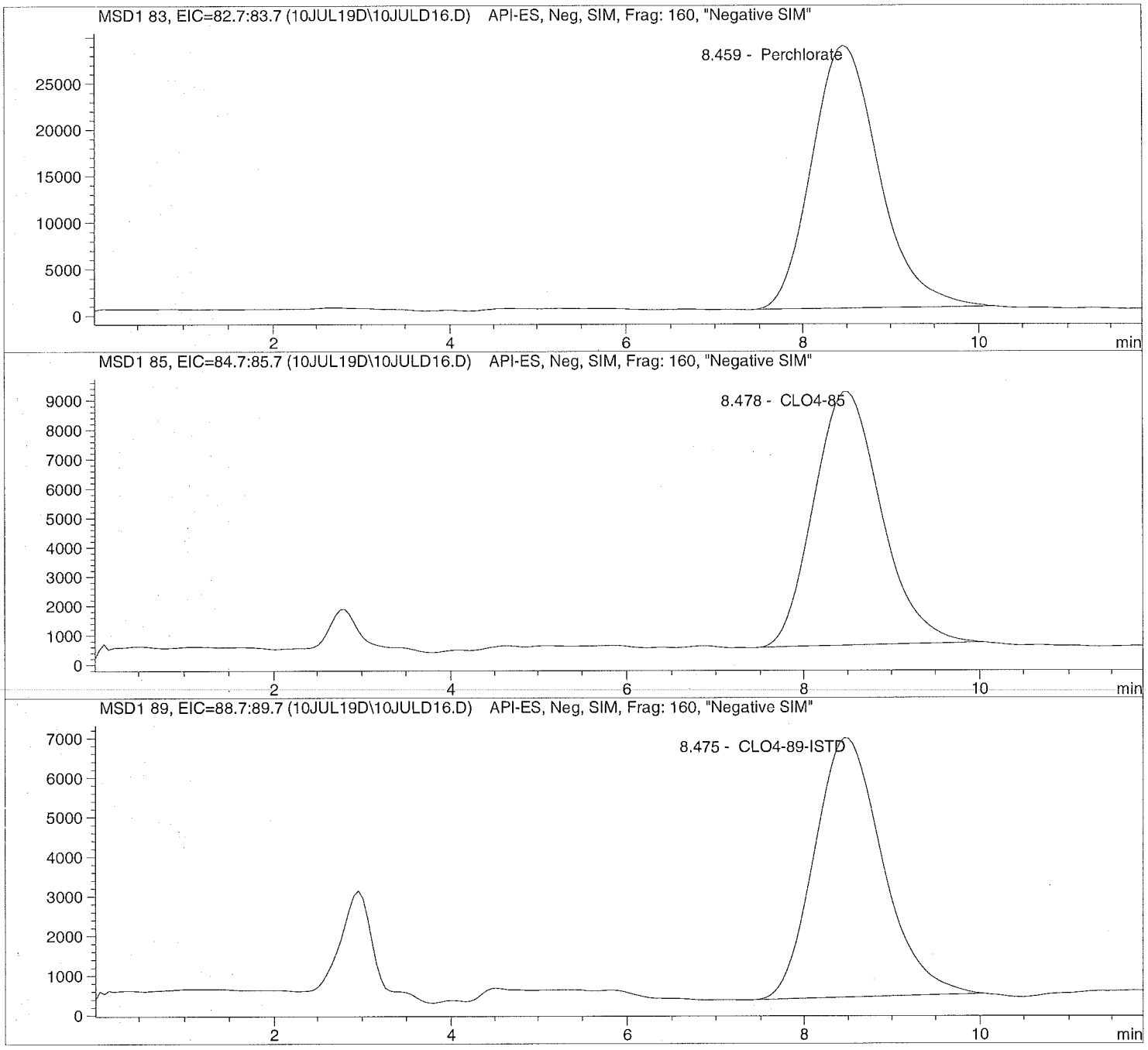
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD16.D Sample Name: 1918525001 100

Injection Date:	7/10/2019 12:18:38	Seq Line:	16
Sample Name:	1918525001 100	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD16.D Sample Name: 1918525001 100

Injection Date:	7/10/2019 12:18:38	Seq Line:	16
Sample Name:	1918525001 100	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.459	PBA	1501595.1	1335.1619	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.478	PBA	461811.6	1373.7604	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	352862.3	500.0000	CLO4-89-ISTD

*** End of Report ***

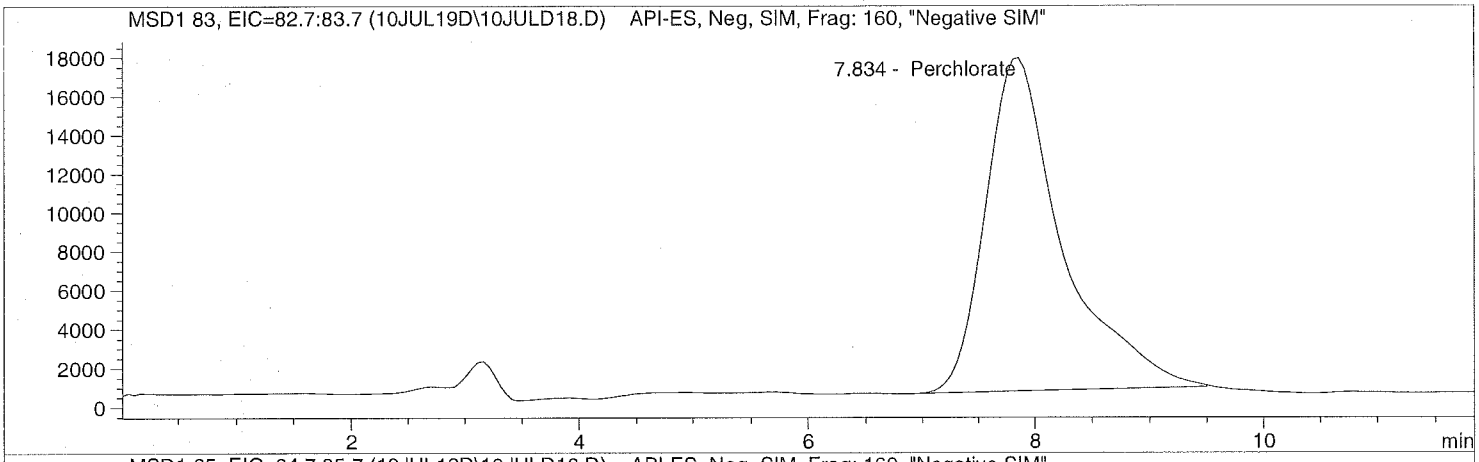
RIGHT SOLUTIONS | RIGHT PARTNER

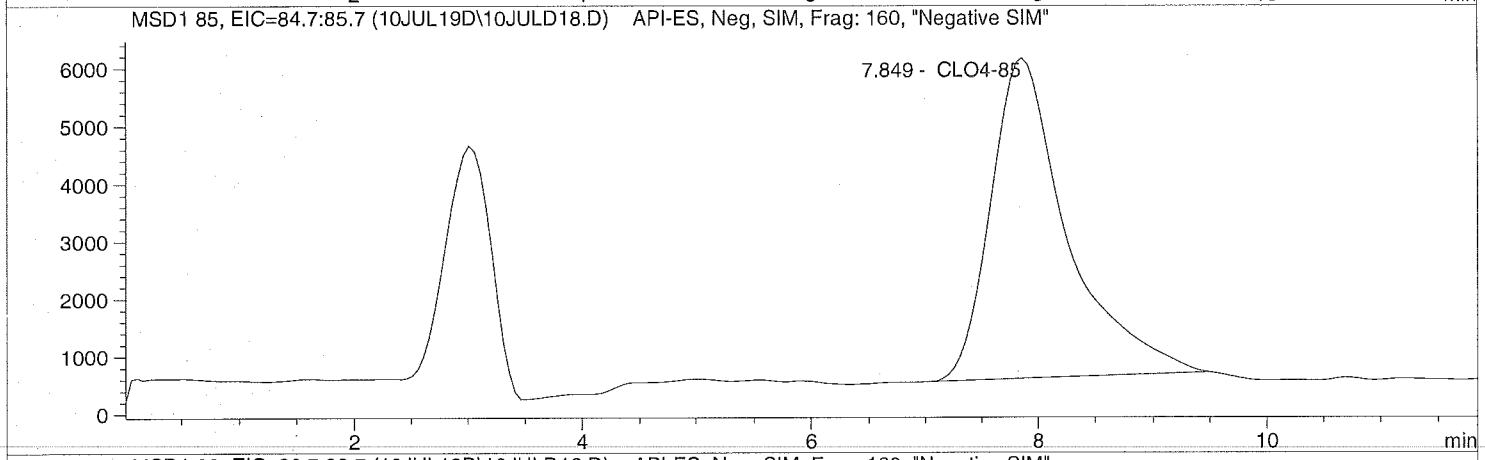
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD18.D Sample Name: 1918525002 10

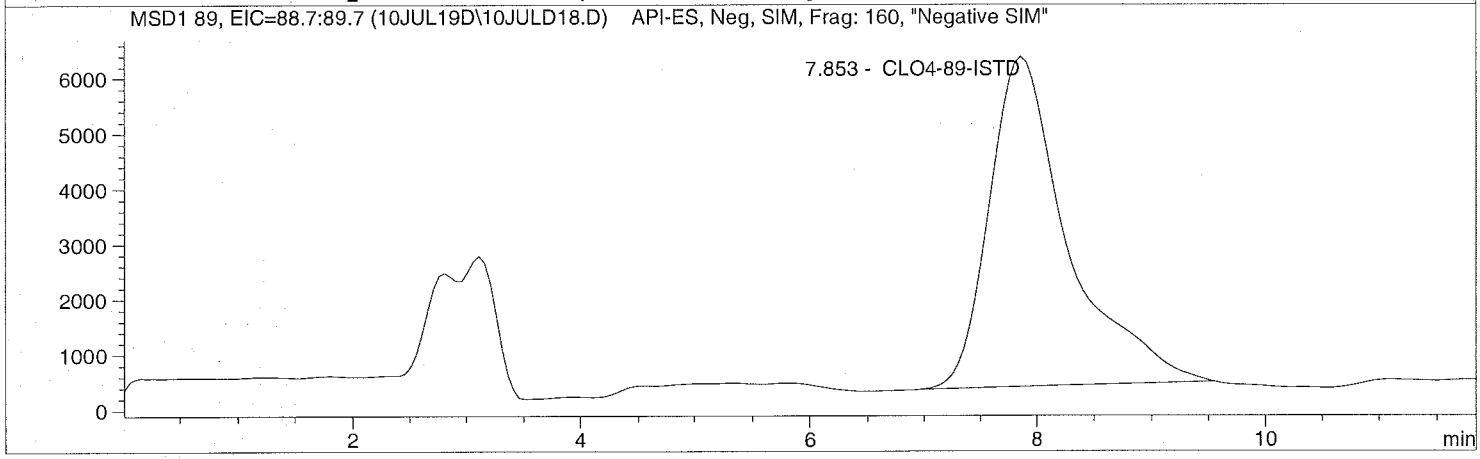
Injection Date:	7/10/2019 12:46:22	Seq Line:	18
Sample Name:	1918525002 10	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD18.D Sample Name: 1918525002 10

Injection Date:	7/10/2019 12:46:22	Seq Line:	18
Sample Name:	1918525002 10	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.834	PBA	801472.4	89.4028	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.849	PBA	259266.4	96.0941	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.853	PBA	285700.9	50.0000	CLO4-89-ISTD

*** End of Report ***

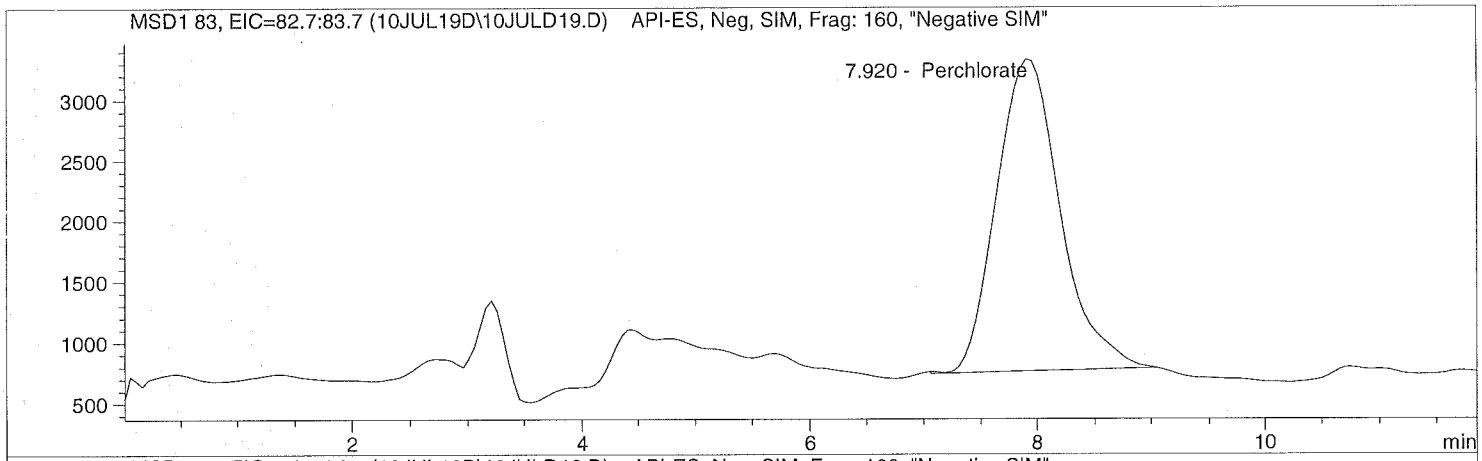
RIGHT SOLUTIONS | RIGHT PARTNER

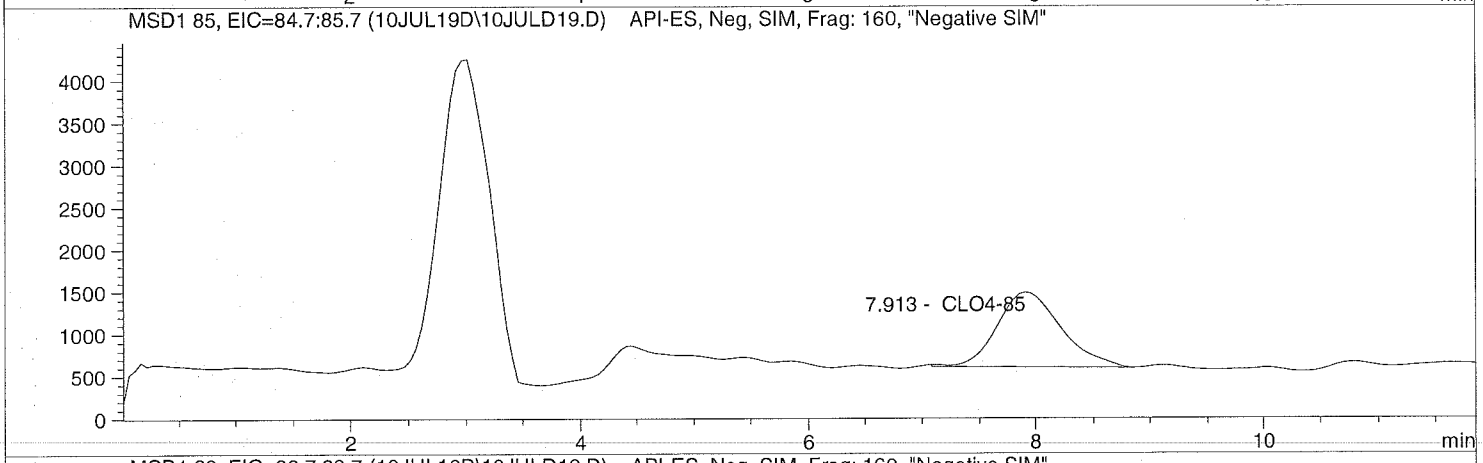
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD19.D Sample Name: 1918525003

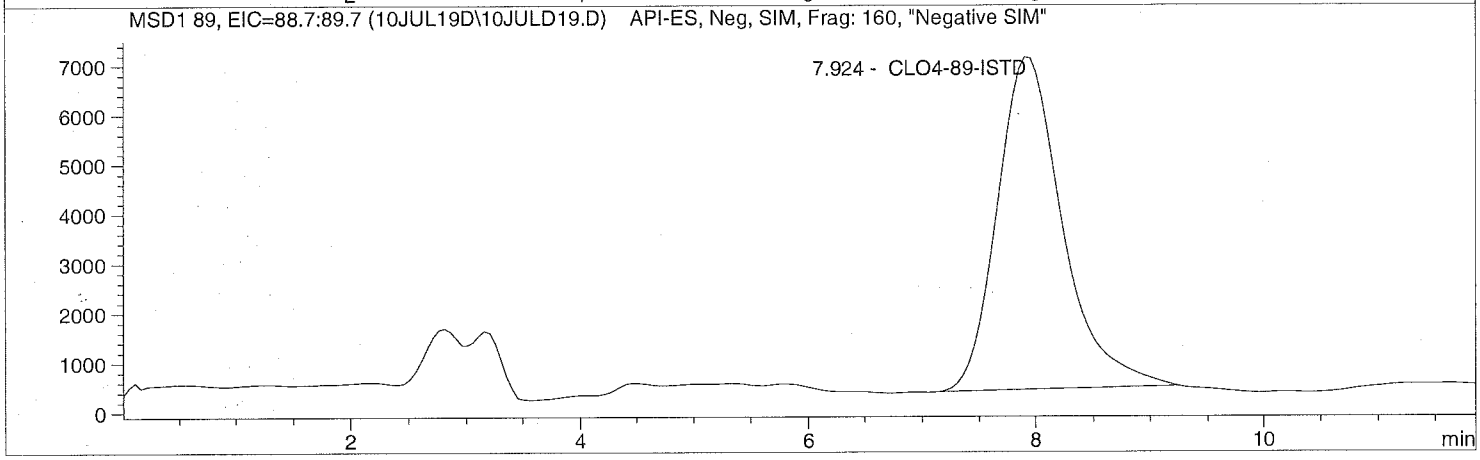
Injection Date:	7/10/2019 13:00:15	Seq Line:	19
Sample Name:	1918525003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD19.D Sample Name: 1918525003

Injection Date:	7/10/2019 13:00:15	Seq Line:	19
Sample Name:	1918525003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.920	BBA	99719.0	1.3533	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.913	BBA	34459.2	1.3947	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.924	PBA	265508.1	5.0000	CLO4-89-ISTD

*** End of Report ***

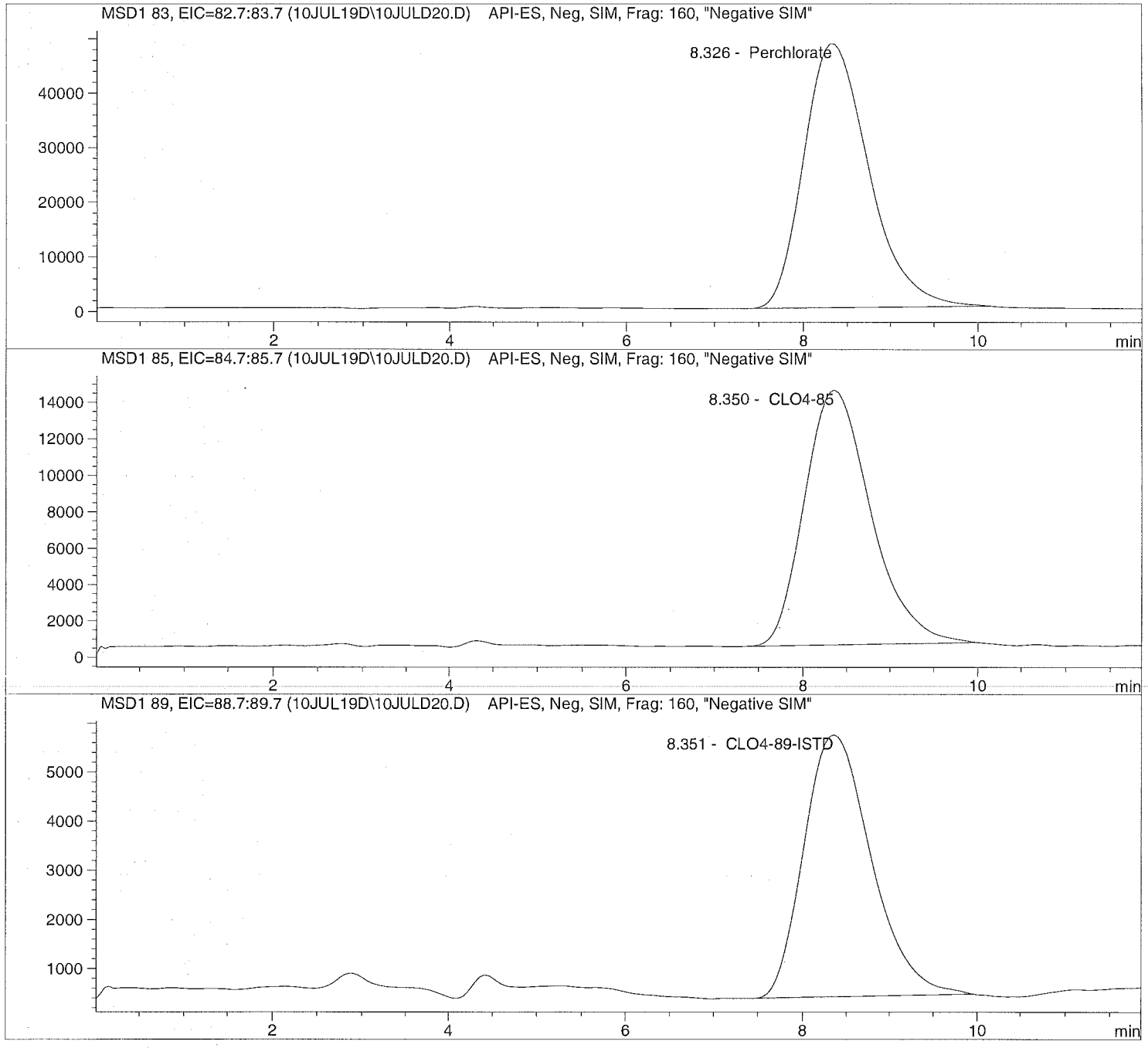
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD20.D Sample Name: 662921 CCV@25

Injection Date:	7/10/2019 13:15:33	Seq Line:	20
Sample Name:	662921 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD20.D Sample Name: 662921 CCV@25

Injection Date:	7/10/2019 13:15:33	Seq Line:	20
Sample Name:	662921 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.326	PBA	2504544.8	26.4781	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	PBA	743673.1	26.4969	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.351	PBA	286769.0	5.0000	CLO4-89-ISTD

*** End of Report ***

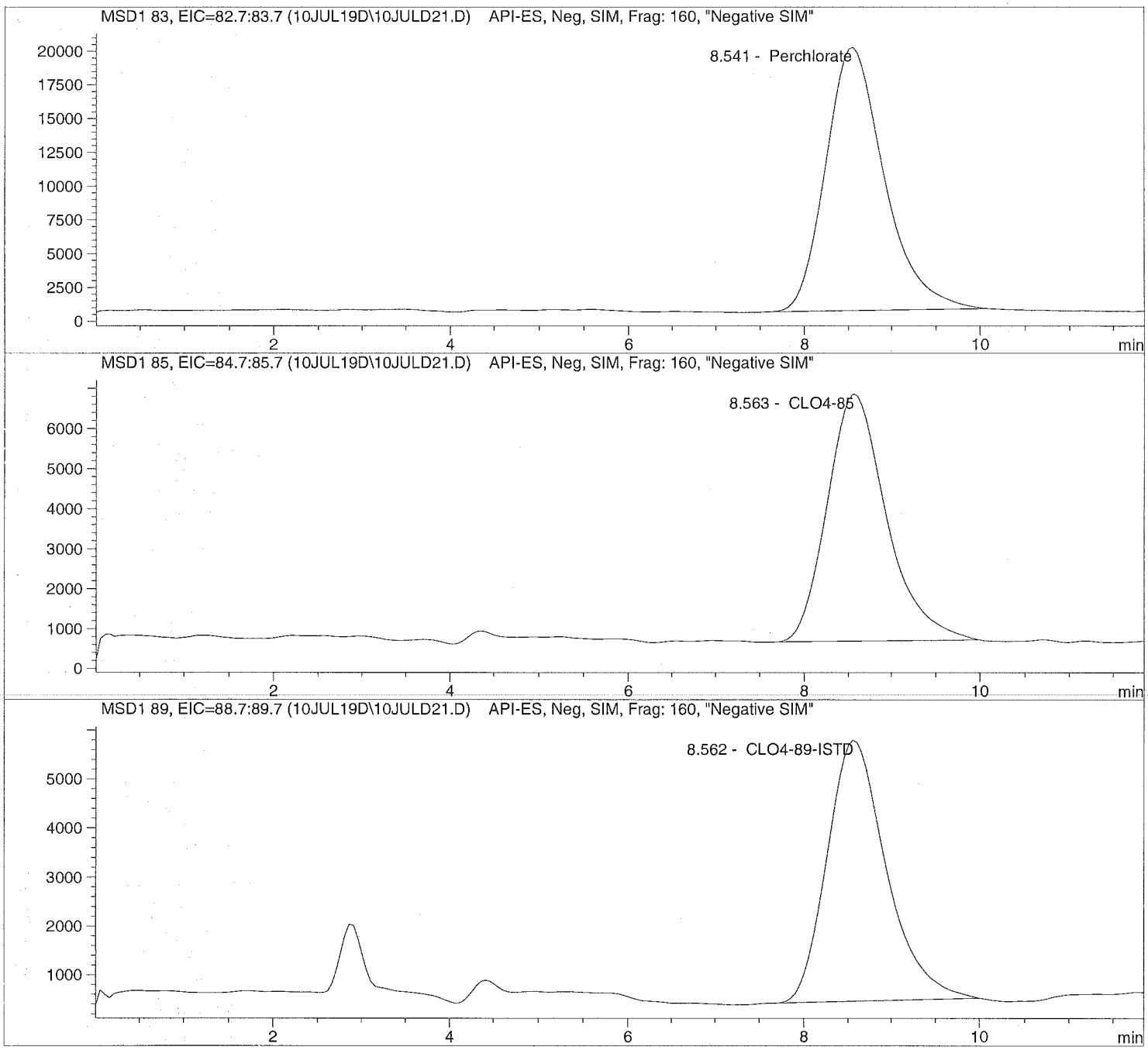
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD21.D Sample Name: 1918525004 1K

Injection Date:	7/10/2019 13:39:18	Seq Line:	21
Sample Name:	1918525004 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD21.D Sample Name: 1918525004 1K

Injection Date:	7/10/2019 13:39:18	Seq Line:	21
Sample Name:	1918525004 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.541	PBA	911870.8	11409.0284	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.563	PBA	292673.1	12213.3165	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.562	PBA	252353.5	5000.0000	CLO4-89-ISTD

*** End of Report ***

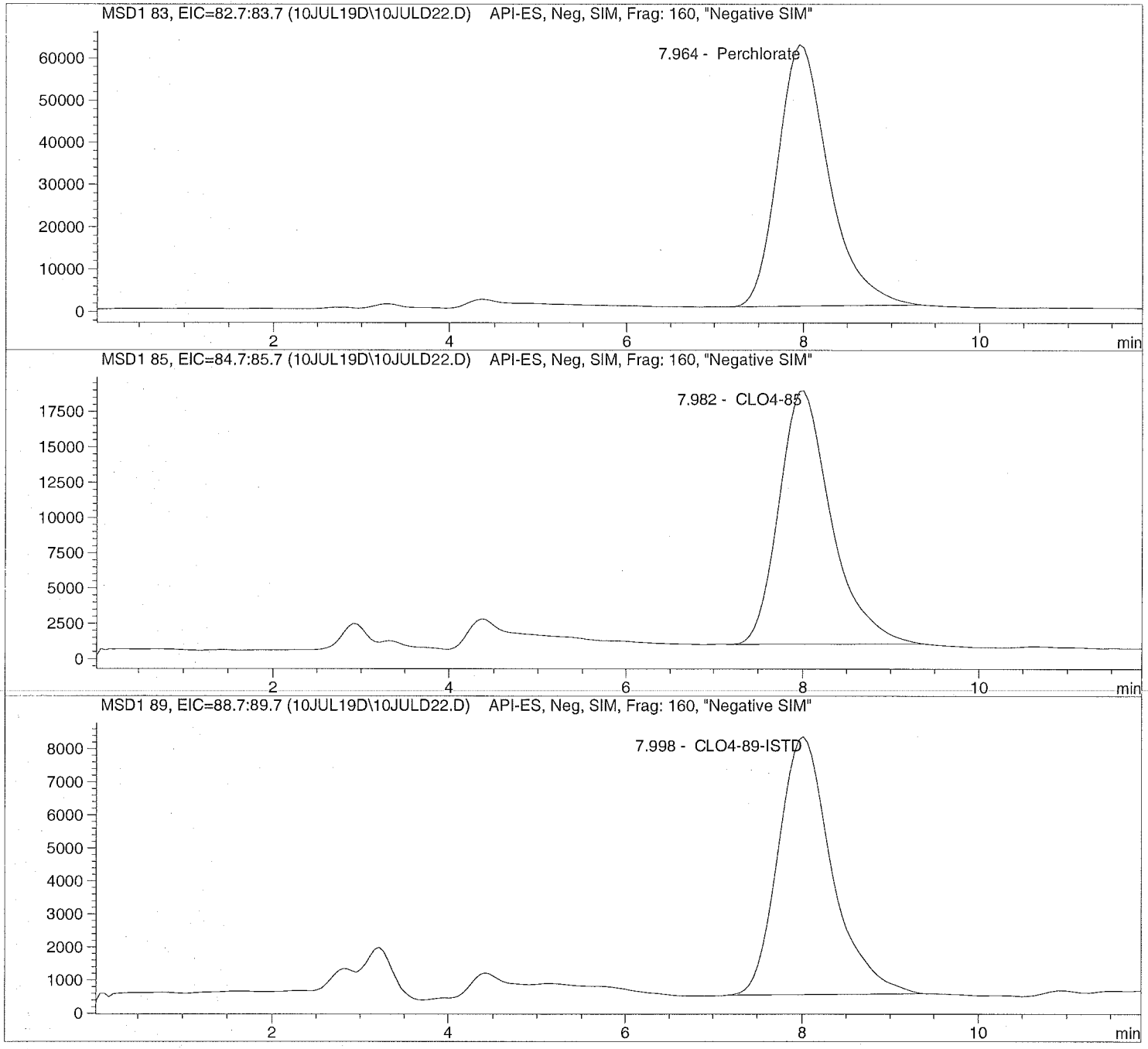
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD22.D Sample Name: 1918682001

Injection Date:	7/10/2019 13:53:14	Seq Line:	22
Sample Name:	1918682001	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD22.D Sample Name: 1918682001

Injection Date:	7/10/2019 13:53:14	Seq Line:	22
Sample Name:	1918682001	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.964	PBA	2472569.8	22.9756	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.982	PBA	738653.3	23.1021	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.998	PBA	329023.1	5.0000	CLO4-89-ISTD

*** End of Report ***

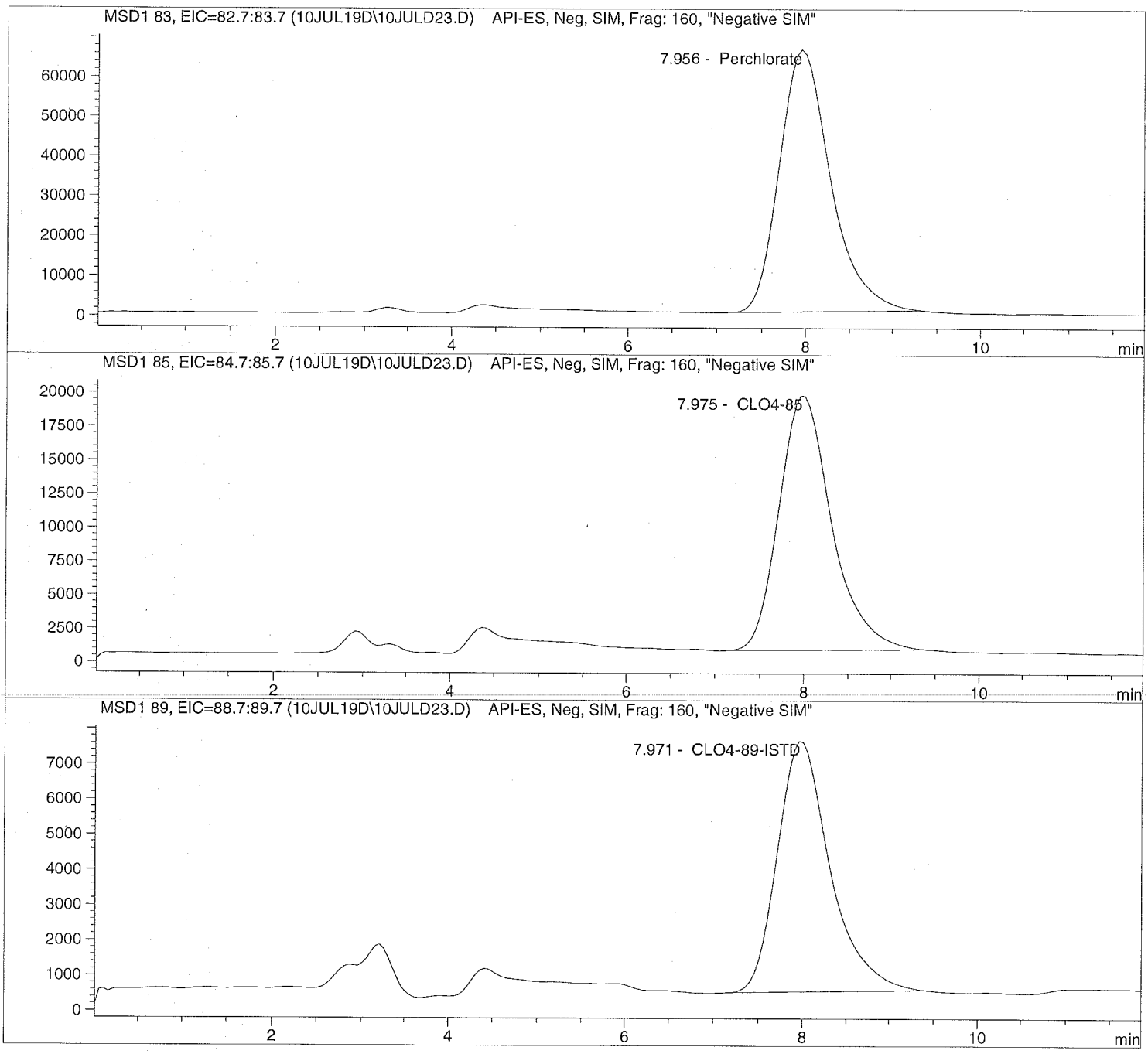
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD23.D Sample Name: 1918682002

Injection Date:	7/10/2019 14:07:09	Seq Line:	23
Sample Name:	1918682002	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD23.D Sample Name: 1918682002

Injection Date:	7/10/2019 14:07:09	Seq Line:	23
Sample Name:	1918682002	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.956	PBA	2649661.3	27.0999	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.975	PBA	784495.3	27.0493	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.971	PBA	295991.2	5.0000	CLO4-89-ISTD

*** End of Report ***

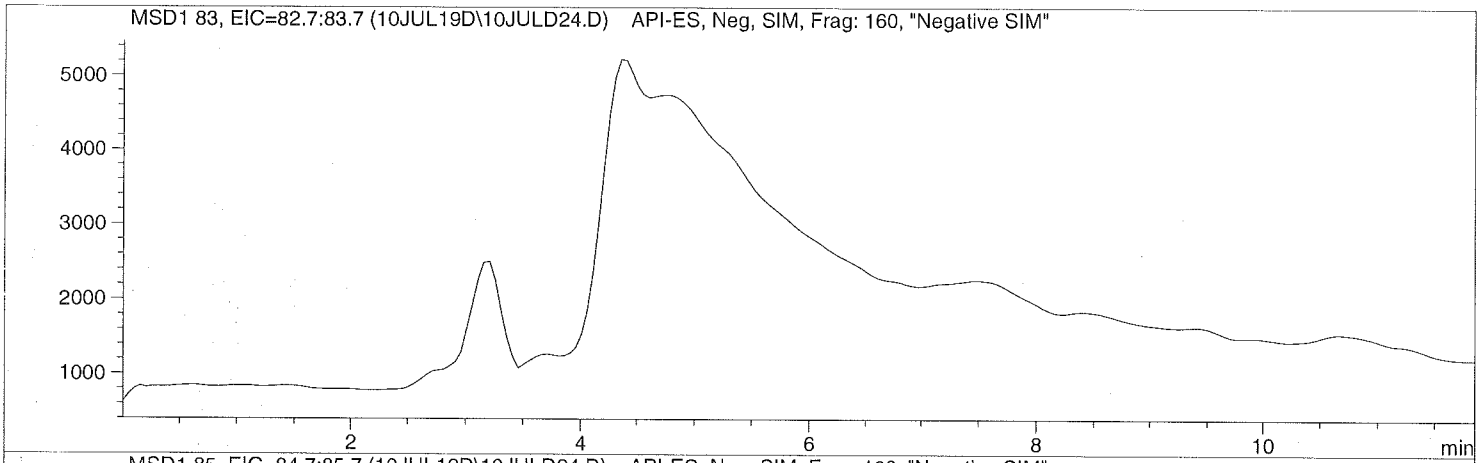
RIGHT SOLUTIONS | RIGHT PARTNER

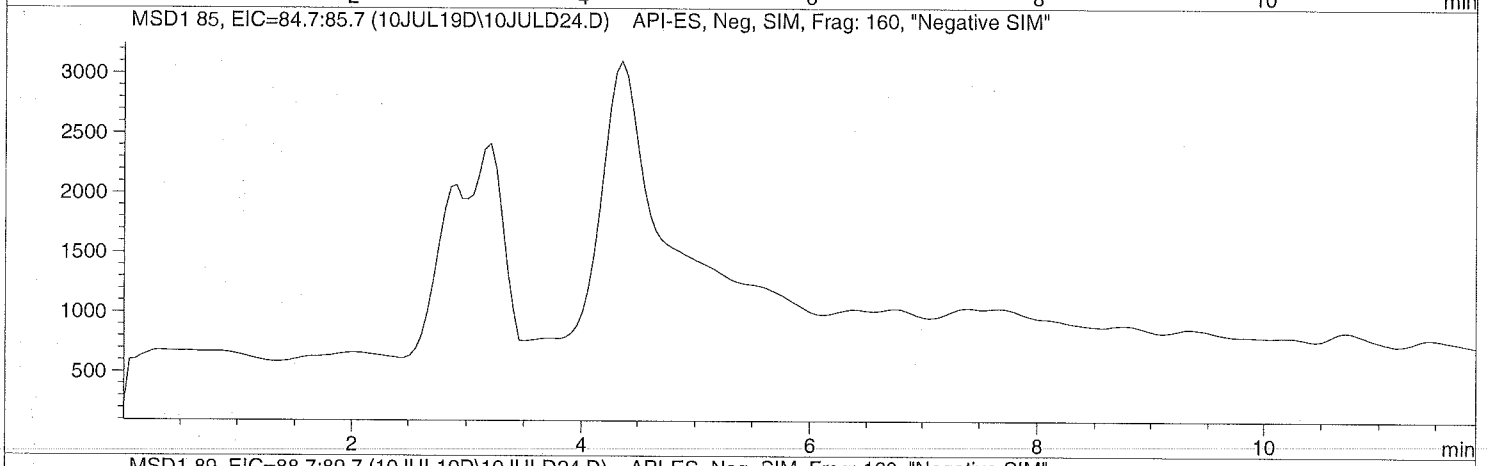
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD24.D Sample Name: 1918682003

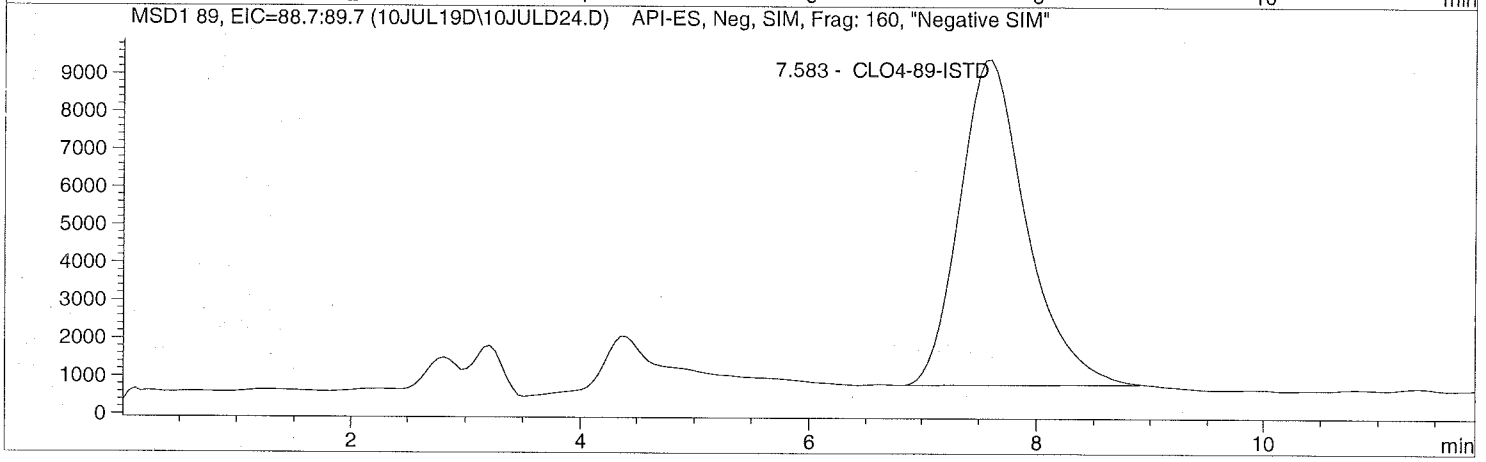
Injection Date:	7/10/2019 14:20:59	Seq Line:	24
Sample Name:	1918682003	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD24.D Sample Name: 1918682003

Injection Date:	7/10/2019 14:20:59	Seq Line:	24
Sample Name:	1918682003	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.583	PBA	347868.7	5.0000	CLO4-89-ISTD

*** End of Report ***

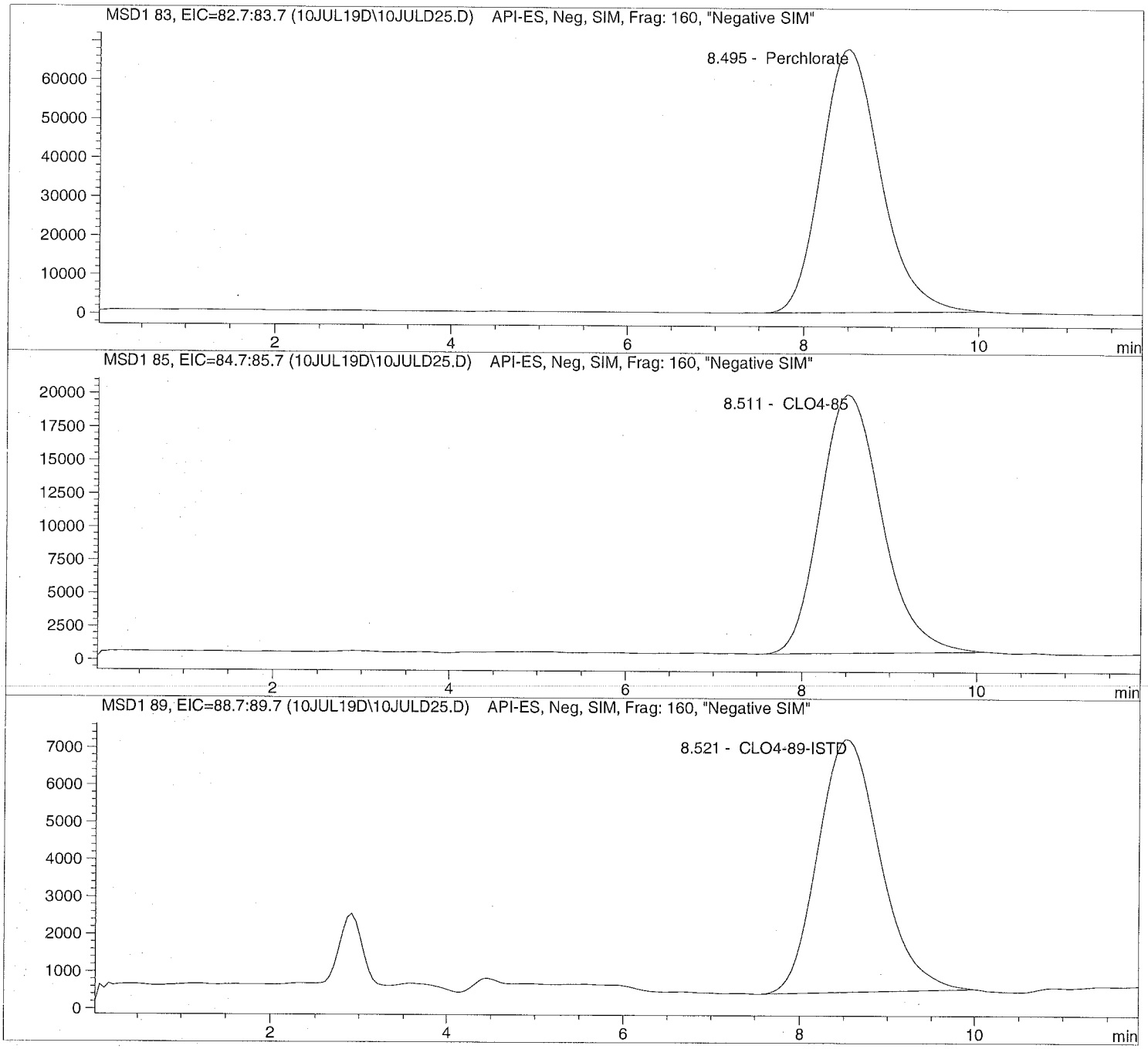
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD25.D Sample Name: 1918682004 100

Injection Date:	7/10/2019 14:34:49	Seq Line:	25
Sample Name:	1918682004 100	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD25.D Sample Name: 1918682004 100

Injection Date:	7/10/2019 14:34:49	Seq Line:	25
Sample Name:	1918682004 100	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.495	PBA	3177637.5	2867.6913	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.511	PBA	949731.6	2888.9947	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.521	PBA	334219.0	500.0000	CLO4-89-ISTD

*** End of Report ***

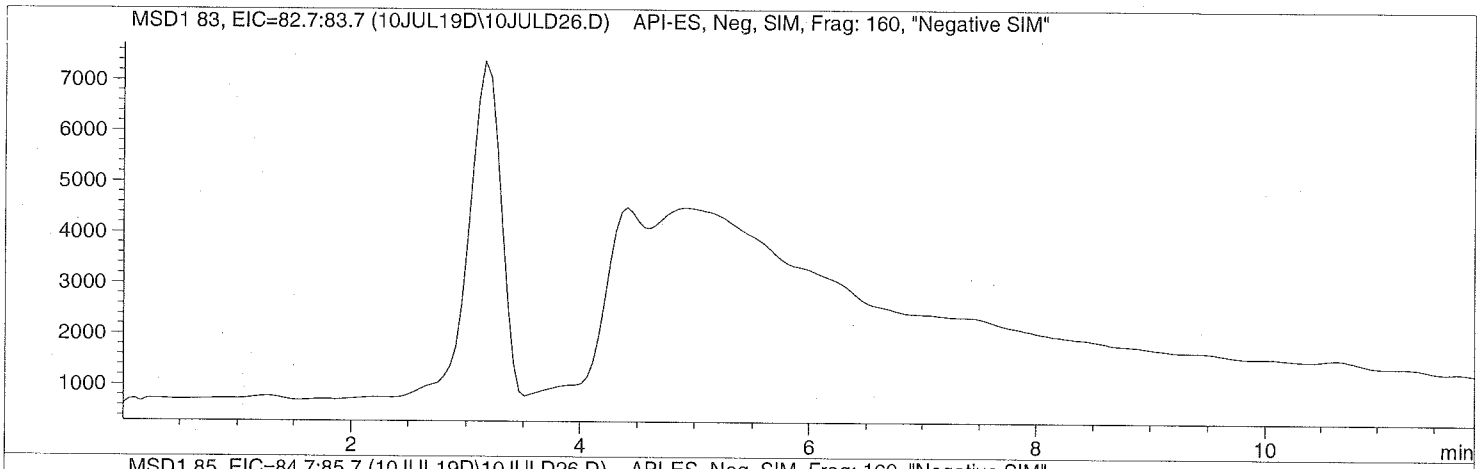
RIGHT SOLUTIONS | RIGHT PARTNER

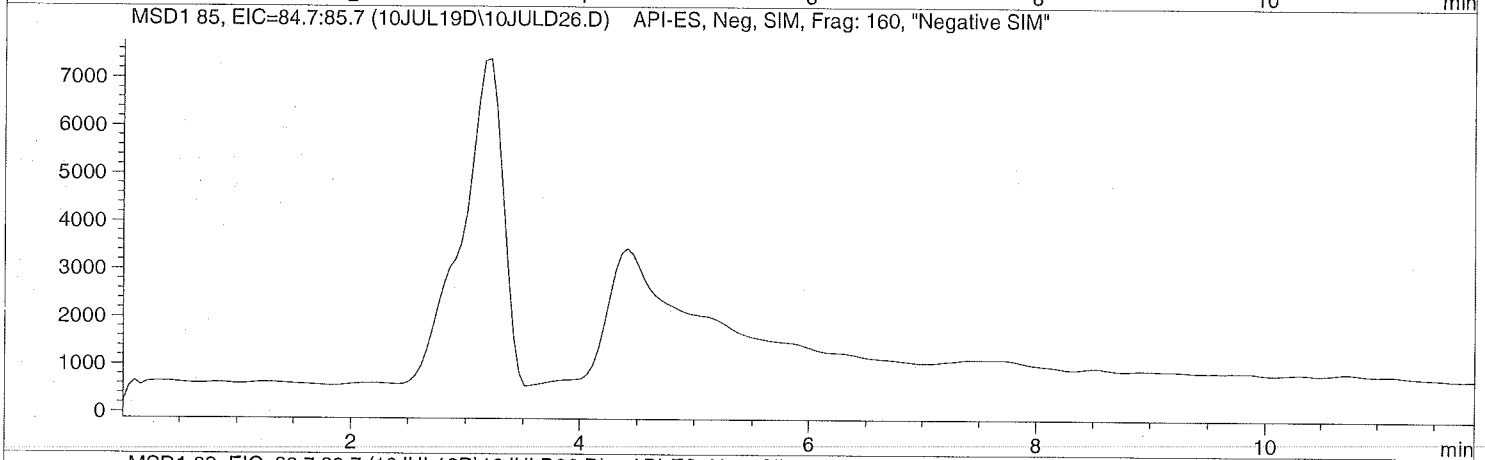
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD26.D Sample Name: 1918682005

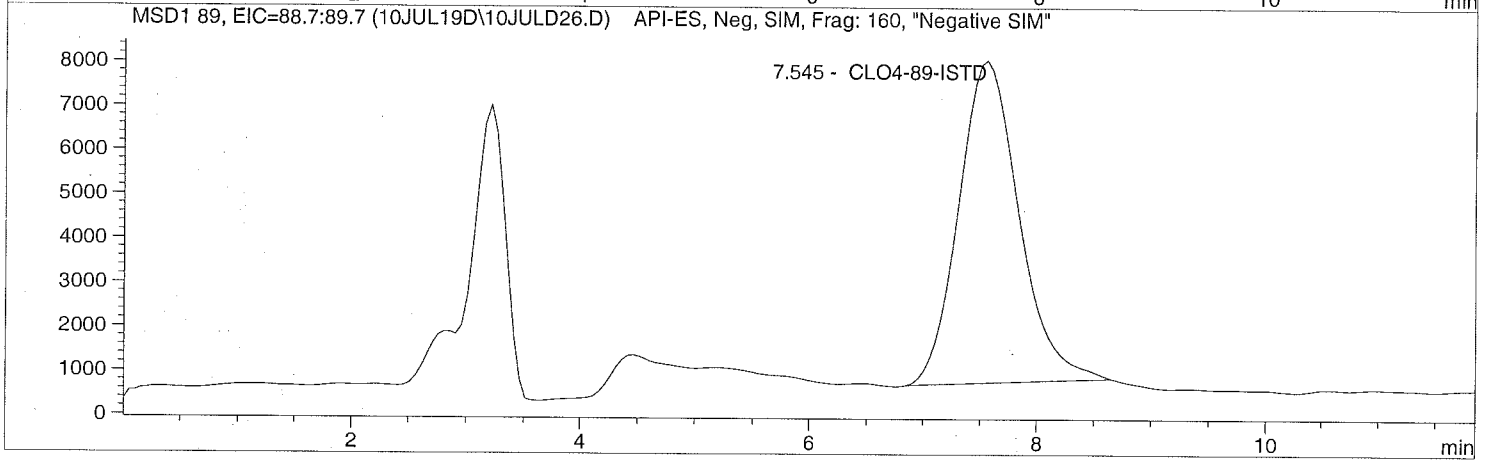
Injection Date:	7/10/2019 14:48:53	Seq Line:	26
Sample Name:	1918682005	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD26.D Sample Name: 1918682005

Injection Date:	7/10/2019 14:48:53	Seq Line:	26
Sample Name:	1918682005	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.545	PBA	268838.9	5.0000	CLO4-89-ISTD

*** End of Report ***

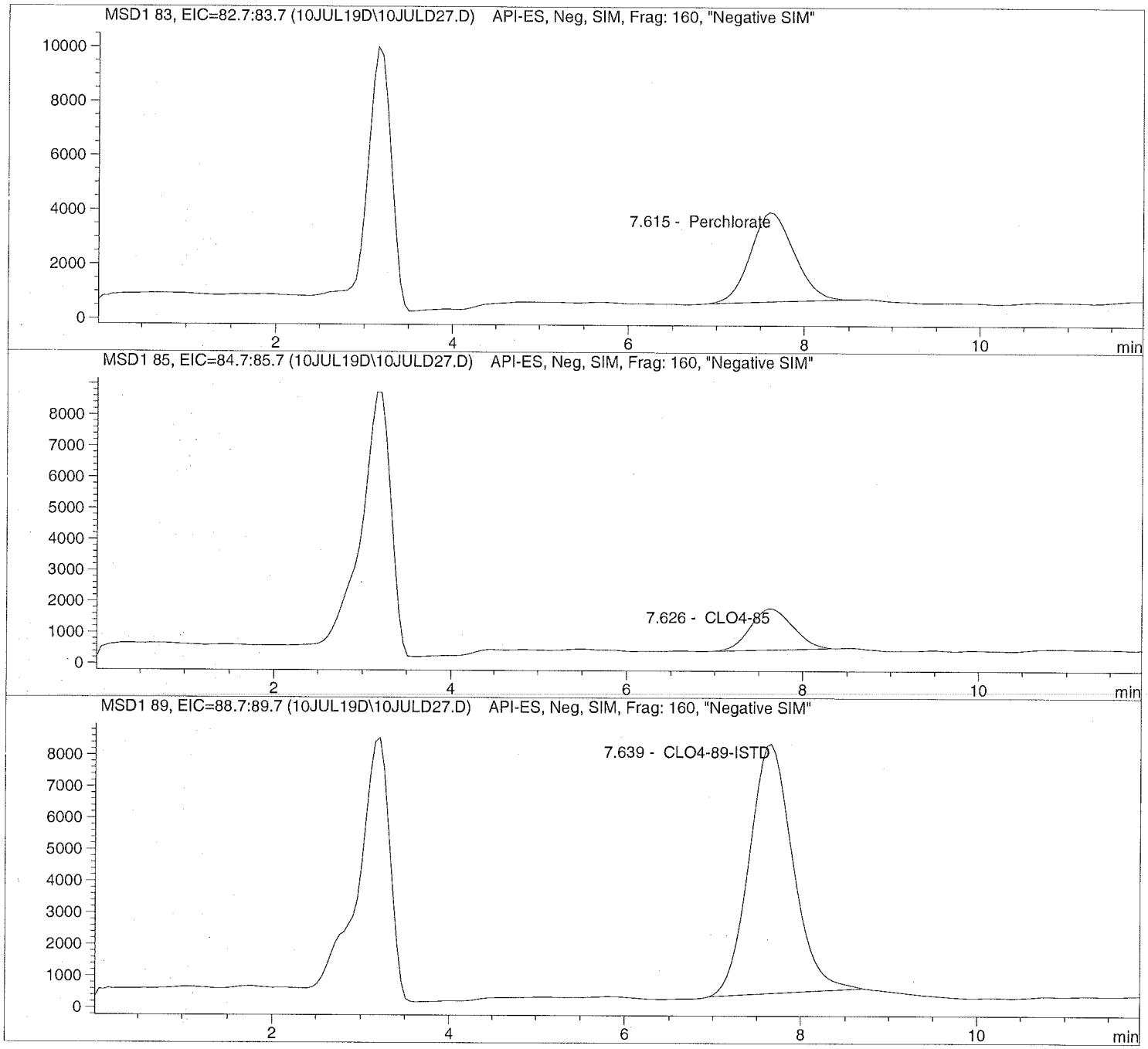
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD27.D Sample Name: 1918373004 4X

Injection Date:	7/10/2019 15:02:46	Seq Line:	27
Sample Name:	1918373004 4X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD27.D Sample Name: 1918373004 4X

Injection Date:	7/10/2019 15:02:46	Seq Line:	27
Sample Name:	1918373004 4X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	4.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.615	PBA	113897.9	5.9203	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.626	PBA	45010.5	7.0582	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.639	PBA	274117.7	20.0000	CLO4-89-ISTD

*** End of Report ***

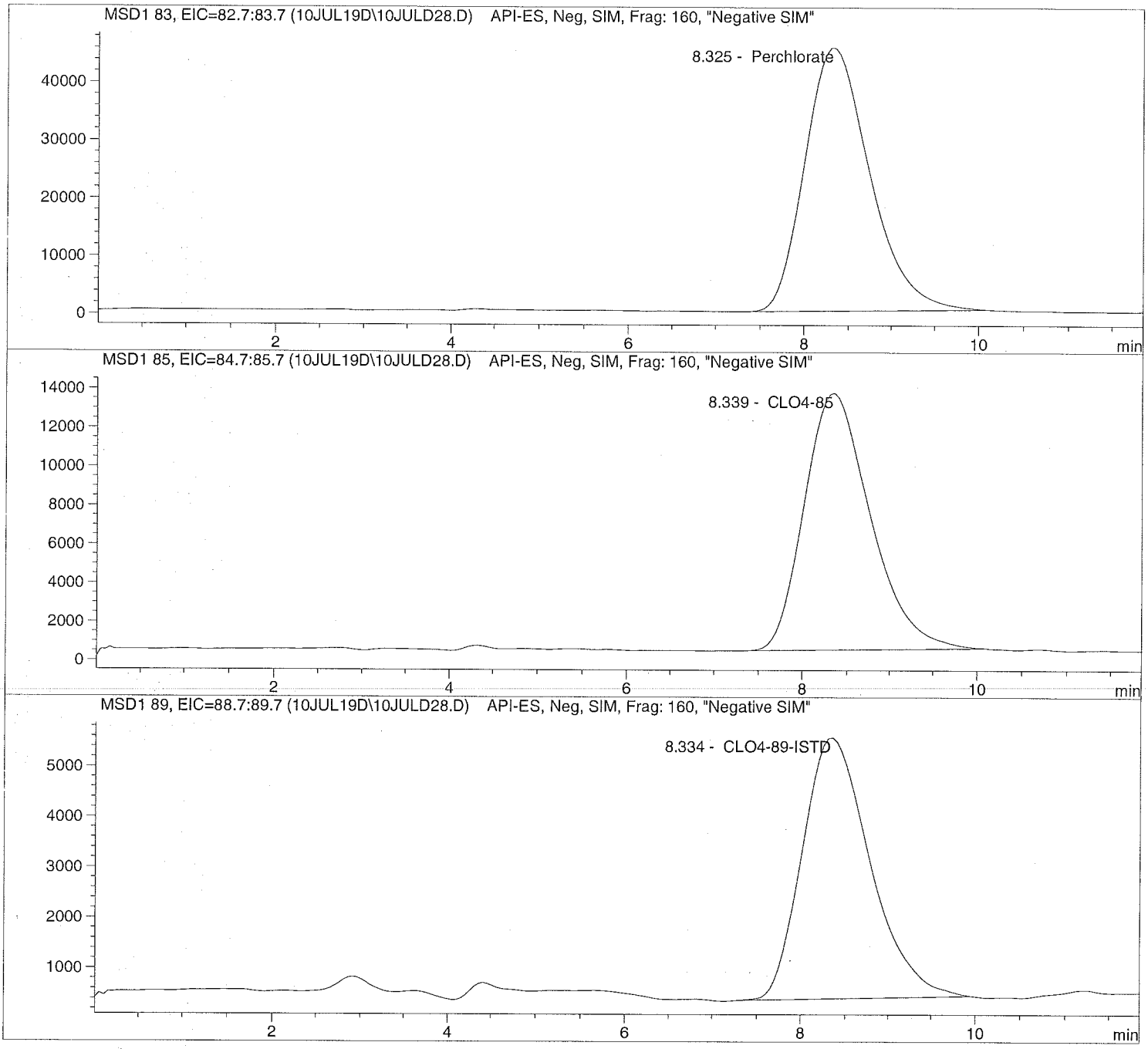
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD28.D Sample Name: 662922 CCV@25

Injection Date:	7/10/2019 15:16:39	Seq Line:	28
Sample Name:	662922 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD28.D Sample Name: 662922 CCV@25

Injection Date:	7/10/2019 15:16:39	Seq Line:	28
Sample Name:	662922 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.325	PBA	2335796.8	25.5805	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.339	PBA	693327.1	25.5842	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.334	PBA	277421.9	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

RIGHT SOLUTIONS | RIGHT PARTNER

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

RIGHT SOLUTIONS | RIGHT PARTNER

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

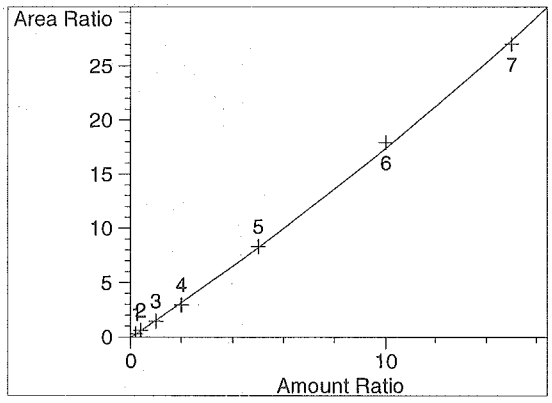
No Entries in table

RIGHT SOLUTIONS | RIGHT PARTNER

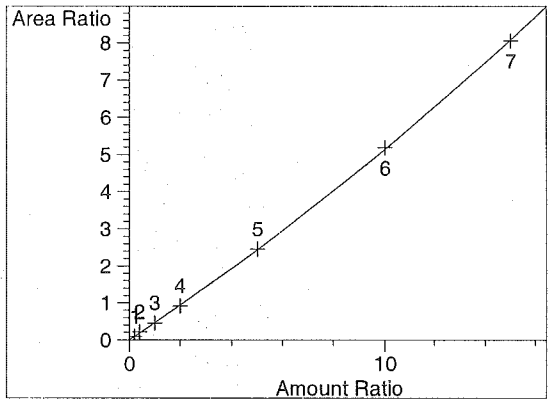
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Calibration Curves

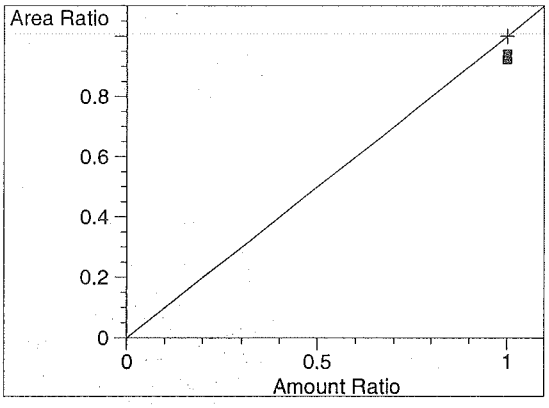
==========



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

==========

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Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

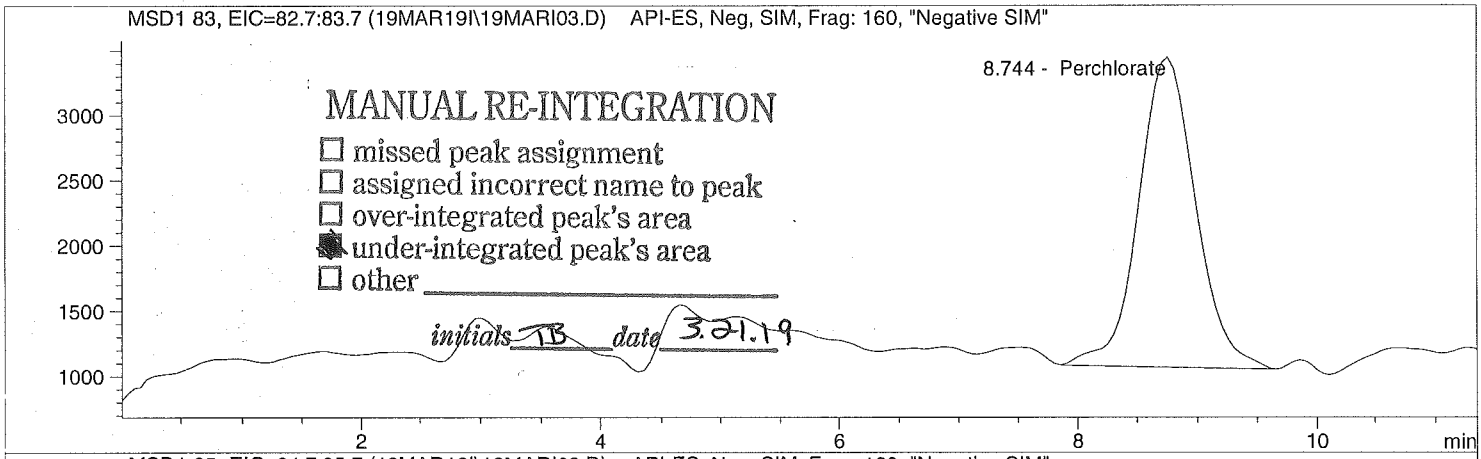
RIGHT SOLUTIONS | RIGHT PARTNER

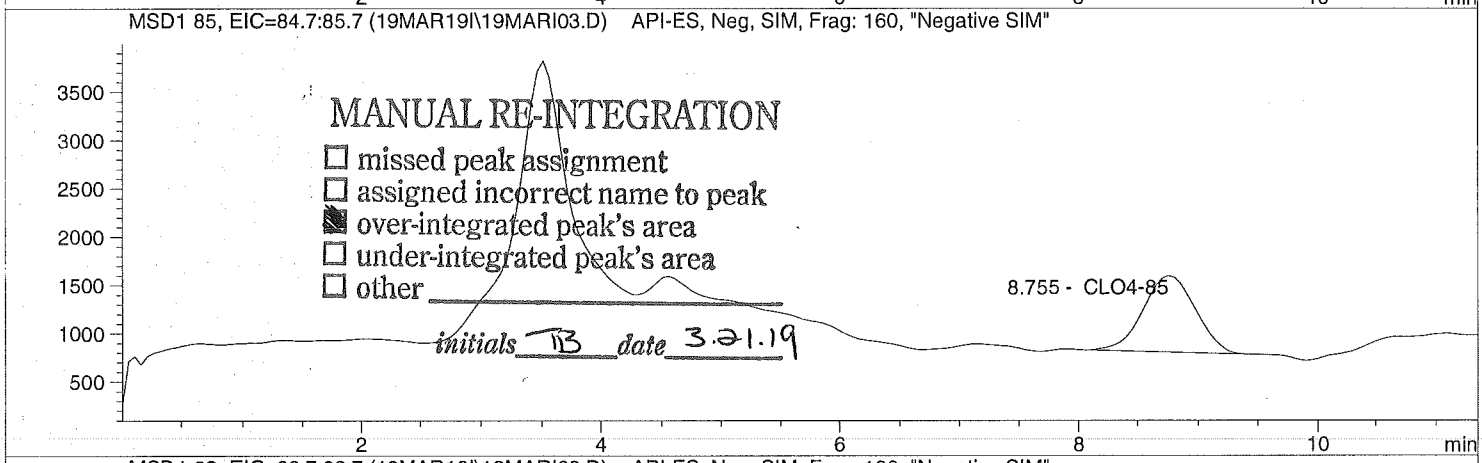
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

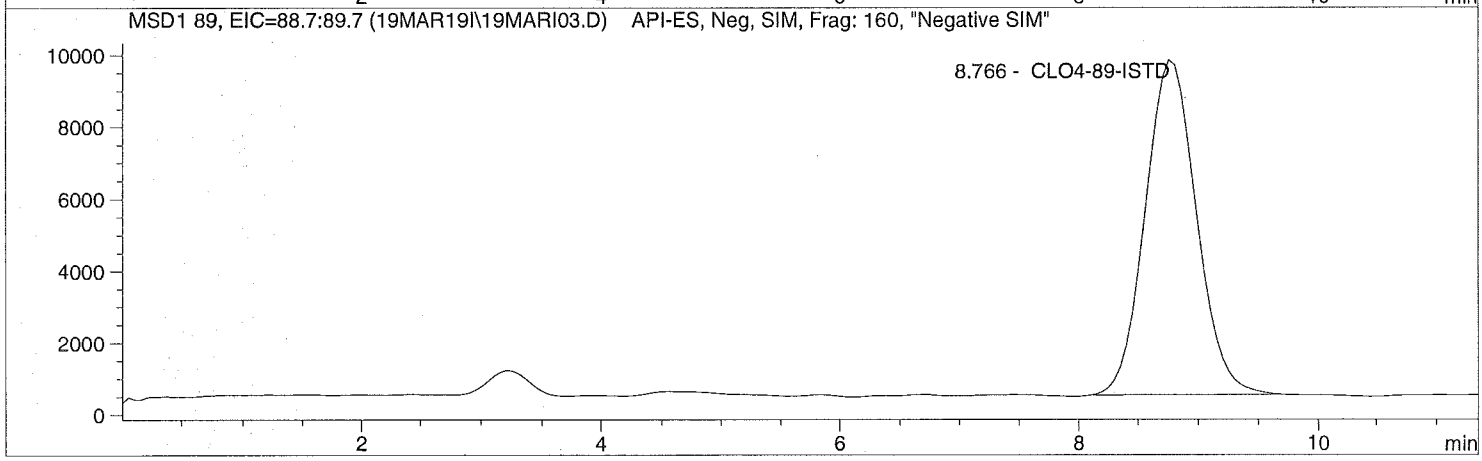
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

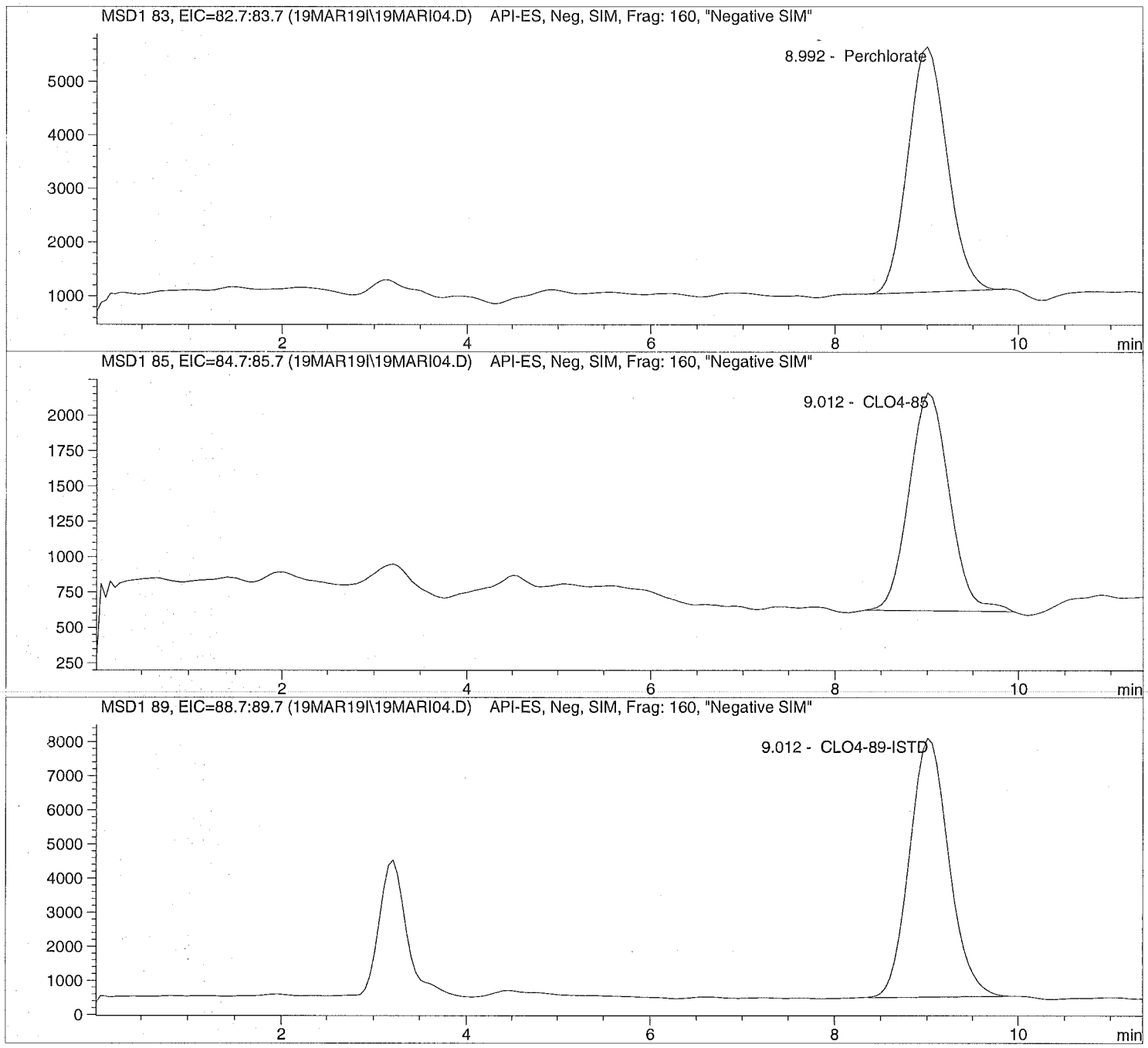
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

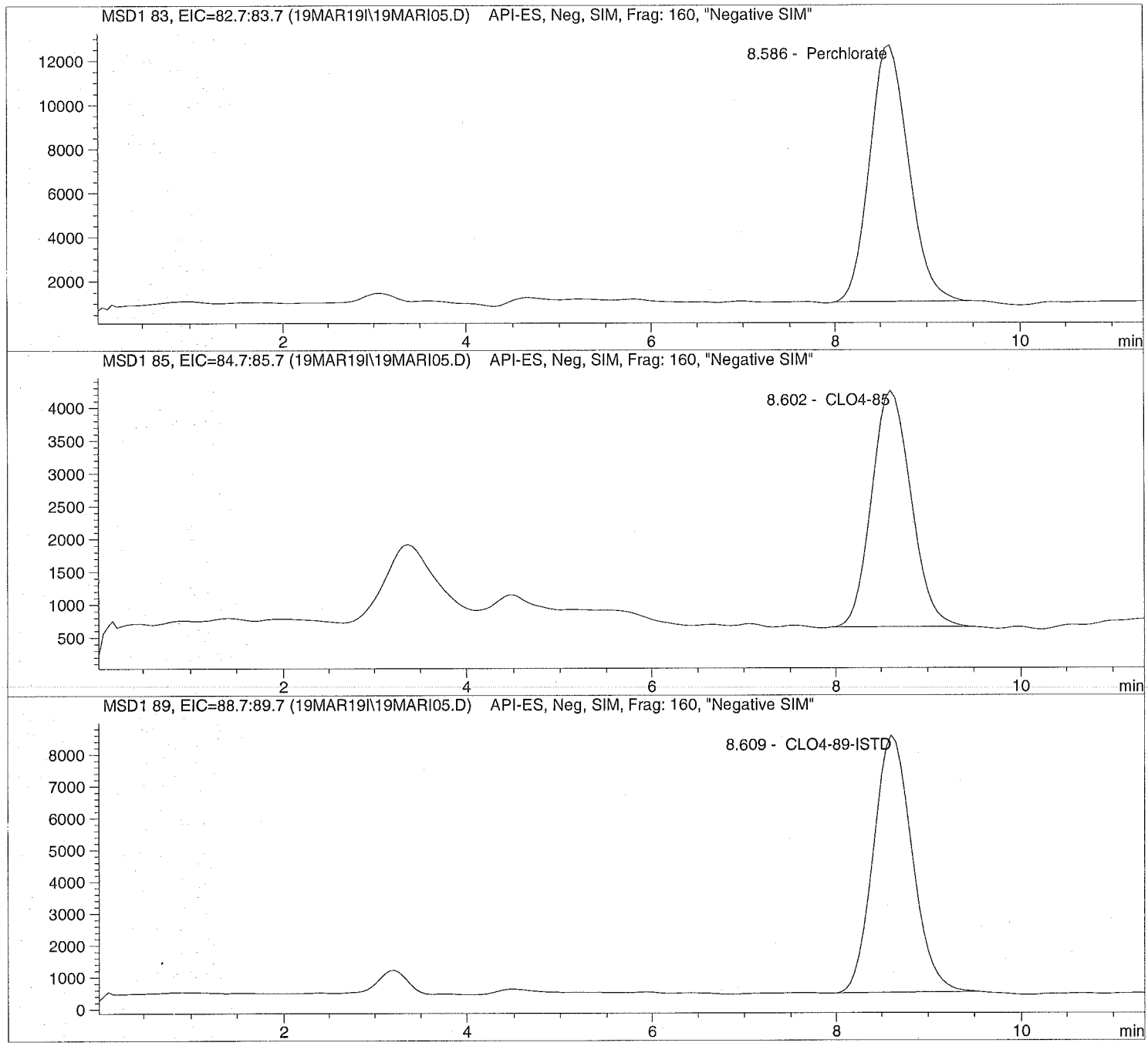
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

*** End of Report ***

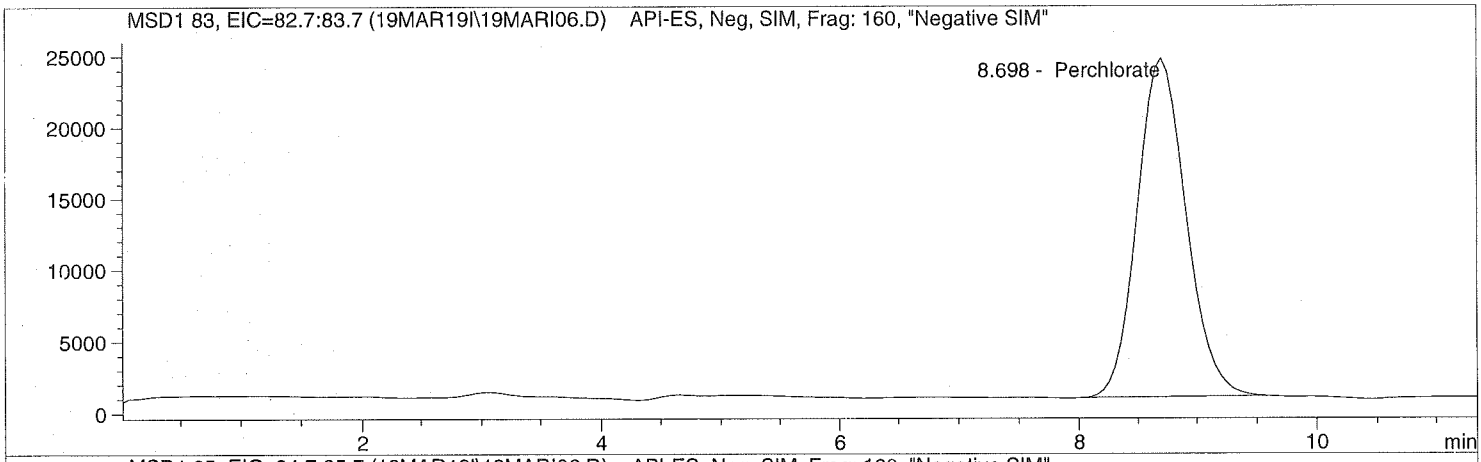
RIGHT SOLUTIONS | RIGHT PARTNER

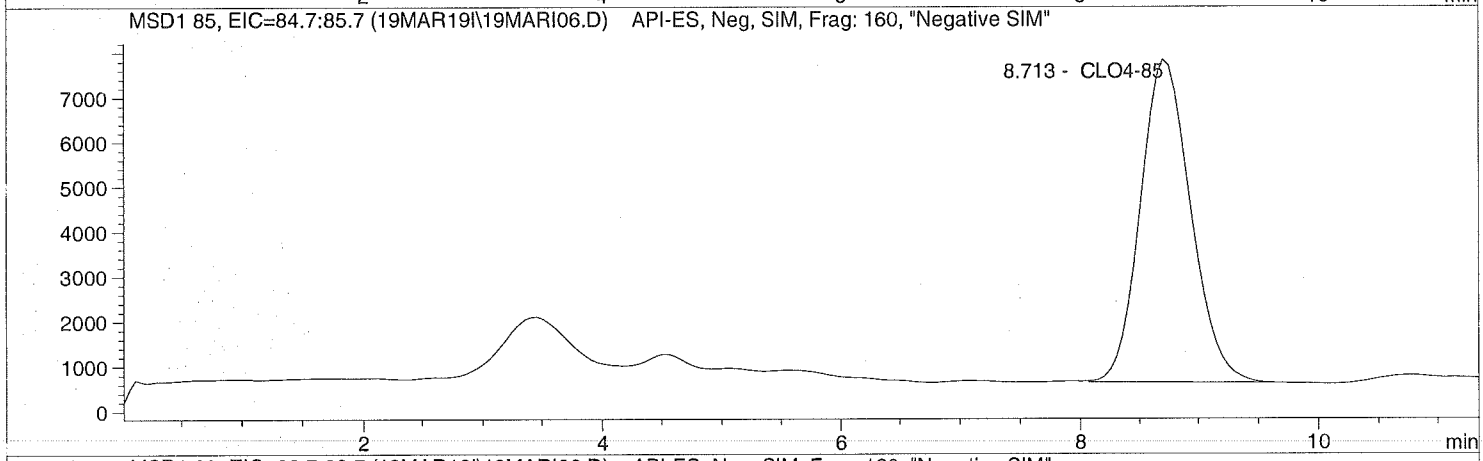
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

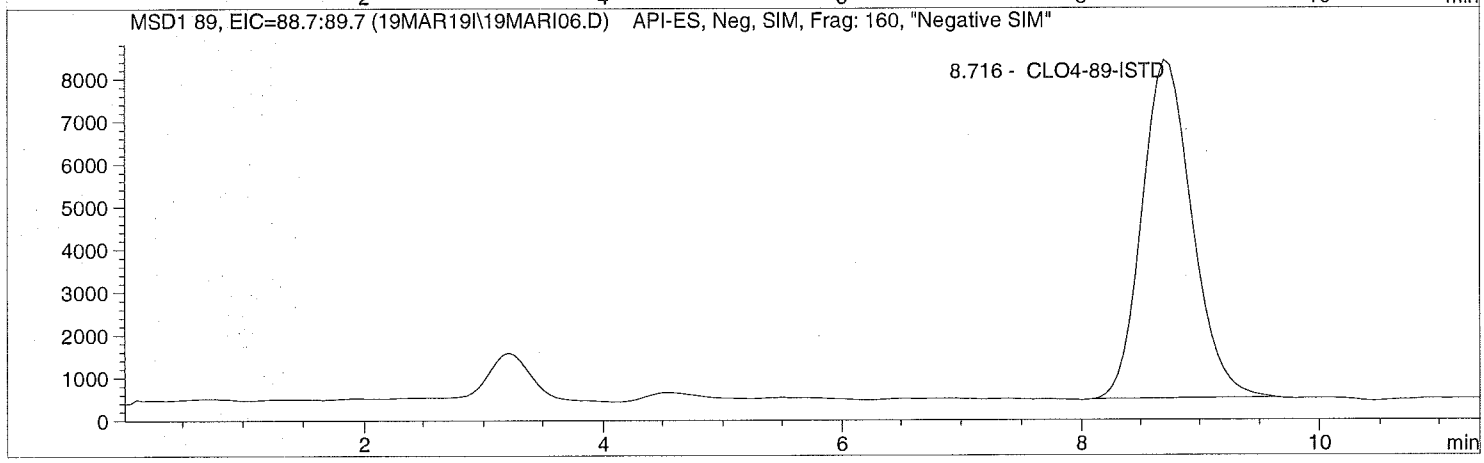
Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

*** End of Report ***

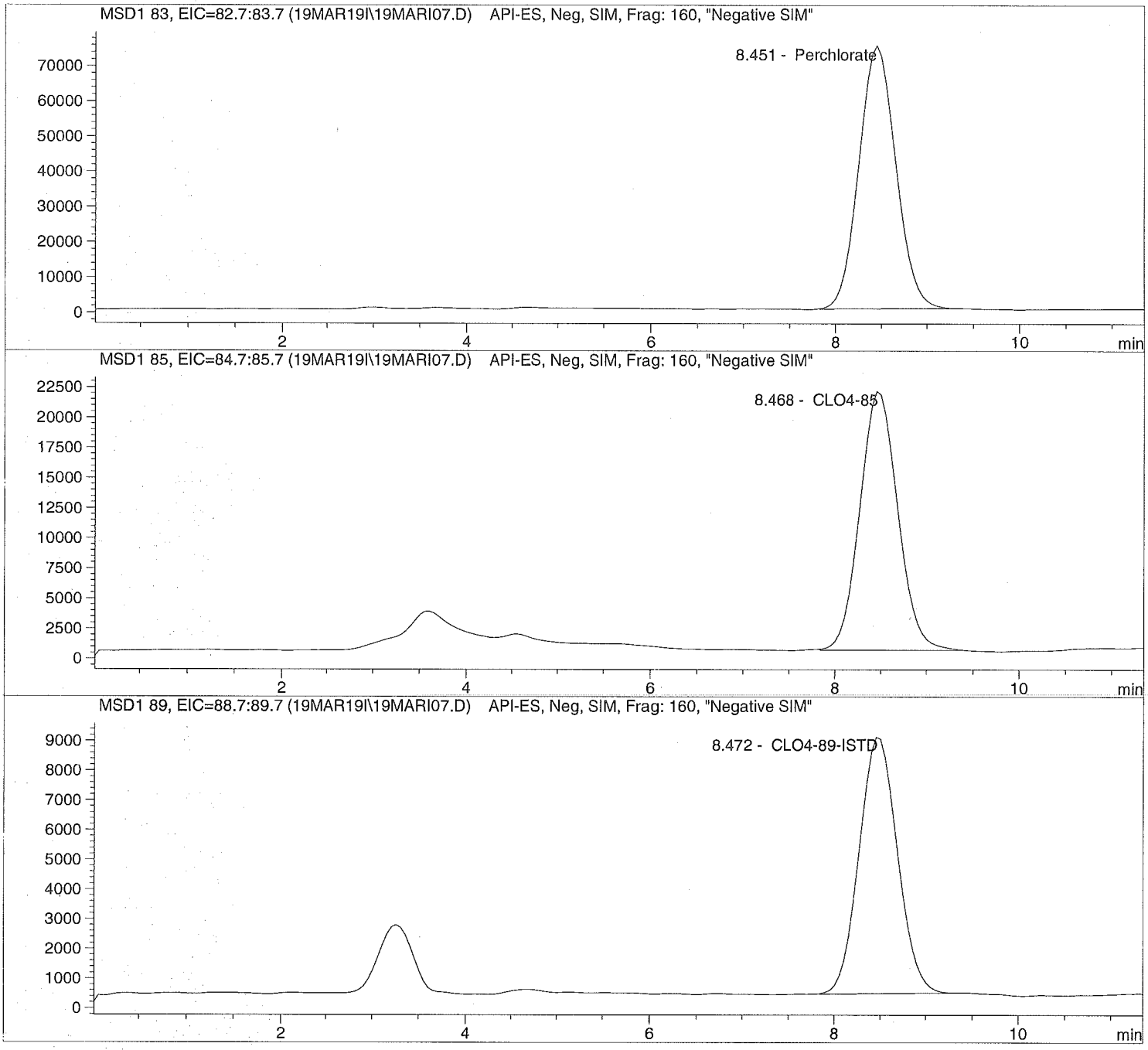
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

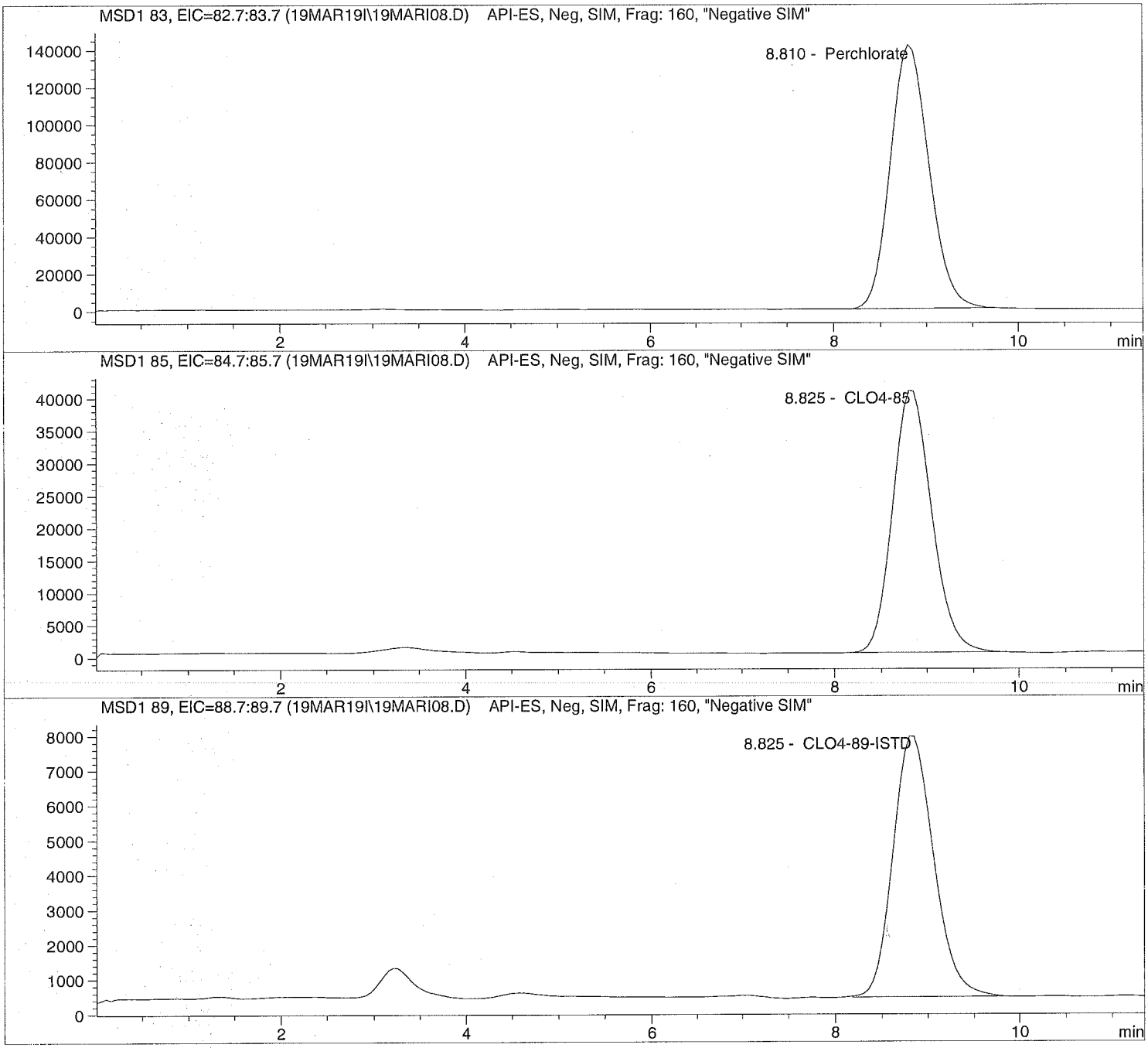
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

*** End of Report ***

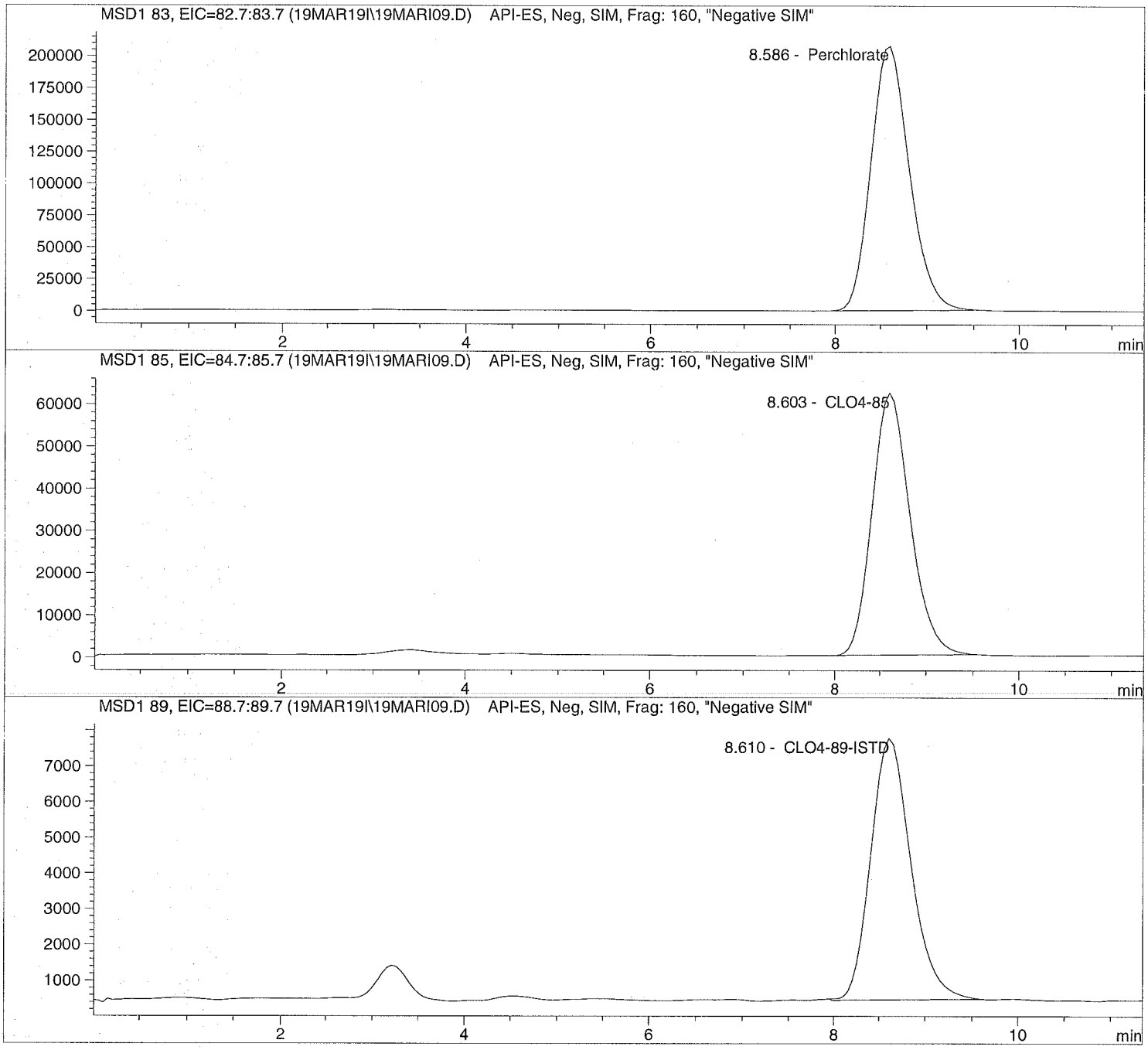
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

*** End of Report ***

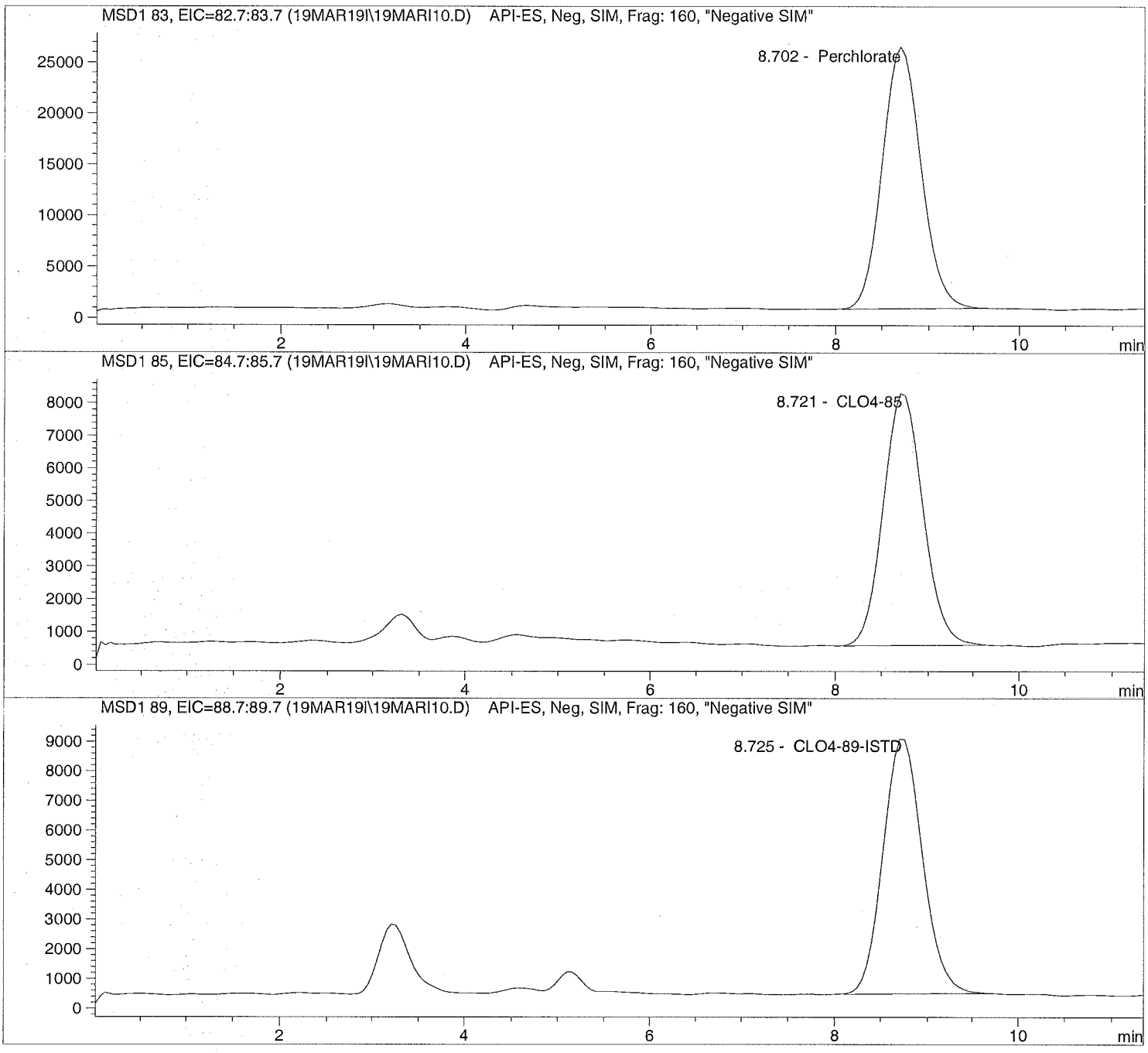
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Unmodified

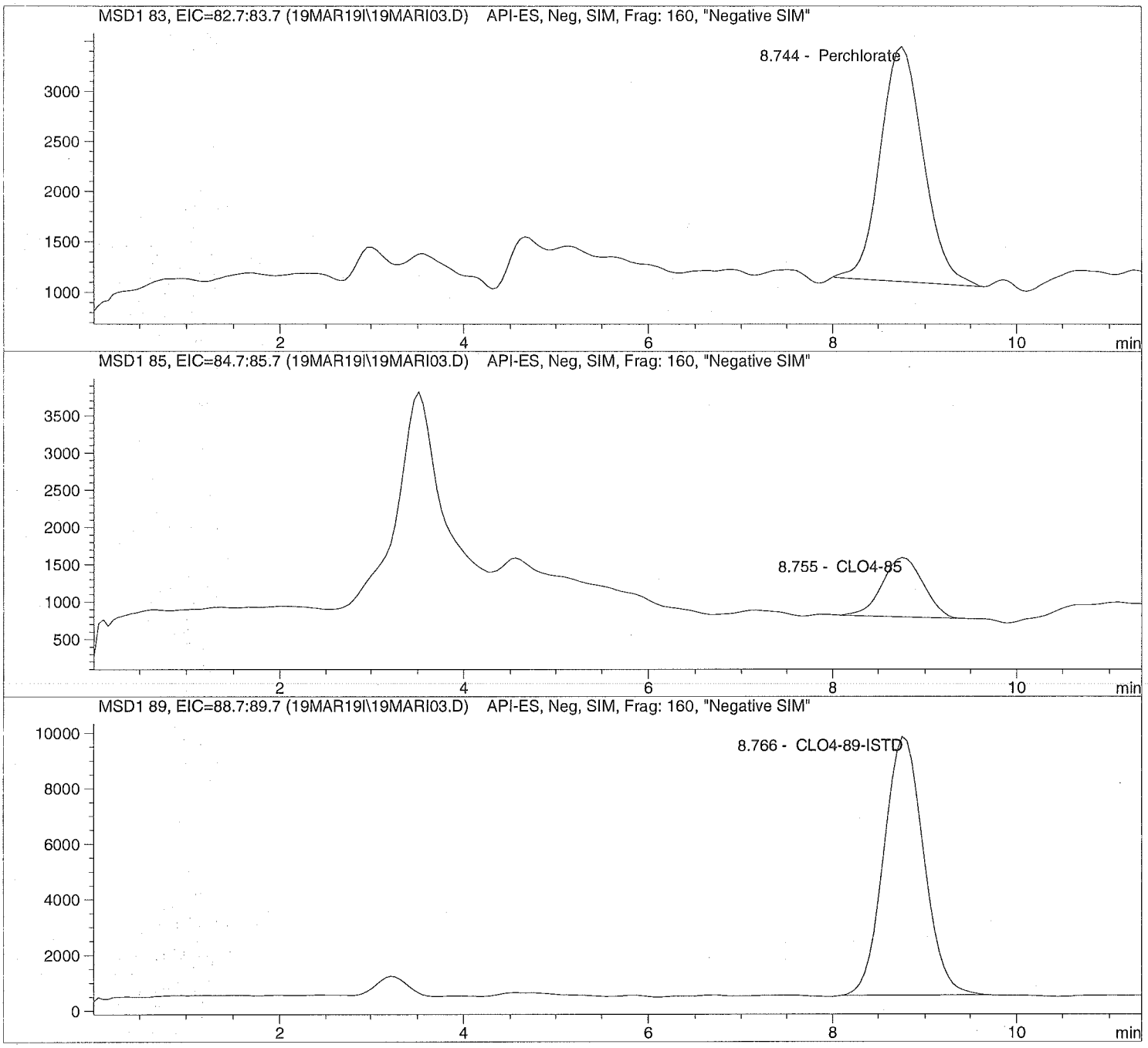
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

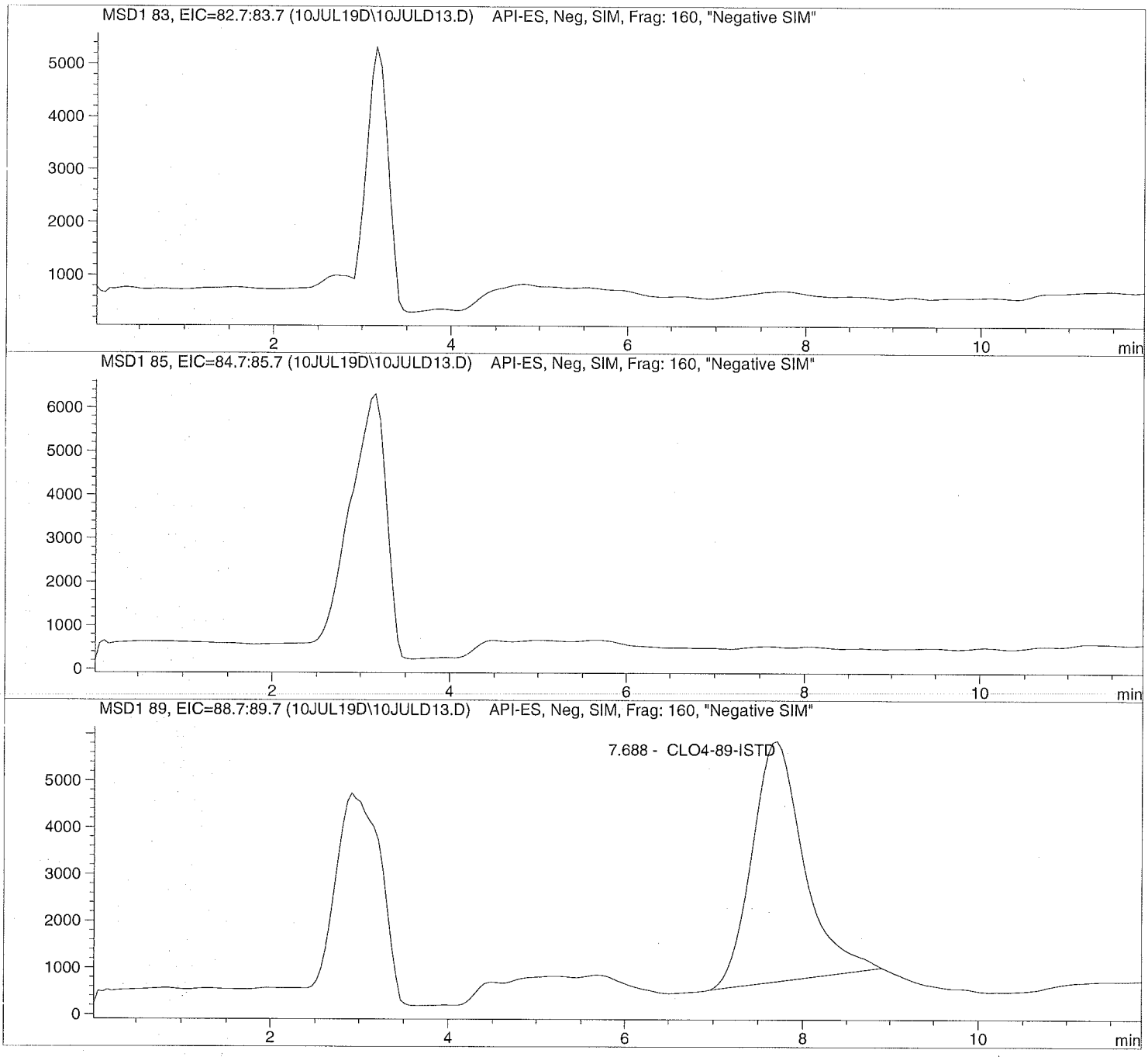
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.688	PBA	206768.2	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 16, 2019

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

Work Order: **HS19061386**

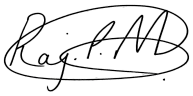
Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

ALS Environmental received 11 sample(s) on Jun 26, 2019 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,



Generated By: RJ.MODASHIA
RJ Modashia
Project Manager

ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061386

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061386-01	17WW08_062519	Water		25-Jun-2019 07:10	26-Jun-2019 08:50	☐
HS19061386-02	130_062519	Water		25-Jun-2019 08:00	26-Jun-2019 08:50	☐
HS19061386-03	130_062519-a	Water		25-Jun-2019 08:00	26-Jun-2019 08:50	☐
HS19061386-04	MW10_062519	Water		25-Jun-2019 08:55	26-Jun-2019 08:50	☐
HS19061386-05	MW13_062519	Water		25-Jun-2019 09:45	26-Jun-2019 08:50	☐
HS19061386-06	CO2_062519	Water		25-Jun-2019 10:30	26-Jun-2019 08:50	☐
HS19061386-07	MW17_062519	Water		25-Jun-2019 11:20	26-Jun-2019 08:50	☐
HS19061386-08	18WW10_062519	Water		25-Jun-2019 12:20	26-Jun-2019 08:50	☐
HS19061386-09	18WW10_062519-a	Water		25-Jun-2019 12:20	26-Jun-2019 08:50	☐
HS19061386-10	MW9_062519	Water		25-Jun-2019 13:10	26-Jun-2019 08:50	☐
HS19061386-11	Trip Blank	Water	C&G-050119-190	25-Jun-2019 00:00	26-Jun-2019 08:50	☐

Revision:1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18 24
Work Order: HS19061386

Work Order Comments

• Revised to correct the sample ID for 18WW10_062519-a

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142510

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

GCMS Volatiles by Method SW8260

Batch ID: R341869

Sample ID: CCV

• Bromoform, 1,2-Dibromo-3-Chloropropane and 1,2,3-Trichlorobenzene exceeded %D limits for CCV. Samples are ND for these compounds.

Sample ID: HS19061486-01MS

• MS and MSD are for an unrelated sample

Batch ID: R341768

Sample ID: VLCSW-190702

• One sporadic marginal exceedance (Chloroform) for LCS. CCV is OK.

Metals by Method SW7470

Batch ID: 142558

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

Metals by Method SW6020

Batch ID: 142541

Sample ID: HS19061486-01SD

• SD is for an unrelated sample

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 17WW08_062519
Collection Date: 25-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-01
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	02-Jul-2019 18:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 18:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 18:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 18:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 18:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 18:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 17WW08_062519
Collection Date: 25-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-01
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	02-Jul-2019 18:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 18:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 18:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 18:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 18:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 18:49
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 18:49*
Surr: 4-Bromofluorobenzene	*99.7*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 18:49*
Surr: Dibromofluoromethane	*98.0*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 18:49*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 18:49*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 17WW08_062519
Collection Date: 25-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.0212**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 16:29
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 16:29
Arsenic	**0.00576**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Barium	**0.539**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 16:29
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 16:29
Calcium	**129**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 16:29
Chromium	**0.438**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Cobalt	**0.0156**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Copper	**0.00484**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Iron	**29.0**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:29
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 16:29
Magnesium	**85.6**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:29
Manganese	**1.62**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Nickel	**0.370**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Potassium	**2.12**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:29
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 16:29
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 16:29
Sodium	**527**		**0.140**	**0.500**	**2.00**	**mg/L**	10	08-Jul-2019 15:03
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 16:29
Vanadium	**0.00169**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
Zinc	**0.0291**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 16:29
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 14:32
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 130_062519
Collection Date: 25-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-02
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	02-Jul-2019 19:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 19:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Jul-2019 19:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Jul-2019 19:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 19:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Jul-2019 19:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP 18 24
WorkOrder:HS19061386
Sample ID: 130_062519
Lab ID:HS19061386-02
Collection Date: 25-Jun-2019 08:00
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	02-Jul-2019 19:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	02-Jul-2019 19:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Jul-2019 19:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Jul-2019 19:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Jul-2019 19:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Jul-2019 19:13
Surr: 1,2-Dichloroethane-d4	*99.2*			**0**	*81-118*	*%REC*	*1*	*02-Jul-2019 19:13*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*1*	*02-Jul-2019 19:13*
Surr: Dibromofluoromethane	*95.8*			**0**	*80-119*	*%REC*	*1*	*02-Jul-2019 19:13*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*02-Jul-2019 19:13*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 130_062519
Collection Date: 25-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**5.22**		**0.0180**	**0.0500**	**0.100**	**mg/L**	10	08-Jul-2019 15:06
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 16:31
Arsenic	**0.00360**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Barium	**0.0930**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Beryllium	**0.000454**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 16:31
Cadmium	**0.000499**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 16:31
Calcium	**8.03**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 16:31
Chromium	**0.00929**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Cobalt	**0.00947**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Copper	**0.00755**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Iron	**7.93**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:31
Lead	**0.00546**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Magnesium	**5.19**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:31
Manganese	**0.285**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Nickel	**0.00933**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Potassium	**1.88**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:31
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 16:31
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 16:31
Sodium	**123**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:31
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 16:31
Vanadium	**0.0165**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
Zinc	**0.0478**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 16:31
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 14:33
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP 18 24
WorkOrder:HS19061386
Sample ID: 130_062519-a
Lab ID:HS19061386-03
Collection Date: 25-Jun-2019 08:00
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	03-Jul-2019 16:32
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 16:32
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 16:32
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 16:32
Acetone	**5.8**		**0.40**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 16:32
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Carbon disulfide	**1.3**	J	**0.60**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 16:32
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP 18 24
WorkOrder:HS19061386
Sample ID: 130_062519-a
Lab ID:HS19061386-03
Collection Date: 25-Jun-2019 08:00
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	03-Jul-2019 16:32
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 16:32
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 16:32
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 16:32
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:32
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:32
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 16:32*
Surr: 4-Bromofluorobenzene	*93.0*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 16:32*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 16:32*
Surr: Toluene-d8	*96.4*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 16:32*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 130_062519-a
Collection Date: 25-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**5.34**		**0.0180**	**0.0500**	**0.100**	**mg/L**	10	08-Jul-2019 14:54
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 16:35
Arsenic	**0.00349**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Barium	**0.0899**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Beryllium	**0.000469**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 16:35
Cadmium	**0.000533**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 16:35
Calcium	**8.07**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 16:35
Chromium	**0.00918**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Cobalt	**0.00954**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Copper	**0.00743**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Iron	**7.87**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:35
Lead	**0.00565**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Magnesium	**5.20**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:35
Manganese	**0.287**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Nickel	**0.00981**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Potassium	**1.89**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:35
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 16:35
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 16:35
Sodium	**126**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 16:35
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 16:35
Vanadium	**0.0168**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
Zinc	**0.0456**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 16:35
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 14:35
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW10_062519
Collection Date: 25-Jun-2019 08:55

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-04
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	03-Jul-2019 20:08
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 20:08
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 20:08
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 20:08
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 20:08
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 20:08
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW10_062519
Collection Date: 25-Jun-2019 08:55

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-04
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	03-Jul-2019 20:08
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 20:08
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 20:08
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 20:08
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:08
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Trichloroethene	**22**		**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 20:08
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:08
Surr: 1,2-Dichloroethane-d4	*95.2*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 20:08*
Surr: 4-Bromofluorobenzene	*91.9*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 20:08*
Surr: Dibromofluoromethane	*91.0*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 20:08*
Surr: Toluene-d8	*94.7*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 20:08*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.12**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 14:36
Surr: 2-Fluorobiphenyl	*85.6*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 14:36*
Surr: 4-Terphenyl-d14	*104*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 14:36*
Surr: Nitrobenzene-d5	*91.7*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 14:36*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW13_062519
Collection Date: 25-Jun-2019 09:45

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-05
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	03-Jul-2019 20:32
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 20:32
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 20:32
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 20:32
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 20:32
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 20:32
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP 18 24 WorkOrder:HS19061386
Sample ID: MW13_062519 Lab ID:HS19061386-05
Collection Date: 25-Jun-2019 09:45 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	03-Jul-2019 20:32
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 20:32
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 20:32
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 20:32
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:32
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:32
Surr: 1,2-Dichloroethane-d4	*96.3*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 20:32*
Surr: 4-Bromofluorobenzene	*91.9*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 20:32*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 20:32*
Surr: Toluene-d8	*95.8*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 20:32*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW13_062519
Collection Date: 25-Jun-2019 09:45

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.336**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 17:04
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:04
Arsenic	**0.000513**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Barium	**0.234**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:04
Cadmium	**0.000407**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:04
Calcium	**14.8**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:04
Chromium	**0.738**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Cobalt	**0.00531**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Copper	**0.0274**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Iron	**37.1**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:04
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:04
Magnesium	**7.96**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:04
Manganese	**0.844**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Nickel	**0.247**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Potassium	**3.58**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:04
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 17:04
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:04
Sodium	**56.0**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:04
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:04
Vanadium	**0.00339**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
Zinc	**0.0257**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:04
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 14:37
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO2_062519
Collection Date: 25-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-06
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	03-Jul-2019 20:56
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 20:56
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 20:56
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 20:56
Acetone	**5.1**		**0.40**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 20:56
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 20:56
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO2_062519
Collection Date: 25-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-06
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	03-Jul-2019 20:56
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 20:56
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 20:56
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 20:56
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 20:56
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 20:56
Surr: 1,2-Dichloroethane-d4	*97.4*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 20:56*
Surr: 4-Bromofluorobenzene	*91.1*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 20:56*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 20:56*
Surr: Toluene-d8	*94.8*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 20:56*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW17_062519
Collection Date: 25-Jun-2019 11:20

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM	**Method:SW8270SIM**					Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**0.31**		**0.010**	**0.010**	**0.010**	**ug/L**	1	28-Jun-2019 14:57
Surr: 2-Fluorobiphenyl	*85.0*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 14:57*
Surr: 4-Terphenyl-d14	*105*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 14:57*
Surr: Nitrobenzene-d5	*108*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 14:57*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW10_062519
Collection Date: 25-Jun-2019 12:20

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-08
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	03-Jul-2019 21:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 21:20
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 21:20
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 21:20
Acetone	**3.9**		**0.40**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 21:20
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 21:20
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW10_062519
Collection Date: 25-Jun-2019 12:20

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-08
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	03-Jul-2019 21:20
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 21:20
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 21:20
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 21:20
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:20
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:20
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 21:20*
Surr: 4-Bromofluorobenzene	*87.2*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 21:20*
Surr: Dibromofluoromethane	*94.0*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 21:20*
Surr: Toluene-d8	*93.1*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 21:20*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 15:18
Surr: 2-Fluorobiphenyl	*96.3*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 15:18*
Surr: 4-Terphenyl-d14	*122*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 15:18*
Surr: Nitrobenzene-d5	*123*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 15:18*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW10_062519-a
Collection Date: 25-Jun-2019 12:20

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-09
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	03-Jul-2019 21:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 21:43
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 21:43
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 21:43
Acetone	**2.0**		**0.40**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 21:43
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 21:43
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP 18 24 WorkOrder:HS19061386
Sample ID: 18WW10_062519-a Lab ID:HS19061386-09
Collection Date: 25-Jun-2019 12:20 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	03-Jul-2019 21:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 21:43
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 21:43
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 21:43
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 21:43
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 21:43
Surr: 1,2-Dichloroethane-d4	*95.2*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 21:43*
Surr: 4-Bromofluorobenzene	*88.9*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 21:43*
Surr: Dibromofluoromethane	*92.9*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 21:43*
Surr: Toluene-d8	*93.1*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 21:43*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	28-Jun-2019 15:38
Surr: 2-Fluorobiphenyl	*86.1*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 15:38*
Surr: 4-Terphenyl-d14	*124*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 15:38*
Surr: Nitrobenzene-d5	*109*			**0**	*40-140*	*%REC*	*1*	*28-Jun-2019 15:38*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW9_062519
Collection Date: 25-Jun-2019 13:10

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-10
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	03-Jul-2019 17:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 17:20
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 17:20
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 17:20
Acetone	**2.1**		**0.40**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 17:20
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 17:20
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW9_062519
Collection Date: 25-Jun-2019 13:10

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-10
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	03-Jul-2019 17:20
cis-1,2-Dichloroethene	**25**		**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 17:20
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 17:20
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 17:20
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 17:20
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:20
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Trichloroethene	**1,100**		**5.0**	**12**	**25**	**UG/L**	25	03-Jul-2019 19:20
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:20
Surr: 1,2-Dichloroethane-d4	*99.4*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 17:20*
Surr: 1,2-Dichloroethane-d4	*95.6*			**0**	*81-118*	*%REC*	*25*	*03-Jul-2019 19:20*
Surr: 4-Bromofluorobenzene	*92.1*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 17:20*
Surr: 4-Bromofluorobenzene	*92.8*			**0**	*85-114*	*%REC*	*25*	*03-Jul-2019 19:20*
Surr: Dibromofluoromethane	*94.8*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 17:20*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*25*	*03-Jul-2019 19:20*
Surr: Toluene-d8	*95.8*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 17:20*
Surr: Toluene-d8	*95.7*			**0**	*89-112*	*%REC*	*25*	*03-Jul-2019 19:20*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Jun-2019		Analyst: LG
1,4-Dioxane	**2.0**		**0.050**	**0.050**	**0.050**	**ug/L**	5	28-Jun-2019 19:47
Surr: 2-Fluorobiphenyl	*91.6*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 19:47*
Surr: 4-Terphenyl-d14	*111*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 19:47*
Surr: Nitrobenzene-d5	*107*			**0**	*40-140*	*%REC*	*5*	*28-Jun-2019 19:47*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW9_062519
Collection Date: 25-Jun-2019 13:10

ANALYTICAL REPORT
WorkOrder:HS19061386
Lab ID:HS19061386-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.0255**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 17:06
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:06
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:06
Barium	**0.119**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:06
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:06
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:06
Calcium	**15.0**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:06
Chromium	**0.156**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:06
Cobalt	**0.00255**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:06
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	05-Jul-2019 17:06
Iron	**0.830**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:06
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:06
Magnesium	**3.78**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:06
Manganese	**0.0495**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:06
Nickel	**0.127**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:06
Potassium	**0.438**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:06
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 17:06
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:06
Sodium	**17.2**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:06
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:06
Vanadium	**0.000919**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:06
Zinc	**0.0279**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:06
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 14:39
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP 18 24
WorkOrder:HS19061386
Sample ID: Trip Blank
Lab ID:HS19061386-11
Collection Date: 25-Jun-2019 00:00
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	03-Jul-2019 16:09
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 16:09
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 16:09
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 16:09
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 16:09
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 16:09
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP 18 24
WorkOrder:HS19061386
Sample ID: Trip Blank
Lab ID:HS19061386-11
Collection Date: 25-Jun-2019 00:00
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	03-Jul-2019 16:09
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 16:09
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 16:09
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 16:09
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:09
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:09
Surr: 1,2-Dichloroethane-d4	*92.1*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 16:09*
Surr: 4-Bromofluorobenzene	*92.3*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 16:09*
Surr: Dibromofluoromethane	*89.6*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 16:09*
Surr: Toluene-d8	*94.4*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 16:09*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

Batch ID: 142510 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061386-04	1	1000	1 (mL)	0.001
HS19061386-07	1	1000	1 (mL)	0.001
HS19061386-08	1	1000	1 (mL)	0.001
HS19061386-09	1	1000	1 (mL)	0.001
HS19061386-10	1	1000	1 (mL)	0.001

Batch ID: 142541 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061386-01	1	10	10 (mL)	1
HS19061386-02	1	10	10 (mL)	1
HS19061386-03	1	10	10 (mL)	1
HS19061386-05	1	10	10 (mL)	1
HS19061386-10	1	10	10 (mL)	1

Batch ID: 142558 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061386-01	1	10 (mL)	10 (mL)	1
HS19061386-02	1	10 (mL)	10 (mL)	1
HS19061386-03	1	10 (mL)	10 (mL)	1
HS19061386-05	1	10 (mL)	10 (mL)	1
HS19061386-10	1	10 (mL)	10 (mL)	1

ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142510 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS19061386-04	MW10_062519	25 Jun 2019 08:55		27 Jun 2019 14:45	28 Jun 2019 14:36	1
HS19061386-07	MW17_062519	25 Jun 2019 11:20		27 Jun 2019 14:45	28 Jun 2019 14:57	1
HS19061386-08	18WW10_062519	25 Jun 2019 12:20		27 Jun 2019 14:45	28 Jun 2019 15:18	1
HS19061386-09	18WW10_062519-a	25 Jun 2019 12:20		27 Jun 2019 14:45	28 Jun 2019 15:38	1
HS19061386-10	MW9_062519	25 Jun 2019 13:10		27 Jun 2019 14:45	28 Jun 2019 19:47	5
Batch ID: 142541 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS19061386-01	17WW08_062519	25 Jun 2019 07:10		28 Jun 2019 11:59	08 Jul 2019 15:03	10
HS19061386-01	17WW08_062519	25 Jun 2019 07:10		28 Jun 2019 11:59	05 Jul 2019 16:29	1
HS19061386-02	130_062519	25 Jun 2019 08:00		28 Jun 2019 11:59	08 Jul 2019 15:06	10
HS19061386-02	130_062519	25 Jun 2019 08:00		28 Jun 2019 11:59	05 Jul 2019 16:31	1
HS19061386-03	130_062519-a	25 Jun 2019 08:00		28 Jun 2019 11:59	08 Jul 2019 14:54	10
HS19061386-03	130_062519-a	25 Jun 2019 08:00		28 Jun 2019 11:59	05 Jul 2019 16:35	1
HS19061386-05	MW13_062519	25 Jun 2019 09:45		28 Jun 2019 11:59	05 Jul 2019 17:04	1
HS19061386-10	MW9_062519	25 Jun 2019 13:10		28 Jun 2019 11:59	05 Jul 2019 17:06	1
Batch ID: 142558 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS19061386-01	17WW08_062519	25 Jun 2019 07:10		28 Jun 2019 09:30	28 Jun 2019 14:32	1
HS19061386-02	130_062519	25 Jun 2019 08:00		28 Jun 2019 09:30	28 Jun 2019 14:33	1
HS19061386-03	130_062519-a	25 Jun 2019 08:00		28 Jun 2019 09:30	28 Jun 2019 14:35	1
HS19061386-05	MW13_062519	25 Jun 2019 09:45		28 Jun 2019 09:30	28 Jun 2019 14:37	1
HS19061386-10	MW9_062519	25 Jun 2019 13:10		28 Jun 2019 09:30	28 Jun 2019 14:39	1
Batch ID: R341768 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061386-01	17WW08_062519	25 Jun 2019 07:10			02 Jul 2019 18:49	1
HS19061386-02	130_062519	25 Jun 2019 08:00			02 Jul 2019 19:13	1
Batch ID: R341869 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061386-03	130_062519-a	25 Jun 2019 08:00			03 Jul 2019 16:32	1
HS19061386-04	MW10_062519	25 Jun 2019 08:55			03 Jul 2019 20:08	1
HS19061386-05	MW13_062519	25 Jun 2019 09:45			03 Jul 2019 20:32	1
HS19061386-06	CO2_062519	25 Jun 2019 10:30			03 Jul 2019 20:56	1
HS19061386-08	18WW10_062519	25 Jun 2019 12:20			03 Jul 2019 21:20	1
HS19061386-09	18WW10_062519-a	25 Jun 2019 12:20			03 Jul 2019 21:43	1
HS19061386-10	MW9_062519	25 Jun 2019 13:10			03 Jul 2019 19:20	25
HS19061386-10	MW9_062519	25 Jun 2019 13:10			03 Jul 2019 17:20	1
HS19061386-11	Trip Blank	25 Jun 2019 00:00			03 Jul 2019 16:09	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R342378 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS19061386-01	17WW08_062519	25 Jun 2019 07:10			12 Jul 2019 18:48	1
HS19061386-02	130_062519	25 Jun 2019 08:00			12 Jul 2019 18:48	1
HS19061386-03	130_062519-a	25 Jun 2019 08:00			12 Jul 2019 18:48	1
HS19061386-04	MW10_062519	25 Jun 2019 08:55			12 Jul 2019 18:48	1
HS19061386-05	MW13_062519	25 Jun 2019 09:45			12 Jul 2019 18:48	1
HS19061386-06	CO2_062519	25 Jun 2019 10:30			12 Jul 2019 18:48	1
HS19061386-07	MW17_062519	25 Jun 2019 11:20			12 Jul 2019 18:48	1
HS19061386-08	18WW10_062519	25 Jun 2019 12:20			12 Jul 2019 18:48	1
HS19061386-09	18WW10_062519-a	25 Jun 2019 12:20			12 Jul 2019 18:48	1
HS19061386-10	MW9_062519	25 Jun 2019 13:10			12 Jul 2019 18:48	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142541** Units: **mg/L** Analysis Date: **05-Jul-2019 15:49**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155804** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004417	0.0100								J
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Magnesium	0.01315	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

MBLK Sample ID: **MBLK-142541** Units: **mg/L** Analysis Date: **08-Jul-2019 13:53**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157125** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.00100	0.00500								U

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142541** Units: **mg/L** Analysis Date: **05-Jul-2019 15:51**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155805** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09504	0.0100	0.1	0	95.0	84 - 117				
Antimony	0.05029	0.00500	0.05	0	101	85 - 117				
Arsenic	0.05092	0.00500	0.05	0	102	84 - 116				
Barium	0.04966	0.00500	0.05	0	99.3	86 - 114				
Beryllium	0.05036	0.00200	0.05	0	101	83 - 121				
Cadmium	0.0504	0.00200	0.05	0	101	87 - 115				
Calcium	5.026	0.500	5	0	101	87 - 118				
Chromium	0.0522	0.00500	0.05	0	104	85 - 116				
Cobalt	0.05274	0.00500	0.05	0	105	86 - 115				
Copper	0.0545	0.00500	0.05	0	109	85 - 118				
Iron	5.193	0.200	5	0	104	87 - 118				
Lead	0.05298	0.00500	0.05	0	106	88 - 115				
Magnesium	5.5	0.200	5	0	110	83 - 118				
Manganese	0.05088	0.00500	0.05	0	102	87 - 115				
Nickel	0.05412	0.00500	0.05	0	108	85 - 117				
Potassium	5.248	0.200	5	0	105	87 - 115				
Selenium	0.05096	0.00500	0.05	0	102	80 - 120				
Silver	0.05061	0.00500	0.05	0	101	85 - 116				
Sodium	5.358	0.200	5	0	107	85 - 117				
Thallium	0.0498	0.00200	0.05	0	99.6	82 - 116				
Vanadium	0.05244	0.00500	0.05	0	105	86 - 115				
Zinc	0.05376	0.00500	0.05	0	108	83 - 119				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:59**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155808** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.739	0.0100	0.4	0.3697	92.3	84 - 117				
Antimony	0.04732	0.00500	0.05	0.0008	93.0	85 - 117				
Arsenic	0.04842	0.00500	0.05	0	96.8	84 - 116				
Barium	0.2815	0.00500	0.05	0.238	87.0	86 - 114				O
Beryllium	0.04857	0.00200	0.05	0	97.1	83 - 121				
Cadmium	0.04813	0.00200	0.05	0	96.3	87 - 115				
Calcium	81.2	0.500	5	76.32	97.6	87 - 118				O
Chromium	0.05476	0.00500	0.05	0.006591	96.3	85 - 116				
Cobalt	0.04919	0.00500	0.05	0.000529	97.3	86 - 115				
Copper	0.05037	0.00500	0.05	0.001192	98.4	85 - 118				
Iron	5.246	0.200	5	0.3538	97.8	87 - 118				
Magnesium	8.622	0.200	5	3.785	96.7	83 - 118				
Manganese	0.1269	0.00500	0.05	0.07982	94.2	87 - 115				
Nickel	0.05352	0.00500	0.05	0.00408	98.9	85 - 117				
Potassium	5.438	0.200	5	0.5115	98.5	87 - 115				
Selenium	0.04621	0.00500	0.05	0	92.4	80 - 120				
Silver	0.04831	0.00500	0.05	0	96.6	85 - 116				
Sodium	19.1	0.200	5	14.32	95.6	85 - 117				
Thallium	0.04492	0.00200	0.05	0.000881	88.1	82 - 116				
Vanadium	0.05006	0.00500	0.05	0.001987	96.1	86 - 115				
Zinc	0.0719	0.00500	0.05	0.02524	93.3	83 - 119				

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **08-Jul-2019 13:58**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157127** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04682	0.00500	0.05	0	93.6	88 - 115				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19061486-01MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 16:01**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155809** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.7553	0.0100	0.4	0.3697	96.4	84 - 117	0.739	2.18	20	
Antimony	0.04868	0.00500	0.05	0.0008	95.8	85 - 117	0.04732	2.84	20	
Arsenic	0.04954	0.00500	0.05	0	99.1	84 - 116	0.04842	2.27	20	
Barium	0.287	0.00500	0.05	0.238	98.0	86 - 114	0.2815	1.95	20	O
Beryllium	0.0485	0.00200	0.05	0	97.0	83 - 121	0.04857	0.142	20	
Cadmium	0.0486	0.00200	0.05	0	97.2	87 - 115	0.04813	0.966	20	
Calcium	81.29	0.500	5	76.32	99.3	87 - 118	81.2	0.104	20	O
Chromium	0.05662	0.00500	0.05	0.006591	100	85 - 116	0.05476	3.34	20	
Cobalt	0.05007	0.00500	0.05	0.000529	99.1	86 - 115	0.04919	1.76	20	
Copper	0.05145	0.00500	0.05	0.001192	101	85 - 118	0.05037	2.12	20	
Iron	5.285	0.200	5	0.3538	98.6	87 - 118	5.246	0.742	20	
Lead	0.04787	0.00500	0.05	0	95.7	88 - 115	0.04832	0.925	20	
Magnesium	8.77	0.200	5	3.785	99.7	83 - 118	8.622	1.7	20	
Manganese	0.1284	0.00500	0.05	0.07982	97.2	87 - 115	0.1269	1.2	20	
Nickel	0.05428	0.00500	0.05	0.00408	100	85 - 117	0.05352	1.41	20	
Potassium	5.433	0.200	5	0.5115	98.4	87 - 115	5.438	0.0912	20	
Selenium	0.0486	0.00500	0.05	0	97.2	80 - 120	0.04621	5.05	20	
Silver	0.04796	0.00500	0.05	0	95.9	85 - 116	0.04831	0.717	20	
Sodium	19.67	0.200	5	14.32	107	85 - 117	19.1	2.92	20	
Thallium	0.04425	0.00200	0.05	0.000881	86.7	82 - 116	0.04492	1.5	20	
Vanadium	0.05188	0.00500	0.05	0.001987	99.8	86 - 115	0.05006	3.57	20	
Zinc	0.07298	0.00500	0.05	0.02524	95.5	83 - 119	0.0719	1.49	20	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19061486-01PDS** Units: **mg/L** Analysis Date: **05-Jul-2019 16:03**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155810** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.487	0.0100	0.1	0.3697	117	80 - 120				
Arsenic	0.09568	0.00500	0.1	0.000356	95.3	80 - 120				
Barium	0.3243	0.00500	0.1	0.238	86.3	80 - 120				
Beryllium	0.08784	0.00200	0.1	0.000034	87.8	80 - 120				
Cadmium	0.09239	0.00200	0.1	0.000163	92.2	80 - 120				
Calcium	84.54	0.500	10	76.32	82.1	80 - 120				O
Chromium	0.1036	0.00500	0.1	0.006591	97.0	80 - 120				
Cobalt	0.0997	0.00500	0.1	0.000529	99.2	80 - 120				
Copper	0.09939	0.00500	0.1	0.001192	98.2	80 - 120				
Iron	10.01	0.200	10	0.3538	96.6	80 - 120				
Lead	0.09928	0.00500	0.1	0.000498	98.8	80 - 120				
Magnesium	13.55	0.200	10	3.785	97.6	80 - 120				
Manganese	0.1738	0.00500	0.1	0.07982	94.0	80 - 120				
Nickel	0.1011	0.00500	0.1	0.00408	97.0	80 - 120				
Potassium	10.21	0.200	10	0.5115	97.0	80 - 120				
Selenium	0.09467	0.00500	0.1	0.000462	94.2	80 - 120				
Silver	0.09272	0.00500	0.1	0.000026	92.7	80 - 120				
Sodium	24.03	0.200	10	14.32	97.1	80 - 120				
Thallium	0.1018	0.00200	0.1	0.000881	101	80 - 120				
Vanadium	0.09888	0.00500	0.1	0.001987	96.9	80 - 120				
Zinc	0.1221	0.00500	0.1	0.02524	96.9	80 - 120				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19061486-01SD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:56**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155807** PrepDate: **28-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.3834	0.0500					0.3697	3.7	10	
Antimony	0.00250	0.0250					0.0008	0	10	U
Arsenic	0.00250	0.0250					0.000356	0	10	U
Barium	0.2349	0.0250					0.238	1.31	10	
Beryllium	0.00250	0.0100					0.000034	0	10	U
Cadmium	0.00250	0.0100					0.000163	0	10	U
Calcium	73.47	2.50					76.32	3.74	10	
Chromium	0.006325	0.0250					0.006591	0	10	J
Cobalt	0.00250	0.0250					0.000529	0	10	U
Copper	0.00500	0.0250					0.001192	0	10	U
Iron	0.3675	1.00					0.3538	0	10	J
Lead	0.00500	0.0250					0.000498	0	10	U
Magnesium	3.655	1.00					3.785	3.44	10	
Manganese	0.08094	0.0250					0.07982	1.4	10	
Nickel	0.00368	0.0250					0.00408	0	10	J
Potassium	0.6068	1.00					0.5115	0	10	J
Selenium	0.0125	0.0250					0.000462	0	10	U
Silver	0.00250	0.0250					0.000026	0	10	U
Sodium	15.04	1.00					14.32	5.03	10	
Thallium	0.00250	0.0100					0.000881	0	10	U
Vanadium	0.003882	0.0250					0.001987	0	10	J
Zinc	0.02966	0.0250					0.02524	17.5	10	R

The following samples were analyzed in this batch: HS19061386-01 HS19061386-02 HS19061386-03 HS19061386-05 HS19061386-10

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142558 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142558** Units: **mg/L** Analysis Date: **28-Jun-2019 13:58**
Client ID: Run ID: **HG03_341562** SeqNo: **5146995** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142558** Units: **mg/L** Analysis Date: **28-Jun-2019 13:59**
Client ID: Run ID: **HG03_341562** SeqNo: **5146996** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00514	0.000200	0.005	0	103	80 - 120				

MS Sample ID: **HS19061383-01MS** Units: **mg/L** Analysis Date: **28-Jun-2019 14:03**
Client ID: Run ID: **HG03_341562** SeqNo: **5146998** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000517	0.000000200	5e-006	-0.0000000010	103	75 - 125				

MSD Sample ID: **HS19061383-01MSD** Units: **mg/L** Analysis Date: **28-Jun-2019 14:05**
Client ID: Run ID: **HG03_341562** SeqNo: **5146999** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000514	0.000000200	5e-006	-0.0000000010	103	75 - 125	0.000005170	0.582	20	

The following samples were analyzed in this batch: HS19061386-01 HS19061386-02 HS19061386-03 HS19061386-05 HS19061386-10

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: 142510 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:37**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146408** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.0594*	*0*	*0.08*	*0*	*74.3*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08022*	*0*	*0.08*	*0*	*100*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07461*	*0*	*0.08*	*0*	*93.3*	*40 - 140*				

LCS Sample ID: **LCS-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 22:58**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146409** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08012	0.010	0.08	0	100	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07847*	*0*	*0.08*	*0*	*98.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08943*	*0*	*0.08*	*0*	*112*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08221*	*0*	*0.08*	*0*	*103*	*40 - 140*				

LCSD Sample ID: **LCSD-142510** Units: **ug/L** Analysis Date: **27-Jun-2019 23:19**
Client ID: Run ID: **SV-5_341545** SeqNo: **5146410** PrepDate: **27-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07797	0.010	0.08	0	97.5	40 - 140	0.08012	2.72	20	
Surr: 2-Fluorobiphenyl	*0.07625*	*0*	*0.08*	*0*	*95.3*	*40 - 140*	*0.07847*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.09409*	*0*	*0.08*	*0*	*118*	*40 - 140*	*0.08943*	*5.08*	*20*	
Surr: Nitrobenzene-d5	*0.08067*	*0*	*0.08*	*0*	*101*	*40 - 140*	*0.08221*	*1.89*	*20*	

The following samples were analyzed in this batch: HS19061386-04 HS19061386-07 HS19061386-08 HS19061386-09 HS19061386-10

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 11:38**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151546** 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	1.0	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

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 11:38**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151546** 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	1.0	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	*48.37*	*1.0*	*50*	*0*	*96.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.48*	*1.0*	*50*	*0*	*95.0*	*85 - 114*				
Surr: Dibromofluoromethane	*46.31*	*1.0*	*50*	*0*	*92.6*	*80 - 119*				
Surr: Toluene-d8	*50.22*	*1.0*	*50*	*0*	*100*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 10:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151545** 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	19.88	1.0	20	0	99.4	78 - 124				
1,1,1-Trichloroethane	18.61	1.0	20	0	93.1	74 - 131				
1,1,2,2-Tetrachloroethane	21.7	1.0	20	0	108	71 - 121				
1,1,2-Trichloroethane	21.03	1.0	20	0	105	80 - 119				
1,1-Dichloroethane	19.31	1.0	20	0	96.5	77 - 125				
1,1-Dichloroethene	18.25	1.0	20	0	91.2	71 - 131				
1,1-Dichloropropene	18.58	1.0	20	0	92.9	78 - 125				
1,2,3-Trichlorobenzene	23.14	1.0	20	0	116	69 - 129				
1,2,3-Trichloropropane	18.92	1.0	20	0	94.6	73 - 122				
1,2,4-Trichlorobenzene	20.64	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	17.82	1.0	20	0	89.1	76 - 124				
1,2-Dibromo-3-chloropropane	22.28	1.0	20	0	111	62 - 128				
1,2-Dibromoethane	20.44	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	19.09	1.0	20	0	95.5	80 - 119				
1,2-Dichloroethane	18.92	1.0	20	0	94.6	73 - 128				
1,2-Dichloropropane	19.38	1.0	20	0	96.9	78 - 122				
1,3,5-Trimethylbenzene	17.15	1.0	20	0	85.8	75 - 124				
1,3-Dichlorobenzene	18.25	1.0	20	0	91.3	80 - 119				
1,3-Dichloropropane	20.81	1.0	20	0	104	80 - 119				
1,4-Dichlorobenzene	19.84	1.0	20	0	99.2	79 - 118				
2,2-Dichloropropane	19.77	1.0	20	0	98.8	60 - 139				
2-Butanone	44.92	2.0	40	0	112	56 - 143				
2-Chlorotoluene	19.2	1.0	20	0	96.0	79 - 122				
2-Hexanone	40.3	2.0	40	0	101	57 - 139				
4-Chlorotoluene	19.14	1.0	20	0	95.7	78 - 122				
4-Isopropyltoluene	16.8	1.0	20	0	84.0	77 - 127				
4-Methyl-2-pentanone	39.68	2.0	40	0	99.2	67 - 130				
Acetone	47.19	2.0	40	0	118	39 - 160				
Benzene	19.98	1.0	20	0	99.9	79 - 120				
Bromobenzene	18.71	1.0	20	0	93.6	80 - 120				
Bromochloromethane	19.36	1.0	20	0	96.8	78 - 123				
Bromodichloromethane	20.21	1.0	20	0	101	79 - 125				
Bromoform	21.67	1.0	20	0	108	66 - 130				
Bromomethane	20.75	1.0	20	0	104	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190702** Units: **UG/L** Analysis Date: **02-Jul-2019 10:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151545** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.79	2.0	40	0	89.5	64 - 133				
Carbon tetrachloride	18.07	1.0	20	0	90.3	72 - 136				
Chlorobenzene	19.29	1.0	20	0	96.5	82 - 118				
Chloroethane	18.27	1.0	20	0	91.4	60 - 138				
Chloroform	27.06	1.0	20	0	135	79 - 124				S
Chloromethane	17.7	1.0	20	0	88.5	50 - 139				
cis-1,2-Dichloroethene	20.04	1.0	20	0	100	78 - 123				
cis-1,3-Dichloropropene	19.46	1.0	20	0	97.3	75 - 124				
Dibromochloromethane	19.85	1.0	20	0	99.2	74 - 126				
Dibromomethane	20.01	1.0	20	0	100	79 - 123				
Dichlorodifluoromethane	18.31	1.0	20	0	91.5	32 - 152				
Ethylbenzene	18.31	1.0	20	0	91.5	79 - 121				
Hexachlorobutadiene	22.83	1.0	20	0	114	66 - 134				
Isopropylbenzene	17.5	1.0	20	0	87.5	72 - 131				
m,p-Xylene	37.16	2.0	40	0	92.9	80 - 121				
Methylene chloride	19.46	2.0	20	0	97.3	74 - 124				
Naphthalene	22.02	1.0	20	0	110	61 - 128				
n-Butylbenzene	17.1	1.0	20	0	85.5	75 - 128				
n-Propylbenzene	18.1	1.0	20	0	90.5	76 - 126				
o-Xylene	18.52	1.0	20	0	92.6	78 - 122				
sec-Butylbenzene	17.6	1.0	20	0	88.0	77 - 126				
Styrene	19.81	1.0	20	0	99.1	78 - 123				
tert-Butylbenzene	17.93	1.0	20	0	89.7	78 - 124				
Tetrachloroethene	17.9	1.0	20	0	89.5	74 - 129				
Toluene	19.07	1.0	20	0	95.4	80 - 121				
trans-1,2-Dichloroethene	19.56	1.0	20	0	97.8	75 - 124				
trans-1,3-Dichloropropene	20.02	1.0	20	0	100	73 - 127				
Trichloroethene	18.94	1.0	20	0	94.7	79 - 123				
Trichlorofluoromethane	17.56	1.0	20	0	87.8	65 - 141				
Vinyl chloride	17.16	1.0	20	0	85.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.7*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.55*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*50.71*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*49.5*	*1.0*	*50*	*0*	*99.0*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061279-02MS** Units: **UG/L** Analysis Date: **02-Jul-2019 14:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151553** 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	18.03	1.0	20	0	90.2	78 - 124				
1,1,1-Trichloroethane	18.04	1.0	20	0	90.2	74 - 131				
1,1,2,2-Tetrachloroethane	17.83	1.0	20	0	89.1	71 - 121				
1,1,2-Trichloroethane	18.28	1.0	20	0	91.4	80 - 119				
1,1-Dichloroethane	16.8	1.0	20	0	84.0	77 - 125				
1,1-Dichloroethene	17.59	1.0	20	0	88.0	71 - 131				
1,1-Dichloropropene	19.29	1.0	20	0	96.5	78 - 125				
1,2,3-Trichlorobenzene	18.52	1.0	20	0	92.6	69 - 129				
1,2,3-Trichloropropane	18.32	1.0	20	0	91.6	73 - 122				
1,2,4-Trichlorobenzene	18.51	1.0	20	0	92.6	69 - 130				
1,2,4-Trimethylbenzene	18.55	1.0	20	0	92.7	76 - 124				
1,2-Dibromo-3-chloropropane	18.32	1.0	20	0	91.6	62 - 128				
1,2-Dibromoethane	17.49	1.0	20	0	87.4	77 - 121				
1,2-Dichlorobenzene	17.91	1.0	20	0	89.5	80 - 119				
1,2-Dichloroethane	16.42	1.0	20	0	82.1	73 - 128				
1,2-Dichloropropane	17.32	1.0	20	0	86.6	78 - 122				
1,3,5-Trimethylbenzene	18.27	1.0	20	0	91.4	75 - 124				
1,3-Dichlorobenzene	17.89	1.0	20	0	89.5	80 - 119				
1,3-Dichloropropane	17.94	1.0	20	0	89.7	80 - 119				
1,4-Dichlorobenzene	19.13	1.0	20	0	95.7	79 - 118				
2,2-Dichloropropane	18.56	1.0	20	0	92.8	60 - 139				
2-Butanone	34.72	2.0	40	0	86.8	56 - 143				
2-Chlorotoluene	19.37	1.0	20	0	96.9	79 - 122				
2-Hexanone	31.75	2.0	40	0	79.4	57 - 139				
4-Chlorotoluene	19.3	1.0	20	0	96.5	78 - 122				
4-Isopropyltoluene	19.37	1.0	20	0	96.8	77 - 127				
4-Methyl-2-pentanone	32.44	2.0	40	0	81.1	67 - 130				
Acetone	37.3	2.0	40	0	93.2	39 - 160				
Benzene	18.39	1.0	20	0	92.0	79 - 120				
Bromobenzene	17.14	1.0	20	0	85.7	80 - 120				
Bromochloromethane	16.05	1.0	20	0	80.2	78 - 123				
Bromodichloromethane	17.72	1.0	20	0	88.6	79 - 125				
Bromoform	17.73	1.0	20	0	88.6	66 - 130				
Bromomethane	17.74	1.0	20	0	88.7	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061279-02MS** Units: **UG/L** Analysis Date: **02-Jul-2019 14:26**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151553** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	33.1	2.0	40	0	82.8	64 - 133				
Carbon tetrachloride	19.3	1.0	20	0	96.5	72 - 136				
Chlorobenzene	17.94	1.0	20	0	89.7	82 - 118				
Chloroethane	16.25	1.0	20	0	81.3	60 - 138				
Chloroform	17.26	1.0	20	0	86.3	79 - 124				
Chloromethane	17.74	1.0	20	0	88.7	50 - 139				
cis-1,2-Dichloroethene	17.2	1.0	20	0	86.0	78 - 123				
cis-1,3-Dichloropropene	16.63	1.0	20	0	83.2	75 - 124				
Dibromochloromethane	17.38	1.0	20	0	86.9	74 - 126				
Dibromomethane	17.13	1.0	20	0	85.6	79 - 123				
Dichlorodifluoromethane	17.34	1.0	20	0	86.7	32 - 152				
Ethylbenzene	18.59	1.0	20	0	93.0	79 - 121				
Hexachlorobutadiene	21.22	1.0	20	0	106	66 - 134				
Isopropylbenzene	19.1	1.0	20	0	95.5	72 - 131				
m,p-Xylene	37.18	2.0	40	0	92.9	80 - 121				
Methylene chloride	15.9	2.0	20	0	79.5	74 - 124				
Naphthalene	17.16	1.0	20	0	85.8	61 - 128				
n-Butylbenzene	19.55	1.0	20	0	97.7	75 - 128				
n-Propylbenzene	20	1.0	20	0	100	76 - 126				
o-Xylene	17.95	1.0	20	0	89.8	78 - 122				
sec-Butylbenzene	20.61	1.0	20	0	103	77 - 126				
Styrene	18.46	1.0	20	0	92.3	78 - 123				
tert-Butylbenzene	20.24	1.0	20	0	101	78 - 124				
Tetrachloroethene	19.16	1.0	20	0	95.8	74 - 129				
Toluene	18.03	1.0	20	0	90.1	80 - 121				
trans-1,2-Dichloroethene	17.55	1.0	20	0	87.8	75 - 124				
trans-1,3-Dichloropropene	16.75	1.0	20	0	83.7	73 - 127				
Trichloroethene	18.63	1.0	20	0	93.1	79 - 123				
Trichlorofluoromethane	17.98	1.0	20	0	89.9	65 - 141				
Vinyl chloride	16.37	1.0	20	0	81.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.67*	*1.0*	*50*	*0*	*95.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.65*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*47.23*	*1.0*	*50*	*0*	*94.5*	*80 - 119*				
Surr: Toluene-d8	*48.99*	*1.0*	*50*	*0*	*98.0*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19061279-02MSD** Units: **UG/L** Analysis Date: **02-Jul-2019 14:50**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151554** 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	18.01	1.0	20	0	90.1	78 - 124	18.03	0.0865	20	
1,1,1-Trichloroethane	18.39	1.0	20	0	92.0	74 - 131	18.04	1.93	20	
1,1,2,2-Tetrachloroethane	18.7	1.0	20	0	93.5	71 - 121	17.83	4.76	20	
1,1,2-Trichloroethane	18.66	1.0	20	0	93.3	80 - 119	18.28	2.05	20	
1,1-Dichloroethane	17.35	1.0	20	0	86.8	77 - 125	16.8	3.26	20	
1,1-Dichloroethene	17.79	1.0	20	0	89.0	71 - 131	17.59	1.14	20	
1,1-Dichloropropene	19.11	1.0	20	0	95.6	78 - 125	19.29	0.936	20	
1,2,3-Trichlorobenzene	20.01	1.0	20	0	100	69 - 129	18.52	7.74	20	
1,2,3-Trichloropropane	18.82	1.0	20	0	94.1	73 - 122	18.32	2.72	20	
1,2,4-Trichlorobenzene	19.44	1.0	20	0	97.2	69 - 130	18.51	4.86	20	
1,2,4-Trimethylbenzene	18.6	1.0	20	0	93.0	76 - 124	18.55	0.272	20	
1,2-Dibromo-3-chloropropane	19.01	1.0	20	0	95.1	62 - 128	18.32	3.69	20	
1,2-Dibromoethane	18.08	1.0	20	0	90.4	77 - 121	17.49	3.33	20	
1,2-Dichlorobenzene	18.35	1.0	20	0	91.8	80 - 119	17.91	2.45	20	
1,2-Dichloroethane	17.01	1.0	20	0	85.0	73 - 128	16.42	3.48	20	
1,2-Dichloropropane	17.17	1.0	20	0	85.9	78 - 122	17.32	0.85	20	
1,3,5-Trimethylbenzene	18.34	1.0	20	0	91.7	75 - 124	18.27	0.352	20	
1,3-Dichlorobenzene	18.32	1.0	20	0	91.6	80 - 119	17.89	2.37	20	
1,3-Dichloropropane	18.22	1.0	20	0	91.1	80 - 119	17.94	1.56	20	
1,4-Dichlorobenzene	19.85	1.0	20	0	99.3	79 - 118	19.13	3.69	20	
2,2-Dichloropropane	18.5	1.0	20	0	92.5	60 - 139	18.56	0.293	20	
2-Butanone	36.4	2.0	40	0	91.0	56 - 143	34.72	4.73	20	
2-Chlorotoluene	19.38	1.0	20	0	96.9	79 - 122	19.37	0.0148	20	
2-Hexanone	33.92	2.0	40	0	84.8	57 - 139	31.75	6.59	20	
4-Chlorotoluene	19.53	1.0	20	0	97.6	78 - 122	19.3	1.14	20	
4-Isopropyltoluene	19.16	1.0	20	0	95.8	77 - 127	19.37	1.05	20	
4-Methyl-2-pentanone	34.11	2.0	40	0	85.3	67 - 130	32.44	5.02	20	
Acetone	38.91	2.0	40	0	97.3	39 - 160	37.3	4.23	20	
Benzene	18.33	1.0	20	0	91.7	79 - 120	18.39	0.339	20	
Bromobenzene	17.11	1.0	20	0	85.5	80 - 120	17.14	0.209	20	
Bromochloromethane	16.97	1.0	20	0	84.9	78 - 123	16.05	5.62	20	
Bromodichloromethane	18.02	1.0	20	0	90.1	79 - 125	17.72	1.67	20	
Bromoform	18.17	1.0	20	0	90.9	66 - 130	17.73	2.47	20	
Bromomethane	17.59	1.0	20	0	88.0	53 - 141	17.74	0.834	20	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341768 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061279-02MSD** Units: **UG/L** Analysis Date: **02-Jul-2019 14:50**
Client ID: Run ID: **VOA6_341768** SeqNo: **5151554** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	33.18	2.0	40	0	83.0	64 - 133	33.1	0.239	20	
Carbon tetrachloride	19.29	1.0	20	0	96.5	72 - 136	19.3	0.0519	20	
Chlorobenzene	18.04	1.0	20	0	90.2	82 - 118	17.94	0.592	20	
Chloroethane	17.66	1.0	20	0	88.3	60 - 138	16.25	8.29	20	
Chloroform	17.58	1.0	20	0	87.9	79 - 124	17.26	1.83	20	
Chloromethane	16.74	1.0	20	0	83.7	50 - 139	17.74	5.81	20	
cis-1,2-Dichloroethene	17.71	1.0	20	0	88.5	78 - 123	17.2	2.9	20	
cis-1,3-Dichloropropene	17.24	1.0	20	0	86.2	75 - 124	16.63	3.63	20	
Dibromochloromethane	17.51	1.0	20	0	87.6	74 - 126	17.38	0.749	20	
Dibromomethane	17.5	1.0	20	0	87.5	79 - 123	17.13	2.13	20	
Dichlorodifluoromethane	16.92	1.0	20	0	84.6	32 - 152	17.34	2.41	20	
Ethylbenzene	18.48	1.0	20	0	92.4	79 - 121	18.59	0.622	20	
Hexachlorobutadiene	21.2	1.0	20	0	106	66 - 134	21.22	0.0826	20	
Isopropylbenzene	19.21	1.0	20	0	96.1	72 - 131	19.1	0.57	20	
m,p-Xylene	36.92	2.0	40	0	92.3	80 - 121	37.18	0.695	20	
Methylene chloride	16.19	2.0	20	0	81.0	74 - 124	15.9	1.84	20	
Naphthalene	18.92	1.0	20	0	94.6	61 - 128	17.16	9.76	20	
n-Butylbenzene	19.36	1.0	20	0	96.8	75 - 128	19.55	0.956	20	
n-Propylbenzene	20.01	1.0	20	0	100	76 - 126	20	0.0421	20	
o-Xylene	18.32	1.0	20	0	91.6	78 - 122	17.95	2.02	20	
sec-Butylbenzene	20.38	1.0	20	0	102	77 - 126	20.61	1.12	20	
Styrene	18.72	1.0	20	0	93.6	78 - 123	18.46	1.41	20	
tert-Butylbenzene	20.29	1.0	20	0	101	78 - 124	20.24	0.291	20	
Tetrachloroethene	18.91	1.0	20	0	94.5	74 - 129	19.16	1.35	20	
Toluene	18	1.0	20	0	90.0	80 - 121	18.03	0.169	20	
trans-1,2-Dichloroethene	17.99	1.0	20	0	90.0	75 - 124	17.55	2.49	20	
trans-1,3-Dichloropropene	17.13	1.0	20	0	85.7	73 - 127	16.75	2.28	20	
Trichloroethene	18.32	1.0	20	0	91.6	79 - 123	18.63	1.68	20	
Trichlorofluoromethane	18	1.0	20	0	90.0	65 - 141	17.98	0.106	20	
Vinyl chloride	16.22	1.0	20	0	81.1	58 - 137	16.37	0.923	20	
Surr: 1,2-Dichloroethane-d4	*48.93*	*1.0*	*50*	*0*	*97.9*	*81 - 118*	*47.67*	*2.6*	*20*	
Surr: 4-Bromofluorobenzene	*49.69*	*1.0*	*50*	*0*	*99.4*	*85 - 114*	*49.65*	*0.063*	*20*	
Surr: Dibromofluoromethane	*48.03*	*1.0*	*50*	*0*	*96.1*	*80 - 119*	*47.23*	*1.66*	*20*	
Surr: Toluene-d8	*49.1*	*1.0*	*50*	*0*	*98.2*	*89 - 112*	*48.99*	*0.233*	*20*	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP 18 24
WorkOrder:	HS19061386

QC BATCH REPORT

Batch ID:	**R341768 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch: HS19061386-01 HS19061386-02

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 15:45**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153631** 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	1.0	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

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 15:45**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153631** 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	1.0	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	*46.09*	*1.0*	*50*	*0*	*92.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.05*	*1.0*	*50*	*0*	*96.1*	*85 - 114*				
Surr: Dibromofluoromethane	*44.95*	*1.0*	*50*	*0*	*89.9*	*80 - 119*				
Surr: Toluene-d8	*48.5*	*1.0*	*50*	*0*	*97.0*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 14:57**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153630** 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	17.99	1.0	20	0	89.9	78 - 124				
1,1,1-Trichloroethane	18.38	1.0	20	0	91.9	74 - 131				
1,1,2,2-Tetrachloroethane	19.33	1.0	20	0	96.6	71 - 121				
1,1,2-Trichloroethane	19	1.0	20	0	95.0	80 - 119				
1,1-Dichloroethane	17.63	1.0	20	0	88.1	77 - 125				
1,1-Dichloroethene	17.56	1.0	20	0	87.8	71 - 131				
1,1-Dichloropropene	18.07	1.0	20	0	90.4	78 - 125				
1,2,3-Trichlorobenzene	23.54	1.0	20	0	118	69 - 129				
1,2,3-Trichloropropane	19.44	1.0	20	0	97.2	73 - 122				
1,2,4-Trichlorobenzene	21.42	1.0	20	0	107	69 - 130				
1,2,4-Trimethylbenzene	17.67	1.0	20	0	88.3	76 - 124				
1,2-Dibromo-3-chloropropane	21.87	1.0	20	0	109	62 - 128				
1,2-Dibromoethane	18.58	1.0	20	0	92.9	77 - 121				
1,2-Dichlorobenzene	18.25	1.0	20	0	91.3	80 - 119				
1,2-Dichloroethane	17.32	1.0	20	0	86.6	73 - 128				
1,2-Dichloropropane	17.52	1.0	20	0	87.6	78 - 122				
1,3,5-Trimethylbenzene	17.42	1.0	20	0	87.1	75 - 124				
1,3-Dichlorobenzene	17.82	1.0	20	0	89.1	80 - 119				
1,3-Dichloropropane	18.44	1.0	20	0	92.2	80 - 119				
1,4-Dichlorobenzene	18.95	1.0	20	0	94.8	79 - 118				
2,2-Dichloropropane	16.75	1.0	20	0	83.7	60 - 139				
2-Butanone	43.93	2.0	40	0	110	56 - 143				
2-Chlorotoluene	18.48	1.0	20	0	92.4	79 - 122				
2-Hexanone	38.01	2.0	40	0	95.0	57 - 139				
4-Chlorotoluene	18.53	1.0	20	0	92.6	78 - 122				
4-Isopropyltoluene	17.94	1.0	20	0	89.7	77 - 127				
4-Methyl-2-pentanone	36.09	2.0	40	0	90.2	67 - 130				
Acetone	46.53	2.0	40	0	116	39 - 160				
Benzene	18.29	1.0	20	0	91.4	79 - 120				
Bromobenzene	17.41	1.0	20	0	87.1	80 - 120				
Bromochloromethane	17.81	1.0	20	0	89.0	78 - 123				
Bromodichloromethane	18.24	1.0	20	0	91.2	79 - 125				
Bromoform	19.34	1.0	20	0	96.7	66 - 130				
Bromomethane	20.11	1.0	20	0	101	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 14:57**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153630** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	33.73	2.0	40	0	84.3	64 - 133				
Carbon tetrachloride	18.32	1.0	20	0	91.6	72 - 136				
Chlorobenzene	17.54	1.0	20	0	87.7	82 - 118				
Chloroethane	16.99	1.0	20	0	84.9	60 - 138				
Chloroform	19.05	1.0	20	0	95.2	79 - 124				
Chloromethane	16.14	1.0	20	0	80.7	50 - 139				
cis-1,2-Dichloroethene	18.45	1.0	20	0	92.3	78 - 123				
cis-1,3-Dichloropropene	17.19	1.0	20	0	85.9	75 - 124				
Dibromochloromethane	18.13	1.0	20	0	90.6	74 - 126				
Dibromomethane	18.03	1.0	20	0	90.1	79 - 123				
Dichlorodifluoromethane	17.79	1.0	20	0	88.9	32 - 152				
Ethylbenzene	17.65	1.0	20	0	88.3	79 - 121				
Hexachlorobutadiene	23.03	1.0	20	0	115	66 - 134				
Isopropylbenzene	18.08	1.0	20	0	90.4	72 - 131				
m,p-Xylene	35.62	2.0	40	0	89.0	80 - 121				
Methylene chloride	17.81	2.0	20	0	89.1	74 - 124				
Naphthalene	21.95	1.0	20	0	110	61 - 128				
n-Butylbenzene	17.82	1.0	20	0	89.1	75 - 128				
n-Propylbenzene	18.62	1.0	20	0	93.1	76 - 126				
o-Xylene	17.72	1.0	20	0	88.6	78 - 122				
sec-Butylbenzene	19.01	1.0	20	0	95.1	77 - 126				
Styrene	18.33	1.0	20	0	91.7	78 - 123				
tert-Butylbenzene	18.81	1.0	20	0	94.1	78 - 124				
Tetrachloroethene	17.9	1.0	20	0	89.5	74 - 129				
Toluene	17.39	1.0	20	0	86.9	80 - 121				
trans-1,2-Dichloroethene	18.49	1.0	20	0	92.4	75 - 124				
trans-1,3-Dichloropropene	17.69	1.0	20	0	88.4	73 - 127				
Trichloroethene	17.79	1.0	20	0	89.0	79 - 123				
Trichlorofluoromethane	18.03	1.0	20	0	90.1	65 - 141				
Vinyl chloride	16.88	1.0	20	0	84.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.62*	*1.0*	*50*	*0*	*99.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.98*	*1.0*	*50*	*0*	*96.0*	*85 - 114*				
Surr: Dibromofluoromethane	*49.25*	*1.0*	*50*	*0*	*98.5*	*80 - 119*				
Surr: Toluene-d8	*45.94*	*1.0*	*50*	*0*	*91.9*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061486-01MS** Units: **UG/L** Analysis Date: **03-Jul-2019 18:08**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153637** 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	16.51	1.0	20	0	82.5	78 - 124				
1,1,1-Trichloroethane	16.62	1.0	20	0	83.1	74 - 131				
1,1,2,2-Tetrachloroethane	17.57	1.0	20	0	87.9	71 - 121				
1,1,2-Trichloroethane	17.26	1.0	20	0	86.3	80 - 119				
1,1-Dichloroethane	15.31	1.0	20	0	76.5	77 - 125				S
1,1-Dichloroethene	16.44	1.0	20	0	82.2	71 - 131				
1,1-Dichloropropene	17.45	1.0	20	0	87.3	78 - 125				
1,2,3-Trichlorobenzene	20.81	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	17.72	1.0	20	0	88.6	73 - 122				
1,2,4-Trichlorobenzene	19.95	1.0	20	0	99.7	69 - 130				
1,2,4-Trimethylbenzene	16.6	1.0	20	0	83.0	76 - 124				
1,2-Dibromo-3-chloropropane	19.76	1.0	20	0	98.8	62 - 128				
1,2-Dibromoethane	16.72	1.0	20	0	83.6	77 - 121				
1,2-Dichlorobenzene	16.97	1.0	20	0	84.9	80 - 119				
1,2-Dichloroethane	15.42	1.0	20	0	77.1	73 - 128				
1,2-Dichloropropane	15.7	1.0	20	0	78.5	78 - 122				
1,3,5-Trimethylbenzene	16.77	1.0	20	0	83.9	75 - 124				
1,3-Dichlorobenzene	16.72	1.0	20	0	83.6	80 - 119				
1,3-Dichloropropane	16.64	1.0	20	0	83.2	80 - 119				
1,4-Dichlorobenzene	17.61	1.0	20	0	88.1	79 - 118				
2,2-Dichloropropane	16.67	1.0	20	0	83.4	60 - 139				
2-Butanone	35.5	2.0	40	0	88.8	56 - 143				
2-Chlorotoluene	17.41	1.0	20	0	87.0	79 - 122				
2-Hexanone	32.54	2.0	40	0	81.4	57 - 139				
4-Chlorotoluene	17.42	1.0	20	0	87.1	78 - 122				
4-Isopropyltoluene	17.75	1.0	20	0	88.7	77 - 127				
4-Methyl-2-pentanone	33.2	2.0	40	0	83.0	67 - 130				
Acetone	37.89	2.0	40	4.161	84.3	39 - 160				
Benzene	16.63	1.0	20	0	83.2	79 - 120				
Bromobenzene	15.78	1.0	20	0	78.9	80 - 120				S
Bromochloromethane	15.16	1.0	20	0	75.8	78 - 123				S
Bromodichloromethane	16.26	1.0	20	0	81.3	79 - 125				
Bromoform	17.61	1.0	20	0	88.1	66 - 130				
Bromomethane	16.43	1.0	20	0	82.1	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061486-01MS** Units: **UG/L** Analysis Date: **03-Jul-2019 18:08**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153637** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	30.33	2.0	40	0	75.8	64 - 133				
Carbon tetrachloride	17.83	1.0	20	0	89.2	72 - 136				
Chlorobenzene	16.32	1.0	20	0	81.6	82 - 118				S
Chloroethane	15.5	1.0	20	0	77.5	60 - 138				
Chloroform	15.88	1.0	20	0	79.4	79 - 124				
Chloromethane	14.92	1.0	20	0	74.6	50 - 139				
cis-1,2-Dichloroethene	15.81	1.0	20	0	79.1	78 - 123				
cis-1,3-Dichloropropene	15.72	1.0	20	0	78.6	75 - 124				
Dibromochloromethane	16.19	1.0	20	0	81.0	74 - 126				
Dibromomethane	16.1	1.0	20	0	80.5	79 - 123				
Dichlorodifluoromethane	15.64	1.0	20	0	78.2	32 - 152				
Ethylbenzene	17	1.0	20	0	85.0	79 - 121				
Hexachlorobutadiene	21.68	1.0	20	0	108	66 - 134				
Isopropylbenzene	17.62	1.0	20	0	88.1	72 - 131				
m,p-Xylene	34.49	2.0	40	0	86.2	80 - 121				
Methylene chloride	15.03	2.0	20	0	75.1	74 - 124				
Naphthalene	19.79	1.0	20	0	98.9	61 - 128				
n-Butylbenzene	17.77	1.0	20	0	88.8	75 - 128				
n-Propylbenzene	18.11	1.0	20	0	90.6	76 - 126				
o-Xylene	16.52	1.0	20	0	82.6	78 - 122				
sec-Butylbenzene	19.08	1.0	20	0	95.4	77 - 126				
Styrene	16.93	1.0	20	0	84.7	78 - 123				
tert-Butylbenzene	18.55	1.0	20	0	92.8	78 - 124				
Tetrachloroethene	17.69	1.0	20	0	88.5	74 - 129				
Toluene	16.65	1.0	20	0	83.3	80 - 121				
trans-1,2-Dichloroethene	16.67	1.0	20	0	83.4	75 - 124				
trans-1,3-Dichloropropene	15.41	1.0	20	0	77.1	73 - 127				
Trichloroethene	19.25	1.0	20	0	96.3	79 - 123				
Trichlorofluoromethane	16.99	1.0	20	0	85.0	65 - 141				
Vinyl chloride	14.99	1.0	20	0	75.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.86*	*1.0*	*50*	*0*	*91.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.41*	*1.0*	*50*	*0*	*96.8*	*85 - 114*				
Surr: Dibromofluoromethane	*45.73*	*1.0*	*50*	*0*	*91.5*	*80 - 119*				
Surr: Toluene-d8	*47.34*	*1.0*	*50*	*0*	*94.7*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061486-01MSD** Units: **UG/L** Analysis Date: **03-Jul-2019 18:32**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153638** 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	16.57	1.0	20	0	82.9	78 - 124	16.51	0.402	20	
1,1,1-Trichloroethane	16.72	1.0	20	0	83.6	74 - 131	16.62	0.596	20	
1,1,2,2-Tetrachloroethane	17.64	1.0	20	0	88.2	71 - 121	17.57	0.396	20	
1,1,2-Trichloroethane	17.31	1.0	20	0	86.5	80 - 119	17.26	0.254	20	
1,1-Dichloroethane	15.14	1.0	20	0	75.7	77 - 125	15.31	1.12	20	S
1,1-Dichloroethene	15.9	1.0	20	0	79.5	71 - 131	16.44	3.34	20	
1,1-Dichloropropene	17.2	1.0	20	0	86.0	78 - 125	17.45	1.47	20	
1,2,3-Trichlorobenzene	21.62	1.0	20	0	108	69 - 129	20.81	3.79	20	
1,2,3-Trichloropropane	18.13	1.0	20	0	90.7	73 - 122	17.72	2.32	20	
1,2,4-Trichlorobenzene	20.17	1.0	20	0	101	69 - 130	19.95	1.11	20	
1,2,4-Trimethylbenzene	16.82	1.0	20	0	84.1	76 - 124	16.6	1.35	20	
1,2-Dibromo-3-chloropropane	19.64	1.0	20	0	98.2	62 - 128	19.76	0.602	20	
1,2-Dibromoethane	16.91	1.0	20	0	84.6	77 - 121	16.72	1.13	20	
1,2-Dichlorobenzene	17.08	1.0	20	0	85.4	80 - 119	16.97	0.64	20	
1,2-Dichloroethane	15.51	1.0	20	0	77.5	73 - 128	15.42	0.587	20	
1,2-Dichloropropane	15.75	1.0	20	0	78.8	78 - 122	15.7	0.313	20	
1,3,5-Trimethylbenzene	16.61	1.0	20	0	83.1	75 - 124	16.77	0.95	20	
1,3-Dichlorobenzene	16.63	1.0	20	0	83.2	80 - 119	16.72	0.552	20	
1,3-Dichloropropane	16.84	1.0	20	0	84.2	80 - 119	16.64	1.21	20	
1,4-Dichlorobenzene	18.12	1.0	20	0	90.6	79 - 118	17.61	2.81	20	
2,2-Dichloropropane	16.43	1.0	20	0	82.2	60 - 139	16.67	1.45	20	
2-Butanone	36.09	2.0	40	0	90.2	56 - 143	35.5	1.64	20	
2-Chlorotoluene	17.25	1.0	20	0	86.3	79 - 122	17.41	0.897	20	
2-Hexanone	33.5	2.0	40	0	83.8	57 - 139	32.54	2.91	20	
4-Chlorotoluene	17.25	1.0	20	0	86.2	78 - 122	17.42	1.02	20	
4-Isopropyltoluene	17.61	1.0	20	0	88.1	77 - 127	17.75	0.749	20	
4-Methyl-2-pentanone	33.33	2.0	40	0	83.3	67 - 130	33.2	0.392	20	
Acetone	37.8	2.0	40	4.161	84.1	39 - 160	37.89	0.25	20	
Benzene	16.71	1.0	20	0	83.6	79 - 120	16.63	0.479	20	
Bromobenzene	15.97	1.0	20	0	79.8	80 - 120	15.78	1.2	20	S
Bromochloromethane	14.89	1.0	20	0	74.4	78 - 123	15.16	1.82	20	S
Bromodichloromethane	16.58	1.0	20	0	82.9	79 - 125	16.26	1.99	20	
Bromoform	18.12	1.0	20	0	90.6	66 - 130	17.61	2.84	20	
Bromomethane	15.98	1.0	20	0	79.9	53 - 141	16.43	2.73	20	

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061486-01MSD** Units: **UG/L** Analysis Date: **03-Jul-2019 18:32**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153638** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	30.26	2.0	40	0	75.7	64 - 133	30.33	0.215	20	
Carbon tetrachloride	17.75	1.0	20	0	88.7	72 - 136	17.83	0.463	20	
Chlorobenzene	16.44	1.0	20	0	82.2	82 - 118	16.32	0.761	20	
Chloroethane	15.28	1.0	20	0	76.4	60 - 138	15.5	1.42	20	
Chloroform	15.71	1.0	20	0	78.6	79 - 124	15.88	1.07	20	S
Chloromethane	14.69	1.0	20	0	73.4	50 - 139	14.92	1.58	20	
cis-1,2-Dichloroethene	15.7	1.0	20	0	78.5	78 - 123	15.81	0.692	20	
cis-1,3-Dichloropropene	15.68	1.0	20	0	78.4	75 - 124	15.72	0.238	20	
Dibromochloromethane	16.67	1.0	20	0	83.4	74 - 126	16.19	2.91	20	
Dibromomethane	16.2	1.0	20	0	81.0	79 - 123	16.1	0.6	20	
Dichlorodifluoromethane	15.34	1.0	20	0	76.7	32 - 152	15.64	1.95	20	
Ethylbenzene	16.85	1.0	20	0	84.2	79 - 121	17	0.905	20	
Hexachlorobutadiene	22.45	1.0	20	0	112	66 - 134	21.68	3.48	20	
Isopropylbenzene	17.51	1.0	20	0	87.5	72 - 131	17.62	0.618	20	
m,p-Xylene	33.91	2.0	40	0	84.8	80 - 121	34.49	1.71	20	
Methylene chloride	14.82	2.0	20	0	74.1	74 - 124	15.03	1.35	20	
Naphthalene	20.33	1.0	20	0	102	61 - 128	19.79	2.71	20	
n-Butylbenzene	17.71	1.0	20	0	88.6	75 - 128	17.77	0.323	20	
n-Propylbenzene	18.14	1.0	20	0	90.7	76 - 126	18.11	0.153	20	
o-Xylene	16.36	1.0	20	0	81.8	78 - 122	16.52	0.968	20	
sec-Butylbenzene	18.96	1.0	20	0	94.8	77 - 126	19.08	0.607	20	
Styrene	16.9	1.0	20	0	84.5	78 - 123	16.93	0.183	20	
tert-Butylbenzene	18.61	1.0	20	0	93.1	78 - 124	18.55	0.304	20	
Tetrachloroethene	17.87	1.0	20	0	89.3	74 - 129	17.69	0.987	20	
Toluene	16.4	1.0	20	0	82.0	80 - 121	16.65	1.53	20	
trans-1,2-Dichloroethene	16.25	1.0	20	0	81.3	75 - 124	16.67	2.54	20	
trans-1,3-Dichloropropene	15.73	1.0	20	0	78.7	73 - 127	15.41	2.08	20	
Trichloroethene	17.49	1.0	20	0	87.5	79 - 123	19.25	9.57	20	
Trichlorofluoromethane	16.54	1.0	20	0	82.7	65 - 141	16.99	2.69	20	
Vinyl chloride	14.75	1.0	20	0	73.8	58 - 137	14.99	1.6	20	
Surr: 1,2-Dichloroethane-d4	*47.12*	*1.0*	*50*	*0*	*94.2*	*81 - 118*	*45.86*	*2.7*	*20*	
Surr: 4-Bromofluorobenzene	*48.48*	*1.0*	*50*	*0*	*97.0*	*85 - 114*	*48.41*	*0.13*	*20*	
Surr: Dibromofluoromethane	*46.14*	*1.0*	*50*	*0*	*92.3*	*80 - 119*	*45.73*	*0.893*	*20*	
Surr: Toluene-d8	*46.66*	*1.0*	*50*	*0*	*93.3*	*89 - 112*	*47.34*	*1.44*	*20*	

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061386

QC BATCH REPORT

Batch ID: R341869 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19061386-03	HS19061386-04	HS19061386-05	HS19061386-06
HS19061386-08	HS19061386-09	HS19061386-10	HS19061386-11

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061386**

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

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ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061386

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19061386-01	17WW08_062519	Login	26/06/2019 16:06:30	PMG	MET065
HS19061386-01	17WW08_062519	Login	26/06/2019 16:06:30	PMG	Sub
HS19061386-01	17WW08_062519	Login	26/06/2019 16:06:30	PMG	EXT022
HS19061386-01	17WW08_062519	Login	26/06/2019 16:06:30	PMG	VOA034

Revision:1

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ALS Houston, US Date: 16-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061386
Date/Time Received: **26-Jun-2019 08:50**
Received by: **PMG**

Checklist completed by: *Paresh M. Giga* eSignature 26-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 26-Jun-2019 Date

Matrices: **Water**
Carrier name: **FedEx**

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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	2.1c U/c	IR11	
Cooler(s)/Kit(s):	45012		
Date/Time sample(s) sent to storage:	6/26/19 16:45		
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:

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bhate ENVIRONMENTAL CONSTRUCTION ENERGY

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 18/24

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	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
17MW08_062519		25Jun2019	0710	-	N		WG	5	X	X	X					
130_062519		25Jun2019	0800	-	N		WG	5	X	X	X					
130_062519_a		25Jun2019	0800	-	FD		WG	5	X	X	X					
MW10_062519		25Jun2019	0855		N		WG	5	X	X		X				
MW13_062519		25Jun2019	0945		N		WG	5	X	X	X					
C02_062519		25Jun2019	1030	-	N		WG	4	X	X						
MW17_062519		25Jun2019	1120	-	N		WG	2		X		X				
18MW10_062519		25Jun2019	1220	-	N		WG	5	X	X		X				
18MW10_062519_a		25Jun2019	1220	-	FD		WG	5	X	X		X				
MW9_062519		25Jun2019	1310	-	N		WG	6	X	X	X	X				
TRIP BLANK		25Jun2019		-	TB		W	2	X							

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19061386
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: ____

Custody Transfers Prior to Receipt By Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/25/19	1430	1. PMG	6/26/19	0850
2.			2. cooler 45012		temp 2.1c
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number:

Analytical Lab: ALS 10450 Stancliff 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

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00941683

ALS Environmental	CUSTODY SEAL	Seal Broken By:
10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	Date: 6/25/19 Time: 1430 Name: Scott Beesinger Company: BHATE	Date: 06/26/19

45012 JUN 26 2019



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Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1918528, 1918705, 1918871

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2270 (243267)

General Set Information: There were twenty-four field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field sample 1918705007 was analyzed and reported from a 1:10 dilution. Field sample 1918528010 was analyzed and reported from a 1:100 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 663033) was less than 1/2 the CRDL. The recovery for the LCS (663034) was within acceptable parameters.

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MS/MSD Analysis: MS/MSD was performed on samples 1918705002/03 and 1918705009/10 (Client ID's: CO9_062619 and MW18_062619). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The MS/MSD percent recoveries and relative percent difference were within the performance limits. The MS (1918705002MS) failed QC acceptance criteria for percent recovery. MS/MSD 1918705002/03 also failed the relative percent difference. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 663031) is reported from the analysis of the Laboratory Control Sample (LCS – 663034) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 11JULD20.

Thomas Bosch July 12, 2019
Analyst Date

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ANALYTICAL REPORT

Report Date: July 12, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918528**
Project ID: HS19061386
Purchase Order: HS19061386
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
17WW08_062519	1918528001	06/25/19	06/27/19	
130_062519	1918528002	06/25/19	06/27/19	
130_062519_a	1918528003	06/25/19	06/27/19	
MW10_062519	1918528004	06/25/19	06/27/19	
MW13_062519	1918528005	06/25/19	06/27/19	
CO2_062519	1918528006	06/25/19	06/27/19	
MW17_062519	1918528007	06/25/19	06/27/19	
18WW10_062519	1918528008	06/25/19	06/27/19	
18WW10_062519_a	1918528009	06/25/19	06/27/19	
MW9_062519	1918528010	06/25/19	06/27/19	

ANALYTICAL REPORT

Workorder: 34-1918528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **17WW08_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528001 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 12:07 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **130_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528002 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 12:21 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **130_062519_a** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528003 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 12:34 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **MW10_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528004 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 12:48 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

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ANALYTICAL REPORT

Workorder: 34-1918528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **MW13_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528005 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 13:02 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **CO2_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528006 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 13:16 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **MW17_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528007 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 13:30 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW10_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528008 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 13:43 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

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ANALYTICAL REPORT

Workorder: 34-1918528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18WW10_062519_a** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528009 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 13:57 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **MW9_062519** | Sampling Site: NA | Collected: 06/25/2019
Lab ID: 1918528010 | Media: 125 mL Nalgene | Received: 06/27/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 14:11 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**520**	100	200	400	100	

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/12/2019 10:14	/S/ Stephen Brose 07/12/2019 11:30

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1918528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918528

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2270 (HBN: 243267)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 663033
Analyzed: 07/11/2019 11:53
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 663034
Analyzed: 07/11/2019 11:26
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.41	4.00	110	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1918705001	**MS:**	1918705002				**MSD:**	1918705003				
Analyzed:	07/11/2019 14:39	**Analyzed:**	07/11/2019 14:52				**Analyzed:**	07/11/2019 15:06				
Dilution:	1	**Dilution:**	1				**Dilution:**	1				
Units:	ug/L	**Units:**	ug/L				**Units:**	ug/L				

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	5.21	4	# 130	78.8	123.8	4.09	102	# 24	0.0	20.0

Sample:	1918705008	**MS:**	1918705009				**MSD:**	1918705010				
Analyzed:	07/11/2019 16:17	**Analyzed:**	07/11/2019 16:31				**Analyzed:**	07/11/2019 16:45				
Dilution:	1	**Dilution:**	1				**Dilution:**	1				
Units:	ug/L	**Units:**	ug/L				**Units:**	ug/L				

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.4	4	110	78.8	123.8	3.92	98.0	11.5	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
07/12/2019 10:17	07/12/2019 11:30

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
\# - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19061386	***Split:***	**Workorder ID:** 1918528	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	06/25/2019 07:10	17WW08_062519	1918528001		Water	A	1	A
2	06/25/2019 08:00	130_062519	1918528002		Water	A	1	A
3	06/25/2019 08:00	130_062519_a	1918528003		Water	A	1	A
4	06/25/2019 08:55	MW10_062519	1918528004		Water	A	1	A
5	06/25/2019 09:45	MW13_062519	1918528005		Water	A	1	A
6	06/25/2019 10:30	CO2_062519	1918528006		Water	A	1	A
7	06/25/2019 11:20	MW17_062519	1918528007		Water	A	1	A
8	06/25/2019 12:20	18WW10_062519	1918528008		Water	A	1	A
9	06/25/2019 12:20	18WW10_062519_a	1918528009		Water	A	1	A
10	06/25/2019 13:10	MW9_062519	1918528010		Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Vprath, Julie	06/27/2019 09:07	ALS Sample Receiving	Sample Login
[signature]	6/27/19 1400	6B	Storage
R.33.1	7.10.19/08:25	T. Bush	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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00941693





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

SAMPLING STATE: **Texas** **COC ID:** **11681**

1918528

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123 **Phone:** +1 801 266 7700

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:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19061386
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19061386-01**	**17WW08_062519**	**Water**	**25 Jun 2019 07:10**
	SUB_Perch-6850			05 Jul 2019
2.	**HS19061386-02**	**130_062519**	**Water**	**25 Jun 2019 08:00**
	SUB_Perch-6850			05 Jul 2019
3.	**HS19061386-03**	**130_062519-a**	**Water**	**25 Jun 2019 08:00**
	SUB_Perch-6850			05 Jul 2019
4.	**HS19061386-04**	**MW10_062519**	**Water**	**25 Jun 2019 08:55**
	SUB_Perch-6850			05 Jul 2019
5.	**HS19061386-05**	**MW13_062519**	**Water**	**25 Jun 2019 09:45**
	SUB_Perch-6850			05 Jul 2019
6.	**HS19061386-06**	**CO2_062519**	**Water**	**25 Jun 2019 10:30**
	SUB_Perch-6850			05 Jul 2019
7.	**HS19061386-07**	**MW17_062519**	**Water**	**25 Jun 2019 11:20**
	SUB_Perch-6850			05 Jul 2019
8.	**HS19061386-08**	**18WW10_062519**	**Water**	**25 Jun 2019 12:20**
	SUB_Perch-6850			05 Jul 2019
9.	**HS19061386-09**	**18WW10_062519-a**	**Water**	**25 Jun 2019 12:20**

Custody Seal intact RW

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Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11681**

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
		SUB_Perch-6850		05 Jul 2019
10.	**HS19061386-10**	**MW9_062519**	**Water**	**25 Jun 2019 13:10**
	SUB_Perch-6850			05 Jul 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 6/26/19 1800.

Received By: _____ Date/Time: 06/27/19 0907

Cooler ID(s): _____ Temperature(s): _____

Custody Seal Intact Rw

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ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ASL Houston

Project/Task/Site: 91852E

Date/Time of Receipt: 062719 0907

Number of Coolers Received: 1

Condition of Coolers:	(Acceptable)/Unacceptable	Temperature Control:	(Present)/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	(Intact)/Broken/NA	Location Temp Taken:	(Cooler)/Between Samples
Container Custody Seals:	Present/(Absent)/NA		
	Intact/Broken/(NA)	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	(Yes)/No/NA		
	Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9732	3 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: _____ (Signature) Rebecca Wise (Printed Name) 062719 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

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Must Deliver Next Business Day
Time and Tempature Sensitive!

ALS

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 26JUN19
ACTWGT: 18.70 LB
CAD: 3001307/CAFE3211
DIMS: 14x11x10 IN
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19061383 - RJ

FedEx Express

TRK# 0201 4809 7835 3973

THU - 27 JUN 3:00P
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2270 Created: 7/10/2019 13:34 Instrument: HBN: 243267
Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 1918528 [ENV_LVL4]
Workorder: 1918705 [ENV_LVL4]
Workorder: 1918871 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	663030	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	
2	663031	RLVS for HBN 243267 [ELMS/2270				RLVS	3		E685041C3Q	5311		7/11/2019	
3	663032	ICS for HBN 243267 [ELMS/2270]				ICS	3		E6850..D3Q	5311		7/11/2019	
4	663033	LMB for HBN 243267 [ELMS/2270]				LMB	3		E6850Q413Q	5311		7/11/2019	
5	663034	LCS for HBN 243267 [ELMS/2270]				LCS	3		E6850Q413Q	5311		7/11/2019	
6	1918528001	17WW08_062519				SAMPLE	3	1918528001-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
7	1918528002	130_062519				SAMPLE	3	1918528002-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
8	1918528003	130_062519_a				SAMPLE	3	1918528003-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
9	1918528004	MW10_062519				SAMPLE	3	1918528004-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
10	1918528005	MW13_062519				SAMPLE	3	1918528005-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
11	1918528006	CO2_062519				SAMPLE	3	1918528006-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
12	1918528007	MW17_062519				SAMPLE	3	1918528007-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
13	1918528008	18WW10_062519				SAMPLE	3	1918528008-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
14	1918528009	18WW10_062519_a				SAMPLE	3	1918528009-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
15	1918528010	MW9_062519				SAMPLE	3	1918528010-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
16	663035	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	
17	1918705001	CO9_062619				SAMPLE	3	1918705001-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
18	1918705002	CO9_062619 MS				MS	3	1918705002-A	E6850Q413Q	5480		7/11/2019	
19	1918705003	CO9_062619 MSD				MSD	3	1918705003-A	E6850Q413Q	5480		7/11/2019	
20	1918705004	C06_062619				SAMPLE	3	1918705004-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
21	1918705005	18WW16_062619				SAMPLE	3	1918705005-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
22	1918705006	18CPTMW18_062619				SAMPLE	3	1918705006-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
23	1918705007	CO3_062619				SAMPLE	3	1918705007-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
24	1918705008	MW18_062619				SAMPLE	3	1918705008-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
25	1918705009	MW18_062619 MS				MS	3	1918705009-A	E6850Q413Q	5480		7/11/2019	
26	1918705010	MW18_062619 MSD				MSD	3	1918705010-A	E6850Q413Q	5480		7/11/2019	
27	663036	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	

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Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
28	1918871001	18WW08_062719				SAMPLE	3	1918871001-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
29	1918871002	18WW09_062719				SAMPLE	3	1918871002-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
30	1918871003	18CPTMW16_062719				SAMPLE	3	1918871003-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
31	1918871004	18WW2516_062719				SAMPLE	3	1918871004-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
32	663037	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

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ALS Work Order #'s & Sample #( )'s: 1918528 (001-10), 1918705 (001-10); 1918871 (001-04)
ELMS Batch/HBN ID: 2270 (243267)
Prep Date: 07/10/2019 Analysis Date: 07/11/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\11JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 30µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 663034; Target = 4.0µg/L. ASTM type II water was used for LMB 663033.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on samples 1918705002/03 and 1918705009/10 (Client ID's: CO9_062619 and MW18_062619). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field sample 1918705007 was analyzed and reported from a 1:10 dilution. Field sample 1918528010 was analyzed and reported from a 1:100 dilution. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS (1918705002MS) failed QC acceptance criteria for percent recovery. MS/MSD 1918705002/03 also failed the relative percent difference. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\243267-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 663031) is reported from the analysis of the Laboratory Control Sample (LCS – 663034) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 11JULD20.

