LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 3 of 19

2010

Bate Stamp Numbers

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Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976 – 2010

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

VOLUME 3 of 19

2010

A.	Title:	Report – Final Addendum to Final Feasibility Study LHAAP-16, Longhorn Army Ammunition Plant, Karnack, Texas
	Author(s):	Shaw Environmental, Inc., Houston, Texas
	Recipient:	All Stakeholders
	Date:	March 30, 2010
	Bate Stamp:	00084359 - 00085339

00084359

FINAL ADDENDUM
TO
FINAL FEASIBILITY STUDY
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

ON THE LINE

MARCH 2010

00084360

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

March 30, 2010

DAIM-ODB-LO

Mr. Stephen Tzhone
US Environmental Protection Agency
Superfund Division (6SF-AT)
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Final Addendum to the Final Feasibility Study, LHAAP-16,
Longhorn Army Ammunition Plant, Karnack, Texas, March 2010

Dear Mr. Tzhone,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager, be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
F. Duke, TCEQ, Austin, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
J. Lambert, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
M. Mechenes, USAEC, MD
P. Srivastav, Shaw – Houston, TX (for project files)

00084361

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

March 30, 2010

DAIM-ODB-LO

Ms. Fay Duke (MC-136)
SSDAT/Superfund Section
Remediation Division
Texas Commission on Environmental Quality
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Final Addendum to the Final Feasibility Study, LHAAP-16,
Longhorn Army Ammunition Plant, Karnack, Texas, March 2010
SUP 126

Dear Ms. Duke,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
S. Tzhone, USEPA Region 6, Dallas, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
J. Lambert, USACE, Tulsa District, OK
M. Mechenes, USAEC, MD
A. Williams, USACE, Tulsa District, OK
P. Srivastav, Shaw, Houston, TX (for project files)

00084362

Shaw® Shaw Environmental, Inc.

Date: ***March 30, 2010***

Project No.:117591

TRANSMITTAL LETTER:

To: Mr. Aaron Williams

Address: US Army Corps of Engineers - Tulsa

CESWT-PP-M

1645 South 101st East Ave

Tulsa, Oklahoma 74128

Re: Final Addendum to the Final Feasibility Study, LHAAP-16

Contract No. W912QR-04-D-0027/DS02

For: Review____ As Requested ____ Approval____ Corrections____ Submittal____ Other X____

Item No:	***No. of Copies***	***Date:***	***Document Title***
1	2	March 2010	**Final Addendum to the Final Feasibility Study, LHAAP-16 Longhorn Army Ammunition Plant, Karnack, Texas**

Aaron– Enclosed are two copies of Shaw's final version of the above-named document. Copies have been distributed as indicated below.

Please call with any questions or comments.

Sincerely:

Praveen Srivastav
Project Manager

CC: **Distribution List:**

Mr. J. Lambert– USACE, Tulsa (sent to A. Williams for distribution)
Mr. M. Mechenes – USAEC
Ms. Rose Zeiler – BRAC-LHAAP
Mr. S. Tzhone – EPA Region 6 (2)
Ms. F. Duke– TCEQ, Austin (2)
Mr. D. Vodak– TCEQ, Tyler
Mr. P. Bruckwicki– U.S. Fish and Wildlife Service

Chronology of Responses to Regulatory Comments on
Draft Final Addendum to Final Feasibility Study, LHAAP-16,
Longhorn Army Ammunition Plant, Karnack, Texas, July 2008

Date	**Action**
March 26, 2010	TCEQ concurs with final revisions.
March 25, 2010	EPA concurs with final revisions.
March 22, 2010	Shaw (Army contractor) submits response to resolve final EPA comment.
March 19, 2010	Shaw submits track-changes to identify revisions associated with RTCs dated March 16, 2010.
March 17-18, 2010	TCEQ agrees to clarification of comment response on bioremediation and MNA evaluation.
March 17, 2010