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5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2270 HBN: 243267 Sample Set IDs if Applicable: 1918528/1918705/1918871	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SD
Standards traceability checked and meets criteria	TB	SD
Standard curve coefficients evaluated and meet criteria	TB	SD
ICVs analyzed and meet acceptance criteria	TB	SD
CCVs analyzed and meet acceptance criteria	TB	SD
Method Blanks analyzed and meet acceptance criteria	TB	SD
Retention Time Windows checked	TB	SD
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SD
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SD
RLVS analyzed	TB	SD
Preparation and analysis hold times met	TB	SD
Preparation deviations and re-preparations noted when performed	TB	SD
Analysis deviations and re-analyses noted when performed	TB	SD
Sample dilution factors noted on reports	TB	SD
Electronic records in HBN transcription accuracy and completeness checked	TB	SD
Preparation and analysis calculations checked	TB	SD
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SD
Manual integrations checked	TB	SD

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STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

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STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK	Description - 6850 Stock AccStd 1,000ug/mL	
Standard: 43659	Created By: Thomas Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 09/17/2018 09:09AM	Expires: 07/25/2020
MFG Lot: 218065075		Usable: No
Part ID: IC-PER-10X-1		Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

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STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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ALS

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		Description - 6850 QC Stock STD 1,000ug/mL
Standard: 36748	Created By: Thomas Bosch	Amount: 100 mL
MFG: Ultra Scientific	Create Date: 05/11/2017 01:05PM	Expires: 03/31/2020
MFG Lot: CP-0860		Usable: Yes
Part ID: ICC-013		Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

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STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730
MFG: ALS/SLC
MFG Lot: TNB: 05/09/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 25 mL
Expires: 09/20/2019
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 43729	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 09/20/2018 09:09AM	Expires: 04/28/2026
MFG Lot: SDFF-012A	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date:	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ANAB ACCREDITED

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

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125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

AccuStandard

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

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Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

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Raw Data

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Batch Report: C:\HPCHEM\1\DATA\11JUL19D\11JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	663030 CCV@25	Vial 71	1	Control	1	2.11871e6	8.255	26.67636
*	663034 QC@4.0	Vial 41	1	Control	2	3.99419e5	7.994	4.40774
*	663032 ICS@4.0	Vial 42	1	Control	3	3.13185e5	7.844	3.89337
*	663033 LMB	Vial 43	1	Control	4	0.00000	0.000	0.00000
*	1918528001	Vial 44	1	Sample	5	0.00000	0.000	0.00000
*	1918528002	Vial 45	1	Sample	6	0.00000	0.000	0.00000
*	1918528003	Vial 46	1	Sample	7	0.00000	0.000	0.00000
*	1918528004	Vial 47	1	Sample	8	0.00000	0.000	0.00000
*	1918528005	Vial 48	1	Sample	9	0.00000	0.000	0.00000
*	1918528006	Vial 49	1	Sample	10	0.00000	0.000	0.00000
*	1918528007	Vial 50	1	Sample	11	0.00000	0.000	0.00000
*	1918528008	Vial 51	1	Sample	12	0.00000	0.000	0.00000
*	1918528009	Vial 52	1	Sample	13	0.00000	0.000	0.00000
*	1918528010 100	Vial 53	1	Sample	14	4.15809e5	8.321	518.23230
*	663035 CCV@25	Vial 71	1	Control	15	2.05306e6	8.245	25.67471
*	1918705001	Vial 54	1	Sample	16	0.00000	0.000	0.00000
*	1918705002 MS	Vial 55	1	Sample	17	3.65014e5	7.751	5.20905
*	1918705003 MSD	Vial 56	1	Sample	18	3.50062e5	7.740	4.09212
*	1918705004	Vial 57	1	Sample	19	0.00000	0.000	0.00000
*	1918705005	Vial 58	1	Sample	20	2.64722e5	7.233	4.40918
*	1918705006	Vial 59	1	Sample	21	0.00000	0.000	0.00000
*	1918705007 10X	Vial 60	1	Sample	22	4.80293e5	8.237	53.73554
*	1918705008	Vial 61	1	Sample	23	0.00000	0.000	0.00000
*	1918705009 MS	Vial 62	1	Sample	24	2.88361e5	7.509	4.39917
*	1918705010 MSD	Vial 63	1	Sample	25	2.77079e5	7.505	3.92076
*	663036 CCV@25	Vial 71	1	Control	26	1.87786e6	8.284	25.56775
*	1918871001	Vial 64	1	Sample	27	0.00000	0.000	0.00000
*	1918871002	Vial 65	1	Sample	28	0.00000	0.000	0.00000
*	1918871003	Vial 66	1	Sample	29	0.00000	0.000	0.00000
*	1918871004	Vial 67	1	Sample	30	0.00000	0.000	0.00000
*	663037 CCV@25	Vial 71	1	Control	31	1.97048e6	8.269	25.87251

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	663030 CCV@25	Vial 71	1	Control	1	6.24075e5	8.272	26.49423
*	663034 QC@4.0	Vial 41	1	Control	2	1.31480e5	7.999	4.73215
*	663032 ICS@4.0	Vial 42	1	Control	3	1.02079e5	7.839	4.11867
*	663033 LMB	Vial 43	1	Control	4	0.00000	0.000	0.00000
*	1918528001	Vial 44	1	Sample	5	0.00000	0.000	0.00000
*	1918528002	Vial 45	1	Sample	6	0.00000	0.000	0.00000
*	1918528003	Vial 46	1	Sample	7	0.00000	0.000	0.00000
*	1918528004	Vial 47	1	Sample	8	0.00000	0.000	0.00000
*	1918528005	Vial 48	1	Sample	9	0.00000	0.000	0.00000
*	1918528006	Vial 49	1	Sample	10	0.00000	0.000	0.00000
*	1918528007	Vial 50	1	Sample	11	0.00000	0.000	0.00000
*	1918528008	Vial 51	1	Sample	12	0.00000	0.000	0.00000
*	1918528009	Vial 52	1	Sample	13	0.00000	0.000	0.00000
*	1918528010 100	Vial 53	1	Sample	14	1.37449e5	8.342	561.78024
*	663035 CCV@25	Vial 71	1	Control	15	6.14214e5	8.269	25.87142
*	1918705001	Vial 54	1	Sample	16	0.00000	0.000	0.00000
*	1918705002 MS	Vial 55	1	Sample	17	1.12801e5	7.762	5.28376
*	1918705003 MSD	Vial 56	1	Sample	18	1.10963e5	7.755	4.21966
*	1918705004	Vial 57	1	Sample	19	0.00000	0.000	0.00000
*	1918705005	Vial 58	1	Sample	20	9.11835e4	7.238	4.95128
*	1918705006	Vial 59	1	Sample	21	0.00000	0.000	0.00000
*	1918705007 10X	Vial 60	1	Sample	22	1.65863e5	8.254	60.89054
*	1918705008	Vial 61	1	Sample	23	0.00000	0.000	0.00000
*	1918705009 MS	Vial 62	1	Sample	24	9.39754e4	7.516	4.67594
*	1918705010 MSD	Vial 63	1	Sample	25	9.16631e4	7.522	4.21052
*	663036 CCV@25	Vial 71	1	Control	26	5.59339e5	8.296	25.65584

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#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	1918871001	Vial 64	1	Sample	27	0.00000	0.000	0.00000
*	1918871002	Vial 65	1	Sample	28	0.00000	0.000	0.00000
*	1918871003	Vial 66	1	Sample	29	0.00000	0.000	0.00000
*	1918871004	Vial 67	1	Sample	30	0.00000	0.000	0.00000
*	663037 CCV@25	Vial 71	1	Control	31	5.83651e5	8.278	25.82631

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	663030 CCV@25	Vial 71	1	Control	1	2.40676e5	8.290	5.00000
*	663034 QC@4.0	Vial 41	1	Control	2	2.97198e5	8.012	5.00000
*	663032 ICS@4.0	Vial 42	1	Control	3	2.65421e5	7.859	5.00000
*	663033 LMB	Vial 43	1	Control	4	3.18343e5	8.270	5.00000
*	1918528001	Vial 44	1	Sample	5	2.09428e5	7.499	5.00000
*	1918528002	Vial 45	1	Sample	6	2.27592e5	7.803	5.00000
*	1918528003	Vial 46	1	Sample	7	2.83805e5	7.792	5.00000
*	1918528004	Vial 47	1	Sample	8	2.31744e5	7.766	5.00000
*	1918528005	Vial 48	1	Sample	9	2.65465e5	7.949	5.00000
*	1918528006	Vial 49	1	Sample	10	3.02483e5	7.805	5.00000
*	1918528007	Vial 50	1	Sample	11	2.39370e5	7.809	5.00000
*	1918528008	Vial 51	1	Sample	12	2.57536e5	7.582	5.00000
*	1918528009	Vial 52	1	Sample	13	3.47245e5	7.601	5.00000
*	1918528010 100	Vial 53	1	Sample	14	2.61248e5	8.355	500.00000
*	663035 CCV@25	Vial 71	1	Control	15	2.42892e5	8.260	5.00000
*	1918705001	Vial 54	1	Sample	16	3.40152e5	7.747	5.00000
*	1918705002 MS	Vial 55	1	Sample	17	2.28107e5	7.767	5.00000
*	1918705003 MSD	Vial 56	1	Sample	18	2.81563e5	7.755	5.00000
*	1918705004	Vial 57	1	Sample	19	2.40535e5	7.689	5.00000
*	1918705005	Vial 58	1	Sample	20	1.96905e5	7.258	5.00000
*	1918705006	Vial 59	1	Sample	21	1.63865e5	7.481	5.00000
*	1918705007 10X	Vial 60	1	Sample	22	2.90576e5	8.248	50.00000
*	1918705008	Vial 61	1	Sample	23	2.37165e5	7.528	5.00000
*	1918705009 MS	Vial 62	1	Sample	24	2.14999e5	7.533	5.00000
*	1918705010 MSD	Vial 63	1	Sample	25	2.33099e5	7.524	5.00000
*	663036 CCV@25	Vial 71	1	Control	26	2.23151e5	8.308	5.00000
*	1918871001	Vial 64	1	Sample	27	2.17462e5	7.475	5.00000
*	1918871002	Vial 65	1	Sample	28	2.52228e5	7.881	5.00000
*	1918871003	Vial 66	1	Sample	29	2.97108e5	7.854	5.00000
*	1918871004	Vial 67	1	Sample	30	2.73039e5	7.829	5.00000
*	663037 CCV@25	Vial 71	1	Control	31	2.31231e5	8.296	5.00000

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\11JUL19D.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	663030	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 41	663034	QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 42	663032	ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 43	663033	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 44	1918528001		CLO4-AQN	1	Sample		
6	Vial 45	1918528002		CLO4-AQN	1	Sample		
7	Vial 46	1918528003		CLO4-AQN	1	Sample		
8	Vial 47	1918528004		CLO4-AQN	1	Sample		
9	Vial 48	1918528005		CLO4-AQN	1	Sample		
10	Vial 49	1918528006		CLO4-AQN	1	Sample		
11	Vial 50	1918528007		CLO4-AQN	1	Sample		
12	Vial 51	1918528008		CLO4-AQN	1	Sample		
13	Vial 52	1918528009		CLO4-AQN	1	Sample		
14	Vial 53	1918528010	100	CLO4-AQN	1	Sample		
15	Vial 71	663035	CCV@25	CLO4-AQN	1	Ctrl Samp		
16	Vial 54	1918705001		CLO4-AQN	1	Sample		
17	Vial 55	1918705002	MS	CLO4-AQN	1	Sample		
18	Vial 56	1918705003	MSD	CLO4-AQN	1	Sample		
19	Vial 57	1918705004		CLO4-AQN	1	Sample		
20	Vial 58	1918705005		CLO4-AQN	1	Sample		
21	Vial 59	1918705006		CLO4-AQN	1	Sample		
22	Vial 60	1918705007	10X	CLO4-AQN	1	Sample		
23	Vial 61	1918705008		CLO4-AQN	1	Sample		
24	Vial 62	1918705009	MS	CLO4-AQN	1	Sample		
25	Vial 63	1918705010	MSD	CLO4-AQN	1	Sample		
26	Vial 71	663036	CCV@25	CLO4-AQN	1	Ctrl Samp		
27	Vial 64	1918871001		CLO4-AQN	1	Sample		
28	Vial 65	1918871002		CLO4-AQN	1	Sample		
29	Vial 66	1918871003		CLO4-AQN	1	Sample		
30	Vial 67	1918871004		CLO4-AQN	1	Sample		
31	Vial 71	663037	CCV@25	CLO4-AQN	1	Ctrl Samp		

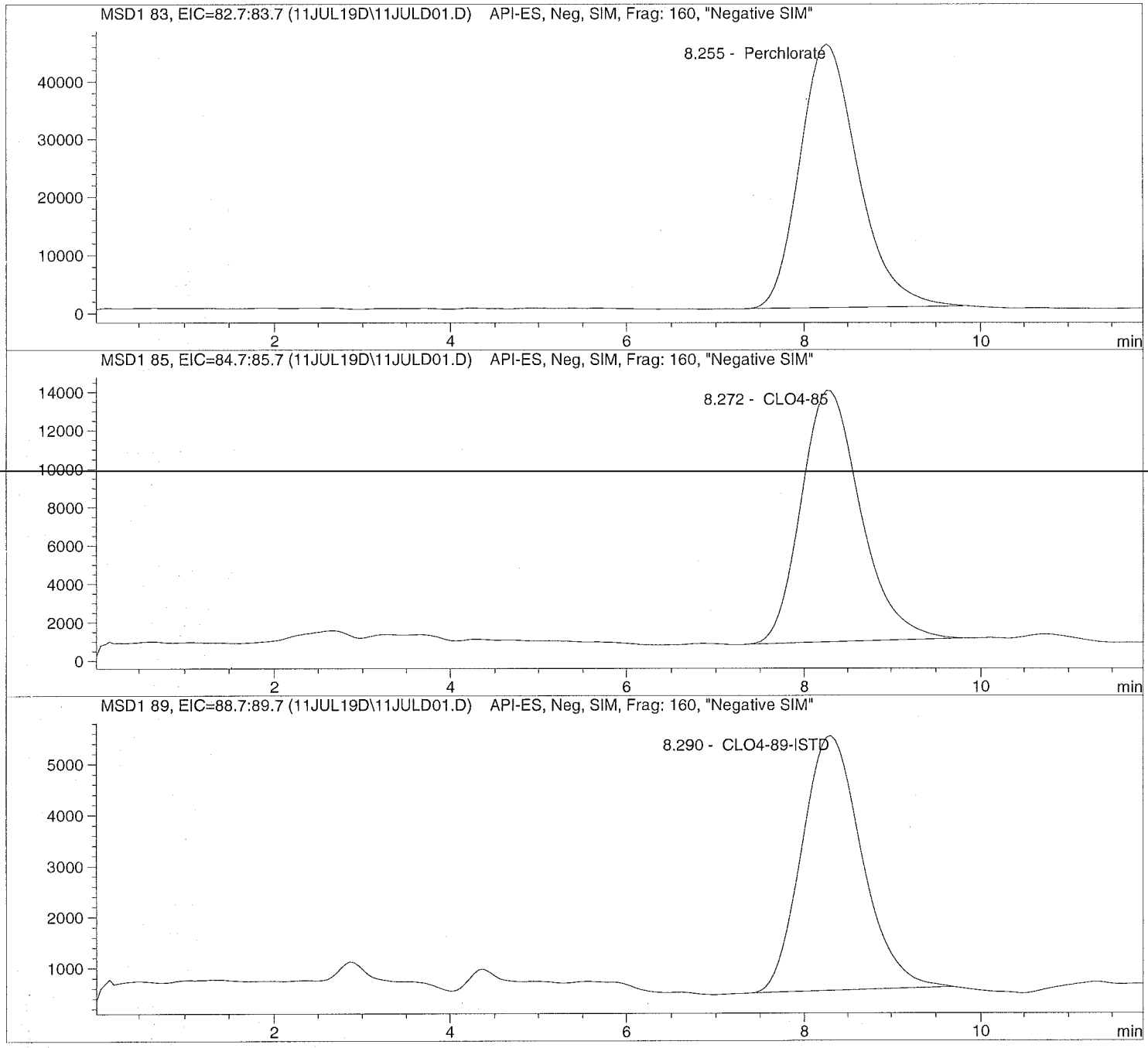
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD01.D Sample Name: 663030 CCV@25

Injection Date:	7/11/2019 11:12:20	Seq Line:	1
Sample Name:	663030 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD01.D Sample Name: 663030 CCV@25

Injection Date:	7/11/2019 11:12:20	Seq Line:	1
Sample Name:	663030 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.255	PBA	2118713.0	26.6764	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.272	PBA	624075.3	26.4942	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.290	PBA	240676.4	5.0000	CLO4-89-ISTD

*** End of Report ***

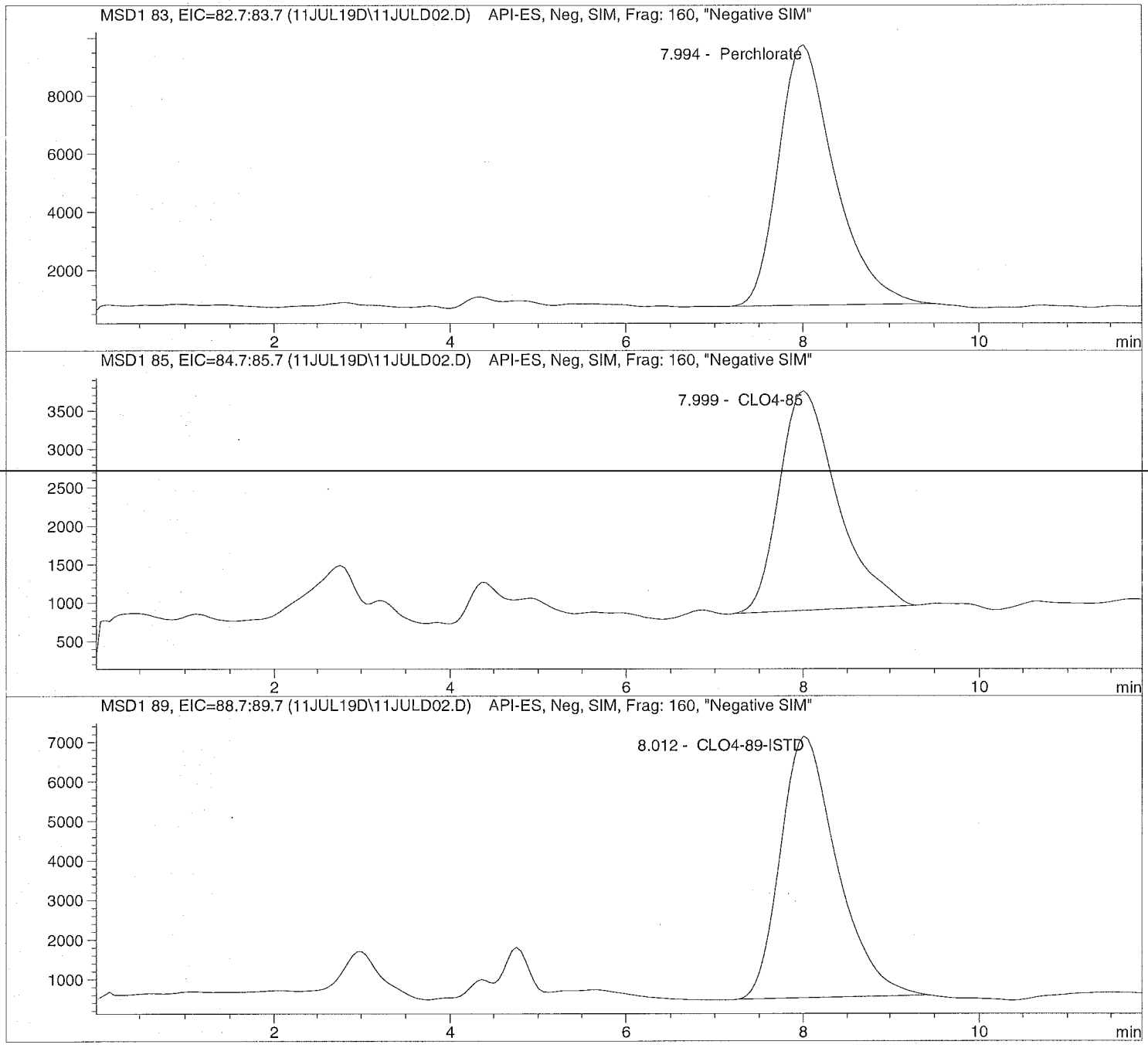
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD02.D Sample Name: 663034 QC@4.0

Injection Date:	7/11/2019 11:26:05	Seq Line:	2
Sample Name:	663034 QC@4.0	Location:	Vial 41
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD02.D Sample Name: 663034 QC@4.0

Injection Date:	7/11/2019 11:26:05	Seq Line:	2
Sample Name:	663034 QC@4.0	Location:	Vial 41
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.994	PBA	399419.3	4.4077	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.999	PBA	131479.8	4.7322	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.012	PBA	297197.6	5.0000	CLO4-89-ISTD

*** End of Report ***

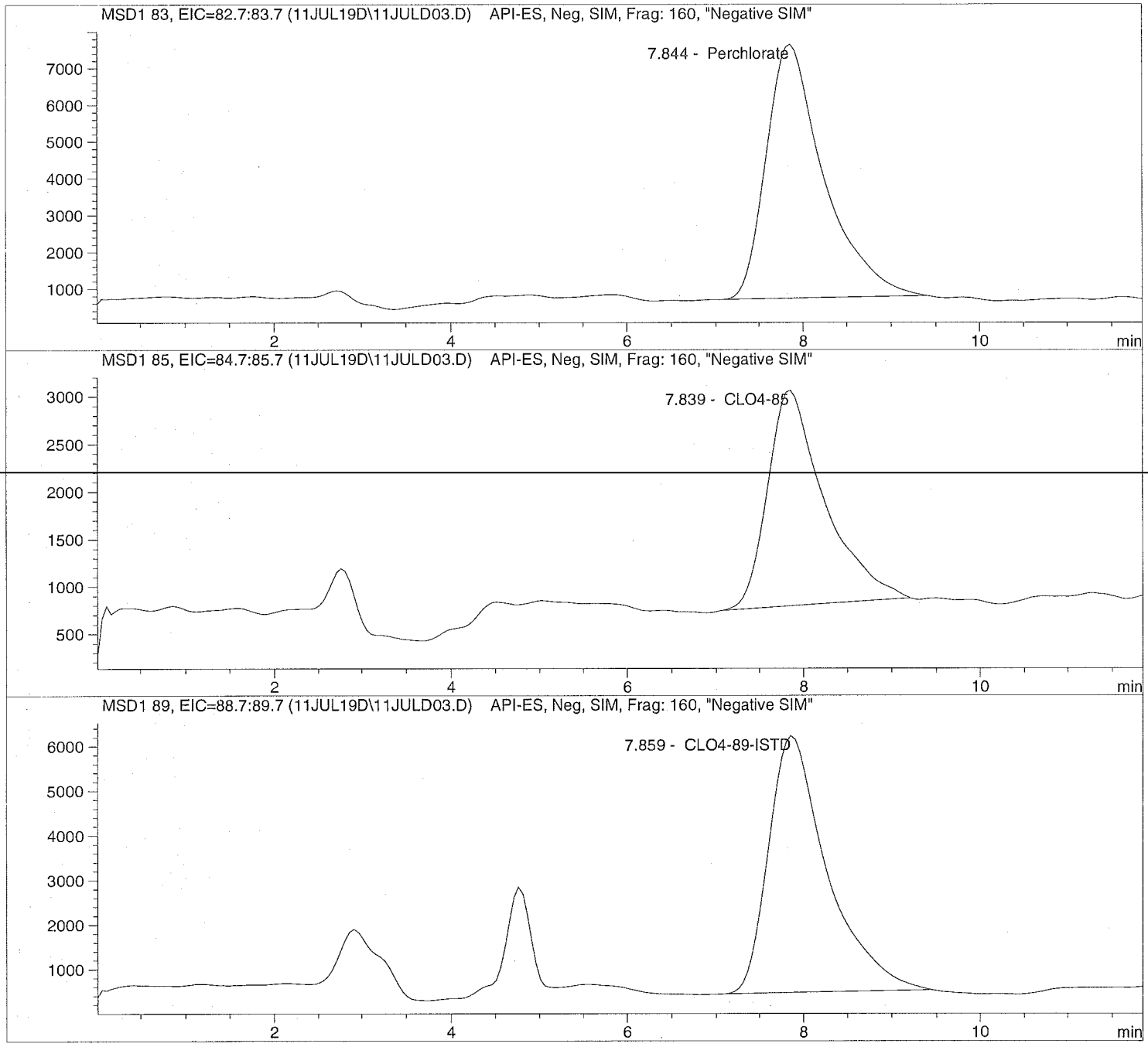
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD03.D Sample Name: 663032 ICS@4.0

Injection Date:	7/11/2019 11:39:52	Seq Line:	3
Sample Name:	663032 ICS@4.0	Location:	Vial 42
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD03.D Sample Name: 663032 ICS@4.0

Injection Date:	7/11/2019 11:39:52	Seq Line:	3
Sample Name:	663032 ICS@4.0	Location:	Vial 42
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.844	PBA	313184.6	3.8934	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.839	PBA	102078.9	4.1187	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.859	PBA	265421.4	5.0000	CLO4-89-ISTD

*** End of Report ***

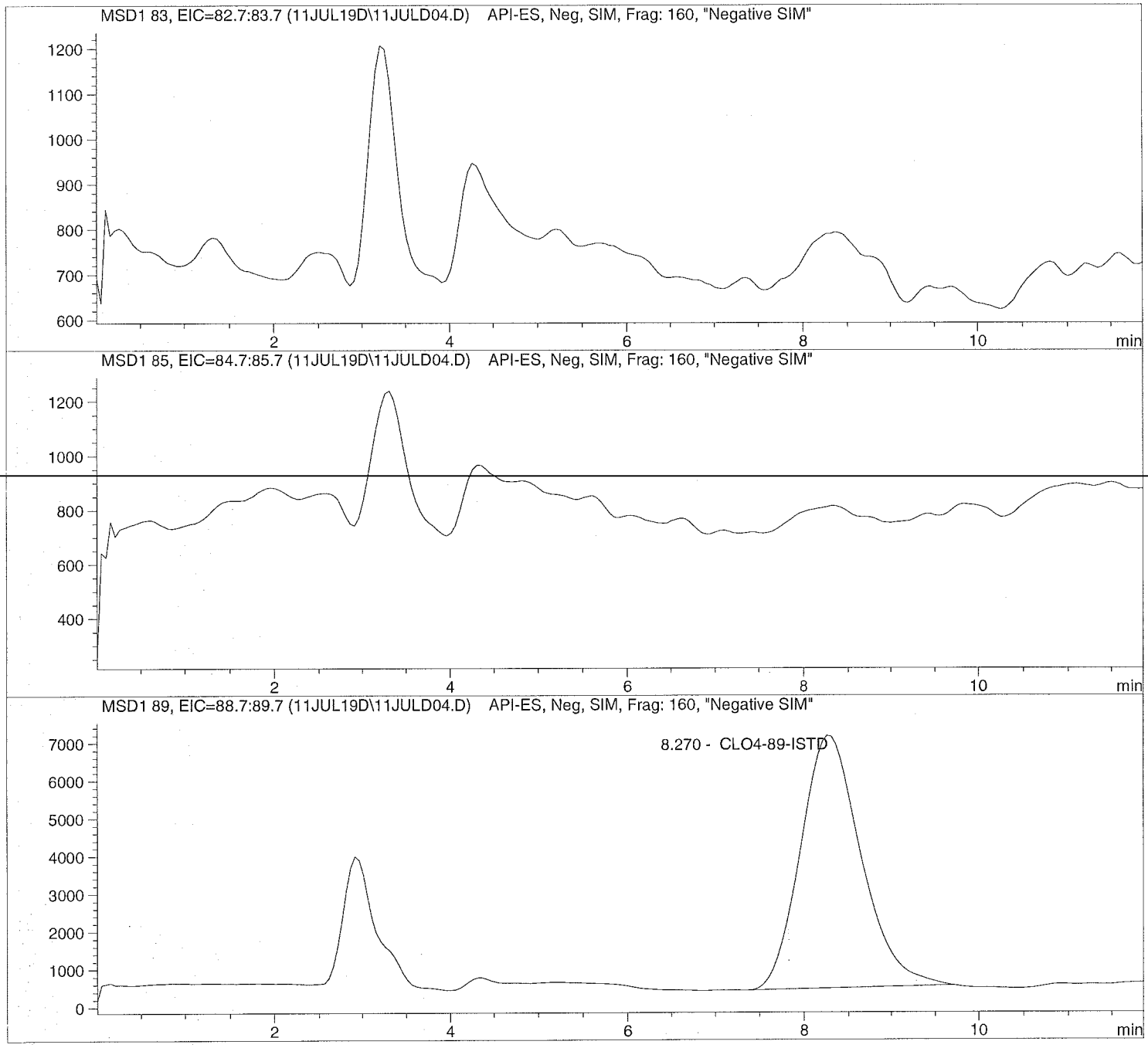
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD04.D Sample Name: 663033 LMB

Injection Date:	7/11/2019 11:53:41	Seq Line:	4
Sample Name:	663033 LMB	Location:	Vial 43
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD04.D Sample Name: 663033 LMB

Injection Date:	7/11/2019 11:53:41	Seq Line:	4
Sample Name:	663033 LMB	Location:	Vial 43
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.270	PBA	318342.8	5.0000	CLO4-89-ISTD

*** End of Report ***

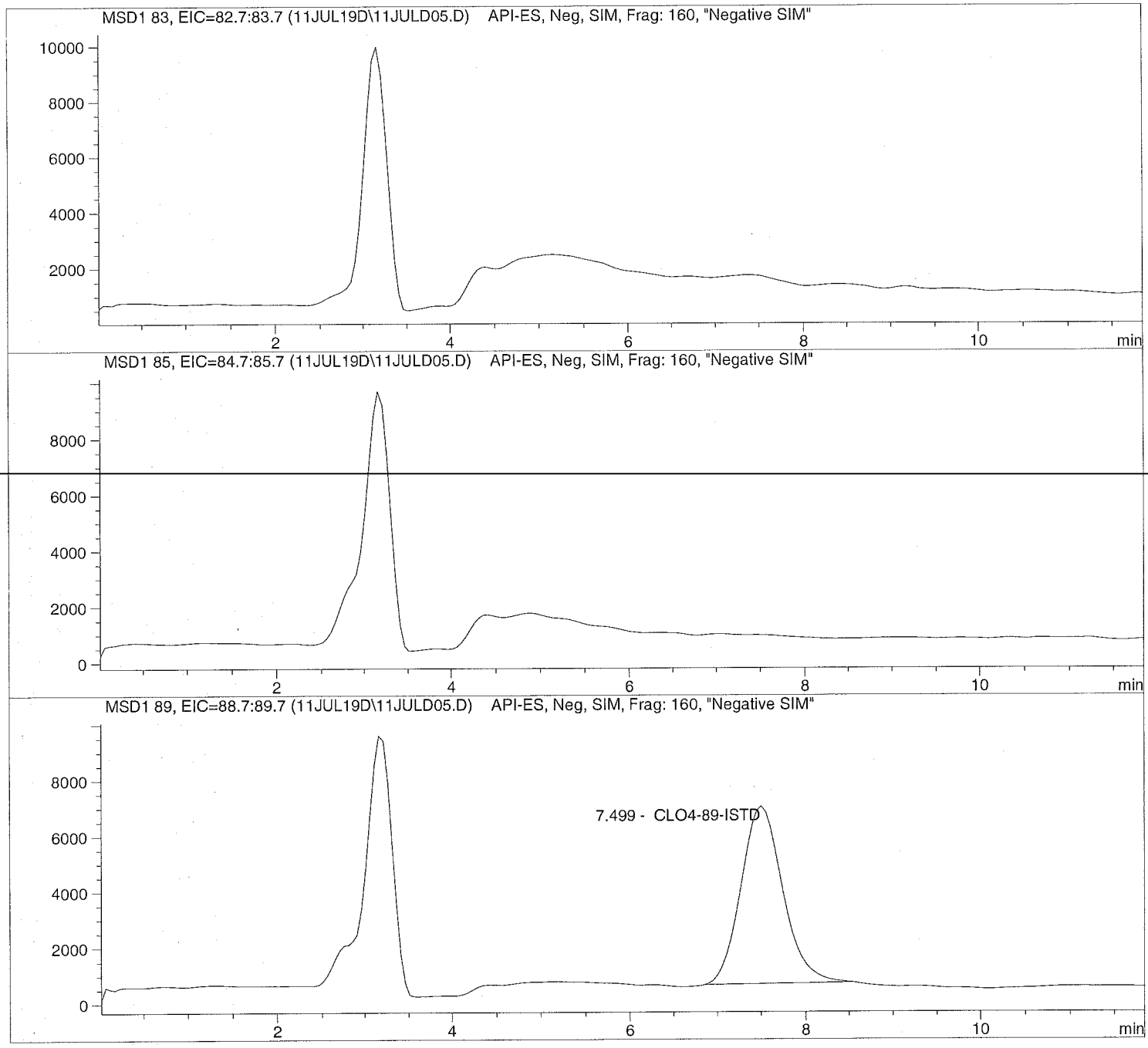
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD05.D Sample Name: 1918528001

Injection Date:	7/11/2019 12:07:26	Seq Line:	5
Sample Name:	1918528001	Location:	Vial 44
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD05.D Sample Name: 1918528001

Injection Date:	7/11/2019 12:07:26	Seq Line:	5
Sample Name:	1918528001	Location:	Vial 44
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.499	PBA	209428.4	5.0000	CLO4-89-ISTD

*** End of Report ***

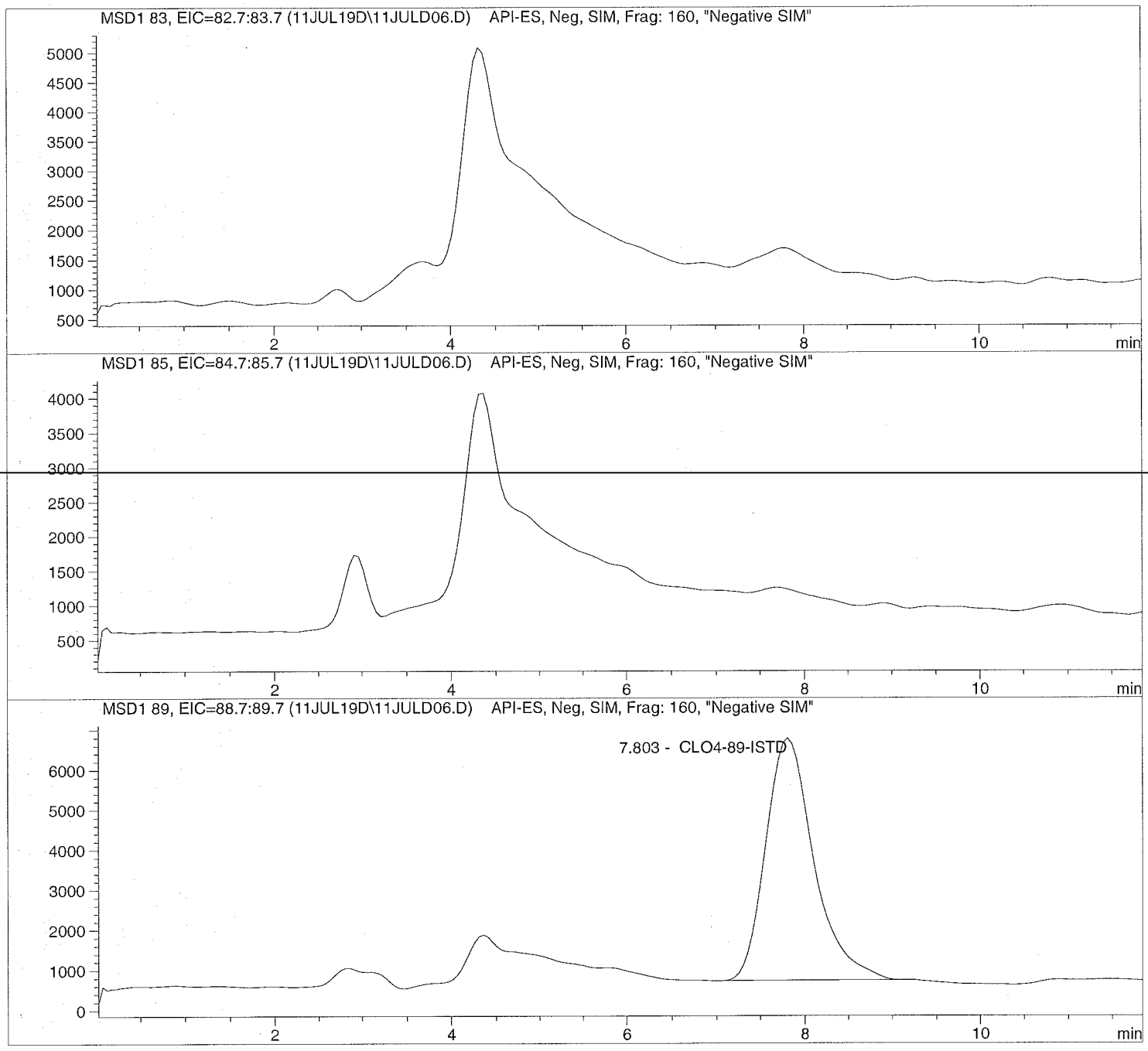
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD06.D Sample Name: 1918528002

Injection Date:	7/11/2019 12:21:11	Seq Line:	6
Sample Name:	1918528002	Location:	Vial 45
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD06.D Sample Name: 1918528002

Injection Date:	7/11/2019 12:21:11	Seq Line:	6
Sample Name:	1918528002	Location:	Vial 45
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.803	PBA	227591.6	5.0000	CLO4-89-ISTD

*** End of Report ***

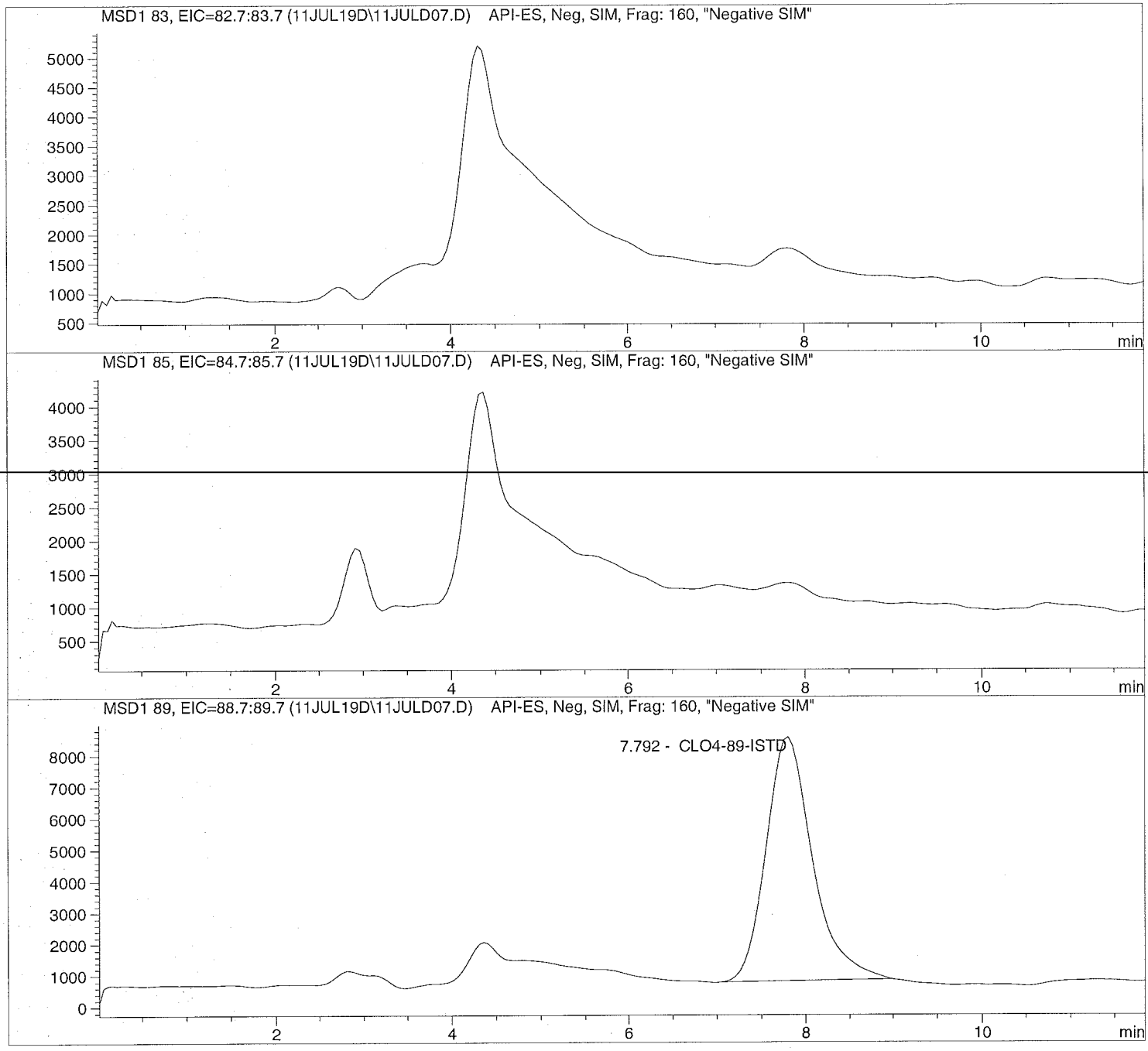
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD07.D Sample Name: 1918528003

Injection Date:	7/11/2019 12:34:58	Seq Line:	7
Sample Name:	1918528003	Location:	Vial 46
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD07.D Sample Name: 1918528003

Injection Date:	7/11/2019 12:34:58	Seq Line:	7
Sample Name:	1918528003	Location:	Vial 46
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.792	PBA	283804.7	5.0000	CLO4-89-ISTD

*** End of Report ***

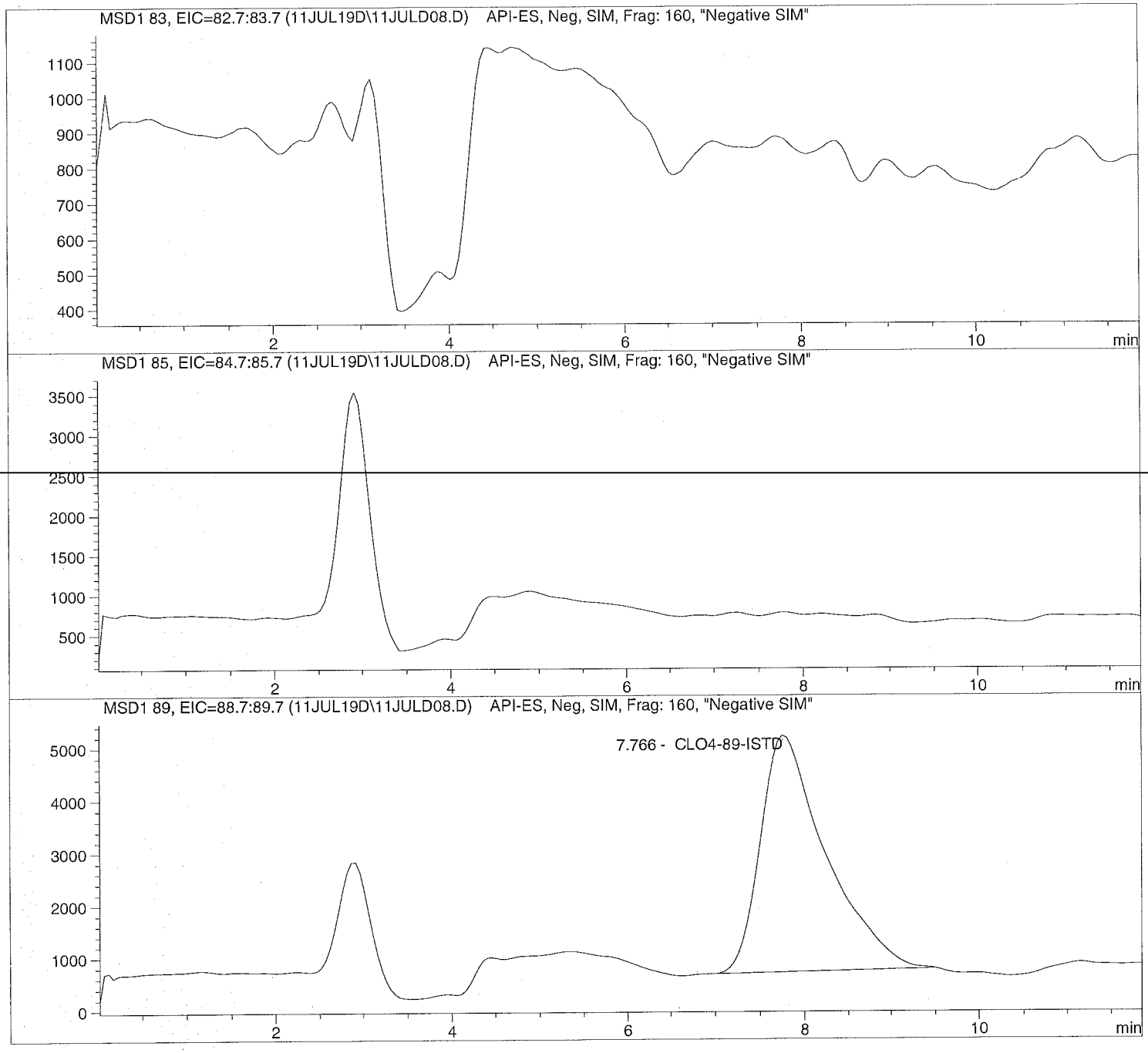
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD08.D Sample Name: 1918528004

Injection Date:	7/11/2019 12:48:44	Seq Line:	8
Sample Name:	1918528004	Location:	Vial 47
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD08.D Sample Name: 1918528004

Injection Date:	7/11/2019 12:48:44	Seq Line:	8
Sample Name:	1918528004	Location:	Vial 47
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.766	PBA	231743.6	5.0000	CLO4-89-ISTD

*** End of Report ***

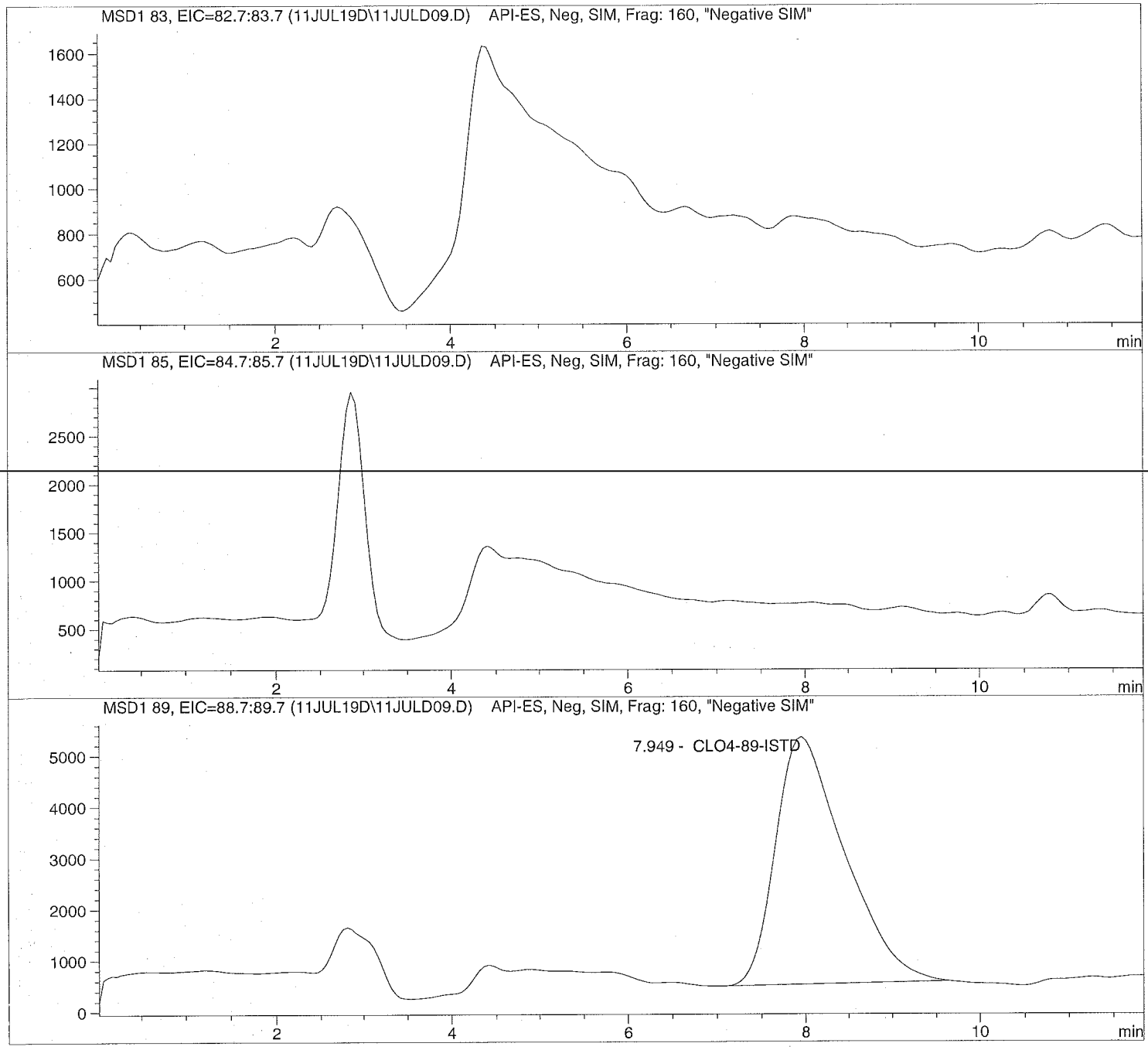
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD09.D Sample Name: 1918528005

Injection Date:	7/11/2019 13:02:32	Seq Line:	9
Sample Name:	1918528005	Location:	Vial 48
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD09.D Sample Name: 1918528005

Injection Date:	7/11/2019 13:02:32	Seq Line:	9
Sample Name:	1918528005	Location:	Vial 48
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.949	PBA	265464.7	5.0000	CLO4-89-ISTD

*** End of Report ***

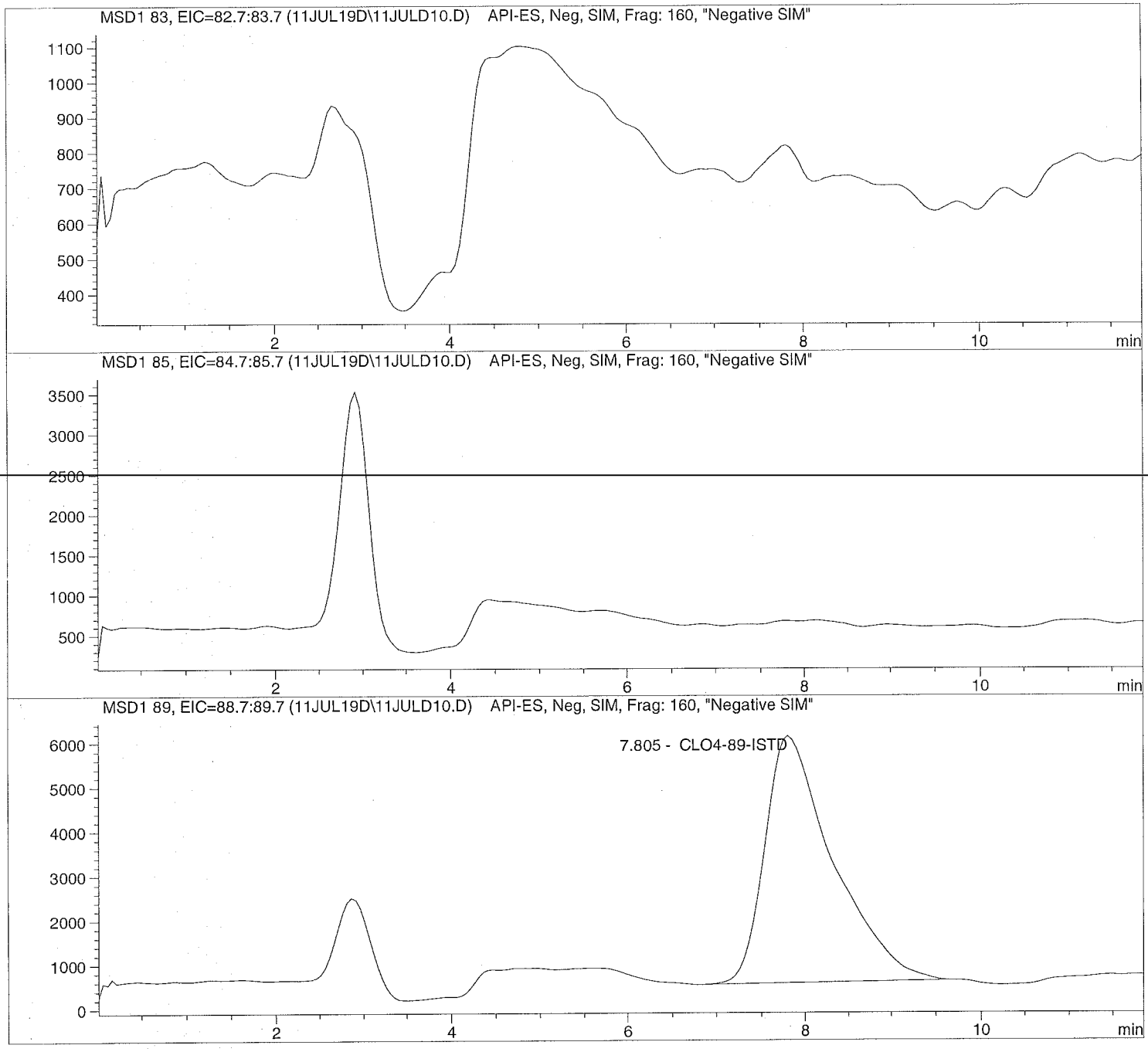
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD10.D Sample Name: 1918528006

Injection Date:	7/11/2019 13:16:18	Seq Line:	10
Sample Name:	1918528006	Location:	Vial 49
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD10.D Sample Name: 1918528006

Injection Date:	7/11/2019 13:16:18	Seq Line:	10
Sample Name:	1918528006	Location:	Vial 49
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	302483.2	5.0000	CLO4-89-ISTD

*** End of Report ***

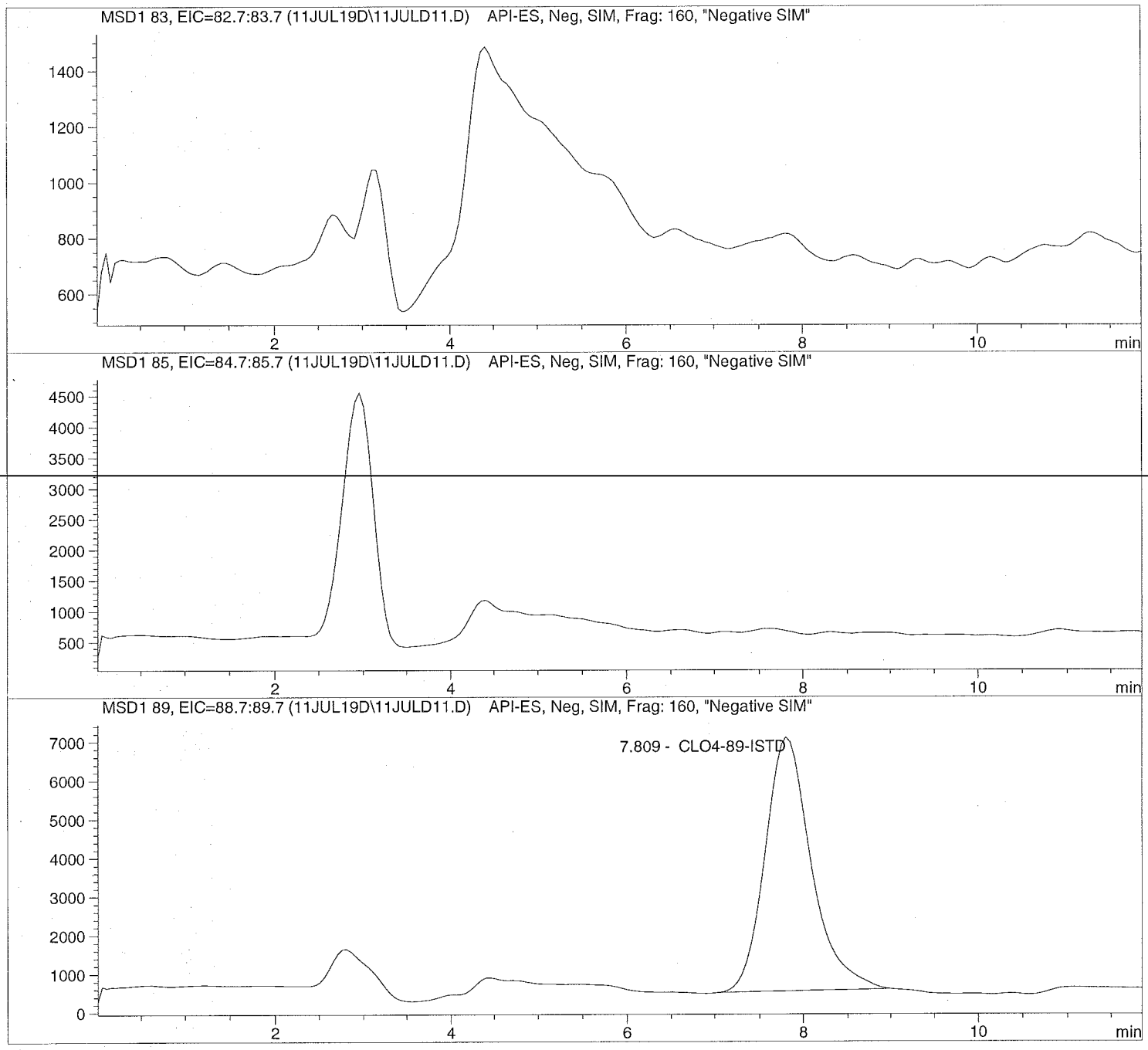
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD11.D Sample Name: 1918528007

Injection Date:	7/11/2019 13:30:12	Seq Line:	11
Sample Name:	1918528007	Location:	Vial 50
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD11.D Sample Name: 1918528007

Injection Date:	7/11/2019 13:30:12	Seq Line:	11
Sample Name:	1918528007	Location:	Vial 50
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.809	PBA	239369.6	5.0000	CLO4-89-ISTD

*** End of Report ***

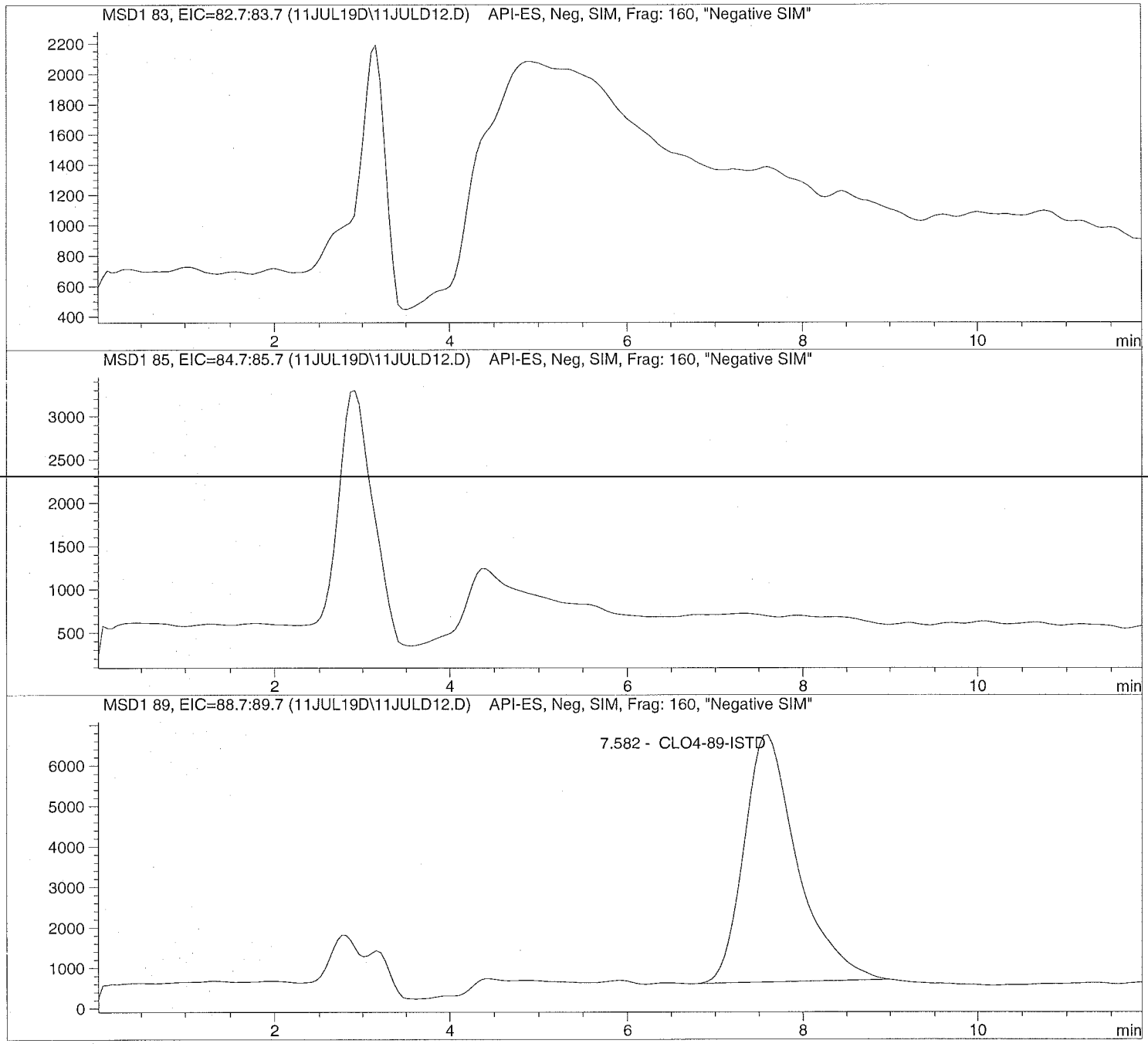
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD12.D Sample Name: 1918528008

Injection Date:	7/11/2019 13:43:59	Seq Line:	12
Sample Name:	1918528008	Location:	Vial 51
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD12.D Sample Name: 1918528008

Injection Date:	7/11/2019 13:43:59	Seq Line:	12
Sample Name:	1918528008	Location:	Vial 51
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.582	PBA	257536.2	5.0000	CLO4-89-ISTD

*** End of Report ***

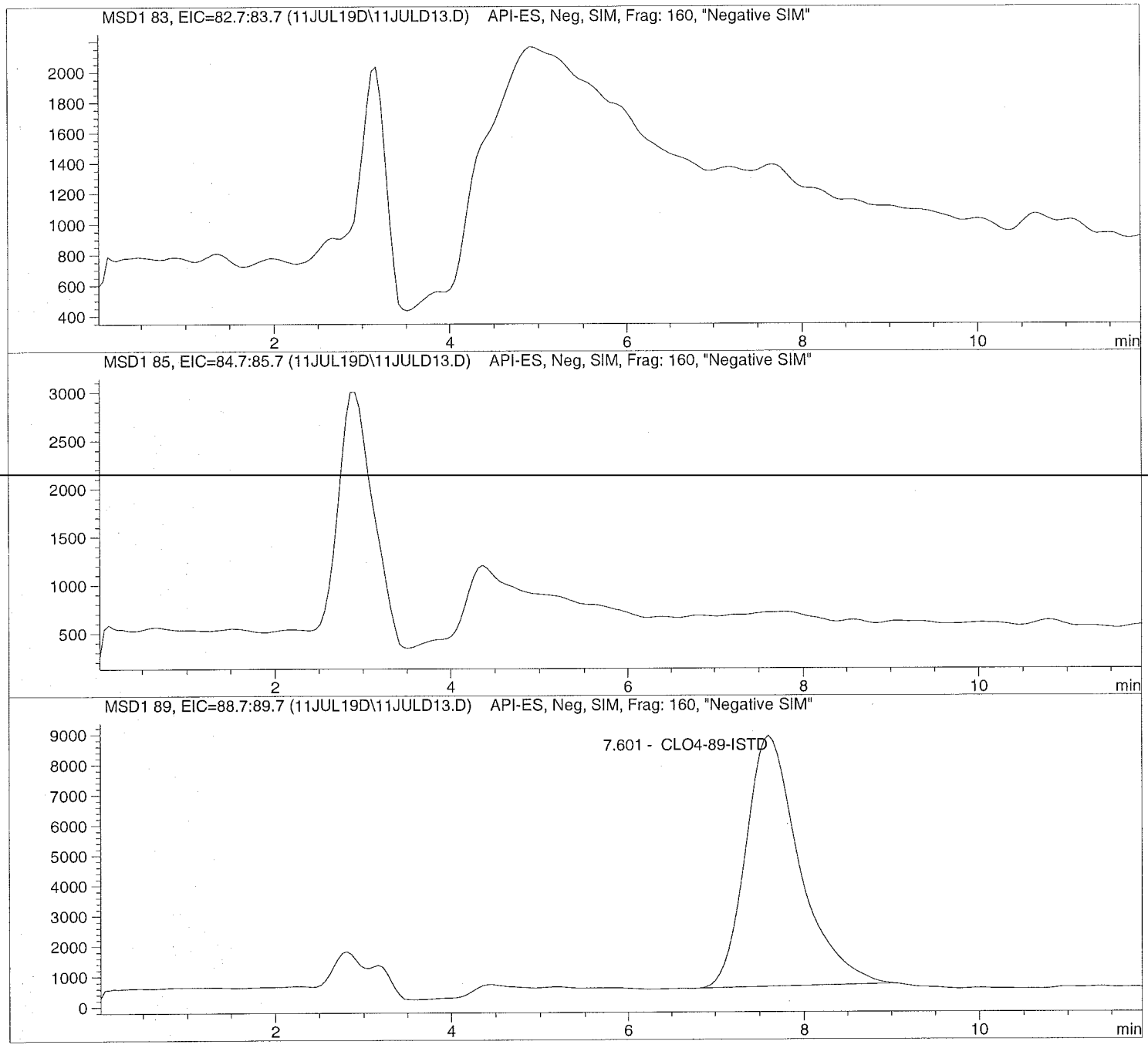
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD13.D Sample Name: 1918528009

Injection Date:	7/11/2019 13:57:45	Seq Line:	13
Sample Name:	1918528009	Location:	Vial 52
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD13.D Sample Name: 1918528009

Injection Date:	7/11/2019 13:57:45	Seq Line:	13
Sample Name:	1918528009	Location:	Vial 52
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.601	PBA	347244.5	5.0000	CLO4-89-ISTD

*** End of Report ***

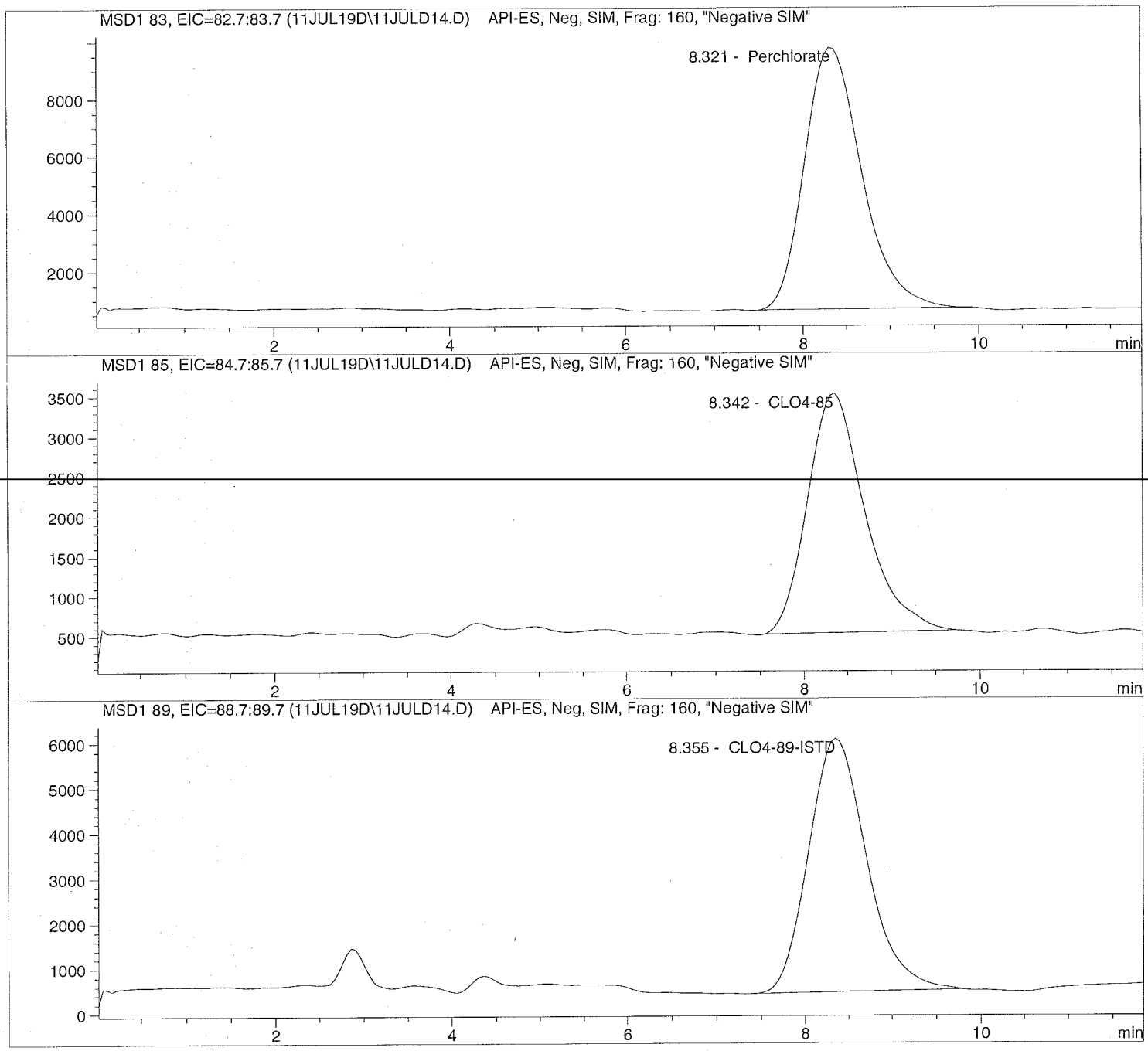
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD14.D Sample Name: 1918528010 100

Injection Date:	7/11/2019 14:11:32	Seq Line:	14
Sample Name:	1918528010 100	Location:	Vial 53
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD14.D Sample Name: 1918528010 100

Injection Date:	7/11/2019 14:11:32	Seq Line:	14
Sample Name:	1918528010 100	Location:	Vial 53
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 100.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.321	BBA	415809.4	518.2323	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.342	PBA	137449.3	561.7802	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.355	PBA	261248.4	500.0000	CLO4-89-ISTD

*** End of Report ***

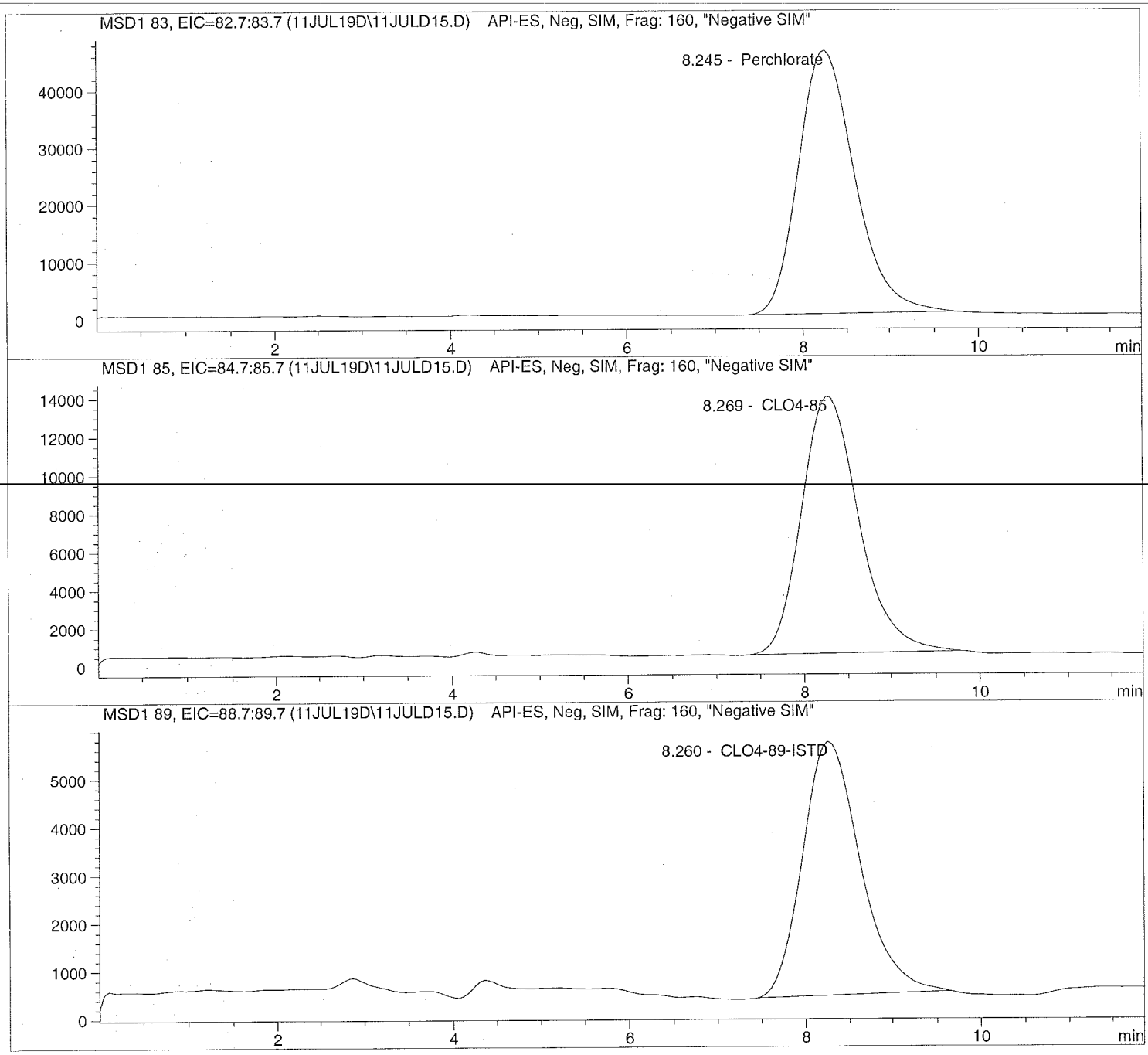
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD15.D Sample Name: 663035 CCV@25

Injection Date:	7/11/2019 14:25:24	Seq Line:	15
Sample Name:	663035 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD15.D Sample Name: 663035 CCV@25

Injection Date:	7/11/2019 14:25:24	Seq Line:	15
Sample Name:	663035 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.245	PBA	2053058.0	25.6747	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.269	PBA	614213.5	25.8714	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.260	PBA	242891.8	5.0000	CLO4-89-ISTD

*** End of Report ***

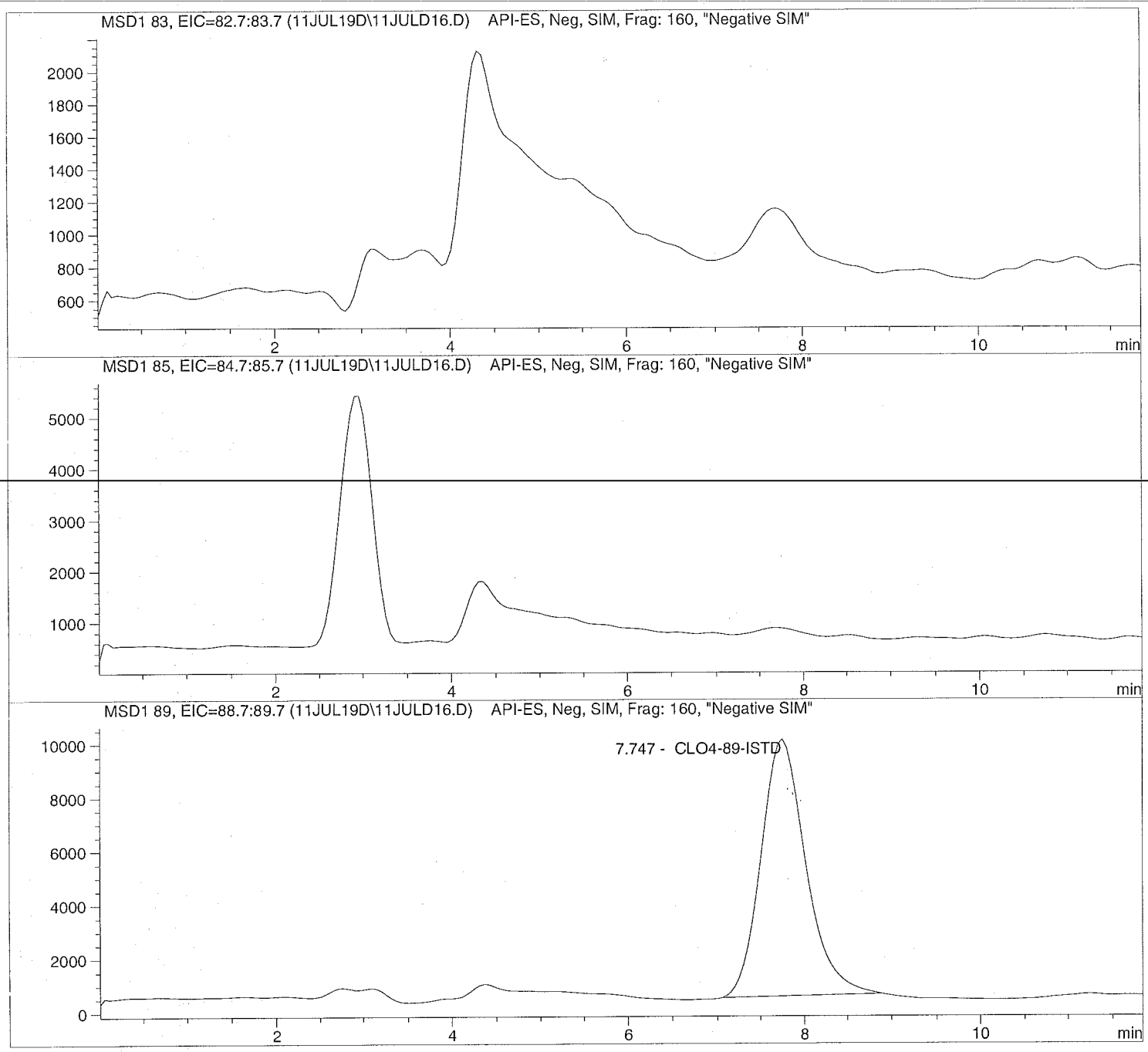
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD16.D Sample Name: 1918705001

Injection Date:	7/11/2019 14:39:13	Seq Line:	16
Sample Name:	1918705001	Location:	Vial 54
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD16.D Sample Name: 1918705001

Injection Date:	7/11/2019 14:39:13	Seq Line:	16
Sample Name:	1918705001	Location:	Vial 54
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.747	PBA	340152.4	5.0000	CLO4-89-ISTD

*** End of Report ***

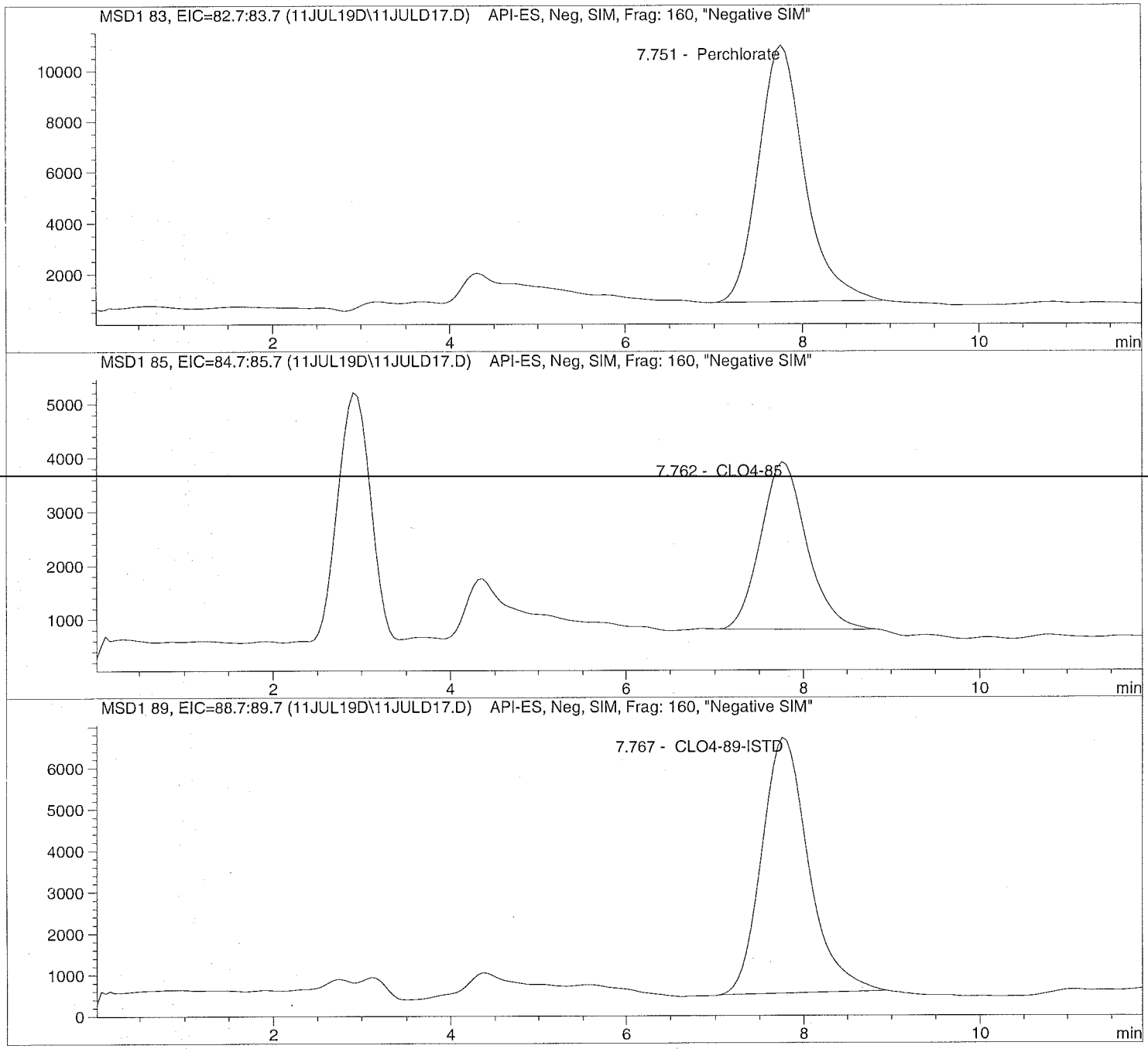
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD17.D Sample Name: 1918705002 MS

Injection Date:	7/11/2019 14:52:59	Seq Line:	17
Sample Name:	1918705002 MS	Location:	Vial 55
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD17.D Sample Name: 1918705002 MS

Injection Date:	7/11/2019 14:52:59	Seq Line:	17
Sample Name:	1918705002 MS	Location:	Vial 55
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.751	PBA	365013.6	5.2090	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.762	BBA	112800.8	5.2838	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	228107.2	5.0000	CLO4-89-ISTD

*** End of Report ***

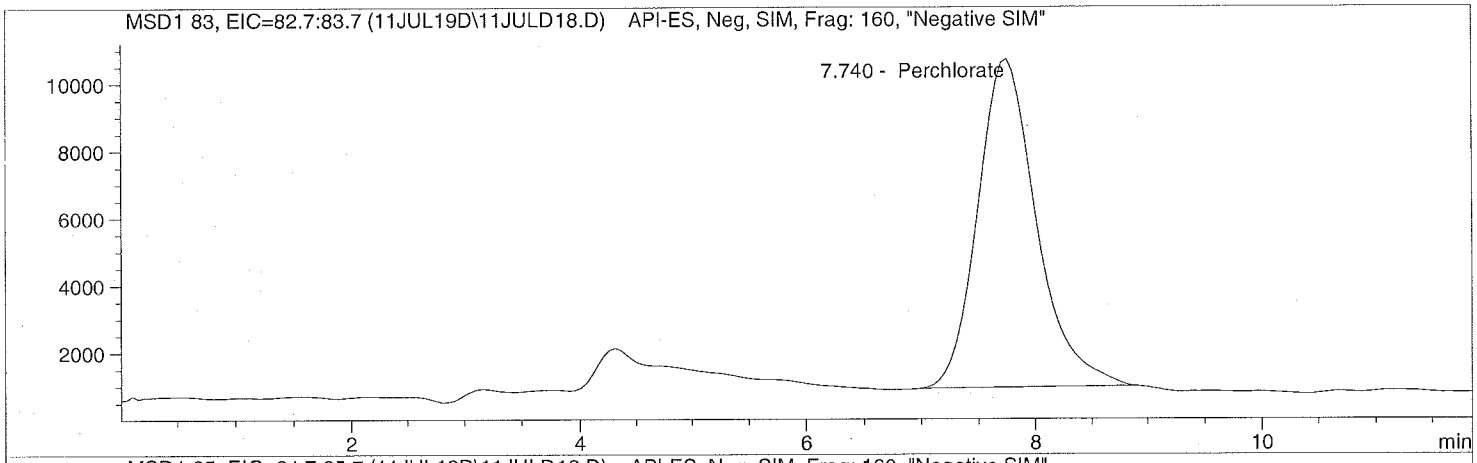
RIGHT SOLUTIONS | RIGHT PARTNER

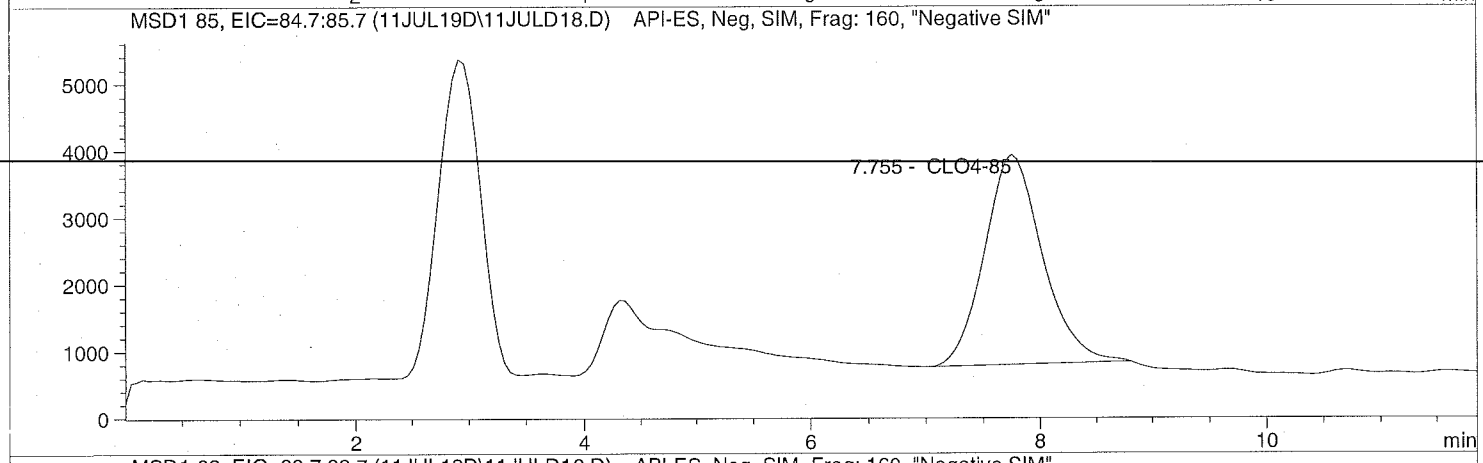
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD18.D Sample Name: 1918705003 MSD

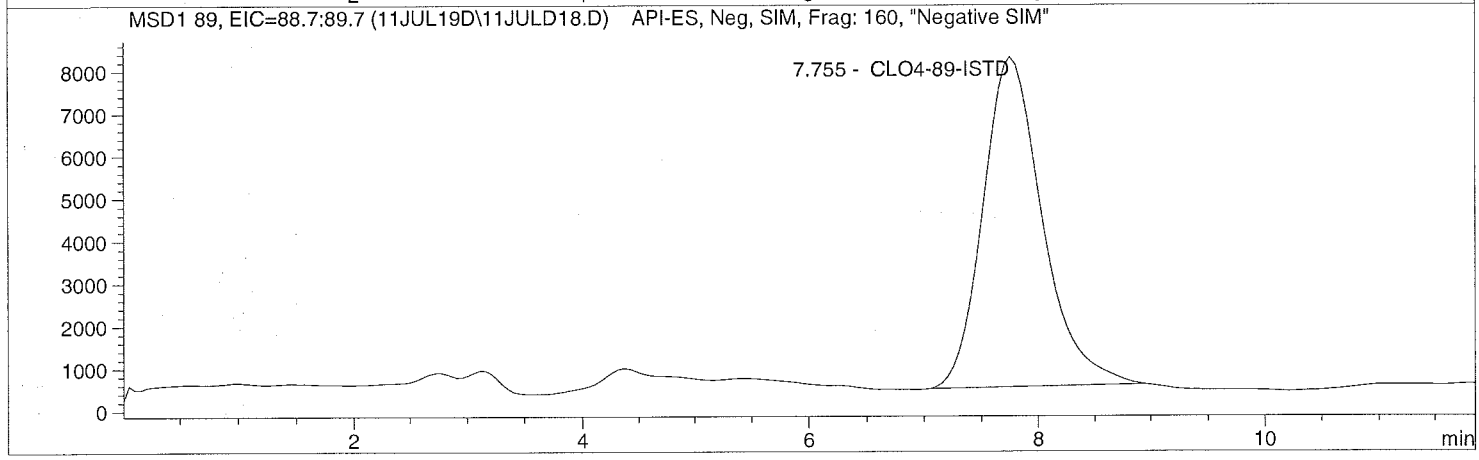
Injection Date:	7/11/2019 15:06:56	Seq Line:	18
Sample Name:	1918705003 MSD	Location:	Vial 56
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD18.D Sample Name: 1918705003 MSD

Injection Date:	7/11/2019 15:06:56	Seq Line:	18
Sample Name:	1918705003 MSD	Location:	Vial 56
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.740	PBA	350061.6	4.0921	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.755	PBA	110963.2	4.2197	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.755	PBA	281563.4	5.0000	CLO4-89-ISTD

*** End of Report ***

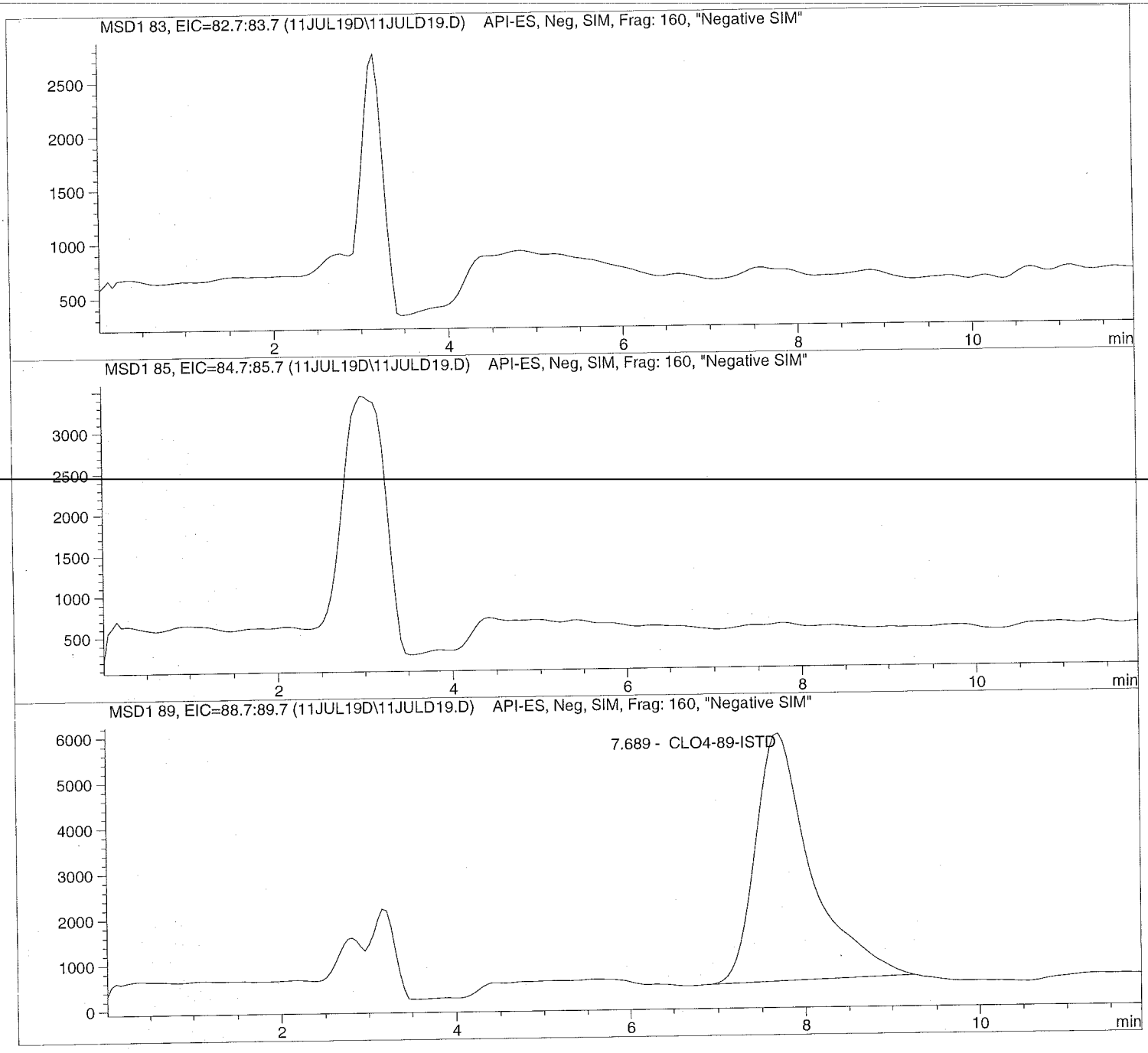
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD19.D Sample Name: 1918705004

Injection Date:	7/11/2019 15:21:50	Seq Line:	19
Sample Name:	1918705004	Location:	Vial 57
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD19.D Sample Name: 1918705004

Injection Date:	7/11/2019 15:21:50	Seq Line:	19
Sample Name:	1918705004	Location:	Vial 57
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.689	PBA	240534.6	5.0000	CLO4-89-ISTD

*** End of Report ***

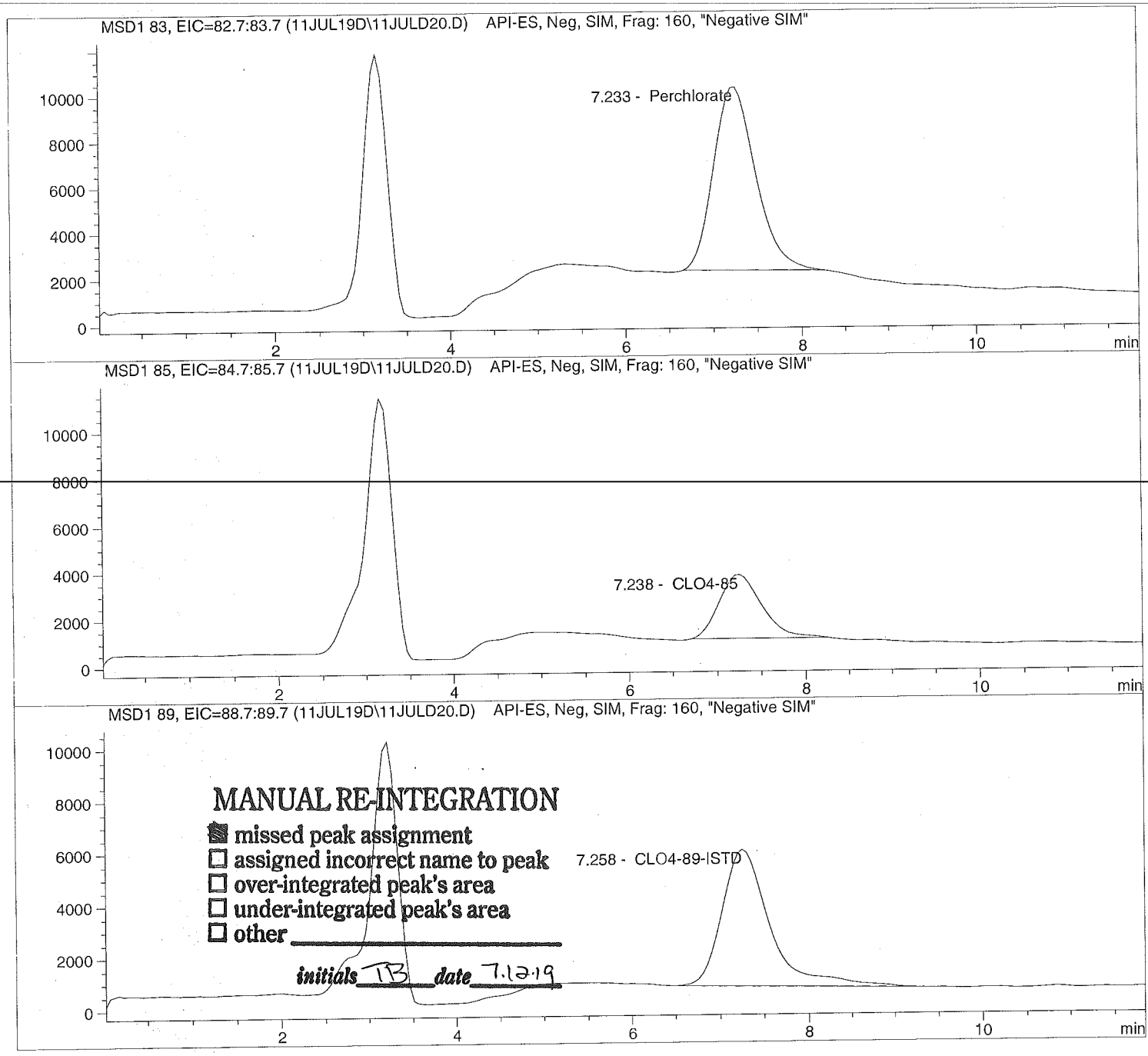
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.233	PBA	264721.6	4.4092	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.238	BBA	91183.5	4.9513	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.258	MM	196904.8	5.0000	CLO4-89-ISTD

*** End of Report ***

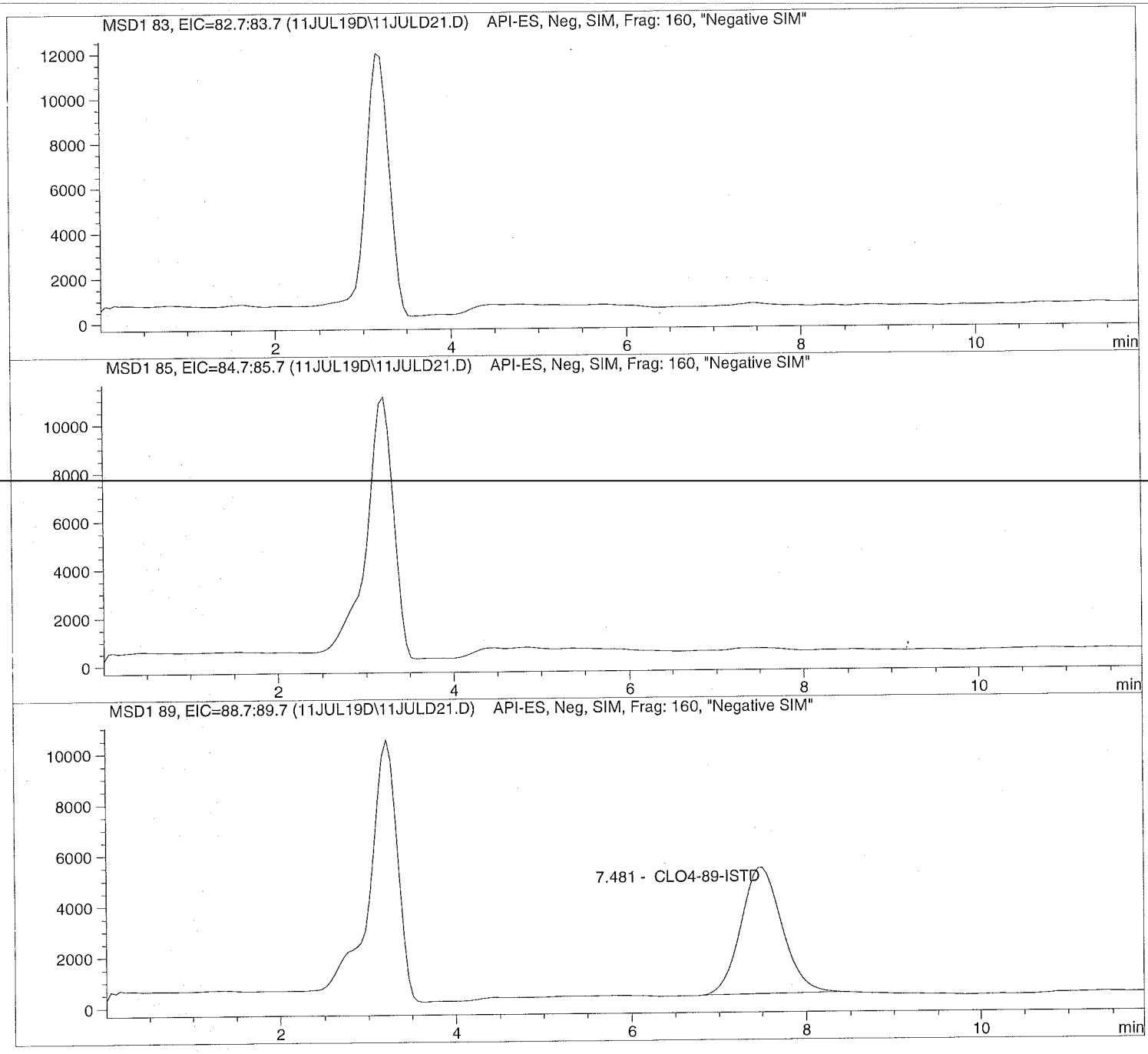
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD21.D Sample Name: 1918705006

Injection Date:	7/11/2019 15:49:37	Seq Line:	21
Sample Name:	1918705006	Location:	Vial 59
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD21.D Sample Name: 1918705006

Injection Date:	7/11/2019 15:49:37	Seq Line:	21
Sample Name:	1918705006	Location:	Vial 59
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.481	PBA	163865.3	5.0000	CLO4-89-ISTD

*** End of Report ***

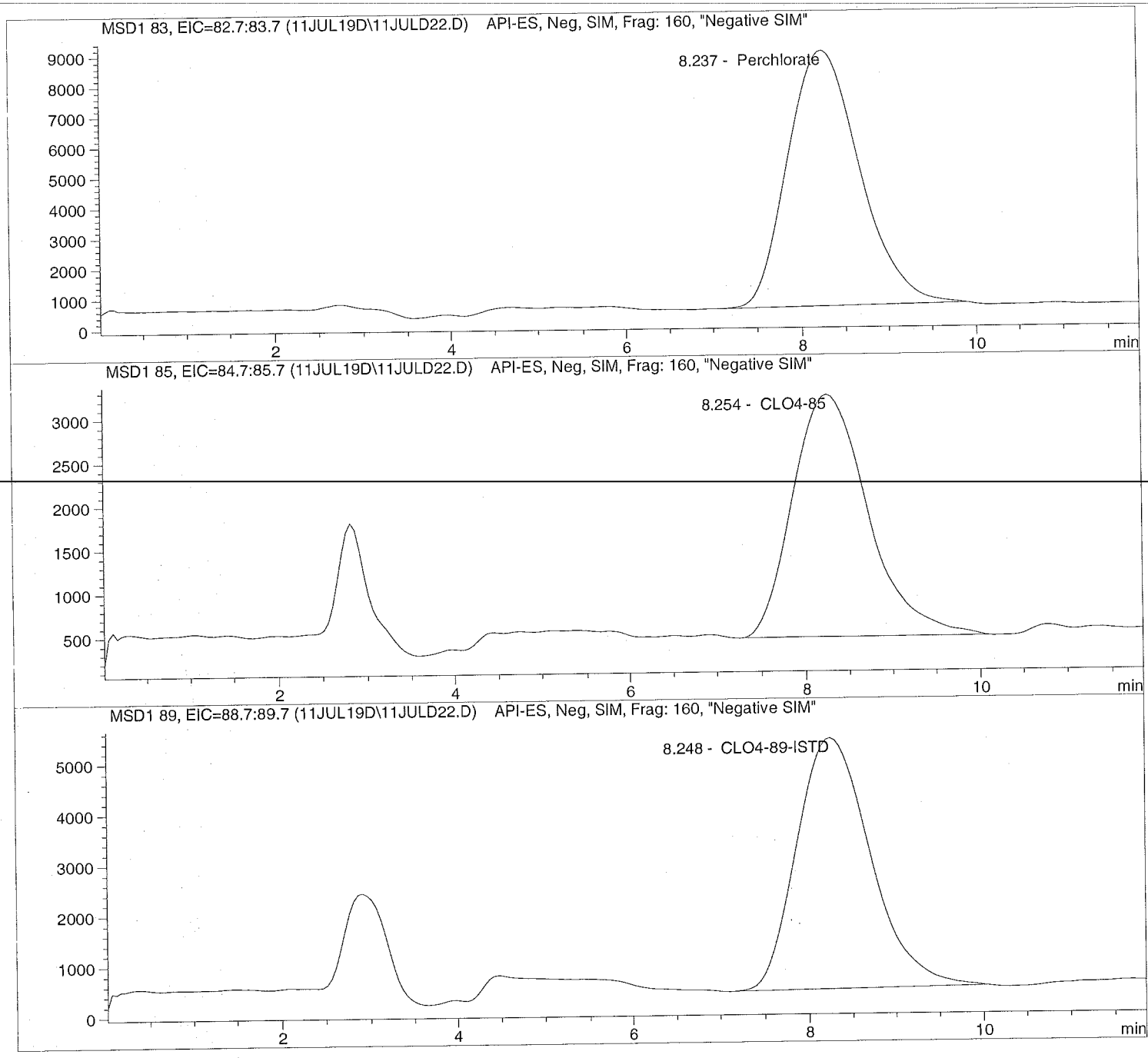
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD22.D Sample Name: 1918705007 10X

Injection Date:	7/11/2019 16:03:27	Seq Line:	22
Sample Name:	1918705007 10X	Location:	Vial 60
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD22.D Sample Name: 1918705007 10X

Injection Date:	7/11/2019 16:03:27	Seq Line:	22
Sample Name:	1918705007 10X	Location:	Vial 60
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.237	PBA	480293.1	53.7355	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.254	PBA	165862.6	60.8905	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.248	PBA	290575.8	50.0000	CLO4-89-ISTD

*** End of Report ***

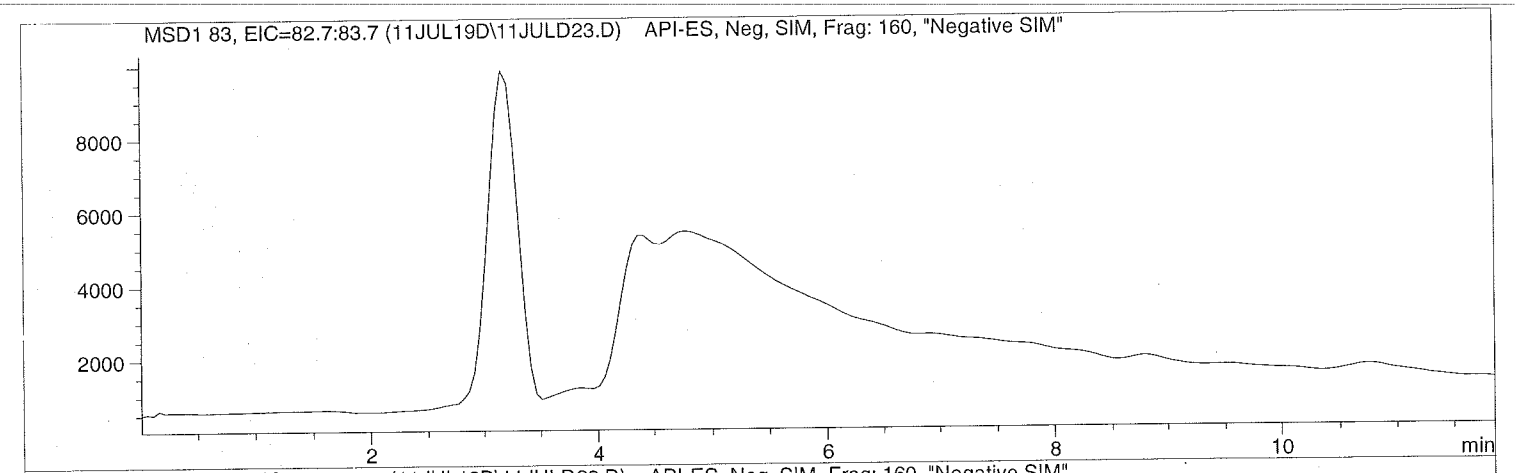
RIGHT SOLUTIONS | RIGHT PARTNER

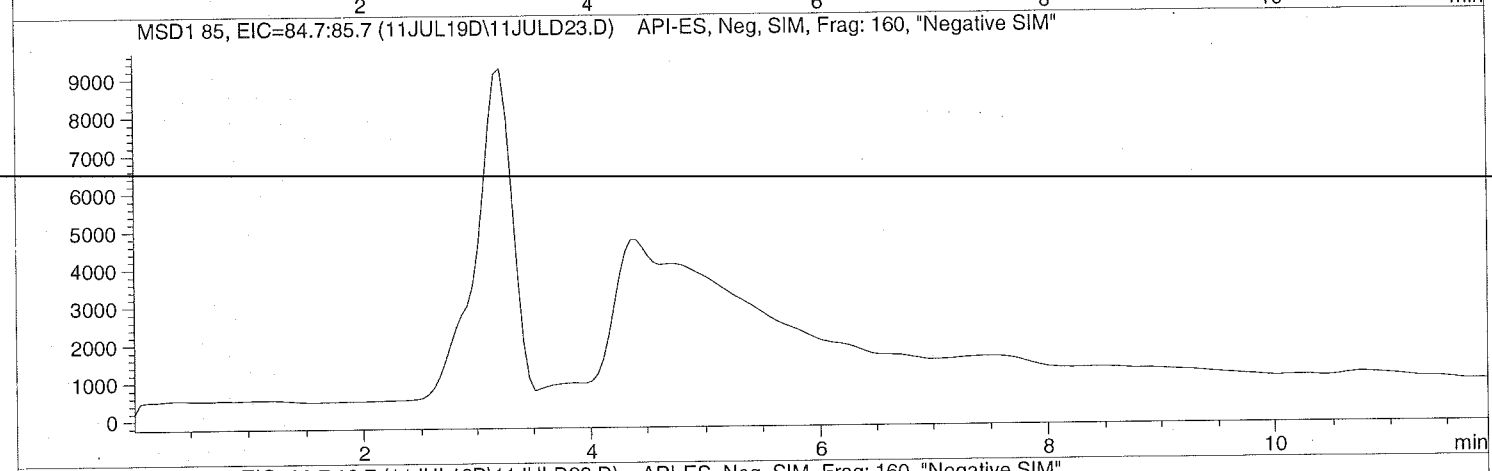
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD23.D Sample Name: 1918705008

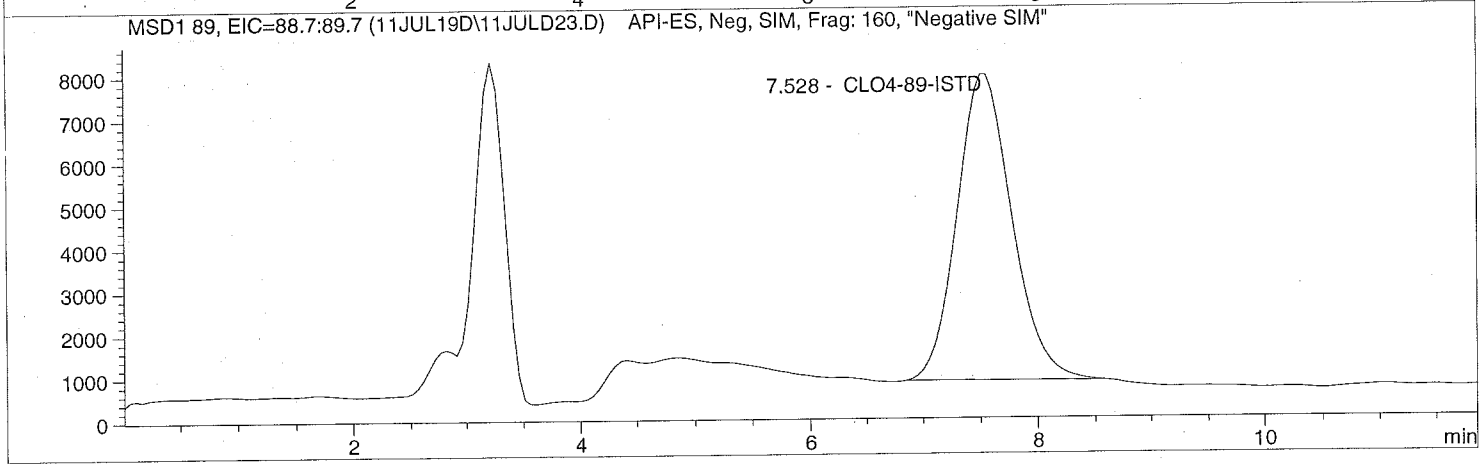
Injection Date:	7/11/2019 16:17:15	Seq Line:	23
Sample Name:	1918705008	Location:	Vial 61
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD23.D Sample Name: 1918705008

Injection Date:	7/11/2019 16:17:15	Seq Line:	23
Sample Name:	1918705008	Location:	Vial 61
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.528	PBA	237165.4	5.0000	CLO4-89-ISTD

*** End of Report ***

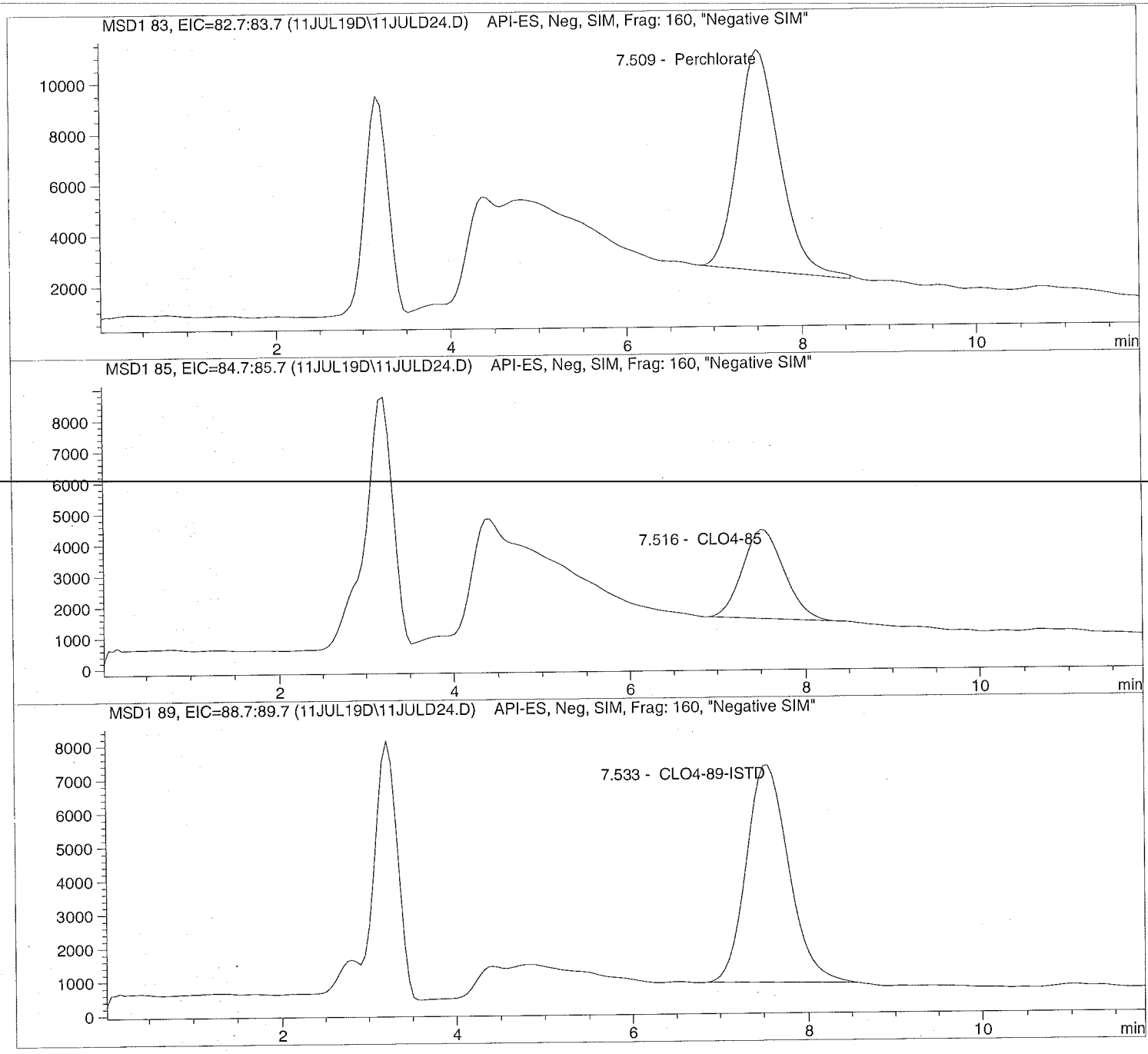
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD24.D Sample Name: 1918705009 MS

Injection Date:	7/11/2019 16:31:15	Seq Line:	24
Sample Name:	1918705009 MS	Location:	Vial 62
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD24.D Sample Name: 1918705009 MS

Injection Date:	7/11/2019 16:31:15	Seq Line:	24
Sample Name:	1918705009 MS	Location:	Vial 62
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.509	PBA	288361.0	4.3992	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.516	PBA	93975.4	4.6759	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.533	PBA	214999.5	5.0000	CLO4-89-ISTD

*** End of Report ***

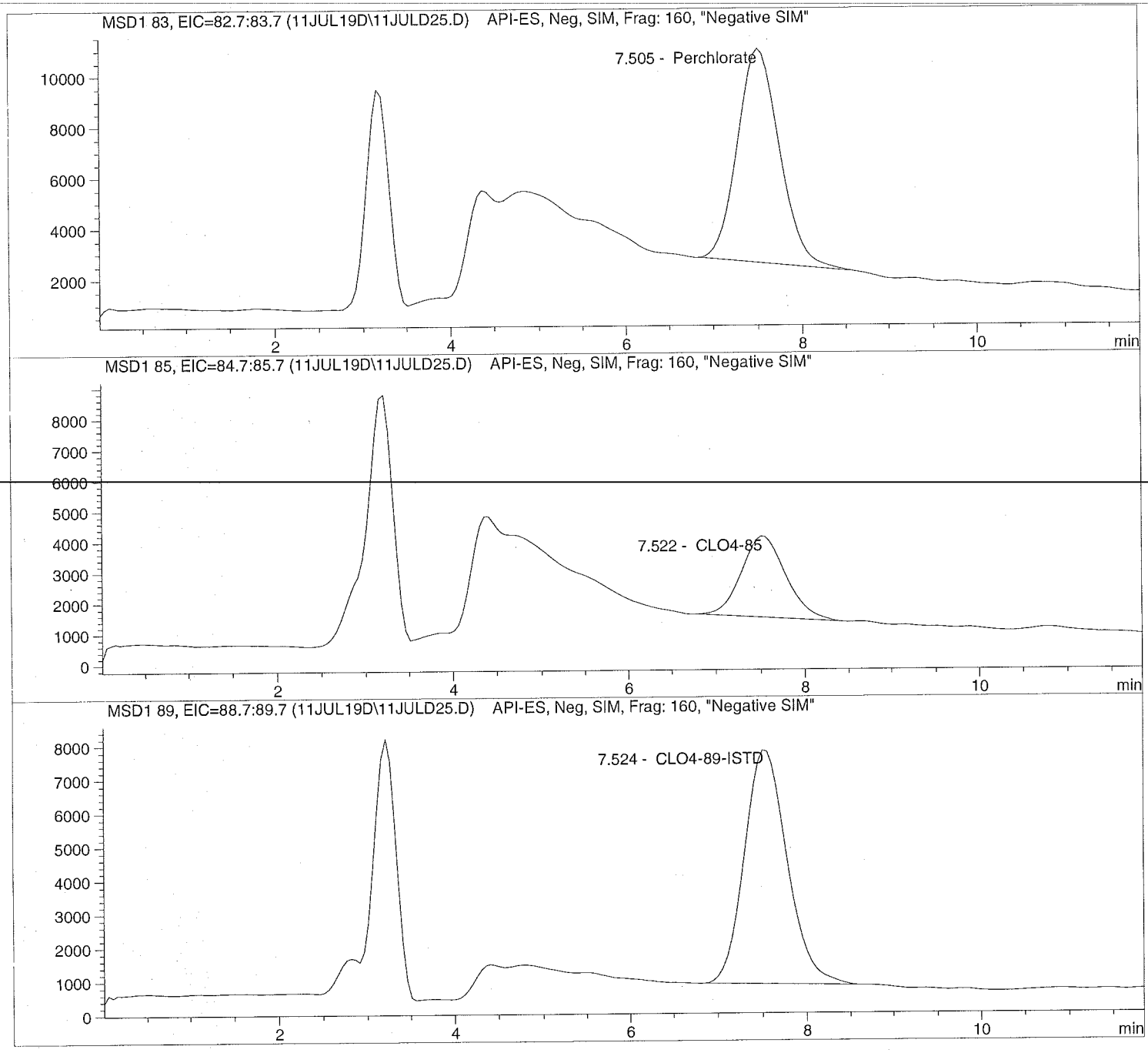
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD25.D Sample Name: 1918705010 MSD

Injection Date:	7/11/2019 16:45:02	Seq Line:	25
Sample Name:	1918705010 MSD	Location:	Vial 63
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD25.D Sample Name: 1918705010 MSD

Injection Date:	7/11/2019 16:45:02	Seq Line:	25
Sample Name:	1918705010 MSD	Location:	Vial 63
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.505	PBA	277079.4	3.9208	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.522	PBA	91663.1	4.2105	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.524	PBA	233099.0	5.0000	CLO4-89-ISTD

*** End of Report ***

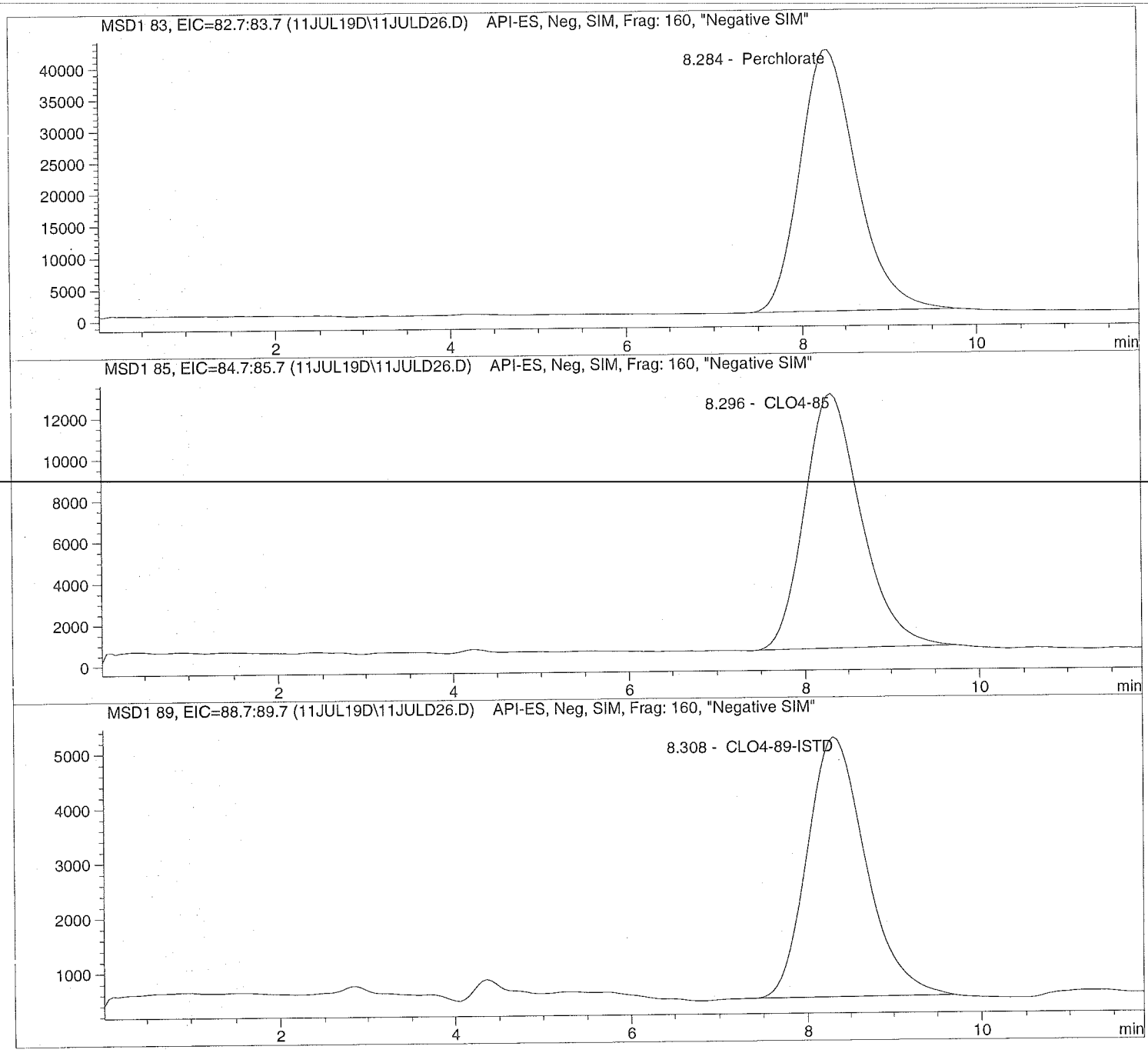
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD26.D Sample Name: 663036 CCV@25

Injection Date:	7/11/2019 16:58:48	Seq Line:	26
Sample Name:	663036 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD26.D Sample Name: 663036 CCV@25

Injection Date:	7/11/2019 16:58:48	Seq Line:	26
Sample Name:	663036 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.284	PBA	1877862.1	25.5677	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.296	PBA	559339.1	25.6558	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.308	BBA	223151.0	5.0000	CLO4-89-ISTD

*** End of Report ***

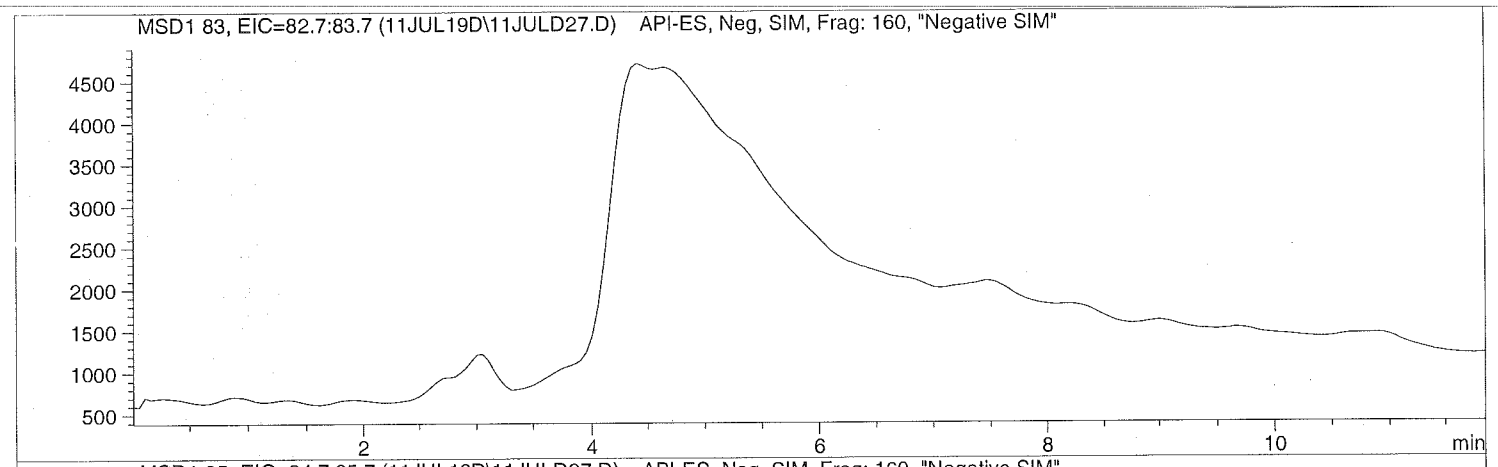
RIGHT SOLUTIONS | RIGHT PARTNER

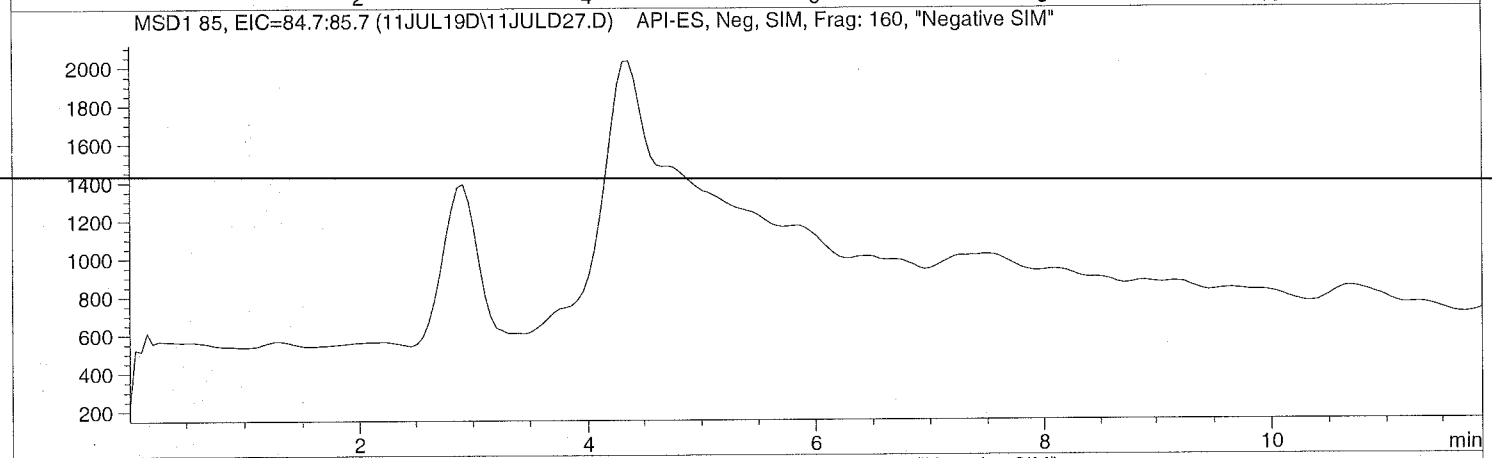
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD27.D Sample Name: 1918871001

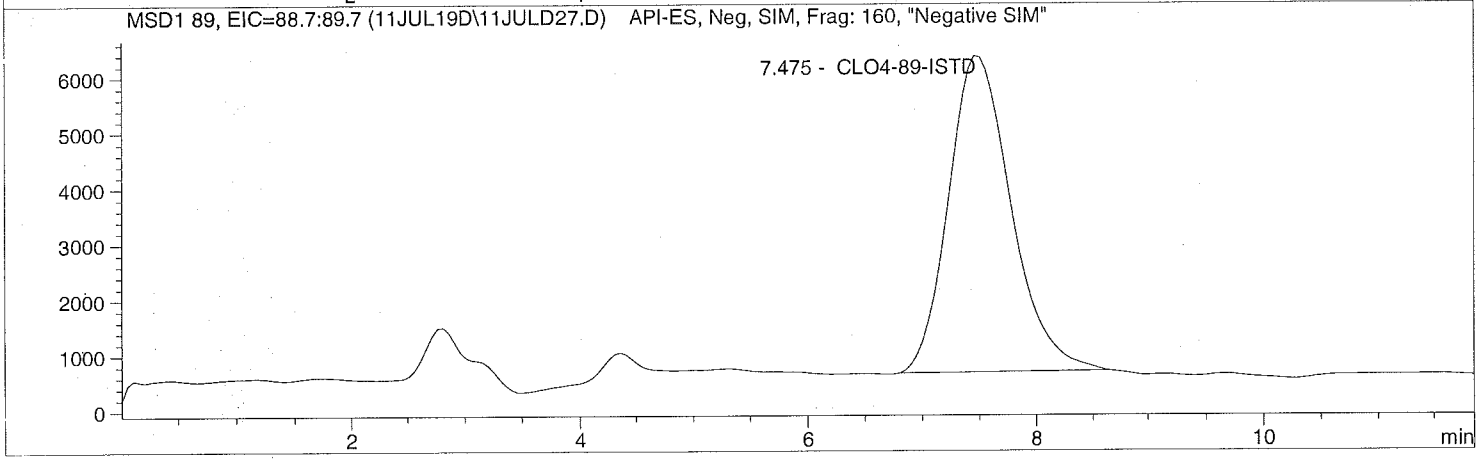
Injection Date:	7/11/2019 17:12:38	Seq Line:	27
Sample Name:	1918871001	Location:	Vial 64
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD27.D Sample Name: 1918871001

Injection Date:	7/11/2019 17:12:38	Seq Line:	27
Sample Name:	1918871001	Location:	Vial 64
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.475	PBA	217461.8	5.0000	CLO4-89-ISTD

*** End of Report ***

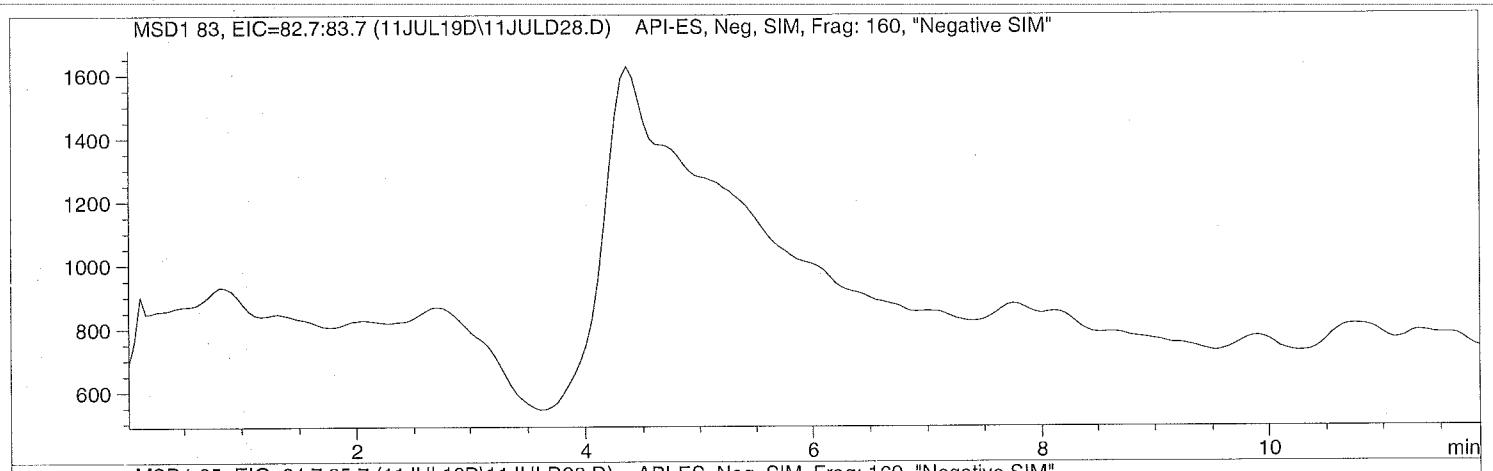
RIGHT SOLUTIONS | RIGHT PARTNER

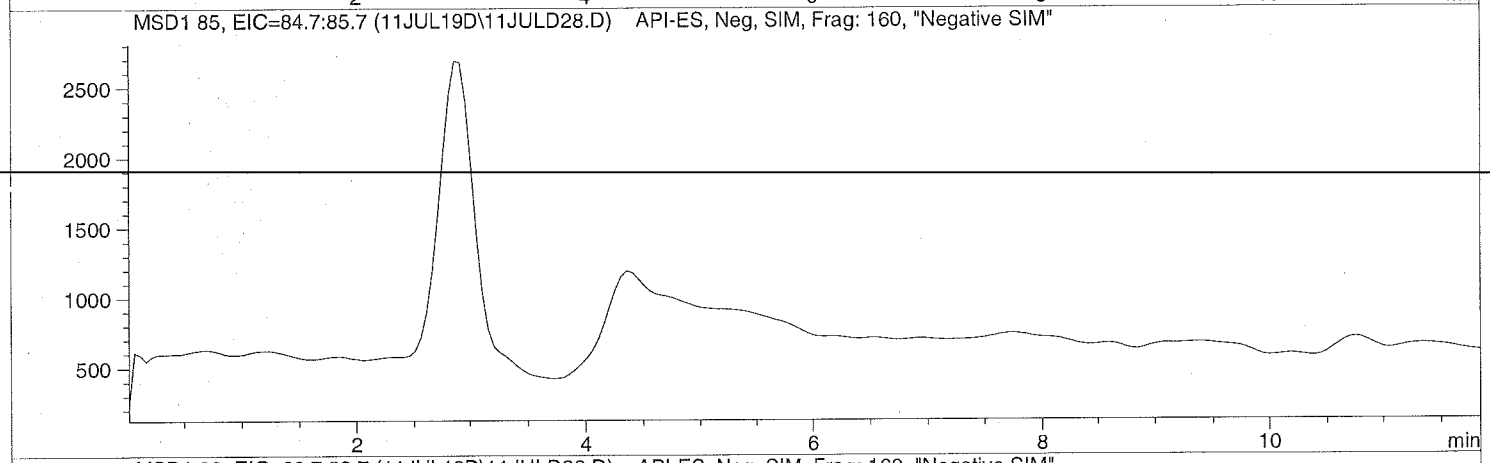
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD28.D Sample Name: 1918871002

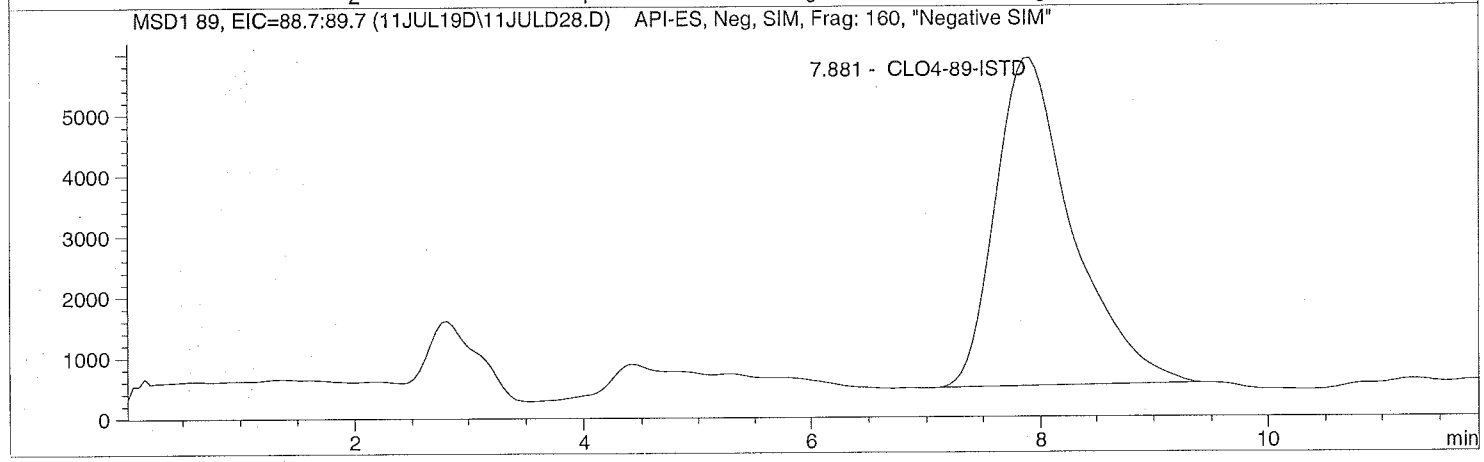
Injection Date:	7/11/2019 17:26:27	Seq Line:	28
Sample Name:	1918871002	Location:	Vial 65
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD28.D Sample Name: 1918871002

Injection Date:	7/11/2019 17:26:27	Seq Line:	28
Sample Name:	1918871002	Location:	Vial 65
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.881	PBA	252228.0	5.0000	CLO4-89-ISTD

*** End of Report ***

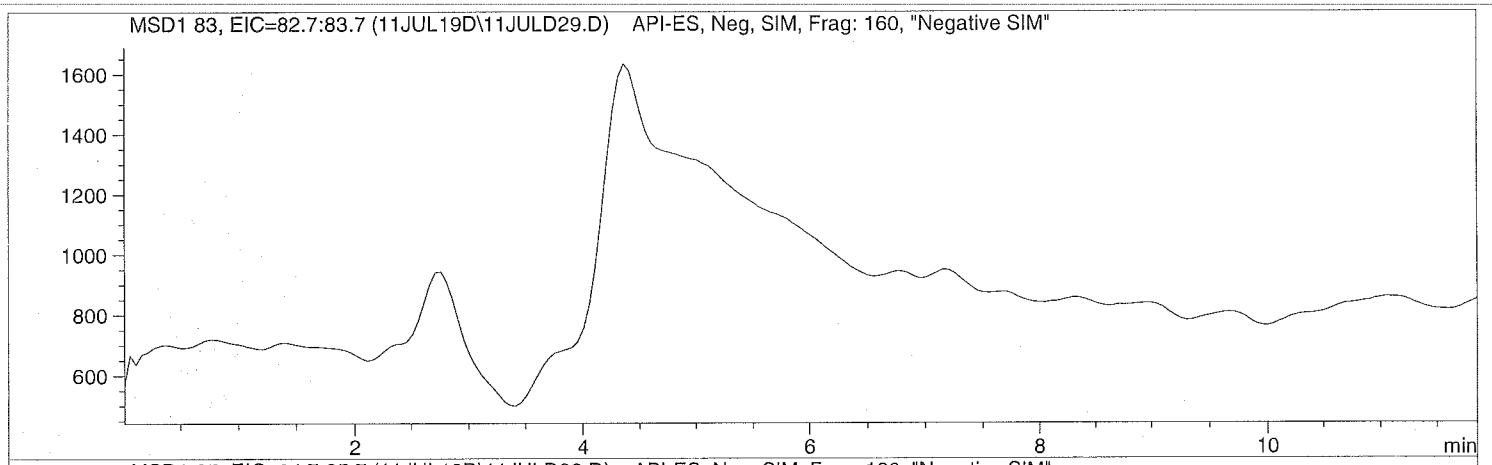
RIGHT SOLUTIONS | RIGHT PARTNER

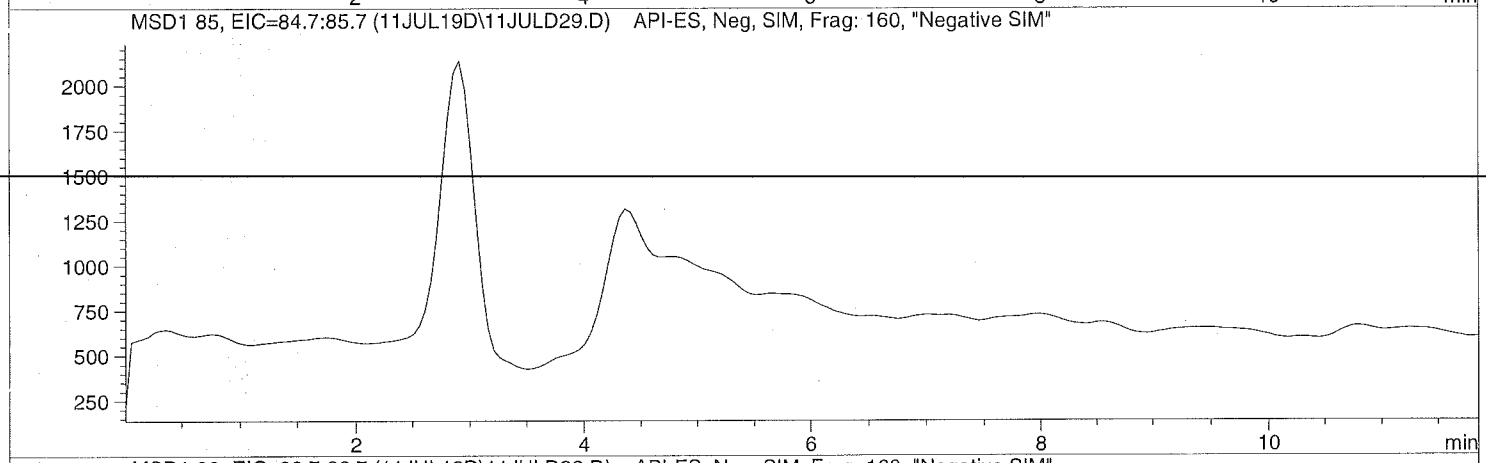
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD29.D Sample Name: 1918871003

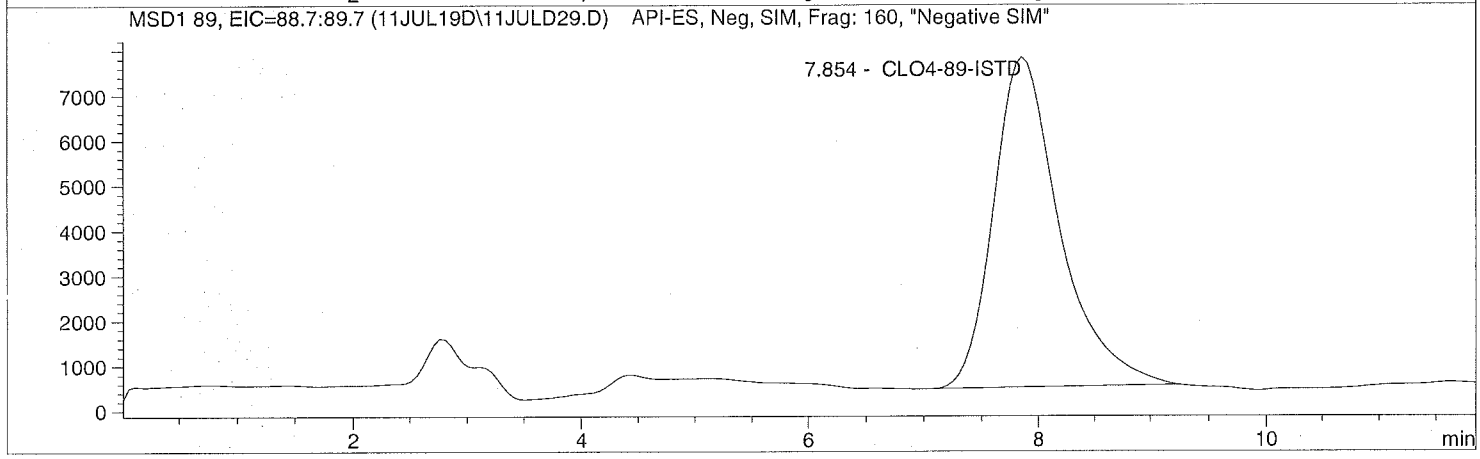
Injection Date:	7/11/2019 17:40:12	Seq Line:	29
Sample Name:	1918871003	Location:	Vial 66
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD29.D Sample Name: 1918871003

Injection Date:	7/11/2019 17:40:12	Seq Line:	29
Sample Name:	1918871003	Location:	Vial 66
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.854	PBA	297108.1	5.0000	CLO4-89-ISTD

*** End of Report ***

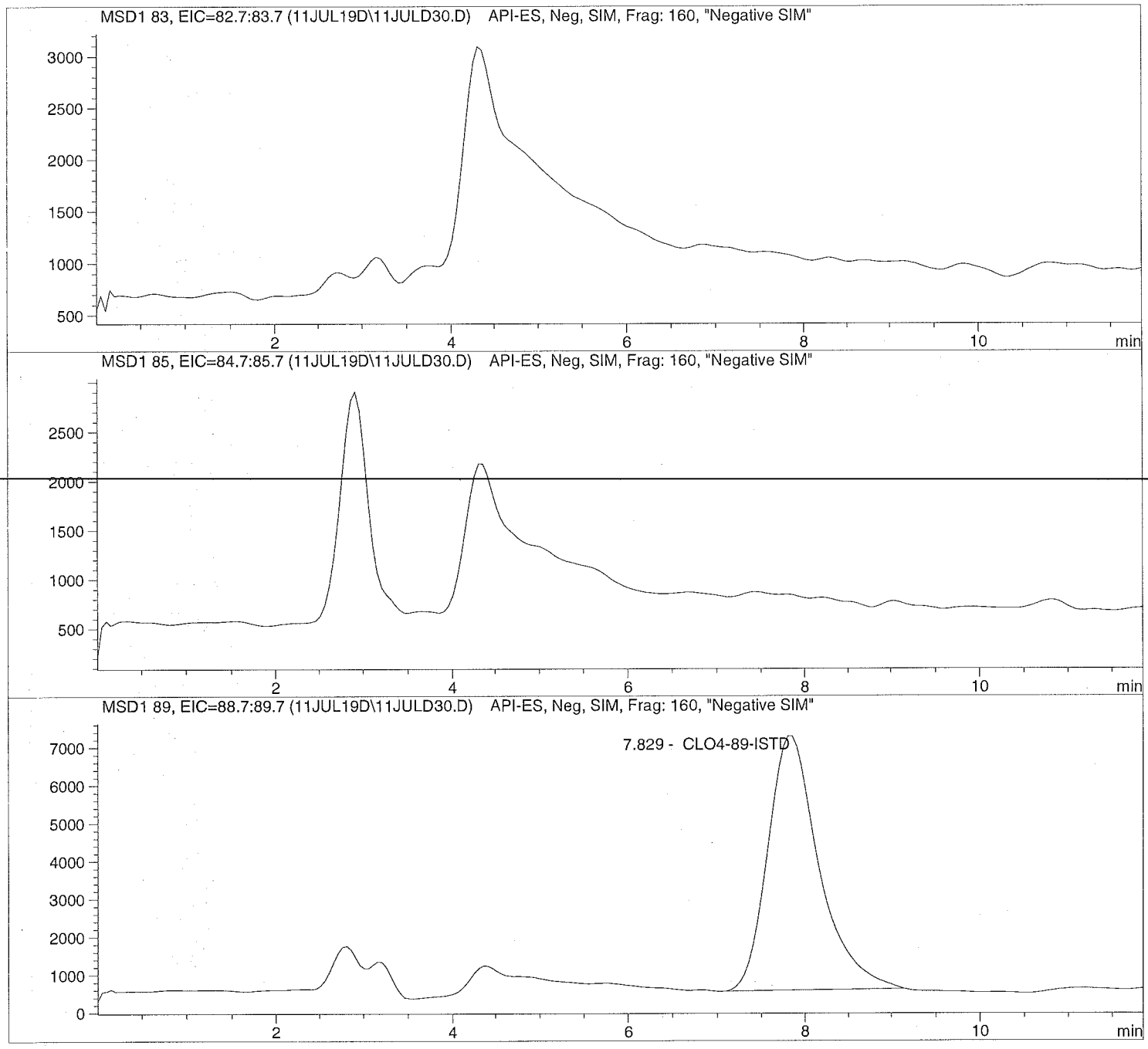
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD30.D Sample Name: 1918871004

Injection Date:	7/11/2019 17:54:08	Seq Line:	30
Sample Name:	1918871004	Location:	Vial 67
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD30.D Sample Name: 1918871004

Injection Date:	7/11/2019 17:54:08	Seq Line:	30
Sample Name:	1918871004	Location:	Vial 67
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.829	PBA	273038.9	5.0000	CLO4-89-ISTD

*** End of Report ***

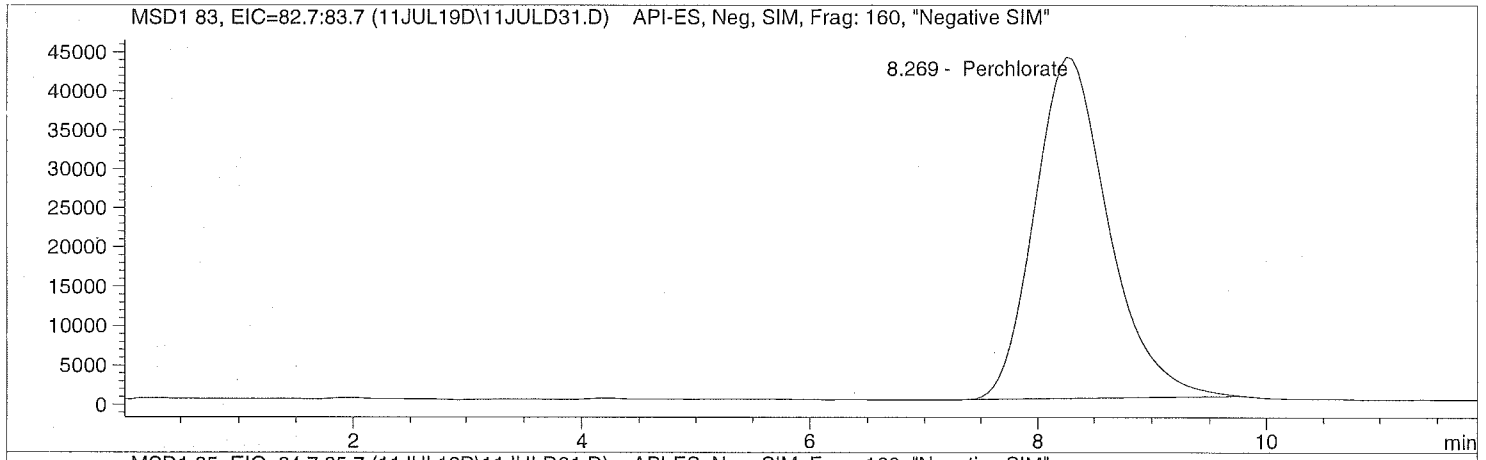
RIGHT SOLUTIONS | RIGHT PARTNER

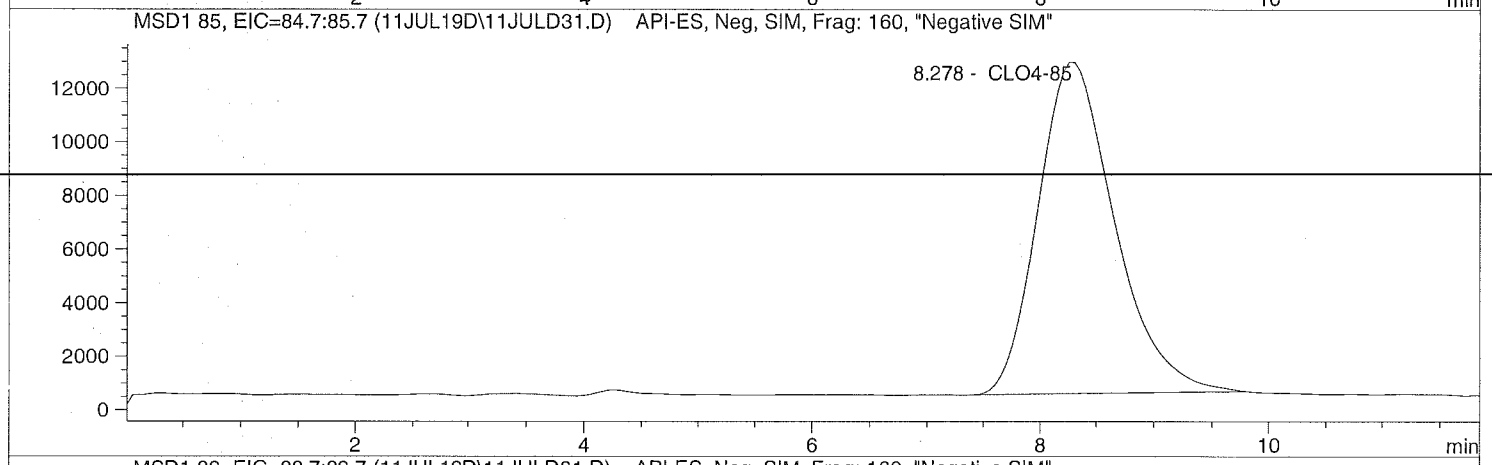
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD31.D Sample Name: 663037 CCV@25

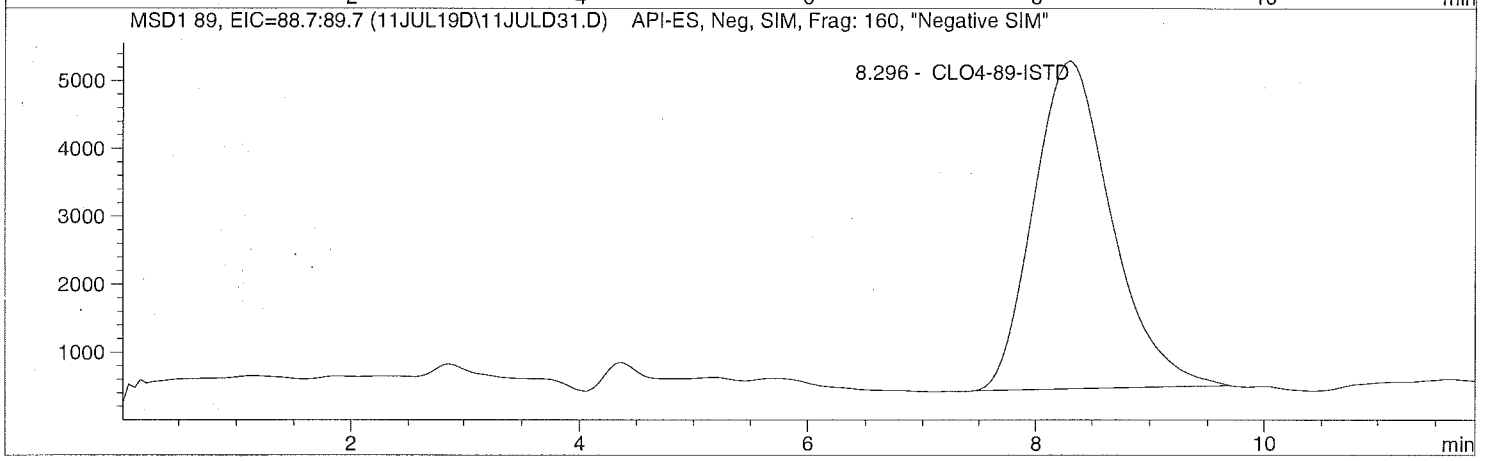
Injection Date:	7/11/2019 18:07:55	Seq Line:	31
Sample Name:	663037 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD31.D Sample Name: 663037 CCV@25

Injection Date:	7/11/2019 18:07:55	Seq Line:	31
Sample Name:	663037 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.269	PBA	1970476.5	25.8725	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.278	PBA	583651.3	25.8263	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.296	PBA	231230.8	5.0000	CLO4-89-ISTD

*** End of Report ***

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

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Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

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Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

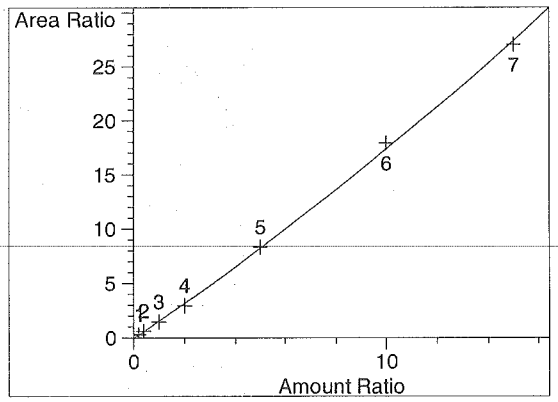
Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

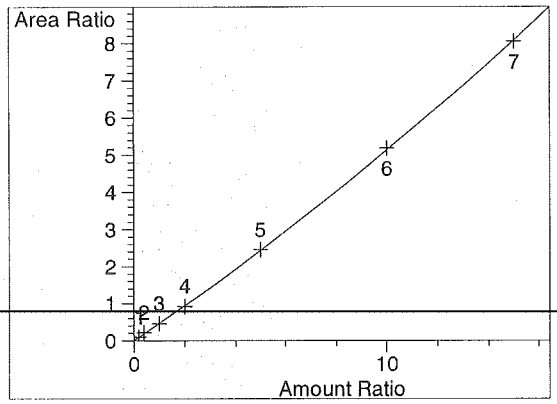
No Entries in table

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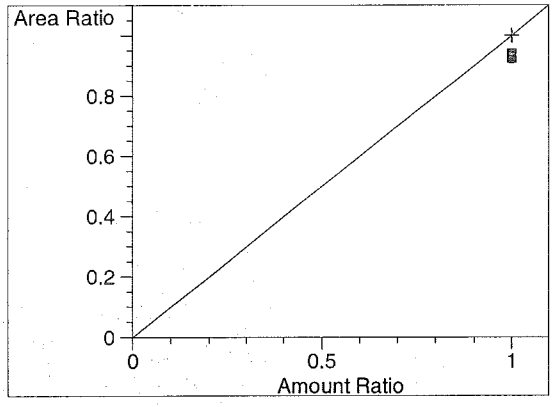
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

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Batch Report: C:\HPCHEM\1\DATA\19MAR19I\19MAR19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

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Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

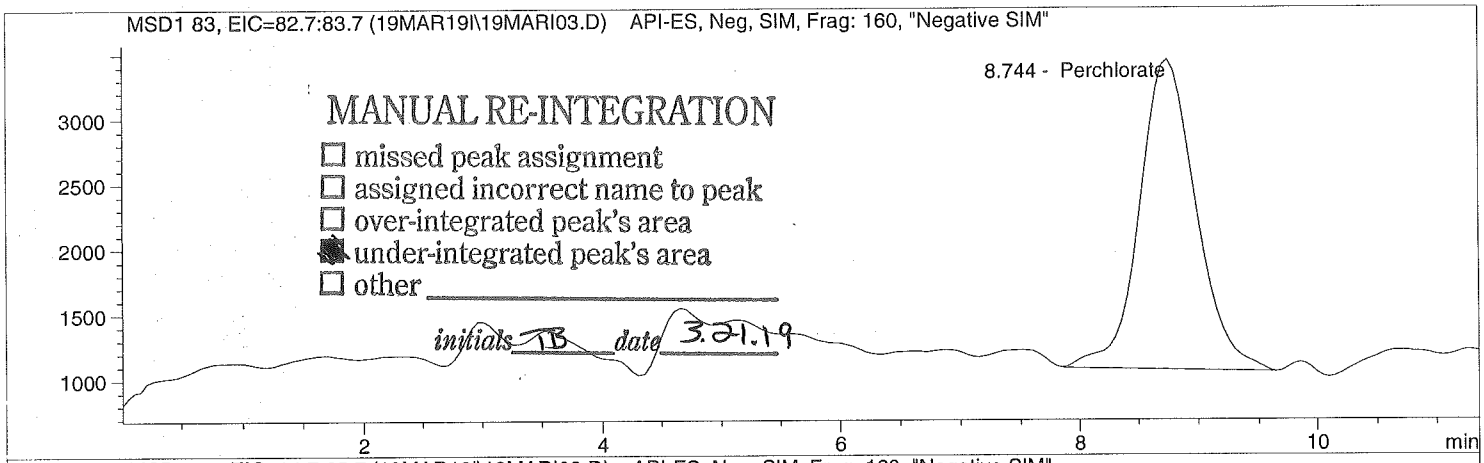
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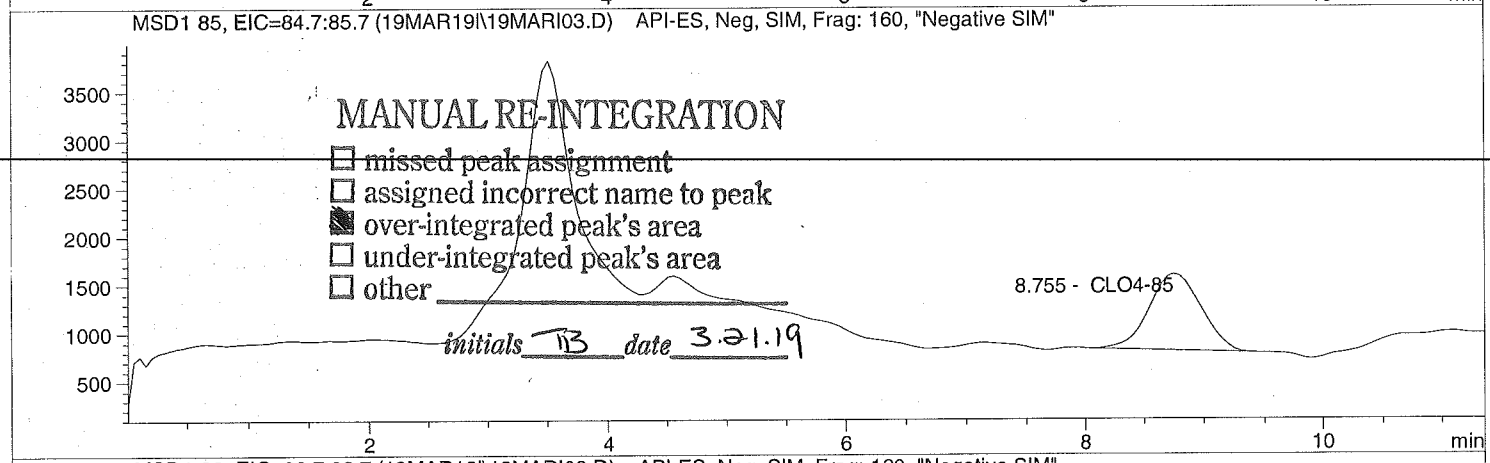
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

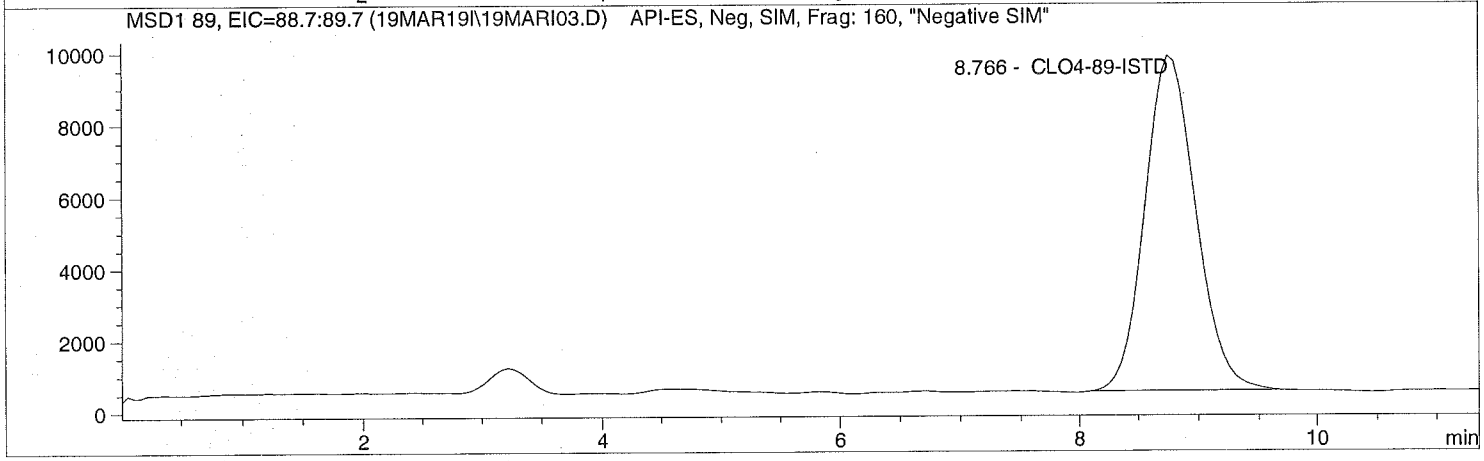
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

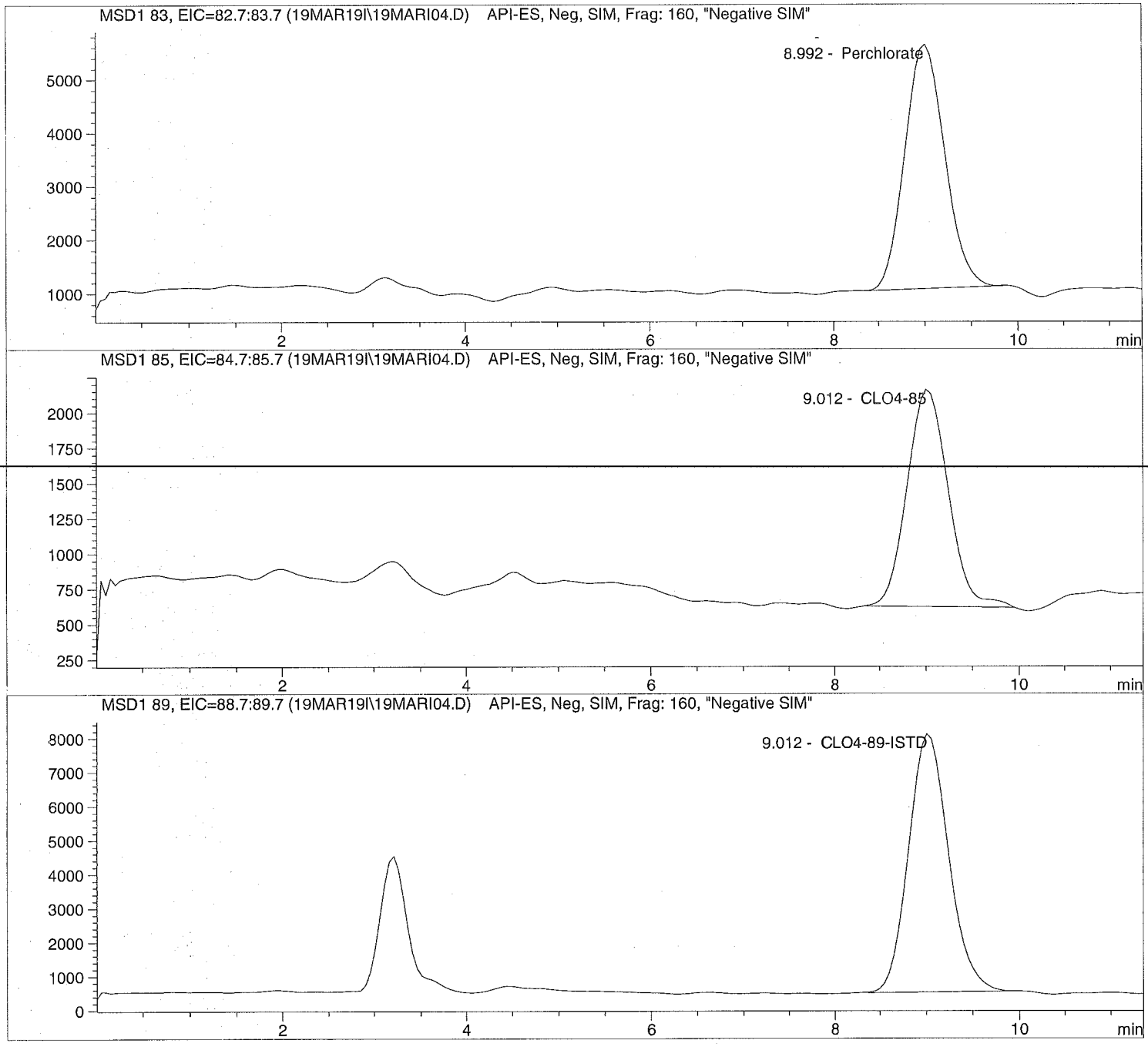
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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

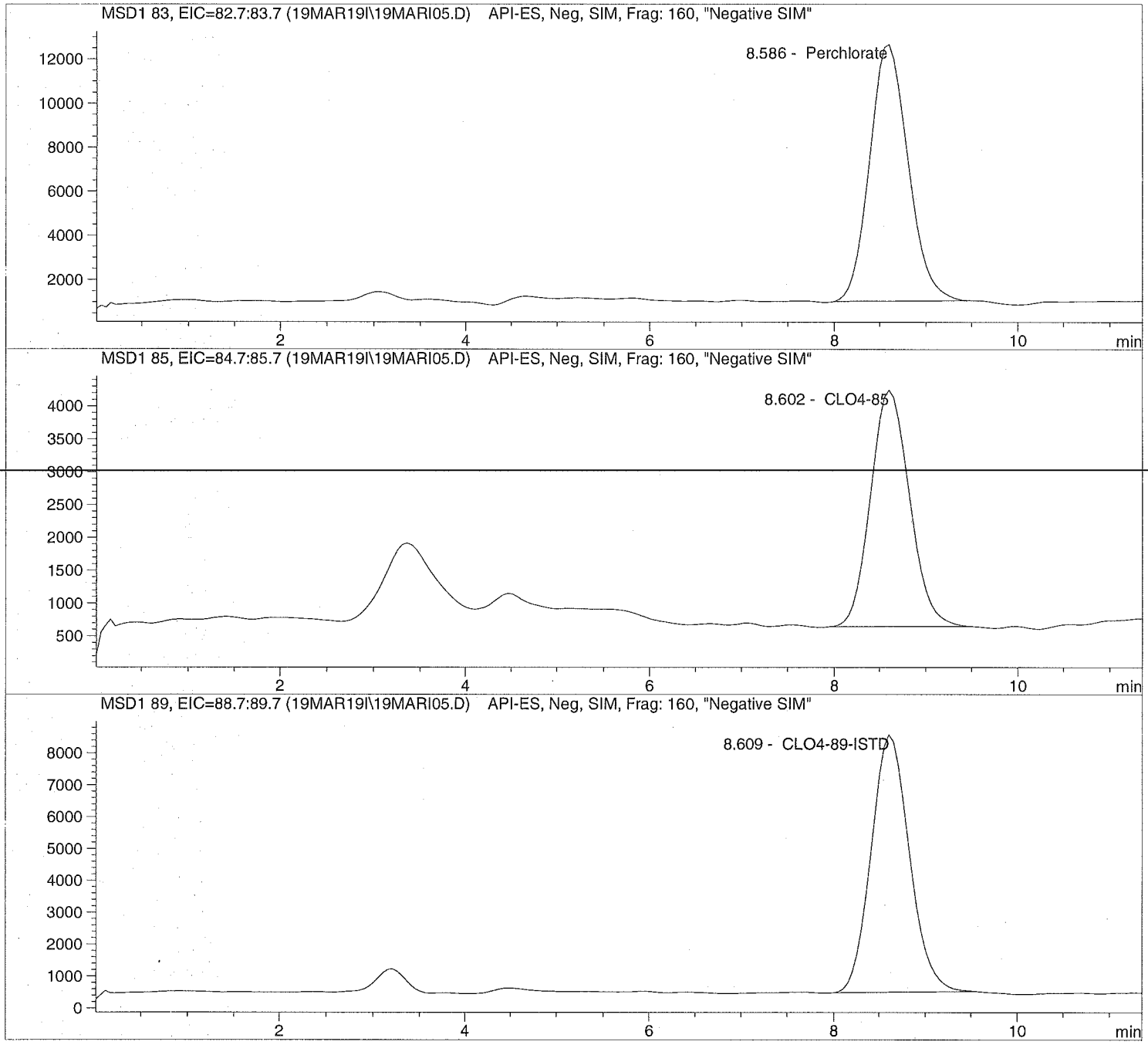
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

*** End of Report ***

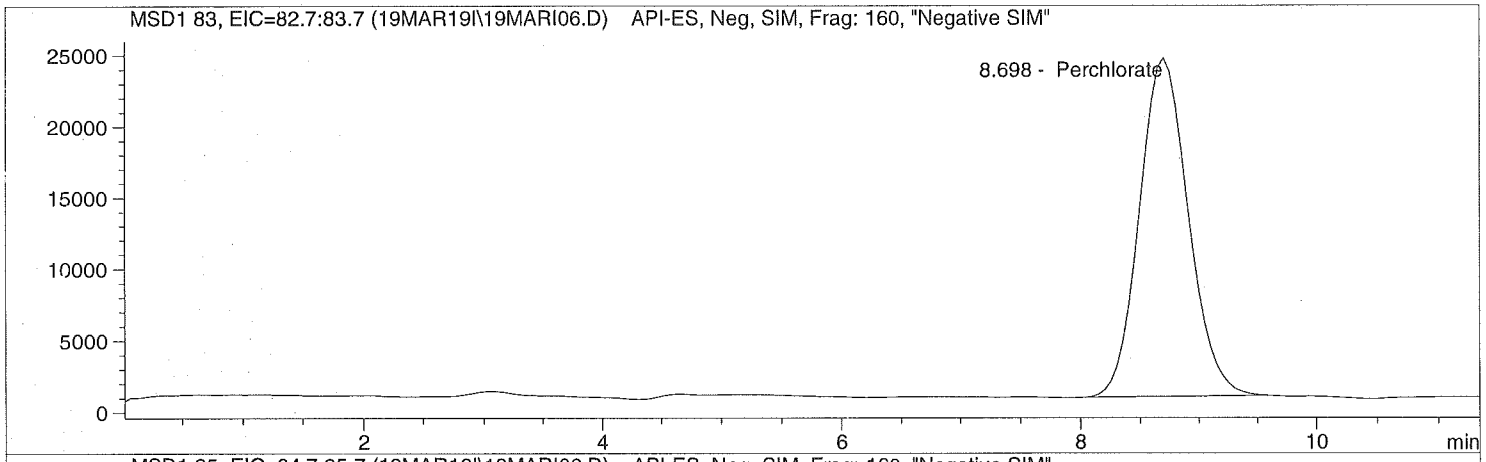
RIGHT SOLUTIONS | RIGHT PARTNER

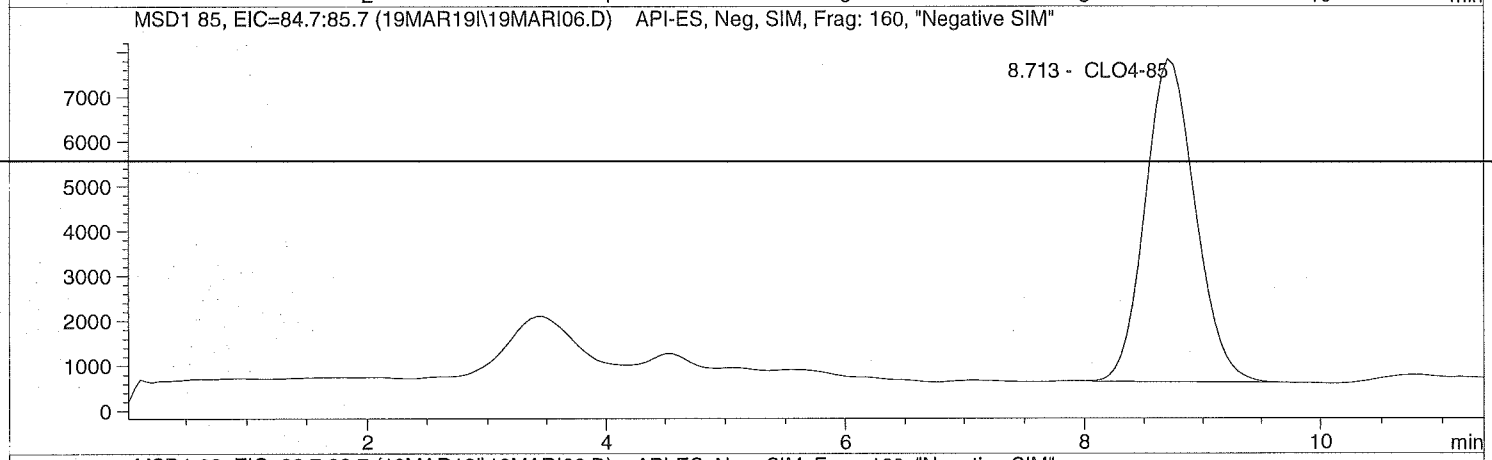
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

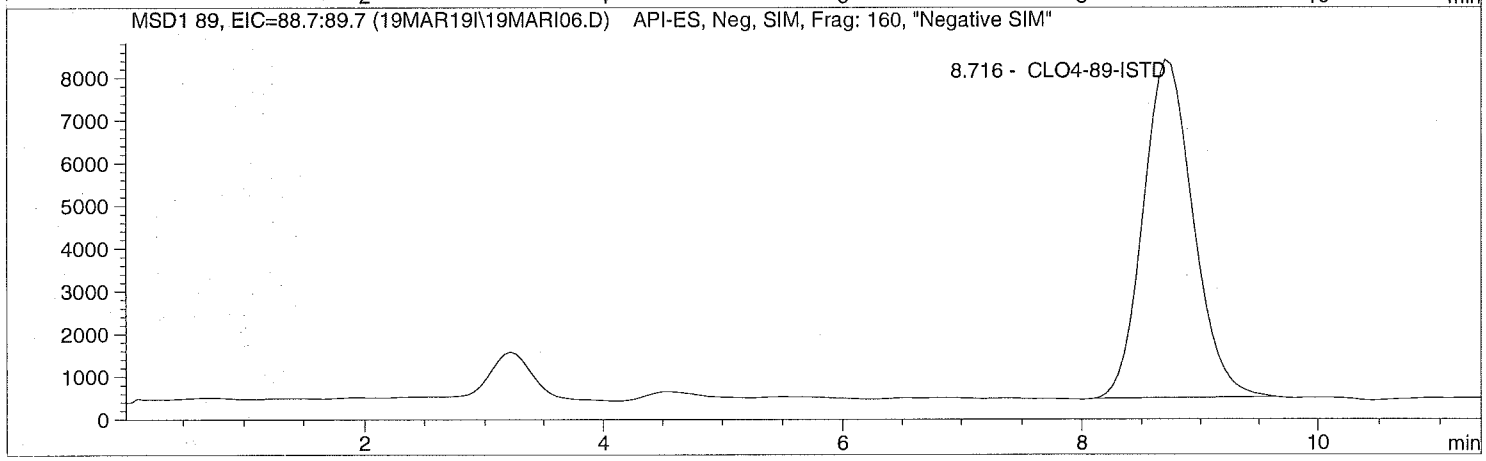
Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

*** End of Report ***

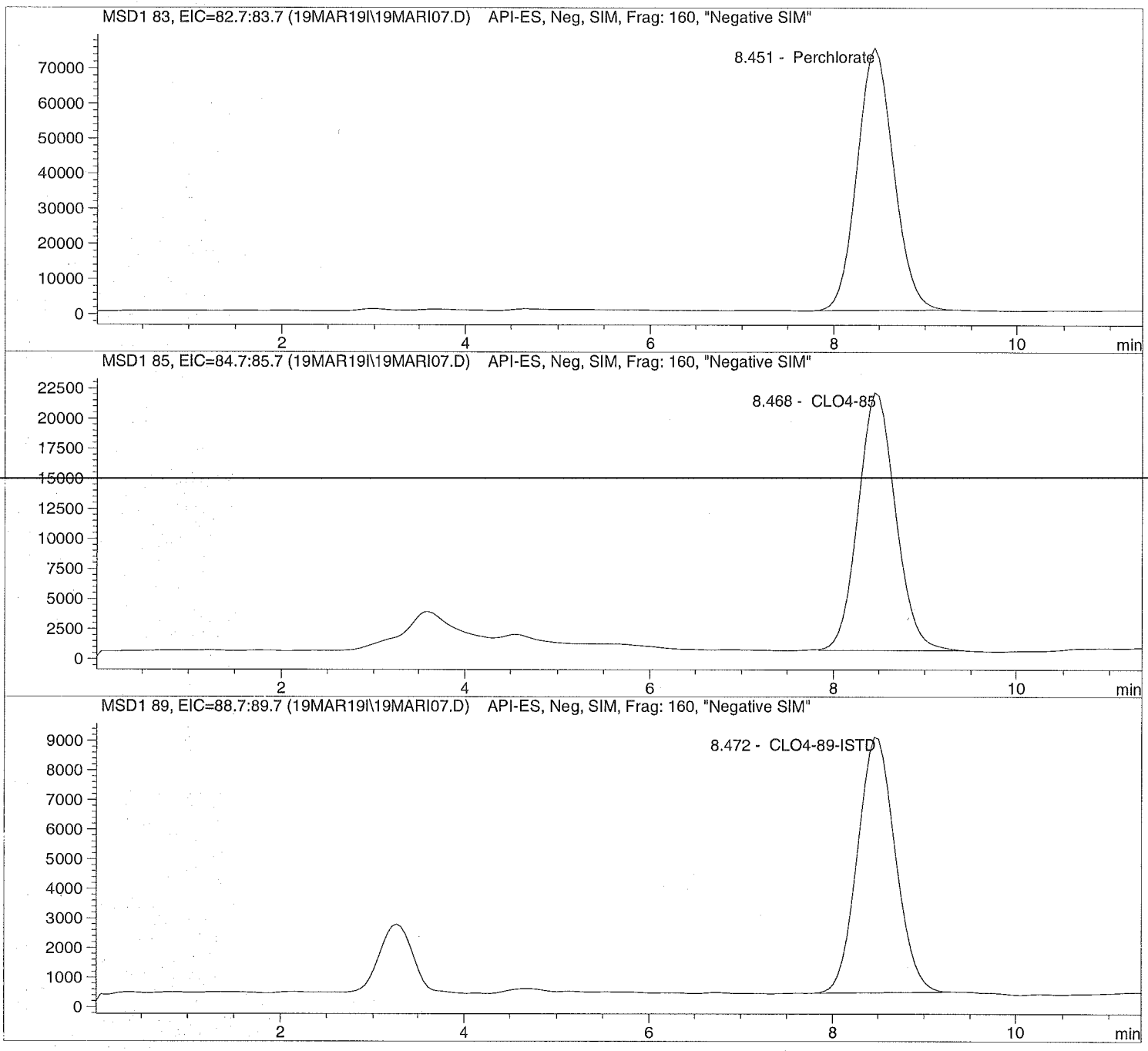
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

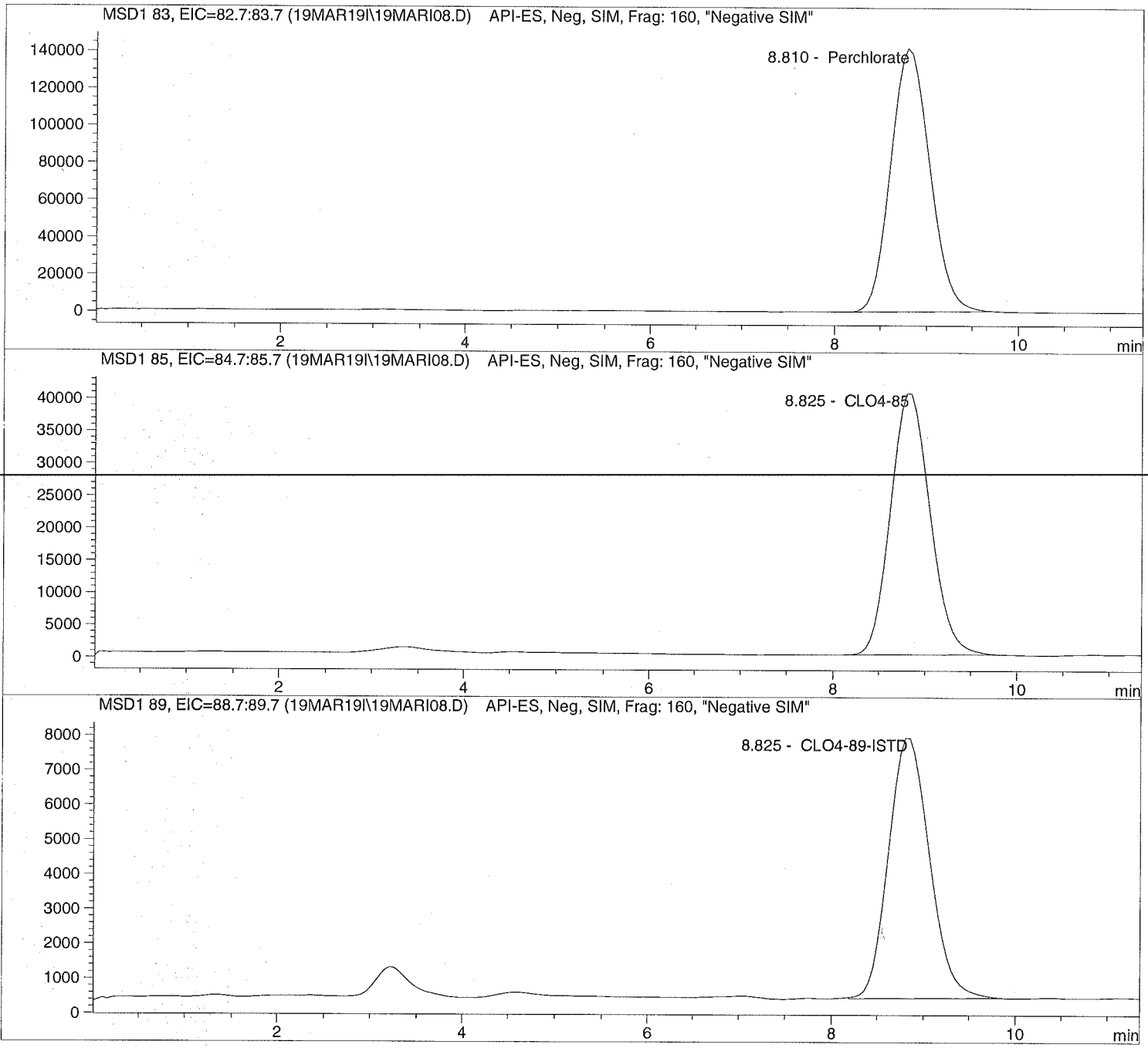
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

*** End of Report ***

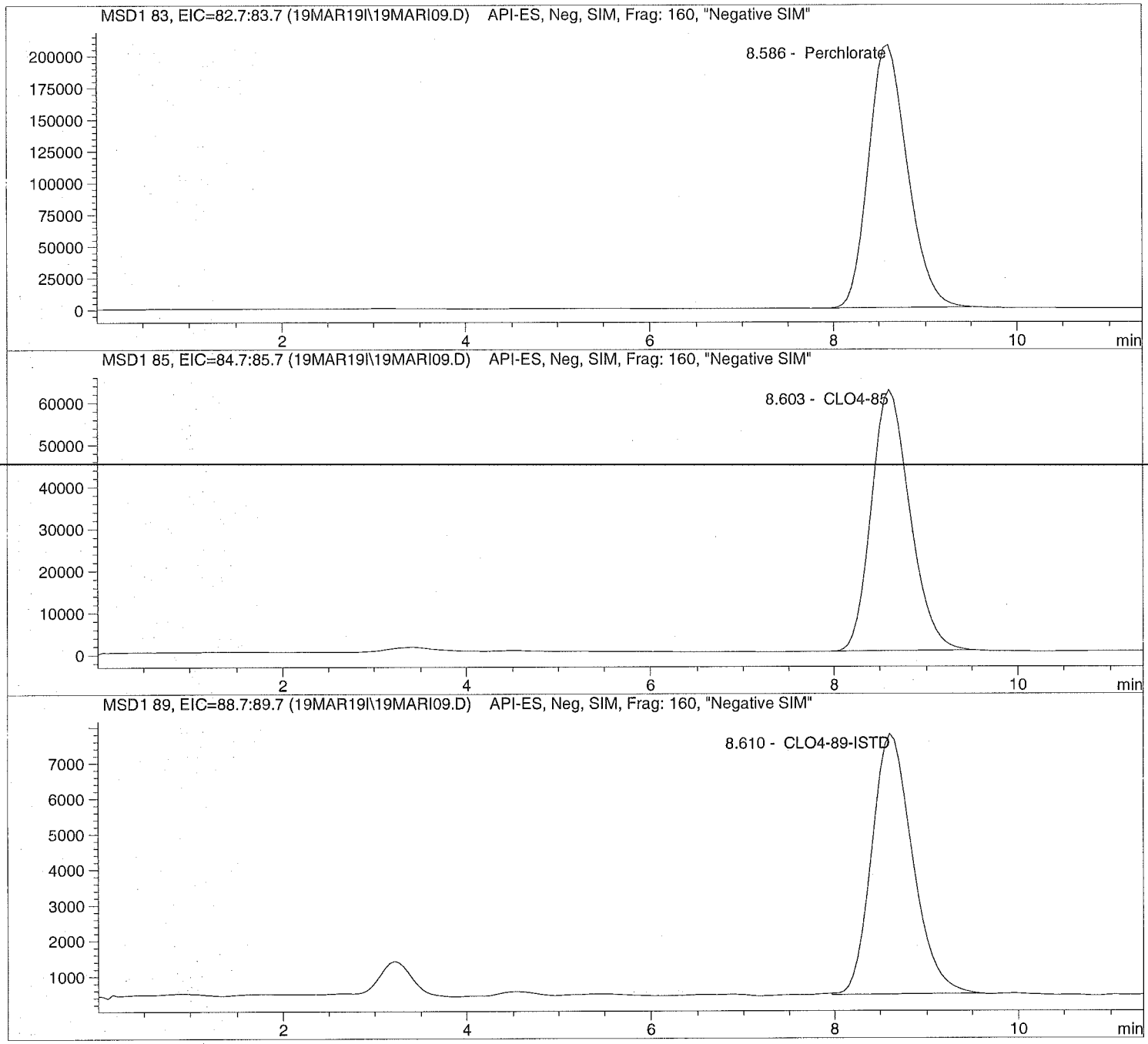
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

*** End of Report ***

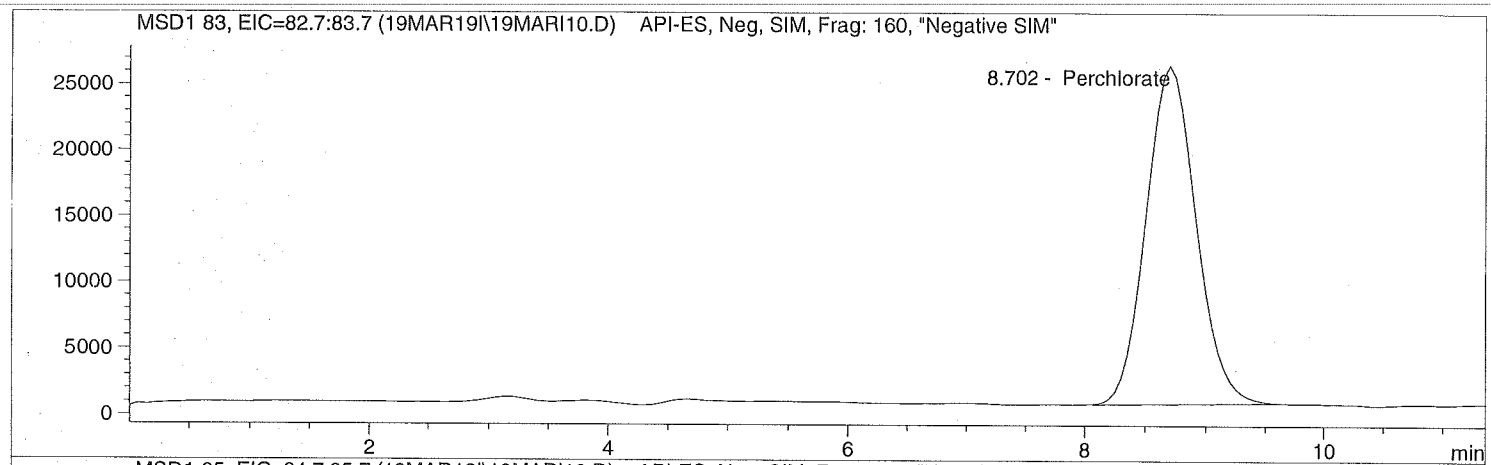
RIGHT SOLUTIONS | RIGHT PARTNER

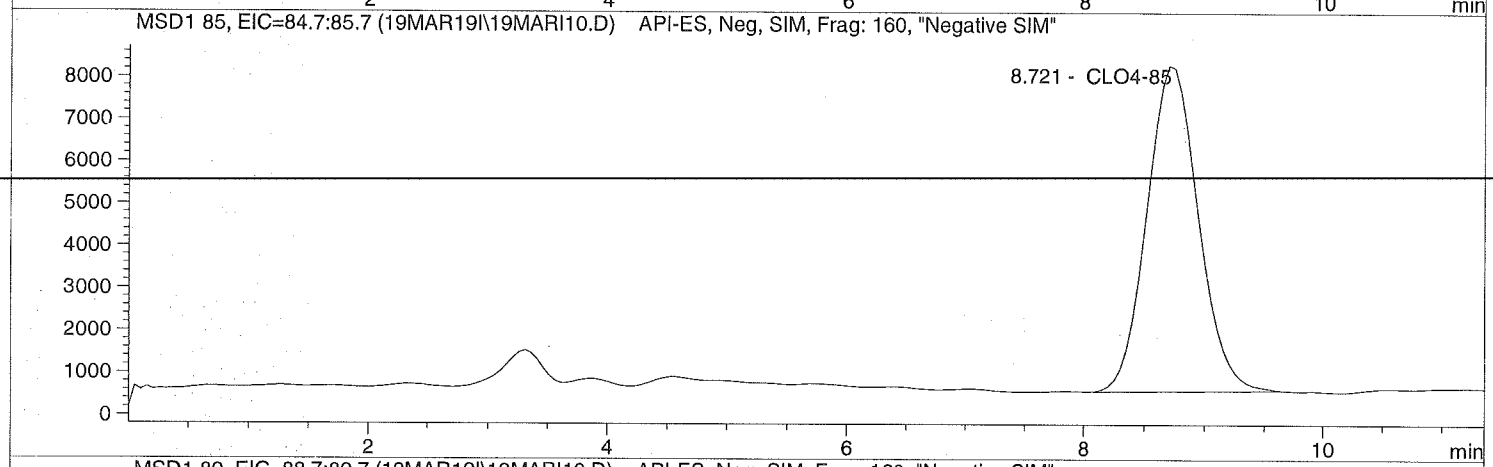
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

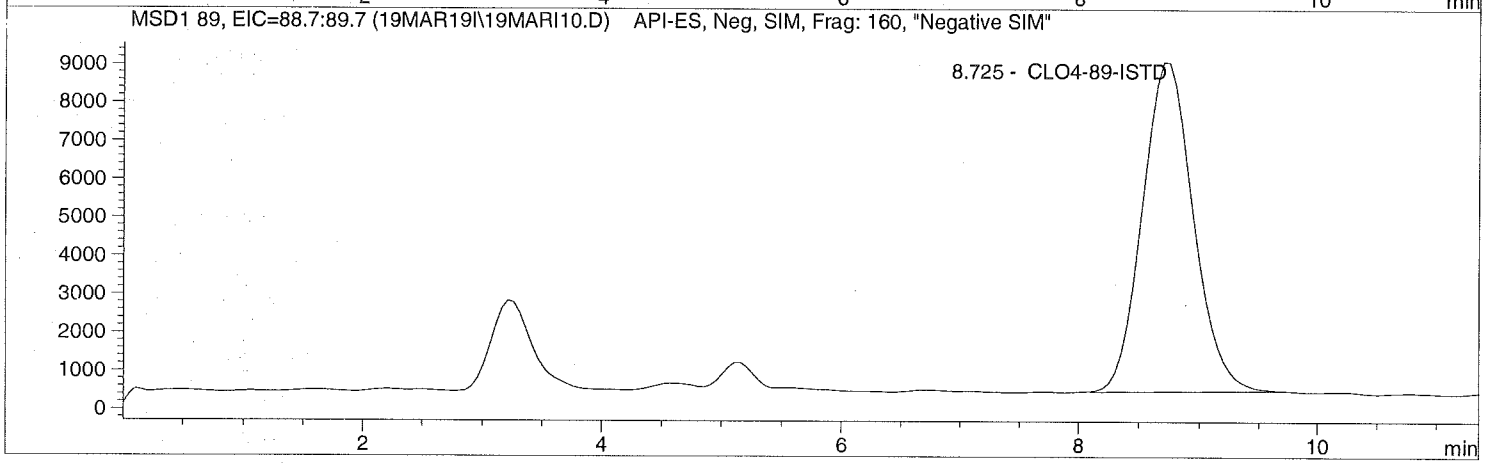
Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Unmodified

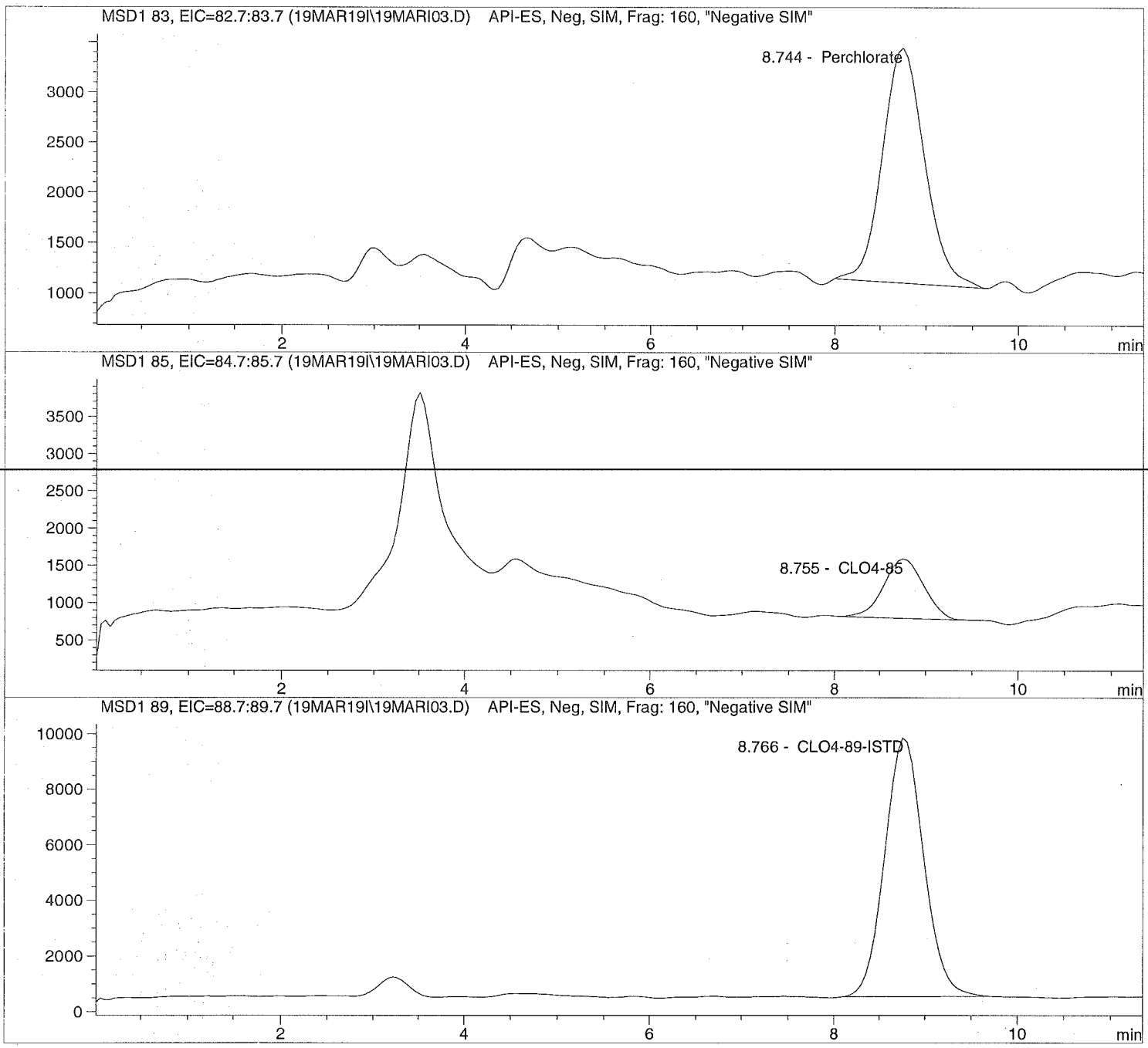
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

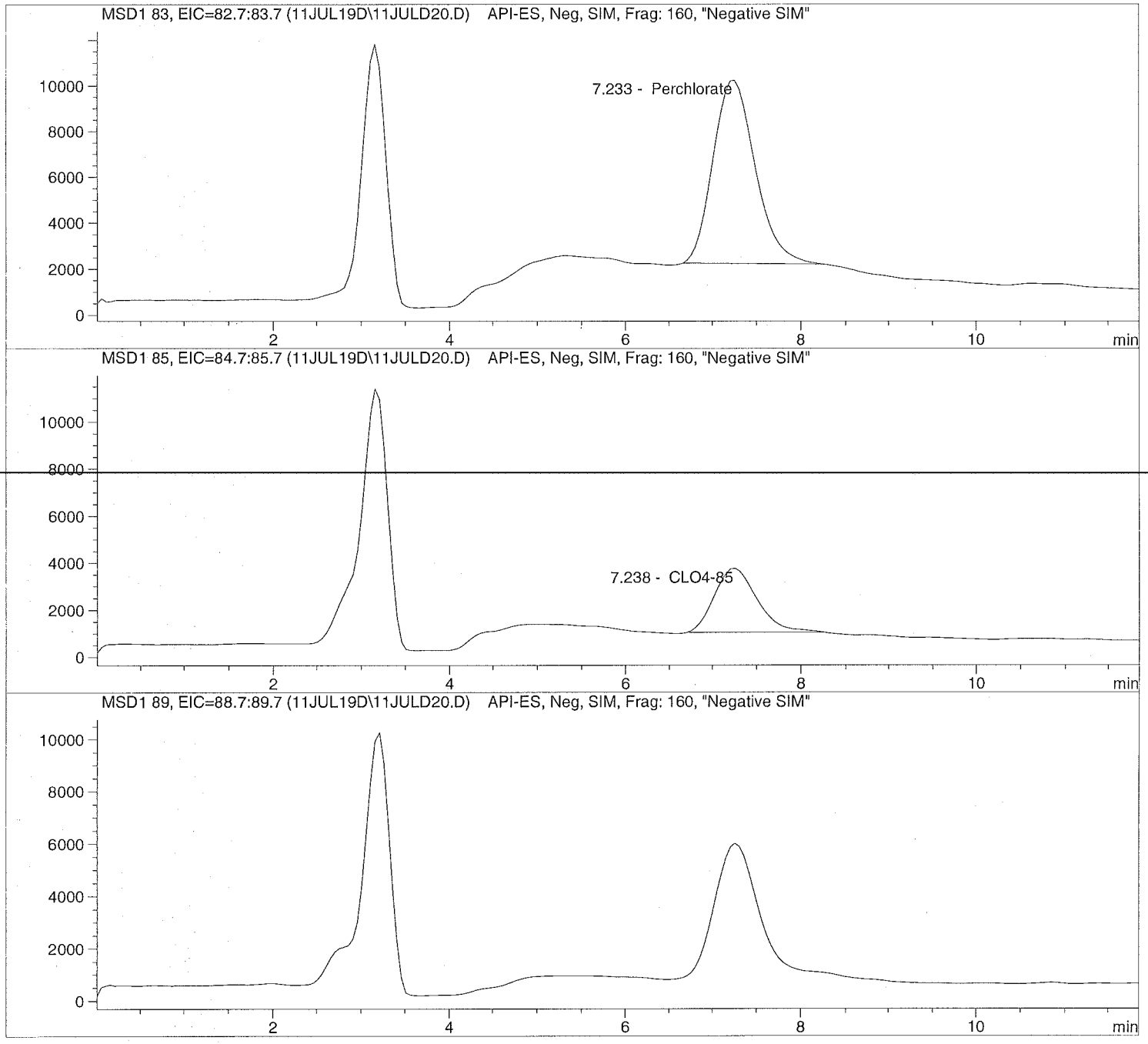
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.233	PBA	264721.6	0.1573	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.238	BBA	91183.5	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 12, 2019

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

Work Order: **HS19061482**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

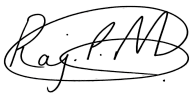
ALS Environmental received 5 sample(s) on Jun 27, 2019 for the analysis presented in the following report.

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: RJ.MODASHIA
RJ Modashia
Project Manager

ALS Houston, US Date: 12-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061482

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061482-01	AWD4_062619	Groundwater		26-Jun-2019 07:55	27-Jun-2019 08:30	☐
HS19061482-02	AWD4_062619_a	Groundwater		26-Jun-2019 07:55	27-Jun-2019 08:30	☐
HS19061482-03	18WW24_062619	Groundwater		26-Jun-2019 09:30	27-Jun-2019 08:30	☐
HS19061482-04	MW16_062619	Groundwater		26-Jun-2019 11:00	27-Jun-2019 08:30	☐
HS19061482-05	MW19_062619	Groundwater		26-Jun-2019 12:30	27-Jun-2019 08:30	☐

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18 24
Work Order: HS19061482

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142659

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

GCMS Volatiles by Method SW8260

Batch ID: R341869

Sample ID: CCV

- Bromoform, 1,2-Dibromo-3-Chloropropane and 1,2,3-Trichlorobenzene exceeded %D limits for CCV. Samples are ND for these compounds.

Sample ID: HS19061486-01MS

- MS and MSD are for an unrelated sample

Metals by Method SW7470

Batch ID: 142560,142769

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

Metals by Method SW6020

Batch ID: 142541

Sample ID: HS19061486-01SD

- SD is for an unrelated sample

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD4_062619
Collection Date: 26-Jun-2019 07:55

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-01
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	03-Jul-2019 22:07
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 22:07
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 22:07
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 22:07
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 22:07
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 22:07
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07

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

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD4_062619
Collection Date: 26-Jun-2019 07:55

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-01
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	03-Jul-2019 22:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 22:07
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 22:07
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 22:07
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:07
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:07
Surr: 1,2-Dichloroethane-d4	*94.5*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 22:07*
Surr: 4-Bromofluorobenzene	*91.0*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 22:07*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 22:07*
Surr: Toluene-d8	*95.7*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 22:07*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	09-Jul-2019 13:40
Surr: 2-Fluorobiphenyl	*64.0*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 13:40*
Surr: 4-Terphenyl-d14	*84.9*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 13:40*
Surr: Nitrobenzene-d5	*75.9*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 13:40*

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

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD4_062619
Collection Date: 26-Jun-2019 07:55

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**20.1**		**0.180**	**0.500**	**1.00**	**mg/L**	100	08-Jul-2019 14:57
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:09
Arsenic	**0.00257**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Barium	**0.267**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Beryllium	**0.000982**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:09
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:09
Calcium	**11.3**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:09
Chromium	**0.387**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Cobalt	**0.0121**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Copper	**0.0215**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Iron	**22.3**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:09
Lead	**0.00842**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Magnesium	**5.94**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:09
Manganese	**0.0703**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Nickel	**0.240**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Potassium	**1.29**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:09
Selenium	**0.00245**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:09
Sodium	**62.6**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:09
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:09
Vanadium	**0.0366**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
Zinc	**0.0883**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:09
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 16:38
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD4_062619_a
Collection Date: 26-Jun-2019 07:55

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-02
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	03-Jul-2019 22:31
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 22:31
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 22:31
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 22:31
Acetone	**6.8**		**0.40**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 22:31
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 22:31
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD4_062619_a
Collection Date: 26-Jun-2019 07:55

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-02
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	03-Jul-2019 22:31
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 22:31
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 22:31
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 22:31
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:31
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:31
Surr: 1,2-Dichloroethane-d4	*96.1*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 22:31*
Surr: 4-Bromofluorobenzene	*92.5*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 22:31*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 22:31*
Surr: Toluene-d8	*97.1*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 22:31*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	09-Jul-2019 14:01
Surr: 2-Fluorobiphenyl	*72.5*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 14:01*
Surr: 4-Terphenyl-d14	*105*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 14:01*
Surr: Nitrobenzene-d5	*90.1*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 14:01*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD4_062619_a
Collection Date: 26-Jun-2019 07:55

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**9.41**		**0.180**	**0.500**	**1.00**	**mg/L**	100	08-Jul-2019 14:59
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:11
Arsenic	**0.00158**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Barium	**0.239**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Beryllium	**0.000691**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:11
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:11
Calcium	**10.7**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:11
Chromium	**0.193**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Cobalt	**0.00828**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Copper	**0.0140**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Iron	**11.0**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:11
Lead	**0.00448**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Magnesium	**5.31**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:11
Manganese	**0.0536**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Nickel	**0.227**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Potassium	**0.827**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:11
Selenium	**0.00328**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:11
Sodium	**62.3**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:11
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:11
Vanadium	**0.0207**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
Zinc	**0.0588**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:11
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 16:40
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW24_062619
Collection Date: 26-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-03
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	03-Jul-2019 22:55
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 22:55
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 22:55
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 22:55
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 22:55
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 22:55
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW24_062619
Collection Date: 26-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-03
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	03-Jul-2019 22:55
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 22:55
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 22:55
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 22:55
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 22:55
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 22:55
Surr: 1,2-Dichloroethane-d4	*96.3*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 22:55*
Surr: 4-Bromofluorobenzene	*91.6*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 22:55*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 22:55*
Surr: Toluene-d8	*95.0*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 22:55*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW24_062619
Collection Date: 26-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.482**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 17:16
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:16
Arsenic	**0.000998**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
Barium	**0.0582**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:16
Cadmium	**0.000207**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:16
Calcium	**8.52**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:16
Chromium	**0.000791**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
Cobalt	**0.00641**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
Copper	**0.00151**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
Iron	**0.483**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:16
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:16
Magnesium	**6.41**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:16
Manganese	**2.89**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	08-Jul-2019 15:08
Nickel	**0.206**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
Potassium	**1.08**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:16
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 17:16
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:16
Sodium	**208**		**0.140**	**0.500**	**2.00**	**mg/L**	10	08-Jul-2019 15:08
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:16
Vanadium	**0.00210**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
Zinc	**0.138**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:16
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 16:42
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW16_062619
Collection Date: 26-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-04
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	03-Jul-2019 17:44
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,1-Dichloroethane	**0.89**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 17:44
1,1-Dichloroethene	**15**		**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 17:44
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,2-Dichloroethane	**84**		**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 17:44
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 17:44
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 17:44
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 17:44
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 17:44
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 17:44
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW16_062619
Collection Date: 26-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-04
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	03-Jul-2019 17:44
cis-1,2-Dichloroethene	**52**		**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 17:44
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 17:44
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 17:44
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 17:44
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 17:44
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Tetrachloroethene	**1.4**		**0.30**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 17:44
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Trichloroethene	**1,200**		**5.0**	**12**	**25**	**UG/L**	25	03-Jul-2019 19:44
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 17:44
Vinyl chloride	**2.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 17:44
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 17:44*
Surr: 1,2-Dichloroethane-d4	*99.2*			**0**	*81-118*	*%REC*	*25*	*03-Jul-2019 19:44*
Surr: 4-Bromofluorobenzene	*89.7*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 17:44*
Surr: 4-Bromofluorobenzene	*92.4*			**0**	*85-114*	*%REC*	*25*	*03-Jul-2019 19:44*
Surr: Dibromofluoromethane	*88.0*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 17:44*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*25*	*03-Jul-2019 19:44*
Surr: Toluene-d8	*91.7*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 17:44*
Surr: Toluene-d8	*96.4*			**0**	*89-112*	*%REC*	*25*	*03-Jul-2019 19:44*
SEMIVOLATILES SIM	**Method:SW8270SIM**					Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	**12**		**0.50**	**0.50**	**0.50**	**ug/L**	50	09-Jul-2019 14:42
Surr: 2-Fluorobiphenyl	*123*			**0**	*40-140*	*%REC*	*50*	*09-Jul-2019 14:42*
Surr: 4-Terphenyl-d14	*135*			**0**	*40-140*	*%REC*	*50*	*09-Jul-2019 14:42*
Surr: Nitrobenzene-d5	*133*			**0**	*40-140*	*%REC*	*50*	*09-Jul-2019 14:42*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW16_062619
Collection Date: 26-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW19_062619
Collection Date: 26-Jun-2019 12:30

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-05
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	03-Jul-2019 23:19
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 23:19
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 23:19
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 23:19
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 23:19
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 23:19
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW19_062619
Collection Date: 26-Jun-2019 12:30

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-05
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	03-Jul-2019 23:19
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 23:19
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 23:19
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 23:19
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:19
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Trichloroethene	**0.63**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Jul-2019 23:19
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:19
Surr: 1,2-Dichloroethane-d4	*96.1*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 23:19*
Surr: 4-Bromofluorobenzene	*90.7*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 23:19*
Surr: Dibromofluoromethane	*91.7*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 23:19*
Surr: Toluene-d8	*94.8*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 23:19*

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW19_062619
Collection Date: 26-Jun-2019 12:30

ANALYTICAL REPORT
WorkOrder:HS19061482
Lab ID:HS19061482-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**1.54**		**0.0180**	**0.0500**	**0.100**	**mg/L**	10	08-Jul-2019 15:10
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:18
Arsenic	**0.0137**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Barium	**0.467**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Beryllium	**0.000294**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:18
Cadmium	**0.00227**		**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:18
Calcium	**44.1**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:18
Chromium	**0.791**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Cobalt	**0.0171**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Copper	**0.0244**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Iron	**67.1**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:18
Lead	**0.00323**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Magnesium	**26.1**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:18
Manganese	**1.50**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Nickel	**0.214**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Potassium	**4.36**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:18
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 17:18
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:18
Sodium	**453**		**0.140**	**0.500**	**2.00**	**mg/L**	10	08-Jul-2019 15:10
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:18
Vanadium	**0.0102**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
Zinc	**0.0441**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:18
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:10
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2019 18:06

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

RIGHT SOLUTIONS | RIGHT PARTNER

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

Batch ID: 142541 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061482-01	1	10	10 (mL)	1
HS19061482-02	1	10	10 (mL)	1
HS19061482-03	1	10	10 (mL)	1
HS19061482-05	1	10	10 (mL)	1

Batch ID: 142560 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061482-01	1	10 (mL)	10 (mL)	1
HS19061482-02	1	10 (mL)	10 (mL)	1
HS19061482-03	1	10 (mL)	10 (mL)	1

Batch ID: 142659 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061482-01	1	1000	1 (mL)	0.001
HS19061482-02	1	1000	1 (mL)	0.001
HS19061482-04	1	1000	1 (mL)	0.001

Batch ID: 142769 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061482-05	1	10 (mL)	10 (mL)	1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142541 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19061482-01	AWD4_062619	26 Jun 2019 07:55		28 Jun 2019 11:59	08 Jul 2019 14:57	100
HS19061482-01	AWD4_062619	26 Jun 2019 07:55		28 Jun 2019 11:59	05 Jul 2019 17:09	1
HS19061482-02	AWD4_062619_a	26 Jun 2019 07:55		28 Jun 2019 11:59	08 Jul 2019 14:59	100
HS19061482-02	AWD4_062619_a	26 Jun 2019 07:55		28 Jun 2019 11:59	05 Jul 2019 17:11	1
HS19061482-03	18WW24_062619	26 Jun 2019 09:30		28 Jun 2019 11:59	08 Jul 2019 15:08	10
HS19061482-03	18WW24_062619	26 Jun 2019 09:30		28 Jun 2019 11:59	05 Jul 2019 17:16	1
HS19061482-05	MW19_062619	26 Jun 2019 12:30		28 Jun 2019 11:59	08 Jul 2019 15:10	10
HS19061482-05	MW19_062619	26 Jun 2019 12:30		28 Jun 2019 11:59	05 Jul 2019 17:18	1
Batch ID: 142560 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19061482-01	AWD4_062619	26 Jun 2019 07:55		28 Jun 2019 10:30	28 Jun 2019 16:38	1
HS19061482-02	AWD4_062619_a	26 Jun 2019 07:55		28 Jun 2019 10:30	28 Jun 2019 16:40	1
HS19061482-03	18WW24_062619	26 Jun 2019 09:30		28 Jun 2019 10:30	28 Jun 2019 16:42	1
Batch ID: 142659 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS19061482-01	AWD4_062619	26 Jun 2019 07:55		02 Jul 2019 12:18	09 Jul 2019 13:40	1
HS19061482-02	AWD4_062619_a	26 Jun 2019 07:55		02 Jul 2019 12:18	09 Jul 2019 14:01	1
HS19061482-04	MW16_062619	26 Jun 2019 11:00		02 Jul 2019 12:18	09 Jul 2019 14:42	50
Batch ID: 142769 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19061482-05	MW19_062619	26 Jun 2019 12:30		05 Jul 2019 10:30	05 Jul 2019 15:10	1
Batch ID: R341869 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19061482-01	AWD4_062619	26 Jun 2019 07:55			03 Jul 2019 22:07	1
HS19061482-02	AWD4_062619_a	26 Jun 2019 07:55			03 Jul 2019 22:31	1
HS19061482-03	18WW24_062619	26 Jun 2019 09:30			03 Jul 2019 22:55	1
HS19061482-04	MW16_062619	26 Jun 2019 11:00			03 Jul 2019 19:44	25
HS19061482-04	MW16_062619	26 Jun 2019 11:00			03 Jul 2019 17:44	1
HS19061482-05	MW19_062619	26 Jun 2019 12:30			03 Jul 2019 23:19	1
Batch ID: R342274 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19061482-01	AWD4_062619	26 Jun 2019 07:55			11 Jul 2019 18:06	1
HS19061482-02	AWD4_062619_a	26 Jun 2019 07:55			11 Jul 2019 18:06	1
HS19061482-03	18WW24_062619	26 Jun 2019 09:30			11 Jul 2019 18:06	1
HS19061482-04	MW16_062619	26 Jun 2019 11:00			11 Jul 2019 18:06	1
HS19061482-05	MW19_062619	26 Jun 2019 12:30			11 Jul 2019 18:06	1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142541** Units: **mg/L** Analysis Date: **05-Jul-2019 15:49**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155804** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004417	0.0100								J
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Magnesium	0.01315	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

MBLK Sample ID: **MBLK-142541** Units: **mg/L** Analysis Date: **08-Jul-2019 13:53**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157125** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.00100	0.00500								U

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142541** Units: **mg/L** Analysis Date: **05-Jul-2019 15:51**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155805** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09504	0.0100	0.1	0	95.0	84 - 117				
Antimony	0.05029	0.00500	0.05	0	101	85 - 117				
Arsenic	0.05092	0.00500	0.05	0	102	84 - 116				
Barium	0.04966	0.00500	0.05	0	99.3	86 - 114				
Beryllium	0.05036	0.00200	0.05	0	101	83 - 121				
Cadmium	0.0504	0.00200	0.05	0	101	87 - 115				
Calcium	5.026	0.500	5	0	101	87 - 118				
Chromium	0.0522	0.00500	0.05	0	104	85 - 116				
Cobalt	0.05274	0.00500	0.05	0	105	86 - 115				
Copper	0.0545	0.00500	0.05	0	109	85 - 118				
Iron	5.193	0.200	5	0	104	87 - 118				
Lead	0.05298	0.00500	0.05	0	106	88 - 115				
Magnesium	5.5	0.200	5	0	110	83 - 118				
Manganese	0.05088	0.00500	0.05	0	102	87 - 115				
Nickel	0.05412	0.00500	0.05	0	108	85 - 117				
Potassium	5.248	0.200	5	0	105	87 - 115				
Selenium	0.05096	0.00500	0.05	0	102	80 - 120				
Silver	0.05061	0.00500	0.05	0	101	85 - 116				
Sodium	5.358	0.200	5	0	107	85 - 117				
Thallium	0.0498	0.00200	0.05	0	99.6	82 - 116				
Vanadium	0.05244	0.00500	0.05	0	105	86 - 115				
Zinc	0.05376	0.00500	0.05	0	108	83 - 119				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:59**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155808** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.739	0.0100	0.4	0.3697	92.3	84 - 117				
Antimony	0.04732	0.00500	0.05	0.0008	93.0	85 - 117				
Arsenic	0.04842	0.00500	0.05	0	96.8	84 - 116				
Barium	0.2815	0.00500	0.05	0.238	87.0	86 - 114				O
Beryllium	0.04857	0.00200	0.05	0	97.1	83 - 121				
Cadmium	0.04813	0.00200	0.05	0	96.3	87 - 115				
Calcium	81.2	0.500	5	76.32	97.6	87 - 118				O
Chromium	0.05476	0.00500	0.05	0.006591	96.3	85 - 116				
Cobalt	0.04919	0.00500	0.05	0.000529	97.3	86 - 115				
Copper	0.05037	0.00500	0.05	0.001192	98.4	85 - 118				
Iron	5.246	0.200	5	0.3538	97.8	87 - 118				
Magnesium	8.622	0.200	5	3.785	96.7	83 - 118				
Manganese	0.1269	0.00500	0.05	0.07982	94.2	87 - 115				
Nickel	0.05352	0.00500	0.05	0.00408	98.9	85 - 117				
Potassium	5.438	0.200	5	0.5115	98.5	87 - 115				
Selenium	0.04621	0.00500	0.05	0	92.4	80 - 120				
Silver	0.04831	0.00500	0.05	0	96.6	85 - 116				
Sodium	19.1	0.200	5	14.32	95.6	85 - 117				
Thallium	0.04492	0.00200	0.05	0.000881	88.1	82 - 116				
Vanadium	0.05006	0.00500	0.05	0.001987	96.1	86 - 115				
Zinc	0.0719	0.00500	0.05	0.02524	93.3	83 - 119				

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **08-Jul-2019 13:58**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157127** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04682	0.00500	0.05	0	93.6	88 - 115				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19061486-01MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 16:01**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155809** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.7553	0.0100	0.4	0.3697	96.4	84 - 117	0.739	2.18	20	
Antimony	0.04868	0.00500	0.05	0.0008	95.8	85 - 117	0.04732	2.84	20	
Arsenic	0.04954	0.00500	0.05	0	99.1	84 - 116	0.04842	2.27	20	
Barium	0.287	0.00500	0.05	0.238	98.0	86 - 114	0.2815	1.95	20	O
Beryllium	0.0485	0.00200	0.05	0	97.0	83 - 121	0.04857	0.142	20	
Cadmium	0.0486	0.00200	0.05	0	97.2	87 - 115	0.04813	0.966	20	
Calcium	81.29	0.500	5	76.32	99.3	87 - 118	81.2	0.104	20	O
Chromium	0.05662	0.00500	0.05	0.006591	100	85 - 116	0.05476	3.34	20	
Cobalt	0.05007	0.00500	0.05	0.000529	99.1	86 - 115	0.04919	1.76	20	
Copper	0.05145	0.00500	0.05	0.001192	101	85 - 118	0.05037	2.12	20	
Iron	5.285	0.200	5	0.3538	98.6	87 - 118	5.246	0.742	20	
Lead	0.04787	0.00500	0.05	0	95.7	88 - 115	0.04832	0.925	20	
Magnesium	8.77	0.200	5	3.785	99.7	83 - 118	8.622	1.7	20	
Manganese	0.1284	0.00500	0.05	0.07982	97.2	87 - 115	0.1269	1.2	20	
Nickel	0.05428	0.00500	0.05	0.00408	100	85 - 117	0.05352	1.41	20	
Potassium	5.433	0.200	5	0.5115	98.4	87 - 115	5.438	0.0912	20	
Selenium	0.0486	0.00500	0.05	0	97.2	80 - 120	0.04621	5.05	20	
Silver	0.04796	0.00500	0.05	0	95.9	85 - 116	0.04831	0.717	20	
Sodium	19.67	0.200	5	14.32	107	85 - 117	19.1	2.92	20	
Thallium	0.04425	0.00200	0.05	0.000881	86.7	82 - 116	0.04492	1.5	20	
Vanadium	0.05188	0.00500	0.05	0.001987	99.8	86 - 115	0.05006	3.57	20	
Zinc	0.07298	0.00500	0.05	0.02524	95.5	83 - 119	0.0719	1.49	20	

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19061486-01PDS** Units: **mg/L** Analysis Date: **05-Jul-2019 16:03**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155810** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.487	0.0100	0.1	0.3697	117	80 - 120				
Arsenic	0.09568	0.00500	0.1	0.000356	95.3	80 - 120				
Barium	0.3243	0.00500	0.1	0.238	86.3	80 - 120				
Beryllium	0.08784	0.00200	0.1	0.000034	87.8	80 - 120				
Cadmium	0.09239	0.00200	0.1	0.000163	92.2	80 - 120				
Calcium	84.54	0.500	10	76.32	82.1	80 - 120				O
Chromium	0.1036	0.00500	0.1	0.006591	97.0	80 - 120				
Cobalt	0.0997	0.00500	0.1	0.000529	99.2	80 - 120				
Copper	0.09939	0.00500	0.1	0.001192	98.2	80 - 120				
Iron	10.01	0.200	10	0.3538	96.6	80 - 120				
Lead	0.09928	0.00500	0.1	0.000498	98.8	80 - 120				
Magnesium	13.55	0.200	10	3.785	97.6	80 - 120				
Manganese	0.1738	0.00500	0.1	0.07982	94.0	80 - 120				
Nickel	0.1011	0.00500	0.1	0.00408	97.0	80 - 120				
Potassium	10.21	0.200	10	0.5115	97.0	80 - 120				
Selenium	0.09467	0.00500	0.1	0.000462	94.2	80 - 120				
Silver	0.09272	0.00500	0.1	0.000026	92.7	80 - 120				
Sodium	24.03	0.200	10	14.32	97.1	80 - 120				
Thallium	0.1018	0.00200	0.1	0.000881	101	80 - 120				
Vanadium	0.09888	0.00500	0.1	0.001987	96.9	80 - 120				
Zinc	0.1221	0.00500	0.1	0.02524	96.9	80 - 120				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19061486-01SD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:56**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155807** PrepDate: **28-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.3834	0.0500					0.3697	3.7	10	
Antimony	0.00250	0.0250					0.0008	0	10	U
Arsenic	0.00250	0.0250					0.000356	0	10	U
Barium	0.2349	0.0250					0.238	1.31	10	
Beryllium	0.00250	0.0100					0.000034	0	10	U
Cadmium	0.00250	0.0100					0.000163	0	10	U
Calcium	73.47	2.50					76.32	3.74	10	
Chromium	0.006325	0.0250					0.006591	0	10	J
Cobalt	0.00250	0.0250					0.000529	0	10	U
Copper	0.00500	0.0250					0.001192	0	10	U
Iron	0.3675	1.00					0.3538	0	10	J
Lead	0.00500	0.0250					0.000498	0	10	U
Magnesium	3.655	1.00					3.785	3.44	10	
Manganese	0.08094	0.0250					0.07982	1.4	10	
Nickel	0.00368	0.0250					0.00408	0	10	J
Potassium	0.6068	1.00					0.5115	0	10	J
Selenium	0.0125	0.0250					0.000462	0	10	U
Silver	0.00250	0.0250					0.000026	0	10	U
Sodium	15.04	1.00					14.32	5.03	10	
Thallium	0.00250	0.0100					0.000881	0	10	U
Vanadium	0.003882	0.0250					0.001987	0	10	J
Zinc	0.02966	0.0250					0.02524	17.5	10	R

The following samples were analyzed in this batch: HS19061482-01 HS19061482-02 HS19061482-03 HS19061482-05

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142560 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142560** Units: **mg/L** Analysis Date: **28-Jun-2019 15:56**
Client ID: Run ID: **HG03_341562** SeqNo: **5147053** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142560** Units: **mg/L** Analysis Date: **28-Jun-2019 15:57**
Client ID: Run ID: **HG03_341562** SeqNo: **5147054** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00509	0.000200	0.005	0	102	80 - 120				

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **28-Jun-2019 16:01**
Client ID: Run ID: **HG03_341562** SeqNo: **5147056** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000513	0.000000200	5e-006	-0.0000000010	103	75 - 125				

MSD Sample ID: **HS19061486-01MSD** Units: **mg/L** Analysis Date: **28-Jun-2019 16:03**
Client ID: Run ID: **HG03_341562** SeqNo: **5147057** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000509	0.000000200	5e-006	-0.0000000010	102	75 - 125	0.000005130	0.783	20	

The following samples were analyzed in this batch: HS19061482-01 HS19061482-02 HS19061482-03

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142769 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:01**
Client ID: Run ID: **HG03_341922** SeqNo: **5154872** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:03**
Client ID: Run ID: **HG03_341922** SeqNo: **5154873** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00505	0.000200	0.005	0	101	82 - 119				

MS Sample ID: **HS19070016-09MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:06**
Client ID: Run ID: **HG03_341922** SeqNo: **5154875** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.000200	0.005	-0.00001500	106	82 - 119				

MSD Sample ID: **HS19070016-09MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:08**
Client ID: Run ID: **HG03_341922** SeqNo: **5154876** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00517	0.000200	0.005	-0.00001500	104	82 - 119	0.005270	1.92	20	

The following samples were analyzed in this batch: HS19061482-05

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: 142659 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 12:38**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159697** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.05997*	*0*	*0.08*	*0*	*75.0*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05244*	*0*	*0.08*	*0*	*65.5*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.0849*	*0*	*0.08*	*0*	*106*	*40 - 140*				

LCS Sample ID: **LCS-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 12:59**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159698** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07981	0.010	0.08	0	99.8	40 - 140				
Surr: 2-Fluorobiphenyl	*0.06497*	*0*	*0.08*	*0*	*81.2*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05228*	*0*	*0.08*	*0*	*65.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07798*	*0*	*0.08*	*0*	*97.5*	*40 - 140*				

LCSD Sample ID: **LCSD-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 13:19**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159699** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08031	0.010	0.08	0	100	40 - 140	0.07981	0.627	20	
Surr: 2-Fluorobiphenyl	*0.07017*	*0*	*0.08*	*0*	*87.7*	*40 - 140*	*0.06497*	*7.7*	*20*	
Surr: 4-Terphenyl-d14	*0.05934*	*0*	*0.08*	*0*	*74.2*	*40 - 140*	*0.05228*	*12.7*	*20*	
Surr: Nitrobenzene-d5	*0.08488*	*0*	*0.08*	*0*	*106*	*40 - 140*	*0.07798*	*8.47*	*20*	

The following samples were analyzed in this batch: HS19061482-01 HS19061482-02 HS19061482-04

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 15:45**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153631** 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	1.0	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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 15:45**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153631** 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	1.0	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	*46.09*	*1.0*	*50*	*0*	*92.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.05*	*1.0*	*50*	*0*	*96.1*	*85 - 114*				
Surr: Dibromofluoromethane	*44.95*	*1.0*	*50*	*0*	*89.9*	*80 - 119*				
Surr: Toluene-d8	*48.5*	*1.0*	*50*	*0*	*97.0*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 14:57**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153630** 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	17.99	1.0	20	0	89.9	78 - 124				
1,1,1-Trichloroethane	18.38	1.0	20	0	91.9	74 - 131				
1,1,2,2-Tetrachloroethane	19.33	1.0	20	0	96.6	71 - 121				
1,1,2-Trichloroethane	19	1.0	20	0	95.0	80 - 119				
1,1-Dichloroethane	17.63	1.0	20	0	88.1	77 - 125				
1,1-Dichloroethene	17.56	1.0	20	0	87.8	71 - 131				
1,1-Dichloropropene	18.07	1.0	20	0	90.4	78 - 125				
1,2,3-Trichlorobenzene	23.54	1.0	20	0	118	69 - 129				
1,2,3-Trichloropropane	19.44	1.0	20	0	97.2	73 - 122				
1,2,4-Trichlorobenzene	21.42	1.0	20	0	107	69 - 130				
1,2,4-Trimethylbenzene	17.67	1.0	20	0	88.3	76 - 124				
1,2-Dibromo-3-chloropropane	21.87	1.0	20	0	109	62 - 128				
1,2-Dibromoethane	18.58	1.0	20	0	92.9	77 - 121				
1,2-Dichlorobenzene	18.25	1.0	20	0	91.3	80 - 119				
1,2-Dichloroethane	17.32	1.0	20	0	86.6	73 - 128				
1,2-Dichloropropane	17.52	1.0	20	0	87.6	78 - 122				
1,3,5-Trimethylbenzene	17.42	1.0	20	0	87.1	75 - 124				
1,3-Dichlorobenzene	17.82	1.0	20	0	89.1	80 - 119				
1,3-Dichloropropane	18.44	1.0	20	0	92.2	80 - 119				
1,4-Dichlorobenzene	18.95	1.0	20	0	94.8	79 - 118				
2,2-Dichloropropane	16.75	1.0	20	0	83.7	60 - 139				
2-Butanone	43.93	2.0	40	0	110	56 - 143				
2-Chlorotoluene	18.48	1.0	20	0	92.4	79 - 122				
2-Hexanone	38.01	2.0	40	0	95.0	57 - 139				
4-Chlorotoluene	18.53	1.0	20	0	92.6	78 - 122				
4-Isopropyltoluene	17.94	1.0	20	0	89.7	77 - 127				
4-Methyl-2-pentanone	36.09	2.0	40	0	90.2	67 - 130				
Acetone	46.53	2.0	40	0	116	39 - 160				
Benzene	18.29	1.0	20	0	91.4	79 - 120				
Bromobenzene	17.41	1.0	20	0	87.1	80 - 120				
Bromochloromethane	17.81	1.0	20	0	89.0	78 - 123				
Bromodichloromethane	18.24	1.0	20	0	91.2	79 - 125				
Bromoform	19.34	1.0	20	0	96.7	66 - 130				
Bromomethane	20.11	1.0	20	0	101	53 - 141				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 14:57**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153630** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	33.73	2.0	40	0	84.3	64 - 133				
Carbon tetrachloride	18.32	1.0	20	0	91.6	72 - 136				
Chlorobenzene	17.54	1.0	20	0	87.7	82 - 118				
Chloroethane	16.99	1.0	20	0	84.9	60 - 138				
Chloroform	19.05	1.0	20	0	95.2	79 - 124				
Chloromethane	16.14	1.0	20	0	80.7	50 - 139				
cis-1,2-Dichloroethene	18.45	1.0	20	0	92.3	78 - 123				
cis-1,3-Dichloropropene	17.19	1.0	20	0	85.9	75 - 124				
Dibromochloromethane	18.13	1.0	20	0	90.6	74 - 126				
Dibromomethane	18.03	1.0	20	0	90.1	79 - 123				
Dichlorodifluoromethane	17.79	1.0	20	0	88.9	32 - 152				
Ethylbenzene	17.65	1.0	20	0	88.3	79 - 121				
Hexachlorobutadiene	23.03	1.0	20	0	115	66 - 134				
Isopropylbenzene	18.08	1.0	20	0	90.4	72 - 131				
m,p-Xylene	35.62	2.0	40	0	89.0	80 - 121				
Methylene chloride	17.81	2.0	20	0	89.1	74 - 124				
Naphthalene	21.95	1.0	20	0	110	61 - 128				
n-Butylbenzene	17.82	1.0	20	0	89.1	75 - 128				
n-Propylbenzene	18.62	1.0	20	0	93.1	76 - 126				
o-Xylene	17.72	1.0	20	0	88.6	78 - 122				
sec-Butylbenzene	19.01	1.0	20	0	95.1	77 - 126				
Styrene	18.33	1.0	20	0	91.7	78 - 123				
tert-Butylbenzene	18.81	1.0	20	0	94.1	78 - 124				
Tetrachloroethene	17.9	1.0	20	0	89.5	74 - 129				
Toluene	17.39	1.0	20	0	86.9	80 - 121				
trans-1,2-Dichloroethene	18.49	1.0	20	0	92.4	75 - 124				
trans-1,3-Dichloropropene	17.69	1.0	20	0	88.4	73 - 127				
Trichloroethene	17.79	1.0	20	0	89.0	79 - 123				
Trichlorofluoromethane	18.03	1.0	20	0	90.1	65 - 141				
Vinyl chloride	16.88	1.0	20	0	84.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.62*	*1.0*	*50*	*0*	*99.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.98*	*1.0*	*50*	*0*	*96.0*	*85 - 114*				
Surr: Dibromofluoromethane	*49.25*	*1.0*	*50*	*0*	*98.5*	*80 - 119*				
Surr: Toluene-d8	*45.94*	*1.0*	*50*	*0*	*91.9*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061486-01MS** Units: **UG/L** Analysis Date: **03-Jul-2019 18:08**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153637** 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	16.51	1.0	20	0	82.5	78 - 124				
1,1,1-Trichloroethane	16.62	1.0	20	0	83.1	74 - 131				
1,1,2,2-Tetrachloroethane	17.57	1.0	20	0	87.9	71 - 121				
1,1,2-Trichloroethane	17.26	1.0	20	0	86.3	80 - 119				
1,1-Dichloroethane	15.31	1.0	20	0	76.5	77 - 125				S
1,1-Dichloroethene	16.44	1.0	20	0	82.2	71 - 131				
1,1-Dichloropropene	17.45	1.0	20	0	87.3	78 - 125				
1,2,3-Trichlorobenzene	20.81	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	17.72	1.0	20	0	88.6	73 - 122				
1,2,4-Trichlorobenzene	19.95	1.0	20	0	99.7	69 - 130				
1,2,4-Trimethylbenzene	16.6	1.0	20	0	83.0	76 - 124				
1,2-Dibromo-3-chloropropane	19.76	1.0	20	0	98.8	62 - 128				
1,2-Dibromoethane	16.72	1.0	20	0	83.6	77 - 121				
1,2-Dichlorobenzene	16.97	1.0	20	0	84.9	80 - 119				
1,2-Dichloroethane	15.42	1.0	20	0	77.1	73 - 128				
1,2-Dichloropropane	15.7	1.0	20	0	78.5	78 - 122				
1,3,5-Trimethylbenzene	16.77	1.0	20	0	83.9	75 - 124				
1,3-Dichlorobenzene	16.72	1.0	20	0	83.6	80 - 119				
1,3-Dichloropropane	16.64	1.0	20	0	83.2	80 - 119				
1,4-Dichlorobenzene	17.61	1.0	20	0	88.1	79 - 118				
2,2-Dichloropropane	16.67	1.0	20	0	83.4	60 - 139				
2-Butanone	35.5	2.0	40	0	88.8	56 - 143				
2-Chlorotoluene	17.41	1.0	20	0	87.0	79 - 122				
2-Hexanone	32.54	2.0	40	0	81.4	57 - 139				
4-Chlorotoluene	17.42	1.0	20	0	87.1	78 - 122				
4-Isopropyltoluene	17.75	1.0	20	0	88.7	77 - 127				
4-Methyl-2-pentanone	33.2	2.0	40	0	83.0	67 - 130				
Acetone	37.89	2.0	40	4.161	84.3	39 - 160				
Benzene	16.63	1.0	20	0	83.2	79 - 120				
Bromobenzene	15.78	1.0	20	0	78.9	80 - 120				S
Bromochloromethane	15.16	1.0	20	0	75.8	78 - 123				S
Bromodichloromethane	16.26	1.0	20	0	81.3	79 - 125				
Bromoform	17.61	1.0	20	0	88.1	66 - 130				
Bromomethane	16.43	1.0	20	0	82.1	53 - 141				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19061486-01MS** Units: **UG/L** Analysis Date: **03-Jul-2019 18:08**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153637** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	30.33	2.0	40	0	75.8	64 - 133				
Carbon tetrachloride	17.83	1.0	20	0	89.2	72 - 136				
Chlorobenzene	16.32	1.0	20	0	81.6	82 - 118				S
Chloroethane	15.5	1.0	20	0	77.5	60 - 138				
Chloroform	15.88	1.0	20	0	79.4	79 - 124				
Chloromethane	14.92	1.0	20	0	74.6	50 - 139				
cis-1,2-Dichloroethene	15.81	1.0	20	0	79.1	78 - 123				
cis-1,3-Dichloropropene	15.72	1.0	20	0	78.6	75 - 124				
Dibromochloromethane	16.19	1.0	20	0	81.0	74 - 126				
Dibromomethane	16.1	1.0	20	0	80.5	79 - 123				
Dichlorodifluoromethane	15.64	1.0	20	0	78.2	32 - 152				
Ethylbenzene	17	1.0	20	0	85.0	79 - 121				
Hexachlorobutadiene	21.68	1.0	20	0	108	66 - 134				
Isopropylbenzene	17.62	1.0	20	0	88.1	72 - 131				
m,p-Xylene	34.49	2.0	40	0	86.2	80 - 121				
Methylene chloride	15.03	2.0	20	0	75.1	74 - 124				
Naphthalene	19.79	1.0	20	0	98.9	61 - 128				
n-Butylbenzene	17.77	1.0	20	0	88.8	75 - 128				
n-Propylbenzene	18.11	1.0	20	0	90.6	76 - 126				
o-Xylene	16.52	1.0	20	0	82.6	78 - 122				
sec-Butylbenzene	19.08	1.0	20	0	95.4	77 - 126				
Styrene	16.93	1.0	20	0	84.7	78 - 123				
tert-Butylbenzene	18.55	1.0	20	0	92.8	78 - 124				
Tetrachloroethene	17.69	1.0	20	0	88.5	74 - 129				
Toluene	16.65	1.0	20	0	83.3	80 - 121				
trans-1,2-Dichloroethene	16.67	1.0	20	0	83.4	75 - 124				
trans-1,3-Dichloropropene	15.41	1.0	20	0	77.1	73 - 127				
Trichloroethene	19.25	1.0	20	0	96.3	79 - 123				
Trichlorofluoromethane	16.99	1.0	20	0	85.0	65 - 141				
Vinyl chloride	14.99	1.0	20	0	75.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.86*	*1.0*	*50*	*0*	*91.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.41*	*1.0*	*50*	*0*	*96.8*	*85 - 114*				
Surr: Dibromofluoromethane	*45.73*	*1.0*	*50*	*0*	*91.5*	*80 - 119*				
Surr: Toluene-d8	*47.34*	*1.0*	*50*	*0*	*94.7*	*89 - 112*				

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19061486-01MSD** Units: **UG/L** Analysis Date: **03-Jul-2019 18:32**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153638** 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	16.57	1.0	20	0	82.9	78 - 124	16.51	0.402	20	
1,1,1-Trichloroethane	16.72	1.0	20	0	83.6	74 - 131	16.62	0.596	20	
1,1,2,2-Tetrachloroethane	17.64	1.0	20	0	88.2	71 - 121	17.57	0.396	20	
1,1,2-Trichloroethane	17.31	1.0	20	0	86.5	80 - 119	17.26	0.254	20	
1,1-Dichloroethane	15.14	1.0	20	0	75.7	77 - 125	15.31	1.12	20	S
1,1-Dichloroethene	15.9	1.0	20	0	79.5	71 - 131	16.44	3.34	20	
1,1-Dichloropropene	17.2	1.0	20	0	86.0	78 - 125	17.45	1.47	20	
1,2,3-Trichlorobenzene	21.62	1.0	20	0	108	69 - 129	20.81	3.79	20	
1,2,3-Trichloropropane	18.13	1.0	20	0	90.7	73 - 122	17.72	2.32	20	
1,2,4-Trichlorobenzene	20.17	1.0	20	0	101	69 - 130	19.95	1.11	20	
1,2,4-Trimethylbenzene	16.82	1.0	20	0	84.1	76 - 124	16.6	1.35	20	
1,2-Dibromo-3-chloropropane	19.64	1.0	20	0	98.2	62 - 128	19.76	0.602	20	
1,2-Dibromoethane	16.91	1.0	20	0	84.6	77 - 121	16.72	1.13	20	
1,2-Dichlorobenzene	17.08	1.0	20	0	85.4	80 - 119	16.97	0.64	20	
1,2-Dichloroethane	15.51	1.0	20	0	77.5	73 - 128	15.42	0.587	20	
1,2-Dichloropropane	15.75	1.0	20	0	78.8	78 - 122	15.7	0.313	20	
1,3,5-Trimethylbenzene	16.61	1.0	20	0	83.1	75 - 124	16.77	0.95	20	
1,3-Dichlorobenzene	16.63	1.0	20	0	83.2	80 - 119	16.72	0.552	20	
1,3-Dichloropropane	16.84	1.0	20	0	84.2	80 - 119	16.64	1.21	20	
1,4-Dichlorobenzene	18.12	1.0	20	0	90.6	79 - 118	17.61	2.81	20	
2,2-Dichloropropane	16.43	1.0	20	0	82.2	60 - 139	16.67	1.45	20	
2-Butanone	36.09	2.0	40	0	90.2	56 - 143	35.5	1.64	20	
2-Chlorotoluene	17.25	1.0	20	0	86.3	79 - 122	17.41	0.897	20	
2-Hexanone	33.5	2.0	40	0	83.8	57 - 139	32.54	2.91	20	
4-Chlorotoluene	17.25	1.0	20	0	86.2	78 - 122	17.42	1.02	20	
4-Isopropyltoluene	17.61	1.0	20	0	88.1	77 - 127	17.75	0.749	20	
4-Methyl-2-pentanone	33.33	2.0	40	0	83.3	67 - 130	33.2	0.392	20	
Acetone	37.8	2.0	40	4.161	84.1	39 - 160	37.89	0.25	20	
Benzene	16.71	1.0	20	0	83.6	79 - 120	16.63	0.479	20	
Bromobenzene	15.97	1.0	20	0	79.8	80 - 120	15.78	1.2	20	S
Bromochloromethane	14.89	1.0	20	0	74.4	78 - 123	15.16	1.82	20	S
Bromodichloromethane	16.58	1.0	20	0	82.9	79 - 125	16.26	1.99	20	
Bromoform	18.12	1.0	20	0	90.6	66 - 130	17.61	2.84	20	
Bromomethane	15.98	1.0	20	0	79.9	53 - 141	16.43	2.73	20	

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061482

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19061486-01MSD** Units: **UG/L** Analysis Date: **03-Jul-2019 18:32**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153638** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	30.26	2.0	40	0	75.7	64 - 133	30.33	0.215	20	
Carbon tetrachloride	17.75	1.0	20	0	88.7	72 - 136	17.83	0.463	20	
Chlorobenzene	16.44	1.0	20	0	82.2	82 - 118	16.32	0.761	20	
Chloroethane	15.28	1.0	20	0	76.4	60 - 138	15.5	1.42	20	
Chloroform	15.71	1.0	20	0	78.6	79 - 124	15.88	1.07	20	S
Chloromethane	14.69	1.0	20	0	73.4	50 - 139	14.92	1.58	20	
cis-1,2-Dichloroethene	15.7	1.0	20	0	78.5	78 - 123	15.81	0.692	20	
cis-1,3-Dichloropropene	15.68	1.0	20	0	78.4	75 - 124	15.72	0.238	20	
Dibromochloromethane	16.67	1.0	20	0	83.4	74 - 126	16.19	2.91	20	
Dibromomethane	16.2	1.0	20	0	81.0	79 - 123	16.1	0.6	20	
Dichlorodifluoromethane	15.34	1.0	20	0	76.7	32 - 152	15.64	1.95	20	
Ethylbenzene	16.85	1.0	20	0	84.2	79 - 121	17	0.905	20	
Hexachlorobutadiene	22.45	1.0	20	0	112	66 - 134	21.68	3.48	20	
Isopropylbenzene	17.51	1.0	20	0	87.5	72 - 131	17.62	0.618	20	
m,p-Xylene	33.91	2.0	40	0	84.8	80 - 121	34.49	1.71	20	
Methylene chloride	14.82	2.0	20	0	74.1	74 - 124	15.03	1.35	20	
Naphthalene	20.33	1.0	20	0	102	61 - 128	19.79	2.71	20	
n-Butylbenzene	17.71	1.0	20	0	88.6	75 - 128	17.77	0.323	20	
n-Propylbenzene	18.14	1.0	20	0	90.7	76 - 126	18.11	0.153	20	
o-Xylene	16.36	1.0	20	0	81.8	78 - 122	16.52	0.968	20	
sec-Butylbenzene	18.96	1.0	20	0	94.8	77 - 126	19.08	0.607	20	
Styrene	16.9	1.0	20	0	84.5	78 - 123	16.93	0.183	20	
tert-Butylbenzene	18.61	1.0	20	0	93.1	78 - 124	18.55	0.304	20	
Tetrachloroethene	17.87	1.0	20	0	89.3	74 - 129	17.69	0.987	20	
Toluene	16.4	1.0	20	0	82.0	80 - 121	16.65	1.53	20	
trans-1,2-Dichloroethene	16.25	1.0	20	0	81.3	75 - 124	16.67	2.54	20	
trans-1,3-Dichloropropene	15.73	1.0	20	0	78.7	73 - 127	15.41	2.08	20	
Trichloroethene	17.49	1.0	20	0	87.5	79 - 123	19.25	9.57	20	
Trichlorofluoromethane	16.54	1.0	20	0	82.7	65 - 141	16.99	2.69	20	
Vinyl chloride	14.75	1.0	20	0	73.8	58 - 137	14.99	1.6	20	
Surr: 1,2-Dichloroethane-d4	*47.12*	*1.0*	*50*	*0*	*94.2*	*81 - 118*	*45.86*	*2.7*	*20*	
Surr: 4-Bromofluorobenzene	*48.48*	*1.0*	*50*	*0*	*97.0*	*85 - 114*	*48.41*	*0.13*	*20*	
Surr: Dibromofluoromethane	*46.14*	*1.0*	*50*	*0*	*92.3*	*80 - 119*	*45.73*	*0.893*	*20*	
Surr: Toluene-d8	*46.66*	*1.0*	*50*	*0*	*93.3*	*89 - 112*	*47.34*	*1.44*	*20*	

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ALS Houston, US Date: 12-Jul-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP 18 24
WorkOrder:	HS19061482

QC BATCH REPORT

Batch ID:	**R341869 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:	HS19061482-01	HS19061482-02	HS19061482-03	HS19061482-04
	HS19061482-05			

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ALS Houston, US Date: 12-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061482**

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

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ALS Houston, US Date: 12-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061482
Date/Time Received: **27-Jun-2019 08:30**
Received by: **JRM**

Checklist completed by: *Paresh M. Giga* eSignature 27-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 28-Jun-2019 Date

Matrices: **Groundwater**
Carrier name: **FedEx**

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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	2.2c U/c	IR11
Cooler(s)/Kit(s):	44515	
Date/Time sample(s) sent to storage:	6/27/19 17:35	

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:

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bhate
ENVIRONMENTAL CONSTRUCTION ENERGY

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

Chain of Custody and Analytical Request

Page: 1 of 1

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

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	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
AWD4_062619		26 Jun 2019	0755	-			WG	6	✓	✓	✓	✓				
AWD4_062619-a		26 Jun 2019	0755	-			WG	6	✓	✓	✓	✓				
BKW24_062619		26 Jun 2019	0930	-			WG	5	✓	✓	✓					
MW16_062619		26 Jun 2019	1100				WG	5	✓	✓		✓				
MW19_062619		26 Jun 2019	1230				WG	5	✓	✓	✓					
				-												
				-												
				-												
				-												
				-												
				-												

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19061482
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: Cooler 44515 Temp 2.2 IR11 CF0.0

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Ronnie Moore	6/26/19	1430	1. [signature]	6/27/19	08:30
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 Stancliff 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

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00941851

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

44515

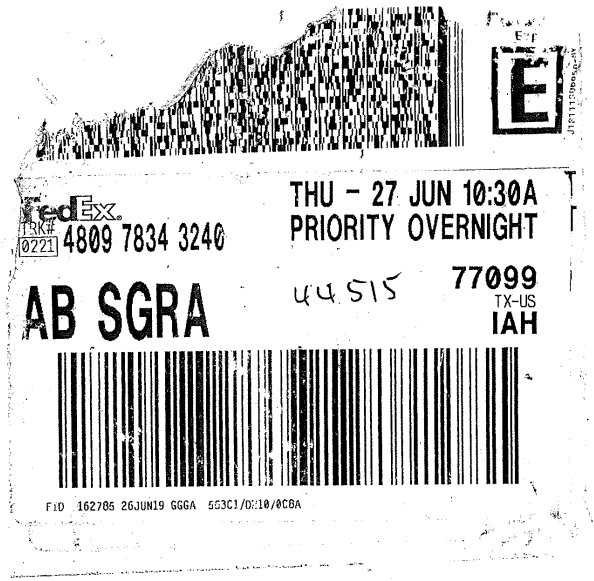
CUSTODY SEAL

Date: 6/26/19 Time: 1430
Name: Scott Beesinger
Company: BHMS

Seal Broken By:

Date: 06/27/19

44515 JUN 27 2019



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Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1918373, 1918525, 1918682

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2269 (243227)

General Set Information: There were eighteen field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 662917) was less than 1/2 the CRDL. The recovery for the LCS (662918) was within acceptable parameters.

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MS/MSD Analysis: MS/MSD was performed on sample 1918373005 (Client ID: 18WW03_062419). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The MS/MSD percent recoveries and relative percent difference were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 662915) is reported from the analysis of the Laboratory Control Sample (LCS – 662918) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 10JULD13.

Thomas Bosch — July 11, 2019
Analyst — Date

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ANALYTICAL REPORT

Report Date: July 11, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918682**
Project ID: HS19061482
Purchase Order: HS19061482
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
AW04_062619	1918682001	06/26/19	06/28/19	
AW04_062619_a	1918682002	06/26/19	06/28/19	
18WW24_062619	1918682003	06/26/19	06/28/19	
MW16_062619	1918682004	06/26/19	06/28/19	
MW19_062619	1918682005	06/26/19	06/28/19	

ANALYTICAL REPORT

Workorder: 34-1918682
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **AW04_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918682001 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 13:53 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**23**	1.0	2.0	4.0	1	

Sample ID: **AW04_062619_a** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918682002 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 14:07 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**27**	1.0	2.0	4.0	1	

Sample ID: **18WW24_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918682003 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 14:20 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **MW16_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918682004 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2269 (HBN: 243227) | **Percent Solid:** NA
Analyzed: 07/10/2019 14:34 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**2900**	100	200	400	100	

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ANALYTICAL REPORT

Workorder: 34-1918682
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **MW19_062619**	Sampling Site: NA	Collected: 06/26/2019
Lab ID: 1918682005	Media: 250 mL Nalgene	Received: 06/28/2019
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2269 (HBN: 243227)	**Percent Solid:** NA
	Analyzed: 07/10/2019 14:48	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Comments

Quality Control: EPA 6850, DoD QSM - (HBN: 243227)

Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/11/2019 10:28	/S/ Stephen Brose 07/11/2019 13:28

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1918682
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918682

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2269 (HBN: 243227)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 662917
Analyzed: 07/10/2019 09:31
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 662918
Analyzed: 07/10/2019 09:03
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.25	4.00	106	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1918373005	**MS:**	662919					**MSD:**	662920				
Analyzed:	07/10/2019 10:41	**Analyzed:**	07/10/2019 10:55					**Analyzed:**	07/10/2019 11:09				
Dilution:	1	**Dilution:**	1					**Dilution:**	1				
Units:	ug/L	**Units:**	ug/L					**Units:**	ug/L				
Analyte	**Result**	**Result**	**Target**	**% Rec**	**QC Limits**			**Result**	**% Rec**	**RPD**	**QC Limits**	
Perchlorate	ND	4.87	4	122	78.8	123.8		4.01	100	19.3	0.0	20.0

Comments

Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch 07/11/2019 11:05	/S/ Stephen Brose 07/11/2019 13:28

Symbols and Definitions

- ✱ - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19061482	***Split:***	**Workorder ID:** 1918682	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 250Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	06/26/2019 07:55	AW04_062619	1918682001		Water	A	1	A
2	06/26/2019 07:55	AW04_062619_a	1918682002		Water	A	1	A
3	06/26/2019 09:30	18WW24_062619	1918682003		Water	A	1	A
4	06/26/2019 11:00	MW16_062619	1918682004		Water	A	1	A
5	06/26/2019 12:30	MW19_062619	1918682005		Water	A	1	A
6								
7								
8								
9								
10								

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ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Coates, Gayleen	06/28/2019 09:03	ALS Sample Receiving	Sample Login
R.33.1	6.28.19 13:35	3B	STORAGE
	07.09.19/11:10	T. Bosh	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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00941860



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

1918682

SAMPLING STATE: **Texas**

COC ID: **11695**

SUBCONTRACT TO:

18698/2

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19061482
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19061482-01**	**AW04_062619**	**Groundwater**	**26 Jun 2019 07:55**
	SUB_Perch-6850			08 Jul 2019
2.	**HS19061482-02**	**AW04_062619_a**	**Groundwater**	**26 Jun 2019 07:55**
	SUB_Perch-6850			08 Jul 2019
3.	**HS19061482-03**	**18WW24_062619**	**Groundwater**	**26 Jun 2019 09:30**
	SUB_Perch-6850			08 Jul 2019
4.	**HS19061482-04**	**MW16_062619**	**Groundwater**	**26 Jun 2019 11:00**
	SUB_Perch-6850			08 Jul 2019
5.	**HS19061482-05**	**MW19_062619**	**Groundwater**	**26 Jun 2019 12:30**
	SUB_Perch-6850			08 Jul 2019

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

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: 11695

Relinquished By: _____ Date/Time: 6|27|19 1800

Received By: _____ Date/Time: 6.28.19 0903

Cooler ID(s): _____ Temperature(s): _____

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ALS-SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS HOUSTON

Project/Task/Site: HS19061486 & HS19061482

Date/Time of Receipt: 6.28.19 0903

Number of Coolers Received: (1)

Condition of Coolers:	(Acceptable)/Unacceptable
Cooler Custody Seals:	(Present)/Absent/NA
	(Intact)/Broken/NA
Container Custody Seals:	Present/(Absent)/NA
	Intact/Broken/(NA)
Ice Present:	(Yes)/No/NA
	(Frozen)/Melted/NA
Temperature Control:	(Present)/Not Included
Location Temp Taken:	(Cooler)/Between Samples
Are all temperatures within project specific guidelines?	(Yes)/No/NA
VOA Headspace Present?	Yes/No/(NA)

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9734	1 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: [signature] (Signature) GAYLEEN COATES (Printed Name) 6.28.19 (Date)

CLIENT-RELATED INFORMATION

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018

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Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159463-484 RIT2 EXP 02/20

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 27JUN19
ACTWGT: 23.90 LB
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19061482/1486 - RJ

FedEx Express

FRI - 28 JUN 3:00P
STANDARD OVERNIGHT

TRK# 0201 4809 7835 4546

AX BTFA

84123
UT-US SLC

551C1/PA210/1C55

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Batch Worklist

Batch: ELMS/ 2269 Created: 7/10/2019 08:39 Instrument: HBN: 243227

Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 1918373 [ENV_LVL4]
Workorder: 1918525 [ENV_LVL4]
Workorder: 1918682 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	662914	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	
2	662915	RLVS for HBN 243227 [ELMS/2269				RLVS	3		E685041C3Q	5311		7/10/2019	
3	662916	ICS for HBN 243227 [ELMS/2269]				ICS	3		E6850..D3Q	5311		7/10/2019	
4	662917	LMB for HBN 243227 [ELMS/2269]				LMB	3		E6850Q413Q	5311		7/10/2019	
5	662918	LCS for HBN 243227 [ELMS/2269]				LCS	3		E6850Q413Q	5311		7/10/2019	
6	1918373001	129_062419				SAMPLE	3	1918373001-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
	1918373002	102_062419				SAMPLE	3	1918373002-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
	1918373003	MW23_062419				SAMPLE	3	1918373003-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
	1918373004	126_062419				SAMPLE	3	1918373004-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
	1918373005	18WW03_062419				SAMPLE	3	1918373005-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
11	662919	18WW03_062419(1918373005MS)				MS	3		E6850Q413Q	5311		7/10/2019	
12	662920	18WW03_062419(1918373005MSD)				MSD	3		E6850Q413Q	5311		7/10/2019	
13	1918373006	18WW03_062419_a				SAMPLE	3	1918373006-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
14	1918373007	18WW18_062419				SAMPLE	3	1918373007-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
15	1918373008	18WW17_062419				SAMPLE	3	1918373008-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
16	1918373009	125_062419				SAMPLE	3	1918373009-A	E6850Q41.3	5480	7/22/2019	7/10/2019	
17	1918525001	18CPTMW14_062519				SAMPLE	3	1918525001-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
18	662921	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	
19	1918525002	18CPTMW24_062519				SAMPLE	3	1918525002-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
20	1918525003	18CPTMW07_062519				SAMPLE	3	1918525003-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
21	1918525004	MW3_062519				SAMPLE	3	1918525004-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
22	1918682001	AW04_062619				SAMPLE	3	1918682001-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
23	1918682002	AW04_062619_a				SAMPLE	3	1918682002-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
24	1918682003	18WW24_062619				SAMPLE	3	1918682003-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
25	1918682004	MW16_062619				SAMPLE	3	1918682004-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
26	1918682005	MW19_062619				SAMPLE	3	1918682005-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
27	662922	CCV for HBN 243227 [ELMS/2269]				CCV	3		E685041C3Q	5311		7/10/2019	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

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ALS Work Order #'s & Sample #( )'s: 1918373 (001-09), 1918525 (001-04); 1918682 (001-05)
ELMS Batch/HBN ID: 2269 (243227)
Prep Date: 07/08/2019 Analysis Date: 07/10/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\10JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 662918; Target = 4.0µg/L. ASTM type II water was used for LMB 662917.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1918273005 (Client ID: 18WW03_062419). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 1918373001 and 1918525004 were analyzed and reported from 1:1,000 dilutions. Field samples 1918373003/08 were analyzed and reported from 1:10,000 dilutions. Field samples 1918373009 and 1918525002 were analyzed and reported from 1:10 dilutions. Field samples 1918525001 and 1918682004 were analyzed and reported from 1:100 dilutions. Sample 1918373004 failed the 50-150% method requirement for ISTD recovery. This sample was re-analyzed and reported from a 1:4 dilution. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\243227-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 662915) is reported from the analysis of the Laboratory Control Sample (LCS – 662918) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 10JULD13.

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5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2269 HBN: 243227 Sample Set IDs if Applicable: 1918373/1918525/1918682	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SD
Standards traceability checked and meets criteria	TB	SD
Standard curve coefficients evaluated and meet criteria	TB	SD
ICVs analyzed and meet acceptance criteria	TB	SD
CCVs analyzed and meet acceptance criteria	TB	SD
Method Blanks analyzed and meet acceptance criteria	TB	SD
Retention Time Windows checked	TB	SD
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SD
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SD
RLVS analyzed	TB	SD
Preparation and analysis hold times met	TB	SD
Preparation deviations and re-preparations noted when performed	TB	SD
Analysis deviations and re-analyses noted when performed	TB	SD
Sample dilution factors noted on reports	TB	SD
Electronic records in HBN transcription accuracy and completeness checked	TB	SD
Preparation and analysis calculations checked	TB	SD
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SD
Manual integrations checked	TB	SD

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STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
			1000 ug/mL
1	14797-73-0	Perchlorate	

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L	
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025	
MFG Lot: Not Provided		Usable: Yes	
Part ID: Not Provided		Lab Lot: LAB 109	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK	Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

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STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

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STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 43729	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 09/20/2018 09:09AM	Expires: 04/28/2026
MFG Lot: SDFF-012A	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date:	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ANAB

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: JCC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

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125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

AccuStandard

Page 1 of 1

For use in routine laboratory analysis.

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Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

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Batch Report: C:\HPCHEM\1\DATA\10JUL19D\10JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	662914 CCV@25	Vial 71	1	Control	1	2.68575e6	8.115	26.05294
#*	662915 QC@4.0	Vial 72	1	Control	2	4.44100e5	7.955	4.24940
#*	662916 ICS@4.0	Vial 73	1	Control	3	3.60514e5	7.907	3.90243
#*	662917 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	1918373001 1K	Vial 75	1	Sample	5	4.64595e5	8.475	4196.25594
#*	1918373002	Vial 76	1	Sample	6	2.67439e6	8.256	32.95864
#*	1918373003 10K	Vial 77	1	Sample	7	7.50173e5	8.471	6.69552e4
#*	1918373004	Vial 78	1	Sample	8	9.59698e4	7.479	3.07958 RERUN
#*	1918373005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
#*	662919 183735S	Vial 80	1	Sample	10	3.55093e5	7.925	4.86521
#*	662920 183735D	Vial 81	1	Sample	11	3.66789e5	7.925	4.01055
#*	1918373006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1918373007	Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1918373008 10K	Vial 84	1	Sample	14	7.80844e5	8.547	8.50126e4
#*	1918373009 10	Vial 85	1	Sample	15	2.50033e6	8.517	259.32134
#*	1918525001 100	Vial 86	1	Sample	16	1.50160e6	8.459	1335.16188
#*	1918525002 10	Vial 87	1	Sample	18	8.01472e5	7.834	89.40283
#*	1918525003	Vial 88	1	Sample	19	9.97190e4	7.920	1.35329
#*	662921 CCV@25	Vial 71	1	Control	20	2.50454e6	8.326	26.47813
#*	1918525004 1K	Vial 89	1	Sample	21	9.11871e5	8.541	1.14090e4
#*	1918682001	Vial 90	1	Sample	22	2.47257e6	7.964	22.97557
#*	1918682002	Vial 91	1	Sample	23	2.64966e6	7.956	27.09987
#*	1918682003	Vial 92	1	Sample	24	0.00000	0.000	0.00000
#*	1918682004 100	Vial 93	1	Sample	25	3.17764e6	8.495	2867.69131
#*	1918682005	Vial 94	1	Sample	26	0.00000	0.000	0.00000
#*	1918373004 4X	Vial 95	1	Sample	27	1.13898e5	7.615	5.92026
*	662922 CCV@25	Vial 71	1	Control	28	2.33580e6	8.325	25.58048

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	662914 CCV@25	Vial 71	1	Control	1	8.00069e5	8.120	26.14885
#*	662915 QC@4.0	Vial 72	1	Control	2	1.43143e5	7.988	4.46175
#*	662916 ICS@4.0	Vial 73	1	Control	3	1.13240e5	7.926	3.97989
#*	662917 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	1918373001 1K	Vial 75	1	Sample	5	1.47350e5	8.502	4333.79914
#*	1918373002	Vial 76	1	Sample	6	8.00737e5	8.266	33.28426
#*	1918373003 10K	Vial 77	1	Sample	7	2.30473e5	8.475	6.80005e4
#*	1918373004	Vial 78	1	Sample	8	4.60480e4	7.515	4.72828
#*	1918373005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
#*	662919 183735S	Vial 80	1	Sample	10	1.12035e5	7.945	5.02607
#*	662920 183735D	Vial 81	1	Sample	11	1.15347e5	7.933	4.09972
#*	1918373006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1918373007	Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1918373008 10K	Vial 84	1	Sample	14	2.43153e5	8.561	8.79445e4
#*	1918373009 10	Vial 85	1	Sample	15	7.49555e5	8.537	261.83216
#*	1918525001 100	Vial 86	1	Sample	16	4.61812e5	8.478	1373.76036
#*	1918525002 10	Vial 87	1	Sample	18	2.59266e5	7.849	96.09405
#*	1918525003	Vial 88	1	Sample	19	3.44592e4	7.913	1.39474
#*	662921 CCV@25	Vial 71	1	Control	20	7.43673e5	8.350	26.49691
#*	1918525004 1K	Vial 89	1	Sample	21	2.92673e5	8.563	1.22133e4
#*	1918682001	Vial 90	1	Sample	22	7.38653e5	7.982	23.10212
#*	1918682002	Vial 91	1	Sample	23	7.84495e5	7.975	27.04927
#*	1918682003	Vial 92	1	Sample	24	0.00000	0.000	0.00000
#*	1918682004 100	Vial 93	1	Sample	25	9.49732e5	8.511	2888.99473
#*	1918682005	Vial 94	1	Sample	26	0.00000	0.000	0.00000
#*	1918373004 4X	Vial 95	1	Sample	27	4.50105e4	7.626	7.05823
*	662922 CCV@25	Vial 71	1	Control	28	6.93327e5	8.339	25.58423

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Batch Report: C:\HPCHEM\1\DATA\10JUL19D\10JUL19S.B

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	662914 CCV@25	Vial 71	1	Control	1	3.12850e5	8.129	5.00000
#*	662915 QC@4.0	Vial 72	1	Control	2	3.43351e5	7.987	5.00000
#*	662916 ICS@4.0	Vial 73	1	Control	3	3.04788e5	7.926	5.00000
#*	662917 LMB	Vial 74	1	Control	4	3.48541e5	8.334	5.00000
#*	1918373001 1K	Vial 75	1	Sample	5	3.63966e5	8.508	5000.00000
#*	1918373002	Vial 76	1	Sample	6	2.42366e5	8.286	5.00000
#*	1918373003 10K	Vial 77	1	Sample	7	3.61021e5	8.485	5.00000e4
#*	1918373004	Vial 78	1	Sample	8	1.04173e5	7.500	5.00000
#*	1918373005	Vial 79	1	Sample	9	2.68459e5	7.947	5.00000
#*	662919 183735S	Vial 80	1	Sample	10	2.38297e5	7.944	5.00000
#*	662920 183735D	Vial 81	1	Sample	11	3.01318e5	7.949	5.00000
#*	1918373006	Vial 82	1	Sample	12	2.95413e5	7.964	5.00000
#*	1918373007	Vial 83	1	Sample	13	2.56579e5	7.688	5.00000
#*	1918373008 10K	Vial 84	1	Sample	14	2.93278e5	8.572	5.00000e4
#*	1918373009 10	Vial 85	1	Sample	15	2.92692e5	8.542	50.00000
#*	1918525001 100	Vial 86	1	Sample	16	3.52862e5	8.475	500.00000
#*	1918525002 10	Vial 87	1	Sample	18	2.85701e5	7.853	50.00000
#*	1918525003	Vial 88	1	Sample	19	2.65508e5	7.924	5.00000
#*	662921 CCV@25	Vial 71	1	Control	20	2.86769e5	8.351	5.00000
#*	1918525004 1K	Vial 89	1	Sample	21	2.52353e5	8.562	5000.00000
#*	1918682001	Vial 90	1	Sample	22	3.29023e5	7.998	5.00000
#*	1918682002	Vial 91	1	Sample	23	2.95991e5	7.971	5.00000
#*	1918682003	Vial 92	1	Sample	24	3.47869e5	7.583	5.00000
#*	1918682004 100	Vial 93	1	Sample	25	3.34219e5	8.521	500.00000
#*	1918682005	Vial 94	1	Sample	26	2.68839e5	7.545	5.00000
#*	1918373004 4X	Vial 95	1	Sample	27	2.74118e5	7.639	20.00000
*	662922 CCV@25	Vial 71	1	Control	28	2.77422e5	8.334	5.00000

*** End of Report ***

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Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\10JUL19D.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	662914 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	662915 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	662916 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	662917 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1918373001 1K	CLO4-AQN	1	Sample		
6	Vial 76	1918373002	CLO4-AQN	1	Sample		
7	Vial 77	1918373003 10K	CLO4-AQN	1	Sample		
8	Vial 78	1918373004	CLO4-AQN	1	Sample		
9	Vial 79	1918373005	CLO4-AQN	1	Sample		
10	Vial 80	662919 183735S	CLO4-AQN	1	Sample		
11	Vial 81	662920 183735D	CLO4-AQN	1	Sample		
12	Vial 82	1918373006	CLO4-AQN	1	Sample		
13	Vial 83	1918373007	CLO4-AQN	1	Sample		
14	Vial 84	1918373008 10K	CLO4-AQN	1	Sample		
15	Vial 85	1918373009 10	CLO4-AQN	1	Sample		
16	Vial 86	1918525001 100	CLO4-AQN	1	Sample		
17	Vial 71	662921 CCV@25	CLO4-AQN	1	Ctrl Samp		
18	Vial 87	1918525002 10	CLO4-AQN	1	Sample		
19	Vial 88	1918525003	CLO4-AQN	1	Sample		
20	Vial 71	662921 CCV@25	CLO4-AQN	1	Ctrl Samp		
21	Vial 89	1918525004 1K	CLO4-AQN	1	Sample		
22	Vial 90	1918682001	CLO4-AQN	1	Sample		
23	Vial 91	1918682002	CLO4-AQN	1	Sample		
24	Vial 92	1918682003	CLO4-AQN	1	Sample		
25	Vial 93	1918682004 100	CLO4-AQN	1	Sample		
26	Vial 94	1918682005	CLO4-AQN	1	Sample		
27	Vial 95	1918373004 4X	CLO4-AQN	1	Sample		
28	Vial 71	662922 CCV@25	CLO4-AQN	1	Ctrl Samp		

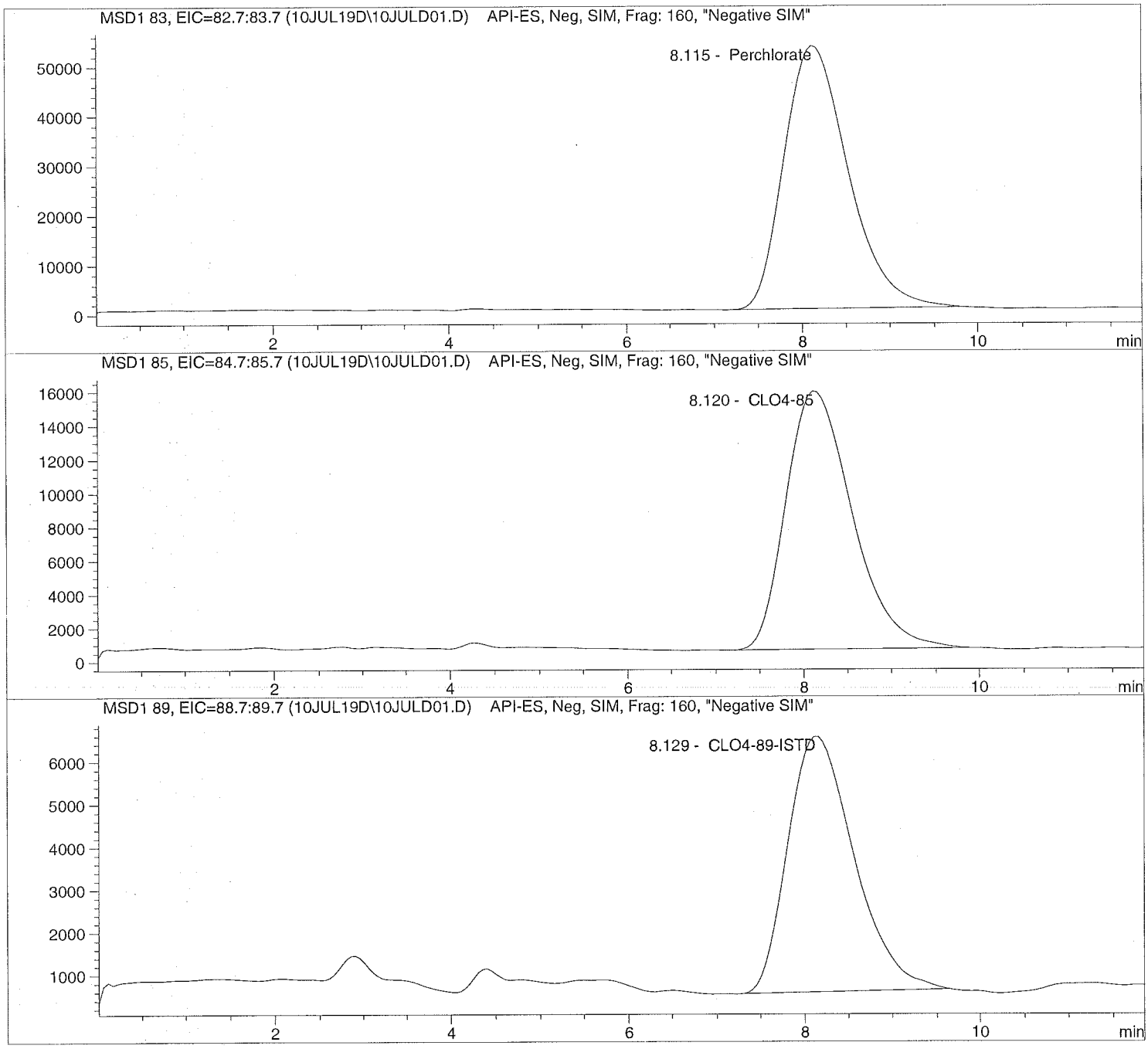
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD01.D Sample Name: 662914 CCV@25

Injection Date:	7/10/2019 08:48:22	Seq Line:	1
Sample Name:	662914 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD01.D Sample Name: 662914 CCV@25

Injection Date:	7/10/2019 08:48:22	Seq Line:	1
Sample Name:	662914 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.115	PBA	2685752.5	26.0529	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.120	PBA	800069.3	26.1488	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.129	PBA	312850.3	5.0000	CLO4-89-ISTD

*** End of Report ***

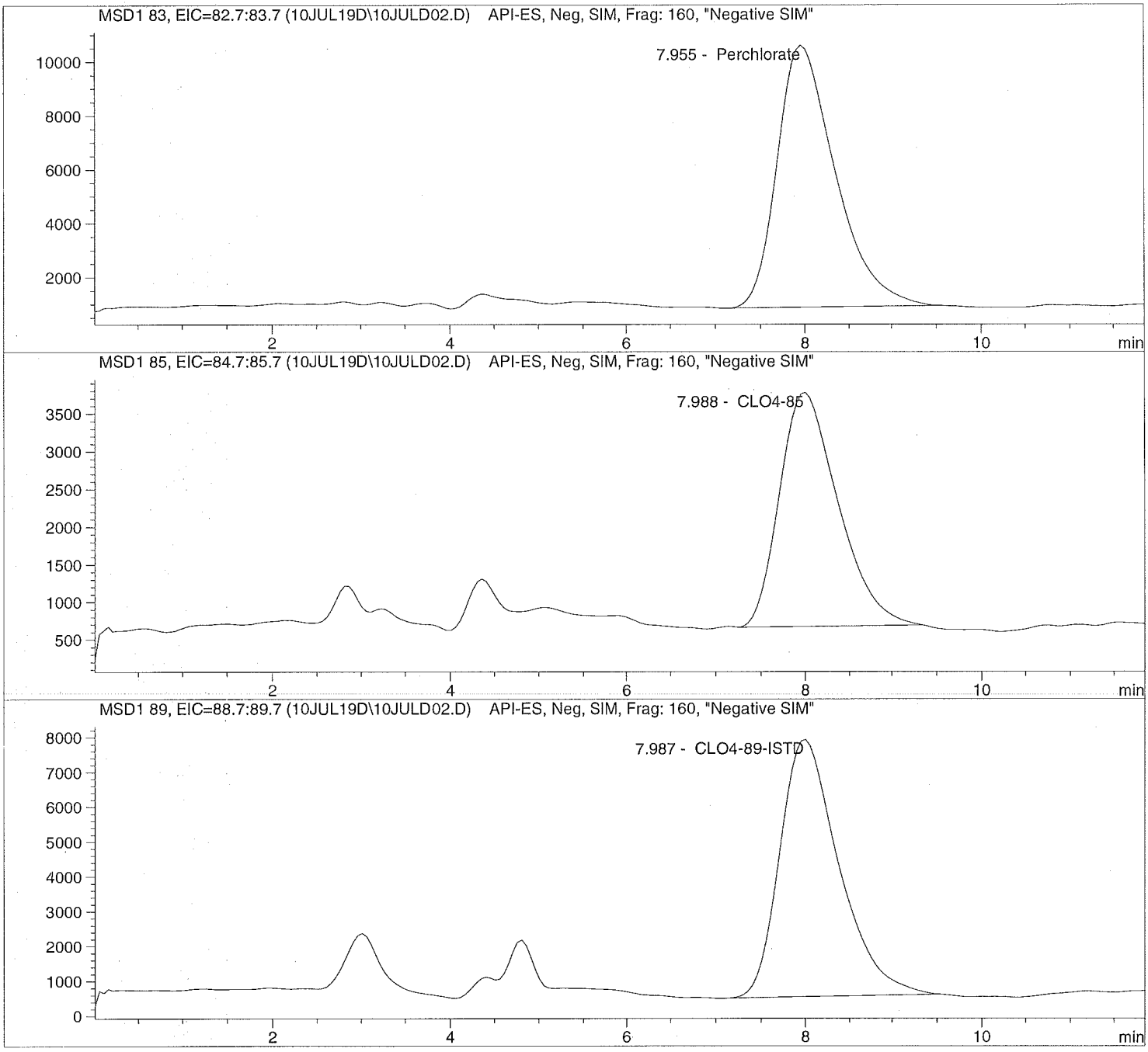
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD02.D Sample Name: 662915 QC@4.0

Injection Date:	7/10/2019 09:03:50	Seq Line:	2
Sample Name:	662915 QC@4.0	Location:	Vial 72
Acq Operator:	TNB RLVS	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD02.D Sample Name: 662915 QC@4.0

Injection Date:	7/10/2019 09:03:50	Seq Line:	2
Sample Name:	662915 QC@4.0	Location:	Vial 72
Acq Operator:	TNB RLVS	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.955	PBA	444100.1	4.2494	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.988	PBA	143143.3	4.4618	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.987	PBA	343351.4	5.0000	CLO4-89-ISTD

*** End of Report ***

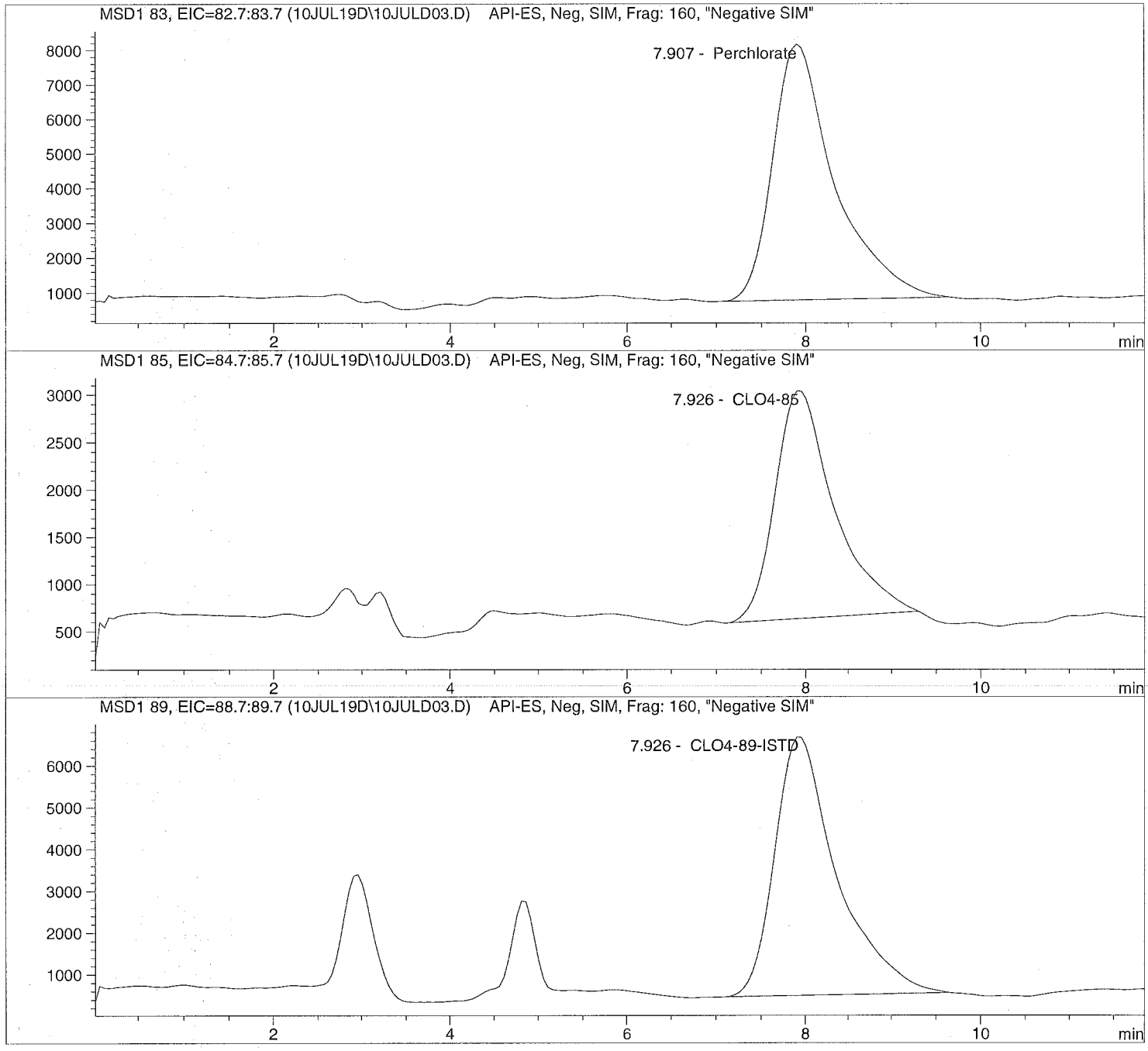
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD03.D Sample Name: 662916 ICS@4.0

Injection Date:	7/10/2019 09:17:42	Seq Line:	3
Sample Name:	662916 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD03.D Sample Name: 662916 ICS@4.0

Injection Date:	7/10/2019 09:17:42	Seq Line:	3
Sample Name:	662916 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.907	PBA	360514.4	3.9024	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	PBA	113239.5	3.9799	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.926	PBA	304787.5	5.0000	CLO4-89-ISTD

*** End of Report ***

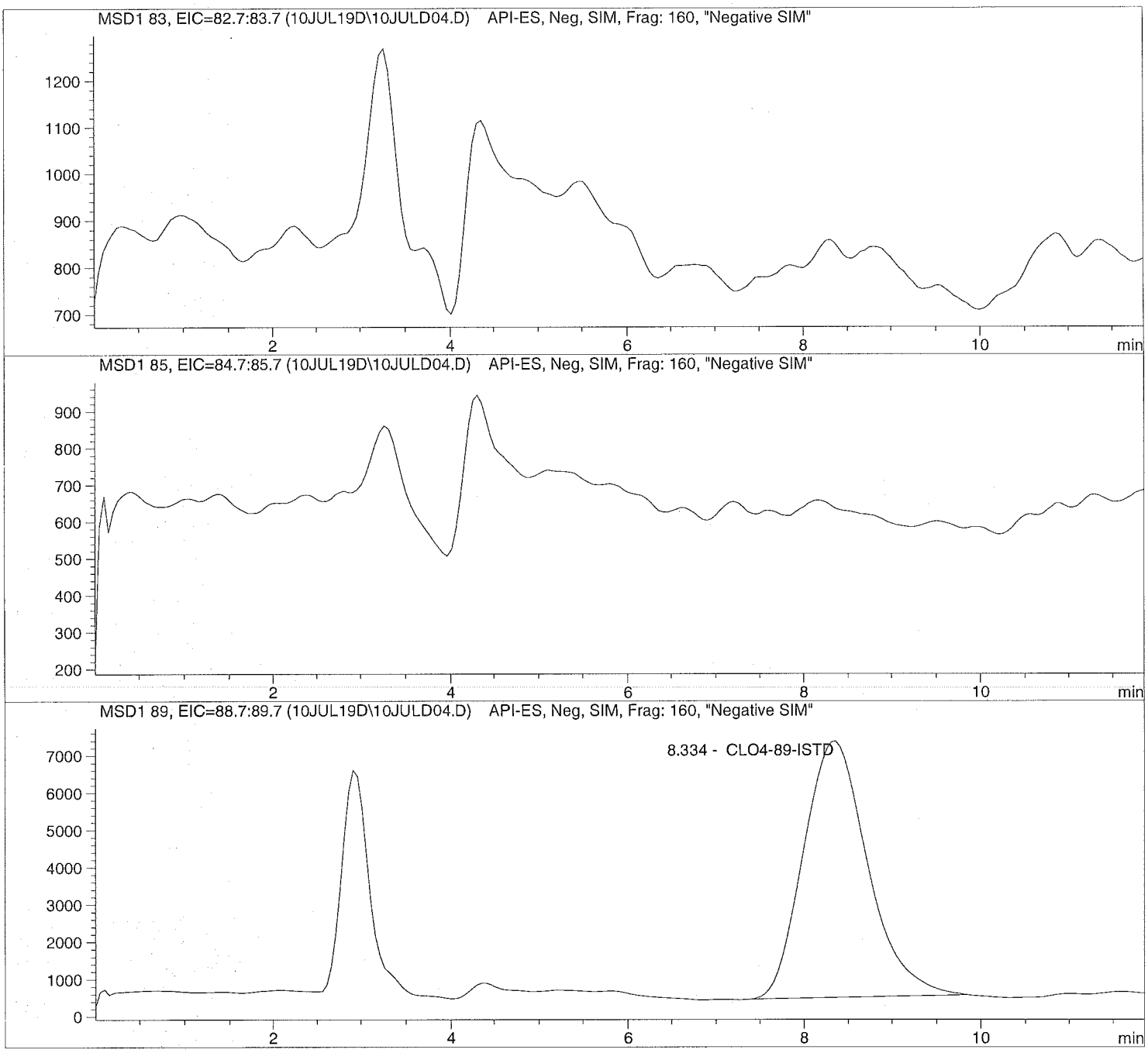
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD04.D Sample Name: 662917 LMB

Injection Date:	7/10/2019 09:31:38	Seq Line:	4
Sample Name:	662917 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD04.D Sample Name: 662917 LMB

Injection Date:	7/10/2019 09:31:38	Seq Line:	4
Sample Name:	662917 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.334	PBA	348541.0	5.0000	CLO4-89-ISTD

*** End of Report ***

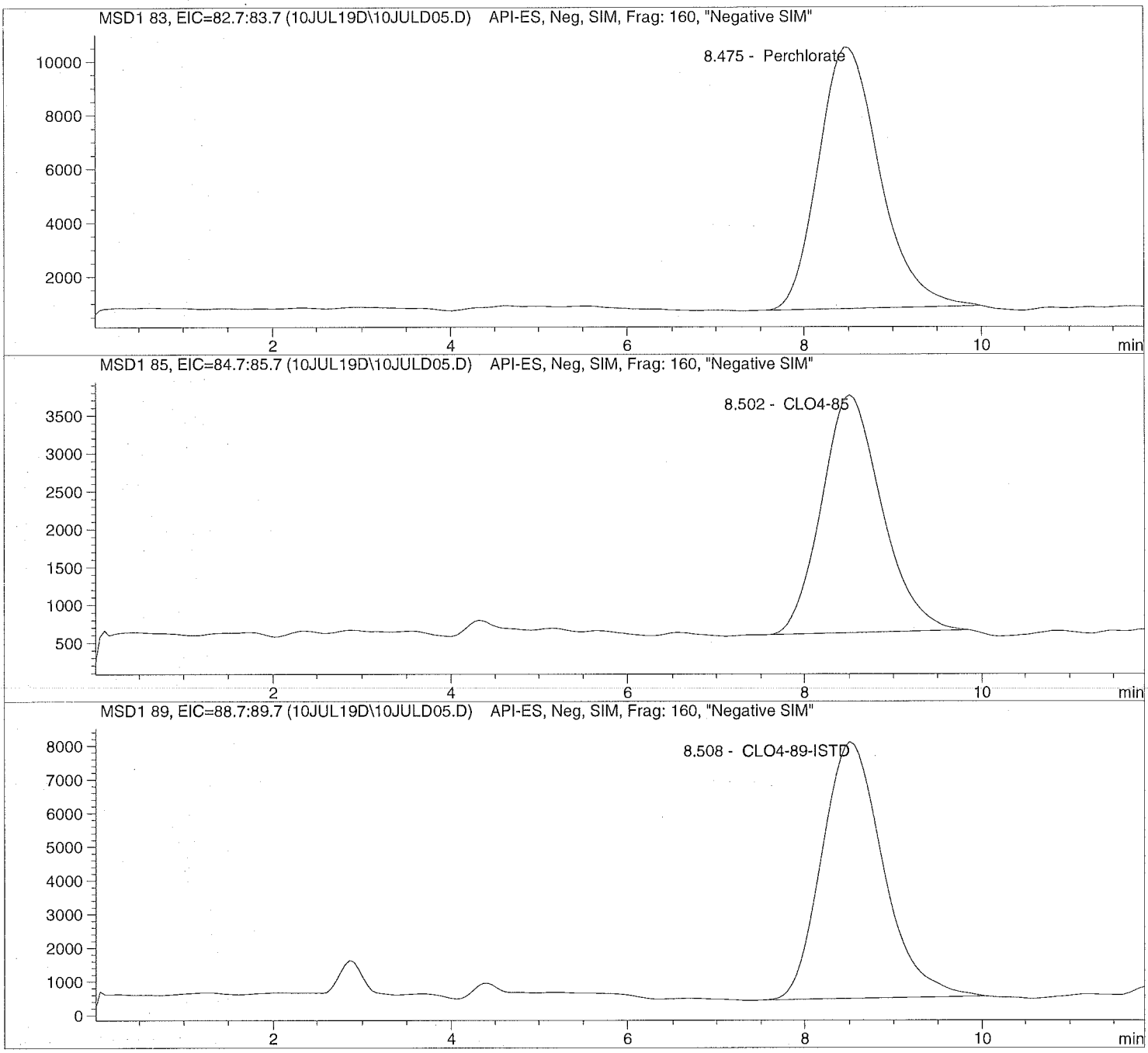
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD05.D Sample Name: 1918373001 1K

Injection Date:	7/10/2019 09:45:31	Seq Line:	5
Sample Name:	1918373001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD05.D Sample Name: 1918373001 1K

Injection Date:	7/10/2019 09:45:31	Seq Line:	5
Sample Name:	1918373001 1K	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	464595.3	4196.2559	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	147349.9	4333.7991	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.508	PBA	363966.2	5000.0000	CLO4-89-ISTD

*** End of Report ***

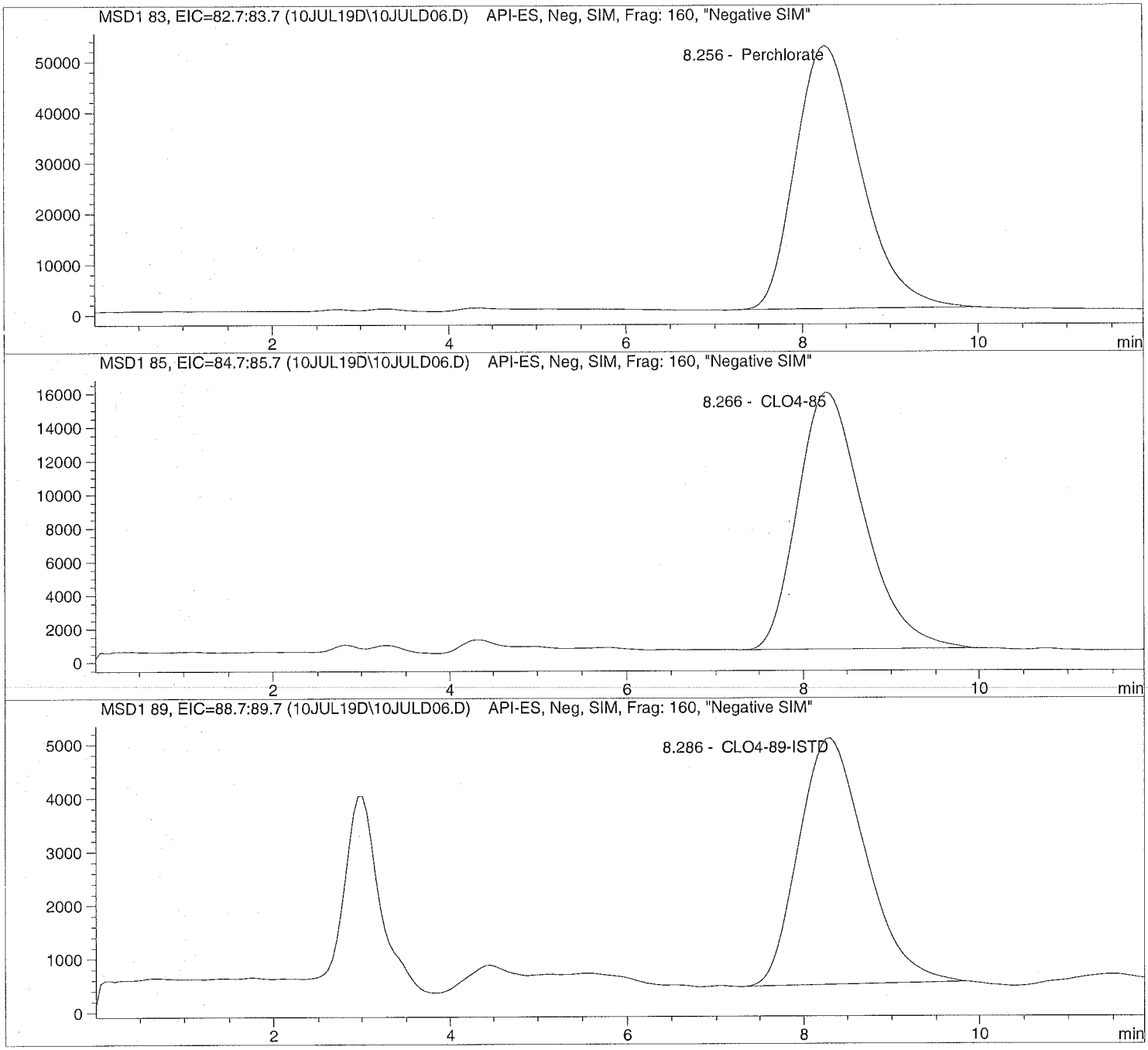
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD06.D Sample Name: 1918373002

Injection Date:	7/10/2019 09:59:30	Seq Line:	6
Sample Name:	1918373002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD06.D Sample Name: 1918373002

Injection Date:	7/10/2019 09:59:30	Seq Line:	6
Sample Name:	1918373002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.256	PBA	2674385.0	32.9586	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.266	PBA	800737.1	33.2843	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.286	PBA	242366.0	5.0000	CLO4-89-ISTD

*** End of Report ***

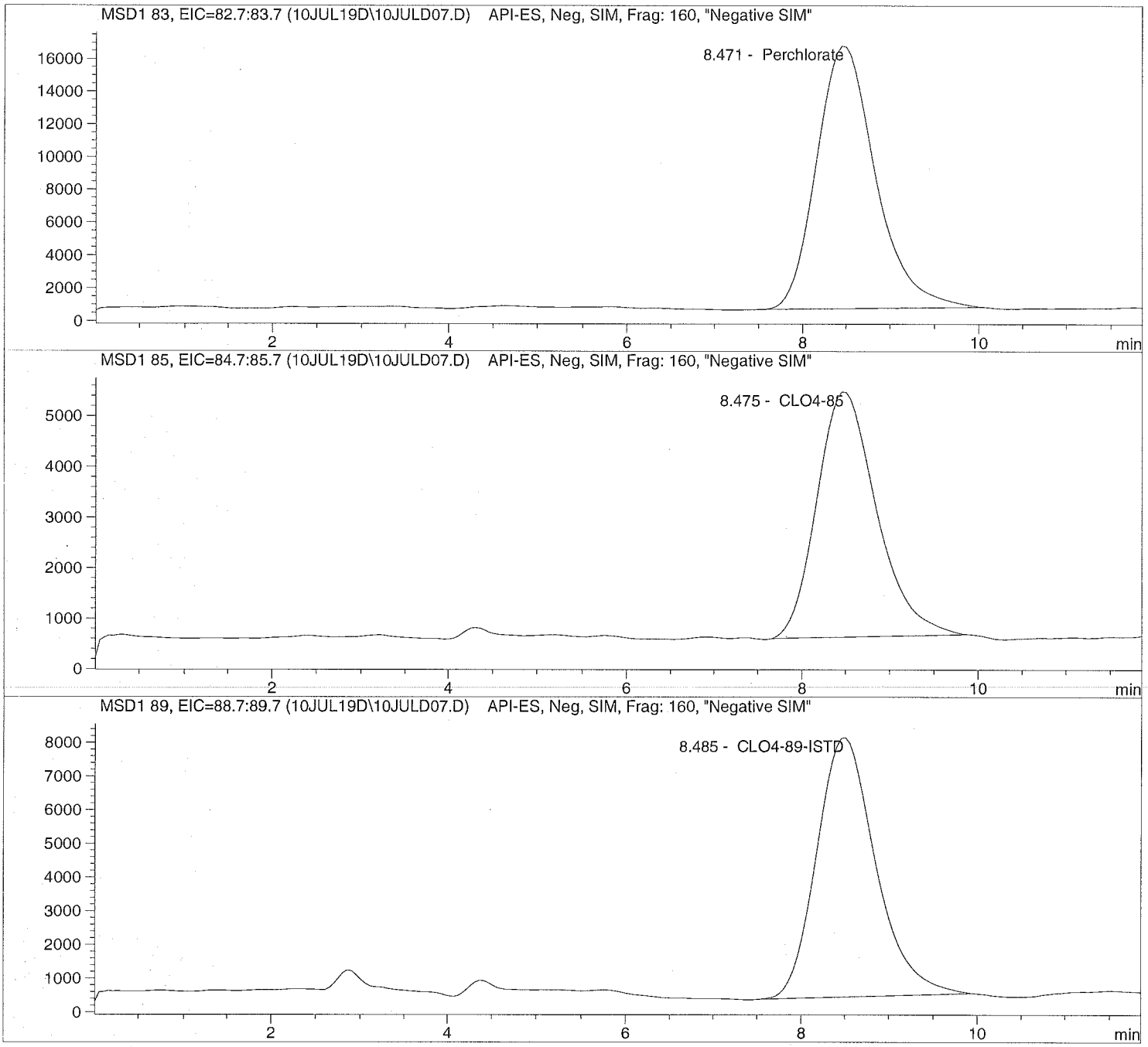
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD07.D Sample Name: 1918373003 10K

Injection Date:	7/10/2019 10:13:27	Seq Line:	7
Sample Name:	1918373003 10K	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD07.D Sample Name: 1918373003 10K

Injection Date:	7/10/2019 10:13:27	Seq Line:	7
Sample Name:	1918373003 10K	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.471	PBA	750172.8	66955.2143	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	230473.2	68000.4573	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.485	PBA	361021.3	50000.0000	CLO4-89-ISTD

*** End of Report ***

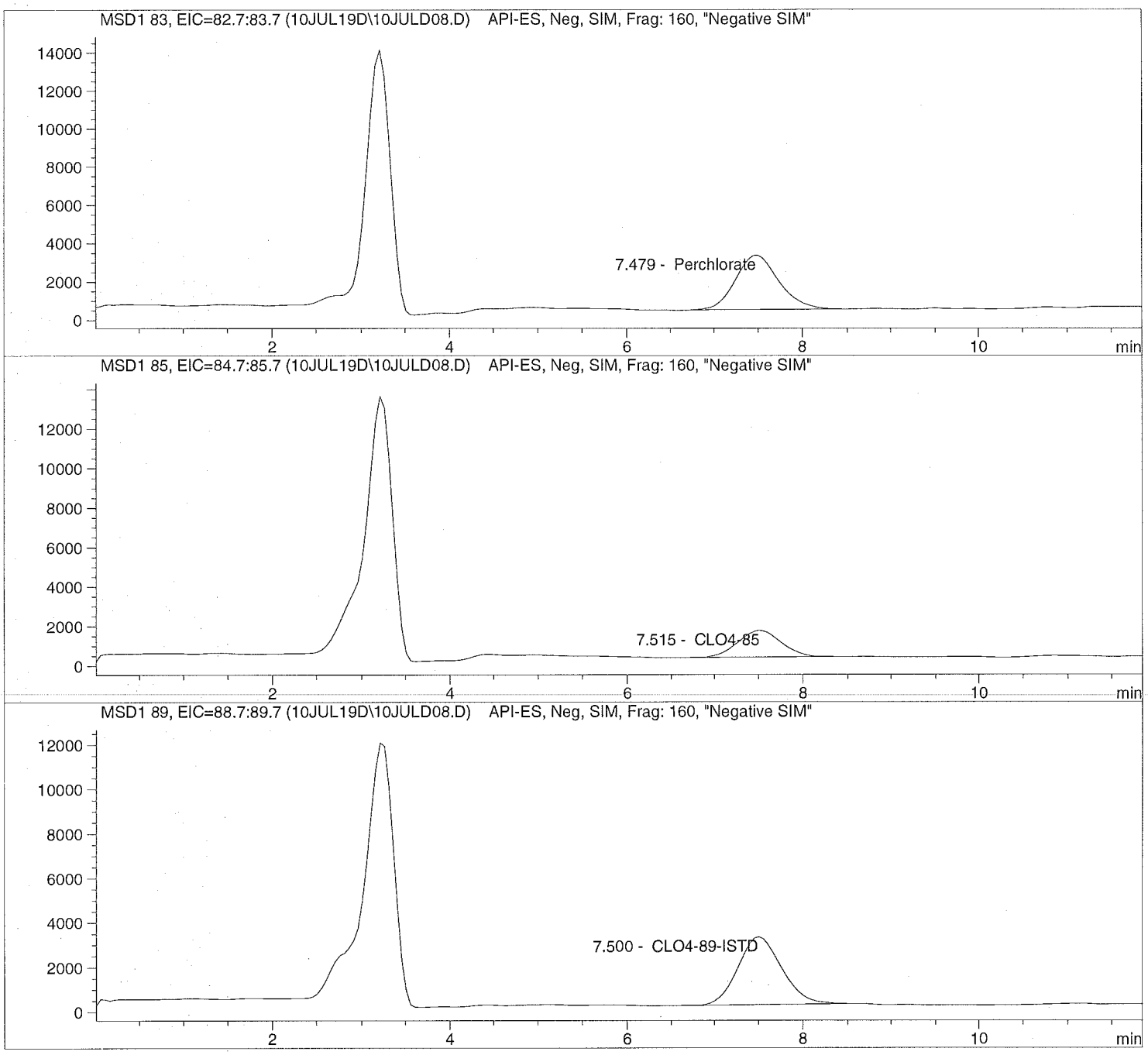
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD08.D Sample Name: 1918373004

Injection Date:	7/10/2019 10:27:21	Seq Line:	8
Sample Name:	1918373004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD08.D Sample Name: 1918373004

Injection Date:	7/10/2019 10:27:21	Seq Line:	8
Sample Name:	1918373004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.479	PBA	95969.8	3.0796	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.515	PBA	46048.0	4.7283	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.500	PBA	104173.2	5.0000	CLO4-89-ISTD

*** End of Report ***

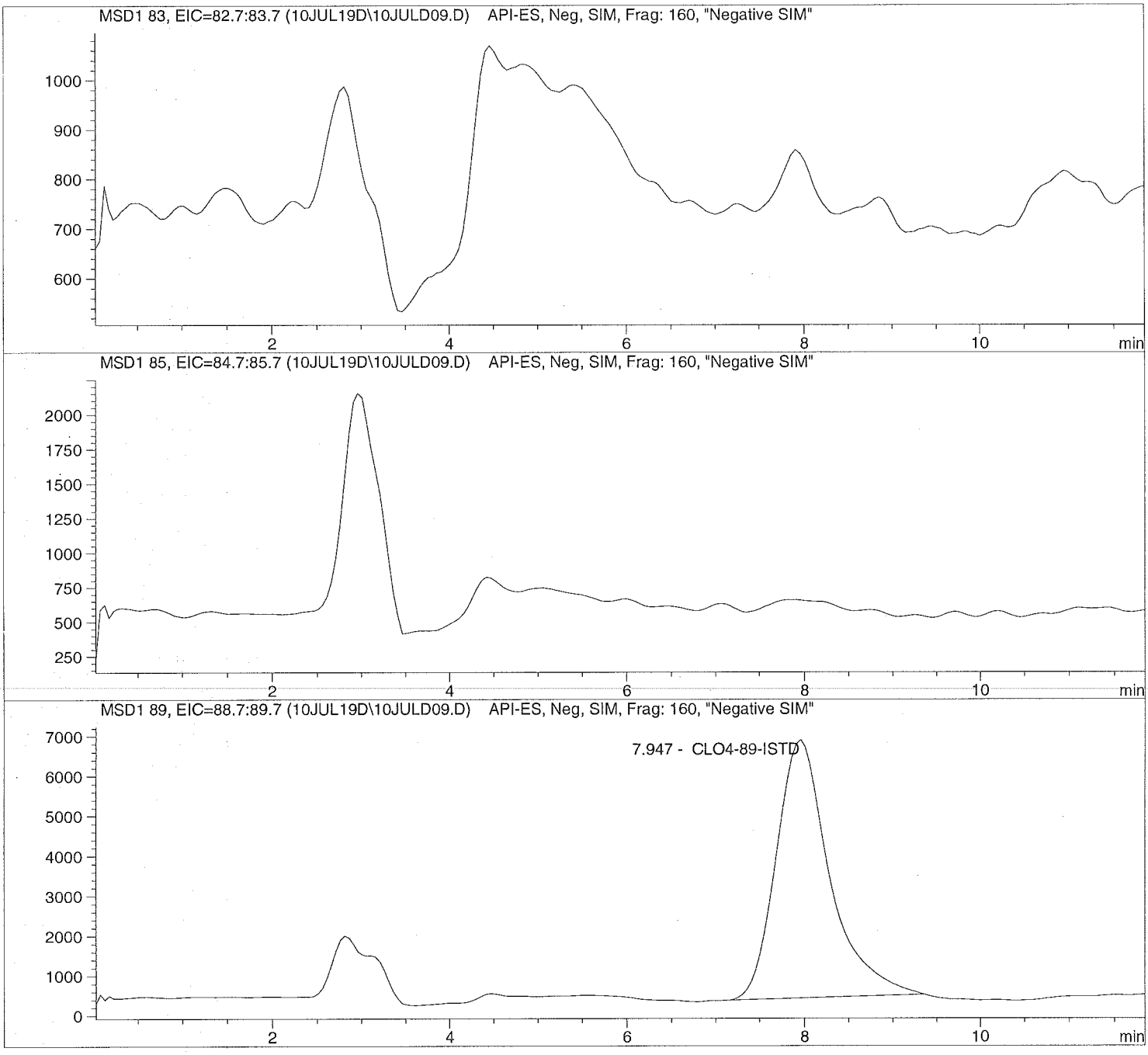
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD09.D Sample Name: 1918373005

Injection Date:	7/10/2019 10:41:15	Seq Line:	9
Sample Name:	1918373005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD09.D Sample Name: 1918373005

Injection Date:	7/10/2019 10:41:15	Seq Line:	9
Sample Name:	1918373005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.947	PBA	268458.6	5.0000	CLO4-89-ISTD

*** End of Report ***

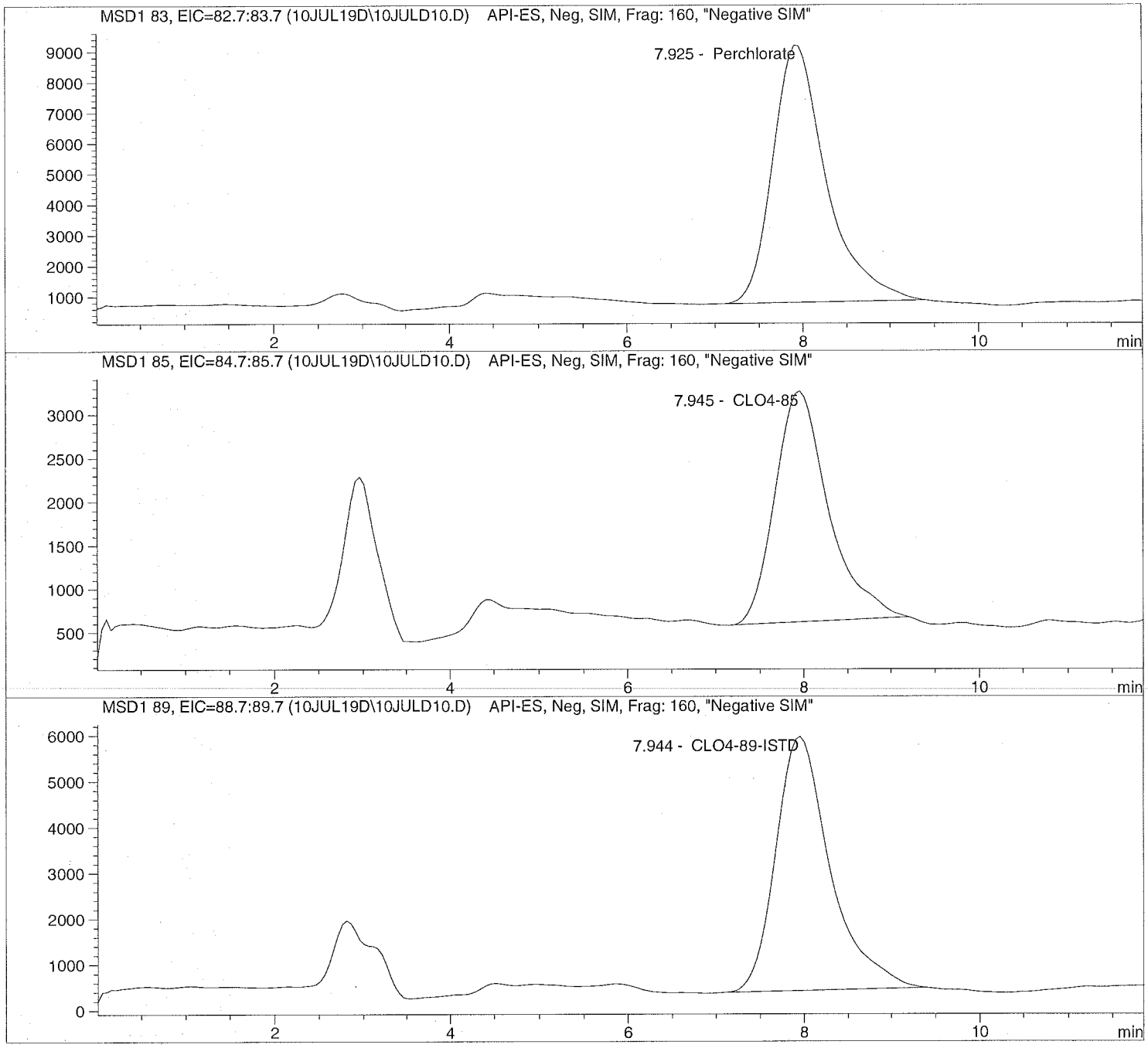
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD10.D Sample Name: 662919 183735S

Injection Date:	7/10/2019 10:55:10	Seq Line:	10
Sample Name:	662919 183735S	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD10.D Sample Name: 662919 183735S

Injection Date:	7/10/2019 10:55:10	Seq Line:	10
Sample Name:	662919 183735S	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.925	PBA	355093.0	4.8652	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.945	PBA	112035.2	5.0261	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.944	PBA	238297.3	5.0000	CLO4-89-ISTD

*** End of Report ***

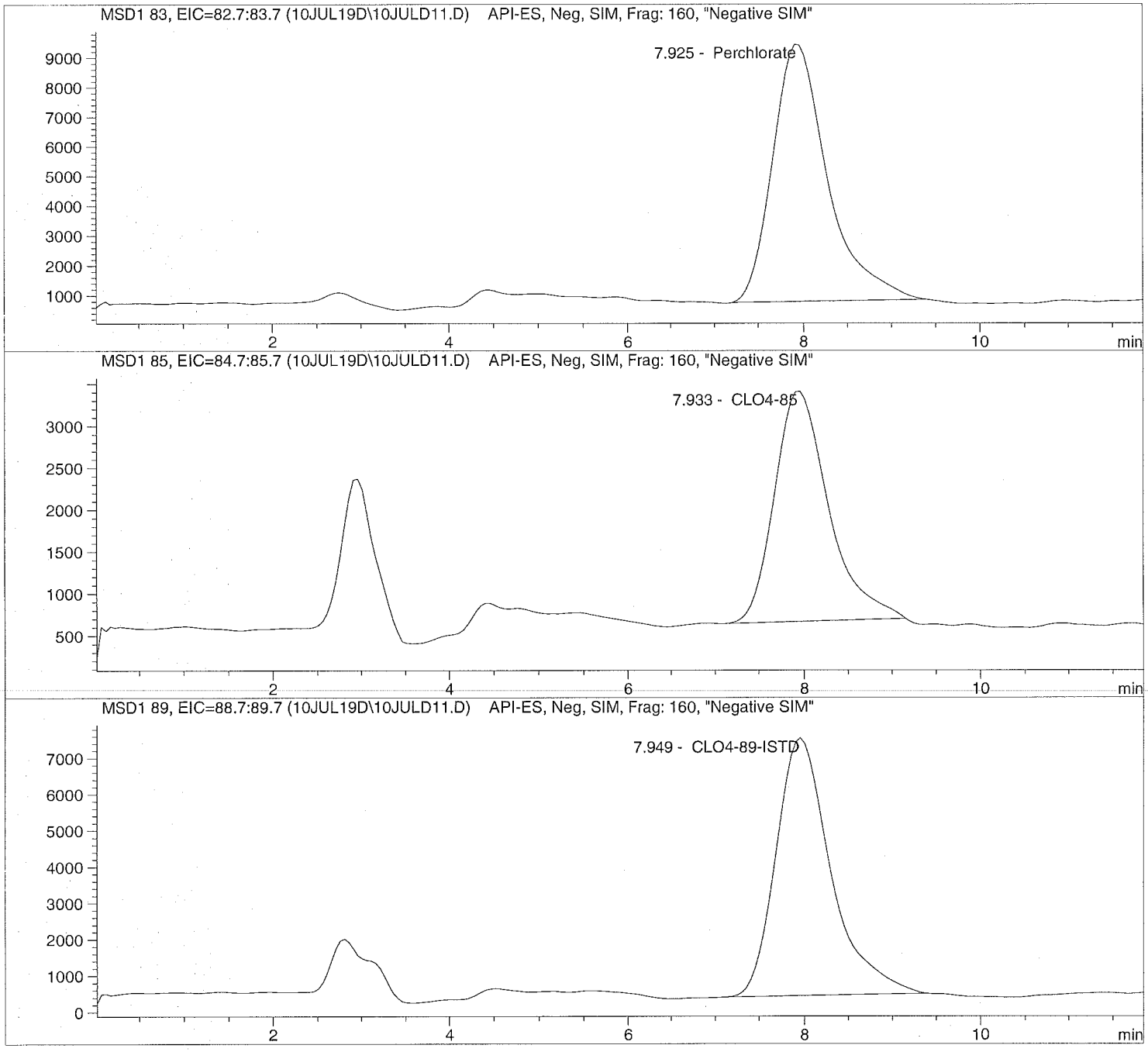
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD11.D Sample Name: 662920 183735D

Injection Date:	7/10/2019 11:09:12	Seq Line:	11
Sample Name:	662920 183735D	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD11.D Sample Name: 662920 183735D

Injection Date:	7/10/2019 11:09:12	Seq Line:	11
Sample Name:	662920 183735D	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.925	PBA	366789.0	4.0106	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.933	BBA	115346.9	4.0997	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.949	PBA	301317.7	5.0000	CLO4-89-ISTD

*** End of Report ***

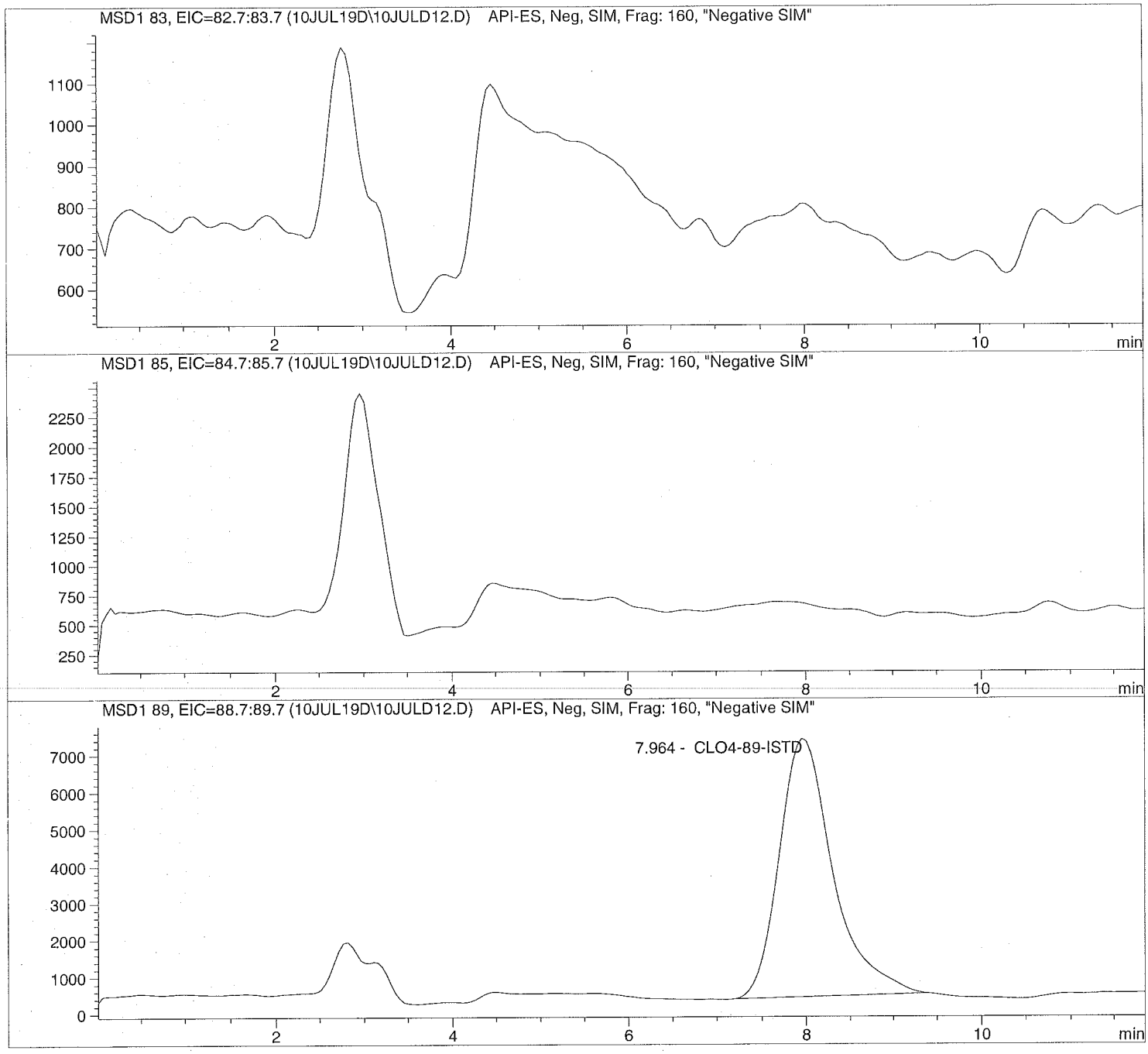
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD12.D Sample Name: 1918373006

Injection Date:	7/10/2019 11:23:04	Seq Line:	12
Sample Name:	1918373006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD12.D Sample Name: 1918373006

Injection Date:	7/10/2019 11:23:04	Seq Line:	12
Sample Name:	1918373006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.964	PBA	295412.9	5.0000	CLO4-89-ISTD

*** End of Report ***

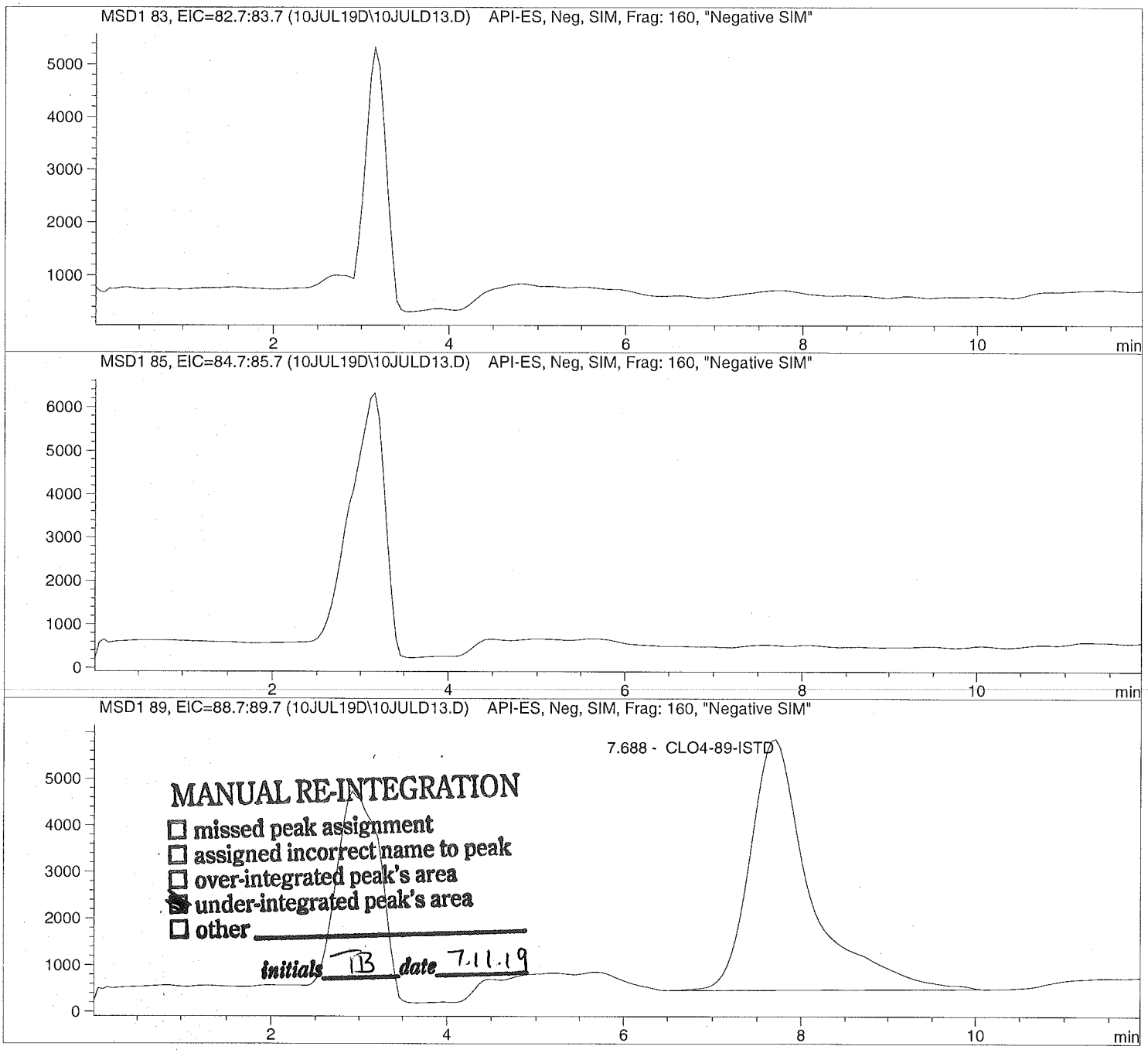
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.688	MM	256579.0	5.0000	CLO4-89-ISTD

*** End of Report ***

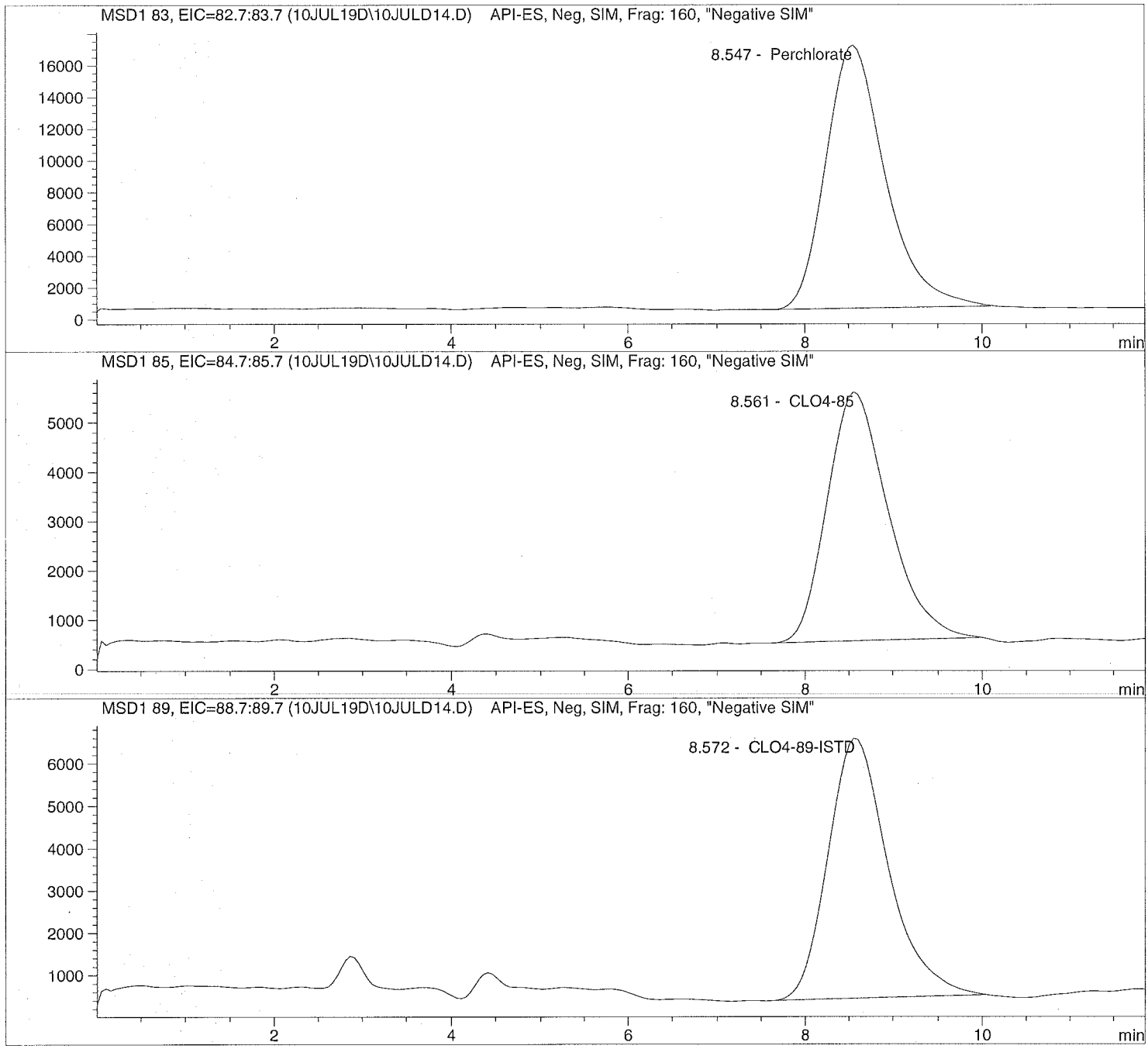
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD14.D Sample Name: 1918373008 10K

Injection Date:	7/10/2019 11:50:45	Seq Line:	14
Sample Name:	1918373008 10K	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD14.D Sample Name: 1918373008 10K

Injection Date:	7/10/2019 11:50:45	Seq Line:	14
Sample Name:	1918373008 10K	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.547	PBA	780844.1	85012.5764	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.561	PBA	243152.5	87944.5239	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.572	PBA	293278.4	50000.0000	CLO4-89-ISTD

*** End of Report ***

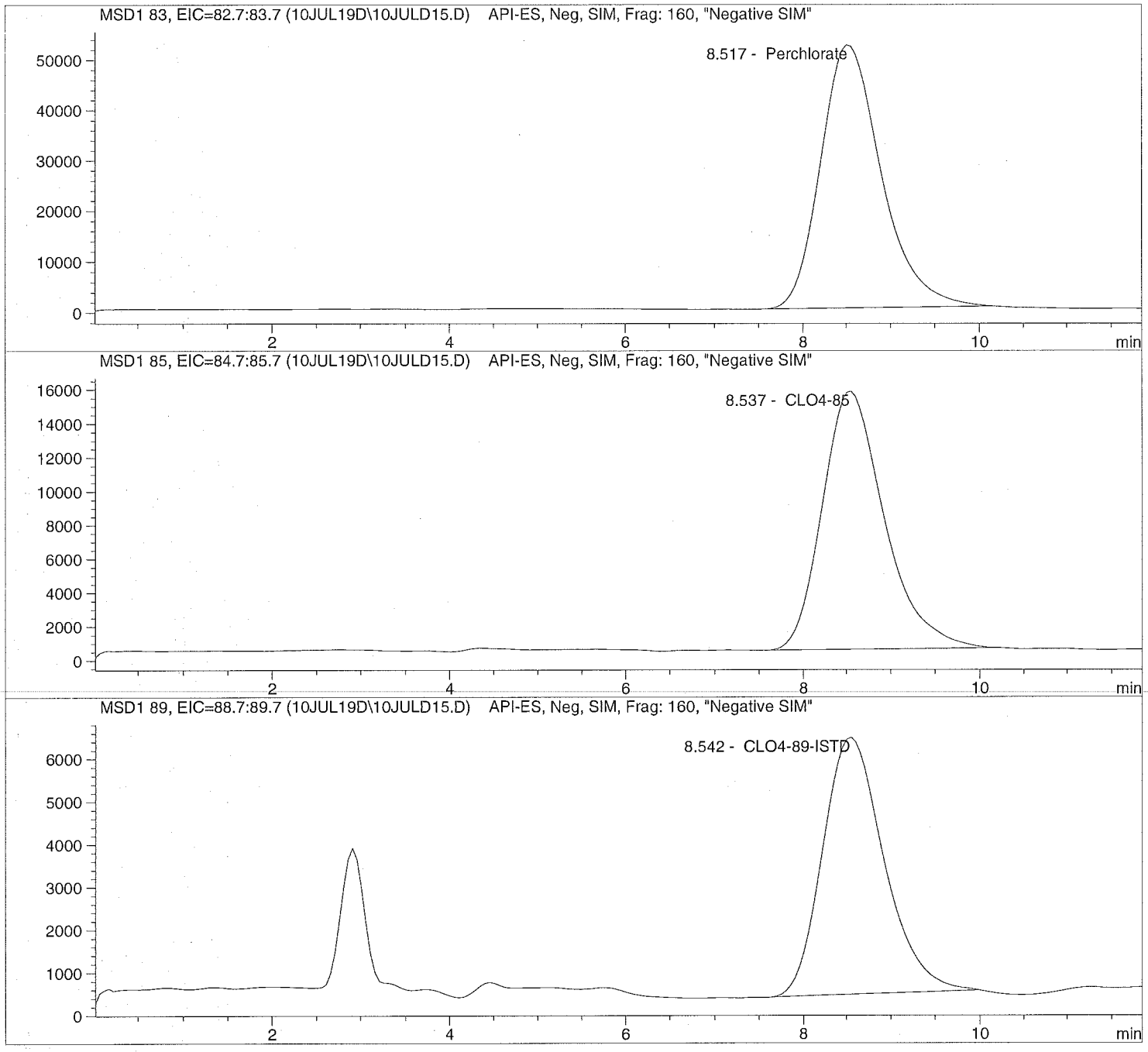
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD15.D Sample Name: 1918373009 10

Injection Date:	7/10/2019 12:04:37	Seq Line:	15
Sample Name:	1918373009 10	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD15.D Sample Name: 1918373009 10

Injection Date:	7/10/2019 12:04:37	Seq Line:	15
Sample Name:	1918373009 10	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.517	PBA	2500331.5	259.3213	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.537	PBA	749555.3	261.8322	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.542	PBA	292692.1	50.0000	CLO4-89-ISTD

*** End of Report ***

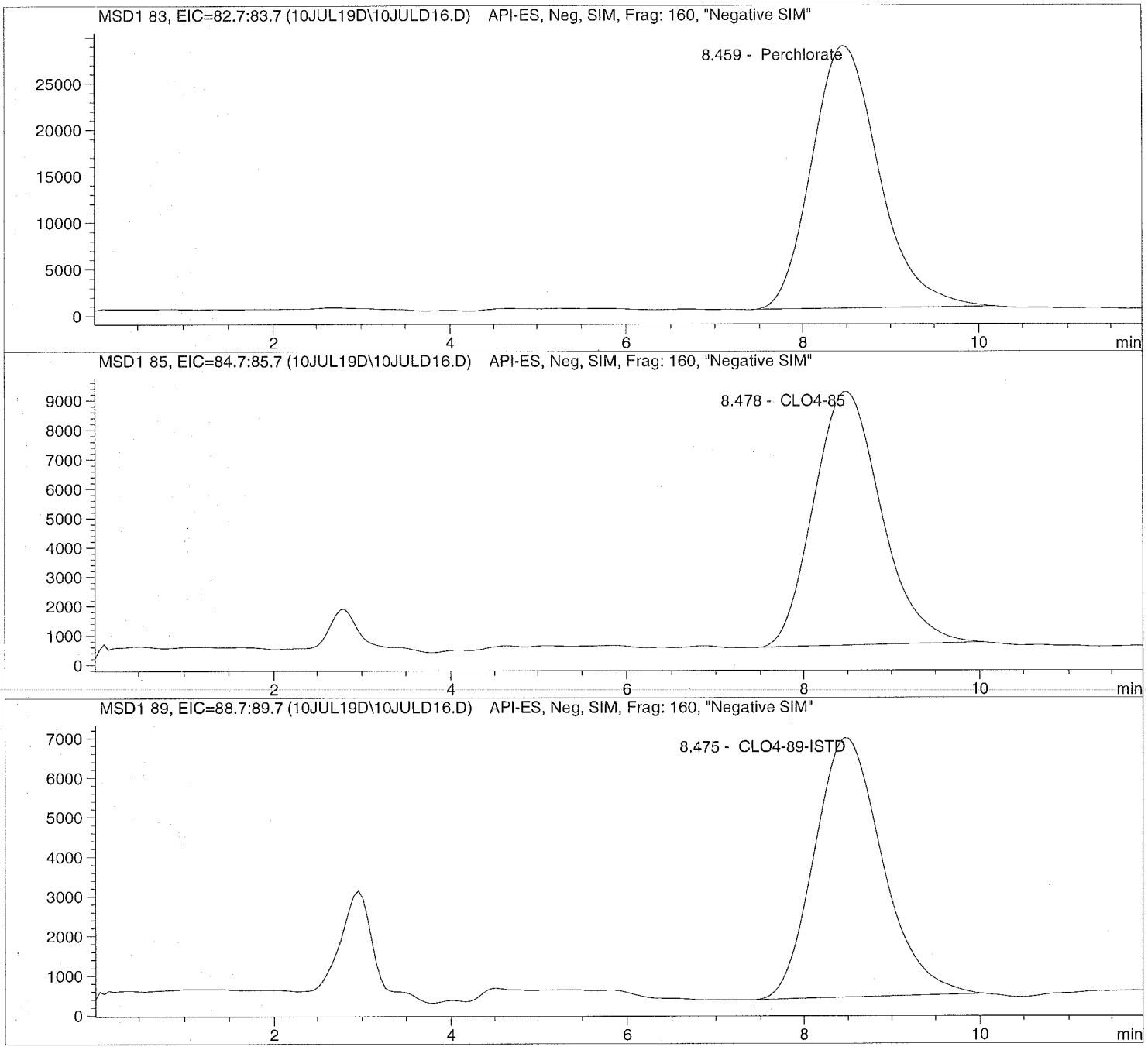
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD16.D Sample Name: 1918525001 100

Injection Date:	7/10/2019 12:18:38	Seq Line:	16
Sample Name:	1918525001 100	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD16.D Sample Name: 1918525001 100

Injection Date:	7/10/2019 12:18:38	Seq Line:	16
Sample Name:	1918525001 100	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.459	PBA	1501595.1	1335.1619	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.478	PBA	461811.6	1373.7604	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.475	PBA	352862.3	500.0000	CLO4-89-ISTD

*** End of Report ***

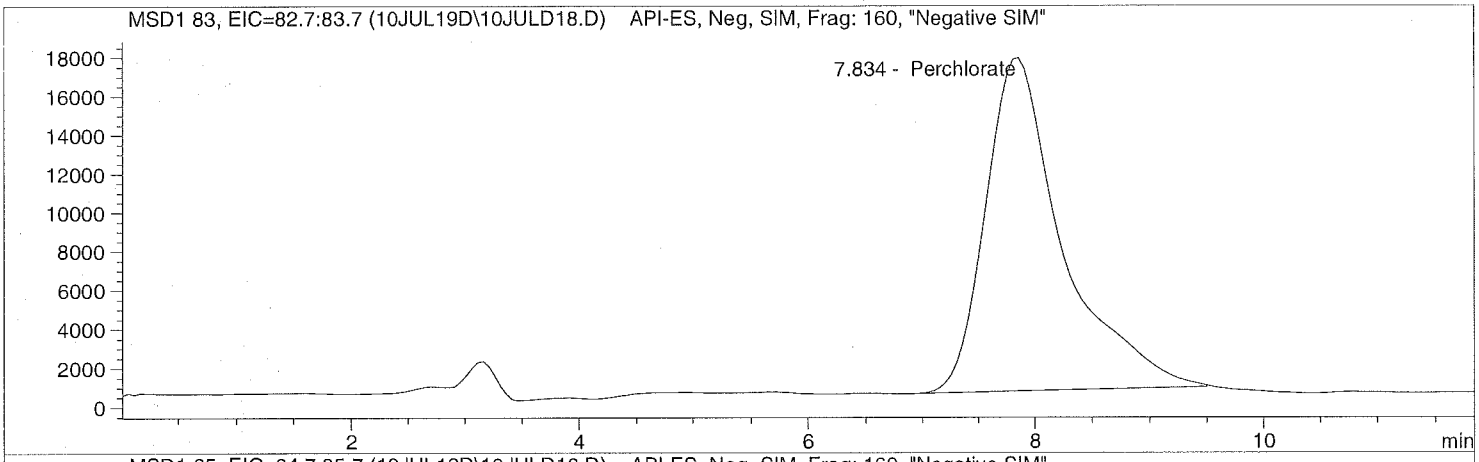
RIGHT SOLUTIONS | RIGHT PARTNER

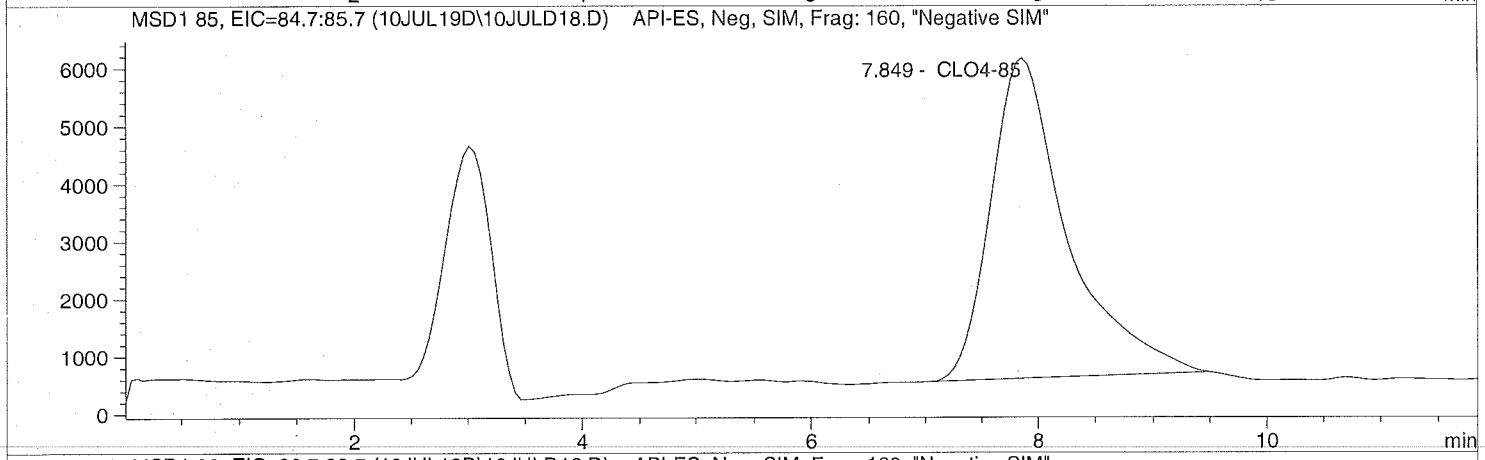
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD18.D Sample Name: 1918525002 10

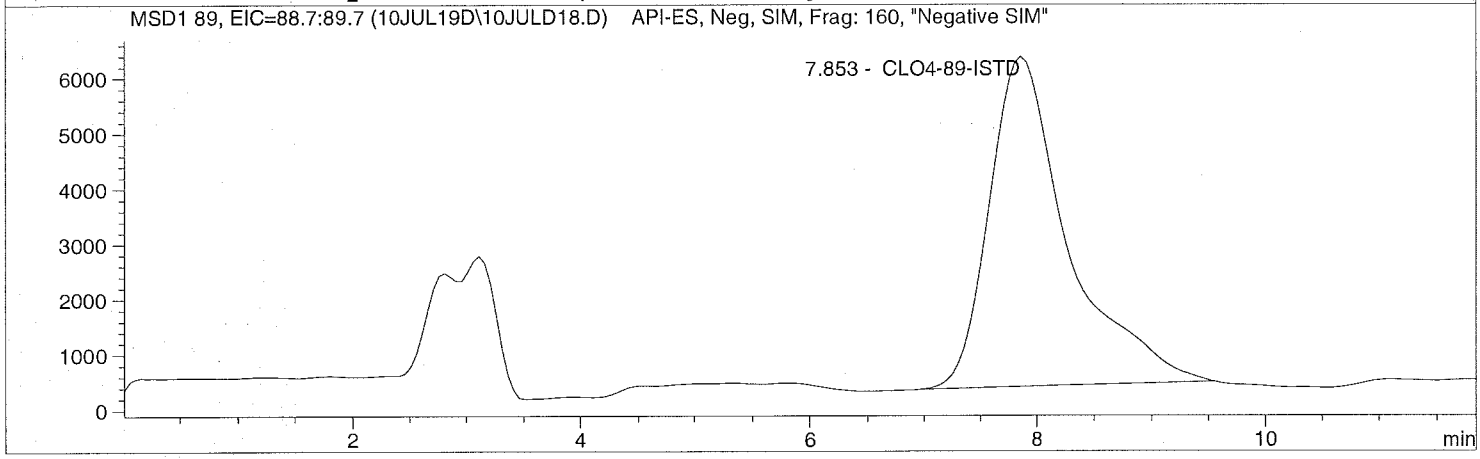
Injection Date:	7/10/2019 12:46:22	Seq Line:	18
Sample Name:	1918525002 10	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD18.D Sample Name: 1918525002 10

Injection Date:	7/10/2019 12:46:22	Seq Line:	18
Sample Name:	1918525002 10	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.834	PBA	801472.4	89.4028	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.849	PBA	259266.4	96.0941	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.853	PBA	285700.9	50.0000	CLO4-89-ISTD

*** End of Report ***

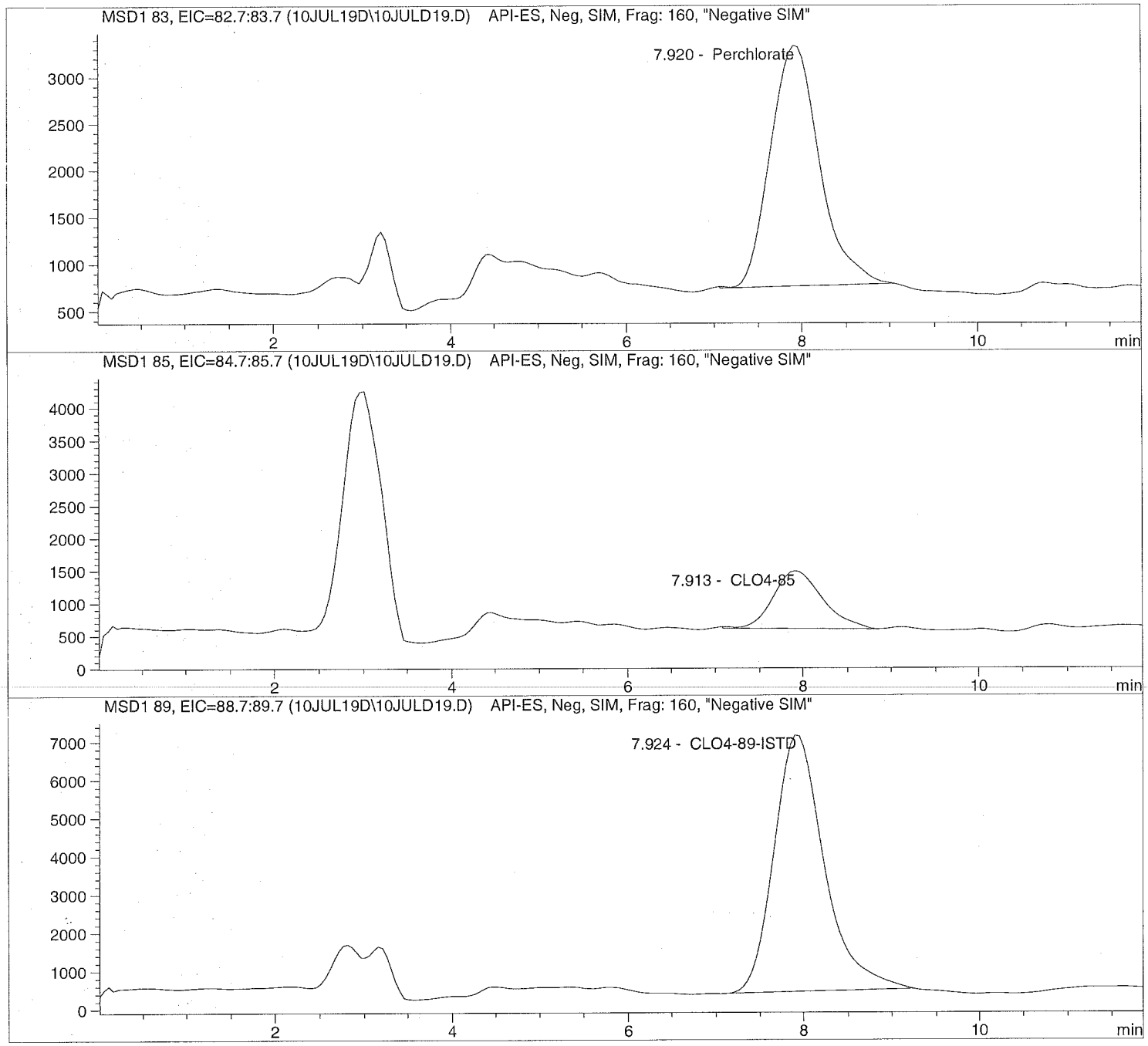
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD19.D Sample Name: 1918525003

Injection Date:	7/10/2019 13:00:15	Seq Line:	19
Sample Name:	1918525003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD19.D Sample Name: 1918525003

Injection Date:	7/10/2019 13:00:15	Seq Line:	19
Sample Name:	1918525003	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.920	BBA	99719.0	1.3533	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.913	BBA	34459.2	1.3947	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.924	PBA	265508.1	5.0000	CLO4-89-ISTD

*** End of Report ***

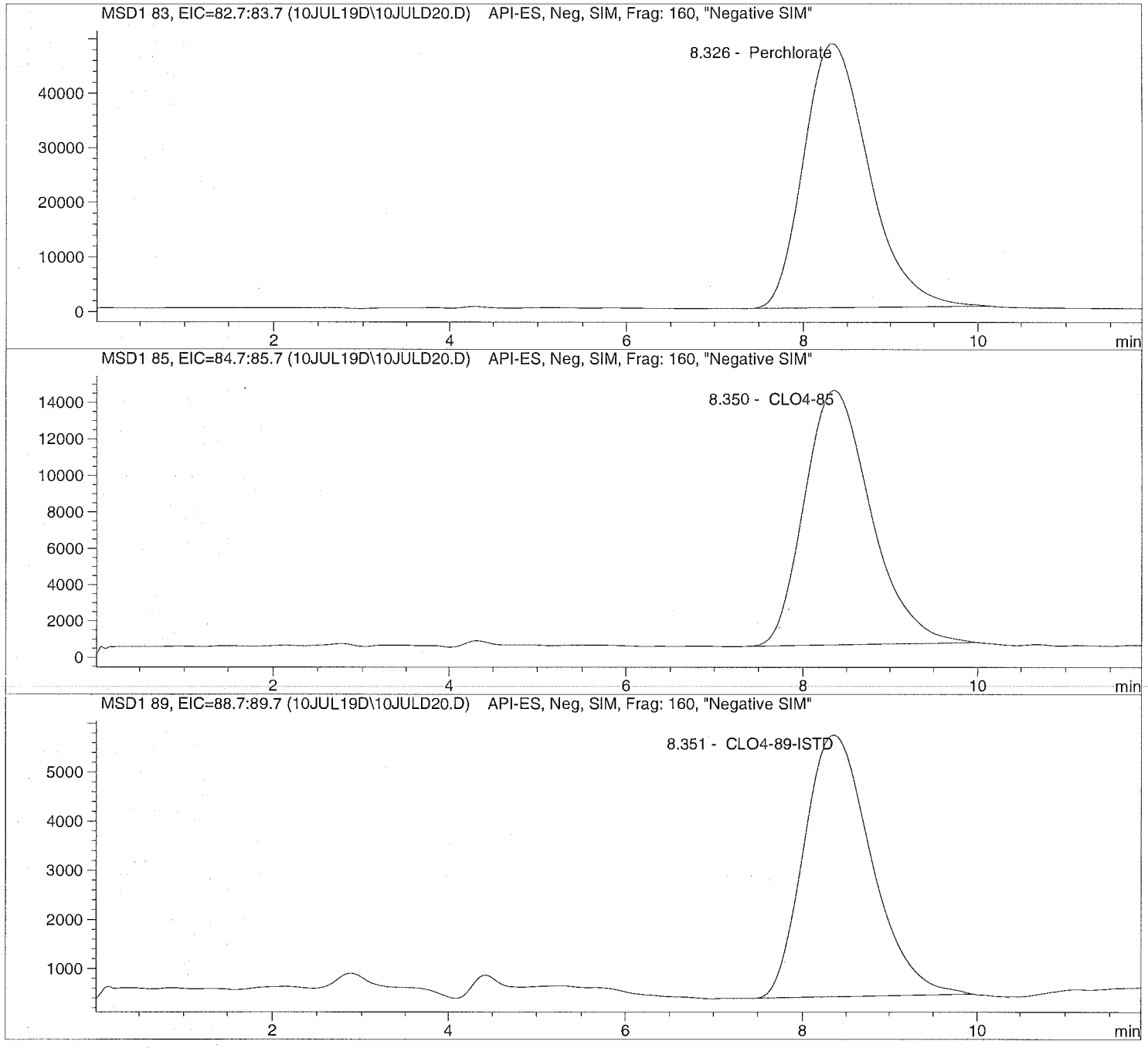
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD20.D Sample Name: 662921 CCV@25

Injection Date:	7/10/2019 13:15:33	Seq Line:	20
Sample Name:	662921 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD20.D Sample Name: 662921 CCV@25

Injection Date:	7/10/2019 13:15:33	Seq Line:	20
Sample Name:	662921 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.326	PBA	2504544.8	26.4781	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	PBA	743673.1	26.4969	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.351	PBA	286769.0	5.0000	CLO4-89-ISTD

*** End of Report ***

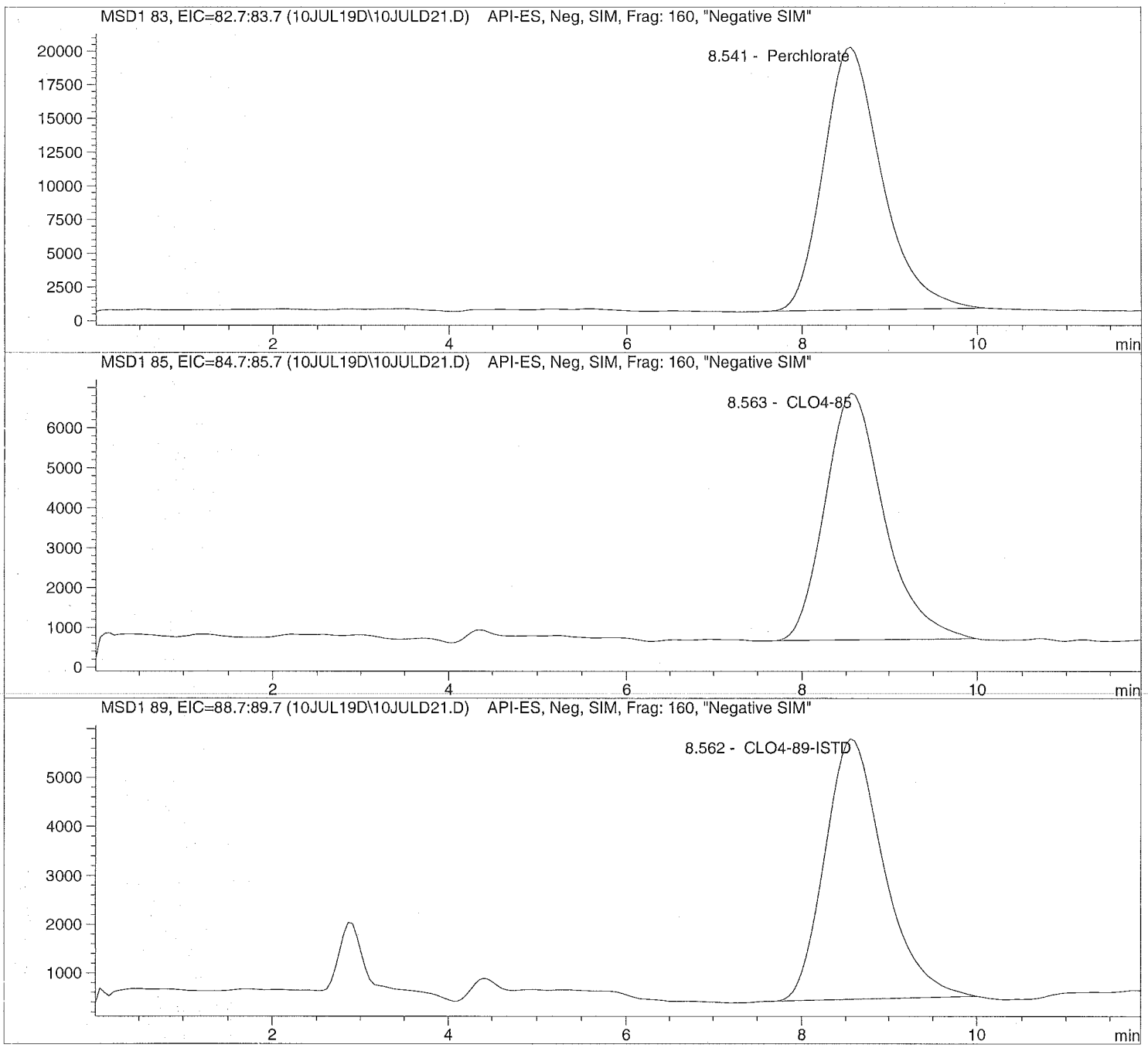
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD21.D Sample Name: 1918525004 1K

Injection Date:	7/10/2019 13:39:18	Seq Line:	21
Sample Name:	1918525004 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD21.D Sample Name: 1918525004 1K

Injection Date:	7/10/2019 13:39:18	Seq Line:	21
Sample Name:	1918525004 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.541	PBA	911870.8	11409.0284	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.563	PBA	292673.1	12213.3165	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.562	PBA	252353.5	5000.0000	CLO4-89-ISTD

*** End of Report ***

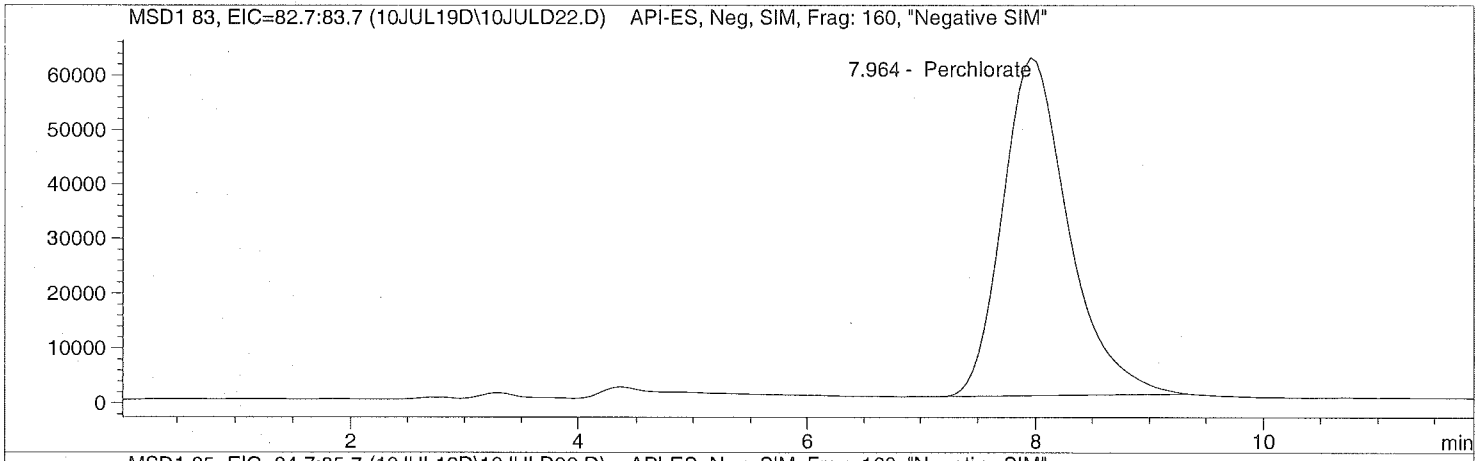
RIGHT SOLUTIONS | RIGHT PARTNER

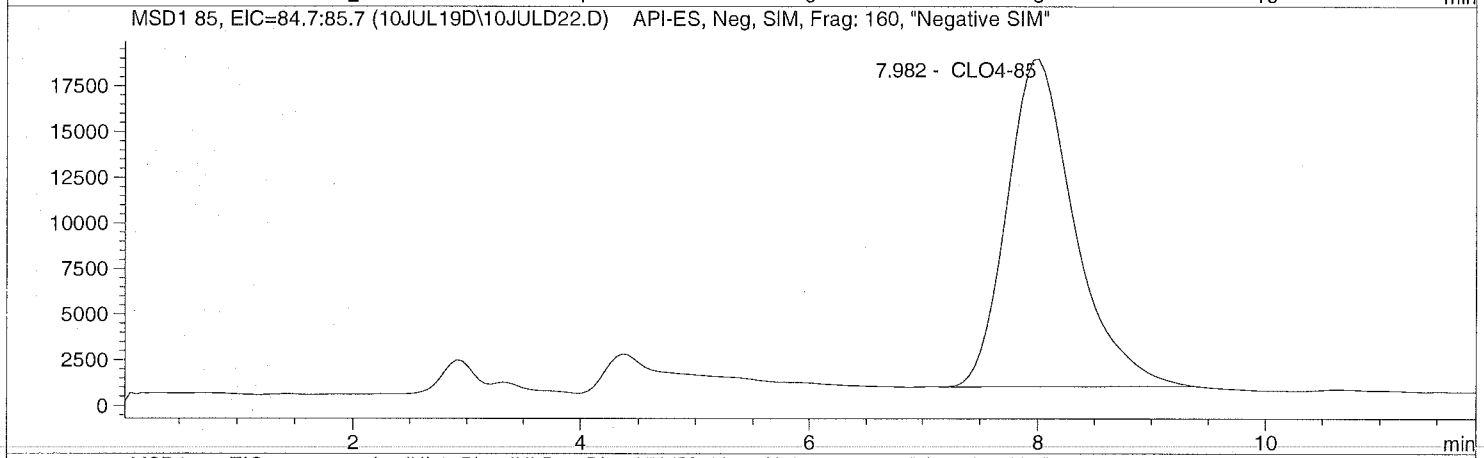
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD22.D Sample Name: 1918682001

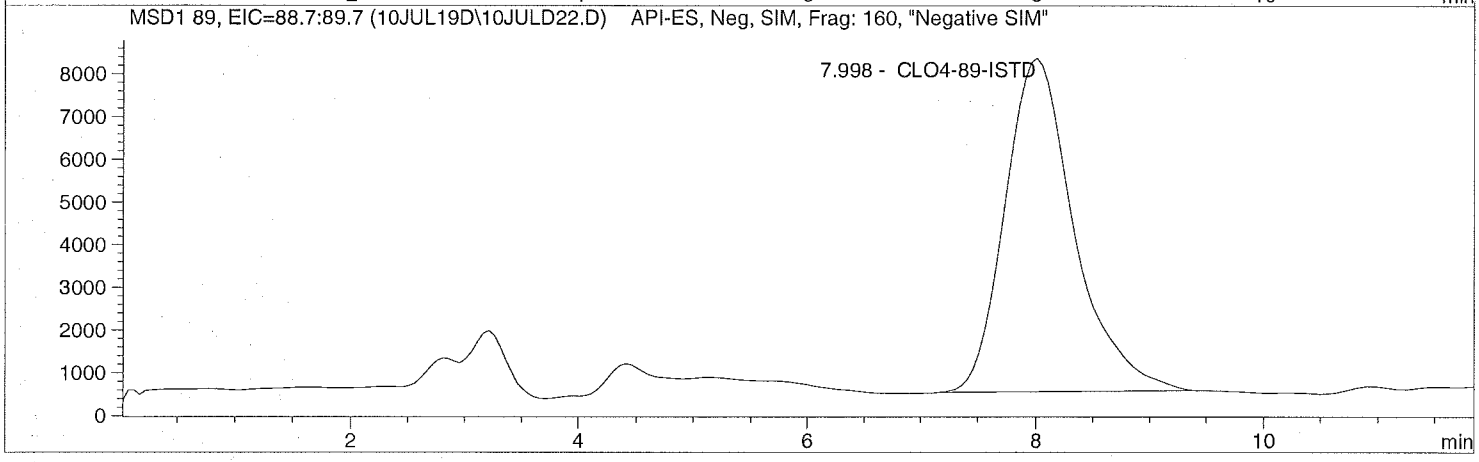
Injection Date:	7/10/2019 13:53:14	Seq Line:	22
Sample Name:	1918682001	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD22.D Sample Name: 1918682001

Injection Date:	7/10/2019 13:53:14	Seq Line:	22
Sample Name:	1918682001	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.964	PBA	2472569.8	22.9756	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.982	PBA	738653.3	23.1021	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.998	PBA	329023.1	5.0000	CLO4-89-ISTD

*** End of Report ***

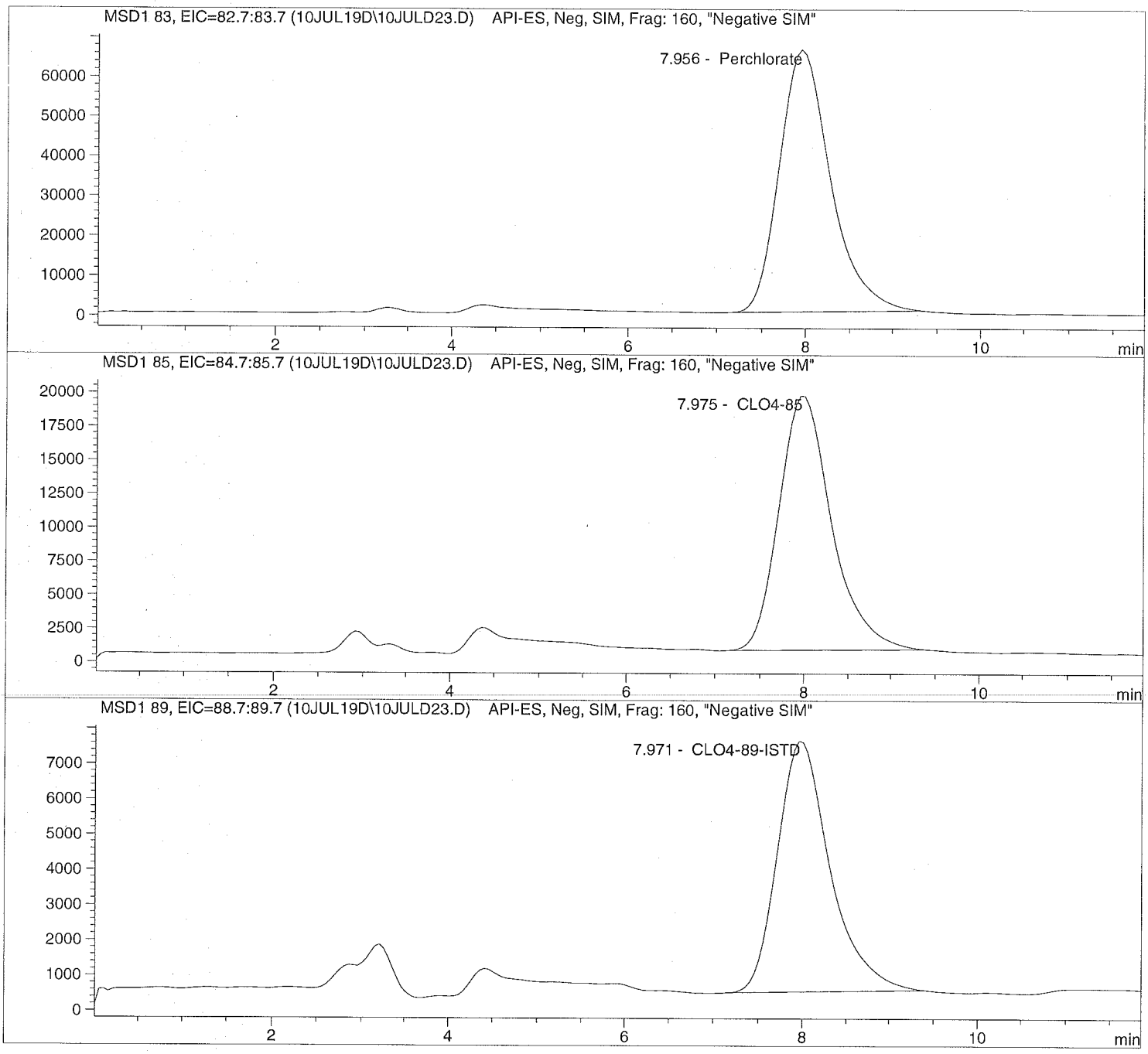
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD23.D Sample Name: 1918682002

Injection Date:	7/10/2019 14:07:09	Seq Line:	23
Sample Name:	1918682002	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD23.D Sample Name: 1918682002

Injection Date:	7/10/2019 14:07:09	Seq Line:	23
Sample Name:	1918682002	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.956	PBA	2649661.3	27.0999	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.975	PBA	784495.3	27.0493	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.971	PBA	295991.2	5.0000	CLO4-89-ISTD

*** End of Report ***

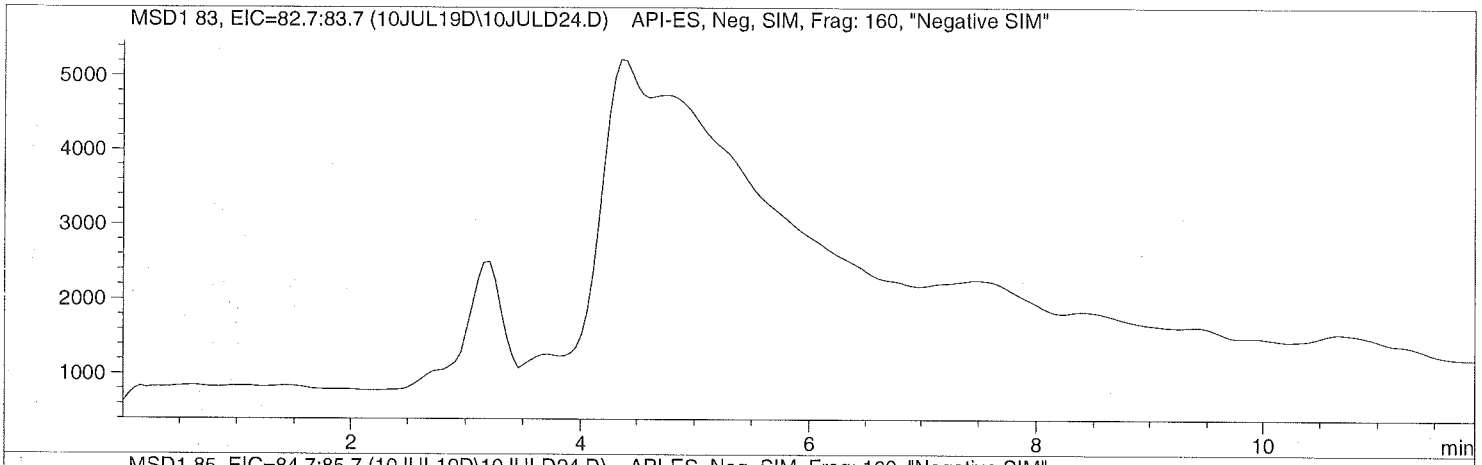
RIGHT SOLUTIONS | RIGHT PARTNER

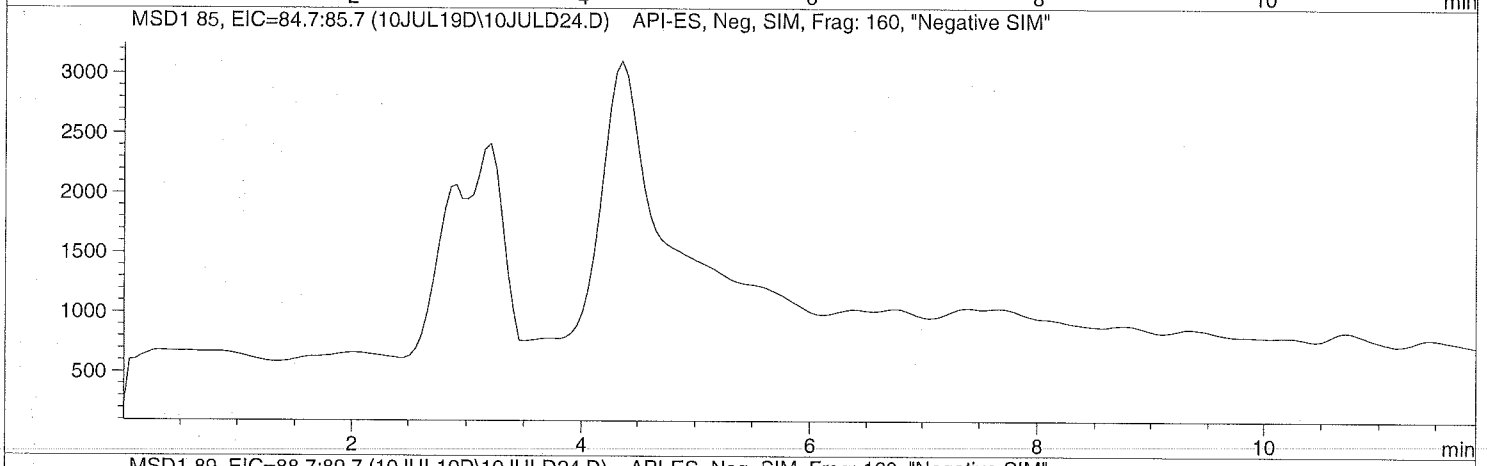
Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD24.D Sample Name: 1918682003

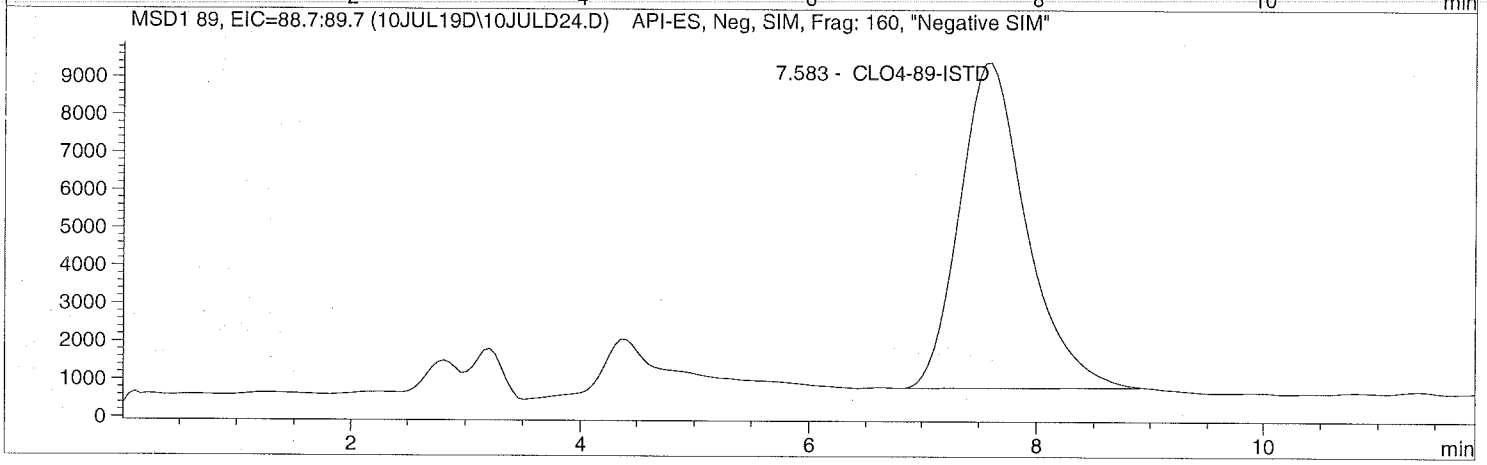
Injection Date:	7/10/2019 14:20:59	Seq Line:	24
Sample Name:	1918682003	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD24.D Sample Name: 1918682003

Injection Date:	7/10/2019 14:20:59	Seq Line:	24
Sample Name:	1918682003	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.583	PBA	347868.7	5.0000	CLO4-89-ISTD

*** End of Report ***

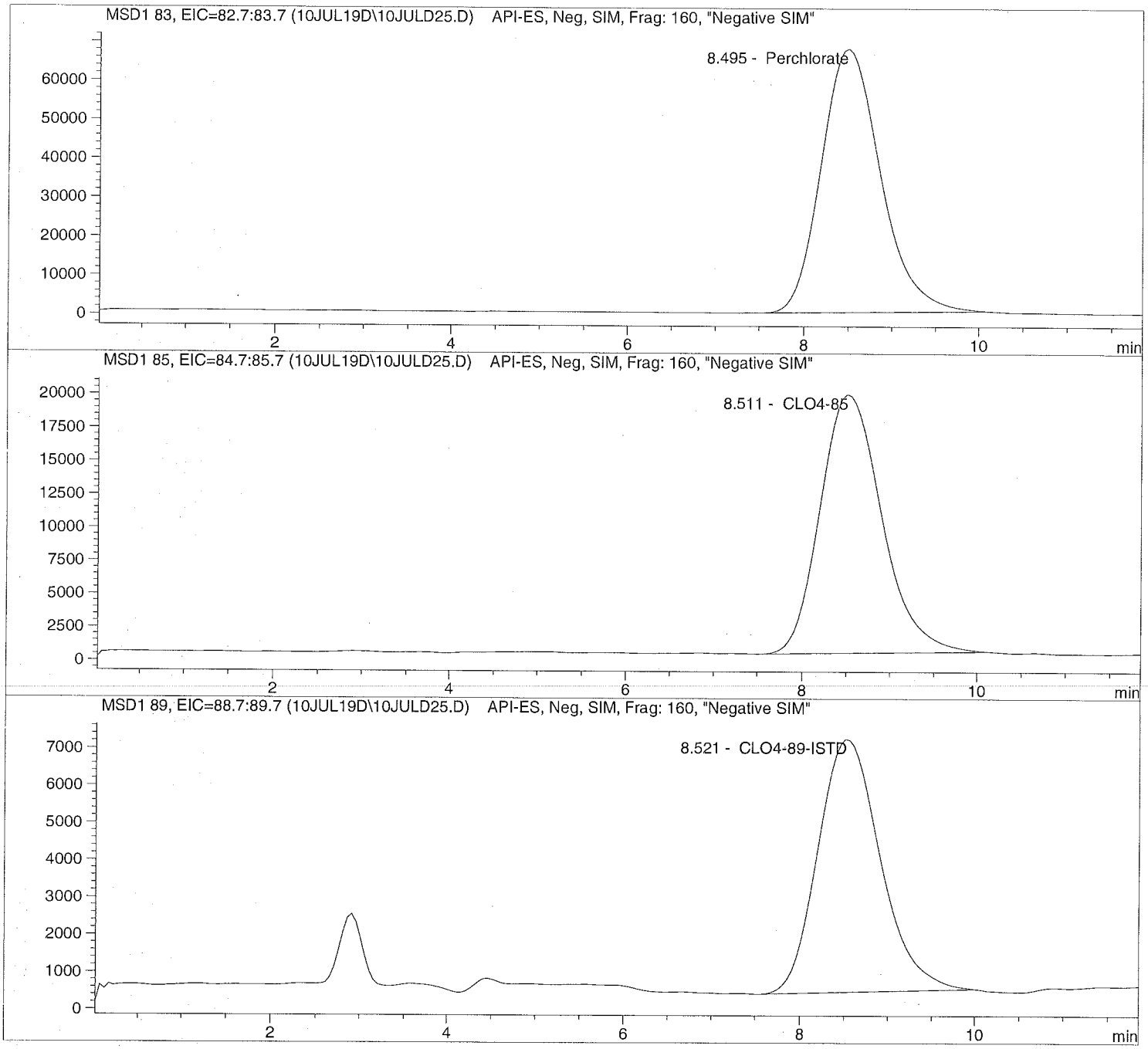
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD25.D Sample Name: 1918682004 100

Injection Date:	7/10/2019 14:34:49	Seq Line:	25
Sample Name:	1918682004 100	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD25.D Sample Name: 1918682004 100

Injection Date:	7/10/2019 14:34:49	Seq Line:	25
Sample Name:	1918682004 100	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.495	PBA	3177637.5	2867.6913	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.511	PBA	949731.6	2888.9947	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.521	PBA	334219.0	500.0000	CLO4-89-ISTD

*** End of Report ***

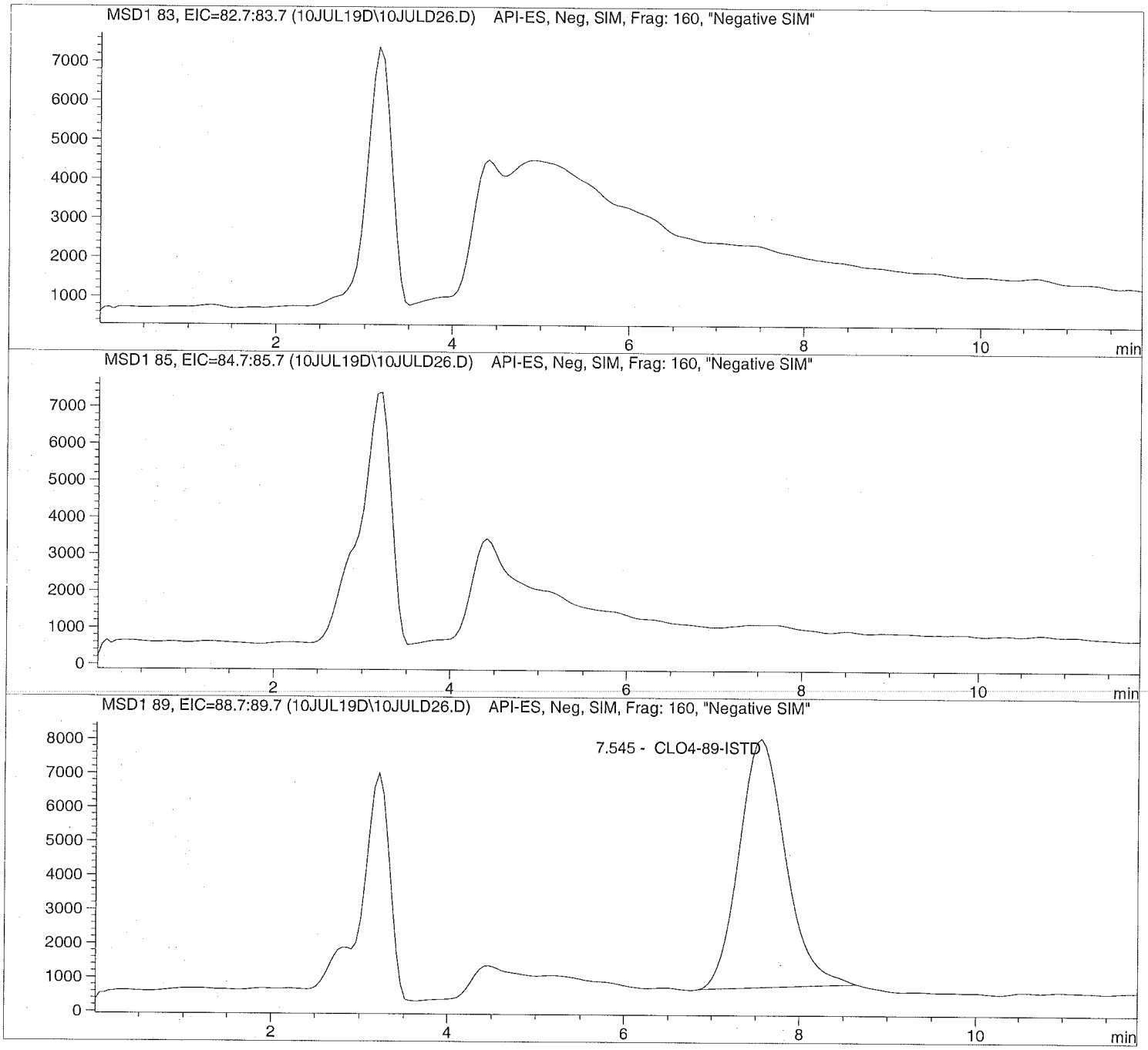
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD26.D Sample Name: 1918682005

Injection Date:	7/10/2019 14:48:53	Seq Line:	26
Sample Name:	1918682005	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD26.D Sample Name: 1918682005

Injection Date:	7/10/2019 14:48:53	Seq Line:	26
Sample Name:	1918682005	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.545	PBA	268838.9	5.0000	CLO4-89-ISTD

*** End of Report ***

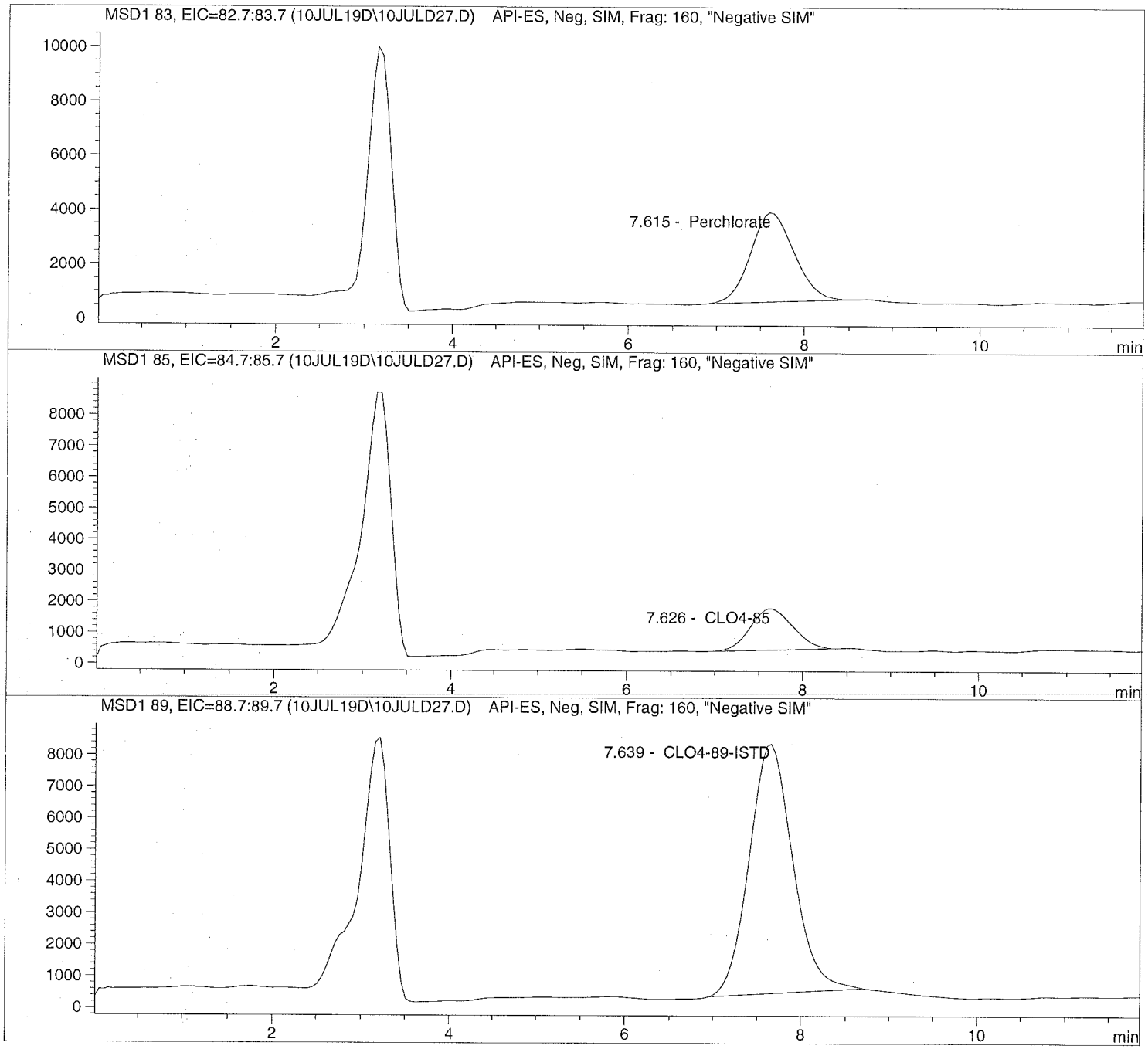
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD27.D Sample Name: 1918373004 4X

Injection Date:	7/10/2019 15:02:46	Seq Line:	27
Sample Name:	1918373004 4X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD27.D Sample Name: 1918373004 4X

Injection Date:	7/10/2019 15:02:46	Seq Line:	27
Sample Name:	1918373004 4X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	4.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.615	PBA	113897.9	5.9203	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.626	PBA	45010.5	7.0582	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.639	PBA	274117.7	20.0000	CLO4-89-ISTD

*** End of Report ***

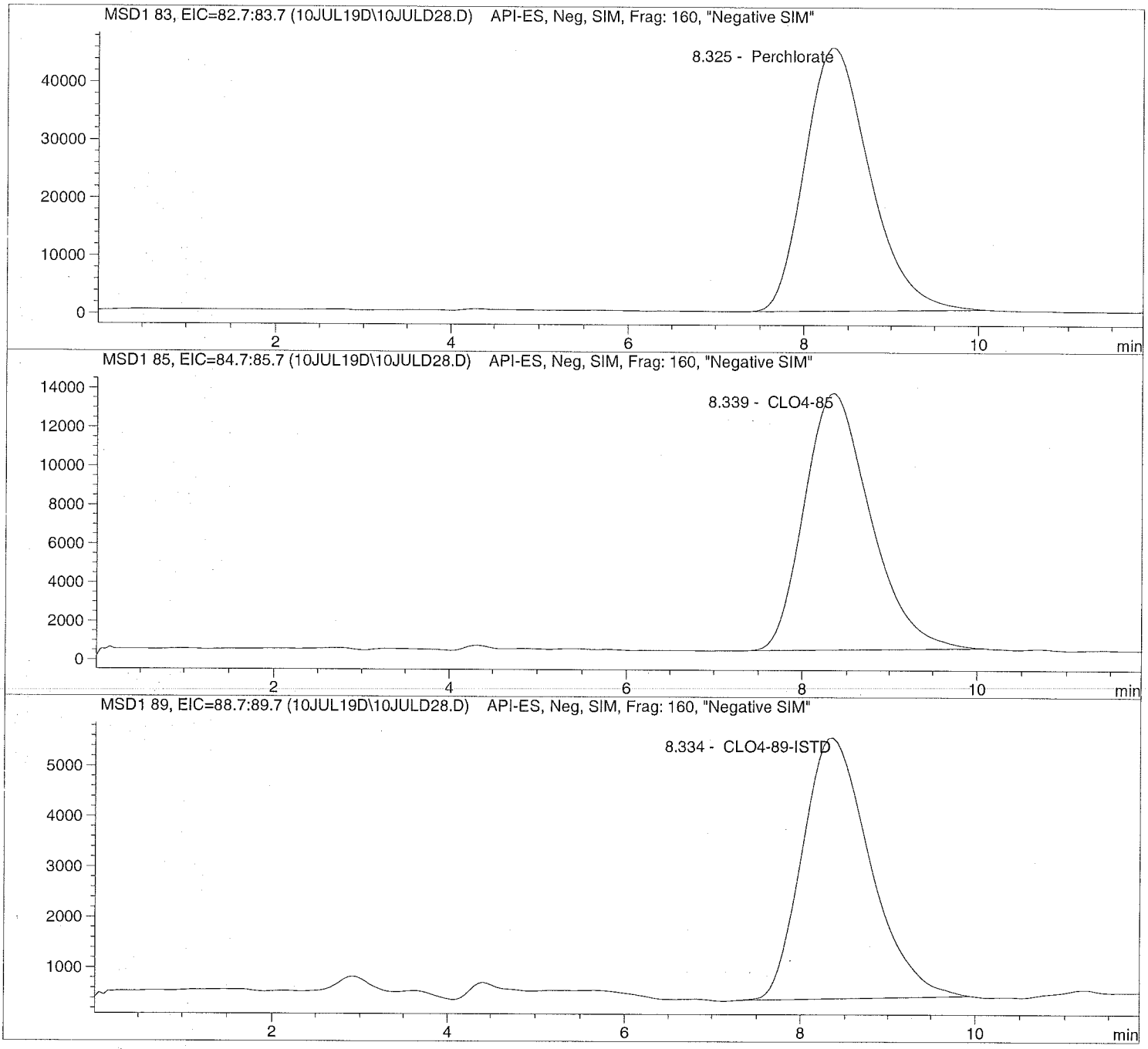
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD28.D Sample Name: 662922 CCV@25

Injection Date:	7/10/2019 15:16:39	Seq Line:	28
Sample Name:	662922 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD28.D Sample Name: 662922 CCV@25

Injection Date:	7/10/2019 15:16:39	Seq Line:	28
Sample Name:	662922 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.325	PBA	2335796.8	25.5805	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.339	PBA	693327.1	25.5842	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.334	PBA	277421.9	5.0000	CLO4-89-ISTD

*** End of Report ***

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

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Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

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Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

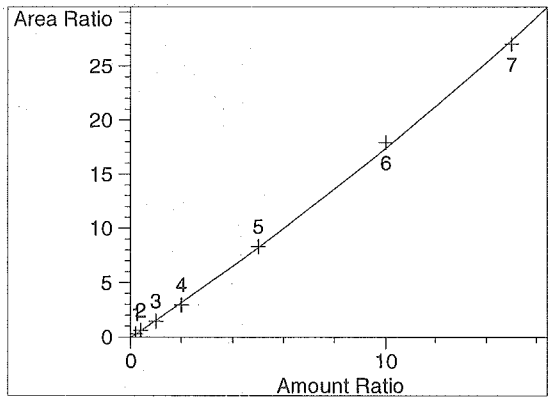
No Entries in table

RIGHT SOLUTIONS | RIGHT PARTNER

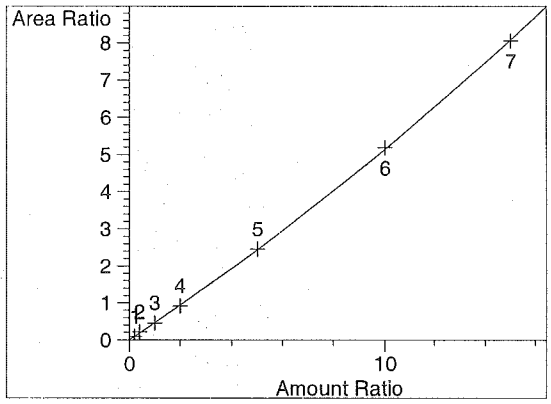
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Calibration Curves

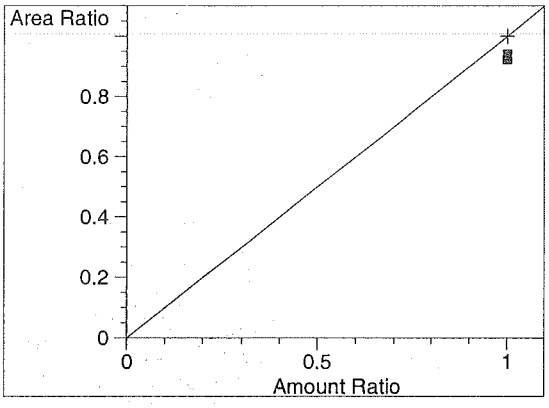
==========



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

==========

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Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

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Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

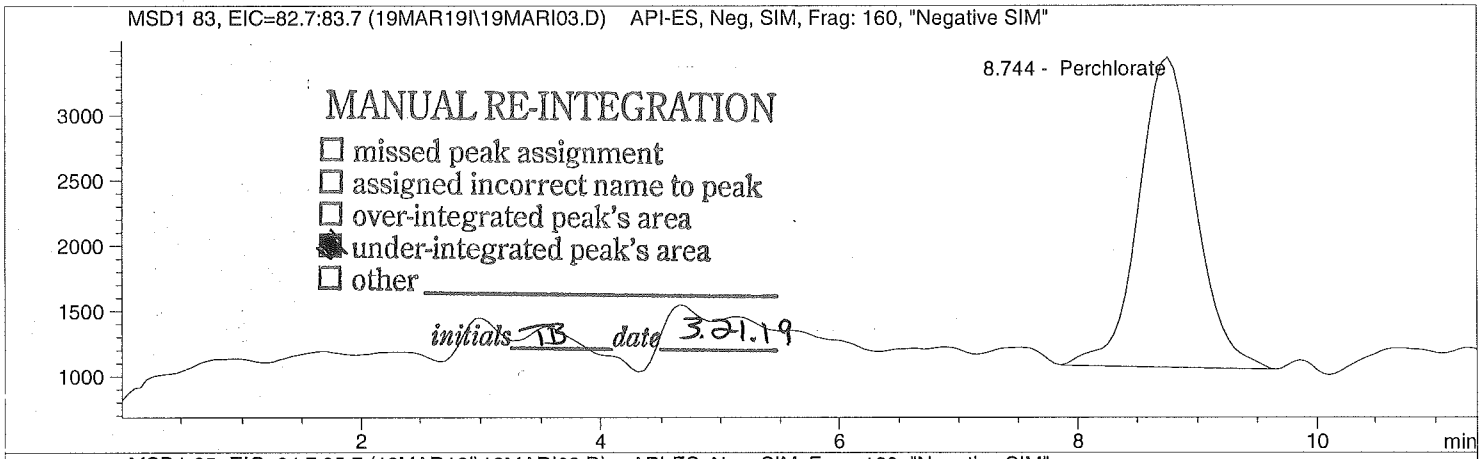
RIGHT SOLUTIONS | RIGHT PARTNER

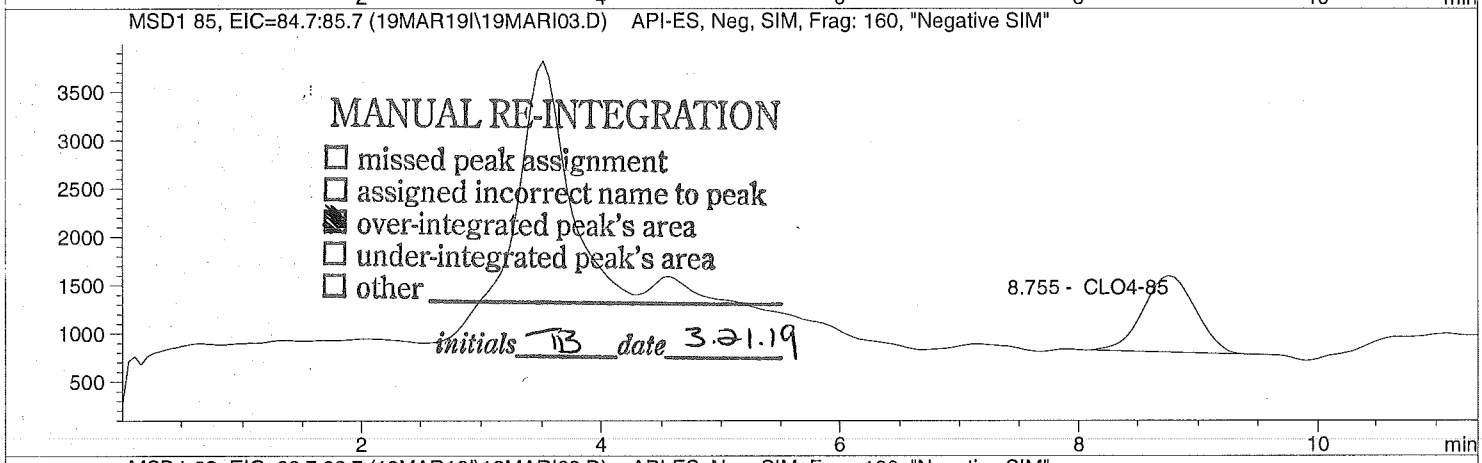
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

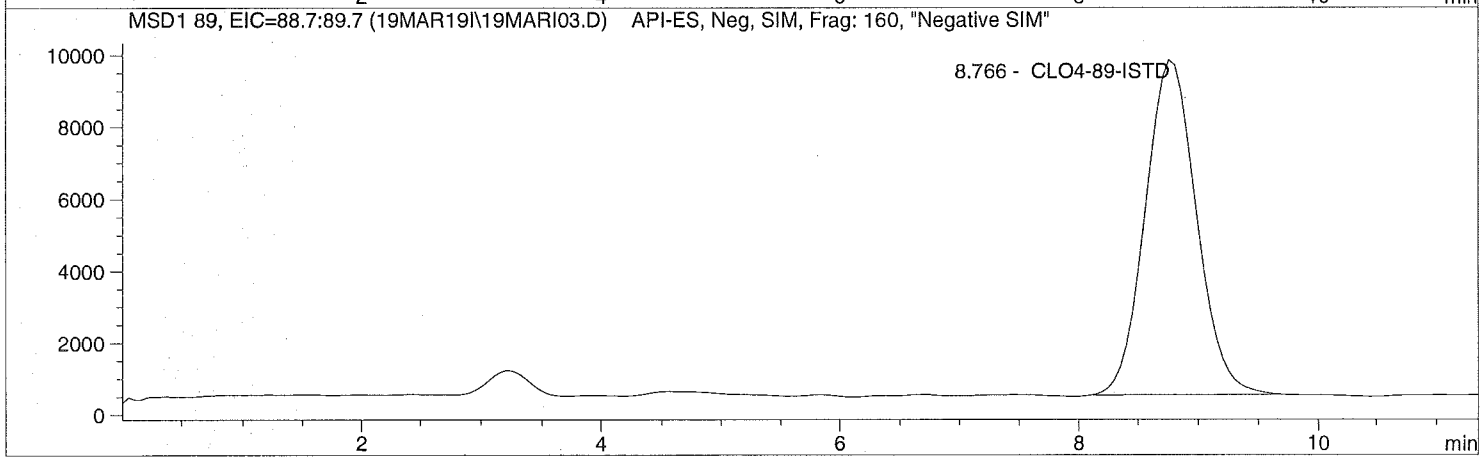
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

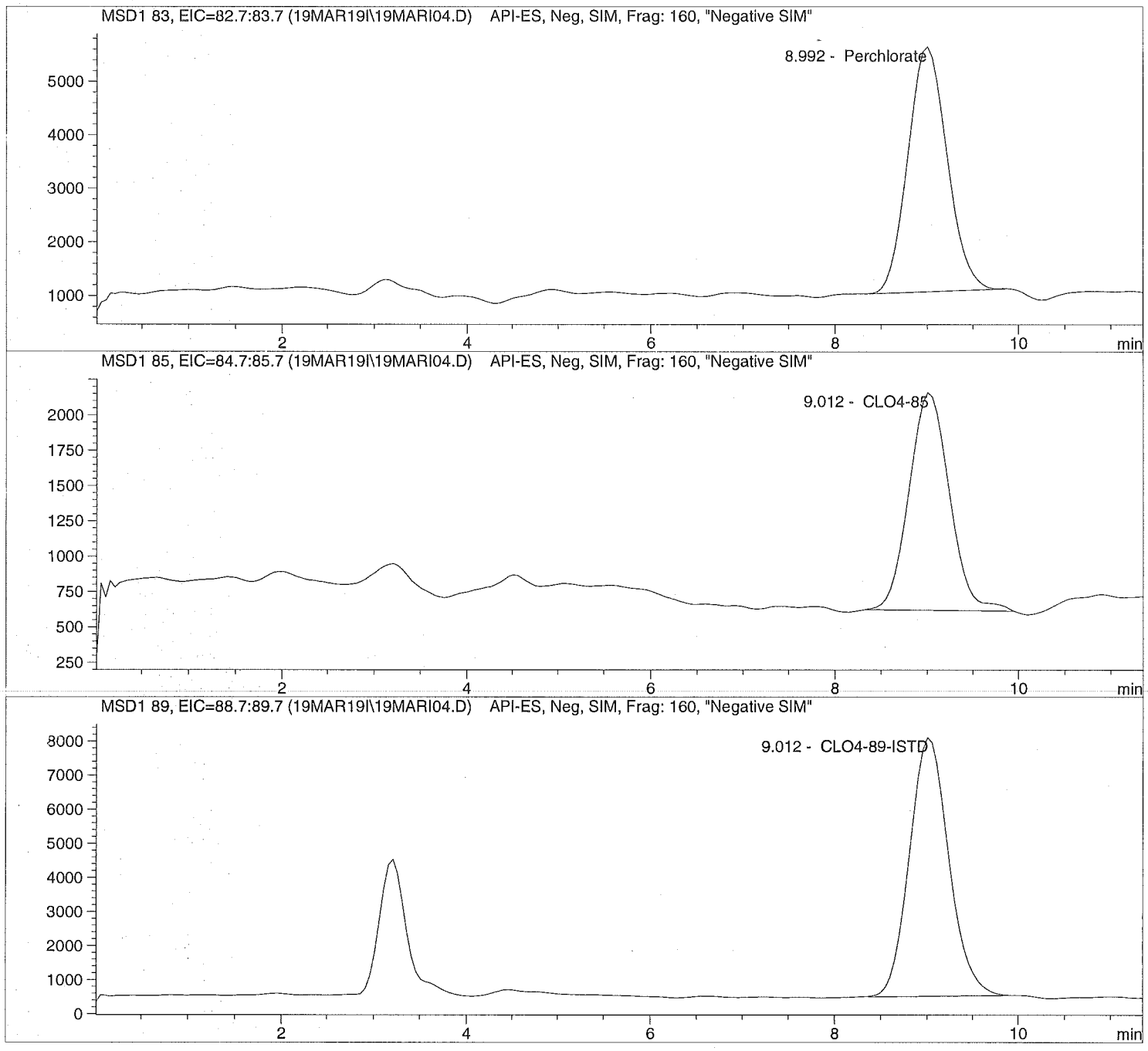
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

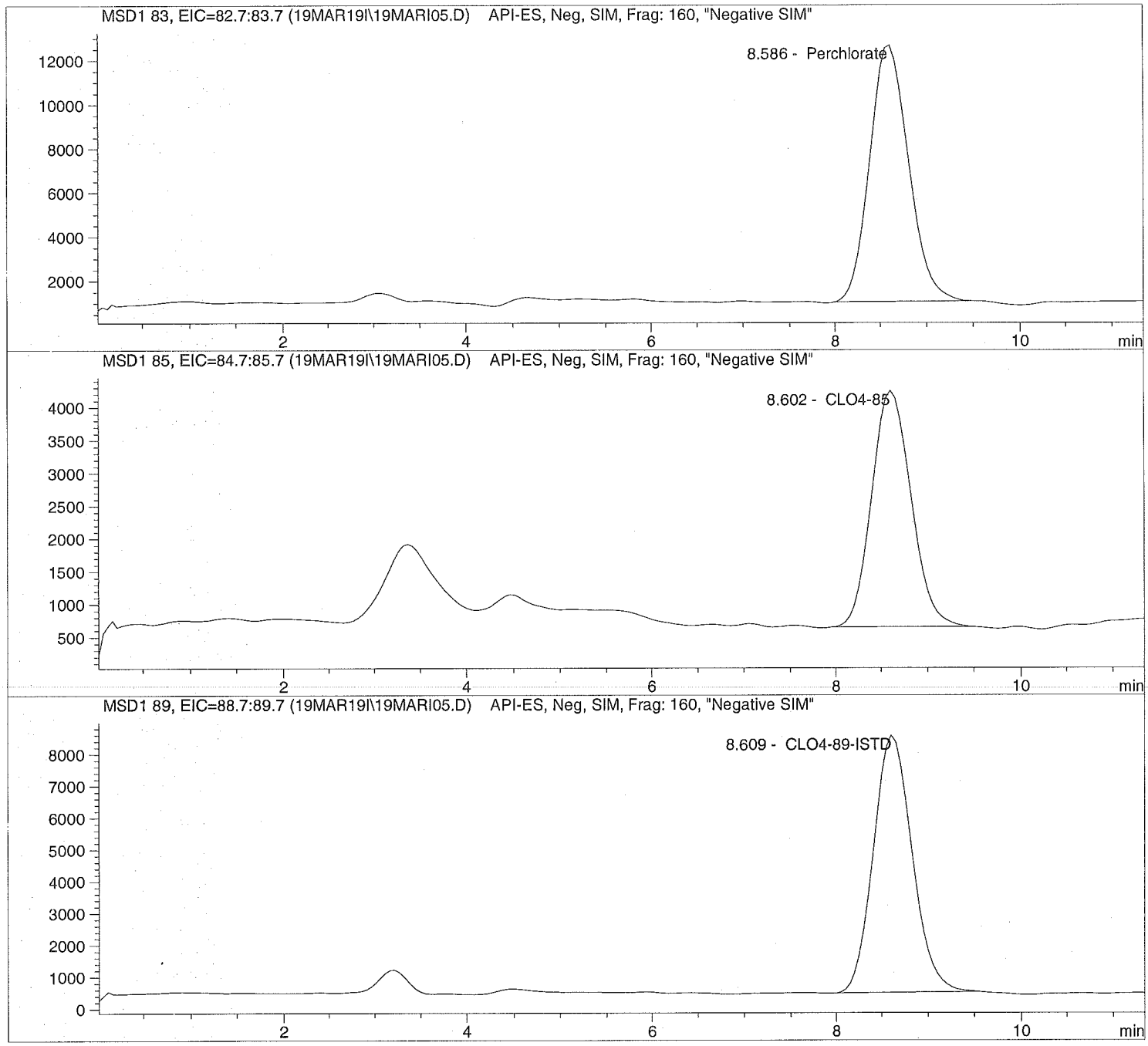
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

*** End of Report ***

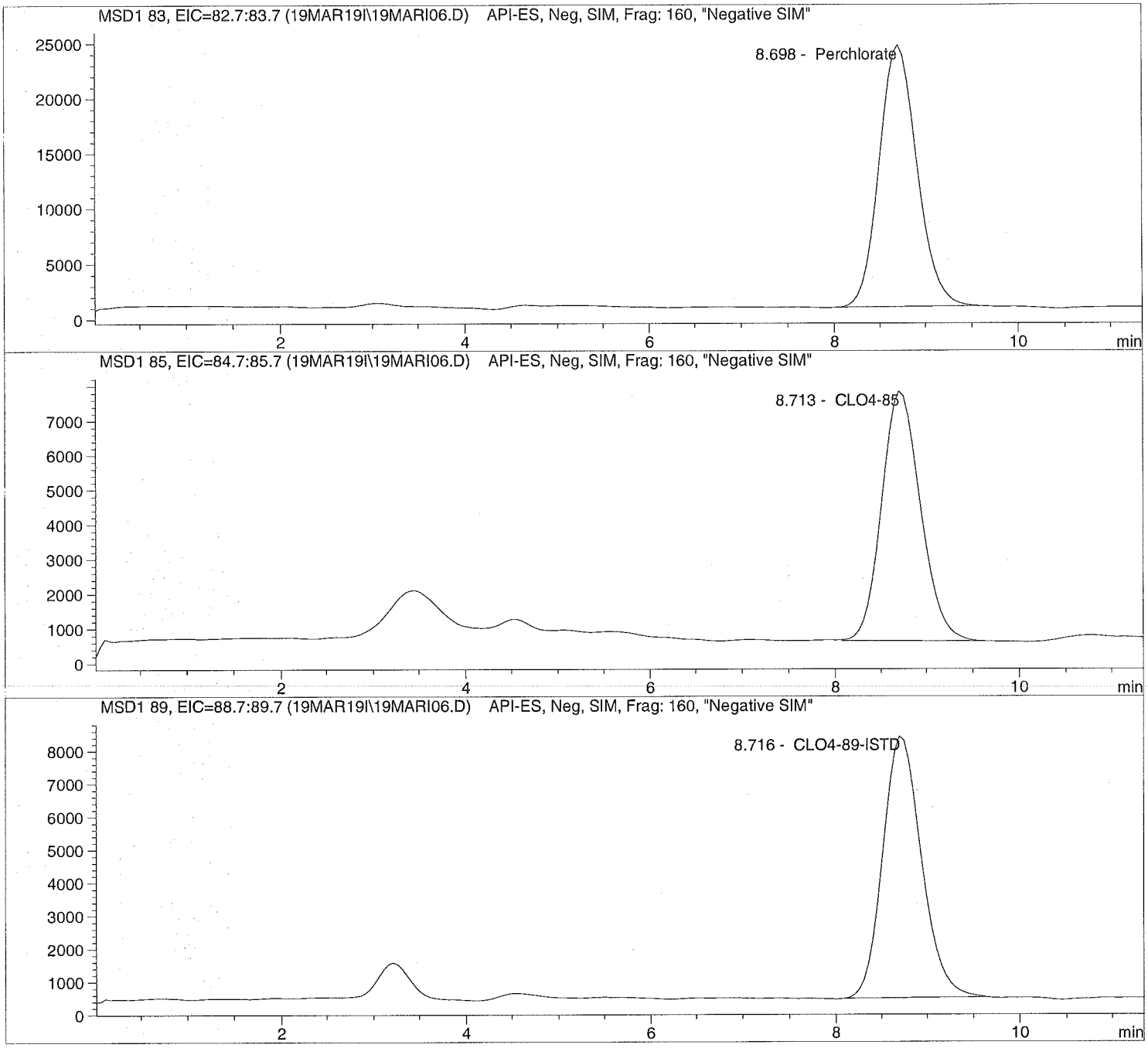
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

*** End of Report ***

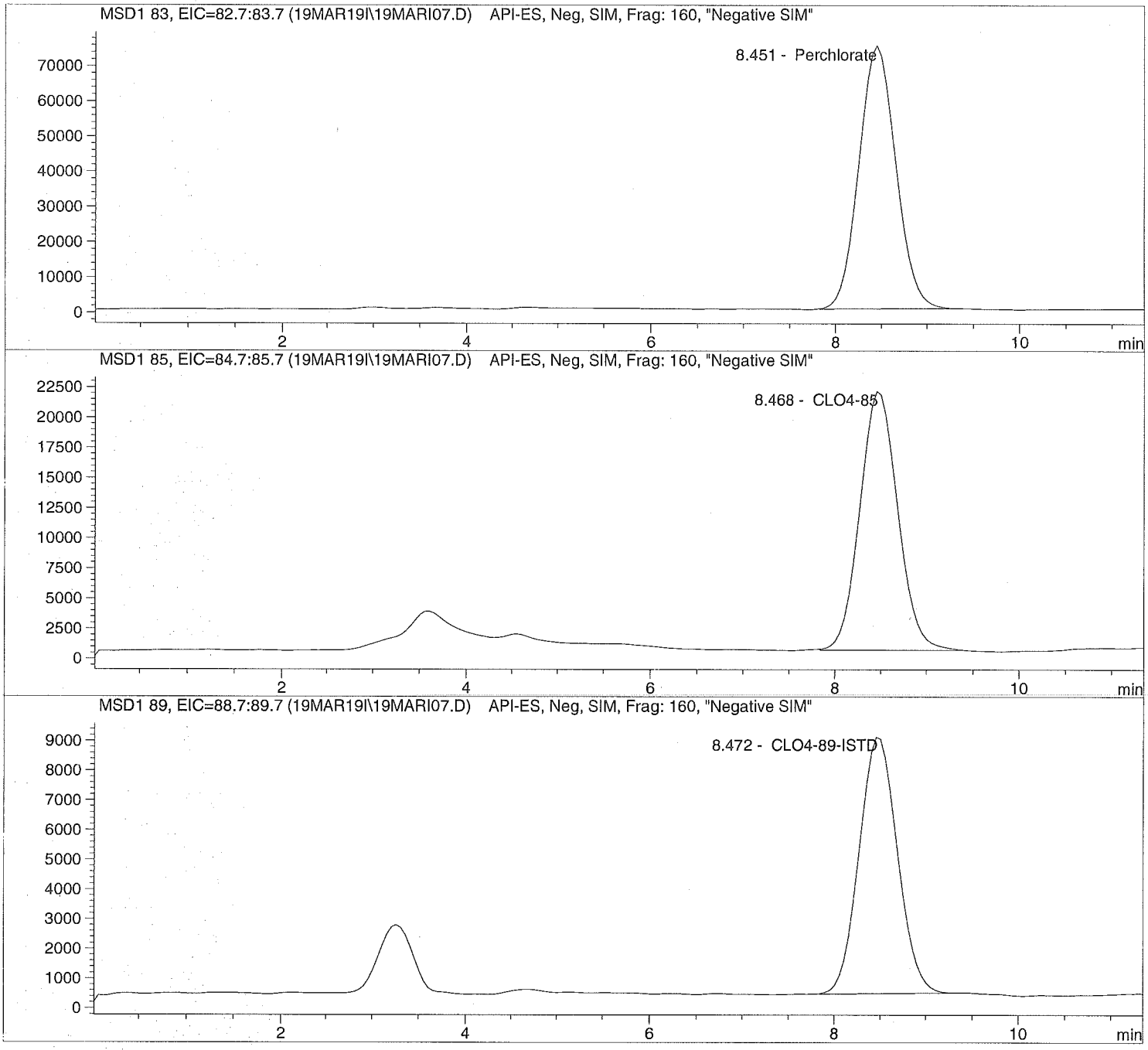
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

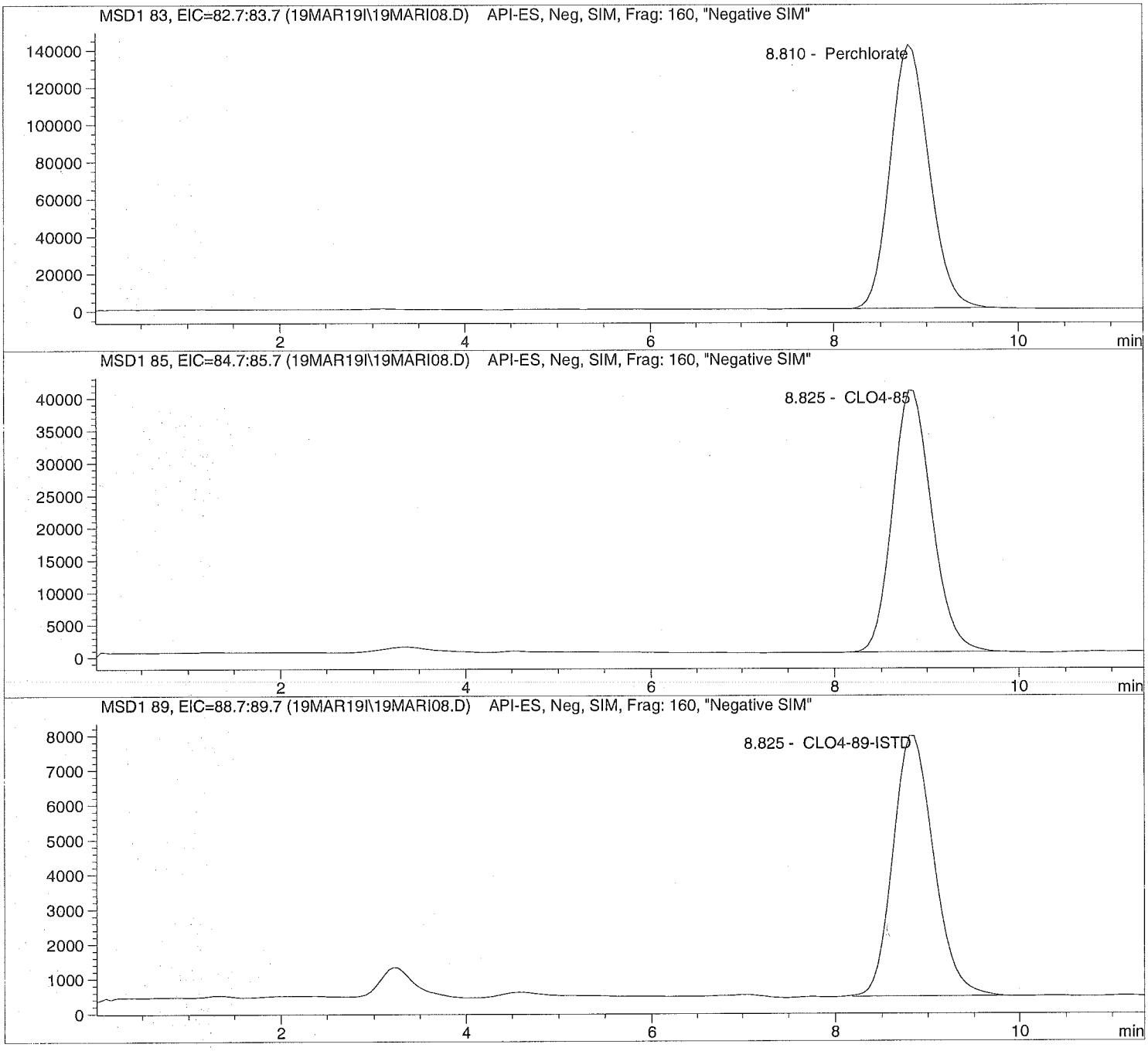
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

*** End of Report ***

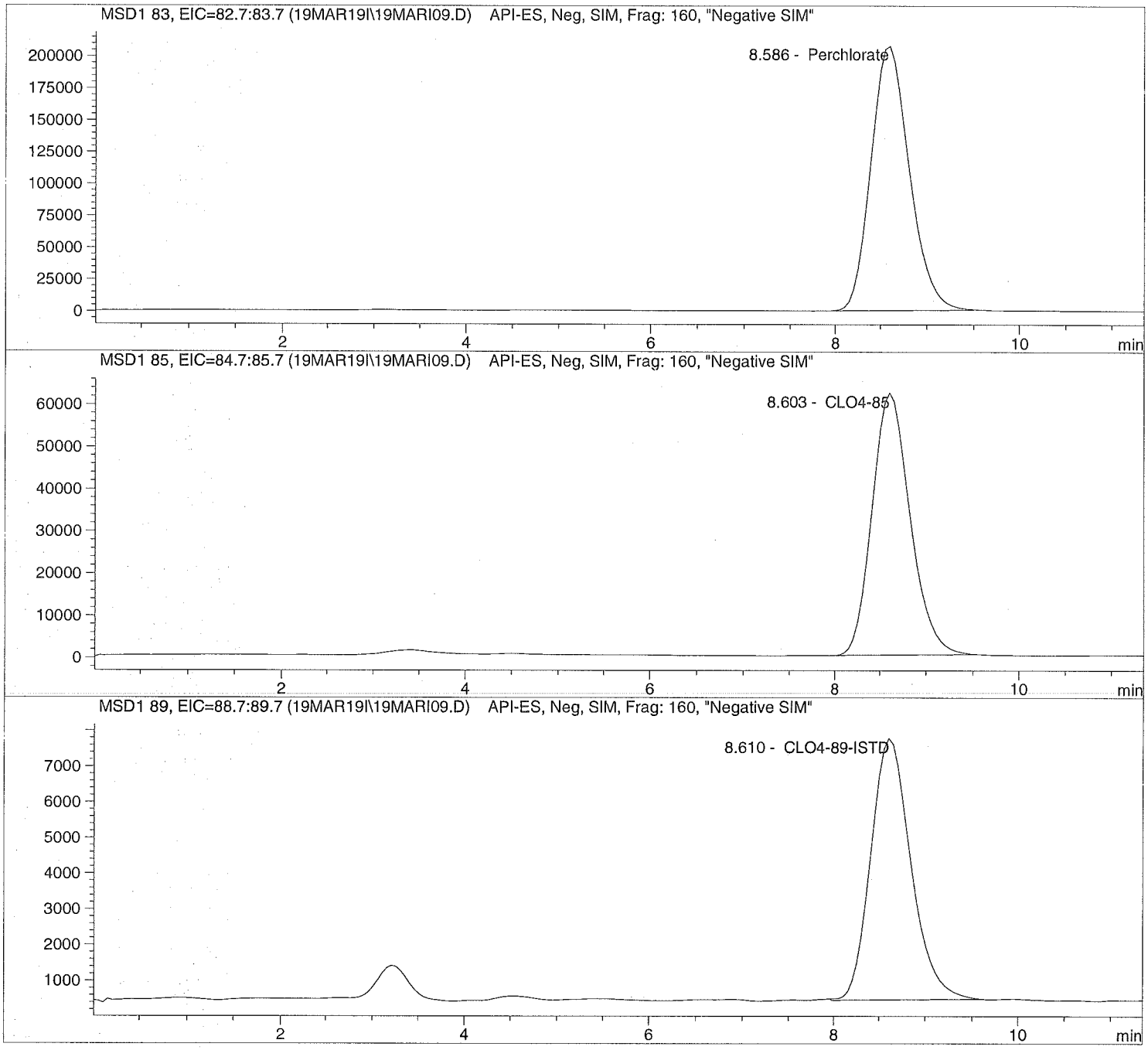
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

*** End of Report ***

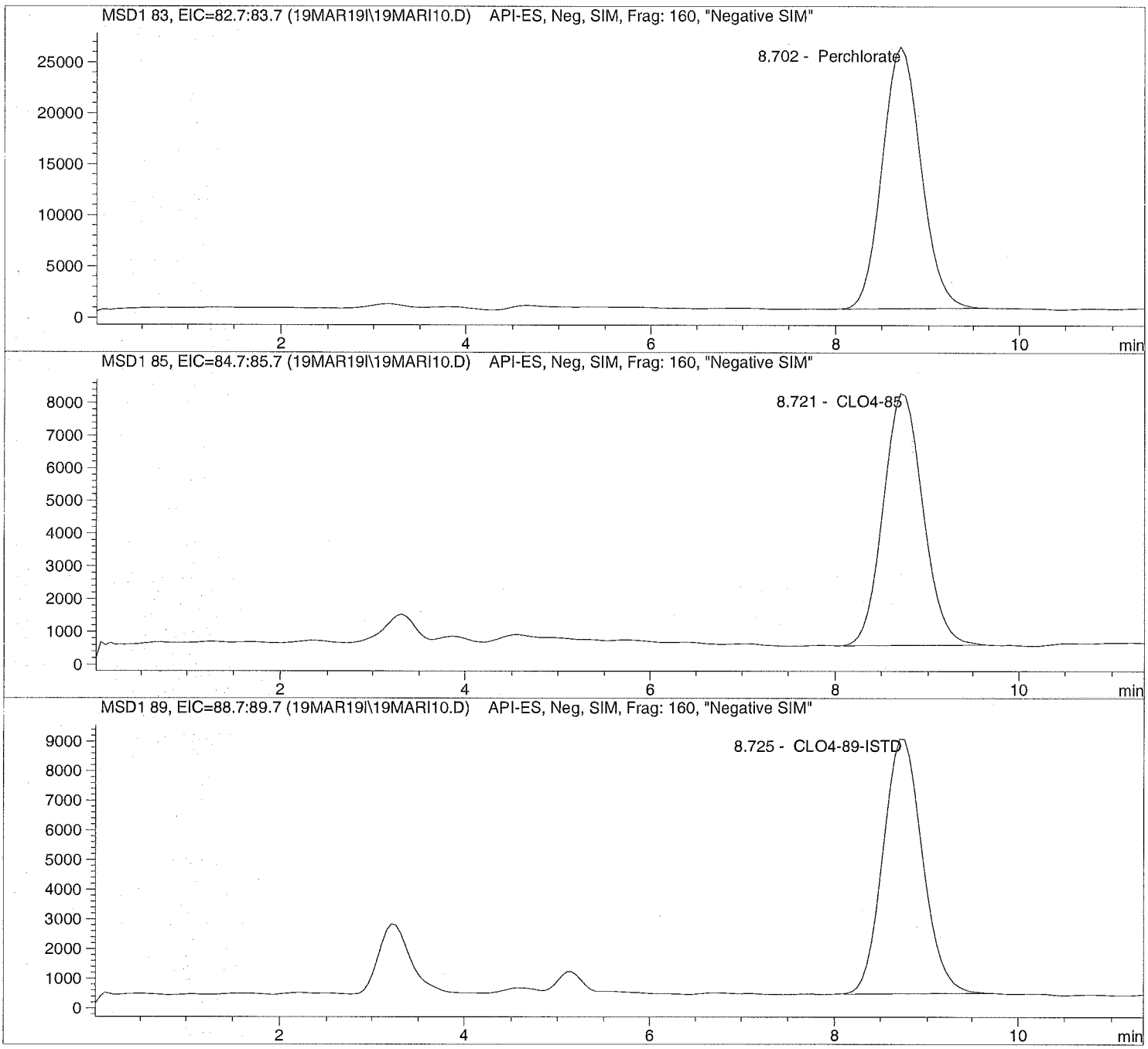
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Unmodified

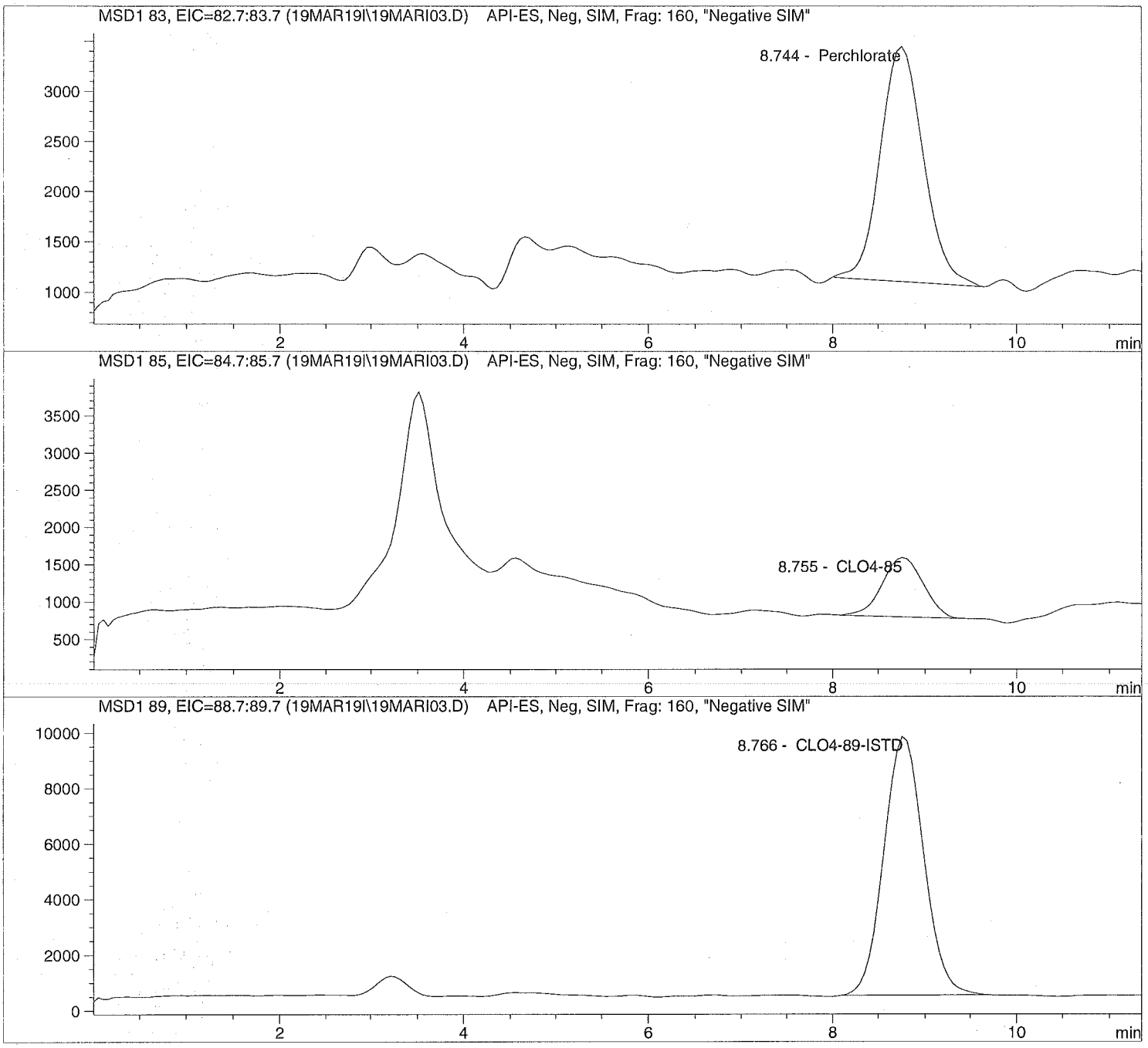
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

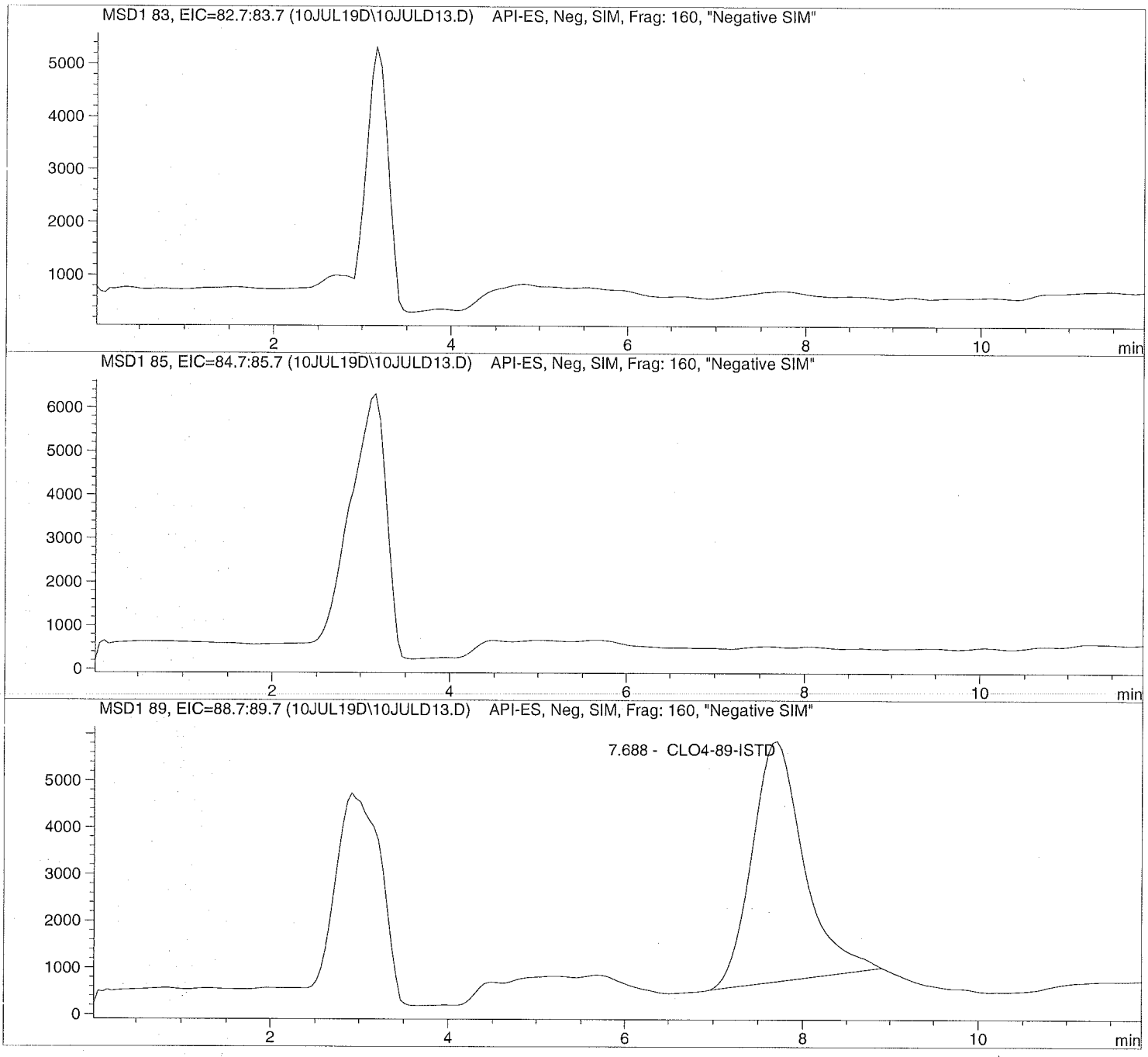
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\10JUL19D\10JULD13.D Sample Name: 1918373007

Injection Date:	7/10/2019 11:36:55	Seq Line:	13
Sample Name:	1918373007	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.688	PBA	206768.2	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

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July 17, 2019

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

Work Order: **HS19061486**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

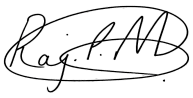
ALS Environmental received 7 sample(s) on Jun 27, 2019 for the analysis presented in the following report.

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: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 17-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061486

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061486-01	CO9_062619	Groundwater		26-Jun-2019 07:35	27-Jun-2019 08:30	☐
HS19061486-02	CO6_062619	Groundwater		26-Jun-2019 08:30	27-Jun-2019 08:30	☐
HS19061486-03	18WW16_062619	Groundwater		26-Jun-2019 09:00	27-Jun-2019 08:30	☐
HS19061486-04	18CPTMW18_062619	Groundwater		26-Jun-2019 10:05	27-Jun-2019 08:30	☐
HS19061486-05	CO3_062619	Groundwater		26-Jun-2019 11:00	27-Jun-2019 08:30	☐
HS19061486-06	MW18_062619	Groundwater		26-Jun-2019 11:55	27-Jun-2019 08:30	☐
HS19061486-07	Trip Blank	Water	C&G-050119-174	26-Jun-2019 00:00	27-Jun-2019 08:30	☐

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18 24
Work Order: HS19061486

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142659

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

GCMS Volatiles by Method SW8260

Batch ID: R342165

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

Batch ID: R341869

Sample ID: CCV

• Bromoform, 1,2-Dibromo-3-Chloropropane and 1,2,3-Trichlorobenzene exceeded %D limits for CCV. Samples are ND for these compounds.

Sample ID: CO9_062619 (HS19061486-01MS)

• MS and/or MSD recovered outside control limits for multiple compounds

Metals by Method SW7470

Batch ID: 142560,142769

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

Metals by Method SW6020

Batch ID: 142541

Sample ID: CO9_062619 (HS19061486-01SD)

• The percent difference between the results of the sample and the serial dilution were greater than 10%. Zinc

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO9_062619
Collection Date: 26-Jun-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-01
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	03-Jul-2019 16:56
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 16:56
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 16:56
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 16:56
Acetone	**4.2**		**0.40**	**1.0**	**2.0**	**UG/L**	1	03-Jul-2019 16:56
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 16:56
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO9_062619
Collection Date: 26-Jun-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-01
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	03-Jul-2019 16:56
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 16:56
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 16:56
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 16:56
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 16:56
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 16:56
Surr: 1,2-Dichloroethane-d4	*89.4*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 16:56*
Surr: 4-Bromofluorobenzene	*91.0*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 16:56*
Surr: Dibromofluoromethane	*87.0*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 16:56*
Surr: Toluene-d8	*92.9*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 16:56*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO9_062619
Collection Date: 26-Jun-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.370**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 15:54
Antimony	**0.000800**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 15:54
Barium	**0.238**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 15:54
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 15:54
Calcium	**76.3**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 15:54
Chromium	**0.00659**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Cobalt	**0.000529**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Copper	**0.00119**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Iron	**0.354**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:54
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	08-Jul-2019 13:56
Magnesium	**3.79**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:54
Manganese	**0.0798**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Nickel	**0.00408**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Potassium	**0.511**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:54
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 15:54
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 15:54
Sodium	**14.3**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 15:54
Thallium	**0.000881**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 15:54
Vanadium	**0.00199**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
Zinc	**0.0252**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 15:54
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 28-Jun-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	28-Jun-2019 15:59
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	16-Jul-2019 16:49

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO6_062619
Collection Date: 26-Jun-2019 08:30

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-02
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	03-Jul-2019 23:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 23:43
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Jul-2019 23:43
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Jul-2019 23:43
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 23:43
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Jul-2019 23:43
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO6_062619
Collection Date: 26-Jun-2019 08:30

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-02
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	03-Jul-2019 23:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	03-Jul-2019 23:43
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Jul-2019 23:43
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Jul-2019 23:43
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Jul-2019 23:43
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Jul-2019 23:43
Surr: 1,2-Dichloroethane-d4	*99.8*			**0**	*81-118*	*%REC*	*1*	*03-Jul-2019 23:43*
Surr: 4-Bromofluorobenzene	*91.4*			**0**	*85-114*	*%REC*	*1*	*03-Jul-2019 23:43*
Surr: Dibromofluoromethane	*96.6*			**0**	*80-119*	*%REC*	*1*	*03-Jul-2019 23:43*
Surr: Toluene-d8	*95.3*			**0**	*89-112*	*%REC*	*1*	*03-Jul-2019 23:43*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO6_062619
Collection Date: 26-Jun-2019 08:30

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.0222**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 17:20
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:20
Arsenic	**0.00101**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:20
Barium	**1.03**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:20
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:20
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:20
Calcium	**19.7**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:20
Chromium	**0.000674**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:20
Cobalt	**0.00214**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:20
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	05-Jul-2019 17:20
Iron	**63.2**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:20
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:20
Magnesium	**12.4**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:20
Manganese	**0.994**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:20
Nickel	**0.00170**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:20
Potassium	**4.20**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:20
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 17:20
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:20
Sodium	**233**		**0.140**	**0.500**	**2.00**	**mg/L**	10	08-Jul-2019 15:12
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:20
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:20
Zinc	**0.0188**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:20
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:11
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	16-Jul-2019 16:49

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW16_062619
Collection Date: 26-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-03
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	04-Jul-2019 00:07
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	04-Jul-2019 00:07
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	04-Jul-2019 00:07
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	04-Jul-2019 00:07
Acetone	**11**		**0.40**	**1.0**	**2.0**	**UG/L**	1	04-Jul-2019 00:07
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	04-Jul-2019 00:07
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW16_062619
Collection Date: 26-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-03
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	04-Jul-2019 00:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	04-Jul-2019 00:07
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	04-Jul-2019 00:07
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	04-Jul-2019 00:07
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:07
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:07
Surr: 1,2-Dichloroethane-d4	*95.0*			**0**	*81-118*	*%REC*	*1*	*04-Jul-2019 00:07*
Surr: 4-Bromofluorobenzene	*89.4*			**0**	*85-114*	*%REC*	*1*	*04-Jul-2019 00:07*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*04-Jul-2019 00:07*
Surr: Toluene-d8	*93.5*			**0**	*89-112*	*%REC*	*1*	*04-Jul-2019 00:07*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW16_062619
Collection Date: 26-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.649**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	05-Jul-2019 17:22
Antimony	**0.00244**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Arsenic	**0.00640**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Barium	**0.141**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Beryllium	**0.00310**		**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:22
Cadmium	**0.00858**		**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	05-Jul-2019 17:22
Calcium	**182**		**0.680**	**1.00**	**10.0**	**mg/L**	20	08-Jul-2019 15:15
Chromium	**9.14**		**0.00800**	**0.0100**	**0.100**	**mg/L**	20	08-Jul-2019 15:15
Cobalt	**0.418**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Copper	**0.755**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Iron	**29.7**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:22
Lead	**0.00364**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Magnesium	**166**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:22
Manganese	**3.12**		**0.0140**	**0.0200**	**0.100**	**mg/L**	20	08-Jul-2019 15:15
Nickel	**14.3**		**0.0120**	**0.0200**	**0.100**	**mg/L**	20	08-Jul-2019 15:15
Potassium	**4.36**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:22
Selenium	**0.0130**		**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Silver	**0.000338**	J	**0.000200**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Sodium	**532**		**0.280**	**1.00**	**4.00**	**mg/L**	20	08-Jul-2019 15:15
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:22
Vanadium	**0.0771**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
Zinc	**0.175**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:22
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	**0.0000520**	J	**0.0000300**	**0.000100**	**0.000200**	**mg/L**	1	05-Jul-2019 15:13
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	16-Jul-2019 16:49

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW18_062619
Collection Date: 26-Jun-2019 10:05

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-04
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	04-Jul-2019 00:31
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	04-Jul-2019 00:31
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	04-Jul-2019 00:31
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	04-Jul-2019 00:31
Acetone	**5.6**		**0.40**	**1.0**	**2.0**	**UG/L**	1	04-Jul-2019 00:31
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	04-Jul-2019 00:31
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW18_062619
Collection Date: 26-Jun-2019 10:05

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-04
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	04-Jul-2019 00:31
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	04-Jul-2019 00:31
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	04-Jul-2019 00:31
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	04-Jul-2019 00:31
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	04-Jul-2019 00:31
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	04-Jul-2019 00:31
Surr: 1,2-Dichloroethane-d4	*94.3*			**0**	*81-118*	*%REC*	*1*	*04-Jul-2019 00:31*
Surr: 4-Bromofluorobenzene	*86.2*			**0**	*85-114*	*%REC*	*1*	*04-Jul-2019 00:31*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*1*	*04-Jul-2019 00:31*
Surr: Toluene-d8	*91.0*			**0**	*89-112*	*%REC*	*1*	*04-Jul-2019 00:31*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	**0.021**		**0.010**	**0.010**	**0.010**	**ug/L**	1	09-Jul-2019 15:03
Surr: 2-Fluorobiphenyl	*67.8*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:03*
Surr: 4-Terphenyl-d14	*76.4*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:03*
Surr: Nitrobenzene-d5	*87.8*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:03*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW18_062619
Collection Date: 26-Jun-2019 10:05

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.0122**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	08-Jul-2019 14:00
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:31
Arsenic	**0.00127**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:31
Barium	**0.608**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:31
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:31
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:31
Calcium	**281**		**0.680**	**1.00**	**10.0**	**mg/L**	20	08-Jul-2019 15:01
Chromium	**0.00200**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:31
Cobalt	**0.0139**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:31
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	05-Jul-2019 17:31
Iron	**1.06**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:31
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:31
Magnesium	**194**		**0.200**	**1.00**	**4.00**	**mg/L**	20	08-Jul-2019 15:01
Manganese	**2.21**		**0.0140**	**0.0200**	**0.100**	**mg/L**	20	08-Jul-2019 15:01
Nickel	**0.0131**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:31
Potassium	**2.98**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:31
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 17:31
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:31
Sodium	**746**		**0.280**	**1.00**	**4.00**	**mg/L**	20	08-Jul-2019 15:01
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:31
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:31
Zinc	**0.0225**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:31
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:15
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	16-Jul-2019 16:49

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO3_062619
Collection Date: 26-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-05
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	09-Jul-2019 20:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	09-Jul-2019 20:02
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	09-Jul-2019 20:02
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	09-Jul-2019 20:02
Acetone	**5.7**		**0.40**	**1.0**	**2.0**	**UG/L**	1	09-Jul-2019 20:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	09-Jul-2019 20:02
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO3_062619
Collection Date: 26-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-05
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	09-Jul-2019 20:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	09-Jul-2019 20:02
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	09-Jul-2019 20:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	09-Jul-2019 20:02
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:02
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:02
Surr: 1,2-Dichloroethane-d4	*98.6*			**0**	*81-118*	*%REC*	*1*	*09-Jul-2019 20:02*
Surr: 4-Bromofluorobenzene	*97.5*			**0**	*85-114*	*%REC*	*1*	*09-Jul-2019 20:02*
Surr: Dibromofluoromethane	*97.9*			**0**	*80-119*	*%REC*	*1*	*09-Jul-2019 20:02*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*09-Jul-2019 20:02*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	**0.012**		**0.010**	**0.010**	**0.010**	**ug/L**	1	09-Jul-2019 15:24
Surr: 2-Fluorobiphenyl	*80.5*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:24*
Surr: 4-Terphenyl-d14	*115*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:24*
Surr: Nitrobenzene-d5	*94.9*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:24*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO3_062619
Collection Date: 26-Jun-2019 11:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 28-Jun-2019		Analyst: JHD
Aluminum	**0.00694**	J	**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	08-Jul-2019 14:04
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:33
Arsenic	**0.00318**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:33
Barium	**1.39**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:33
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:33
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:33
Calcium	**46.7**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	05-Jul-2019 17:33
Chromium	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	05-Jul-2019 17:33
Cobalt	**0.000279**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	05-Jul-2019 17:33
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	05-Jul-2019 17:33
Iron	**87.5**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:33
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:33
Magnesium	**30.1**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:33
Manganese	**1.52**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	05-Jul-2019 17:33
Nickel	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:33
Potassium	**3.38**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:33
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	05-Jul-2019 17:33
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	05-Jul-2019 17:33
Sodium	**168**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	05-Jul-2019 17:33
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	05-Jul-2019 17:33
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	05-Jul-2019 17:33
Zinc	**0.0216**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	05-Jul-2019 17:33
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:16
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	16-Jul-2019 16:49

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW18_062619
Collection Date: 26-Jun-2019 11:55

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-06
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	09-Jul-2019 20:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	09-Jul-2019 20:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	09-Jul-2019 20:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	09-Jul-2019 20:25
Acetone	**3.3**		**0.40**	**1.0**	**2.0**	**UG/L**	1	09-Jul-2019 20:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	09-Jul-2019 20:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW18_062619
Collection Date: 26-Jun-2019 11:55

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-06
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	09-Jul-2019 20:25
cis-1,2-Dichloroethene	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Jul-2019 20:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	09-Jul-2019 20:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	09-Jul-2019 20:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	09-Jul-2019 20:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 20:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Trichloroethene	**25**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Jul-2019 20:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 20:25
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*09-Jul-2019 20:25*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*1*	*09-Jul-2019 20:25*
Surr: Dibromofluoromethane	*98.7*			**0**	*80-119*	*%REC*	*1*	*09-Jul-2019 20:25*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*09-Jul-2019 20:25*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	16-Jul-2019 16:49

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 26-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-07
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	09-Jul-2019 19:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	09-Jul-2019 19:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	09-Jul-2019 19:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	09-Jul-2019 19:38
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	09-Jul-2019 19:38
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	09-Jul-2019 19:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 26-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061486
Lab ID:HS19061486-07
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	09-Jul-2019 19:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	09-Jul-2019 19:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	09-Jul-2019 19:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	09-Jul-2019 19:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	09-Jul-2019 19:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Jul-2019 19:38
Surr: 1,2-Dichloroethane-d4	*99.5*			**0**	*81-118*	*%REC*	*1*	*09-Jul-2019 19:38*
Surr: 4-Bromofluorobenzene	*96.9*			**0**	*85-114*	*%REC*	*1*	*09-Jul-2019 19:38*
Surr: Dibromofluoromethane	*99.2*			**0**	*80-119*	*%REC*	*1*	*09-Jul-2019 19:38*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*09-Jul-2019 19:38*

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

ALS Houston, US Date: 17-Jul-19

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

Batch ID: 142541 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061486-01	1	10	10 (mL)	1
HS19061486-02	1	10	10 (mL)	1
HS19061486-03	1	10	10 (mL)	1
HS19061486-04	1	10	10 (mL)	1
HS19061486-05	1	10	10 (mL)	1

Batch ID: 142560 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061486-01	1	10 (mL)	10 (mL)	1

Batch ID: 142659 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061486-04	1	1000	1 (mL)	0.001
HS19061486-05	1	1000	1 (mL)	0.001

Batch ID: 142769 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061486-02	1	10 (mL)	10 (mL)	1
HS19061486-03	1	10 (mL)	10 (mL)	1
HS19061486-04	1	10 (mL)	10 (mL)	1
HS19061486-05	1	10 (mL)	10 (mL)	1

ALS Houston, US Date: 17-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142541 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19061486-01	CO9_062619	26 Jun 2019 07:35		28 Jun 2019 11:59	08 Jul 2019 13:56	1
HS19061486-01	CO9_062619	26 Jun 2019 07:35		28 Jun 2019 11:59	05 Jul 2019 15:54	1
HS19061486-02	CO6_062619	26 Jun 2019 08:30		28 Jun 2019 11:59	08 Jul 2019 15:12	10
HS19061486-02	CO6_062619	26 Jun 2019 08:30		28 Jun 2019 11:59	05 Jul 2019 17:20	1
HS19061486-03	18WW16_062619	26 Jun 2019 09:00		28 Jun 2019 11:59	08 Jul 2019 15:15	20
HS19061486-03	18WW16_062619	26 Jun 2019 09:00		28 Jun 2019 11:59	05 Jul 2019 17:22	1
HS19061486-04	18CPTMW18_062619	26 Jun 2019 10:05		28 Jun 2019 11:59	08 Jul 2019 15:01	20
HS19061486-04	18CPTMW18_062619	26 Jun 2019 10:05		28 Jun 2019 11:59	08 Jul 2019 14:00	1
HS19061486-04	18CPTMW18_062619	26 Jun 2019 10:05		28 Jun 2019 11:59	05 Jul 2019 17:31	1
HS19061486-05	CO3_062619	26 Jun 2019 11:00		28 Jun 2019 11:59	08 Jul 2019 14:04	1
HS19061486-05	CO3_062619	26 Jun 2019 11:00		28 Jun 2019 11:59	05 Jul 2019 17:33	1
Batch ID: 142560 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19061486-01	CO9_062619	26 Jun 2019 07:35		28 Jun 2019 10:30	28 Jun 2019 15:59	1
Batch ID: 142659 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS19061486-04	18CPTMW18_062619	26 Jun 2019 10:05		02 Jul 2019 12:18	09 Jul 2019 15:03	1
HS19061486-05	CO3_062619	26 Jun 2019 11:00		02 Jul 2019 12:18	09 Jul 2019 15:24	1
Batch ID: 142769 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19061486-02	CO6_062619	26 Jun 2019 08:30		05 Jul 2019 10:30	05 Jul 2019 15:11	1
HS19061486-03	18WW16_062619	26 Jun 2019 09:00		05 Jul 2019 10:30	05 Jul 2019 15:13	1
HS19061486-04	18CPTMW18_062619	26 Jun 2019 10:05		05 Jul 2019 10:30	05 Jul 2019 15:15	1
HS19061486-05	CO3_062619	26 Jun 2019 11:00		05 Jul 2019 10:30	05 Jul 2019 15:16	1
Batch ID: R341869 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19061486-01	CO9_062619	26 Jun 2019 07:35			03 Jul 2019 16:56	1
HS19061486-02	CO6_062619	26 Jun 2019 08:30			03 Jul 2019 23:43	1
HS19061486-03	18WW16_062619	26 Jun 2019 09:00			04 Jul 2019 00:07	1
HS19061486-04	18CPTMW18_062619	26 Jun 2019 10:05			04 Jul 2019 00:31	1
Batch ID: R342165 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061486-07	Trip Blank	26 Jun 2019 00:00			09 Jul 2019 19:38	1
Batch ID: R342165 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19061486-05	CO3_062619	26 Jun 2019 11:00			09 Jul 2019 20:02	1
HS19061486-06	MW18_062619	26 Jun 2019 11:55			09 Jul 2019 20:25	1

ALS Houston, US Date: 17-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R342540 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19061486-01	CO9_062619	26 Jun 2019 07:35			16 Jul 2019 16:49	1
HS19061486-02	CO6_062619	26 Jun 2019 08:30			16 Jul 2019 16:49	1
HS19061486-03	18WW16_062619	26 Jun 2019 09:00			16 Jul 2019 16:49	1
HS19061486-04	18CPTMW18_062619	26 Jun 2019 10:05			16 Jul 2019 16:49	1
HS19061486-05	CO3_062619	26 Jun 2019 11:00			16 Jul 2019 16:49	1
HS19061486-06	MW18_062619	26 Jun 2019 11:55			16 Jul 2019 16:49	1

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142541** Units: **mg/L** Analysis Date: **05-Jul-2019 15:49**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155804** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004417	0.0100								J
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Magnesium	0.01315	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

MBLK Sample ID: **MBLK-142541** Units: **mg/L** Analysis Date: **08-Jul-2019 13:53**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157125** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.00100	0.00500								U

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142541** Units: **mg/L** Analysis Date: **05-Jul-2019 15:51**
Client ID: Run ID: **ICPMS05_341886** SeqNo: **5155805** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09504	0.0100	0.1	0	95.0	84 - 117				
Antimony	0.05029	0.00500	0.05	0	101	85 - 117				
Arsenic	0.05092	0.00500	0.05	0	102	84 - 116				
Barium	0.04966	0.00500	0.05	0	99.3	86 - 114				
Beryllium	0.05036	0.00200	0.05	0	101	83 - 121				
Cadmium	0.0504	0.00200	0.05	0	101	87 - 115				
Calcium	5.026	0.500	5	0	101	87 - 118				
Chromium	0.0522	0.00500	0.05	0	104	85 - 116				
Cobalt	0.05274	0.00500	0.05	0	105	86 - 115				
Copper	0.0545	0.00500	0.05	0	109	85 - 118				
Iron	5.193	0.200	5	0	104	87 - 118				
Lead	0.05298	0.00500	0.05	0	106	88 - 115				
Magnesium	5.5	0.200	5	0	110	83 - 118				
Manganese	0.05088	0.00500	0.05	0	102	87 - 115				
Nickel	0.05412	0.00500	0.05	0	108	85 - 117				
Potassium	5.248	0.200	5	0	105	87 - 115				
Selenium	0.05096	0.00500	0.05	0	102	80 - 120				
Silver	0.05061	0.00500	0.05	0	101	85 - 116				
Sodium	5.358	0.200	5	0	107	85 - 117				
Thallium	0.0498	0.00200	0.05	0	99.6	82 - 116				
Vanadium	0.05244	0.00500	0.05	0	105	86 - 115				
Zinc	0.05376	0.00500	0.05	0	108	83 - 119				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:59**
Client ID: **CO9_062619** Run ID: **ICPMS05_341886** SeqNo: **5155808** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.739	0.0100	0.4	0.3697	92.3	84 - 117				
Antimony	0.04732	0.00500	0.05	0.0008	93.0	85 - 117				
Arsenic	0.04842	0.00500	0.05	0	96.8	84 - 116				
Barium	0.2815	0.00500	0.05	0.238	87.0	86 - 114				O
Beryllium	0.04857	0.00200	0.05	0	97.1	83 - 121				
Cadmium	0.04813	0.00200	0.05	0	96.3	87 - 115				
Calcium	81.2	0.500	5	76.32	97.6	87 - 118				O
Chromium	0.05476	0.00500	0.05	0.006591	96.3	85 - 116				
Cobalt	0.04919	0.00500	0.05	0.000529	97.3	86 - 115				
Copper	0.05037	0.00500	0.05	0.001192	98.4	85 - 118				
Iron	5.246	0.200	5	0.3538	97.8	87 - 118				
Magnesium	8.622	0.200	5	3.785	96.7	83 - 118				
Manganese	0.1269	0.00500	0.05	0.07982	94.2	87 - 115				
Nickel	0.05352	0.00500	0.05	0.00408	98.9	85 - 117				
Potassium	5.438	0.200	5	0.5115	98.5	87 - 115				
Selenium	0.04621	0.00500	0.05	0	92.4	80 - 120				
Silver	0.04831	0.00500	0.05	0	96.6	85 - 116				
Sodium	19.1	0.200	5	14.32	95.6	85 - 117				
Thallium	0.04492	0.00200	0.05	0.000881	88.1	82 - 116				
Vanadium	0.05006	0.00500	0.05	0.001987	96.1	86 - 115				
Zinc	0.0719	0.00500	0.05	0.02524	93.3	83 - 119				

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **08-Jul-2019 13:58**
Client ID: **CO9_062619** Run ID: **ICPMS05_341995** SeqNo: **5157127** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04682	0.00500	0.05	0	93.6	88 - 115				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19061486-01MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 16:01**
Client ID: **CO9_062619** Run ID: **ICPMS05_341886** SeqNo: **5155809** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.7553	0.0100	0.4	0.3697	96.4	84 - 117	0.739	2.18	20	
Antimony	0.04868	0.00500	0.05	0.0008	95.8	85 - 117	0.04732	2.84	20	
Arsenic	0.04954	0.00500	0.05	0	99.1	84 - 116	0.04842	2.27	20	
Barium	0.287	0.00500	0.05	0.238	98.0	86 - 114	0.2815	1.95	20	O
Beryllium	0.0485	0.00200	0.05	0	97.0	83 - 121	0.04857	0.142	20	
Cadmium	0.0486	0.00200	0.05	0	97.2	87 - 115	0.04813	0.966	20	
Calcium	81.29	0.500	5	76.32	99.3	87 - 118	81.2	0.104	20	O
Chromium	0.05662	0.00500	0.05	0.006591	100	85 - 116	0.05476	3.34	20	
Cobalt	0.05007	0.00500	0.05	0.000529	99.1	86 - 115	0.04919	1.76	20	
Copper	0.05145	0.00500	0.05	0.001192	101	85 - 118	0.05037	2.12	20	
Iron	5.285	0.200	5	0.3538	98.6	87 - 118	5.246	0.742	20	
Lead	0.04787	0.00500	0.05	0	95.7	88 - 115	0.04832	0.925	20	
Magnesium	8.77	0.200	5	3.785	99.7	83 - 118	8.622	1.7	20	
Manganese	0.1284	0.00500	0.05	0.07982	97.2	87 - 115	0.1269	1.2	20	
Nickel	0.05428	0.00500	0.05	0.00408	100	85 - 117	0.05352	1.41	20	
Potassium	5.433	0.200	5	0.5115	98.4	87 - 115	5.438	0.0912	20	
Selenium	0.0486	0.00500	0.05	0	97.2	80 - 120	0.04621	5.05	20	
Silver	0.04796	0.00500	0.05	0	95.9	85 - 116	0.04831	0.717	20	
Sodium	19.67	0.200	5	14.32	107	85 - 117	19.1	2.92	20	
Thallium	0.04425	0.00200	0.05	0.000881	86.7	82 - 116	0.04492	1.5	20	
Vanadium	0.05188	0.00500	0.05	0.001987	99.8	86 - 115	0.05006	3.57	20	
Zinc	0.07298	0.00500	0.05	0.02524	95.5	83 - 119	0.0719	1.49	20	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19061486-01PDS** Units: **mg/L** Analysis Date: **05-Jul-2019 16:03**
Client ID: **CO9_062619** Run ID: **ICPMS05_341886** SeqNo: **5155810** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.487	0.0100	0.1	0.3697	117	80 - 120				
Arsenic	0.09568	0.00500	0.1	0.000356	95.3	80 - 120				
Barium	0.3243	0.00500	0.1	0.238	86.3	80 - 120				
Beryllium	0.08784	0.00200	0.1	0.000034	87.8	80 - 120				
Cadmium	0.09239	0.00200	0.1	0.000163	92.2	80 - 120				
Calcium	84.54	0.500	10	76.32	82.1	80 - 120				O
Chromium	0.1036	0.00500	0.1	0.006591	97.0	80 - 120				
Cobalt	0.0997	0.00500	0.1	0.000529	99.2	80 - 120				
Copper	0.09939	0.00500	0.1	0.001192	98.2	80 - 120				
Iron	10.01	0.200	10	0.3538	96.6	80 - 120				
Lead	0.09928	0.00500	0.1	0.000498	98.8	80 - 120				
Magnesium	13.55	0.200	10	3.785	97.6	80 - 120				
Manganese	0.1738	0.00500	0.1	0.07982	94.0	80 - 120				
Nickel	0.1011	0.00500	0.1	0.00408	97.0	80 - 120				
Potassium	10.21	0.200	10	0.5115	97.0	80 - 120				
Selenium	0.09467	0.00500	0.1	0.000462	94.2	80 - 120				
Silver	0.09272	0.00500	0.1	0.000026	92.7	80 - 120				
Sodium	24.03	0.200	10	14.32	97.1	80 - 120				
Thallium	0.1018	0.00200	0.1	0.000881	101	80 - 120				
Vanadium	0.09888	0.00500	0.1	0.001987	96.9	80 - 120				
Zinc	0.1221	0.00500	0.1	0.02524	96.9	80 - 120				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142541 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19061486-01SD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:56**
Client ID: **CO9_062619** Run ID: **ICPMS05_341886** SeqNo: **5155807** PrepDate: **28-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.3834	0.0500					0.3697	3.7	10	
Antimony	0.00250	0.0250					0.0008	0	10	U
Arsenic	0.00250	0.0250					0.000356	0	10	U
Barium	0.2349	0.0250					0.238	1.31	10	
Beryllium	0.00250	0.0100					0.000034	0	10	U
Cadmium	0.00250	0.0100					0.000163	0	10	U
Calcium	73.47	2.50					76.32	3.74	10	
Chromium	0.006325	0.0250					0.006591	0	10	J
Cobalt	0.00250	0.0250					0.000529	0	10	U
Copper	0.00500	0.0250					0.001192	0	10	U
Iron	0.3675	1.00					0.3538	0	10	J
Lead	0.00500	0.0250					0.000498	0	10	U
Magnesium	3.655	1.00					3.785	3.44	10	
Manganese	0.08094	0.0250					0.07982	1.4	10	
Nickel	0.00368	0.0250					0.00408	0	10	J
Potassium	0.6068	1.00					0.5115	0	10	J
Selenium	0.0125	0.0250					0.000462	0	10	U
Silver	0.00250	0.0250					0.000026	0	10	U
Sodium	15.04	1.00					14.32	5.03	10	
Thallium	0.00250	0.0100					0.000881	0	10	U
Vanadium	0.003882	0.0250					0.001987	0	10	J
Zinc	0.02966	0.0250					0.02524	17.5	10	R

The following samples were analyzed in this batch: HS19061486-01 HS19061486-02 HS19061486-03 HS19061486-04 HS19061486-05

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142560 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142560** Units: **mg/L** Analysis Date: **28-Jun-2019 15:56**
Client ID: Run ID: **HG03_341562** SeqNo: **5147053** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142560** Units: **mg/L** Analysis Date: **28-Jun-2019 15:57**
Client ID: Run ID: **HG03_341562** SeqNo: **5147054** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00509	0.000200	0.005	0	102	80 - 120				

MS Sample ID: **HS19061486-01MS** Units: **mg/L** Analysis Date: **28-Jun-2019 16:01**
Client ID: **CO9_062619** Run ID: **HG03_341562** SeqNo: **5147056** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000513	0.000000200	5e-006	-0.0000000010	103	75 - 125				

MSD Sample ID: **HS19061486-01MSD** Units: **mg/L** Analysis Date: **28-Jun-2019 16:03**
Client ID: **CO9_062619** Run ID: **HG03_341562** SeqNo: **5147057** PrepDate: **28-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00000509	0.000000200	5e-006	-0.0000000010	102	75 - 125	0.000005130	0.783	20	

The following samples were analyzed in this batch: HS19061486-01

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142769 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:01**
Client ID: Run ID: **HG03_341922** SeqNo: **5154872** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:03**
Client ID: Run ID: **HG03_341922** SeqNo: **5154873** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00505	0.000200	0.005	0	101	82 - 119				

MS Sample ID: **HS19070016-09MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:06**
Client ID: Run ID: **HG03_341922** SeqNo: **5154875** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.000200	0.005	-0.00001500	106	82 - 119				

MSD Sample ID: **HS19070016-09MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:08**
Client ID: Run ID: **HG03_341922** SeqNo: **5154876** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00517	0.000200	0.005	-0.00001500	104	82 - 119	0.005270	1.92	20	

The following samples were analyzed in this batch: HS19061486-02 HS19061486-03 HS19061486-04 HS19061486-05

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: 142659 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 12:38**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159697** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.05997*	*0*	*0.08*	*0*	*75.0*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05244*	*0*	*0.08*	*0*	*65.5*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.0849*	*0*	*0.08*	*0*	*106*	*40 - 140*				

LCS Sample ID: **LCS-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 12:59**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159698** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07981	0.010	0.08	0	99.8	40 - 140				
Surr: 2-Fluorobiphenyl	*0.06497*	*0*	*0.08*	*0*	*81.2*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05228*	*0*	*0.08*	*0*	*65.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07798*	*0*	*0.08*	*0*	*97.5*	*40 - 140*				

LCSD Sample ID: **LCSD-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 13:19**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159699** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08031	0.010	0.08	0	100	40 - 140	0.07981	0.627	20	
Surr: 2-Fluorobiphenyl	*0.07017*	*0*	*0.08*	*0*	*87.7*	*40 - 140*	*0.06497*	*7.7*	*20*	
Surr: 4-Terphenyl-d14	*0.05934*	*0*	*0.08*	*0*	*74.2*	*40 - 140*	*0.05228*	*12.7*	*20*	
Surr: Nitrobenzene-d5	*0.08488*	*0*	*0.08*	*0*	*106*	*40 - 140*	*0.07798*	*8.47*	*20*	

The following samples were analyzed in this batch: HS19061486-04 HS19061486-05

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 15:45**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153631** 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	1.0	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: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 15:45**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153631** 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	1.0	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	*46.09*	*1.0*	*50*	*0*	*92.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.05*	*1.0*	*50*	*0*	*96.1*	*85 - 114*				
Surr: Dibromofluoromethane	*44.95*	*1.0*	*50*	*0*	*89.9*	*80 - 119*				
Surr: Toluene-d8	*48.5*	*1.0*	*50*	*0*	*97.0*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 14:57**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153630** 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	17.99	1.0	20	0	89.9	78 - 124				
1,1,1-Trichloroethane	18.38	1.0	20	0	91.9	74 - 131				
1,1,2,2-Tetrachloroethane	19.33	1.0	20	0	96.6	71 - 121				
1,1,2-Trichloroethane	19	1.0	20	0	95.0	80 - 119				
1,1-Dichloroethane	17.63	1.0	20	0	88.1	77 - 125				
1,1-Dichloroethene	17.56	1.0	20	0	87.8	71 - 131				
1,1-Dichloropropene	18.07	1.0	20	0	90.4	78 - 125				
1,2,3-Trichlorobenzene	23.54	1.0	20	0	118	69 - 129				
1,2,3-Trichloropropane	19.44	1.0	20	0	97.2	73 - 122				
1,2,4-Trichlorobenzene	21.42	1.0	20	0	107	69 - 130				
1,2,4-Trimethylbenzene	17.67	1.0	20	0	88.3	76 - 124				
1,2-Dibromo-3-chloropropane	21.87	1.0	20	0	109	62 - 128				
1,2-Dibromoethane	18.58	1.0	20	0	92.9	77 - 121				
1,2-Dichlorobenzene	18.25	1.0	20	0	91.3	80 - 119				
1,2-Dichloroethane	17.32	1.0	20	0	86.6	73 - 128				
1,2-Dichloropropane	17.52	1.0	20	0	87.6	78 - 122				
1,3,5-Trimethylbenzene	17.42	1.0	20	0	87.1	75 - 124				
1,3-Dichlorobenzene	17.82	1.0	20	0	89.1	80 - 119				
1,3-Dichloropropane	18.44	1.0	20	0	92.2	80 - 119				
1,4-Dichlorobenzene	18.95	1.0	20	0	94.8	79 - 118				
2,2-Dichloropropane	16.75	1.0	20	0	83.7	60 - 139				
2-Butanone	43.93	2.0	40	0	110	56 - 143				
2-Chlorotoluene	18.48	1.0	20	0	92.4	79 - 122				
2-Hexanone	38.01	2.0	40	0	95.0	57 - 139				
4-Chlorotoluene	18.53	1.0	20	0	92.6	78 - 122				
4-Isopropyltoluene	17.94	1.0	20	0	89.7	77 - 127				
4-Methyl-2-pentanone	36.09	2.0	40	0	90.2	67 - 130				
Acetone	46.53	2.0	40	0	116	39 - 160				
Benzene	18.29	1.0	20	0	91.4	79 - 120				
Bromobenzene	17.41	1.0	20	0	87.1	80 - 120				
Bromochloromethane	17.81	1.0	20	0	89.0	78 - 123				
Bromodichloromethane	18.24	1.0	20	0	91.2	79 - 125				
Bromoform	19.34	1.0	20	0	96.7	66 - 130				
Bromomethane	20.11	1.0	20	0	101	53 - 141				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190703** Units: **UG/L** Analysis Date: **03-Jul-2019 14:57**
Client ID: Run ID: **VOA6_341869** SeqNo: **5153630** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	33.73	2.0	40	0	84.3	64 - 133				
Carbon tetrachloride	18.32	1.0	20	0	91.6	72 - 136				
Chlorobenzene	17.54	1.0	20	0	87.7	82 - 118				
Chloroethane	16.99	1.0	20	0	84.9	60 - 138				
Chloroform	19.05	1.0	20	0	95.2	79 - 124				
Chloromethane	16.14	1.0	20	0	80.7	50 - 139				
cis-1,2-Dichloroethene	18.45	1.0	20	0	92.3	78 - 123				
cis-1,3-Dichloropropene	17.19	1.0	20	0	85.9	75 - 124				
Dibromochloromethane	18.13	1.0	20	0	90.6	74 - 126				
Dibromomethane	18.03	1.0	20	0	90.1	79 - 123				
Dichlorodifluoromethane	17.79	1.0	20	0	88.9	32 - 152				
Ethylbenzene	17.65	1.0	20	0	88.3	79 - 121				
Hexachlorobutadiene	23.03	1.0	20	0	115	66 - 134				
Isopropylbenzene	18.08	1.0	20	0	90.4	72 - 131				
m,p-Xylene	35.62	2.0	40	0	89.0	80 - 121				
Methylene chloride	17.81	2.0	20	0	89.1	74 - 124				
Naphthalene	21.95	1.0	20	0	110	61 - 128				
n-Butylbenzene	17.82	1.0	20	0	89.1	75 - 128				
n-Propylbenzene	18.62	1.0	20	0	93.1	76 - 126				
o-Xylene	17.72	1.0	20	0	88.6	78 - 122				
sec-Butylbenzene	19.01	1.0	20	0	95.1	77 - 126				
Styrene	18.33	1.0	20	0	91.7	78 - 123				
tert-Butylbenzene	18.81	1.0	20	0	94.1	78 - 124				
Tetrachloroethene	17.9	1.0	20	0	89.5	74 - 129				
Toluene	17.39	1.0	20	0	86.9	80 - 121				
trans-1,2-Dichloroethene	18.49	1.0	20	0	92.4	75 - 124				
trans-1,3-Dichloropropene	17.69	1.0	20	0	88.4	73 - 127				
Trichloroethene	17.79	1.0	20	0	89.0	79 - 123				
Trichlorofluoromethane	18.03	1.0	20	0	90.1	65 - 141				
Vinyl chloride	16.88	1.0	20	0	84.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.62*	*1.0*	*50*	*0*	*99.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.98*	*1.0*	*50*	*0*	*96.0*	*85 - 114*				
Surr: Dibromofluoromethane	*49.25*	*1.0*	*50*	*0*	*98.5*	*80 - 119*				
Surr: Toluene-d8	*45.94*	*1.0*	*50*	*0*	*91.9*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061486-01MS** Units: **UG/L** Analysis Date: **03-Jul-2019 18:08**
Client ID: **CO9_062619** Run ID: **VOA6_341869** SeqNo: **5153637** 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	16.51	1.0	20	0	82.5	78 - 124				
1,1,1-Trichloroethane	16.62	1.0	20	0	83.1	74 - 131				
1,1,2,2-Tetrachloroethane	17.57	1.0	20	0	87.9	71 - 121				
1,1,2-Trichloroethane	17.26	1.0	20	0	86.3	80 - 119				
1,1-Dichloroethane	15.31	1.0	20	0	76.5	77 - 125				S
1,1-Dichloroethene	16.44	1.0	20	0	82.2	71 - 131				
1,1-Dichloropropene	17.45	1.0	20	0	87.3	78 - 125				
1,2,3-Trichlorobenzene	20.81	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	17.72	1.0	20	0	88.6	73 - 122				
1,2,4-Trichlorobenzene	19.95	1.0	20	0	99.7	69 - 130				
1,2,4-Trimethylbenzene	16.6	1.0	20	0	83.0	76 - 124				
1,2-Dibromo-3-chloropropane	19.76	1.0	20	0	98.8	62 - 128				
1,2-Dibromoethane	16.72	1.0	20	0	83.6	77 - 121				
1,2-Dichlorobenzene	16.97	1.0	20	0	84.9	80 - 119				
1,2-Dichloroethane	15.42	1.0	20	0	77.1	73 - 128				
1,2-Dichloropropane	15.7	1.0	20	0	78.5	78 - 122				
1,3,5-Trimethylbenzene	16.77	1.0	20	0	83.9	75 - 124				
1,3-Dichlorobenzene	16.72	1.0	20	0	83.6	80 - 119				
1,3-Dichloropropane	16.64	1.0	20	0	83.2	80 - 119				
1,4-Dichlorobenzene	17.61	1.0	20	0	88.1	79 - 118				
2,2-Dichloropropane	16.67	1.0	20	0	83.4	60 - 139				
2-Butanone	35.5	2.0	40	0	88.8	56 - 143				
2-Chlorotoluene	17.41	1.0	20	0	87.0	79 - 122				
2-Hexanone	32.54	2.0	40	0	81.4	57 - 139				
4-Chlorotoluene	17.42	1.0	20	0	87.1	78 - 122				
4-Isopropyltoluene	17.75	1.0	20	0	88.7	77 - 127				
4-Methyl-2-pentanone	33.2	2.0	40	0	83.0	67 - 130				
Acetone	37.89	2.0	40	4.161	84.3	39 - 160				
Benzene	16.63	1.0	20	0	83.2	79 - 120				
Bromobenzene	15.78	1.0	20	0	78.9	80 - 120				S
Bromochloromethane	15.16	1.0	20	0	75.8	78 - 123				S
Bromodichloromethane	16.26	1.0	20	0	81.3	79 - 125				
Bromoform	17.61	1.0	20	0	88.1	66 - 130				
Bromomethane	16.43	1.0	20	0	82.1	53 - 141				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061486-01MS** Units: **UG/L** Analysis Date: **03-Jul-2019 18:08**
Client ID: **CO9_062619** Run ID: **VOA6_341869** SeqNo: **5153637** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	30.33	2.0	40	0	75.8	64 - 133				
Carbon tetrachloride	17.83	1.0	20	0	89.2	72 - 136				
Chlorobenzene	16.32	1.0	20	0	81.6	82 - 118				S
Chloroethane	15.5	1.0	20	0	77.5	60 - 138				
Chloroform	15.88	1.0	20	0	79.4	79 - 124				
Chloromethane	14.92	1.0	20	0	74.6	50 - 139				
cis-1,2-Dichloroethene	15.81	1.0	20	0	79.1	78 - 123				
cis-1,3-Dichloropropene	15.72	1.0	20	0	78.6	75 - 124				
Dibromochloromethane	16.19	1.0	20	0	81.0	74 - 126				
Dibromomethane	16.1	1.0	20	0	80.5	79 - 123				
Dichlorodifluoromethane	15.64	1.0	20	0	78.2	32 - 152				
Ethylbenzene	17	1.0	20	0	85.0	79 - 121				
Hexachlorobutadiene	21.68	1.0	20	0	108	66 - 134				
Isopropylbenzene	17.62	1.0	20	0	88.1	72 - 131				
m,p-Xylene	34.49	2.0	40	0	86.2	80 - 121				
Methylene chloride	15.03	2.0	20	0	75.1	74 - 124				
Naphthalene	19.79	1.0	20	0	98.9	61 - 128				
n-Butylbenzene	17.77	1.0	20	0	88.8	75 - 128				
n-Propylbenzene	18.11	1.0	20	0	90.6	76 - 126				
o-Xylene	16.52	1.0	20	0	82.6	78 - 122				
sec-Butylbenzene	19.08	1.0	20	0	95.4	77 - 126				
Styrene	16.93	1.0	20	0	84.7	78 - 123				
tert-Butylbenzene	18.55	1.0	20	0	92.8	78 - 124				
Tetrachloroethene	17.69	1.0	20	0	88.5	74 - 129				
Toluene	16.65	1.0	20	0	83.3	80 - 121				
trans-1,2-Dichloroethene	16.67	1.0	20	0	83.4	75 - 124				
trans-1,3-Dichloropropene	15.41	1.0	20	0	77.1	73 - 127				
Trichloroethene	19.25	1.0	20	0	96.3	79 - 123				
Trichlorofluoromethane	16.99	1.0	20	0	85.0	65 - 141				
Vinyl chloride	14.99	1.0	20	0	75.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.86*	*1.0*	*50*	*0*	*91.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.41*	*1.0*	*50*	*0*	*96.8*	*85 - 114*				
Surr: Dibromofluoromethane	*45.73*	*1.0*	*50*	*0*	*91.5*	*80 - 119*				
Surr: Toluene-d8	*47.34*	*1.0*	*50*	*0*	*94.7*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061486-01MSD** Units: **UG/L** Analysis Date: **03-Jul-2019 18:32**
Client ID: **CO9_062619** Run ID: **VOA6_341869** SeqNo: **5153638** 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	16.57	1.0	20	0	82.9	78 - 124	16.51	0.402	20	
1,1,1-Trichloroethane	16.72	1.0	20	0	83.6	74 - 131	16.62	0.596	20	
1,1,2,2-Tetrachloroethane	17.64	1.0	20	0	88.2	71 - 121	17.57	0.396	20	
1,1,2-Trichloroethane	17.31	1.0	20	0	86.5	80 - 119	17.26	0.254	20	
1,1-Dichloroethane	15.14	1.0	20	0	75.7	77 - 125	15.31	1.12	20	S
1,1-Dichloroethene	15.9	1.0	20	0	79.5	71 - 131	16.44	3.34	20	
1,1-Dichloropropene	17.2	1.0	20	0	86.0	78 - 125	17.45	1.47	20	
1,2,3-Trichlorobenzene	21.62	1.0	20	0	108	69 - 129	20.81	3.79	20	
1,2,3-Trichloropropane	18.13	1.0	20	0	90.7	73 - 122	17.72	2.32	20	
1,2,4-Trichlorobenzene	20.17	1.0	20	0	101	69 - 130	19.95	1.11	20	
1,2,4-Trimethylbenzene	16.82	1.0	20	0	84.1	76 - 124	16.6	1.35	20	
1,2-Dibromo-3-chloropropane	19.64	1.0	20	0	98.2	62 - 128	19.76	0.602	20	
1,2-Dibromoethane	16.91	1.0	20	0	84.6	77 - 121	16.72	1.13	20	
1,2-Dichlorobenzene	17.08	1.0	20	0	85.4	80 - 119	16.97	0.64	20	
1,2-Dichloroethane	15.51	1.0	20	0	77.5	73 - 128	15.42	0.587	20	
1,2-Dichloropropane	15.75	1.0	20	0	78.8	78 - 122	15.7	0.313	20	
1,3,5-Trimethylbenzene	16.61	1.0	20	0	83.1	75 - 124	16.77	0.95	20	
1,3-Dichlorobenzene	16.63	1.0	20	0	83.2	80 - 119	16.72	0.552	20	
1,3-Dichloropropane	16.84	1.0	20	0	84.2	80 - 119	16.64	1.21	20	
1,4-Dichlorobenzene	18.12	1.0	20	0	90.6	79 - 118	17.61	2.81	20	
2,2-Dichloropropane	16.43	1.0	20	0	82.2	60 - 139	16.67	1.45	20	
2-Butanone	36.09	2.0	40	0	90.2	56 - 143	35.5	1.64	20	
2-Chlorotoluene	17.25	1.0	20	0	86.3	79 - 122	17.41	0.897	20	
2-Hexanone	33.5	2.0	40	0	83.8	57 - 139	32.54	2.91	20	
4-Chlorotoluene	17.25	1.0	20	0	86.2	78 - 122	17.42	1.02	20	
4-Isopropyltoluene	17.61	1.0	20	0	88.1	77 - 127	17.75	0.749	20	
4-Methyl-2-pentanone	33.33	2.0	40	0	83.3	67 - 130	33.2	0.392	20	
Acetone	37.8	2.0	40	4.161	84.1	39 - 160	37.89	0.25	20	
Benzene	16.71	1.0	20	0	83.6	79 - 120	16.63	0.479	20	
Bromobenzene	15.97	1.0	20	0	79.8	80 - 120	15.78	1.2	20	S
Bromochloromethane	14.89	1.0	20	0	74.4	78 - 123	15.16	1.82	20	S
Bromodichloromethane	16.58	1.0	20	0	82.9	79 - 125	16.26	1.99	20	
Bromoform	18.12	1.0	20	0	90.6	66 - 130	17.61	2.84	20	
Bromomethane	15.98	1.0	20	0	79.9	53 - 141	16.43	2.73	20	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061486-01MSD** Units: **UG/L** Analysis Date: **03-Jul-2019 18:32**
Client ID: **CO9_062619** Run ID: **VOA6_341869** SeqNo: **5153638** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	30.26	2.0	40	0	75.7	64 - 133	30.33	0.215	20	
Carbon tetrachloride	17.75	1.0	20	0	88.7	72 - 136	17.83	0.463	20	
Chlorobenzene	16.44	1.0	20	0	82.2	82 - 118	16.32	0.761	20	
Chloroethane	15.28	1.0	20	0	76.4	60 - 138	15.5	1.42	20	
Chloroform	15.71	1.0	20	0	78.6	79 - 124	15.88	1.07	20	S
Chloromethane	14.69	1.0	20	0	73.4	50 - 139	14.92	1.58	20	
cis-1,2-Dichloroethene	15.7	1.0	20	0	78.5	78 - 123	15.81	0.692	20	
cis-1,3-Dichloropropene	15.68	1.0	20	0	78.4	75 - 124	15.72	0.238	20	
Dibromochloromethane	16.67	1.0	20	0	83.4	74 - 126	16.19	2.91	20	
Dibromomethane	16.2	1.0	20	0	81.0	79 - 123	16.1	0.6	20	
Dichlorodifluoromethane	15.34	1.0	20	0	76.7	32 - 152	15.64	1.95	20	
Ethylbenzene	16.85	1.0	20	0	84.2	79 - 121	17	0.905	20	
Hexachlorobutadiene	22.45	1.0	20	0	112	66 - 134	21.68	3.48	20	
Isopropylbenzene	17.51	1.0	20	0	87.5	72 - 131	17.62	0.618	20	
m,p-Xylene	33.91	2.0	40	0	84.8	80 - 121	34.49	1.71	20	
Methylene chloride	14.82	2.0	20	0	74.1	74 - 124	15.03	1.35	20	
Naphthalene	20.33	1.0	20	0	102	61 - 128	19.79	2.71	20	
n-Butylbenzene	17.71	1.0	20	0	88.6	75 - 128	17.77	0.323	20	
n-Propylbenzene	18.14	1.0	20	0	90.7	76 - 126	18.11	0.153	20	
o-Xylene	16.36	1.0	20	0	81.8	78 - 122	16.52	0.968	20	
sec-Butylbenzene	18.96	1.0	20	0	94.8	77 - 126	19.08	0.607	20	
Styrene	16.9	1.0	20	0	84.5	78 - 123	16.93	0.183	20	
tert-Butylbenzene	18.61	1.0	20	0	93.1	78 - 124	18.55	0.304	20	
Tetrachloroethene	17.87	1.0	20	0	89.3	74 - 129	17.69	0.987	20	
Toluene	16.4	1.0	20	0	82.0	80 - 121	16.65	1.53	20	
trans-1,2-Dichloroethene	16.25	1.0	20	0	81.3	75 - 124	16.67	2.54	20	
trans-1,3-Dichloropropene	15.73	1.0	20	0	78.7	73 - 127	15.41	2.08	20	
Trichloroethene	17.49	1.0	20	0	87.5	79 - 123	19.25	9.57	20	
Trichlorofluoromethane	16.54	1.0	20	0	82.7	65 - 141	16.99	2.69	20	
Vinyl chloride	14.75	1.0	20	0	73.8	58 - 137	14.99	1.6	20	
Surr: 1,2-Dichloroethane-d4	*47.12*	*1.0*	*50*	*0*	*94.2*	*81 - 118*	*45.86*	*2.7*	*20*	
Surr: 4-Bromofluorobenzene	*48.48*	*1.0*	*50*	*0*	*97.0*	*85 - 114*	*48.41*	*0.13*	*20*	
Surr: Dibromofluoromethane	*46.14*	*1.0*	*50*	*0*	*92.3*	*80 - 119*	*45.73*	*0.893*	*20*	
Surr: Toluene-d8	*46.66*	*1.0*	*50*	*0*	*93.3*	*89 - 112*	*47.34*	*1.44*	*20*	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R341869 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:	HS19061486-01	HS19061486-02	HS19061486-03	HS19061486-04

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190709** Units: **UG/L** Analysis Date: **09-Jul-2019 17:38**
Client ID: Run ID: **VOA6_342165** SeqNo: **5160801** 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	1.0	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: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190709** Units: **UG/L** Analysis Date: **09-Jul-2019 17:38**
Client ID: Run ID: **VOA6_342165** SeqNo: **5160801** 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	1.0	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	*48.05*	*1.0*	*50*	*0*	*96.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.27*	*1.0*	*50*	*0*	*96.5*	*85 - 114*				
Surr: Dibromofluoromethane	*48.28*	*1.0*	*50*	*0*	*96.6*	*80 - 119*				
Surr: Toluene-d8	*50.86*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190709** Units: **UG/L** Analysis Date: **09-Jul-2019 16:50**
Client ID: Run ID: **VOA6_342165** SeqNo: **5160800** 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	19.4	1.0	20	0	97.0	78 - 124				
1,1,1-Trichloroethane	17.26	1.0	20	0	86.3	74 - 131				
1,1,2,2-Tetrachloroethane	20.41	1.0	20	0	102	71 - 121				
1,1,2-Trichloroethane	19.21	1.0	20	0	96.0	80 - 119				
1,1-Dichloroethane	17.56	1.0	20	0	87.8	77 - 125				
1,1-Dichloroethene	16.29	1.0	20	0	81.4	71 - 131				
1,1-Dichloropropene	16.89	1.0	20	0	84.5	78 - 125				
1,2,3-Trichlorobenzene	21.97	1.0	20	0	110	69 - 129				
1,2,3-Trichloropropane	18.73	1.0	20	0	93.6	73 - 122				
1,2,4-Trichlorobenzene	20.3	1.0	20	0	102	69 - 130				
1,2,4-Trimethylbenzene	18.28	1.0	20	0	91.4	76 - 124				
1,2-Dibromo-3-chloropropane	22.61	1.0	20	0	113	62 - 128				
1,2-Dibromoethane	19.91	1.0	20	0	99.5	77 - 121				
1,2-Dichlorobenzene	19.35	1.0	20	0	96.8	80 - 119				
1,2-Dichloroethane	18.57	1.0	20	0	92.9	73 - 128				
1,2-Dichloropropane	19.04	1.0	20	0	95.2	78 - 122				
1,3,5-Trimethylbenzene	17.85	1.0	20	0	89.3	75 - 124				
1,3-Dichlorobenzene	19.33	1.0	20	0	96.7	80 - 119				
1,3-Dichloropropane	19.31	1.0	20	0	96.5	80 - 119				
1,4-Dichlorobenzene	18.59	1.0	20	0	92.9	79 - 118				
2,2-Dichloropropane	18.07	1.0	20	0	90.4	60 - 139				
2-Butanone	43.08	2.0	40	0	108	56 - 143				
2-Chlorotoluene	18.02	1.0	20	0	90.1	79 - 122				
2-Hexanone	41.65	2.0	40	0	104	57 - 139				
4-Chlorotoluene	17.85	1.0	20	0	89.3	78 - 122				
4-Isopropyltoluene	17.06	1.0	20	0	85.3	77 - 127				
4-Methyl-2-pentanone	41.1	2.0	40	0	103	67 - 130				
Acetone	46.08	2.0	40	0	115	39 - 160				
Benzene	18.21	1.0	20	0	91.0	79 - 120				
Bromobenzene	19.61	1.0	20	0	98.1	80 - 120				
Bromochloromethane	18.28	1.0	20	0	91.4	78 - 123				
Bromodichloromethane	19.08	1.0	20	0	95.4	79 - 125				
Bromoform	20.96	1.0	20	0	105	66 - 130				
Bromomethane	20.81	1.0	20	0	104	53 - 141				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190709** Units: **UG/L** Analysis Date: **09-Jul-2019 16:50**
Client ID: Run ID: **VOA6_342165** SeqNo: **5160800** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.24	2.0	40	0	88.1	64 - 133				
Carbon tetrachloride	16.46	1.0	20	0	82.3	72 - 136				
Chlorobenzene	18.61	1.0	20	0	93.1	82 - 118				
Chloroethane	16.68	1.0	20	0	83.4	60 - 138				
Chloroform	18.98	1.0	20	0	94.9	79 - 124				
Chloromethane	17.52	1.0	20	0	87.6	50 - 139				
cis-1,2-Dichloroethene	17.85	1.0	20	0	89.2	78 - 123				
cis-1,3-Dichloropropene	19.48	1.0	20	0	97.4	75 - 124				
Dibromochloromethane	20.05	1.0	20	0	100	74 - 126				
Dibromomethane	19.31	1.0	20	0	96.5	79 - 123				
Dichlorodifluoromethane	17.07	1.0	20	0	85.4	32 - 152				
Ethylbenzene	18.49	1.0	20	0	92.5	79 - 121				
Hexachlorobutadiene	17.95	1.0	20	0	89.8	66 - 134				
Isopropylbenzene	18.03	1.0	20	0	90.2	72 - 131				
m,p-Xylene	37.17	2.0	40	0	92.9	80 - 121				
Methylene chloride	17.73	2.0	20	0	88.7	74 - 124				
Naphthalene	21.48	1.0	20	0	107	61 - 128				
n-Butylbenzene	17.96	1.0	20	0	89.8	75 - 128				
n-Propylbenzene	17.28	1.0	20	0	86.4	76 - 126				
o-Xylene	18.59	1.0	20	0	92.9	78 - 122				
sec-Butylbenzene	16.57	1.0	20	0	82.8	77 - 126				
Styrene	19.34	1.0	20	0	96.7	78 - 123				
tert-Butylbenzene	17.04	1.0	20	0	85.2	78 - 124				
Tetrachloroethene	18.37	1.0	20	0	91.9	74 - 129				
Toluene	18.55	1.0	20	0	92.7	80 - 121				
trans-1,2-Dichloroethene	18.04	1.0	20	0	90.2	75 - 124				
trans-1,3-Dichloropropene	19.72	1.0	20	0	98.6	73 - 127				
Trichloroethene	17.97	1.0	20	0	89.9	79 - 123				
Trichlorofluoromethane	16.21	1.0	20	0	81.1	65 - 141				
Vinyl chloride	16.29	1.0	20	0	81.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.19*	*1.0*	*50*	*0*	*102*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.07*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*51.1*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*50.3*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061486-06MS** Units: **UG/L** Analysis Date: **09-Jul-2019 20:49**
Client ID: **MW18_062619** Run ID: **VOA6_342165** SeqNo: **5160805** 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	19.21	1.0	20	0	96.1	78 - 124				
1,1,1-Trichloroethane	18.37	1.0	20	0	91.9	74 - 131				
1,1,2,2-Tetrachloroethane	18.34	1.0	20	0	91.7	71 - 121				
1,1,2-Trichloroethane	17.96	1.0	20	0	89.8	80 - 119				
1,1-Dichloroethane	17.03	1.0	20	0	85.2	77 - 125				
1,1-Dichloroethene	18.14	1.0	20	0	90.7	71 - 131				
1,1-Dichloropropene	18.6	1.0	20	0	93.0	78 - 125				
1,2,3-Trichlorobenzene	17.53	1.0	20	0	87.7	69 - 129				
1,2,3-Trichloropropane	18.85	1.0	20	0	94.2	73 - 122				
1,2,4-Trichlorobenzene	18.15	1.0	20	0	90.8	69 - 130				
1,2,4-Trimethylbenzene	19.15	1.0	20	0	95.8	76 - 124				
1,2-Dibromo-3-chloropropane	18.13	1.0	20	0	90.6	62 - 128				
1,2-Dibromoethane	18.01	1.0	20	0	90.1	77 - 121				
1,2-Dichlorobenzene	18.57	1.0	20	0	92.8	80 - 119				
1,2-Dichloroethane	17.4	1.0	20	0	87.0	73 - 128				
1,2-Dichloropropane	17.68	1.0	20	0	88.4	78 - 122				
1,3,5-Trimethylbenzene	19.37	1.0	20	0	96.9	75 - 124				
1,3-Dichlorobenzene	18.96	1.0	20	0	94.8	80 - 119				
1,3-Dichloropropane	17.88	1.0	20	0	89.4	80 - 119				
1,4-Dichlorobenzene	18.16	1.0	20	0	90.8	79 - 118				
2,2-Dichloropropane	16.95	1.0	20	0	84.7	60 - 139				
2-Butanone	34.21	2.0	40	0	85.5	56 - 143				
2-Chlorotoluene	18.42	1.0	20	0	92.1	79 - 122				
2-Hexanone	34.97	2.0	40	0	87.4	57 - 139				
4-Chlorotoluene	17.9	1.0	20	0	89.5	78 - 122				
4-Isopropyltoluene	19.85	1.0	20	0	99.2	77 - 127				
4-Methyl-2-pentanone	34.82	2.0	40	0	87.0	67 - 130				
Acetone	41.99	2.0	40	3.335	96.6	39 - 160				
Benzene	18.13	1.0	20	0	90.6	79 - 120				
Bromobenzene	18.8	1.0	20	0	94.0	80 - 120				
Bromochloromethane	16.73	1.0	20	0	83.7	78 - 123				
Bromodichloromethane	17.95	1.0	20	0	89.7	79 - 125				
Bromoform	19.09	1.0	20	0	95.4	66 - 130				
Bromomethane	17.8	1.0	20	0	89.0	53 - 141				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19061486-06MS** Units: **UG/L** Analysis Date: **09-Jul-2019 20:49**
Client ID: **MW18_062619** Run ID: **VOA6_342165** SeqNo: **5160805** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.46	2.0	40	0	91.2	64 - 133				
Carbon tetrachloride	18.84	1.0	20	0	94.2	72 - 136				
Chlorobenzene	18.46	1.0	20	0	92.3	82 - 118				
Chloroethane	16.76	1.0	20	0	83.8	60 - 138				
Chloroform	17.66	1.0	20	0	88.3	79 - 124				
Chloromethane	17.89	1.0	20	0	89.5	50 - 139				
cis-1,2-Dichloroethene	18.31	1.0	20	1.168	85.7	78 - 123				
cis-1,3-Dichloropropene	17.77	1.0	20	0	88.8	75 - 124				
Dibromochloromethane	18.54	1.0	20	0	92.7	74 - 126				
Dibromomethane	17.71	1.0	20	0	88.6	79 - 123				
Dichlorodifluoromethane	13.74	1.0	20	0	68.7	32 - 152				
Ethylbenzene	19.77	1.0	20	0	98.9	79 - 121				
Hexachlorobutadiene	19.63	1.0	20	0	98.1	66 - 134				
Isopropylbenzene	20.32	1.0	20	0	102	72 - 131				
m,p-Xylene	38.99	2.0	40	0	97.5	80 - 121				
Methylene chloride	16.67	2.0	20	0	83.3	74 - 124				
Naphthalene	17.21	1.0	20	0	86.0	61 - 128				
n-Butylbenzene	21.33	1.0	20	0	107	75 - 128				
n-Propylbenzene	19.43	1.0	20	0	97.2	76 - 126				
o-Xylene	18.8	1.0	20	0	94.0	78 - 122				
sec-Butylbenzene	20.42	1.0	20	0	102	77 - 126				
Styrene	18.96	1.0	20	0	94.8	78 - 123				
tert-Butylbenzene	19.92	1.0	20	0	99.6	78 - 124				
Tetrachloroethene	20.72	1.0	20	0	104	74 - 129				
Toluene	19.12	1.0	20	0	95.6	80 - 121				
trans-1,2-Dichloroethene	17.92	1.0	20	0	89.6	75 - 124				
trans-1,3-Dichloropropene	17.7	1.0	20	0	88.5	73 - 127				
Trichloroethene	44.23	1.0	20	24.81	97.1	79 - 123				
Trichlorofluoromethane	17.42	1.0	20	0	87.1	65 - 141				
Vinyl chloride	15.68	1.0	20	0	78.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.92*	*1.0*	*50*	*0*	*95.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.66*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*48.39*	*1.0*	*50*	*0*	*96.8*	*80 - 119*				
Surr: Toluene-d8	*51*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061486-06MSD** Units: **UG/L** Analysis Date: **09-Jul-2019 21:13**
Client ID: **MW18_062619** Run ID: **VOA6_342165** SeqNo: **5160806** 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	19.04	1.0	20	0	95.2	78 - 124	19.21	0.912	20	
1,1,1-Trichloroethane	18.28	1.0	20	0	91.4	74 - 131	18.37	0.539	20	
1,1,2,2-Tetrachloroethane	18.93	1.0	20	0	94.6	71 - 121	18.34	3.15	20	
1,1,2-Trichloroethane	18.44	1.0	20	0	92.2	80 - 119	17.96	2.64	20	
1,1-Dichloroethane	17.06	1.0	20	0	85.3	77 - 125	17.03	0.174	20	
1,1-Dichloroethene	17.61	1.0	20	0	88.0	71 - 131	18.14	2.98	20	
1,1-Dichloropropene	18.44	1.0	20	0	92.2	78 - 125	18.6	0.83	20	
1,2,3-Trichlorobenzene	18.54	1.0	20	0	92.7	69 - 129	17.53	5.57	20	
1,2,3-Trichloropropane	19.37	1.0	20	0	96.9	73 - 122	18.85	2.73	20	
1,2,4-Trichlorobenzene	18.99	1.0	20	0	94.9	69 - 130	18.15	4.49	20	
1,2,4-Trimethylbenzene	19.2	1.0	20	0	96.0	76 - 124	19.15	0.241	20	
1,2-Dibromo-3-chloropropane	18.47	1.0	20	0	92.4	62 - 128	18.13	1.88	20	
1,2-Dibromoethane	18.34	1.0	20	0	91.7	77 - 121	18.01	1.8	20	
1,2-Dichlorobenzene	18.92	1.0	20	0	94.6	80 - 119	18.57	1.87	20	
1,2-Dichloroethane	17.48	1.0	20	0	87.4	73 - 128	17.4	0.494	20	
1,2-Dichloropropane	17.83	1.0	20	0	89.2	78 - 122	17.68	0.853	20	
1,3,5-Trimethylbenzene	19.51	1.0	20	0	97.5	75 - 124	19.37	0.717	20	
1,3-Dichlorobenzene	19.33	1.0	20	0	96.6	80 - 119	18.96	1.93	20	
1,3-Dichloropropane	18.06	1.0	20	0	90.3	80 - 119	17.88	1.04	20	
1,4-Dichlorobenzene	18.21	1.0	20	0	91.0	79 - 118	18.16	0.254	20	
2,2-Dichloropropane	16.77	1.0	20	0	83.9	60 - 139	16.95	1.04	20	
2-Butanone	35.16	2.0	40	0	87.9	56 - 143	34.21	2.73	20	
2-Chlorotoluene	18.45	1.0	20	0	92.3	79 - 122	18.42	0.179	20	
2-Hexanone	35.51	2.0	40	0	88.8	57 - 139	34.97	1.53	20	
4-Chlorotoluene	18.33	1.0	20	0	91.6	78 - 122	17.9	2.35	20	
4-Isopropyltoluene	20.06	1.0	20	0	100	77 - 127	19.85	1.08	20	
4-Methyl-2-pentanone	36.29	2.0	40	0	90.7	67 - 130	34.82	4.13	20	
Acetone	41.68	2.0	40	3.335	95.9	39 - 160	41.99	0.736	20	
Benzene	18.22	1.0	20	0	91.1	79 - 120	18.13	0.484	20	
Bromobenzene	19	1.0	20	0	95.0	80 - 120	18.8	1.08	20	
Bromochloromethane	17.59	1.0	20	0	87.9	78 - 123	16.73	5	20	
Bromodichloromethane	18.21	1.0	20	0	91.1	79 - 125	17.95	1.46	20	
Bromoform	18.92	1.0	20	0	94.6	66 - 130	19.09	0.889	20	
Bromomethane	16.97	1.0	20	0	84.9	53 - 141	17.8	4.75	20	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061486

QC BATCH REPORT

Batch ID: R342165 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19061486-06MSD** Units: **UG/L** Analysis Date: **09-Jul-2019 21:13**
Client ID: **MW18_062619** Run ID: **VOA6_342165** SeqNo: **5160806** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	35.88	2.0	40	0	89.7	64 - 133	36.46	1.62	20	
Carbon tetrachloride	18.62	1.0	20	0	93.1	72 - 136	18.84	1.2	20	
Chlorobenzene	18.38	1.0	20	0	91.9	82 - 118	18.46	0.416	20	
Chloroethane	16.35	1.0	20	0	81.8	60 - 138	16.76	2.47	20	
Chloroform	17.74	1.0	20	0	88.7	79 - 124	17.66	0.439	20	
Chloromethane	16.52	1.0	20	0	82.6	50 - 139	17.89	7.96	20	
cis-1,2-Dichloroethene	18.44	1.0	20	1.168	86.4	78 - 123	18.31	0.705	20	
cis-1,3-Dichloropropene	18.21	1.0	20	0	91.1	75 - 124	17.77	2.46	20	
Dibromochloromethane	18.84	1.0	20	0	94.2	74 - 126	18.54	1.58	20	
Dibromomethane	18.03	1.0	20	0	90.1	79 - 123	17.71	1.78	20	
Dichlorodifluoromethane	13.61	1.0	20	0	68.0	32 - 152	13.74	0.95	20	
Ethylbenzene	19.42	1.0	20	0	97.1	79 - 121	19.77	1.79	20	
Hexachlorobutadiene	20.48	1.0	20	0	102	66 - 134	19.63	4.28	20	
Isopropylbenzene	19.95	1.0	20	0	99.8	72 - 131	20.32	1.83	20	
m,p-Xylene	38.73	2.0	40	0	96.8	80 - 121	38.99	0.653	20	
Methylene chloride	16.64	2.0	20	0	83.2	74 - 124	16.67	0.171	20	
Naphthalene	17.64	1.0	20	0	88.2	61 - 128	17.21	2.48	20	
n-Butylbenzene	21.62	1.0	20	0	108	75 - 128	21.33	1.35	20	
n-Propylbenzene	19.27	1.0	20	0	96.4	76 - 126	19.43	0.819	20	
o-Xylene	18.9	1.0	20	0	94.5	78 - 122	18.8	0.507	20	
sec-Butylbenzene	20.53	1.0	20	0	103	77 - 126	20.42	0.574	20	
Styrene	18.86	1.0	20	0	94.3	78 - 123	18.96	0.511	20	
tert-Butylbenzene	20.08	1.0	20	0	100	78 - 124	19.92	0.779	20	
Tetrachloroethene	20.53	1.0	20	0	103	74 - 129	20.72	0.942	20	
Toluene	18.85	1.0	20	0	94.2	80 - 121	19.12	1.44	20	
trans-1,2-Dichloroethene	17.87	1.0	20	0	89.4	75 - 124	17.92	0.264	20	
trans-1,3-Dichloropropene	17.68	1.0	20	0	88.4	73 - 127	17.7	0.0757	20	
Trichloroethene	44.08	1.0	20	24.81	96.3	79 - 123	44.23	0.334	20	
Trichlorofluoromethane	17.21	1.0	20	0	86.0	65 - 141	17.42	1.24	20	
Vinyl chloride	15.43	1.0	20	0	77.1	58 - 137	15.68	1.62	20	
Surr: 1,2-Dichloroethane-d4	*48.88*	*1.0*	*50*	*0*	*97.8*	*81 - 118*	*47.92*	*1.99*	*20*	
Surr: 4-Bromofluorobenzene	*49.66*	*1.0*	*50*	*0*	*99.3*	*85 - 114*	*49.66*	*0*	*20*	
Surr: Dibromofluoromethane	*48.5*	*1.0*	*50*	*0*	*97.0*	*80 - 119*	*48.39*	*0.22*	*20*	
Surr: Toluene-d8	*49.88*	*1.0*	*50*	*0*	*99.8*	*89 - 112*	*51*	*2.23*	*20*	

ALS Houston, US Date: 17-Jul-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP 18 24
WorkOrder:	HS19061486

QC BATCH REPORT

Batch ID:	**R342165 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:	HS19061486-05	HS19061486-06	HS19061486-07

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061486**

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

ALS Houston, US Date: 17-Jul-19

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 17-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061486
Date/Time Received: **27-Jun-2019 08:30**
Received by: **JRM**

Checklist completed by: *Paresh M. Giga* 27-Jun-2019
eSignature | Date

Reviewed by: _____
eSignature | Date

Matrices: **Groundwater/Water**
Carrier name: **FedEx**

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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	2.2c U/c	IR11
Cooler(s)/Kit(s):	44515	
Date/Time sample(s) sent to storage:	6/27/19 18:00	

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 CONSTRUCTION ENERGY

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 18/24

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	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
								Sample Analysis Requested (5)					Quality Assurance Samples (6)			
C09_062619		26 Jun 2019	0735	-	N		WG	5	X	X	X					
C09_062619_MS		26 Jun 2019	0735	-	MS		WG	5	X	X	X					
C09_062619_MSD		26 Jun 2019	0735	-	SD		WG	5	X	X	X					
C06_062619		26 Jun 2019	0830	-	N		WG	5	X	X	X					
18MW16_062619		26 Jun 2019	0900	-	N		WG	5	X	X	X					
18CPTMW18_062619		26 Jun 2019	1005	-	N		WG	6	X	X	X	X				
C03_062619		26 Jun 2019	1100	-	N		WG	6	X	X	X	X				
MW18_062619		26 Jun 2019	1155	-	N		WG	4	X	X						
MW18_062619_MS		26 Jun 2019	1155	-	MS		WG	4	X	X						
MW18_062619_MSD		26 Jun 2019	1155	-	SD		WG	4	X	X						
TRIP BLANK		26 Jun 2019		-	TB		W	2	X							

HS19061486
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS:

Cooler 44515 Temp 2.2 10:11 CF-0.0

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/26/19	1430	1. J. Williams	6/27/19	08:30
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 Stancliff 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

00942023

00942024

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

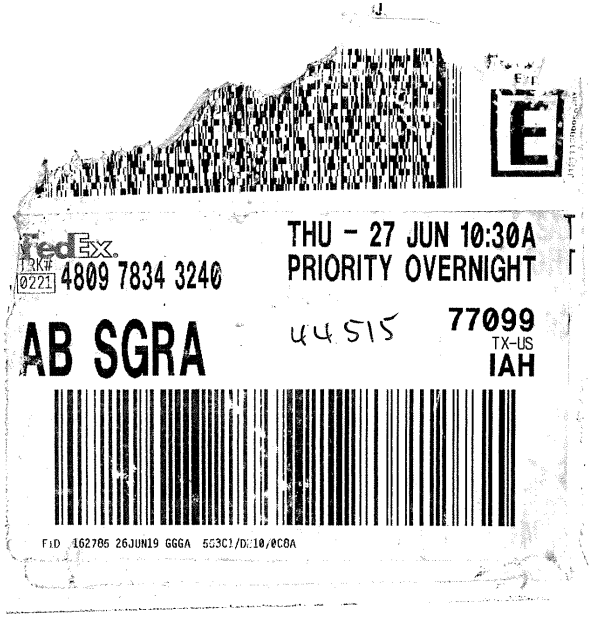
44515

CUSTODY SEAL

Date: 6/26/19 Time: 1430
Name: Scott Beesinger
Company: BHETS

Seal Broken By: M
Date: 6/27/19

44515 JUN 27 2019



Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1918528, 1918705, 1918871

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2270 (243267)

General Set Information: There were twenty-four field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field sample 1918705007 was analyzed and reported from a 1:10 dilution. Field sample 1918528010 was analyzed and reported from a 1:100 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 663033) was less than 1/2 the CRDL. The recovery for the LCS (663034) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 1918705002/03 and 1918705009/10 (Client ID's: CO9_062619 and MW18_062619). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The MS/MSD percent recoveries and relative percent difference were within the performance limits. The MS (1918705002MS) failed QC acceptance criteria for percent recovery. MS/MSD 1918705002/03 also failed the relative percent difference. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 663031) is reported from the analysis of the Laboratory Control Sample (LCS – 663034) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 11JULD20.

Thomas Bosch July 12, 2019
Analyst Date

ANALYTICAL REPORT

Report Date: July 12, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918705**
Project ID: HS19061486
Purchase Order: HS19061486
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
CO9_062619	1918705001	06/26/19	06/28/19	
C06_062619	1918705004	06/26/19	06/28/19	
18WW16_062619	1918705005	06/26/19	06/28/19	
18CPTMW18_062619	1918705006	06/26/19	06/28/19	
CO3_062619	1918705007	06/26/19	06/28/19	
MW18_062619	1918705008	06/26/19	06/28/19	

Client QC ID *	Lab ID	Collect Date	Receive Date	Sampling Site
CO9_062619 MS	1918705002	06/26/19	06/28/19	
CO9_062619 MSD	1918705003	06/26/19	06/28/19	
MW18_062619 MS	1918705009	06/26/19	06/28/19	
MW18_062619 MSD	1918705010	06/26/19	06/28/19	

***Client QC is reported as part of the Quality Control results report, if requested.**

ANALYTICAL REPORT

Workorder: 34-1918705
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **CO9_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918705001 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 14:39 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **C06_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918705004 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 15:21 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW16_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918705005 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 15:35 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**4.4**	1.0	2.0	4.0	1	

Sample ID: **18CPTMW18_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918705006 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 15:49 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

ANALYTICAL REPORT

Workorder: 34-1918705
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **CO3_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918705007 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 16:03 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**54**	10	20	40	10	

Sample ID: **MW18_062619** | Sampling Site: NA | Collected: 06/26/2019
Lab ID: 1918705008 | Media: 250 mL Nalgene | Received: 06/28/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 16:17 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/12/2019 10:14	/S/ Stephen Brose 07/12/2019 11:30

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1918705
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918705

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2270 (HBN: 243267)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 663033
Analyzed: 07/11/2019 11:53
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 663034
Analyzed: 07/11/2019 11:26
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.41	4.00	110	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

	Sample: 1918705001	MS: 1918705002	MSD: 1918705003
	Analyzed: 07/11/2019 14:39	Analyzed: 07/11/2019 14:52	Analyzed: 07/11/2019 15:06
	Dilution: 1	Dilution: 1	Dilution: 1
	Units: ug/L	Units: ug/L	Units: ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	5.21	4	# 130	78.8	123.8	4.09	102	# 24	0.0	20.0

	Sample: 1918705008	MS: 1918705009	MSD: 1918705010
	Analyzed: 07/11/2019 16:17	Analyzed: 07/11/2019 16:31	Analyzed: 07/11/2019 16:45
	Dilution: 1	Dilution: 1	Dilution: 1
	Units: ug/L	Units: ug/L	Units: ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.4	4	110	78.8	123.8	3.92	98.0	11.5	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
07/12/2019 10:17	07/12/2019 11:30

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19061486	***Split:***	**Workorder ID:** 1918705	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 250Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 8650, DoD QSM
1	06/26/2019 07:35	CO9_062619	1918705001		Water	A	1	A
2	06/26/2019 07:35	CO9_062619 MS	1918705002	MS	Water	A	1	A
3	06/26/2019 07:35	CO9_062619 MSD	1918705003	MSD	Water	A	1	A
4	06/26/2019 08:30	C06_062619	1918705004		Water	A	1	A
5	06/26/2019 09:00	18WW16_062619	1918705005		Water	A	1	A
6	06/26/2019 10:05	18CPTMW18_062619	1918705006		Water	A	1	A
7	06/26/2019 11:00	CO3_062619	1918705007		Water	A	1	A
8	06/26/2019 11:55	MW18_062619	1918705008		Water	A	1	A
9	06/26/2019 11:55	MW18_062619 MS	1918705009	MS	Water	A	1	A
10	06/26/2019 11:55	MW18_062619 MSD	1918705010	MSD	Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Cortes, Gayleen	06/28/2019 09:03	ALS Sample Receiving	Sample Login
R331	6.28.19 1335	3B	STORAGE
	7.10.19/10:25	T. Bosch	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ **Lab Notebook No.:** _____

Prepared / Analyzed by: _____ **Date / Time:** _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00942032

W 1918705

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

SAMPLING STATE: **Texas**

18698/2

COC ID: **11696**

1918705

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19061486
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
(3) 1.	**HS19061486-01**	**CO9_062619**	**Groundwater**	**26 Jun 2019 07:35**
	SUB_Perch-6850			08 Jul 2019
2.	**HS19061486-02**	**CO6_062619**	**Groundwater**	**26 Jun 2019 08:30**
	SUB_Perch-6850			08 Jul 2019
3.	**HS19061486-03**	**18WW16_062619**	**Groundwater**	**26 Jun 2019 09:00**
	SUB_Perch-6850			08 Jul 2019
4.	**HS19061486-04**	**18CPTMW18_062619**	**Groundwater**	**26 Jun 2019 10:05**
	SUB_Perch-6850			08 Jul 2019
5.	**HS19061486-05**	**CO3_062619**	**Groundwater**	**26 Jun 2019 11:00**
	SUB_Perch-6850			08 Jul 2019
(3) 6.	**HS19061486-06**	**MW18_062619**	**Groundwater**	**26 Jun 2019 11:55**
	SUB_Perch-6850			08 Jul 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
Use HS19061486-01 & HS19061486-06 as MS/MSD

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11696**

Relinquished By: _____ Date/Time: 6/27/19 1800

Received By: _____ Date/Time: 6.28.19 0903

Cooler ID(s): _____ Temperature(s): _____

ALS-SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS HOUSTON

Project/Task/Site: HS19061486 & HS19061482

Date/Time of Receipt: 6.28.19 0903

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA		
	Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9734	1 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: _____ (Signature) GAYLEEN COATES (Printed Name) 6.28.19 (Date)

CLIENT-RELATED INFORMATION

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

00942036

Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159469-4341 RIT2 EXP 02/20

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 27JUN19
ACTWGT: 23.90 LB
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19061482/1486 - RJ

FedEx Express

FRI - 28 JUN 3:00P
STANDARD OVERNIGHT

TRK# 0201 4809 7835 4546

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2270 Created: 7/10/2019 13:34 Instrument: HBN: 243267
Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 1918528 [ENV_LVL4]
Workorder: 1918705 [ENV_LVL4]
Workorder: 1918871 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	663030	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	
2	663031	RLVS for HBN 243267 [ELMS/2270				RLVS	3		E685041C3Q	5311		7/11/2019	
3	663032	ICS for HBN 243267 [ELMS/2270]				ICS	3		E6850..D3Q	5311		7/11/2019	
4	663033	LMB for HBN 243267 [ELMS/2270]				LMB	3		E6850Q413Q	5311		7/11/2019	
5	663034	LCS for HBN 243267 [ELMS/2270]				LCS	3		E6850Q413Q	5311		7/11/2019	
6	1918528001	17WW08_062519				SAMPLE	3	1918528001-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
7	1918528002	130_062519				SAMPLE	3	1918528002-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
8	1918528003	130_062519_a				SAMPLE	3	1918528003-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
9	1918528004	MW10_062519				SAMPLE	3	1918528004-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
10	1918528005	MW13_062519				SAMPLE	3	1918528005-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
11	1918528006	CO2_062519				SAMPLE	3	1918528006-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
12	1918528007	MW17_062519				SAMPLE	3	1918528007-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
13	1918528008	18WW10_062519				SAMPLE	3	1918528008-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
14	1918528009	18WW10_062519_a				SAMPLE	3	1918528009-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
15	1918528010	MW9_062519				SAMPLE	3	1918528010-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
16	663035	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	
17	1918705001	CO9_062619				SAMPLE	3	1918705001-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
18	1918705002	CO9_062619 MS				MS	3	1918705002-A	E6850Q413Q	5480		7/11/2019	
19	1918705003	CO9_062619 MSD				MSD	3	1918705003-A	E6850Q413Q	5480		7/11/2019	
20	1918705004	C06_062619				SAMPLE	3	1918705004-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
21	1918705005	18WW16_062619				SAMPLE	3	1918705005-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
22	1918705006	18CPTMW18_062619				SAMPLE	3	1918705006-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
23	1918705007	CO3_062619				SAMPLE	3	1918705007-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
24	1918705008	MW18_062619				SAMPLE	3	1918705008-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
25	1918705009	MW18_062619 MS				MS	3	1918705009-A	E6850Q413Q	5480		7/11/2019	
26	1918705010	MW18_062619 MSD				MSD	3	1918705010-A	E6850Q413Q	5480		7/11/2019	
27	663036	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	

00942037

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
28	1918871001	18WW08_062719				SAMPLE	3	1918871001-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
29	1918871002	18WW09_062719				SAMPLE	3	1918871002-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
30	1918871003	18CPTMW16_062719				SAMPLE	3	1918871003-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
31	1918871004	18WW2516_062719				SAMPLE	3	1918871004-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
32	663037	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	

00942038



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1918528 (001-10), 1918705 (001-10); 1918871 (001-04)
ELMS Batch/HBN ID: 2270 (243267)
Prep Date: 07/10/2019 Analysis Date: 07/11/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\11JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 30µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 663034; Target = 4.0µg/L. ASTM type II water was used for LMB 663033.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on samples 1918705002/03 and 1918705009/10 (Client ID's: CO9_062619 and MW18_062619). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field sample 1918705007 was analyzed and reported from a 1:10 dilution. Field sample 1918528010 was analyzed and reported from a 1:100 dilution. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS (1918705002MS) failed QC acceptance criteria for percent recovery. MS/MSD 1918705002/03 also failed the relative percent difference. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\243267-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 663031) is reported from the analysis of the Laboratory Control Sample (LCS – 663034) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 11JULD20.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2270 HBN: 243267 Sample Set IDs if Applicable: 1918528/1918705/1918871	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SD
Standards traceability checked and meets criteria	TB	SD
Standard curve coefficients evaluated and meet criteria	TB	SD
ICVs analyzed and meet acceptance criteria	TB	SD
CCVs analyzed and meet acceptance criteria	TB	SD
Method Blanks analyzed and meet acceptance criteria	TB	SD
Retention Time Windows checked	TB	SD
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SD
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SD
RLVS analyzed	TB	SD
Preparation and analysis hold times met	TB	SD
Preparation deviations and re-preparations noted when performed	TB	SD
Analysis deviations and re-analyses noted when performed	TB	SD
Sample dilution factors noted on reports	TB	SD
Electronic records in HBN transcription accuracy and completeness checked	TB	SD
Preparation and analysis calculations checked	TB	SD
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SD
Manual integrations checked	TB	SD

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730
MFG: ALS/SLC
MFG Lot: TNB: 05/09/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 25 mL
Expires: 09/20/2019
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

!SO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP—086!}

Last Issued Date: 29-Feb 2016
Expiration Date: 31-Mar2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material {RM} was gravimetrically prepared in accordance with !SO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials *used* for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyteconcentrationswere verified by ULTRA's !SO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity[%]	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM079B7	100	1001± 5 µg/ml	976±6 µg/ml	NIST SRM 3141A; ICP-DES

Solvent: water {low TDC, < 50 ppb)

Storage: Store at Room Temperature {15" to 30°C}.

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, !SO 9001, ISO 17025, and ISO Guide 34. Calibrated dass A glassware is used for volumetric measurements. Thennometers are calibrated against a NIST traceable thermometer In accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration bf instruments, Vc1lidation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at ZO·C to 25"C immediately after opening and should be processed without delay for the true value to be valid wtthin the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, INithin the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED TESTING LABORATORY

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

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USA

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CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

AccuStandard

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\11JUL19D\11JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	663030 CCV@25	Vial 71	1	Control	1	2.11871e6	8.255	26.67636
*	663034 QC@4.0	Vial 41	1	Control	2	3.99419e5	7.994	4.40774
*	663032 ICS@4.0	Vial 42	1	Control	3	3.13185e5	7.844	3.89337
*	663033 LMB	Vial 43	1	Control	4	0.00000	0.000	0.00000
*	1918528001	Vial 44	1	Sample	5	0.00000	0.000	0.00000
*	1918528002	Vial 45	1	Sample	6	0.00000	0.000	0.00000
*	1918528003	Vial 46	1	Sample	7	0.00000	0.000	0.00000
*	1918528004	Vial 47	1	Sample	8	0.00000	0.000	0.00000
*	1918528005	Vial 48	1	Sample	9	0.00000	0.000	0.00000
*	1918528006	Vial 49	1	Sample	10	0.00000	0.000	0.00000
*	1918528007	Vial 50	1	Sample	11	0.00000	0.000	0.00000
*	1918528008	Vial 51	1	Sample	12	0.00000	0.000	0.00000
*	1918528009	Vial 52	1	Sample	13	0.00000	0.000	0.00000
*	1918528010 100	Vial 53	1	Sample	14	4.15809e5	8.321	518.23230
*	663035 CCV@25	Vial 71	1	Control	15	2.05306e6	8.245	25.67471
*	1918705001	Vial 54	1	Sample	16	0.00000	0.000	0.00000
*	1918705002 MS	Vial 55	1	Sample	17	3.65014e5	7.751	5.20905
*	1918705003 MSD	Vial 56	1	Sample	18	3.50062e5	7.740	4.09212
*	1918705004	Vial 57	1	Sample	19	0.00000	0.000	0.00000
*	1918705005	Vial 58	1	Sample	20	2.64722e5	7.233	4.40918
*	1918705006	Vial 59	1	Sample	21	0.00000	0.000	0.00000
*	1918705007 10X	Vial 60	1	Sample	22	4.80293e5	8.237	53.73554
*	1918705008	Vial 61	1	Sample	23	0.00000	0.000	0.00000
*	1918705009 MS	Vial 62	1	Sample	24	2.88361e5	7.509	4.39917
*	1918705010 MSD	Vial 63	1	Sample	25	2.77079e5	7.505	3.92076
*	663036 CCV@25	Vial 71	1	Control	26	1.87786e6	8.284	25.56775
*	1918871001	Vial 64	1	Sample	27	0.00000	0.000	0.00000
*	1918871002	Vial 65	1	Sample	28	0.00000	0.000	0.00000
*	1918871003	Vial 66	1	Sample	29	0.00000	0.000	0.00000
*	1918871004	Vial 67	1	Sample	30	0.00000	0.000	0.00000
*	663037 CCV@25	Vial 71	1	Control	31	1.97048e6	8.269	25.87251

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	663030 CCV@25	Vial 71	1	Control	1	6.24075e5	8.272	26.49423
*	663034 QC@4.0	Vial 41	1	Control	2	1.31480e5	7.999	4.73215
*	663032 ICS@4.0	Vial 42	1	Control	3	1.02079e5	7.839	4.11867
*	663033 LMB	Vial 43	1	Control	4	0.00000	0.000	0.00000
*	1918528001	Vial 44	1	Sample	5	0.00000	0.000	0.00000
*	1918528002	Vial 45	1	Sample	6	0.00000	0.000	0.00000
*	1918528003	Vial 46	1	Sample	7	0.00000	0.000	0.00000
*	1918528004	Vial 47	1	Sample	8	0.00000	0.000	0.00000
*	1918528005	Vial 48	1	Sample	9	0.00000	0.000	0.00000
*	1918528006	Vial 49	1	Sample	10	0.00000	0.000	0.00000
*	1918528007	Vial 50	1	Sample	11	0.00000	0.000	0.00000
*	1918528008	Vial 51	1	Sample	12	0.00000	0.000	0.00000
*	1918528009	Vial 52	1	Sample	13	0.00000	0.000	0.00000
*	1918528010 100	Vial 53	1	Sample	14	1.37449e5	8.342	561.78024
*	663035 CCV@25	Vial 71	1	Control	15	6.14214e5	8.269	25.87142
*	1918705001	Vial 54	1	Sample	16	0.00000	0.000	0.00000
*	1918705002 MS	Vial 55	1	Sample	17	1.12801e5	7.762	5.28376
*	1918705003 MSD	Vial 56	1	Sample	18	1.10963e5	7.755	4.21966
*	1918705004	Vial 57	1	Sample	19	0.00000	0.000	0.00000
*	1918705005	Vial 58	1	Sample	20	9.11835e4	7.238	4.95128
*	1918705006	Vial 59	1	Sample	21	0.00000	0.000	0.00000
*	1918705007 10X	Vial 60	1	Sample	22	1.65863e5	8.254	60.89054
*	1918705008	Vial 61	1	Sample	23	0.00000	0.000	0.00000
*	1918705009 MS	Vial 62	1	Sample	24	9.39754e4	7.516	4.67594
*	1918705010 MSD	Vial 63	1	Sample	25	9.16631e4	7.522	4.21052
*	663036 CCV@25	Vial 71	1	Control	26	5.59339e5	8.296	25.65584

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#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	1918871001	Vial 64	1	Sample	27	0.00000	0.000	0.00000
*	1918871002	Vial 65	1	Sample	28	0.00000	0.000	0.00000
*	1918871003	Vial 66	1	Sample	29	0.00000	0.000	0.00000
*	1918871004	Vial 67	1	Sample	30	0.00000	0.000	0.00000
*	663037 CCV@25	Vial 71	1	Control	31	5.83651e5	8.278	25.82631

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	663030 CCV@25	Vial 71	1	Control	1	2.40676e5	8.290	5.00000
*	663034 QC@4.0	Vial 41	1	Control	2	2.97198e5	8.012	5.00000
*	663032 ICS@4.0	Vial 42	1	Control	3	2.65421e5	7.859	5.00000
*	663033 LMB	Vial 43	1	Control	4	3.18343e5	8.270	5.00000
*	1918528001	Vial 44	1	Sample	5	2.09428e5	7.499	5.00000
*	1918528002	Vial 45	1	Sample	6	2.27592e5	7.803	5.00000
*	1918528003	Vial 46	1	Sample	7	2.83805e5	7.792	5.00000
*	1918528004	Vial 47	1	Sample	8	2.31744e5	7.766	5.00000
*	1918528005	Vial 48	1	Sample	9	2.65465e5	7.949	5.00000
*	1918528006	Vial 49	1	Sample	10	3.02483e5	7.805	5.00000
*	1918528007	Vial 50	1	Sample	11	2.39370e5	7.809	5.00000
*	1918528008	Vial 51	1	Sample	12	2.57536e5	7.582	5.00000
*	1918528009	Vial 52	1	Sample	13	3.47245e5	7.601	5.00000
*	1918528010 100	Vial 53	1	Sample	14	2.61248e5	8.355	500.00000
*	663035 CCV@25	Vial 71	1	Control	15	2.42892e5	8.260	5.00000
*	1918705001	Vial 54	1	Sample	16	3.40152e5	7.747	5.00000
*	1918705002 MS	Vial 55	1	Sample	17	2.28107e5	7.767	5.00000
*	1918705003 MSD	Vial 56	1	Sample	18	2.81563e5	7.755	5.00000
*	1918705004	Vial 57	1	Sample	19	2.40535e5	7.689	5.00000
*	1918705005	Vial 58	1	Sample	20	1.96905e5	7.258	5.00000
*	1918705006	Vial 59	1	Sample	21	1.63865e5	7.481	5.00000
*	1918705007 10X	Vial 60	1	Sample	22	2.90576e5	8.248	50.00000
*	1918705008	Vial 61	1	Sample	23	2.37165e5	7.528	5.00000
*	1918705009 MS	Vial 62	1	Sample	24	2.14999e5	7.533	5.00000
*	1918705010 MSD	Vial 63	1	Sample	25	2.33099e5	7.524	5.00000
*	663036 CCV@25	Vial 71	1	Control	26	2.23151e5	8.308	5.00000
*	1918871001	Vial 64	1	Sample	27	2.17462e5	7.475	5.00000
*	1918871002	Vial 65	1	Sample	28	2.52228e5	7.881	5.00000
*	1918871003	Vial 66	1	Sample	29	2.97108e5	7.854	5.00000
*	1918871004	Vial 67	1	Sample	30	2.73039e5	7.829	5.00000
*	663037 CCV@25	Vial 71	1	Control	31	2.31231e5	8.296	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\11JUL19D.S

Sequence Table:

Method and Injection Info Part:

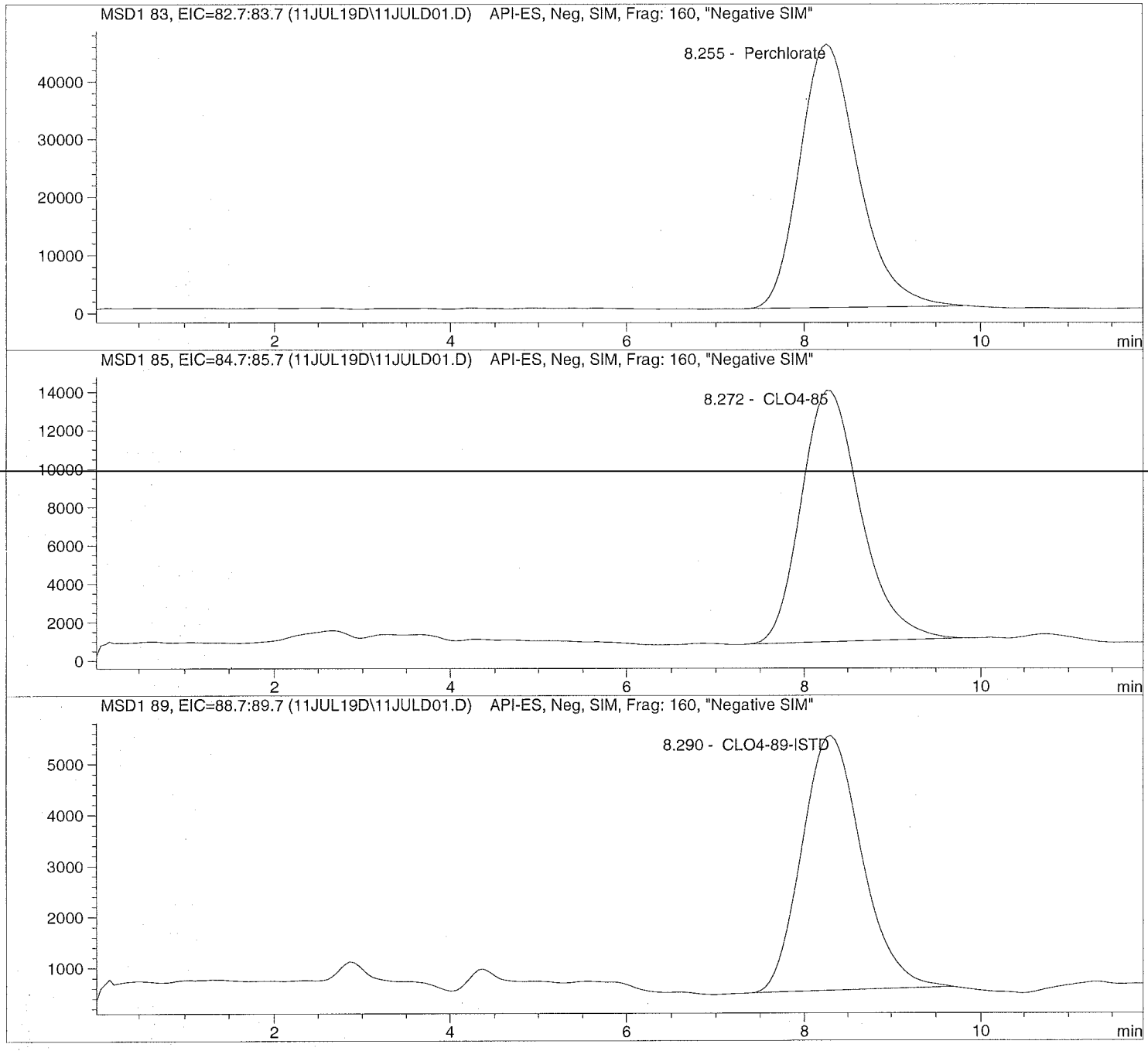
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	663030	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 41	663034	QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 42	663032	ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 43	663033	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 44	1918528001		CLO4-AQN	1	Sample		
6	Vial 45	1918528002		CLO4-AQN	1	Sample		
7	Vial 46	1918528003		CLO4-AQN	1	Sample		
8	Vial 47	1918528004		CLO4-AQN	1	Sample		
9	Vial 48	1918528005		CLO4-AQN	1	Sample		
10	Vial 49	1918528006		CLO4-AQN	1	Sample		
11	Vial 50	1918528007		CLO4-AQN	1	Sample		
12	Vial 51	1918528008		CLO4-AQN	1	Sample		
13	Vial 52	1918528009		CLO4-AQN	1	Sample		
14	Vial 53	1918528010	100	CLO4-AQN	1	Sample		
15	Vial 71	663035	CCV@25	CLO4-AQN	1	Ctrl Samp		
16	Vial 54	1918705001		CLO4-AQN	1	Sample		
17	Vial 55	1918705002	MS	CLO4-AQN	1	Sample		
18	Vial 56	1918705003	MSD	CLO4-AQN	1	Sample		
19	Vial 57	1918705004		CLO4-AQN	1	Sample		
20	Vial 58	1918705005		CLO4-AQN	1	Sample		
21	Vial 59	1918705006		CLO4-AQN	1	Sample		
22	Vial 60	1918705007	10X	CLO4-AQN	1	Sample		
23	Vial 61	1918705008		CLO4-AQN	1	Sample		
24	Vial 62	1918705009	MS	CLO4-AQN	1	Sample		
25	Vial 63	1918705010	MSD	CLO4-AQN	1	Sample		
26	Vial 71	663036	CCV@25	CLO4-AQN	1	Ctrl Samp		
27	Vial 64	1918871001		CLO4-AQN	1	Sample		
28	Vial 65	1918871002		CLO4-AQN	1	Sample		
29	Vial 66	1918871003		CLO4-AQN	1	Sample		
30	Vial 67	1918871004		CLO4-AQN	1	Sample		
31	Vial 71	663037	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD01.D Sample Name: 663030 CCV@25

Injection Date:	7/11/2019 11:12:20	Seq Line:	1
Sample Name:	663030 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD01.D Sample Name: 663030 CCV@25

Injection Date:	7/11/2019 11:12:20	Seq Line:	1
Sample Name:	663030 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.255	PBA	2118713.0	26.6764	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.272	PBA	624075.3	26.4942	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.290	PBA	240676.4	5.0000	CLO4-89-ISTD

*** End of Report ***

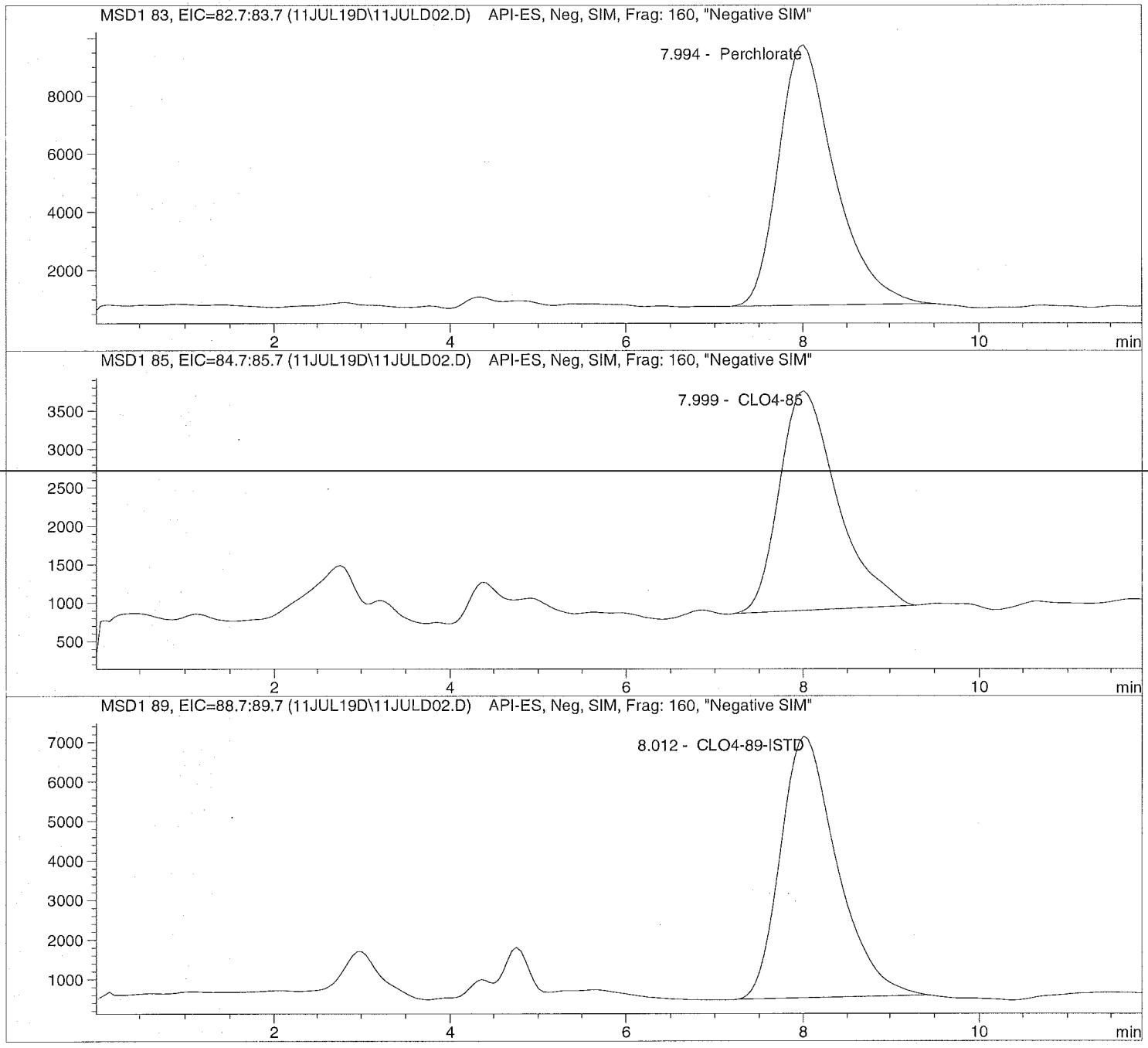
00942062

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD02.D Sample Name: 663034 QC@4.0

Injection Date:	7/11/2019 11:26:05	Seq Line:	2
Sample Name:	663034 QC@4.0	Location:	Vial 41
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD02.D Sample Name: 663034 QC@4.0

Injection Date:	7/11/2019 11:26:05	Seq Line:	2
Sample Name:	663034 QC@4.0	Location:	Vial 41
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.994	PBA	399419.3	4.4077	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.999	PBA	131479.8	4.7322	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.012	PBA	297197.6	5.0000	CLO4-89-ISTD

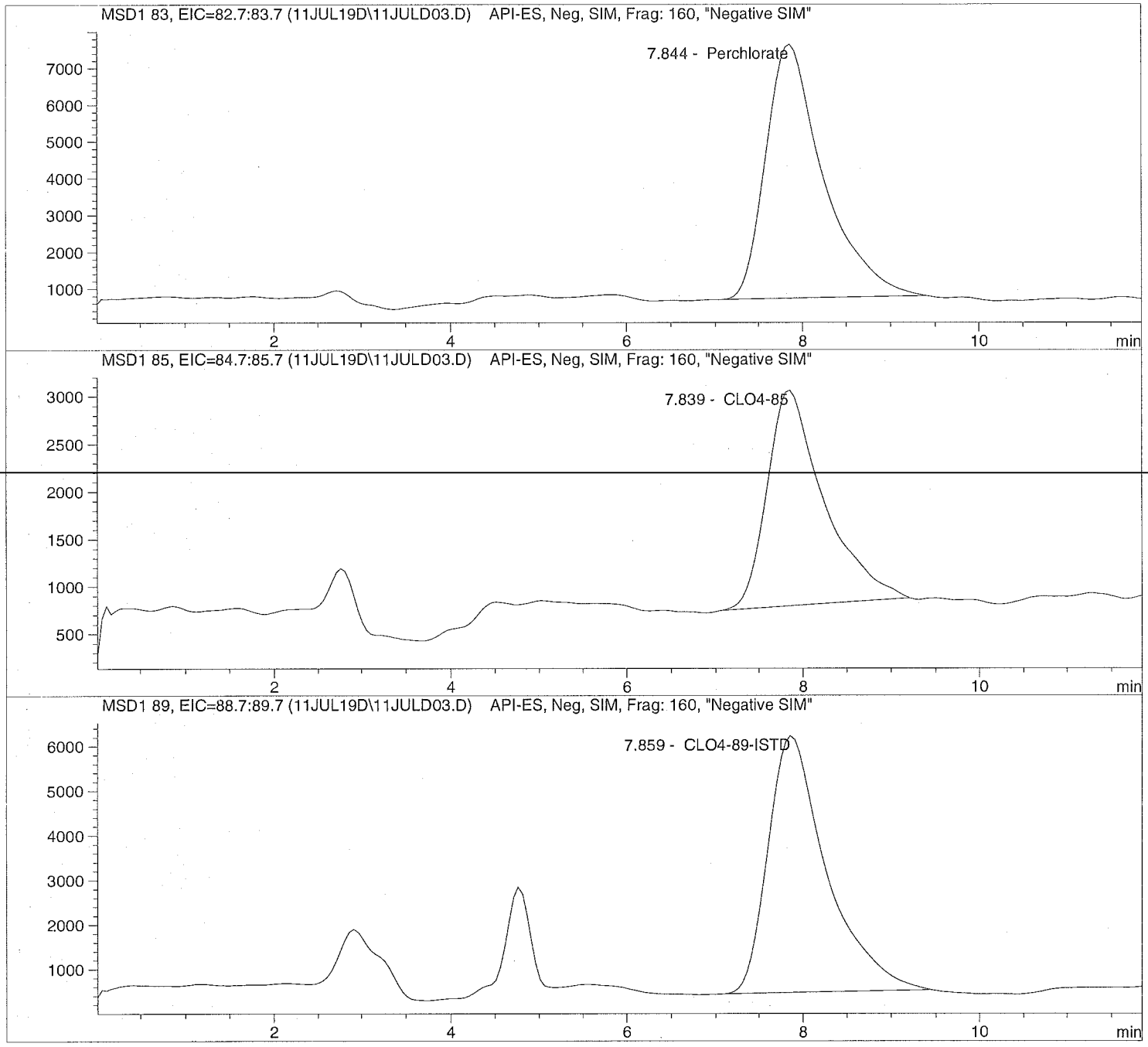
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD03.D Sample Name: 663032 ICS@4.0

Injection Date:	7/11/2019 11:39:52	Seq Line:	3
Sample Name:	663032 ICS@4.0	Location:	Vial 42
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD03.D Sample Name: 663032 ICS@4.0

Injection Date:	7/11/2019 11:39:52	Seq Line:	3
Sample Name:	663032 ICS@4.0	Location:	Vial 42
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.844	PBA	313184.6	3.8934	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.839	PBA	102078.9	4.1187	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.859	PBA	265421.4	5.0000	CLO4-89-ISTD

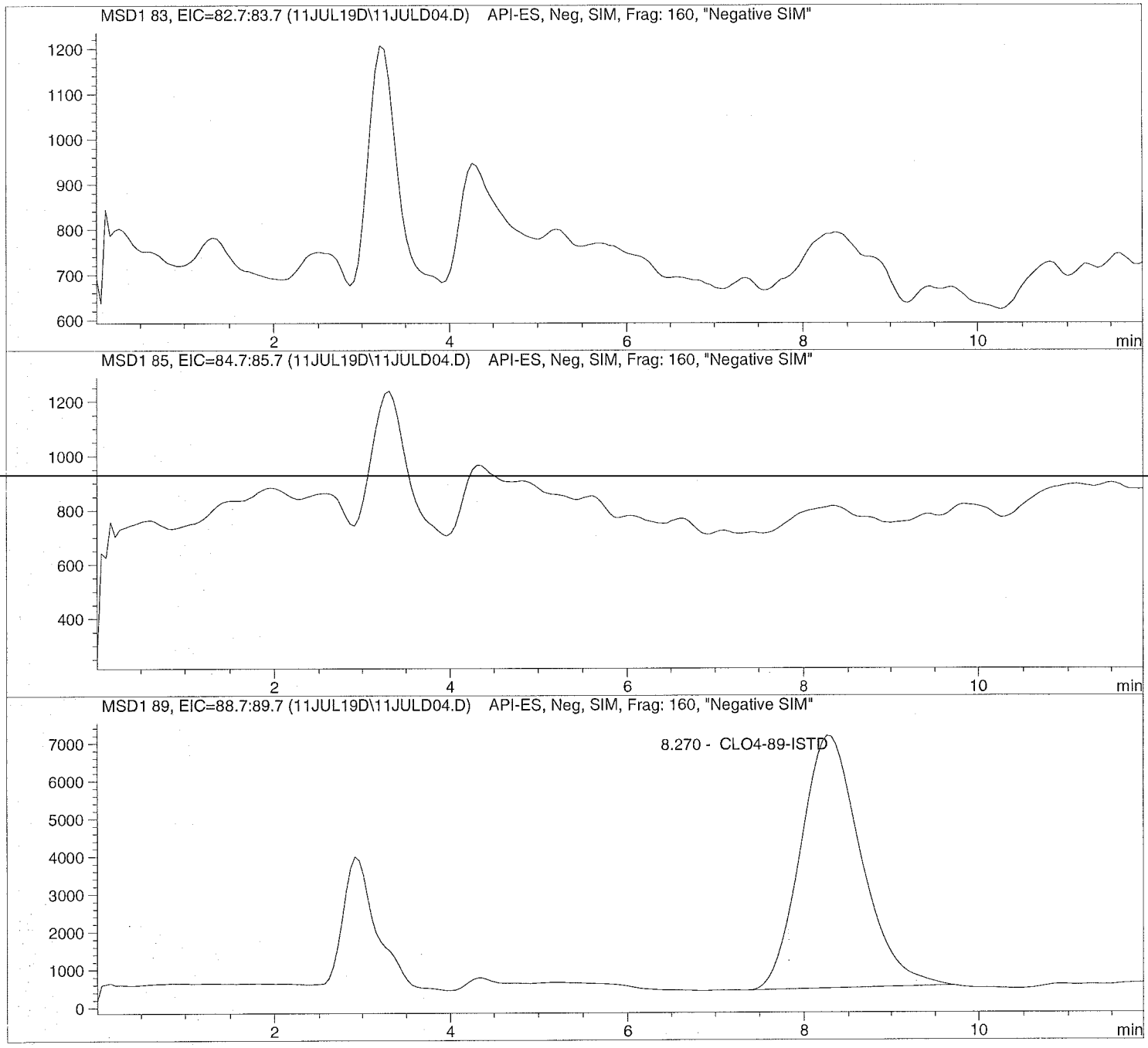
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD04.D Sample Name: 663033 LMB

Injection Date:	7/11/2019 11:53:41	Seq Line:	4
Sample Name:	663033 LMB	Location:	Vial 43
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD04.D Sample Name: 663033 LMB

Injection Date:	7/11/2019 11:53:41	Seq Line:	4
Sample Name:	663033 LMB	Location:	Vial 43
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.270	PBA	318342.8	5.0000	CLO4-89-ISTD

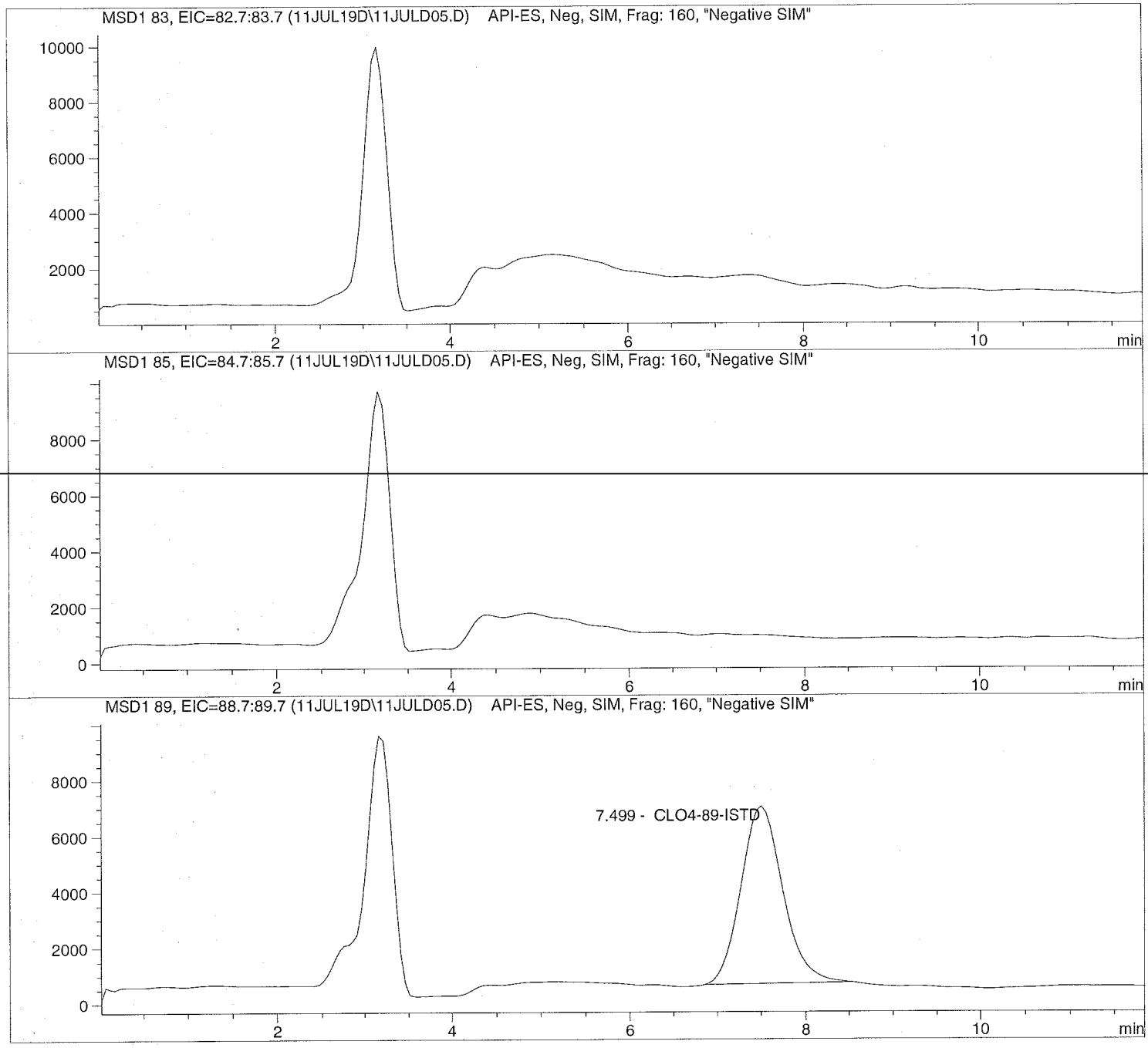
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD05.D Sample Name: 1918528001

Injection Date:	7/11/2019 12:07:26	Seq Line:	5
Sample Name:	1918528001	Location:	Vial 44
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD05.D Sample Name: 1918528001

Injection Date:	7/11/2019 12:07:26	Seq Line:	5
Sample Name:	1918528001	Location:	Vial 44
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.499	PBA	209428.4	5.0000	CLO4-89-ISTD

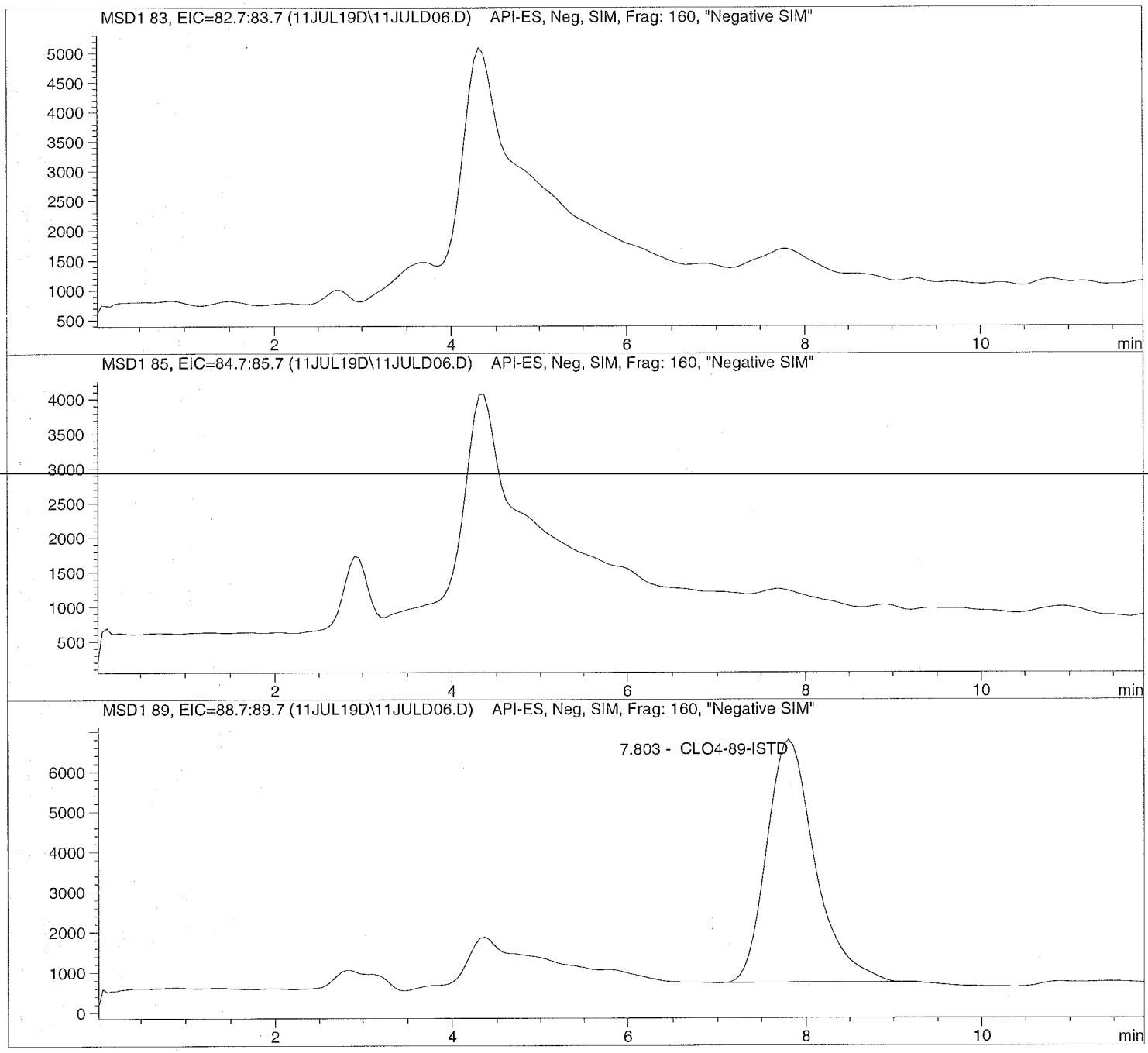
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD06.D Sample Name: 1918528002

Injection Date:	7/11/2019 12:21:11	Seq Line:	6
Sample Name:	1918528002	Location:	Vial 45
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD06.D Sample Name: 1918528002

Injection Date:	7/11/2019 12:21:11	Seq Line:	6
Sample Name:	1918528002	Location:	Vial 45
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.803	PBA	227591.6	5.0000	CLO4-89-ISTD

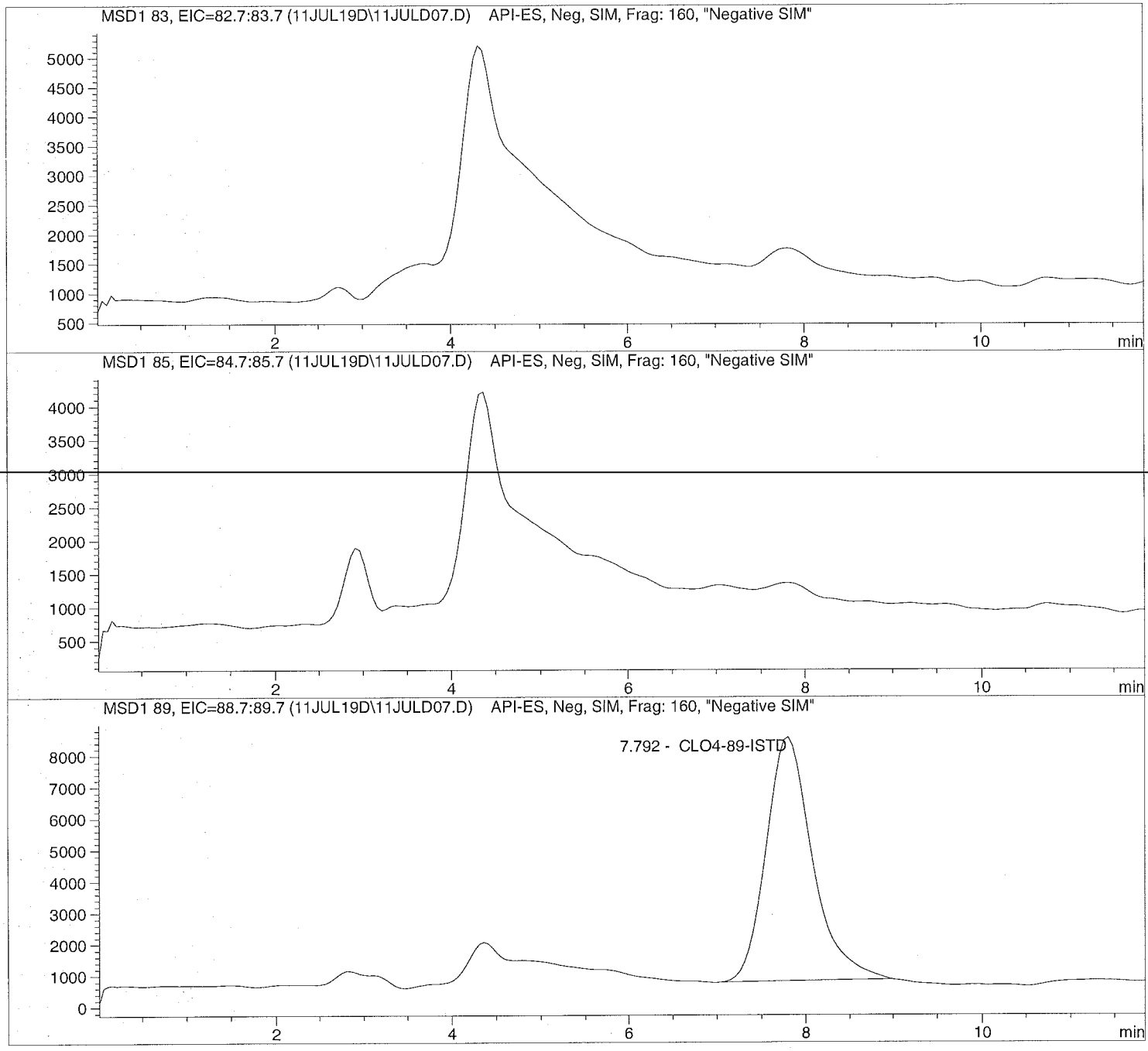
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD07.D Sample Name: 1918528003

Injection Date:	7/11/2019 12:34:58	Seq Line:	7
Sample Name:	1918528003	Location:	Vial 46
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD07.D Sample Name: 1918528003

Injection Date:	7/11/2019 12:34:58	Seq Line:	7
Sample Name:	1918528003	Location:	Vial 46
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.792	PBA	283804.7	5.0000	CLO4-89-ISTD

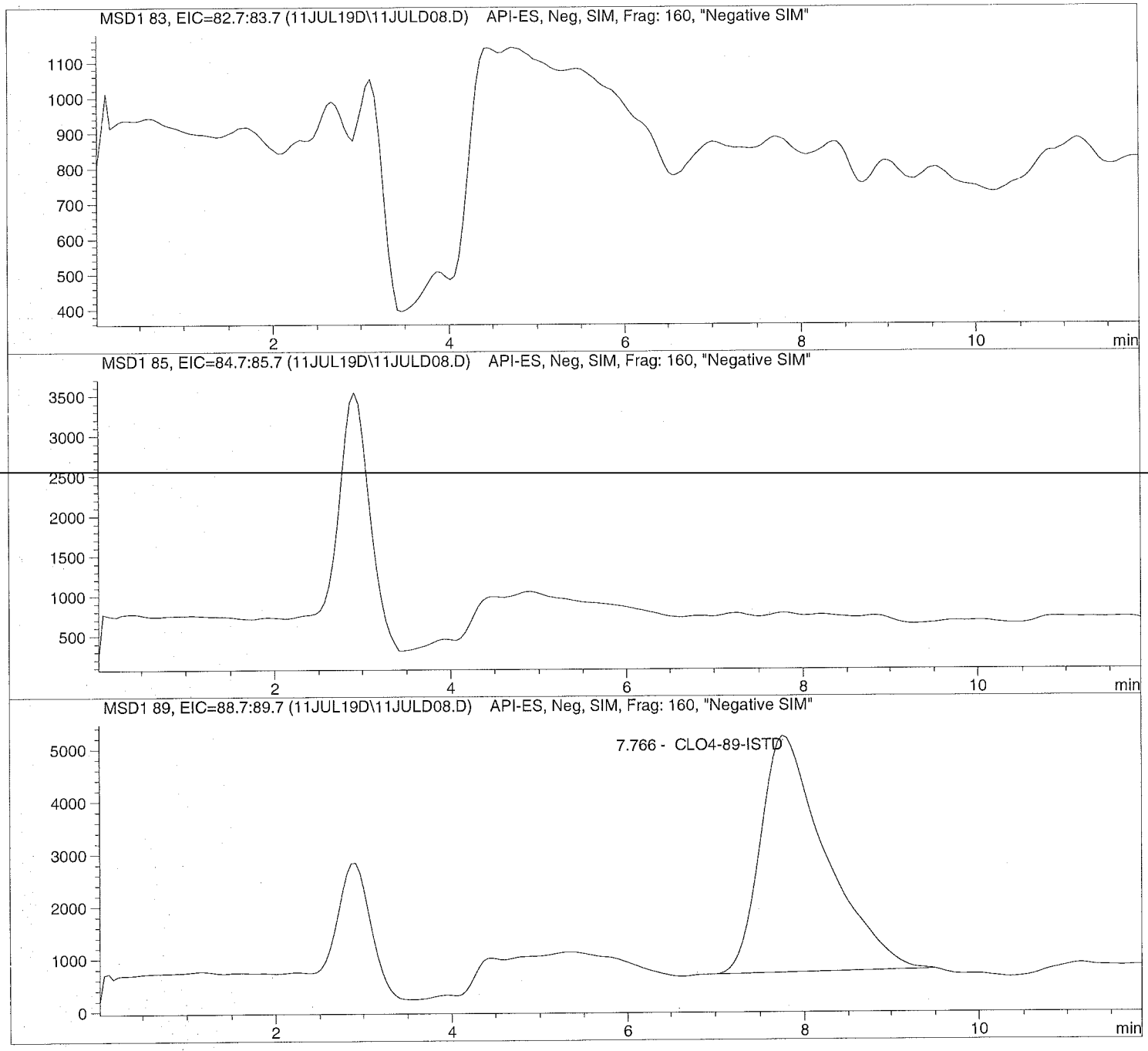
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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD08.D Sample Name: 1918528004

Injection Date:	7/11/2019 12:48:44	Seq Line:	8
Sample Name:	1918528004	Location:	Vial 47
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD08.D Sample Name: 1918528004

Injection Date:	7/11/2019 12:48:44	Seq Line:	8
Sample Name:	1918528004	Location:	Vial 47
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.766	PBA	231743.6	5.0000	CLO4-89-ISTD

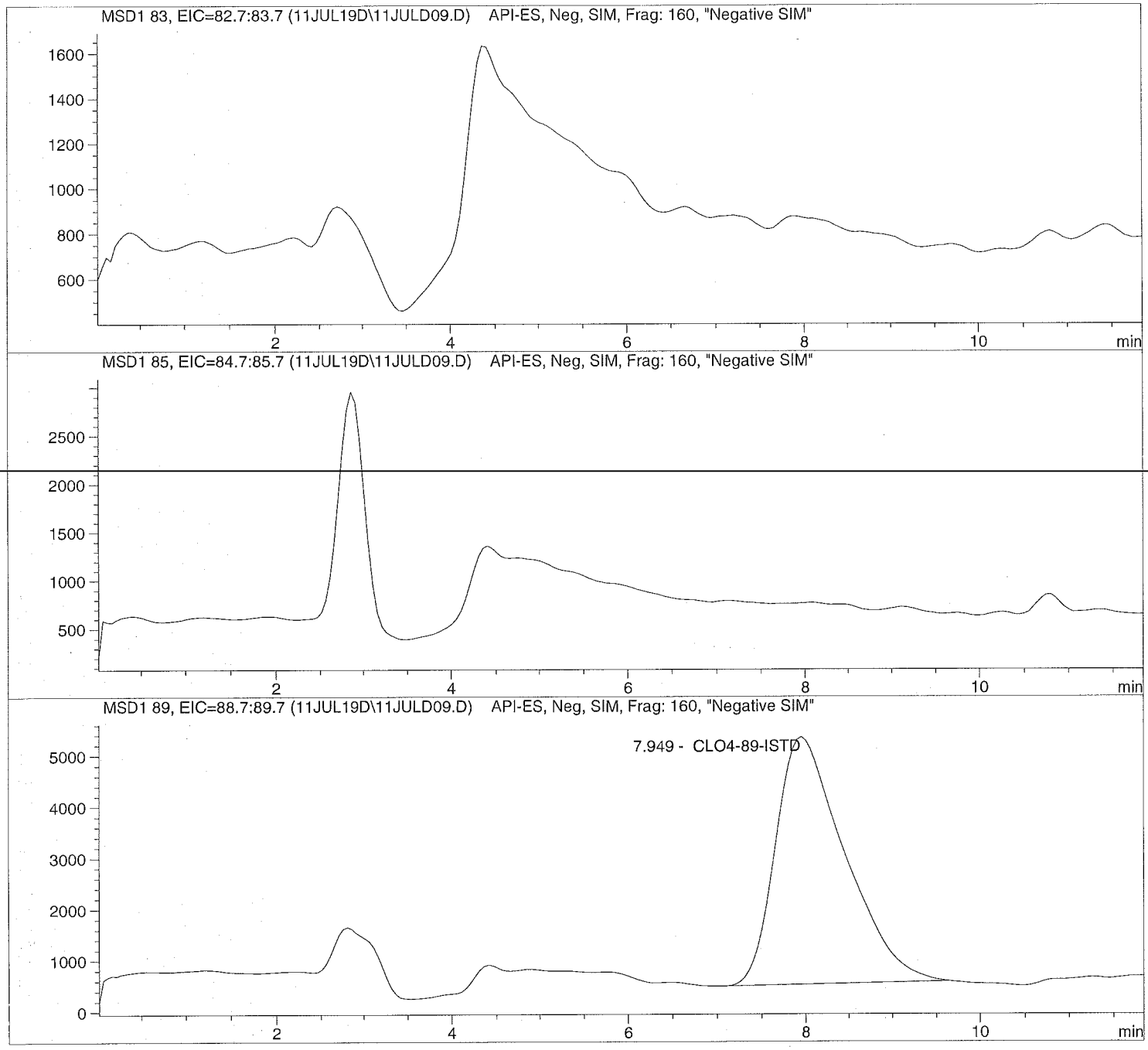
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD09.D Sample Name: 1918528005

Injection Date:	7/11/2019 13:02:32	Seq Line:	9
Sample Name:	1918528005	Location:	Vial 48
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD09.D Sample Name: 1918528005

Injection Date:	7/11/2019 13:02:32	Seq Line:	9
Sample Name:	1918528005	Location:	Vial 48
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.949	PBA	265464.7	5.0000	CLO4-89-ISTD

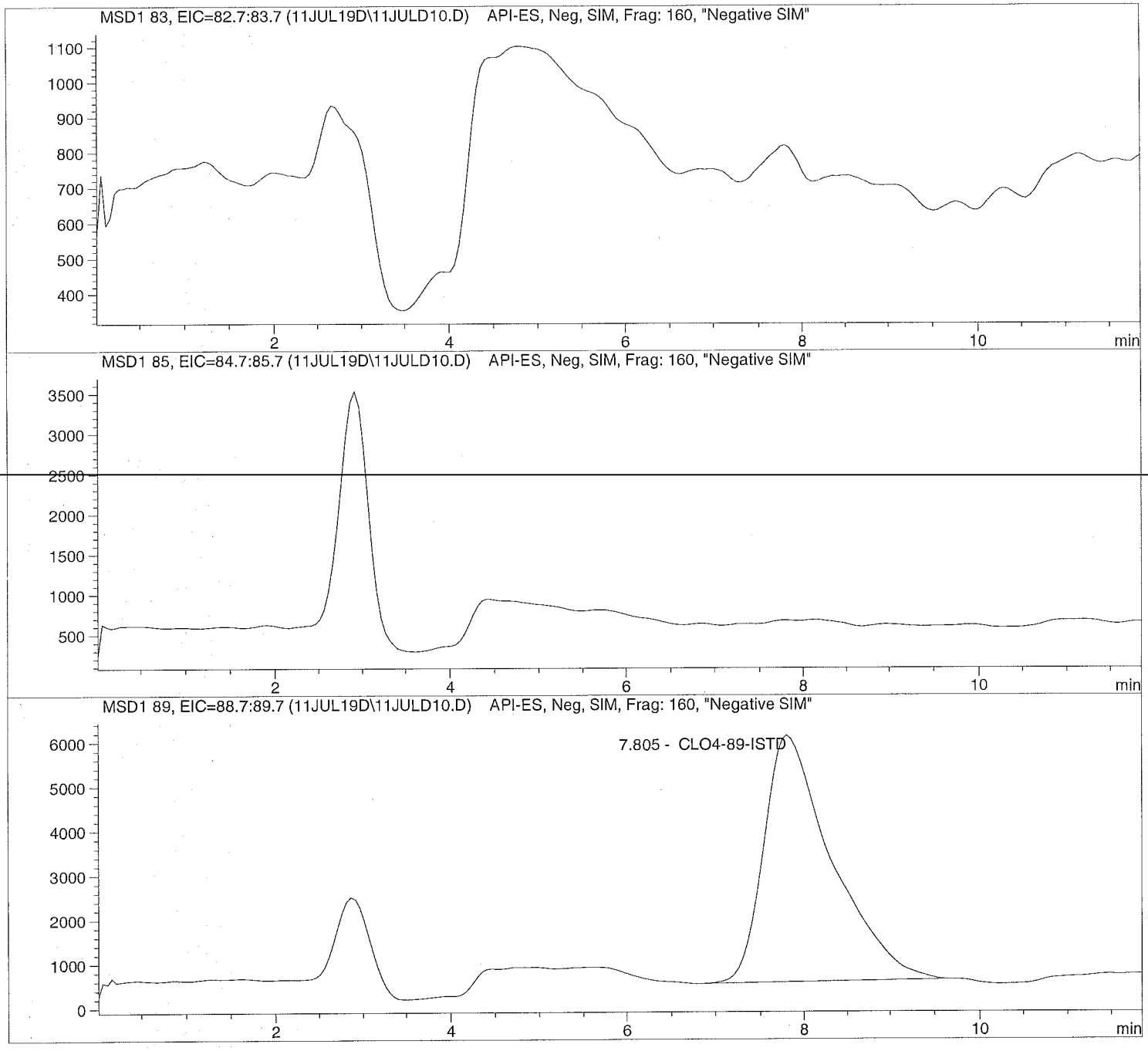
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD10.D Sample Name: 1918528006

Injection Date:	7/11/2019 13:16:18	Seq Line:	10
Sample Name:	1918528006	Location:	Vial 49
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD10.D Sample Name: 1918528006

Injection Date:	7/11/2019 13:16:18	Seq Line:	10
Sample Name:	1918528006	Location:	Vial 49
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	302483.2	5.0000	CLO4-89-ISTD

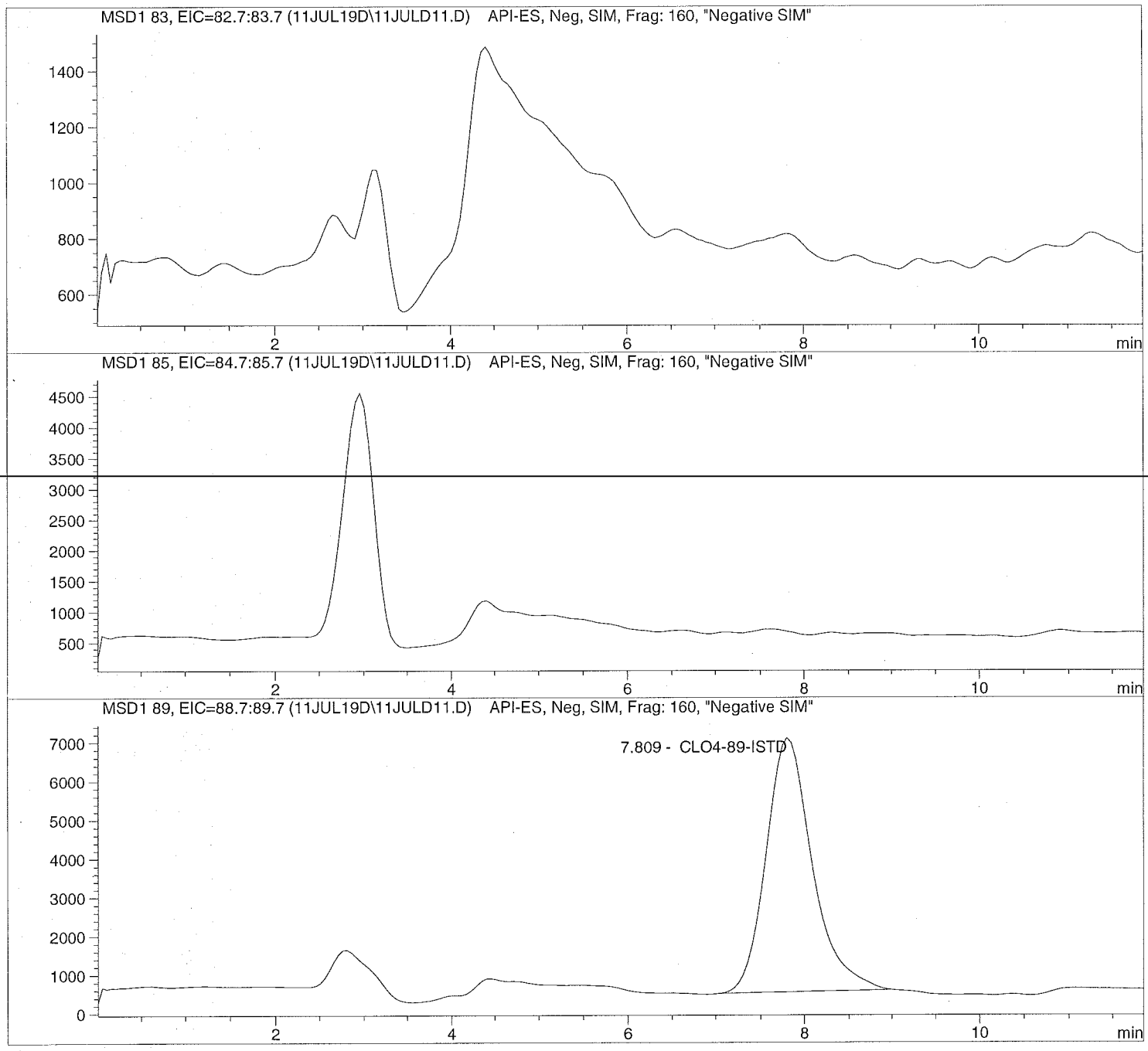
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD11.D Sample Name: 1918528007

Injection Date:	7/11/2019 13:30:12	Seq Line:	11
Sample Name:	1918528007	Location:	Vial 50
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD11.D Sample Name: 1918528007

Injection Date:	7/11/2019 13:30:12	Seq Line:	11
Sample Name:	1918528007	Location:	Vial 50
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.809	PBA	239369.6	5.0000	CLO4-89-ISTD

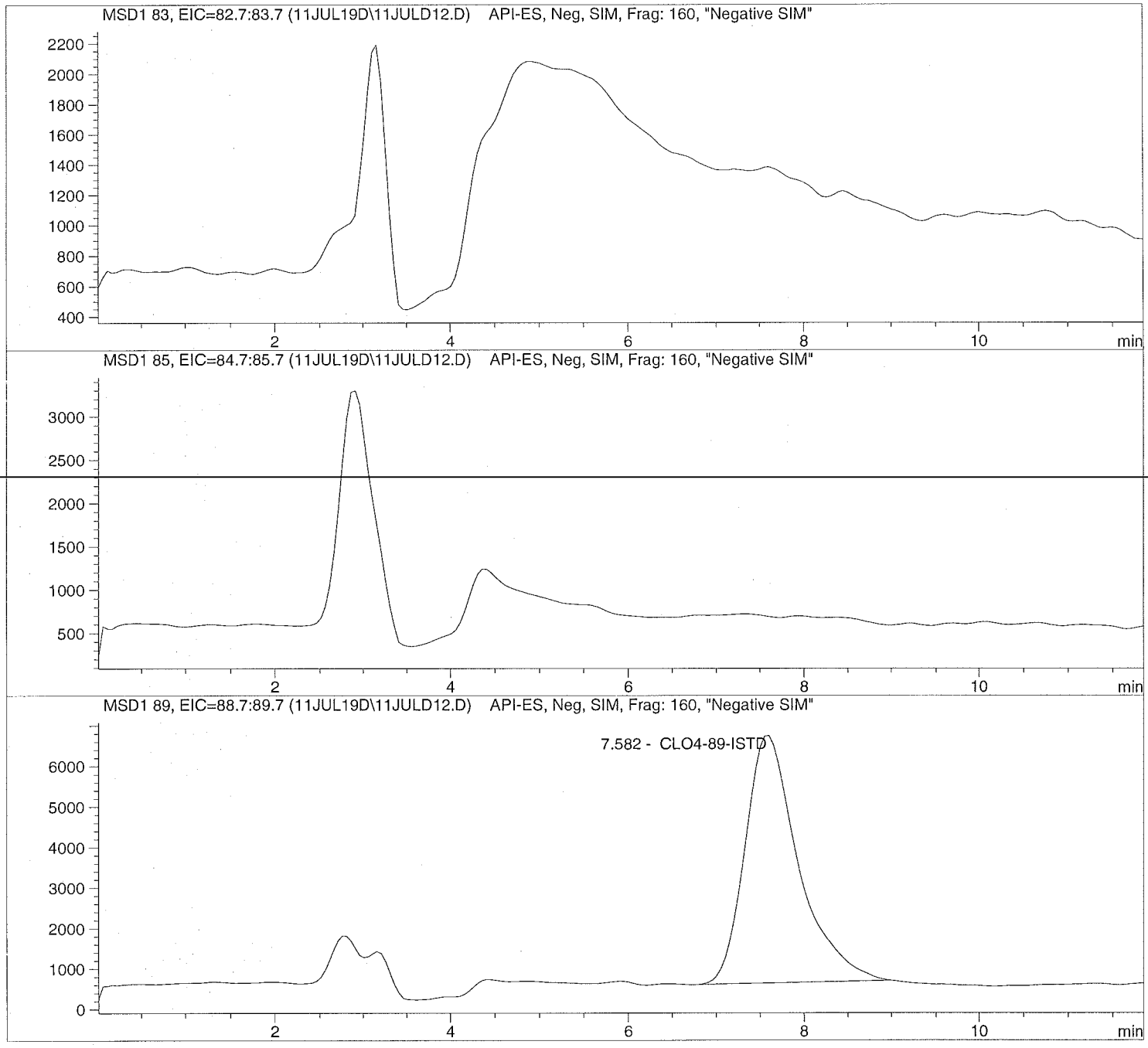
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD12.D Sample Name: 1918528008

Injection Date:	7/11/2019 13:43:59	Seq Line:	12
Sample Name:	1918528008	Location:	Vial 51
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD12.D Sample Name: 1918528008

Injection Date:	7/11/2019 13:43:59	Seq Line:	12
Sample Name:	1918528008	Location:	Vial 51
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.582	PBA	257536.2	5.0000	CLO4-89-ISTD

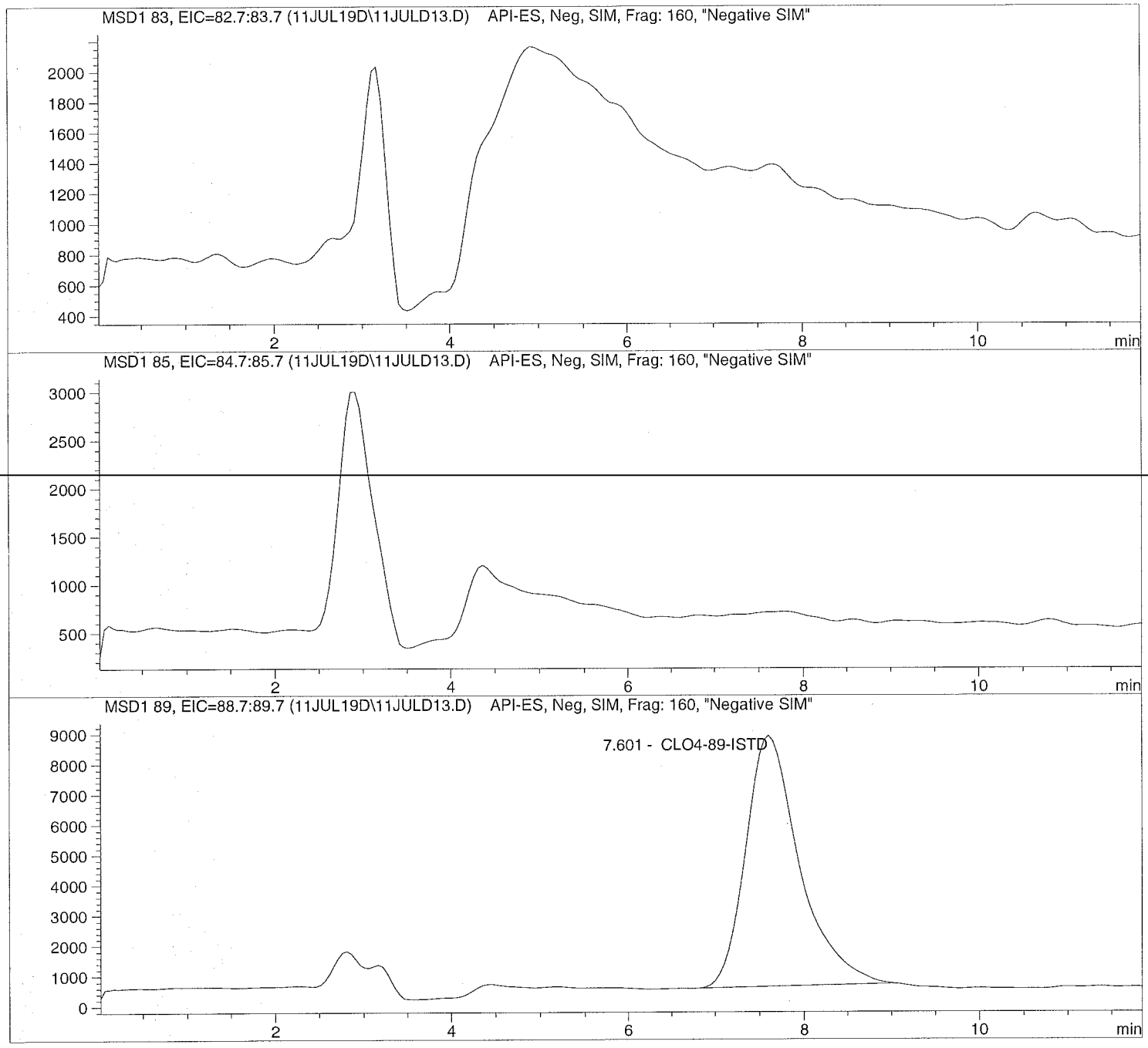
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD13.D Sample Name: 1918528009

Injection Date:	7/11/2019 13:57:45	Seq Line:	13
Sample Name:	1918528009	Location:	Vial 52
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD13.D Sample Name: 1918528009

Injection Date:	7/11/2019 13:57:45	Seq Line:	13
Sample Name:	1918528009	Location:	Vial 52
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.601	PBA	347244.5	5.0000	CLO4-89-ISTD

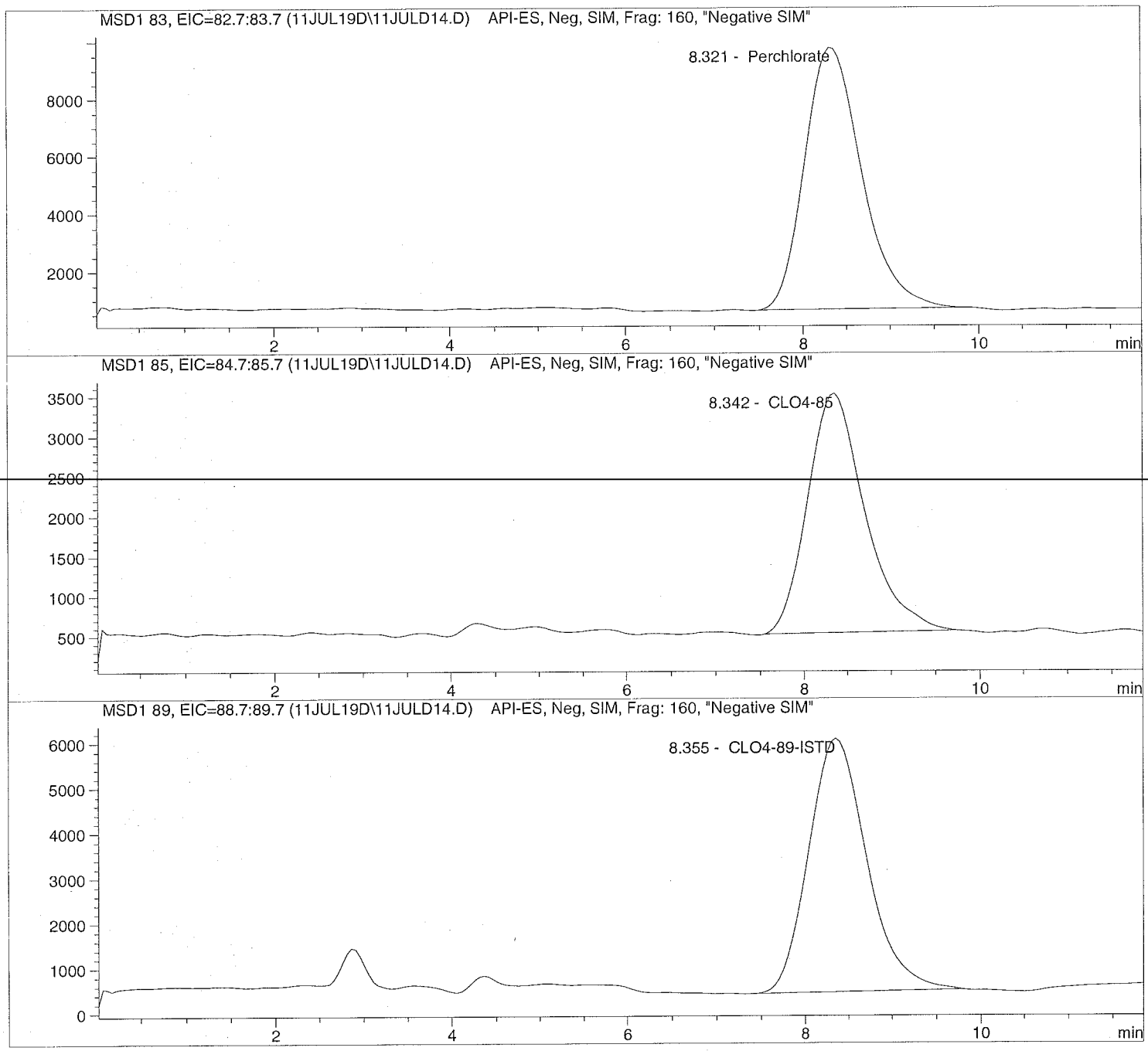
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD14.D Sample Name: 1918528010 100

Injection Date:	7/11/2019 14:11:32	Seq Line:	14
Sample Name:	1918528010 100	Location:	Vial 53
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD14.D Sample Name: 1918528010 100

Injection Date:	7/11/2019 14:11:32	Seq Line:	14
Sample Name:	1918528010 100	Location:	Vial 53
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 100.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.321	BBA	415809.4	518.2323	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.342	PBA	137449.3	561.7802	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.355	PBA	261248.4	500.0000	CLO4-89-ISTD

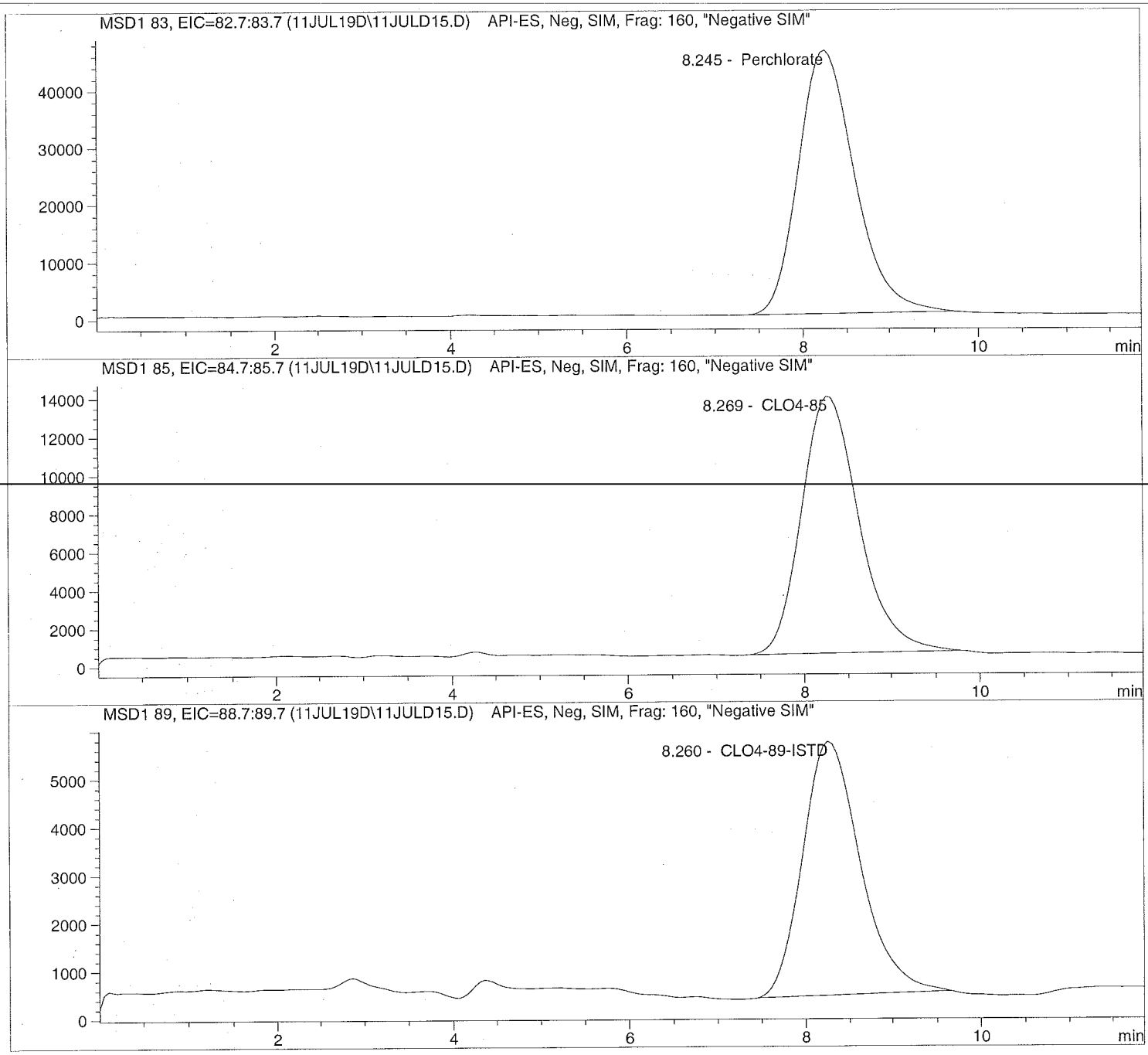
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD15.D Sample Name: 663035 CCV@25

Injection Date:	7/11/2019 14:25:24	Seq Line:	15
Sample Name:	663035 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD15.D Sample Name: 663035 CCV@25

Injection Date:	7/11/2019 14:25:24	Seq Line:	15
Sample Name:	663035 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.245	PBA	2053058.0	25.6747	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.269	PBA	614213.5	25.8714	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.260	PBA	242891.8	5.0000	CLO4-89-ISTD

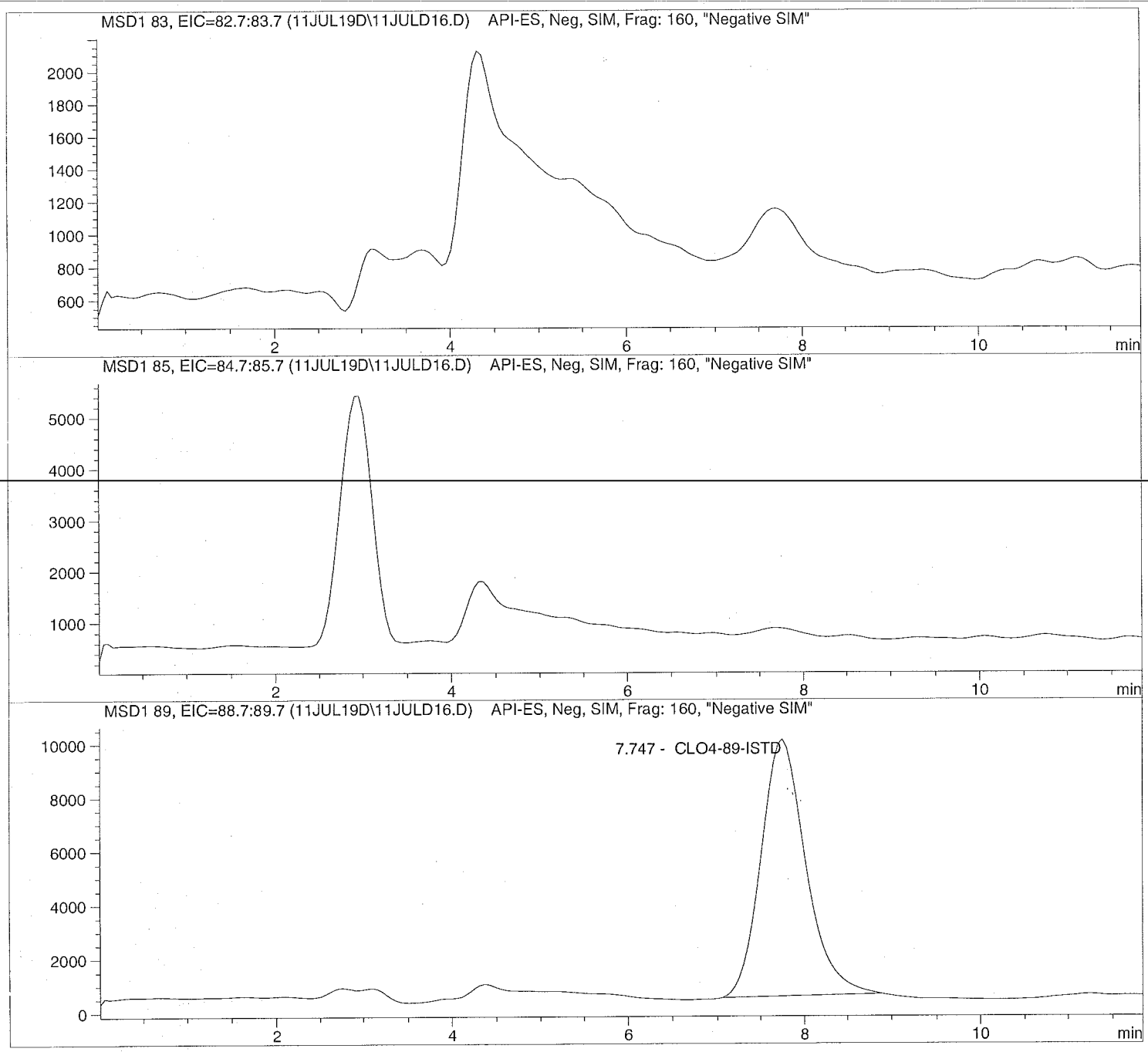
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD16.D Sample Name: 1918705001

Injection Date:	7/11/2019 14:39:13	Seq Line:	16
Sample Name:	1918705001	Location:	Vial 54
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD16.D Sample Name: 1918705001

Injection Date:	7/11/2019 14:39:13	Seq Line:	16
Sample Name:	1918705001	Location:	Vial 54
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.747	PBA	340152.4	5.0000	CLO4-89-ISTD

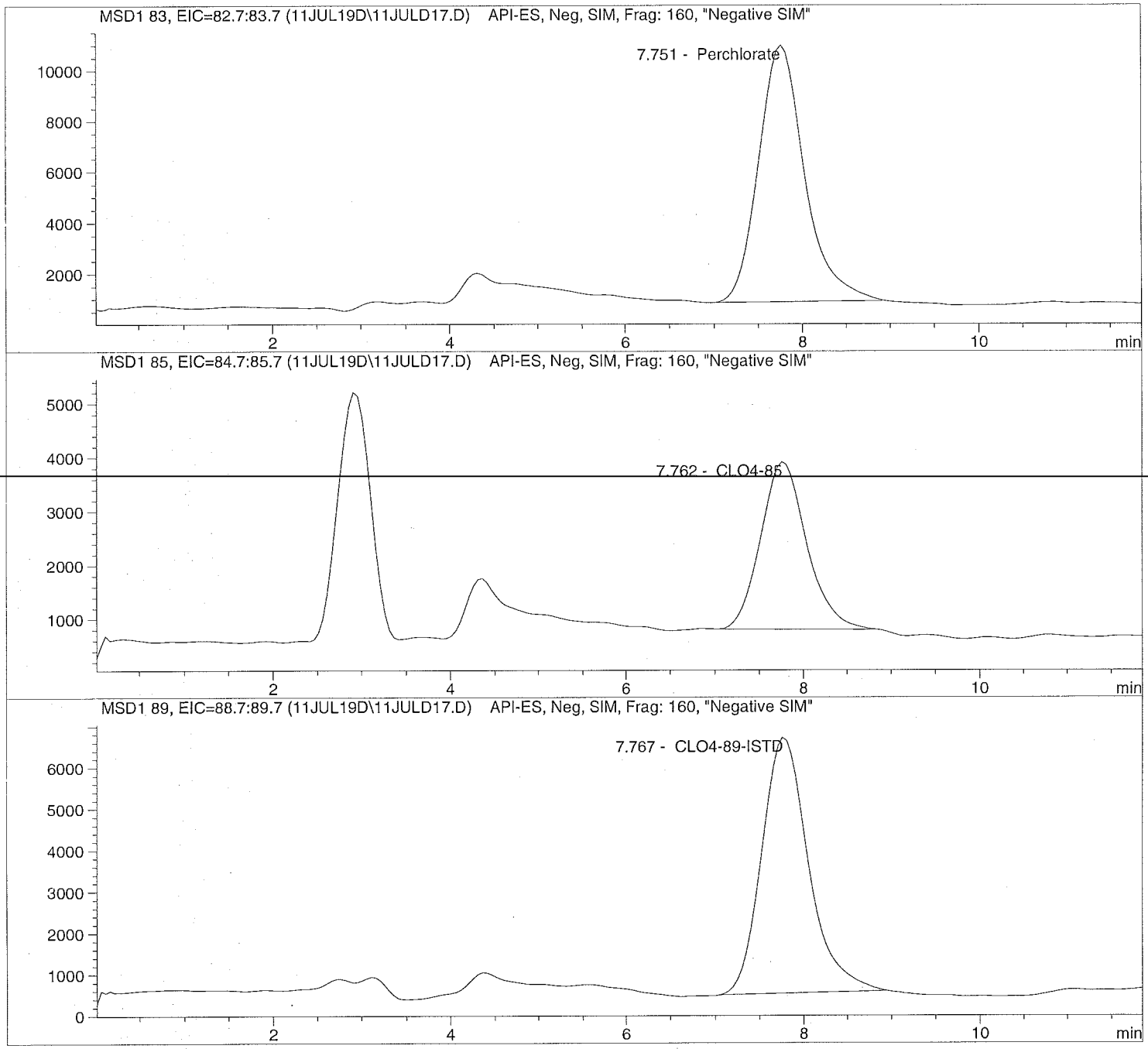
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD17.D Sample Name: 1918705002 MS

Injection Date:	7/11/2019 14:52:59	Seq Line:	17
Sample Name:	1918705002 MS	Location:	Vial 55
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD17.D Sample Name: 1918705002 MS

Injection Date:	7/11/2019 14:52:59	Seq Line:	17
Sample Name:	1918705002 MS	Location:	Vial 55
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.751	PBA	365013.6	5.2090	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.762	BBA	112800.8	5.2838	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	228107.2	5.0000	CLO4-89-ISTD

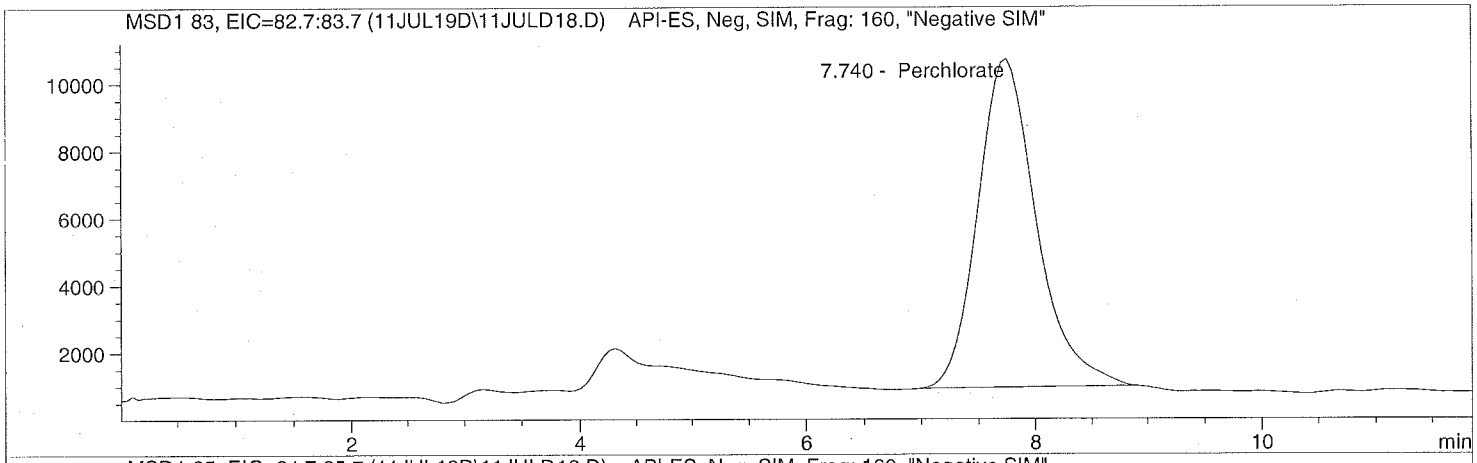
*** End of Report ***

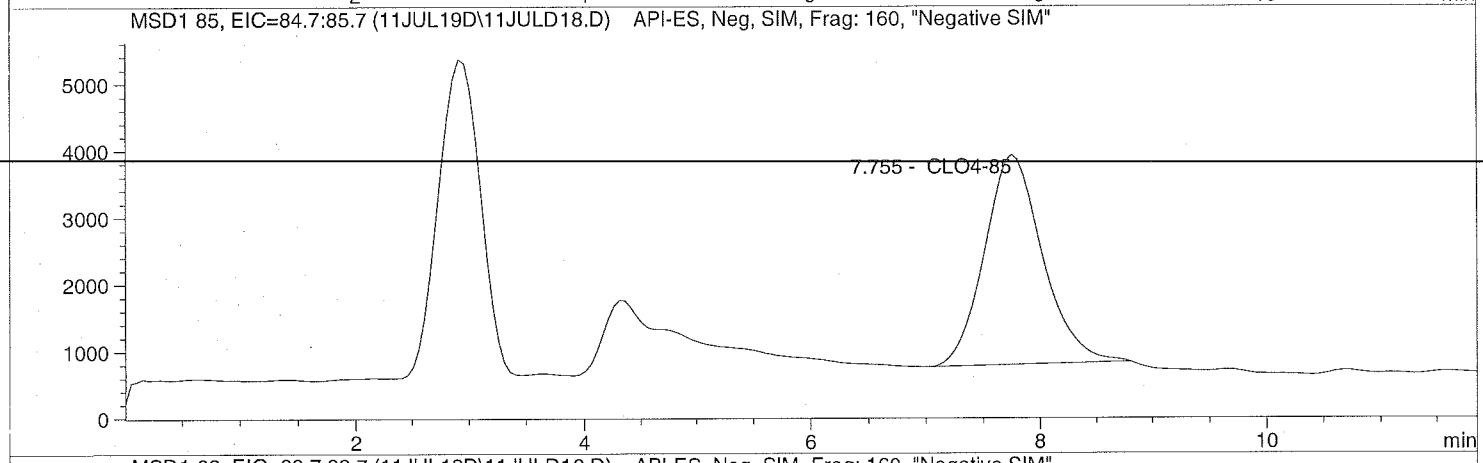
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD18.D Sample Name: 1918705003 MSD

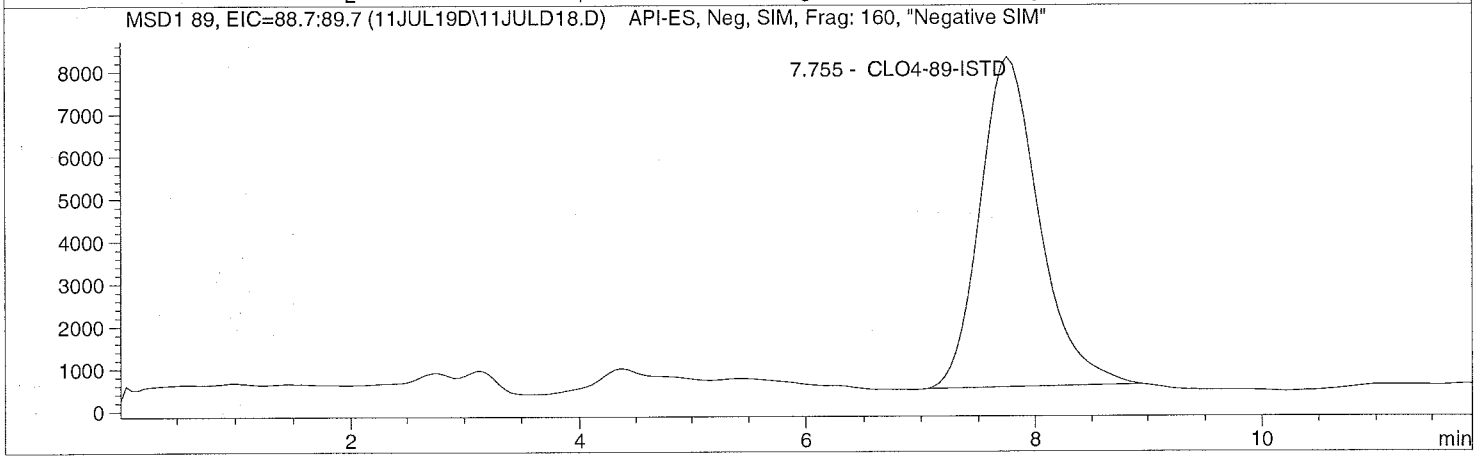
Injection Date:	7/11/2019 15:06:56	Seq Line:	18
Sample Name:	1918705003 MSD	Location:	Vial 56
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD18.D Sample Name: 1918705003 MSD

Injection Date:	7/11/2019 15:06:56	Seq Line:	18
Sample Name:	1918705003 MSD	Location:	Vial 56
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.740	PBA	350061.6	4.0921	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.755	PBA	110963.2	4.2197	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.755	PBA	281563.4	5.0000	CLO4-89-ISTD

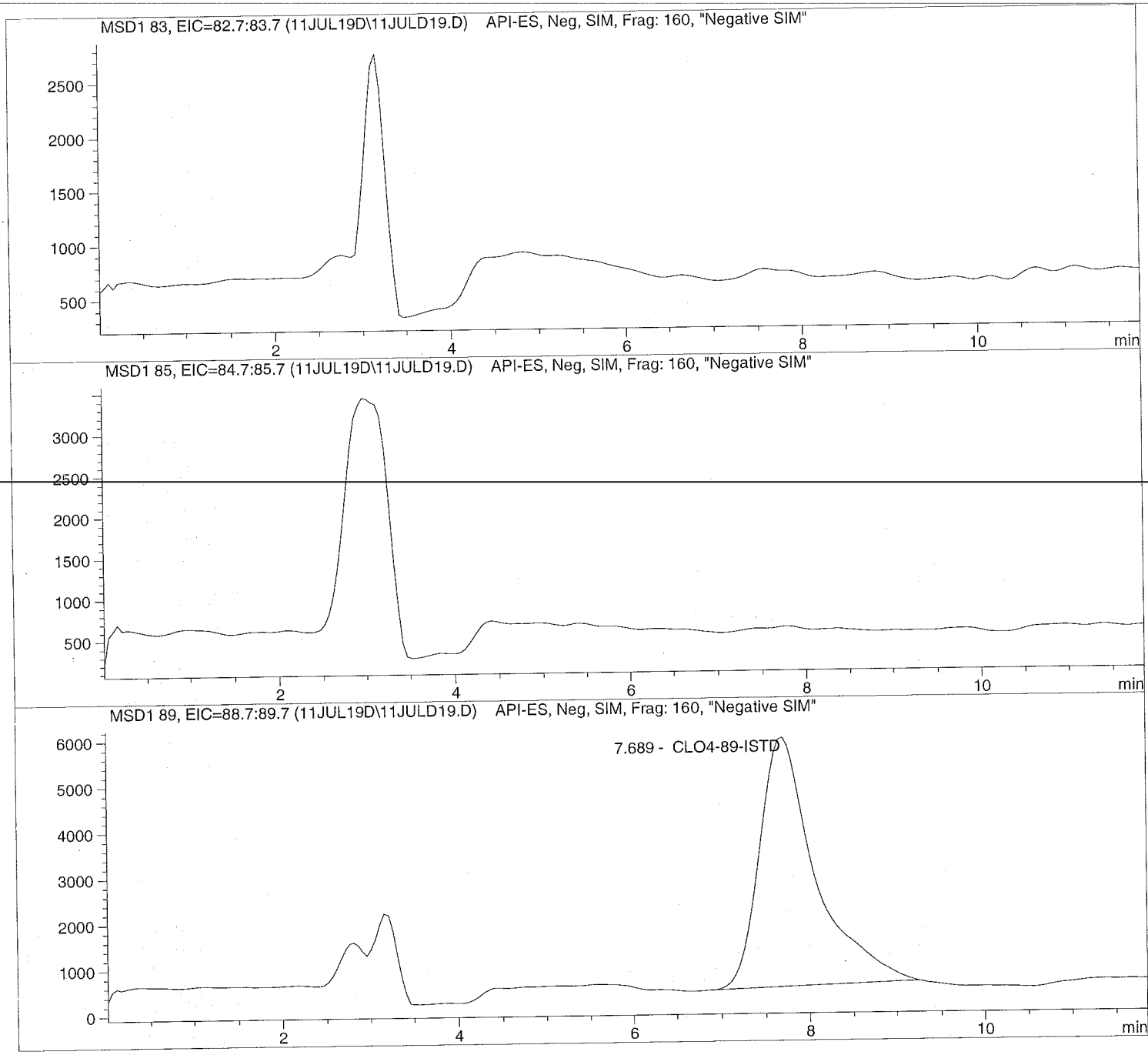
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD19.D Sample Name: 1918705004

Injection Date:	7/11/2019 15:21:50	Seq Line:	19
Sample Name:	1918705004	Location:	Vial 57
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD19.D Sample Name: 1918705004

Injection Date:	7/11/2019 15:21:50	Seq Line:	19
Sample Name:	1918705004	Location:	Vial 57
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.689	PBA	240534.6	5.0000	CLO4-89-ISTD

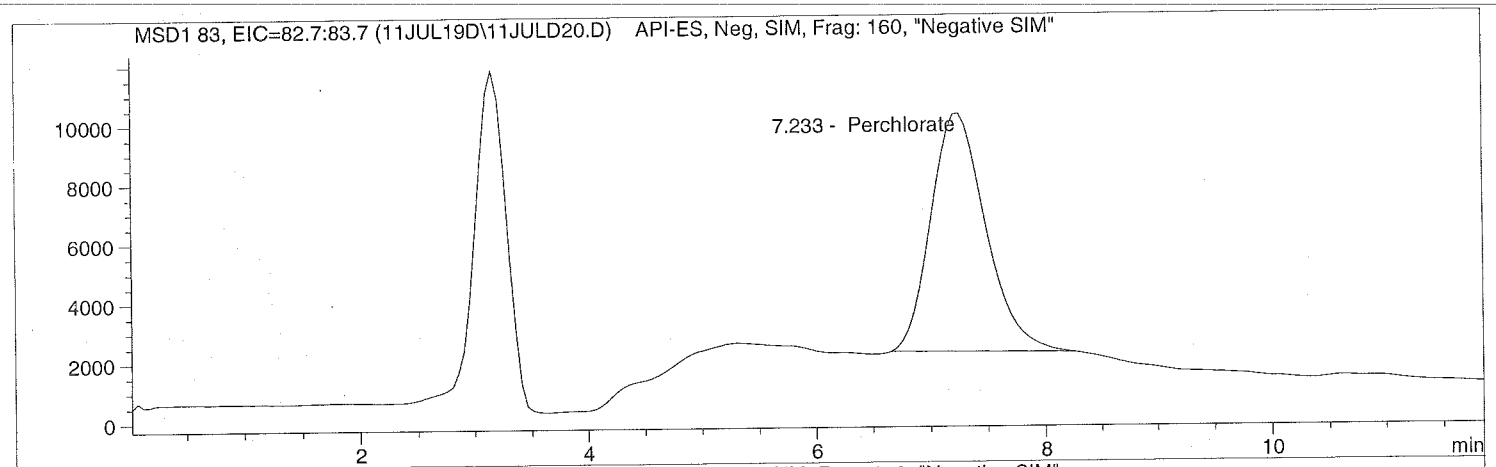
*** End of Report ***

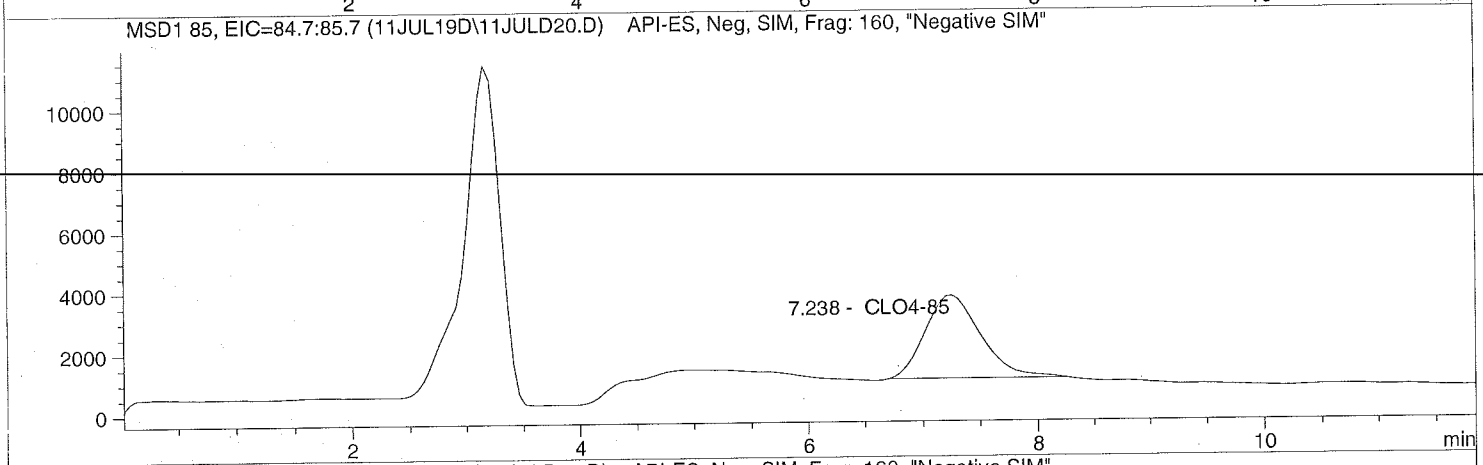
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

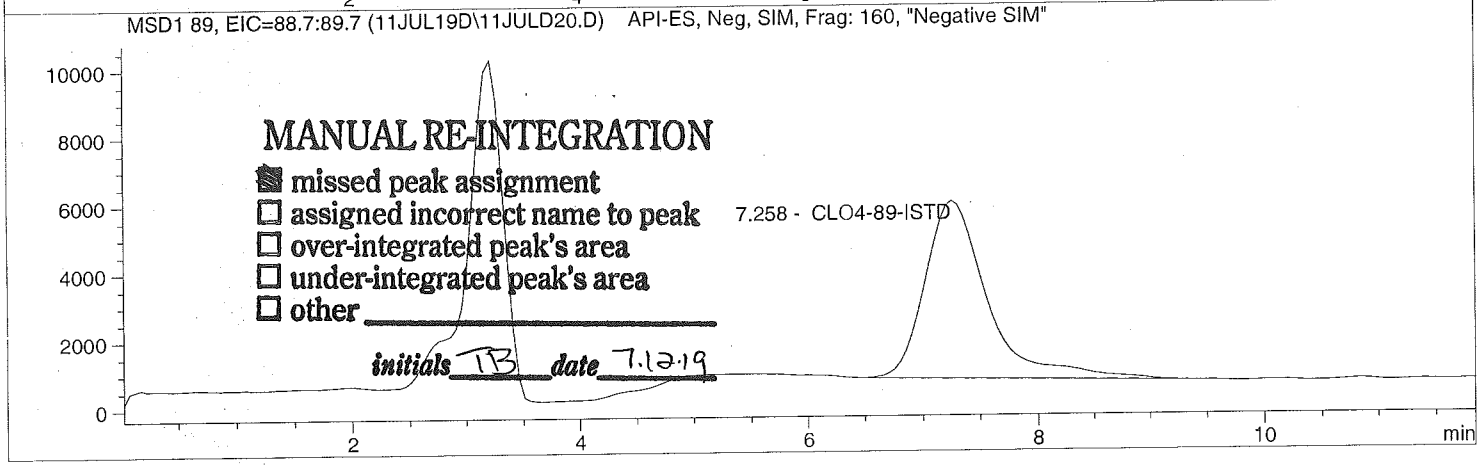
Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







MANUAL RE-INTEGRATION

- ☒ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☐ under-integrated peak's area
- ☐ other _____

initials TB *date* 7.12.19

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.233	PBA	264721.6	4.4092	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.238	BBA	91183.5	4.9513	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.258	MM	196904.8	5.0000	CLO4-89-ISTD

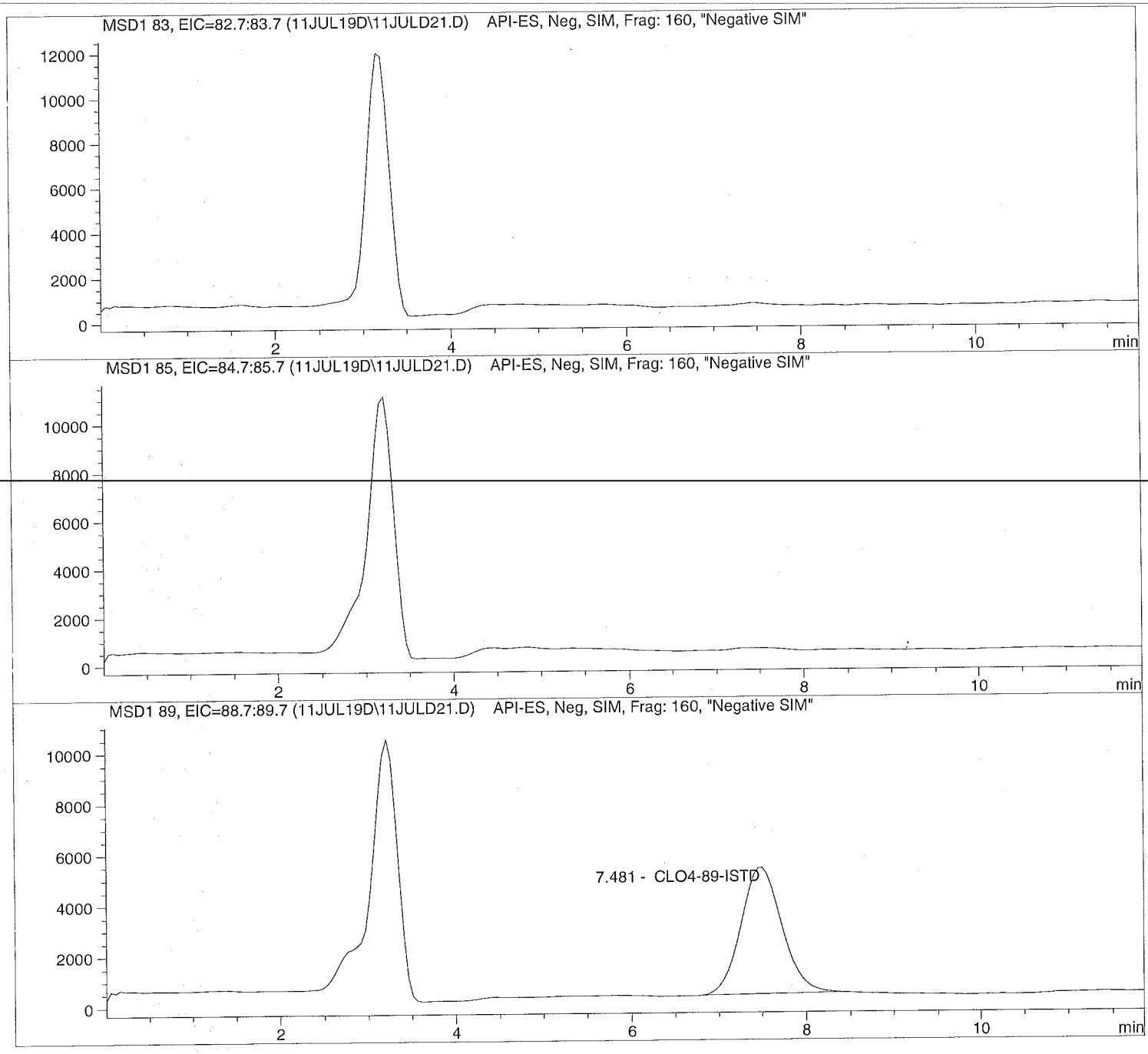
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD21.D Sample Name: 1918705006

Injection Date:	7/11/2019 15:49:37	Seq Line:	21
Sample Name:	1918705006	Location:	Vial 59
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD21.D Sample Name: 1918705006

Injection Date:	7/11/2019 15:49:37	Seq Line:	21
Sample Name:	1918705006	Location:	Vial 59
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.481	PBA	163865.3	5.0000	CLO4-89-ISTD

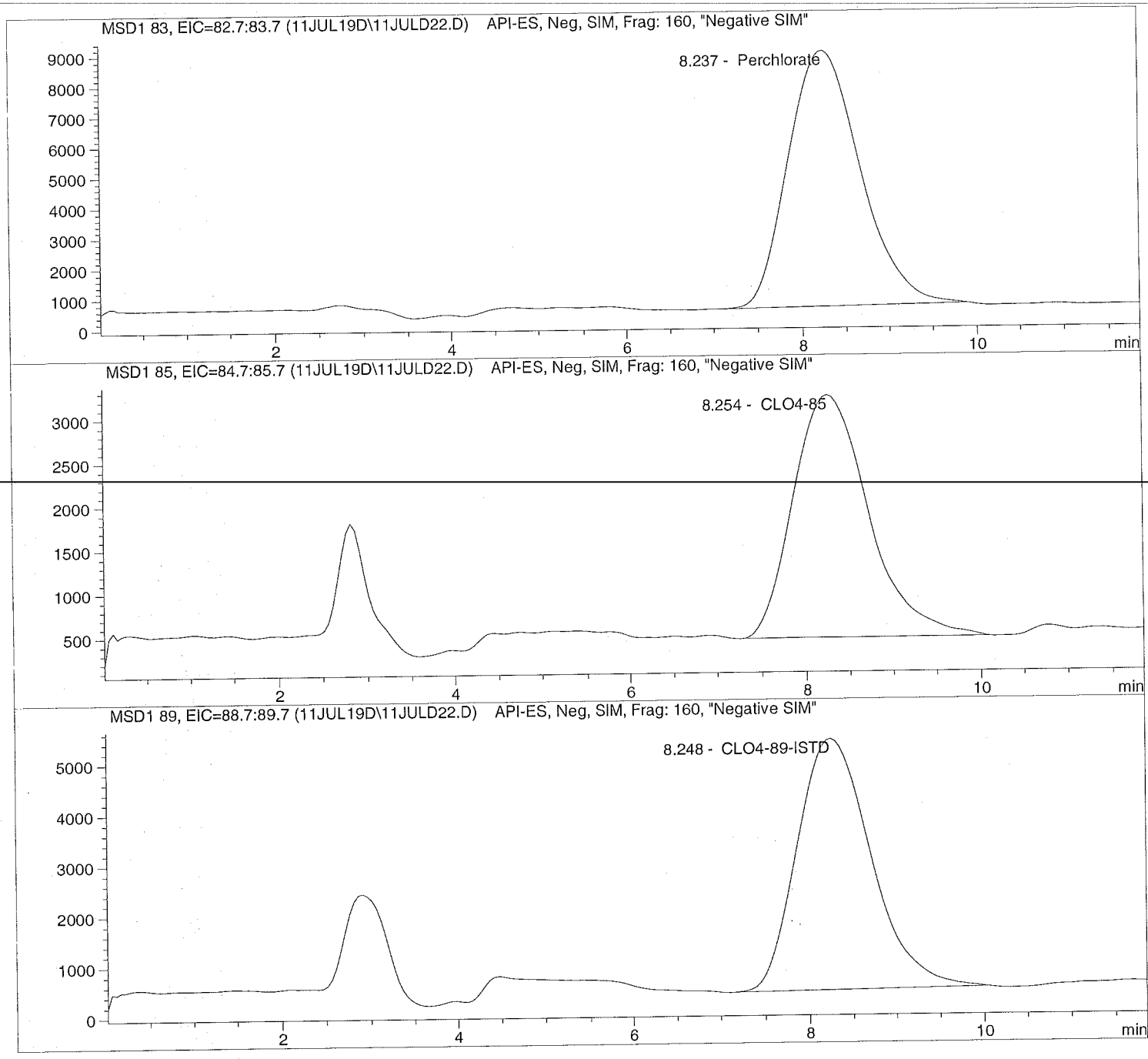
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD22.D Sample Name: 1918705007 10X

Injection Date:	7/11/2019 16:03:27	Seq Line:	22
Sample Name:	1918705007 10X	Location:	Vial 60
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD22.D Sample Name: 1918705007 10X

Injection Date:	7/11/2019 16:03:27	Seq Line:	22
Sample Name:	1918705007 10X	Location:	Vial 60
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.237	PBA	480293.1	53.7355	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.254	PBA	165862.6	60.8905	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.248	PBA	290575.8	50.0000	CLO4-89-ISTD

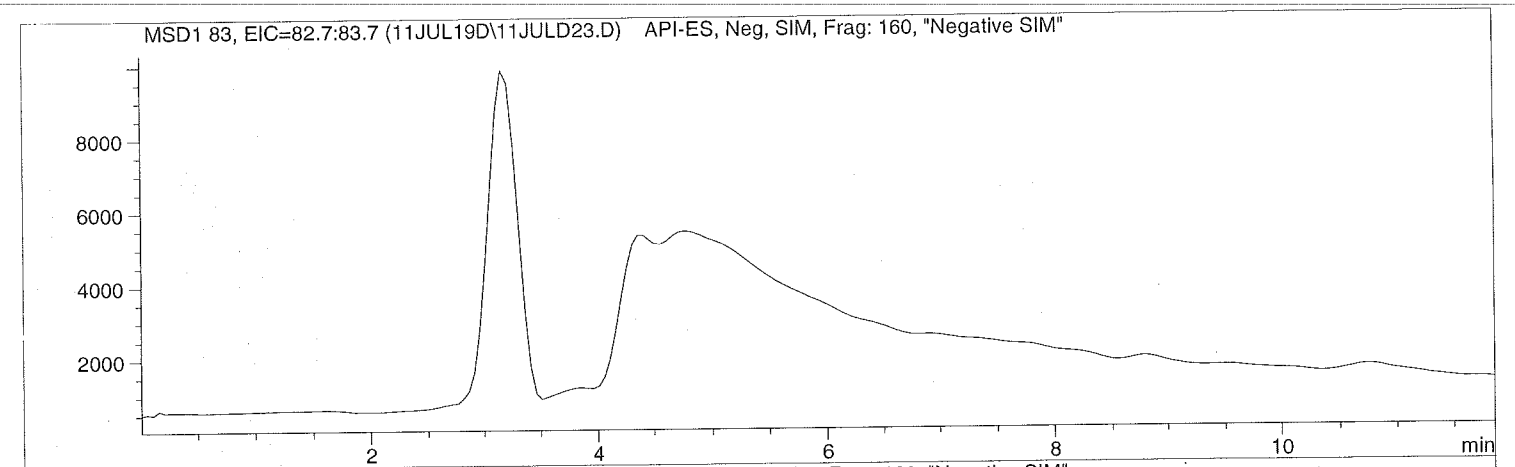
*** End of Report ***

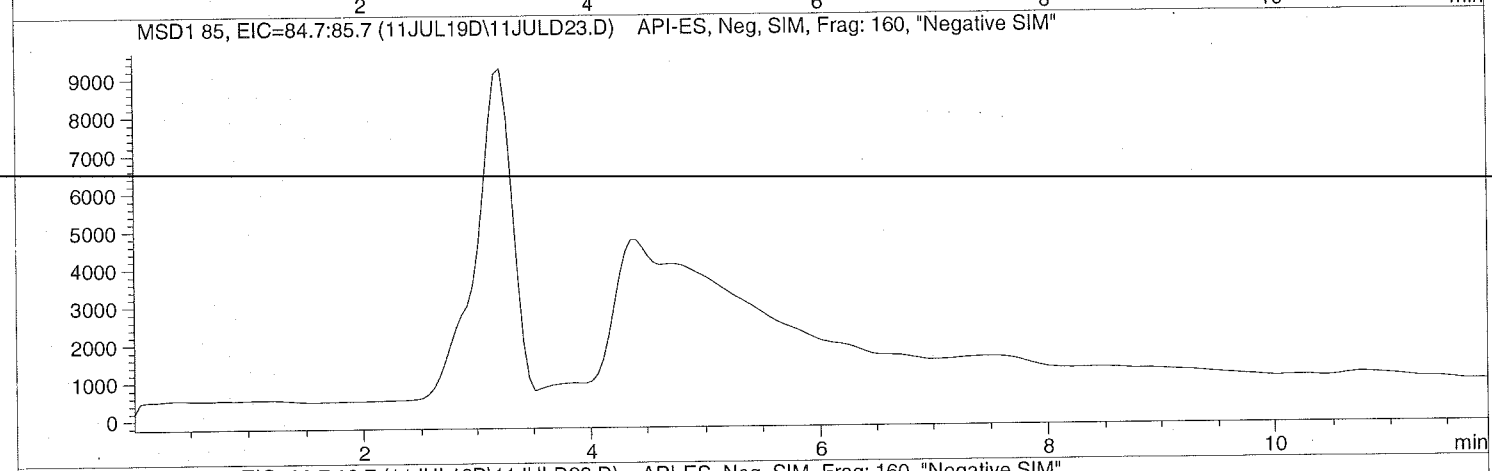
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD23.D Sample Name: 1918705008

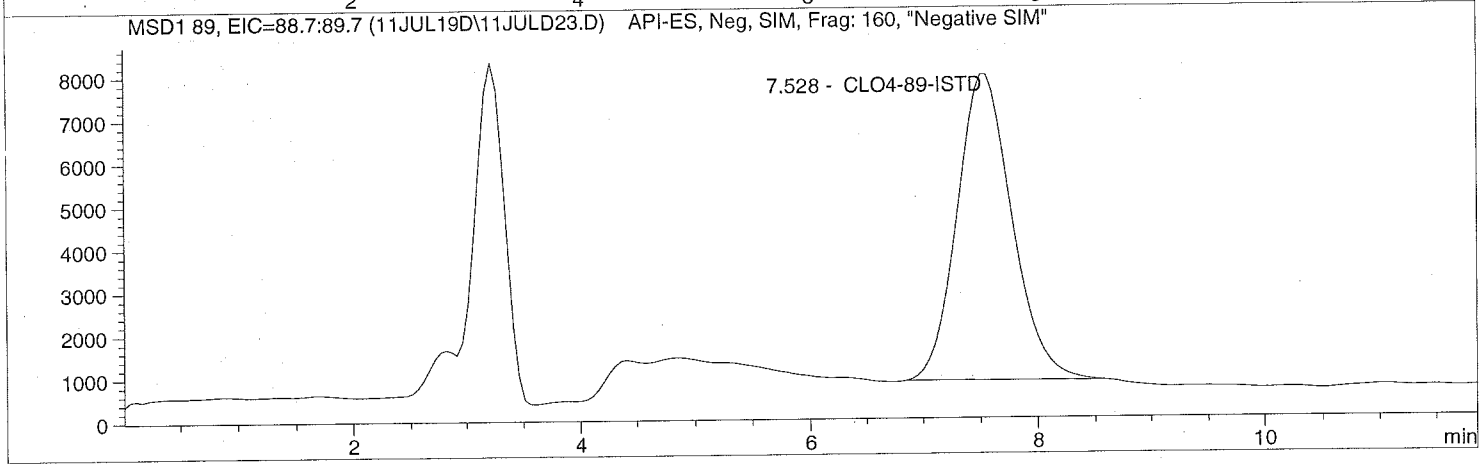
Injection Date:	7/11/2019 16:17:15	Seq Line:	23
Sample Name:	1918705008	Location:	Vial 61
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD23.D Sample Name: 1918705008

Injection Date:	7/11/2019 16:17:15	Seq Line:	23
Sample Name:	1918705008	Location:	Vial 61
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.528	PBA	237165.4	5.0000	CLO4-89-ISTD

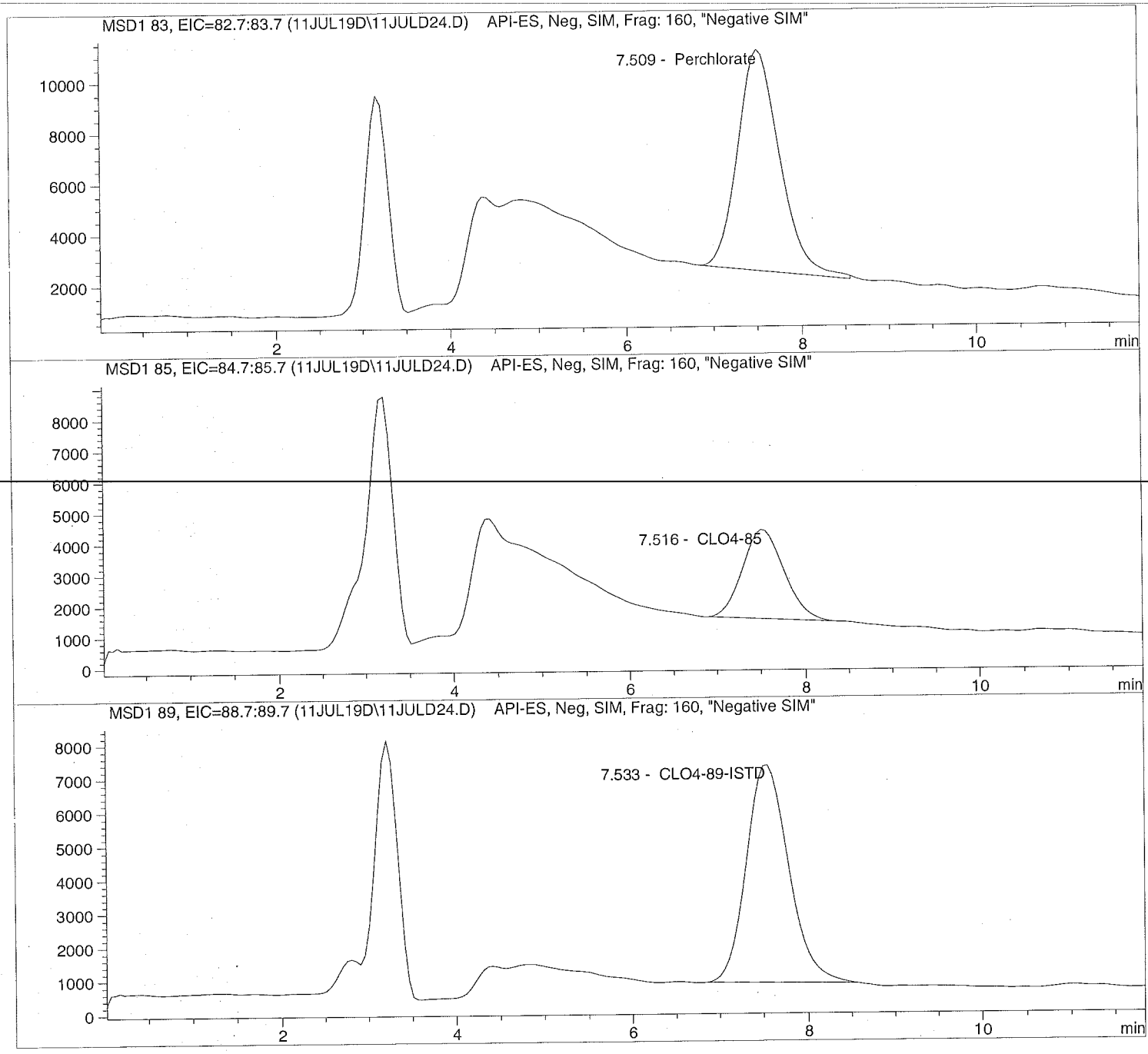
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD24.D Sample Name: 1918705009 MS

Injection Date:	7/11/2019 16:31:15	Seq Line:	24
Sample Name:	1918705009 MS	Location:	Vial 62
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD24.D Sample Name: 1918705009 MS

Injection Date:	7/11/2019 16:31:15	Seq Line:	24
Sample Name:	1918705009 MS	Location:	Vial 62
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.509	PBA	288361.0	4.3992	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.516	PBA	93975.4	4.6759	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.533	PBA	214999.5	5.0000	CLO4-89-ISTD

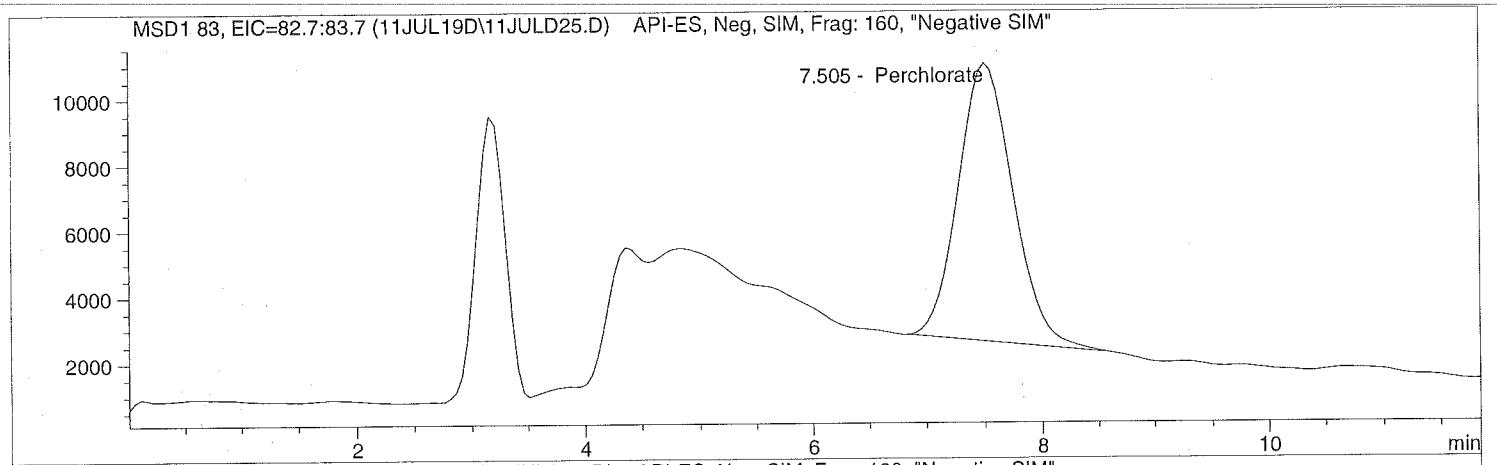
*** End of Report ***

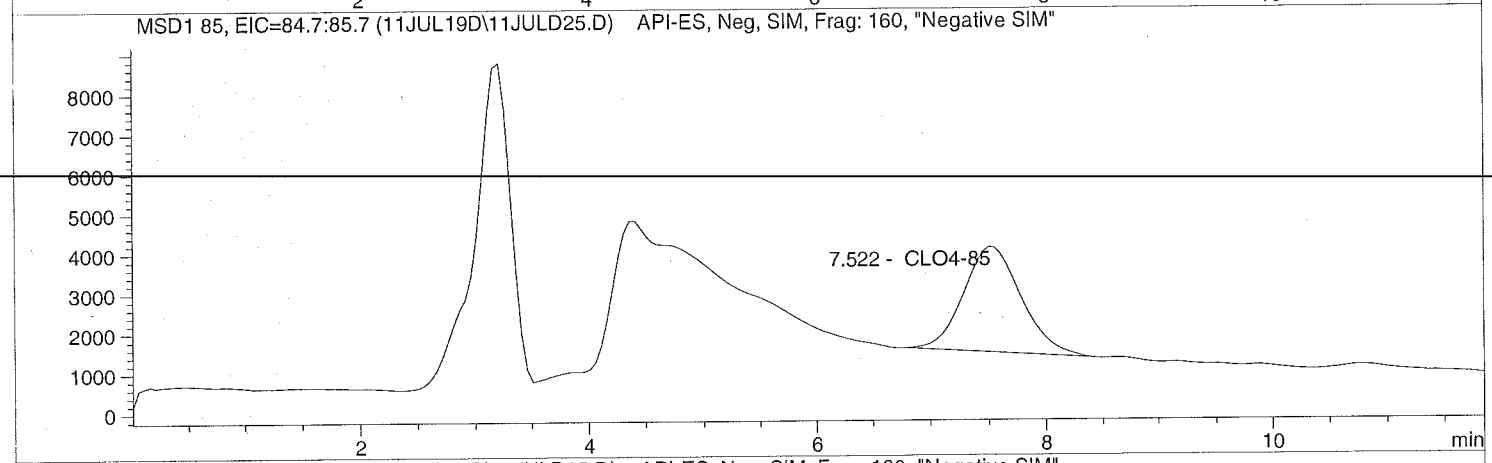
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD25.D Sample Name: 1918705010 MSD

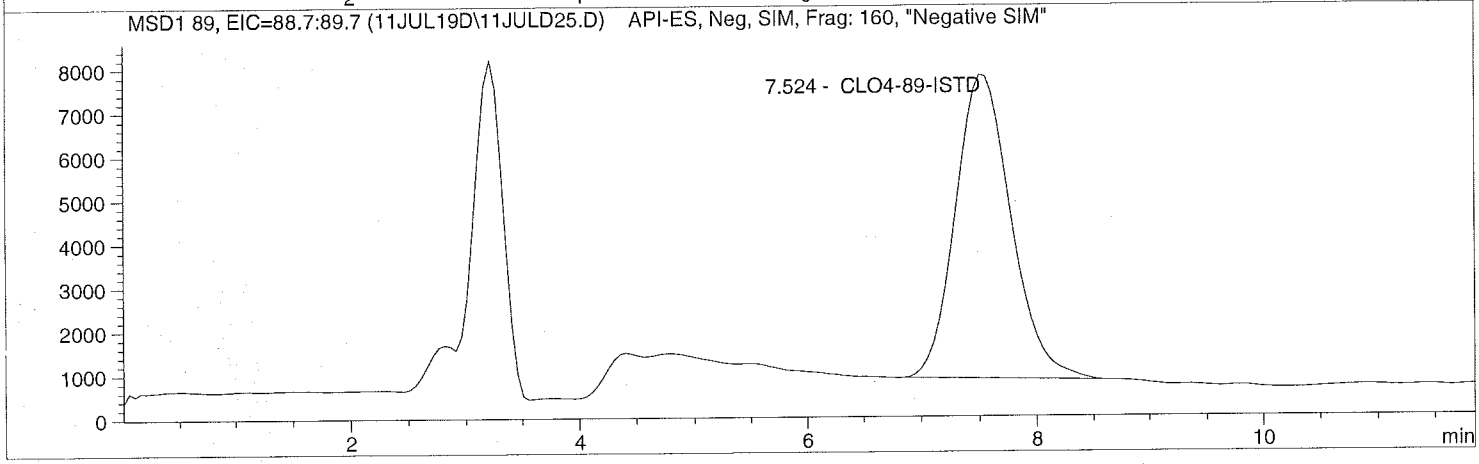
Injection Date:	7/11/2019 16:45:02	Seq Line:	25
Sample Name:	1918705010 MSD	Location:	Vial 63
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD25.D Sample Name: 1918705010 MSD

Injection Date:	7/11/2019 16:45:02	Seq Line:	25
Sample Name:	1918705010 MSD	Location:	Vial 63
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.505	PBA	277079.4	3.9208	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.522	PBA	91663.1	4.2105	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.524	PBA	233099.0	5.0000	CLO4-89-ISTD

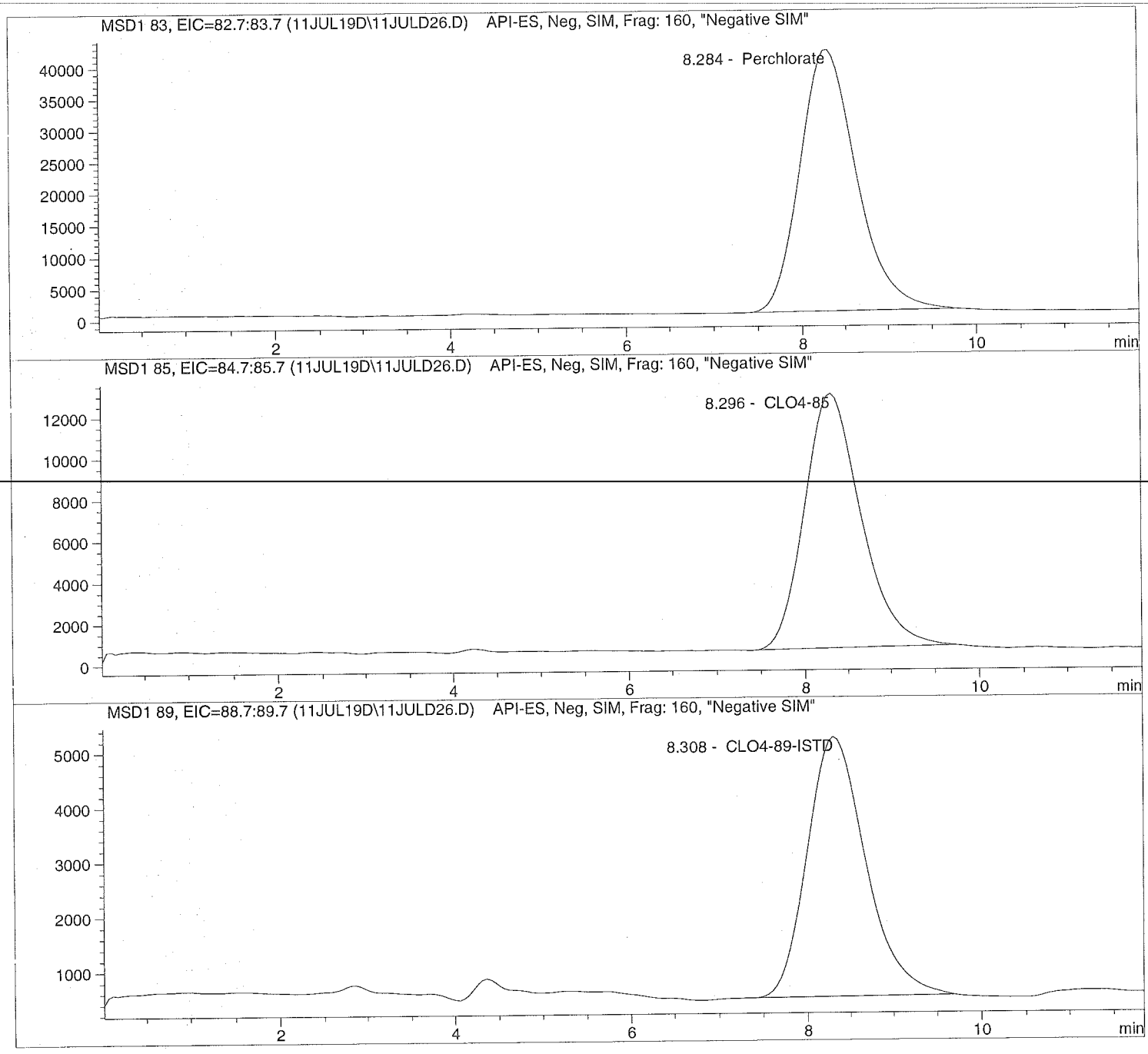
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD26.D Sample Name: 663036 CCV@25

Injection Date:	7/11/2019 16:58:48	Seq Line:	26
Sample Name:	663036 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD26.D Sample Name: 663036 CCV@25

Injection Date:	7/11/2019 16:58:48	Seq Line:	26
Sample Name:	663036 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.284	PBA	1877862.1	25.5677	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.296	PBA	559339.1	25.6558	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.308	BBA	223151.0	5.0000	CLO4-89-ISTD

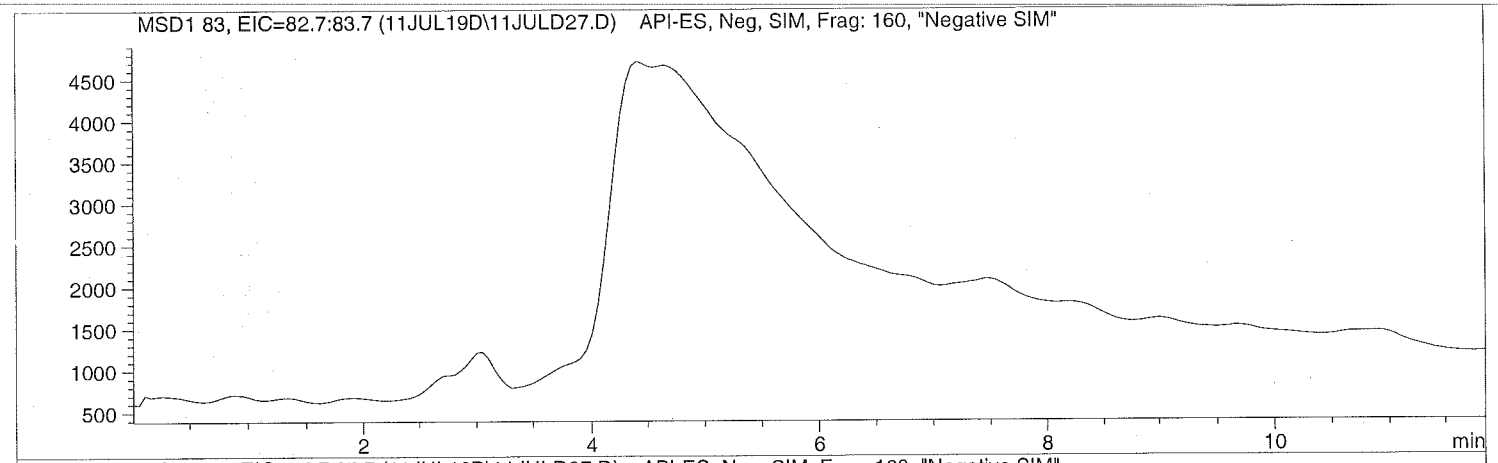
*** End of Report ***

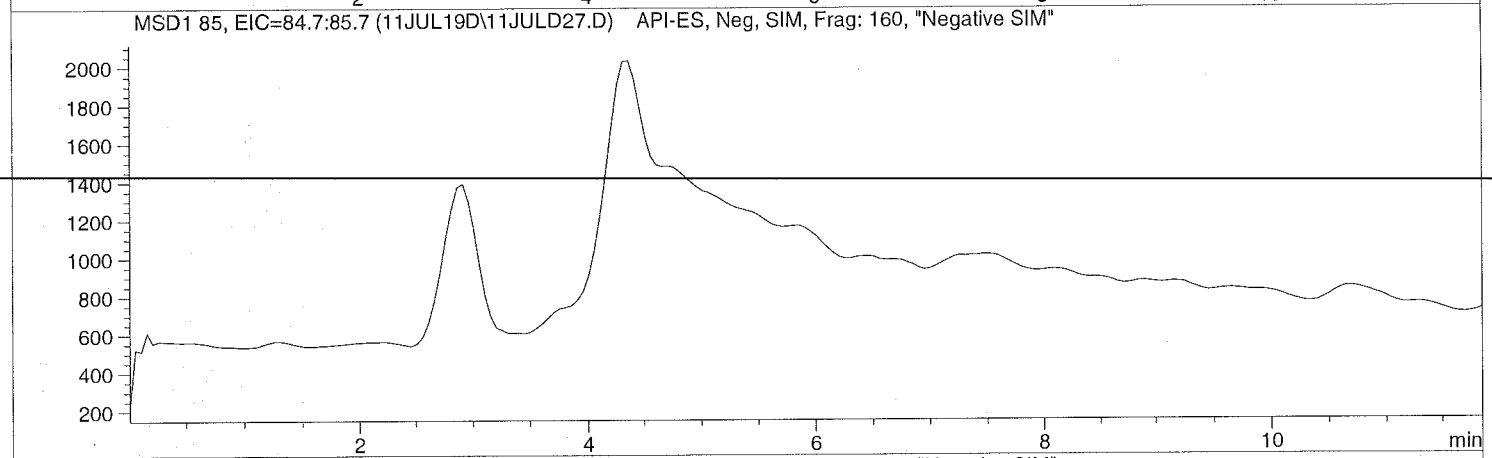
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD27.D Sample Name: 1918871001

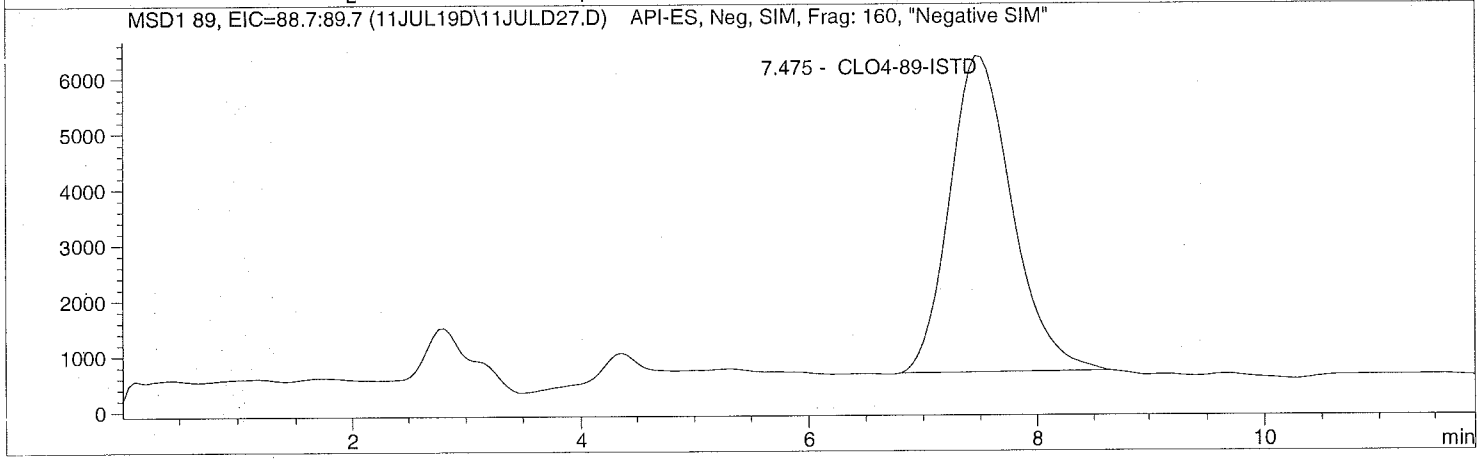
Injection Date:	7/11/2019 17:12:38	Seq Line:	27
Sample Name:	1918871001	Location:	Vial 64
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD27.D Sample Name: 1918871001

Injection Date:	7/11/2019 17:12:38	Seq Line:	27
Sample Name:	1918871001	Location:	Vial 64
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.475	PBA	217461.8	5.0000	CLO4-89-ISTD

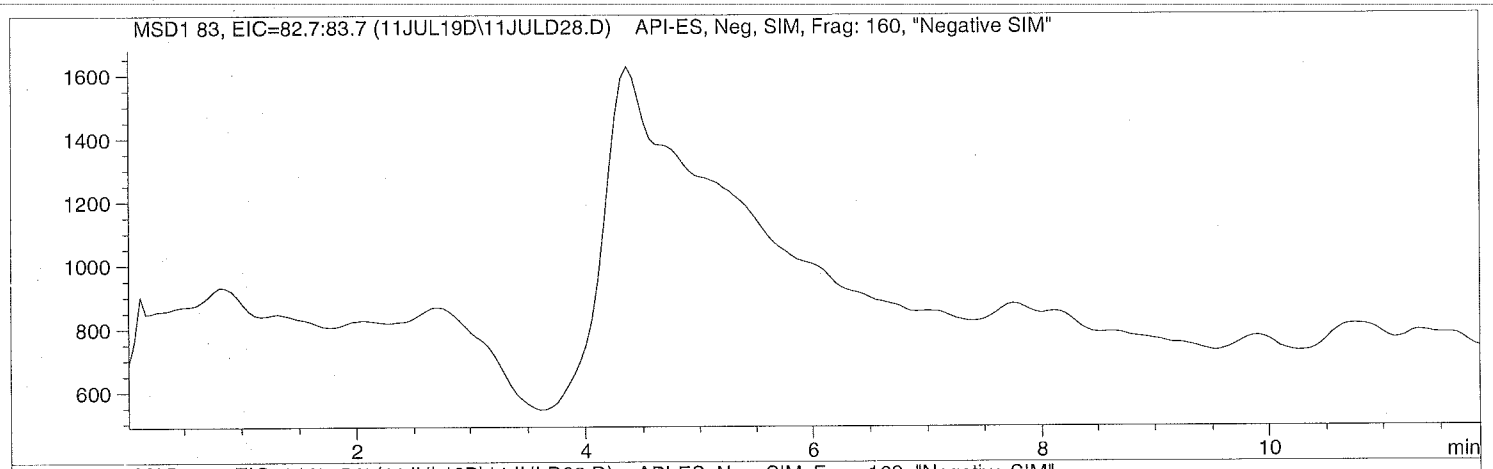
*** End of Report ***

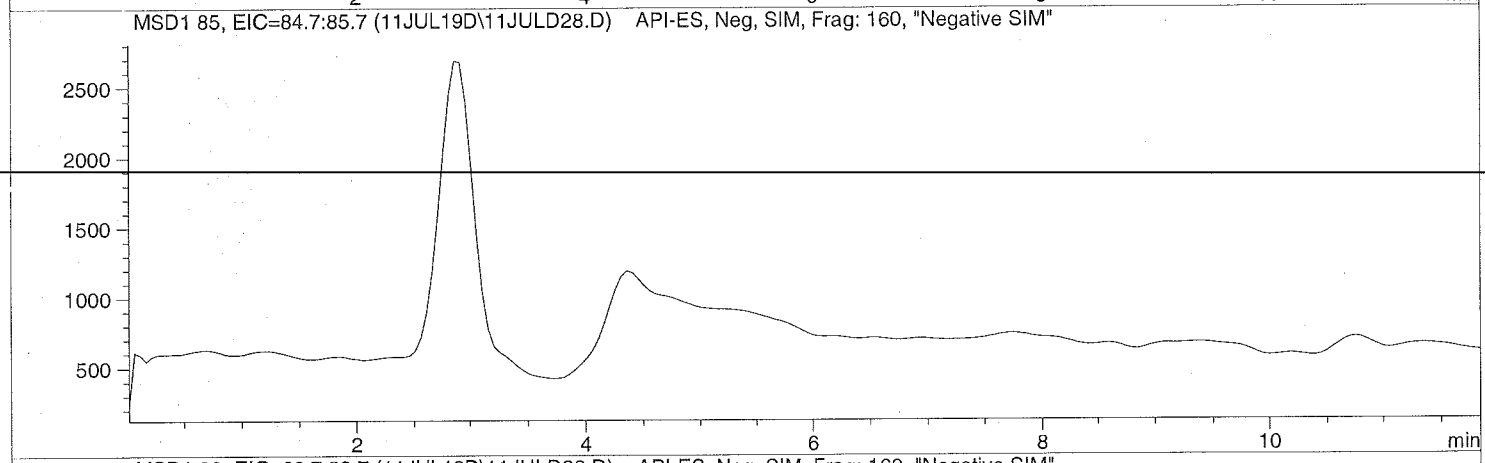
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD28.D Sample Name: 1918871002

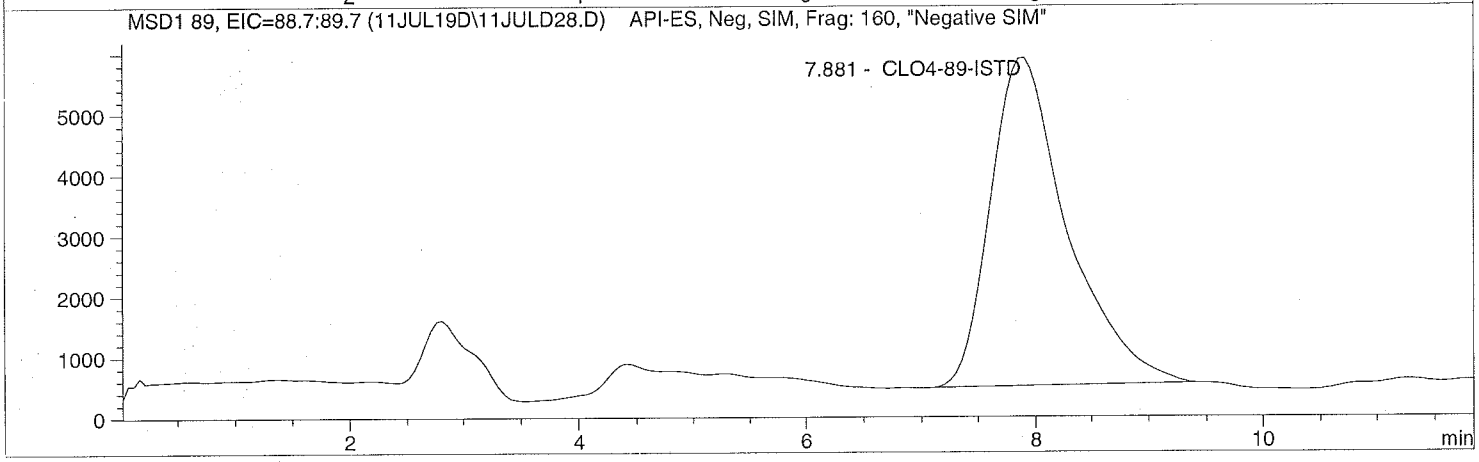
Injection Date:	7/11/2019 17:26:27	Seq Line:	28
Sample Name:	1918871002	Location:	Vial 65
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD28.D Sample Name: 1918871002

Injection Date:	7/11/2019 17:26:27	Seq Line:	28
Sample Name:	1918871002	Location:	Vial 65
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.881	PBA	252228.0	5.0000	CLO4-89-ISTD

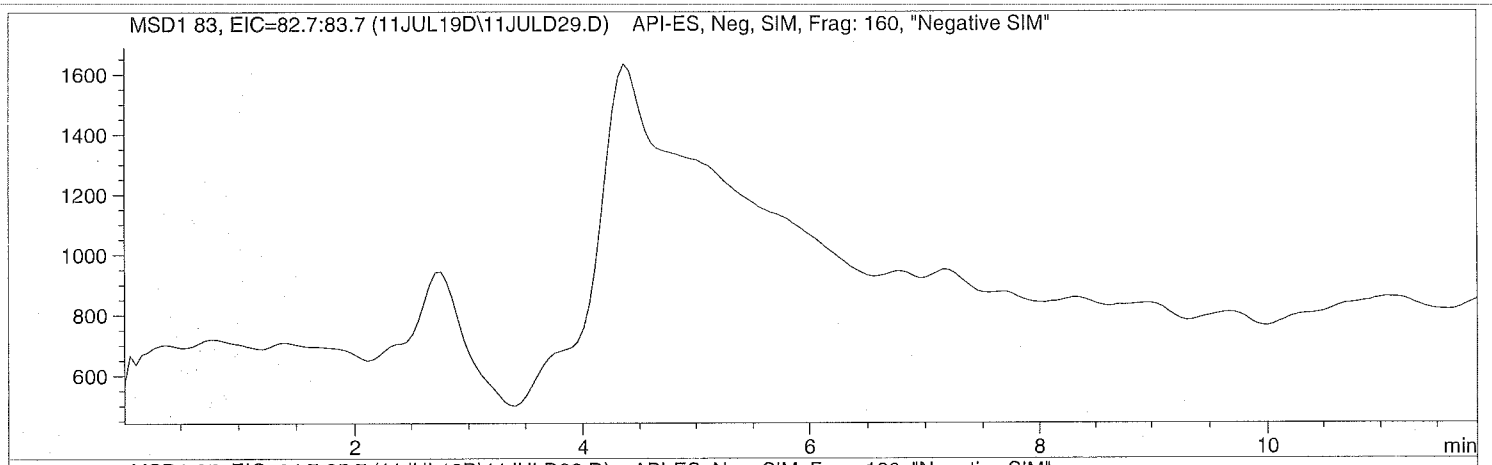
*** End of Report ***

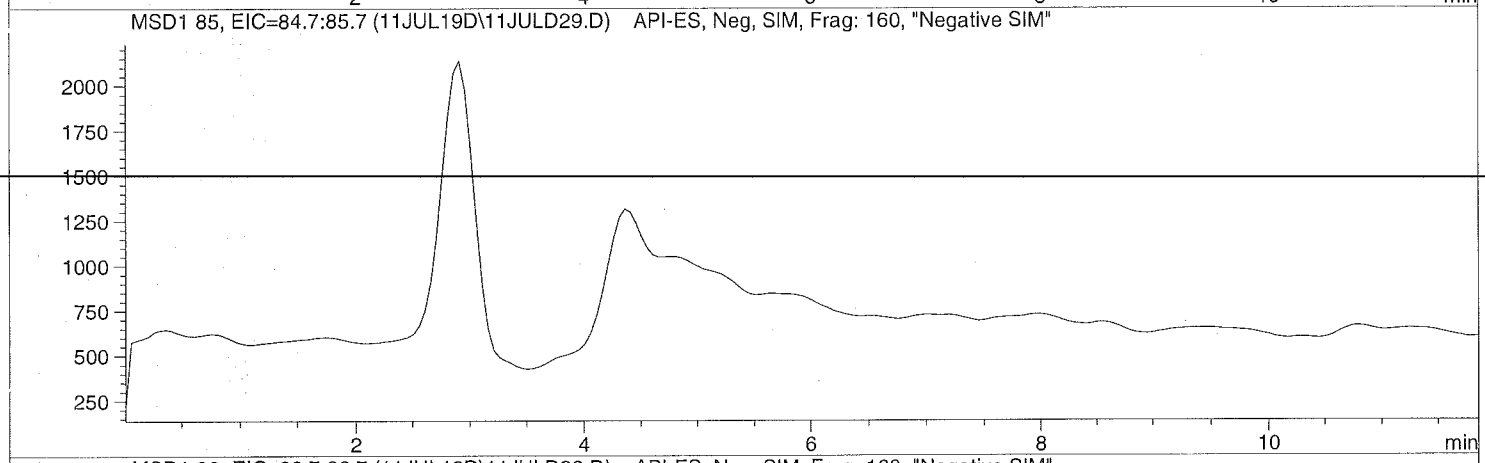
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD29.D Sample Name: 1918871003

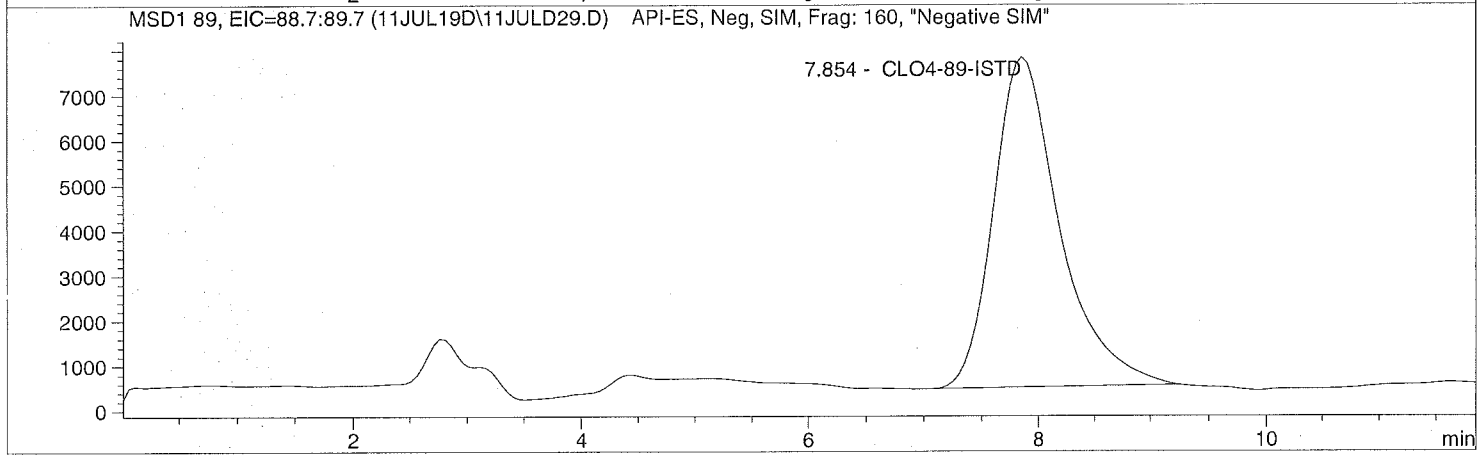
Injection Date:	7/11/2019 17:40:12	Seq Line:	29
Sample Name:	1918871003	Location:	Vial 66
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD29.D Sample Name: 1918871003

Injection Date:	7/11/2019 17:40:12	Seq Line:	29
Sample Name:	1918871003	Location:	Vial 66
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.854	PBA	297108.1	5.0000	CLO4-89-ISTD

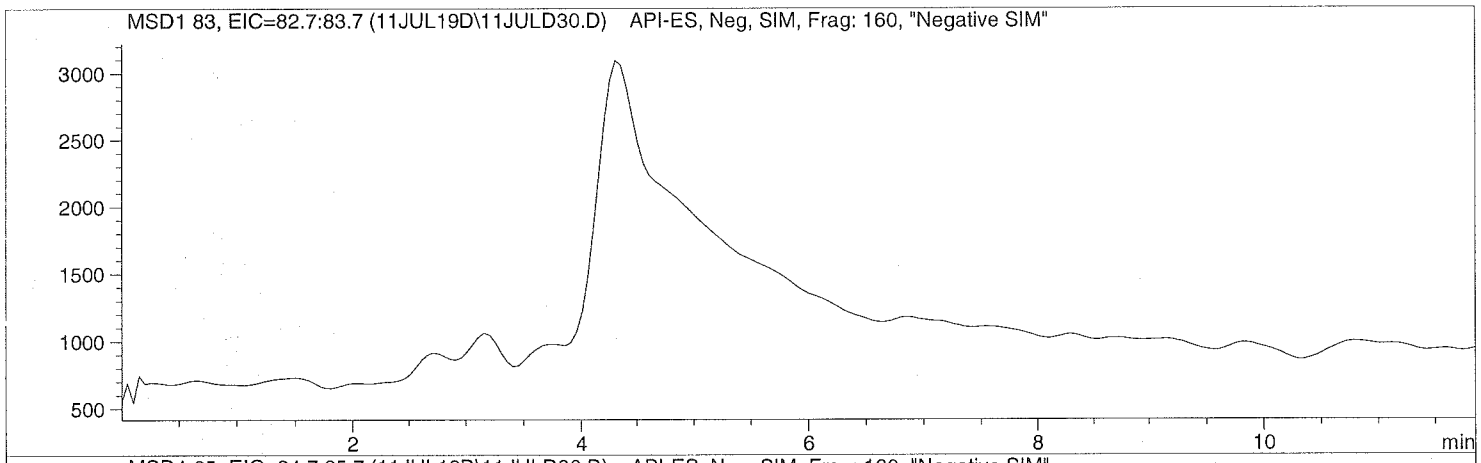
*** End of Report ***

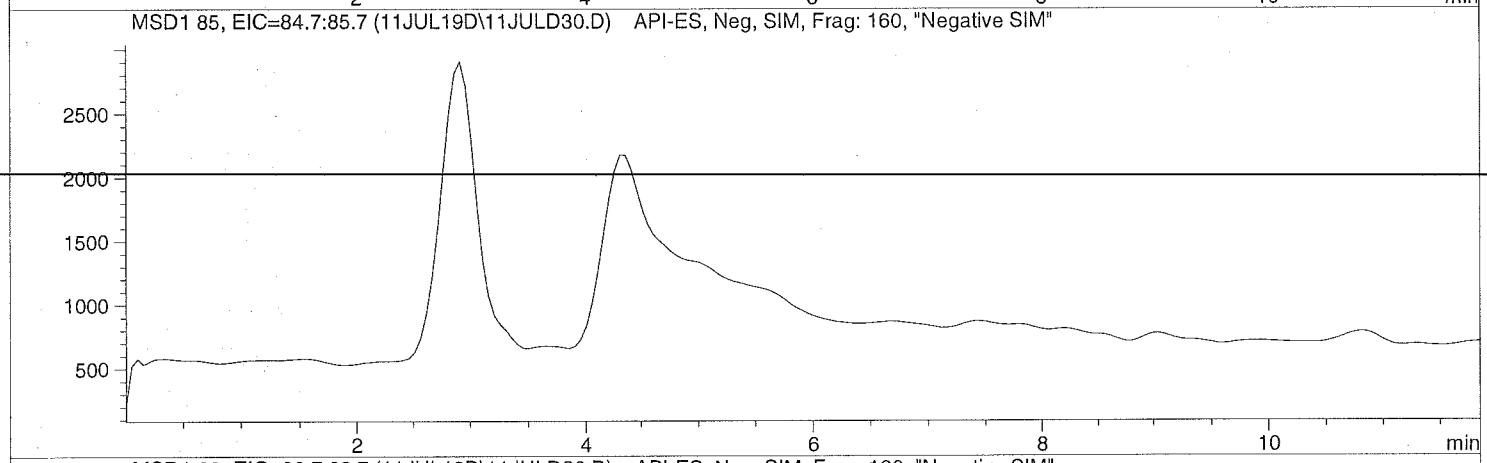
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD30.D Sample Name: 1918871004

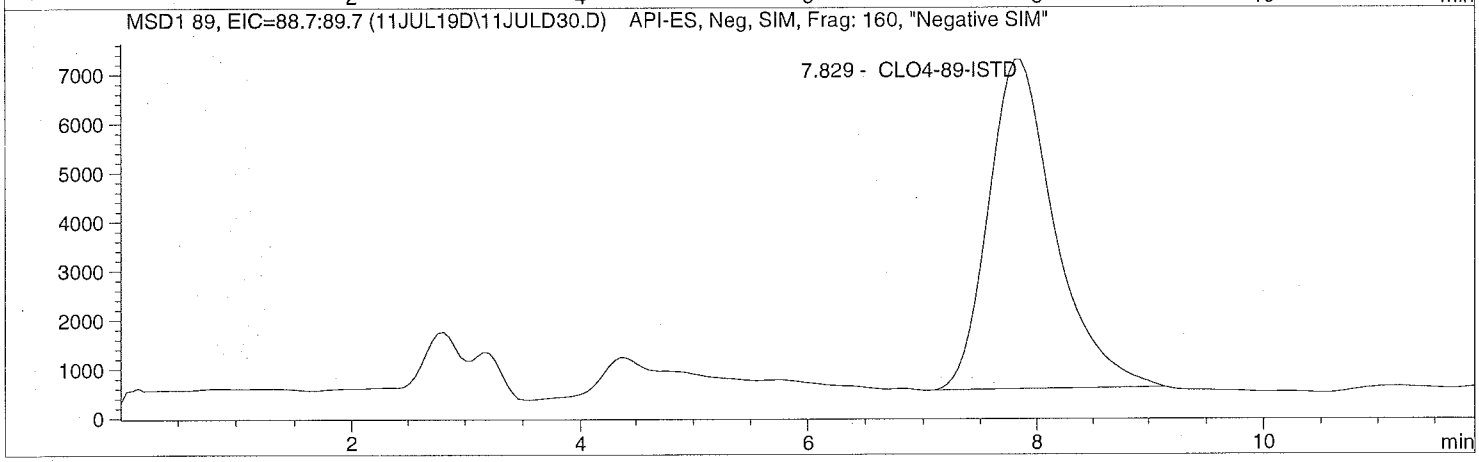
Injection Date:	7/11/2019 17:54:08	Seq Line:	30
Sample Name:	1918871004	Location:	Vial 67
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD30.D Sample Name: 1918871004

Injection Date:	7/11/2019 17:54:08	Seq Line:	30
Sample Name:	1918871004	Location:	Vial 67
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.829	PBA	273038.9	5.0000	CLO4-89-ISTD

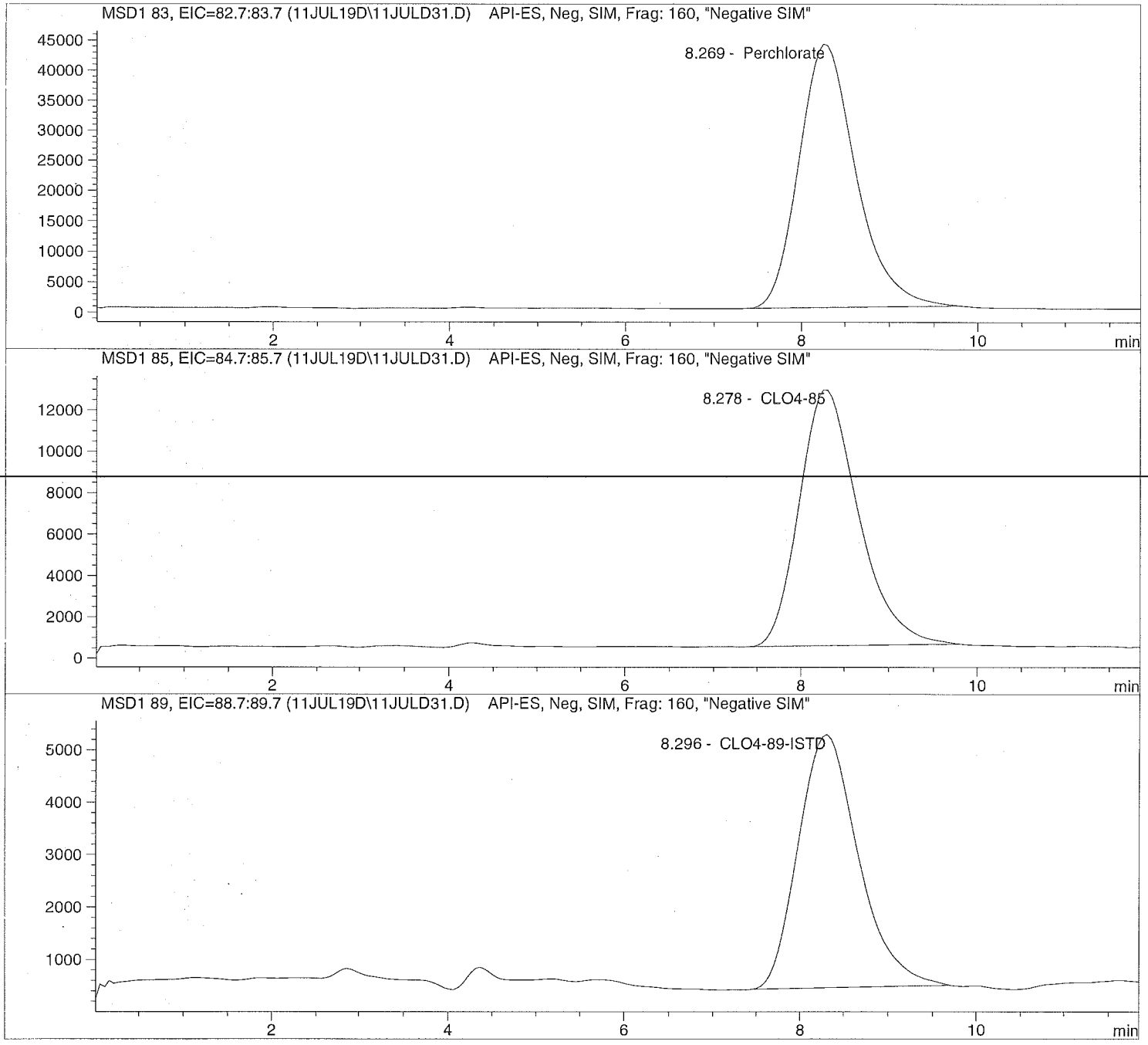
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD31.D Sample Name: 663037 CCV@25

Injection Date:	7/11/2019 18:07:55	Seq Line:	31
Sample Name:	663037 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD31.D Sample Name: 663037 CCV@25

Injection Date:	7/11/2019 18:07:55	Seq Line:	31
Sample Name:	663037 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.269	PBA	1970476.5	25.8725	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.278	PBA	583651.3	25.8263	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.296	PBA	231230.8	5.0000	CLO4-89-ISTD

*** End of Report ***



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

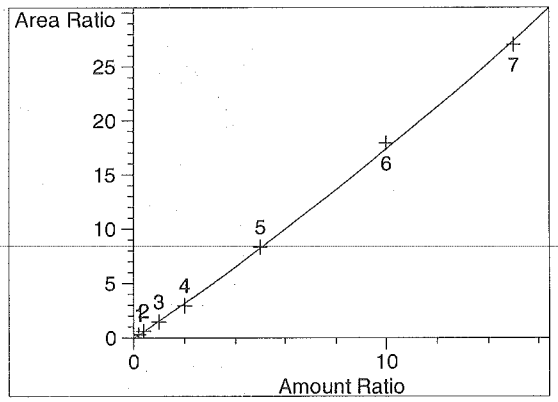
Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

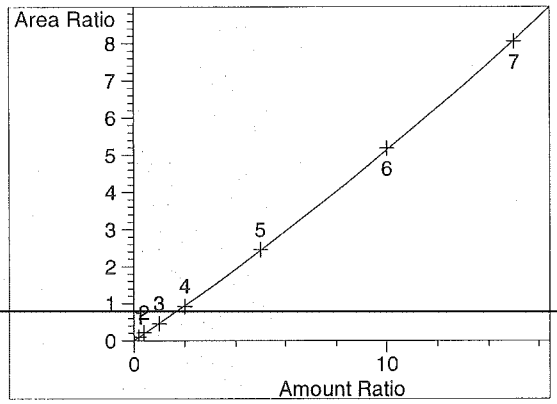
Peak Sum Table

No Entries in table

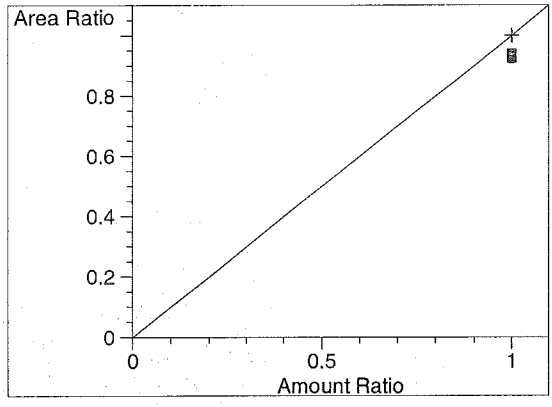
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Batch Report: C:\HPCHEM\1\DATA\19MAR19I\19MAR19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

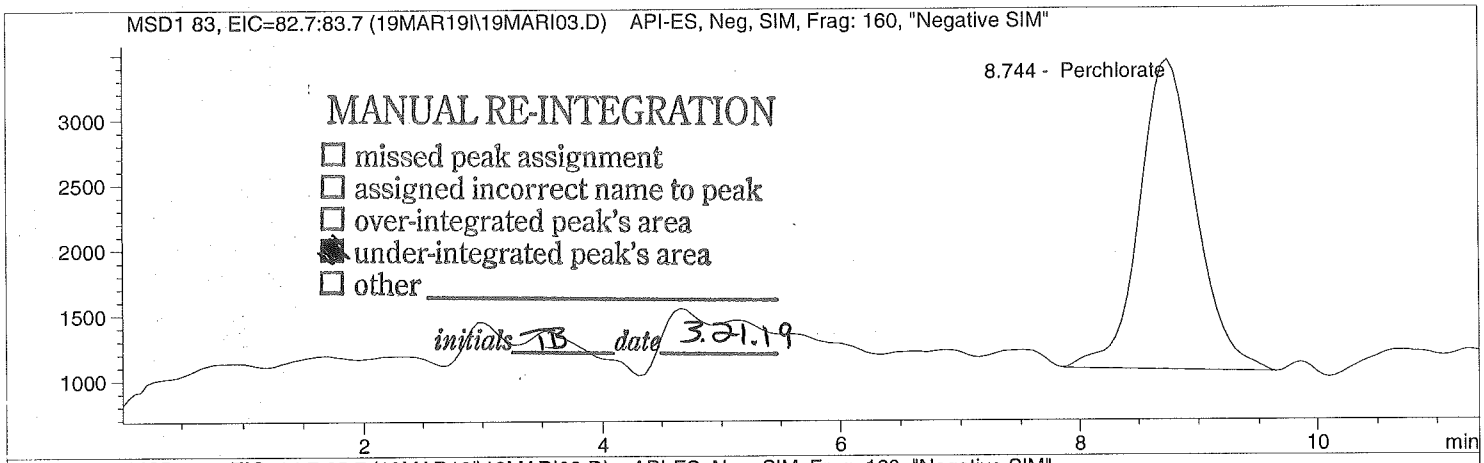
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

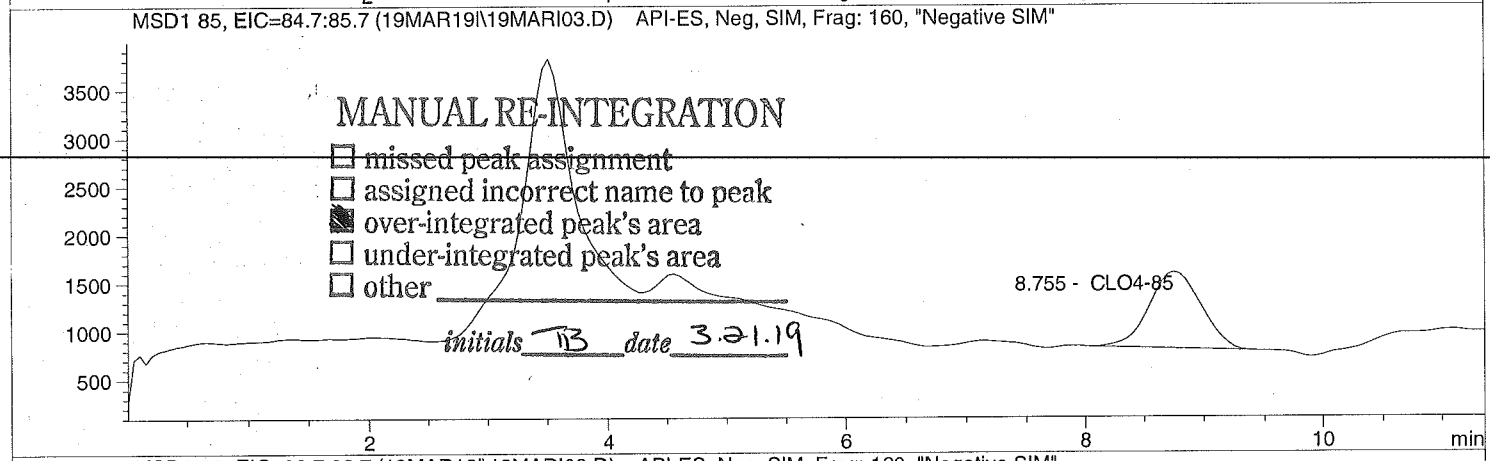
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

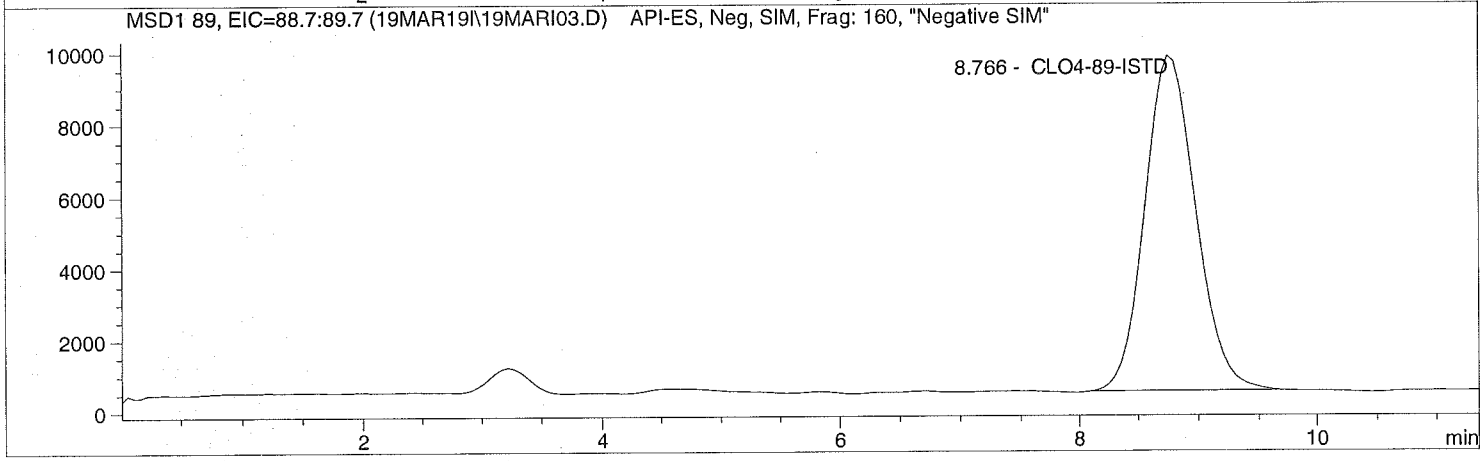
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

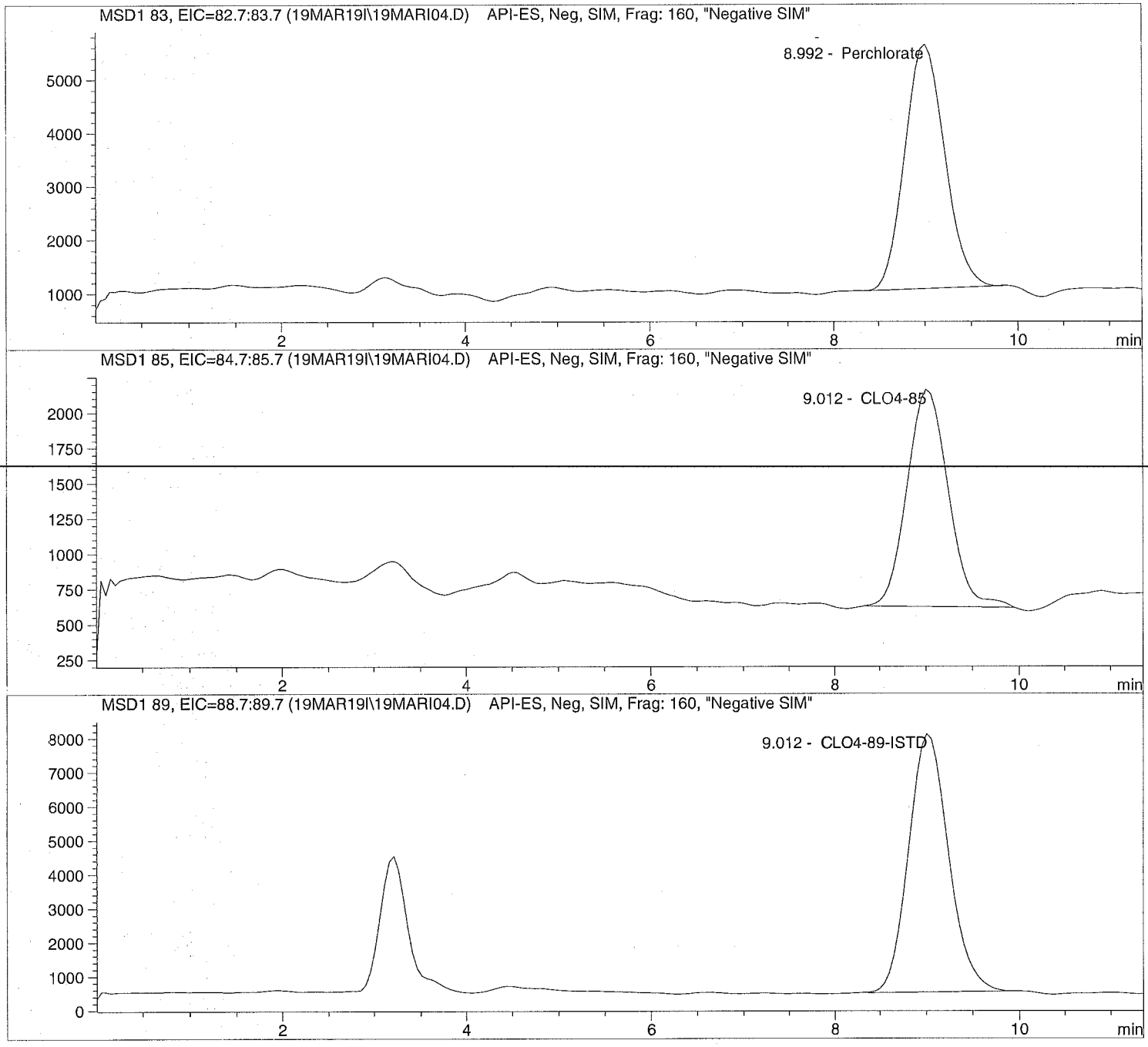
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

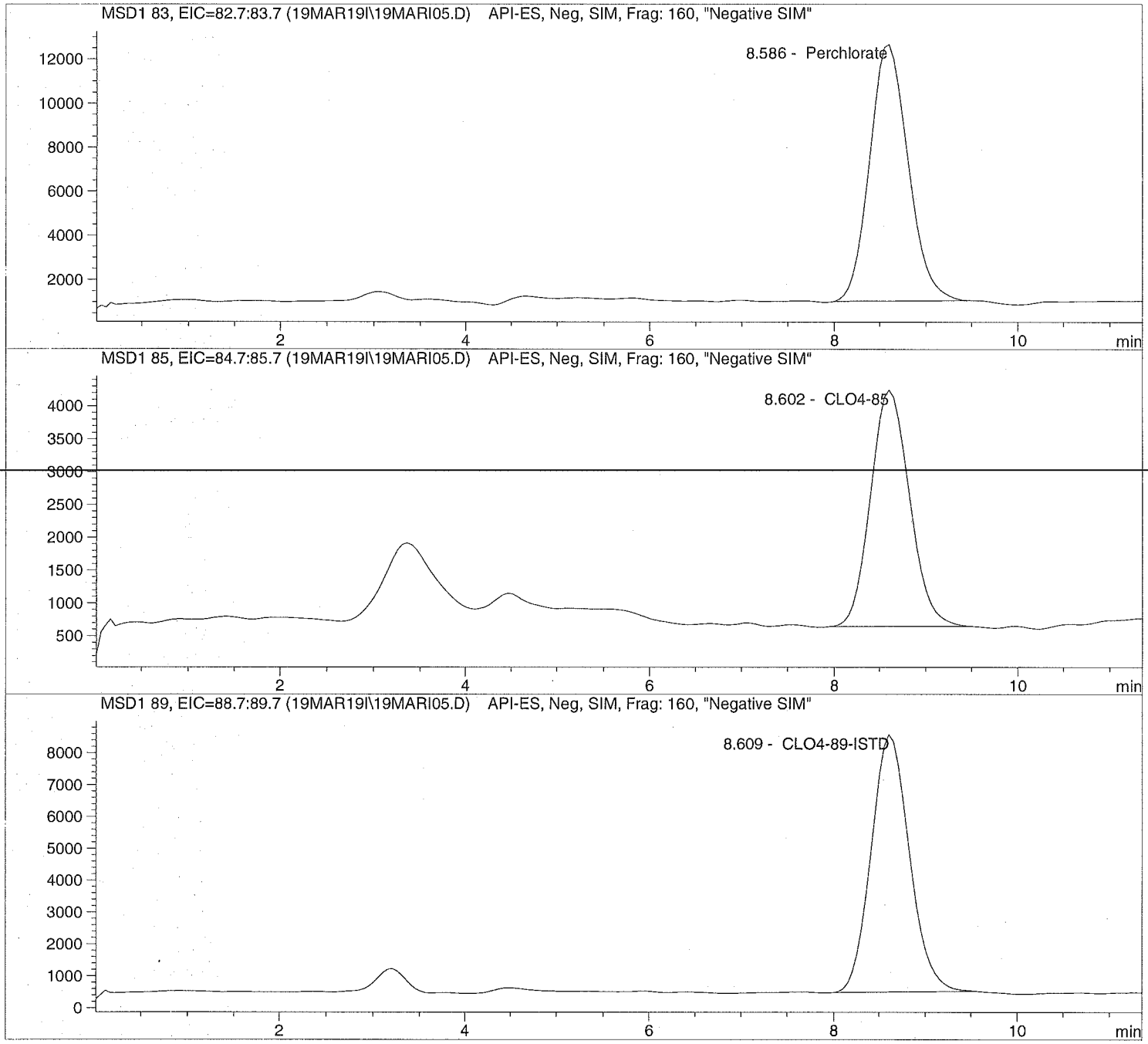
00942132

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

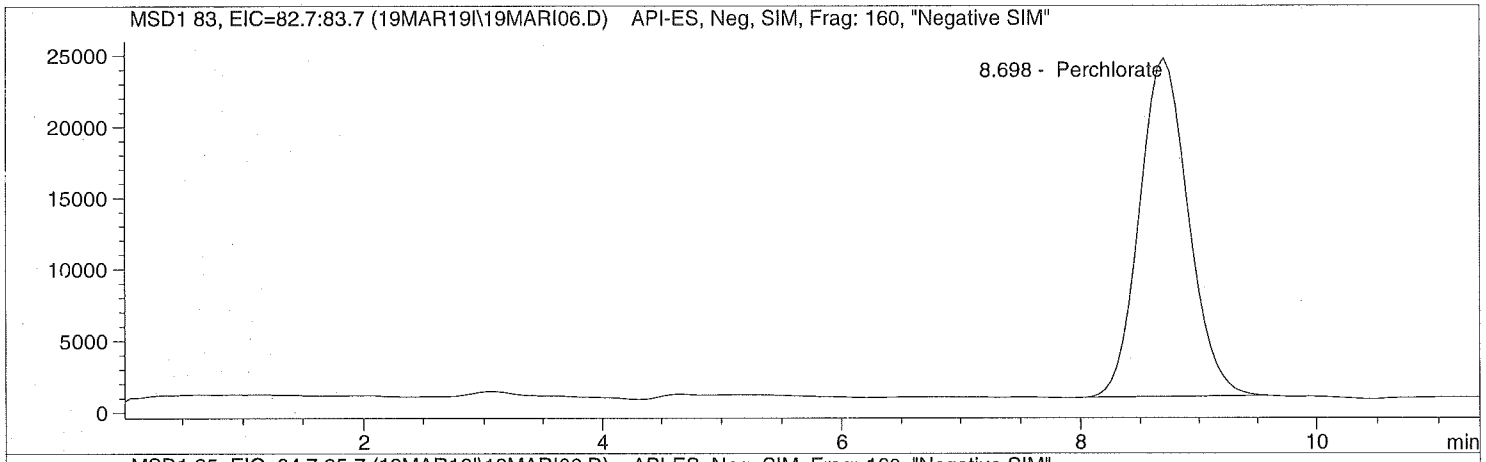
*** End of Report ***

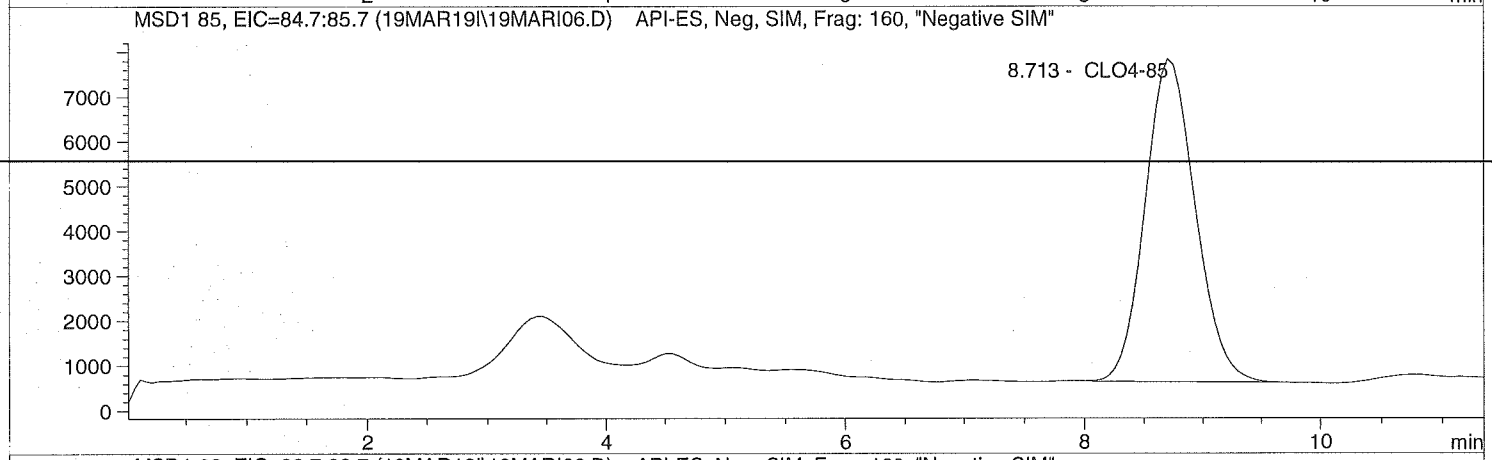
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

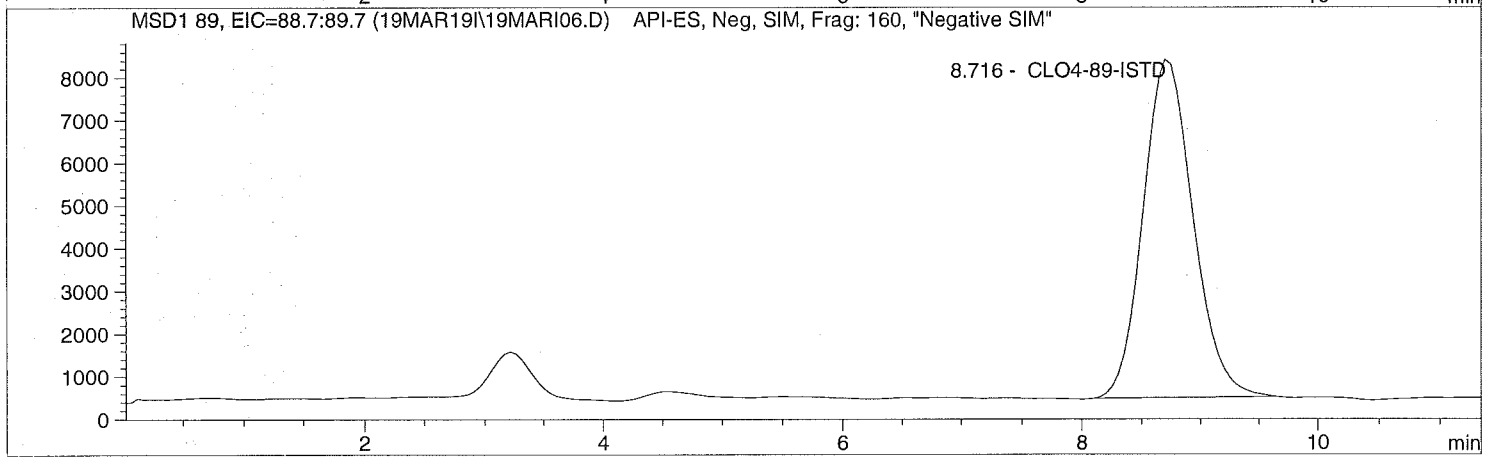
Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

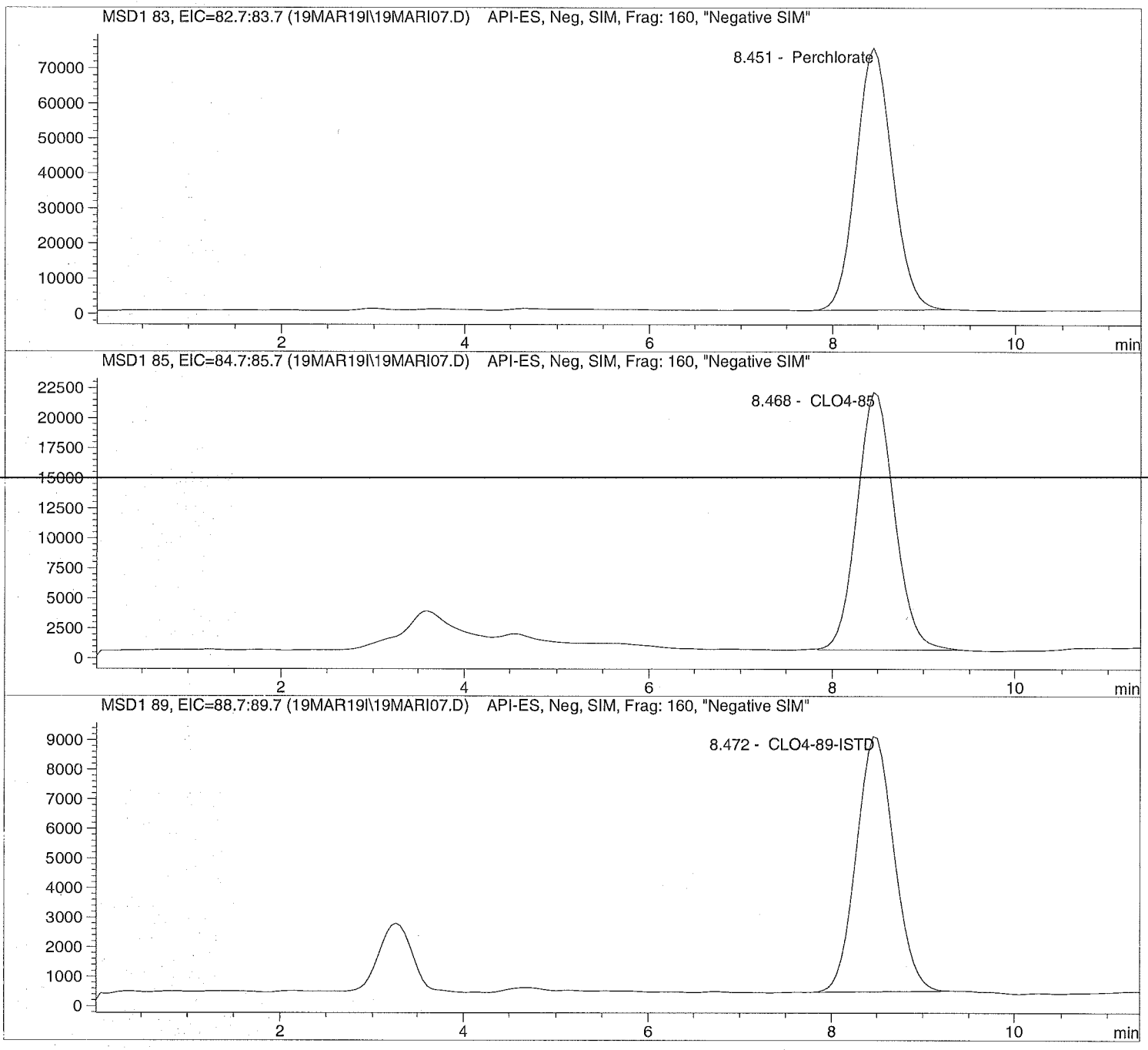
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

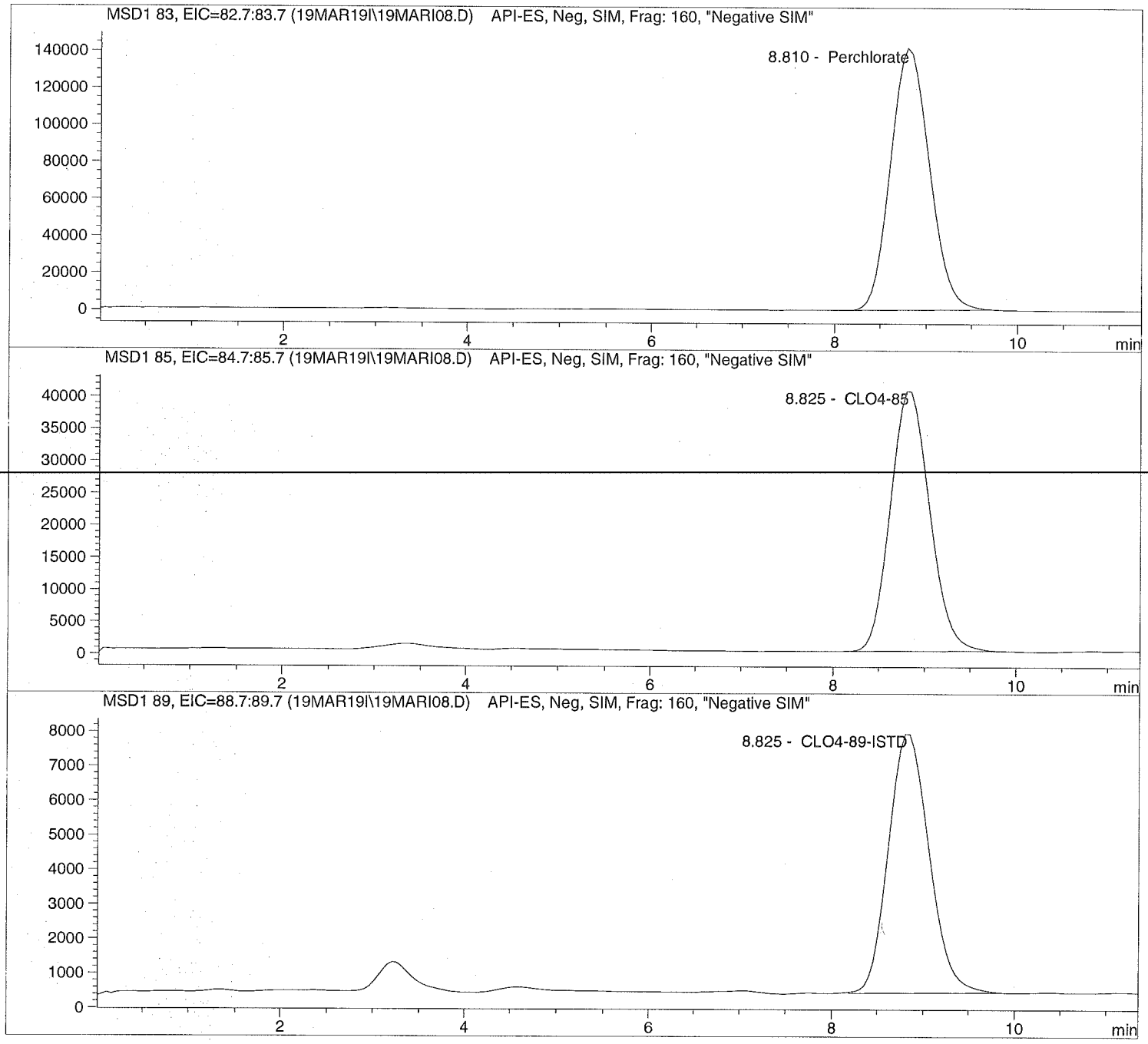
00942138

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

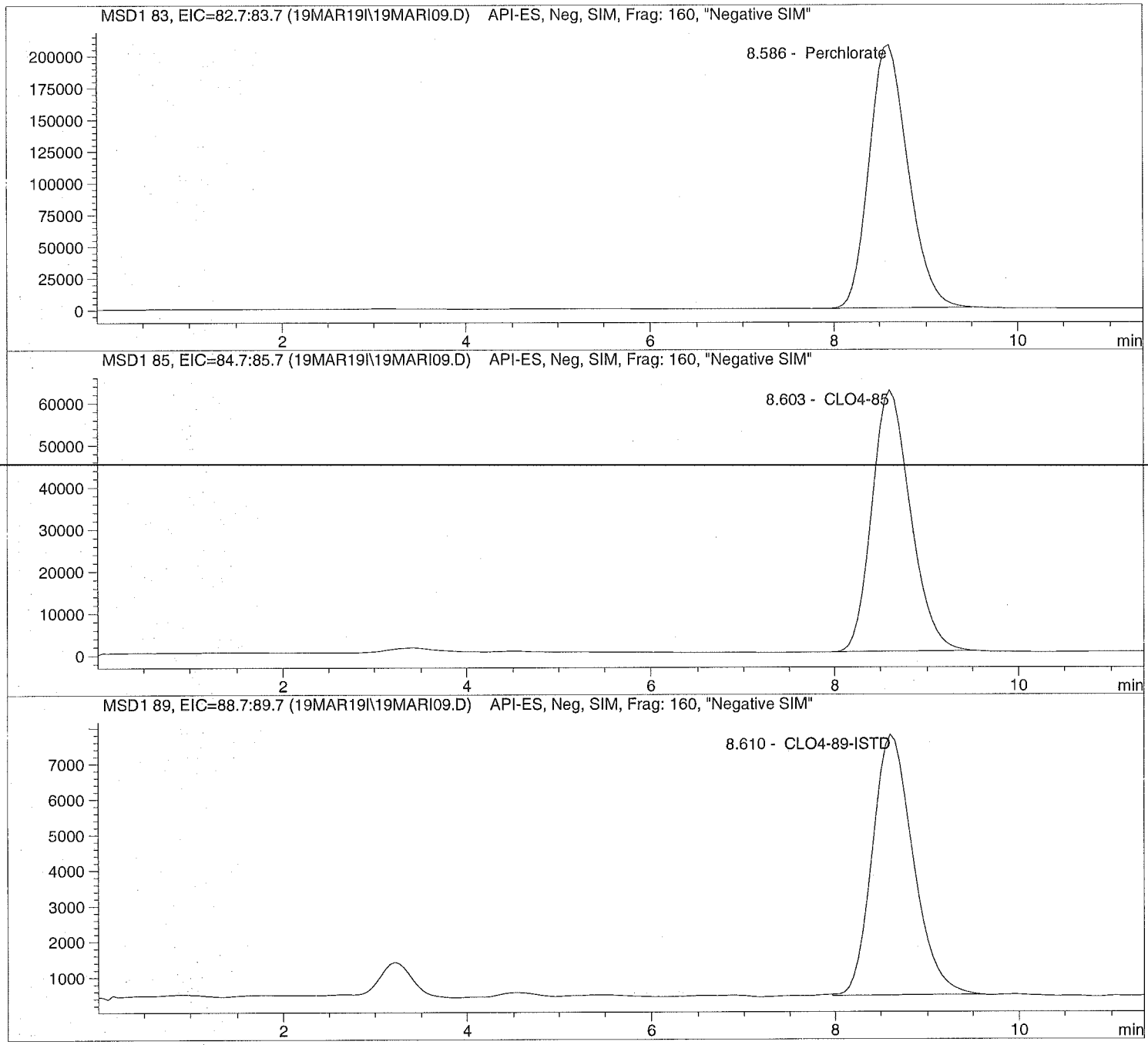
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

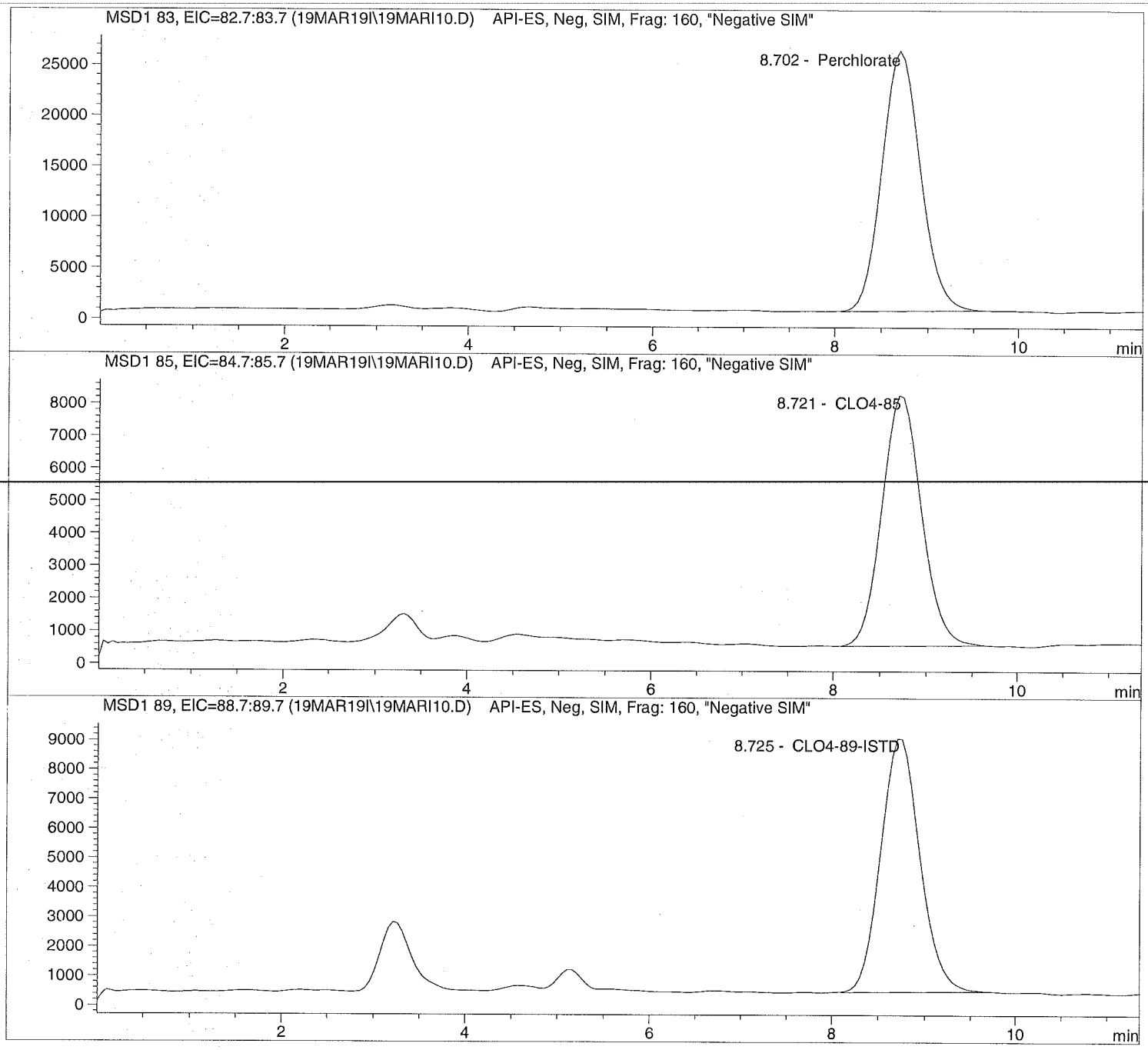
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L 00942142

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

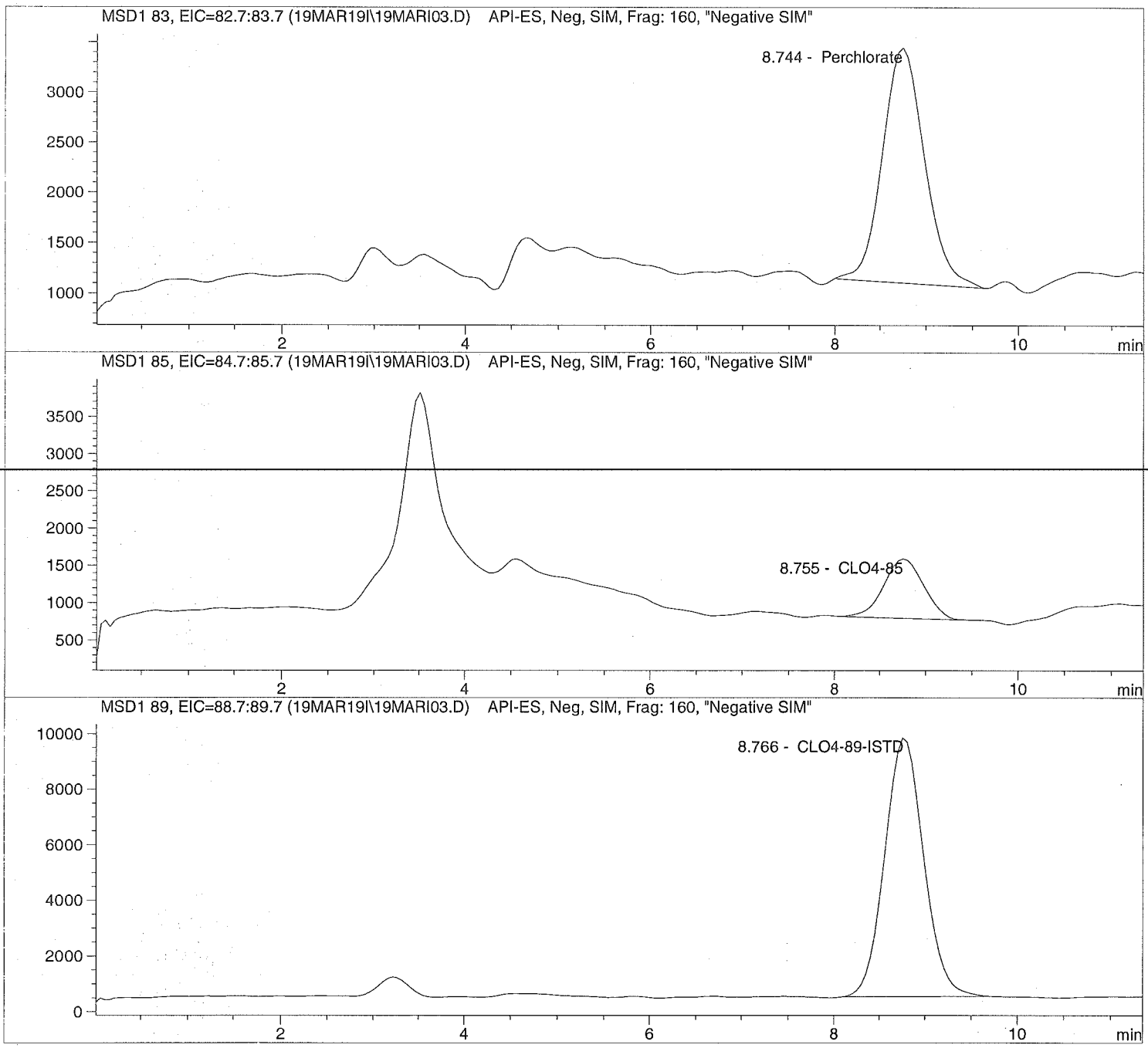
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

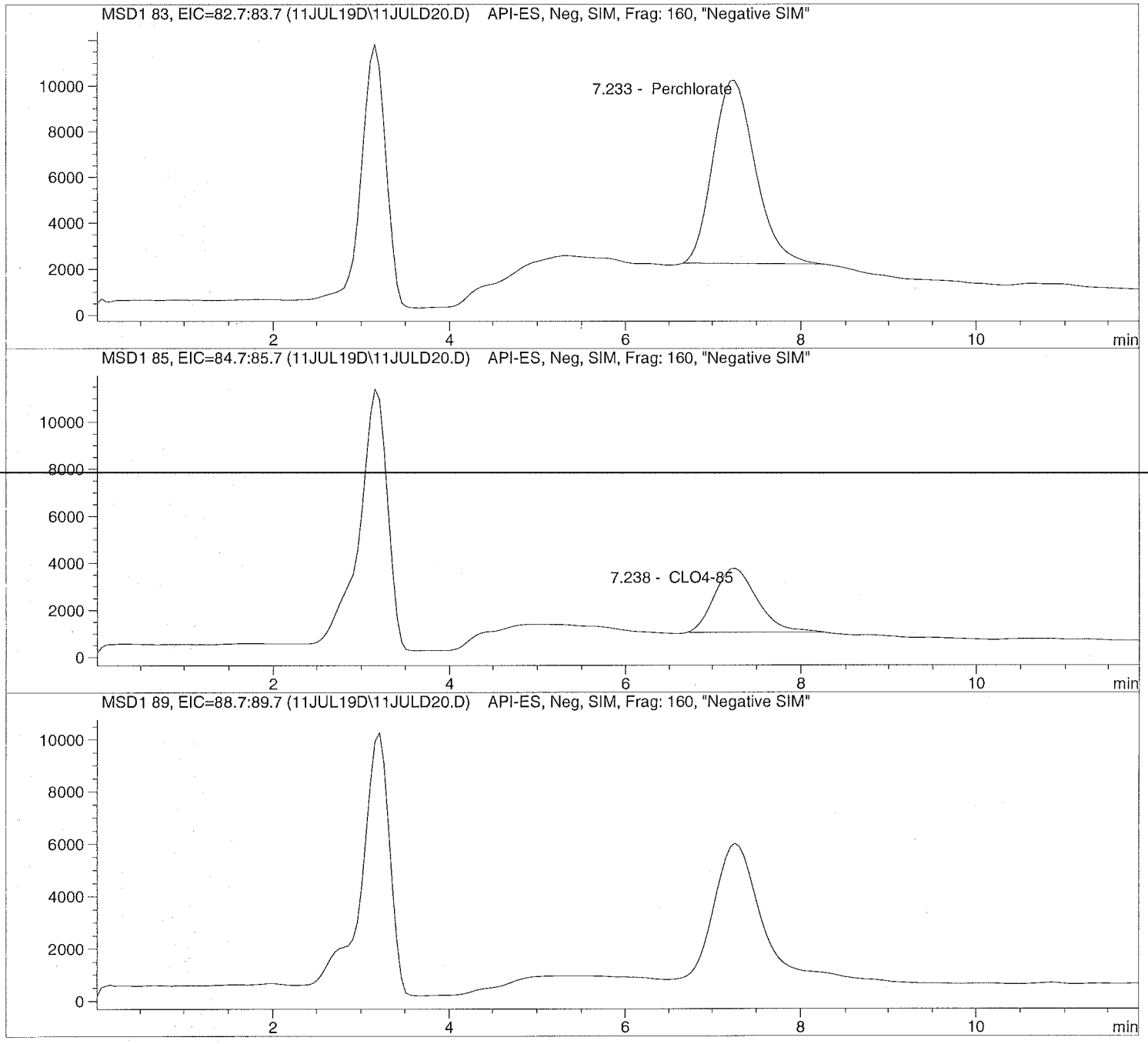
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.233	PBA	264721.6	0.1573	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.238	BBA	91183.5	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-89-ISTD

*** End of Report ***

10450 Stancliff Rd. Suite 210
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July 16, 2019

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

Work Order: **HS19061547**

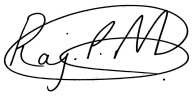
Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

ALS Environmental received 5 sample(s) on Jun 28, 2019 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,



Generated By: RJ.MODASHIA
RJ Modashia
Project Manager

ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19061547

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19061547-01	18WW08_062719	Groundwater		27-Jun-2019 09:45	28-Jun-2019 08:59	☐
HS19061547-02	18WW09_062719	Groundwater		27-Jun-2019 10:35	28-Jun-2019 08:59	☐
HS19061547-03	18CPTMW16_062719	Groundwater		27-Jun-2019 11:45	28-Jun-2019 08:59	☐
HS19061547-04	18WW25_062719	Groundwater		27-Jun-2019 10:00	28-Jun-2019 08:59	☐
HS19061547-05	Trip Blank	Water	C&G-050119-186	27-Jun-2019 00:00	28-Jun-2019 08:59	☐

Revision:1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18 24
Work Order: HS19061547

Work Order Comments

• Revised to correct the sample ID for 18WW25_062719

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 142659

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

GCMS Volatiles by Method SW8260

Batch ID: R342223

Sample ID: HS19070016-09MS

• MS and MSD are for an unrelated sample

Metals by Method SW7470

Batch ID: 142769

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

Metals by Method SW6020

Batch ID: 142750

Sample ID: HS19070016-05MS

• MS and MSD are for an unrelated sample

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW08_062719
Collection Date: 27-Jun-2019 09:45

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-01
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	10-Jul-2019 12:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 12:29
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 12:29
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 12:29
Acetone	**2.1**		**0.40**	**1.0**	**2.0**	**UG/L**	1	10-Jul-2019 12:29
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 12:29
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW08_062719
Collection Date: 27-Jun-2019 09:45

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-01
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	10-Jul-2019 12:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 12:29
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 12:29
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 12:29
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:29
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:29
Surr: 1,2-Dichloroethane-d4	*94.0*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 12:29*
Surr: 4-Bromofluorobenzene	*99.0*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 12:29*
Surr: Dibromofluoromethane	*95.4*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 12:29*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 12:29*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	09-Jul-2019 15:44
Surr: 2-Fluorobiphenyl	*77.3*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:44*
Surr: 4-Terphenyl-d14	*101*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:44*
Surr: Nitrobenzene-d5	*93.2*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 15:44*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW09_062719
Collection Date: 27-Jun-2019 10:35

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	09-Jul-2019 16:05
Surr: 2-Fluorobiphenyl	*75.1*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:05*
Surr: 4-Terphenyl-d14	*85.5*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:05*
Surr: Nitrobenzene-d5	*104*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:05*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0863**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 18:42
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 01:13
Arsenic	**0.00754**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
Barium	**0.239**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:13
Cadmium	**0.000214**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 01:13
Calcium	**17.9**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 01:13
Chromium	**0.0175**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
Cobalt	**0.00123**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 01:13
Iron	**39.4**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:13
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 01:13
Magnesium	**9.91**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:13
Manganese	**0.792**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
Nickel	**0.0111**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
Potassium	**2.58**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:13
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 01:13
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 18:42
Sodium	**42.5**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:13
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:13
Vanadium	**0.00236**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
Zinc	**0.0131**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:13
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:22
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW16_062719
Collection Date: 27-Jun-2019 11:45

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	**0.048**		**0.010**	**0.010**	**0.010**	**ug/L**	1	09-Jul-2019 16:26
Surr: 2-Fluorobiphenyl	*90.9*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:26*
Surr: 4-Terphenyl-d14	*81.1*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:26*
Surr: Nitrobenzene-d5	*90.7*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:26*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW25_062719
Collection Date: 27-Jun-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-04
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	10-Jul-2019 12:53
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 12:53
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 12:53
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 12:53
Acetone	**2.3**		**0.40**	**1.0**	**2.0**	**UG/L**	1	10-Jul-2019 12:53
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 12:53
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW25_062719
Collection Date: 27-Jun-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-04
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	10-Jul-2019 12:53
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 12:53
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 12:53
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 12:53
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:53
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:53
Surr: 1,2-Dichloroethane-d4	*95.1*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 12:53*
Surr: 4-Bromofluorobenzene	*96.6*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 12:53*
Surr: Dibromofluoromethane	*95.5*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 12:53*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 12:53*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 02-Jul-2019		Analyst: LG
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	09-Jul-2019 16:47
Surr: 2-Fluorobiphenyl	*77.2*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:47*
Surr: 4-Terphenyl-d14	*95.4*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:47*
Surr: Nitrobenzene-d5	*90.1*			**0**	*40-140*	*%REC*	*1*	*09-Jul-2019 16:47*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW25_062719
Collection Date: 27-Jun-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.255**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 18:44
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 01:15
Arsenic	**0.00770**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:15
Barium	**0.316**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:15
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:15
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:15
Calcium	**20.6**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 01:15
Chromium	**0.000744**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:15
Cobalt	**0.00410**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 01:15
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 01:15
Iron	**27.0**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:15
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 01:15
Magnesium	**12.5**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:15
Manganese	**2.92**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	09-Jul-2019 18:48
Nickel	**0.00273**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:15
Potassium	**1.51**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:15
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 01:15
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 18:44
Sodium	**35.7**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 01:15
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 01:15
Vanadium	**0.000983**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 01:15
Zinc	**0.0183**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 01:15
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:23
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jul-2019 18:48

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 27-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-05
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	10-Jul-2019 12:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
2-Butanone	**1.2**	J	**0.50**	**1.0**	**2.0**	**UG/L**	1	10-Jul-2019 12:05
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 12:05
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 12:05
Acetone	**15**		**0.40**	**1.0**	**2.0**	**UG/L**	1	10-Jul-2019 12:05
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 12:05
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 27-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19061547
Lab ID:HS19061547-05
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	10-Jul-2019 12:05
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 12:05
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 12:05
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 12:05
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 12:05
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 12:05
Surr: 1,2-Dichloroethane-d4	*95.9*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 12:05*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 12:05*
Surr: Dibromofluoromethane	*97.1*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 12:05*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 12:05*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

Batch ID: 142659 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061547-01	1	1000	1 (mL)	0.001
HS19061547-02	1	1000	1 (mL)	0.001
HS19061547-03	1	1000	1 (mL)	0.001
HS19061547-04	1	1000	1 (mL)	0.001

Batch ID: 142750 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061547-02	1	10	10 (mL)	1
HS19061547-04	1	10	10 (mL)	1

Batch ID: 142769 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19061547-02	1	10 (mL)	10 (mL)	1
HS19061547-04	1	10 (mL)	10 (mL)	1

ALS Houston, US Date: 16-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142659 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS19061547-01	18WW08_062719	27 Jun 2019 09:45		02 Jul 2019 12:18	09 Jul 2019 15:44	1
HS19061547-02	18WW09_062719	27 Jun 2019 10:35		02 Jul 2019 12:18	09 Jul 2019 16:05	1
HS19061547-03	18CPTMW16_062719	27 Jun 2019 11:45		02 Jul 2019 12:18	09 Jul 2019 16:26	1
HS19061547-04	18WW25_062719	27 Jun 2019 10:00		02 Jul 2019 12:18	09 Jul 2019 16:47	1
Batch ID: 142750 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19061547-02	18WW09_062719	27 Jun 2019 10:35		05 Jul 2019 10:03	09 Jul 2019 18:42	1
HS19061547-02	18WW09_062719	27 Jun 2019 10:35		05 Jul 2019 10:03	09 Jul 2019 01:13	1
HS19061547-04	18WW25_062719	27 Jun 2019 10:00		05 Jul 2019 10:03	09 Jul 2019 18:48	10
HS19061547-04	18WW25_062719	27 Jun 2019 10:00		05 Jul 2019 10:03	09 Jul 2019 18:44	1
HS19061547-04	18WW25_062719	27 Jun 2019 10:00		05 Jul 2019 10:03	09 Jul 2019 01:15	1
Batch ID: 142769 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19061547-02	18WW09_062719	27 Jun 2019 10:35		05 Jul 2019 10:30	05 Jul 2019 15:22	1
HS19061547-04	18WW25_062719	27 Jun 2019 10:00		05 Jul 2019 10:30	05 Jul 2019 15:23	1
Batch ID: R342223 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19061547-05	Trip Blank	27 Jun 2019 00:00			10 Jul 2019 12:05	1
Batch ID: R342223 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19061547-01	18WW08_062719	27 Jun 2019 09:45			10 Jul 2019 12:29	1
HS19061547-04	18WW25_062719	27 Jun 2019 10:00			10 Jul 2019 12:53	1
Batch ID: R342378 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19061547-01	18WW08_062719	27 Jun 2019 09:45			12 Jul 2019 18:48	1
HS19061547-02	18WW09_062719	27 Jun 2019 10:35			12 Jul 2019 18:48	1
HS19061547-03	18CPTMW16_062719	27 Jun 2019 11:45			12 Jul 2019 18:48	1
HS19061547-04	18WW25_062719	27 Jun 2019 10:00			12 Jul 2019 18:48	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 14:46**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159142** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00500	0.0100								U
Antimony	0.00078	0.00500								J
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.000871	0.00500								J
Zinc	0.00250	0.00500								U

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:09**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157973** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01569	0.0100								
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0188	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.01316	0.00500								

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:11**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157974** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.105	0.0100	0.1	0	105	84 - 117				
Antimony	0.05026	0.00500	0.05	0	101	85 - 117				
Arsenic	0.05045	0.00500	0.05	0	101	84 - 116				
Barium	0.04898	0.00500	0.05	0	98.0	86 - 114				
Beryllium	0.0522	0.00200	0.05	0	104	83 - 121				
Cadmium	0.05062	0.00200	0.05	0	101	87 - 115				
Calcium	5.044	0.500	5	0	101	87 - 118				
Chromium	0.05022	0.00500	0.05	0	100	85 - 116				
Cobalt	0.05178	0.00500	0.05	0	104	86 - 115				
Copper	0.05054	0.00500	0.05	0	101	85 - 118				
Iron	5.157	0.200	5	0	103	87 - 118				
Lead	0.04892	0.00500	0.05	0	97.8	88 - 115				
Magnesium	5.207	0.200	5	0	104	83 - 118				
Manganese	0.05151	0.00500	0.05	0	103	87 - 115				
Nickel	0.05192	0.00500	0.05	0	104	85 - 117				
Potassium	5.01	0.200	5	0	100	87 - 115				
Selenium	0.05098	0.00500	0.05	0	102	80 - 120				
Sodium	5.131	0.200	5	0	103	85 - 117				
Thallium	0.04741	0.00200	0.05	0	94.8	82 - 116				
Vanadium	0.04942	0.00500	0.05	0	98.8	86 - 115				
Zinc	0.05405	0.00500	0.05	0	108	83 - 119				

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 16:22**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159203** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.05104	0.00500	0.05	0	102	85 - 116				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19070016-05MS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:18**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157977** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09637	0.0100	0.1	0.008457	87.9	84 - 117				
Antimony	0.04754	0.00500	0.05	0.000233	94.6	85 - 117				
Arsenic	0.04735	0.00500	0.05	0.000332	94.0	84 - 116				
Barium	0.5018	0.00500	0.05	0.443	118	86 - 114				SO
Beryllium	0.05054	0.00200	0.05	0.000285	101	83 - 121				
Cadmium	0.04557	0.00200	0.05	0.000354	90.4	87 - 115				
Calcium	15.22	0.500	5	10.34	97.6	87 - 118				
Chromium	0.1883	0.00500	0.05	0.1422	92.1	85 - 116				
Cobalt	0.05284	0.00500	0.05	0.004809	96.1	86 - 115				
Copper	0.05149	0.00500	0.05	0.004724	93.5	85 - 118				
Iron	5.767	0.200	5	1.003	95.3	87 - 118				
Lead	0.04574	0.00500	0.05	0.000066	91.3	88 - 115				
Magnesium	11.72	0.200	5	7.041	93.6	83 - 118				
Manganese	0.255	0.00500	0.05	0.2048	100	87 - 115				O
Nickel	0.6207	0.00500	0.05	0.5635	114	85 - 117				O
Potassium	5.81	0.200	5	0.934	97.5	87 - 115				
Selenium	0.05067	0.00500	0.05	0.000254	101	80 - 120				
Silver	0.05394	0.00500	0.05	0.000034	108	85 - 116				
Sodium	70.47	0.200	5	64.83	113	85 - 117				O
Thallium	0.04418	0.00200	0.05	0.000618	87.1	82 - 116				
Vanadium	0.0472	0.00500	0.05	0.001088	92.2	86 - 115				
Zinc	0.1359	0.00500	0.05	0.09015	91.5	83 - 119				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19070016-05MSD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:21**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157978** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0988	0.0100	0.1	0.008457	90.3	84 - 117	0.09637	2.49	20	
Antimony	0.04561	0.00500	0.05	0.000233	90.8	85 - 117	0.04754	4.15	20	
Arsenic	0.0475	0.00500	0.05	0.000332	94.3	84 - 116	0.04735	0.314	20	
Barium	0.5084	0.00500	0.05	0.443	131	86 - 114	0.5018	1.3	20	SO
Beryllium	0.05016	0.00200	0.05	0.000285	99.8	83 - 121	0.05054	0.751	20	
Cadmium	0.04804	0.00200	0.05	0.000354	95.4	87 - 115	0.04557	5.28	20	
Calcium	14.79	0.500	5	10.34	89.1	87 - 118	15.22	2.83	20	
Chromium	0.1943	0.00500	0.05	0.1422	104	85 - 116	0.1883	3.17	20	
Cobalt	0.05273	0.00500	0.05	0.004809	95.8	86 - 115	0.05284	0.201	20	
Copper	0.05346	0.00500	0.05	0.004724	97.5	85 - 118	0.05149	3.75	20	
Iron	5.694	0.200	5	1.003	93.8	87 - 118	5.767	1.28	20	
Lead	0.04407	0.00500	0.05	0.000066	88.0	88 - 115	0.04574	3.72	20	
Magnesium	11.29	0.200	5	7.041	85.1	83 - 118	11.72	3.73	20	
Manganese	0.2539	0.00500	0.05	0.2048	98.1	87 - 115	0.255	0.456	20	O
Nickel	0.6206	0.00500	0.05	0.5635	114	85 - 117	0.6207	0.00725	20	O
Potassium	5.591	0.200	5	0.934	93.1	87 - 115	5.81	3.84	20	
Selenium	0.0495	0.00500	0.05	0.000254	98.5	80 - 120	0.05067	2.33	20	
Silver	0.05636	0.00500	0.05	0.000034	113	85 - 116	0.05394	4.39	20	
Sodium	68.43	0.200	5	64.83	71.9	85 - 117	70.47	2.94	20	SO
Thallium	0.04256	0.00200	0.05	0.000618	83.9	82 - 116	0.04418	3.74	20	
Vanadium	0.04785	0.00500	0.05	0.001088	93.5	86 - 115	0.0472	1.37	20	
Zinc	0.1384	0.00500	0.05	0.09015	96.5	83 - 119	0.1359	1.82	20	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19070016-05PDS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:23**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157979** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1004	0.0100	0.1	0.008457	92.0	80 - 120				
Antimony	0.08827	0.00500	0.1	0.000233	88.0	80 - 120				
Arsenic	0.1014	0.00500	0.1	0.000332	101	80 - 120				
Barium	0.5467	0.00500	0.1	0.443	104	80 - 120				O
Beryllium	0.09789	0.00200	0.1	0.000285	97.6	80 - 120				
Cadmium	0.09739	0.00200	0.1	0.000354	97.0	80 - 120				
Calcium	19.93	0.500	10	10.34	96.0	80 - 120				
Chromium	0.2417	0.00500	0.1	0.1422	99.5	80 - 120				
Cobalt	0.1061	0.00500	0.1	0.004809	101	80 - 120				
Copper	0.1034	0.00500	0.1	0.004724	98.7	80 - 120				
Iron	11.04	0.200	10	1.003	100	80 - 120				
Lead	0.09432	0.00500	0.1	0.000066	94.2	80 - 120				
Magnesium	16.83	0.200	10	7.041	97.9	80 - 120				
Manganese	0.3036	0.00500	0.1	0.2048	98.8	80 - 120				
Nickel	0.652	0.00500	0.1	0.5635	88.5	80 - 120				O
Potassium	10.66	0.200	10	0.934	97.2	80 - 120				
Selenium	0.1067	0.00500	0.1	0.000254	106	80 - 120				
Silver	0.1124	0.00500	0.1	0.000034	112	80 - 120				
Sodium	73.52	0.200	10	64.83	86.9	80 - 120				O
Thallium	0.09198	0.00200	0.1	0.000618	91.4	80 - 120				
Vanadium	0.101	0.00500	0.1	0.001088	99.9	80 - 120				
Zinc	0.1865	0.00500	0.1	0.09015	96.3	80 - 120				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19070016-05SD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:16**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157976** PrepDate: **05-Jul-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.0250	0.0500					0.008457	0	10	U
Antimony	0.00250	0.0250					0.000233	0	10	U
Arsenic	0.00250	0.0250					0.000332	0	10	U
Barium	0.4183	0.0250					0.443	5.57	10	
Beryllium	0.00250	0.0100					0.000285	0	10	U
Cadmium	0.00250	0.0100					0.000354	0	10	U
Calcium	10.41	2.50					10.34	0.714	10	
Chromium	0.1432	0.0250					0.1422	0.69	10	
Cobalt	0.005021	0.0250					0.004809	0	10	J
Copper	0.00500	0.0250					0.004724	0	10	U
Iron	1.017	1.00					1.003	1.35	10	
Lead	0.00500	0.0250					0.000066	0	10	U
Magnesium	6.942	1.00					7.041	1.41	10	
Manganese	0.2079	0.0250					0.2048	1.52	10	
Nickel	0.5877	0.0250					0.5635	4.3	10	
Potassium	0.9174	1.00					0.934	0	10	J
Selenium	0.0125	0.0250					0.000254	0	10	U
Silver	0.00250	0.0250					0.000034	0	10	U
Sodium	66.24	1.00					64.83	2.17	10	
Thallium	0.00250	0.0100					0.000618	0	10	U
Vanadium	0.00500	0.0250					0.001088	0	10	U
Zinc	0.08743	0.0250					0.09015	3.02	10	

The following samples were analyzed in this batch: HS19061547-02 HS19061547-04

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142769 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:01**
Client ID: Run ID: **HG03_341922** SeqNo: **5154872** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:03**
Client ID: Run ID: **HG03_341922** SeqNo: **5154873** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00505	0.000200	0.005	0	101	82 - 119				

MS Sample ID: **HS19070016-09MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:06**
Client ID: Run ID: **HG03_341922** SeqNo: **5154875** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.000200	0.005	-0.00001500	106	82 - 119				

MSD Sample ID: **HS19070016-09MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:08**
Client ID: Run ID: **HG03_341922** SeqNo: **5154876** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00517	0.000200	0.005	-0.00001500	104	82 - 119	0.005270	1.92	20	

The following samples were analyzed in this batch: HS19061547-02 HS19061547-04

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: 142659 (0) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 12:38**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159697** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.05997*	*0*	*0.08*	*0*	*75.0*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05244*	*0*	*0.08*	*0*	*65.5*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.0849*	*0*	*0.08*	*0*	*106*	*40 - 140*				

LCS Sample ID: **LCS-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 12:59**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159698** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07981	0.010	0.08	0	99.8	40 - 140				
Surr: 2-Fluorobiphenyl	*0.06497*	*0*	*0.08*	*0*	*81.2*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05228*	*0*	*0.08*	*0*	*65.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07798*	*0*	*0.08*	*0*	*97.5*	*40 - 140*				

LCSD Sample ID: **LCSD-142659** Units: **ug/L** Analysis Date: **09-Jul-2019 13:19**
Client ID: Run ID: **SV-5_342071** SeqNo: **5159699** PrepDate: **02-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08031	0.010	0.08	0	100	40 - 140	0.07981	0.627	20	
Surr: 2-Fluorobiphenyl	*0.07017*	*0*	*0.08*	*0*	*87.7*	*40 - 140*	*0.06497*	*7.7*	*20*	
Surr: 4-Terphenyl-d14	*0.05934*	*0*	*0.08*	*0*	*74.2*	*40 - 140*	*0.05228*	*12.7*	*20*	
Surr: Nitrobenzene-d5	*0.08488*	*0*	*0.08*	*0*	*106*	*40 - 140*	*0.07798*	*8.47*	*20*	

The following samples were analyzed in this batch: HS19061547-01 HS19061547-02 HS19061547-03 HS19061547-04

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 11:42**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162121** 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	1.0	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

Revision: 1

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ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 11:42**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162121** 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	1.0	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	*46.85*	*1.0*	*50*	*0*	*93.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.68*	*1.0*	*50*	*0*	*97.4*	*85 - 114*				
Surr: Dibromofluoromethane	*47.48*	*1.0*	*50*	*0*	*95.0*	*80 - 119*				
Surr: Toluene-d8	*51.24*	*1.0*	*50*	*0*	*102*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 10:54**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162120** 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	20.81	1.0	20	0	104	78 - 124				
1,1,1-Trichloroethane	18.54	1.0	20	0	92.7	74 - 131				
1,1,2,2-Tetrachloroethane	19.9	1.0	20	0	99.5	71 - 121				
1,1,2-Trichloroethane	19.84	1.0	20	0	99.2	80 - 119				
1,1-Dichloroethane	18.35	1.0	20	0	91.8	77 - 125				
1,1-Dichloroethene	17.92	1.0	20	0	89.6	71 - 131				
1,1-Dichloropropene	18.67	1.0	20	0	93.3	78 - 125				
1,2,3-Trichlorobenzene	21.76	1.0	20	0	109	69 - 129				
1,2,3-Trichloropropane	21.19	1.0	20	0	106	73 - 122				
1,2,4-Trichlorobenzene	20.51	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	19.3	1.0	20	0	96.5	76 - 124				
1,2-Dibromo-3-chloropropane	20.98	1.0	20	0	105	62 - 128				
1,2-Dibromoethane	20.25	1.0	20	0	101	77 - 121				
1,2-Dichlorobenzene	19.71	1.0	20	0	98.6	80 - 119				
1,2-Dichloroethane	19.2	1.0	20	0	96.0	73 - 128				
1,2-Dichloropropane	19.95	1.0	20	0	99.7	78 - 122				
1,3,5-Trimethylbenzene	19.12	1.0	20	0	95.6	75 - 124				
1,3-Dichlorobenzene	20.24	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	19.62	1.0	20	0	98.1	80 - 119				
1,4-Dichlorobenzene	19.22	1.0	20	0	96.1	79 - 118				
2,2-Dichloropropane	18.87	1.0	20	0	94.4	60 - 139				
2-Butanone	38.33	2.0	40	0	95.8	56 - 143				
2-Chlorotoluene	18.83	1.0	20	0	94.2	79 - 122				
2-Hexanone	40.21	2.0	40	0	101	57 - 139				
4-Chlorotoluene	18.81	1.0	20	0	94.1	78 - 122				
4-Isopropyltoluene	19.29	1.0	20	0	96.4	77 - 127				
4-Methyl-2-pentanone	39.48	2.0	40	0	98.7	67 - 130				
Acetone	42.6	2.0	40	0	106	39 - 160				
Benzene	19.58	1.0	20	0	97.9	79 - 120				
Bromobenzene	20.57	1.0	20	0	103	80 - 120				
Bromochloromethane	18.33	1.0	20	0	91.7	78 - 123				
Bromodichloromethane	19.84	1.0	20	0	99.2	79 - 125				
Bromoform	21.68	1.0	20	0	108	66 - 130				
Bromomethane	20.98	1.0	20	0	105	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 10:54**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162120** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.43	2.0	40	0	91.1	64 - 133				
Carbon tetrachloride	19.06	1.0	20	0	95.3	72 - 136				
Chlorobenzene	19.87	1.0	20	0	99.3	82 - 118				
Chloroethane	17.25	1.0	20	0	86.3	60 - 138				
Chloroform	20.32	1.0	20	0	102	79 - 124				
Chloromethane	18.07	1.0	20	0	90.3	50 - 139				
cis-1,2-Dichloroethene	18.34	1.0	20	0	91.7	78 - 123				
cis-1,3-Dichloropropene	20.29	1.0	20	0	101	75 - 124				
Dibromochloromethane	20.71	1.0	20	0	104	74 - 126				
Dibromomethane	19.81	1.0	20	0	99.0	79 - 123				
Dichlorodifluoromethane	19.07	1.0	20	0	95.4	32 - 152				
Ethylbenzene	20.2	1.0	20	0	101	79 - 121				
Hexachlorobutadiene	21.34	1.0	20	0	107	66 - 134				
Isopropylbenzene	19.76	1.0	20	0	98.8	72 - 131				
m,p-Xylene	40.44	2.0	40	0	101	80 - 121				
Methylene chloride	17.94	2.0	20	0	89.7	74 - 124				
Naphthalene	20.18	1.0	20	0	101	61 - 128				
n-Butylbenzene	20.34	1.0	20	0	102	75 - 128				
n-Propylbenzene	18.95	1.0	20	0	94.7	76 - 126				
o-Xylene	19.77	1.0	20	0	98.9	78 - 122				
sec-Butylbenzene	18.77	1.0	20	0	93.8	77 - 126				
Styrene	20.26	1.0	20	0	101	78 - 123				
tert-Butylbenzene	19.11	1.0	20	0	95.6	78 - 124				
Tetrachloroethene	21.08	1.0	20	0	105	74 - 129				
Toluene	20.27	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	18.43	1.0	20	0	92.2	75 - 124				
trans-1,3-Dichloropropene	20.13	1.0	20	0	101	73 - 127				
Trichloroethene	20.02	1.0	20	0	100	79 - 123				
Trichlorofluoromethane	17.77	1.0	20	0	88.8	65 - 141				
Vinyl chloride	17.77	1.0	20	0	88.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.33*	*1.0*	*50*	*0*	*96.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.26*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*48.5*	*1.0*	*50*	*0*	*97.0*	*80 - 119*				
Surr: Toluene-d8	*50.1*	*1.0*	*50*	*0*	*100*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19070016-09MS** Units: **UG/L** Analysis Date: **10-Jul-2019 16:29**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162133** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4891	250	5000	0	97.8	78 - 124				
1,1,1-Trichloroethane	4523	250	5000	0	90.5	74 - 131				
1,1,2,2-Tetrachloroethane	4842	250	5000	0	96.8	71 - 121				
1,1,2-Trichloroethane	4780	250	5000	0	95.6	80 - 119				
1,1-Dichloroethane	4517	250	5000	0	90.3	77 - 125				
1,1-Dichloroethene	4557	250	5000	0	91.1	71 - 131				
1,1-Dichloropropene	4336	250	5000	0	86.7	78 - 125				
1,2,3-Trichlorobenzene	4758	250	5000	0	95.2	69 - 129				
1,2,3-Trichloropropane	4449	250	5000	0	89.0	73 - 122				
1,2,4-Trichlorobenzene	4765	250	5000	0	95.3	69 - 130				
1,2,4-Trimethylbenzene	4514	250	5000	0	90.3	76 - 124				
1,2-Dibromo-3-chloropropane	4917	250	5000	0	98.3	62 - 128				
1,2-Dibromoethane	4838	250	5000	0	96.8	77 - 121				
1,2-Dichlorobenzene	4663	250	5000	0	93.3	80 - 119				
1,2-Dichloroethane	4677	250	5000	0	93.5	73 - 128				
1,2-Dichloropropane	4687	250	5000	0	93.7	78 - 122				
1,3,5-Trimethylbenzene	4400	250	5000	0	88.0	75 - 124				
1,3-Dichlorobenzene	4680	250	5000	0	93.6	80 - 119				
1,3-Dichloropropane	4732	250	5000	0	94.6	80 - 119				
1,4-Dichlorobenzene	4506	250	5000	0	90.1	79 - 118				
2,2-Dichloropropane	4521	250	5000	0	90.4	60 - 139				
2-Butanone	9558	500	10000	0	95.6	56 - 143				
2-Chlorotoluene	4383	250	5000	0	87.7	79 - 122				
2-Hexanone	9453	500	10000	0	94.5	57 - 139				
4-Chlorotoluene	4362	250	5000	0	87.2	78 - 122				
4-Isopropyltoluene	4307	250	5000	0	86.1	77 - 127				
4-Methyl-2-pentanone	9526	500	10000	0	95.3	67 - 130				
Acetone	9253	500	10000	0	92.5	39 - 160				
Benzene	4636	250	5000	0	92.7	79 - 120				
Bromobenzene	4722	250	5000	0	94.4	80 - 120				
Bromochloromethane	4625	250	5000	0	92.5	78 - 123				
Bromodichloromethane	4749	250	5000	0	95.0	79 - 125				
Bromoform	5120	250	5000	0	102	66 - 130				
Bromomethane	4501	250	5000	0	90.0	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19070016-09MS** Units: **UG/L** Analysis Date: **10-Jul-2019 16:29**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162133** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	8878	500	10000	0	88.8	64 - 133				
Carbon tetrachloride	4324	250	5000	0	86.5	72 - 136				
Chlorobenzene	4649	250	5000	0	93.0	82 - 118				
Chloroethane	4096	250	5000	0	81.9	60 - 138				
Chloroform	4954	250	5000	0	99.1	79 - 124				
Chloromethane	5011	250	5000	0	100	50 - 139				
cis-1,2-Dichloroethene	23100	250	5000	21140	39.2	78 - 123				SO
cis-1,3-Dichloropropene	4827	250	5000	0	96.5	75 - 124				
Dibromochloromethane	4878	250	5000	0	97.6	74 - 126				
Dibromomethane	4737	250	5000	0	94.7	79 - 123				
Dichlorodifluoromethane	3399	250	5000	0	68.0	32 - 152				
Ethylbenzene	4688	250	5000	0	93.8	79 - 121				
Hexachlorobutadiene	4446	250	5000	0	88.9	66 - 134				
Isopropylbenzene	4543	250	5000	0	90.9	72 - 131				
m,p-Xylene	9423	500	10000	0	94.2	80 - 121				
Methylene chloride	14100	500	5000	11040	61.2	74 - 124				S
Naphthalene	4749	250	5000	0	95.0	61 - 128				
n-Butylbenzene	4582	250	5000	0	91.6	75 - 128				
n-Propylbenzene	4342	250	5000	0	86.8	76 - 126				
o-Xylene	4615	250	5000	0	92.3	78 - 122				
sec-Butylbenzene	4264	250	5000	0	85.3	77 - 126				
Styrene	4772	250	5000	0	95.4	78 - 123				
tert-Butylbenzene	4332	250	5000	0	86.6	78 - 124				
Tetrachloroethene	4667	250	5000	0	93.3	74 - 129				
Toluene	4725	250	5000	0	94.5	80 - 121				
trans-1,2-Dichloroethene	4619	250	5000	0	92.4	75 - 124				
trans-1,3-Dichloropropene	4683	250	5000	0	93.7	73 - 127				
Trichloroethene	5077	250	5000	582.4	89.9	79 - 123				
Trichlorofluoromethane	4135	250	5000	0	82.7	65 - 141				
Vinyl chloride	5623	250	5000	2069	71.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*12590*	*250*	*12500*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*12440*	*250*	*12500*	*0*	*99.5*	*85 - 114*				
Surr: Dibromofluoromethane	*12510*	*250*	*12500*	*0*	*100*	*80 - 119*				
Surr: Toluene-d8	*12360*	*250*	*12500*	*0*	*98.9*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19070016-09MSD** Units: **UG/L** Analysis Date: **10-Jul-2019 16:53**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162134** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4855	250	5000	0	97.1	78 - 124	4891	0.747	20	
1,1,1-Trichloroethane	4432	250	5000	0	88.6	74 - 131	4523	2.04	20	
1,1,2,2-Tetrachloroethane	4980	250	5000	0	99.6	71 - 121	4842	2.8	20	
1,1,2-Trichloroethane	4841	250	5000	0	96.8	80 - 119	4780	1.26	20	
1,1-Dichloroethane	4528	250	5000	0	90.6	77 - 125	4517	0.237	20	
1,1-Dichloroethene	4504	250	5000	0	90.1	71 - 131	4557	1.17	20	
1,1-Dichloropropene	4353	250	5000	0	87.1	78 - 125	4336	0.396	20	
1,2,3-Trichlorobenzene	4700	250	5000	0	94.0	69 - 129	4758	1.24	20	
1,2,3-Trichloropropane	4506	250	5000	0	90.1	73 - 122	4449	1.28	20	
1,2,4-Trichlorobenzene	4693	250	5000	0	93.9	69 - 130	4765	1.52	20	
1,2,4-Trimethylbenzene	4459	250	5000	0	89.2	76 - 124	4514	1.22	20	
1,2-Dibromo-3-chloropropane	4998	250	5000	0	100.0	62 - 128	4917	1.64	20	
1,2-Dibromoethane	4945	250	5000	0	98.9	77 - 121	4838	2.19	20	
1,2-Dichlorobenzene	4696	250	5000	0	93.9	80 - 119	4663	0.715	20	
1,2-Dichloroethane	4766	250	5000	0	95.3	73 - 128	4677	1.88	20	
1,2-Dichloropropane	4752	250	5000	0	95.0	78 - 122	4687	1.39	20	
1,3,5-Trimethylbenzene	4391	250	5000	0	87.8	75 - 124	4400	0.197	20	
1,3-Dichlorobenzene	4674	250	5000	0	93.5	80 - 119	4680	0.133	20	
1,3-Dichloropropane	4779	250	5000	0	95.6	80 - 119	4732	0.993	20	
1,4-Dichlorobenzene	4450	250	5000	0	89.0	79 - 118	4506	1.26	20	
2,2-Dichloropropane	4516	250	5000	0	90.3	60 - 139	4521	0.102	20	
2-Butanone	10040	500	10000	0	100	56 - 143	9558	4.88	20	
2-Chlorotoluene	4368	250	5000	0	87.4	79 - 122	4383	0.326	20	
2-Hexanone	9919	500	10000	0	99.2	57 - 139	9453	4.8	20	
4-Chlorotoluene	4331	250	5000	0	86.6	78 - 122	4362	0.724	20	
4-Isopropyltoluene	4310	250	5000	0	86.2	77 - 127	4307	0.0714	20	
4-Methyl-2-pentanone	9761	500	10000	0	97.6	67 - 130	9526	2.44	20	
Acetone	9893	500	10000	0	98.9	39 - 160	9253	6.69	20	
Benzene	4674	250	5000	0	93.5	79 - 120	4636	0.809	20	
Bromobenzene	4840	250	5000	0	96.8	80 - 120	4722	2.48	20	
Bromochloromethane	4665	250	5000	0	93.3	78 - 123	4625	0.855	20	
Bromodichloromethane	4817	250	5000	0	96.3	79 - 125	4749	1.42	20	
Bromoform	5133	250	5000	0	103	66 - 130	5120	0.254	20	
Bromomethane	4543	250	5000	0	90.9	53 - 141	4501	0.923	20	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19070016-09MSD** Units: **UG/L** Analysis Date: **10-Jul-2019 16:53**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162134** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	8808	500	10000	0	88.1	64 - 133	8878	0.796	20	
Carbon tetrachloride	4290	250	5000	0	85.8	72 - 136	4324	0.786	20	
Chlorobenzene	4660	250	5000	0	93.2	82 - 118	4649	0.236	20	
Chloroethane	4042	250	5000	0	80.8	60 - 138	4096	1.32	20	
Chloroform	4982	250	5000	0	99.6	79 - 124	4954	0.556	20	
Chloromethane	4668	250	5000	0	93.4	50 - 139	5011	7.09	20	
cis-1,2-Dichloroethene	23230	250	5000	21140	41.9	78 - 123	23100	0.574	20	SO
cis-1,3-Dichloropropene	4904	250	5000	0	98.1	75 - 124	4827	1.58	20	
Dibromochloromethane	4973	250	5000	0	99.5	74 - 126	4878	1.93	20	
Dibromomethane	4883	250	5000	0	97.7	79 - 123	4737	3.03	20	
Dichlorodifluoromethane	3338	250	5000	0	66.8	32 - 152	3399	1.8	20	
Ethylbenzene	4601	250	5000	0	92.0	79 - 121	4688	1.87	20	
Hexachlorobutadiene	4448	250	5000	0	89.0	66 - 134	4446	0.0369	20	
Isopropylbenzene	4460	250	5000	0	89.2	72 - 131	4543	1.85	20	
m,p-Xylene	9235	500	10000	0	92.3	80 - 121	9423	2.02	20	
Methylene chloride	14020	500	5000	11040	59.5	74 - 124	14100	0.608	20	S
Naphthalene	4658	250	5000	0	93.2	61 - 128	4749	1.93	20	
n-Butylbenzene	4615	250	5000	0	92.3	75 - 128	4582	0.715	20	
n-Propylbenzene	4231	250	5000	0	84.6	76 - 126	4342	2.59	20	
o-Xylene	4566	250	5000	0	91.3	78 - 122	4615	1.05	20	
sec-Butylbenzene	4265	250	5000	0	85.3	77 - 126	4264	0.0244	20	
Styrene	4815	250	5000	0	96.3	78 - 123	4772	0.89	20	
tert-Butylbenzene	4257	250	5000	0	85.1	78 - 124	4332	1.75	20	
Tetrachloroethene	4607	250	5000	0	92.1	74 - 129	4667	1.31	20	
Toluene	4683	250	5000	0	93.7	80 - 121	4725	0.908	20	
trans-1,2-Dichloroethene	4547	250	5000	0	90.9	75 - 124	4619	1.57	20	
trans-1,3-Dichloropropene	4835	250	5000	0	96.7	73 - 127	4683	3.2	20	
Trichloroethene	5061	250	5000	582.4	89.6	79 - 123	5077	0.303	20	
Trichlorofluoromethane	4088	250	5000	0	81.8	65 - 141	4135	1.14	20	
Vinyl chloride	5457	250	5000	2069	67.8	58 - 137	5623	3	20	
Surr: 1,2-Dichloroethane-d4	*12730*	*250*	*12500*	*0*	*102*	*81 - 118*	*12590*	*1.1*	*20*	
Surr: 4-Bromofluorobenzene	*12460*	*250*	*12500*	*0*	*99.7*	*85 - 114*	*12440*	*0.117*	*20*	
Surr: Dibromofluoromethane	*12790*	*250*	*12500*	*0*	*102*	*80 - 119*	*12510*	*2.19*	*20*	
Surr: Toluene-d8	*12220*	*250*	*12500*	*0*	*97.8*	*89 - 112*	*12360*	*1.11*	*20*	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19061547

QC BATCH REPORT

Batch ID: R342223 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS19061547-01 HS19061547-04 HS19061547-05

ALS Houston, US Date: 16-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19061547**

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

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ALS Houston, US Date: 16-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19061547
Date/Time Received: **28-Jun-2019 08:59**
Received by: **NDR**

Checklist completed by: *Paresh M. Giga* eSignature 28-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 28-Jun-2019 Date

Matrices: **Groundwater/Water**
Carrier name: **FedEx**

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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	2.3c U/C	IR11
Cooler(s)/Kit(s):	44880	
Date/Time sample(s) sent to storage:	6/28/19 13:25	

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:

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bhate ENVIRONMENTAL CONSTRUCTION ENERGY

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 18/24

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	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
18MW08-062719		27-JUN-2019	0945	-	N		WG	5	X	X		X				
18MW09-062719		27-JUN-2019	1035	-	N		WG	3		X	X	X				
18PTMW16-062719		27-JUN-2019	1145	-	N		WG	2		X		X				
18MW25-062719		27-JUN-2019	1000	-	N		WG	6	X	X	X	X				
TRIP BLANK		27-JUN-2019			TB		W	2	X							
				-												
				-												
				-												
				-												
				-												
				-												

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19061547
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/27/19	1430	1. NA	6-28-19	08:39
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 Stancliff 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 Temp 4°C 2.3

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

44880. IR #11 4F O

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00942184

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

44880

CUSTODY SEAL

Date: 6/27/19 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 06/28/19

44880 JUN 2 2019 JUN 2 8 2019

Must Deliver Next Business Day
Time and Tempature Sensitive!

44880

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: 24MAY19
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/18/24 & SURFACE WATER - RJ

RMA:

FedEx Express

FedEx TRK# 0221 4809 7834 3284

FRI - 28 JUN 10:30A
PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

FID 162785 27JUN19 GGGA 553C1/D210/0C8A

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Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1918528, 1918705, 1918871

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2270 (243267)

General Set Information: There were twenty-four field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field sample 1918705007 was analyzed and reported from a 1:10 dilution. Field sample 1918528010 was analyzed and reported from a 1:100 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 663033) was less than 1/2 the CRDL. The recovery for the LCS (663034) was within acceptable parameters.

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MS/MSD Analysis: MS/MSD was performed on samples 1918705002/03 and 1918705009/10 (Client ID's: CO9_062619 and MW18_062619). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The MS/MSD percent recoveries and relative percent difference were within the performance limits. The MS (1918705002MS) failed QC acceptance criteria for percent recovery. MS/MSD 1918705002/03 also failed the relative percent difference. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 663031) is reported from the analysis of the Laboratory Control Sample (LCS – 663034) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 11JULD20.

Thomas Bosch July 12, 2019
Analyst Date

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ANALYTICAL REPORT

Report Date: July 12, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1918871**
Project ID: HS19061547
Purchase Order: HS19061547
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
18WW08_062719	1918871001	06/27/19	06/29/19	
18WW09_062719	1918871002	06/27/19	06/29/19	
18CPTMW16_062719	1918871003	06/27/19	06/29/19	
18WW25_062719	1918871004	06/27/19	06/29/19	

ANALYTICAL REPORT

Workorder: 34-1918871
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18WW08_062719** | Sampling Site: NA | Collected: 06/27/2019
Lab ID: 1918871001 | Media: 125 mL Nalgene | Received: 06/29/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 17:12 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW09_062719** | Sampling Site: NA | Collected: 06/27/2019
Lab ID: 1918871002 | Media: 125 mL Nalgene | Received: 06/29/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 17:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18CPTMW16_062719** | Sampling Site: NA | Collected: 06/27/2019
Lab ID: 1918871003 | Media: 125 mL Nalgene | Received: 06/29/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 17:40 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW25_062719** | Sampling Site: NA | Collected: 06/27/2019
Lab ID: 1918871004 | Media: 125 mL Nalgene | Received: 06/29/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2270 (HBN: 243267) | **Percent Solid:** NA
Analyzed: 07/11/2019 17:54 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

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ANALYTICAL REPORT

Workorder: 34-1918871
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/12/2019 10:14	/S/ Stephen Brose 07/12/2019 11:30

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

ANALYTICAL REPORT

Workorder: 34-1918871
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1918871

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2270 (HBN: 243267)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 663033
Analyzed: 07/11/2019 11:53
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 663034
Analyzed: 07/11/2019 11:26
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.41	4.00	110	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

	Sample: 1918705001	MS: 1918705002	MSD: 1918705003
	Analyzed: 07/11/2019 14:39	Analyzed: 07/11/2019 14:52	Analyzed: 07/11/2019 15:06
	Dilution: 1	Dilution: 1	Dilution: 1
	Units: ug/L	Units: ug/L	Units: ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	5.21	4	# 130	78.8	123.8	4.09	102	# 24	0.0	20.0

	Sample: 1918705008	MS: 1918705009	MSD: 1918705010
	Analyzed: 07/11/2019 16:17	Analyzed: 07/11/2019 16:31	Analyzed: 07/11/2019 16:45
	Dilution: 1	Dilution: 1	Dilution: 1
	Units: ug/L	Units: ug/L	Units: ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.4	4	110	78.8	123.8	3.92	98.0	11.5	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
07/12/2019 10:17	07/12/2019 11:30

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19061547	***Split:***	**Workorder ID:** 1918871	**Level:** ENV_LVL4	**Requested Analysis**	
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly		
Comments:			**Preservatives**		
			COOL		
			Containers		

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	ID(s)	Count	EPA 6850, DoD GSM
1	06/27/2019 09:45	18WW08_062719	1918871001		Water	A	1	A
2	06/27/2019 10:35	18WW09_062719	1918871002		Water	A	1	A
3	06/27/2019 11:45	18CPTMW16_062719	1918871003		Water	A	1	A
4	06/27/2019 10:00	18WW2516_062719	1918871004		Water	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	06/29/2019 08:58	ALS Sample Receiving	Sample Login
Julie Warath	7.1.19 1400	GB	Storage
R.33.1	7.10.19/10:25	T. Bush	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

Mon, 07/01/19 12:39 PM

ALSCOCV3.1

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00942193

W 1918871

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11698**

1918871

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19061547
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19061547-01**	**18WW08_062719**	**Groundwater**	**27 Jun 2019 09:45**
	SUB_Perch-6850			09 Jul 2019
2.	**HS19061547-02**	**18WW09_062719**	**Groundwater**	**27 Jun 2019 10:35**
	SUB_Perch-6850			09 Jul 2019
3.	**HS19061547-03**	**18CPTMW16_062719**	**Groundwater**	**27 Jun 2019 11:45**
	SUB_Perch-6850			09 Jul 2019
4.	**HS19061547-04**	**18WW2516_062719**	**Groundwater**	**27 Jun 2019 10:00**
	SUB_Perch-6850			09 Jul 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 6/28/19 1800.

Received By: [signature] Date/Time: 6/29/19 858

Cooler ID(s): 9738 Temperature(s): 2°

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston Project/Task/Site: 1918871

Date/Time of Receipt: 6/19/19 858 Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Coutrol/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:					
Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Meredith Ellis (Signature) Meredith Ellis (Printed Name) 6/20/19 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

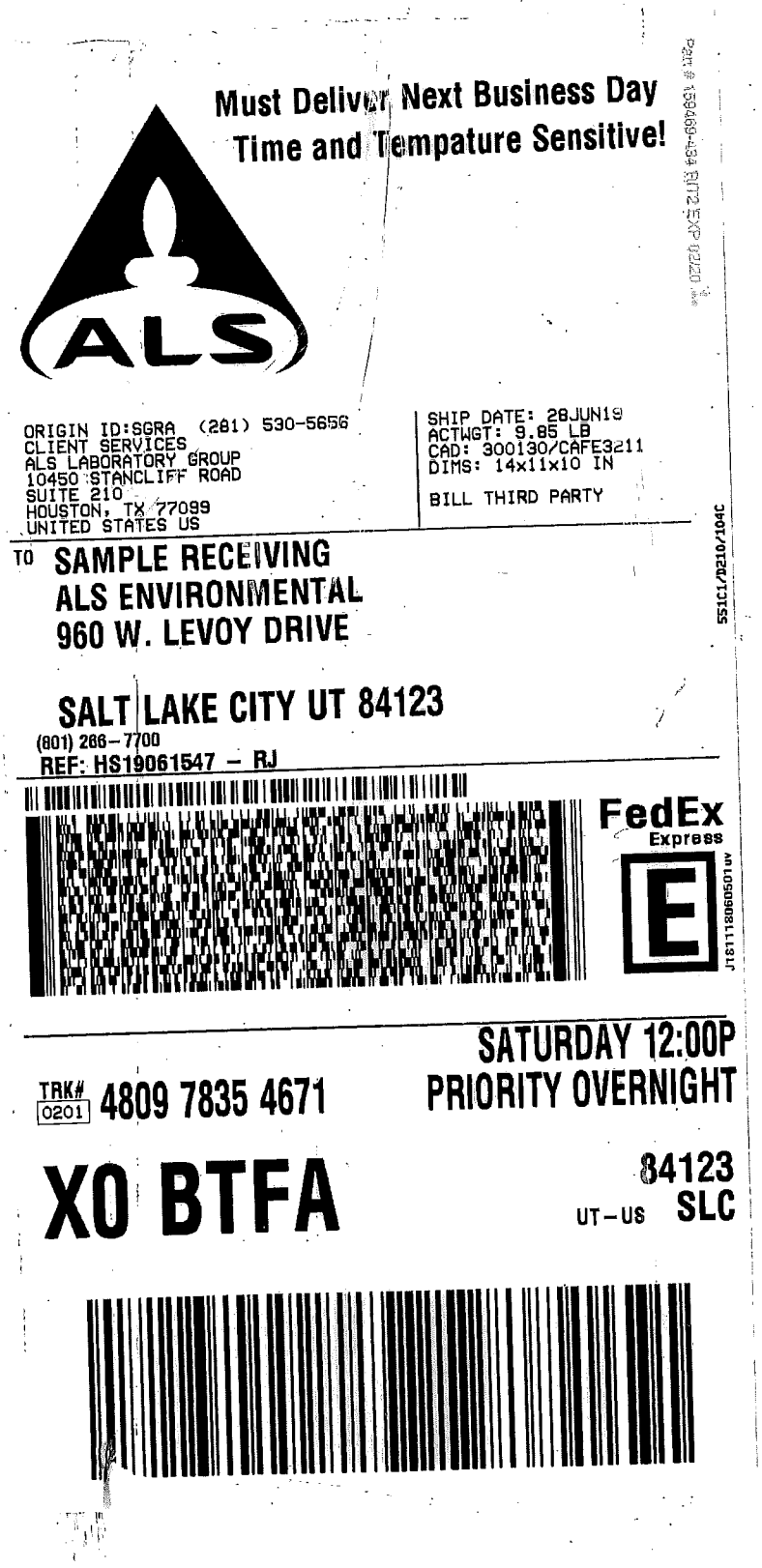
Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc Revised 01/01/2018

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Must Deliver Next Business Day
Time and Tempature Sensitive!

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 28JUN19
ACTWGT: 9.85 LB
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19061547 - RJ

FedEx Express

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 4809 7835 4671

XO BTFA

84123
UT-US SLC

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Batch Worklist

Batch: ELMS/ 2270 Created: 7/10/2019 13:34 Instrument: HBN: 243267
Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 1918528 [ENV_LVL4]
Workorder: 1918705 [ENV_LVL4]
Workorder: 1918871 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	663030	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	
2	663031	RLVS for HBN 243267 [ELMS/2270				RLVS	3		E685041C3Q	5311		7/11/2019	
3	663032	ICS for HBN 243267 [ELMS/2270]				ICS	3		E6850..D3Q	5311		7/11/2019	
4	663033	LMB for HBN 243267 [ELMS/2270]				LMB	3		E6850Q413Q	5311		7/11/2019	
5	663034	LCS for HBN 243267 [ELMS/2270]				LCS	3		E6850Q413Q	5311		7/11/2019	
6	1918528001	17WW08_062519				SAMPLE	3	1918528001-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
7	1918528002	130_062519				SAMPLE	3	1918528002-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
8	1918528003	130_062519_a				SAMPLE	3	1918528003-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
9	1918528004	MW10_062519				SAMPLE	3	1918528004-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
10	1918528005	MW13_062519				SAMPLE	3	1918528005-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
11	1918528006	CO2_062519				SAMPLE	3	1918528006-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
12	1918528007	MW17_062519				SAMPLE	3	1918528007-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
13	1918528008	18WW10_062519				SAMPLE	3	1918528008-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
14	1918528009	18WW10_062519_a				SAMPLE	3	1918528009-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
15	1918528010	MW9_062519				SAMPLE	3	1918528010-A	E6850Q41.3	5480	7/23/2019	7/11/2019	
16	663035	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	
17	1918705001	CO9_062619				SAMPLE	3	1918705001-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
18	1918705002	CO9_062619 MS				MS	3	1918705002-A	E6850Q413Q	5480		7/11/2019	
19	1918705003	CO9_062619 MSD				MSD	3	1918705003-A	E6850Q413Q	5480		7/11/2019	
20	1918705004	C06_062619				SAMPLE	3	1918705004-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
21	1918705005	18WW16_062619				SAMPLE	3	1918705005-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
22	1918705006	18CPTMW18_062619				SAMPLE	3	1918705006-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
23	1918705007	CO3_062619				SAMPLE	3	1918705007-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
24	1918705008	MW18_062619				SAMPLE	3	1918705008-A	E6850Q41.3	5480	7/24/2019	7/12/2019	
25	1918705009	MW18_062619 MS				MS	3	1918705009-A	E6850Q413Q	5480		7/11/2019	
26	1918705010	MW18_062619 MSD				MSD	3	1918705010-A	E6850Q413Q	5480		7/11/2019	
27	663036	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	

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00942197

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
28	1918871001	18WW08_062719				SAMPLE	3	1918871001-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
29	1918871002	18WW09_062719				SAMPLE	3	1918871002-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
30	1918871003	18CPTMW16_062719				SAMPLE	3	1918871003-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
31	1918871004	18WW2516_062719				SAMPLE	3	1918871004-A	E6850Q41.3	5480	7/25/2019	7/12/2019	
32	663037	CCV for HBN 243267 [ELMS/2270]				CCV	3		E685041C3Q	5311		7/11/2019	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

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ALS Work Order #'s & Sample #( )'s: 1918528 (001-10), 1918705 (001-10); 1918871 (001-04)
ELMS Batch/HBN ID: 2270 (243267)
Prep Date: 07/10/2019 Analysis Date: 07/11/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\11JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 30µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 663034; Target = 4.0µg/L. ASTM type II water was used for LMB 663033.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on samples 1918705002/03 and 1918705009/10 (Client ID's: CO9_062619 and MW18_062619). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field sample 1918705007 was analyzed and reported from a 1:10 dilution. Field sample 1918528010 was analyzed and reported from a 1:100 dilution. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS (1918705002MS) failed QC acceptance criteria for percent recovery. MS/MSD 1918705002/03 also failed the relative percent difference. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\243267-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 663031) is reported from the analysis of the Laboratory Control Sample (LCS – 663034) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 11JULD20.

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5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2270 HBN: 243267 Sample Set IDs if Applicable: 1918528/1918705/1918871	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SD
Standards traceability checked and meets criteria	TB	SD
Standard curve coefficients evaluated and meet criteria	TB	SD
ICVs analyzed and meet acceptance criteria	TB	SD
CCVs analyzed and meet acceptance criteria	TB	SD
Method Blanks analyzed and meet acceptance criteria	TB	SD
Retention Time Windows checked	TB	SD
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SD
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SD
RLVS analyzed	TB	SD
Preparation and analysis hold times met	TB	SD
Preparation deviations and re-preparations noted when performed	TB	SD
Analysis deviations and re-analyses noted when performed	TB	SD
Sample dilution factors noted on reports	TB	SD
Electronic records in HBN transcription accuracy and completeness checked	TB	SD
Preparation and analysis calculations checked	TB	SD
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SD
Manual integrations checked	TB	SD

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STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

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STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

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STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

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STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

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STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

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STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730
MFG: ALS/SLC
MFG Lot: TNB: 05/09/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 25 mL
Expires: 09/20/2019
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 43729	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 09/20/2018 09:09AM	Expires: 04/28/2026
MFG Lot: SDFF-012A	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date:	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

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125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

AccuStandard
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Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

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Batch Report: C:\HPCHEM\1\DATA\11JUL19D\11JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	663030 CCV@25	Vial 71	1	Control	1	2.11871e6	8.255	26.67636
*	663034 QC@4.0	Vial 41	1	Control	2	3.99419e5	7.994	4.40774
*	663032 ICS@4.0	Vial 42	1	Control	3	3.13185e5	7.844	3.89337
*	663033 LMB	Vial 43	1	Control	4	0.00000	0.000	0.00000
*	1918528001	Vial 44	1	Sample	5	0.00000	0.000	0.00000
*	1918528002	Vial 45	1	Sample	6	0.00000	0.000	0.00000
*	1918528003	Vial 46	1	Sample	7	0.00000	0.000	0.00000
*	1918528004	Vial 47	1	Sample	8	0.00000	0.000	0.00000
*	1918528005	Vial 48	1	Sample	9	0.00000	0.000	0.00000
*	1918528006	Vial 49	1	Sample	10	0.00000	0.000	0.00000
*	1918528007	Vial 50	1	Sample	11	0.00000	0.000	0.00000
*	1918528008	Vial 51	1	Sample	12	0.00000	0.000	0.00000
*	1918528009	Vial 52	1	Sample	13	0.00000	0.000	0.00000
*	1918528010 100	Vial 53	1	Sample	14	4.15809e5	8.321	518.23230
*	663035 CCV@25	Vial 71	1	Control	15	2.05306e6	8.245	25.67471
*	1918705001	Vial 54	1	Sample	16	0.00000	0.000	0.00000
*	1918705002 MS	Vial 55	1	Sample	17	3.65014e5	7.751	5.20905
*	1918705003 MSD	Vial 56	1	Sample	18	3.50062e5	7.740	4.09212
*	1918705004	Vial 57	1	Sample	19	0.00000	0.000	0.00000
*	1918705005	Vial 58	1	Sample	20	2.64722e5	7.233	4.40918
*	1918705006	Vial 59	1	Sample	21	0.00000	0.000	0.00000
*	1918705007 10X	Vial 60	1	Sample	22	4.80293e5	8.237	53.73554
*	1918705008	Vial 61	1	Sample	23	0.00000	0.000	0.00000
*	1918705009 MS	Vial 62	1	Sample	24	2.88361e5	7.509	4.39917
*	1918705010 MSD	Vial 63	1	Sample	25	2.77079e5	7.505	3.92076
*	663036 CCV@25	Vial 71	1	Control	26	1.87786e6	8.284	25.56775
*	1918871001	Vial 64	1	Sample	27	0.00000	0.000	0.00000
*	1918871002	Vial 65	1	Sample	28	0.00000	0.000	0.00000
*	1918871003	Vial 66	1	Sample	29	0.00000	0.000	0.00000
*	1918871004	Vial 67	1	Sample	30	0.00000	0.000	0.00000
*	663037 CCV@25	Vial 71	1	Control	31	1.97048e6	8.269	25.87251

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	663030 CCV@25	Vial 71	1	Control	1	6.24075e5	8.272	26.49423
*	663034 QC@4.0	Vial 41	1	Control	2	1.31480e5	7.999	4.73215
*	663032 ICS@4.0	Vial 42	1	Control	3	1.02079e5	7.839	4.11867
*	663033 LMB	Vial 43	1	Control	4	0.00000	0.000	0.00000
*	1918528001	Vial 44	1	Sample	5	0.00000	0.000	0.00000
*	1918528002	Vial 45	1	Sample	6	0.00000	0.000	0.00000
*	1918528003	Vial 46	1	Sample	7	0.00000	0.000	0.00000
*	1918528004	Vial 47	1	Sample	8	0.00000	0.000	0.00000
*	1918528005	Vial 48	1	Sample	9	0.00000	0.000	0.00000
*	1918528006	Vial 49	1	Sample	10	0.00000	0.000	0.00000
*	1918528007	Vial 50	1	Sample	11	0.00000	0.000	0.00000
*	1918528008	Vial 51	1	Sample	12	0.00000	0.000	0.00000
*	1918528009	Vial 52	1	Sample	13	0.00000	0.000	0.00000
*	1918528010 100	Vial 53	1	Sample	14	1.37449e5	8.342	561.78024
*	663035 CCV@25	Vial 71	1	Control	15	6.14214e5	8.269	25.87142
*	1918705001	Vial 54	1	Sample	16	0.00000	0.000	0.00000
*	1918705002 MS	Vial 55	1	Sample	17	1.12801e5	7.762	5.28376
*	1918705003 MSD	Vial 56	1	Sample	18	1.10963e5	7.755	4.21966
*	1918705004	Vial 57	1	Sample	19	0.00000	0.000	0.00000
*	1918705005	Vial 58	1	Sample	20	9.11835e4	7.238	4.95128
*	1918705006	Vial 59	1	Sample	21	0.00000	0.000	0.00000
*	1918705007 10X	Vial 60	1	Sample	22	1.65863e5	8.254	60.89054
*	1918705008	Vial 61	1	Sample	23	0.00000	0.000	0.00000
*	1918705009 MS	Vial 62	1	Sample	24	9.39754e4	7.516	4.67594
*	1918705010 MSD	Vial 63	1	Sample	25	9.16631e4	7.522	4.21052
*	663036 CCV@25	Vial 71	1	Control	26	5.59339e5	8.296	25.65584

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#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	1918871001	Vial 64	1	Sample	27	0.00000	0.000	0.00000
*	1918871002	Vial 65	1	Sample	28	0.00000	0.000	0.00000
*	1918871003	Vial 66	1	Sample	29	0.00000	0.000	0.00000
*	1918871004	Vial 67	1	Sample	30	0.00000	0.000	0.00000
*	663037 CCV@25	Vial 71	1	Control	31	5.83651e5	8.278	25.82631

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	663030 CCV@25	Vial 71	1	Control	1	2.40676e5	8.290	5.00000
*	663034 QC@4.0	Vial 41	1	Control	2	2.97198e5	8.012	5.00000
*	663032 ICS@4.0	Vial 42	1	Control	3	2.65421e5	7.859	5.00000
*	663033 LMB	Vial 43	1	Control	4	3.18343e5	8.270	5.00000
*	1918528001	Vial 44	1	Sample	5	2.09428e5	7.499	5.00000
*	1918528002	Vial 45	1	Sample	6	2.27592e5	7.803	5.00000
*	1918528003	Vial 46	1	Sample	7	2.83805e5	7.792	5.00000
*	1918528004	Vial 47	1	Sample	8	2.31744e5	7.766	5.00000
*	1918528005	Vial 48	1	Sample	9	2.65465e5	7.949	5.00000
*	1918528006	Vial 49	1	Sample	10	3.02483e5	7.805	5.00000
*	1918528007	Vial 50	1	Sample	11	2.39370e5	7.809	5.00000
*	1918528008	Vial 51	1	Sample	12	2.57536e5	7.582	5.00000
*	1918528009	Vial 52	1	Sample	13	3.47245e5	7.601	5.00000
*	1918528010 100	Vial 53	1	Sample	14	2.61248e5	8.355	500.00000
*	663035 CCV@25	Vial 71	1	Control	15	2.42892e5	8.260	5.00000
*	1918705001	Vial 54	1	Sample	16	3.40152e5	7.747	5.00000
*	1918705002 MS	Vial 55	1	Sample	17	2.28107e5	7.767	5.00000
*	1918705003 MSD	Vial 56	1	Sample	18	2.81563e5	7.755	5.00000
*	1918705004	Vial 57	1	Sample	19	2.40535e5	7.689	5.00000
*	1918705005	Vial 58	1	Sample	20	1.96905e5	7.258	5.00000
*	1918705006	Vial 59	1	Sample	21	1.63865e5	7.481	5.00000
*	1918705007 10X	Vial 60	1	Sample	22	2.90576e5	8.248	50.00000
*	1918705008	Vial 61	1	Sample	23	2.37165e5	7.528	5.00000
*	1918705009 MS	Vial 62	1	Sample	24	2.14999e5	7.533	5.00000
*	1918705010 MSD	Vial 63	1	Sample	25	2.33099e5	7.524	5.00000
*	663036 CCV@25	Vial 71	1	Control	26	2.23151e5	8.308	5.00000
*	1918871001	Vial 64	1	Sample	27	2.17462e5	7.475	5.00000
*	1918871002	Vial 65	1	Sample	28	2.52228e5	7.881	5.00000
*	1918871003	Vial 66	1	Sample	29	2.97108e5	7.854	5.00000
*	1918871004	Vial 67	1	Sample	30	2.73039e5	7.829	5.00000
*	663037 CCV@25	Vial 71	1	Control	31	2.31231e5	8.296	5.00000

*** End of Report ***

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Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\11JUL19D.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	663030	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 41	663034	QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 42	663032	ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 43	663033	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 44	1918528001		CLO4-AQN	1	Sample		
6	Vial 45	1918528002		CLO4-AQN	1	Sample		
7	Vial 46	1918528003		CLO4-AQN	1	Sample		
8	Vial 47	1918528004		CLO4-AQN	1	Sample		
9	Vial 48	1918528005		CLO4-AQN	1	Sample		
10	Vial 49	1918528006		CLO4-AQN	1	Sample		
11	Vial 50	1918528007		CLO4-AQN	1	Sample		
12	Vial 51	1918528008		CLO4-AQN	1	Sample		
13	Vial 52	1918528009		CLO4-AQN	1	Sample		
14	Vial 53	1918528010	100	CLO4-AQN	1	Sample		
15	Vial 71	663035	CCV@25	CLO4-AQN	1	Ctrl Samp		
16	Vial 54	1918705001		CLO4-AQN	1	Sample		
17	Vial 55	1918705002	MS	CLO4-AQN	1	Sample		
18	Vial 56	1918705003	MSD	CLO4-AQN	1	Sample		
19	Vial 57	1918705004		CLO4-AQN	1	Sample		
20	Vial 58	1918705005		CLO4-AQN	1	Sample		
21	Vial 59	1918705006		CLO4-AQN	1	Sample		
22	Vial 60	1918705007	10X	CLO4-AQN	1	Sample		
23	Vial 61	1918705008		CLO4-AQN	1	Sample		
24	Vial 62	1918705009	MS	CLO4-AQN	1	Sample		
25	Vial 63	1918705010	MSD	CLO4-AQN	1	Sample		
26	Vial 71	663036	CCV@25	CLO4-AQN	1	Ctrl Samp		
27	Vial 64	1918871001		CLO4-AQN	1	Sample		
28	Vial 65	1918871002		CLO4-AQN	1	Sample		
29	Vial 66	1918871003		CLO4-AQN	1	Sample		
30	Vial 67	1918871004		CLO4-AQN	1	Sample		
31	Vial 71	663037	CCV@25	CLO4-AQN	1	Ctrl Samp		

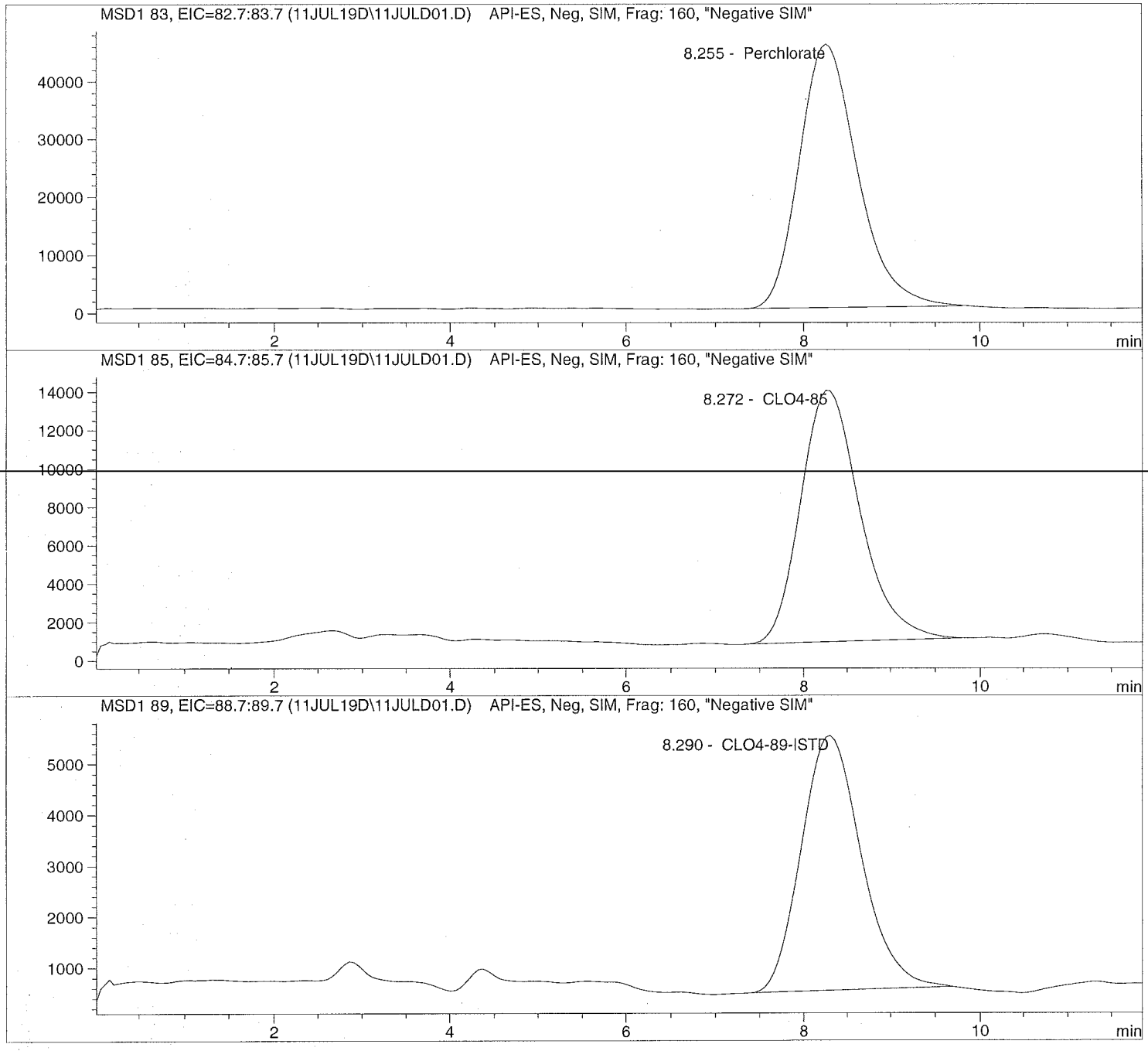
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD01.D Sample Name: 663030 CCV@25

Injection Date:	7/11/2019 11:12:20	Seq Line:	1
Sample Name:	663030 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD01.D Sample Name: 663030 CCV@25

Injection Date:	7/11/2019 11:12:20	Seq Line:	1
Sample Name:	663030 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.255	PBA	2118713.0	26.6764	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.272	PBA	624075.3	26.4942	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.290	PBA	240676.4	5.0000	CLO4-89-ISTD

*** End of Report ***

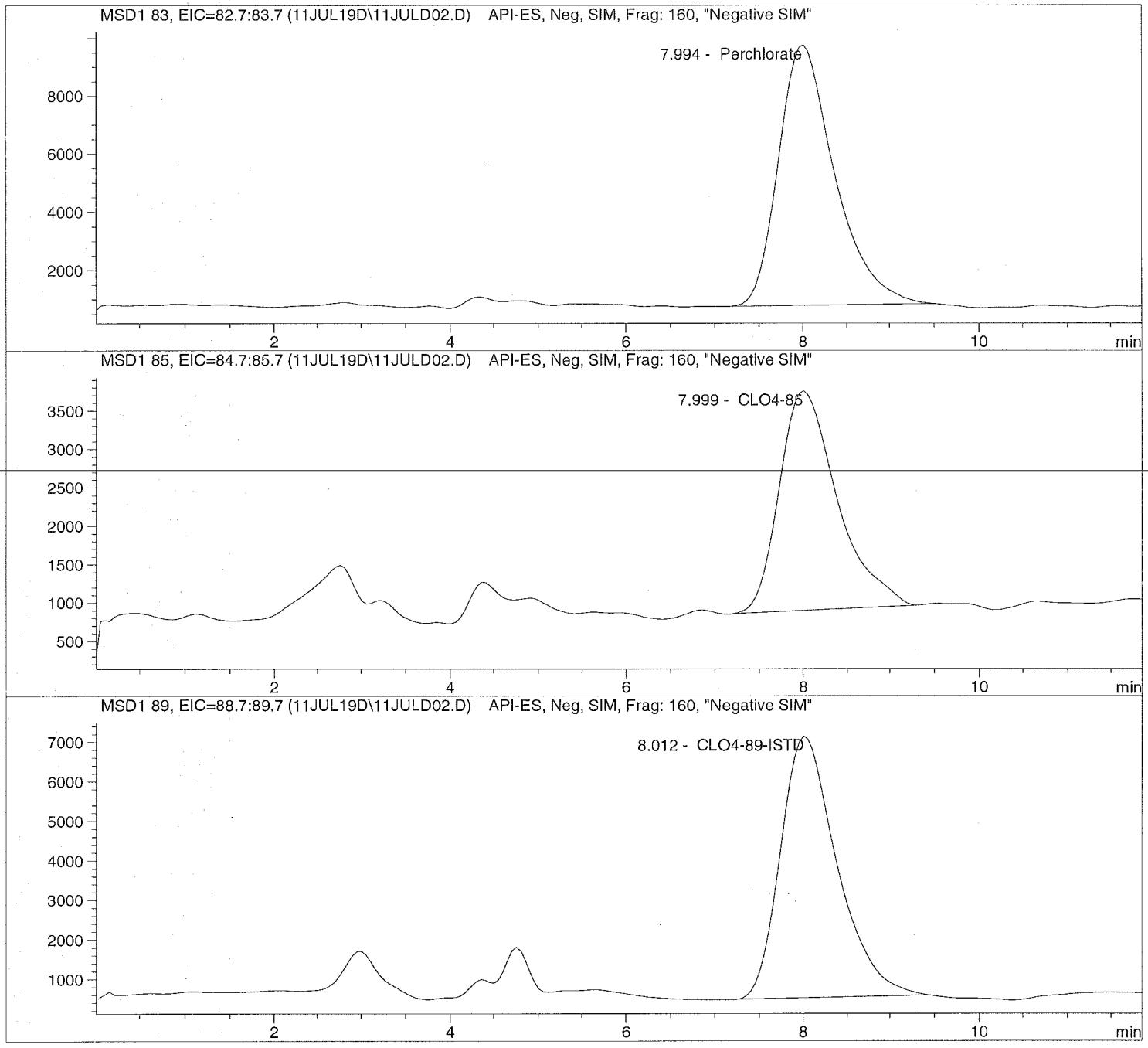
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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD02.D Sample Name: 663034 QC@4.0

Injection Date:	7/11/2019 11:26:05	Seq Line:	2
Sample Name:	663034 QC@4.0	Location:	Vial 41
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD02.D Sample Name: 663034 QC@4.0

Injection Date:	7/11/2019 11:26:05	Seq Line:	2
Sample Name:	663034 QC@4.0	Location:	Vial 41
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.994	PBA	399419.3	4.4077	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.999	PBA	131479.8	4.7322	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.012	PBA	297197.6	5.0000	CLO4-89-ISTD

*** End of Report ***

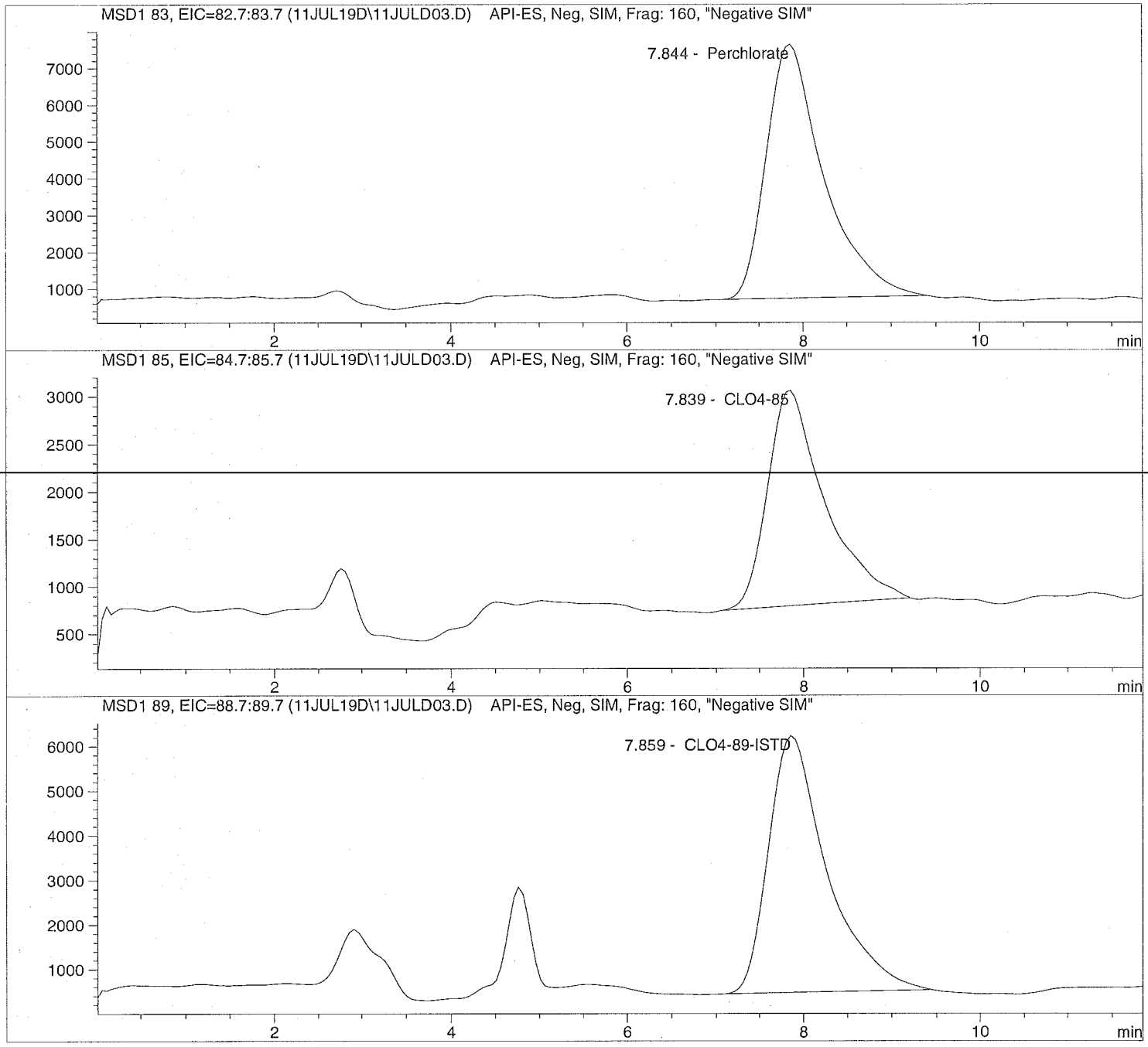
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD03.D Sample Name: 663032 ICS@4.0

Injection Date:	7/11/2019 11:39:52	Seq Line:	3
Sample Name:	663032 ICS@4.0	Location:	Vial 42
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD03.D Sample Name: 663032 ICS@4.0

Injection Date:	7/11/2019 11:39:52	Seq Line:	3
Sample Name:	663032 ICS@4.0	Location:	Vial 42
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.844	PBA	313184.6	3.8934	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.839	PBA	102078.9	4.1187	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.859	PBA	265421.4	5.0000	CLO4-89-ISTD

*** End of Report ***

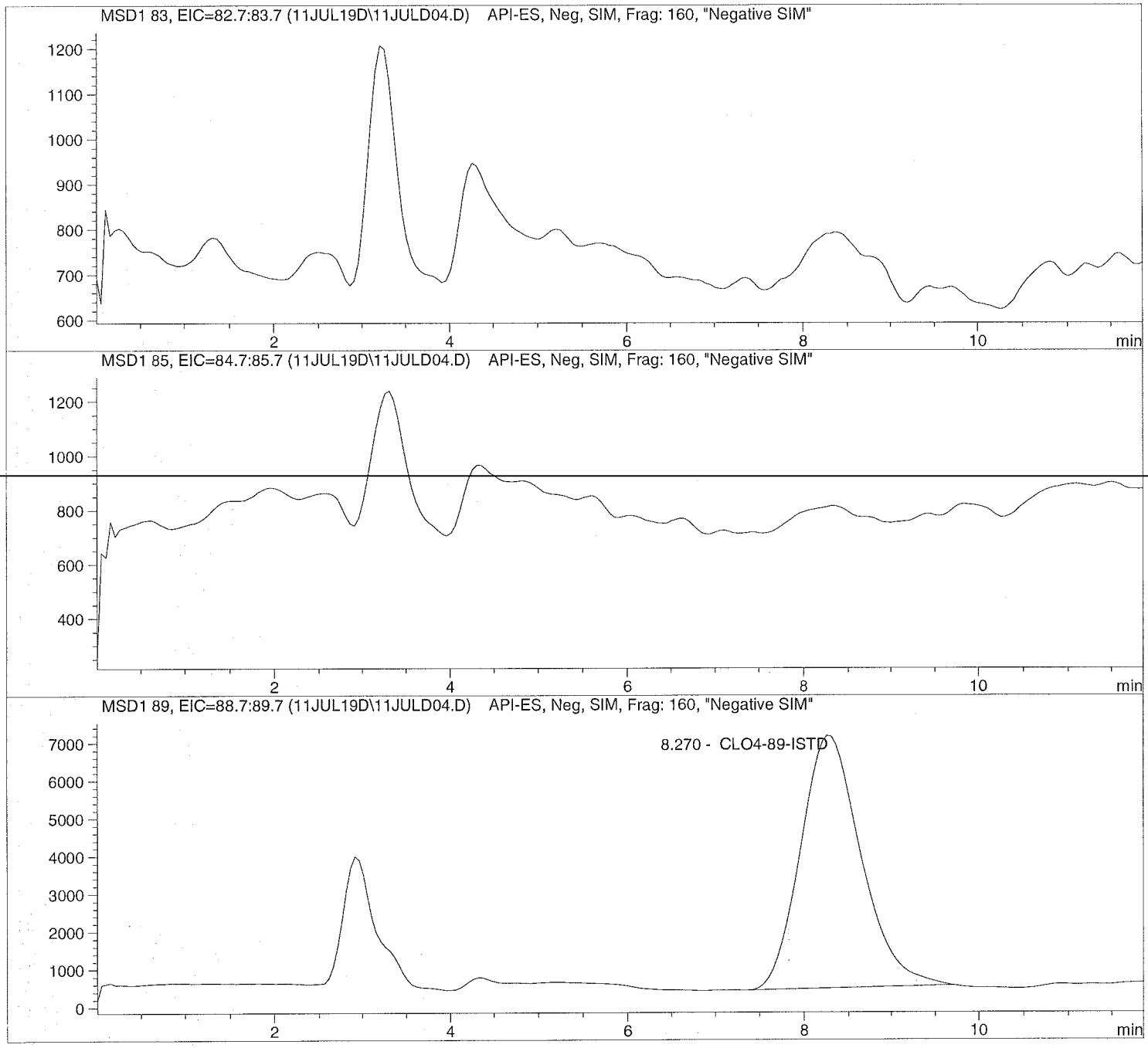
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD04.D Sample Name: 663033 LMB

Injection Date:	7/11/2019 11:53:41	Seq Line:	4
Sample Name:	663033 LMB	Location:	Vial 43
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD04.D Sample Name: 663033 LMB

Injection Date:	7/11/2019 11:53:41	Seq Line:	4
Sample Name:	663033 LMB	Location:	Vial 43
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.270	PBA	318342.8	5.0000	CLO4-89-ISTD

*** End of Report ***

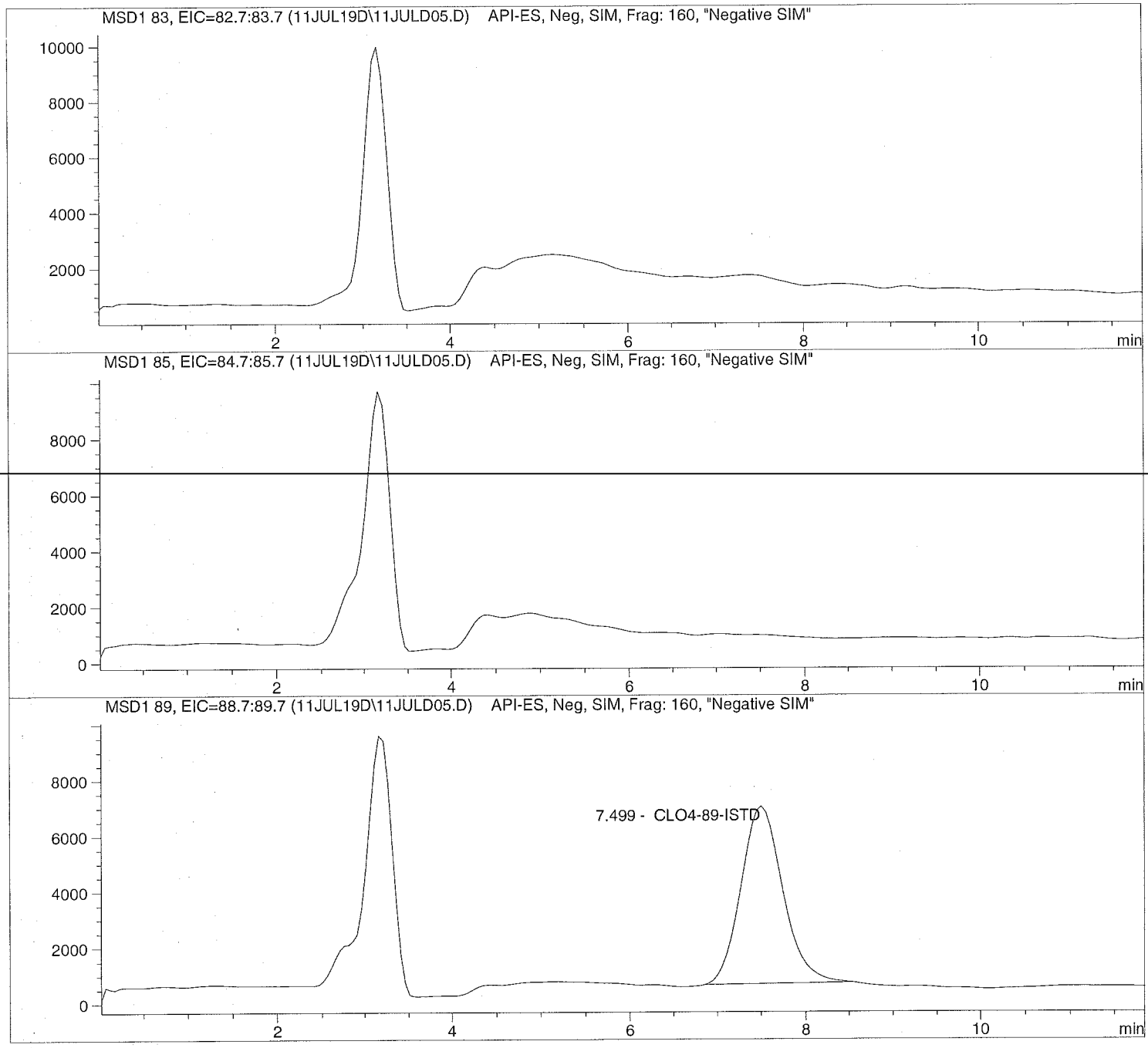
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD05.D Sample Name: 1918528001

Injection Date:	7/11/2019 12:07:26	Seq Line:	5
Sample Name:	1918528001	Location:	Vial 44
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD05.D Sample Name: 1918528001

Injection Date:	7/11/2019 12:07:26	Seq Line:	5
Sample Name:	1918528001	Location:	Vial 44
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.499	PBA	209428.4	5.0000	CLO4-89-ISTD

*** End of Report ***

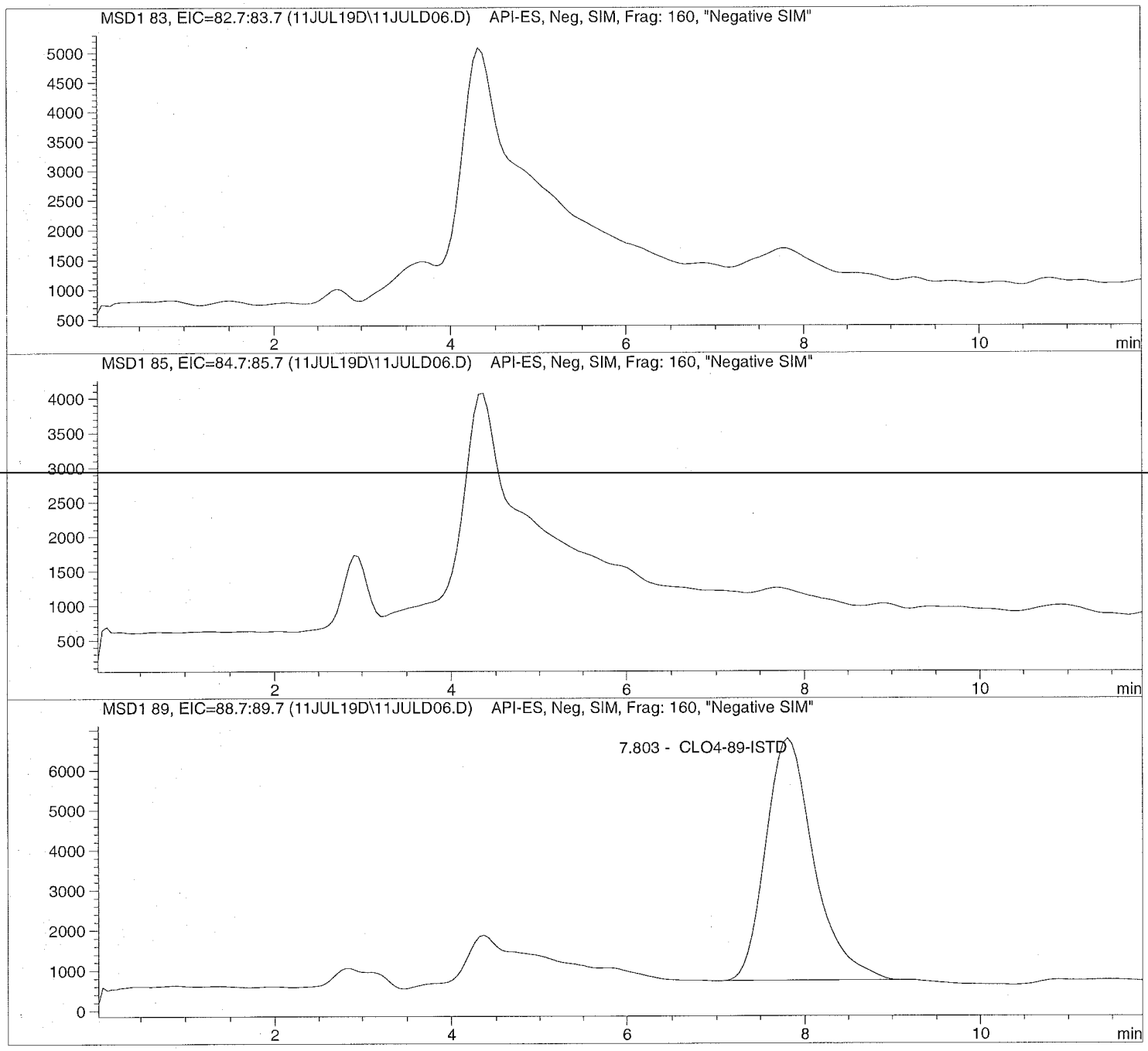
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD06.D Sample Name: 1918528002

Injection Date:	7/11/2019 12:21:11	Seq Line:	6
Sample Name:	1918528002	Location:	Vial 45
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD06.D Sample Name: 1918528002

Injection Date:	7/11/2019 12:21:11	Seq Line:	6
Sample Name:	1918528002	Location:	Vial 45
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.803	PBA	227591.6	5.0000	CLO4-89-ISTD

*** End of Report ***

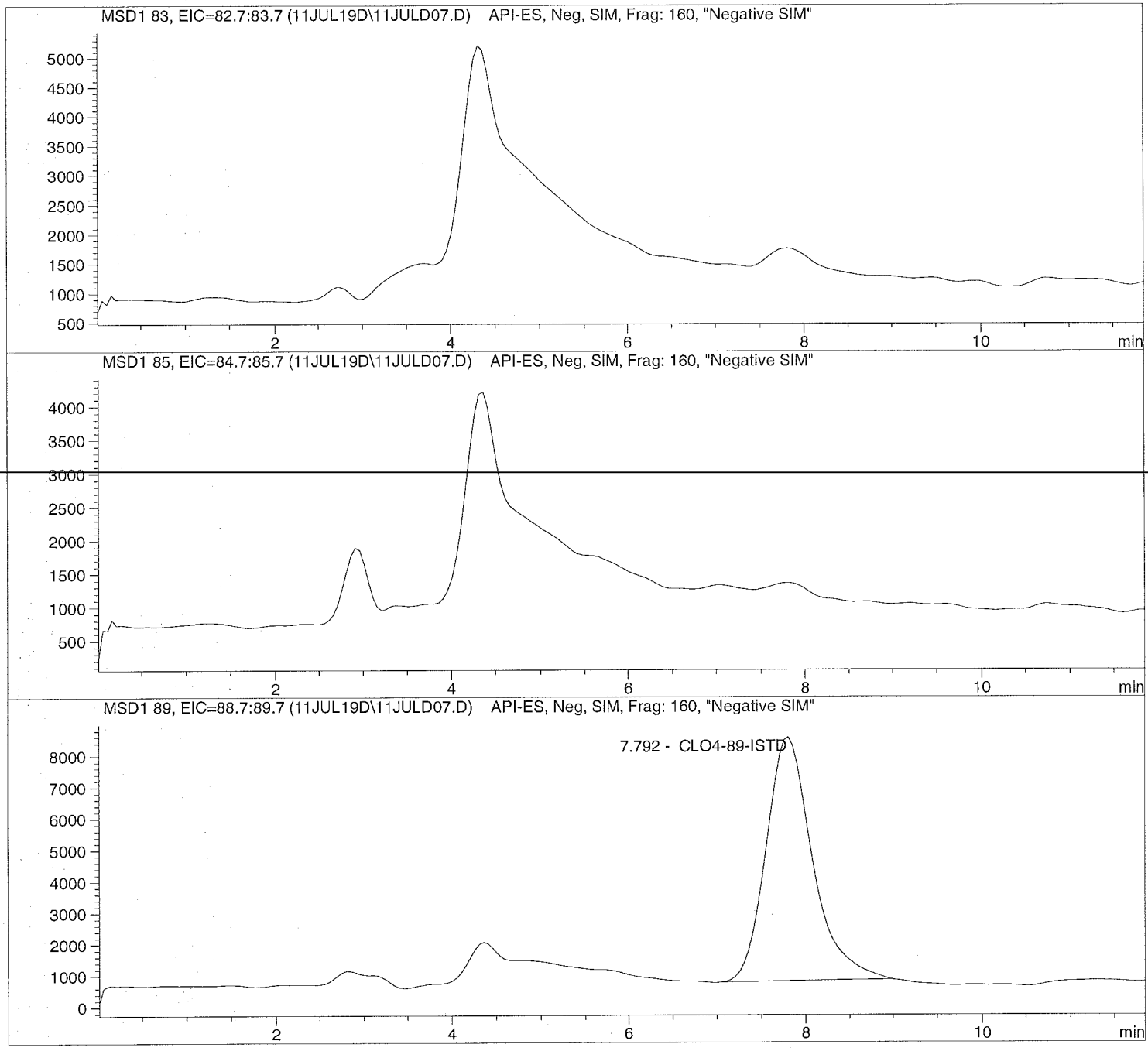
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD07.D Sample Name: 1918528003

Injection Date:	7/11/2019 12:34:58	Seq Line:	7
Sample Name:	1918528003	Location:	Vial 46
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD07.D Sample Name: 1918528003

Injection Date:	7/11/2019 12:34:58	Seq Line:	7
Sample Name:	1918528003	Location:	Vial 46
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.792	PBA	283804.7	5.0000	CLO4-89-ISTD

*** End of Report ***

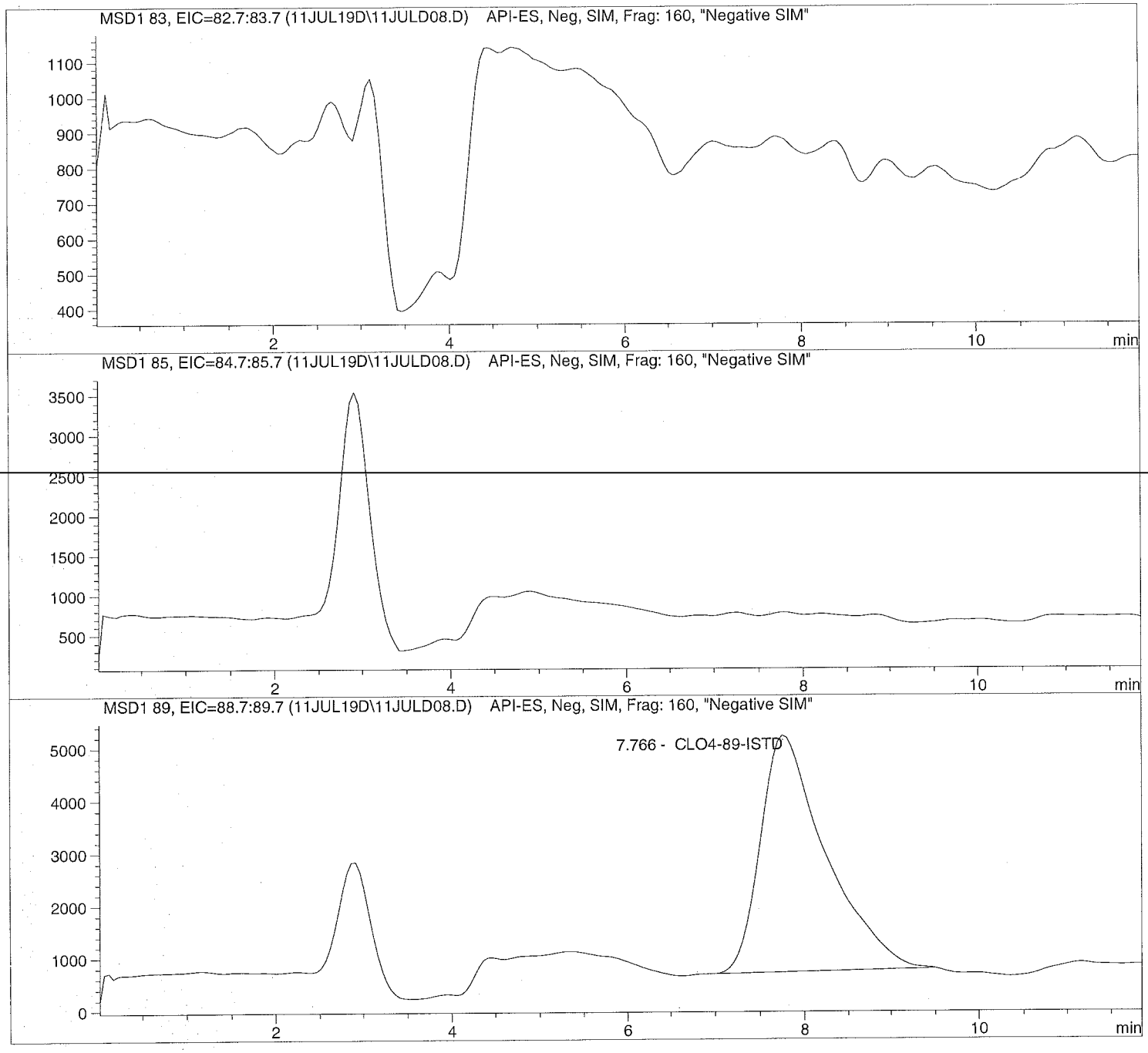
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD08.D Sample Name: 1918528004

Injection Date:	7/11/2019 12:48:44	Seq Line:	8
Sample Name:	1918528004	Location:	Vial 47
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD08.D Sample Name: 1918528004

Injection Date:	7/11/2019 12:48:44	Seq Line:	8
Sample Name:	1918528004	Location:	Vial 47
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.766	PBA	231743.6	5.0000	CLO4-89-ISTD

*** End of Report ***

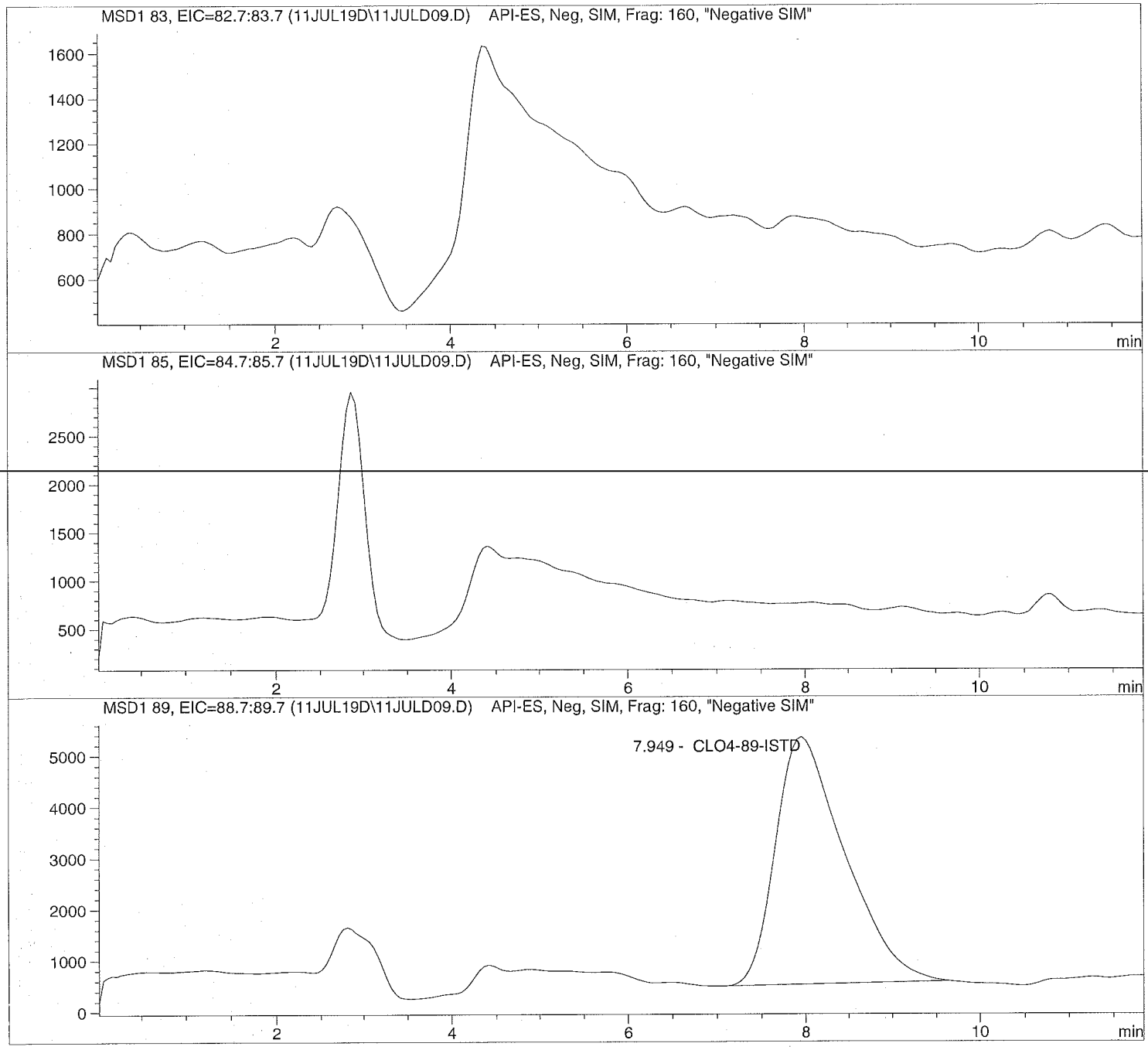
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD09.D Sample Name: 1918528005

Injection Date:	7/11/2019 13:02:32	Seq Line:	9
Sample Name:	1918528005	Location:	Vial 48
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD09.D Sample Name: 1918528005

Injection Date:	7/11/2019 13:02:32	Seq Line:	9
Sample Name:	1918528005	Location:	Vial 48
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.949	PBA	265464.7	5.0000	CLO4-89-ISTD

*** End of Report ***

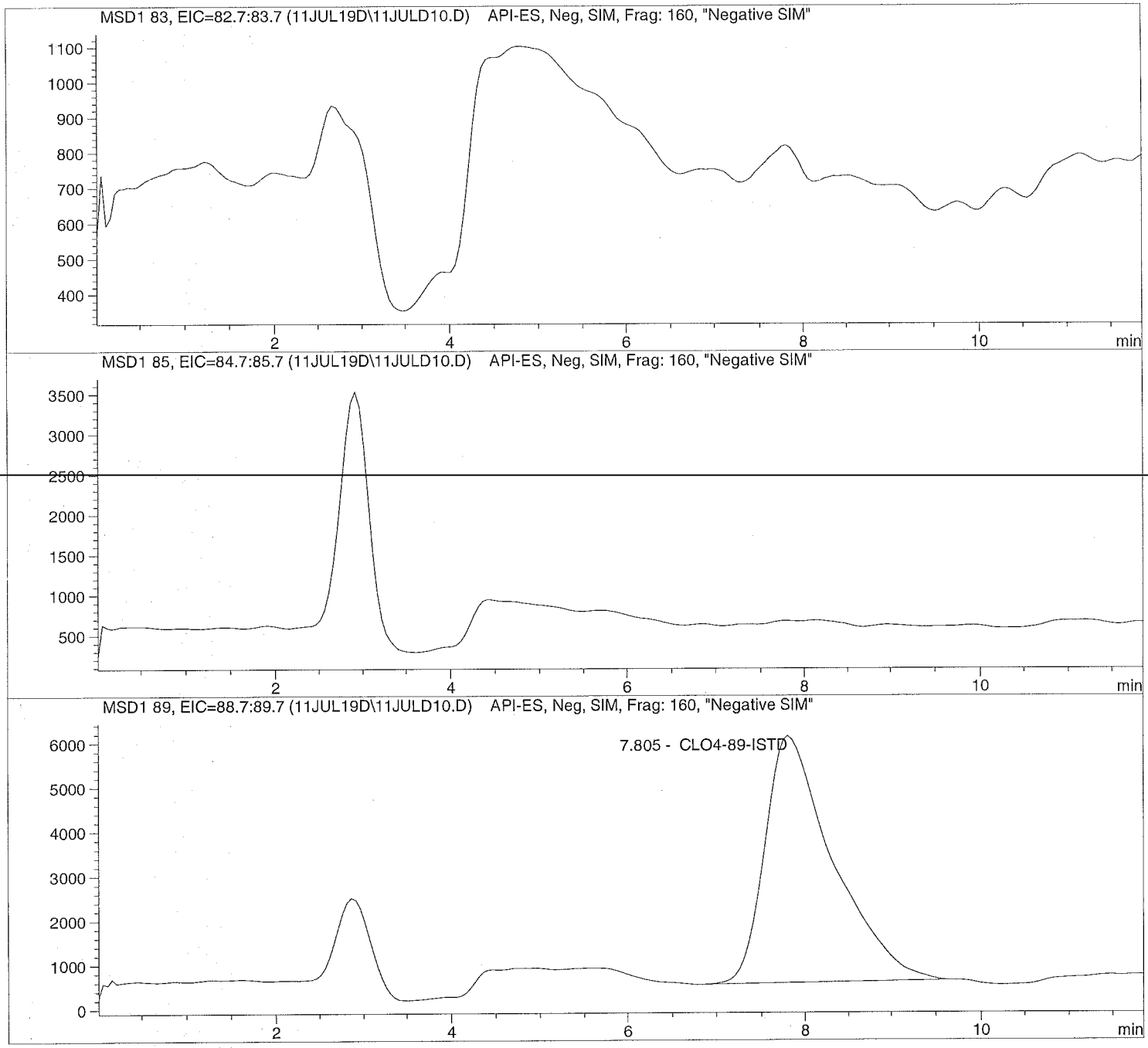
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD10.D Sample Name: 1918528006

Injection Date:	7/11/2019 13:16:18	Seq Line:	10
Sample Name:	1918528006	Location:	Vial 49
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD10.D Sample Name: 1918528006

Injection Date:	7/11/2019 13:16:18	Seq Line:	10
Sample Name:	1918528006	Location:	Vial 49
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	302483.2	5.0000	CLO4-89-ISTD

*** End of Report ***

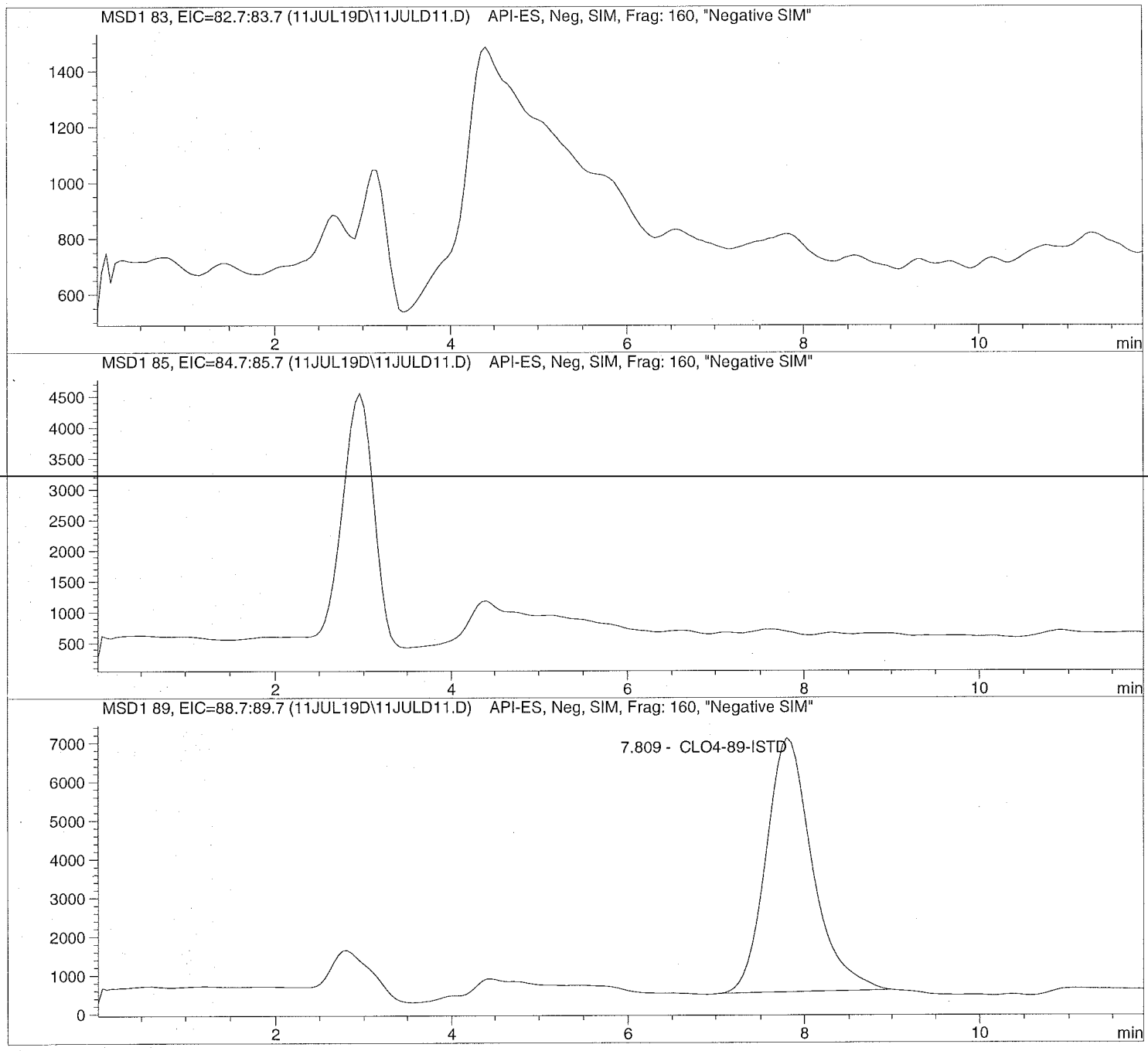
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD11.D Sample Name: 1918528007

Injection Date:	7/11/2019 13:30:12	Seq Line:	11
Sample Name:	1918528007	Location:	Vial 50
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD11.D Sample Name: 1918528007

Injection Date:	7/11/2019 13:30:12	Seq Line:	11
Sample Name:	1918528007	Location:	Vial 50
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.809	PBA	239369.6	5.0000	CLO4-89-ISTD

*** End of Report ***

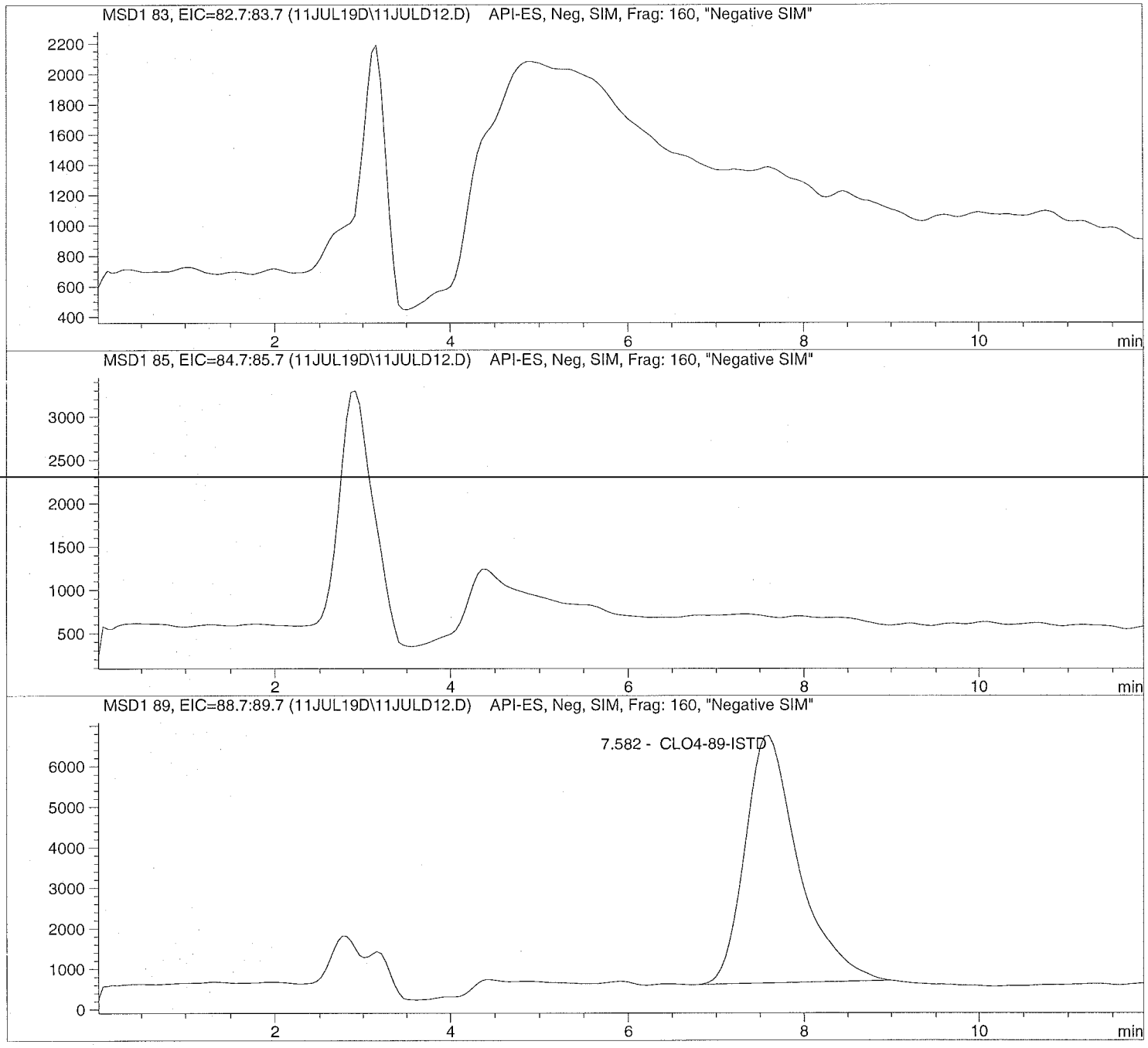
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD12.D Sample Name: 1918528008

Injection Date:	7/11/2019 13:43:59	Seq Line:	12
Sample Name:	1918528008	Location:	Vial 51
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD12.D Sample Name: 1918528008

Injection Date:	7/11/2019 13:43:59	Seq Line:	12
Sample Name:	1918528008	Location:	Vial 51
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.582	PBA	257536.2	5.0000	CLO4-89-ISTD

*** End of Report ***

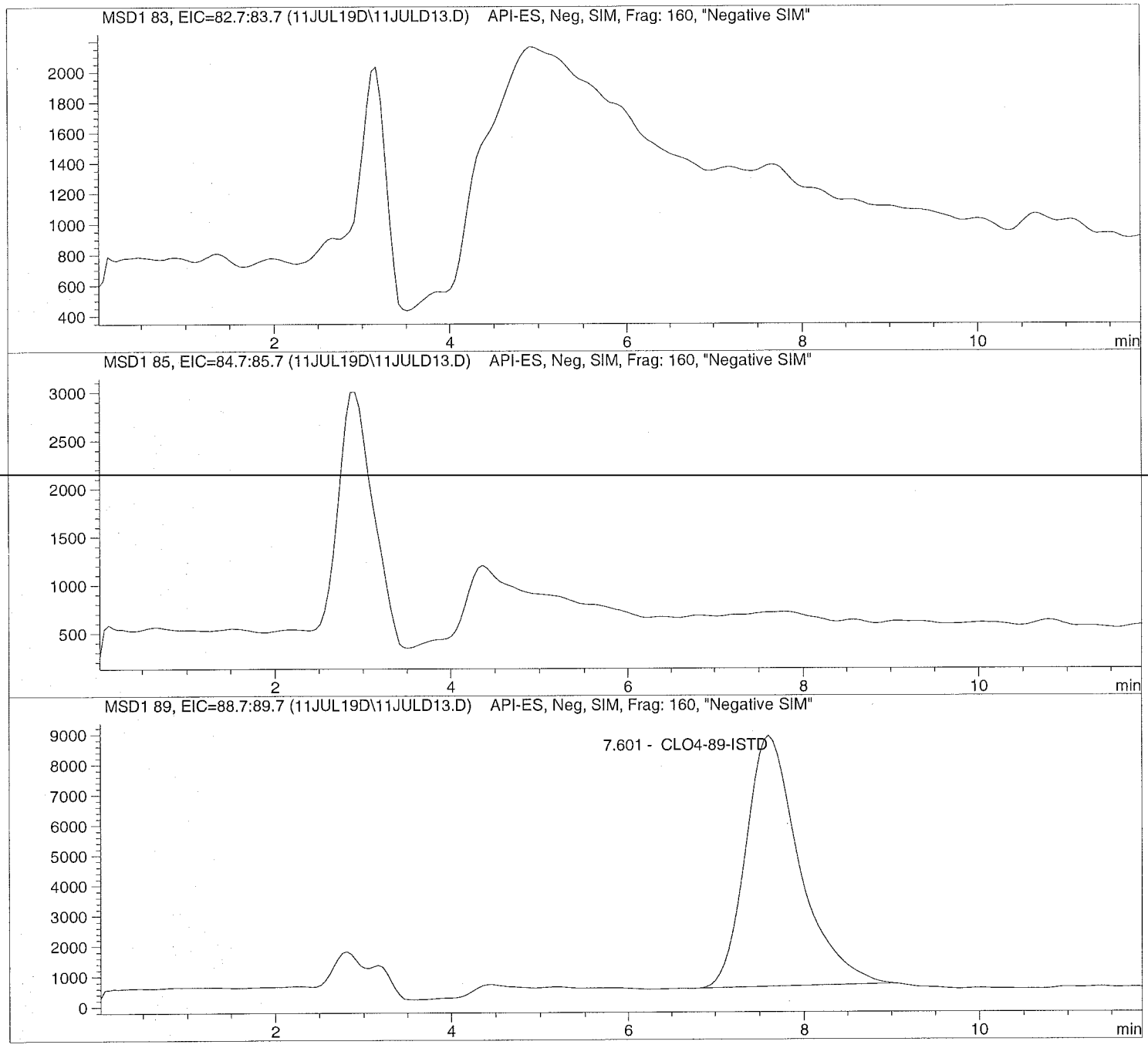
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD13.D Sample Name: 1918528009

Injection Date:	7/11/2019 13:57:45	Seq Line:	13
Sample Name:	1918528009	Location:	Vial 52
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD13.D Sample Name: 1918528009

Injection Date:	7/11/2019 13:57:45	Seq Line:	13
Sample Name:	1918528009	Location:	Vial 52
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.601	PBA	347244.5	5.0000	CLO4-89-ISTD

*** End of Report ***

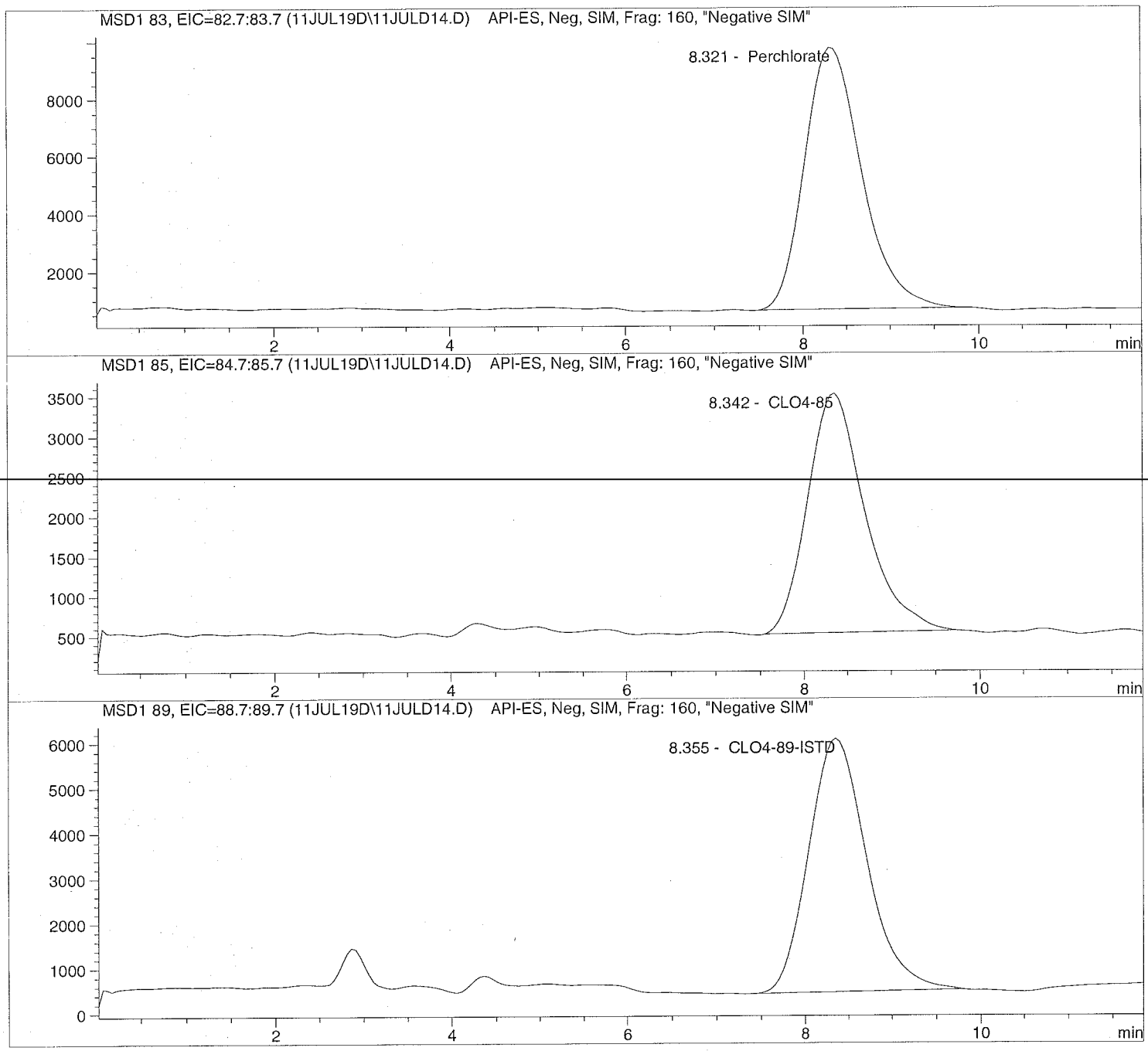
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD14.D Sample Name: 1918528010 100

Injection Date:	7/11/2019 14:11:32	Seq Line:	14
Sample Name:	1918528010 100	Location:	Vial 53
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD14.D Sample Name: 1918528010 100

Injection Date:	7/11/2019 14:11:32	Seq Line:	14
Sample Name:	1918528010 100	Location:	Vial 53
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 100.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.321	BBA	415809.4	518.2323	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.342	PBA	137449.3	561.7802	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.355	PBA	261248.4	500.0000	CLO4-89-ISTD

*** End of Report ***

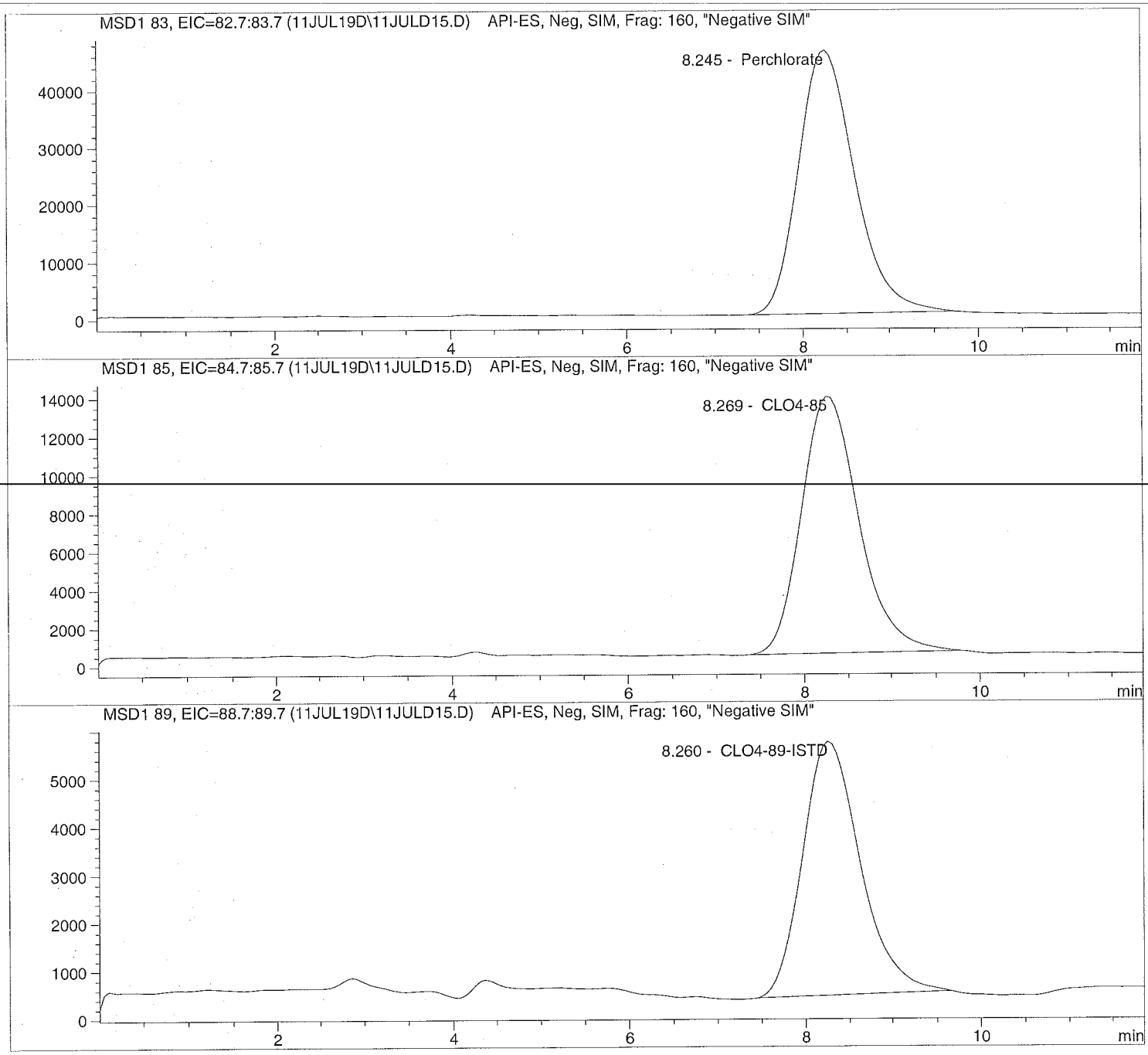
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD15.D Sample Name: 663035 CCV@25

Injection Date:	7/11/2019 14:25:24	Seq Line:	15
Sample Name:	663035 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD15.D Sample Name: 663035 CCV@25

Injection Date:	7/11/2019 14:25:24	Seq Line:	15
Sample Name:	663035 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.245	PBA	2053058.0	25.6747	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.269	PBA	614213.5	25.8714	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.260	PBA	242891.8	5.0000	CLO4-89-ISTD

*** End of Report ***

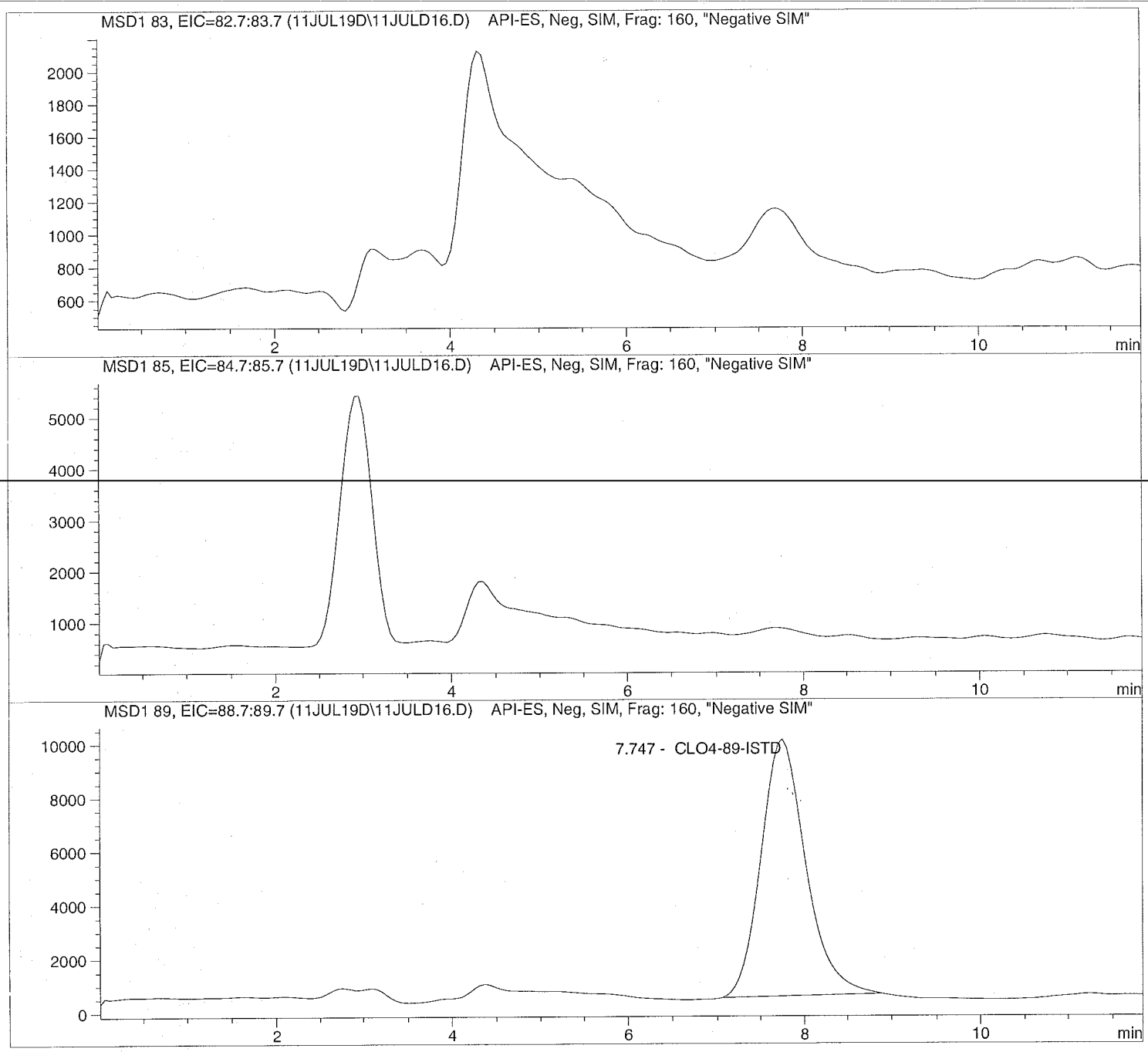
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD16.D Sample Name: 1918705001

Injection Date:	7/11/2019 14:39:13	Seq Line:	16
Sample Name:	1918705001	Location:	Vial 54
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD16.D Sample Name: 1918705001

Injection Date:	7/11/2019 14:39:13	Seq Line:	16
Sample Name:	1918705001	Location:	Vial 54
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.747	PBA	340152.4	5.0000	CLO4-89-ISTD

*** End of Report ***

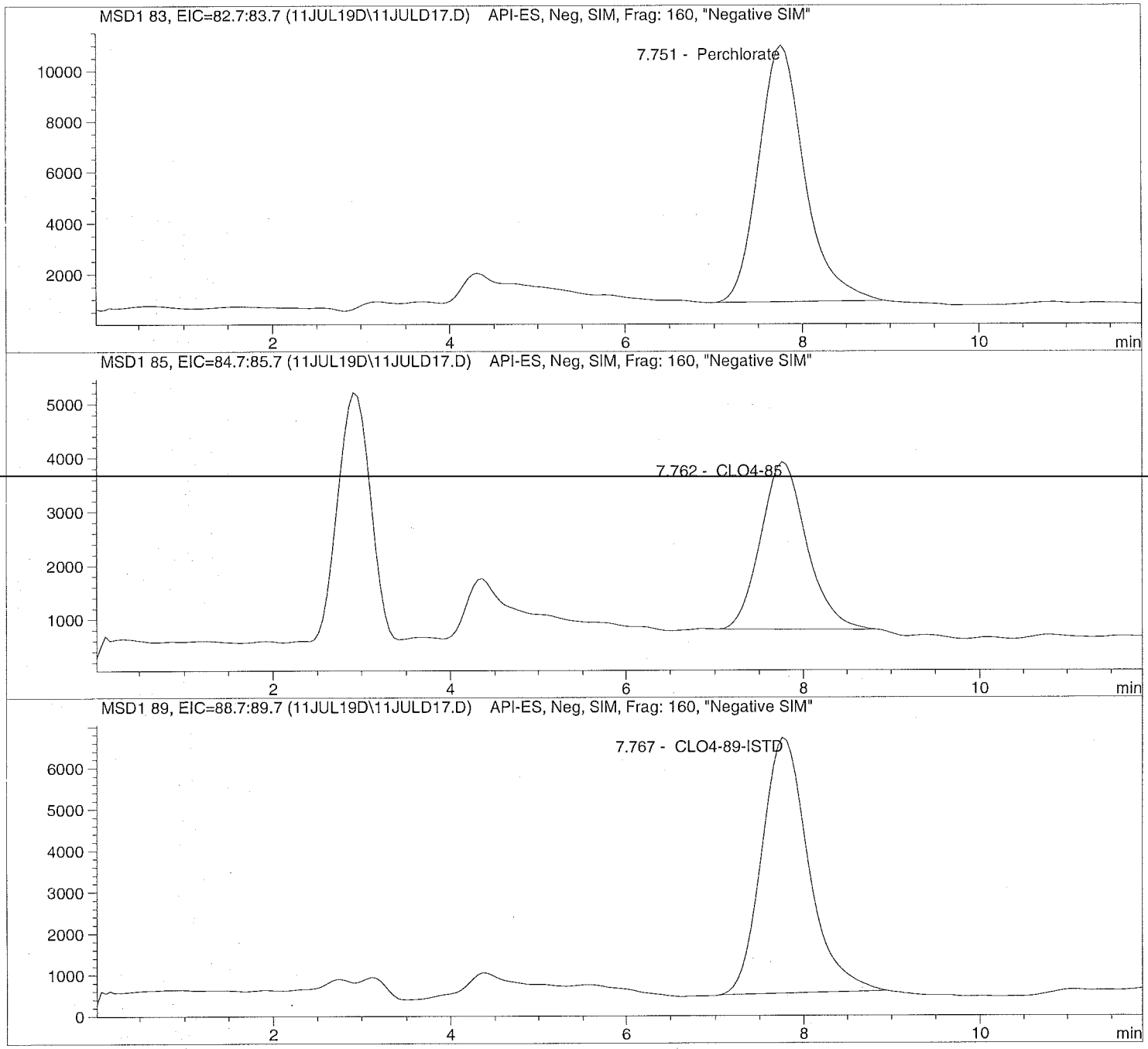
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD17.D Sample Name: 1918705002 MS

Injection Date:	7/11/2019 14:52:59	Seq Line:	17
Sample Name:	1918705002 MS	Location:	Vial 55
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD17.D Sample Name: 1918705002 MS

Injection Date:	7/11/2019 14:52:59	Seq Line:	17
Sample Name:	1918705002 MS	Location:	Vial 55
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.751	PBA	365013.6	5.2090	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.762	BBA	112800.8	5.2838	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	228107.2	5.0000	CLO4-89-ISTD

*** End of Report ***

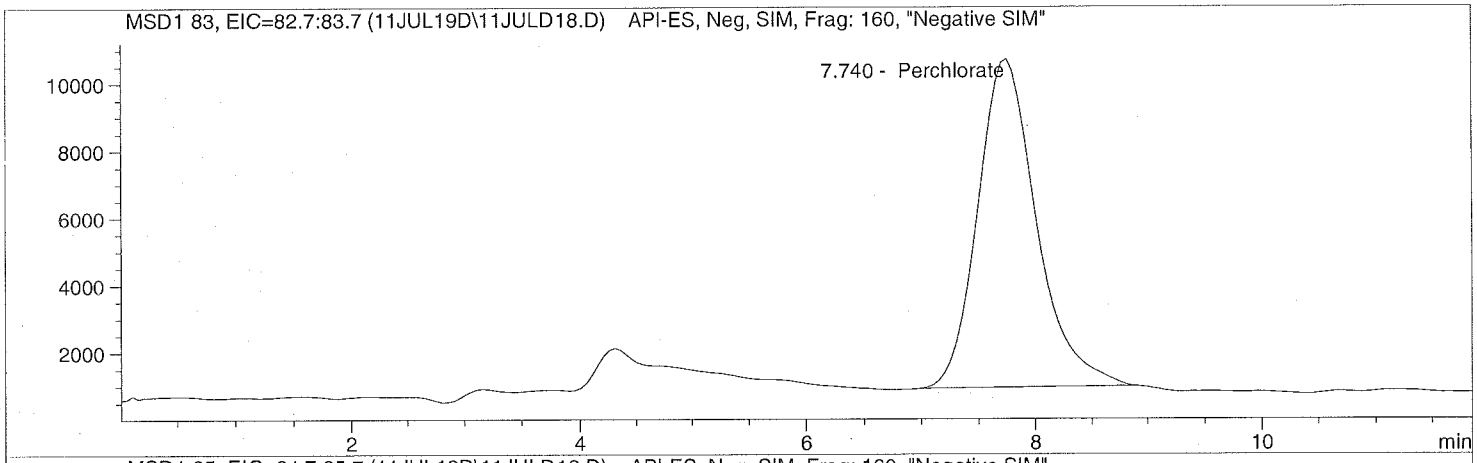
RIGHT SOLUTIONS | RIGHT PARTNER

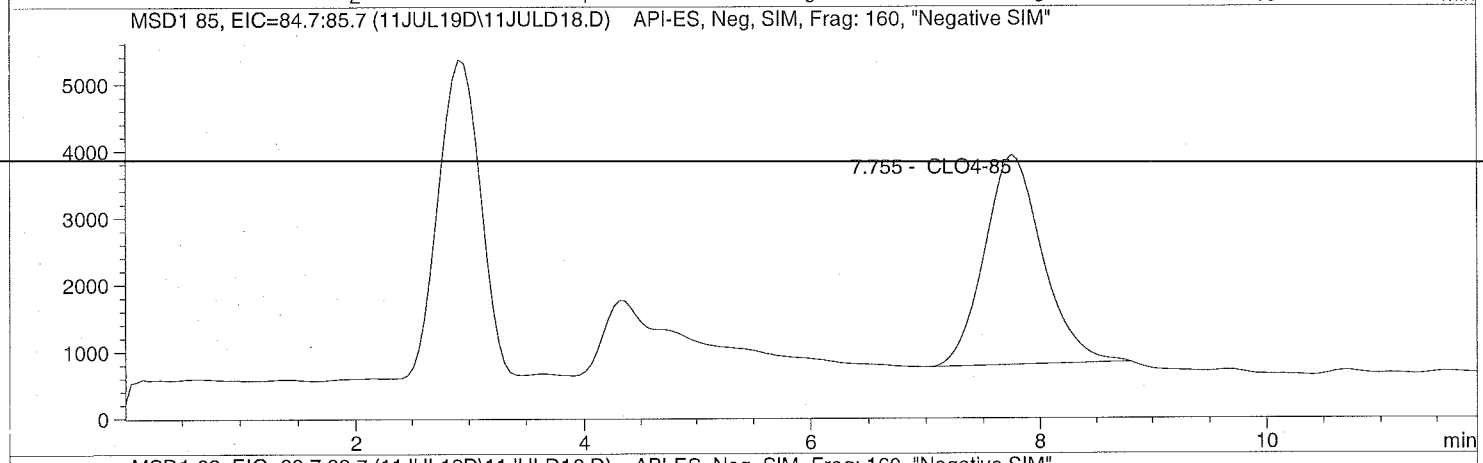
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD18.D Sample Name: 1918705003 MSD

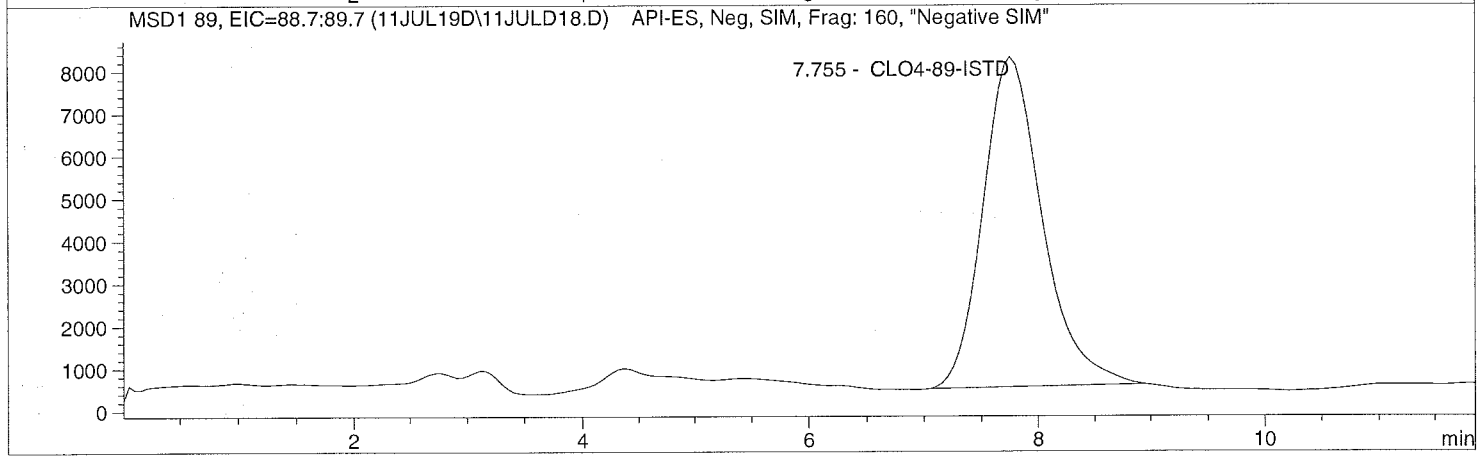
Injection Date:	7/11/2019 15:06:56	Seq Line:	18
Sample Name:	1918705003 MSD	Location:	Vial 56
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD18.D Sample Name: 1918705003 MSD

Injection Date:	7/11/2019 15:06:56	Seq Line:	18
Sample Name:	1918705003 MSD	Location:	Vial 56
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.740	PBA	350061.6	4.0921	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.755	PBA	110963.2	4.2197	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.755	PBA	281563.4	5.0000	CLO4-89-ISTD

*** End of Report ***

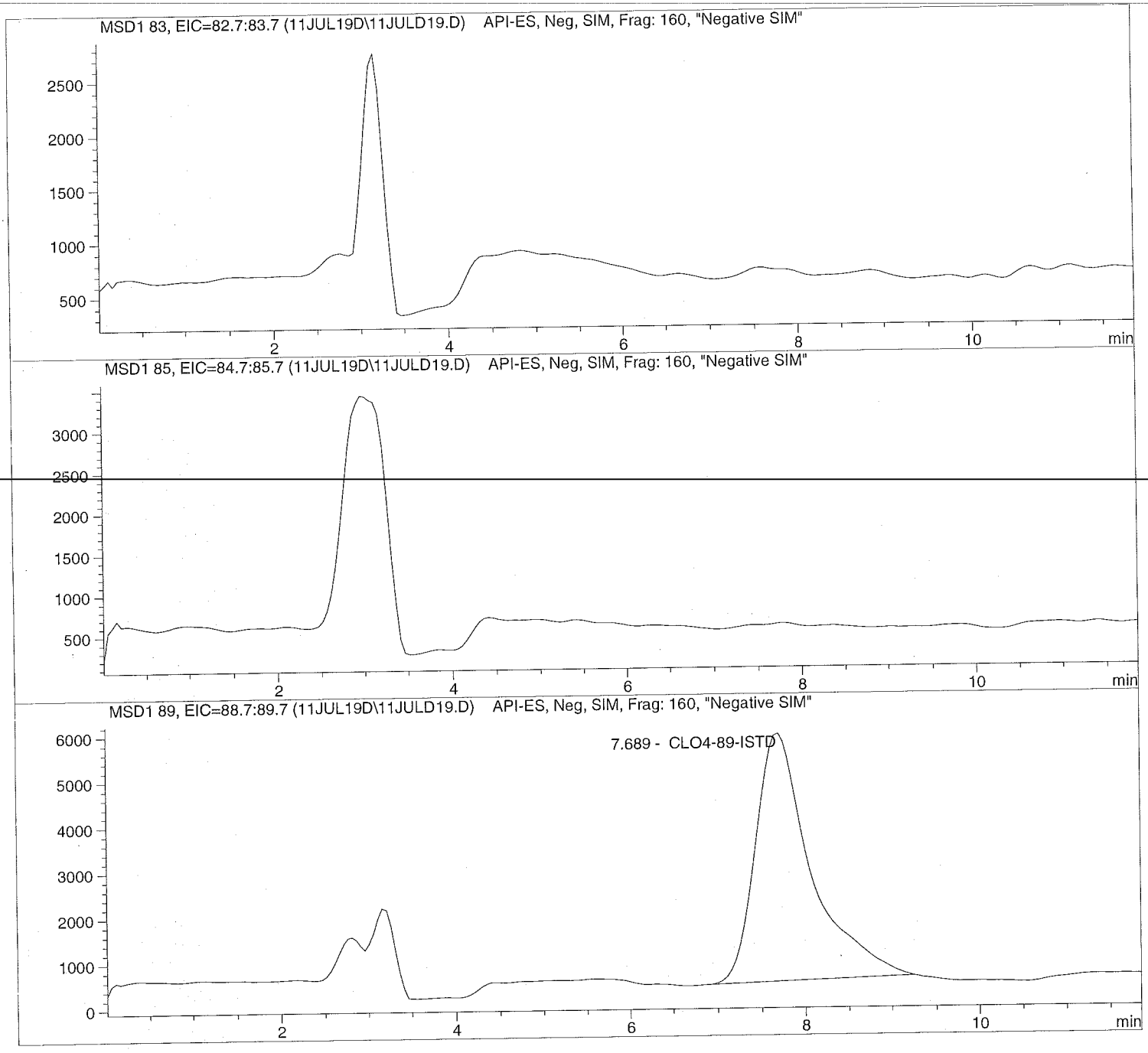
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD19.D Sample Name: 1918705004

Injection Date:	7/11/2019 15:21:50	Seq Line:	19
Sample Name:	1918705004	Location:	Vial 57
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD19.D Sample Name: 1918705004

Injection Date:	7/11/2019 15:21:50	Seq Line:	19
Sample Name:	1918705004	Location:	Vial 57
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.689	PBA	240534.6	5.0000	CLO4-89-ISTD

*** End of Report ***

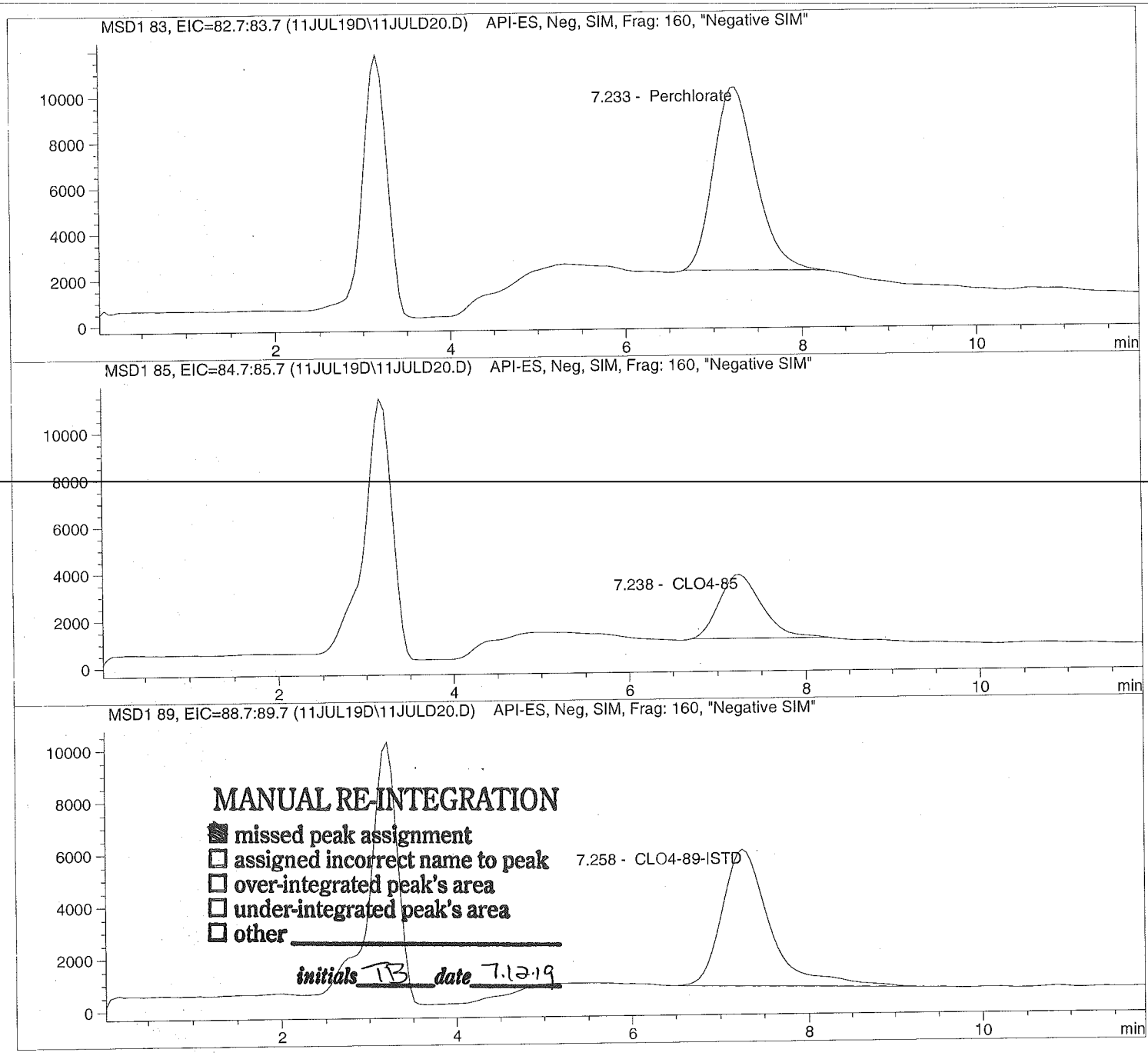
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.233	PBA	264721.6	4.4092	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.238	BBA	91183.5	4.9513	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.258	MM	196904.8	5.0000	CLO4-89-ISTD

*** End of Report ***

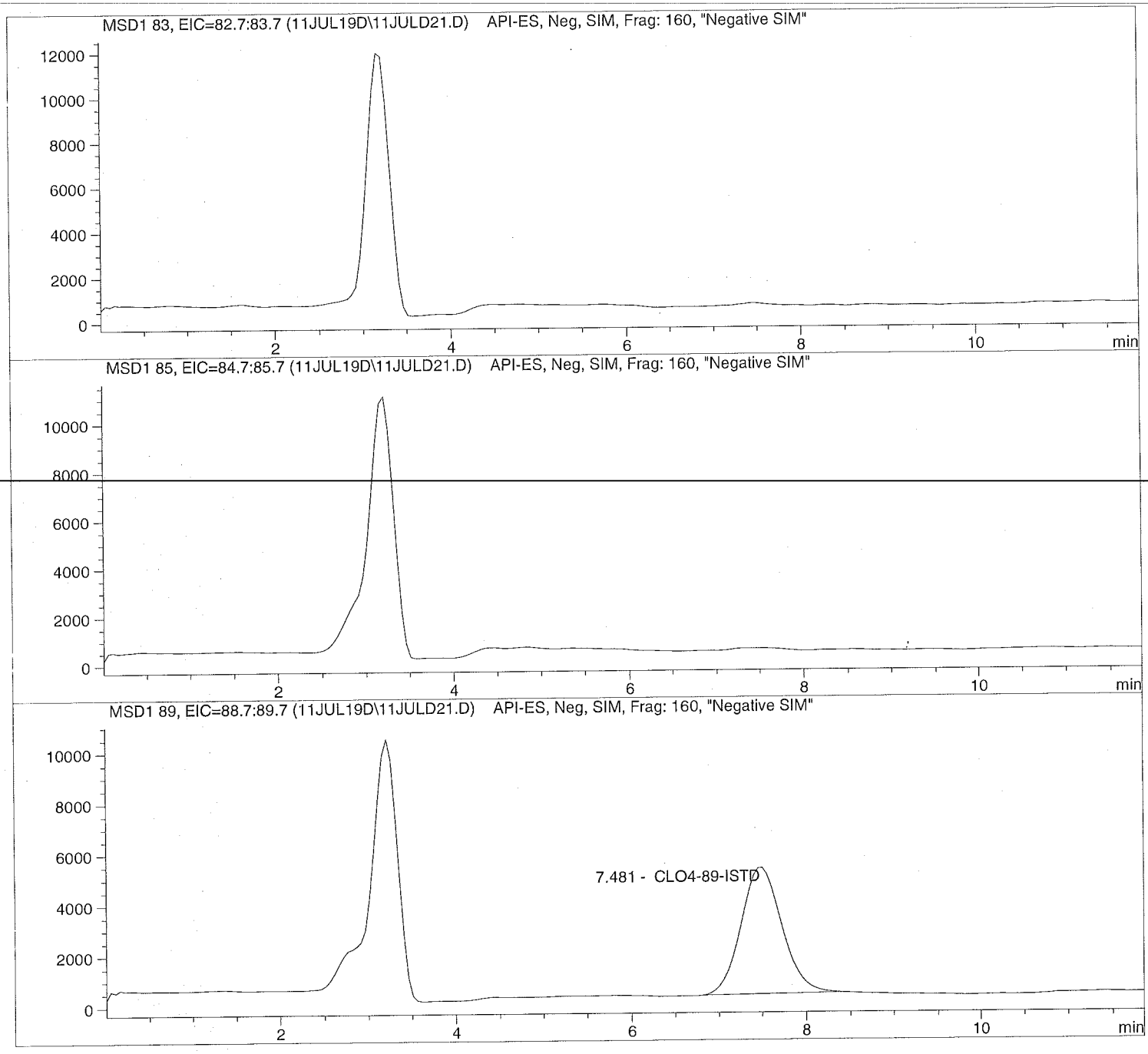
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD21.D Sample Name: 1918705006

Injection Date:	7/11/2019 15:49:37	Seq Line:	21
Sample Name:	1918705006	Location:	Vial 59
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD21.D Sample Name: 1918705006

Injection Date:	7/11/2019 15:49:37	Seq Line:	21
Sample Name:	1918705006	Location:	Vial 59
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.481	PBA	163865.3	5.0000	CLO4-89-ISTD

*** End of Report ***

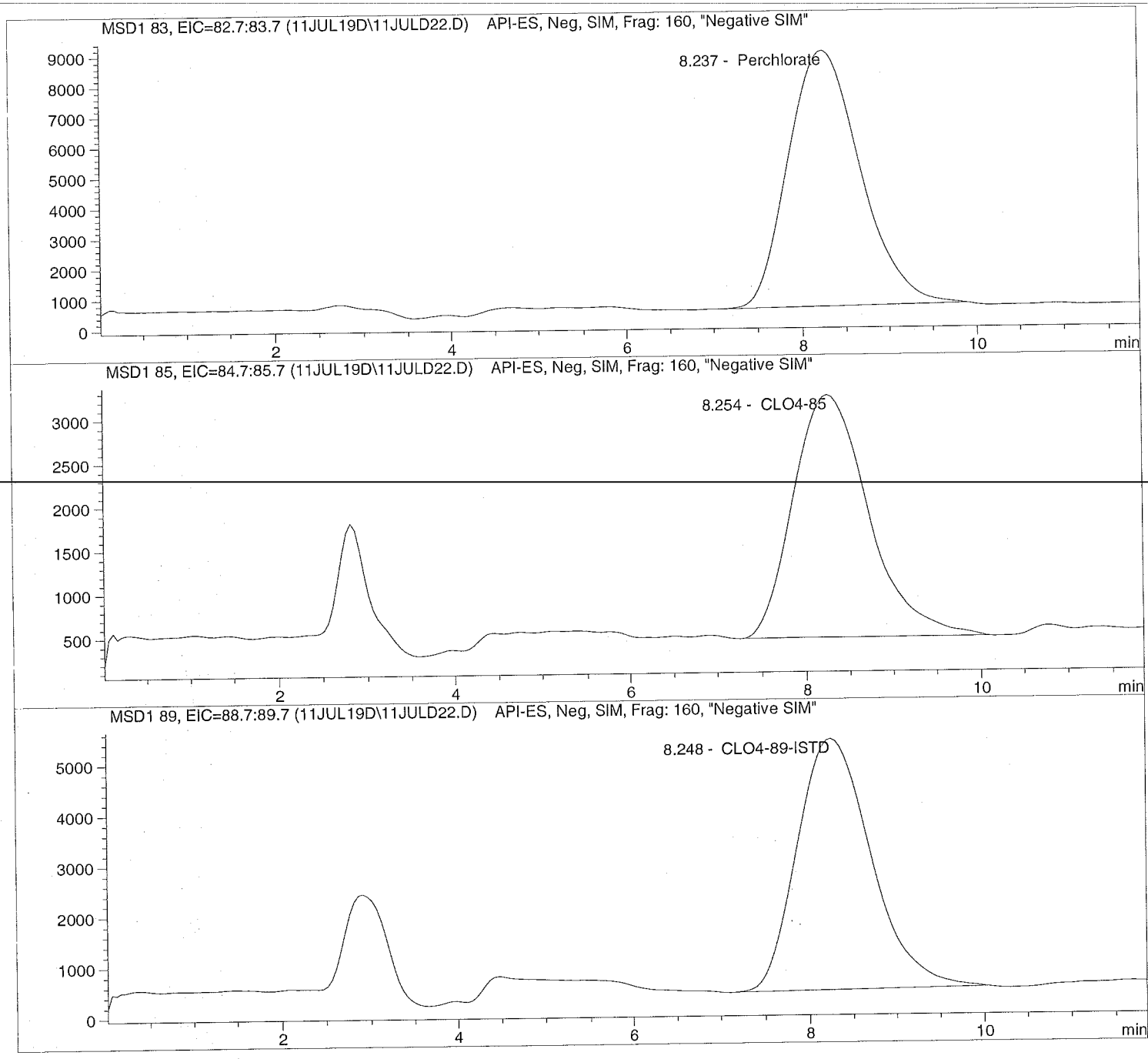
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD22.D Sample Name: 1918705007 10X

Injection Date:	7/11/2019 16:03:27	Seq Line:	22
Sample Name:	1918705007 10X	Location:	Vial 60
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD22.D Sample Name: 1918705007 10X

Injection Date:	7/11/2019 16:03:27	Seq Line:	22
Sample Name:	1918705007 10X	Location:	Vial 60
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.237	PBA	480293.1	53.7355	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.254	PBA	165862.6	60.8905	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.248	PBA	290575.8	50.0000	CLO4-89-ISTD

*** End of Report ***

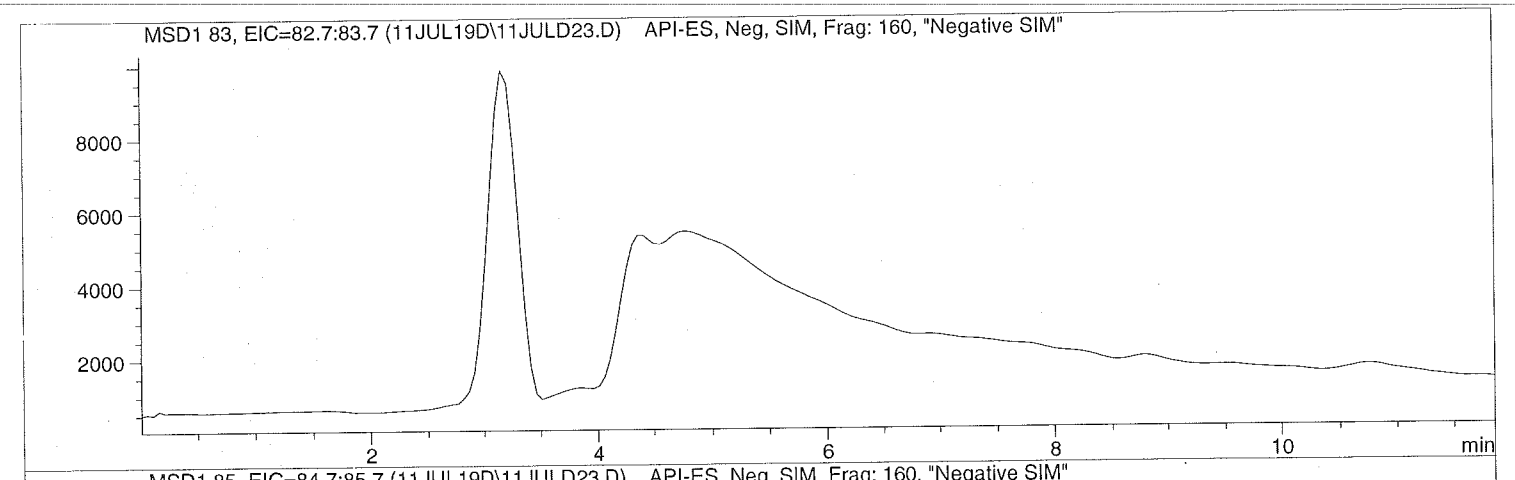
RIGHT SOLUTIONS | RIGHT PARTNER

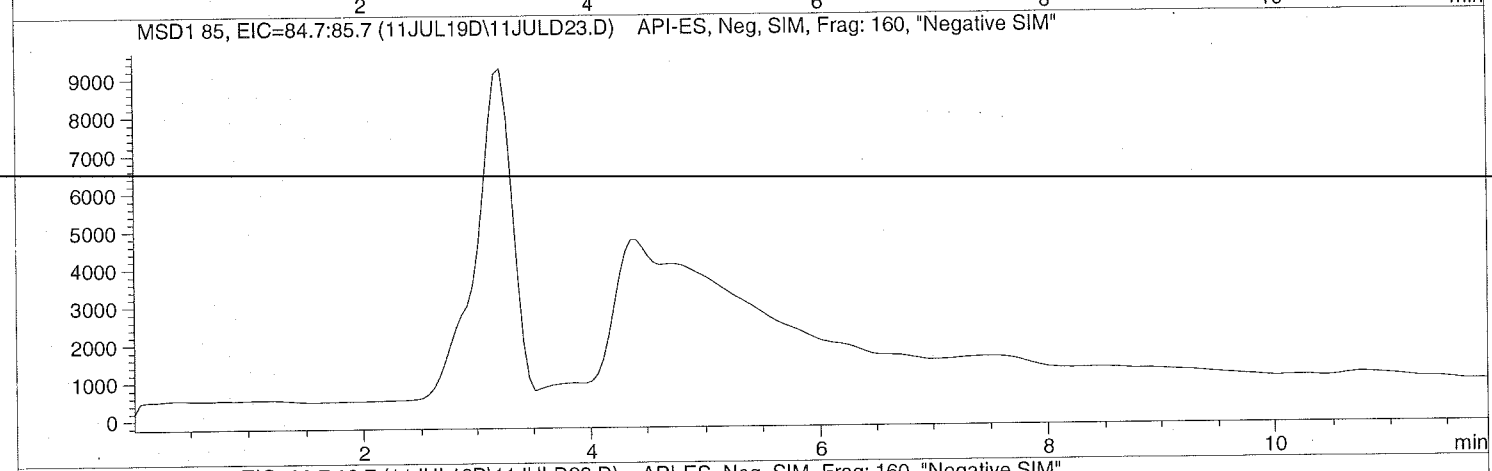
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD23.D Sample Name: 1918705008

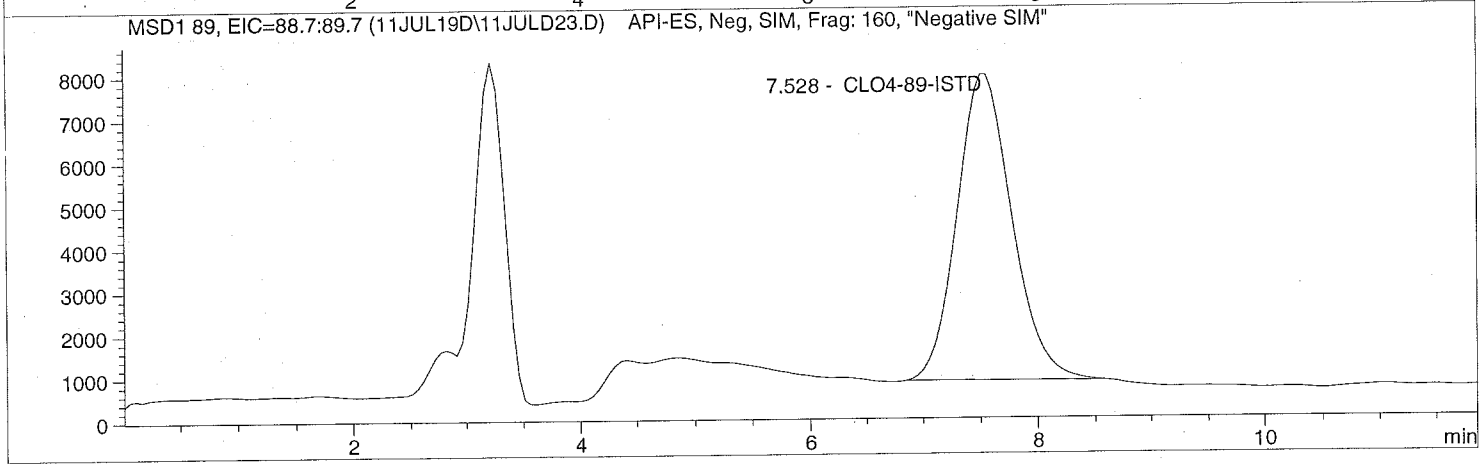
Injection Date:	7/11/2019 16:17:15	Seq Line:	23
Sample Name:	1918705008	Location:	Vial 61
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD23.D Sample Name: 1918705008

Injection Date:	7/11/2019 16:17:15	Seq Line:	23
Sample Name:	1918705008	Location:	Vial 61
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.528	PBA	237165.4	5.0000	CLO4-89-ISTD

*** End of Report ***

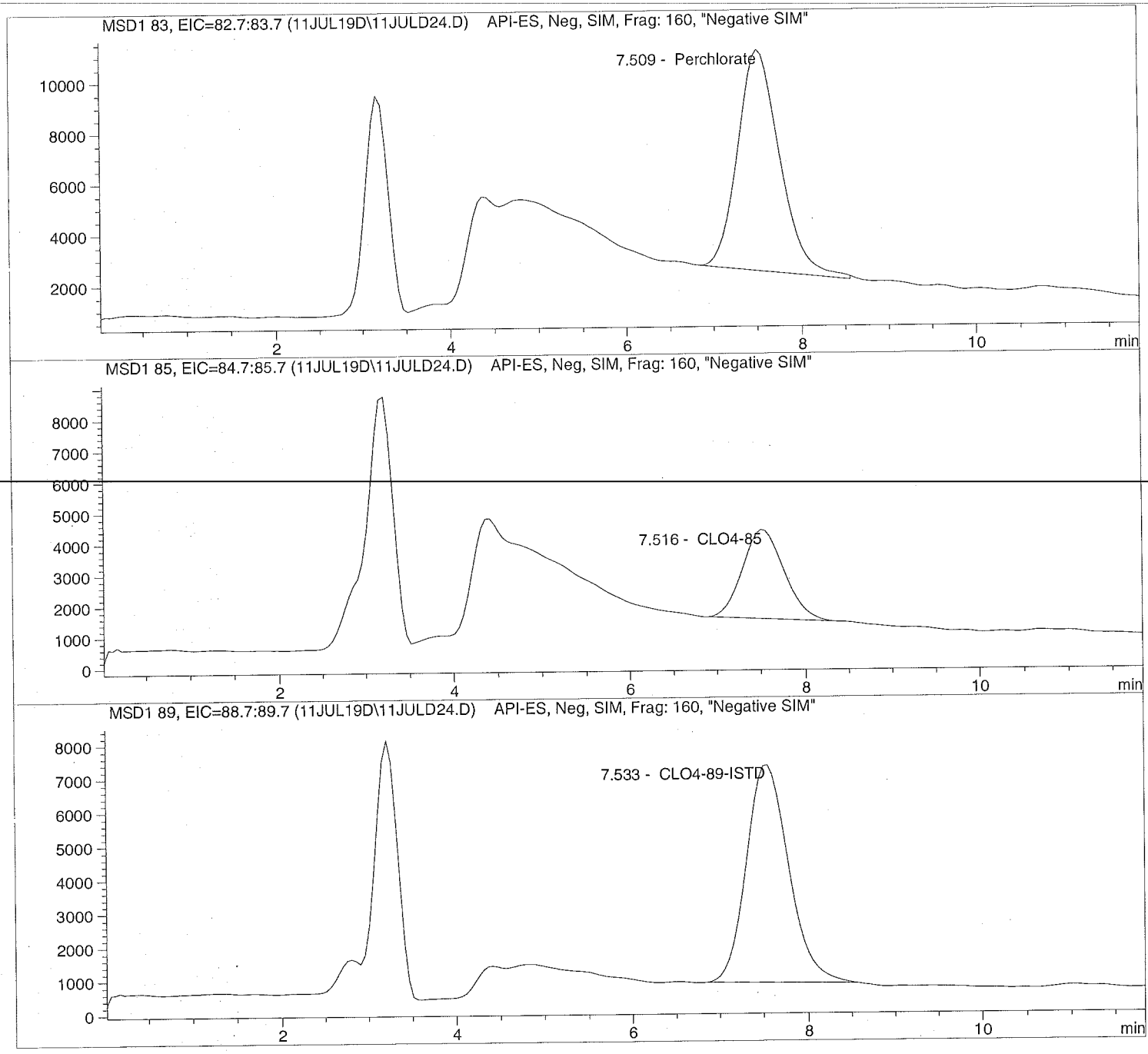
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD24.D Sample Name: 1918705009 MS

Injection Date:	7/11/2019 16:31:15	Seq Line:	24
Sample Name:	1918705009 MS	Location:	Vial 62
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD24.D Sample Name: 1918705009 MS

Injection Date:	7/11/2019 16:31:15	Seq Line:	24
Sample Name:	1918705009 MS	Location:	Vial 62
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.509	PBA	288361.0	4.3992	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.516	PBA	93975.4	4.6759	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.533	PBA	214999.5	5.0000	CLO4-89-ISTD

*** End of Report ***

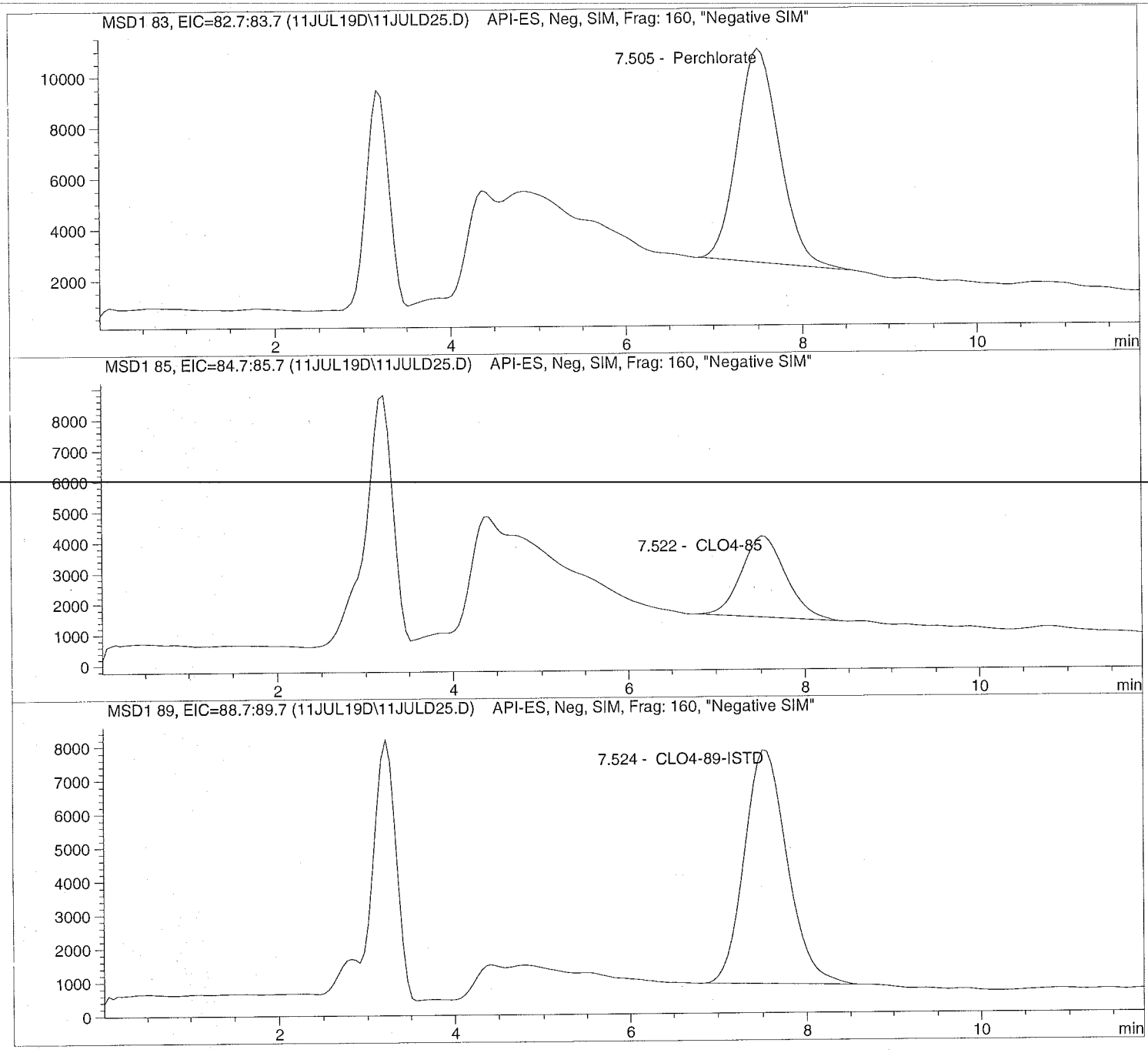
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD25.D Sample Name: 1918705010 MSD

Injection Date:	7/11/2019 16:45:02	Seq Line:	25
Sample Name:	1918705010 MSD	Location:	Vial 63
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD25.D Sample Name: 1918705010 MSD

Injection Date:	7/11/2019 16:45:02	Seq Line:	25
Sample Name:	1918705010 MSD	Location:	Vial 63
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.505	PBA	277079.4	3.9208	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.522	PBA	91663.1	4.2105	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.524	PBA	233099.0	5.0000	CLO4-89-ISTD

*** End of Report ***

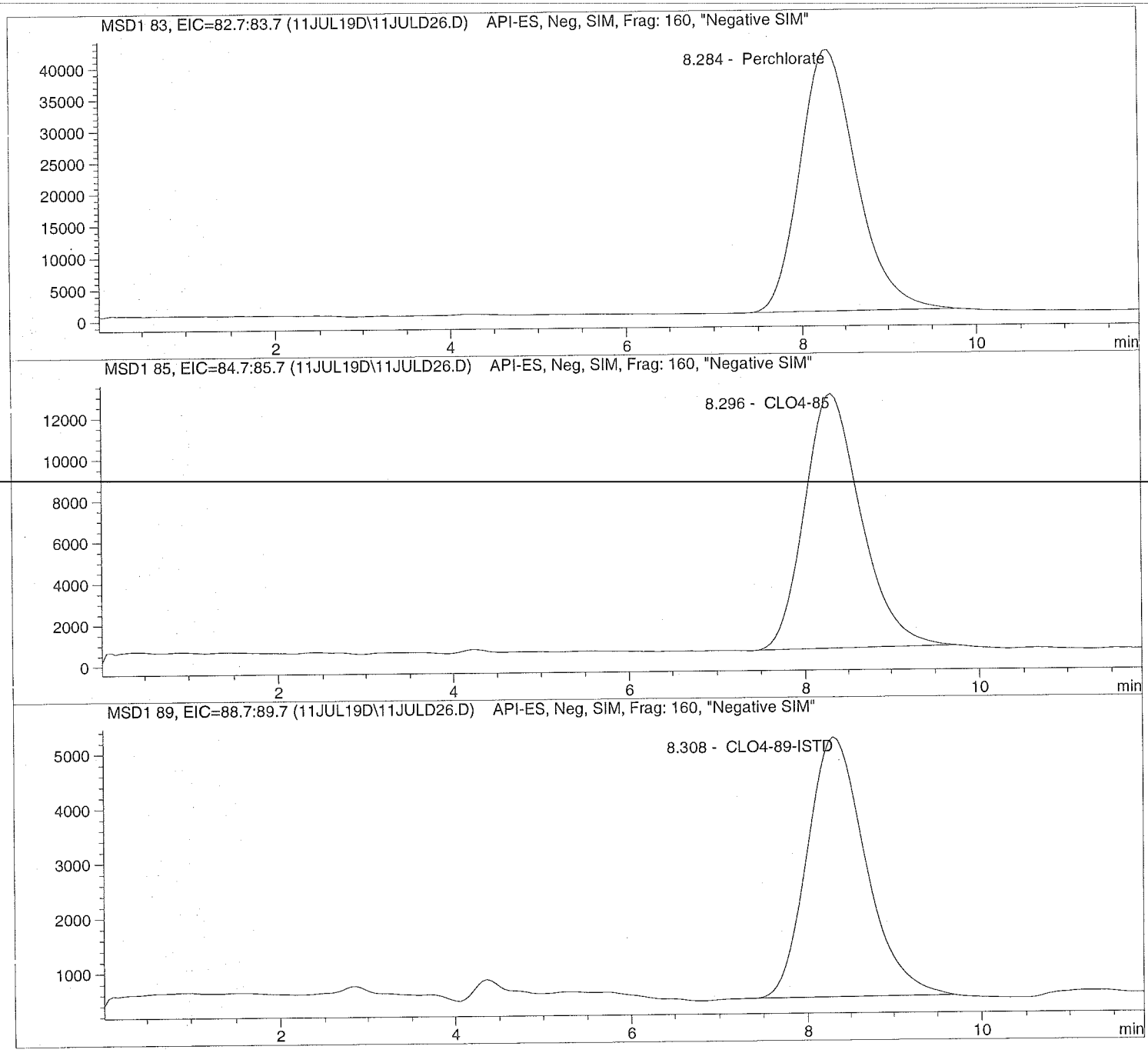
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD26.D Sample Name: 663036 CCV@25

Injection Date:	7/11/2019 16:58:48	Seq Line:	26
Sample Name:	663036 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD26.D Sample Name: 663036 CCV@25

Injection Date:	7/11/2019 16:58:48	Seq Line:	26
Sample Name:	663036 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.284	PBA	1877862.1	25.5677	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.296	PBA	559339.1	25.6558	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.308	BBA	223151.0	5.0000	CLO4-89-ISTD

*** End of Report ***

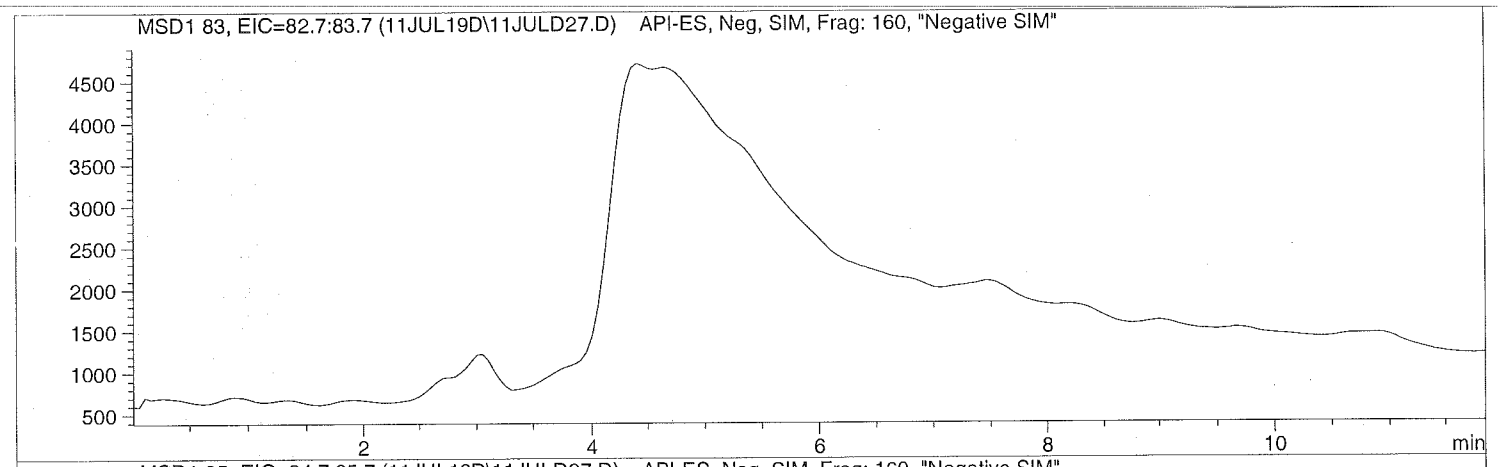
RIGHT SOLUTIONS | RIGHT PARTNER

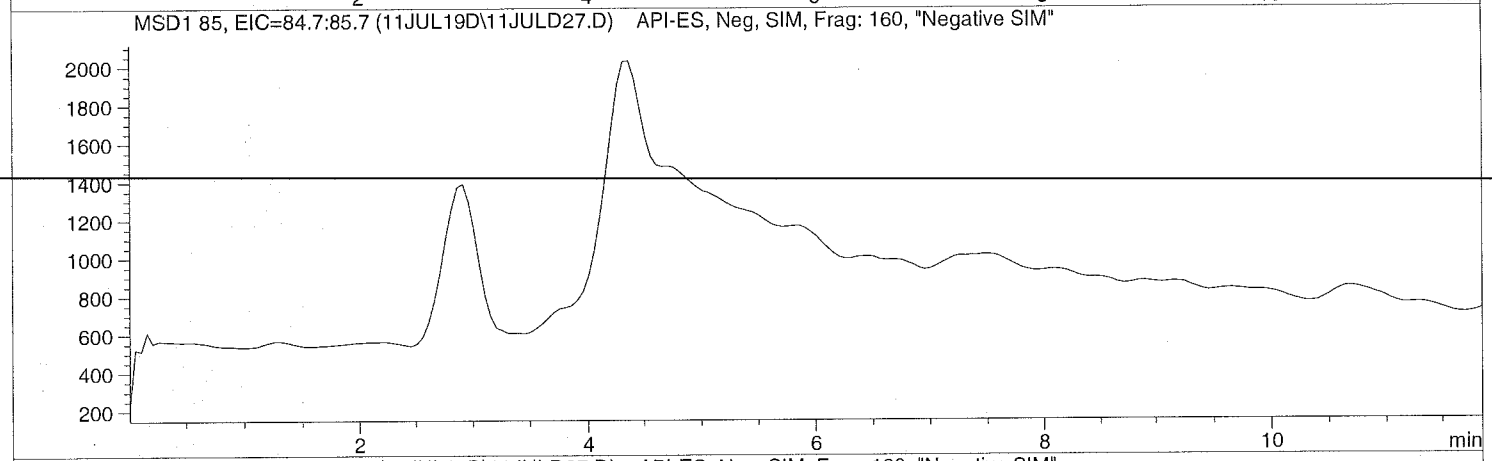
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD27.D Sample Name: 1918871001

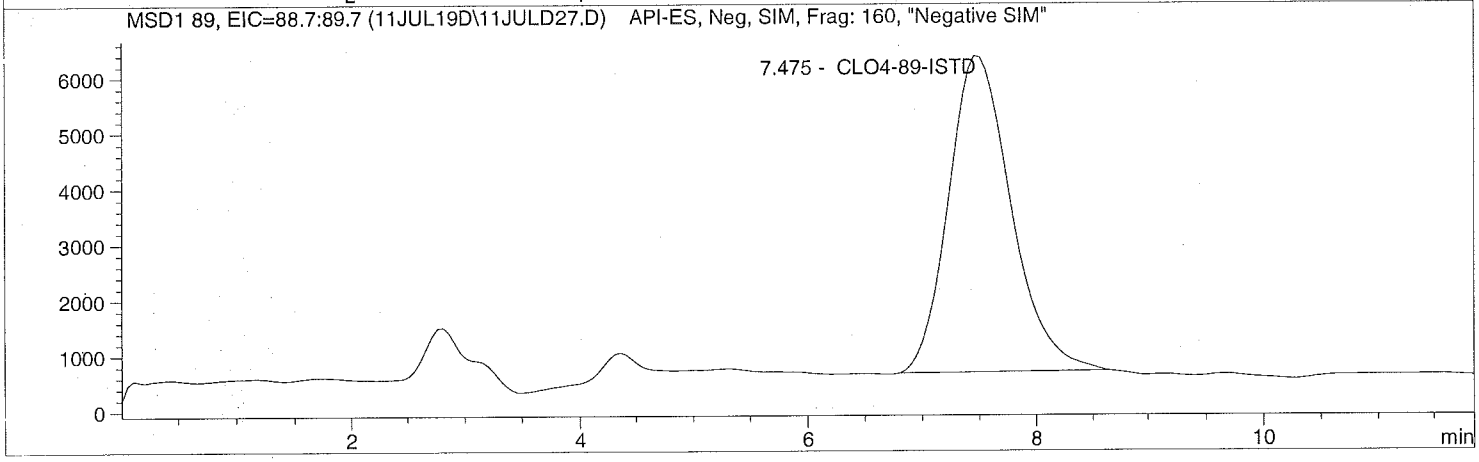
Injection Date:	7/11/2019 17:12:38	Seq Line:	27
Sample Name:	1918871001	Location:	Vial 64
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD27.D Sample Name: 1918871001

Injection Date:	7/11/2019 17:12:38	Seq Line:	27
Sample Name:	1918871001	Location:	Vial 64
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.475	PBA	217461.8	5.0000	CLO4-89-ISTD

*** End of Report ***

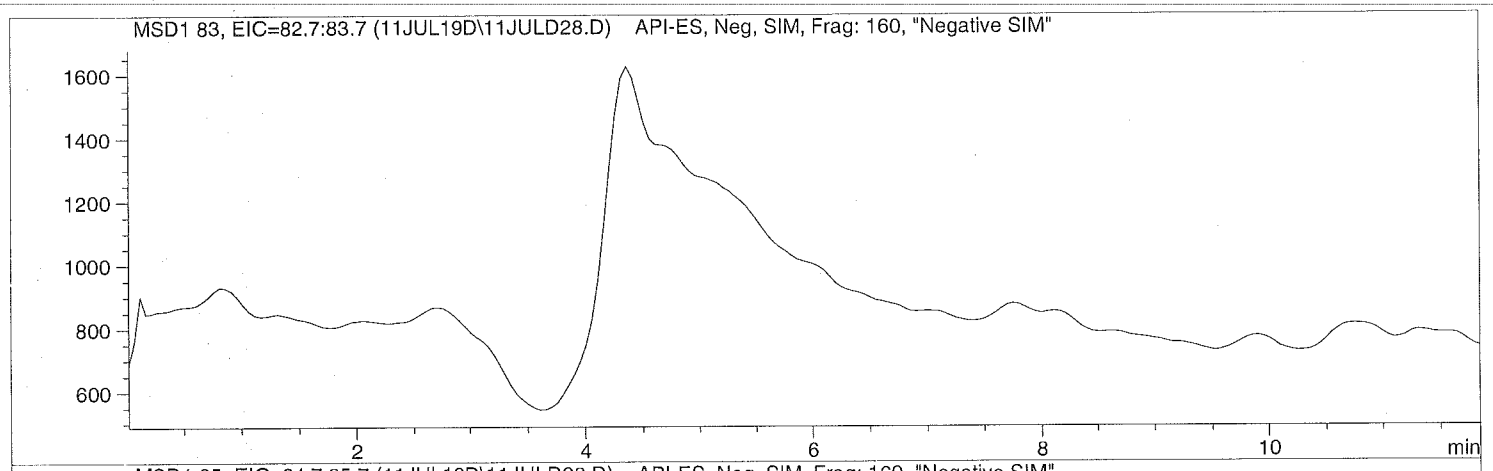
RIGHT SOLUTIONS | RIGHT PARTNER

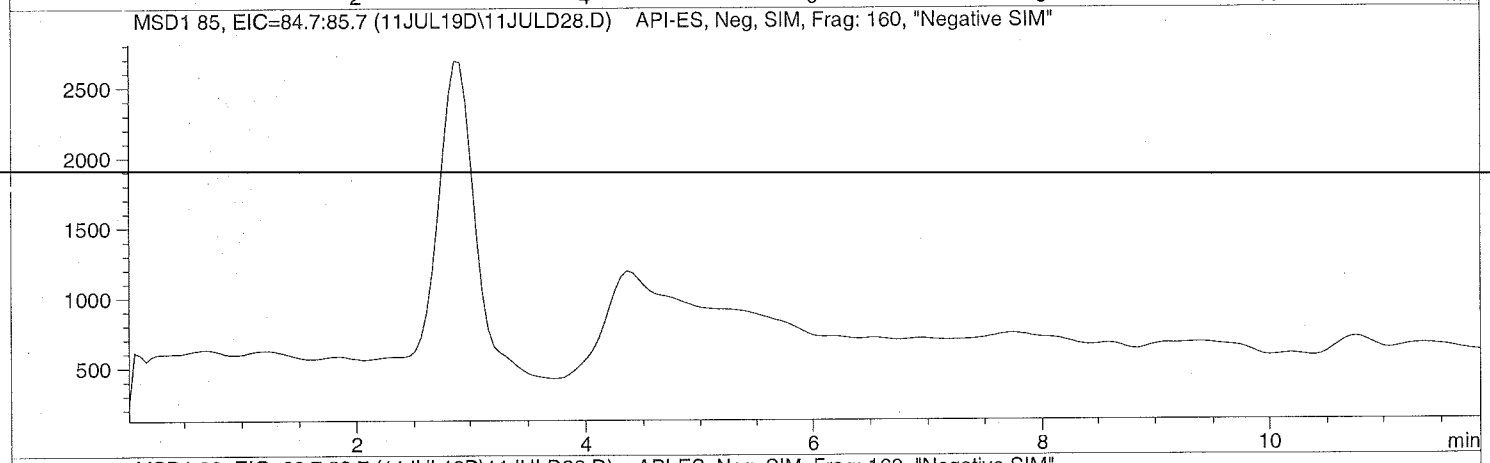
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD28.D Sample Name: 1918871002

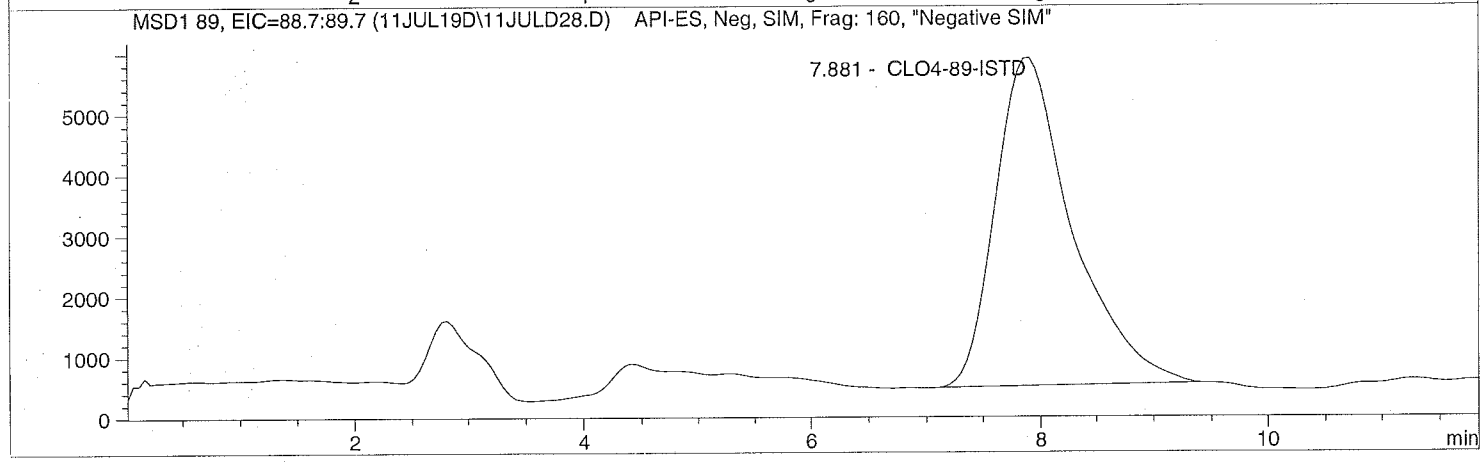
Injection Date:	7/11/2019 17:26:27	Seq Line:	28
Sample Name:	1918871002	Location:	Vial 65
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD28.D Sample Name: 1918871002

Injection Date:	7/11/2019 17:26:27	Seq Line:	28
Sample Name:	1918871002	Location:	Vial 65
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.881	PBA	252228.0	5.0000	CLO4-89-ISTD

*** End of Report ***

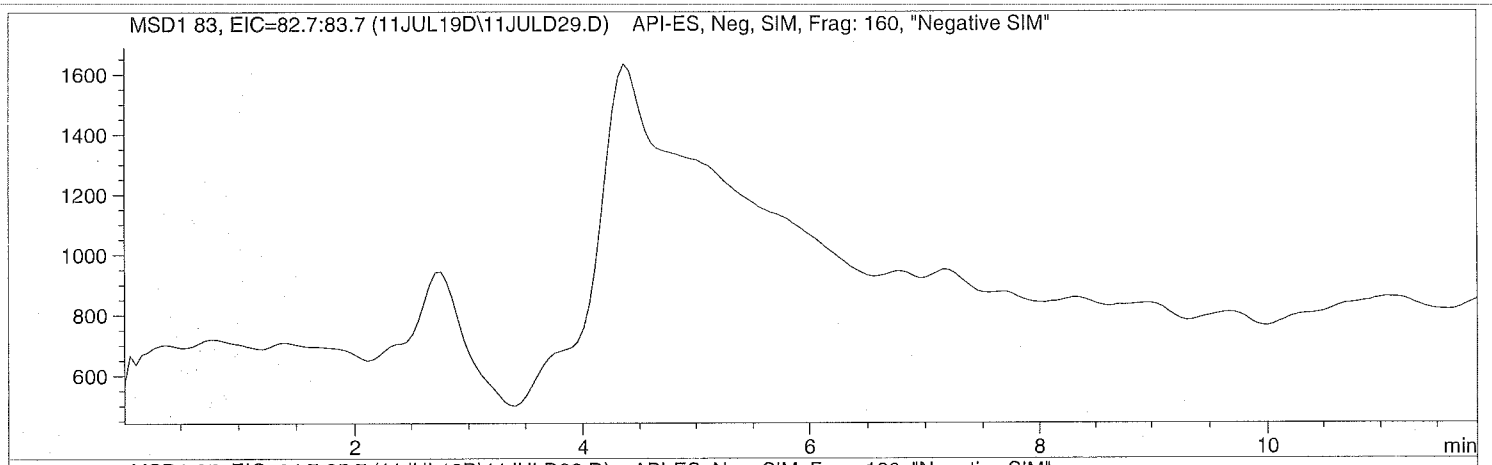
RIGHT SOLUTIONS | RIGHT PARTNER

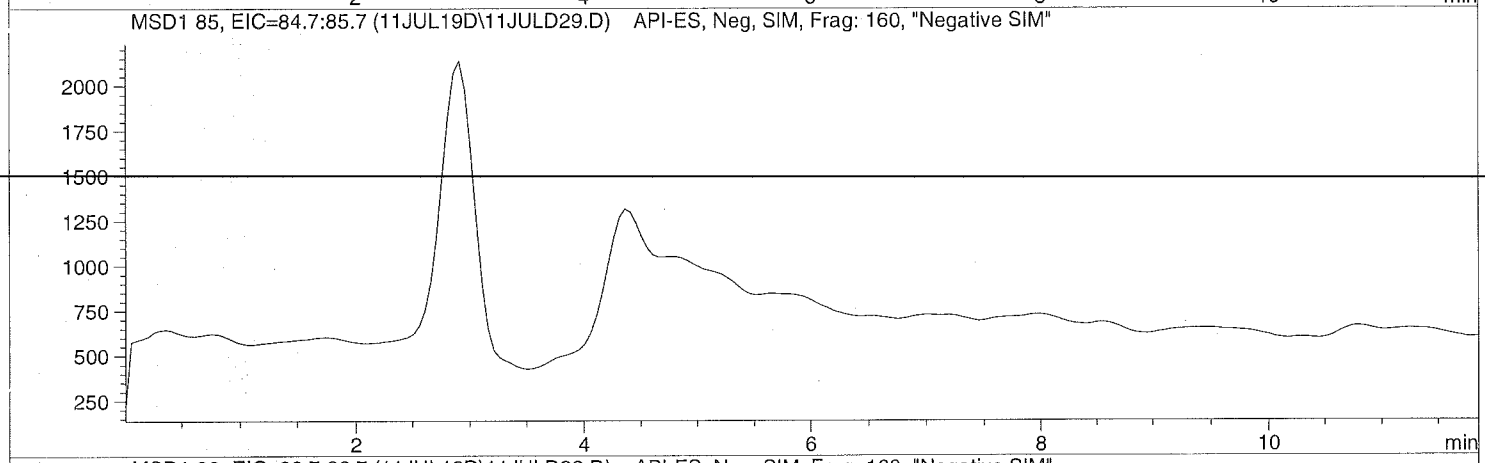
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD29.D Sample Name: 1918871003

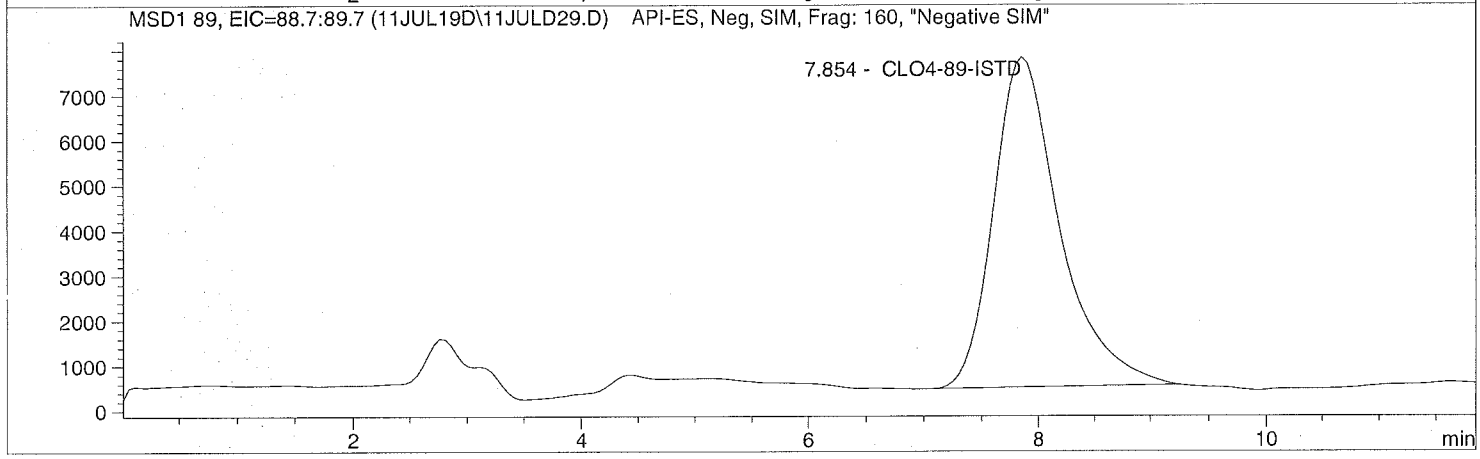
Injection Date:	7/11/2019 17:40:12	Seq Line:	29
Sample Name:	1918871003	Location:	Vial 66
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD29.D Sample Name: 1918871003

Injection Date:	7/11/2019 17:40:12	Seq Line:	29
Sample Name:	1918871003	Location:	Vial 66
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.854	PBA	297108.1	5.0000	CLO4-89-ISTD

*** End of Report ***

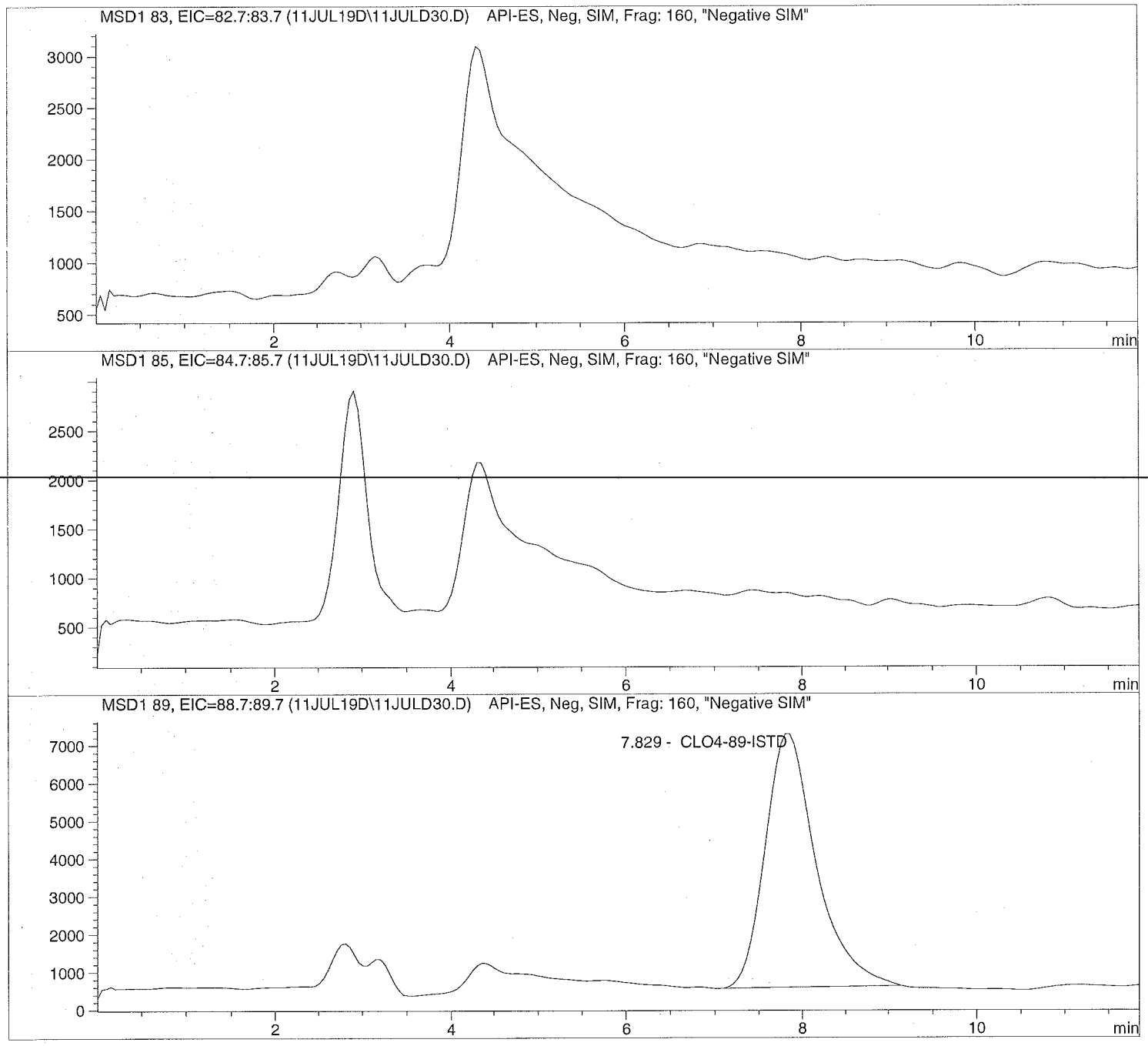
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD30.D Sample Name: 1918871004

Injection Date:	7/11/2019 17:54:08	Seq Line:	30
Sample Name:	1918871004	Location:	Vial 67
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD30.D Sample Name: 1918871004

Injection Date:	7/11/2019 17:54:08	Seq Line:	30
Sample Name:	1918871004	Location:	Vial 67
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.829	PBA	273038.9	5.0000	CLO4-89-ISTD

*** End of Report ***

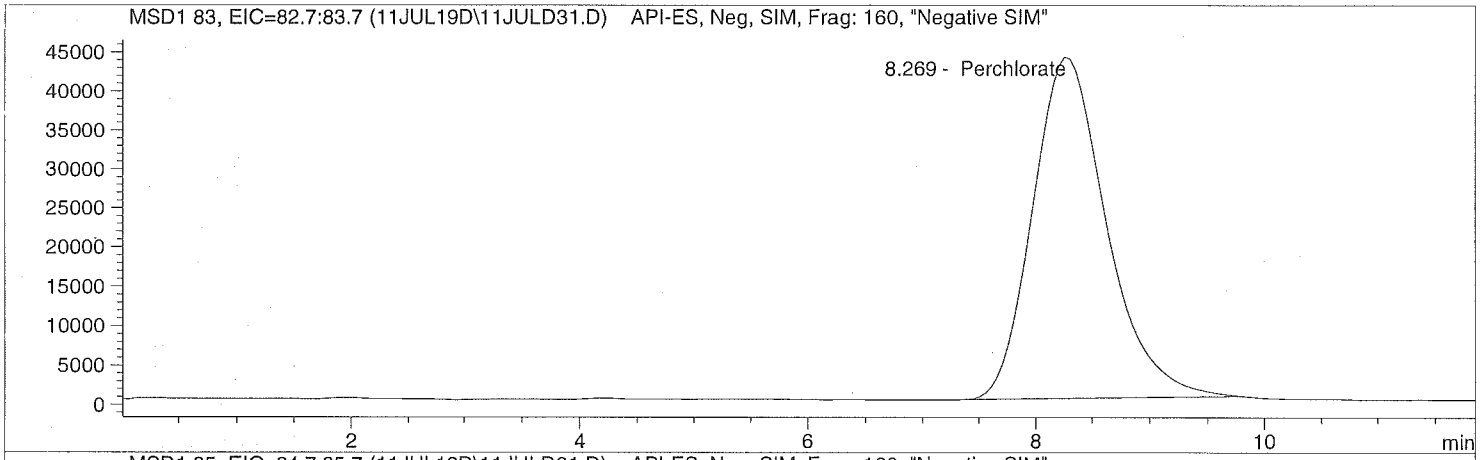
RIGHT SOLUTIONS | RIGHT PARTNER

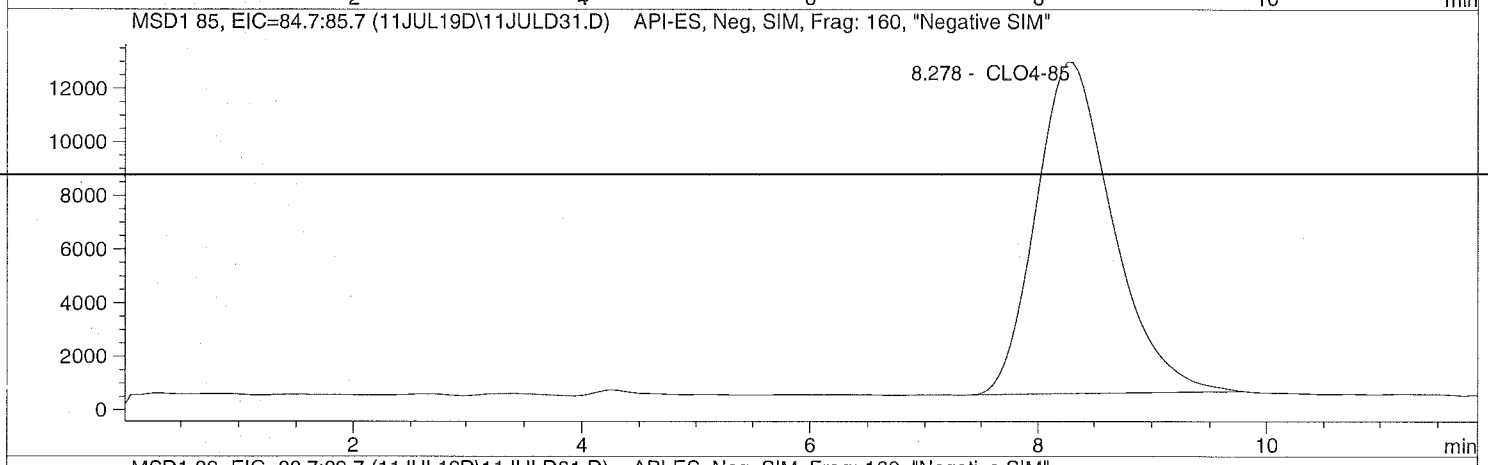
Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD31.D Sample Name: 663037 CCV@25

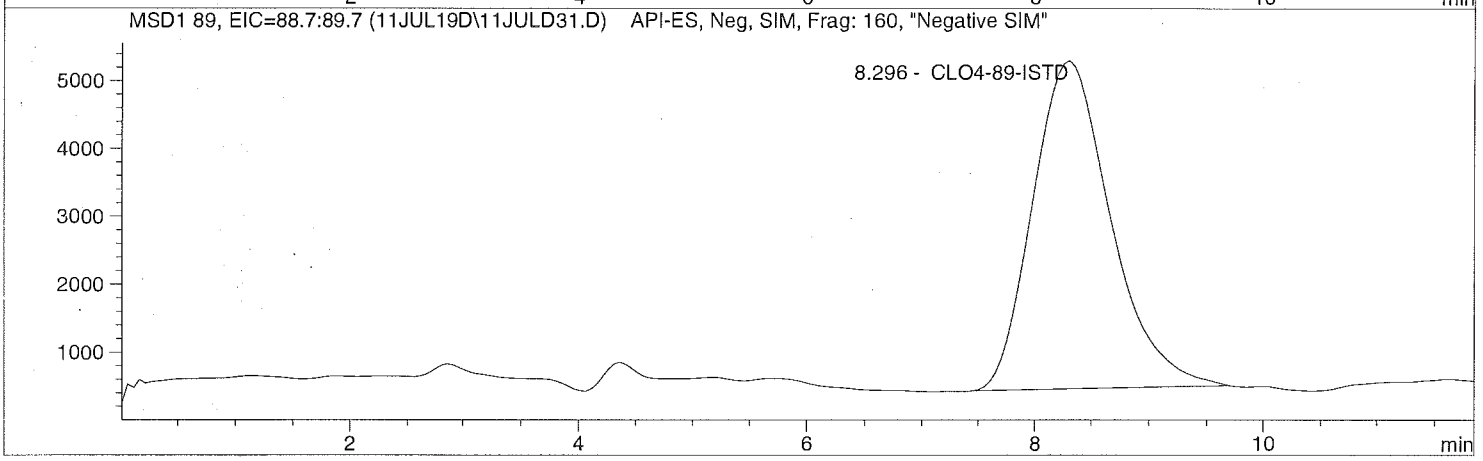
Injection Date:	7/11/2019 18:07:55	Seq Line:	31
Sample Name:	663037 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







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Injection Date:	7/11/2019 18:07:55	Seq Line:	31
Sample Name:	663037 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.269	PBA	1970476.5	25.8725	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.278	PBA	583651.3	25.8263	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.296	PBA	231230.8	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

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Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

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Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

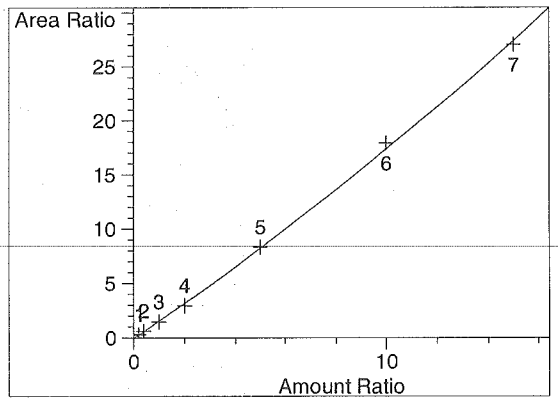
Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

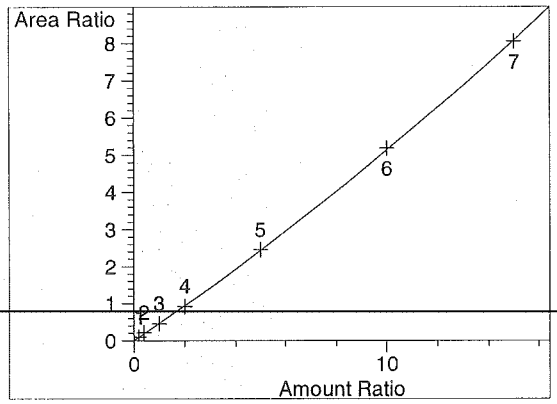
No Entries in table

RIGHT SOLUTIONS | RIGHT PARTNER

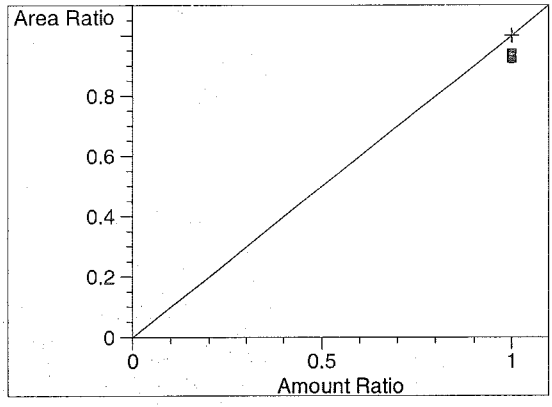
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

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Batch Report: C:\HPCHEM\1\DATA\19MAR19I\19MAR19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

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Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

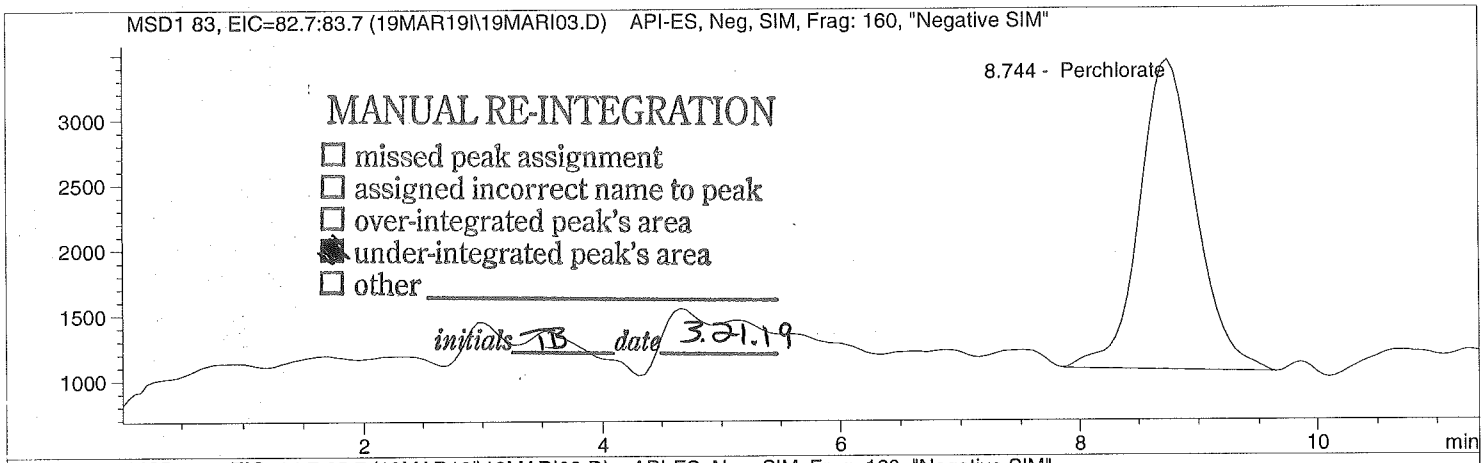
RIGHT SOLUTIONS | RIGHT PARTNER

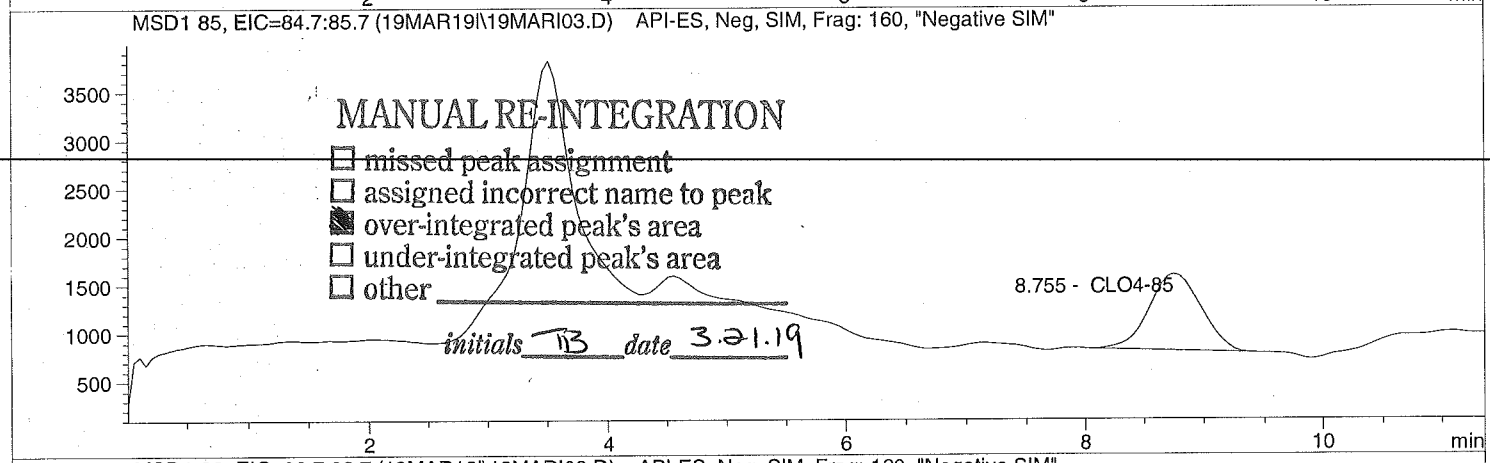
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

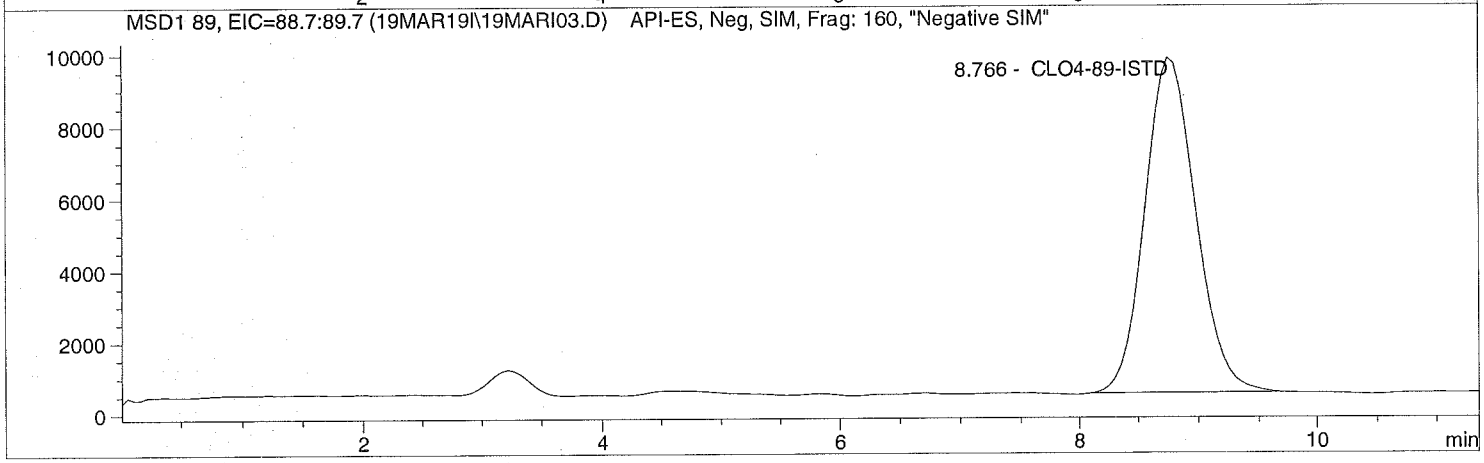
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

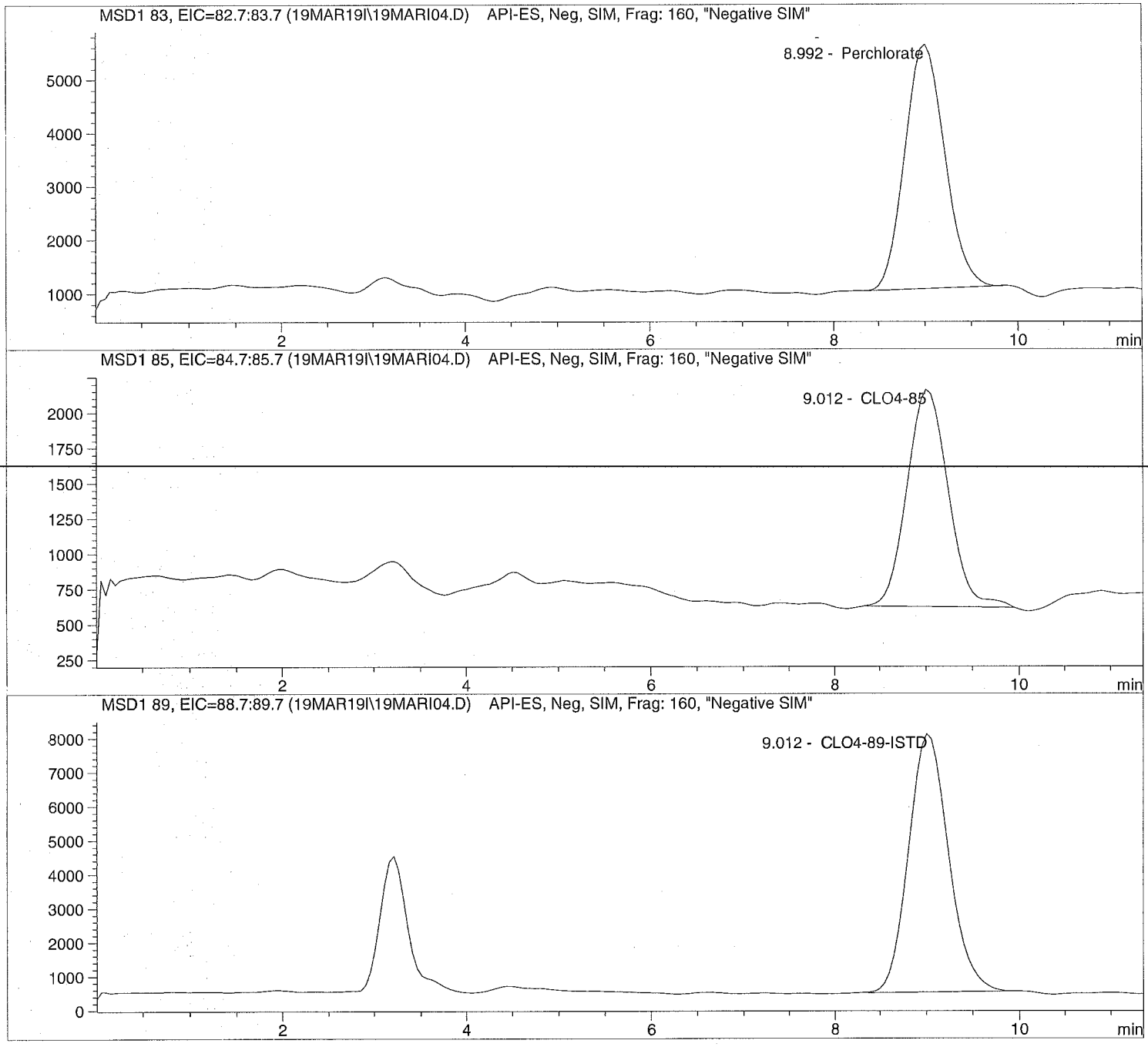
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

*** End of Report ***

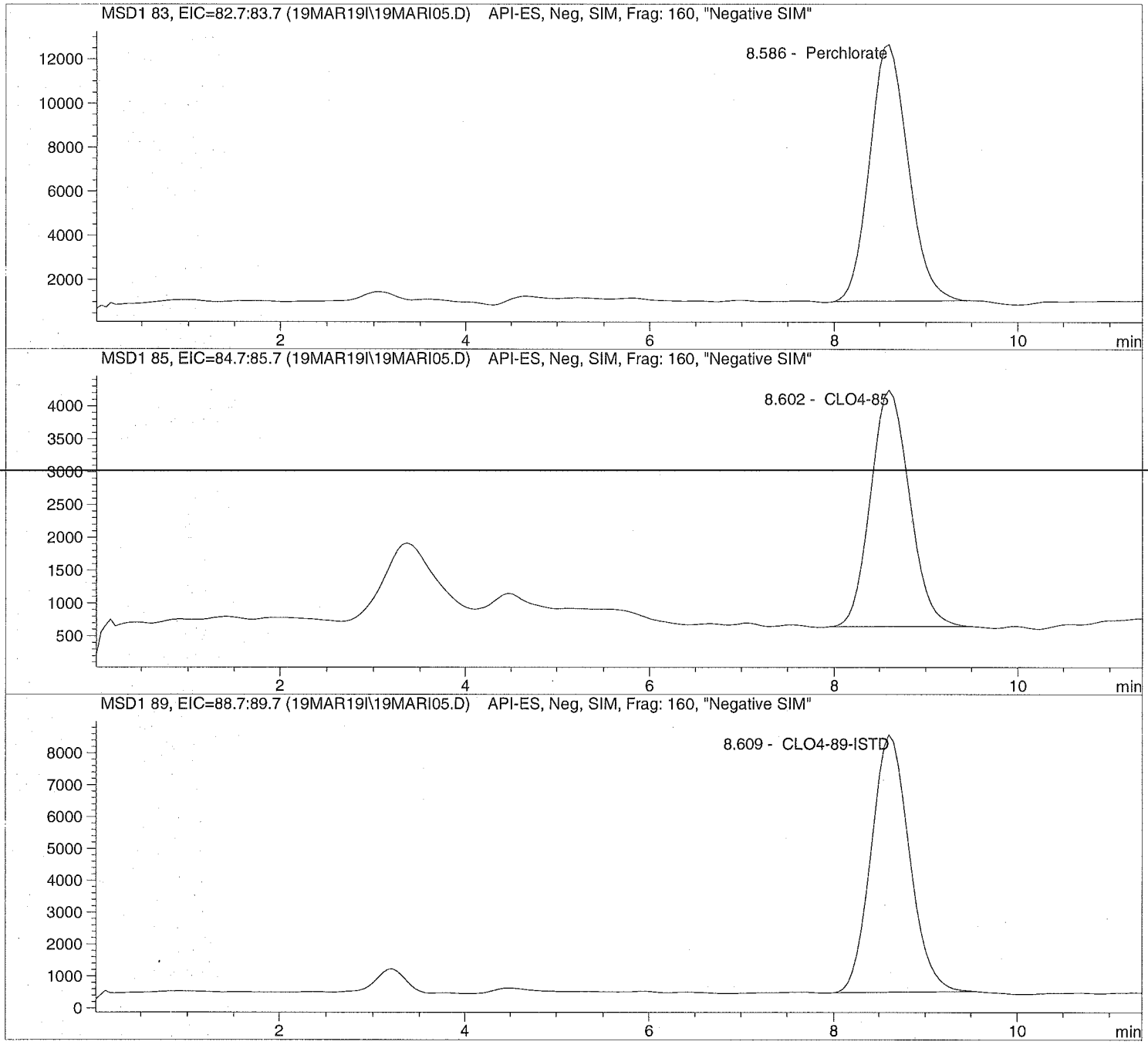
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

*** End of Report ***

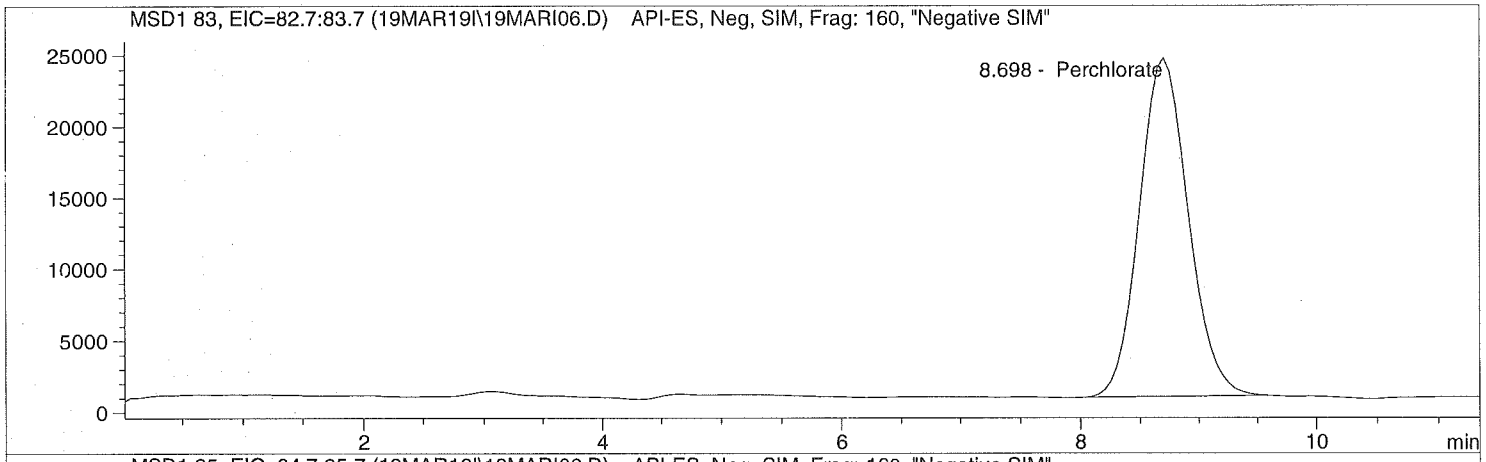
RIGHT SOLUTIONS | RIGHT PARTNER

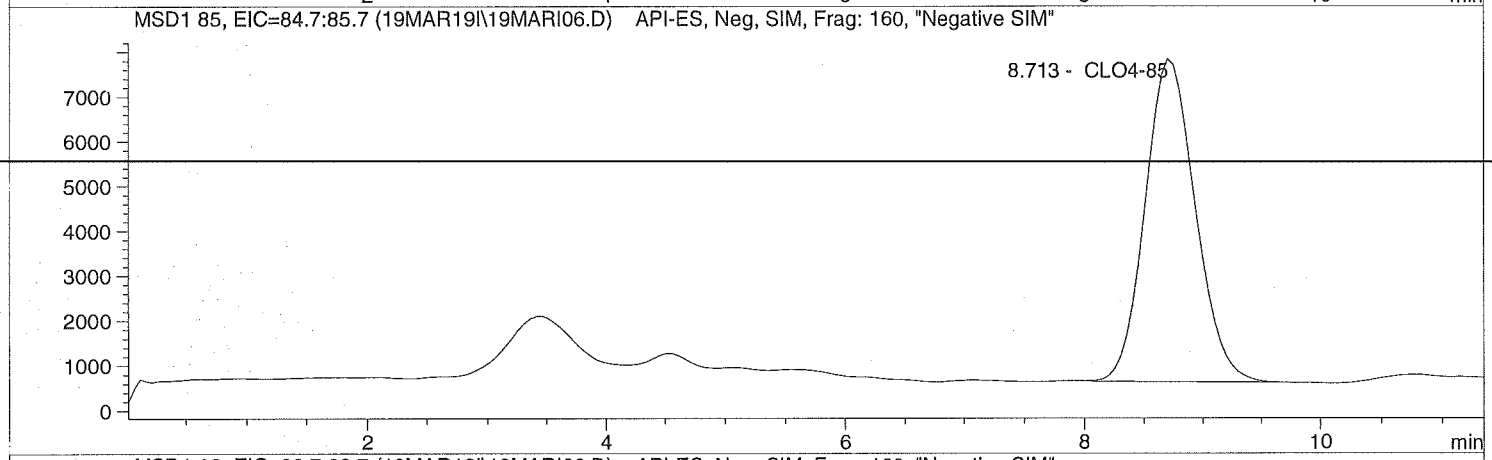
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

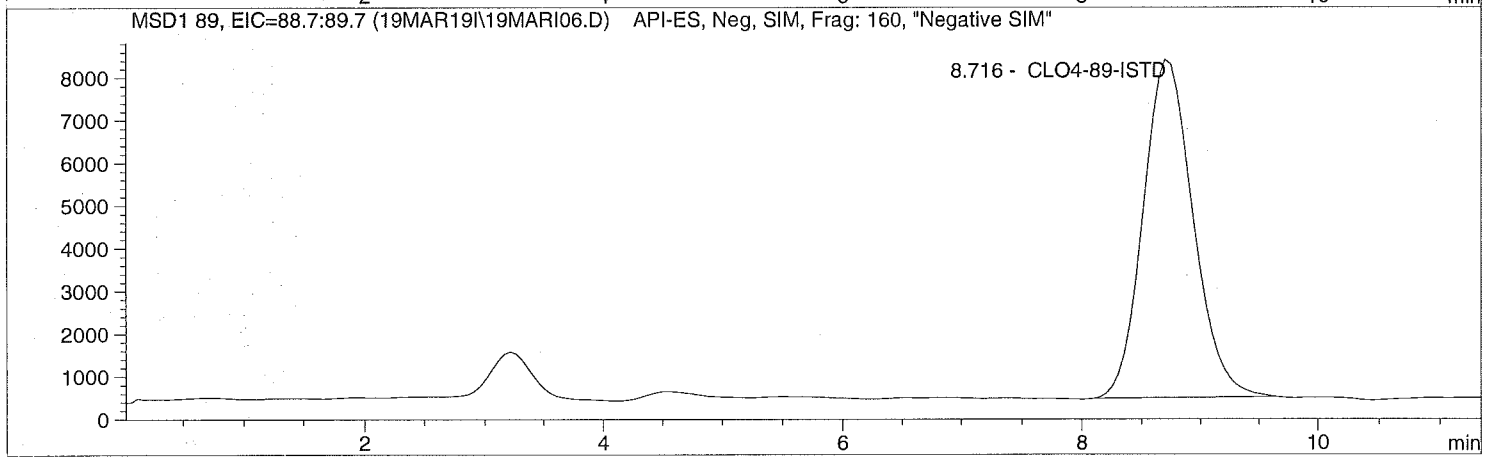
Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

*** End of Report ***

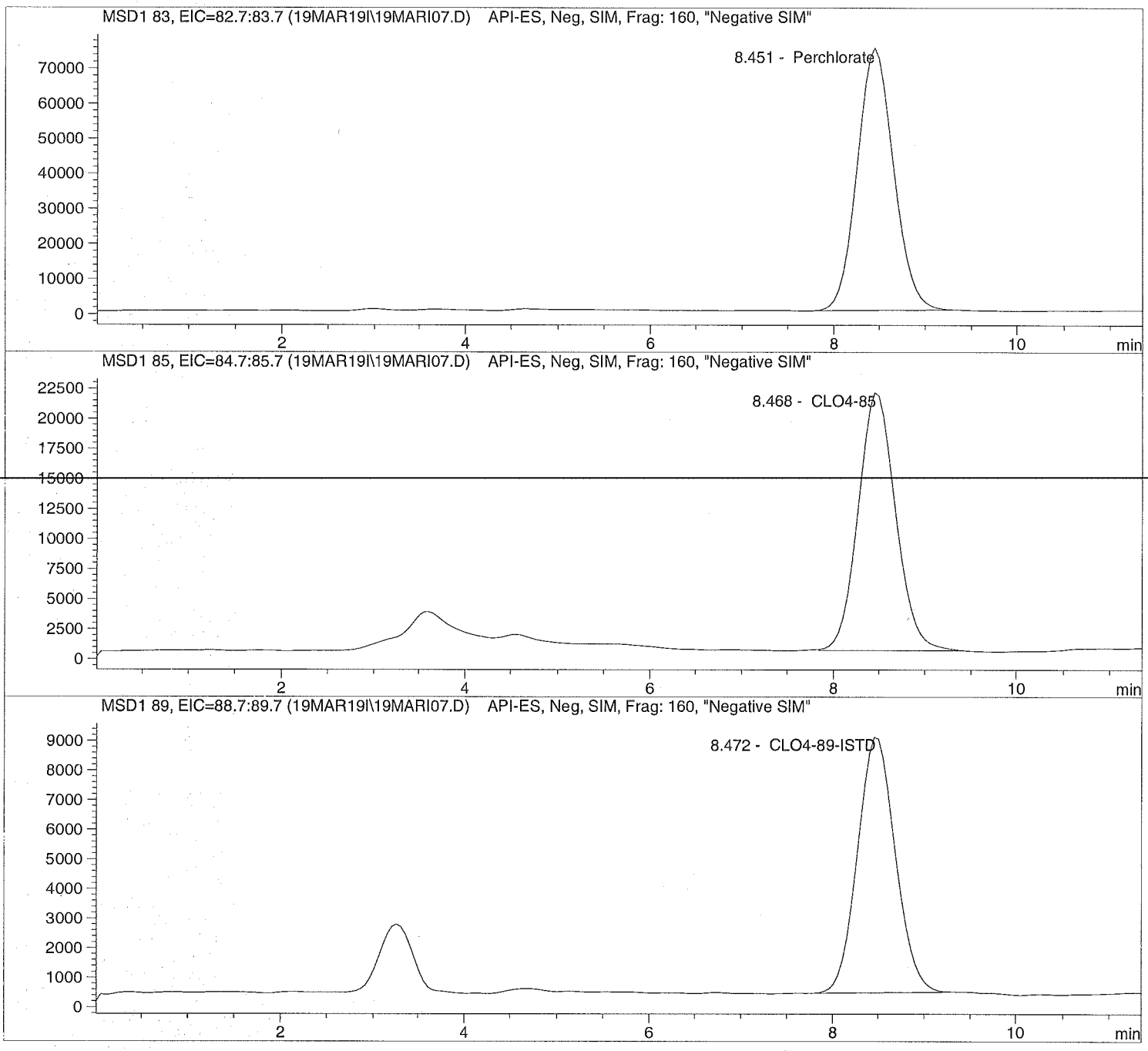
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

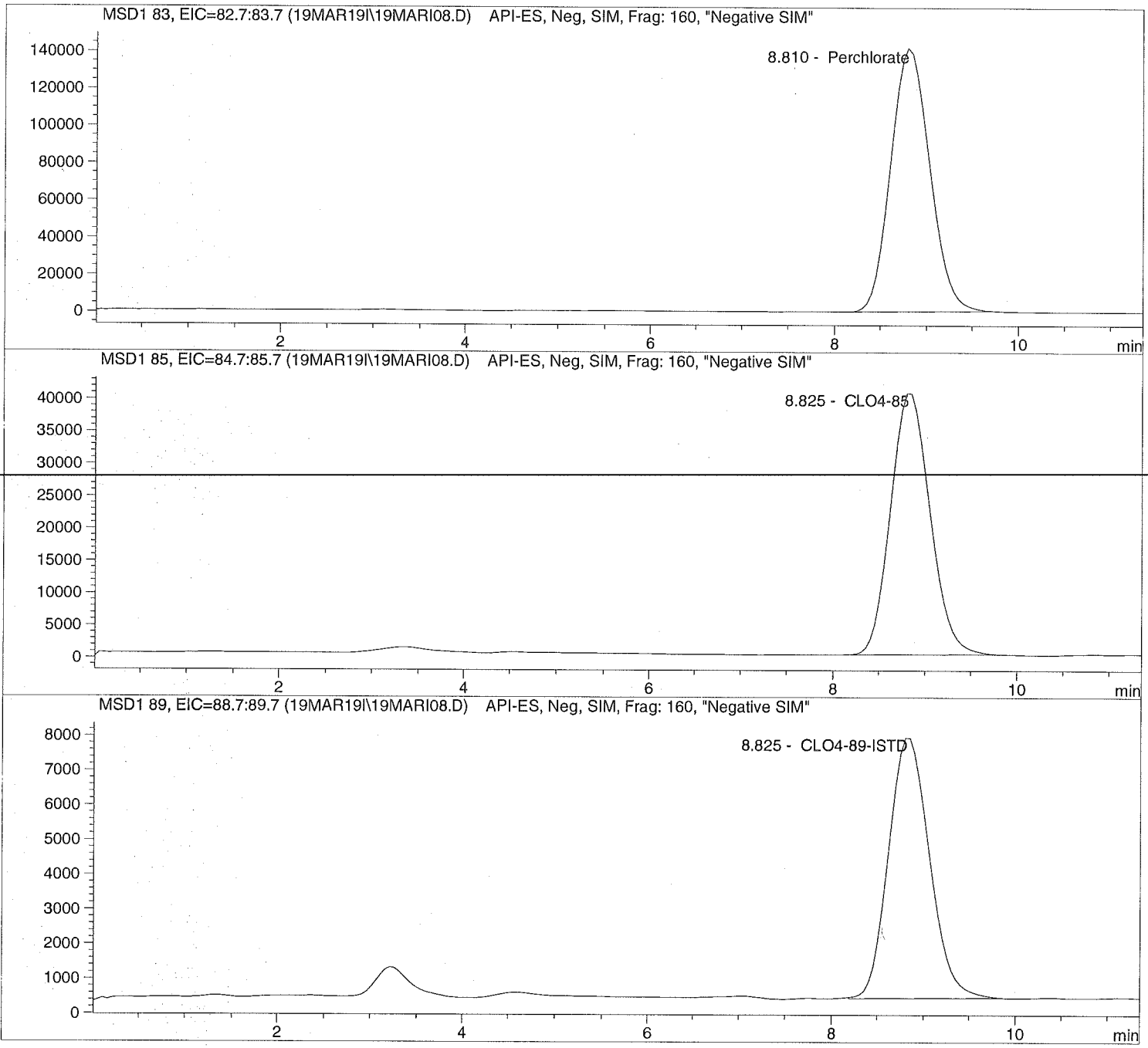
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

*** End of Report ***

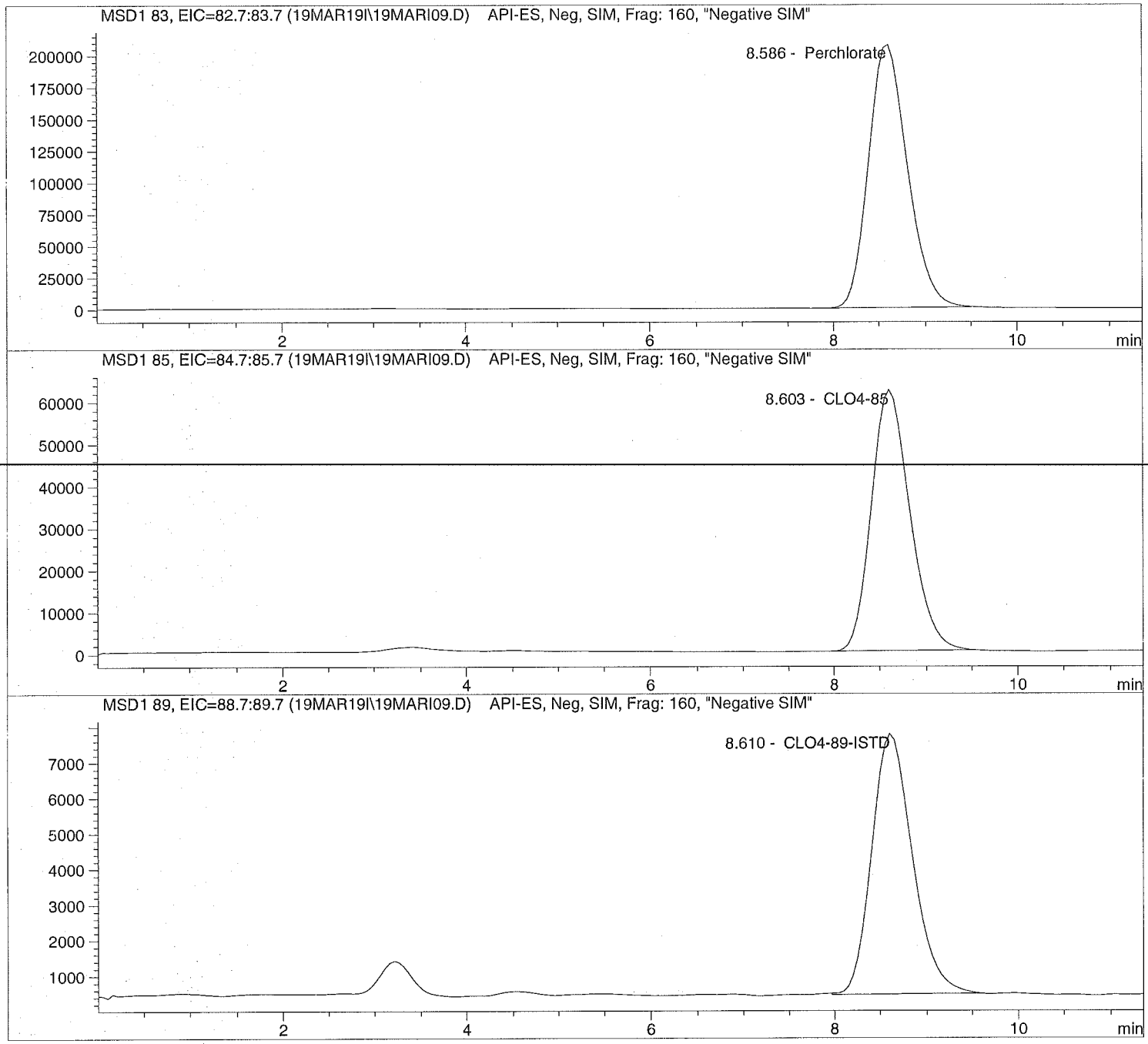
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



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Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

*** End of Report ***

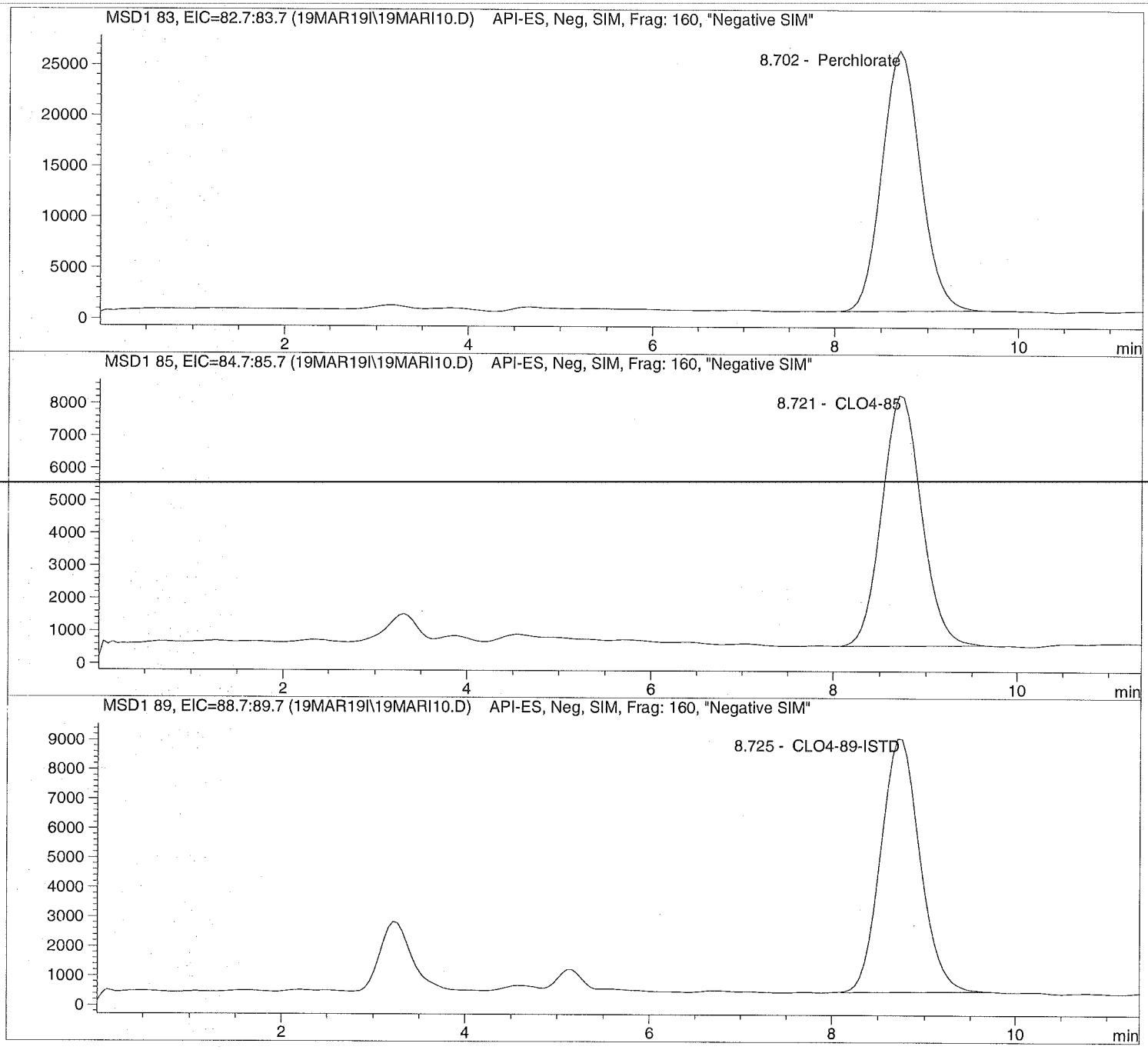
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Unmodified

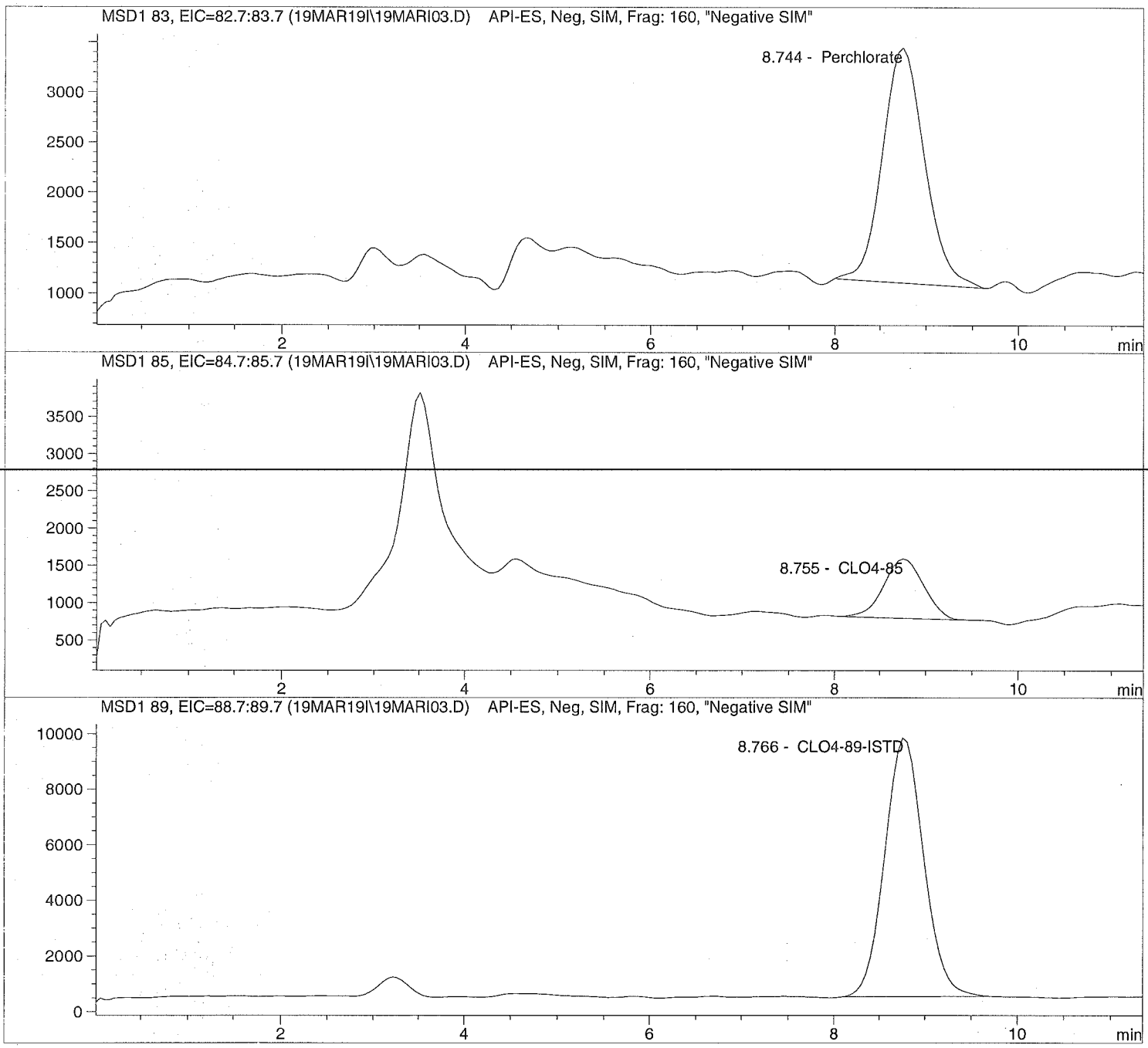
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

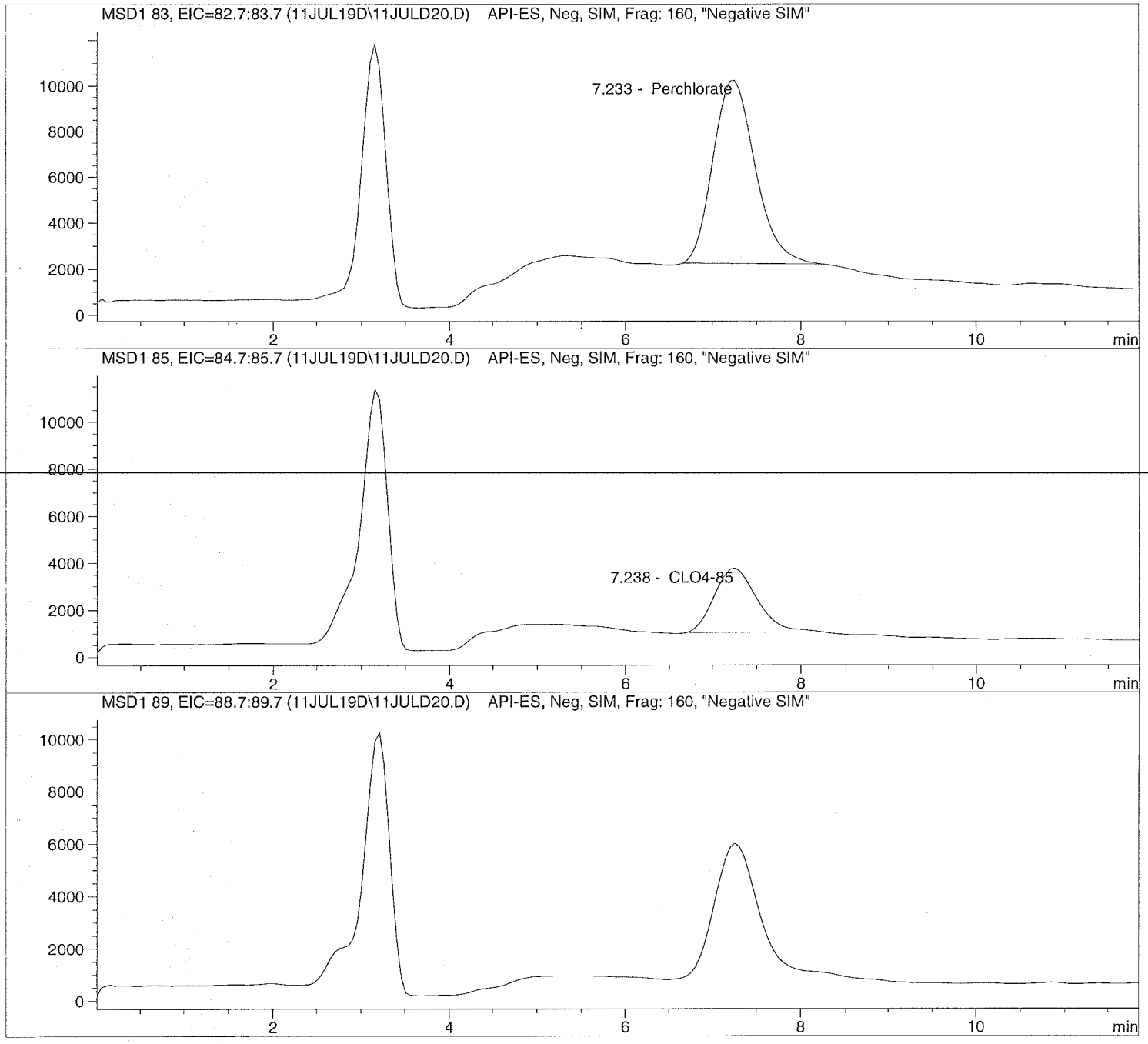
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\11JUL19D\11JULD20.D Sample Name: 1918705005

Injection Date:	7/11/2019 15:35:52	Seq Line:	20
Sample Name:	1918705005	Location:	Vial 58
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.233	PBA	264721.6	0.1573	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.238	BBA	91183.5	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-89-ISTD

*** End of Report ***

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 17, 2019

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

Work Order: **HS19070016**

Laboratory Results for: **LHAAP 18 24/ICT Wells**

Dear Marcia,

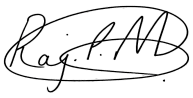
ALS Environmental received 19 sample(s) on Jun 29, 2019 for the analysis presented in the following report.

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

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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July 29, 2019

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

Work Order: **HS19070622**

Laboratory Results for: **LHAAP /ICT Wells**

Dear Marcia,

ALS Environmental received 2 sample(s) on Jul 12, 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: 29-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Work Order: HS19070622

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19070622-01	ICT 13A_071119	Groundwater		11-Jul-2019 09:40	12-Jul-2019 09:00	☐
HS19070622-02	Trip Blank	Water	C&G-050119-171	11-Jul-2019 00:00	12-Jul-2019 09:00	☐

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Work Order: HS19070622

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R342424

Sample ID: CCV

- Bromoform exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: ICT 13A_071119 (HS19070622-01)

- Toluene -d8 (Surrogate) failure due to matrix. Confirmed by re-analysis at dilution.

Metals by Method SW7470

Batch ID: 143466

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

Metals by Method SW6020

Batch ID: 143326

Sample ID: ICT 13A_071119 (HS19070622-01MSD)

- Barium failed on MSD but passed for MS and PDS.
- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Aluminum, Sodium and Zinc

Sample ID: ICT 13A_071119 (HS19070622-01PDS)

- The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. Aluminum

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Sample ID: ICT 13A_071119
Collection Date: 11-Jul-2019 09:40

ANALYTICAL REPORT
WorkOrder:HS19070622
Lab ID:HS19070622-01
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	15-Jul-2019 14:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,1-Dichloroethane	**1.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Jul-2019 14:22
1,1-Dichloroethene	**5.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Jul-2019 14:22
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,2-Dichloroethane	**18**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Jul-2019 14:22
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	15-Jul-2019 14:22
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	15-Jul-2019 14:22
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	15-Jul-2019 14:22
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	15-Jul-2019 14:22
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	15-Jul-2019 14:22
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22

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

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Sample ID: ICT 13A_071119
Collection Date: 11-Jul-2019 09:40

ANALYTICAL REPORT
WorkOrder:HS19070622
Lab ID:HS19070622-01
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	15-Jul-2019 14:22
cis-1,2-Dichloroethene	**86**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Jul-2019 14:22
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	15-Jul-2019 14:22
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	15-Jul-2019 14:22
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	15-Jul-2019 14:22
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 14:22
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Tetrachloroethene	**2.2**		**0.30**	**0.50**	**1.0**	**UG/L**	1	15-Jul-2019 14:22
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
trans-1,2-Dichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Jul-2019 14:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Trichloroethene	**920**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Jul-2019 16:46
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 14:22
Vinyl chloride	**6.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Jul-2019 14:22
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*15-Jul-2019 14:22*
Surr: 1,2-Dichloroethane-d4	*98.2*			**0**	*81-118*	*%REC*	*10*	*15-Jul-2019 16:46*
Surr: 4-Bromofluorobenzene	*109*			**0**	*85-114*	*%REC*	*1*	*15-Jul-2019 14:22*
Surr: 4-Bromofluorobenzene	*96.4*			**0**	*85-114*	*%REC*	*10*	*15-Jul-2019 16:46*
Surr: Dibromofluoromethane	*96.6*			**0**	*80-119*	*%REC*	*10*	*15-Jul-2019 16:46*
Surr: Dibromofluoromethane	*102*			**0**	*80-119*	*%REC*	*1*	*15-Jul-2019 14:22*
Surr: Toluene-d8	*113*	*S*		**0**	*89-112*	*%REC*	*1*	*15-Jul-2019 14:22*
Surr: Toluene-d8	*99.1*			**0**	*89-112*	*%REC*	*10*	*15-Jul-2019 16:46*

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

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Sample ID: ICT 13A_071119
Collection Date: 11-Jul-2019 09:40

ANALYTICAL REPORT
WorkOrder:HS19070622
Lab ID:HS19070622-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 24-Jul-2019		Analyst: JHD
Aluminum	**0.677**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	25-Jul-2019 12:22
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	25-Jul-2019 12:22
Arsenic	**0.00149**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Barium	**0.0656**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Beryllium	**0.000221**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	25-Jul-2019 12:22
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	25-Jul-2019 12:22
Calcium	**3.93**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	25-Jul-2019 12:22
Chromium	**0.0155**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Cobalt	**0.00696**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Copper	**0.00803**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Iron	**5.49**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	25-Jul-2019 12:22
Lead	**0.000925**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Magnesium	**3.51**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	25-Jul-2019 12:22
Manganese	**0.132**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Nickel	**0.0145**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Potassium	**0.708**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	25-Jul-2019 12:22
Selenium	**0.00127**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	25-Jul-2019 12:22
Sodium	**70.0**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	25-Jul-2019 12:22
Thallium	**0.000243**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	25-Jul-2019 12:22
Vanadium	**0.00425**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
Zinc	**0.288**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	25-Jul-2019 12:22
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 26-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	26-Jul-2019 15:35
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	26-Jul-2019 11:05

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

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Sample ID: Trip Blank
Collection Date: 11-Jul-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19070622
Lab ID:HS19070622-02
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	15-Jul-2019 15:34
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	15-Jul-2019 15:34
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	15-Jul-2019 15:34
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	15-Jul-2019 15:34
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	15-Jul-2019 15:34
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	15-Jul-2019 15:34
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34

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

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Sample ID: Trip Blank
Collection Date: 11-Jul-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19070622
Lab ID:HS19070622-02
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	15-Jul-2019 15:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	15-Jul-2019 15:34
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	15-Jul-2019 15:34
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	15-Jul-2019 15:34
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	15-Jul-2019 15:34
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	15-Jul-2019 15:34
Surr: 1,2-Dichloroethane-d4	*84.6*			**0**	*81-118*	*%REC*	*1*	*15-Jul-2019 15:34*
Surr: 4-Bromofluorobenzene	*89.6*			**0**	*85-114*	*%REC*	*1*	*15-Jul-2019 15:34*
Surr: Dibromofluoromethane	*83.9*			**0**	*80-119*	*%REC*	*1*	*15-Jul-2019 15:34*
Surr: Toluene-d8	*92.7*			**0**	*89-112*	*%REC*	*1*	*15-Jul-2019 15:34*

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

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

Batch ID: 143326 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19070622-01	1	10	10 (mL)	1

Batch ID: 143466 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19070622-01	1	10 (mL)	10 (mL)	1

ALS Houston, US Date: 29-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 143326 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19070622-01	ICT 13A_071119	11 Jul 2019 09:40		24 Jul 2019 09:30	25 Jul 2019 12:22	1
Batch ID: 143466 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19070622-01	ICT 13A_071119	11 Jul 2019 09:40		26 Jul 2019 10:30	26 Jul 2019 15:35	1
Batch ID: R342424 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19070622-02	Trip Blank	11 Jul 2019 00:00			15 Jul 2019 15:34	1
Batch ID: R342424 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19070622-01	ICT 13A_071119	11 Jul 2019 09:40			15 Jul 2019 16:46	10
HS19070622-01	ICT 13A_071119	11 Jul 2019 09:40			15 Jul 2019 14:22	1
Batch ID: R343090 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19070622-01	ICT 13A_071119	11 Jul 2019 09:40			26 Jul 2019 11:05	1

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: 143326 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-143326** Units: **mg/L** Analysis Date: **25-Jul-2019 12:17**
Client ID: Run ID: **ICPMS05_343031** SeqNo: **5180874** PrepDate: **24-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002013	0.0100								J
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.000744	0.00500								J
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: 143326 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-143326** Units: **mg/L** Analysis Date: **25-Jul-2019 12:20**
Client ID: Run ID: **ICPMS05_343031** SeqNo: **5180875** PrepDate: **24-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09942	0.0100	0.1	0	99.4	84 - 117				
Antimony	0.04965	0.00500	0.05	0	99.3	85 - 117				
Arsenic	0.04934	0.00500	0.05	0	98.7	84 - 116				
Barium	0.04718	0.00500	0.05	0	94.4	86 - 114				
Beryllium	0.05002	0.00200	0.05	0	100	83 - 121				
Cadmium	0.04953	0.00200	0.05	0	99.1	87 - 115				
Calcium	4.947	0.500	5	0	98.9	87 - 118				
Chromium	0.05004	0.00500	0.05	0	100	85 - 116				
Cobalt	0.05182	0.00500	0.05	0	104	86 - 115				
Copper	0.05246	0.00500	0.05	0	105	85 - 118				
Iron	4.969	0.200	5	0	99.4	87 - 118				
Lead	0.04852	0.00500	0.05	0	97.0	88 - 115				
Magnesium	5.052	0.200	5	0	101	83 - 118				
Manganese	0.05112	0.00500	0.05	0	102	87 - 115				
Nickel	0.05087	0.00500	0.05	0	102	85 - 117				
Potassium	5.103	0.200	5	0	102	87 - 115				
Selenium	0.05187	0.00500	0.05	0	104	80 - 120				
Silver	0.0515	0.00500	0.05	0	103	85 - 116				
Sodium	4.935	0.200	5	0	98.7	85 - 117				
Thallium	0.04601	0.00200	0.05	0	92.0	82 - 116				
Vanadium	0.0502	0.00500	0.05	0	100	86 - 115				
Zinc	0.05265	0.00500	0.05	0	105	83 - 119				

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: 143326 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19070622-01MS** Units: **mg/L** Analysis Date: **25-Jul-2019 12:27**
Client ID: **ICT 13A_071119** Run ID: **ICPMS05_343031** SeqNo: **5180878** PrepDate: **24-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.9046	0.0100	0.1	0.6768	228	84 - 117				SO
Antimony	0.04893	0.00500	0.05	0.00029	97.3	85 - 117				
Arsenic	0.05171	0.00500	0.05	0.00149	100	84 - 116				
Barium	0.1207	0.00500	0.05	0.06556	110	86 - 114				
Beryllium	0.05552	0.00200	0.05	0.000221	111	83 - 121				
Cadmium	0.05001	0.00200	0.05	0.000062	99.9	87 - 115				
Calcium	9.013	0.500	5	3.928	102	87 - 118				
Chromium	0.06289	0.00500	0.05	0.01546	94.9	85 - 116				
Cobalt	0.05755	0.00500	0.05	0.006955	101	86 - 115				
Copper	0.06013	0.00500	0.05	0.00803	104	85 - 118				
Iron	10.3	0.200	5	5.487	96.3	87 - 118				
Lead	0.04902	0.00500	0.05	0.000925	96.2	88 - 115				
Magnesium	8.466	0.200	5	3.51	99.1	83 - 118				
Manganese	0.1826	0.00500	0.05	0.1325	100	87 - 115				
Nickel	0.06418	0.00500	0.05	0.01449	99.4	85 - 117				
Potassium	5.731	0.200	5	0.7083	100	87 - 115				
Selenium	0.05084	0.00500	0.05	0.001273	99.1	80 - 120				
Silver	0.04792	0.00500	0.05	0.000012	95.8	85 - 116				
Sodium	75.31	0.200	5	70.04	105	85 - 117				O
Thallium	0.0455	0.00200	0.05	0.000243	90.5	82 - 116				
Vanadium	0.05497	0.00500	0.05	0.004252	101	86 - 115				
Zinc	0.3416	0.00500	0.05	0.2884	106	83 - 119				O

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: 143326 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19070622-01MSD** Units: **mg/L** Analysis Date: **25-Jul-2019 15:43**
Client ID: **ICT 13A_071119** Run ID: **ICPMS05_343031** SeqNo: **5181045** PrepDate: **24-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.883	0.0100	0.1	0.6768	206	84 - 117	0.9046	2.42	20	SO
Antimony	0.04967	0.00500	0.05	0	99.3	85 - 117	0.04893	1.5	20	
Arsenic	0.05281	0.00500	0.05	0.00149	103	84 - 116	0.05171	2.1	20	
Barium	0.124	0.00500	0.05	0.06556	117	86 - 114	0.1207	2.62	20	S
Beryllium	0.05394	0.00200	0.05	0.000221	107	83 - 121	0.05552	2.88	20	
Cadmium	0.05302	0.00200	0.05	0	106	87 - 115	0.05001	5.84	20	
Calcium	8.921	0.500	5	3.928	99.8	87 - 118	9.013	1.03	20	
Chromium	0.06558	0.00500	0.05	0.01546	100	85 - 116	0.06289	4.19	20	
Cobalt	0.05904	0.00500	0.05	0.006955	104	86 - 115	0.05755	2.57	20	
Copper	0.06129	0.00500	0.05	0.00803	107	85 - 118	0.06013	1.91	20	
Iron	10.69	0.200	5	5.487	104	87 - 118	10.3	3.67	20	
Lead	0.04903	0.00500	0.05	0.000925	96.2	88 - 115	0.04902	0.0143	20	
Magnesium	8.83	0.200	5	3.51	106	83 - 118	8.466	4.21	20	
Manganese	0.1861	0.00500	0.05	0.1325	107	87 - 115	0.1826	1.88	20	
Nickel	0.06534	0.00500	0.05	0.01449	102	85 - 117	0.06418	1.79	20	
Potassium	5.882	0.200	5	0.7083	103	87 - 115	5.731	2.61	20	
Selenium	0.05239	0.00500	0.05	0.001273	102	80 - 120	0.05084	3	20	
Silver	0.05214	0.00500	0.05	0	104	85 - 116	0.04792	8.44	20	
Sodium	77.74	0.200	5	70.04	154	85 - 117	75.31	3.18	20	SO
Thallium	0.04647	0.00200	0.05	0.000243	92.4	82 - 116	0.0455	2.11	20	
Vanadium	0.05531	0.00500	0.05	0.004252	102	86 - 115	0.05497	0.624	20	
Zinc	0.3498	0.00500	0.05	0.2884	123	83 - 119	0.3416	2.36	20	SO

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: 143326 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19070622-01PDS** Units: **mg/L** Analysis Date: **25-Jul-2019 12:31**
Client ID: **ICT 13A_071119** Run ID: **ICPMS05_343031** SeqNo: **5180880** PrepDate: **24-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.8011	0.0100	0.1	0.6768	124	80 - 120				SO
Antimony	0.08641	0.00500	0.1	0.00029	86.1	80 - 120				
Arsenic	0.09875	0.00500	0.1	0.00149	97.3	80 - 120				
Barium	0.1697	0.00500	0.1	0.06556	104	80 - 120				
Beryllium	0.09605	0.00200	0.1	0.000221	95.8	80 - 120				
Cadmium	0.09772	0.00200	0.1	0.000062	97.7	80 - 120				
Calcium	13.52	0.500	10	3.928	95.9	80 - 120				
Chromium	0.1157	0.00500	0.1	0.01546	100	80 - 120				
Cobalt	0.1042	0.00500	0.1	0.006955	97.2	80 - 120				
Copper	0.1104	0.00500	0.1	0.00803	102	80 - 120				
Iron	14.96	0.200	10	5.487	94.7	80 - 120				
Lead	0.09646	0.00500	0.1	0.000925	95.5	80 - 120				
Magnesium	13.05	0.200	10	3.51	95.4	80 - 120				
Manganese	0.227	0.00500	0.1	0.1325	94.6	80 - 120				
Nickel	0.1111	0.00500	0.1	0.01449	96.6	80 - 120				
Potassium	10.31	0.200	10	0.7083	96.0	80 - 120				
Selenium	0.09668	0.00500	0.1	0.001273	95.4	80 - 120				
Silver	0.09841	0.00500	0.1	0.000012	98.4	80 - 120				
Sodium	78.78	0.200	10	70.04	87.4	80 - 120				O
Thallium	0.09228	0.00200	0.1	0.000243	92.0	80 - 120				
Vanadium	0.1034	0.00500	0.1	0.004252	99.1	80 - 120				
Zinc	0.3844	0.00500	0.1	0.2884	96.0	80 - 120				

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: 143326 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19070622-01SD** Units: **mg/L** Analysis Date: **25-Jul-2019 12:24**
Client ID: **ICT 13A_071119** Run ID: **ICPMS05_343031** SeqNo: **5180877** PrepDate: **24-Jul-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.7236	0.0500					0.6768	6.91	10	
Antimony	0.00250	0.0250					0.00029	0	10	U
Arsenic	0.002208	0.0250					0.00149	0	10	J
Barium	0.06576	0.0250					0.06556	0.294	10	
Beryllium	0.00250	0.0100					0.000221	0	10	U
Cadmium	0.00250	0.0100					0.000062	0	10	U
Calcium	4.072	2.50					3.928	3.66	10	
Chromium	0.01575	0.0250					0.01546	0	10	J
Cobalt	0.007085	0.0250					0.006955	0	10	J
Copper	0.007844	0.0250					0.00803	0	10	J
Iron	5.554	1.00					5.487	1.21	10	
Lead	0.00500	0.0250					0.000925	0	10	U
Magnesium	3.434	1.00					3.51	2.17	10	
Manganese	0.1354	0.0250					0.1325	2.2	10	
Nickel	0.01393	0.0250					0.01449	0	10	J
Potassium	0.7268	1.00					0.7083	0	10	J
Selenium	0.0125	0.0250					0.001273	0	10	U
Silver	0.00250	0.0250					0.000012	0	10	U
Sodium	70.58	1.00					70.04	0.783	10	
Thallium	0.00250	0.0100					0.000243	0	10	U
Vanadium	0.00722	0.0250					0.004252	0	10	J
Zinc	0.2884	0.0250					0.2884	0.00312	10	

The following samples were analyzed in this batch: HS19070622-01

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: 143466 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-143466** Units: **mg/L** Analysis Date: **26-Jul-2019 15:27**
Client ID: Run ID: **HG03_343146** SeqNo: **5182823** PrepDate: **26-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-143466** Units: **mg/L** Analysis Date: **26-Jul-2019 15:28**
Client ID: Run ID: **HG03_343146** SeqNo: **5182824** PrepDate: **26-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00528	0.000200	0.005	0	106	80 - 120				

MS Sample ID: **HS19071258-01MS** Units: **mg/L** Analysis Date: **26-Jul-2019 15:32**
Client ID: Run ID: **HG03_343146** SeqNo: **5182826** PrepDate: **26-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00529	0.000200	0.005	-0.00001700	106	75 - 125				

MSD Sample ID: **HS19071258-01MSD** Units: **mg/L** Analysis Date: **26-Jul-2019 15:33**
Client ID: Run ID: **HG03_343146** SeqNo: **5182827** PrepDate: **26-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00530	0.000200	0.005	-0.00001700	106	75 - 125	0.005290	0.189	20	

The following samples were analyzed in this batch: HS19070622-01

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 13:10**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166706** 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	1.0	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: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 13:10**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166706** 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	1.0	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	*49.57*	*1.0*	*50*	*0*	*99.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.04*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*49.56*	*1.0*	*50*	*0*	*99.1*	*80 - 119*				
Surr: Toluene-d8	*55.68*	*1.0*	*50*	*0*	*111*	*89 - 112*				

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 11:59**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166705** 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	23.08	1.0	20	0	115	78 - 124				
1,1,1-Trichloroethane	20.55	1.0	20	0	103	74 - 131				
1,1,2,2-Tetrachloroethane	21.83	1.0	20	0	109	71 - 121				
1,1,2-Trichloroethane	22.64	1.0	20	0	113	80 - 119				
1,1-Dichloroethane	21.04	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	19.8	1.0	20	0	99.0	71 - 131				
1,1-Dichloropropene	21.29	1.0	20	0	106	78 - 125				
1,2,3-Trichlorobenzene	19.96	1.0	20	0	99.8	69 - 129				
1,2,3-Trichloropropane	20.27	1.0	20	0	101	73 - 122				
1,2,4-Trichlorobenzene	20.69	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	21.91	1.0	20	0	110	76 - 124				
1,2-Dibromo-3-chloropropane	20.59	1.0	20	0	103	62 - 128				
1,2-Dibromoethane	22.03	1.0	20	0	110	77 - 121				
1,2-Dichlorobenzene	21.64	1.0	20	0	108	80 - 119				
1,2-Dichloroethane	21.68	1.0	20	0	108	73 - 128				
1,2-Dichloropropane	22.98	1.0	20	0	115	78 - 122				
1,3,5-Trimethylbenzene	21.81	1.0	20	0	109	75 - 124				
1,3-Dichlorobenzene	22.13	1.0	20	0	111	80 - 119				
1,3-Dichloropropane	22.31	1.0	20	0	112	80 - 119				
1,4-Dichlorobenzene	21.13	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	21.18	1.0	20	0	106	60 - 139				
2-Butanone	46.06	2.0	40	0	115	56 - 143				
2-Chlorotoluene	21.23	1.0	20	0	106	79 - 122				
2-Hexanone	45.11	2.0	40	0	113	57 - 139				
4-Chlorotoluene	21.32	1.0	20	0	107	78 - 122				
4-Isopropyltoluene	22.03	1.0	20	0	110	77 - 127				
4-Methyl-2-pentanone	44.64	2.0	40	0	112	67 - 130				
Acetone	54.2	2.0	40	0	136	39 - 160				
Benzene	21.8	1.0	20	0	109	79 - 120				
Bromobenzene	22.31	1.0	20	0	112	80 - 120				
Bromochloromethane	21.02	1.0	20	0	105	78 - 123				
Bromodichloromethane	22.31	1.0	20	0	112	79 - 125				
Bromoform	22.62	1.0	20	0	113	66 - 130				
Bromomethane	24.56	1.0	20	0	123	53 - 141				

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190715** Units: **UG/L** Analysis Date: **15-Jul-2019 11:59**
Client ID: Run ID: **VOA6_342424** SeqNo: **5166705** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	42.96	2.0	40	0	107	64 - 133				
Carbon tetrachloride	20.69	1.0	20	0	103	72 - 136				
Chlorobenzene	22.26	1.0	20	0	111	82 - 118				
Chloroethane	19.53	1.0	20	0	97.6	60 - 138				
Chloroform	21.85	1.0	20	0	109	79 - 124				
Chloromethane	21.86	1.0	20	0	109	50 - 139				
cis-1,2-Dichloroethene	21.2	1.0	20	0	106	78 - 123				
cis-1,3-Dichloropropene	22.97	1.0	20	0	115	75 - 124				
Dibromochloromethane	22.9	1.0	20	0	115	74 - 126				
Dibromomethane	21.79	1.0	20	0	109	79 - 123				
Dichlorodifluoromethane	20.91	1.0	20	0	105	32 - 152				
Ethylbenzene	22.45	1.0	20	0	112	79 - 121				
Hexachlorobutadiene	23.73	1.0	20	0	119	66 - 134				
Isopropylbenzene	22.67	1.0	20	0	113	72 - 131				
m,p-Xylene	45.25	2.0	40	0	113	80 - 121				
Methylene chloride	20.66	2.0	20	0	103	74 - 124				
Naphthalene	18.45	1.0	20	0	92.3	61 - 128				
n-Butylbenzene	23.5	1.0	20	0	118	75 - 128				
n-Propylbenzene	21.56	1.0	20	0	108	76 - 126				
o-Xylene	22.24	1.0	20	0	111	78 - 122				
sec-Butylbenzene	21.67	1.0	20	0	108	77 - 126				
Styrene	22.78	1.0	20	0	114	78 - 123				
tert-Butylbenzene	21.61	1.0	20	0	108	78 - 124				
Tetrachloroethene	23.77	1.0	20	0	119	74 - 129				
Toluene	22.66	1.0	20	0	113	80 - 121				
trans-1,2-Dichloroethene	21.15	1.0	20	0	106	75 - 124				
trans-1,3-Dichloropropene	22.36	1.0	20	0	112	73 - 127				
Trichloroethene	21.49	1.0	20	0	107	79 - 123				
Trichlorofluoromethane	19.87	1.0	20	0	99.3	65 - 141				
Vinyl chloride	19.88	1.0	20	0	99.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.08*	*1.0*	*50*	*0*	*98.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.54*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*49.16*	*1.0*	*50*	*0*	*98.3*	*80 - 119*				
Surr: Toluene-d8	*51.11*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19070656-99MS** Units: **UG/L** Analysis Date: **15-Jul-2019 15:58**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167080** 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	22.19	1.0	20	0	111	78 - 124			
1,1,1-Trichloroethane	20.93	1.0	20	0	105	74 - 131			
1,1,2,2-Tetrachloroethane	21.31	1.0	20	0	107	71 - 121			
1,1,2-Trichloroethane	21.42	1.0	20	0	107	80 - 119			
1,1-Dichloroethane	19.94	1.0	20	0	99.7	77 - 125			
1,1-Dichloroethene	19.89	1.0	20	0	99.4	71 - 131			
1,1-Dichloropropene	21.77	1.0	20	0	109	78 - 125			
1,2,3-Trichlorobenzene	20	1.0	20	0	100.0	69 - 129			
1,2,3-Trichloropropane	19.55	1.0	20	0	97.7	73 - 122			
1,2,4-Trichlorobenzene	20.88	1.0	20	0	104	69 - 130			
1,2,4-Trimethylbenzene	22.01	1.0	20	0	110	76 - 124			
1,2-Dibromo-3-chloropropane	20.38	1.0	20	0	102	62 - 128			
1,2-Dibromoethane	21.35	1.0	20	0	107	77 - 121			
1,2-Dichlorobenzene	21.3	1.0	20	0	107	80 - 119			
1,2-Dichloroethane	20.74	1.0	20	0	104	73 - 128			
1,2-Dichloropropane	21.01	1.0	20	0	105	78 - 122			
1,3,5-Trimethylbenzene	22.34	1.0	20	0	112	75 - 124			
1,3-Dichlorobenzene	21.82	1.0	20	0	109	80 - 119			
1,3-Dichloropropane	21.23	1.0	20	0	106	80 - 119			
1,4-Dichlorobenzene	20.63	1.0	20	0	103	79 - 118			
2,2-Dichloropropane	20.62	1.0	20	0	103	60 - 139			
2-Butanone	46.35	2.0	40	7.115	98.1	56 - 143			
2-Chlorotoluene	21.8	1.0	20	0	109	79 - 122			
2-Hexanone	41.12	2.0	40	0	103	57 - 139			
4-Chlorotoluene	21.3	1.0	20	0	106	78 - 122			
4-Isopropyltoluene	22.48	1.0	20	0	112	77 - 127			
4-Methyl-2-pentanone	42.61	2.0	40	0	107	67 - 130			
Acetone	37.96	2.0	40	0	94.9	39 - 160			
Benzene	21.01	1.0	20	0	105	79 - 120			
Bromobenzene	21.94	1.0	20	0	110	80 - 120			
Bromochloromethane	19.37	1.0	20	0	96.9	78 - 123			
Bromodichloromethane	20.89	1.0	20	0	104	79 - 125			
Bromoform	21.69	1.0	20	0	108	66 - 130			
Bromomethane	20.3	1.0	20	0	101	53 - 141			

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19070656-99MS** Units: **UG/L** Analysis Date: **15-Jul-2019 15:58**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167080** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	42.12	2.0	40	0	105	64 - 133				
Carbon tetrachloride	21.53	1.0	20	0	108	72 - 136				
Chlorobenzene	21.44	1.0	20	0	107	82 - 118				
Chloroethane	18.08	1.0	20	0	90.4	60 - 138				
Chloroform	20.3	1.0	20	0	102	79 - 124				
Chloromethane	20.45	1.0	20	0	102	50 - 139				
cis-1,2-Dichloroethene	19.61	1.0	20	0	98.0	78 - 123				
cis-1,3-Dichloropropene	21.18	1.0	20	0	106	75 - 124				
Dibromochloromethane	21.69	1.0	20	0	108	74 - 126				
Dibromomethane	19.78	1.0	20	0	98.9	79 - 123				
Dichlorodifluoromethane	15.49	1.0	20	0	77.5	32 - 152				
Ethylbenzene	22.57	1.0	20	0	113	79 - 121				
Hexachlorobutadiene	20.96	1.0	20	0	105	66 - 134				
Isopropylbenzene	23.29	1.0	20	0	116	72 - 131				
m,p-Xylene	45.27	2.0	40	0	113	80 - 121				
Methylene chloride	19.09	2.0	20	0	95.5	74 - 124				
Naphthalene	18.74	1.0	20	0	93.7	61 - 128				
n-Butylbenzene	23.43	1.0	20	0	117	75 - 128				
n-Propylbenzene	22.6	1.0	20	0	113	76 - 126				
o-Xylene	21.81	1.0	20	0	109	78 - 122				
sec-Butylbenzene	22.65	1.0	20	0	113	77 - 126				
Styrene	22.07	1.0	20	0	110	78 - 123				
tert-Butylbenzene	22.57	1.0	20	0	113	78 - 124				
Tetrachloroethene	24.52	1.0	20	0	123	74 - 129				
Toluene	22.62	1.0	20	0	113	80 - 121				
trans-1,2-Dichloroethene	20.36	1.0	20	0	102	75 - 124				
trans-1,3-Dichloropropene	20.06	1.0	20	0	100	73 - 127				
Trichloroethene	21.75	1.0	20	1.3	102	79 - 123				
Trichlorofluoromethane	19.75	1.0	20	0	98.8	65 - 141				
Vinyl chloride	17.97	1.0	20	0	89.9	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.57*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.96*	*1.0*	*50*	*0*	*108*	*85 - 114*				
Surr: Dibromofluoromethane	*51.4*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*55.82*	*1.0*	*50*	*0*	*112*	*89 - 112*				

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19070656-99MSD** Units: **UG/L** Analysis Date: **15-Jul-2019 16:22**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167081** 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	22.48	1.0	20	0	112	78 - 124	22.19	1.31	20	
1,1,1-Trichloroethane	20.66	1.0	20	0	103	74 - 131	20.93	1.33	20	
1,1,2,2-Tetrachloroethane	22.12	1.0	20	0	111	71 - 121	21.31	3.75	20	
1,1,2-Trichloroethane	22.14	1.0	20	0	111	80 - 119	21.42	3.32	20	
1,1-Dichloroethane	19.77	1.0	20	0	98.8	77 - 125	19.94	0.854	20	
1,1-Dichloroethene	19.87	1.0	20	0	99.3	71 - 131	19.89	0.107	20	
1,1-Dichloropropene	21.58	1.0	20	0	108	78 - 125	21.77	0.865	20	
1,2,3-Trichlorobenzene	21.32	1.0	20	0	107	69 - 129	20	6.39	20	
1,2,3-Trichloropropane	20.07	1.0	20	0	100	73 - 122	19.55	2.63	20	
1,2,4-Trichlorobenzene	21.47	1.0	20	0	107	69 - 130	20.88	2.78	20	
1,2,4-Trimethylbenzene	22.09	1.0	20	0	110	76 - 124	22.01	0.371	20	
1,2-Dibromo-3-chloropropane	20.51	1.0	20	0	103	62 - 128	20.38	0.633	20	
1,2-Dibromoethane	21.74	1.0	20	0	109	77 - 121	21.35	1.84	20	
1,2-Dichlorobenzene	21.77	1.0	20	0	109	80 - 119	21.3	2.17	20	
1,2-Dichloroethane	21.09	1.0	20	0	105	73 - 128	20.74	1.68	20	
1,2-Dichloropropane	21.54	1.0	20	0	108	78 - 122	21.01	2.49	20	
1,3,5-Trimethylbenzene	22.25	1.0	20	0	111	75 - 124	22.34	0.412	20	
1,3-Dichlorobenzene	22.15	1.0	20	0	111	80 - 119	21.82	1.49	20	
1,3-Dichloropropane	21.81	1.0	20	0	109	80 - 119	21.23	2.73	20	
1,4-Dichlorobenzene	21.29	1.0	20	0	106	79 - 118	20.63	3.15	20	
2,2-Dichloropropane	20.26	1.0	20	0	101	60 - 139	20.62	1.75	20	
2-Butanone	47.81	2.0	40	7.115	102	56 - 143	46.35	3.1	20	
2-Chlorotoluene	21.74	1.0	20	0	109	79 - 122	21.8	0.277	20	
2-Hexanone	43.06	2.0	40	0	108	57 - 139	41.12	4.6	20	
4-Chlorotoluene	21.37	1.0	20	0	107	78 - 122	21.3	0.333	20	
4-Isopropyltoluene	22.46	1.0	20	0	112	77 - 127	22.48	0.0765	20	
4-Methyl-2-pentanone	44.2	2.0	40	0	110	67 - 130	42.61	3.65	20	
Acetone	39.46	2.0	40	0	98.7	39 - 160	37.96	3.89	20	
Benzene	21.3	1.0	20	0	107	79 - 120	21.01	1.37	20	
Bromobenzene	22.41	1.0	20	0	112	80 - 120	21.94	2.08	20	
Bromochloromethane	19.5	1.0	20	0	97.5	78 - 123	19.37	0.687	20	
Bromodichloromethane	20.98	1.0	20	0	105	79 - 125	20.89	0.413	20	
Bromoform	22.22	1.0	20	0	111	66 - 130	21.69	2.42	20	
Bromomethane	19.56	1.0	20	0	97.8	53 - 141	20.3	3.69	20	

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: HS19070622

QC BATCH REPORT

Batch ID: R342424 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19070656-99MSD** Units: **UG/L** Analysis Date: **15-Jul-2019 16:22**
Client ID: Run ID: **VOA6_342424** SeqNo: **5167081** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	41.77	2.0	40	0	104	64 - 133	42.12	0.843	20	
Carbon tetrachloride	21.34	1.0	20	0	107	72 - 136	21.53	0.868	20	
Chlorobenzene	21.78	1.0	20	0	109	82 - 118	21.44	1.6	20	
Chloroethane	18.46	1.0	20	0	92.3	60 - 138	18.08	2.08	20	
Chloroform	20.66	1.0	20	0	103	79 - 124	20.3	1.76	20	
Chloromethane	19.16	1.0	20	0	95.8	50 - 139	20.45	6.5	20	
cis-1,2-Dichloroethene	19.9	1.0	20	0	99.5	78 - 123	19.61	1.45	20	
cis-1,3-Dichloropropene	21.57	1.0	20	0	108	75 - 124	21.18	1.83	20	
Dibromochloromethane	21.78	1.0	20	0	109	74 - 126	21.69	0.436	20	
Dibromomethane	20.72	1.0	20	0	104	79 - 123	19.78	4.63	20	
Dichlorodifluoromethane	15.06	1.0	20	0	75.3	32 - 152	15.49	2.84	20	
Ethylbenzene	22.64	1.0	20	0	113	79 - 121	22.57	0.314	20	
Hexachlorobutadiene	21.26	1.0	20	0	106	66 - 134	20.96	1.39	20	
Isopropylbenzene	23.47	1.0	20	0	117	72 - 131	23.29	0.765	20	
m,p-Xylene	45.17	2.0	40	0	113	80 - 121	45.27	0.208	20	
Methylene chloride	19.2	2.0	20	0	96.0	74 - 124	19.09	0.533	20	
Naphthalene	20.18	1.0	20	0	101	61 - 128	18.74	7.38	20	
n-Butylbenzene	23.6	1.0	20	0	118	75 - 128	23.43	0.724	20	
n-Propylbenzene	22.52	1.0	20	0	113	76 - 126	22.6	0.355	20	
o-Xylene	21.84	1.0	20	0	109	78 - 122	21.81	0.127	20	
sec-Butylbenzene	22.53	1.0	20	0	113	77 - 126	22.65	0.536	20	
Styrene	22.39	1.0	20	0	112	78 - 123	22.07	1.45	20	
tert-Butylbenzene	22.68	1.0	20	0	113	78 - 124	22.57	0.48	20	
Tetrachloroethene	24.11	1.0	20	0	121	74 - 129	24.52	1.65	20	
Toluene	22.43	1.0	20	0	112	80 - 121	22.62	0.848	20	
trans-1,2-Dichloroethene	20.37	1.0	20	0	102	75 - 124	20.36	0.0286	20	
trans-1,3-Dichloropropene	20.9	1.0	20	0	105	73 - 127	20.06	4.1	20	
Trichloroethene	21.62	1.0	20	1.3	102	79 - 123	21.75	0.565	20	
Trichlorofluoromethane	19.75	1.0	20	0	98.7	65 - 141	19.75	0.0166	20	
Vinyl chloride	17.66	1.0	20	0	88.3	58 - 137	17.97	1.8	20	
Surr: 1,2-Dichloroethane-d4	*51.8*	*1.0*	*50*	*0*	*104*	*81 - 118*	*50.57*	*2.41*	*20*	
Surr: 4-Bromofluorobenzene	*53.88*	*1.0*	*50*	*0*	*108*	*85 - 114*	*53.96*	*0.148*	*20*	
Surr: Dibromofluoromethane	*51.96*	*1.0*	*50*	*0*	*104*	*80 - 119*	*51.4*	*1.08*	*20*	
Surr: Toluene-d8	*55.78*	*1.0*	*50*	*0*	*112*	*89 - 112*	*55.82*	*0.066*	*20*	

ALS Houston, US Date: 29-Jul-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP /ICT Wells
WorkOrder:	HS19070622

QC BATCH REPORT

Batch ID:	**R342424 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:	HS19070622-01	HS19070622-02

ALS Houston, US Date: 29-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
WorkOrder: **HS19070622**

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	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 29-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /ICT Wells
Work Order: HS19070622

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19070622-01	ICT 13A_071119	Login	12/07/2019 16:02:08	NDR	MET098
HS19070622-01	ICT 13A_071119	Login	12/07/2019 16:02:08	NDR	Sub
HS19070622-01	ICT 13A_071119	Login	12/07/2019 16:02:08	NDR	VOA087

ALS Houston, US Date: 29-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19070622
Date/Time Received: **12-Jul-2019 09:00**
Received by: **PMG**

Checklist completed by: *Nilesh D. Ranchod* eSignature 12-Jul-2019 Date
Reviewed by: *RJ Modashia* eSignature 13-Jul-2019 Date

Matrices: **Groundwater/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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	1.4c U/c	IR25
Cooler(s)/Kit(s):	44888	
Date/Time sample(s) sent to storage:	07/12/2019 16:30	

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 ENERGY

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

Chain of Custody and Analytical Request

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / ICT Wells

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)	Sample Analysis Requested (5): Number of containers	VOC	PERCHLORATE	TOTAL METALS								Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
ICT 13A_071119		11 July 2019	09:40	-	N		WG	5	X	X	X											
Trip Blank		11 July 2019		-	TB		W	2	X													
				-																		
				-																		
				-																		
				-																		
				-																		
				-																		
				-																		

HS1907062 2

Bhate Environmental Associates, Inc.
LHAAP /ICT Wells

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	7/11/19	1430	PG	07/12/19	09:00
2.						
3.						

Cooler # 4888 Temp 4 C Temp 1-4 CUFO-3

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped No.: ____

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stancliff 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

00942340

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

44888

CUSTODY SEAL

Date: 7/11/19 Time: 1430
Name: SCOTT BEESINGER
Company: BHATE

Seal Broken By: SN
Date: 07/12/19

44888 JUL 12 2019

Must Deliver Next Business Day
Time and Tempature Sensitive!

44888

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: 24MAY19
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/18/24 & SURFACE WATER - RJ

RMA:

FedEx Express

FedEx
TRK# 0221 4809 7834 3218

FRI - 12 JUL 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 162705 11JUL19 GGGA 553C2/A6F9/0C8A

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1920034; 1920122; 1920123; 1920571; 1920572; 1920581

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2273 (244098)

General Set Information: There were eleven field samples in this Work Order. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1920122001 and 1920581001 were analyzed and reported from 1:100 dilutions. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 664922) was less than 1/2 the CRDL. The recovery for the LCS (664923) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on sample 1920123002 (Client ID: HBW10_071119). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 4.µg/L.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 664920) is reported from the analysis of the Laboratory Control Sample (LCS – 664923) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 23JULD03.

Thomas Bosch July 25, 2019
Analyst Date

ANALYTICAL REPORT

Report Date: July 25, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1920122**
Project ID: HS19070622
Purchase Order: HS19070622
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
ICT 13A_071119	1920122001	07/11/19	07/13/19	

ANALYTICAL REPORT

Workorder: 34-1920122
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **ICT 13A_071119**	Sampling Site: NA	Collected: 07/11/2019
Lab ID: 1920122001	Media: 125 mL Nalgene	Received: 07/13/2019
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2274 (HBN: 244098)	**Percent Solid:** NA
	Analyzed: 07/23/2019 09:43	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**540**	100	200	400	100	

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/25/2019 15:05	/S/ Stephen Brose 07/25/2019 16:18

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1920122
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1920122

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2274 (HBN: 244098)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 664922
Analyzed: 07/23/2019 09:15
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 664923
Analyzed: 07/23/2019 08:47
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.24	4.00	106	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1920123002	**MS:**	664924	**MSD:**	664925
Analyzed:	07/23/2019 10:11	**Analyzed:**	07/23/2019 10:25	**Analyzed:**	07/23/2019 10:39
Dilution:	1	**Dilution:**	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.12	4	103	78.8	123.8	4.14	104	0.46	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
07/25/2019 15:11	07/25/2019 16:18

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1920122

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

18698/# 2

SAMPLING STATE: **Texas**

COC ID: **11765**

1920122

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	HS19070622
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19070622-01**	**ICT 13A_071119**	**Groundwater**	**11 Jul 2019 09:40**
	SUB_Perch-6850			26 Jul 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 7.12.19 . 18-20

Received By: _____ Date/Time: 7/13/19 925

Cooler ID(s): _____ Temperature(s): 2°

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19070622	***Split:***	**Workorder ID:** 1920122	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	07/11/2019 09:40	ICT 13A_071119	1920122001		Water	A	1	A
2								
3								
4								
5								
6								
7								
8								
9								
10								

COOL

40 of 129

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Coates, Gayleen	07/13/2019 09:25	ALS Sample Receiving	Sample Login
R.33.1	7.15.19 0958	13B	STORAGE
	7.19.19/14:00	T. Bush	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ **Lab Notebook No.:** _____

Prepared / Analyzed by: _____ **Date / Time:** _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00942349

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site:

Date/Time of Receipt: 7/13/19 925

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Cooler/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:					
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9748	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Meredith Hunt (Signature) Meredith Hunt (Printed Name) 7/13/19 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Headspace in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

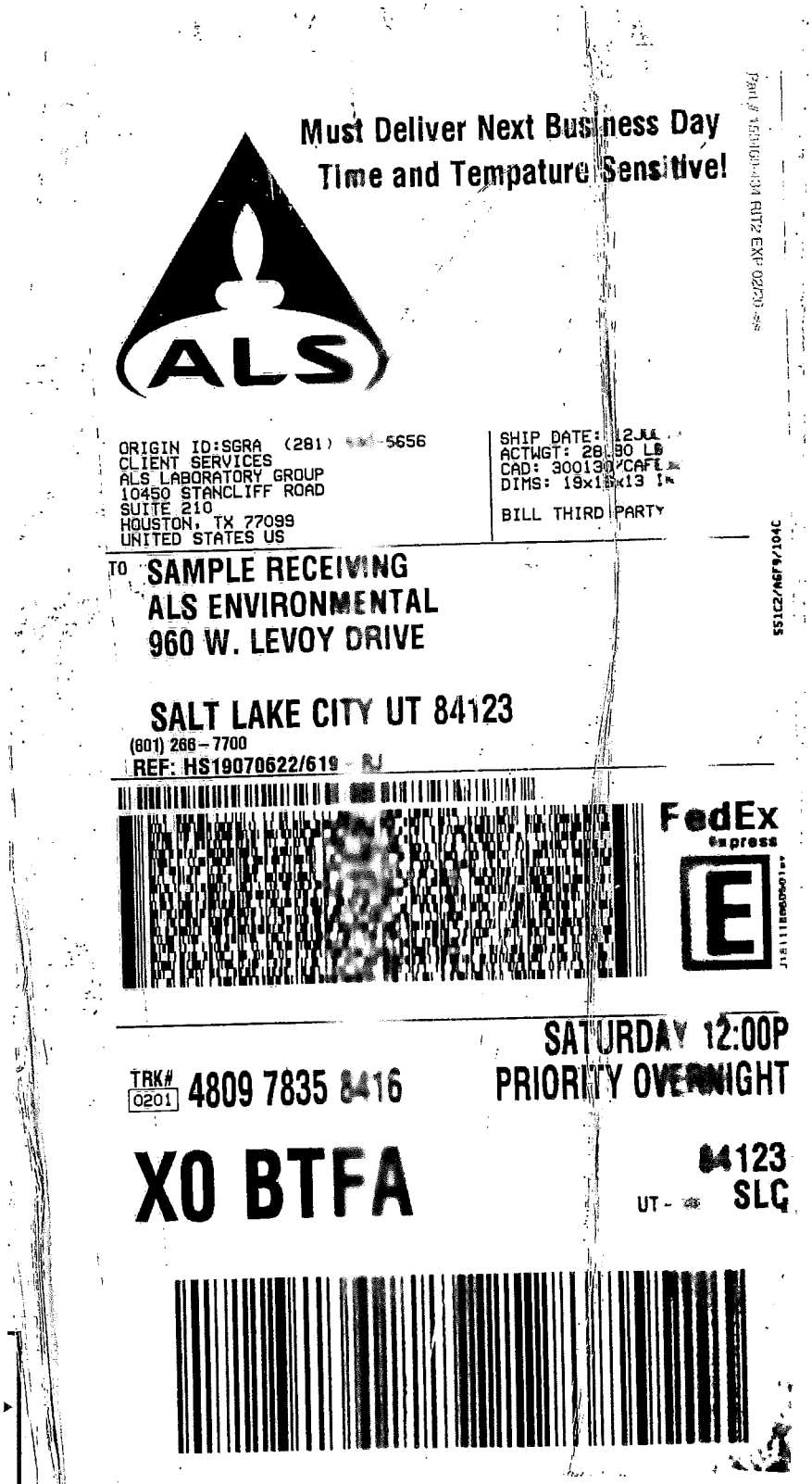
Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018



Must Deliver Next Business Day
Time and Tempature Sensitive!

ORIGIN ID:SGRA (281) [redacted]-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 12JUL
ACTWGT: 28.90 LB
CAD: 3001307/CAFE
DIMS: 19x15x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19070622/619

FedEx Express

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 4809 7835 [redacted]416

XO BTFA

84123
UT - SLC

Batch Worklist

Batch: ELMS/ 2274 **Created:** 7/23/2019 08:01 **Instrument:** **HBN:** 244098

Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1920034 [ENV_LVL4]
Workorder: 1920122 [ENV_LVL4]
Workorder: 1920123 [ENV_LVL4]
Workorder: 1920571 [ENV_LVL4]
Workorder: 1920572 [ENV_LVL4]
Workorder: 1920581 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	664919	CCV for HBN 244098 [ELMS/2274]				CCV	3		E685041C3Q	5311		7/25/2019	
2	664920	RLVS for HBN 244098 [ELMS/2274				RLVS	3		E685041C3Q	5311		7/25/2019	
3	664921	ICS for HBN 244098 [ELMS/2274]				ICS	3		E6850..D3Q	5311		7/25/2019	
4	664922	LMB for HBN 244098 [ELMS/2274]				LMB	3		E6850Q413Q	5311		7/25/2019	
5	664923	LCS for HBN 244098 [ELMS/2274]				LCS	3		E6850Q413Q	5311		7/25/2019	
6	1920034001	LH18/24-SP650_070919_BIX Water				SAMPLE	3	1920034001-A	E6850Q41.3	5480	8/6/2019	7/25/2019	
7	1920122001	ICT 13A_071119				SAMPLE	3	1920122001-A	E6850Q41.3	5480	8/8/2019	7/26/2019	
8	1920123001	HBW7_071119				SAMPLE	3	1920123001-A	E6850Q41.3	5480	8/8/2019	7/25/2019	
9	1920123002	HBW10_071119				SAMPLE	3	1920123002-A	E6850Q41.3	5480	8/8/2019	7/25/2019	
10	664924	HBW10_071119(1920123002MS)				MS	3		E6850Q413Q	5311		7/25/2019	
11	664925	HBW10_071119(1920123002MSD)				MSD	3		E6850Q413Q	5311		7/25/2019	
12	1920123003	HBW1_071119				SAMPLE	3	1920123003-A	E6850Q41.3	5480	8/8/2019	7/25/2019	
13	1920123004	GPW1_071119				SAMPLE	3	1920123004-A	E6850Q41.3	5480	8/8/2019	7/25/2019	
14	1920123005	GPW1_071119_a				SAMPLE	3	1920123005-A	E6850Q41.3	5480	8/8/2019	7/25/2019	
15	1920123006	GPW3_071119				SAMPLE	3	1920123006-A	E6850Q41.3	5480	8/8/2019	7/25/2019	
16	664926	CCV for HBN 244098 [ELMS/2274]				CCV	3		E685041C3Q	5311		7/25/2019	
17	1920571001	LH18/24-SP650_071619-BIX				SAMPLE	3	1920571001-A	E6850Q41.3	5480	8/13/2019	7/31/2019	
18	1920572001	LH18/24-SP650_071619_BIX				SAMPLE	3	1920572001-A	E6850Q41.3	5480	8/13/2019	7/31/2019	
19	1920581001	LH18/24-SP140_071619				SAMPLE	3	1920581001-A	E6850Q41.3	5480	8/13/2019	7/31/2019	
20	664927	CCV for HBN 244098 [ELMS/2274]				CCV	3		E685041C3Q	5311		7/25/2019	



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1920034 (001); 1920122 (001); 1920123 (001-06); 1920571 (001); 1920572 (001); 1920581 (001) ELMS Batch/HBN ID: 2274 (244098)
Prep Date: 07/19/2019 Analysis Date: 07/23/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\23JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 8 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 664923; Target = 4.0µg/L. ASTM type II water was used for LMB 664922.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1920123002 (Client ID: HBW10_071119). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 1920122001 and 1920581001 were analyzed and reported from 1:100 dilutions. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\244098-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 664920) is reported from the analysis of the Laboratory Control Sample (LCS – 664923) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 23JULD03.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2274 HBN: 244098 1920034/1920122/1920123 Sample Set IDs if Applicable: 1920571/1920572/192058]	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Method Blanks analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness checked	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR# _____	—	—
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 43659	Created By: Thomas Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 09/17/2018 09:09AM	Expires: 07/25/2020
MFG Lot: 218065075		Usable: No
Part ID: IC-PER-10X-1		Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730
MFG: ALS/SLC
MFG Lot: TNB: 05/09/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 25 mL
Expires: 09/20/2019
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 43729	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 09/20/2018 09:09AM	Expires: 04/28/2026
MFG Lot: SDFF-012A	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date:	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ACCREDITED REFERENCE MATERIAL
ANAB ACCREDITED ACCREDITED TESTING LABORATORY

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: JCC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

AccuStandard®

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

AccuStandard

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\23JUL19D\23JUL19S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	664919 CCV@25	Vial 71	1	Control	1	1.62672e6	8.125	25.50485
*	664923 QC@4.0	Vial 72	1	Control	2	3.26276e5	7.968	4.23719
*	664921 ICS@4.0	Vial 73	1	Control	3	2.26823e5	7.809	3.59795
*	664922 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1920034001	Vial 75	1	Sample	5	3.78721e5	7.756	5.76393
*	1920122001 100	Vial 76	1	Sample	6	3.81315e5	8.340	535.80529
*	1920123001	Vial 77	1	Sample	7	1.88703e6	7.880	27.30710
*	1920123002	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	664924 201232S	Vial 79	1	Sample	9	2.94719e5	7.909	4.12417
*	664925 201232D	Vial 80	1	Sample	10	2.98082e5	7.931	4.14318
*	1920123003	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	1920123004	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	1920123005	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1920123006	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	664926 CCV@25	Vial 71	1	Control	15	1.58424e6	8.147	26.09295
*	1920571001	Vial 85	1	Sample	16	0.00000	0.000	0.00000
*	1920572001	Vial 86	1	Sample	17	0.00000	0.000	0.00000
*	1920581001 100	Vial 87	1	Sample	18	4.74247e6	8.368	6892.89270
*	664927 CCV@25	Vial 71	1	Control	19	1.56539e6	8.160	26.50991

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	664919 CCV@25	Vial 71	1	Control	1	4.82242e5	8.132	25.47735
*	664923 QC@4.0	Vial 72	1	Control	2	1.06930e5	7.986	4.52240
*	664921 ICS@4.0	Vial 73	1	Control	3	8.07927e4	7.808	4.14216
*	664922 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1920034001	Vial 75	1	Sample	5	1.32207e5	7.757	6.61445
*	1920122001 100	Vial 76	1	Sample	6	1.27974e5	8.359	590.20800
*	1920123001	Vial 77	1	Sample	7	5.71392e5	7.909	27.84268
*	1920123002	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	664924 201232S	Vial 79	1	Sample	9	9.30343e4	7.927	4.23661
*	664925 201232D	Vial 80	1	Sample	10	9.90502e4	7.949	4.47914
*	1920123003	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	1920123004	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	1920123005	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1920123006	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	664926 CCV@25	Vial 71	1	Control	15	4.73538e5	8.163	26.27353
*	1920571001	Vial 85	1	Sample	16	0.00000	0.000	0.00000
*	1920572001	Vial 86	1	Sample	17	0.00000	0.000	0.00000
*	1920581001 100	Vial 87	1	Sample	18	1.37287e6	8.381	6775.22031
*	664927 CCV@25	Vial 71	1	Control	19	4.66031e5	8.186	26.59490

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	664919 CCV@25	Vial 71	1	Control	1	1.93813e5	8.141	5.00000
*	664923 QC@4.0	Vial 72	1	Control	2	2.53019e5	7.996	5.00000
*	664921 ICS@4.0	Vial 73	1	Control	3	2.08874e5	7.820	5.00000
*	664922 LMB	Vial 74	1	Control	4	2.28613e5	8.332	5.00000
*	1920034001	Vial 75	1	Sample	5	2.12986e5	7.778	5.00000
*	1920122001 100	Vial 76	1	Sample	6	2.31390e5	8.370	500.00000
*	1920123001	Vial 77	1	Sample	7	2.09097e5	7.906	5.00000
*	1920123002	Vial 78	1	Sample	8	2.14312e5	7.946	5.00000
*	664924 201232S	Vial 79	1	Sample	9	2.35117e5	7.946	5.00000
*	664925 201232D	Vial 80	1	Sample	10	2.36657e5	7.943	5.00000
*	1920123003	Vial 81	1	Sample	11	2.72320e5	7.956	5.00000
*	1920123004	Vial 82	1	Sample	12	2.70263e5	7.966	5.00000
*	1920123005	Vial 83	1	Sample	13	2.50554e5	7.967	5.00000
*	1920123006	Vial 84	1	Sample	14	2.77086e5	7.979	5.00000

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	664926 CCV@25	Vial 71	1	Control	15	1.84240e5	8.170	5.00000
*	1920571001	Vial 85	1	Sample	16	2.24657e5	7.814	5.00000
*	1920572001	Vial 86	1	Sample	17	2.04102e5	7.796	5.00000
*	1920581001 100	Vial 87	1	Sample	18	1.90565e5	8.391	500.00000
*	664927 CCV@25	Vial 71	1	Control	19	1.79008e5	8.198	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\23JUL19D.S

Sequence Table:

Method and Injection Info Part:

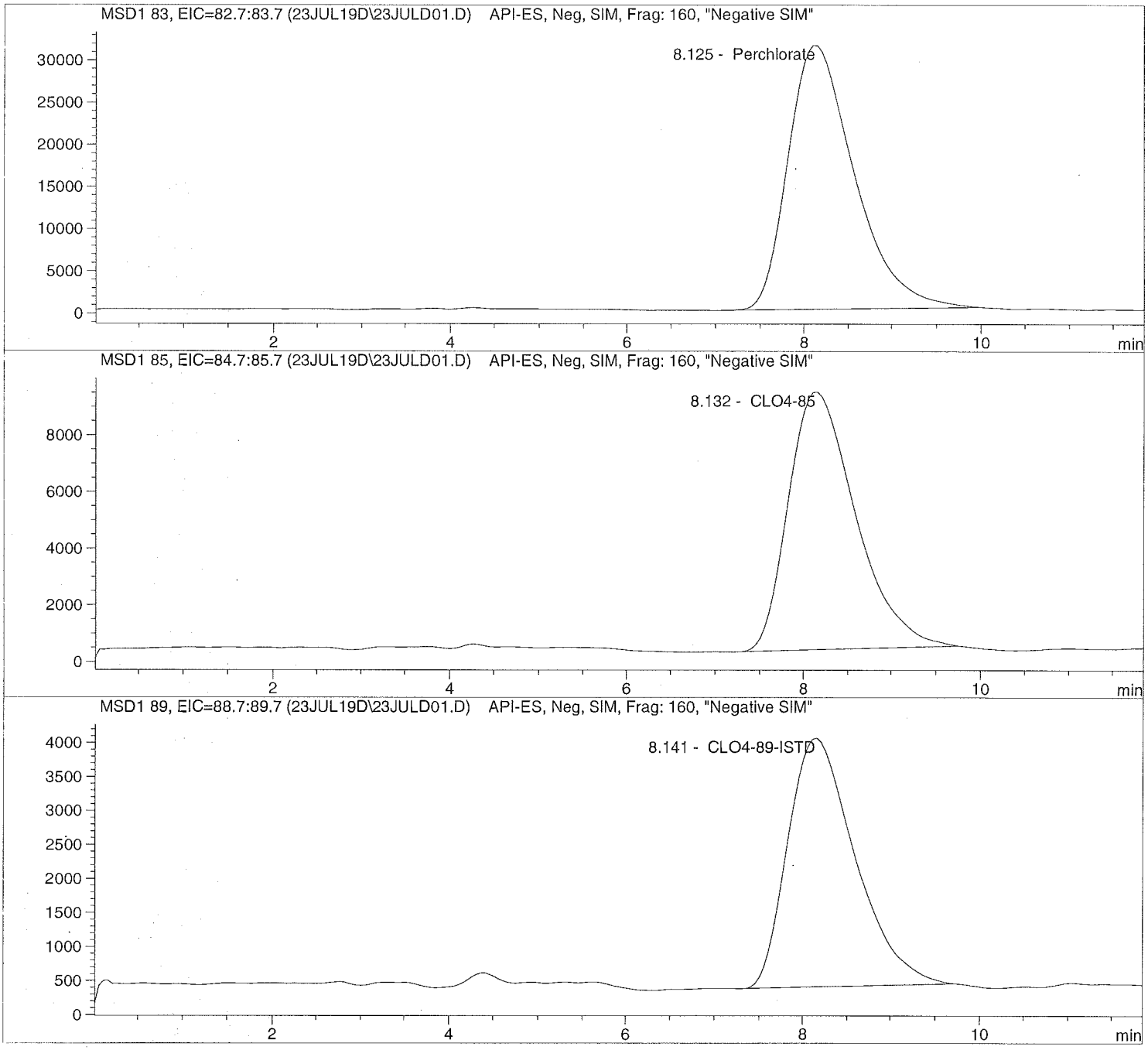
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	664919	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	664923	QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	664921	ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	664922	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1920034001		CLO4-AQN	1	Sample		
6	Vial 76	1920122001	100	CLO4-AQN	1	Sample		
7	Vial 77	1920123001		CLO4-AQN	1	Sample		
8	Vial 78	1920123002		CLO4-AQN	1	Sample		
9	Vial 79	664924	201232S	CLO4-AQN	1	Sample		
10	Vial 80	664925	201232D	CLO4-AQN	1	Sample		
11	Vial 81	1920123003		CLO4-AQN	1	Sample		
12	Vial 82	1920123004		CLO4-AQN	1	Sample		
13	Vial 83	1920123005		CLO4-AQN	1	Sample		
14	Vial 84	1920123006		CLO4-AQN	1	Sample		
15	Vial 71	664926	CCV@25	CLO4-AQN	1	Ctrl Samp		
16	Vial 85	1920571001		CLO4-AQN	1	Sample		
17	Vial 86	1920572001		CLO4-AQN	1	Sample		
18	Vial 87	1920581001	100	CLO4-AQN	1	Sample		
19	Vial 71	664927	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD01.D Sample Name: 664919 CCV@25

Injection Date:	7/23/2019 08:31:50	Seq Line:	1
Sample Name:	664919 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD01.D Sample Name: 664919 CCV@25

Injection Date:	7/23/2019 08:31:50	Seq Line:	1
Sample Name:	664919 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.125	PBA	1626721.4	25.5049	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.132	PBA	482242.2	25.4774	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.141	PBA	193813.0	5.0000	CLO4-89-ISTD

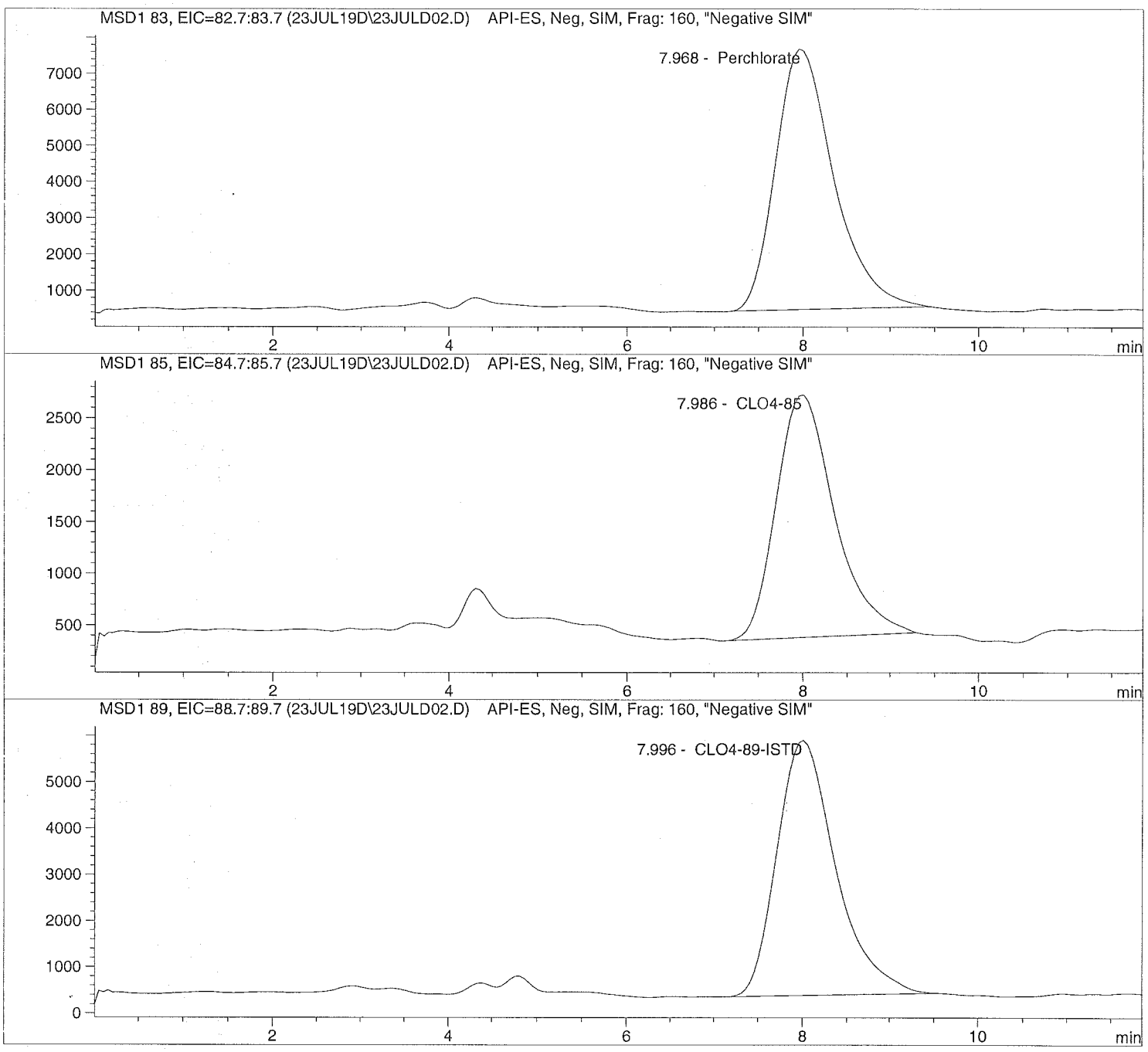
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD02.D Sample Name: 664923 QC@4.0

Injection Date:	7/23/2019 08:47:43	Seq Line:	2
Sample Name:	664923 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD02.D Sample Name: 664923 QC@4.0

Injection Date:	7/23/2019 08:47:43	Seq Line:	2
Sample Name:	664923 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.968	PBA	326275.9	4.2372	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.986	PBA	106930.0	4.5224	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.996	PBA	253018.7	5.0000	CLO4-89-ISTD

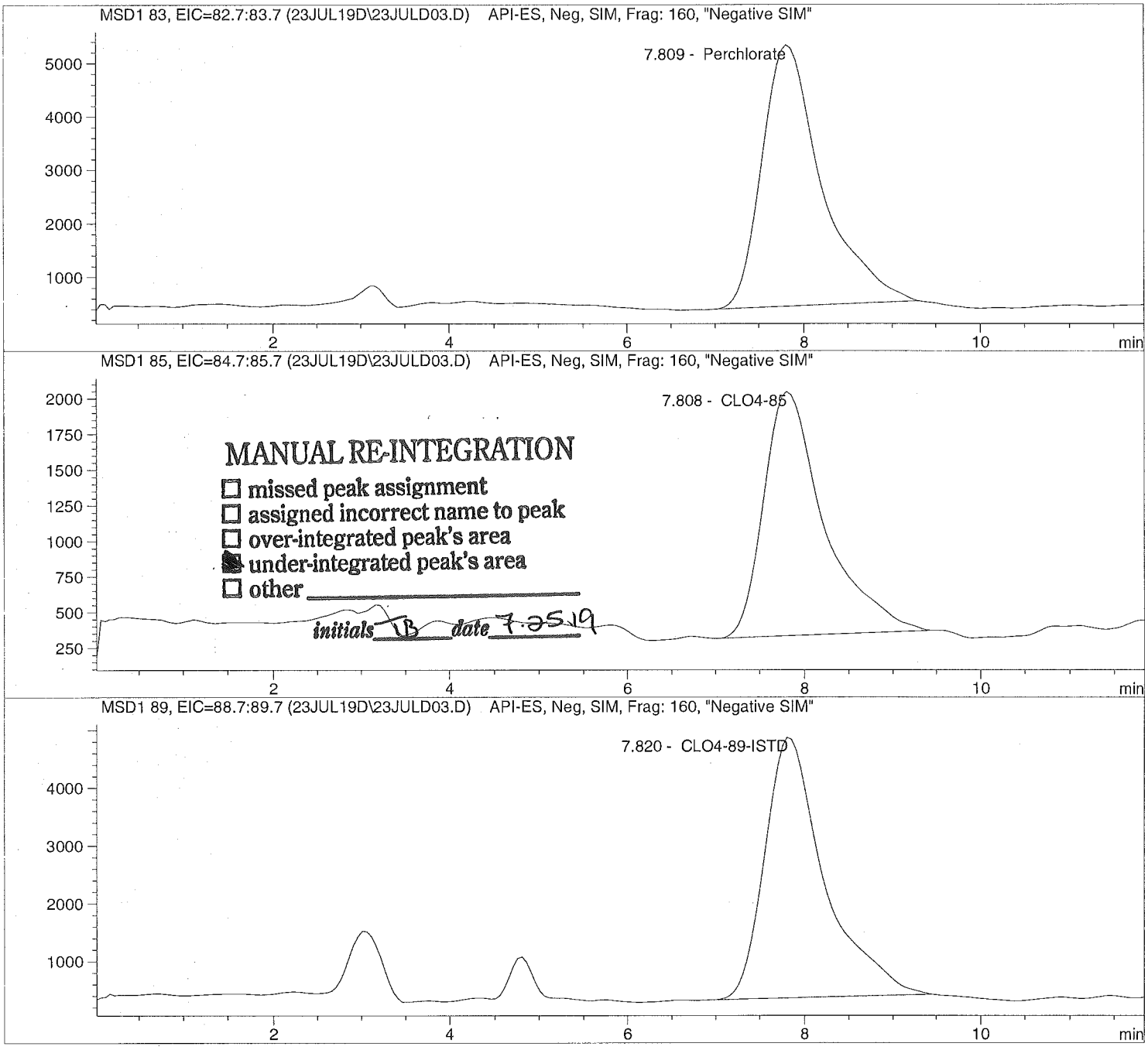
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD03.D Sample Name: 664921 ICS@4.0

Injection Date:	7/23/2019 09:01:39	Seq Line:	3
Sample Name:	664921 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD03.D Sample Name: 664921 ICS@4.0

Injection Date:	7/23/2019 09:01:39	Seq Line:	3
Sample Name:	664921 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.809	PBA	226823.0	3.5980	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.808	MM	80792.7	4.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.820	PBA	208873.6	5.0000	CLO4-89-ISTD

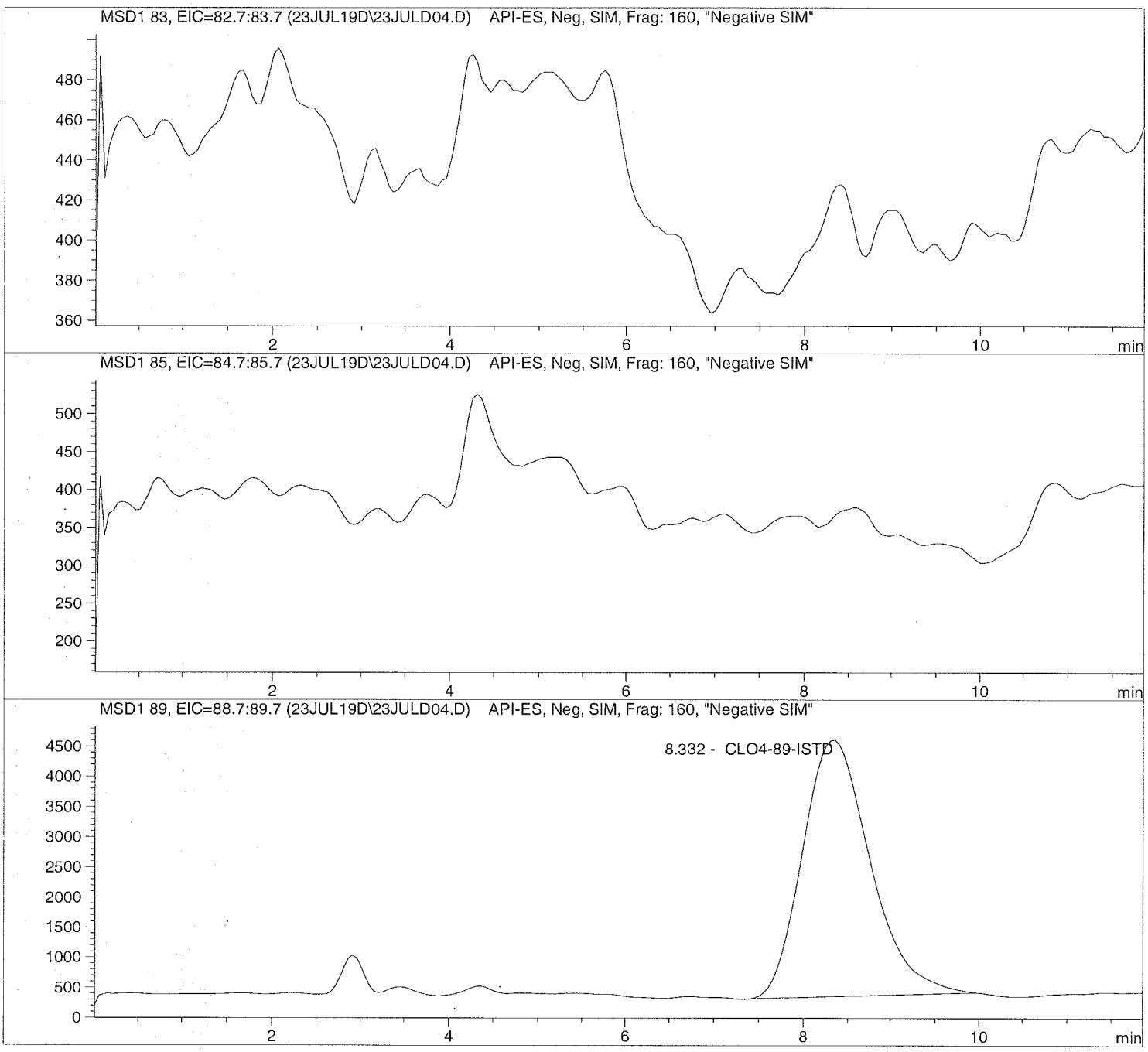
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Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD04.D Sample Name: 664922 LMB

Injection Date:	7/23/2019 09:15:35	Seq Line:	4
Sample Name:	664922 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD04.D Sample Name: 664922 LMB

Injection Date:	7/23/2019 09:15:35	Seq Line:	4
Sample Name:	664922 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.332	PBA	228612.6	5.0000	CLO4-89-ISTD

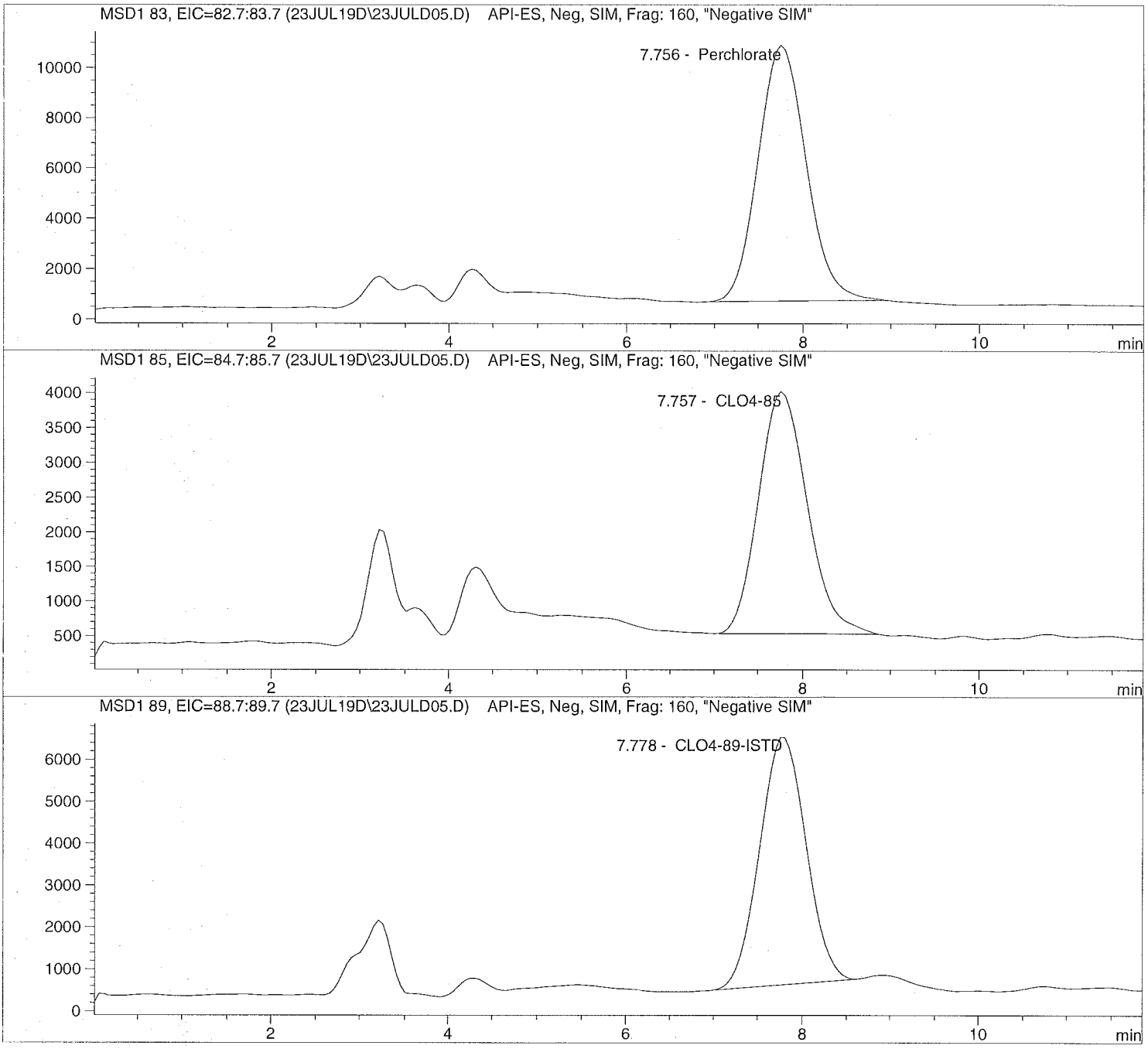
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD05.D Sample Name: 1920034001

Injection Date:	7/23/2019 09:29:31	Seq Line:	5
Sample Name:	1920034001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD05.D Sample Name: 1920034001

Injection Date:	7/23/2019 09:29:31	Seq Line:	5
Sample Name:	1920034001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	378721.2	5.7639	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.757	PBA	132206.6	6.6144	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	PBA	212985.8	5.0000	CLO4-89-ISTD

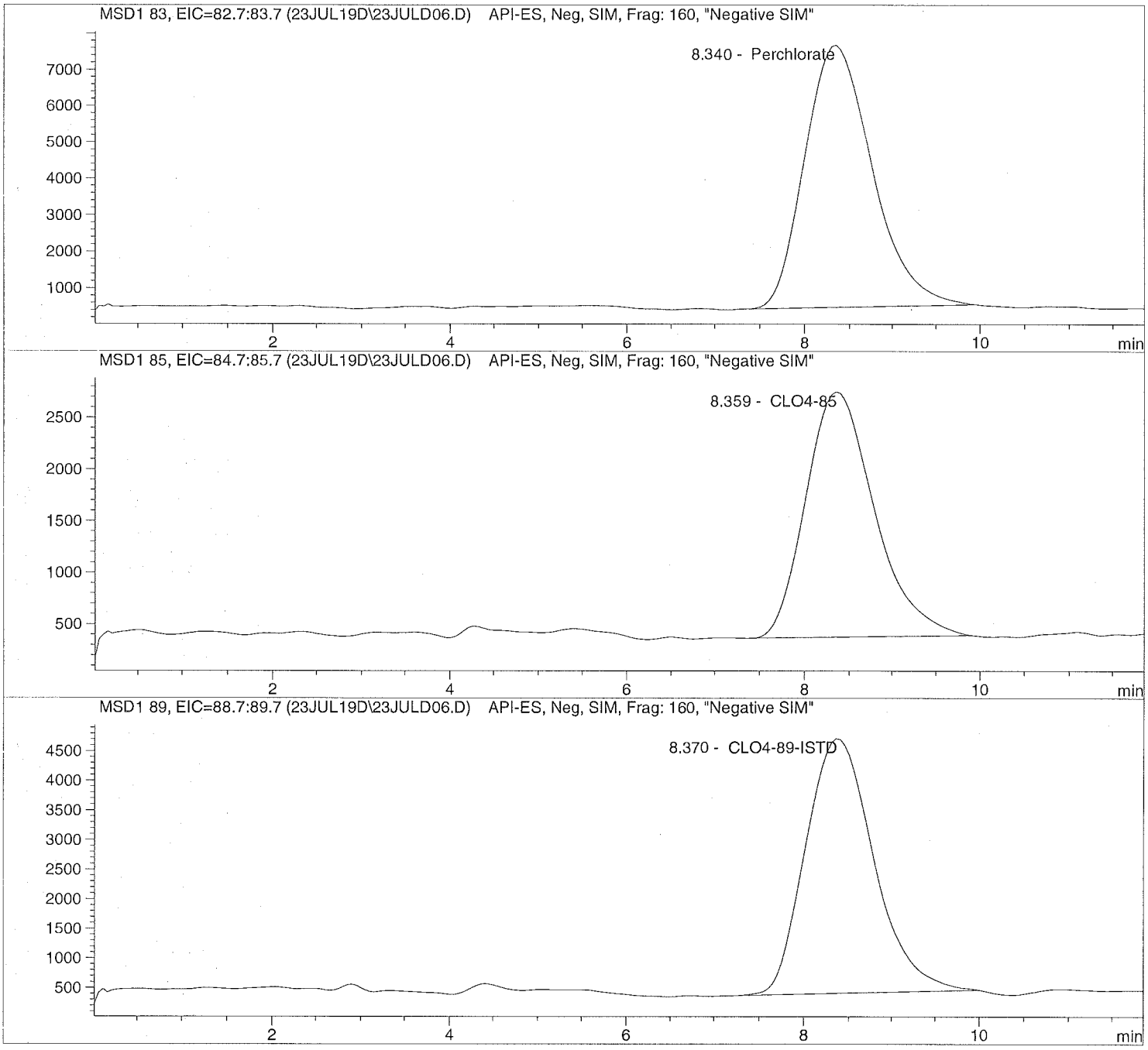
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD06.D Sample Name: 1920122001 100

Injection Date:	7/23/2019 09:43:25	Seq Line:	6
Sample Name:	1920122001 100	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Injection Date:	7/23/2019 09:43:25	Seq Line:	6
Sample Name:	1920122001 100	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.340	PBA	381315.1	535.8053	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.359	PBA	127974.4	590.2080	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.370	PBA	231390.0	500.0000	CLO4-89-ISTD

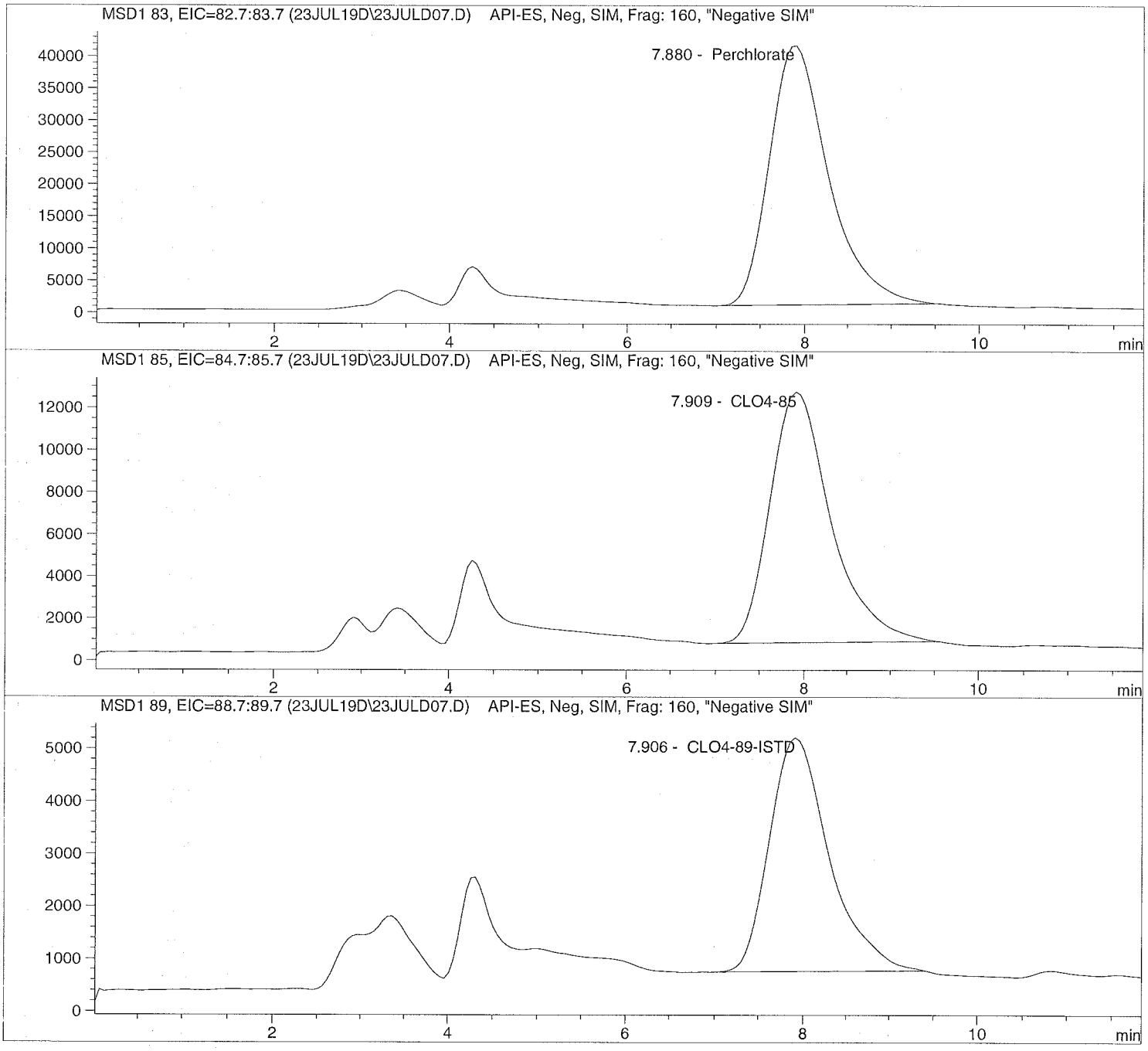
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD07.D Sample Name: 1920123001

Injection Date:	7/23/2019 09:57:24	Seq Line:	7
Sample Name:	1920123001	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD07.D Sample Name: 1920123001

Injection Date:	7/23/2019 09:57:24	Seq Line:	7
Sample Name:	1920123001	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.880	PBA	1887029.5	27.3071	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.909	PBA	571391.9	27.8427	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.906	PBA	209097.0	5.0000	CLO4-89-ISTD

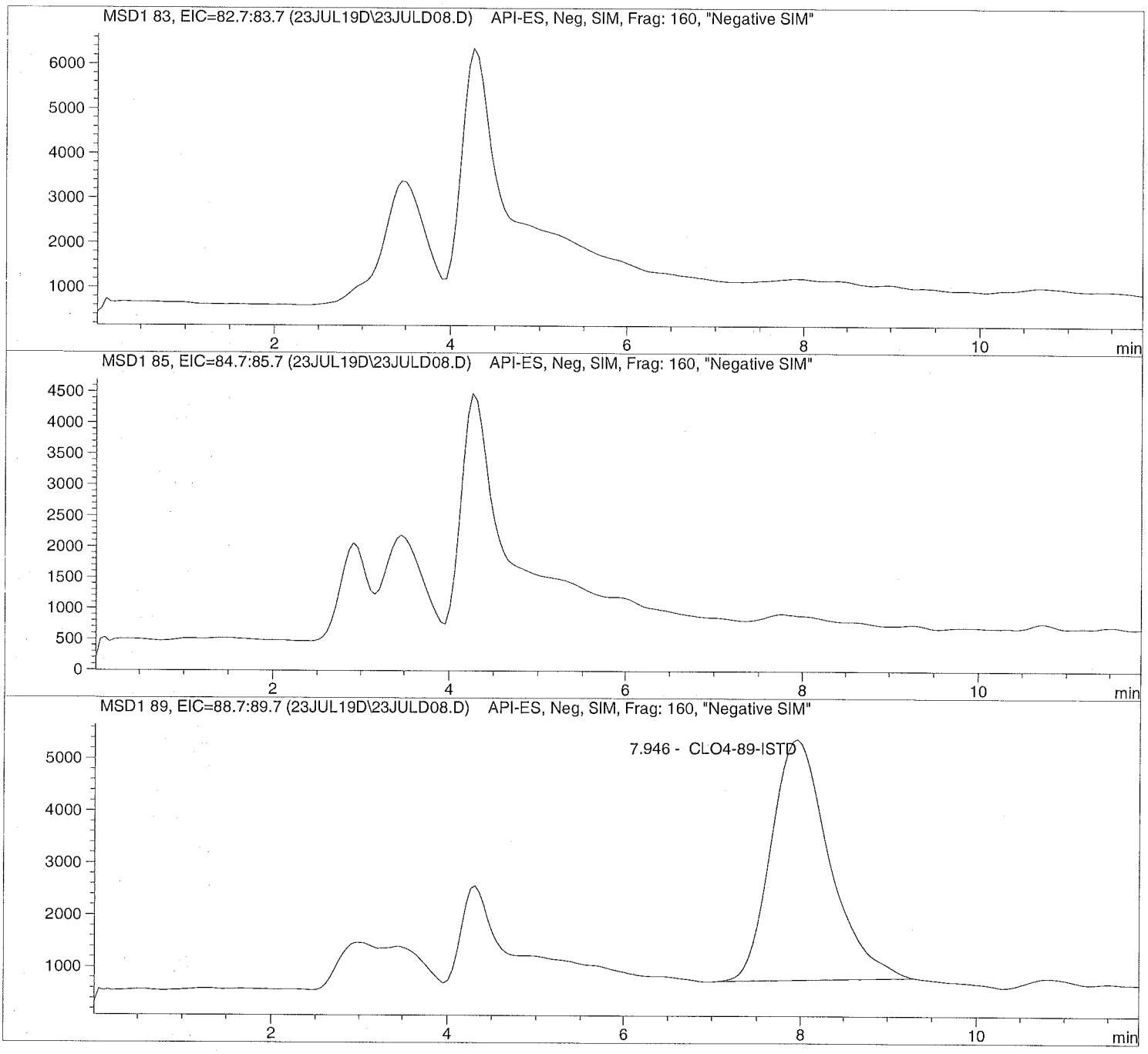
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD08.D Sample Name: 1920123002

Injection Date:	7/23/2019 10:11:24	Seq Line:	8
Sample Name:	1920123002	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD08.D Sample Name: 1920123002

Injection Date:	7/23/2019 10:11:24	Seq Line:	8
Sample Name:	1920123002	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.946	PBA	214312.1	5.0000	CLO4-89-ISTD

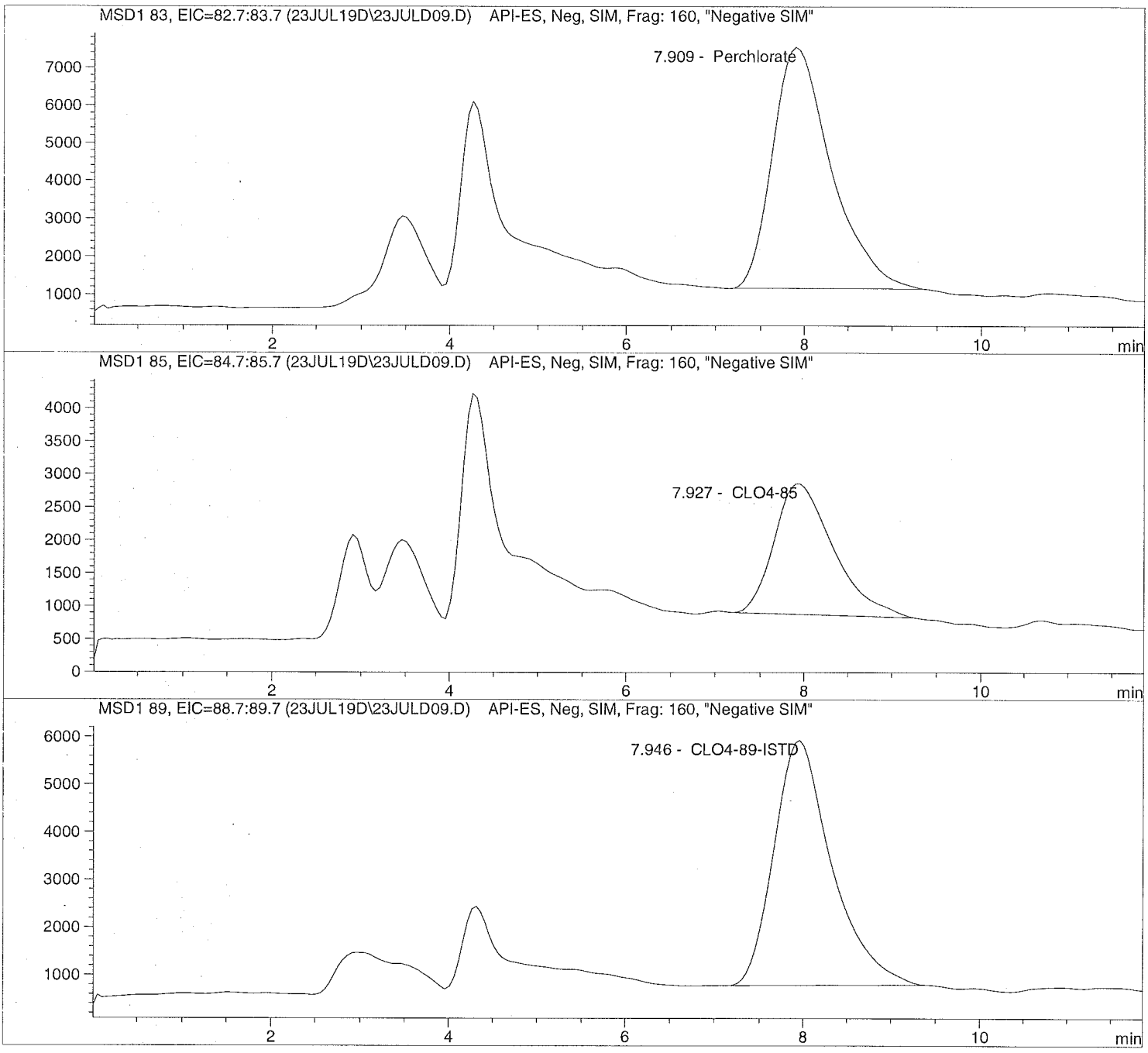
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD09.D Sample Name: 664924 201232S

Injection Date:	7/23/2019 10:25:26	Seq Line:	9
Sample Name:	664924 201232S	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Injection Date:	7/23/2019 10:25:26	Seq Line:	9
Sample Name:	664924 201232S	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.909	PBA	294718.6	4.1242	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.927	PBA	93034.3	4.2366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.946	PBA	235117.5	5.0000	CLO4-89-ISTD

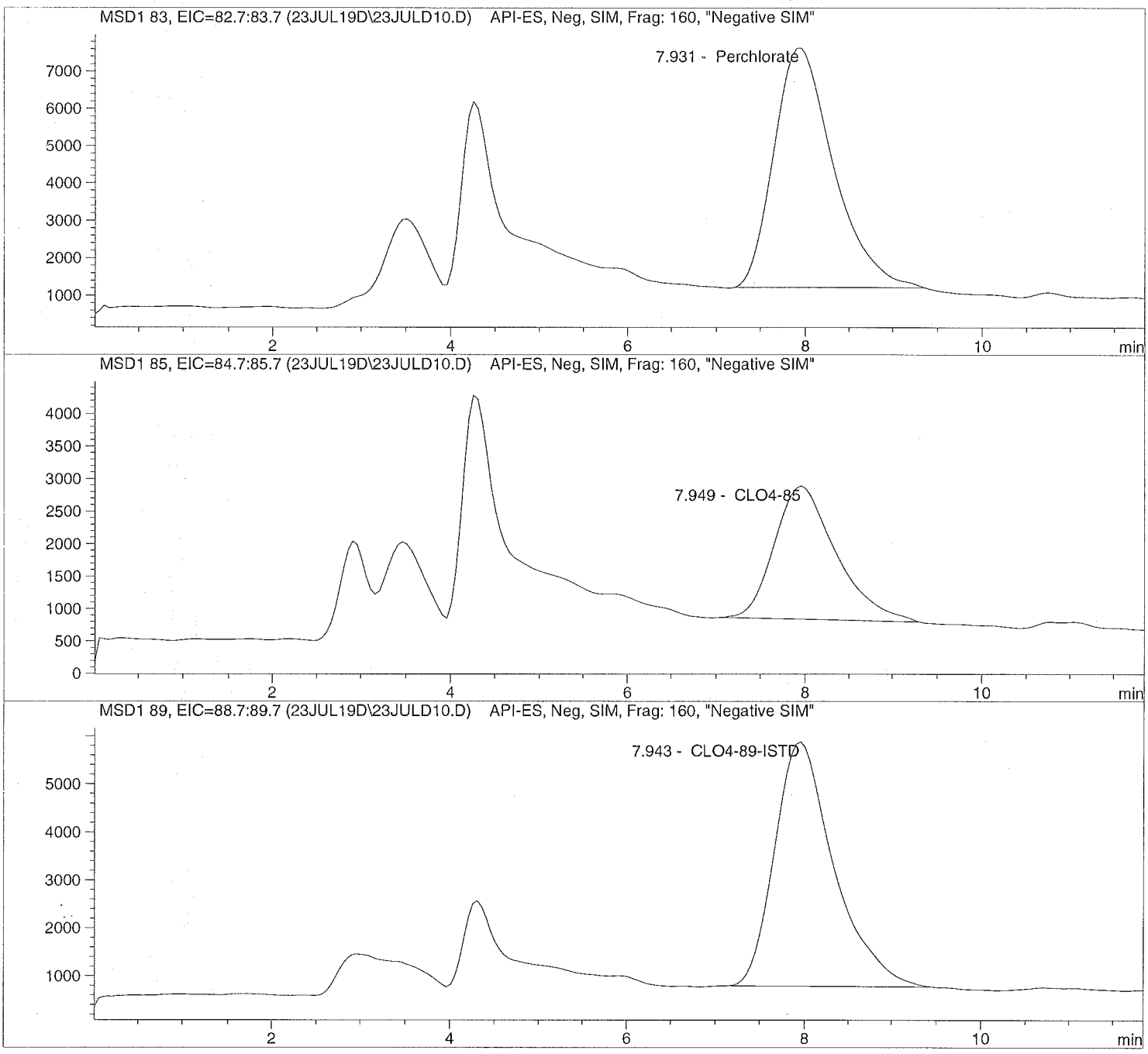
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD10.D Sample Name: 664925 201232D

Injection Date:	7/23/2019 10:39:29	Seq Line:	10
Sample Name:	664925 201232D	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Injection Date:	7/23/2019 10:39:29	Seq Line:	10
Sample Name:	664925 201232D	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.931	PBA	298082.3	4.1432	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.949	PBA	99050.2	4.4791	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.943	PBA	236656.9	5.0000	CLO4-89-ISTD

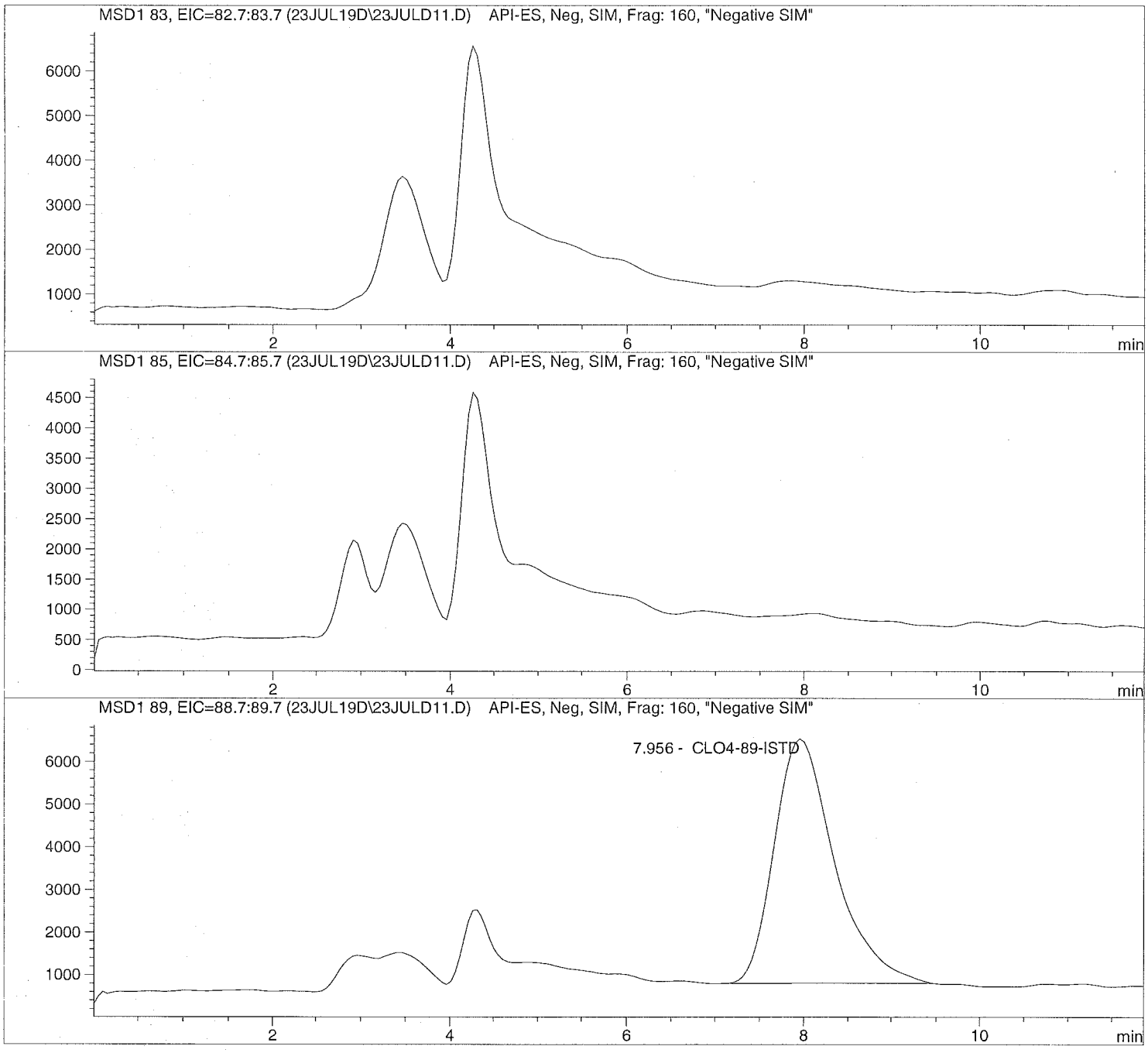
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD11.D Sample Name: 1920123003

Injection Date:	7/23/2019 10:53:24	Seq Line:	11
Sample Name:	1920123003	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD11.D Sample Name: 1920123003

Injection Date:	7/23/2019 10:53:24	Seq Line:	11
Sample Name:	1920123003	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.956	PBA	272319.7	5.0000	CLO4-89-ISTD

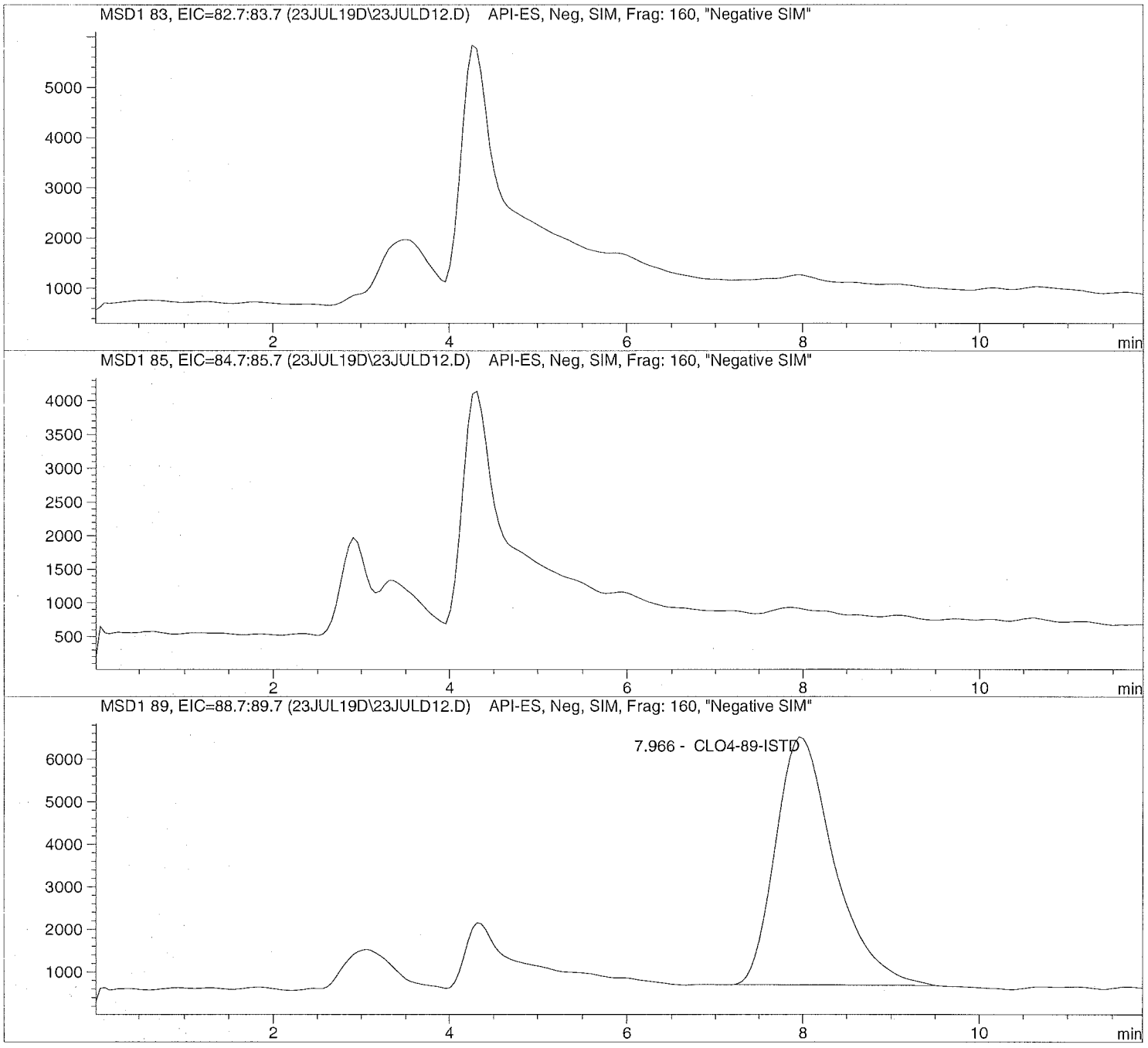
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD12.D Sample Name: 1920123004

Injection Date:	7/23/2019 11:07:17	Seq Line:	12
Sample Name:	1920123004	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD12.D Sample Name: 1920123004

Injection Date:	7/23/2019 11:07:17	Seq Line:	12
Sample Name:	1920123004	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.966	PBA	270262.5	5.0000	CLO4-89-ISTD

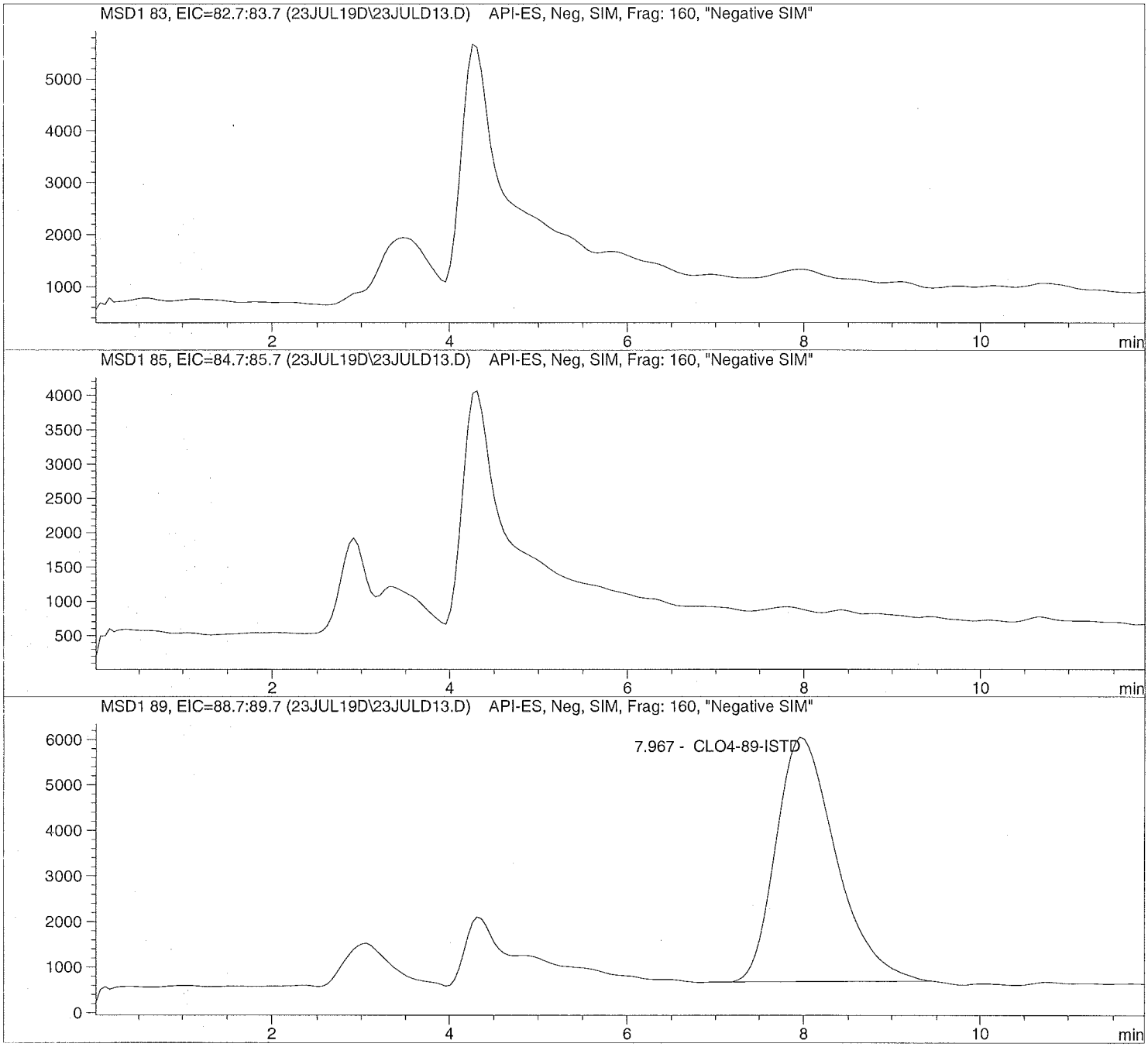
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD13.D Sample Name: 1920123005

Injection Date:	7/23/2019 11:21:18	Seq Line:	13
Sample Name:	1920123005	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD13.D Sample Name: 1920123005

Injection Date:	7/23/2019 11:21:18	Seq Line:	13
Sample Name:	1920123005	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.967	PBA	250553.8	5.0000	CLO4-89-ISTD

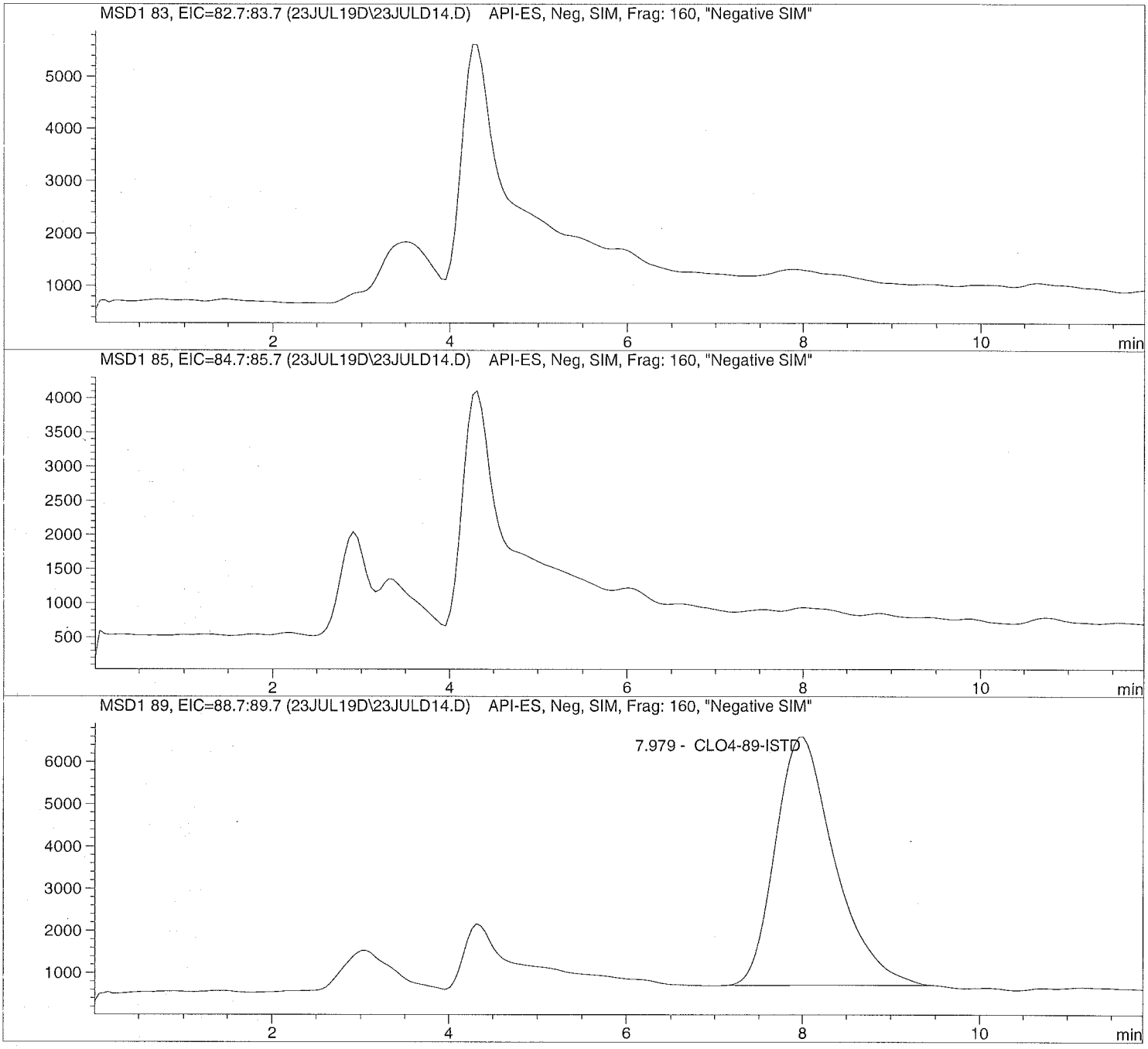
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD14.D Sample Name: 1920123006

Injection Date:	7/23/2019 11:35:11	Seq Line:	14
Sample Name:	1920123006	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD14.D Sample Name: 1920123006

Injection Date:	7/23/2019 11:35:11	Seq Line:	14
Sample Name:	1920123006	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.979	PBA	277086.1	5.0000	CLO4-89-ISTD

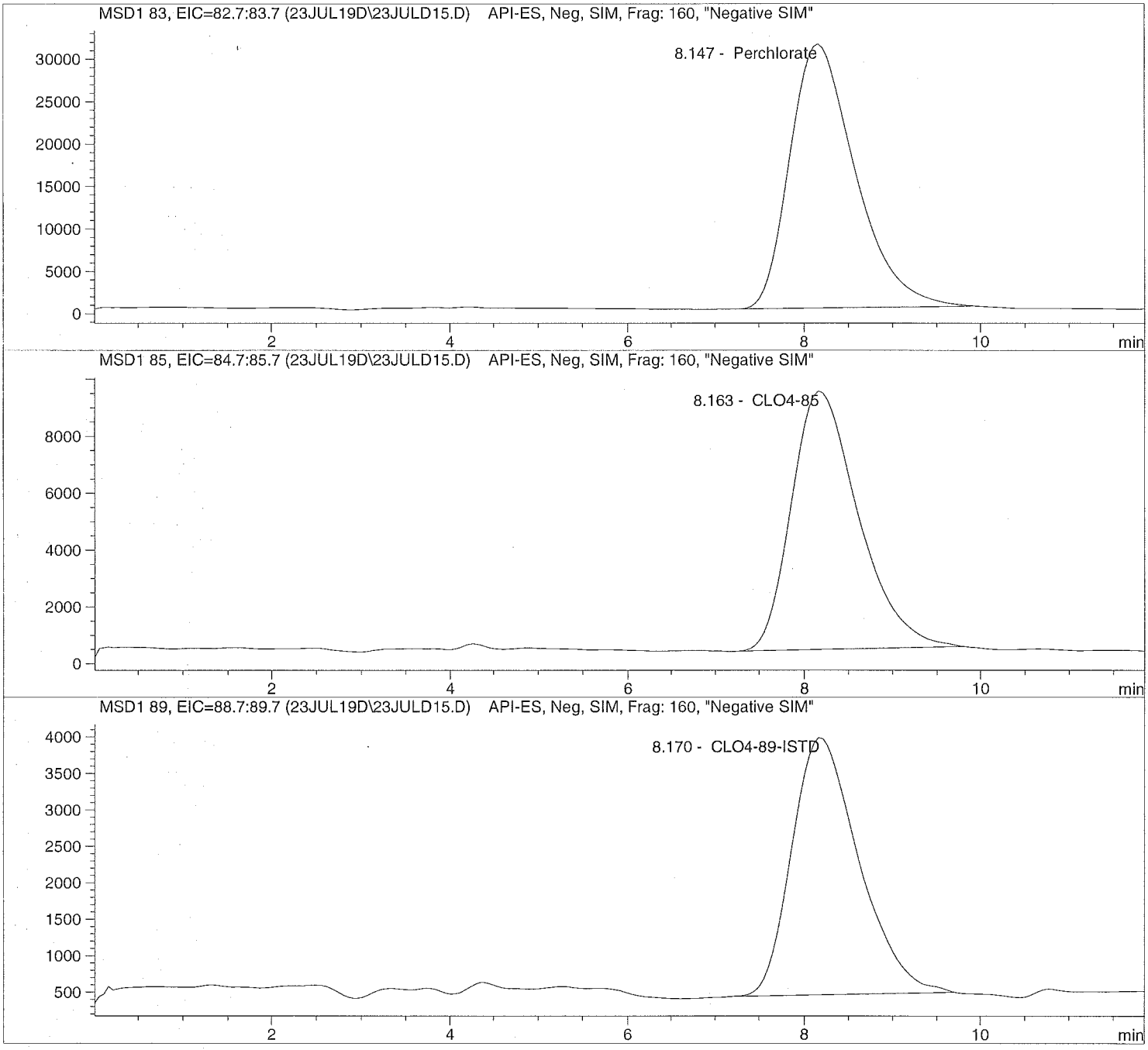
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD15.D Sample Name: 664926 CCV@25

Injection Date:	7/23/2019 11:49:04	Seq Line:	15
Sample Name:	664926 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD15.D Sample Name: 664926 CCV@25

Injection Date:	7/23/2019 11:49:04	Seq Line:	15
Sample Name:	664926 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.147	PBA	1584242.1	26.0929	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.163	PBA	473537.8	26.2735	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.170	PBA	184240.3	5.0000	CLO4-89-ISTD

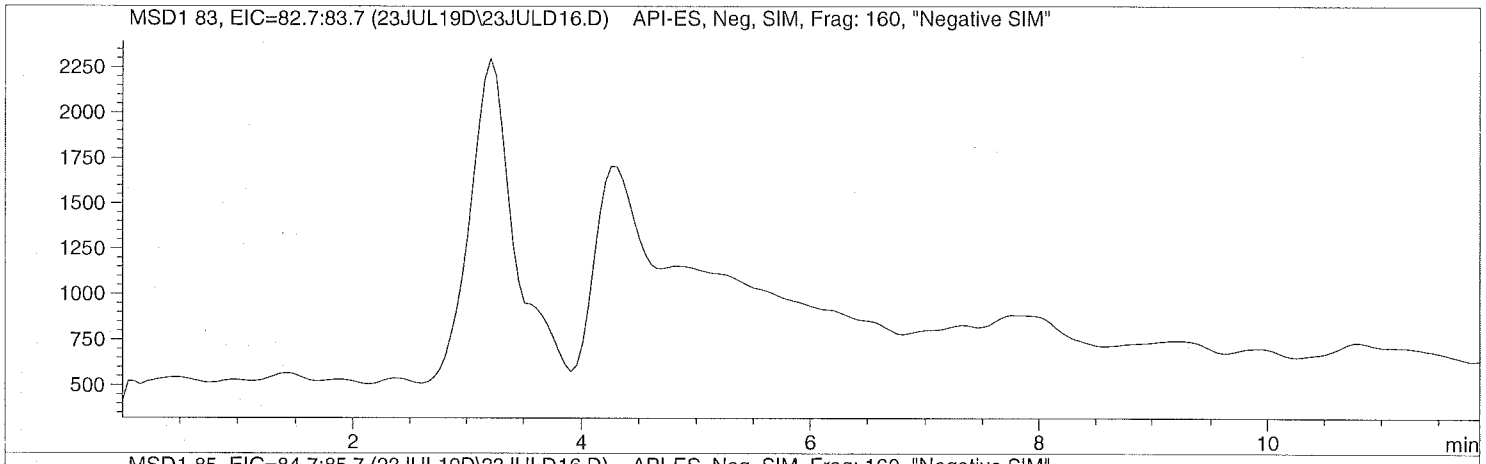
*** End of Report ***

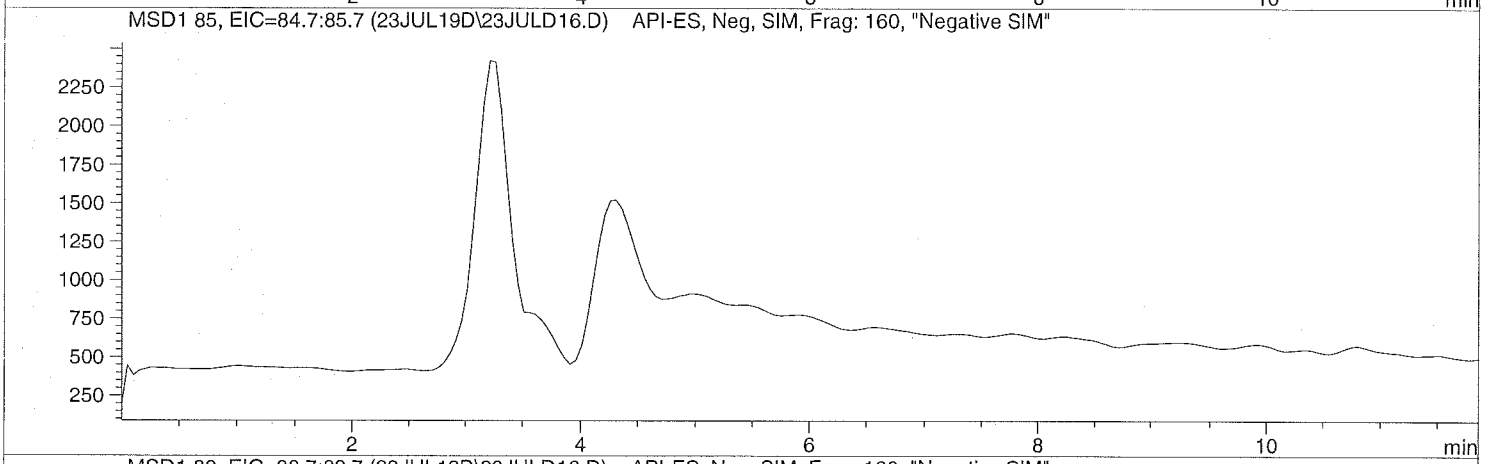
Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD16.D Sample Name: 1920571001

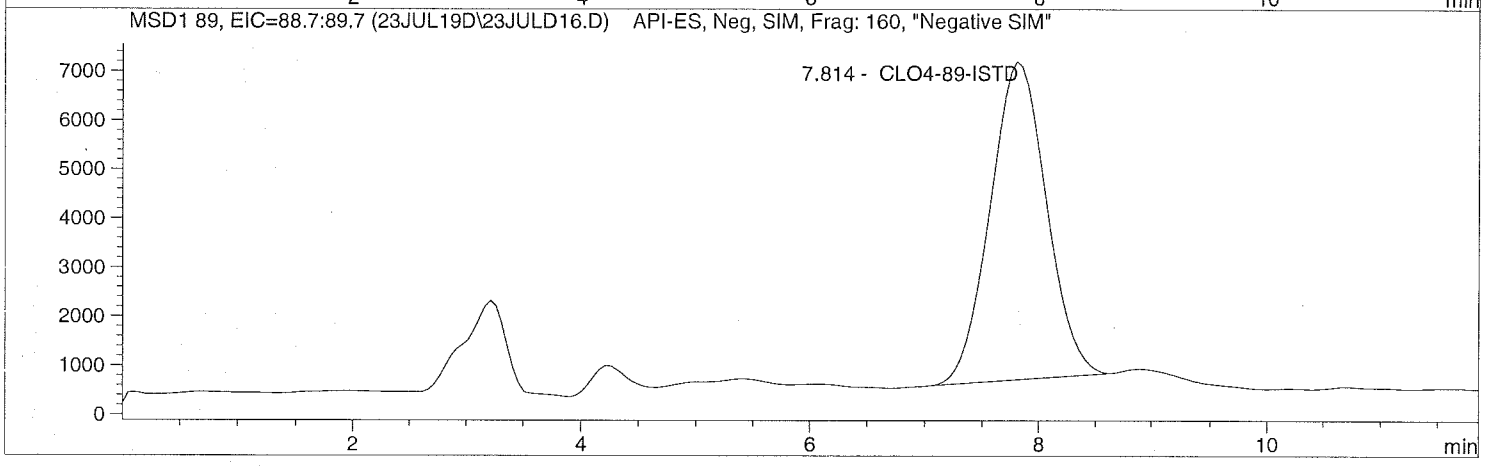
Injection Date:	7/23/2019 12:03:02	Seq Line:	16
Sample Name:	1920571001	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD16.D Sample Name: 1920571001

Injection Date:	7/23/2019 12:03:02	Seq Line:	16
Sample Name:	1920571001	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.814	PBA	224656.6	5.0000	CLO4-89-ISTD

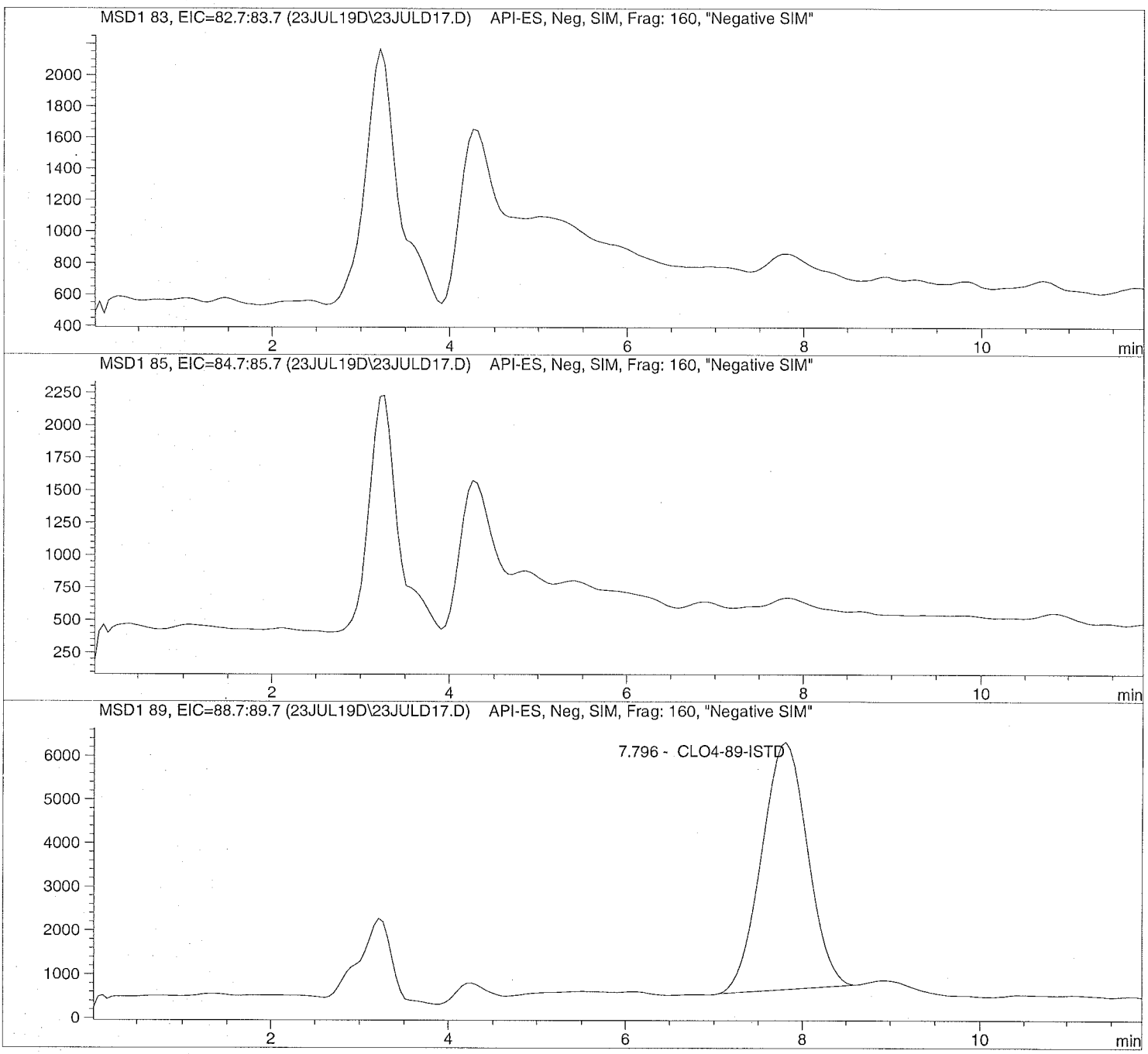
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD17.D Sample Name: 1920572001

Injection Date:	7/23/2019 12:16:58	Seq Line:	17
Sample Name:	1920572001	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD17.D Sample Name: 1920572001

Injection Date:	7/23/2019 12:16:58	Seq Line:	17
Sample Name:	1920572001	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.796	PBA	204102.5	5.0000	CLO4-89-ISTD

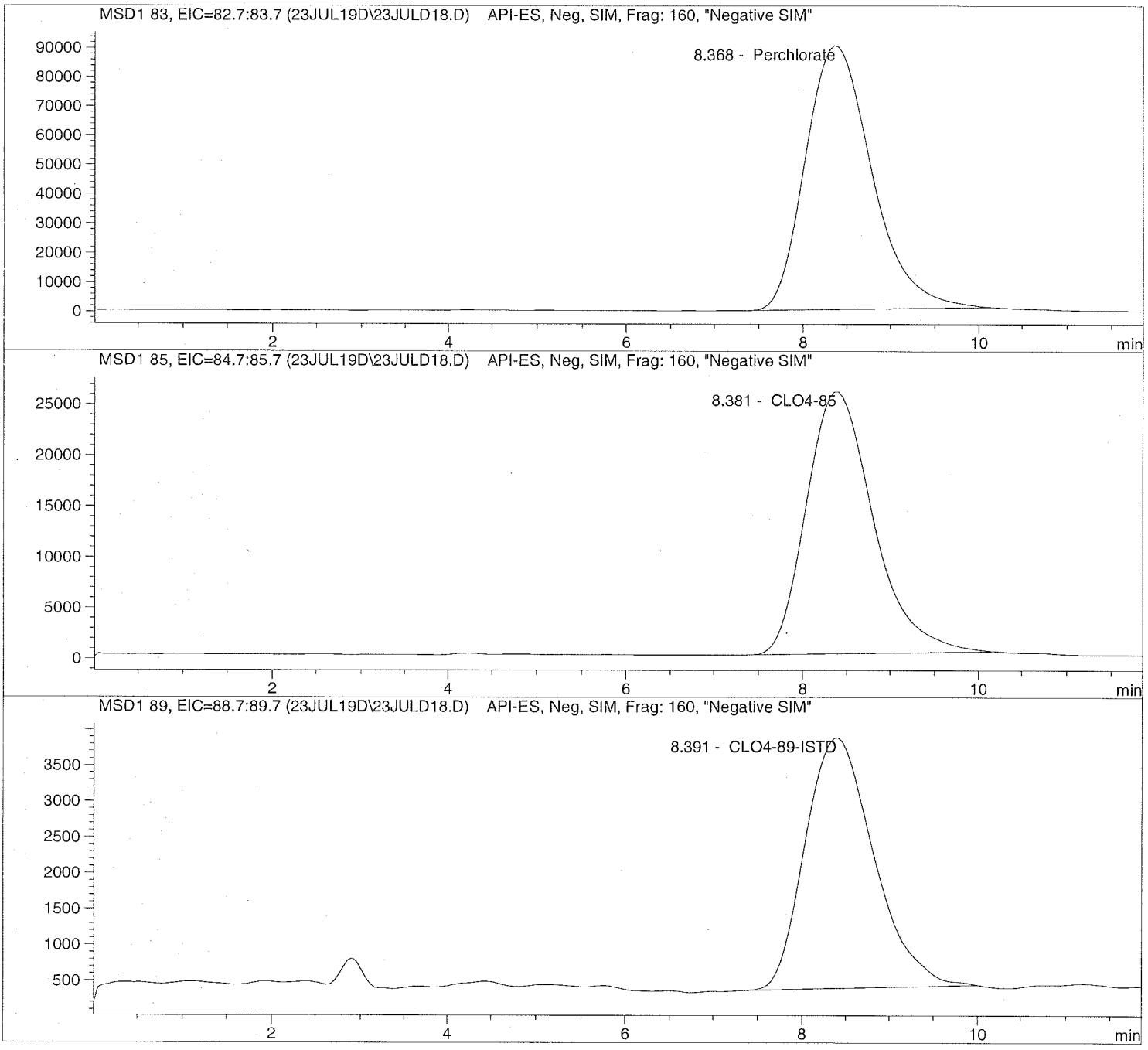
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD18.D Sample Name: 1920581001 100

Injection Date:	7/23/2019 12:30:57	Seq Line:	18
Sample Name:	1920581001 100	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD18.D Sample Name: 1920581001 100

Injection Date:	7/23/2019 12:30:57	Seq Line:	18
Sample Name:	1920581001 100	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.368	PBA	4742469.5	6892.8927	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.381	PBA	1372874.8	6775.2203	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.391	PBA	190565.5	500.0000	CLO4-89-ISTD

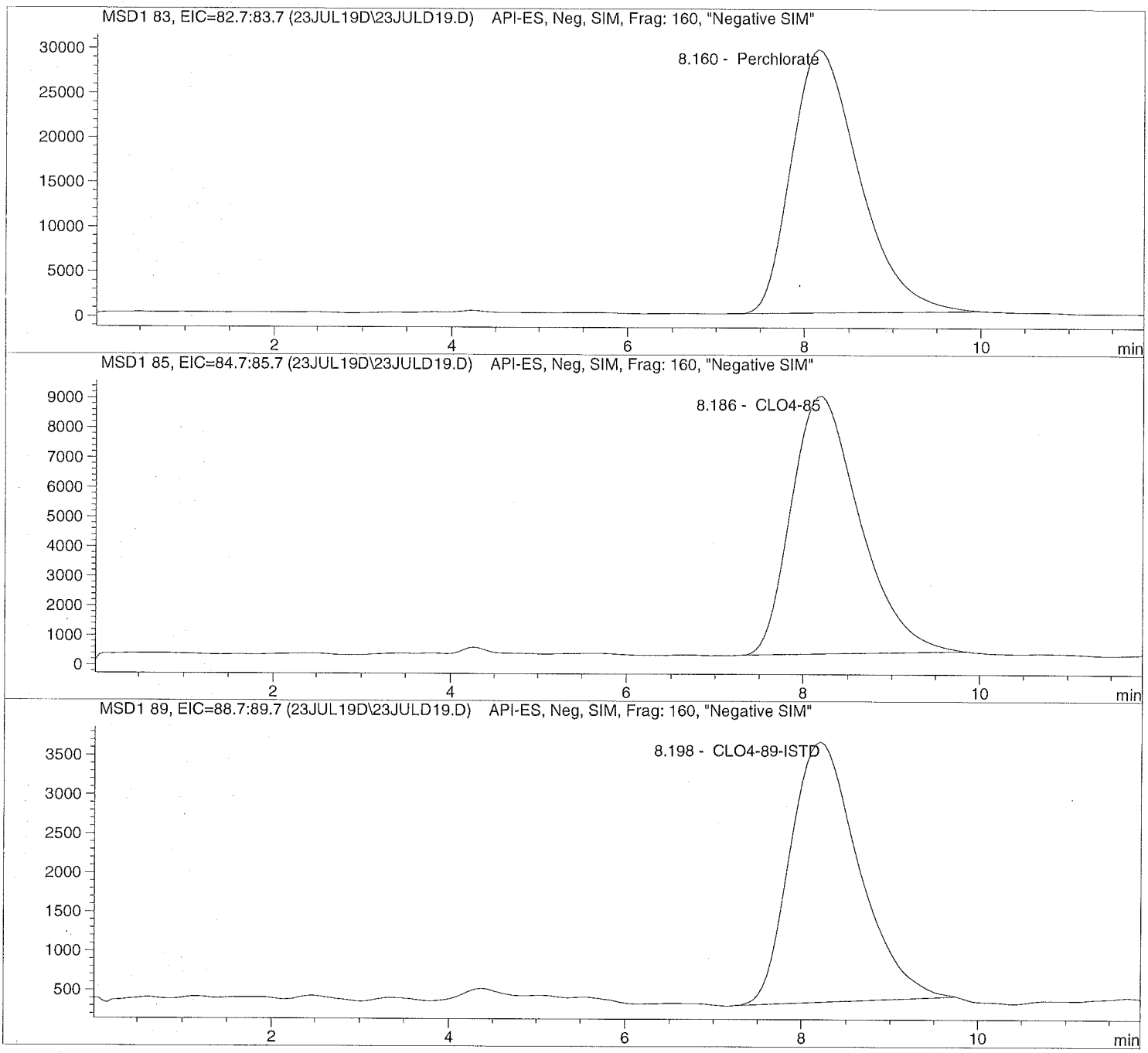
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD19.D Sample Name: 664927 CCV@25

Injection Date:	7/23/2019 12:44:47	Seq Line:	19
Sample Name:	664927 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD19.D Sample Name: 664927 CCV@25

Injection Date:	7/23/2019 12:44:47	Seq Line:	19
Sample Name:	664927 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.160	PBA	1565389.9	26.5099	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.186	PBA	466030.6	26.5949	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.198	PBA	179008.0	5.0000	CLO4-89-ISTD

*** End of Report ***



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

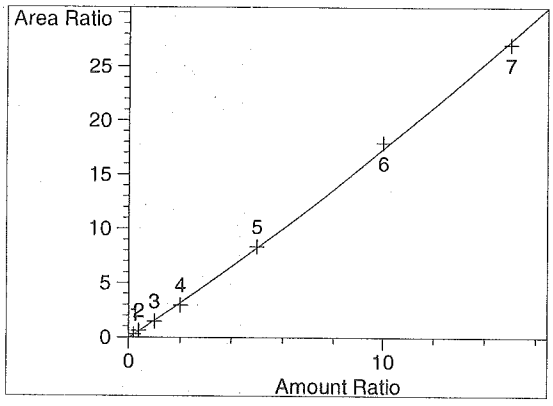
Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

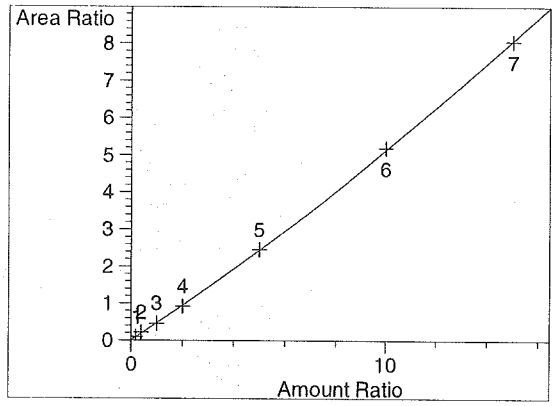
Peak Sum Table

No Entries in table

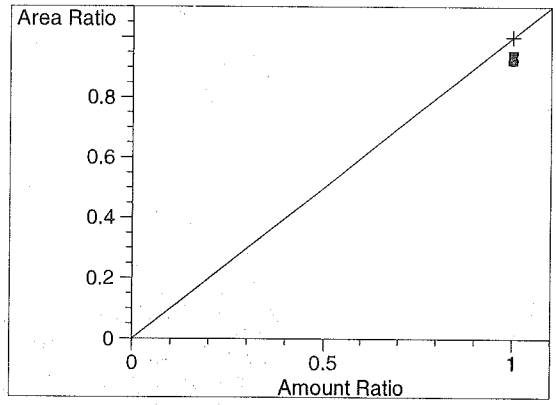
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Batch Report: C:\HPCHEM\1\DATA\19MAR19I\19MAR19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

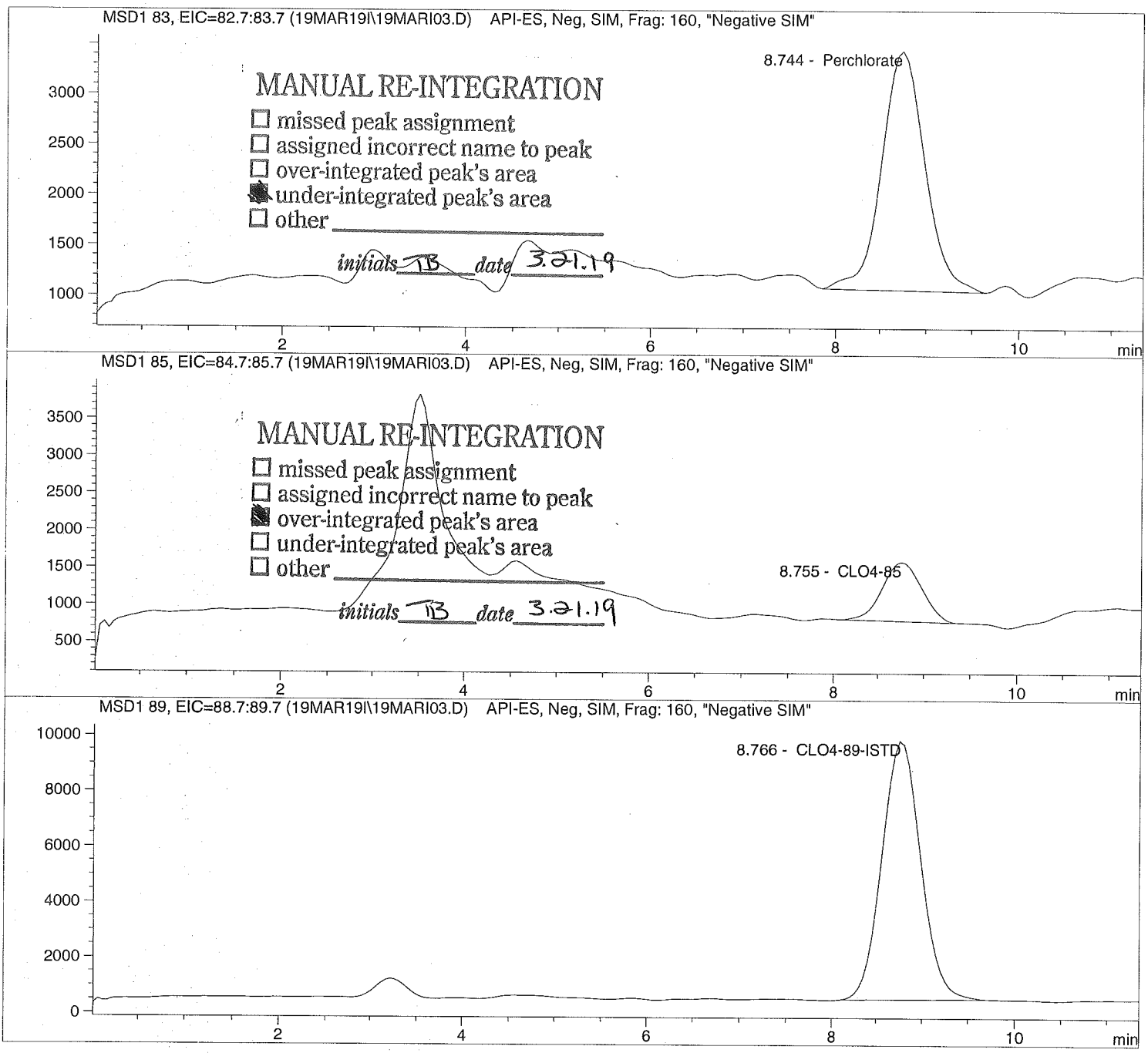
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

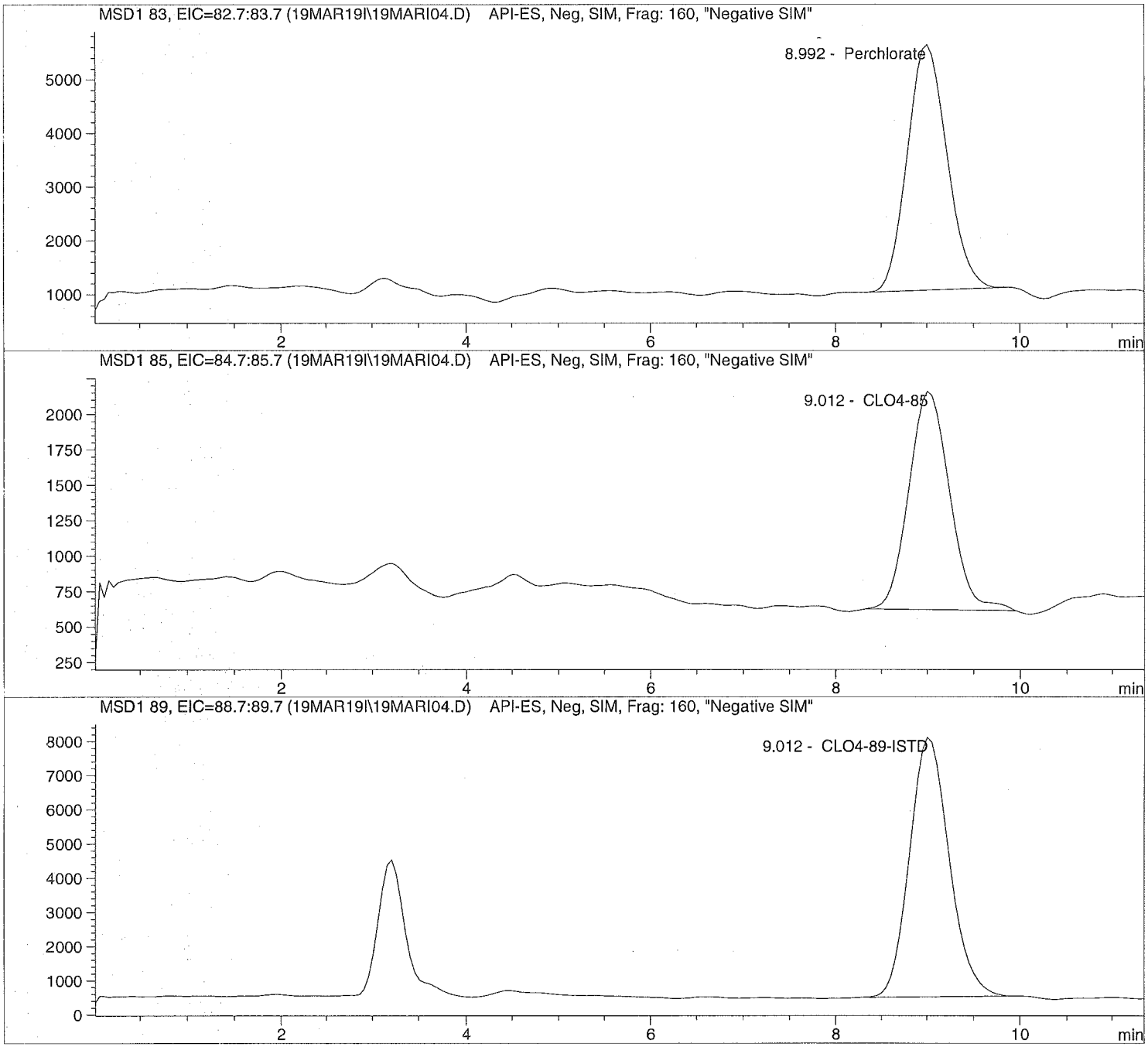
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

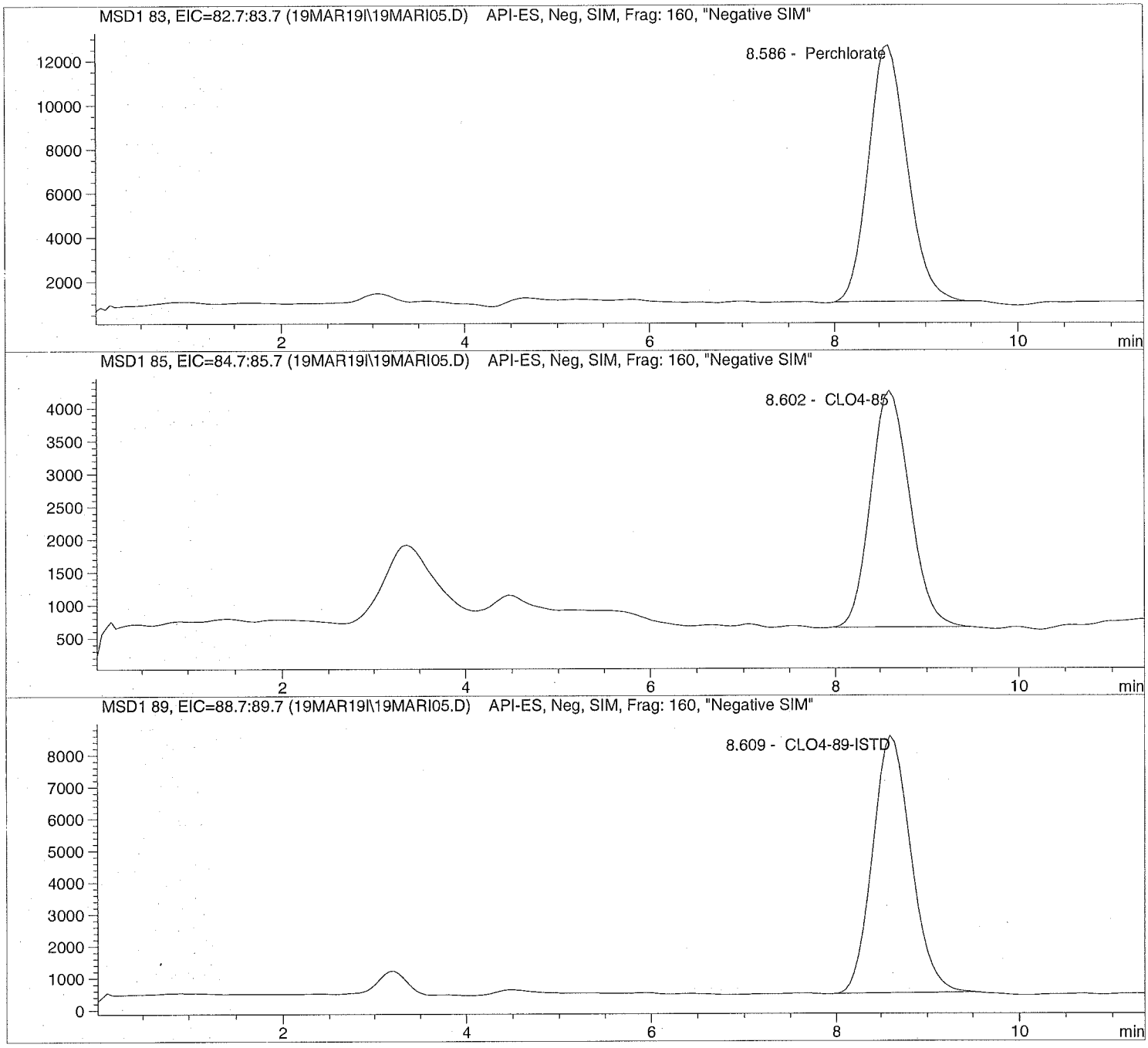
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

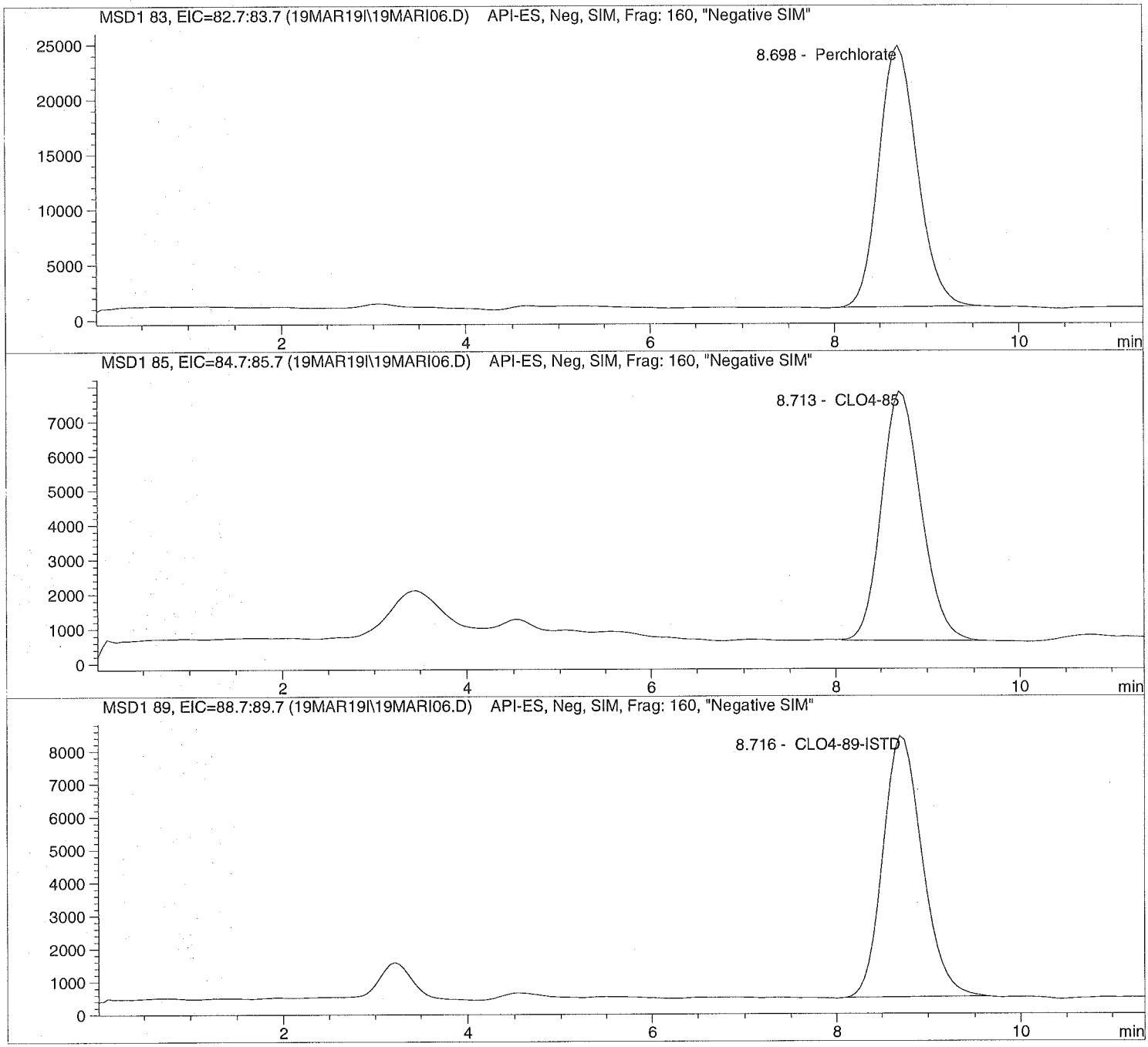
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

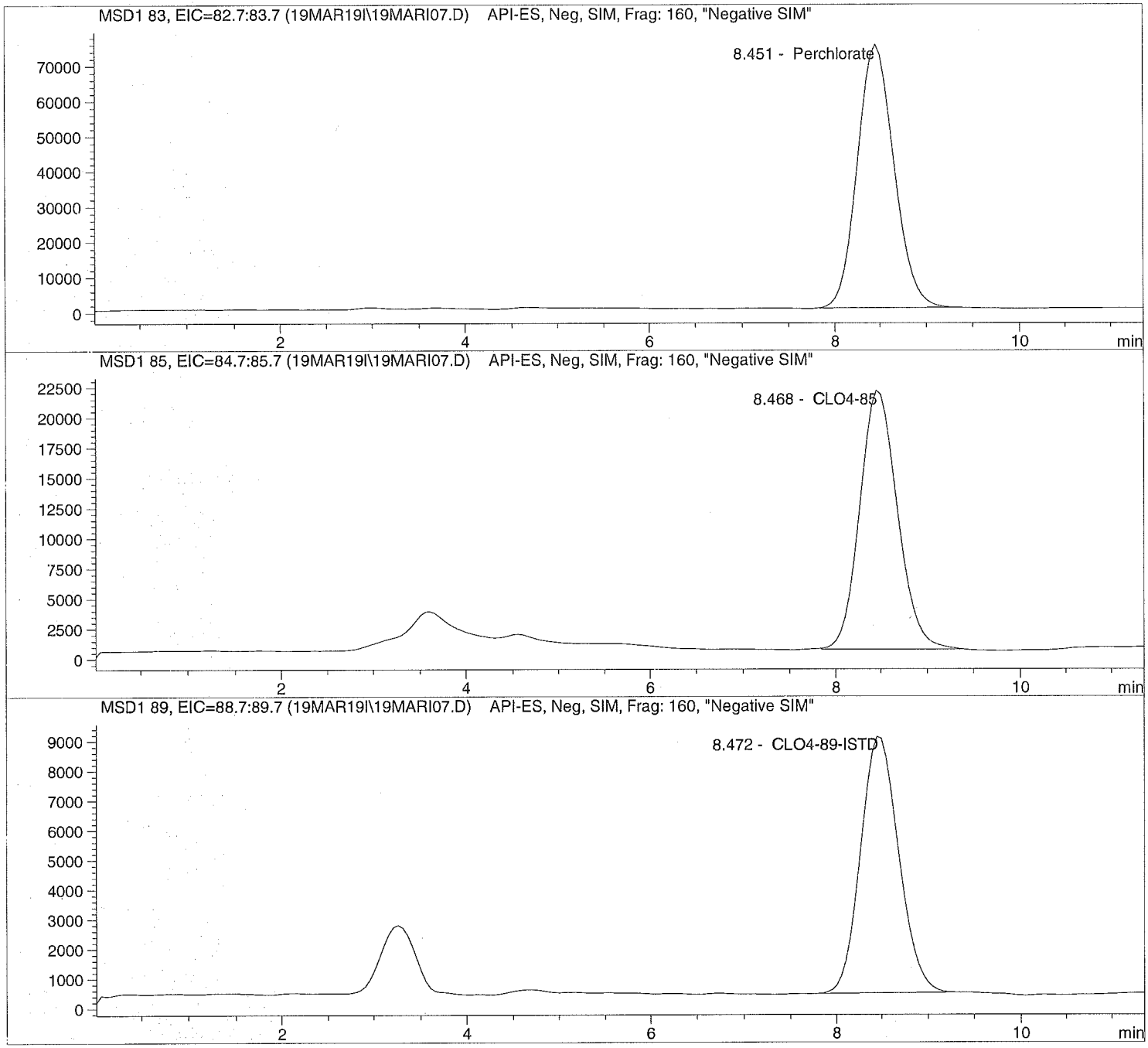
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

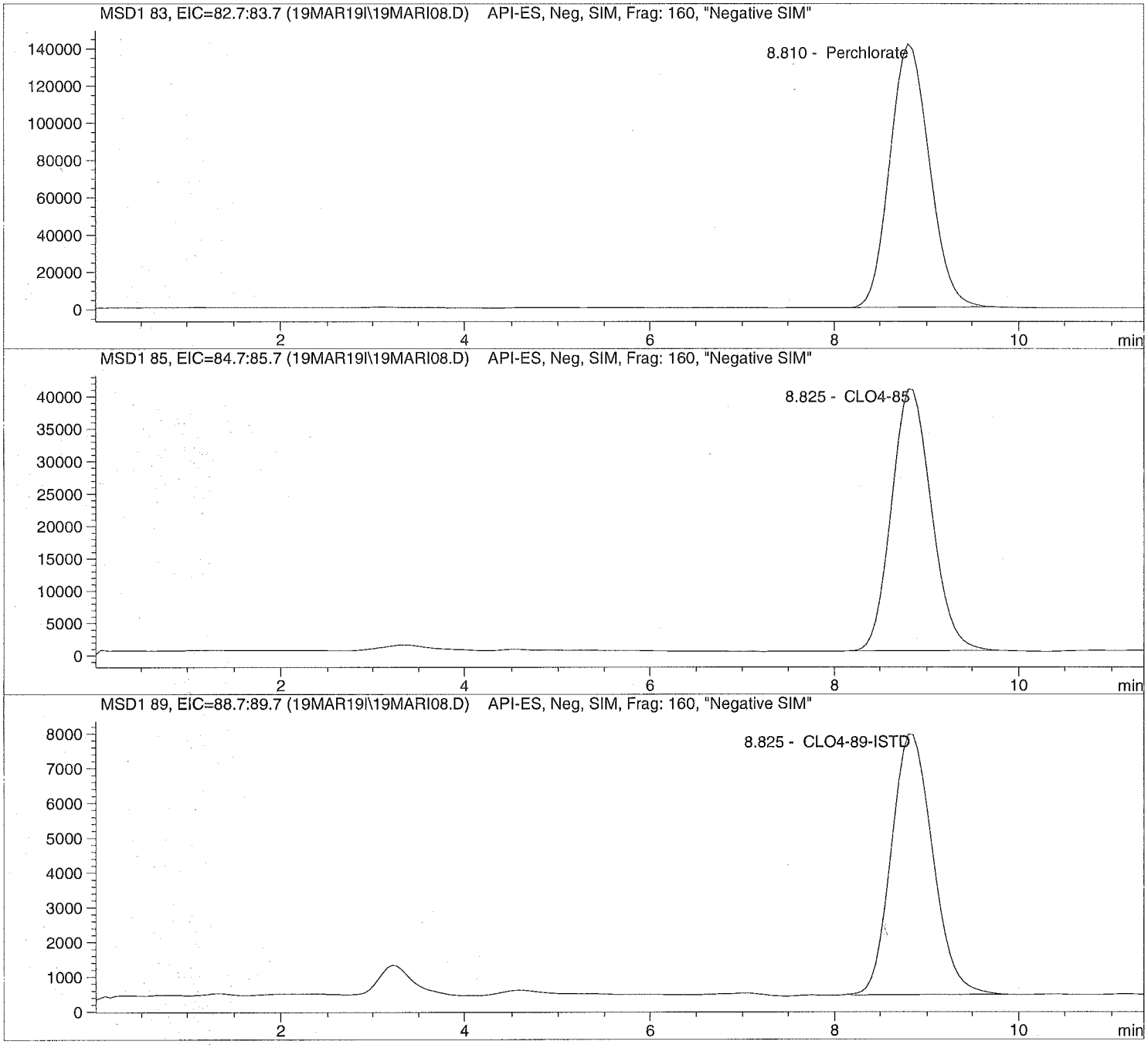
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

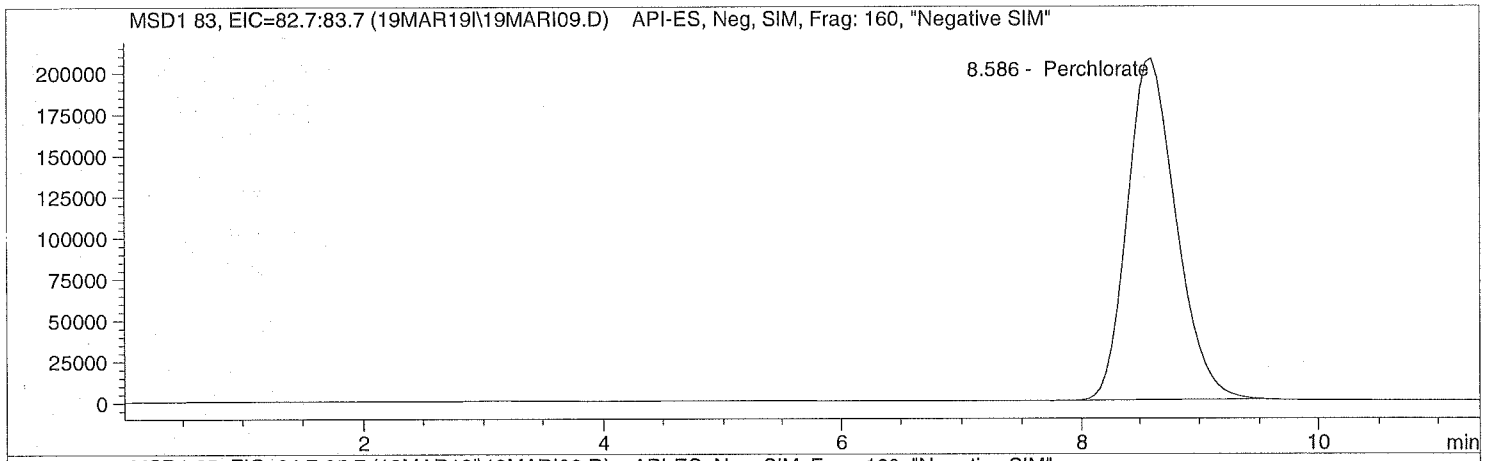
*** End of Report ***

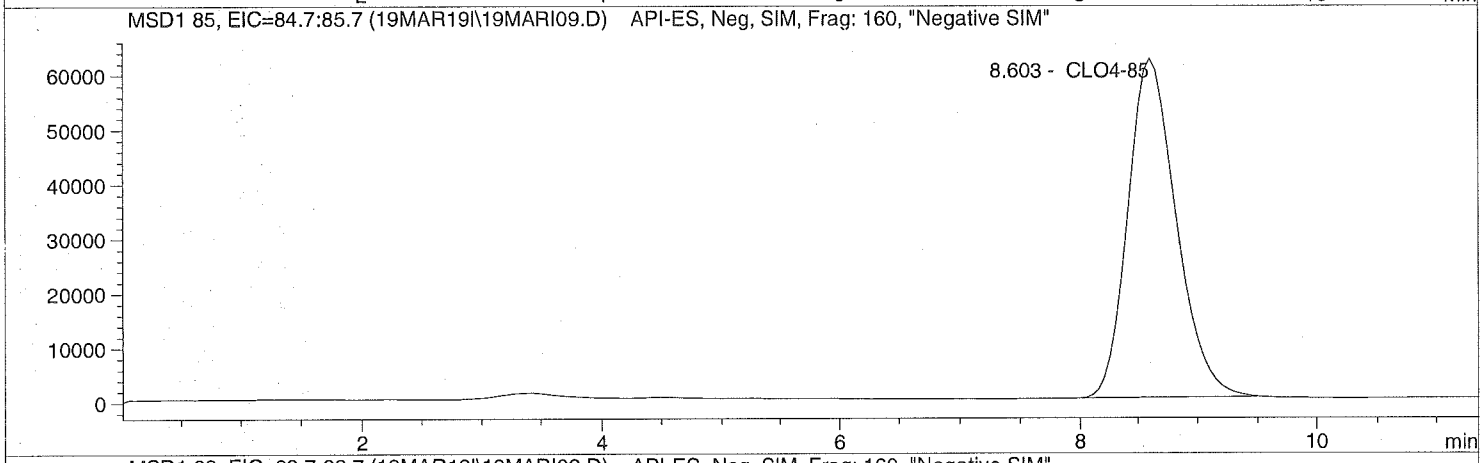
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

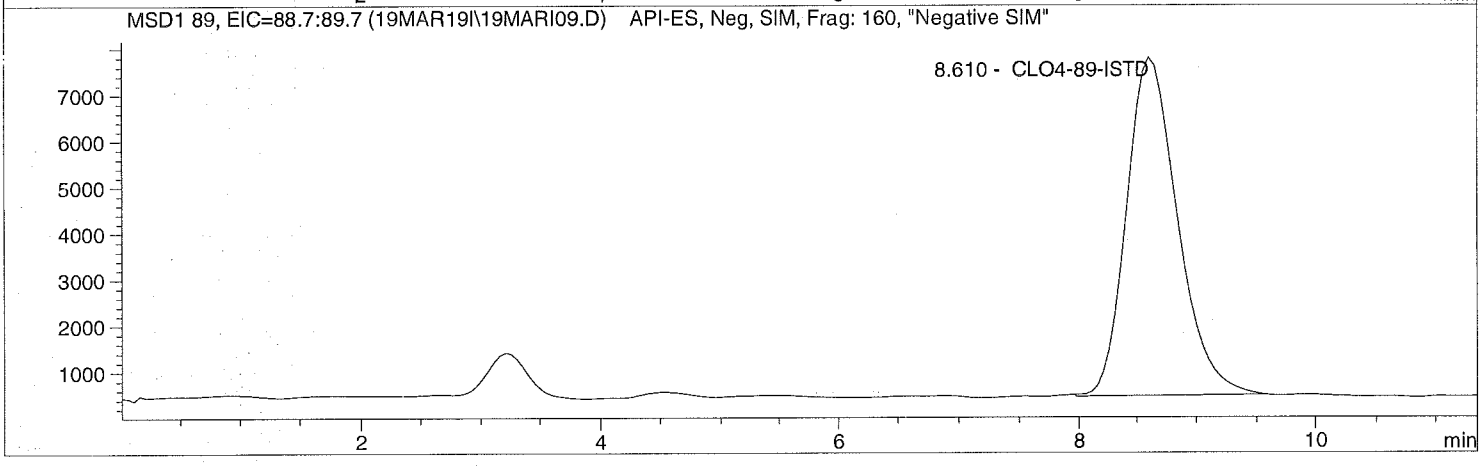
Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

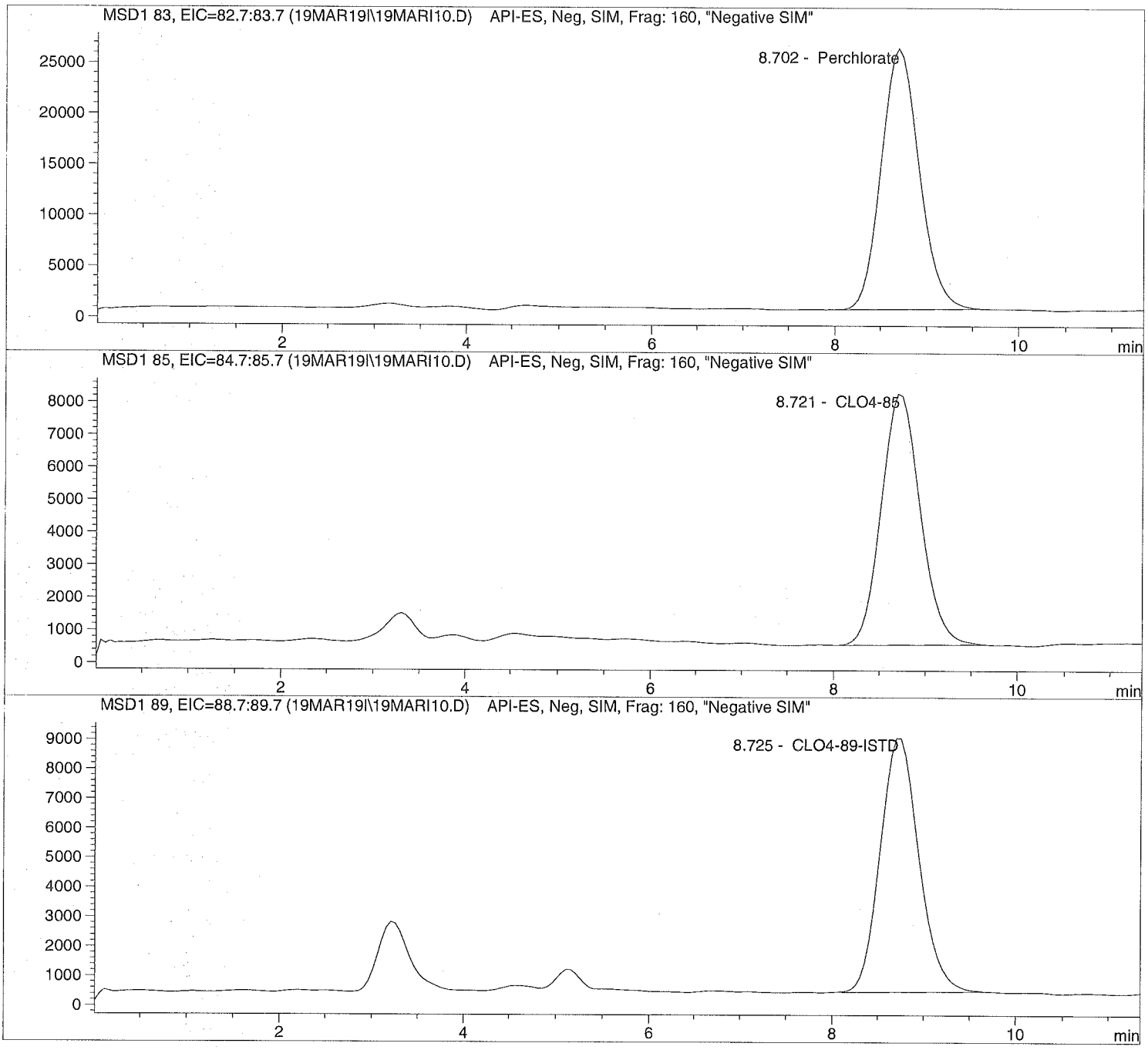
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

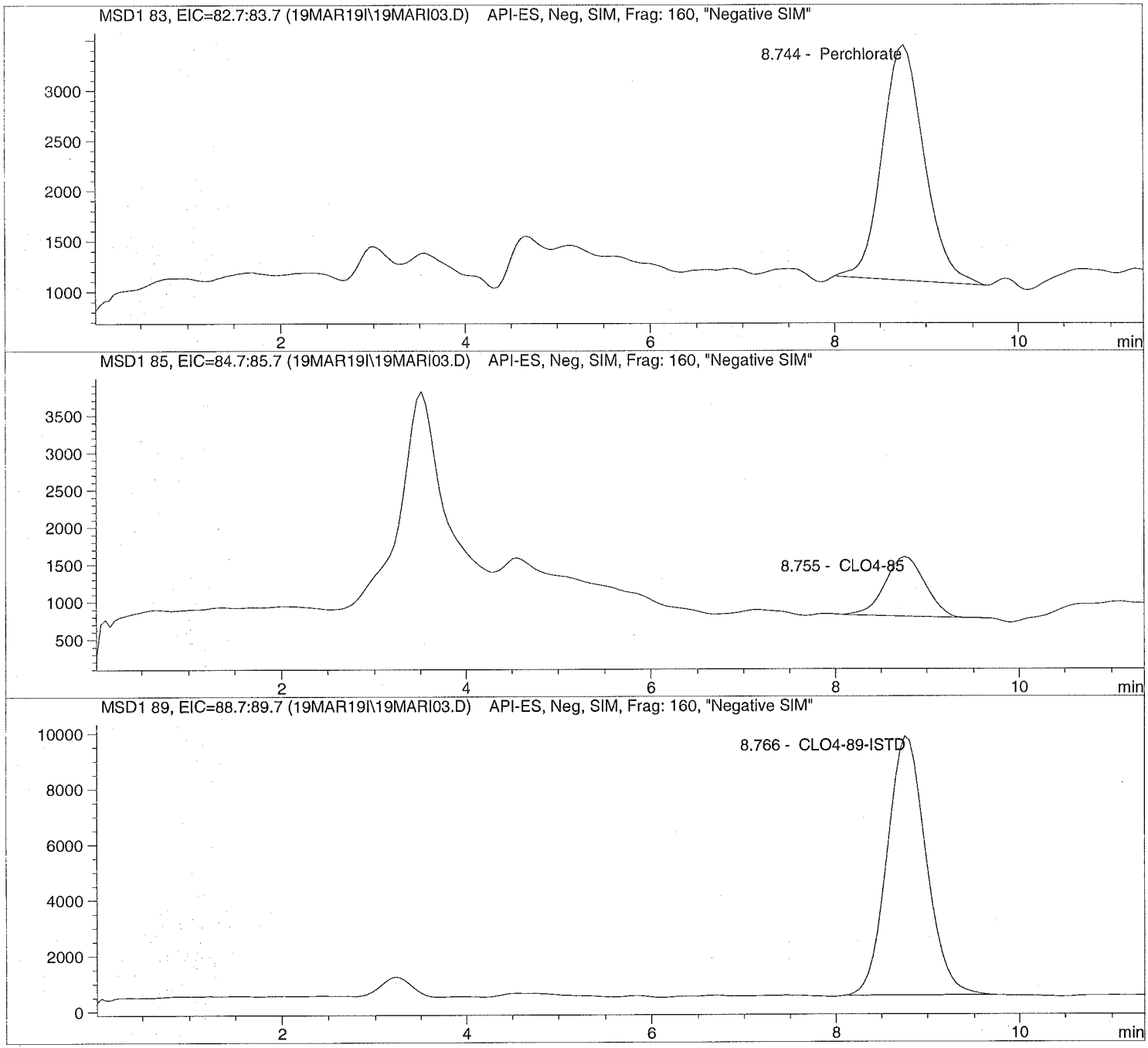
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

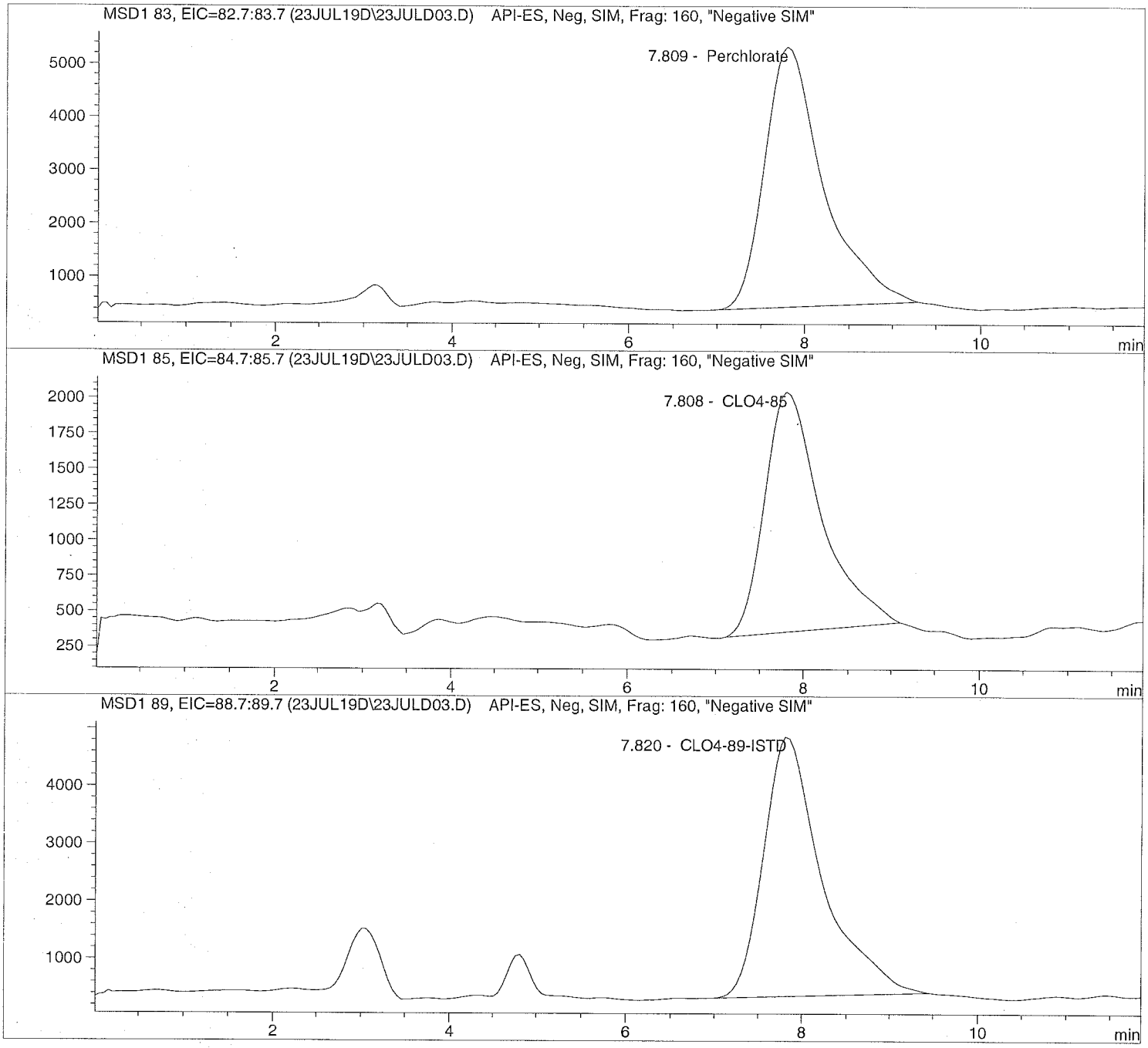
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD03.D Sample Name: 664921 ICS@4.0

Injection Date:	7/23/2019 09:01:39	Seq Line:	3
Sample Name:	664921 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\23JUL19D\23JULD03.D Sample Name: 664921 ICS@4.0

Injection Date:	7/23/2019 09:01:39	Seq Line:	3
Sample Name:	664921 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.809	PBA	226823.0	3.5980	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.808	PBA	75774.9	3.8868	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.820	PBA	208873.6	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Houston, US Date: 17-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Work Order: HS19070016

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19070016-01	ICT2_062819	Groundwater		28-Jun-2019 06:50	29-Jun-2019 08:45	☐
HS19070016-02	ICT4_062819	Groundwater		28-Jun-2019 07:10	29-Jun-2019 08:45	☐
HS19070016-03	ICT7_062819	Groundwater		28-Jun-2019 07:25	29-Jun-2019 08:45	☐
HS19070016-04	ICT8_062819	Groundwater		28-Jun-2019 07:35	29-Jun-2019 08:45	☐
HS19070016-05	ICT11_062819	Groundwater		28-Jun-2019 07:50	29-Jun-2019 08:45	☐
HS19070016-06	ICT11_062819_a	Groundwater		28-Jun-2019 07:50	29-Jun-2019 08:45	☐
HS19070016-07	ICT14B_062819	Groundwater		28-Jun-2019 08:05	29-Jun-2019 08:45	☐
HS19070016-08	ICT14C_062819	Groundwater		28-Jun-2019 08:15	29-Jun-2019 08:45	☐
HS19070016-09	ICT14D_062819	Groundwater		28-Jun-2019 08:35	29-Jun-2019 08:45	☐
HS19070016-10	ICT12B_062819	Groundwater		28-Jun-2019 09:05	29-Jun-2019 08:45	☐
HS19070016-11	ICT12B_062819_a	Groundwater		28-Jun-2019 09:05	29-Jun-2019 08:45	☐
HS19070016-12	ICT12C_062819	Groundwater		28-Jun-2019 09:20	29-Jun-2019 08:45	☐
HS19070016-13	ICT12D_062819	Groundwater		28-Jun-2019 09:35	29-Jun-2019 08:45	☐
HS19070016-14	ICT12E_062819	Groundwater		28-Jun-2019 09:30	29-Jun-2019 08:45	☐
HS19070016-15	ICT13B_062819	Groundwater		28-Jun-2019 09:10	29-Jun-2019 08:45	☐
HS19070016-16	ICT13D_062819	Groundwater		28-Jun-2019 08:20	29-Jun-2019 08:45	☐
HS19070016-17	ICT13E_062819	Groundwater		28-Jun-2019 08:00	29-Jun-2019 08:45	☐
HS19070016-18	ICT13F_062819	Groundwater		28-Jun-2019 07:20	29-Jun-2019 08:45	☐
HS19070016-19	Trip Blank	Water		28-Jun-2019 00:00	29-Jun-2019 08:45	☐

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Work Order: HS19070016

CASE NARRATIVE

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City Utah. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R342223

Sample ID: ICT14D_062819 (HS19070016-09MS)

• MS/MSD failed QC limits for some few compounds

Batch ID: R342283

Sample ID: ICT2_062819 (HS19070016-01MS)

• MS/MSD failed surrogates due to matrix.

Batch ID: R342382

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

Metals by Method SW7470

Batch ID: 142769,142867

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

Metals by Method SW6020

Batch ID: 142750

Sample ID: ICT11_062819 (HS19070016-05MSD)

• The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Barium and Sodium

Batch ID: 142828

Sample ID: ICT14D_062819 (HS19070016-09MS)

• Iron failed on the MS\MSD but passed on the PDS.

• The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Barium, Calcium, Magnesium, Manganese, Sodium.

Sample ID: ICT14D_062819 (HS19070016-09MSD)

• Aluminum failed on MSD but passed for MS and PDS.

Sample ID: ICT14D_062819 (HS19070016-09PDS)

• The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. Calcium, Manganese.

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT2_062819
Collection Date: 28-Jun-2019 06:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-01
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	11-Jul-2019 14:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,1-Dichloroethene	**2.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,2-Dichloroethane	**40**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 14:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	11-Jul-2019 14:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	11-Jul-2019 14:18
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 14:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-Jul-2019 14:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT2_062819
Collection Date: 28-Jun-2019 06:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-01
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	11-Jul-2019 14:18
cis-1,2-Dichloroethene	**35**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-Jul-2019 14:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 14:18
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 14:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Tetrachloroethene	**0.90**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
trans-1,2-Dichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Trichloroethene	**670**		**5.0**	**12**	**25**	**UG/L**	25	11-Jul-2019 16:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:18
Vinyl chloride	**0.95**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:18
Surr: 1,2-Dichloroethane-d4	*90.3*			**0**	*81-118*	*%REC*	*1*	*11-Jul-2019 14:18*
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*25*	*11-Jul-2019 16:18*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*1*	*11-Jul-2019 14:18*
Surr: 4-Bromofluorobenzene	*98.1*			**0**	*85-114*	*%REC*	*25*	*11-Jul-2019 16:18*
Surr: Dibromofluoromethane	*92.1*			**0**	*80-119*	*%REC*	*1*	*11-Jul-2019 14:18*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*25*	*11-Jul-2019 16:18*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*11-Jul-2019 14:18*
Surr: Toluene-d8	*99.7*			**0**	*89-112*	*%REC*	*25*	*11-Jul-2019 16:18*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT2_062819
Collection Date: 28-Jun-2019 06:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.139**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 14:50
Antimony	**0.000493**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Arsenic	**0.00229**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Barium	**0.167**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:30
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:30
Calcium	**19.5**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:30
Chromium	**0.00284**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Cobalt	**0.0116**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Copper	**0.0501**		**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Iron	**4.17**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:30
Lead	**0.00446**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Magnesium	**20.0**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:30
Manganese	**0.336**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Nickel	**0.0139**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Potassium	**1.24**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:30
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:30
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 14:50
Sodium	**155**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:30
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:30
Vanadium	**0.00189**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
Zinc	**0.196**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:30
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:37
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT4_062819
Collection Date: 28-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-02
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	11-Jul-2019 14:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,1,2-Trichloroethane	**0.73**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
1,1-Dichloroethane	**0.55**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,2-Dichloroethane	**110**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 14:42
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	11-Jul-2019 14:42
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	11-Jul-2019 14:42
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 14:42
Benzene	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-Jul-2019 14:42
Carbon tetrachloride	**13**		**0.50**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Chloroform	**9.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT4_062819
Collection Date: 28-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-02
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	11-Jul-2019 14:42
cis-1,2-Dichloroethene	**2,000**		**10**	**25**	**50**	**UG/L**	50	11-Jul-2019 19:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-Jul-2019 14:42
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 14:42
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 14:42
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 14:42
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Tetrachloroethene	**1.8**		**0.30**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
trans-1,2-Dichloroethene	**5.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Trichloroethene	**6,000**		**10**	**25**	**50**	**UG/L**	50	11-Jul-2019 19:30
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 14:42
Vinyl chloride	**10**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 14:42
Surr: 1,2-Dichloroethane-d4	*93.7*			**0**	*81-118*	*%REC*	*1*	*11-Jul-2019 14:42*
Surr: 1,2-Dichloroethane-d4	*104*			**0**	*81-118*	*%REC*	*50*	*11-Jul-2019 19:30*
Surr: 4-Bromofluorobenzene	*99.7*			**0**	*85-114*	*%REC*	*50*	*11-Jul-2019 19:30*
Surr: 4-Bromofluorobenzene	*99.2*			**0**	*85-114*	*%REC*	*1*	*11-Jul-2019 14:42*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*1*	*11-Jul-2019 14:42*
Surr: Dibromofluoromethane	*102*			**0**	*80-119*	*%REC*	*50*	*11-Jul-2019 19:30*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*50*	*11-Jul-2019 19:30*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*11-Jul-2019 14:42*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT4_062819
Collection Date: 28-Jun-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0112**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 14:53
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:32
Arsenic	**0.000680**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
Barium	**0.134**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:32
Cadmium	**0.000394**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:32
Calcium	**35.8**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:32
Chromium	**0.0321**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
Cobalt	**0.00928**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 00:32
Iron	**0.404**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:32
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:32
Magnesium	**31.8**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:32
Manganese	**0.311**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
Nickel	**0.265**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
Potassium	**1.54**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:32
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:32
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 14:53
Sodium	**259**		**0.140**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 14:55
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:32
Vanadium	**0.00174**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
Zinc	**0.0164**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:32
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:25
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT7_062819
Collection Date: 28-Jun-2019 07:25

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-03
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	11-Jul-2019 18:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 18:42
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	11-Jul-2019 18:42
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	11-Jul-2019 18:42
Acetone	**2.8**		**0.40**	**1.0**	**2.0**	**UG/L**	1	11-Jul-2019 18:42
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-Jul-2019 18:42
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT7_062819
Collection Date: 28-Jun-2019 07:25

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-03
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	11-Jul-2019 18:42
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-Jul-2019 18:42
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 18:42
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 18:42
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 18:42
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Trichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Jul-2019 18:42
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 18:42
Surr: 1,2-Dichloroethane-d4	*95.1*			**0**	*81-118*	*%REC*	*1*	*11-Jul-2019 18:42*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*11-Jul-2019 18:42*
Surr: Dibromofluoromethane	*96.5*			**0**	*80-119*	*%REC*	*1*	*11-Jul-2019 18:42*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*11-Jul-2019 18:42*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT7_062819
Collection Date: 28-Jun-2019 07:25

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.211**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 14:57
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:34
Arsenic	**0.000594**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Barium	**0.217**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Beryllium	**0.000549**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:34
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:34
Calcium	**2.41**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:34
Chromium	**0.00142**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Cobalt	**0.00298**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Copper	**0.00281**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Iron	**0.836**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:34
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:34
Magnesium	**2.46**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:34
Manganese	**0.0961**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Nickel	**0.0181**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Potassium	**1.45**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:34
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:34
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 14:57
Sodium	**13.3**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:34
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:34
Vanadium	**0.00136**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
Zinc	**0.0553**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:34
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:27
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT8_062819
Collection Date: 28-Jun-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-04
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	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,1-Dichloroethane	**9.3**	J	**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:28
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,2-Dichloroethane	**47**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:28
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
2-Butanone	10	U	5.0	10	20	UG/L	10	10-Jul-2019 20:28
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
2-Hexanone	10	U	10	10	20	UG/L	10	10-Jul-2019 20:28
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	10-Jul-2019 20:28
Acetone	10	U	4.0	10	20	UG/L	10	10-Jul-2019 20:28
Benzene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Bromochloromethane	**8.8**	J	**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:28
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Carbon disulfide	10	U	6.0	10	20	UG/L	10	10-Jul-2019 20:28
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Chloroform	**16**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:28

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT8_062819
Collection Date: 28-Jun-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-04
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	10-Jul-2019 20:28
cis-1,2-Dichloroethene	**3,200**		**20**	**50**	**100**	**UG/L**	100	11-Jul-2019 17:54
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	10-Jul-2019 20:28
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
m,p-Xylene	10	U	5.0	10	20	UG/L	10	10-Jul-2019 20:28
Methylene chloride	**8,400**		**40**	**100**	**200**	**UG/L**	100	11-Jul-2019 17:54
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:28
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Styrene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Tetrachloroethene	**240**		**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:28
Toluene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
trans-1,2-Dichloroethene	**9.8**	J	**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:28
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Trichloroethene	**7,500**		**20**	**50**	**100**	**UG/L**	100	11-Jul-2019 17:54
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:28
Vinyl chloride	**13**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:28
Surr: 1,2-Dichloroethane-d4	*104*			**0**	*81-118*	*%REC*	*10*	*10-Jul-2019 20:28*
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*100*	*11-Jul-2019 17:54*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*10*	*10-Jul-2019 20:28*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*100*	*11-Jul-2019 17:54*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*10*	*10-Jul-2019 20:28*
Surr: Dibromofluoromethane	*98.2*			**0**	*80-119*	*%REC*	*100*	*11-Jul-2019 17:54*
Surr: Toluene-d8	*97.1*			**0**	*89-112*	*%REC*	*10*	*10-Jul-2019 20:28*
Surr: Toluene-d8	*98.3*			**0**	*89-112*	*%REC*	*100*	*11-Jul-2019 17:54*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT8_062819
Collection Date: 28-Jun-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0188**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 14:59
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:36
Arsenic	**0.00649**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
Barium	**0.303**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:36
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:36
Calcium	**12.8**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:36
Chromium	**0.00144**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
Cobalt	**0.00314**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	09-Jul-2019 00:36
Iron	**16.0**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:36
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:36
Magnesium	**10.3**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:36
Manganese	**0.228**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
Nickel	**0.0213**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
Potassium	**1.48**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:36
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:36
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 14:59
Sodium	**69.6**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:36
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:36
Vanadium	**0.00195**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
Zinc	**0.0101**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:36
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:28
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT11_062819
Collection Date: 28-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-05
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	10-Jul-2019 13:17
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,2-Dichloroethane	**0.99**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 13:17
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 13:17
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 13:17
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 13:17
Acetone	**6.4**		**0.40**	**1.0**	**2.0**	**UG/L**	1	10-Jul-2019 13:17
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 13:17
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT11_062819
Collection Date: 28-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-05
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	10-Jul-2019 13:17
cis-1,2-Dichloroethene	**32**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 13:17
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 13:17
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 13:17
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 13:17
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:17
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Trichloroethene	**270**		**1.0**	**2.5**	**5.0**	**UG/L**	5	10-Jul-2019 17:16
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:17
Surr: 1,2-Dichloroethane-d4	*94.8*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 13:17*
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*5*	*10-Jul-2019 17:16*
Surr: 4-Bromofluorobenzene	*97.1*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 13:17*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*5*	*10-Jul-2019 17:16*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 13:17*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*5*	*10-Jul-2019 17:16*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 13:17*
Surr: Toluene-d8	*98.4*			**0**	*89-112*	*%REC*	*5*	*10-Jul-2019 17:16*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT11_062819
Collection Date: 28-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.00846**	J	**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 00:14
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:14
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:14
Barium	**0.443**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
Beryllium	**0.000285**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:14
Cadmium	**0.000354**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:14
Calcium	**10.3**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:14
Chromium	**0.142**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
Cobalt	**0.00481**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
Copper	**0.00472**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
Iron	**1.00**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:14
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:14
Magnesium	**7.04**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:14
Manganese	**0.205**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
Nickel	**0.564**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
Potassium	**0.934**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:14
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:14
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:14
Sodium	**64.8**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:14
Thallium	**0.000618**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:14
Vanadium	**0.00109**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
Zinc	**0.0902**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:14
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:30
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT11_062819_a
Collection Date: 28-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-06
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	10-Jul-2019 13:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,2-Dichloroethane	**0.87**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 13:41
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 13:41
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 13:41
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 13:41
Acetone	**3.6**		**0.40**	**1.0**	**2.0**	**UG/L**	1	10-Jul-2019 13:41
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 13:41
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT11_062819_a
Collection Date: 28-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-06
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	10-Jul-2019 13:41
cis-1,2-Dichloroethene	**27**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 13:41
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 13:41
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 13:41
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 13:41
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 13:41
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Trichloroethene	**210**		**1.0**	**2.5**	**5.0**	**UG/L**	5	10-Jul-2019 17:40
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 13:41
Surr: 1,2-Dichloroethane-d4	*105*			**0**	*81-118*	*%REC*	*5*	*10-Jul-2019 17:40*
Surr: 1,2-Dichloroethane-d4	*96.9*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 13:41*
Surr: 4-Bromofluorobenzene	*99.7*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 13:41*
Surr: 4-Bromofluorobenzene	*97.9*			**0**	*85-114*	*%REC*	*5*	*10-Jul-2019 17:40*
Surr: Dibromofluoromethane	*97.8*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 13:41*
Surr: Dibromofluoromethane	*103*			**0**	*80-119*	*%REC*	*5*	*10-Jul-2019 17:40*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 13:41*
Surr: Toluene-d8	*99.8*			**0**	*89-112*	*%REC*	*5*	*10-Jul-2019 17:40*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT11_062819_a
Collection Date: 28-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0149**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 16:03
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:39
Arsenic	**0.000576**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Barium	**0.446**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Beryllium	**0.000280**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:39
Cadmium	**0.000314**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:39
Calcium	**10.4**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:39
Chromium	**0.219**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Cobalt	**0.00468**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Copper	**0.00424**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Iron	**1.58**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:39
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:39
Magnesium	**7.20**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:39
Manganese	**0.200**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Nickel	**0.547**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Potassium	**0.968**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:39
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:39
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 16:03
Sodium	**67.2**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:39
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:39
Vanadium	**0.00243**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
Zinc	**0.0793**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:39
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:32
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14B_062819
Collection Date: 28-Jun-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-07
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	10-Jul-2019 19:16
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,1-Dichloroethane	**1.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 19:16
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 19:16
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 19:16
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 19:16
Acetone	**6.2**		**0.40**	**1.0**	**2.0**	**UG/L**	1	10-Jul-2019 19:16
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 19:16
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14B_062819
Collection Date: 28-Jun-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-07
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	10-Jul-2019 19:16
cis-1,2-Dichloroethene	**31**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 19:16
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 19:16
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 19:16
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 19:16
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 19:16
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
trans-1,2-Dichloroethene	**0.60**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 19:16
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Trichloroethene	**190**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 19:16
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 19:16
Vinyl chloride	**0.68**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 19:16
Surr: 1,2-Dichloroethane-d4	*95.4*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 19:16*
Surr: 4-Bromofluorobenzene	*95.7*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 19:16*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 19:16*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 19:16*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14B_062819
Collection Date: 28-Jun-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jul-2019		Analyst: JHD
Aluminum	**0.0254**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 16:06
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:41
Arsenic	**0.00114**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Barium	**0.447**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Beryllium	**0.000259**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:41
Cadmium	**0.000225**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:41
Calcium	**12.4**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:41
Chromium	**0.0489**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Cobalt	**0.00274**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Copper	**0.00307**	J	**0.00100**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Iron	**0.842**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:41
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:41
Magnesium	**11.6**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:41
Manganese	**0.239**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Nickel	**0.0822**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Potassium	**0.565**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:41
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:41
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 16:06
Sodium	**85.8**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:41
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:41
Vanadium	**0.00184**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
Zinc	**0.0305**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:41
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:33
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14C_062819
Collection Date: 28-Jun-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-08
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	11-Jul-2019 16:42
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,1,2-Trichloroethane	**5.1**	J	**3.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 16:42
1,1-Dichloroethane	**10**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 16:42
1,1-Dichloroethene	**140**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 16:42
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
2-Butanone	10	U	5.0	10	20	UG/L	10	11-Jul-2019 16:42
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
2-Hexanone	10	U	10	10	20	UG/L	10	11-Jul-2019 16:42
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	11-Jul-2019 16:42
Acetone	10	U	4.0	10	20	UG/L	10	11-Jul-2019 16:42
Benzene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Carbon disulfide	10	U	6.0	10	20	UG/L	10	11-Jul-2019 16:42
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Chloroform	**39**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 16:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14C_062819
Collection Date: 28-Jun-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-08
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	11-Jul-2019 16:42
cis-1,2-Dichloroethene	**11,000**		**40**	**100**	**200**	**UG/L**	200	12-Jul-2019 12:45
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	11-Jul-2019 16:42
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
m,p-Xylene	10	U	5.0	10	20	UG/L	10	11-Jul-2019 16:42
Methylene chloride	**1,000**		**4.0**	**10**	**20**	**UG/L**	10	11-Jul-2019 16:42
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 16:42
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Styrene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Toluene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
trans-1,2-Dichloroethene	**51**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 16:42
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Trichloroethene	**120**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 16:42
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 16:42
Vinyl chloride	**1,600**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 16:42
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*10*	*11-Jul-2019 16:42*
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*200*	*12-Jul-2019 12:45*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*10*	*11-Jul-2019 16:42*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*200*	*12-Jul-2019 12:45*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*10*	*11-Jul-2019 16:42*
Surr: Dibromofluoromethane	*102*			**0**	*80-119*	*%REC*	*200*	*12-Jul-2019 12:45*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*11-Jul-2019 16:42*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*200*	*12-Jul-2019 12:45*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14C_062819
Collection Date: 28-Jun-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.00742**	J	**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	08-Jul-2019 23:55
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	08-Jul-2019 23:55
Arsenic	**0.0108**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
Barium	**1.07**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:55
Cadmium	**0.000219**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	08-Jul-2019 23:55
Calcium	**78.9**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	08-Jul-2019 23:55
Chromium	**0.0341**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
Cobalt	**0.0331**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
Copper	**0.00281**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
Iron	**274**		**0.240**	**1.00**	**4.00**	**mg/L**	20	09-Jul-2019 13:48
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	08-Jul-2019 23:55
Magnesium	**80.4**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:55
Manganese	**2.33**		**0.0140**	**0.0200**	**0.100**	**mg/L**	20	09-Jul-2019 13:48
Nickel	**0.120**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
Potassium	**1.41**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:55
Selenium	**0.0109**		**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	08-Jul-2019 23:55
Sodium	**265**		**0.280**	**1.00**	**4.00**	**mg/L**	20	09-Jul-2019 13:48
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:55
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	08-Jul-2019 23:55
Zinc	**0.0439**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:55
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:35
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14D_062819
Collection Date: 28-Jun-2019 08:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-09
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	10-Jul-2019 14:53
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,1-Dichloroethane	**25**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,2-Dichloroethane	**13**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
2-Butanone	10	U	5.0	10	20	UG/L	10	10-Jul-2019 14:53
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
2-Hexanone	10	U	10	10	20	UG/L	10	10-Jul-2019 14:53
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	10-Jul-2019 14:53
Acetone	10	U	4.0	10	20	UG/L	10	10-Jul-2019 14:53
Benzene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Bromochloromethane	**22**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Carbon disulfide	10	U	6.0	10	20	UG/L	10	10-Jul-2019 14:53
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Chloroform	**29**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14D_062819
Collection Date: 28-Jun-2019 08:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-09
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	10-Jul-2019 14:53
cis-1,2-Dichloroethene	**21,000**		**50**	**120**	**250**	**UG/L**	250	10-Jul-2019 16:05
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	10-Jul-2019 14:53
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
m,p-Xylene	10	U	5.0	10	20	UG/L	10	10-Jul-2019 14:53
Methylene chloride	**11,000**		**100**	**250**	**500**	**UG/L**	250	10-Jul-2019 16:05
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:53
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Styrene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Tetrachloroethene	**13**		**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53
Toluene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
trans-1,2-Dichloroethene	**44**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Trichloroethene	**1,400**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:53
Vinyl chloride	**1,100**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:53
Surr: 1,2-Dichloroethane-d4	*105*			**0**	*81-118*	*%REC*	*10*	*10-Jul-2019 14:53*
Surr: 1,2-Dichloroethane-d4	*115*			**0**	*81-118*	*%REC*	*250*	*10-Jul-2019 16:05*
Surr: 4-Bromofluorobenzene	*97.7*			**0**	*85-114*	*%REC*	*10*	*10-Jul-2019 14:53*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*250*	*10-Jul-2019 16:05*
Surr: Dibromofluoromethane	*103*			**0**	*80-119*	*%REC*	*10*	*10-Jul-2019 14:53*
Surr: Dibromofluoromethane	*113*			**0**	*80-119*	*%REC*	*250*	*10-Jul-2019 16:05*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*250*	*10-Jul-2019 16:05*
Surr: Toluene-d8	*96.9*			**0**	*89-112*	*%REC*	*10*	*10-Jul-2019 14:53*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT14D_062819
Collection Date: 28-Jun-2019 08:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.0223**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	08-Jul-2019 23:41
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	08-Jul-2019 23:41
Arsenic	**0.00810**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Barium	**1.18**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Beryllium	**0.000518**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	08-Jul-2019 23:41
Cadmium	**0.000514**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	08-Jul-2019 23:41
Calcium	**80.0**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	08-Jul-2019 23:41
Chromium	**0.00422**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Cobalt	**0.0141**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Copper	**0.00411**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Iron	**19.5**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:41
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	08-Jul-2019 23:41
Magnesium	**57.2**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:41
Manganese	**1.31**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Nickel	**0.0474**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Potassium	**1.46**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:41
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	08-Jul-2019 23:41
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	08-Jul-2019 23:41
Sodium	**295**		**0.140**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 13:42
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:41
Vanadium	**0.000634**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
Zinc	**0.141**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:41
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 05-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	05-Jul-2019 15:04
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12B_062819
Collection Date: 28-Jun-2019 09:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-10
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	10-Jul-2019 14:05
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,1-Dichloroethane	**11**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,2-Dichloroethane	**91**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
2-Butanone	10	U	5.0	10	20	UG/L	10	10-Jul-2019 14:05
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
2-Hexanone	10	U	10	10	20	UG/L	10	10-Jul-2019 14:05
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	10-Jul-2019 14:05
Acetone	10	U	4.0	10	20	UG/L	10	10-Jul-2019 14:05
Benzene	**16**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Carbon disulfide	10	U	6.0	10	20	UG/L	10	10-Jul-2019 14:05
Carbon tetrachloride	**68**		**5.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Chloroform	**74**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12B_062819
Collection Date: 28-Jun-2019 09:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-10
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	10-Jul-2019 14:05
cis-1,2-Dichloroethene	**930**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	10-Jul-2019 14:05
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
m,p-Xylene	10	U	5.0	10	20	UG/L	10	10-Jul-2019 14:05
Methylene chloride	**12**	J	**4.0**	**10**	**20**	**UG/L**	10	10-Jul-2019 14:05
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:05
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Styrene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Tetrachloroethene	**6.6**	J	**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
Toluene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
trans-1,2-Dichloroethene	**5.3**	J	**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Trichloroethene	**14,000**		**50**	**120**	**250**	**UG/L**	250	10-Jul-2019 15:17
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:05
Vinyl chloride	**28**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:05
Surr: 1,2-Dichloroethane-d4	*111*			**0**	*81-118*	*%REC*	*10*	*10-Jul-2019 14:05*
Surr: 1,2-Dichloroethane-d4	*105*			**0**	*81-118*	*%REC*	*250*	*10-Jul-2019 15:17*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*10*	*10-Jul-2019 14:05*
Surr: 4-Bromofluorobenzene	*96.8*			**0**	*85-114*	*%REC*	*250*	*10-Jul-2019 15:17*
Surr: Dibromofluoromethane	*105*			**0**	*80-119*	*%REC*	*10*	*10-Jul-2019 14:05*
Surr: Dibromofluoromethane	*103*			**0**	*80-119*	*%REC*	*250*	*10-Jul-2019 15:17*
Surr: Toluene-d8	*98.9*			**0**	*89-112*	*%REC*	*250*	*10-Jul-2019 15:17*
Surr: Toluene-d8	*97.9*			**0**	*89-112*	*%REC*	*10*	*10-Jul-2019 14:05*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12B_062819
Collection Date: 28-Jun-2019 09:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.0271**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	08-Jul-2019 23:57
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	08-Jul-2019 23:57
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	08-Jul-2019 23:57
Barium	**0.286**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:57
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:57
Calcium	**26.6**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	08-Jul-2019 23:57
Chromium	**0.0412**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
Cobalt	**0.00545**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
Copper	**0.0824**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
Iron	**1.68**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:57
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	08-Jul-2019 23:57
Magnesium	**18.6**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:57
Manganese	**0.165**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
Nickel	**0.345**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
Potassium	**0.743**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:57
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	08-Jul-2019 23:57
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	08-Jul-2019 23:57
Sodium	**195**		**0.140**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 13:50
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:57
Vanadium	**0.000667**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
Zinc	**0.105**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:57
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:30
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12B_062819_a
Collection Date: 28-Jun-2019 09:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-11
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	10-Jul-2019 14:29
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,1-Dichloroethane	**12**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,2-Dichloroethane	**68**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
2-Butanone	10	U	5.0	10	20	UG/L	10	10-Jul-2019 14:29
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
2-Hexanone	10	U	10	10	20	UG/L	10	10-Jul-2019 14:29
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	10-Jul-2019 14:29
Acetone	10	U	4.0	10	20	UG/L	10	10-Jul-2019 14:29
Benzene	**11**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Carbon disulfide	10	U	6.0	10	20	UG/L	10	10-Jul-2019 14:29
Carbon tetrachloride	**49**		**5.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Chloroform	**60**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12B_062819_a
Collection Date: 28-Jun-2019 09:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-11
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	10-Jul-2019 14:29
cis-1,2-Dichloroethene	**1,100**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	10-Jul-2019 14:29
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
m,p-Xylene	10	U	5.0	10	20	UG/L	10	10-Jul-2019 14:29
Methylene chloride	**11**	J	**4.0**	**10**	**20**	**UG/L**	10	10-Jul-2019 14:29
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 14:29
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Styrene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Toluene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
trans-1,2-Dichloroethene	**5.2**	J	**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Trichloroethene	**15,000**		**50**	**120**	**250**	**UG/L**	250	10-Jul-2019 15:41
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 14:29
Vinyl chloride	**32**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 14:29
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*250*	*10-Jul-2019 15:41*
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*10*	*10-Jul-2019 14:29*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*250*	*10-Jul-2019 15:41*
Surr: 4-Bromofluorobenzene	*98.1*			**0**	*85-114*	*%REC*	*10*	*10-Jul-2019 14:29*
Surr: Dibromofluoromethane	*104*			**0**	*80-119*	*%REC*	*10*	*10-Jul-2019 14:29*
Surr: Dibromofluoromethane	*105*			**0**	*80-119*	*%REC*	*250*	*10-Jul-2019 15:41*
Surr: Toluene-d8	*98.8*			**0**	*89-112*	*%REC*	*250*	*10-Jul-2019 15:41*
Surr: Toluene-d8	*99.4*			**0**	*89-112*	*%REC*	*10*	*10-Jul-2019 14:29*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12B_062819_a
Collection Date: 28-Jun-2019 09:05

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.0285**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	08-Jul-2019 23:59
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	08-Jul-2019 23:59
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	08-Jul-2019 23:59
Barium	**0.285**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:59
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:59
Calcium	**27.2**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	08-Jul-2019 23:59
Chromium	**0.0449**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
Cobalt	**0.00515**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
Copper	**0.0802**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
Iron	**1.58**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:59
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	08-Jul-2019 23:59
Magnesium	**18.6**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:59
Manganese	**0.155**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
Nickel	**0.328**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
Potassium	**0.749**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	08-Jul-2019 23:59
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	08-Jul-2019 23:59
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	08-Jul-2019 23:59
Sodium	**192**		**0.140**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 13:52
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2019 23:59
Vanadium	**0.000792**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
Zinc	**0.120**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2019 23:59
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:36
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12C_062819
Collection Date: 28-Jun-2019 09:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-12
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	11-Jul-2019 15:54
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,1-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,2-Dichloroethane	**27**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 15:54
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
2-Butanone	10	U	5.0	10	20	UG/L	10	11-Jul-2019 15:54
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
2-Hexanone	10	U	10	10	20	UG/L	10	11-Jul-2019 15:54
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	11-Jul-2019 15:54
Acetone	10	U	4.0	10	20	UG/L	10	11-Jul-2019 15:54
Benzene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Carbon disulfide	10	U	6.0	10	20	UG/L	10	11-Jul-2019 15:54
Carbon tetrachloride	**11**		**5.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 15:54
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Chloroform	**16**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 15:54

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12C_062819
Collection Date: 28-Jun-2019 09:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-12
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	11-Jul-2019 15:54
cis-1,2-Dichloroethene	**140**		**2.0**	**5.0**	**10**	**UG/L**	10	11-Jul-2019 15:54
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	11-Jul-2019 15:54
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
m,p-Xylene	10	U	5.0	10	20	UG/L	10	11-Jul-2019 15:54
Methylene chloride	10	U	4.0	10	20	UG/L	10	11-Jul-2019 15:54
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	11-Jul-2019 15:54
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Styrene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Toluene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Trichloroethene	**3,900**		**40**	**100**	**200**	**UG/L**	200	11-Jul-2019 20:41
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Vinyl chloride	5.0	U	2.0	5.0	10	UG/L	10	11-Jul-2019 15:54
Surr: 1,2-Dichloroethane-d4	*98.0*			**0**	*81-118*	*%REC*	*200*	*11-Jul-2019 20:41*
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*10*	*11-Jul-2019 15:54*
Surr: 4-Bromofluorobenzene	*98.4*			**0**	*85-114*	*%REC*	*10*	*11-Jul-2019 15:54*
Surr: 4-Bromofluorobenzene	*95.4*			**0**	*85-114*	*%REC*	*200*	*11-Jul-2019 20:41*
Surr: Dibromofluoromethane	*97.1*			**0**	*80-119*	*%REC*	*200*	*11-Jul-2019 20:41*
Surr: Dibromofluoromethane	*102*			**0**	*80-119*	*%REC*	*10*	*11-Jul-2019 15:54*
Surr: Toluene-d8	*96.5*			**0**	*89-112*	*%REC*	*200*	*11-Jul-2019 20:41*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*10*	*11-Jul-2019 15:54*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12C_062819
Collection Date: 28-Jun-2019 09:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.0415**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 00:01
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:01
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:01
Barium	**0.123**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:01
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:01
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:01
Calcium	**6.85**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:01
Chromium	**0.0972**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:01
Cobalt	**0.000998**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:01
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	09-Jul-2019 00:01
Iron	**0.969**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:01
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:01
Magnesium	**5.56**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:01
Manganese	**0.0176**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:01
Nickel	**0.0408**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:01
Potassium	**0.301**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:01
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:01
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:01
Sodium	**96.2**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:01
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:01
Vanadium	**0.00125**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:01
Zinc	**0.0188**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:01
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:37
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12D_062819
Collection Date: 28-Jun-2019 09:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-13
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	10-Jul-2019 19:40
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,1,2-Trichloroethane	**9.8**	J	**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
1,1-Dichloroethane	**75**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
1,1-Dichloroethene	**370**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,2,3-Trichloropropane	**350**		**5.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,2-Dichloroethane	**160**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 19:40
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
2-Butanone	10	U	5.0	10	20	UG/L	10	10-Jul-2019 19:40
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
2-Hexanone	10	U	10	10	20	UG/L	10	10-Jul-2019 19:40
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 19:40
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	10-Jul-2019 19:40
Acetone	10	U	4.0	10	20	UG/L	10	10-Jul-2019 19:40
Benzene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Bromochloromethane	**55**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Bromoform	**7.8**	J	**4.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Carbon disulfide	10	U	6.0	10	20	UG/L	10	10-Jul-2019 19:40
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Chloroform	**61**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12D_062819
Collection Date: 28-Jun-2019 09:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-13
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	10-Jul-2019 19:40
cis-1,2-Dichloroethene	**10,000**		**50**	**120**	**250**	**UG/L**	250	11-Jul-2019 18:18
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Ethylbenzene	**6.0**	J	**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	10-Jul-2019 19:40
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
m,p-Xylene	**7.1**	J	**5.0**	**10**	**20**	**UG/L**	10	10-Jul-2019 19:40
Methylene chloride	**11,000**		**100**	**250**	**500**	**UG/L**	250	11-Jul-2019 18:18
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 19:40
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
o-Xylene	**5.3**	J	**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Styrene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Tetrachloroethene	**10**		**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
Toluene	**17**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
trans-1,2-Dichloroethene	**29**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Trichloroethene	**44,000**		**50**	**120**	**250**	**UG/L**	250	11-Jul-2019 18:18
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 19:40
Vinyl chloride	**320**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 19:40
Surr: 1,2-Dichloroethane-d4	*112*			**0**	*81-118*	*%REC*	*10*	*10-Jul-2019 19:40*
Surr: 1,2-Dichloroethane-d4	*104*			**0**	*81-118*	*%REC*	*250*	*11-Jul-2019 18:18*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*10*	*10-Jul-2019 19:40*
Surr: 4-Bromofluorobenzene	*97.2*			**0**	*85-114*	*%REC*	*250*	*11-Jul-2019 18:18*
Surr: Dibromofluoromethane	*108*			**0**	*80-119*	*%REC*	*10*	*10-Jul-2019 19:40*
Surr: Dibromofluoromethane	*103*			**0**	*80-119*	*%REC*	*250*	*11-Jul-2019 18:18*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*10-Jul-2019 19:40*
Surr: Toluene-d8	*98.7*			**0**	*89-112*	*%REC*	*250*	*11-Jul-2019 18:18*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12D_062819
Collection Date: 28-Jun-2019 09:35

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.595**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 00:03
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:03
Arsenic	**0.00524**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Barium	**0.444**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Beryllium	**0.000829**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:03
Cadmium	**0.000738**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:03
Calcium	**20.5**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:03
Chromium	**0.338**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Cobalt	**0.0404**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Copper	**0.721**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Iron	**20.4**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:03
Lead	**0.0259**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Magnesium	**17.2**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:03
Manganese	**1.13**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Nickel	**0.850**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Potassium	**1.05**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:03
Selenium	**0.00224**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:03
Sodium	**175**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:03
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:03
Vanadium	**0.00303**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
Zinc	**0.0862**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:03
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:39
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12E_062819
Collection Date: 28-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-14
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	10-Jul-2019 20:04
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,1,2-Trichloroethane	**14**		**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
1,1-Dichloroethane	**100**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
1,1-Dichloroethene	**550**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,2-Dichloroethane	**63**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
2-Butanone	10	U	5.0	10	20	UG/L	10	10-Jul-2019 20:04
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
2-Hexanone	10	U	10	10	20	UG/L	10	10-Jul-2019 20:04
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	10-Jul-2019 20:04
Acetone	**180**		**4.0**	**10**	**20**	**UG/L**	10	10-Jul-2019 20:04
Benzene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Bromochloromethane	**40**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Carbon disulfide	10	U	6.0	10	20	UG/L	10	10-Jul-2019 20:04
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Chloroform	**84**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12E_062819
Collection Date: 28-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-14
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	10-Jul-2019 20:04
cis-1,2-Dichloroethene	**17,000**		**100**	**250**	**500**	**UG/L**	500	11-Jul-2019 19:06
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Ethylbenzene	**7.7**	J	**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	10-Jul-2019 20:04
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
m,p-Xylene	**12**	J	**5.0**	**10**	**20**	**UG/L**	10	10-Jul-2019 20:04
Methylene chloride	**120,000**		**400**	**1000**	**2000**	**UG/L**	1000	12-Jul-2019 12:21
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	10-Jul-2019 20:04
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
o-Xylene	**8.6**	J	**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Styrene	**41**		**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Tetrachloroethene	**14**		**3.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
Toluene	**28**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
trans-1,2-Dichloroethene	**43**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Trichloroethene	**84,000**		**100**	**250**	**500**	**UG/L**	500	11-Jul-2019 19:06
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	10-Jul-2019 20:04
Vinyl chloride	**440**		**2.0**	**5.0**	**10**	**UG/L**	10	10-Jul-2019 20:04
Surr: 1,2-Dichloroethane-d4	*106*			**0**	*81-118*	*%REC*	*10*	*10-Jul-2019 20:04*
Surr: 1,2-Dichloroethane-d4	*111*			**0**	*81-118*	*%REC*	*500*	*11-Jul-2019 19:06*
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1000*	*12-Jul-2019 12:21*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*10*	*10-Jul-2019 20:04*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*500*	*11-Jul-2019 19:06*
Surr: 4-Bromofluorobenzene	*93.4*			**0**	*85-114*	*%REC*	*1000*	*12-Jul-2019 12:21*
Surr: Dibromofluoromethane	*105*			**0**	*80-119*	*%REC*	*10*	*10-Jul-2019 20:04*
Surr: Dibromofluoromethane	*109*			**0**	*80-119*	*%REC*	*500*	*11-Jul-2019 19:06*
Surr: Dibromofluoromethane	*93.2*			**0**	*80-119*	*%REC*	*1000*	*12-Jul-2019 12:21*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*10-Jul-2019 20:04*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*500*	*11-Jul-2019 19:06*
Surr: Toluene-d8	*94.1*			**0**	*89-112*	*%REC*	*1000*	*12-Jul-2019 12:21*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT12E_062819
Collection Date: 28-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.0433**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 00:05
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:05
Arsenic	**0.00106**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Barium	**0.197**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Beryllium	**0.000205**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:05
Cadmium	**0.000355**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:05
Calcium	**37.7**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:05
Chromium	**0.142**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Cobalt	**0.0315**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Copper	**0.0229**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Iron	**3.22**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:05
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:05
Magnesium	**29.8**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:05
Manganese	**1.28**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Nickel	**0.178**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Potassium	**2.43**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:05
Selenium	**0.00349**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:05
Sodium	**339**		**0.140**	**0.500**	**2.00**	**mg/L**	10	09-Jul-2019 13:54
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:05
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:05
Zinc	**0.0387**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:05
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:41
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13B_062819
Collection Date: 28-Jun-2019 09:10

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-15
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	10-Jul-2019 18:52
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,1-Dichloroethane	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:52
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,2-Dichloroethane	**42**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:52
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 18:52
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 18:52
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 18:52
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 18:52
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 18:52
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13B_062819
Collection Date: 28-Jun-2019 09:10

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-15
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	10-Jul-2019 18:52
cis-1,2-Dichloroethene	**140**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:52
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 18:52
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 18:52
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 18:52
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:52
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Tetrachloroethene	**1.2**		**0.30**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:52
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
trans-1,2-Dichloroethene	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:52
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Trichloroethene	**1,200**		**5.0**	**12**	**25**	**UG/L**	25	11-Jul-2019 19:53
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:52
Vinyl chloride	**3.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:52
Surr: 1,2-Dichloroethane-d4	*96.9*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 18:52*
Surr: 1,2-Dichloroethane-d4	*112*			**0**	*81-118*	*%REC*	*25*	*11-Jul-2019 19:53*
Surr: 4-Bromofluorobenzene	*98.1*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 18:52*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*25*	*11-Jul-2019 19:53*
Surr: Dibromofluoromethane	*97.8*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 18:52*
Surr: Dibromofluoromethane	*111*			**0**	*80-119*	*%REC*	*25*	*11-Jul-2019 19:53*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 18:52*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*11-Jul-2019 19:53*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13B_062819
Collection Date: 28-Jun-2019 09:10

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-15
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JC
Aluminum	**0.0158**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	09-Jul-2019 00:07
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:07
Arsenic	**0.00630**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
Barium	**0.203**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
Beryllium	**0.000547**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:07
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:07
Calcium	**13.3**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:07
Chromium	**0.0230**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
Cobalt	**0.105**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
Copper	**0.0276**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
Iron	**20.3**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:07
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	09-Jul-2019 00:07
Magnesium	**17.7**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:07
Manganese	**4.05**		**0.0140**	**0.0200**	**0.100**	**mg/L**	20	09-Jul-2019 13:56
Nickel	**0.0245**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
Potassium	**2.37**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:07
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:07
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:07
Sodium	**103**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:07
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:07
Vanadium	**0.00112**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
Zinc	**0.0910**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:07
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:42
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13D_062819
Collection Date: 28-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-16
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	10-Jul-2019 18:28
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,2-Dichloroethane	**10**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:28
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 18:28
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 18:28
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 18:28
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 18:28
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 18:28
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13D_062819
Collection Date: 28-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-16
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	10-Jul-2019 18:28
cis-1,2-Dichloroethene	**37**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:28
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 18:28
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 18:28
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 18:28
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:28
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Trichloroethene	**160**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:28
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:28
Vinyl chloride	**1.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	10-Jul-2019 18:28
Surr: 1,2-Dichloroethane-d4	*98.7*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 18:28*
Surr: 4-Bromofluorobenzene	*98.3*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 18:28*
Surr: Dibromofluoromethane	*98.3*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 18:28*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 18:28*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13D_062819
Collection Date: 28-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-16
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JHD
Aluminum	**1.41**		**0.0360**	**0.100**	**0.200**	**mg/L**	20	09-Jul-2019 19:02
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:09
Arsenic	**0.00193**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Barium	**0.0962**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:09
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:09
Calcium	**3.50**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:09
Chromium	**0.121**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Cobalt	**0.00316**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Copper	**0.00533**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Iron	**9.93**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:09
Lead	**0.00505**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Magnesium	**4.38**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:09
Manganese	**0.0744**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Nickel	**0.0578**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Potassium	**0.918**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:09
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:09
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:09
Sodium	**34.2**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:09
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:09
Vanadium	**0.00524**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
Zinc	**0.491**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:09
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:47
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13E_062819
Collection Date: 28-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-17
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	10-Jul-2019 18:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 18:04
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	10-Jul-2019 18:04
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	10-Jul-2019 18:04
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 18:04
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	10-Jul-2019 18:04
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13E_062819
Collection Date: 28-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-17
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	10-Jul-2019 18:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	10-Jul-2019 18:04
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	10-Jul-2019 18:04
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	10-Jul-2019 18:04
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	10-Jul-2019 18:04
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	10-Jul-2019 18:04
Surr: 1,2-Dichloroethane-d4	*97.2*			**0**	*81-118*	*%REC*	*1*	*10-Jul-2019 18:04*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*1*	*10-Jul-2019 18:04*
Surr: Dibromofluoromethane	*96.4*			**0**	*80-119*	*%REC*	*1*	*10-Jul-2019 18:04*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*10-Jul-2019 18:04*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13E_062819
Collection Date: 28-Jun-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-17
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JHD
Aluminum	**6.70**		**0.0900**	**0.250**	**0.500**	**mg/L**	50	09-Jul-2019 19:04
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:11
Arsenic	**0.00294**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Barium	**0.136**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Beryllium	**0.00102**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:11
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:11
Calcium	**1.16**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:11
Chromium	**0.0248**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Cobalt	**0.00491**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Copper	**0.0168**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Iron	**12.1**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:11
Lead	**0.00889**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Magnesium	**1.63**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:11
Manganese	**0.0546**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Nickel	**0.0192**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Potassium	**2.09**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:11
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:11
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:11
Sodium	**5.75**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:11
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:11
Vanadium	**0.0267**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
Zinc	**0.0557**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:11
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:49
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13F_062819
Collection Date: 28-Jun-2019 07:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-18
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	11-Jul-2019 13:55
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 13:55
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	11-Jul-2019 13:55
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	11-Jul-2019 13:55
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 13:55
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-Jul-2019 13:55
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13F_062819
Collection Date: 28-Jun-2019 07:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-18
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	11-Jul-2019 13:55
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-Jul-2019 13:55
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 13:55
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 13:55
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:55
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:55
Surr: 1,2-Dichloroethane-d4	*93.0*			**0**	*81-118*	*%REC*	*1*	*11-Jul-2019 13:55*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*1*	*11-Jul-2019 13:55*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*11-Jul-2019 13:55*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*11-Jul-2019 13:55*

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: ICT13F_062819
Collection Date: 28-Jun-2019 07:20

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-18
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 08-Jul-2019		Analyst: JHD
Aluminum	**3.09**		**0.0900**	**0.250**	**0.500**	**mg/L**	50	09-Jul-2019 19:06
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	09-Jul-2019 00:13
Arsenic	**0.00162**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Barium	**0.115**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Beryllium	**0.000645**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	09-Jul-2019 00:13
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:13
Calcium	**1.05**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	09-Jul-2019 00:13
Chromium	**0.0124**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Cobalt	**0.00302**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Copper	**0.0127**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Iron	**6.24**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:13
Lead	**0.00438**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Magnesium	**1.14**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:13
Manganese	**0.0357**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Nickel	**0.00929**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Potassium	**1.90**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:13
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	09-Jul-2019 00:13
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	09-Jul-2019 00:13
Sodium	**4.44**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	09-Jul-2019 00:13
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	09-Jul-2019 00:13
Vanadium	**0.0146**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
Zinc	**0.0596**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	09-Jul-2019 00:13
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 09-Jul-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	09-Jul-2019 15:51
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-Jul-2019 09:42

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: Trip Blank
Collection Date: 28-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-19
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	11-Jul-2019 13:31
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 13:31
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	11-Jul-2019 13:31
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	11-Jul-2019 13:31
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 13:31
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-Jul-2019 13:31
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31

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

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Sample ID: Trip Blank
Collection Date: 28-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19070016
Lab ID:HS19070016-19
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	11-Jul-2019 13:31
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-Jul-2019 13:31
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-Jul-2019 13:31
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Jul-2019 13:31
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	11-Jul-2019 13:31
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-Jul-2019 13:31
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*11-Jul-2019 13:31*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*11-Jul-2019 13:31*
Surr: Dibromofluoromethane	*96.1*			**0**	*80-119*	*%REC*	*1*	*11-Jul-2019 13:31*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*11-Jul-2019 13:31*

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

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

Batch ID: 142750 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19070016-01	1	10	10 (mL)	1
HS19070016-02	1	10	10 (mL)	1
HS19070016-03	1	10	10 (mL)	1
HS19070016-04	1	10	10 (mL)	1
HS19070016-05	1	10	10 (mL)	1
HS19070016-06	1	10	10 (mL)	1
HS19070016-07	1	10	10 (mL)	1

Batch ID: 142769 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19070016-01	1	10 (mL)	10 (mL)	1
HS19070016-02	1	10 (mL)	10 (mL)	1
HS19070016-03	1	10 (mL)	10 (mL)	1
HS19070016-04	1	10 (mL)	10 (mL)	1
HS19070016-05	1	10 (mL)	10 (mL)	1
HS19070016-06	1	10 (mL)	10 (mL)	1
HS19070016-07	1	10 (mL)	10 (mL)	1
HS19070016-08	1	10 (mL)	10 (mL)	1
HS19070016-09	1	10 (mL)	10 (mL)	1

Batch ID: 142828 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19070016-08	1	10	10 (mL)	1
HS19070016-09	1	10	10 (mL)	1
HS19070016-10	1	10	10 (mL)	1
HS19070016-11	1	10	10 (mL)	1
HS19070016-12	1	10	10 (mL)	1
HS19070016-13	1	10	10 (mL)	1
HS19070016-14	1	10	10 (mL)	1
HS19070016-15	1	10	10 (mL)	1
HS19070016-16	1	10	10 (mL)	1
HS19070016-17	1	10	10 (mL)	1
HS19070016-18	1	10	10 (mL)	1

Batch ID: 142867 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19070016-10	1	10 (mL)	10 (mL)	1
HS19070016-11	1	10 (mL)	10 (mL)	1
HS19070016-12	1	10 (mL)	10 (mL)	1
HS19070016-13	1	10 (mL)	10 (mL)	1
HS19070016-14	1	10 (mL)	10 (mL)	1
HS19070016-15	1	10 (mL)	10 (mL)	1
HS19070016-16	1	10 (mL)	10 (mL)	1
HS19070016-17	1	10 (mL)	10 (mL)	1
HS19070016-18	1	10 (mL)	10 (mL)	1

ALS Houston, US Date: 17-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142750 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19070016-01	ICT2_062819	28 Jun 2019 06:50		05 Jul 2019 10:03	09 Jul 2019 14:50	1
HS19070016-01	ICT2_062819	28 Jun 2019 06:50		05 Jul 2019 10:03	09 Jul 2019 00:30	1
HS19070016-02	ICT4_062819	28 Jun 2019 07:10		05 Jul 2019 10:03	09 Jul 2019 14:55	10
HS19070016-02	ICT4_062819	28 Jun 2019 07:10		05 Jul 2019 10:03	09 Jul 2019 14:53	1
HS19070016-02	ICT4_062819	28 Jun 2019 07:10		05 Jul 2019 10:03	09 Jul 2019 00:32	1
HS19070016-03	ICT7_062819	28 Jun 2019 07:25		05 Jul 2019 10:03	09 Jul 2019 14:57	1
HS19070016-03	ICT7_062819	28 Jun 2019 07:25		05 Jul 2019 10:03	09 Jul 2019 00:34	1
HS19070016-04	ICT8_062819	28 Jun 2019 07:35		05 Jul 2019 10:03	09 Jul 2019 14:59	1
HS19070016-04	ICT8_062819	28 Jun 2019 07:35		05 Jul 2019 10:03	09 Jul 2019 00:36	1
HS19070016-05	ICT11_062819	28 Jun 2019 07:50		05 Jul 2019 10:03	09 Jul 2019 00:14	1
HS19070016-06	ICT11_062819_a	28 Jun 2019 07:50		05 Jul 2019 10:03	09 Jul 2019 16:03	1
HS19070016-06	ICT11_062819_a	28 Jun 2019 07:50		05 Jul 2019 10:03	09 Jul 2019 00:39	1
HS19070016-07	ICT14B_062819	28 Jun 2019 08:05		05 Jul 2019 10:03	09 Jul 2019 16:06	1
HS19070016-07	ICT14B_062819	28 Jun 2019 08:05		05 Jul 2019 10:03	09 Jul 2019 00:41	1
Batch ID: 142769 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19070016-01	ICT2_062819	28 Jun 2019 06:50		05 Jul 2019 10:30	05 Jul 2019 15:37	1
HS19070016-02	ICT4_062819	28 Jun 2019 07:10		05 Jul 2019 10:30	05 Jul 2019 15:25	1
HS19070016-03	ICT7_062819	28 Jun 2019 07:25		05 Jul 2019 10:30	05 Jul 2019 15:27	1
HS19070016-04	ICT8_062819	28 Jun 2019 07:35		05 Jul 2019 10:30	05 Jul 2019 15:28	1
HS19070016-05	ICT11_062819	28 Jun 2019 07:50		05 Jul 2019 10:30	05 Jul 2019 15:30	1
HS19070016-06	ICT11_062819_a	28 Jun 2019 07:50		05 Jul 2019 10:30	05 Jul 2019 15:32	1
HS19070016-07	ICT14B_062819	28 Jun 2019 08:05		05 Jul 2019 10:30	05 Jul 2019 15:33	1
HS19070016-08	ICT14C_062819	28 Jun 2019 08:15		05 Jul 2019 10:30	05 Jul 2019 15:35	1
HS19070016-09	ICT14D_062819	28 Jun 2019 08:35		05 Jul 2019 10:30	05 Jul 2019 15:04	1

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Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
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DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 142828 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19070016-08	ICT14C_062819	28 Jun 2019 08:15		08 Jul 2019 12:30	09 Jul 2019 13:48	20
HS19070016-08	ICT14C_062819	28 Jun 2019 08:15		08 Jul 2019 12:30	08 Jul 2019 23:55	1
HS19070016-09	ICT14D_062819	28 Jun 2019 08:35		08 Jul 2019 12:30	09 Jul 2019 13:42	10
HS19070016-09	ICT14D_062819	28 Jun 2019 08:35		08 Jul 2019 12:30	08 Jul 2019 23:41	1
HS19070016-10	ICT12B_062819	28 Jun 2019 09:05		08 Jul 2019 12:30	09 Jul 2019 13:50	10
HS19070016-10	ICT12B_062819	28 Jun 2019 09:05		08 Jul 2019 12:30	08 Jul 2019 23:57	1
HS19070016-11	ICT12B_062819_a	28 Jun 2019 09:05		08 Jul 2019 12:30	09 Jul 2019 13:52	10
HS19070016-11	ICT12B_062819_a	28 Jun 2019 09:05		08 Jul 2019 12:30	08 Jul 2019 23:59	1
HS19070016-12	ICT12C_062819	28 Jun 2019 09:20		08 Jul 2019 12:30	09 Jul 2019 00:01	1
HS19070016-13	ICT12D_062819	28 Jun 2019 09:35		08 Jul 2019 12:30	09 Jul 2019 00:03	1
HS19070016-14	ICT12E_062819	28 Jun 2019 09:30		08 Jul 2019 12:30	09 Jul 2019 13:54	10
HS19070016-14	ICT12E_062819	28 Jun 2019 09:30		08 Jul 2019 12:30	09 Jul 2019 00:05	1
HS19070016-15	ICT13B_062819	28 Jun 2019 09:10		08 Jul 2019 12:30	09 Jul 2019 13:56	20
HS19070016-15	ICT13B_062819	28 Jun 2019 09:10		08 Jul 2019 12:30	09 Jul 2019 00:07	1
HS19070016-16	ICT13D_062819	28 Jun 2019 08:20		08 Jul 2019 12:30	09 Jul 2019 19:02	20
HS19070016-16	ICT13D_062819	28 Jun 2019 08:20		08 Jul 2019 12:30	09 Jul 2019 00:09	1
HS19070016-17	ICT13E_062819	28 Jun 2019 08:00		08 Jul 2019 12:30	09 Jul 2019 19:04	50
HS19070016-17	ICT13E_062819	28 Jun 2019 08:00		08 Jul 2019 12:30	09 Jul 2019 00:11	1
HS19070016-18	ICT13F_062819	28 Jun 2019 07:20		08 Jul 2019 12:30	09 Jul 2019 19:06	50
HS19070016-18	ICT13F_062819	28 Jun 2019 07:20		08 Jul 2019 12:30	09 Jul 2019 00:13	1
Batch ID: 142867 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19070016-10	ICT12B_062819	28 Jun 2019 09:05		09 Jul 2019 10:30	09 Jul 2019 15:30	1
HS19070016-11	ICT12B_062819_a	28 Jun 2019 09:05		09 Jul 2019 10:30	09 Jul 2019 15:36	1
HS19070016-12	ICT12C_062819	28 Jun 2019 09:20		09 Jul 2019 10:30	09 Jul 2019 15:37	1
HS19070016-13	ICT12D_062819	28 Jun 2019 09:35		09 Jul 2019 10:30	09 Jul 2019 15:39	1
HS19070016-14	ICT12E_062819	28 Jun 2019 09:30		09 Jul 2019 10:30	09 Jul 2019 15:41	1
HS19070016-15	ICT13B_062819	28 Jun 2019 09:10		09 Jul 2019 10:30	09 Jul 2019 15:42	1
HS19070016-16	ICT13D_062819	28 Jun 2019 08:20		09 Jul 2019 10:30	09 Jul 2019 15:47	1
HS19070016-17	ICT13E_062819	28 Jun 2019 08:00		09 Jul 2019 10:30	09 Jul 2019 15:49	1
HS19070016-18	ICT13F_062819	28 Jun 2019 07:20		09 Jul 2019 10:30	09 Jul 2019 15:51	1

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Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
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DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R342223 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19070016-04	ICT8_062819	28 Jun 2019 07:35			10 Jul 2019 20:28	10
HS19070016-05	ICT11_062819	28 Jun 2019 07:50			10 Jul 2019 17:16	5
HS19070016-05	ICT11_062819	28 Jun 2019 07:50			10 Jul 2019 13:17	1
HS19070016-06	ICT11_062819_a	28 Jun 2019 07:50			10 Jul 2019 17:40	5
HS19070016-06	ICT11_062819_a	28 Jun 2019 07:50			10 Jul 2019 13:41	1
HS19070016-07	ICT14B_062819	28 Jun 2019 08:05			10 Jul 2019 19:16	1
HS19070016-09	ICT14D_062819	28 Jun 2019 08:35			10 Jul 2019 16:05	250
HS19070016-09	ICT14D_062819	28 Jun 2019 08:35			10 Jul 2019 14:53	10
HS19070016-10	ICT12B_062819	28 Jun 2019 09:05			10 Jul 2019 15:17	250
HS19070016-10	ICT12B_062819	28 Jun 2019 09:05			10 Jul 2019 14:05	10
HS19070016-11	ICT12B_062819_a	28 Jun 2019 09:05			10 Jul 2019 15:41	250
HS19070016-11	ICT12B_062819_a	28 Jun 2019 09:05			10 Jul 2019 14:29	10
HS19070016-13	ICT12D_062819	28 Jun 2019 09:35			10 Jul 2019 19:40	10
HS19070016-14	ICT12E_062819	28 Jun 2019 09:30			10 Jul 2019 20:04	10
HS19070016-15	ICT13B_062819	28 Jun 2019 09:10			10 Jul 2019 18:52	1
HS19070016-16	ICT13D_062819	28 Jun 2019 08:20			10 Jul 2019 18:28	1
HS19070016-17	ICT13E_062819	28 Jun 2019 08:00			10 Jul 2019 18:04	1
Batch ID: R342283 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19070016-19	Trip Blank	28 Jun 2019 00:00			11 Jul 2019 13:31	1
Batch ID: R342283 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19070016-01	ICT2_062819	28 Jun 2019 06:50			11 Jul 2019 16:18	25
HS19070016-01	ICT2_062819	28 Jun 2019 06:50			11 Jul 2019 14:18	1
HS19070016-02	ICT4_062819	28 Jun 2019 07:10			11 Jul 2019 19:30	50
HS19070016-02	ICT4_062819	28 Jun 2019 07:10			11 Jul 2019 14:42	1
HS19070016-03	ICT7_062819	28 Jun 2019 07:25			11 Jul 2019 18:42	1
HS19070016-04	ICT8_062819	28 Jun 2019 07:35			11 Jul 2019 17:54	100
HS19070016-08	ICT14C_062819	28 Jun 2019 08:15			11 Jul 2019 16:42	10
HS19070016-12	ICT12C_062819	28 Jun 2019 09:20			11 Jul 2019 20:41	200
HS19070016-12	ICT12C_062819	28 Jun 2019 09:20			11 Jul 2019 15:54	10
HS19070016-13	ICT12D_062819	28 Jun 2019 09:35			11 Jul 2019 18:18	250
HS19070016-14	ICT12E_062819	28 Jun 2019 09:30			11 Jul 2019 19:06	500
HS19070016-15	ICT13B_062819	28 Jun 2019 09:10			11 Jul 2019 19:53	25
HS19070016-18	ICT13F_062819	28 Jun 2019 07:20			11 Jul 2019 13:55	1
Batch ID: R342382 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19070016-08	ICT14C_062819	28 Jun 2019 08:15			12 Jul 2019 12:45	200
HS19070016-14	ICT12E_062819	28 Jun 2019 09:30			12 Jul 2019 12:21	1000

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Client: Bhate Environmental Associates, Inc.
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Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R342551 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19070016-01	ICT2_062819	28 Jun 2019 06:50			17 Jul 2019 09:42	1
HS19070016-02	ICT4_062819	28 Jun 2019 07:10			17 Jul 2019 09:42	1
HS19070016-03	ICT7_062819	28 Jun 2019 07:25			17 Jul 2019 09:42	1
HS19070016-04	ICT8_062819	28 Jun 2019 07:35			17 Jul 2019 09:42	1
HS19070016-05	ICT11_062819	28 Jun 2019 07:50			17 Jul 2019 09:42	1
HS19070016-06	ICT11_062819_a	28 Jun 2019 07:50			17 Jul 2019 09:42	1
HS19070016-07	ICT14B_062819	28 Jun 2019 08:05			17 Jul 2019 09:42	1
HS19070016-08	ICT14C_062819	28 Jun 2019 08:15			17 Jul 2019 09:42	1
HS19070016-09	ICT14D_062819	28 Jun 2019 08:35			17 Jul 2019 09:42	1
HS19070016-10	ICT12B_062819	28 Jun 2019 09:05			17 Jul 2019 09:42	1
HS19070016-11	ICT12B_062819_a	28 Jun 2019 09:05			17 Jul 2019 09:42	1
HS19070016-12	ICT12C_062819	28 Jun 2019 09:20			17 Jul 2019 09:42	1
HS19070016-13	ICT12D_062819	28 Jun 2019 09:35			17 Jul 2019 09:42	1
HS19070016-14	ICT12E_062819	28 Jun 2019 09:30			17 Jul 2019 09:42	1
HS19070016-15	ICT13B_062819	28 Jun 2019 09:10			17 Jul 2019 09:42	1
HS19070016-16	ICT13D_062819	28 Jun 2019 08:20			17 Jul 2019 09:42	1
HS19070016-17	ICT13E_062819	28 Jun 2019 08:00			17 Jul 2019 09:42	1
HS19070016-18	ICT13F_062819	28 Jun 2019 07:20			17 Jul 2019 09:42	1

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Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 14:46**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159142** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00500	0.0100								U
Antimony	0.00078	0.00500								J
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.000871	0.00500								J
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:09**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157973** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01569	0.0100								
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0188	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.01316	0.00500								

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 00:11**
Client ID: Run ID: **ICPMS05_341995** SeqNo: **5157974** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.105	0.0100	0.1	0	105	84 - 117				
Antimony	0.05026	0.00500	0.05	0	101	85 - 117				
Arsenic	0.05045	0.00500	0.05	0	101	84 - 116				
Barium	0.04898	0.00500	0.05	0	98.0	86 - 114				
Beryllium	0.0522	0.00200	0.05	0	104	83 - 121				
Cadmium	0.05062	0.00200	0.05	0	101	87 - 115				
Calcium	5.044	0.500	5	0	101	87 - 118				
Chromium	0.05022	0.00500	0.05	0	100	85 - 116				
Cobalt	0.05178	0.00500	0.05	0	104	86 - 115				
Copper	0.05054	0.00500	0.05	0	101	85 - 118				
Iron	5.157	0.200	5	0	103	87 - 118				
Lead	0.04892	0.00500	0.05	0	97.8	88 - 115				
Magnesium	5.207	0.200	5	0	104	83 - 118				
Manganese	0.05151	0.00500	0.05	0	103	87 - 115				
Nickel	0.05192	0.00500	0.05	0	104	85 - 117				
Potassium	5.01	0.200	5	0	100	87 - 115				
Selenium	0.05098	0.00500	0.05	0	102	80 - 120				
Sodium	5.131	0.200	5	0	103	85 - 117				
Thallium	0.04741	0.00200	0.05	0	94.8	82 - 116				
Vanadium	0.04942	0.00500	0.05	0	98.8	86 - 115				
Zinc	0.05405	0.00500	0.05	0	108	83 - 119				

LCS Sample ID: **LCS-142750** Units: **mg/L** Analysis Date: **09-Jul-2019 16:22**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159203** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.05104	0.00500	0.05	0	102	85 - 116				

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Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19070016-05MS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:18**
Client ID: **ICT11_062819** Run ID: **ICPMS05_341995** SeqNo: **5157977** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09637	0.0100	0.1	0.008457	87.9	84 - 117				
Antimony	0.04754	0.00500	0.05	0.000233	94.6	85 - 117				
Arsenic	0.04735	0.00500	0.05	0.000332	94.0	84 - 116				
Barium	0.5018	0.00500	0.05	0.443	118	86 - 114				SO
Beryllium	0.05054	0.00200	0.05	0.000285	101	83 - 121				
Cadmium	0.04557	0.00200	0.05	0.000354	90.4	87 - 115				
Calcium	15.22	0.500	5	10.34	97.6	87 - 118				
Chromium	0.1883	0.00500	0.05	0.1422	92.1	85 - 116				
Cobalt	0.05284	0.00500	0.05	0.004809	96.1	86 - 115				
Copper	0.05149	0.00500	0.05	0.004724	93.5	85 - 118				
Iron	5.767	0.200	5	1.003	95.3	87 - 118				
Lead	0.04574	0.00500	0.05	0.000066	91.3	88 - 115				
Magnesium	11.72	0.200	5	7.041	93.6	83 - 118				
Manganese	0.255	0.00500	0.05	0.2048	100	87 - 115				O
Nickel	0.6207	0.00500	0.05	0.5635	114	85 - 117				O
Potassium	5.81	0.200	5	0.934	97.5	87 - 115				
Selenium	0.05067	0.00500	0.05	0.000254	101	80 - 120				
Silver	0.05394	0.00500	0.05	0.000034	108	85 - 116				
Sodium	70.47	0.200	5	64.83	113	85 - 117				O
Thallium	0.04418	0.00200	0.05	0.000618	87.1	82 - 116				
Vanadium	0.0472	0.00500	0.05	0.001088	92.2	86 - 115				
Zinc	0.1359	0.00500	0.05	0.09015	91.5	83 - 119				

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Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19070016-05MSD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:21**
Client ID: **ICT11_062819** Run ID: **ICPMS05_341995** SeqNo: **5157978** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0988	0.0100	0.1	0.008457	90.3	84 - 117	0.09637	2.49	20	
Antimony	0.04561	0.00500	0.05	0.000233	90.8	85 - 117	0.04754	4.15	20	
Arsenic	0.0475	0.00500	0.05	0.000332	94.3	84 - 116	0.04735	0.314	20	
Barium	0.5084	0.00500	0.05	0.443	131	86 - 114	0.5018	1.3	20	SO
Beryllium	0.05016	0.00200	0.05	0.000285	99.8	83 - 121	0.05054	0.751	20	
Cadmium	0.04804	0.00200	0.05	0.000354	95.4	87 - 115	0.04557	5.28	20	
Calcium	14.79	0.500	5	10.34	89.1	87 - 118	15.22	2.83	20	
Chromium	0.1943	0.00500	0.05	0.1422	104	85 - 116	0.1883	3.17	20	
Cobalt	0.05273	0.00500	0.05	0.004809	95.8	86 - 115	0.05284	0.201	20	
Copper	0.05346	0.00500	0.05	0.004724	97.5	85 - 118	0.05149	3.75	20	
Iron	5.694	0.200	5	1.003	93.8	87 - 118	5.767	1.28	20	
Lead	0.04407	0.00500	0.05	0.000066	88.0	88 - 115	0.04574	3.72	20	
Magnesium	11.29	0.200	5	7.041	85.1	83 - 118	11.72	3.73	20	
Manganese	0.2539	0.00500	0.05	0.2048	98.1	87 - 115	0.255	0.456	20	O
Nickel	0.6206	0.00500	0.05	0.5635	114	85 - 117	0.6207	0.00725	20	O
Potassium	5.591	0.200	5	0.934	93.1	87 - 115	5.81	3.84	20	
Selenium	0.0495	0.00500	0.05	0.000254	98.5	80 - 120	0.05067	2.33	20	
Silver	0.05636	0.00500	0.05	0.000034	113	85 - 116	0.05394	4.39	20	
Sodium	68.43	0.200	5	64.83	71.9	85 - 117	70.47	2.94	20	SO
Thallium	0.04256	0.00200	0.05	0.000618	83.9	82 - 116	0.04418	3.74	20	
Vanadium	0.04785	0.00500	0.05	0.001088	93.5	86 - 115	0.0472	1.37	20	
Zinc	0.1384	0.00500	0.05	0.09015	96.5	83 - 119	0.1359	1.82	20	

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QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19070016-05PDS** Units: **mg/L** Analysis Date: **09-Jul-2019 00:23**
Client ID: **ICT11_062819** Run ID: **ICPMS05_341995** SeqNo: **5157979** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1004	0.0100	0.1	0.008457	92.0	80 - 120				
Antimony	0.08827	0.00500	0.1	0.000233	88.0	80 - 120				
Arsenic	0.1014	0.00500	0.1	0.000332	101	80 - 120				
Barium	0.5467	0.00500	0.1	0.443	104	80 - 120				O
Beryllium	0.09789	0.00200	0.1	0.000285	97.6	80 - 120				
Cadmium	0.09739	0.00200	0.1	0.000354	97.0	80 - 120				
Calcium	19.93	0.500	10	10.34	96.0	80 - 120				
Chromium	0.2417	0.00500	0.1	0.1422	99.5	80 - 120				
Cobalt	0.1061	0.00500	0.1	0.004809	101	80 - 120				
Copper	0.1034	0.00500	0.1	0.004724	98.7	80 - 120				
Iron	11.04	0.200	10	1.003	100	80 - 120				
Lead	0.09432	0.00500	0.1	0.000066	94.2	80 - 120				
Magnesium	16.83	0.200	10	7.041	97.9	80 - 120				
Manganese	0.3036	0.00500	0.1	0.2048	98.8	80 - 120				
Nickel	0.652	0.00500	0.1	0.5635	88.5	80 - 120				O
Potassium	10.66	0.200	10	0.934	97.2	80 - 120				
Selenium	0.1067	0.00500	0.1	0.000254	106	80 - 120				
Silver	0.1124	0.00500	0.1	0.000034	112	80 - 120				
Sodium	73.52	0.200	10	64.83	86.9	80 - 120				O
Thallium	0.09198	0.00200	0.1	0.000618	91.4	80 - 120				
Vanadium	0.101	0.00500	0.1	0.001088	99.9	80 - 120				
Zinc	0.1865	0.00500	0.1	0.09015	96.3	80 - 120				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142750 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19070016-05SD** Units: **mg/L** Analysis Date: **09-Jul-2019 00:16**
Client ID: **ICT11_062819** Run ID: **ICPMS05_341995** SeqNo: **5157976** PrepDate: **05-Jul-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.0250	0.0500					0.008457	0	10	U
Antimony	0.00250	0.0250					0.000233	0	10	U
Arsenic	0.00250	0.0250					0.000332	0	10	U
Barium	0.4183	0.0250					0.443	5.57	10	
Beryllium	0.00250	0.0100					0.000285	0	10	U
Cadmium	0.00250	0.0100					0.000354	0	10	U
Calcium	10.41	2.50					10.34	0.714	10	
Chromium	0.1432	0.0250					0.1422	0.69	10	
Cobalt	0.005021	0.0250					0.004809	0	10	J
Copper	0.00500	0.0250					0.004724	0	10	U
Iron	1.017	1.00					1.003	1.35	10	
Lead	0.00500	0.0250					0.000066	0	10	U
Magnesium	6.942	1.00					7.041	1.41	10	
Manganese	0.2079	0.0250					0.2048	1.52	10	
Nickel	0.5877	0.0250					0.5635	4.3	10	
Potassium	0.9174	1.00					0.934	0	10	J
Selenium	0.0125	0.0250					0.000254	0	10	U
Silver	0.00250	0.0250					0.000034	0	10	U
Sodium	66.24	1.00					64.83	2.17	10	
Thallium	0.00250	0.0100					0.000618	0	10	U
Vanadium	0.00500	0.0250					0.001088	0	10	U
Zinc	0.08743	0.0250					0.09015	3.02	10	

The following samples were analyzed in this batch:

HS19070016-01	HS19070016-02	HS19070016-03	HS19070016-04
HS19070016-05	HS19070016-06	HS19070016-07	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142769 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:01**
Client ID: Run ID: **HG03_341922** SeqNo: **5154872** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142769** Units: **mg/L** Analysis Date: **05-Jul-2019 15:03**
Client ID: Run ID: **HG03_341922** SeqNo: **5154873** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00505	0.000200	0.005	0	101	82 - 119				

MS Sample ID: **HS19070016-09MS** Units: **mg/L** Analysis Date: **05-Jul-2019 15:06**
Client ID: **ICT14D_062819** Run ID: **HG03_341922** SeqNo: **5154875** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.000200	0.005	-0.00001500	106	82 - 119				

MSD Sample ID: **HS19070016-09MSD** Units: **mg/L** Analysis Date: **05-Jul-2019 15:08**
Client ID: **ICT14D_062819** Run ID: **HG03_341922** SeqNo: **5154876** PrepDate: **05-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00517	0.000200	0.005	-0.00001500	104	82 - 119	0.005270	1.92	20	

The following samples were analyzed in this batch:

HS19070016-01	HS19070016-02	HS19070016-03	HS19070016-04
HS19070016-05	HS19070016-06	HS19070016-07	HS19070016-08
HS19070016-09			

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142828 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-142828** Units: **mg/L** Analysis Date: **08-Jul-2019 23:37**
Client ID: Run ID: **ICPMS04_341991** SeqNo: **5157837** PrepDate: **08-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00500	0.0100								U
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.01146	0.200								J
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.02792	0.200								J
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

LCS Sample ID: **LCS-142828** Units: **mg/L** Analysis Date: **09-Jul-2019 18:55**
Client ID: Run ID: **ICPMS05_342082** SeqNo: **5159861** PrepDate: **08-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09625	0.0100	0.1	0	96.3	84 - 117				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142828 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-142828** Units: **mg/L** Analysis Date: **08-Jul-2019 23:39**
Client ID: Run ID: **ICPMS04_341991** SeqNo: **5157838** PrepDate: **08-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0547	0.00500	0.05	0	109	85 - 117				
Arsenic	0.05111	0.00500	0.05	0	102	84 - 116				
Barium	0.05176	0.00500	0.05	0	104	86 - 114				
Beryllium	0.05253	0.00200	0.05	0	105	83 - 121				
Cadmium	0.05237	0.00200	0.05	0	105	87 - 115				
Calcium	4.993	0.500	5	0	99.9	87 - 118				
Chromium	0.05116	0.00500	0.05	0	102	85 - 116				
Cobalt	0.05126	0.00500	0.05	0	103	86 - 115				
Copper	0.05299	0.00500	0.05	0	106	85 - 118				
Iron	5.133	0.200	5	0	103	87 - 118				
Lead	0.04955	0.00500	0.05	0	99.1	88 - 115				
Magnesium	5.208	0.200	5	0	104	83 - 118				
Manganese	0.05141	0.00500	0.05	0	103	87 - 115				
Nickel	0.05332	0.00500	0.05	0	107	85 - 117				
Potassium	5.093	0.200	5	0	102	87 - 115				
Selenium	0.05492	0.00500	0.05	0	110	80 - 120				
Silver	0.05447	0.00500	0.05	0	109	85 - 116				
Sodium	5.288	0.200	5	0	106	85 - 117				
Thallium	0.05241	0.00200	0.05	0	105	82 - 116				
Vanadium	0.0514	0.00500	0.05	0	103	86 - 115				
Zinc	0.05606	0.00500	0.05	0	112	83 - 119				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142828 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19070016-09MS** Units: **mg/L** Analysis Date: **08-Jul-2019 23:45**
Client ID: **ICT14D_062819** Run ID: **ICPMS04_341991** SeqNo: **5157841** PrepDate: **08-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1353	0.0100	0.1	0.02227	113	84 - 117				
Antimony	0.05493	0.00500	0.05	0.000085	110	85 - 117				
Arsenic	0.06094	0.00500	0.05	0.008101	106	84 - 116				
Barium	1.235	0.00500	0.05	1.181	107	86 - 114				O
Beryllium	0.05474	0.00200	0.05	0.000518	108	83 - 121				
Cadmium	0.05079	0.00200	0.05	0.000514	101	87 - 115				
Calcium	88.6	0.500	5	79.96	173	87 - 118				SO
Chromium	0.05672	0.00500	0.05	0.004215	105	85 - 116				
Cobalt	0.06425	0.00500	0.05	0.01411	100	86 - 115				
Copper	0.05465	0.00500	0.05	0.004114	101	85 - 118				
Iron	25.44	0.200	5	19.47	119	87 - 118				S
Lead	0.05046	0.00500	0.05	0.000156	101	88 - 115				
Magnesium	64.43	0.200	5	57.21	144	83 - 118				SO
Manganese	1.393	0.00500	0.05	1.308	170	87 - 115				SO
Nickel	0.09869	0.00500	0.05	0.04744	102	85 - 117				
Potassium	6.665	0.200	5	1.456	104	87 - 115				
Selenium	0.05366	0.00500	0.05	0.000283	107	80 - 120				
Silver	0.05081	0.00500	0.05	0.000033	102	85 - 116				
Sodium	320	0.200	5	300.8	383	85 - 117				SEO
Thallium	0.05024	0.00200	0.05	0.000129	100	82 - 116				
Vanadium	0.05344	0.00500	0.05	0.000634	106	86 - 115				
Zinc	0.1974	0.00500	0.05	0.1409	113	83 - 119				

MSD Sample ID: **HS19070016-09MSD** Units: **mg/L** Analysis Date: **09-Jul-2019 18:59**
Client ID: **ICT14D_062819** Run ID: **ICPMS05_342082** SeqNo: **5159862** PrepDate: **08-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1542	0.0100	0.1	0.02227	132	84 - 117	0.1353	13.1	20	S

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142828 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19070016-09MSD** Units: **mg/L** Analysis Date: **08-Jul-2019 23:47**
Client ID: **ICT14D_062819** Run ID: **ICPMS04_341991** SeqNo: **5157842** PrepDate: **08-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05438	0.00500	0.05	0.000085	109	85 - 117	0.05493	1	20	
Arsenic	0.06089	0.00500	0.05	0.008101	106	84 - 116	0.06094	0.0821	20	
Barium	1.263	0.00500	0.05	1.181	164	86 - 114	1.235	2.25	20	SO
Beryllium	0.05555	0.00200	0.05	0.000518	110	83 - 121	0.05474	1.48	20	
Cadmium	0.05177	0.00200	0.05	0.000514	103	87 - 115	0.05079	1.91	20	
Calcium	89.64	0.500	5	79.96	193	87 - 118	88.6	1.17	20	SO
Chromium	0.05629	0.00500	0.05	0.004215	104	85 - 116	0.05672	0.758	20	
Cobalt	0.06433	0.00500	0.05	0.01411	100	86 - 115	0.06425	0.115	20	
Copper	0.05394	0.00500	0.05	0.004114	99.6	85 - 118	0.05465	1.31	20	
Iron	25.85	0.200	5	19.47	128	87 - 118	25.44	1.59	20	S
Lead	0.05085	0.00500	0.05	0.000156	101	88 - 115	0.05046	0.776	20	
Magnesium	64.71	0.200	5	57.21	150	83 - 118	64.43	0.433	20	SO
Manganese	1.414	0.00500	0.05	1.308	212	87 - 115	1.393	1.48	20	SO
Nickel	0.1001	0.00500	0.05	0.04744	105	85 - 117	0.09869	1.44	20	
Potassium	6.652	0.200	5	1.456	104	87 - 115	6.665	0.203	20	
Selenium	0.05395	0.00500	0.05	0.000283	107	80 - 120	0.05366	0.533	20	
Silver	0.05113	0.00500	0.05	0.000033	102	85 - 116	0.05081	0.624	20	
Sodium	319.3	0.200	5	300.8	369	85 - 117	320	0.212	20	SEO
Thallium	0.0511	0.00200	0.05	0.000129	102	82 - 116	0.05024	1.69	20	
Vanadium	0.05355	0.00500	0.05	0.000634	106	86 - 115	0.05344	0.198	20	
Zinc	0.1978	0.00500	0.05	0.1409	114	83 - 119	0.1974	0.174	20	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142828 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19070016-09PDS** Units: **mg/L** Analysis Date: **08-Jul-2019 23:49**
Client ID: **ICT14D_062819** Run ID: **ICPMS04_341991** SeqNo: **5157843** PrepDate: **08-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1066	0.0100	0.1	0.02227	84.4	80 - 120				
Antimony	0.0995	0.00500	0.1	0.000085	99.4	80 - 120				
Arsenic	0.1167	0.00500	0.1	0.008101	109	80 - 120				
Barium	1.289	0.00500	0.1	1.181	108	80 - 120				O
Beryllium	0.103	0.00200	0.1	0.000518	102	80 - 120				
Cadmium	0.1037	0.00200	0.1	0.000514	103	80 - 120				
Calcium	93.76	0.500	10	79.96	138	80 - 120				SO
Chromium	0.1111	0.00500	0.1	0.004215	107	80 - 120				
Cobalt	0.1142	0.00500	0.1	0.01411	100	80 - 120				
Copper	0.1044	0.00500	0.1	0.004114	100	80 - 120				
Iron	30.49	0.200	10	19.47	110	80 - 120				
Lead	0.1032	0.00500	0.1	0.000156	103	80 - 120				
Magnesium	68.53	0.200	10	57.21	113	80 - 120				O
Manganese	1.467	0.00500	0.1	1.308	159	80 - 120				SO
Nickel	0.1505	0.00500	0.1	0.04744	103	80 - 120				
Potassium	11.81	0.200	10	1.456	104	80 - 120				
Selenium	0.1085	0.00500	0.1	0.000283	108	80 - 120				
Silver	0.09825	0.00500	0.1	0.000033	98.2	80 - 120				
Thallium	0.1039	0.00200	0.1	0.000129	104	80 - 120				
Vanadium	0.1067	0.00500	0.1	0.000634	106	80 - 120				
Zinc	0.25	0.00500	0.1	0.1409	109	80 - 120				

PDS Sample ID: **HS19070016-09PDS** Units: **mg/L** Analysis Date: **09-Jul-2019 13:46**
Client ID: **ICT14D_062819** Run ID: **ICPMS04_342074** SeqNo: **5158725** PrepDate: **08-Jul-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	392.4	2.00	100	295.2	97.3	80 - 120				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142828 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19070016-09SD** Units: **mg/L** Analysis Date: **08-Jul-2019 23:43**
Client ID: **ICT14D_062819** Run ID: **ICPMS04_341991** SeqNo: **5157840** PrepDate: **08-Jul-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.01551	0.0500					0.02227	0	10	J
Antimony	0.00250	0.0250					0.000085	0	10	U
Arsenic	0.005383	0.0250					0.008101	0	10	J
Barium	1.099	0.0250					1.181	6.94	10	
Beryllium	0.00250	0.0100					0.000518	0	10	U
Cadmium	0.00250	0.0100					0.000514	0	10	U
Calcium	78.57	2.50					79.96	1.75	10	
Chromium	0.004207	0.0250					0.004215	0	10	J
Cobalt	0.01499	0.0250					0.01411	0	10	J
Copper	0.0125	0.0250					0.004114	0	10	U
Iron	19.69	1.00					19.47	1.13	10	
Lead	0.00500	0.0250					0.000156	0	10	U
Magnesium	57.33	1.00					57.21	0.212	10	
Manganese	1.366	0.0250					1.308	4.45	10	
Nickel	0.04812	0.0250					0.04744	1.43	10	
Potassium	1.364	1.00					1.456	6.31	10	
Selenium	0.0125	0.0250					0.000283	0	10	U
Silver	0.00250	0.0250					0.000033	0	10	U
Thallium	0.00250	0.0100					0.000129	0	10	U
Vanadium	0.00500	0.0250					0.000634	0	10	U
Zinc	0.1414	0.0250					0.1409	0.4	10	

SD Sample ID: **HS19070016-09SD** Units: **mg/L** Analysis Date: **09-Jul-2019 13:44**
Client ID: **ICT14D_062819** Run ID: **ICPMS04_342074** SeqNo: **5158724** PrepDate: **08-Jul-2019** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Sodium	300.2	10.0					295.2	1.7	10	

The following samples were analyzed in this batch:

HS19070016-08	HS19070016-09	HS19070016-10	HS19070016-11
HS19070016-12	HS19070016-13	HS19070016-14	HS19070016-15
HS19070016-16	HS19070016-17	HS19070016-18	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: 142867 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-142867** Units: **mg/L** Analysis Date: **09-Jul-2019 15:27**
Client ID: Run ID: **HG03_342101** SeqNo: **5159160** PrepDate: **09-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-142867** Units: **mg/L** Analysis Date: **09-Jul-2019 15:29**
Client ID: Run ID: **HG03_342101** SeqNo: **5159161** PrepDate: **09-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00507	0.000200	0.005	0	101	82 - 119				

MS Sample ID: **HS19070016-10MS** Units: **mg/L** Analysis Date: **09-Jul-2019 15:32**
Client ID: **ICT12B_062819** Run ID: **HG03_342101** SeqNo: **5159163** PrepDate: **09-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.000003000	96.5	82 - 119				

MSD Sample ID: **HS19070016-10MSD** Units: **mg/L** Analysis Date: **09-Jul-2019 15:34**
Client ID: **ICT12B_062819** Run ID: **HG03_342101** SeqNo: **5159164** PrepDate: **09-Jul-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00507	0.000200	0.005	0.000003000	101	82 - 119	0.004830	4.85	20	

The following samples were analyzed in this batch:

HS19070016-10	HS19070016-11	HS19070016-12	HS19070016-13
HS19070016-14	HS19070016-15	HS19070016-16	HS19070016-17
HS19070016-18			

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 11:42**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162121** 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	1.0	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: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 11:42**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162121** 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	1.0	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	*46.85*	*1.0*	*50*	*0*	*93.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.68*	*1.0*	*50*	*0*	*97.4*	*85 - 114*				
Surr: Dibromofluoromethane	*47.48*	*1.0*	*50*	*0*	*95.0*	*80 - 119*				
Surr: Toluene-d8	*51.24*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 10:54**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162120** 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	20.81	1.0	20	0	104	78 - 124				
1,1,1-Trichloroethane	18.54	1.0	20	0	92.7	74 - 131				
1,1,2,2-Tetrachloroethane	19.9	1.0	20	0	99.5	71 - 121				
1,1,2-Trichloroethane	19.84	1.0	20	0	99.2	80 - 119				
1,1-Dichloroethane	18.35	1.0	20	0	91.8	77 - 125				
1,1-Dichloroethene	17.92	1.0	20	0	89.6	71 - 131				
1,1-Dichloropropene	18.67	1.0	20	0	93.3	78 - 125				
1,2,3-Trichlorobenzene	21.76	1.0	20	0	109	69 - 129				
1,2,3-Trichloropropane	21.19	1.0	20	0	106	73 - 122				
1,2,4-Trichlorobenzene	20.51	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	19.3	1.0	20	0	96.5	76 - 124				
1,2-Dibromo-3-chloropropane	20.98	1.0	20	0	105	62 - 128				
1,2-Dibromoethane	20.25	1.0	20	0	101	77 - 121				
1,2-Dichlorobenzene	19.71	1.0	20	0	98.6	80 - 119				
1,2-Dichloroethane	19.2	1.0	20	0	96.0	73 - 128				
1,2-Dichloropropane	19.95	1.0	20	0	99.7	78 - 122				
1,3,5-Trimethylbenzene	19.12	1.0	20	0	95.6	75 - 124				
1,3-Dichlorobenzene	20.24	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	19.62	1.0	20	0	98.1	80 - 119				
1,4-Dichlorobenzene	19.22	1.0	20	0	96.1	79 - 118				
2,2-Dichloropropane	18.87	1.0	20	0	94.4	60 - 139				
2-Butanone	38.33	2.0	40	0	95.8	56 - 143				
2-Chlorotoluene	18.83	1.0	20	0	94.2	79 - 122				
2-Hexanone	40.21	2.0	40	0	101	57 - 139				
4-Chlorotoluene	18.81	1.0	20	0	94.1	78 - 122				
4-Isopropyltoluene	19.29	1.0	20	0	96.4	77 - 127				
4-Methyl-2-pentanone	39.48	2.0	40	0	98.7	67 - 130				
Acetone	42.6	2.0	40	0	106	39 - 160				
Benzene	19.58	1.0	20	0	97.9	79 - 120				
Bromobenzene	20.57	1.0	20	0	103	80 - 120				
Bromochloromethane	18.33	1.0	20	0	91.7	78 - 123				
Bromodichloromethane	19.84	1.0	20	0	99.2	79 - 125				
Bromoform	21.68	1.0	20	0	108	66 - 130				
Bromomethane	20.98	1.0	20	0	105	53 - 141				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190710** Units: **UG/L** Analysis Date: **10-Jul-2019 10:54**
Client ID: Run ID: **VOA6_342223** SeqNo: **5162120** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.43	2.0	40	0	91.1	64 - 133				
Carbon tetrachloride	19.06	1.0	20	0	95.3	72 - 136				
Chlorobenzene	19.87	1.0	20	0	99.3	82 - 118				
Chloroethane	17.25	1.0	20	0	86.3	60 - 138				
Chloroform	20.32	1.0	20	0	102	79 - 124				
Chloromethane	18.07	1.0	20	0	90.3	50 - 139				
cis-1,2-Dichloroethene	18.34	1.0	20	0	91.7	78 - 123				
cis-1,3-Dichloropropene	20.29	1.0	20	0	101	75 - 124				
Dibromochloromethane	20.71	1.0	20	0	104	74 - 126				
Dibromomethane	19.81	1.0	20	0	99.0	79 - 123				
Dichlorodifluoromethane	19.07	1.0	20	0	95.4	32 - 152				
Ethylbenzene	20.2	1.0	20	0	101	79 - 121				
Hexachlorobutadiene	21.34	1.0	20	0	107	66 - 134				
Isopropylbenzene	19.76	1.0	20	0	98.8	72 - 131				
m,p-Xylene	40.44	2.0	40	0	101	80 - 121				
Methylene chloride	17.94	2.0	20	0	89.7	74 - 124				
Naphthalene	20.18	1.0	20	0	101	61 - 128				
n-Butylbenzene	20.34	1.0	20	0	102	75 - 128				
n-Propylbenzene	18.95	1.0	20	0	94.7	76 - 126				
o-Xylene	19.77	1.0	20	0	98.9	78 - 122				
sec-Butylbenzene	18.77	1.0	20	0	93.8	77 - 126				
Styrene	20.26	1.0	20	0	101	78 - 123				
tert-Butylbenzene	19.11	1.0	20	0	95.6	78 - 124				
Tetrachloroethene	21.08	1.0	20	0	105	74 - 129				
Toluene	20.27	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	18.43	1.0	20	0	92.2	75 - 124				
trans-1,3-Dichloropropene	20.13	1.0	20	0	101	73 - 127				
Trichloroethene	20.02	1.0	20	0	100	79 - 123				
Trichlorofluoromethane	17.77	1.0	20	0	88.8	65 - 141				
Vinyl chloride	17.77	1.0	20	0	88.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.33*	*1.0*	*50*	*0*	*96.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.26*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*48.5*	*1.0*	*50*	*0*	*97.0*	*80 - 119*				
Surr: Toluene-d8	*50.1*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19070016-09MS** Units: **UG/L** Analysis Date: **10-Jul-2019 16:29**
Client ID: **ICT14D_062819** Run ID: **VOA6_342223** SeqNo: **5162133** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4891	250	5000	0	97.8	78 - 124				
1,1,1-Trichloroethane	4523	250	5000	0	90.5	74 - 131				
1,1,2,2-Tetrachloroethane	4842	250	5000	0	96.8	71 - 121				
1,1,2-Trichloroethane	4780	250	5000	0	95.6	80 - 119				
1,1-Dichloroethane	4517	250	5000	0	90.3	77 - 125				
1,1-Dichloroethene	4557	250	5000	0	91.1	71 - 131				
1,1-Dichloropropene	4336	250	5000	0	86.7	78 - 125				
1,2,3-Trichlorobenzene	4758	250	5000	0	95.2	69 - 129				
1,2,3-Trichloropropane	4449	250	5000	0	89.0	73 - 122				
1,2,4-Trichlorobenzene	4765	250	5000	0	95.3	69 - 130				
1,2,4-Trimethylbenzene	4514	250	5000	0	90.3	76 - 124				
1,2-Dibromo-3-chloropropane	4917	250	5000	0	98.3	62 - 128				
1,2-Dibromoethane	4838	250	5000	0	96.8	77 - 121				
1,2-Dichlorobenzene	4663	250	5000	0	93.3	80 - 119				
1,2-Dichloroethane	4677	250	5000	0	93.5	73 - 128				
1,2-Dichloropropane	4687	250	5000	0	93.7	78 - 122				
1,3,5-Trimethylbenzene	4400	250	5000	0	88.0	75 - 124				
1,3-Dichlorobenzene	4680	250	5000	0	93.6	80 - 119				
1,3-Dichloropropane	4732	250	5000	0	94.6	80 - 119				
1,4-Dichlorobenzene	4506	250	5000	0	90.1	79 - 118				
2,2-Dichloropropane	4521	250	5000	0	90.4	60 - 139				
2-Butanone	9558	500	10000	0	95.6	56 - 143				
2-Chlorotoluene	4383	250	5000	0	87.7	79 - 122				
2-Hexanone	9453	500	10000	0	94.5	57 - 139				
4-Chlorotoluene	4362	250	5000	0	87.2	78 - 122				
4-Isopropyltoluene	4307	250	5000	0	86.1	77 - 127				
4-Methyl-2-pentanone	9526	500	10000	0	95.3	67 - 130				
Acetone	9253	500	10000	0	92.5	39 - 160				
Benzene	4636	250	5000	0	92.7	79 - 120				
Bromobenzene	4722	250	5000	0	94.4	80 - 120				
Bromochloromethane	4625	250	5000	0	92.5	78 - 123				
Bromodichloromethane	4749	250	5000	0	95.0	79 - 125				
Bromoform	5120	250	5000	0	102	66 - 130				
Bromomethane	4501	250	5000	0	90.0	53 - 141				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19070016-09MS** Units: **UG/L** Analysis Date: **10-Jul-2019 16:29**
Client ID: **ICT14D_062819** Run ID: **VOA6_342223** SeqNo: **5162133** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	8878	500	10000	0	88.8	64 - 133				
Carbon tetrachloride	4324	250	5000	0	86.5	72 - 136				
Chlorobenzene	4649	250	5000	0	93.0	82 - 118				
Chloroethane	4096	250	5000	0	81.9	60 - 138				
Chloroform	4954	250	5000	0	99.1	79 - 124				
Chloromethane	5011	250	5000	0	100	50 - 139				
cis-1,2-Dichloroethene	23100	250	5000	21140	39.2	78 - 123				SO
cis-1,3-Dichloropropene	4827	250	5000	0	96.5	75 - 124				
Dibromochloromethane	4878	250	5000	0	97.6	74 - 126				
Dibromomethane	4737	250	5000	0	94.7	79 - 123				
Dichlorodifluoromethane	3399	250	5000	0	68.0	32 - 152				
Ethylbenzene	4688	250	5000	0	93.8	79 - 121				
Hexachlorobutadiene	4446	250	5000	0	88.9	66 - 134				
Isopropylbenzene	4543	250	5000	0	90.9	72 - 131				
m,p-Xylene	9423	500	10000	0	94.2	80 - 121				
Methylene chloride	14100	500	5000	11040	61.2	74 - 124				S
Naphthalene	4749	250	5000	0	95.0	61 - 128				
n-Butylbenzene	4582	250	5000	0	91.6	75 - 128				
n-Propylbenzene	4342	250	5000	0	86.8	76 - 126				
o-Xylene	4615	250	5000	0	92.3	78 - 122				
sec-Butylbenzene	4264	250	5000	0	85.3	77 - 126				
Styrene	4772	250	5000	0	95.4	78 - 123				
tert-Butylbenzene	4332	250	5000	0	86.6	78 - 124				
Tetrachloroethene	4667	250	5000	0	93.3	74 - 129				
Toluene	4725	250	5000	0	94.5	80 - 121				
trans-1,2-Dichloroethene	4619	250	5000	0	92.4	75 - 124				
trans-1,3-Dichloropropene	4683	250	5000	0	93.7	73 - 127				
Trichloroethene	5077	250	5000	582.4	89.9	79 - 123				
Trichlorofluoromethane	4135	250	5000	0	82.7	65 - 141				
Vinyl chloride	5623	250	5000	2069	71.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*12590*	*250*	*12500*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*12440*	*250*	*12500*	*0*	*99.5*	*85 - 114*				
Surr: Dibromofluoromethane	*12510*	*250*	*12500*	*0*	*100*	*80 - 119*				
Surr: Toluene-d8	*12360*	*250*	*12500*	*0*	*98.9*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19070016-09MSD** Units: **UG/L** Analysis Date: **10-Jul-2019 16:53**
Client ID: **ICT14D_062819** Run ID: **VOA6_342223** SeqNo: **5162134** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4855	250	5000	0	97.1	78 - 124	4891	0.747	20	
1,1,1-Trichloroethane	4432	250	5000	0	88.6	74 - 131	4523	2.04	20	
1,1,2,2-Tetrachloroethane	4980	250	5000	0	99.6	71 - 121	4842	2.8	20	
1,1,2-Trichloroethane	4841	250	5000	0	96.8	80 - 119	4780	1.26	20	
1,1-Dichloroethane	4528	250	5000	0	90.6	77 - 125	4517	0.237	20	
1,1-Dichloroethene	4504	250	5000	0	90.1	71 - 131	4557	1.17	20	
1,1-Dichloropropene	4353	250	5000	0	87.1	78 - 125	4336	0.396	20	
1,2,3-Trichlorobenzene	4700	250	5000	0	94.0	69 - 129	4758	1.24	20	
1,2,3-Trichloropropane	4506	250	5000	0	90.1	73 - 122	4449	1.28	20	
1,2,4-Trichlorobenzene	4693	250	5000	0	93.9	69 - 130	4765	1.52	20	
1,2,4-Trimethylbenzene	4459	250	5000	0	89.2	76 - 124	4514	1.22	20	
1,2-Dibromo-3-chloropropane	4998	250	5000	0	100.0	62 - 128	4917	1.64	20	
1,2-Dibromoethane	4945	250	5000	0	98.9	77 - 121	4838	2.19	20	
1,2-Dichlorobenzene	4696	250	5000	0	93.9	80 - 119	4663	0.715	20	
1,2-Dichloroethane	4766	250	5000	0	95.3	73 - 128	4677	1.88	20	
1,2-Dichloropropane	4752	250	5000	0	95.0	78 - 122	4687	1.39	20	
1,3,5-Trimethylbenzene	4391	250	5000	0	87.8	75 - 124	4400	0.197	20	
1,3-Dichlorobenzene	4674	250	5000	0	93.5	80 - 119	4680	0.133	20	
1,3-Dichloropropane	4779	250	5000	0	95.6	80 - 119	4732	0.993	20	
1,4-Dichlorobenzene	4450	250	5000	0	89.0	79 - 118	4506	1.26	20	
2,2-Dichloropropane	4516	250	5000	0	90.3	60 - 139	4521	0.102	20	
2-Butanone	10040	500	10000	0	100	56 - 143	9558	4.88	20	
2-Chlorotoluene	4368	250	5000	0	87.4	79 - 122	4383	0.326	20	
2-Hexanone	9919	500	10000	0	99.2	57 - 139	9453	4.8	20	
4-Chlorotoluene	4331	250	5000	0	86.6	78 - 122	4362	0.724	20	
4-Isopropyltoluene	4310	250	5000	0	86.2	77 - 127	4307	0.0714	20	
4-Methyl-2-pentanone	9761	500	10000	0	97.6	67 - 130	9526	2.44	20	
Acetone	9893	500	10000	0	98.9	39 - 160	9253	6.69	20	
Benzene	4674	250	5000	0	93.5	79 - 120	4636	0.809	20	
Bromobenzene	4840	250	5000	0	96.8	80 - 120	4722	2.48	20	
Bromochloromethane	4665	250	5000	0	93.3	78 - 123	4625	0.855	20	
Bromodichloromethane	4817	250	5000	0	96.3	79 - 125	4749	1.42	20	
Bromoform	5133	250	5000	0	103	66 - 130	5120	0.254	20	
Bromomethane	4543	250	5000	0	90.9	53 - 141	4501	0.923	20	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19070016-09MSD** Units: **UG/L** Analysis Date: **10-Jul-2019 16:53**
Client ID: **ICT14D_062819** Run ID: **VOA6_342223** SeqNo: **5162134** PrepDate: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	8808	500	10000	0	88.1	64 - 133	8878	0.796	20	
Carbon tetrachloride	4290	250	5000	0	85.8	72 - 136	4324	0.786	20	
Chlorobenzene	4660	250	5000	0	93.2	82 - 118	4649	0.236	20	
Chloroethane	4042	250	5000	0	80.8	60 - 138	4096	1.32	20	
Chloroform	4982	250	5000	0	99.6	79 - 124	4954	0.556	20	
Chloromethane	4668	250	5000	0	93.4	50 - 139	5011	7.09	20	
cis-1,2-Dichloroethene	23230	250	5000	21140	41.9	78 - 123	23100	0.574	20	SO
cis-1,3-Dichloropropene	4904	250	5000	0	98.1	75 - 124	4827	1.58	20	
Dibromochloromethane	4973	250	5000	0	99.5	74 - 126	4878	1.93	20	
Dibromomethane	4883	250	5000	0	97.7	79 - 123	4737	3.03	20	
Dichlorodifluoromethane	3338	250	5000	0	66.8	32 - 152	3399	1.8	20	
Ethylbenzene	4601	250	5000	0	92.0	79 - 121	4688	1.87	20	
Hexachlorobutadiene	4448	250	5000	0	89.0	66 - 134	4446	0.0369	20	
Isopropylbenzene	4460	250	5000	0	89.2	72 - 131	4543	1.85	20	
m,p-Xylene	9235	500	10000	0	92.3	80 - 121	9423	2.02	20	
Methylene chloride	14020	500	5000	11040	59.5	74 - 124	14100	0.608	20	S
Naphthalene	4658	250	5000	0	93.2	61 - 128	4749	1.93	20	
n-Butylbenzene	4615	250	5000	0	92.3	75 - 128	4582	0.715	20	
n-Propylbenzene	4231	250	5000	0	84.6	76 - 126	4342	2.59	20	
o-Xylene	4566	250	5000	0	91.3	78 - 122	4615	1.05	20	
sec-Butylbenzene	4265	250	5000	0	85.3	77 - 126	4264	0.0244	20	
Styrene	4815	250	5000	0	96.3	78 - 123	4772	0.89	20	
tert-Butylbenzene	4257	250	5000	0	85.1	78 - 124	4332	1.75	20	
Tetrachloroethene	4607	250	5000	0	92.1	74 - 129	4667	1.31	20	
Toluene	4683	250	5000	0	93.7	80 - 121	4725	0.908	20	
trans-1,2-Dichloroethene	4547	250	5000	0	90.9	75 - 124	4619	1.57	20	
trans-1,3-Dichloropropene	4835	250	5000	0	96.7	73 - 127	4683	3.2	20	
Trichloroethene	5061	250	5000	582.4	89.6	79 - 123	5077	0.303	20	
Trichlorofluoromethane	4088	250	5000	0	81.8	65 - 141	4135	1.14	20	
Vinyl chloride	5457	250	5000	2069	67.8	58 - 137	5623	3	20	
Surr: 1,2-Dichloroethane-d4	*12730*	*250*	*12500*	*0*	*102*	*81 - 118*	*12590*	*1.1*	*20*	
Surr: 4-Bromofluorobenzene	*12460*	*250*	*12500*	*0*	*99.7*	*85 - 114*	*12440*	*0.117*	*20*	
Surr: Dibromofluoromethane	*12790*	*250*	*12500*	*0*	*102*	*80 - 119*	*12510*	*2.19*	*20*	
Surr: Toluene-d8	*12220*	*250*	*12500*	*0*	*97.8*	*89 - 112*	*12360*	*1.11*	*20*	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342223 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19070016-04	HS19070016-05	HS19070016-06	HS19070016-07
HS19070016-09	HS19070016-10	HS19070016-11	HS19070016-13
HS19070016-14	HS19070016-15	HS19070016-16	HS19070016-17

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190711** Units: **UG/L** Analysis Date: **11-Jul-2019 13:07**
Client ID: Run ID: **VOA6_342283** SeqNo: **5163485** 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	1.0	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: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190711** Units: **UG/L** Analysis Date: **11-Jul-2019 13:07**
Client ID: Run ID: **VOA6_342283** SeqNo: **5163485** 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	1.0	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	*48.54*	*1.0*	*50*	*0*	*97.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.88*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*49.5*	*1.0*	*50*	*0*	*99.0*	*80 - 119*				
Surr: Toluene-d8	*52.88*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190711** Units: **UG/L** Analysis Date: **11-Jul-2019 11:55**
Client ID: Run ID: **VOA6_342283** SeqNo: **5163484** 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	19.85	1.0	20	0	99.2	78 - 124				
1,1,1-Trichloroethane	17.66	1.0	20	0	88.3	74 - 131				
1,1,2,2-Tetrachloroethane	19.02	1.0	20	0	95.1	71 - 121				
1,1,2-Trichloroethane	18.9	1.0	20	0	94.5	80 - 119				
1,1-Dichloroethane	17.8	1.0	20	0	89.0	77 - 125				
1,1-Dichloroethene	17.13	1.0	20	0	85.6	71 - 131				
1,1-Dichloropropene	17.76	1.0	20	0	88.8	78 - 125				
1,2,3-Trichlorobenzene	21.24	1.0	20	0	106	69 - 129				
1,2,3-Trichloropropane	17.65	1.0	20	0	88.3	73 - 122				
1,2,4-Trichlorobenzene	20.74	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	19.14	1.0	20	0	95.7	76 - 124				
1,2-Dibromo-3-chloropropane	18.87	1.0	20	0	94.3	62 - 128				
1,2-Dibromoethane	19	1.0	20	0	95.0	77 - 121				
1,2-Dichlorobenzene	19.48	1.0	20	0	97.4	80 - 119				
1,2-Dichloroethane	18.82	1.0	20	0	94.1	73 - 128				
1,2-Dichloropropane	19.44	1.0	20	0	97.2	78 - 122				
1,3,5-Trimethylbenzene	18.78	1.0	20	0	93.9	75 - 124				
1,3-Dichlorobenzene	19.96	1.0	20	0	99.8	80 - 119				
1,3-Dichloropropane	19.08	1.0	20	0	95.4	80 - 119				
1,4-Dichlorobenzene	19.15	1.0	20	0	95.7	79 - 118				
2,2-Dichloropropane	18.26	1.0	20	0	91.3	60 - 139				
2-Butanone	38.73	2.0	40	0	96.8	56 - 143				
2-Chlorotoluene	18.71	1.0	20	0	93.6	79 - 122				
2-Hexanone	37.62	2.0	40	0	94.1	57 - 139				
4-Chlorotoluene	18.65	1.0	20	0	93.2	78 - 122				
4-Isopropyltoluene	18.75	1.0	20	0	93.7	77 - 127				
4-Methyl-2-pentanone	37.36	2.0	40	0	93.4	67 - 130				
Acetone	43.88	2.0	40	0	110	39 - 160				
Benzene	18.87	1.0	20	0	94.4	79 - 120				
Bromobenzene	20.01	1.0	20	0	100	80 - 120				
Bromochloromethane	18.52	1.0	20	0	92.6	78 - 123				
Bromodichloromethane	19.33	1.0	20	0	96.6	79 - 125				
Bromoform	20.45	1.0	20	0	102	66 - 130				
Bromomethane	20.41	1.0	20	0	102	53 - 141				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190711** Units: **UG/L** Analysis Date: **11-Jul-2019 11:55**
Client ID: Run ID: **VOA6_342283** SeqNo: **5163484** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	36.23	2.0	40	0	90.6	64 - 133				
Carbon tetrachloride	17.33	1.0	20	0	86.6	72 - 136				
Chlorobenzene	19.08	1.0	20	0	95.4	82 - 118				
Chloroethane	17.07	1.0	20	0	85.4	60 - 138				
Chloroform	20.42	1.0	20	0	102	79 - 124				
Chloromethane	18.99	1.0	20	0	95.0	50 - 139				
cis-1,2-Dichloroethene	18.18	1.0	20	0	90.9	78 - 123				
cis-1,3-Dichloropropene	19.55	1.0	20	0	97.8	75 - 124				
Dibromochloromethane	19.58	1.0	20	0	97.9	74 - 126				
Dibromomethane	18.86	1.0	20	0	94.3	79 - 123				
Dichlorodifluoromethane	17.75	1.0	20	0	88.7	32 - 152				
Ethylbenzene	19.09	1.0	20	0	95.4	79 - 121				
Hexachlorobutadiene	21.01	1.0	20	0	105	66 - 134				
Isopropylbenzene	18.87	1.0	20	0	94.3	72 - 131				
m,p-Xylene	38.85	2.0	40	0	97.1	80 - 121				
Methylene chloride	17.62	2.0	20	0	88.1	74 - 124				
Naphthalene	19.23	1.0	20	0	96.1	61 - 128				
n-Butylbenzene	19.86	1.0	20	0	99.3	75 - 128				
n-Propylbenzene	18.18	1.0	20	0	90.9	76 - 126				
o-Xylene	19.02	1.0	20	0	95.1	78 - 122				
sec-Butylbenzene	18.08	1.0	20	0	90.4	77 - 126				
Styrene	19.59	1.0	20	0	97.9	78 - 123				
tert-Butylbenzene	18.51	1.0	20	0	92.5	78 - 124				
Tetrachloroethene	19.45	1.0	20	0	97.3	74 - 129				
Toluene	19.28	1.0	20	0	96.4	80 - 121				
trans-1,2-Dichloroethene	18.61	1.0	20	0	93.0	75 - 124				
trans-1,3-Dichloropropene	19.23	1.0	20	0	96.1	73 - 127				
Trichloroethene	19.2	1.0	20	0	96.0	79 - 123				
Trichlorofluoromethane	16.77	1.0	20	0	83.9	65 - 141				
Vinyl chloride	16.57	1.0	20	0	82.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.87*	*1.0*	*50*	*0*	*95.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.99*	*1.0*	*50*	*0*	*98.0*	*85 - 114*				
Surr: Dibromofluoromethane	*48.32*	*1.0*	*50*	*0*	*96.6*	*80 - 119*				
Surr: Toluene-d8	*49.38*	*1.0*	*50*	*0*	*98.8*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19070016-01MS** Units: **UG/L** Analysis Date: **11-Jul-2019 17:06**
Client ID: **ICT2_062819** Run ID: **VOA6_342283** SeqNo: **5163493** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
1,1,1,2-Tetrachloroethane	511	25	500	0	102	78 - 124			
1,1,1-Trichloroethane	481.1	25	500	0	96.2	74 - 131			
1,1,2,2-Tetrachloroethane	513.7	25	500	0	103	71 - 121			
1,1,2-Trichloroethane	498.9	25	500	0	99.8	80 - 119			
1,1-Dichloroethane	478.2	25	500	0	95.6	77 - 125			
1,1-Dichloroethene	460.6	25	500	0	92.1	71 - 131			
1,1-Dichloropropene	456.1	25	500	0	91.2	78 - 125			
1,2,3-Trichlorobenzene	494.1	25	500	0	98.8	69 - 129			
1,2,3-Trichloropropane	473.2	25	500	0	94.6	73 - 122			
1,2,4-Trichlorobenzene	499.7	25	500	0	99.9	69 - 130			
1,2,4-Trimethylbenzene	492.6	25	500	0	98.5	76 - 124			
1,2-Dibromo-3-chloropropane	530.9	25	500	0	106	62 - 128			
1,2-Dibromoethane	507.6	25	500	0	102	77 - 121			
1,2-Dichlorobenzene	498	25	500	0	99.6	80 - 119			
1,2-Dichloroethane	530.6	25	500	44.69	97.2	73 - 128			
1,2-Dichloropropane	487.5	25	500	0	97.5	78 - 122			
1,3,5-Trimethylbenzene	491.2	25	500	0	98.2	75 - 124			
1,3-Dichlorobenzene	505.4	25	500	0	101	80 - 119			
1,3-Dichloropropane	497	25	500	0	99.4	80 - 119			
1,4-Dichlorobenzene	479.7	25	500	0	95.9	79 - 118			
2,2-Dichloropropane	474.6	25	500	0	94.9	60 - 139			
2-Butanone	1025	50	1000	0	103	56 - 143			
2-Chlorotoluene	478.3	25	500	0	95.7	79 - 122			
2-Hexanone	987.2	50	1000	0	98.7	57 - 139			
4-Chlorotoluene	477.9	25	500	0	95.6	78 - 122			
4-Isopropyltoluene	484.5	25	500	0	96.9	77 - 127			
4-Methyl-2-pentanone	1013	50	1000	0	101	67 - 130			
Acetone	1027	50	1000	0	103	39 - 160			
Benzene	480.7	25	500	0	96.1	79 - 120			
Bromobenzene	503	25	500	0	101	80 - 120			
Bromochloromethane	477	25	500	0	95.4	78 - 123			
Bromodichloromethane	489.6	25	500	0	97.9	79 - 125			
Bromoform	530.8	25	500	0	106	66 - 130			
Bromomethane	464.9	25	500	0	93.0	53 - 141			

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19070016-01MS** Units: **UG/L** Analysis Date: **11-Jul-2019 17:06**
Client ID: **ICT2_062819** Run ID: **VOA6_342283** SeqNo: **5163493** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	948.8	50	1000	0	94.9	64 - 133				
Carbon tetrachloride	462.7	25	500	0	92.5	72 - 136				
Chlorobenzene	484.9	25	500	0	97.0	82 - 118				
Chloroethane	444.5	25	500	0	88.9	60 - 138				
Chloroform	495.4	25	500	0	99.1	79 - 124				
Chloromethane	535	25	500	0	107	50 - 139				
cis-1,2-Dichloroethene	548	25	500	41.3	101	78 - 123				
cis-1,3-Dichloropropene	499.7	25	500	0	99.9	75 - 124				
Dibromochloromethane	500.7	25	500	0	100	74 - 126				
Dibromomethane	490.6	25	500	0	98.1	79 - 123				
Dichlorodifluoromethane	351.5	25	500	0	70.3	32 - 152				
Ethylbenzene	502.2	25	500	0	100	79 - 121				
Hexachlorobutadiene	491.2	25	500	0	98.2	66 - 134				
Isopropylbenzene	498.9	25	500	0	99.8	72 - 131				
m,p-Xylene	1000	50	1000	0	100.0	80 - 121				
Methylene chloride	471.5	50	500	0	94.3	74 - 124				
Naphthalene	492.7	25	500	0	98.5	61 - 128				
n-Butylbenzene	517.3	25	500	0	103	75 - 128				
n-Propylbenzene	485.5	25	500	0	97.1	76 - 126				
o-Xylene	489.9	25	500	0	98.0	78 - 122				
sec-Butylbenzene	484.4	25	500	0	96.9	77 - 126				
Styrene	507	25	500	0	101	78 - 123				
tert-Butylbenzene	487.5	25	500	0	97.5	78 - 124				
Tetrachloroethene	515.4	25	500	0	103	74 - 129				
Toluene	493	25	500	0	98.6	80 - 121				
trans-1,2-Dichloroethene	486.8	25	500	0	97.4	75 - 124				
trans-1,3-Dichloropropene	490.3	25	500	0	98.1	73 - 127				
Trichloroethene	1112	25	500	669	88.6	79 - 123				
Trichlorofluoromethane	452.3	25	500	0	90.5	65 - 141				
Vinyl chloride	412.4	25	500	0	82.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*1714*	*25*	*1250*	*0*	*137*	*81 - 118*				S
Surr: 4-Bromofluorobenzene	*1463*	*25*	*1250*	*0*	*117*	*85 - 114*				S
Surr: Dibromofluoromethane	*1679*	*25*	*1250*	*0*	*134*	*80 - 119*				S
Surr: Toluene-d8	*1526*	*25*	*1250*	*0*	*122*	*89 - 112*				S

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19070016-01MSD** Units: **UG/L** Analysis Date: **11-Jul-2019 17:30**
Client ID: **ICT2_062819** Run ID: **VOA6_342283** SeqNo: **5163494** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	519.8	25	500	0	104	78 - 124	511	1.7	20	
1,1,1-Trichloroethane	469.7	25	500	0	93.9	74 - 131	481.1	2.4	20	
1,1,2,2-Tetrachloroethane	544.8	25	500	0	109	71 - 121	513.7	5.89	20	
1,1,2-Trichloroethane	511.1	25	500	0	102	80 - 119	498.9	2.43	20	
1,1-Dichloroethane	462.6	25	500	0	92.5	77 - 125	478.2	3.32	20	
1,1-Dichloroethene	457.4	25	500	0	91.5	71 - 131	460.6	0.709	20	
1,1-Dichloropropene	454.3	25	500	0	90.9	78 - 125	456.1	0.392	20	
1,2,3-Trichlorobenzene	529.8	25	500	0	106	69 - 129	494.1	6.97	20	
1,2,3-Trichloropropane	493.4	25	500	0	98.7	73 - 122	473.2	4.19	20	
1,2,4-Trichlorobenzene	520.6	25	500	0	104	69 - 130	499.7	4.11	20	
1,2,4-Trimethylbenzene	499.3	25	500	0	99.9	76 - 124	492.6	1.34	20	
1,2-Dibromo-3-chloropropane	569.4	25	500	0	114	62 - 128	530.9	7	20	
1,2-Dibromoethane	523.3	25	500	0	105	77 - 121	507.6	3.06	20	
1,2-Dichlorobenzene	512.3	25	500	0	102	80 - 119	498	2.82	20	
1,2-Dichloroethane	524.7	25	500	44.69	96.0	73 - 128	530.6	1.13	20	
1,2-Dichloropropane	495	25	500	0	99.0	78 - 122	487.5	1.53	20	
1,3,5-Trimethylbenzene	500.6	25	500	0	100	75 - 124	491.2	1.88	20	
1,3-Dichlorobenzene	514.5	25	500	0	103	80 - 119	505.4	1.78	20	
1,3-Dichloropropane	504.7	25	500	0	101	80 - 119	497	1.53	20	
1,4-Dichlorobenzene	490.9	25	500	0	98.2	79 - 118	479.7	2.31	20	
2,2-Dichloropropane	471.6	25	500	0	94.3	60 - 139	474.6	0.65	20	
2-Butanone	1063	50	1000	0	106	56 - 143	1025	3.59	20	
2-Chlorotoluene	482.9	25	500	0	96.6	79 - 122	478.3	0.953	20	
2-Hexanone	1035	50	1000	0	103	57 - 139	987.2	4.72	20	
4-Chlorotoluene	488.1	25	500	0	97.6	78 - 122	477.9	2.11	20	
4-Isopropyltoluene	489.8	25	500	0	98.0	77 - 127	484.5	1.08	20	
4-Methyl-2-pentanone	1022	50	1000	0	102	67 - 130	1013	0.848	20	
Acetone	1052	50	1000	0	105	39 - 160	1027	2.43	20	
Benzene	477.3	25	500	0	95.5	79 - 120	480.7	0.711	20	
Bromobenzene	521.8	25	500	0	104	80 - 120	503	3.68	20	
Bromochloromethane	490	25	500	0	98.0	78 - 123	477	2.69	20	
Bromodichloromethane	498.4	25	500	0	99.7	79 - 125	489.6	1.78	20	
Bromoform	549.1	25	500	0	110	66 - 130	530.8	3.39	20	
Bromomethane	470.4	25	500	0	94.1	53 - 141	464.9	1.17	20	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19070016-01MSD** Units: **UG/L** Analysis Date: **11-Jul-2019 17:30**
Client ID: **ICT2_062819** Run ID: **VOA6_342283** SeqNo: **5163494** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	930.2	50	1000	0	93.0	64 - 133	948.8	1.99	20	
Carbon tetrachloride	452.5	25	500	0	90.5	72 - 136	462.7	2.22	20	
Chlorobenzene	486.9	25	500	0	97.4	82 - 118	484.9	0.414	20	
Chloroethane	415.6	25	500	0	83.1	60 - 138	444.5	6.71	20	
Chloroform	495.1	25	500	0	99.0	79 - 124	495.4	0.0652	20	
Chloromethane	505.8	25	500	0	101	50 - 139	535	5.6	20	
cis-1,2-Dichloroethene	521.5	25	500	41.3	96.0	78 - 123	548	4.95	20	
cis-1,3-Dichloropropene	501.5	25	500	0	100	75 - 124	499.7	0.368	20	
Dibromochloromethane	516.8	25	500	0	103	74 - 126	500.7	3.17	20	
Dibromomethane	503.3	25	500	0	101	79 - 123	490.6	2.56	20	
Dichlorodifluoromethane	341.6	25	500	0	68.3	32 - 152	351.5	2.85	20	
Ethylbenzene	494.9	25	500	0	99.0	79 - 121	502.2	1.46	20	
Hexachlorobutadiene	506.3	25	500	0	101	66 - 134	491.2	3.03	20	
Isopropylbenzene	493.8	25	500	0	98.8	72 - 131	498.9	1.02	20	
m,p-Xylene	1007	50	1000	0	101	80 - 121	1000	0.694	20	
Methylene chloride	472.4	50	500	0	94.5	74 - 124	471.5	0.19	20	
Naphthalene	522.5	25	500	0	105	61 - 128	492.7	5.87	20	
n-Butylbenzene	521.4	25	500	0	104	75 - 128	517.3	0.775	20	
n-Propylbenzene	486.5	25	500	0	97.3	76 - 126	485.5	0.2	20	
o-Xylene	496	25	500	0	99.2	78 - 122	489.9	1.24	20	
sec-Butylbenzene	492.8	25	500	0	98.6	77 - 126	484.4	1.71	20	
Styrene	511.9	25	500	0	102	78 - 123	507	0.961	20	
tert-Butylbenzene	498.9	25	500	0	99.8	78 - 124	487.5	2.31	20	
Tetrachloroethene	511.4	25	500	0	102	74 - 129	515.4	0.764	20	
Toluene	495	25	500	0	99.0	80 - 121	493	0.404	20	
trans-1,2-Dichloroethene	471.7	25	500	0	94.3	75 - 124	486.8	3.15	20	
trans-1,3-Dichloropropene	495.7	25	500	0	99.1	73 - 127	490.3	1.1	20	
Trichloroethene	1102	25	500	669	86.7	79 - 123	1112	0.844	20	
Trichlorofluoromethane	436.4	25	500	0	87.3	65 - 141	452.3	3.59	20	
Vinyl chloride	398	25	500	0	79.6	58 - 137	412.4	3.55	20	
Surr: 1,2-Dichloroethane-d4	*1725*	*25*	*1250*	*0*	*138*	*81 - 118*	*1714*	*0.595*	*20*	S
Surr: 4-Bromofluorobenzene	*1477*	*25*	*1250*	*0*	*118*	*85 - 114*	*1463*	*0.945*	*20*	S
Surr: Dibromofluoromethane	*1706*	*25*	*1250*	*0*	*136*	*80 - 119*	*1679*	*1.56*	*20*	S
Surr: Toluene-d8	*1542*	*25*	*1250*	*0*	*123*	*89 - 112*	*1526*	*1.03*	*20*	S

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342283 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19070016-01	HS19070016-02	HS19070016-03	HS19070016-04
HS19070016-08	HS19070016-12	HS19070016-13	HS19070016-14
HS19070016-15	HS19070016-18	HS19070016-19	

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342382 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190712** Units: **UG/L** Analysis Date: **12-Jul-2019 10:45**
Client ID: Run ID: **VOA6_342382** SeqNo: **5165498** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Surr: 1,2-Dichloroethane-d4	*45.81*	*1.0*	*50*	*0*	*91.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.96*	*1.0*	*50*	*0*	*97.9*	*85 - 114*				
Surr: Dibromofluoromethane	*46.24*	*1.0*	*50*	*0*	*92.5*	*80 - 119*				
Surr: Toluene-d8	*50.72*	*1.0*	*50*	*0*	*101*	*89 - 112*				

LCS Sample ID: **VLCSW-190712** Units: **UG/L** Analysis Date: **12-Jul-2019 09:57**
Client ID: Run ID: **VOA6_342382** SeqNo: **5165497** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	20	1.0	20	0	100.0	78 - 123				
Methylene chloride	19.35	2.0	20	0	96.7	74 - 124				
Surr: 1,2-Dichloroethane-d4	*49.91*	*1.0*	*50*	*0*	*99.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.42*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*50.22*	*1.0*	*50*	*0*	*100*	*80 - 119*				
Surr: Toluene-d8	*51.03*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MS Sample ID: **HS19070432-01MS** Units: **UG/L** Analysis Date: **12-Jul-2019 13:09**
Client ID: Run ID: **VOA6_342382** SeqNo: **5165503** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	18.41	1.0	20	2.04	81.9	78 - 123				
Methylene chloride	16.18	2.0	20	0	80.9	74 - 124				
Surr: 1,2-Dichloroethane-d4	*48.59*	*1.0*	*50*	*0*	*97.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.36*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*49.53*	*1.0*	*50*	*0*	*99.1*	*80 - 119*				
Surr: Toluene-d8	*53.58*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: HS19070016

QC BATCH REPORT

Batch ID: R342382 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19070432-01MSD** Units: **UG/L** Analysis Date: **12-Jul-2019 13:33**
Client ID: Run ID: **VOA6_342382** SeqNo: **5165504** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	18.89	1.0	20	2.04	84.3	78 - 123	18.41	2.58	20	
Methylene chloride	16.43	2.0	20	0	82.2	74 - 124	16.18	1.54	20	
Surr: 1,2-Dichloroethane-d4	*50.54*	*1.0*	*50*	*0*	*101*	*81 - 118*	*48.59*	*3.92*	*20*	
Surr: 4-Bromofluorobenzene	*53.09*	*1.0*	*50*	*0*	*106*	*85 - 114*	*52.36*	*1.37*	*20*	
Surr: Dibromofluoromethane	*50.62*	*1.0*	*50*	*0*	*101*	*80 - 119*	*49.53*	*2.18*	*20*	
Surr: Toluene-d8	*53.54*	*1.0*	*50*	*0*	*107*	*89 - 112*	*53.58*	*0.09*	*20*	

The following samples were analyzed in this batch: HS19070016-08 HS19070016-14

ALS Houston, US Date: 17-Jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
WorkOrder: **HS19070016**

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	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 17-jul-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24/ICT Wells
Work Order: HS19070016

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19070016-01	ICT2_062819	Login	01/07/2019 12:10:28	NDR	MET009
HS19070016-01	ICT2_062819	Login	01/07/2019 12:10:28	NDR	Sub
HS19070016-01	ICT2_062819	Login	01/07/2019 12:10:28	NDR	VOA252

ALS Houston, US Date: 17-Jul-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19070016
Date/Time Received: **29-Jun-2019 08:45**
Received by: **JRM**

Checklist completed by: *Nilesh D. Ranchod* 1-Jul-2019
eSignature | Date

Reviewed by: _____
eSignature | Date

Matrices: **Groundwater/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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	1.2c U/c	IR11
Cooler(s)/Kit(s):	45005	
Date/Time sample(s) sent to storage:	07/01/2019 13:00	

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 CONSTRUCTION ENERGY

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 18/24/ ICT Wells

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)	Sample Analysis Requested (5): Number of containers	VOC	PERCHLORATE	TOTAL METALS	Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
ICT2_062819		28 JUN 2019	0650	-	N		WG	5	X	X	X				
ICT4_062819		28 JUN 2019	0710	-	N		WG	5	X	X	X				
ICT7_062819		28 JUN 2019	0725	-	N		WG	5	X	X	X				
ICT8_062819		28 JUN 2019	0735	-	N		WG	5	X	X	X				
ICT11_062819		28 JUN 2019	0750	-	N		WG	5	X	X	X				
ICT11_062819_a		28 JUN 2019	0750	-	FD		WG	5	X	X	X				
ICT14B_062819		28 JUN 2019	0805	-	N		WG	5	X	X	X				
ICT14C_062819		28 JUN 2019	0815	-	N		WG	5	X	X	X				
ICT14D_062819		28 JUN 2019	0835	-	N		WG	5	X	X	X				
ICT14D_062819_MS		28 JUN 2019	0835	-	MS		WG	5	X	X	X				
ICT14D_062819_MSD		28 JUN 2019	0835	-	SD		WG	5	X	X	X				

COMMENTS:
Cooler 45005 1121
Temp 1.2 CF 0.0

HS19070016
Bhate Environmental Associates, Inc.
LHAAP 18 24/ICT Wells

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	6/28/19	1030	J. Mullan	6/29/19	0845
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff 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

00942541

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

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

Chain of Custody and Analytical Request

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24/ ICT Wells

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	PERCHLORATE	TOTAL METALS								Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
Sample Analysis Requested (5)																			Quality Assurance Samples (6)			
ICT12B_062819		28-Jun-2019	0905	-	N		WG	5	X	X	X											
ICT12B_062819_a		28-Jun-2019	0905	-	FD		WG	5	X	X	X											
ICT12C_062819		28-Jun-2019	0920	-	N		WG	5	X	X	X											
ICT12D_062819		28-Jun-2019	0935		N		WG	5	X	X	X											
ICT12E_062819		28-Jun-2019	0930		N		WG	5	X	X	X											
ICT13B_062819		28-Jun-2019	0910	-	N		WG	5	X	X	X											
ICT13D_062819		28-Jun-2019	0820	-	N		WG	5	X	X	X											
ICT13E_062819		28-Jun-2019	0800	-	N		WG	5	X	X	X											
ICT13F_062819		28-Jun-2019	0720	-	N		WG	5	X	X	X											
TRIP BLANK		28-Jun-2019		-	TB		W	2	X													
				-																		

COMMENTS: Cooler 45005 1121
Temp 1.2 CF0.0

HS1907016

Bhate Environmental Associates, Inc.
LHAAP 18 24/ICT Wells

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/28/19	1030	1. J. Simmons	6/29/19	0815
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 Stancliff 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

00942542

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

U5005

CUSTODY SEAL

Date: 6/28/19 Time: 1030
Name: Scott Beesinger
Company: Bhate

Seal Broken By: JM
Date: 06/29/19

U5005 JUN 2 9 2019

Must Deliver Next Business Day
Time and Tempature Sensitive!

U5005

RT 809 ST 35

5 12:00 B 3137 06.29

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

...19
...LB MAN
...CAFE3211
D1 ...14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
...TON TX 77099
(281) 530-5656
REF: LHAAP/18/24 & SURFACE WATER-RJ

RMA:

FedEx Express

FedEx TRK# 0221 4809 7834 3137

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 SGRA

77099
TX-US
IAH

FID 5121960 28JUN1... 553C1/D210/0C8A

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1919059

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2273 (243598)

General Set Information: There were twenty field samples in this Work Order. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field sample 1919059003/04/09/10/11 were analyzed and reported from 1:10 dilutions. Field samples 1919059001/05/06 were analyzed and reported from 1:100 dilutions. Field samples 1919059002/07/14/15/16 were analyzed and reported from 1:1,000 dilutions. Field samples 1919059012/13 were analyzed and reported from 1:10,000 dilutions. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 663781) was less than 1/2 the CRDL. The recovery for the LCS (663782) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 1919059010/11 (Client ID: ICT14D_062819). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 4.µg/L. The parent sample and the MS/MSD were analyzed and reported from 1:10 dilutions. The effective spike target was 40.µg/L. The MS (1919059010MS) failed QC acceptance criteria for percent recovery. The MS/MSD relative percent difference was within the performance limits. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 663779) is reported from the analysis of the Laboratory Control Sample (LCS – 663782) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 16JULD12.

Thomas Bosch July 16, 2019
Analyst Date

ANALYTICAL REPORT

Report Date: July 16, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1919059**
Project ID: HS19070016
Purchase Order: HS19070016
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
ICT2_062819	1919059001	06/28/19	07/02/19	
ICT4_062819	1919059002	06/28/19	07/02/19	
ICT7_062819	1919059003	06/28/19	07/02/19	
ICT8_062819	1919059004	06/28/19	07/02/19	
ICT11_062819	1919059005	06/28/19	07/02/19	
ICT11_062819_a	1919059006	06/28/19	07/02/19	
ICT14B_062819	1919059007	06/28/19	07/02/19	
ICT14C_062819	1919059008	06/28/19	07/02/19	
ICT14D_062819	1919059009	06/28/19	07/02/19	
ICT12B_062819	1919059012	06/28/19	07/02/19	
ICT12B_062819_a	1919059013	06/28/19	07/02/19	
ICT12C_062819	1919059014	06/28/19	07/02/19	
ICT12D_062819	1919059015	06/28/19	07/02/19	
ICT12E_062819	1919059016	06/28/19	07/02/19	
ICT13B_062819	1919059017	06/28/19	07/02/19	
ICT13D_062819	1919059018	06/28/19	07/02/19	
ICT13E_062819	1919059019	06/28/19	07/02/19	
ICT13F_062819	1919059020	06/28/19	07/02/19	

Client QC ID *	Lab ID	Collect Date	Receive Date	Sampling Site
ICT14D_062819 MS	1919059010	06/28/19	07/02/19	
ICT14D_062819 MSD	1919059011	06/28/19	07/02/19	

***Client QC is reported as part of the Quality Control results report, if requested.**

ANALYTICAL REPORT

Workorder: 34-1919059
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **ICT2_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059001 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 09:17 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**6900**	100	200	400	100	

Sample ID: **ICT4_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059002 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 14:22 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**7700**	1000	2000	4000	1000	

Sample ID: **ICT7_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059003 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 09:45 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**260**	10	20	40	10	

Sample ID: **ICT8_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059004 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 09:59 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**140**	10	20	40	10	

ANALYTICAL REPORT

Workorder: 34-1919059
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **ICT11_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059005 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 10:13 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**2500**	100	200	400	100	

Sample ID: **ICT11_062819_a** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059006 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 10:27 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**2600**	100	200	400	100	

Sample ID: **ICT14B_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059007 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 10:41 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**12000**	1000	2000	4000	1000	

Sample ID: **ICT14C_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059008 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 10:54 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

ANALYTICAL REPORT

Workorder: 34-1919059
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **ICT14D_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059009 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 11:08 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**210**	10	20	40	10	

Sample ID: **ICT12B_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059012 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 12:03 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**140000**	10000	20000	40000	10000	

Sample ID: **ICT12B_062819_a** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059013 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 12:17 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**150000**	10000	20000	40000	10000	

Sample ID: **ICT12C_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059014 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 12:31 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**6500**	1000	2000	4000	1000	

ANALYTICAL REPORT

Workorder: 34-1919059
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **ICT12D_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059015 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 12:45 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**13000**	1000	2000	4000	1000	

Sample ID: **ICT12E_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059016 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 12:59 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**28000**	1000	2000	4000	1000	

Sample ID: **ICT13B_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059017 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 13:13 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **ICT13D_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059018 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 13:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**43**	1.0	2.0	4.0	1	

ANALYTICAL REPORT

Workorder: 34-1919059
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **ICT13E_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059019 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 13:40 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	3.8	1.0	2.0	4.0	1	J

Sample ID: **ICT13F_062819** | Sampling Site: NA | Collected: 06/28/2019
Lab ID: 1919059020 | Media: 125 mL Nalgene | Received: 07/02/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2273 (HBN: 243598) | **Percent Solid:** NA
Analyzed: 07/16/2019 13:54 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Comments

Quality Control: **EPA 6850, DoD QSM - (HBN: 243598)**

Field sample 1919059003/04/09/10/11 were analyzed and reported from 1:10 dilutions. Field samples 1919059001/05/06 were analyzed and reported from 1:100 dilutions. Field samples 1919059002/07/14/15/16 were analyzed and reported from 1:1,000 dilutions. Field samples 1919059012/13 were analyzed and reported from 1:10,000 dilutions. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 07/16/2019 15:20	/S/ Stephen Brose 07/16/2019 16:13

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1919059
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1919059

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2273 (HBN: 243598)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 663781
Analyzed: 07/16/2019 09:03
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 663782
Analyzed: 07/16/2019 08:34
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.35	4.00	109	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1919059009	**MS:**	1919059010	**MSD:**	1919059011
Analyzed:	07/16/2019 11:08	**Analyzed:**	07/16/2019 11:22	**Analyzed:**	07/16/2019 11:50
Dilution:	10	**Dilution:**	10	**Dilution:**	10
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	210	263	40	▲ 126	78.8	123.8	262	123	0.491	0.0	20.0

Comments

Field sample 1919059003/04/09/10/11 were analyzed and reported from 1:10 dilutions. Field samples 1919059001/05/06 were analyzed and reported from 1:100 dilutions. Field samples 1919059002/07/14/15/16 were analyzed and reported from 1:1,000 dilutions. Field samples 1919059012/13 were analyzed and reported from 1:10,000 dilutions. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
07/16/2019 15:31	07/16/2019 16:13

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1919059

1919059

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

SAMPLING STATE: **Texas**

18698/2

COC ID: **11702**

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	HS19070016
TSR:	Danielle Winnings

125

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19070016-01**	**ICT2_062819**	**Groundwater**	**28 Jun 2019 06:50**
	SUB_Perch-6850			10 Jul 2019
2.	**HS19070016-02**	**ICT4_062819**	**Groundwater**	**28 Jun 2019 07:10**
	SUB_Perch-6850			10 Jul 2019
3.	**HS19070016-03**	**ICT7_062819**	**Groundwater**	**28 Jun 2019 07:25**
	SUB_Perch-6850			10 Jul 2019
4.	**HS19070016-04**	**ICT8_062819**	**Groundwater**	**28 Jun 2019 07:35**
	SUB_Perch-6850			10 Jul 2019
5.	**HS19070016-05**	**ICT11_062819**	**Groundwater**	**28 Jun 2019 07:50**
	SUB_Perch-6850			10 Jul 2019
6.	**HS19070016-06**	**ICT11_062819_a**	**Groundwater**	**28 Jun 2019 07:50**
	SUB_Perch-6850			10 Jul 2019
7.	**HS19070016-07**	**ICT14B_062819**	**Groundwater**	**28 Jun 2019 08:05**
	SUB_Perch-6850			10 Jul 2019
8.	**HS19070016-08**	**ICT14C_062819**	**Groundwater**	**28 Jun 2019 08:15**
	SUB_Perch-6850			10 Jul 2019
9.	**HS19070016-09**	**ICT14D_062819**	**Groundwater**	**28 Jun 2019 08:35**

MS/MSD

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11702**

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
		SUB_Perch-6850		10 Jul 2019
10.	**HS19070016-10**	**ICT12B_062819**	**Groundwater**	**28 Jun 2019 09:05**
		SUB_Perch-6850		10 Jul 2019
11.	**HS19070016-11**	**ICT12B_062819_a**	**Groundwater**	**28 Jun 2019 09:05**
		SUB_Perch-6850		10 Jul 2019
12.	**HS19070016-12**	**ICT12C_062819**	**Groundwater**	**28 Jun 2019 09:20**
		SUB_Perch-6850		10 Jul 2019
13.	**HS19070016-13**	**ICT12D_062819**	**Groundwater**	**28 Jun 2019 09:35**
		SUB_Perch-6850		10 Jul 2019
14.	**HS19070016-14**	**ICT12E_062819**	**Groundwater**	**28 Jun 2019 09:30**
		SUB_Perch-6850		10 Jul 2019
15.	**HS19070016-15**	**ICT13B_062819**	**Groundwater**	**28 Jun 2019 09:10**
		SUB_Perch-6850		10 Jul 2019
16.	**HS19070016-16**	**ICT13D_062819**	**Groundwater**	**28 Jun 2019 08:20**
		SUB_Perch-6850		10 Jul 2019
17.	**HS19070016-17**	**ICT13E_062819**	**Groundwater**	**28 Jun 2019 08:00**
		SUB_Perch-6850		10 Jul 2019
18.	**HS19070016-18**	**ICT13F_062819**	**Groundwater**	**28 Jun 2019 07:20**
		SUB_Perch-6850		10 Jul 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
Use HS19070016-09 as MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 7/1/19 1800.

Received By: _____ Date/Time: 07-02-19 9:48

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19070016	***Split:***	**Workorder ID:** 1919059	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850; DoD QSM
1	06/28/2019 00:00	ICT2_062819	1919059001		Water	A	1	A
2	06/28/2019 00:00	ICT4_062819	1919059002		Water	A	1	A
3	06/28/2019 00:00	ICT7_062819	1919059003		Water	A	1	A
4	06/28/2019 00:00	ICT8_062819	1919059004		Water	A	1	A
5	06/28/2019 00:00	ICT11_062819	1919059005		Water	A	1	A
6	06/28/2019 00:00	ICT11_062819_a	1919059006		Water	A	1	A
7	06/28/2019 00:00	ICT14B_062819	1919059007		Water	A	1	A
8	06/28/2019 00:00	ICT14C_062819	1919059008		Water	A	1	A
9	06/28/2019 00:00	ICT14D_062819	1919059009		Water	A	1	A
10	06/28/2019 00:00	ICT14D_062819 MS	1919059010	MS	Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Coates, Gayleen	07/02/2019 09:48	ALS Sample Receiving	Sample Login
R-33-1	7-2-19 1455	CART	STORAGE
	7-15-19/14:40	T. Bosch	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ **Lab Notebook No.:** _____

Prepared / Analyzed by: _____ **Date / Time:** _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00942556

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19070016	***Split:***	**Workorder ID:** 1919059	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
11	06/28/2019 00:00	ICT14D_062819 MSD	1919059011	MSD	Water	A	1	A
12	06/28/2019 00:00	ICT12B_062819	1919059012		Water	A	1	A
13	06/28/2019 00:00	ICT12B_062819_a	1919059013		Water	A	1	A
14	06/28/2019 00:00	ICT12C_062819	1919059014		Water	A	1	A
15	06/28/2019 00:00	ICT12D_062819	1919059015		Water	A	1	A
16	06/28/2019 00:00	ICT12E_062819	1919059016		Water	A	1	A
17	06/28/2019 00:00	ICT13B_062819	1919059017		Water	A	1	A
18	06/28/2019 00:00	ICT13D_062819	1919059018		Water	A	1	A
19	06/28/2019 00:00	ICT13E_062819	1919059019		Water	A	1	A
20	06/28/2019 00:00	ICT13F_062819	1919059020		Water	A	1	A

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ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Coates Gayleen	07/02/2019 09:48	ALS Sample Receiving	Sample Login
R.33.1	7.2.19 1455	CART	STORAGE
	7.15.19/14:40	T. Bush	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ **Lab Notebook No.:** _____

Prepared / Analyzed by: _____ **Date / Time:** _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00942557

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site:

Date/Time of Receipt: 07-0019 9:48

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA		
	Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9743	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Tamra Vantassell (Signature) Tamra Vantassell (Printed Name) 07-0019 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____



Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159469-434 RTD EXP 02/20

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 01JUL19
ACTWGT: 25.45 LB
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

BILL THIRD PARTY

551C1/17E9/104C

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19070016 - RJ

FedEx Express

J181118060501uv

TUE - 02 JUL 3:00P
STANDARD OVERNIGHT

TRK# 0201 4809 7835 5071

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2273 | Created: 7/16/2019 07:35 | Instrument: | HBN: 243598

Rule: EPA 6850, DoD QSM Water | Analyst: T. Bosch | Status: WP

Workorder: 1919059 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	663778	CCV for HBN 243598 [ELMS/2273]				CCV	3		E685041C3Q	5311		7/16/2019	
2	663779	RLVS for HBN 243598 [ELMS/2273				RLVS	3		E685041C3Q	5311		7/16/2019	
3	663780	ICS for HBN 243598 [ELMS/2273]				ICS	3		E6850..D3Q	5311		7/16/2019	
4	663781	LMB for HBN 243598 [ELMS/2273]				LMB	3		E6850Q413Q	5311		7/16/2019	
5	663782	LCS for HBN 243598 [ELMS/2273]				LCS	3		E6850Q413Q	5311		7/16/2019	
6	1919059001	ICT2_062819				SAMPLE	3	1919059001-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
7	1919059002	ICT4_062819				SAMPLE	3	1919059002-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
8	1919059003	ICT7_062819				SAMPLE	3	1919059003-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
9	1919059004	ICT8_062819				SAMPLE	3	1919059004-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
10	1919059005	ICT11_062819				SAMPLE	3	1919059005-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
11	1919059006	ICT11_062819_a				SAMPLE	3	1919059006-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
12	1919059007	ICT14B_062819				SAMPLE	3	1919059007-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
13	1919059008	ICT14C_062819				SAMPLE	3	1919059008-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
14	1919059009	ICT14D_062819				SAMPLE	3	1919059009-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
15	1919059010	ICT14D_062819 MS				MS	3	1919059010-A	E6850Q413Q	5480		7/16/2019	
16	663783	CCV for HBN 243598 [ELMS/2273]				CCV	3		E685041C3Q	5311		7/16/2019	
17	1919059011	ICT14D_062819 MSD				MSD	3	1919059011-A	E6850Q413Q	5480		7/16/2019	
18	1919059012	ICT12B_062819				SAMPLE	3	1919059012-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
19	1919059013	ICT12B_062819_a				SAMPLE	3	1919059013-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
20	1919059014	ICT12C_062819				SAMPLE	3	1919059014-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
21	1919059015	ICT12D_062819				SAMPLE	3	1919059015-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
22	1919059016	ICT12E_062819				SAMPLE	3	1919059016-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
23	1919059017	ICT13B_062819				SAMPLE	3	1919059017-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
24	1919059018	ICT13D_062819				SAMPLE	3	1919059018-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
25	1919059019	ICT13E_062819				SAMPLE	3	1919059019-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
26	1919059020	ICT13F_062819				SAMPLE	3	1919059020-A	E6850Q41.3	5480	7/26/2019	7/16/2019	
27	663784	CCV for HBN 243598 [ELMS/2273]				CCV	3		E685041C3Q	5311		7/16/2019	
28	663785	CCV for HBN 243598 [ELMS/2273]				CCV	3		E685041C3Q	5311		7/16/2019	

00942560

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1919059 (001-20)
ELMS Batch/HBN ID: 2273 (243598)
Prep Date: 07/15/2019 Analysis Date: 07/16/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JUL\16JUL19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 30µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 663782; Target = 4.0µg/L. ASTM type II water was used for LMB 663781.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on samples 1919059010/11 (Client ID: ICT14D_062819). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L. The parent sample and the MS/MSD were analyzed and reported from 1:10 dilutions. The effective spike target was 40.µg/L.

COMMENTS:

1) Results reported in µg/L. Field sample 1919059003/04/09/10/11 were analyzed and reported from 1:10 dilutions. Field samples 1919059001/05/06 were analyzed and reported from 1:100 dilutions. Field samples 1919059002/07/14/15/16 were analyzed and reported from 1:1,000 dilutions. Field samples 1919059012/13 were analyzed and reported from 1:10,000 dilutions. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS (1919059010MS) failed QC acceptance criteria for percent recovery. MS/MSD passed QC criteria for the relative percent difference. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JUL\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\243598-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 663779) is reported from the analysis of the Laboratory Control Sample (LCS – 663782) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafile 16JULD12.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2273 HBN: 243598 Sample Set IDs if Applicable: 1919059	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Method Blanks analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness checked	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — **Description - 6850 QC Intrmdt Std-QC 10ug/mL**

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730
MFG: ALS/SLC
MFG Lot: TNB: 05/09/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 25 mL
Expires: 09/20/2019
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED Reference Material Producer
ANAB ACCREDITED Testing Laboratory

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

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www.AccuStandard.com

AccuStandard®

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

AccuStandard

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
	*	663778 CCV@25	Vial 71	1	Control	1	1.58442e6	8.310	25.96242
	*	663782 QC@4.0	Vial 72	1	Control	2	3.12915e5	8.116	4.34545
	*	663780 ICS@4.0	Vial 73	1	Control	3	2.37678e5	7.896	4.14849
	*	663781 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	1919059001 100	Vial 75	1	Sample	5	4.76826e6	8.462	6938.55005
	*	1919059002 100	Vial 76	1	Sample	6	5.49272e6	8.421	7938.85087
	*	1919059003 10X	Vial 77	1	Sample	7	1.70519e6	8.437	256.39942
	*	1919059004 10X	Vial 78	1	Sample	8	9.20503e5	8.341	138.67150
	*	1919059005 100	Vial 79	1	Sample	9	1.62840e6	8.484	2520.33885
	*	1919059006 100	Vial 80	1	Sample	10	1.73959e6	8.469	2559.28174
	*	1919059007 1K	Vial 81	1	Sample	11	8.10767e5	8.511	1.23334e4
	*	1919059008	Vial 82	1	Sample	12	0.00000	0.000	0.00000
	*	1919059009 10X	Vial 83	1	Sample	13	1.19587e6	8.226	212.94651
	*	1919059010 MS	Vial 84	1	Sample	14	1.52916e6	8.211	263.48693
	*	663783 CCV@25	Vial 71	1	Control	15	1.37096e6	8.317	25.34982
	*	1919059011 MSD	Vial 85	1	Sample	16	1.56092e6	8.148	262.19937
	*	1919059012 10K	Vial 86	1	Sample	17	8.47551e5	8.458	1.40974e5
	*	1919059013 10K	Vial 87	1	Sample	18	8.20714e5	8.470	1.48335e5
	*	1919059014 1K	Vial 88	1	Sample	19	3.45786e5	8.495	6505.86967
	*	1919059015 1K	Vial 89	1	Sample	20	7.96263e5	8.440	1.27595e4
	*	1919059016 1K	Vial 90	1	Sample	21	1.55953e6	8.474	2.82352e4
	*	1919059017	Vial 91	1	Sample	22	0.00000	0.000	0.00000
	*	1919059018	Vial 92	1	Sample	23	2.34216e6	8.083	42.64490
	*	1919059019	Vial 93	1	Sample	24	2.49822e5	8.385	3.82173
	*	1919059020	Vial 94	1	Sample	25	0.00000	0.000	0.00000
	*	663784 CCV@25	Vial 71	1	Control	26	1.37136e6	8.366	25.42405
	*	1919059002 1K	Vial 95	1	Sample	27	4.22100e5	8.495	7708.15626
	*	663785 CCV@25	Vial 71	1	Control	28	1.34413e6	8.328	25.23655

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	*	663778 CCV@25	Vial 71	1	Control	1	4.69188e5	8.306	25.91076
	*	663782 QC@4.0	Vial 72	1	Control	2	1.03568e5	8.126	4.68808
	*	663780 ICS@4.0	Vial 73	1	Control	3	7.57994e4	7.898	4.30607
	*	663781 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	1919059001 100	Vial 75	1	Sample	5	1.38622e6	8.476	6846.02542
	*	1919059002 100	Vial 76	1	Sample	6	1.58530e6	8.437	7789.11544
	*	1919059003 10X	Vial 77	1	Sample	7	5.08688e5	8.450	257.66304
	*	1919059004 10X	Vial 78	1	Sample	8	2.89038e5	8.346	145.64673
	*	1919059005 100	Vial 79	1	Sample	9	4.90461e5	8.492	2555.62379
	*	1919059006 100	Vial 80	1	Sample	10	5.26819e5	8.513	2608.84751
	*	1919059007 1K	Vial 81	1	Sample	11	2.52949e5	8.523	1.28559e4
	*	1919059008	Vial 82	1	Sample	12	0.00000	0.000	0.00000
	*	1919059009 10X	Vial 83	1	Sample	13	3.74896e5	8.230	224.08591
	*	1919059010 MS	Vial 84	1	Sample	14	4.66376e5	8.236	270.43893
	*	663783 CCV@25	Vial 71	1	Control	15	4.08784e5	8.342	25.46113
	*	1919059011 MSD	Vial 85	1	Sample	16	4.75169e5	8.126	268.63113
	*	1919059012 10K	Vial 86	1	Sample	17	2.67187e5	8.492	1.48660e5
	*	1919059013 10K	Vial 87	1	Sample	18	2.59318e5	8.490	1.56847e5
	*	1919059014 1K	Vial 88	1	Sample	19	1.12574e5	8.479	6991.10866
	*	1919059015 1K	Vial 89	1	Sample	20	2.50606e5	8.466	1.34191e4
	*	1919059016 1K	Vial 90	1	Sample	21	4.71876e5	8.470	2.87741e4
	*	1919059017	Vial 91	1	Sample	22	0.00000	0.000	0.00000
	*	1919059018	Vial 92	1	Sample	23	6.98212e5	8.092	42.94367
	*	1919059019	Vial 93	1	Sample	24	8.36738e4	8.446	4.15028
	*	1919059020	Vial 94	1	Sample	25	0.00000	0.000	0.00000
	*	663784 CCV@25	Vial 71	1	Control	26	4.11775e5	8.400	25.70635
	*	1919059002 1K	Vial 95	1	Sample	27	1.36615e5	8.504	8266.44874
	*	663785 CCV@25	Vial 71	1	Control	28	4.14369e5	8.352	26.16117

Batch Report: C:\HPCHEM\1\DATA\16JUL19D\16JUL19S.B

#	*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
	*	663778 CCV@25	Vial 71	1	Control	1	1.85244e5	8.318	5.00000
	*	663782 QC@4.0	Vial 72	1	Control	2	2.36327e5	8.134	5.00000
	*	663780 ICS@4.0	Vial 73	1	Control	3	1.88447e5	7.919	5.00000
	*	663781 LMB	Vial 74	1	Control	4	1.64613e5	8.459	5.00000
	*	1919059001 100	Vial 75	1	Sample	5	1.90168e5	8.472	500.00000
	*	1919059002 100	Vial 76	1	Sample	6	1.87734e5	8.470	500.00000
	*	1919059003 10X	Vial 77	1	Sample	7	2.02027e5	8.443	50.00000
	*	1919059004 10X	Vial 78	1	Sample	8	2.07941e5	8.386	50.00000
	*	1919059005 100	Vial 79	1	Sample	9	1.96475e5	8.516	500.00000
	*	1919059006 100	Vial 80	1	Sample	10	2.06504e5	8.488	500.00000
	*	1919059007 1K	Vial 81	1	Sample	11	2.06918e5	8.522	5000.00000
	*	1919059008	Vial 82	1	Sample	12	1.00822e5	7.602	5.00000
	*	1919059009 10X	Vial 83	1	Sample	13	1.72412e5	8.265	50.00000
	*	1919059010 MS	Vial 84	1	Sample	14	1.76001e5	8.215	50.00000
	*	663783 CCV@25	Vial 71	1	Control	15	1.64401e5	8.350	5.00000
	*	1919059011 MSD	Vial 85	1	Sample	16	1.80595e5	8.132	50.00000
	*	1919059012 10K	Vial 86	1	Sample	17	1.88204e5	8.496	5.00000e4
	*	1919059013 10K	Vial 87	1	Sample	18	1.72826e5	8.488	5.00000e4
	*	1919059014 1K	Vial 88	1	Sample	19	1.71453e5	8.503	5000.00000
	*	1919059015 1K	Vial 89	1	Sample	20	1.96162e5	8.469	5000.00000
	*	1919059016 1K	Vial 90	1	Sample	21	1.66766e5	8.489	5000.00000
	*	1919059017	Vial 91	1	Sample	22	2.13154e5	7.890	5.00000
	*	1919059018	Vial 92	1	Sample	23	1.60594e5	8.115	5.00000
	*	1919059019	Vial 93	1	Sample	24	2.15896e5	8.410	5.00000
	*	1919059020	Vial 94	1	Sample	25	2.01956e5	8.445	5.00000
	*	663784 CCV@25	Vial 71	1	Control	26	1.63939e5	8.398	5.00000
	*	1919059002 1K	Vial 95	1	Sample	27	1.75498e5	8.490	5000.00000
	*	663785 CCV@25	Vial 71	1	Control	28	1.61950e5	8.357	5.00000

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

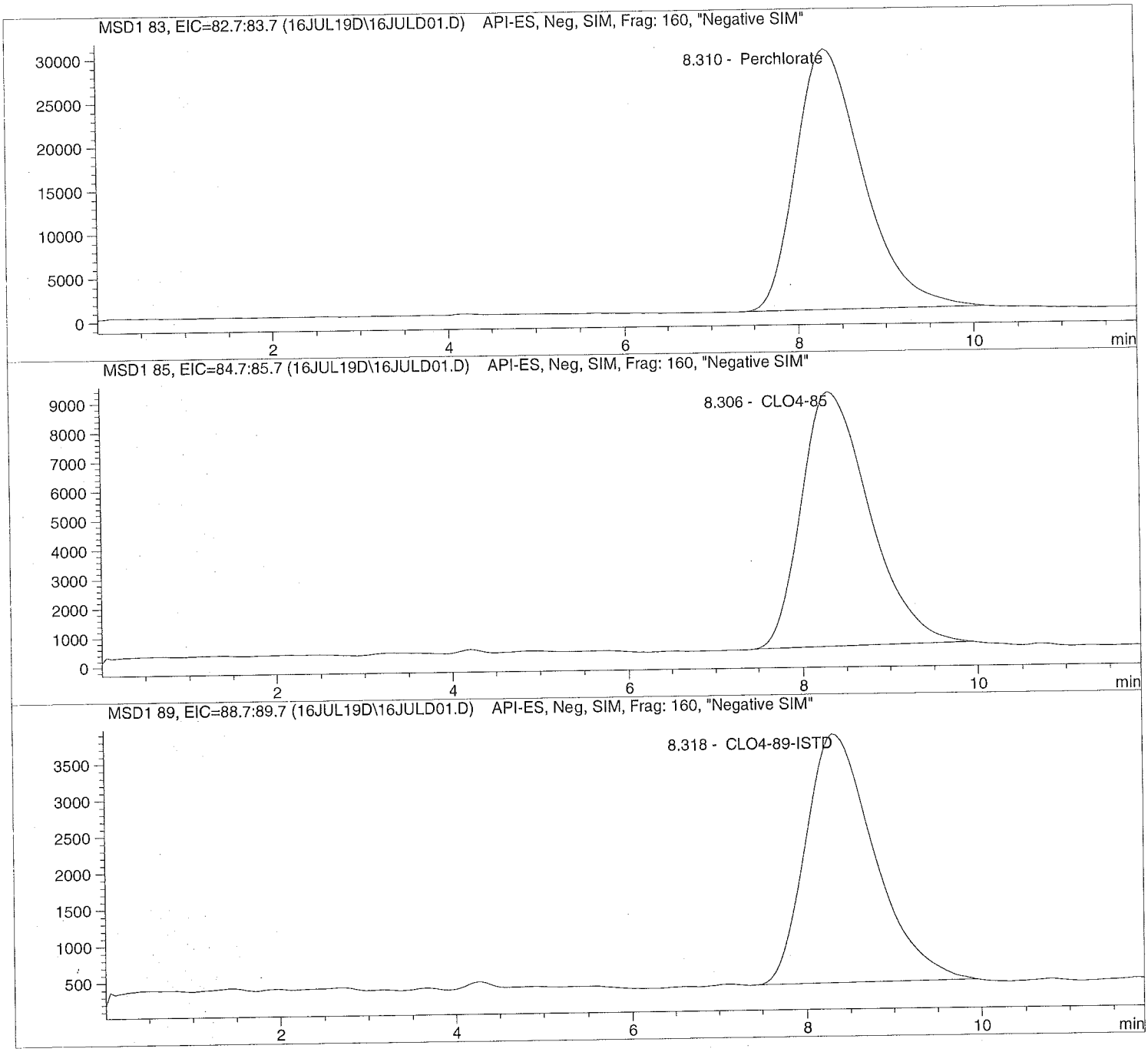
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	663778 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	663782 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	663780 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	663781 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1919059001 100	CLO4-AQN	1	Sample		
6	Vial 76	1919059002 100	CLO4-AQN	1	Sample		
7	Vial 77	1919059003 10X	CLO4-AQN	1	Sample		
8	Vial 78	1919059004 10X	CLO4-AQN	1	Sample		
9	Vial 79	1919059005 100	CLO4-AQN	1	Sample		
10	Vial 80	1919059006 100	CLO4-AQN	1	Sample		
11	Vial 81	1919059007 1K	CLO4-AQN	1	Sample		
12	Vial 82	1919059008	CLO4-AQN	1	Sample		
13	Vial 83	1919059009 10X	CLO4-AQN	1	Sample		
14	Vial 84	1919059010 MS	CLO4-AQN	1	Sample		
15	Vial 71	663783 CCV@25	CLO4-AQN	1	Ctrl Samp		
16	Vial 85	1919059011 MSD	CLO4-AQN	1	Sample		
17	Vial 86	1919059012 10K	CLO4-AQN	1	Sample		
18	Vial 87	1919059013 10K	CLO4-AQN	1	Sample		
19	Vial 88	1919059014 1K	CLO4-AQN	1	Sample		
20	Vial 89	1919059015 1K	CLO4-AQN	1	Sample		
21	Vial 90	1919059016 1K	CLO4-AQN	1	Sample		
22	Vial 91	1919059017	CLO4-AQN	1	Sample		
23	Vial 92	1919059018	CLO4-AQN	1	Sample		
24	Vial 93	1919059019	CLO4-AQN	1	Sample		
25	Vial 94	1919059020	CLO4-AQN	1	Sample		
26	Vial 71	663784 CCV@25	CLO4-AQN	1	Ctrl Samp		
27	Vial 95	1919059002 1K	CLO4-AQN	1	Sample		
28	Vial 71	663785 CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD01.D Sample Name: 663778 CCV@25

Injection Date:	7/16/2019 08:19:30	Seq Line:	1
Sample Name:	663778 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD01.D Sample Name: 663778 CCV@25

Injection Date:	7/16/2019 08:19:30	Seq Line:	1
Sample Name:	663778 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.310	PBA	1584416.7	25.9624	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.306	PBA	469188.1	25.9108	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.318	PBA	185244.2	5.0000	CLO4-89-ISTD

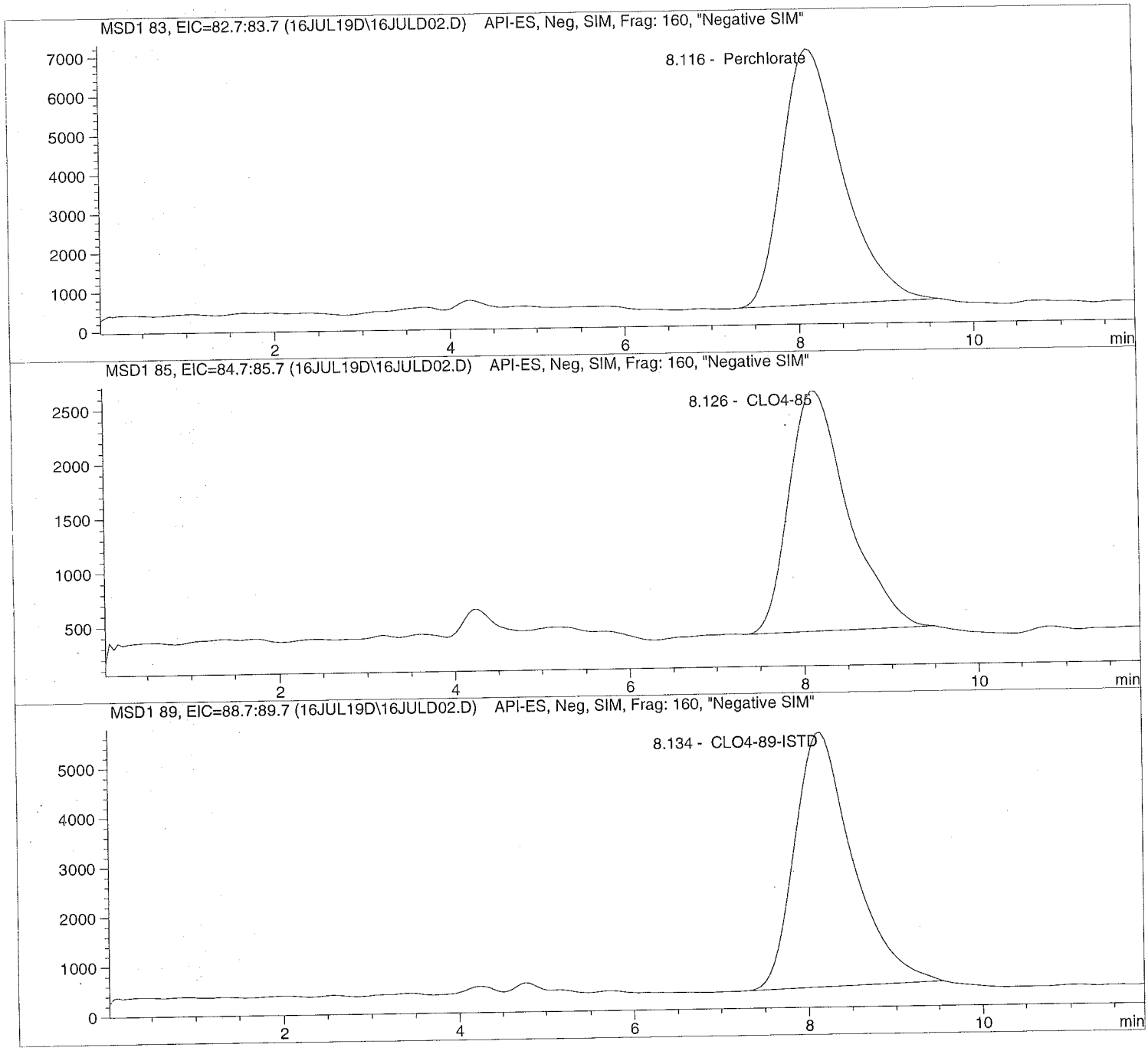
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD02.D Sample Name: 663782 QC@4.0

Injection Date:	7/16/2019 08:34:49	Seq Line:	2
Sample Name:	663782 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD02.D Sample Name: 663782 QC@4.0

Injection Date:	7/16/2019 08:34:49	Seq Line:	2
Sample Name:	663782 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.116	PBA	312914.5	4.3455	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.126	PBA	103568.2	4.6881	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.134	PBA	236327.2	5.0000	CLO4-89-ISTD

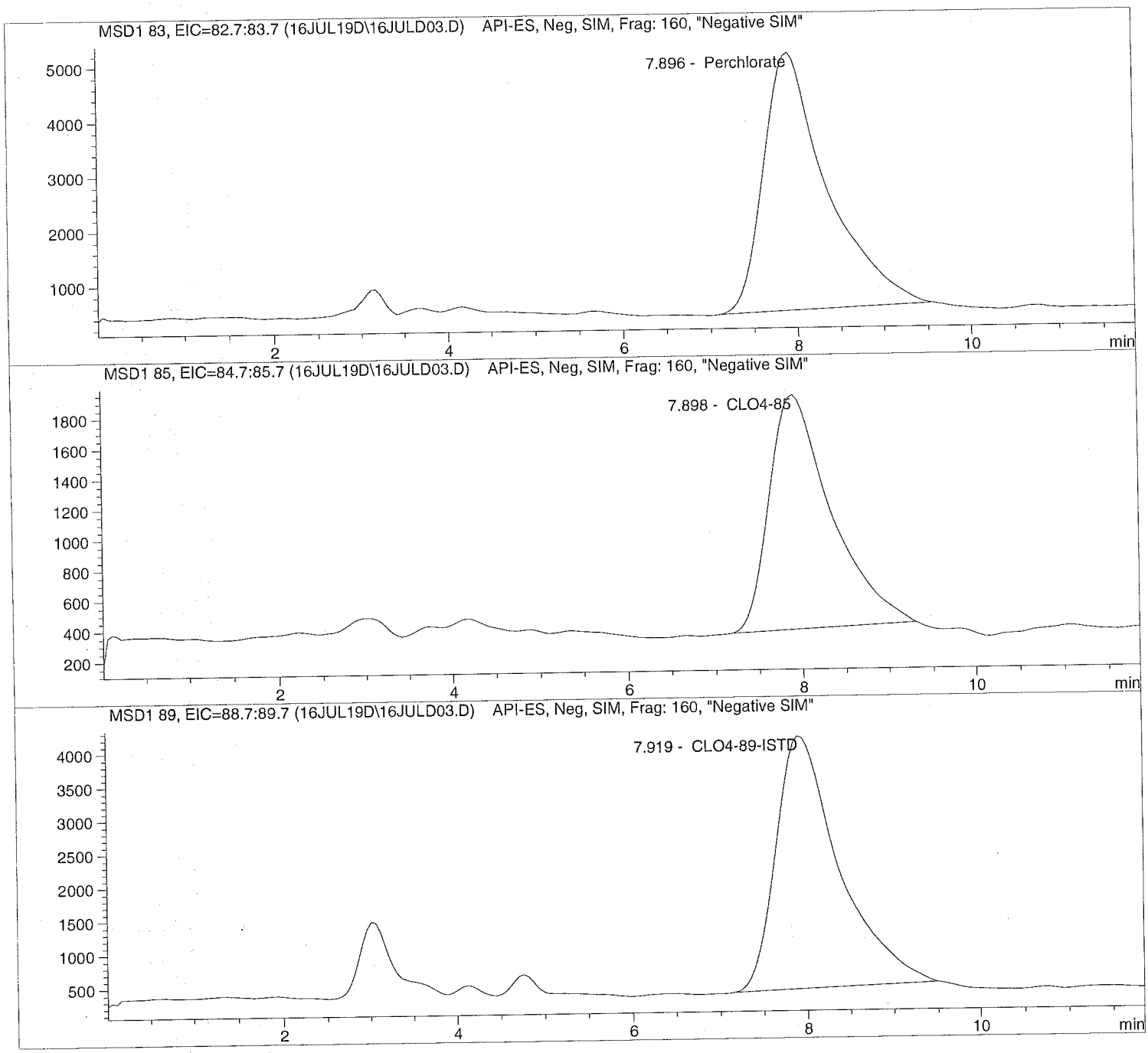
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD03.D Sample Name: 663780 ICS@4.0

Injection Date:	7/16/2019 08:48:35	Seq Line:	3
Sample Name:	663780 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD03.D Sample Name: 663780 ICS@4.0

Injection Date:	7/16/2019 08:48:35	Seq Line:	3
Sample Name:	663780 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.896	PBA	237677.8	4.1485	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.898	BBA	75799.4	4.3061	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.919	PBA	188446.6	5.0000	CLO4-89-ISTD

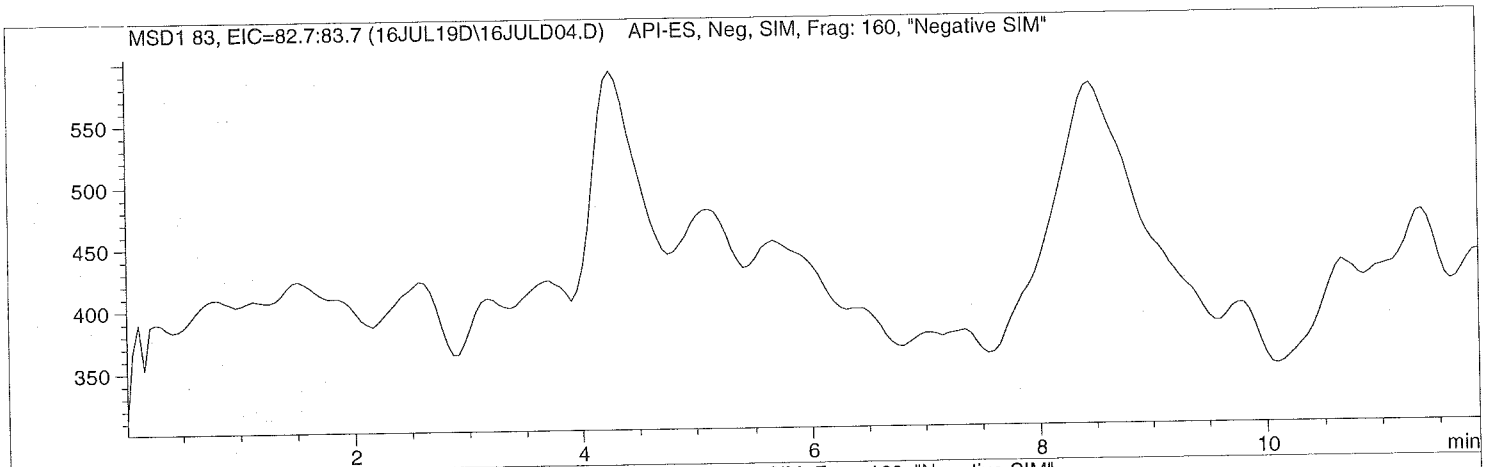
*** End of Report ***

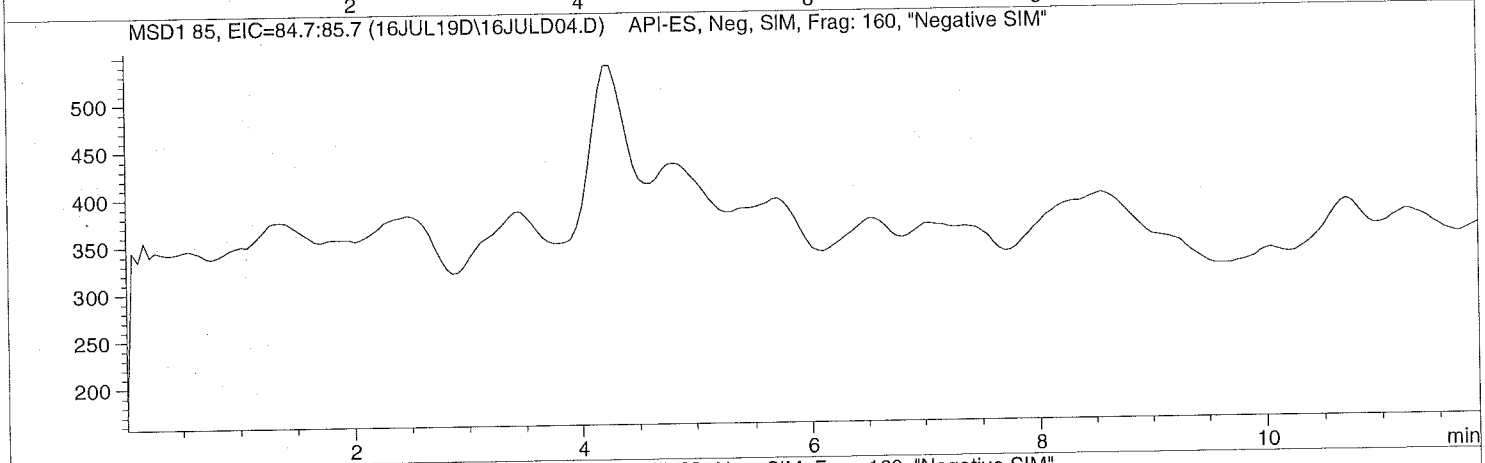
Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD04.D Sample Name: 663781 LMB

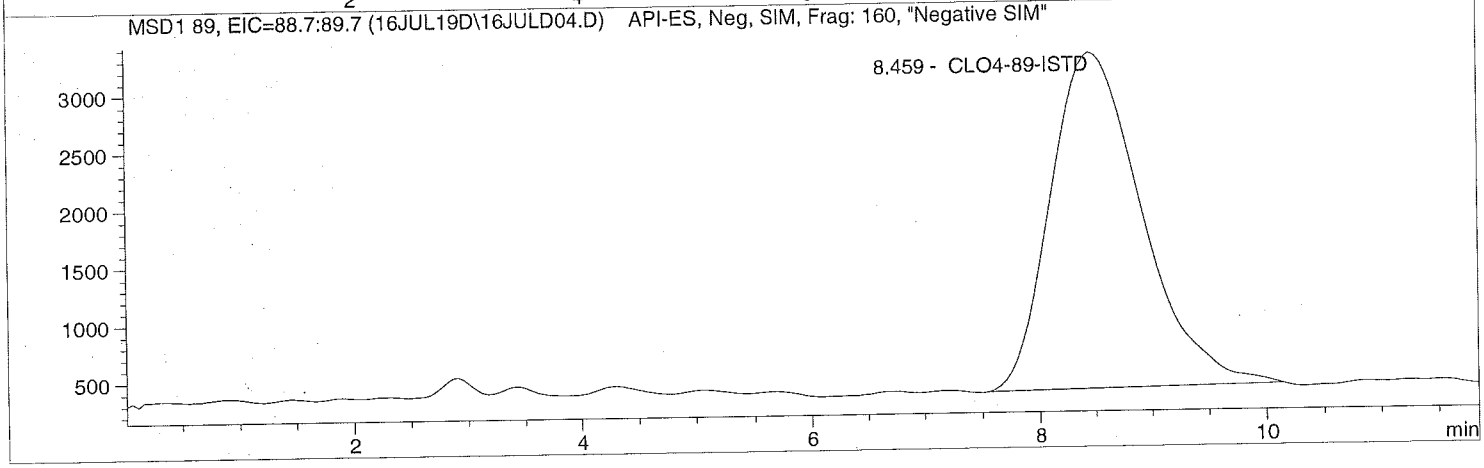
Injection Date:	7/16/2019 09:03:33	Seq Line:	4
Sample Name:	663781 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD04.D Sample Name: 663781 LMB

Injection Date:	7/16/2019 09:03:33	Seq Line:	4
Sample Name:	663781 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.459	PBA	164613.3	5.0000	CLO4-89-ISTD

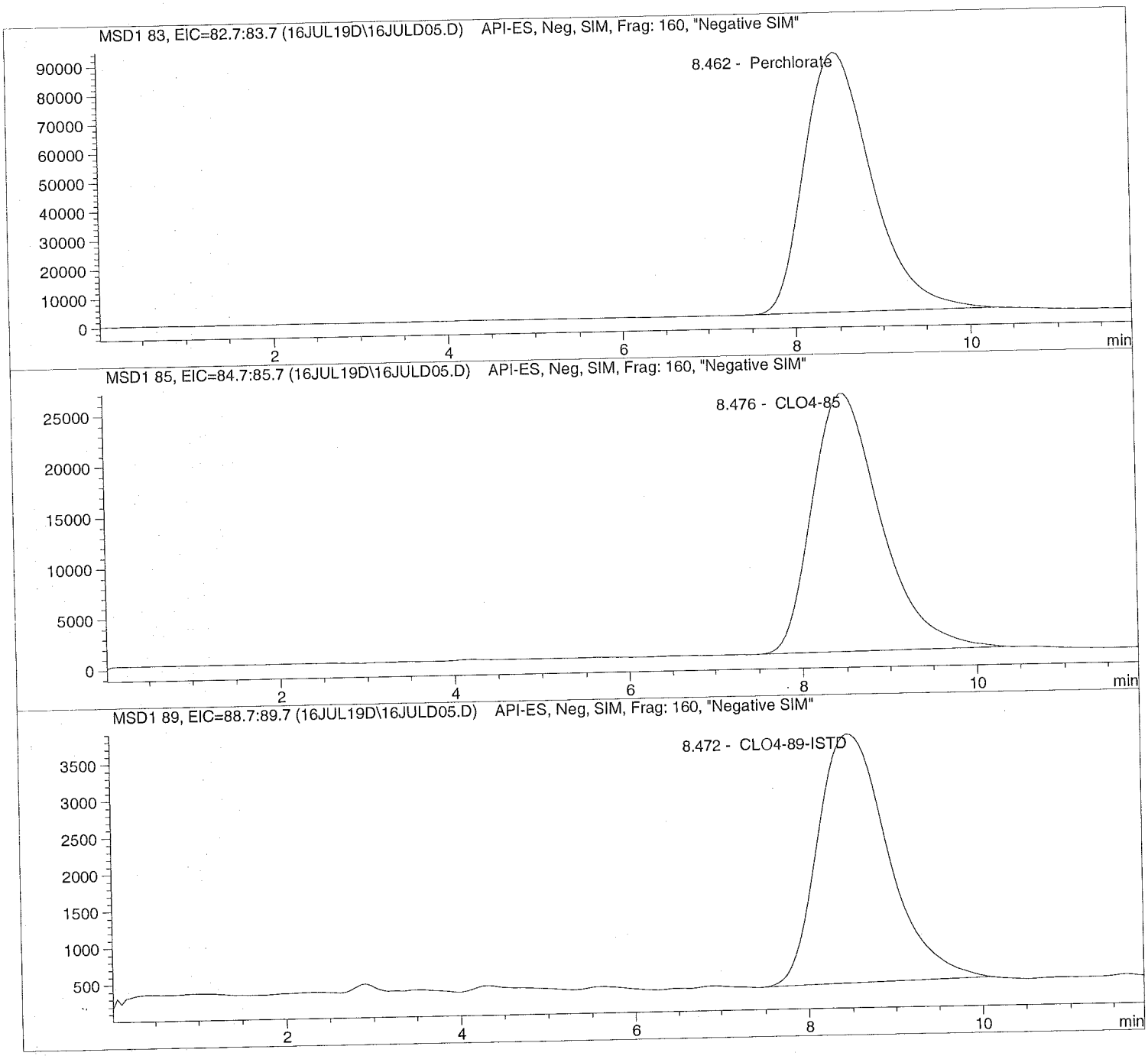
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD05.D Sample Name: 1919059001 100

Injection Date:	7/16/2019 09:17:21	Seq Line:	5
Sample Name:	1919059001 100	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD05.D Sample Name: 1919059001 100

Injection Date:	7/16/2019 09:17:21	Seq Line:	5
Sample Name:	1919059001 100	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.462	PBA	4768257.5	6938.5501	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.476	PBA	1386222.1	6846.0254	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	PBA	190168.2	500.0000	CLO4-89-ISTD

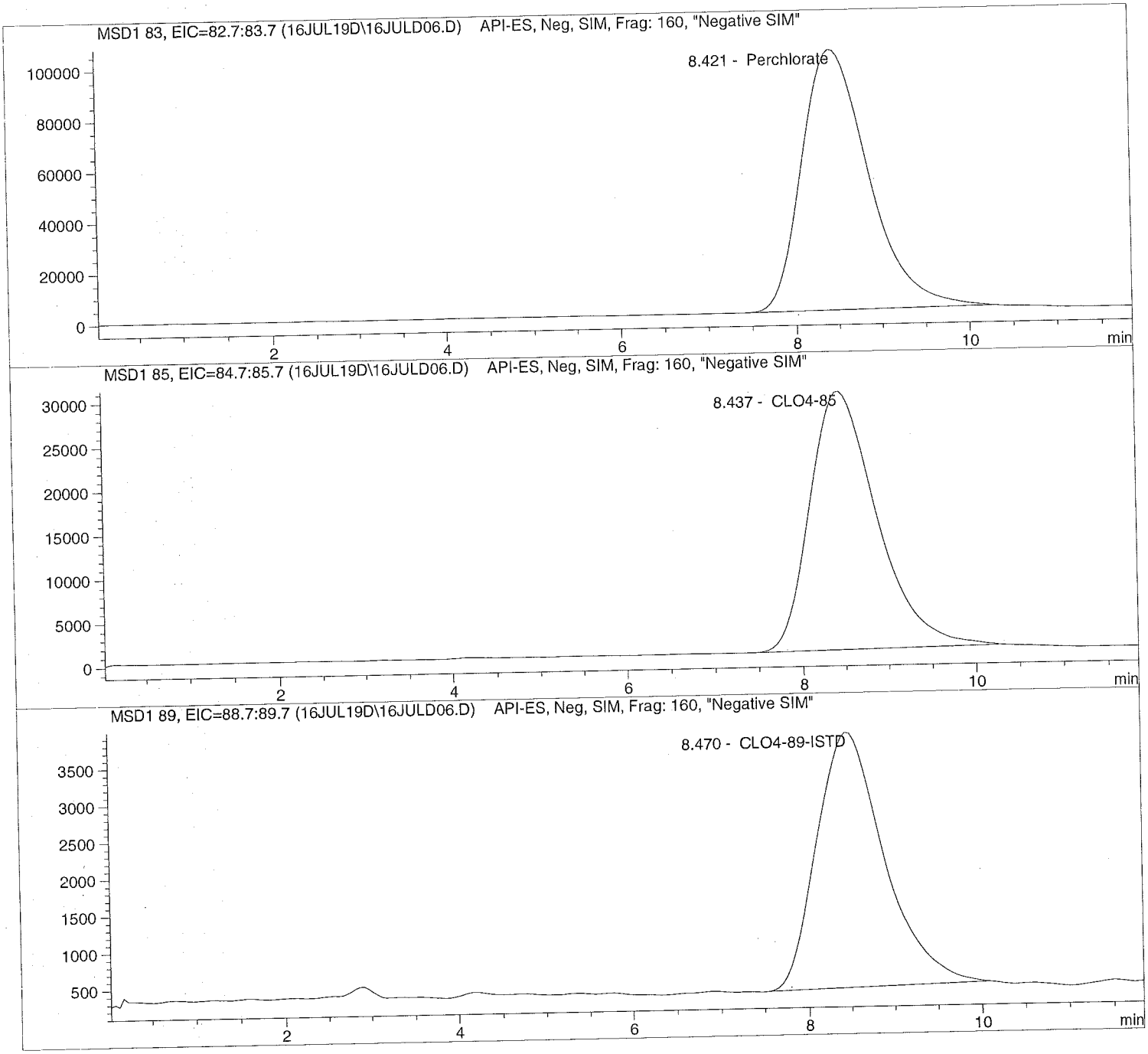
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD06.D Sample Name: 1919059002 100

Injection Date:	7/16/2019 09:31:57	Seq Line:	6
Sample Name:	1919059002 100	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD06.D Sample Name: 1919059002 100

Injection Date:	7/16/2019 09:31:57	Seq Line:	6
Sample Name:	1919059002 100	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.421	PBA	5492723.0	7938.8509	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.437	PBA	1585304.4	7789.1154	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.470	PBA	187734.1	500.0000	CLO4-89-ISTD

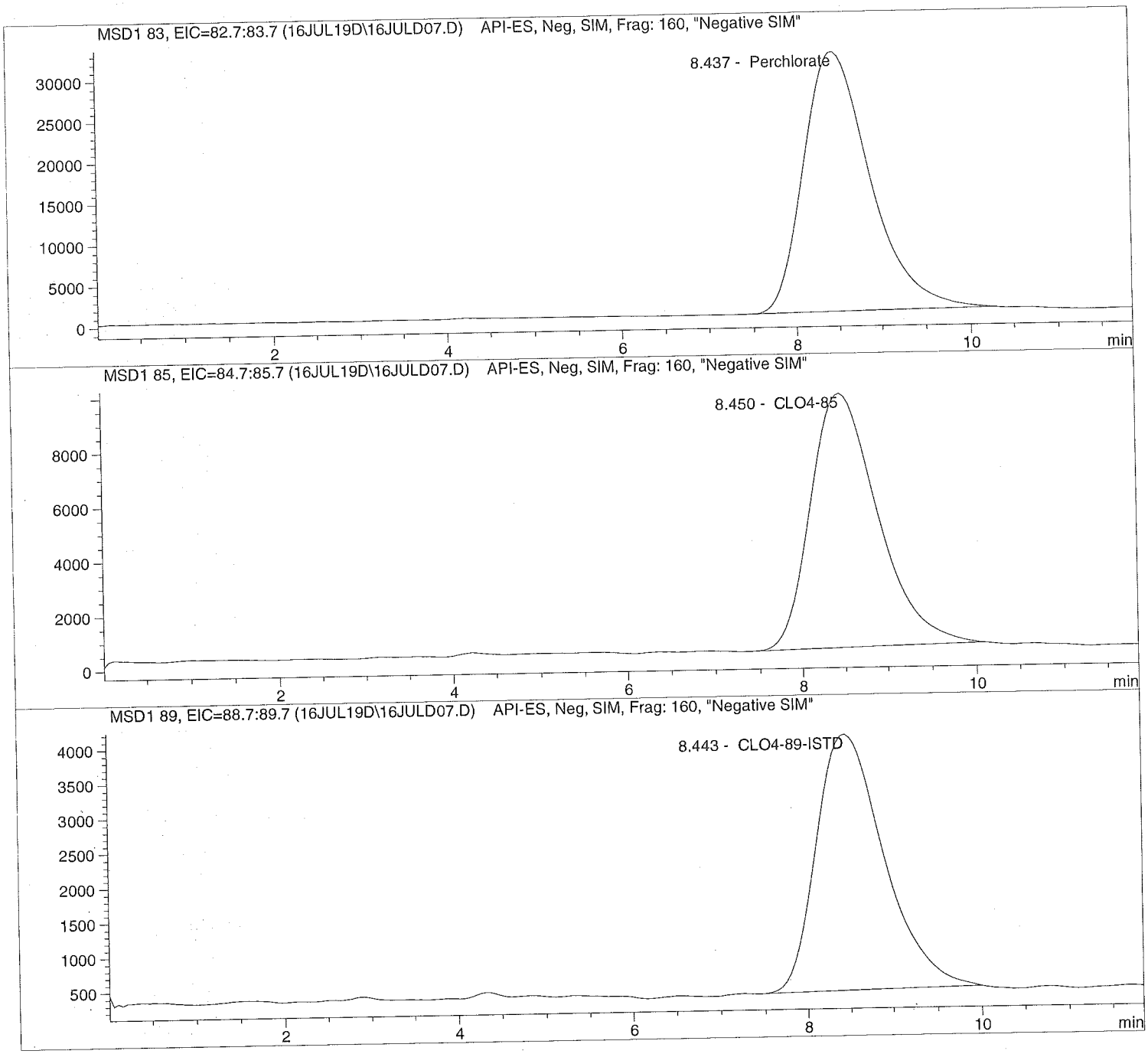
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD07.D Sample Name: 1919059003 10X

Injection Date:	7/16/2019 09:45:46	Seq Line:	7
Sample Name:	1919059003 10X	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD07.D Sample Name: 1919059003 10X

Injection Date:	7/16/2019 09:45:46	Seq Line:	7
Sample Name:	1919059003 10X	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.437	PBA	1705189.8	256.3994	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.450	PBA	508688.0	257.6630	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.443	PBA	202026.7	50.0000	CLO4-89-ISTD

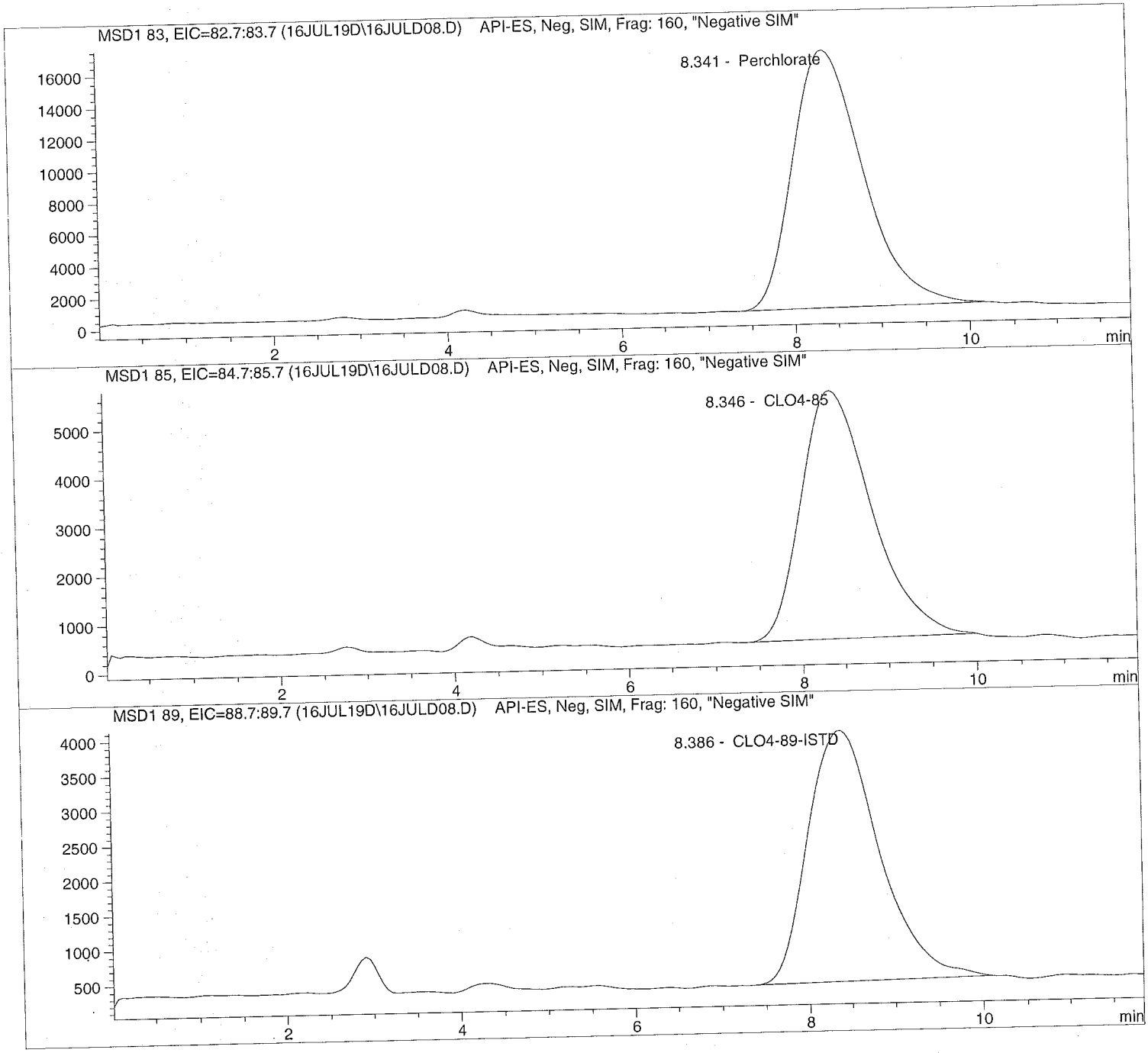
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD08.D Sample Name: 1919059004 10X

Injection Date:	7/16/2019 09:59:34	Seq Line:	8
Sample Name:	1919059004 10X	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD08.D Sample Name: 1919059004 10X

Injection Date:	7/16/2019 09:59:34	Seq Line:	8
Sample Name:	1919059004 10X	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.341	PBA	920503.1	138.6715	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.346	PBA	289037.6	145.6467	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.386	PBA	207941.3	50.0000	CLO4-89-ISTD

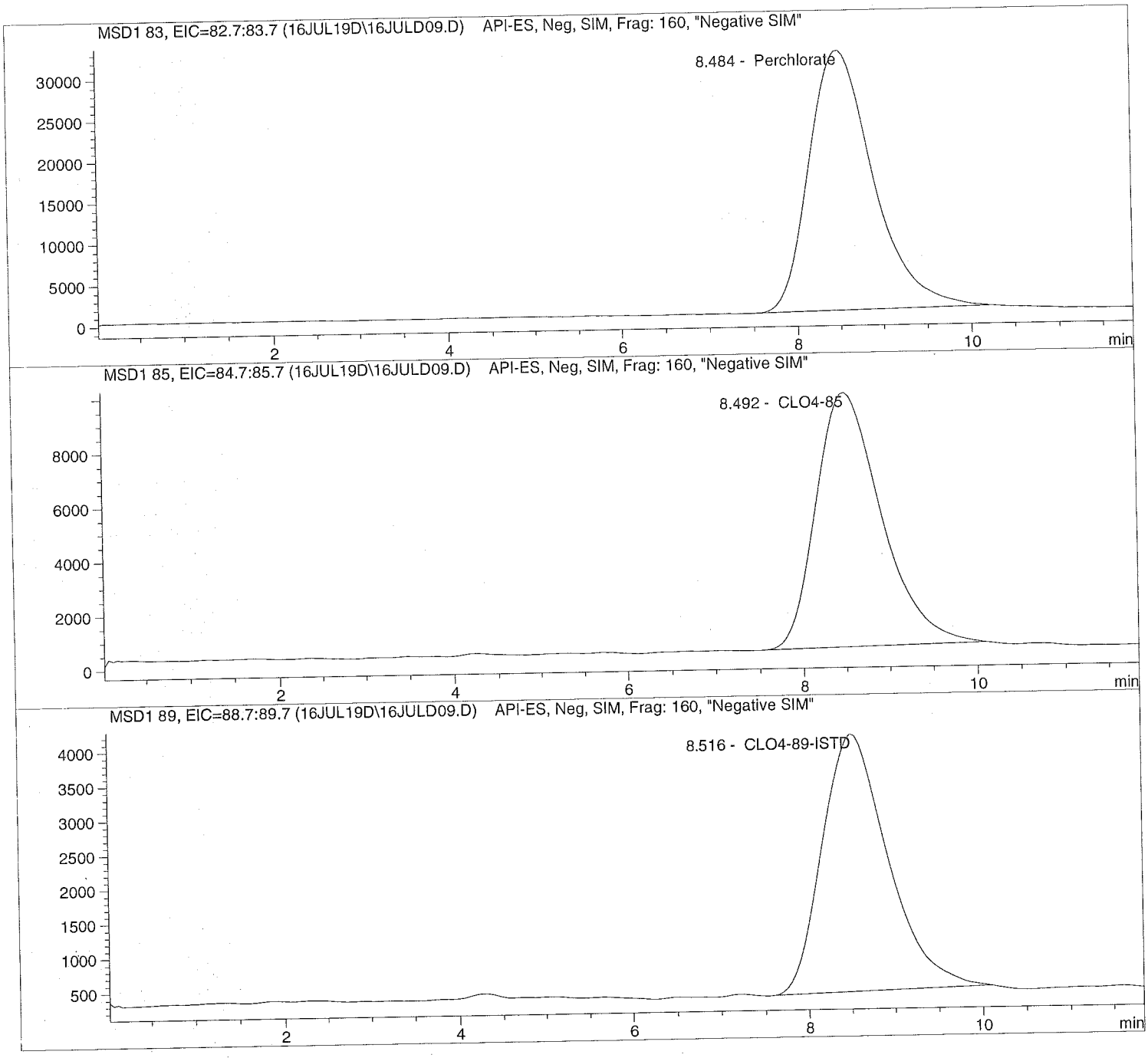
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD09.D Sample Name: 1919059005 100

Injection Date:	7/16/2019 10:13:20	Seq Line:	9
Sample Name:	1919059005 100	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD09.D Sample Name: 1919059005 100

Injection Date:	7/16/2019 10:13:20	Seq Line:	9
Sample Name:	1919059005 100	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.484	PBA	1628402.7	2520.3389	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.492	PBA	490460.8	2555.6238	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.516	PBA	196475.2	500.0000	CLO4-89-ISTD

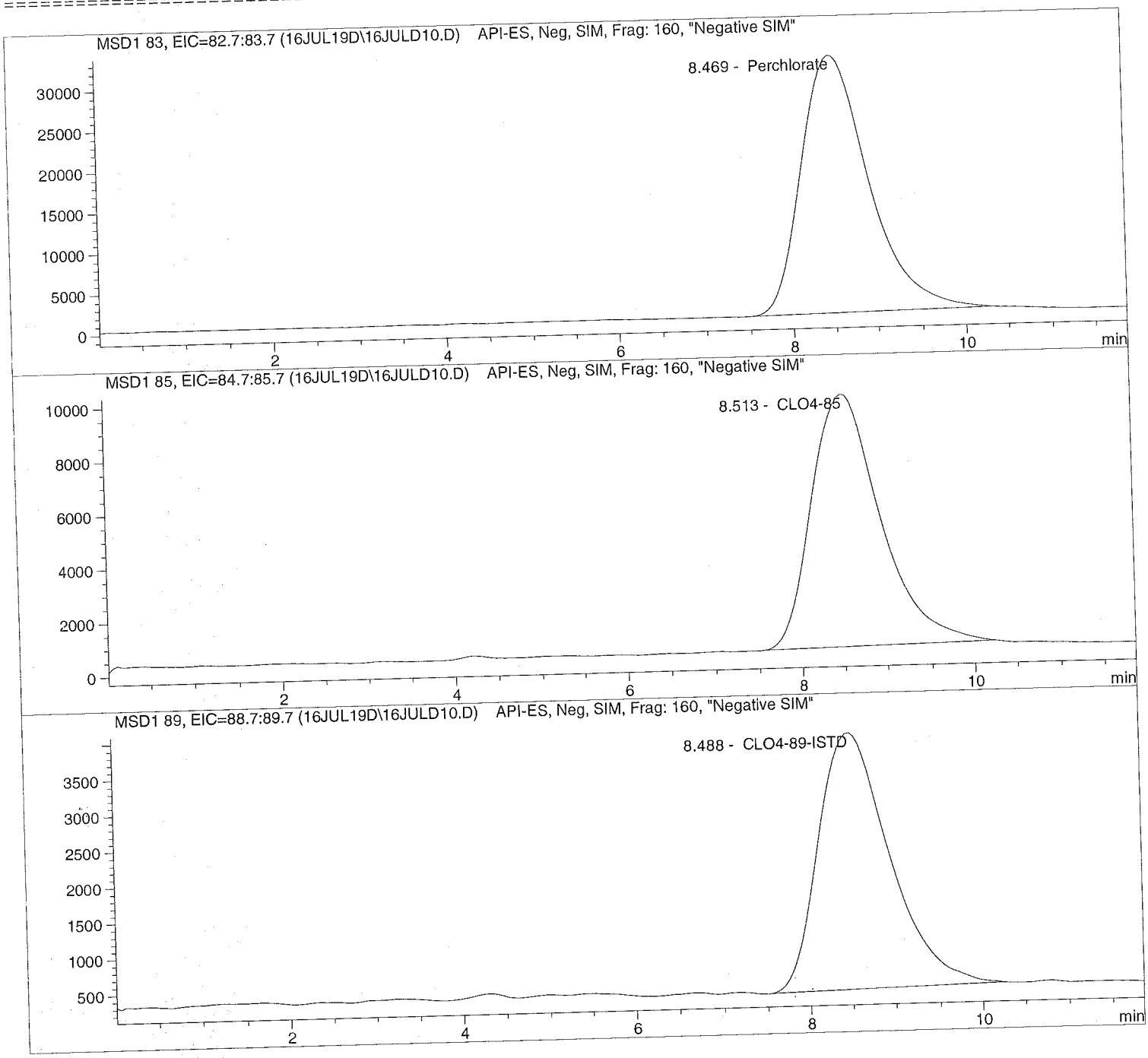
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD10.D Sample Name: 1919059006 100

Injection Date:	7/16/2019 10:27:13	Seq Line:	10
Sample Name:	1919059006 100	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD10.D Sample Name: 1919059006 100

Injection Date:	7/16/2019 10:27:13	Seq Line:	10
Sample Name:	1919059006 100	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.469	PBA	1739585.8	2559.2817	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.513	PBA	526819.3	2608.8475	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.488	PBA	206504.5	500.0000	CLO4-89-ISTD

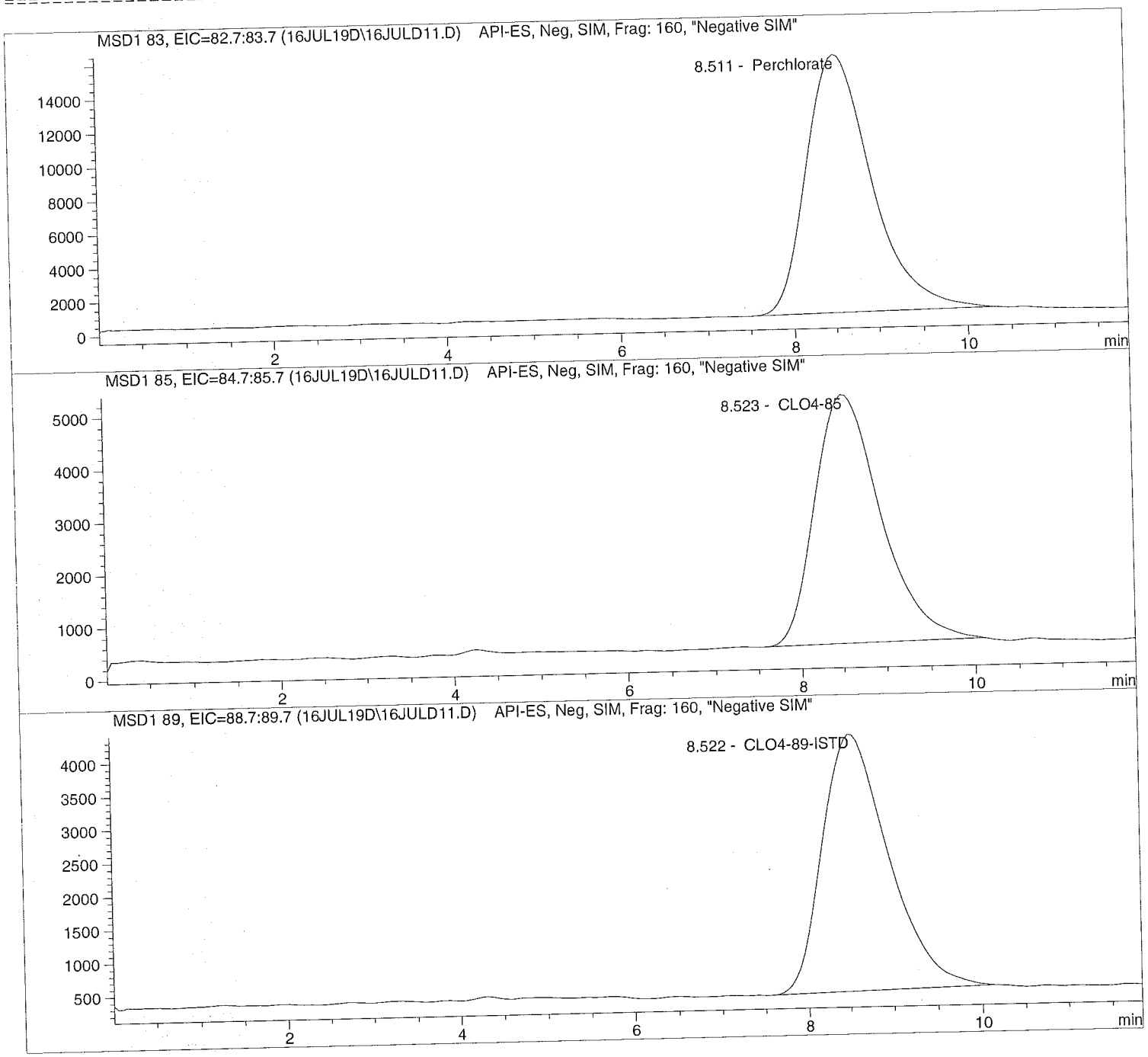
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD11.D Sample Name: 1919059007 1K

Injection Date:	7/16/2019 10:41:01	Seq Line:	11
Sample Name:	1919059007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD11.D Sample Name: 1919059007 1K

Injection Date:	7/16/2019 10:41:01	Seq Line:	11
Sample Name:	1919059007 1K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.511	PBA	810766.9	12333.4400	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.523	PBA	252949.3	12855.8965	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.522	PBA	206917.6	5000.0000	CLO4-89-ISTD

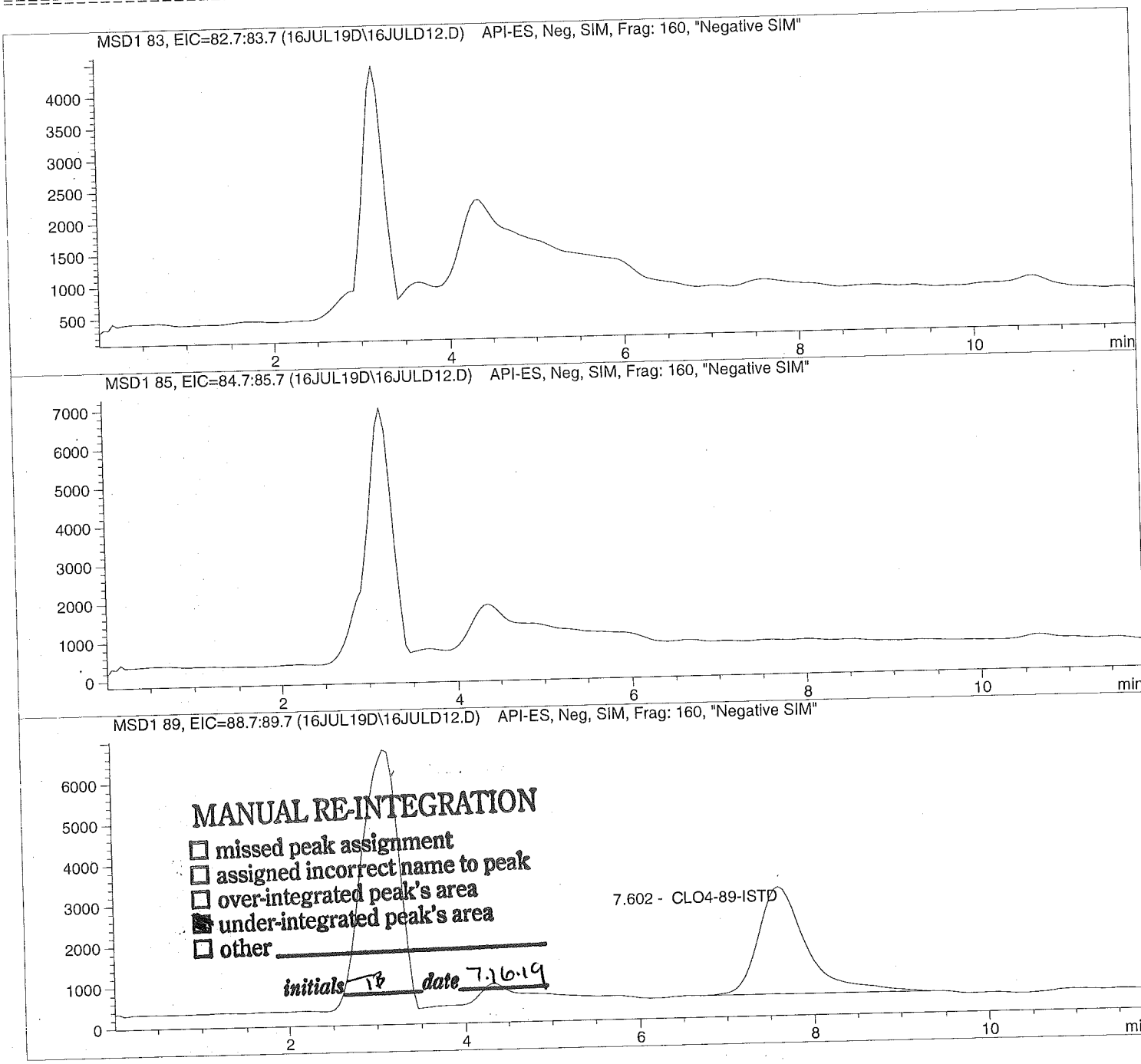
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD12.D Sample Name: 1919059008

Injection Date:	7/16/2019 10:54:46	Seq Line:	12
Sample Name:	1919059008	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD12.D Sample Name: 1919059008

Injection Date:	7/16/2019 10:54:46	Seq Line:	12
Sample Name:	1919059008	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.602	MM	100822.0	5.0000	CLO4-89-ISTD

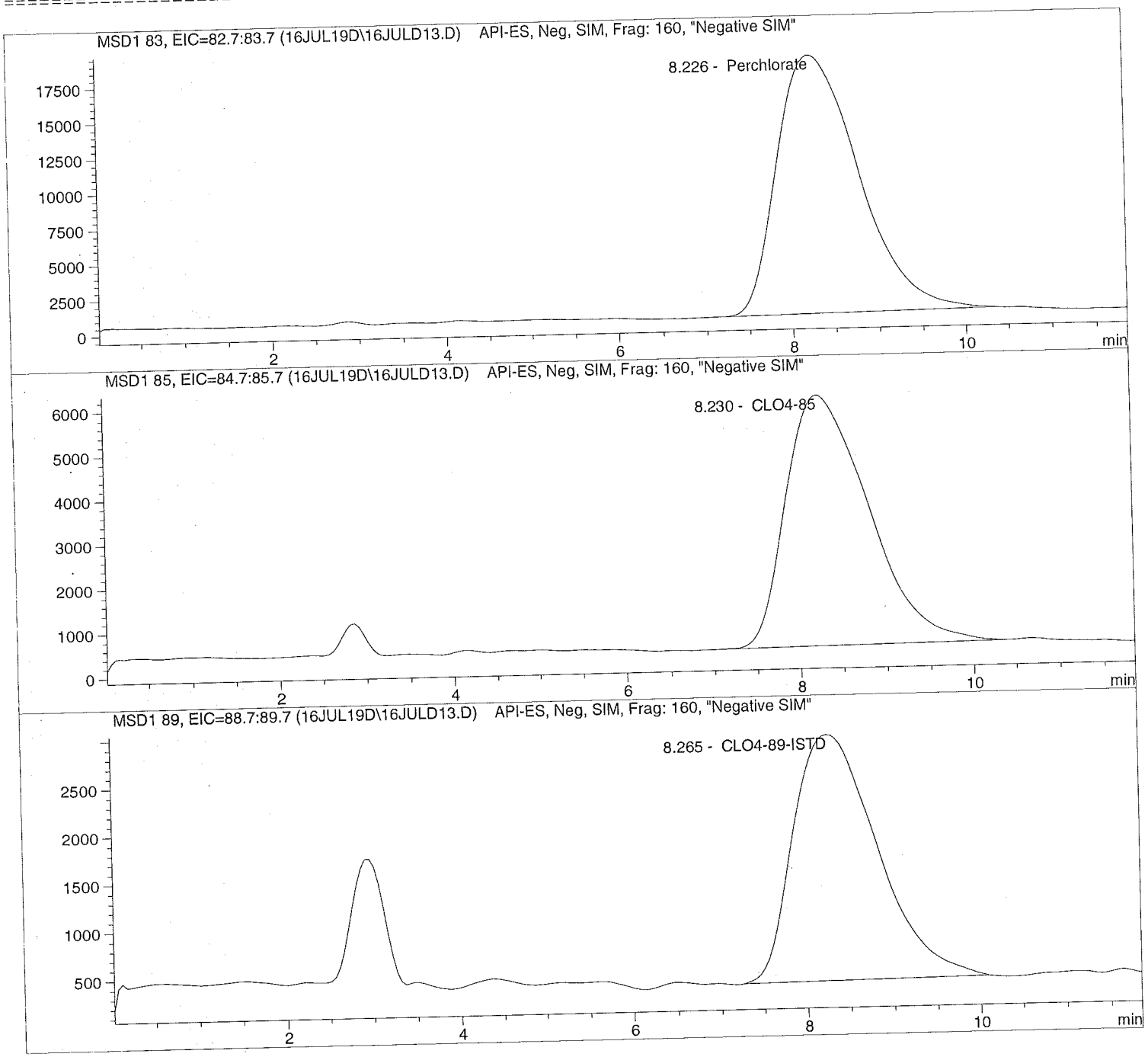
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD13.D Sample Name: 1919059009 10X

Injection Date:	7/16/2019 11:08:34	Seq Line:	13
Sample Name:	1919059009 10X	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD13.D Sample Name: 1919059009 10X

Injection Date:	7/16/2019 11:08:34	Seq Line:	13
Sample Name:	1919059009 10X	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.226	PBA	1195874.4	212.9465	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.230	PBA	374895.9	224.0859	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.265	PBA	172412.1	50.0000	CLO4-89-ISTD

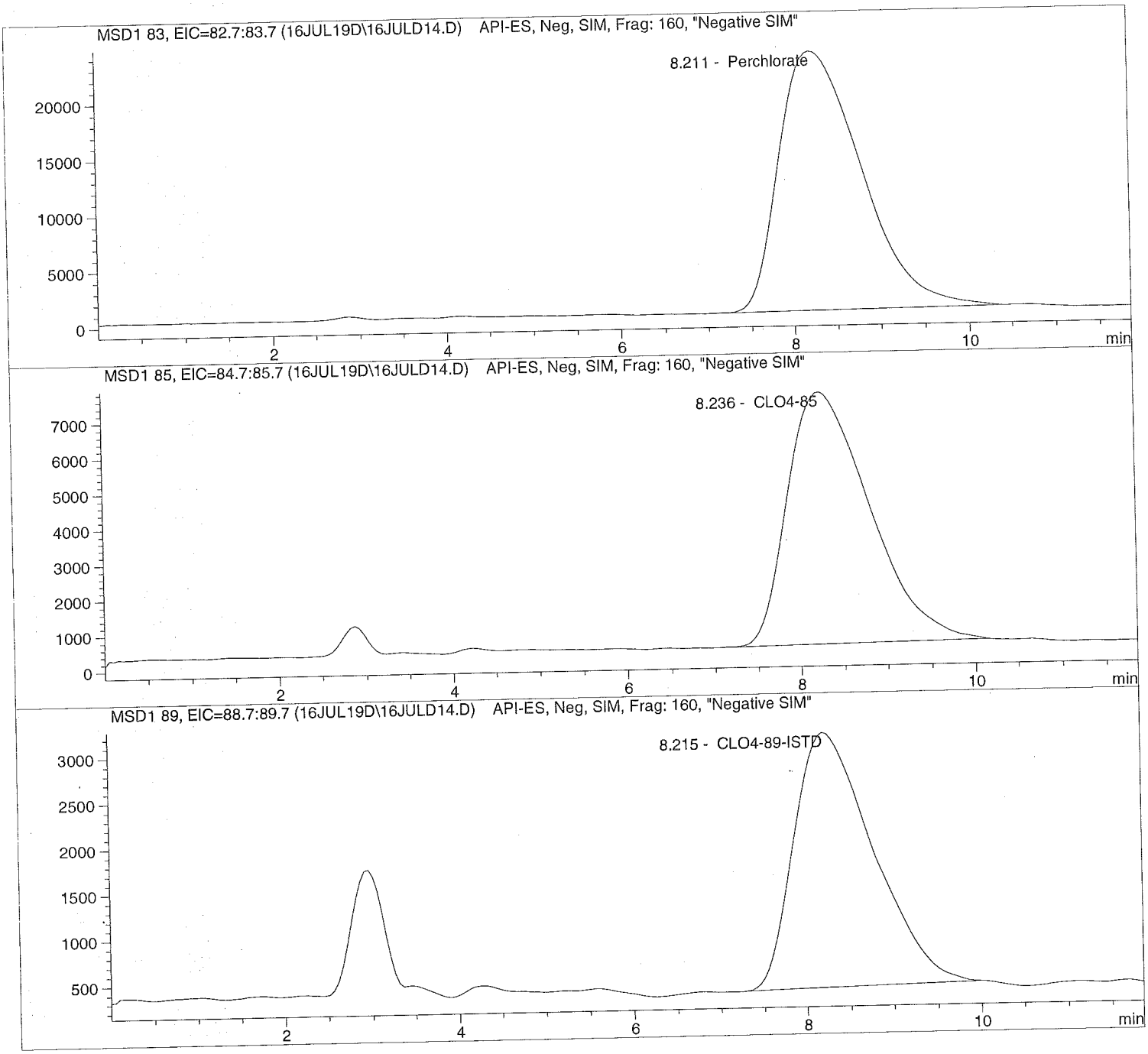
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD14.D Sample Name: 1919059010 MS

Injection Date:	7/16/2019 11:22:19	Seq Line:	14
Sample Name:	1919059010 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD14.D Sample Name: 1919059010 MS

Injection Date:	7/16/2019 11:22:19	Seq Line:	14
Sample Name:	1919059010 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.211	PBA	1529155.6	263.4869	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.236	PBA	466376.2	270.4389	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.215	PBA	176001.4	50.0000	CLO4-89-ISTD

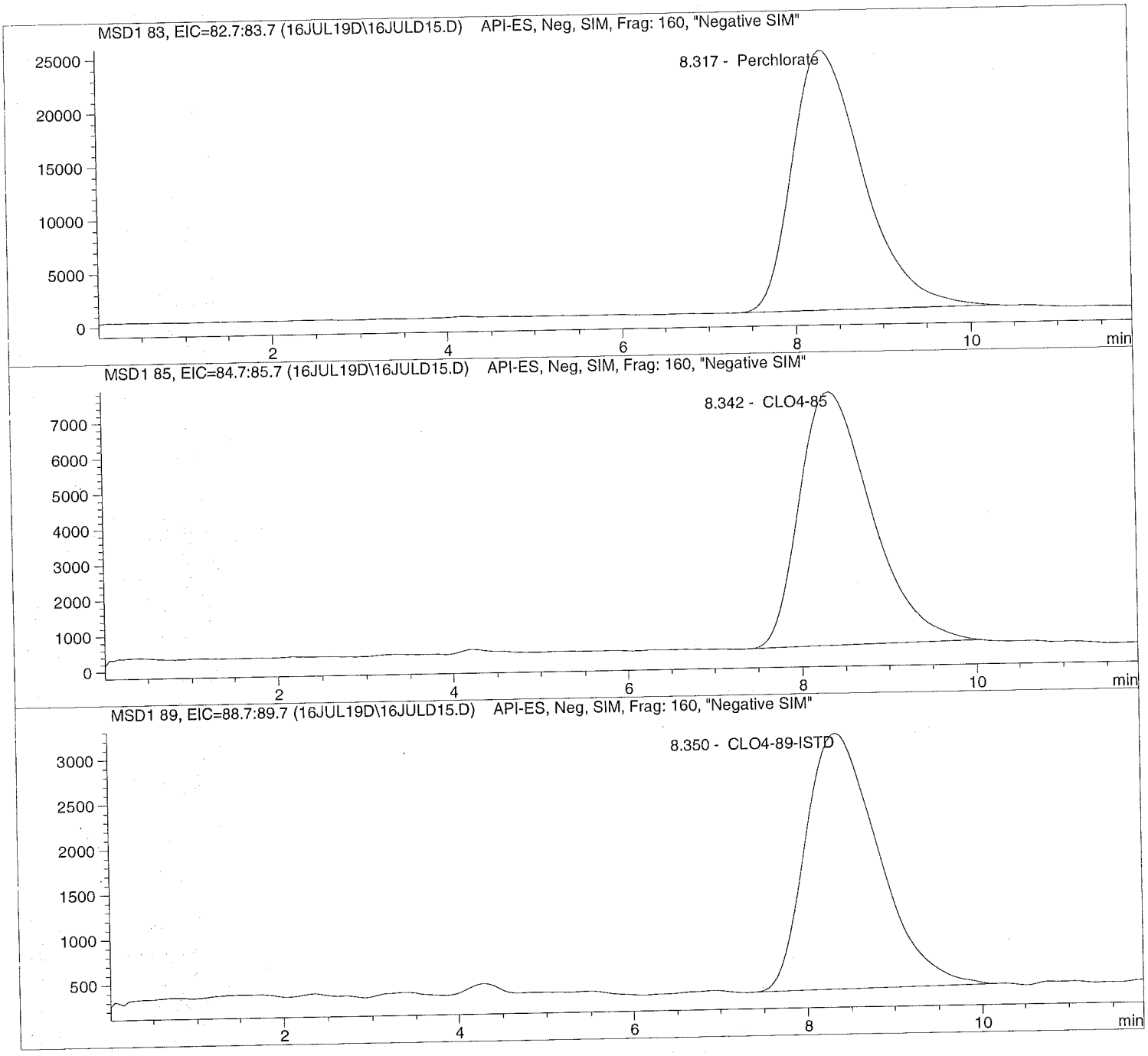
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD15.D Sample Name: 663783 CCV@25

Injection Date:	7/16/2019 11:36:20	Seq Line:	15
Sample Name:	663783 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD15.D Sample Name: 663783 CCV@25

Injection Date:	7/16/2019 11:36:20	Seq Line:	15
Sample Name:	663783 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.317	PBA	1370961.6	25.3498	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.342	PBA	408784.3	25.4611	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	PBA	164400.6	5.0000	CLO4-89-ISTD

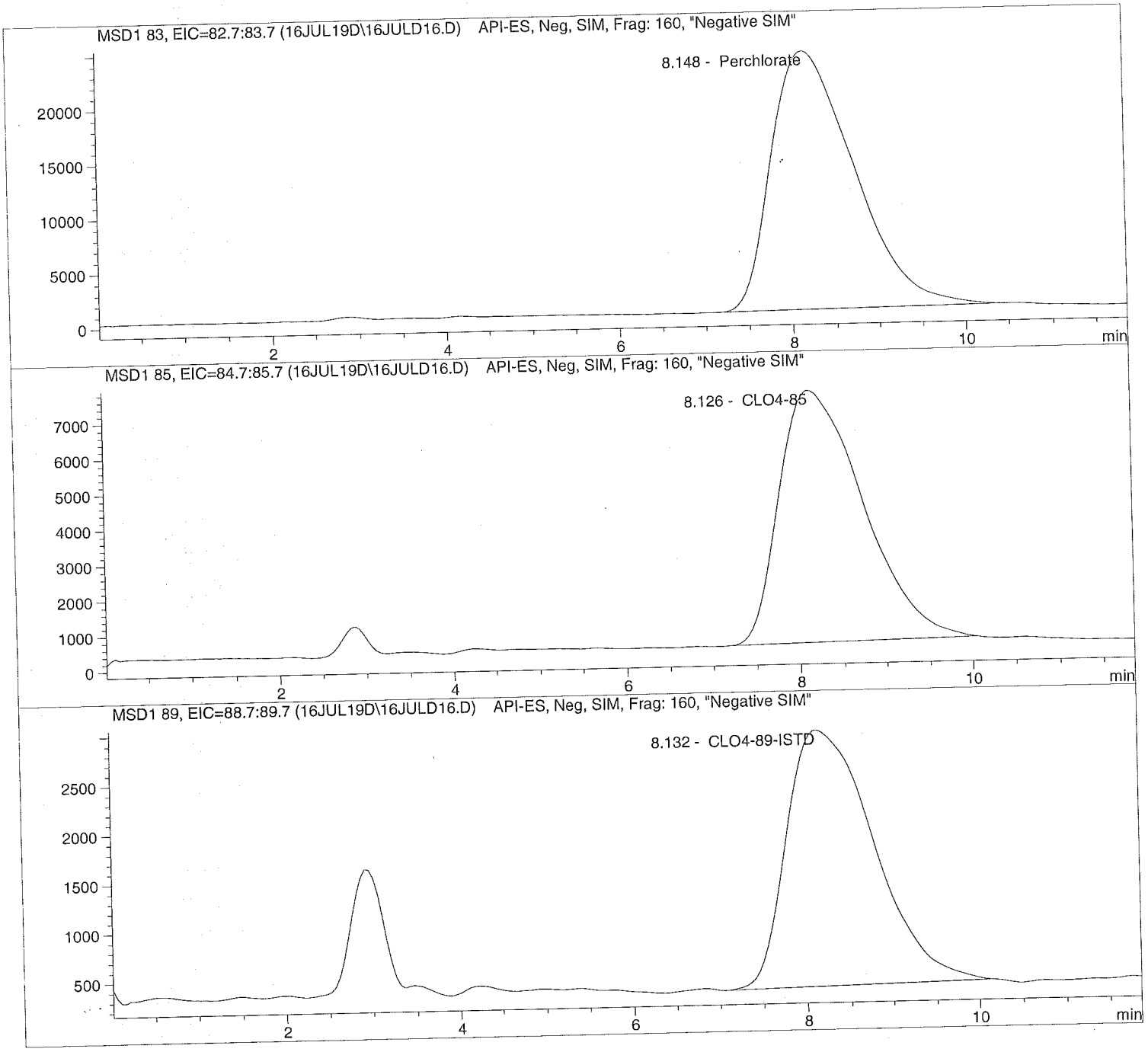
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD16.D Sample Name: 1919059011 MSD

Injection Date:	7/16/2019 11:50:08	Seq Line:	16
Sample Name:	1919059011 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD16.D Sample Name: 1919059011 MSD

Injection Date:	7/16/2019 11:50:08	Seq Line:	16
Sample Name:	1919059011 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.148	PBA	1560920.6	262.1994	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.126	PBA	475169.1	268.6311	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.132	PBA	180594.6	50.0000	CLO4-89-ISTD

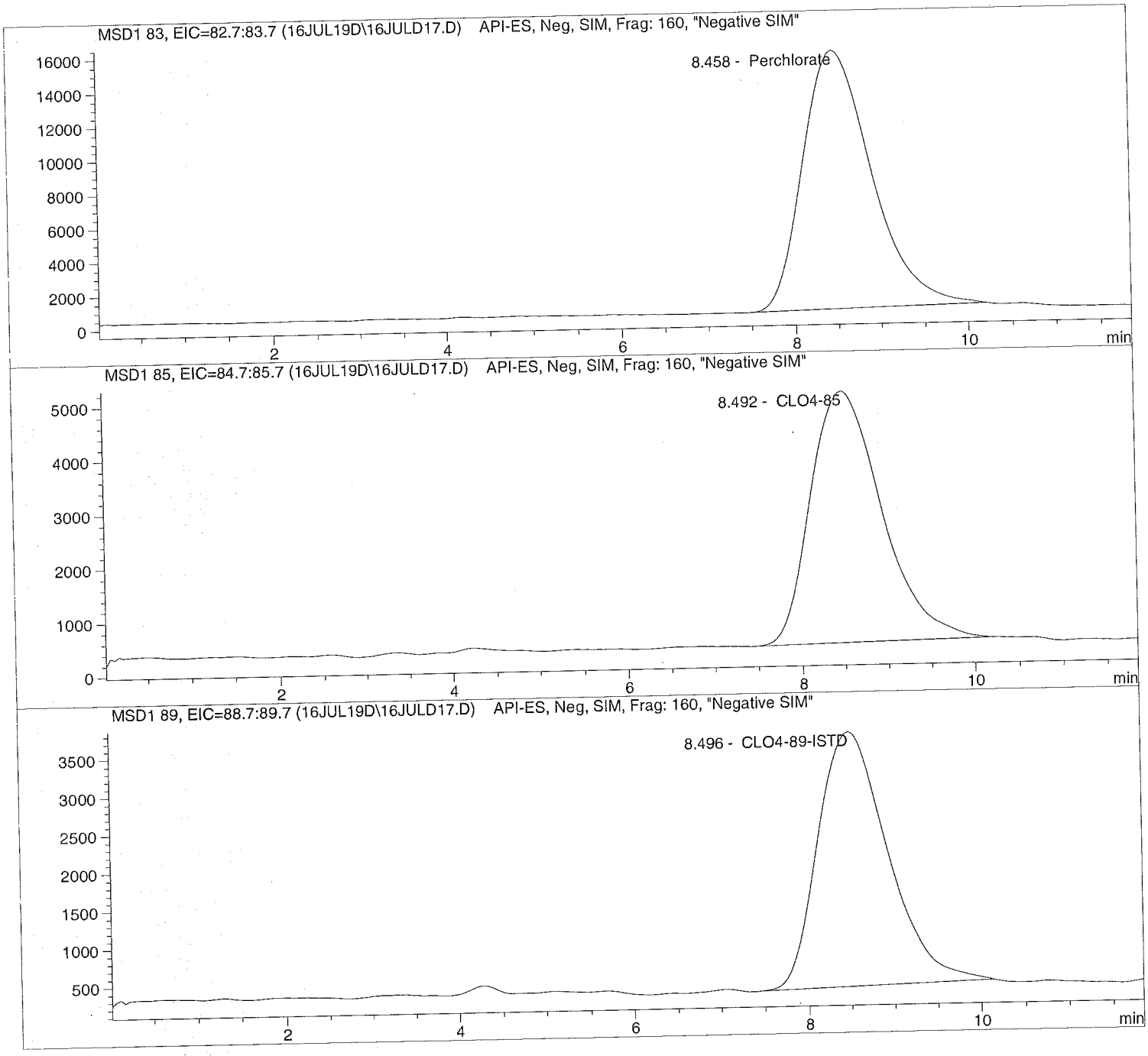
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD17.D Sample Name: 1919059012 10K

Injection Date:	7/16/2019 12:03:57	Seq Line:	17
Sample Name:	1919059012 10K	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD17.D Sample Name: 1919059012 10K

Injection Date:	7/16/2019 12:03:57	Seq Line:	17
Sample Name:	1919059012 10K	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.458	PBA	847550.9	140973.6899	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.492	PBA	267187.0	148659.9990	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.496	PBA	188204.5	50000.0000	CLO4-89-ISTD

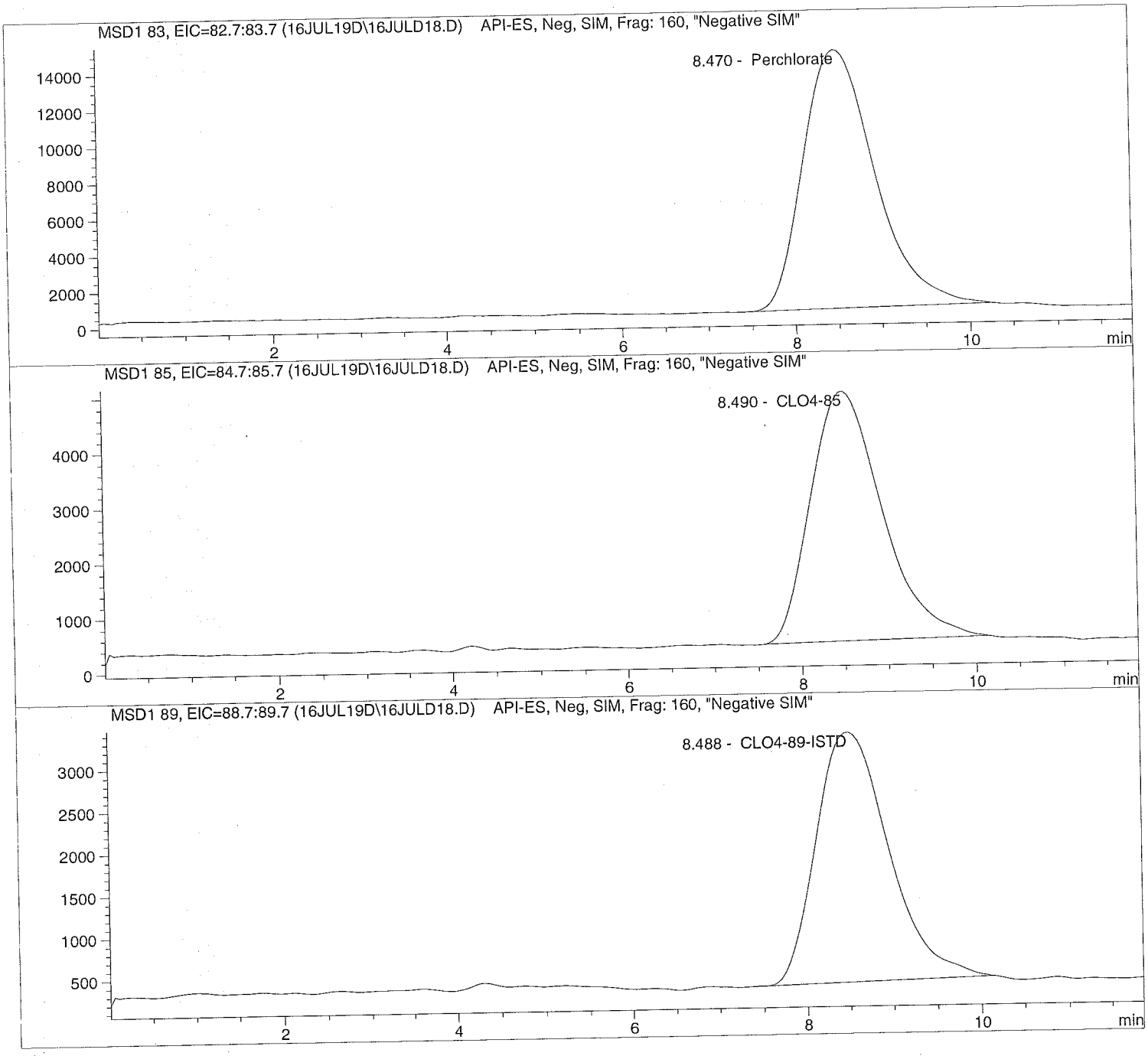
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD18.D Sample Name: 1919059013 10K

Injection Date:	7/16/2019 12:17:44	Seq Line:	18
Sample Name:	1919059013 10K	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD18.D Sample Name: 1919059013 10K

Injection Date:	7/16/2019 12:17:44	Seq Line:	18
Sample Name:	1919059013 10K	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 10000.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.470	PBA	820714.3	148334.8753	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.490	PBA	259317.7	156847.3228	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.488	PBA	172825.5	50000.0000	CLO4-89-ISTD

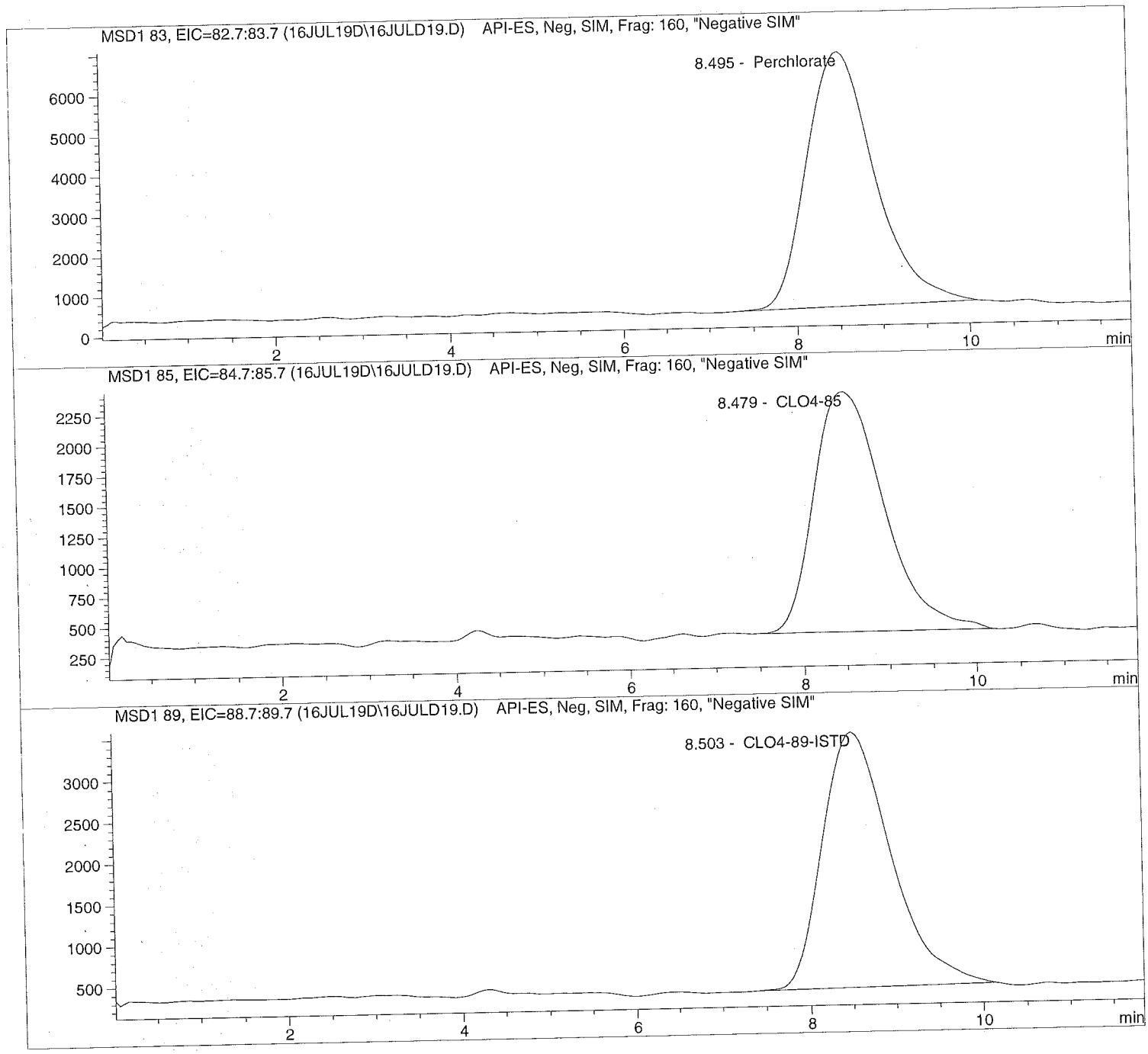
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD19.D Sample Name: 1919059014 1K

Injection Date:	7/16/2019 12:31:32	Seq Line:	19
Sample Name:	1919059014 1K	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD19.D Sample Name: 1919059014 1K

Injection Date:	7/16/2019 12:31:32	Seq Line:	19
Sample Name:	1919059014 1K	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.495	PBA	345785.8	6505.8697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.479	PBA	112574.5	6991.1087	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.503	PBA	171453.3	5000.0000	CLO4-89-ISTD

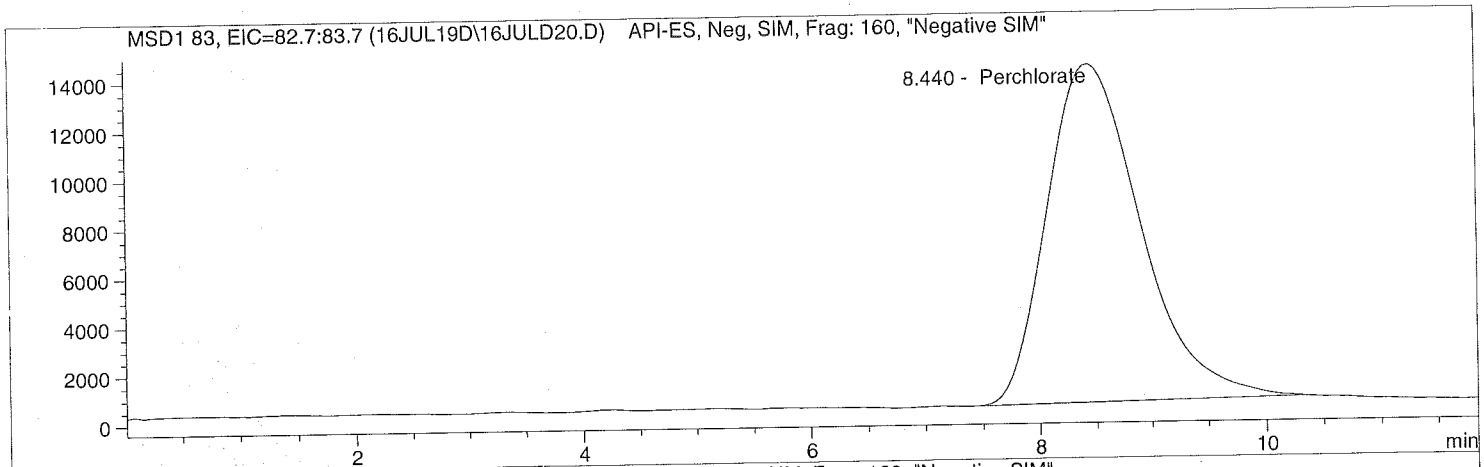
*** End of Report ***

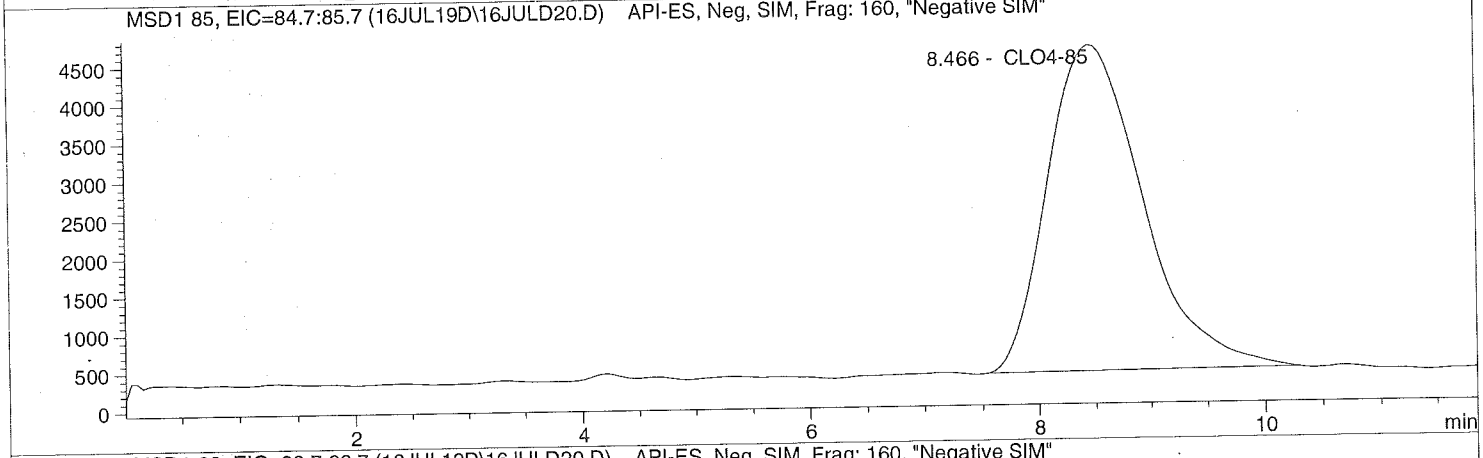
Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD20.D Sample Name: 1919059015 1K

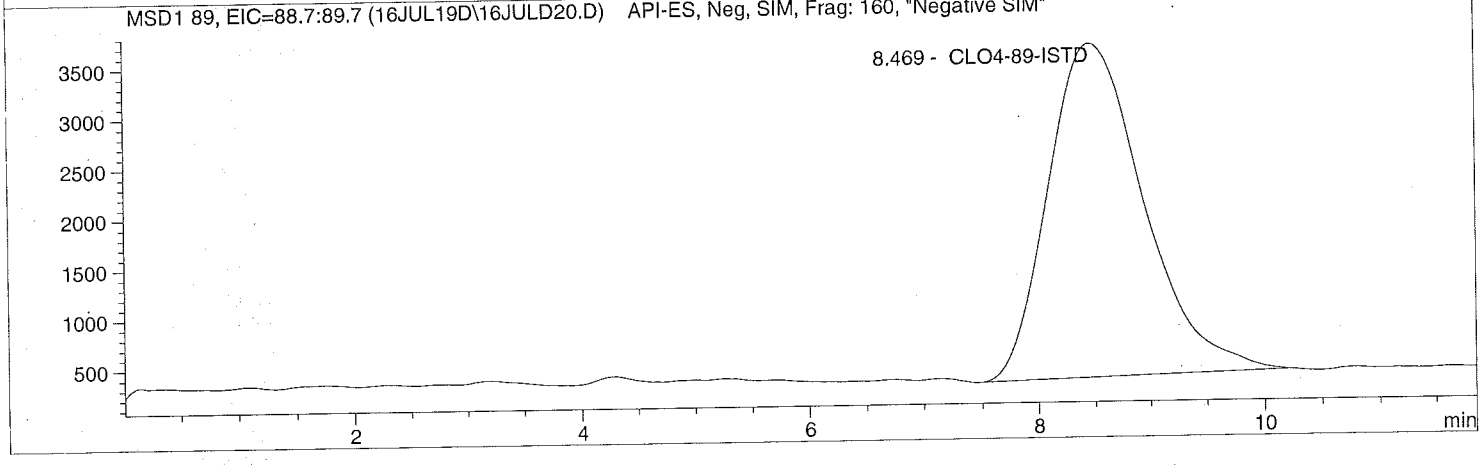
Injection Date:	7/16/2019 12:45:24	Seq Line:	20
Sample Name:	1919059015 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD20.D Sample Name: 1919059015 1K

Injection Date:	7/16/2019 12:45:24	Seq Line:	20
Sample Name:	1919059015 1K	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.440	PBA	796263.4	12759.4967	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.466	PBA	250606.5	13419.0988	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.469	PBA	196161.9	5000.0000	CLO4-89-ISTD

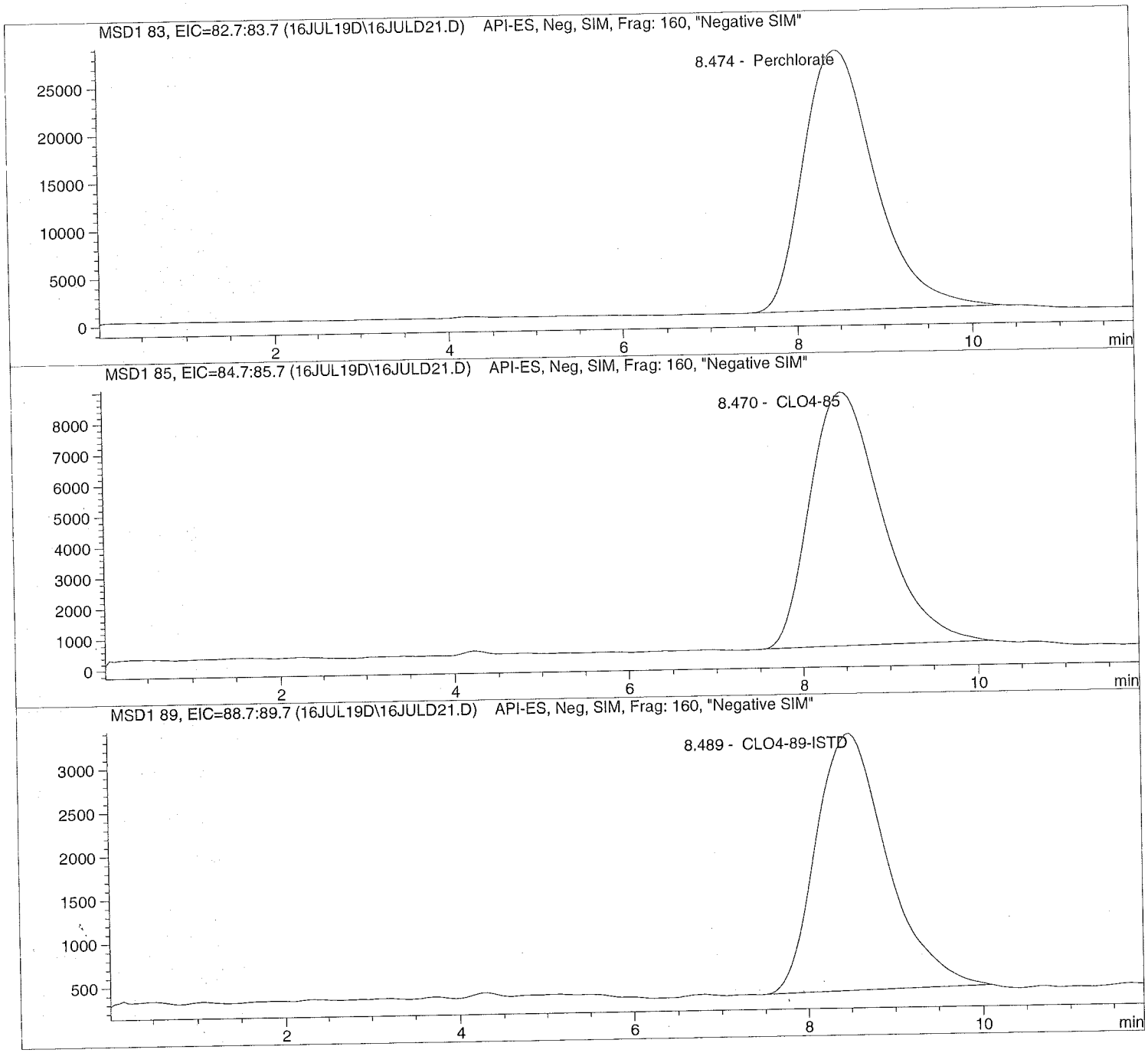
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD21.D Sample Name: 1919059016 1K

Injection Date:	7/16/2019 12:59:16	Seq Line:	21
Sample Name:	1919059016 1K	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD21.D Sample Name: 1919059016 1K

Injection Date:	7/16/2019 12:59:16	Seq Line:	21
Sample Name:	1919059016 1K	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.474	PBA	1559532.1	28235.2054	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.470	PBA	471875.9	28774.1139	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.489	PBA	166766.0	5000.0000	CLO4-89-ISTD

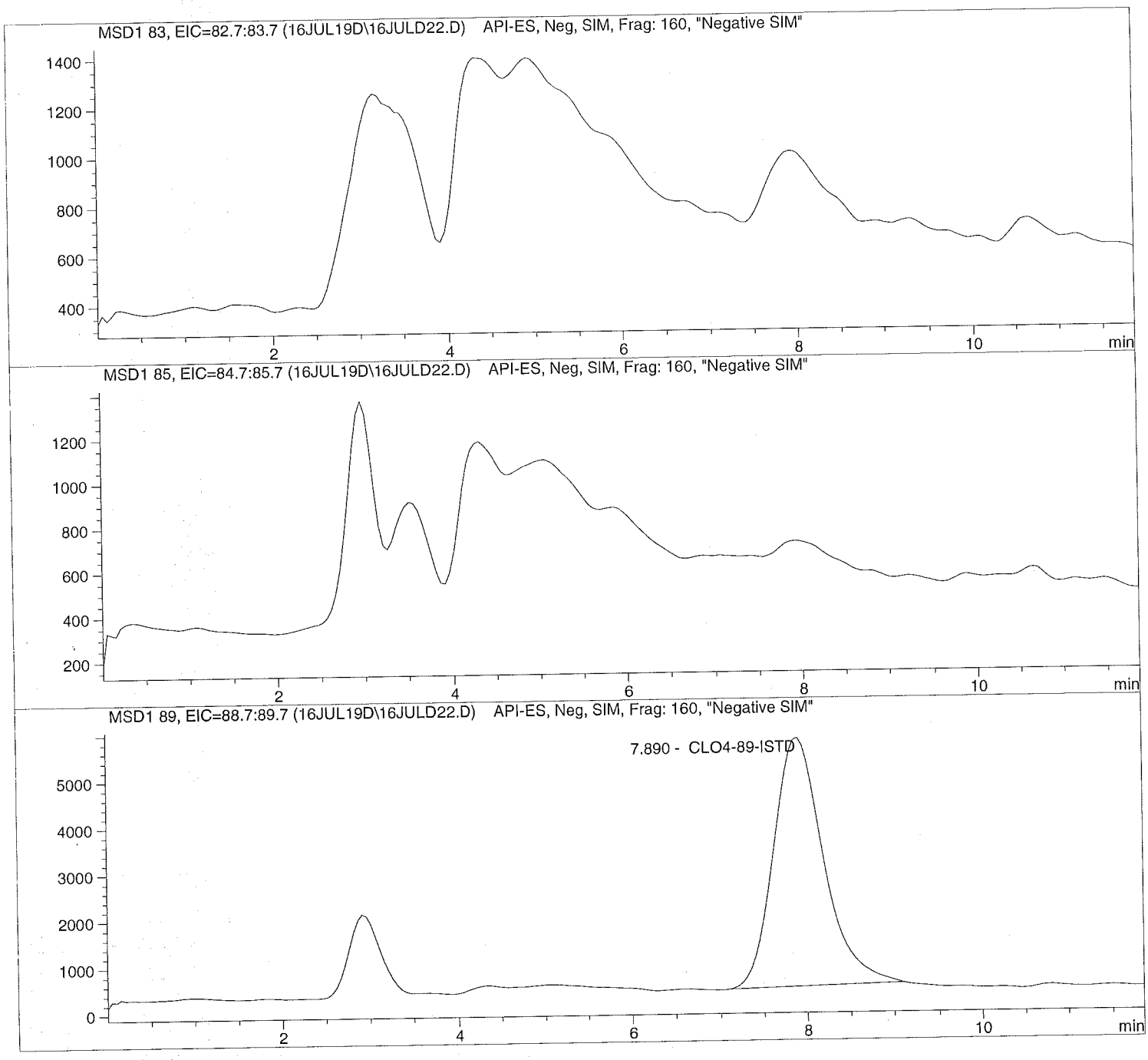
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD22.D Sample Name: 1919059017

Injection Date:	7/16/2019 13:13:06	Seq Line:	22
Sample Name:	1919059017	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD22.D Sample Name: 1919059017

Injection Date:	7/16/2019 13:13:06	Seq Line:	22
Sample Name:	1919059017	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.890	PBA	213153.9	5.0000	CLO4-89-ISTD

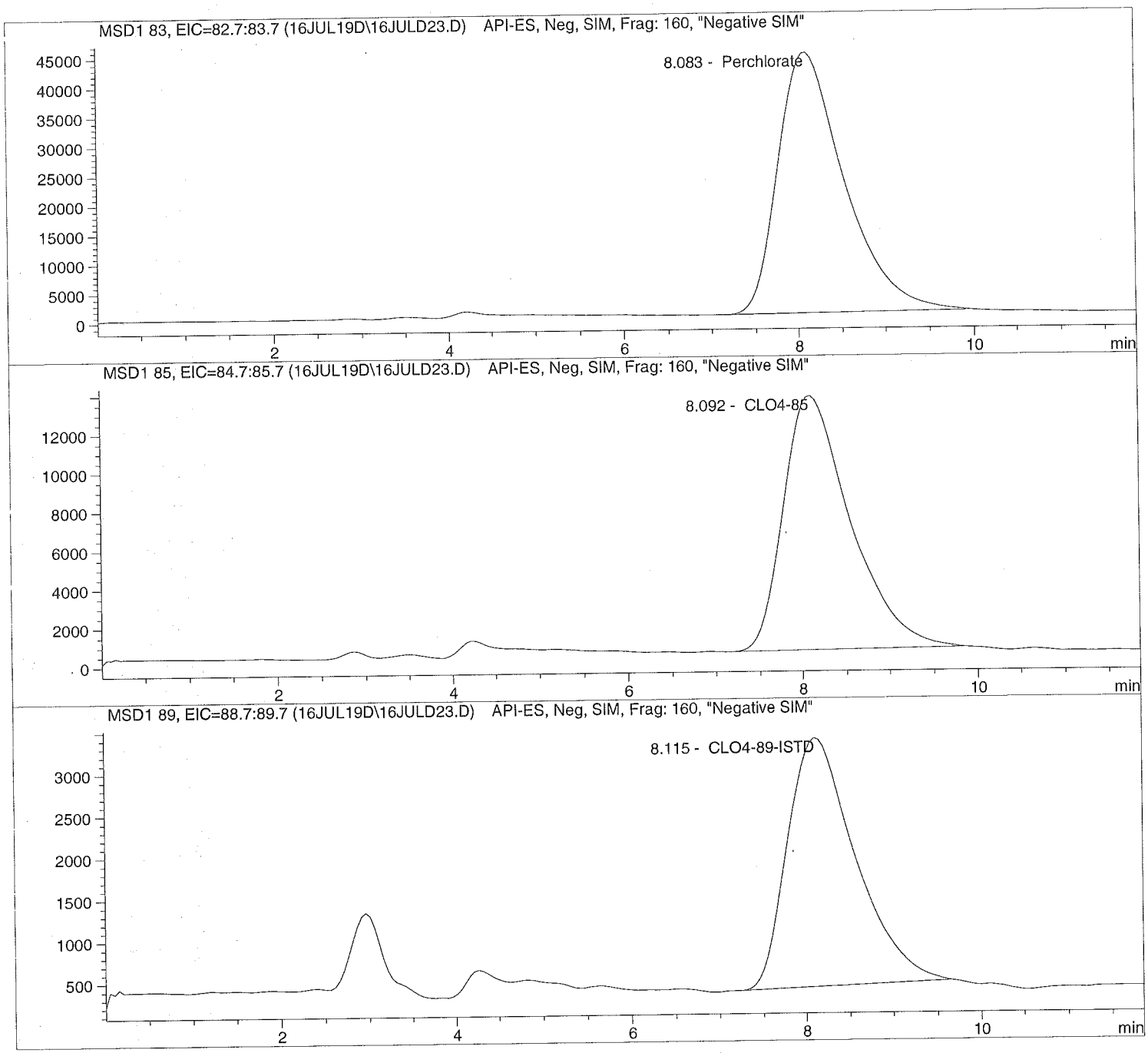
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD23.D Sample Name: 1919059018

Injection Date:	7/16/2019 13:26:54	Seq Line:	23
Sample Name:	1919059018	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD23.D Sample Name: 1919059018

Injection Date:	7/16/2019 13:26:54	Seq Line:	23
Sample Name:	1919059018	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.083	PBA	2342159.7	42.6449	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.092	PBA	698212.2	42.9437	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.115	PBA	160594.2	5.0000	CLO4-89-ISTD

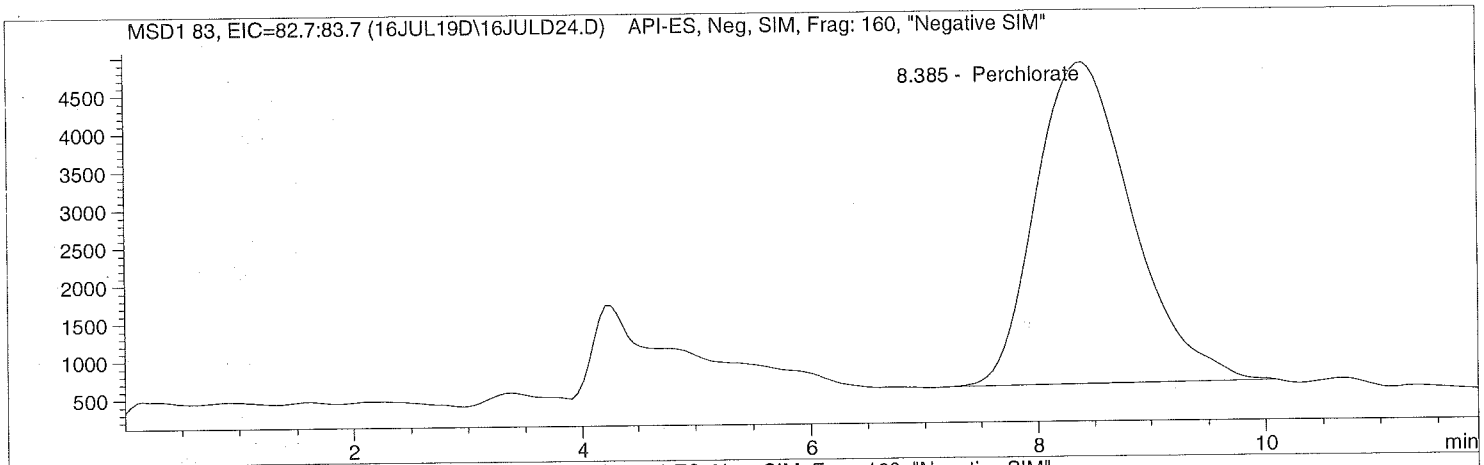
*** End of Report ***

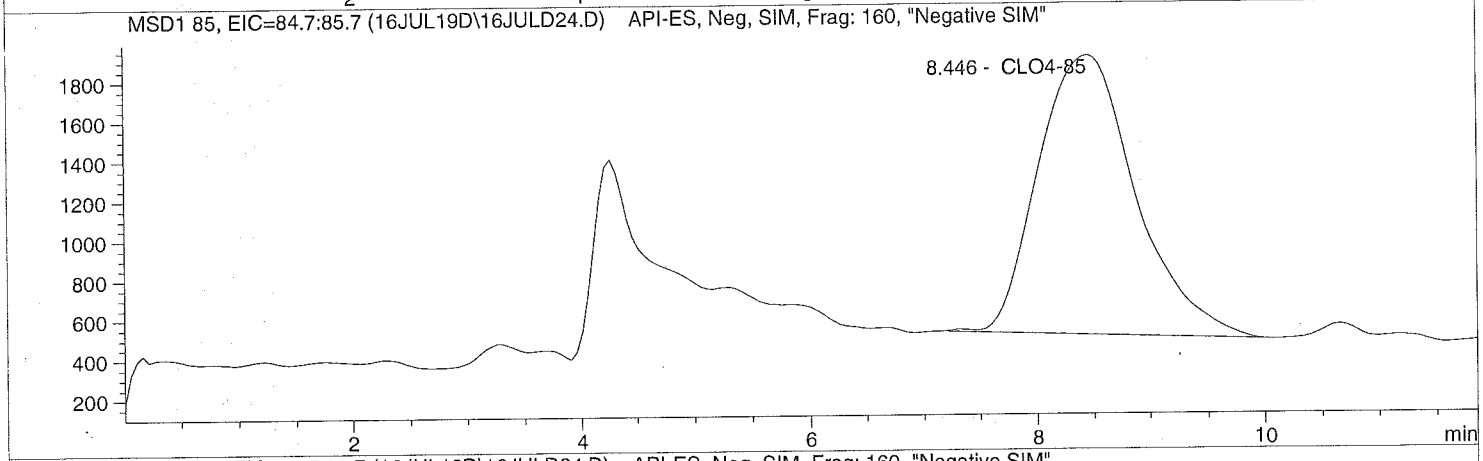
Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD24.D Sample Name: 1919059019

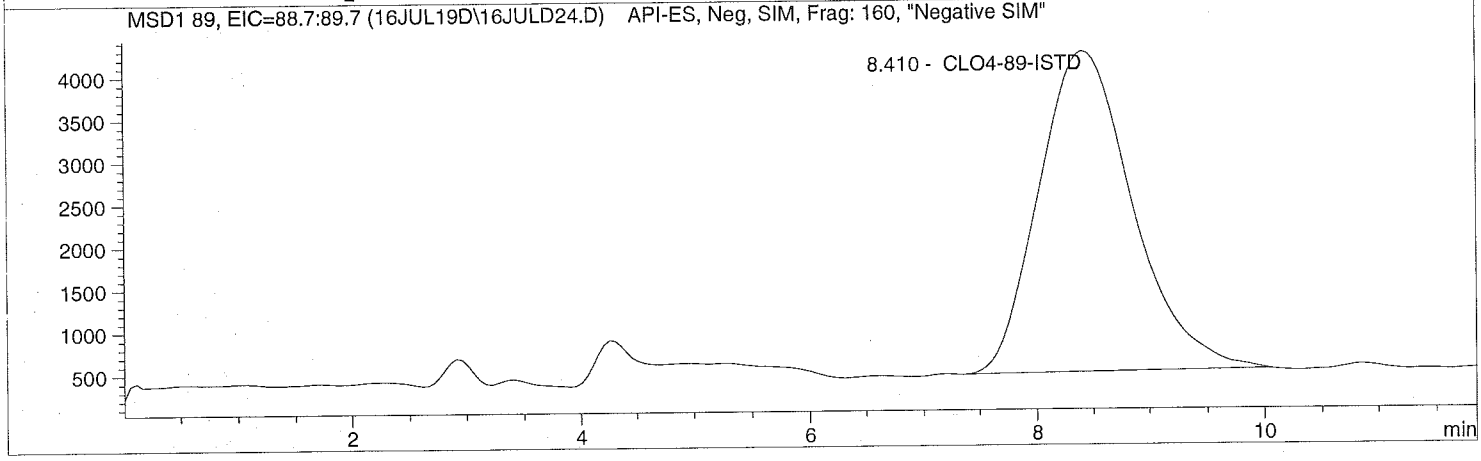
Injection Date:	7/16/2019 13:40:39	Seq Line:	24
Sample Name:	1919059019	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD24.D Sample Name: 1919059019

Injection Date:	7/16/2019 13:40:39	Seq Line:	24
Sample Name:	1919059019	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.385	PBA	249821.7	3.8217	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.446	PBA	83673.8	4.1503	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.410	BBA	215895.7	5.0000	CLO4-89-ISTD

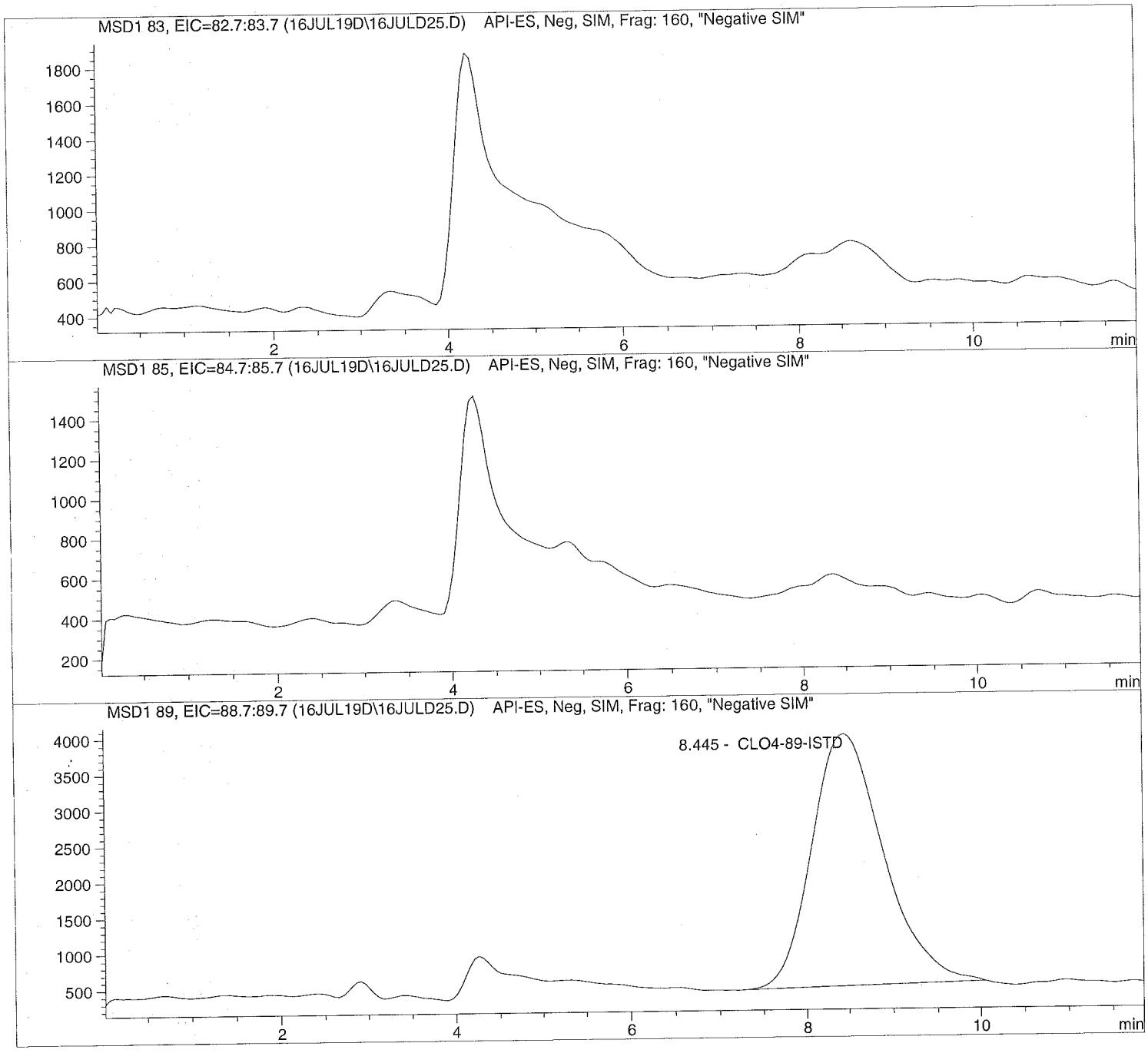
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD25.D Sample Name: 1919059020

Injection Date:	7/16/2019 13:54:29	Seq Line:	25
Sample Name:	1919059020	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD25.D Sample Name: 1919059020

Injection Date:	7/16/2019 13:54:29	Seq Line:	25
Sample Name:	1919059020	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.445	PBA	201956.3	5.0000	CLO4-89-ISTD

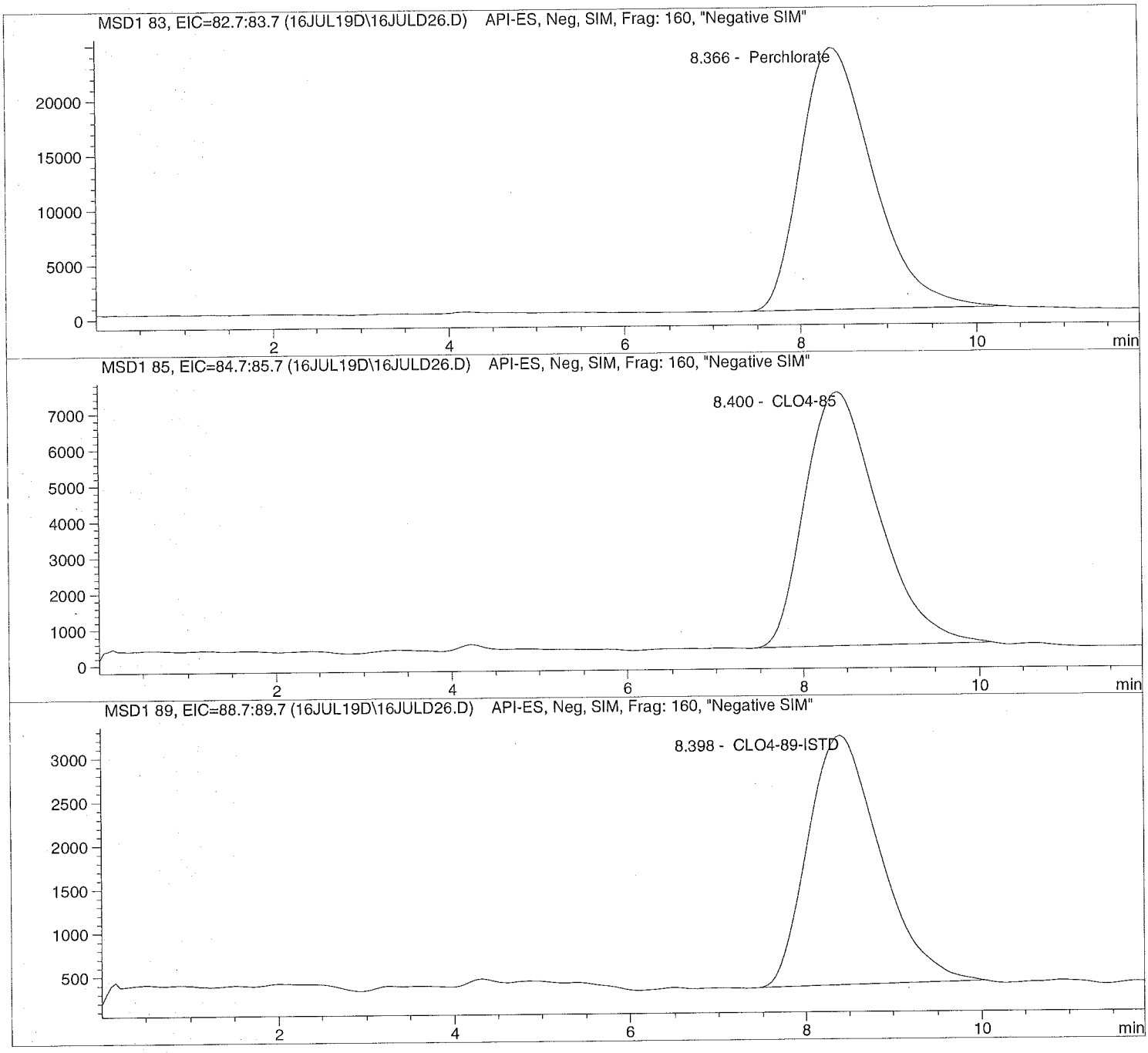
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD26.D Sample Name: 663784 CCV@25

Injection Date:	7/16/2019 14:08:18	Seq Line:	26
Sample Name:	663784 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD26.D Sample Name: 663784 CCV@25

Injection Date:	7/16/2019 14:08:18	Seq Line:	26
Sample Name:	663784 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.366	PBA	1371360.8	25.4241	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.400	PBA	411774.7	25.7063	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.398	PBA	163939.3	5.0000	CLO4-89-ISTD

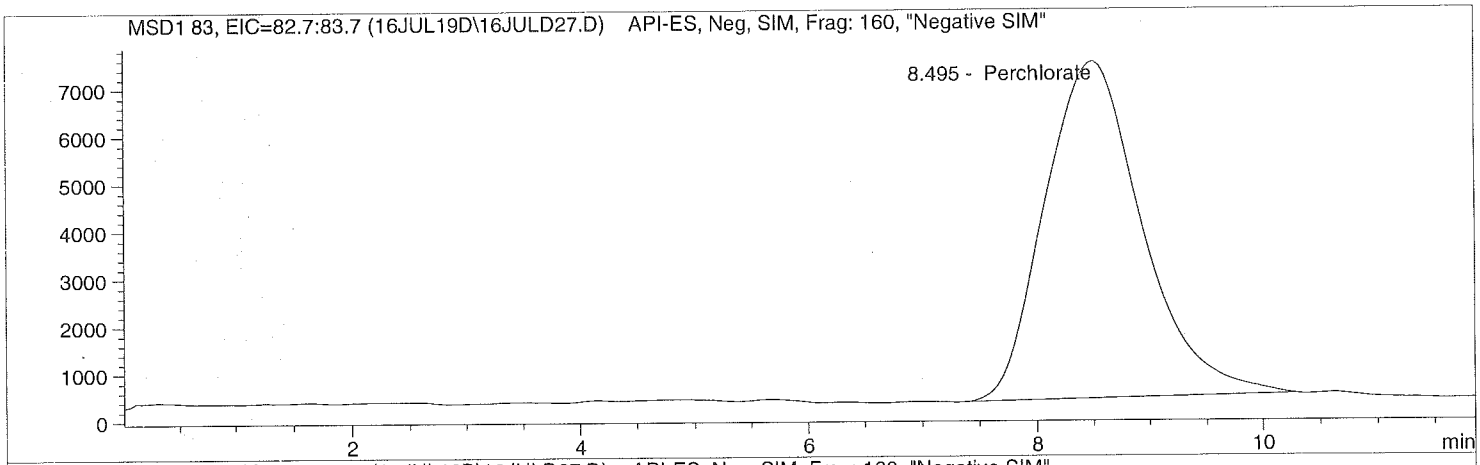
*** End of Report ***

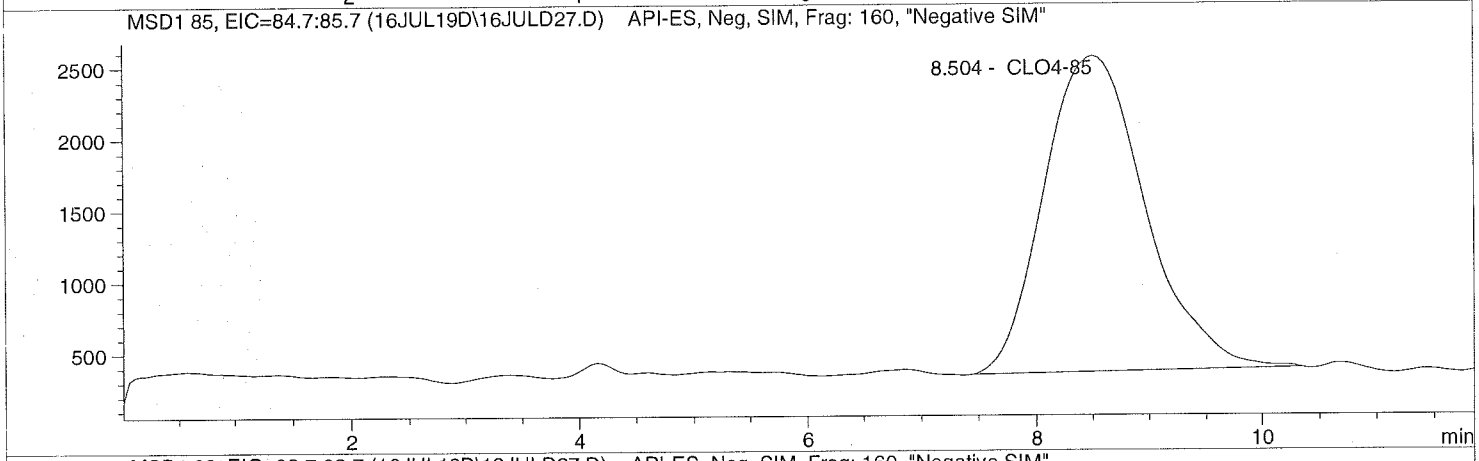
Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD27.D Sample Name: 1919059002 1K

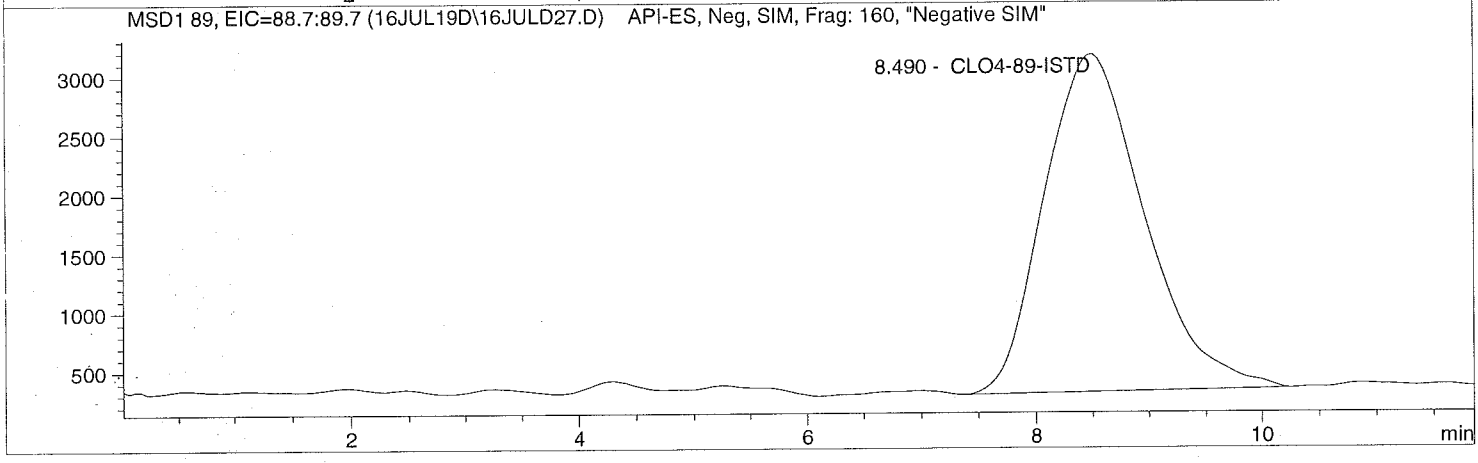
Injection Date:	7/16/2019 14:22:05	Seq Line:	27
Sample Name:	1919059002 1K	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD27.D Sample Name: 1919059002 1K

Injection Date:	7/16/2019 14:22:05	Seq Line:	27
Sample Name:	1919059002 1K	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.495	PBA	422100.4	7708.1563	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.504	PBA	136614.9	8266.4487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.490	PBA	175498.0	5000.0000	CLO4-89-ISTD

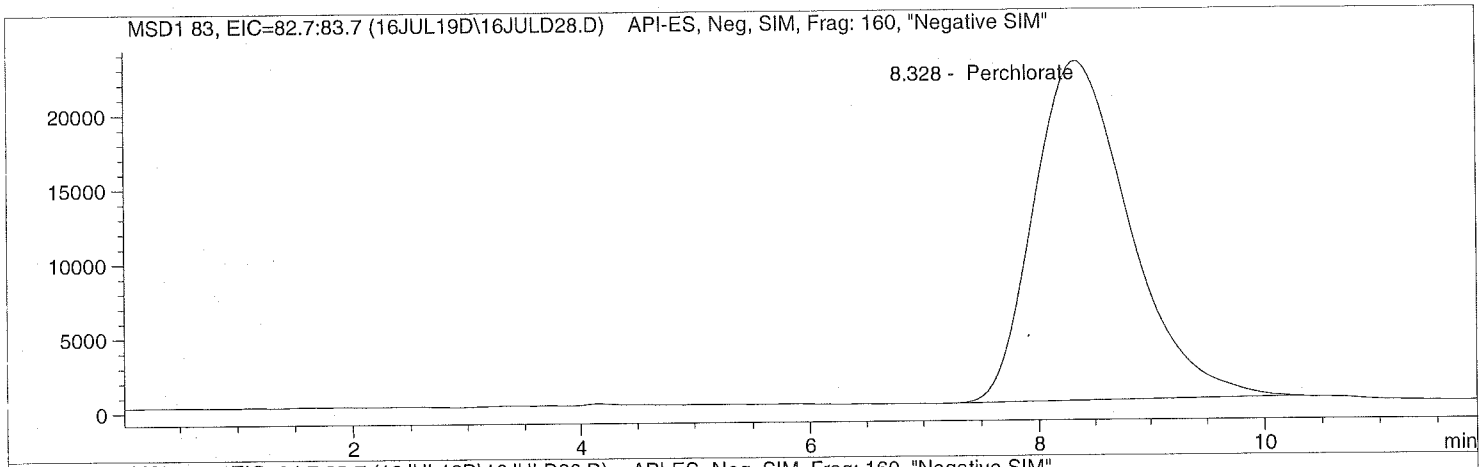
*** End of Report ***

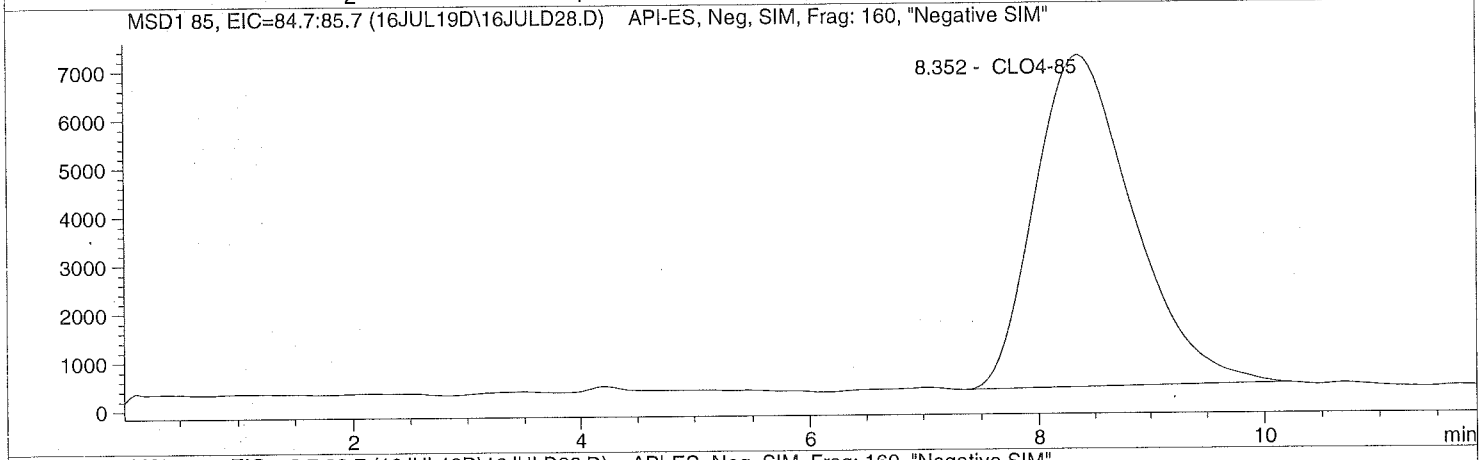
Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD28.D Sample Name: 663785 CCV@25

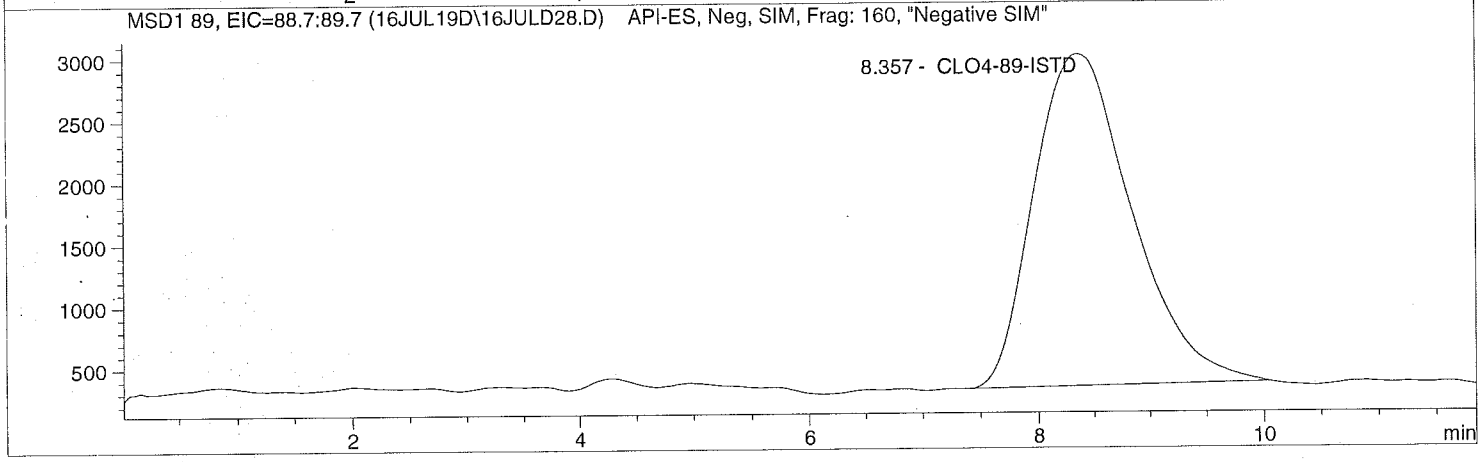
Injection Date:	7/16/2019 14:36:33	Seq Line:	28
Sample Name:	663785 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD28.D Sample Name: 663785 CCV@25

Injection Date:	7/16/2019 14:36:33	Seq Line:	28
Sample Name:	663785 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.328	PBA	1344125.5	25.2365	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.352	PBA	414368.9	26.1612	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.357	PBA	161949.8	5.0000	CLO4-89-ISTD

*** End of Report ***



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

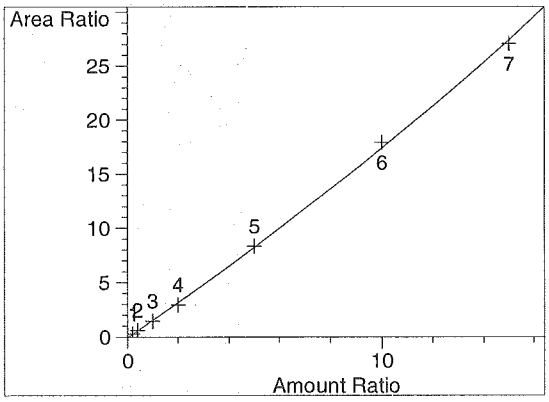
Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

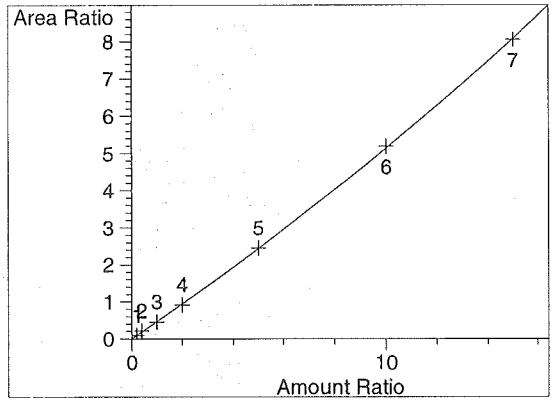
Peak Sum Table

No Entries in table

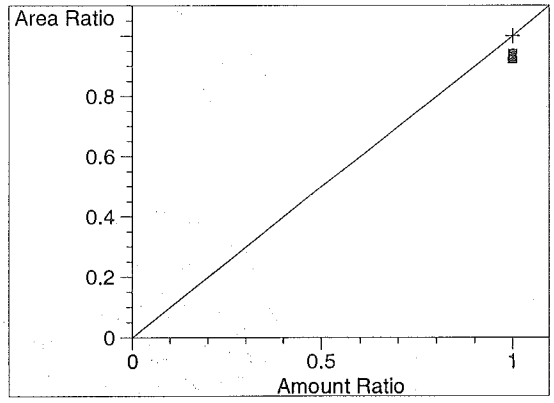
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Batch Report: C:\HPCHEM\1\DATA\19MAR19I\19MAR19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

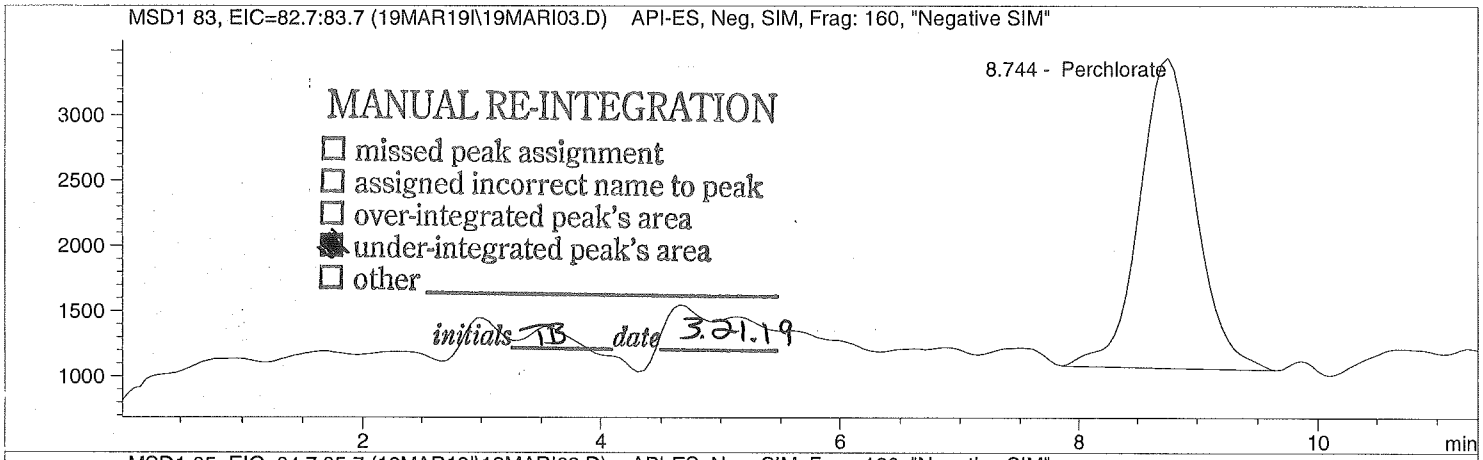
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

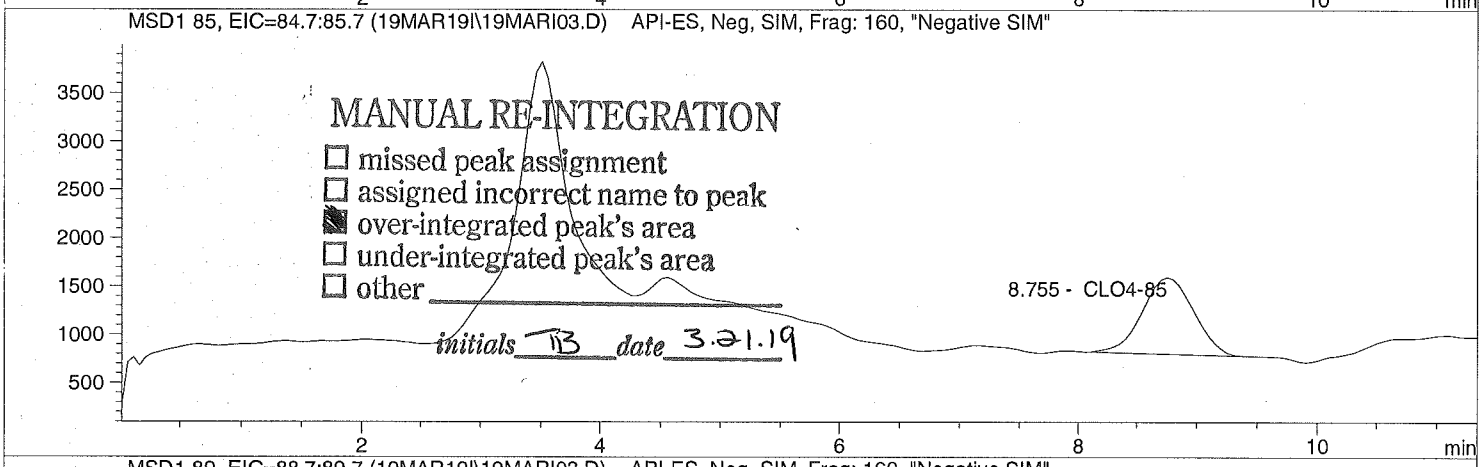
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

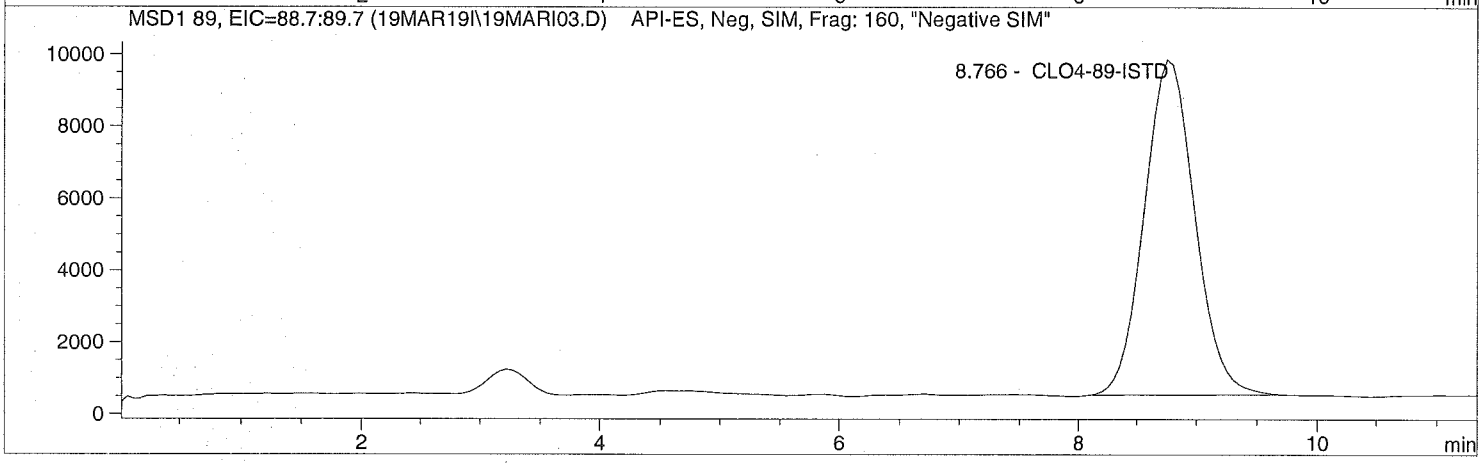
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

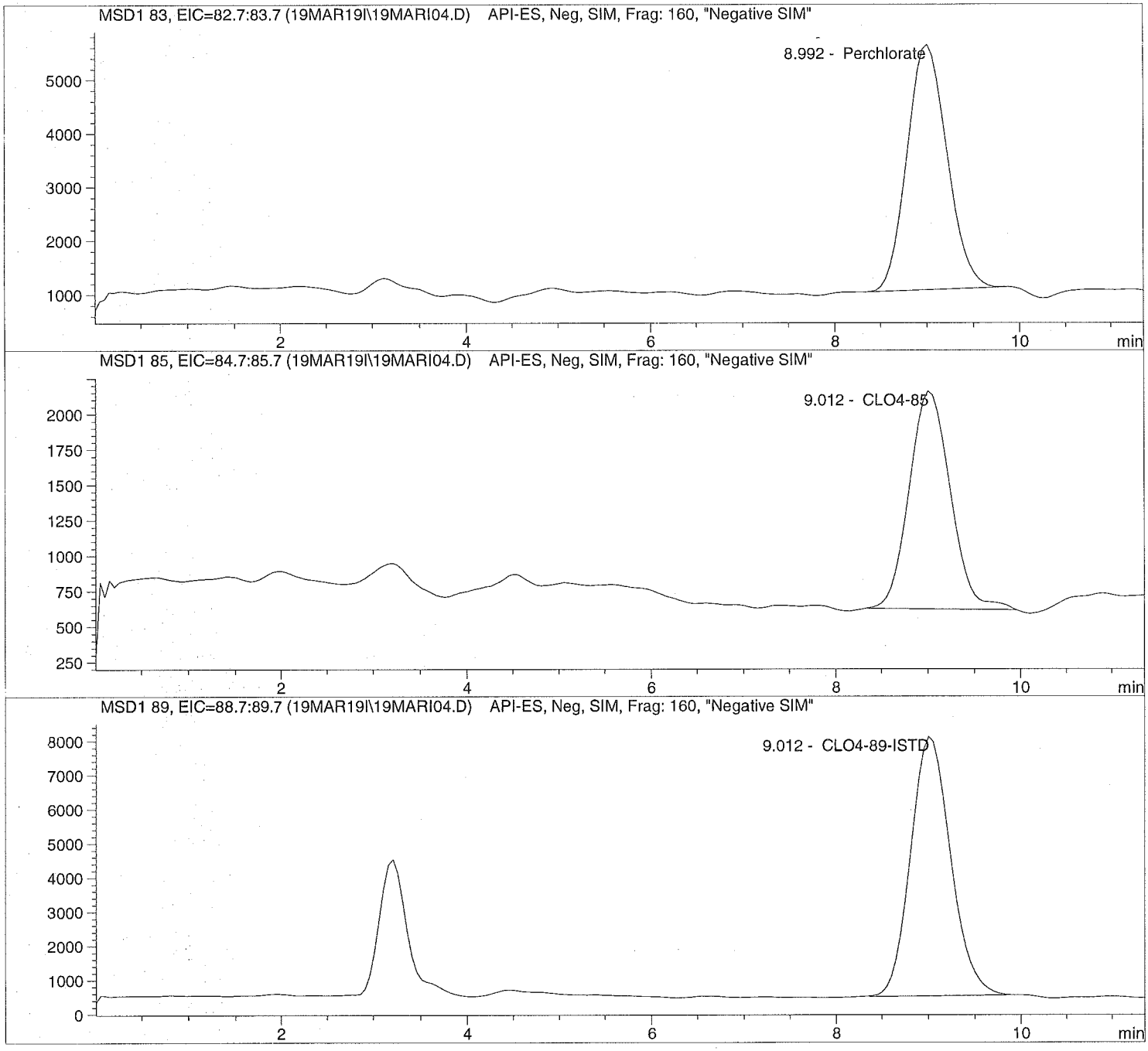
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

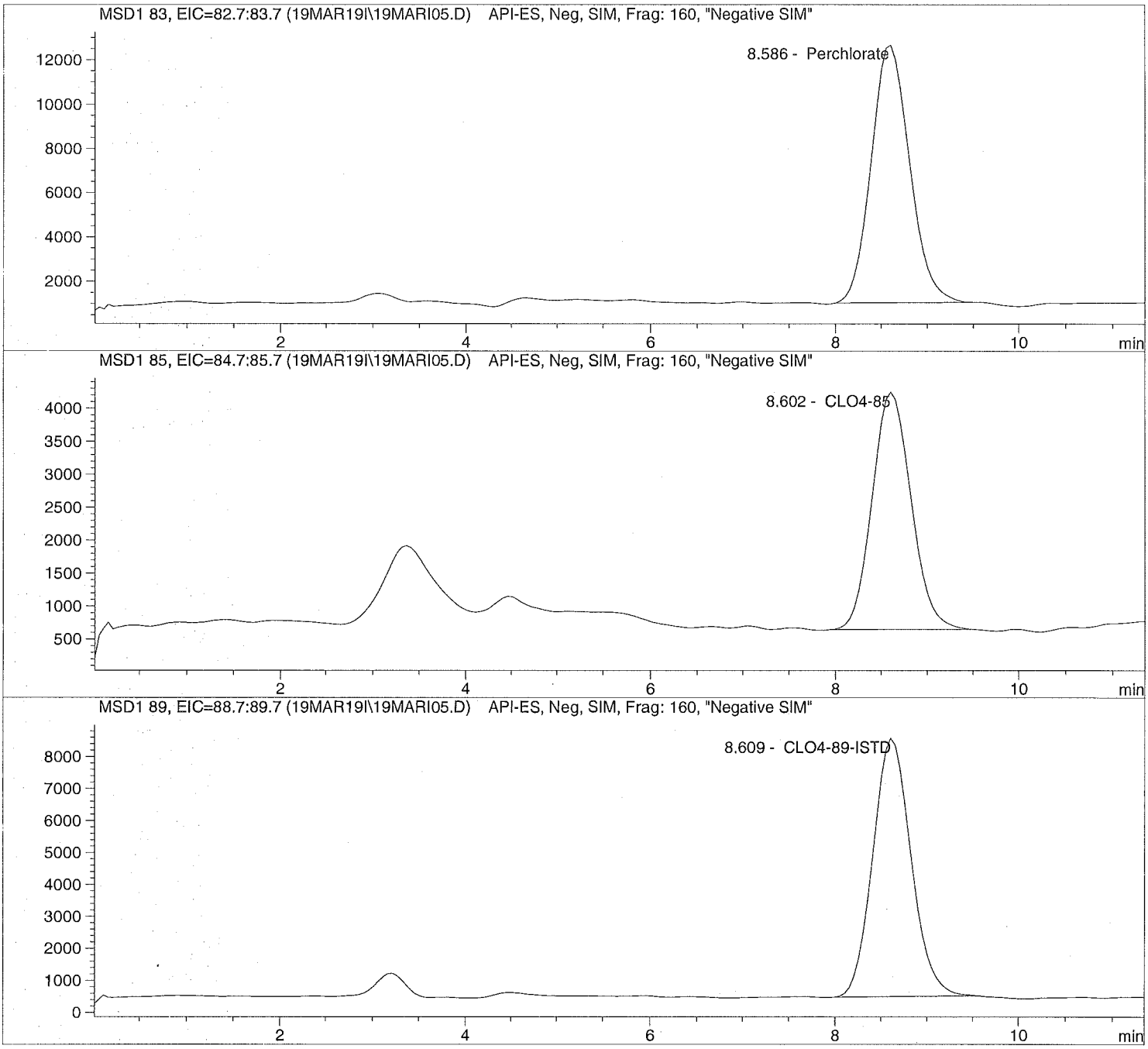
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

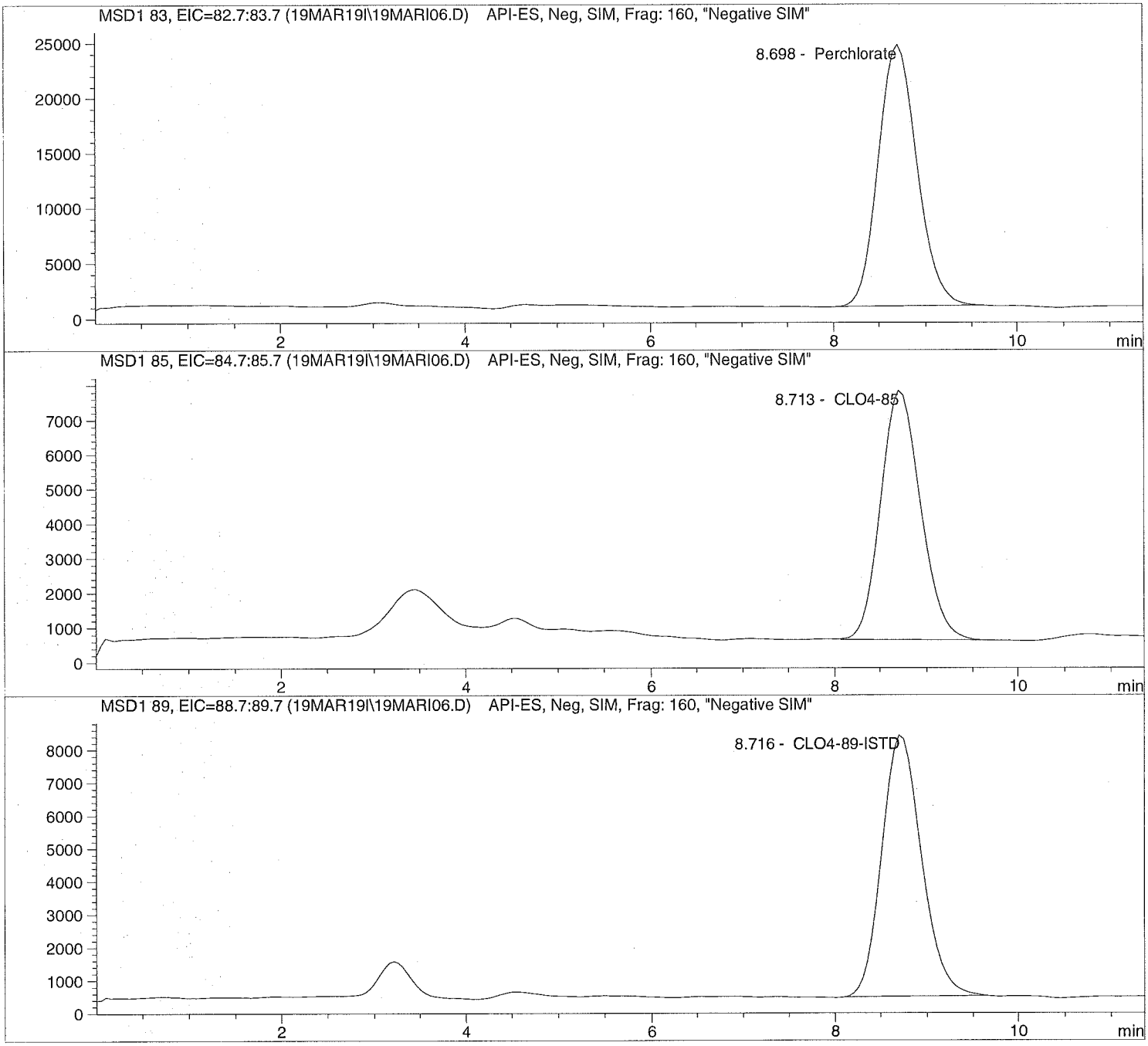
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

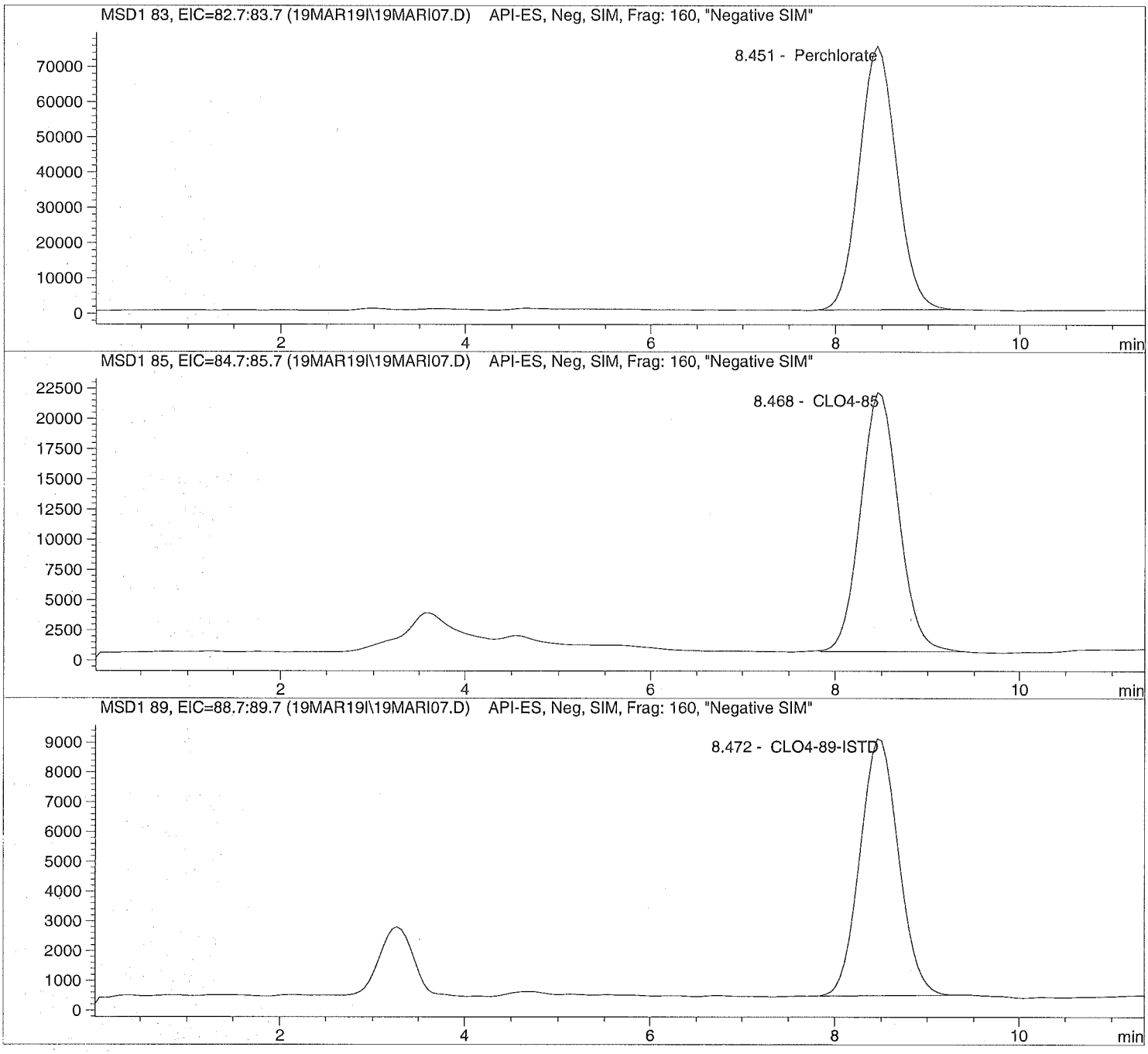
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

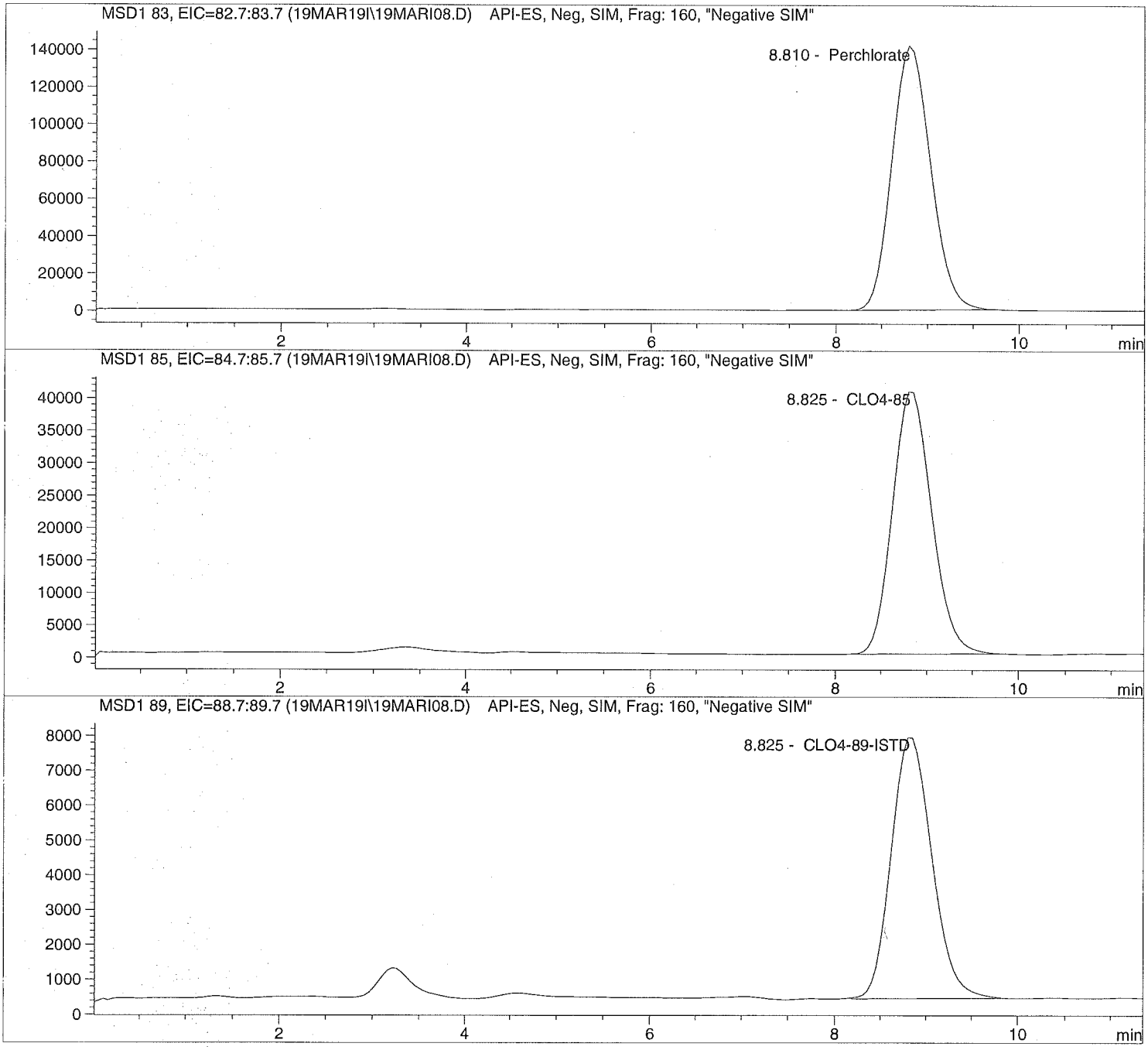
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

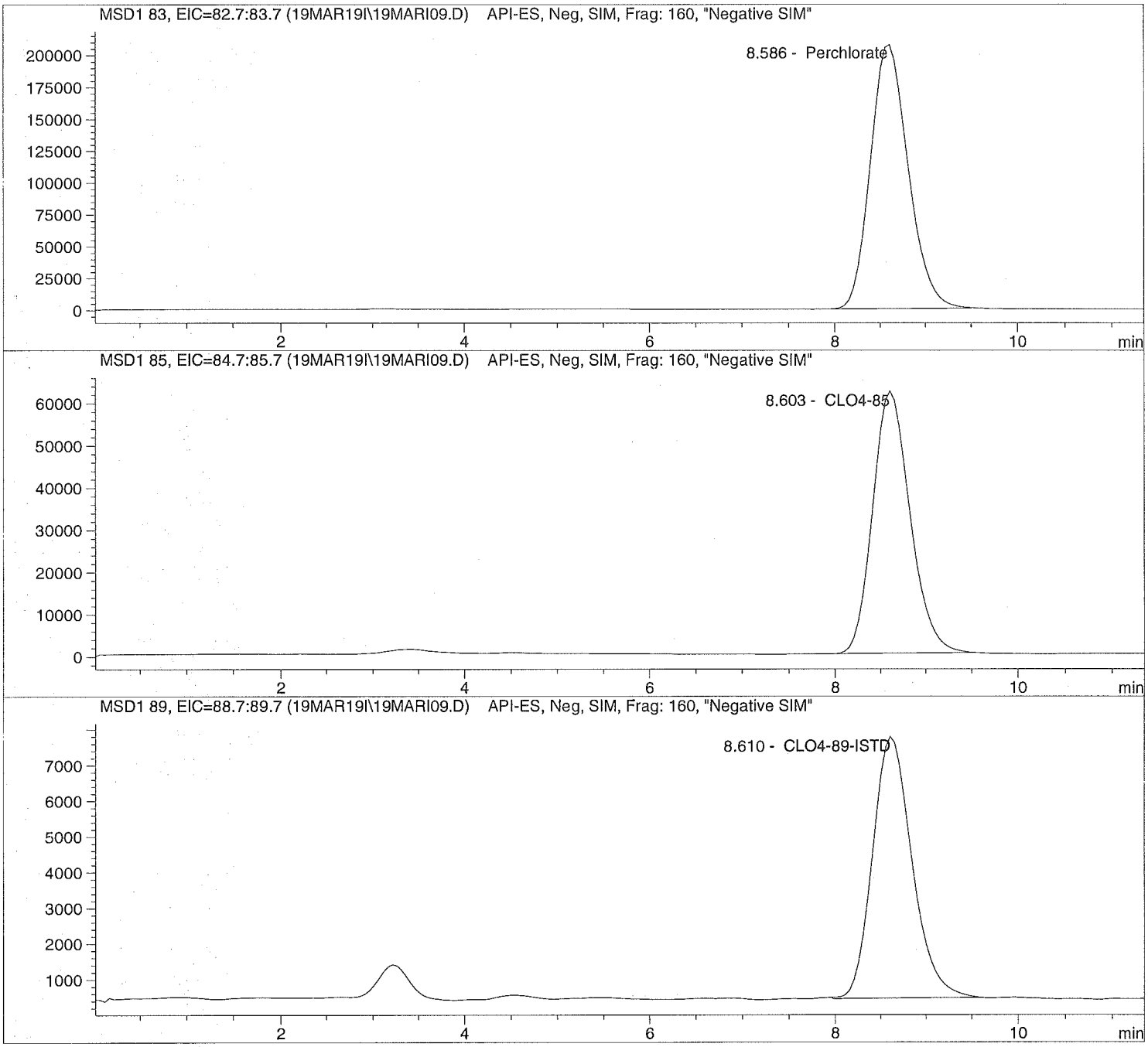
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

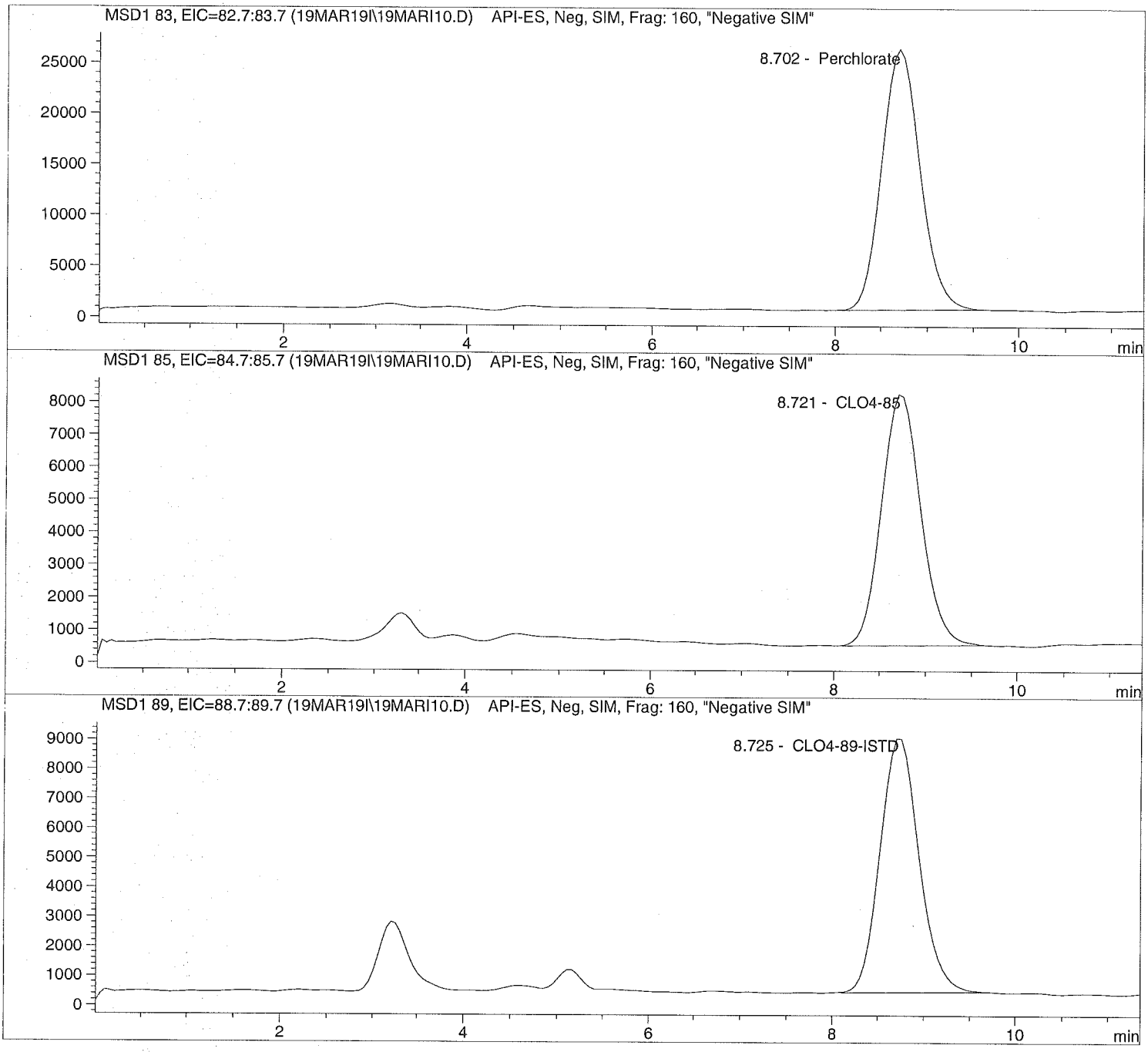
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

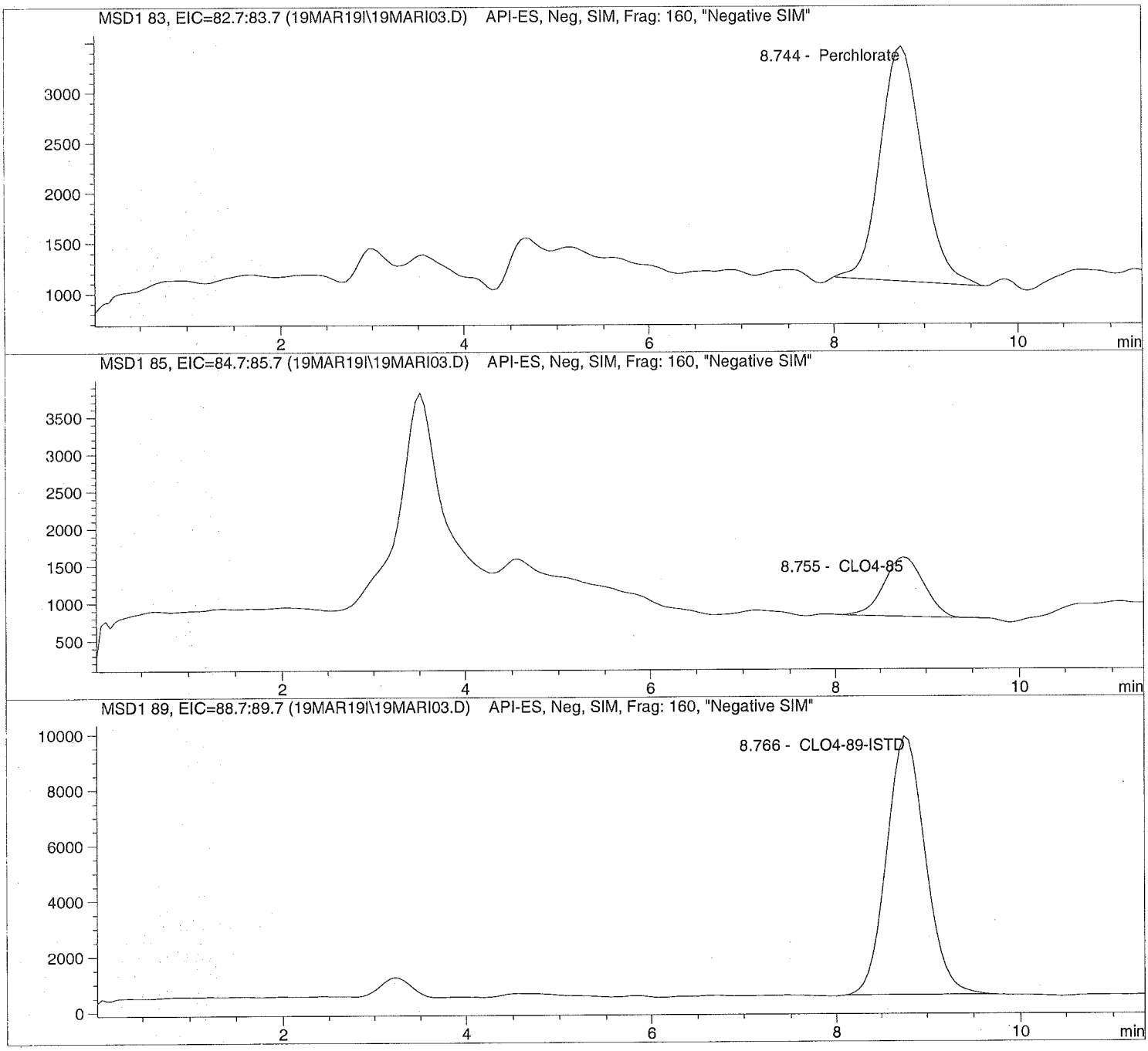
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

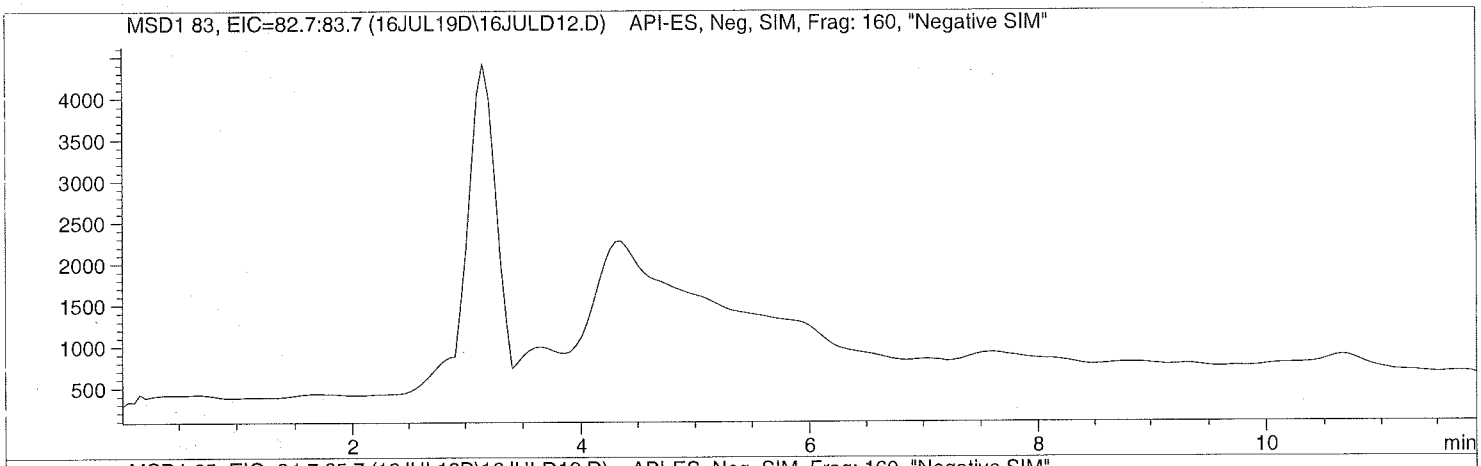
*** End of Report ***

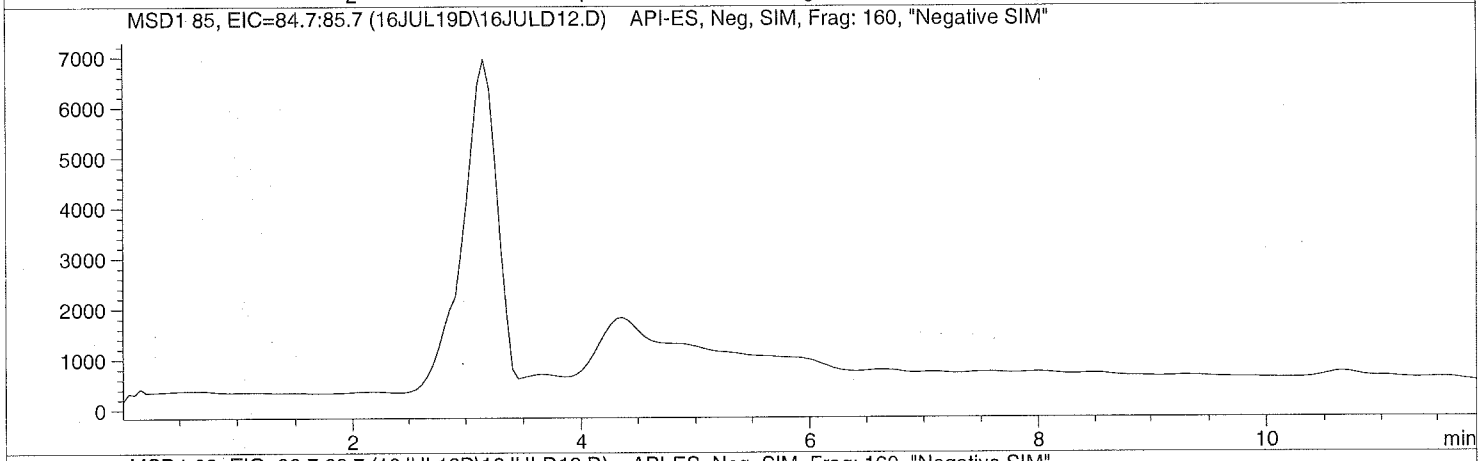
Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD12.D Sample Name: 1919059008

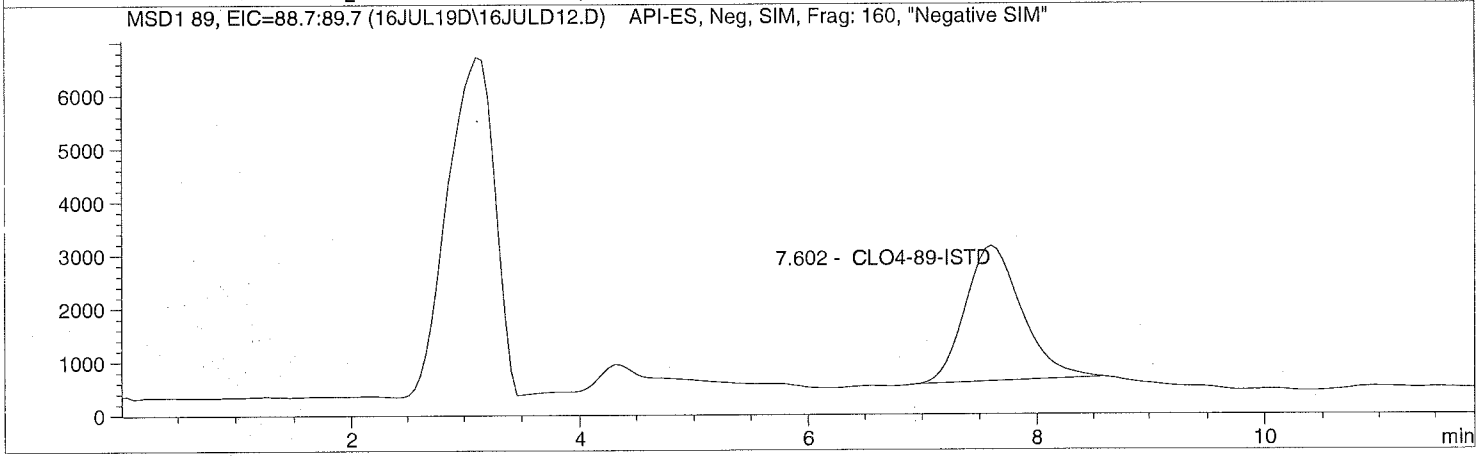
Injection Date:	7/16/2019 10:54:46	Seq Line:	12
Sample Name:	1919059008	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\16JUL19D\16JULD12.D Sample Name: 1919059008

Injection Date:	7/16/2019 10:54:46	Seq Line:	12
Sample Name:	1919059008	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.602	PBA	86892.1	5.0000	CLO4-89-ISTD

*** End of Report ***

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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August 23, 2019

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

Work Order: **HS19080486**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia,

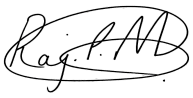
ALS Environmental received 3 sample(s) on Aug 09, 2019 for the analysis presented in the following report.

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: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS19080486

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19080486-01	18WW19_080819	Groundwater		08-Aug-2019 08:25	09-Aug-2019 08:45	☐
HS19080486-02	18WW20_080819	Groundwater		08-Aug-2019 09:15	09-Aug-2019 08:45	☐
HS19080486-03	Trip Blank	Water	C&G-062119-167	08-Aug-2019 00:00	09-Aug-2019 08:45	☐

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18 24
Work Order: HS19080486

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 144050

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

GCMS Volatiles by Method SW8260

Batch ID: R344126

Sample ID: HS19080444-02MS

• MS and MSD are for an unrelated sample

Metals by Method SW6020

Batch ID: 144236

Sample ID: HS19080444-02MS

• MS and MSD are for an unrelated sample

Sample ID: HS19080444-02PDS

• PDS is for an unrelated sample

Metals by Method SW7470

Batch ID: 144044

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW19_080819
Collection Date: 08-Aug-2019 08:25

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-01
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	12-Aug-2019 14:03
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-Aug-2019 14:03
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Aug-2019 14:03
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Aug-2019 14:03
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-Aug-2019 14:03
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Aug-2019 14:03
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW19_080819
Collection Date: 08-Aug-2019 08:25

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-01
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	12-Aug-2019 14:03
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Aug-2019 14:03
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Aug-2019 14:03
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Aug-2019 14:03
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:03
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:03
Surr: 1,2-Dichloroethane-d4	*90.7*			**0**	*81-118*	*%REC*	*1*	*12-Aug-2019 14:03*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*12-Aug-2019 14:03*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*12-Aug-2019 14:03*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*12-Aug-2019 14:03*

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW19_080819
Collection Date: 08-Aug-2019 08:25

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 16-Aug-2019		Analyst: JHD
Aluminum	**0.327**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	21-Aug-2019 14:10
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	21-Aug-2019 14:10
Arsenic	**0.000655**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
Barium	**0.119**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Aug-2019 14:10
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Aug-2019 14:10
Calcium	**6.82**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	21-Aug-2019 14:10
Chromium	**0.0100**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
Cobalt	**0.000430**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	21-Aug-2019 14:10
Iron	**15.8**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:10
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	21-Aug-2019 14:10
Magnesium	**3.17**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:10
Manganese	**0.279**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
Nickel	**0.00475**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
Potassium	**2.04**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:10
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	21-Aug-2019 14:10
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	21-Aug-2019 14:10
Sodium	**22.5**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:10
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Aug-2019 14:10
Vanadium	**0.00202**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
Zinc	**0.0211**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	21-Aug-2019 14:10
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 12-Aug-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	12-Aug-2019 15:07
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	14-Aug-2019 16:04

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW20_080819
Collection Date: 08-Aug-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-02
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	12-Aug-2019 14:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-Aug-2019 14:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Aug-2019 14:27
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Aug-2019 14:27
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-Aug-2019 14:27
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Aug-2019 14:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW20_080819
Collection Date: 08-Aug-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-02
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	12-Aug-2019 14:27
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Aug-2019 14:27
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Aug-2019 14:27
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Aug-2019 14:27
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 14:27
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 14:27
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*12-Aug-2019 14:27*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*12-Aug-2019 14:27*
Surr: Dibromofluoromethane	*92.9*			**0**	*80-119*	*%REC*	*1*	*12-Aug-2019 14:27*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*12-Aug-2019 14:27*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 12-Aug-2019		Analyst: LG
1,4-Dioxane	**0.25**		**0.010**	**0.010**	**0.010**	**ug/L**	1	14-Aug-2019 12:04
Surr: 2-Fluorobiphenyl	*107*			**0**	*40-140*	*%REC*	*1*	*14-Aug-2019 12:04*
Surr: 4-Terphenyl-d14	*124*			**0**	*40-140*	*%REC*	*1*	*14-Aug-2019 12:04*
Surr: Nitrobenzene-d5	*116*			**0**	*40-140*	*%REC*	*1*	*14-Aug-2019 12:04*

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW20_080819
Collection Date: 08-Aug-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 16-Aug-2019		Analyst: JHD
Aluminum	**0.0246**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	21-Aug-2019 14:13
Antimony	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	21-Aug-2019 14:13
Arsenic	0.000500	U	0.000400	0.000500	0.00500	mg/L	1	21-Aug-2019 14:13
Barium	**0.0929**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	21-Aug-2019 14:13
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Aug-2019 14:13
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Aug-2019 14:13
Calcium	**2.93**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	21-Aug-2019 14:13
Chromium	**0.000595**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	21-Aug-2019 14:13
Cobalt	**0.00504**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	21-Aug-2019 14:13
Copper	0.00100	U	0.00100	0.00100	0.00500	mg/L	1	21-Aug-2019 14:13
Iron	**4.37**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:13
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	21-Aug-2019 14:13
Magnesium	**2.08**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:13
Manganese	**0.220**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	21-Aug-2019 14:13
Nickel	**0.00749**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Aug-2019 14:13
Potassium	**1.33**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:13
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	21-Aug-2019 14:13
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	21-Aug-2019 14:13
Sodium	**26.2**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	21-Aug-2019 14:13
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Aug-2019 14:13
Vanadium	**0.000822**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Aug-2019 14:13
Zinc	**0.0191**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	21-Aug-2019 14:13
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 12-Aug-2019		Analyst: FO
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	12-Aug-2019 15:19
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	14-Aug-2019 16:04

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 08-Aug-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-03
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	12-Aug-2019 13:39
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-Aug-2019 13:39
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Aug-2019 13:39
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Aug-2019 13:39
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-Aug-2019 13:39
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Aug-2019 13:39
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39

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

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 08-Aug-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19080486
Lab ID:HS19080486-03
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	12-Aug-2019 13:39
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Aug-2019 13:39
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Aug-2019 13:39
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Aug-2019 13:39
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Aug-2019 13:39
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Aug-2019 13:39
Surr: 1,2-Dichloroethane-d4	*88.5*			**0**	*81-118*	*%REC*	*1*	*12-Aug-2019 13:39*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*1*	*12-Aug-2019 13:39*
Surr: Dibromofluoromethane	*91.6*			**0**	*80-119*	*%REC*	*1*	*12-Aug-2019 13:39*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*12-Aug-2019 13:39*

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

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

Batch ID: 144044 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19080486-01	1	10 (mL)	10 (mL)	1
HS19080486-02	1	10 (mL)	10 (mL)	1

Batch ID: 144050 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19080486-02	1	990	1 (mL)	0.00101

Batch ID: 144236 **Method:** METALS BY ICPMS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19080486-01	1	10	10 (mL)	1
HS19080486-02	1	10	10 (mL)	1

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: 144044 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS19080486-01	18WW19_080819	08 Aug 2019 08:25		12 Aug 2019 10:00	12 Aug 2019 15:07	1
HS19080486-02	18WW20_080819	08 Aug 2019 09:15		12 Aug 2019 10:00	12 Aug 2019 15:19	1
Batch ID: 144050 (1)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS19080486-02	18WW20_080819	08 Aug 2019 09:15		12 Aug 2019 14:21	14 Aug 2019 12:04	1
Batch ID: 144236 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19080486-01	18WW19_080819	08 Aug 2019 08:25		16 Aug 2019 11:00	21 Aug 2019 14:10	1
HS19080486-02	18WW20_080819	08 Aug 2019 09:15		16 Aug 2019 11:00	21 Aug 2019 14:13	1
Batch ID: R344126 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19080486-03	Trip Blank	08 Aug 2019 00:00			12 Aug 2019 13:39	1
Batch ID: R344126 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19080486-01	18WW19_080819	08 Aug 2019 08:25			12 Aug 2019 14:03	1
HS19080486-02	18WW20_080819	08 Aug 2019 09:15			12 Aug 2019 14:27	1
Batch ID: R344264 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19080486-01	18WW19_080819	08 Aug 2019 08:25			14 Aug 2019 16:04	1
HS19080486-02	18WW20_080819	08 Aug 2019 09:15			14 Aug 2019 16:04	1

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144044 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-144044** Units: **mg/L** Analysis Date: **12-Aug-2019 15:03**
Client ID: Run ID: **HG03_344100** SeqNo: **5206050** PrepDate: **12-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-144044** Units: **mg/L** Analysis Date: **12-Aug-2019 15:05**
Client ID: Run ID: **HG03_344100** SeqNo: **5206051** PrepDate: **12-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00518	0.000200	0.005	0	104	82 - 119				

MS Sample ID: **HS19080486-01MS** Units: **mg/L** Analysis Date: **12-Aug-2019 15:08**
Client ID: **18WW19_080819** Run ID: **HG03_344100** SeqNo: **5206053** PrepDate: **12-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00524	0.000200	0.005	-0.00001000	105	82 - 119				

MSD Sample ID: **HS19080486-01MSD** Units: **mg/L** Analysis Date: **12-Aug-2019 15:10**
Client ID: **18WW19_080819** Run ID: **HG03_344100** SeqNo: **5206054** PrepDate: **12-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00517	0.000200	0.005	-0.00001000	104	82 - 119	0.005240	1.34	20	

The following samples were analyzed in this batch: HS19080486-01 HS19080486-02

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144236 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-144236** Units: **mg/L** Analysis Date: **21-Aug-2019 12:39**
Client ID: Run ID: **ICPMS05_344606** SeqNo: **5219424** PrepDate: **16-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004271	0.0100								J
Antimony	0.000500	0.00500								U
Arsenic	0.000500	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.000500	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00100	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.01915	0.200								J
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144236 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-144236** Units: **mg/L** Analysis Date: **21-Aug-2019 12:41**
Client ID: Run ID: **ICPMS05_344606** SeqNo: **5219425** PrepDate: **16-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09959	0.0100	0.1	0	99.6	84 - 117				
Antimony	0.04719	0.00500	0.05	0	94.4	85 - 117				
Arsenic	0.04554	0.00500	0.05	0	91.1	84 - 116				
Barium	0.04667	0.00500	0.05	0	93.3	86 - 114				
Beryllium	0.04972	0.00200	0.05	0	99.4	83 - 121				
Cadmium	0.04705	0.00200	0.05	0	94.1	87 - 115				
Calcium	4.932	0.500	5	0	98.6	87 - 118				
Chromium	0.04713	0.00500	0.05	0	94.3	85 - 116				
Cobalt	0.04843	0.00500	0.05	0	96.9	86 - 115				
Copper	0.04761	0.00500	0.05	0	95.2	85 - 118				
Iron	4.888	0.200	5	0	97.8	87 - 118				
Lead	0.04668	0.00500	0.05	0	93.4	88 - 115				
Magnesium	4.769	0.200	5	0	95.4	83 - 118				
Manganese	0.04698	0.00500	0.05	0	94.0	87 - 115				
Nickel	0.04698	0.00500	0.05	0	94.0	85 - 117				
Potassium	4.715	0.200	5	0	94.3	87 - 115				
Selenium	0.04726	0.00500	0.05	0	94.5	80 - 120				
Silver	0.04905	0.00500	0.05	0	98.1	85 - 116				
Sodium	4.932	0.200	5	0	98.6	85 - 117				
Thallium	0.04473	0.00200	0.05	0	89.5	82 - 116				
Vanadium	0.04717	0.00500	0.05	0	94.3	86 - 115				
Zinc	0.04966	0.00500	0.05	0	99.3	83 - 119				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144236 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS19080444-02MS** Units: **mg/L** Analysis Date: **21-Aug-2019 13:14**
Client ID: Run ID: **ICPMS05_344606** SeqNo: **5219411** PrepDate: **16-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1278	0.0100	0.1	0.03038	97.4	84 - 117				
Antimony	0.04736	0.00500	0.05	0.00014	94.4	85 - 117				
Arsenic	0.05733	0.00500	0.05	0.01029	94.1	84 - 116				
Barium	1.005	0.00500	0.05	0.9778	54.2	86 - 114				SO
Beryllium	0.05303	0.00200	0.05	0.000016	106	83 - 121				
Cadmium	0.04698	0.00200	0.05	-0.000022	94.0	87 - 115				
Calcium	72.23	0.500	5	68.25	79.5	87 - 118				SO
Chromium	0.04855	0.00500	0.05	0.001244	94.6	85 - 116				
Cobalt	0.04752	0.00500	0.05	0.000749	93.5	86 - 115				
Copper	0.04863	0.00500	0.05	0.00097	95.3	85 - 118				
Iron	5.031	0.200	5	0.1664	97.3	87 - 118				
Lead	0.04697	0.00500	0.05	0.000297	93.3	88 - 115				
Magnesium	29.14	0.200	5	24.51	92.5	83 - 118				O
Manganese	0.06099	0.00500	0.05	0.0136	94.8	87 - 115				
Nickel	0.04865	0.00500	0.05	0.001982	93.3	85 - 117				
Potassium	5.32	0.200	5	0.6411	93.6	87 - 115				
Selenium	0.04542	0.00500	0.05	-0.000066	91.0	80 - 120				
Silver	0.04799	0.00500	0.05	0.000091	95.8	85 - 116				
Sodium	367	0.200	5	364.9	42.5	85 - 117				SEO
Thallium	0.04572	0.00200	0.05	0.000008	91.4	82 - 116				
Vanadium	0.05297	0.00500	0.05	0.004203	97.5	86 - 115				
Zinc	0.06638	0.00500	0.05	0.01821	96.3	83 - 119				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144236 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS19080444-02MSD** Units: **mg/L** Analysis Date: **21-Aug-2019 13:16**
Client ID: Run ID: **ICPMS05_344606** SeqNo: **5219412** PrepDate: **16-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1306	0.0100	0.1	0.03038	100	84 - 117	0.1278	2.18	20	
Antimony	0.04818	0.00500	0.05	0.00014	96.1	85 - 117	0.04736	1.72	20	
Arsenic	0.05806	0.00500	0.05	0.01029	95.5	84 - 116	0.05733	1.26	20	
Barium	1.051	0.00500	0.05	0.9778	146	86 - 114	1.005	4.47	20	SO
Beryllium	0.05457	0.00200	0.05	0.000016	109	83 - 121	0.05303	2.86	20	
Cadmium	0.04698	0.00200	0.05	-0.000022	94.0	87 - 115	0.04698	0.00213	20	
Calcium	73.76	0.500	5	68.25	110	87 - 118	72.23	2.09	20	O
Chromium	0.0494	0.00500	0.05	0.001244	96.3	85 - 116	0.04855	1.74	20	
Cobalt	0.04877	0.00500	0.05	0.000749	96.0	86 - 115	0.04752	2.6	20	
Copper	0.04785	0.00500	0.05	0.00097	93.8	85 - 118	0.04863	1.6	20	
Iron	5.105	0.200	5	0.1664	98.8	87 - 118	5.031	1.47	20	
Lead	0.04753	0.00500	0.05	0.000297	94.5	88 - 115	0.04697	1.19	20	
Magnesium	29.34	0.200	5	24.51	96.5	83 - 118	29.14	0.696	20	O
Manganese	0.06142	0.00500	0.05	0.0136	95.6	87 - 115	0.06099	0.706	20	
Nickel	0.04657	0.00500	0.05	0.001982	89.2	85 - 117	0.04865	4.37	20	
Potassium	5.411	0.200	5	0.6411	95.4	87 - 115	5.32	1.7	20	
Selenium	0.04647	0.00500	0.05	-0.000066	93.1	80 - 120	0.04542	2.29	20	
Silver	0.04619	0.00500	0.05	0.000091	92.2	85 - 116	0.04799	3.83	20	
Sodium	370.6	0.200	5	364.9	115	85 - 117	367	0.983	20	EO
Thallium	0.04668	0.00200	0.05	0.000008	93.4	82 - 116	0.04572	2.09	20	
Vanadium	0.0534	0.00500	0.05	0.004203	98.4	86 - 115	0.05297	0.812	20	
Zinc	0.06671	0.00500	0.05	0.01821	97.0	83 - 119	0.06638	0.493	20	

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144236 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS19080444-02PDS** Units: **mg/L** Analysis Date: **21-Aug-2019 13:18**
Client ID: Run ID: **ICPMS05_344606** SeqNo: **5219413** PrepDate: **16-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1132	0.00500	0.1	0.00014	113	80 - 120				
Arsenic	0.127	0.00500	0.1	0.01029	117	80 - 120				
Barium	1.13	0.00500	0.1	0.9778	152	80 - 120				SO
Beryllium	0.1191	0.00200	0.1	0.000016	119	80 - 120				
Cadmium	0.1127	0.00200	0.1	-0.000022	113	80 - 120				
Calcium	82.01	0.500	10	68.25	138	80 - 120				SO
Chromium	0.1196	0.00500	0.1	0.001244	118	80 - 120				
Cobalt	0.1172	0.00500	0.1	0.000749	116	80 - 120				
Copper	0.1157	0.00500	0.1	0.00097	115	80 - 120				
Iron	12.14	0.200	10	0.1664	120	80 - 120				
Lead	0.1158	0.00500	0.1	0.000297	115	80 - 120				
Manganese	0.1301	0.00500	0.1	0.0136	116	80 - 120				
Nickel	0.1155	0.00500	0.1	0.001982	114	80 - 120				
Selenium	0.1168	0.00500	0.1	-0.000066	117	80 - 120				
Silver	0.1004	0.00500	0.1	0.000091	100	80 - 120				
Thallium	0.118	0.00200	0.1	0.000008	118	80 - 120				
Vanadium	0.1231	0.00500	0.1	0.004203	119	80 - 120				
Zinc	0.1324	0.00500	0.1	0.01821	114	80 - 120				

PDS Sample ID: **HS19080444-02PDS** Units: **mg/L** Analysis Date: **23-Aug-2019 14:19**
Client ID: Run ID: **ICPMS05_344849** SeqNo: **5221849** PrepDate: **16-Aug-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	464.9	2.00	100	352	113	80 - 120				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144236 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS19080444-02SD** Units: **mg/L** Analysis Date: **21-Aug-2019 13:12**
Client ID: Run ID: **ICPMS05_344606** SeqNo: **5219410** PrepDate: **16-Aug-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.03597	0.0500					0.03038	0	10	J
Antimony	0.00250	0.0250					0.00014	0	10	U
Arsenic	0.01011	0.0250					0.01029	0	10	J
Barium	0.965	0.0250					0.9778	1.31	10	
Beryllium	0.00250	0.0100					0.000016	0	10	U
Cadmium	0.00250	0.0100					-0.000022	0	10	U
Calcium	66.25	2.50					68.25	2.93	10	
Chromium	0.00250	0.0250					0.001244	0	10	U
Cobalt	0.000643	0.0250					0.000749	0	10	J
Copper	0.00500	0.0250					0.00097	0	10	U
Iron	0.1666	1.00					0.1664	0	10	J
Lead	0.00500	0.0250					0.000297	0	10	U
Magnesium	23.71	1.00					24.51	3.26	10	
Manganese	0.01208	0.0250					0.0136	0	10	J
Nickel	0.00500	0.0250					0.001982	0	10	U
Potassium	0.6735	1.00					0.6411	0	10	J
Selenium	0.0125	0.0250					-0.000066	0	10	U
Silver	0.00250	0.0250					0.000091	0	10	U
Sodium	358.1	1.00					364.9	1.85	10	
Thallium	0.00250	0.0100					0.000008	0	10	U
Vanadium	0.008364	0.0250					0.004203	0	10	J
Zinc	0.01736	0.0250					0.01821	0	10	J

SD Sample ID: **HS19080444-02SD** Units: **mg/L** Analysis Date: **23-Aug-2019 14:16**
Client ID: Run ID: **ICPMS05_344849** SeqNo: **5221848** PrepDate: **16-Aug-2019** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Sodium	343.6	10.0					352	2.4	10	

The following samples were analyzed in this batch: HS19080486-01 HS19080486-02

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: 144050 (1) **Instrument: SV-5** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-144050** Units: **ug/L** Analysis Date: **14-Aug-2019 10:39**
Client ID: Run ID: **SV-5_344288** SeqNo: **5210366** PrepDate: **12-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.06751*	*0*	*0.08*	*0*	*84.4*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08197*	*0*	*0.08*	*0*	*102*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08197*	*0*	*0.08*	*0*	*102*	*40 - 140*				

LCS Sample ID: **LCS1-144050** Units: **ug/L** Analysis Date: **14-Aug-2019 11:23**
Client ID: Run ID: **SV-5_344288** SeqNo: **5210367** PrepDate: **12-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.09839	0.010	0.08	0	123	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07969*	*0*	*0.08*	*0*	*99.6*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.09862*	*0*	*0.08*	*0*	*123*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.09595*	*0*	*0.08*	*0*	*120*	*40 - 140*				

LCSD Sample ID: **LCSD1-144050** Units: **ug/L** Analysis Date: **14-Aug-2019 11:43**
Client ID: Run ID: **SV-5_344288** SeqNo: **5210368** PrepDate: **12-Aug-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.09378	0.010	0.08	0	117	40 - 140	0.09839	4.79	20	
Surr: 2-Fluorobiphenyl	*0.07338*	*0*	*0.08*	*0*	*91.7*	*40 - 140*	*0.07969*	*8.24*	*20*	
Surr: 4-Terphenyl-d14	*0.105*	*0*	*0.08*	*0*	*131*	*40 - 140*	*0.09862*	*6.28*	*20*	
Surr: Nitrobenzene-d5	*0.08919*	*0*	*0.08*	*0*	*111*	*40 - 140*	*0.09595*	*7.31*	*20*	

The following samples were analyzed in this batch: HS19080486-02

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190812** Units: **UG/L** Analysis Date: **12-Aug-2019 12:26**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206815** 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	1.0	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: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190812** Units: **UG/L** Analysis Date: **12-Aug-2019 12:26**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206815** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %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	1.0	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	*44.97*	*1.0*	*50*	*0*	*89.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.49*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*46.1*	*1.0*	*50*	*0*	*92.2*	*80 - 119*				
Surr: Toluene-d8	*51.42*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190812** Units: **UG/L** Analysis Date: **12-Aug-2019 11:38**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206814** 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	19.04	1.0	20	0	95.2	78 - 124				
1,1,1-Trichloroethane	18.66	1.0	20	0	93.3	74 - 131				
1,1,2,2-Tetrachloroethane	19.39	1.0	20	0	96.9	71 - 121				
1,1,2-Trichloroethane	18.86	1.0	20	0	94.3	80 - 119				
1,1-Dichloroethane	19.09	1.0	20	0	95.5	77 - 125				
1,1-Dichloroethene	18.97	1.0	20	0	94.9	71 - 131				
1,1-Dichloropropene	18.09	1.0	20	0	90.5	78 - 125				
1,2,3-Trichlorobenzene	21.2	1.0	20	0	106	69 - 129				
1,2,3-Trichloropropane	19.12	1.0	20	0	95.6	73 - 122				
1,2,4-Trichlorobenzene	20.07	1.0	20	0	100	69 - 130				
1,2,4-Trimethylbenzene	18.69	1.0	20	0	93.5	76 - 124				
1,2-Dibromo-3-chloropropane	18.39	1.0	20	0	91.9	62 - 128				
1,2-Dibromoethane	19.29	1.0	20	0	96.4	77 - 121				
1,2-Dichlorobenzene	19.51	1.0	20	0	97.5	80 - 119				
1,2-Dichloroethane	18.64	1.0	20	0	93.2	73 - 128				
1,2-Dichloropropane	20	1.0	20	0	100.0	78 - 122				
1,3,5-Trimethylbenzene	18.6	1.0	20	0	93.0	75 - 124				
1,3-Dichlorobenzene	18.38	1.0	20	0	91.9	80 - 119				
1,3-Dichloropropane	19.17	1.0	20	0	95.8	80 - 119				
1,4-Dichlorobenzene	19.37	1.0	20	0	96.8	79 - 118				
2,2-Dichloropropane	19.38	1.0	20	0	96.9	60 - 139				
2-Butanone	37.64	2.0	40	0	94.1	56 - 143				
2-Chlorotoluene	18.55	1.0	20	0	92.7	79 - 122				
2-Hexanone	38.67	2.0	40	0	96.7	57 - 139				
4-Chlorotoluene	18.37	1.0	20	0	91.8	78 - 122				
4-Isopropyltoluene	18.35	1.0	20	0	91.8	77 - 127				
4-Methyl-2-pentanone	36.6	2.0	40	0	91.5	67 - 130				
Acetone	39.41	2.0	40	0	98.5	39 - 160				
Benzene	19.19	1.0	20	0	96.0	79 - 120				
Bromobenzene	18.22	1.0	20	0	91.1	80 - 120				
Bromochloromethane	19.15	1.0	20	0	95.8	78 - 123				
Bromodichloromethane	19.01	1.0	20	0	95.0	79 - 125				
Bromoform	18.47	1.0	20	0	92.3	66 - 130				
Bromomethane	22.09	1.0	20	0	110	53 - 141				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190812** Units: **UG/L** Analysis Date: **12-Aug-2019 11:38**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206814** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	39.03	2.0	40	0	97.6	64 - 133				
Carbon tetrachloride	17.53	1.0	20	0	87.6	72 - 136				
Chlorobenzene	18.85	1.0	20	0	94.2	82 - 118				
Chloroethane	21.29	1.0	20	0	106	60 - 138				
Chloroform	18.92	1.0	20	0	94.6	79 - 124				
Chloromethane	19.92	1.0	20	0	99.6	50 - 139				
cis-1,2-Dichloroethene	19.12	1.0	20	0	95.6	78 - 123				
cis-1,3-Dichloropropene	19.6	1.0	20	0	98.0	75 - 124				
Dibromochloromethane	18.95	1.0	20	0	94.7	74 - 126				
Dibromomethane	18.88	1.0	20	0	94.4	79 - 123				
Dichlorodifluoromethane	17.19	1.0	20	0	85.9	32 - 152				
Ethylbenzene	18.52	1.0	20	0	92.6	79 - 121				
Hexachlorobutadiene	22.48	1.0	20	0	112	66 - 134				
Isopropylbenzene	18.27	1.0	20	0	91.4	72 - 131				
m,p-Xylene	37.65	2.0	40	0	94.1	80 - 121				
Methylene chloride	19.94	2.0	20	0	99.7	74 - 124				
Naphthalene	19.17	1.0	20	0	95.8	61 - 128				
n-Butylbenzene	19.19	1.0	20	0	95.9	75 - 128				
n-Propylbenzene	18.19	1.0	20	0	91.0	76 - 126				
o-Xylene	18.81	1.0	20	0	94.0	78 - 122				
sec-Butylbenzene	18.24	1.0	20	0	91.2	77 - 126				
Styrene	19.4	1.0	20	0	97.0	78 - 123				
tert-Butylbenzene	18.14	1.0	20	0	90.7	78 - 124				
Tetrachloroethene	17.85	1.0	20	0	89.2	74 - 129				
Toluene	18.96	1.0	20	0	94.8	80 - 121				
trans-1,2-Dichloroethene	18.98	1.0	20	0	94.9	75 - 124				
trans-1,3-Dichloropropene	19.5	1.0	20	0	97.5	73 - 127				
Trichloroethene	18.81	1.0	20	0	94.0	79 - 123				
Trichlorofluoromethane	18.41	1.0	20	0	92.1	65 - 141				
Vinyl chloride	19.24	1.0	20	0	96.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.82*	*1.0*	*50*	*0*	*102*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.45*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*50.86*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*47.64*	*1.0*	*50*	*0*	*95.3*	*89 - 112*				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19080444-02MS** Units: **UG/L** Analysis Date: **12-Aug-2019 17:15**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206825** 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	18.24	1.0	20	0	91.2	78 - 124				
1,1,1-Trichloroethane	17.39	1.0	20	0	86.9	74 - 131				
1,1,2,2-Tetrachloroethane	19.33	1.0	20	0	96.7	71 - 121				
1,1,2-Trichloroethane	18.43	1.0	20	0	92.1	80 - 119				
1,1-Dichloroethane	16.73	1.0	20	0	83.6	77 - 125				
1,1-Dichloroethene	16.99	1.0	20	0	85.0	71 - 131				
1,1-Dichloropropene	17.79	1.0	20	0	89.0	78 - 125				
1,2,3-Trichlorobenzene	20.77	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	18.82	1.0	20	0	94.1	73 - 122				
1,2,4-Trichlorobenzene	20.14	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	19.22	1.0	20	0	96.1	76 - 124				
1,2-Dibromo-3-chloropropane	18.52	1.0	20	0	92.6	62 - 128				
1,2-Dibromoethane	18.1	1.0	20	0	90.5	77 - 121				
1,2-Dichlorobenzene	19	1.0	20	0	95.0	80 - 119				
1,2-Dichloroethane	16.95	1.0	20	0	84.8	73 - 128				
1,2-Dichloropropane	17.81	1.0	20	0	89.1	78 - 122				
1,3,5-Trimethylbenzene	19.34	1.0	20	0	96.7	75 - 124				
1,3-Dichlorobenzene	18.11	1.0	20	0	90.5	80 - 119				
1,3-Dichloropropane	17.91	1.0	20	0	89.5	80 - 119				
1,4-Dichlorobenzene	18.94	1.0	20	0	94.7	79 - 118				
2,2-Dichloropropane	16.24	1.0	20	0	81.2	60 - 139				
2-Butanone	44.43	2.0	40	0	111	56 - 143				
2-Chlorotoluene	18.6	1.0	20	0	93.0	79 - 122				
2-Hexanone	57.92	2.0	40	0	145	57 - 139				S
4-Chlorotoluene	18.43	1.0	20	0	92.2	78 - 122				
4-Isopropyltoluene	19.75	1.0	20	0	98.7	77 - 127				
4-Methyl-2-pentanone	55.9	2.0	40	0	140	67 - 130				S
Acetone	34.26	2.0	40	0	85.7	39 - 160				
Benzene	19.89	1.0	20	1.975	89.6	79 - 120				
Bromobenzene	18.01	1.0	20	0	90.1	80 - 120				
Bromochloromethane	15.88	1.0	20	0	79.4	78 - 123				
Bromodichloromethane	17.45	1.0	20	0	87.2	79 - 125				
Bromoform	17.62	1.0	20	0	88.1	66 - 130				
Bromomethane	12.43	1.0	20	0	62.2	53 - 141				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19080444-02MS** Units: **UG/L** Analysis Date: **12-Aug-2019 17:15**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206825** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	49.83	2.0	40	0	125	64 - 133				
Carbon tetrachloride	17.74	1.0	20	0	88.7	72 - 136				
Chlorobenzene	18.33	1.0	20	0	91.6	82 - 118				
Chloroethane	16.83	1.0	20	0	84.1	60 - 138				
Chloroform	16.54	1.0	20	0	82.7	79 - 124				
Chloromethane	11.67	1.0	20	0	58.4	50 - 139				
cis-1,2-Dichloroethene	16.59	1.0	20	0	83.0	78 - 123				
cis-1,3-Dichloropropene	17.38	1.0	20	0	86.9	75 - 124				
Dibromochloromethane	18.02	1.0	20	0	90.1	74 - 126				
Dibromomethane	17.19	1.0	20	0	85.9	79 - 123				
Dichlorodifluoromethane	8.432	1.0	20	0	42.2	32 - 152				
Ethylbenzene	19.22	1.0	20	0	96.1	79 - 121				
Hexachlorobutadiene	20.65	1.0	20	0	103	66 - 134				
Isopropylbenzene	71.57	1.0	20	50.38	106	72 - 131				
m,p-Xylene	37.93	2.0	40	0	94.8	80 - 121				
Methylene chloride	17.3	2.0	20	0	86.5	74 - 124				
Naphthalene	156.4	1.0	20	122.9	167	61 - 128				SO
n-Butylbenzene	20.37	1.0	20	0	102	75 - 128				
n-Propylbenzene	33.57	1.0	20	12.96	103	76 - 126				
o-Xylene	18.91	1.0	20	0	94.6	78 - 122				
sec-Butylbenzene	31.64	1.0	20	11.43	101	77 - 126				
Styrene	18.69	1.0	20	0	93.5	78 - 123				
tert-Butylbenzene	30.98	1.0	20	11.82	95.8	78 - 124				
Tetrachloroethene	19.06	1.0	20	0	95.3	74 - 129				
Toluene	18.92	1.0	20	0	94.6	80 - 121				
trans-1,2-Dichloroethene	16.97	1.0	20	0	84.8	75 - 124				
trans-1,3-Dichloropropene	17.09	1.0	20	0	85.4	73 - 127				
Trichloroethene	17.88	1.0	20	0	89.4	79 - 123				
Trichlorofluoromethane	16.49	1.0	20	0	82.4	65 - 141				
Vinyl chloride	14.53	1.0	20	0	72.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.77*	*1.0*	*50*	*0*	*93.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.77*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*46.71*	*1.0*	*50*	*0*	*93.4*	*80 - 119*				
Surr: Toluene-d8	*49.81*	*1.0*	*50*	*0*	*99.6*	*89 - 112*				

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19080444-02MSD** Units: **UG/L** Analysis Date: **12-Aug-2019 17:39**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206826** 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	19.18	1.0	20	0	95.9	78 - 124	18.24	5.05	20	
1,1,1-Trichloroethane	17.38	1.0	20	0	86.9	74 - 131	17.39	0.0182	20	
1,1,2,2-Tetrachloroethane	20.91	1.0	20	0	105	71 - 121	19.33	7.85	20	
1,1,2-Trichloroethane	19.52	1.0	20	0	97.6	80 - 119	18.43	5.76	20	
1,1-Dichloroethane	16.92	1.0	20	0	84.6	77 - 125	16.73	1.15	20	
1,1-Dichloroethene	16.75	1.0	20	0	83.7	71 - 131	16.99	1.45	20	
1,1-Dichloropropene	18.14	1.0	20	0	90.7	78 - 125	17.79	1.92	20	
1,2,3-Trichlorobenzene	22.17	1.0	20	0	111	69 - 129	20.77	6.52	20	
1,2,3-Trichloropropane	20.11	1.0	20	0	101	73 - 122	18.82	6.64	20	
1,2,4-Trichlorobenzene	20.9	1.0	20	0	104	69 - 130	20.14	3.68	20	
1,2,4-Trimethylbenzene	19.89	1.0	20	0	99.4	76 - 124	19.22	3.44	20	
1,2-Dibromo-3-chloropropane	20.7	1.0	20	0	103	62 - 128	18.52	11.1	20	
1,2-Dibromoethane	19.13	1.0	20	0	95.6	77 - 121	18.1	5.51	20	
1,2-Dichlorobenzene	19.74	1.0	20	0	98.7	80 - 119	19	3.8	20	
1,2-Dichloroethane	17.33	1.0	20	0	86.6	73 - 128	16.95	2.17	20	
1,2-Dichloropropane	18.86	1.0	20	0	94.3	78 - 122	17.81	5.69	20	
1,3,5-Trimethylbenzene	20.11	1.0	20	0	101	75 - 124	19.34	3.9	20	
1,3-Dichlorobenzene	18.91	1.0	20	0	94.6	80 - 119	18.11	4.36	20	
1,3-Dichloropropane	19.21	1.0	20	0	96.0	80 - 119	17.91	6.99	20	
1,4-Dichlorobenzene	19.93	1.0	20	0	99.6	79 - 118	18.94	5.08	20	
2,2-Dichloropropane	15.93	1.0	20	0	79.7	60 - 139	16.24	1.9	20	
2-Butanone	47.26	2.0	40	0	118	56 - 143	44.43	6.18	20	
2-Chlorotoluene	19.37	1.0	20	0	96.9	79 - 122	18.6	4.05	20	
2-Hexanone	62.31	2.0	40	0	156	57 - 139	57.92	7.29	20	S
4-Chlorotoluene	19.16	1.0	20	0	95.8	78 - 122	18.43	3.87	20	
4-Isopropyltoluene	20.39	1.0	20	0	102	77 - 127	19.75	3.21	20	
4-Methyl-2-pentanone	59.73	2.0	40	0	149	67 - 130	55.9	6.63	20	S
Acetone	36.85	2.0	40	0	92.1	39 - 160	34.26	7.28	20	
Benzene	20.64	1.0	20	1.975	93.3	79 - 120	19.89	3.66	20	
Bromobenzene	18.7	1.0	20	0	93.5	80 - 120	18.01	3.77	20	
Bromochloromethane	16.31	1.0	20	0	81.6	78 - 123	15.88	2.72	20	
Bromodichloromethane	18.2	1.0	20	0	91.0	79 - 125	17.45	4.22	20	
Bromoform	19	1.0	20	0	95.0	66 - 130	17.62	7.54	20	
Bromomethane	11.45	1.0	20	0	57.2	53 - 141	12.43	8.27	20	

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS19080486

QC BATCH REPORT

Batch ID: R344126 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19080444-02MSD** Units: **UG/L** Analysis Date: **12-Aug-2019 17:39**
Client ID: Run ID: **VOA6_344126** SeqNo: **5206826** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	49.52	2.0	40	0	124	64 - 133	49.83	0.607	20	
Carbon tetrachloride	18.06	1.0	20	0	90.3	72 - 136	17.74	1.8	20	
Chlorobenzene	18.9	1.0	20	0	94.5	82 - 118	18.33	3.06	20	
Chloroethane	16.01	1.0	20	0	80.0	60 - 138	16.83	4.98	20	
Chloroform	16.99	1.0	20	0	85.0	79 - 124	16.54	2.68	20	
Chloromethane	11.25	1.0	20	0	56.3	50 - 139	11.67	3.66	20	
cis-1,2-Dichloroethene	17.09	1.0	20	0	85.4	78 - 123	16.59	2.93	20	
cis-1,3-Dichloropropene	18.45	1.0	20	0	92.3	75 - 124	17.38	5.97	20	
Dibromochloromethane	19.08	1.0	20	0	95.4	74 - 126	18.02	5.69	20	
Dibromomethane	18.11	1.0	20	0	90.5	79 - 123	17.19	5.19	20	
Dichlorodifluoromethane	8.143	1.0	20	0	40.7	32 - 152	8.432	3.48	20	
Ethylbenzene	19.8	1.0	20	0	99.0	79 - 121	19.22	3.02	20	
Hexachlorobutadiene	21.93	1.0	20	0	110	66 - 134	20.65	6.03	20	
Isopropylbenzene	73.21	1.0	20	50.38	114	72 - 131	71.57	2.27	20	
m,p-Xylene	39.38	2.0	40	0	98.4	80 - 121	37.93	3.74	20	
Methylene chloride	17.55	2.0	20	0	87.8	74 - 124	17.3	1.47	20	
Naphthalene	169.4	1.0	20	122.9	233	61 - 128	156.4	8	20	SO
n-Butylbenzene	21.02	1.0	20	0	105	75 - 128	20.37	3.16	20	
n-Propylbenzene	34.73	1.0	20	12.96	109	76 - 126	33.57	3.4	20	
o-Xylene	19.85	1.0	20	0	99.2	78 - 122	18.91	4.82	20	
sec-Butylbenzene	32.71	1.0	20	11.43	106	77 - 126	31.64	3.32	20	
Styrene	19.68	1.0	20	0	98.4	78 - 123	18.69	5.15	20	
tert-Butylbenzene	32.37	1.0	20	11.82	103	78 - 124	30.98	4.39	20	
Tetrachloroethene	19.42	1.0	20	0	97.1	74 - 129	19.06	1.86	20	
Toluene	19.61	1.0	20	0	98.1	80 - 121	18.92	3.59	20	
trans-1,2-Dichloroethene	16.88	1.0	20	0	84.4	75 - 124	16.97	0.536	20	
trans-1,3-Dichloropropene	17.63	1.0	20	0	88.2	73 - 127	17.09	3.14	20	
Trichloroethene	18.33	1.0	20	0	91.6	79 - 123	17.88	2.47	20	
Trichlorofluoromethane	16.24	1.0	20	0	81.2	65 - 141	16.49	1.5	20	
Vinyl chloride	14.37	1.0	20	0	71.9	58 - 137	14.53	1.05	20	
Surr: 1,2-Dichloroethane-d4	*44.97*	*1.0*	*50*	*0*	*89.9*	*81 - 118*	*46.77*	*3.92*	*20*	
Surr: 4-Bromofluorobenzene	*52.86*	*1.0*	*50*	*0*	*106*	*85 - 114*	*52.77*	*0.171*	*20*	
Surr: Dibromofluoromethane	*46.88*	*1.0*	*50*	*0*	*93.8*	*80 - 119*	*46.71*	*0.376*	*20*	
Surr: Toluene-d8	*50.85*	*1.0*	*50*	*0*	*102*	*89 - 112*	*49.81*	*2.07*	*20*	

ALS Houston, US Date: 23-Aug-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP 18 24
WorkOrder:	HS19080486

QC BATCH REPORT

Batch ID:	**R344126 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:	HS19080486-01	HS19080486-02	HS19080486-03

ALS Houston, US Date: 23-Aug-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS19080486**

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	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 23-Aug-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19080486
Date/Time Received: **09-Aug-2019 08:45**
Received by: **JRM**

Checklist completed by: *Paresh M. Giga* eSignature 9-Aug-2019 Date
Reviewed by: *RJ Modashia* eSignature 9-Aug-2019 Date

Matrices: **GW/Water**
Carrier name: **FedEx**

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 ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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 U/c	IR25
Cooler(s)/Kit(s):	43662	
Date/Time sample(s) sent to storage:	8/9/19 16:35	

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 ENERGY

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 18/24

Client Name:

Collected by: Scott Beasinger

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	Perchlorate	Total Metals	1,4-Dioxane	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
18WW19-080819		08 Aug 2019	0825	-	N		WG	5	X	X	X					
18WW20-080819		08AUG 2019	0915	-	N		WG	6	X	X	X	X				
Trip Blank		08 AUG 2019		-	TB		W	2	X							
				-												
				-												
				-												
				-												
				-												
				-												
				-												

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19080486
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beasinger	8/9/19	1400	1. J. MALCOM	8/9/19	08:45
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 Stancliff 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

Cooler 43662
Temp 1.8
1125
CF 0.0

00942698

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

43662

CUSTODY SEAL
Date: 8/8/09 Time: 1400
Name: [illegible]
Company: [illegible]
Seal Broken By: ND
Date: 8/9/09

(281) 530-5656
REF: LHAAP/18/24 & SURFACE WATER - RJ
RMA:

43662
08/09 ND

FedEx Express

TRK# 0221 4809 7834 3148

FedEx
TRK# 0221 4809 7834 3148

RETURNS MON-SAT
FRI - 09 AUG 10:30A
PRIORITY OVERNIGHT
77099

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1922027; 1922715; 1923027

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2281 (245600)

General Set Information: There were four field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: NA

Method QC data: The method blank (LMB 668347) was less than 1/2 the CRDL. The recovery for the LCS (668348) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 1922027001 (Client ID: LH18/24-SP650_073019_BIX). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 4.µg/L. The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 668345) is reported from the analysis of the Laboratory Control Sample (LCS – 668348) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 14AUGD05-08.

Thomas Bosch August 14, 2019
Analyst Date

ANALYTICAL REPORT

Report Date: August 14, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1923027**
Project ID: HS19080486
Purchase Order: HS19080486
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
18WW19_080819	1923027001	08/08/19	08/13/19	
18WW20_080819	1923027002	08/08/19	08/13/19	

ANALYTICAL REPORT

Workorder: 34-1923027
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18WW19_080819** | Sampling Site: NA | Collected: 08/08/2019
Lab ID: 1923027001 | Media: 125 mL Nalgene | Received: 08/13/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2281 (HBN: 245600) | **Percent Solid:** NA
Analyzed: 08/14/2019 10:22 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW20_080819** | Sampling Site: NA | Collected: 08/08/2019
Lab ID: 1923027002 | Media: 125 mL Nalgene | Received: 08/13/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2281 (HBN: 245600) | **Percent Solid:** NA
Analyzed: 08/14/2019 10:36 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 08/14/2019 12:01	/S/ Stephen Brose 08/14/2019 14:07

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1923027
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1923027

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2281 (HBN: 245600)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 668347
Analyzed: 08/14/2019 09:11
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 668348
Analyzed: 08/14/2019 08:43
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.00	4.00	100	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1922027001	**MS:**	668349	**MSD:**	668350
Analyzed:	08/14/2019 09:25	**Analyzed:**	08/14/2019 09:39	**Analyzed:**	08/14/2019 09:54
Dilution:	1	**Dilution:**	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	3.69	4	92.2	78.8	123.8	3.63	90.7	1.61	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
08/14/2019 12:06	08/14/2019 14:07

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable





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

18698/# 2

SAMPLING STATE: **Texas**

COC ID: **11956**

SUBCONTRACT TO:

1923027

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19080486
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19080486-01**	**18WW19_080819**	**Groundwater**	**08 Aug 2019 08:25**
	SUB_Perch-6850			23 Aug 2019
2.	**HS19080486-02**	**18WW20_080819**	**Groundwater**	**08 Aug 2019 09:15**
	SUB_Perch-6850			23 Aug 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 8/12/19 18:00

Received By: _____ Date/Time: 8/13/19 09:07

Cooler ID(s): _____ Temperature(s): _____

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

1923027

Client Name: ALS Houston

Project/Task/Site:

Date/Time of Receipt: 8/13/19 09:07

Number of Coolers Received: 1

Condition of Coolers: (Acceptable/Unacceptable)

Cooler Custody Seals: (Present/Absent/NA) (Intact/Broken/NA)

Container Custody Seals: Present/(Absent/NA) Intact/Broken/(NA)

Ice Present: (Yes/No/NA) (Frozen/Melted/NA)

Temperature Control: (Present/Not Included)

Location Temp Taken: (Control/Between Samples)

Are all temperatures within project specific guidelines? (Yes/No/NA)

VOA Headspace Present? Yes/No/(NA)

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9827	3 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Jaylynn Johnson (Signature) Jaylynn Johnson (Printed Name) 8/13/19 (Date)

Client-Related Information

- ☐ Missing Cooler
- ☐ Cooler Conditions
- ☐ Missing Paperwork
- ☐ Missing/Incorrect Bottle Labels
- ☐ Missing Samples/Bottles
- ☐ Broken/Leaking Samples
- ☐ Incorrect Bottle Type
- ☐ Cooler Temperatures Out of Range
- ☐ Incorrect Preservation
- ☐ pH Criteria Not Met
- ☐ Residual Chlorine Present
- ☐ Head Space in Bottles
- ☐ Insufficient Sample Volume
- ☐ Chain of Custody Problems
- ☐ Other:

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018

Must Deliver Next Business Day
Time and Temperature Sensitive!

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 12AUG19
ACTWGT: 13.75 LB
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19080486 - RJ

FedEx Express

J18711806050Uv

THU 0201 4809 7836 6907

TUE - 13 AUG 10:30A
PRIORITY OVERNIGHT

AX BTFA

84123
UT-US SLC

RT 907 ST 9 5 10:30 A 6907 08.13

5510

Scan By:

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19080486	***Split:***	**Workorder ID:** 1923027	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	08/08/2019 08:25	18WW19_080819	1923027001		Water	A	1	A
2	08/08/2019 09:15	18WW20_080819	1923027002		Water	A	1	A
3								
4								
5								
6								
7								
8								
9								
10								

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ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	08/13/2019 09:07	ALS Sample Receiving	Sample Login
[signature]	8/13/19 1400	6B	Storage
R.33.1	8-14-19/08:20	T. Boak	CLO4 ANALYSIS

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00942709

Batch Worklist

Batch: ELMS/ 2281 **Created:** 8/14/2019 07:41 **Instrument:** LCMS04 **HBN:** 245600
Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1922027 [ENV_LVL4]
Workorder: 1922715 [ENV_LVL4]
Workorder: 1923027 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	668344	CCV for HBN 245600 [ELMS/2281]				CCV	3		E685041C3Q	5311		8/14/2019	8/14/2019
2	668348	LCS for HBN 245600 [ELMS/2281]				LCS	3		E6850Q413Q	5311		8/14/2019	8/14/2019
3	668346	ICS for HBN 245600 [ELMS/2281]				ICS	3		E6850..D3Q	5311		8/14/2019	8/14/2019
4	668347	LMB for HBN 245600 [ELMS/2281]				LMB	3		E6850Q413Q	5311		8/14/2019	8/14/2019
5	1922027001	LH18/24-SP650_073019_BIX				SAMPLE	3	1922027001-A	E6850Q41.3	5480	8/27/2019	8/14/2019	8/14/2019
6	668349	LH18/24-SP650...(1922027001MS)				MS	3		E6850Q413Q	5311		8/14/2019	8/14/2019
7	668350	LH18/24-SP65...(1922027001MSD)				MSD	3		E6850Q413Q	5311		8/14/2019	8/14/2019
8	1922715001	LH18/24-SP650_080619_BIX				SAMPLE	3	1922715001-A	E6850Q41.3	5480	9/3/2019	8/22/2019	8/14/2019
9	1923027001	18WW19_080819				SAMPLE	3	1923027001-A	E6850Q41.3	5480	9/5/2019	8/26/2019	8/14/2019
10	1923027002	18WW20_080819				SAMPLE	3	1923027002-A	E6850Q41.3	5480	9/5/2019	8/26/2019	8/14/2019
11	668345	RLVS for HBN 245600 [ELMS/2281				RLVS	3		E685041C3Q	5311		8/14/2019	8/14/2019
12	668351	CCV for HBN 245600 [ELMS/2281]				CCV	3		E685041C3Q	5311		8/14/2019	8/14/2019



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 1922027 (001); 1922715 (001); 1923027 (001)
ELMS Batch/HBN ID: 2281 (245600)
Prep Date: 08/13/2019 Analysis Date: 08/14/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\AUG\14AUG19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 10 Injection Volume: 50µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 668348; Target = 4.0µg/L. ASTM type II water was used for LMB 668347.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1922027001 (Client ID: LH18/24-SP650_073019_BIX). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:

1) Results reported in µg/L.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\AUG\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\245600-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 668345) is reported from the analysis of the Laboratory Control Sample (LCS – 668348) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03) along with datafiles 14AUGD05-08.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2281 HBN: 245600 Sample Set IDs if Applicable: 1922027/1922715/1923027	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Method Blanks analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness checked	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L	
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025	
MFG Lot: Not Provided		Usable: Yes	
Part ID: Not Provided		Lab Lot: LAB 109	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT	Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L	
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025	
MFG Lot: Not Provided		Usable: Yes	
Part ID: Not Provided		Lab Lot: LAB 109	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

ALS

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — **Description - 6850 QC Intrmdt Std-QC 10ug/mL**

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED TESTING LABORATORY

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through N.I.S.T. Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

AccuStandard

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

OR-ORG/IND-001
Rev. 5/18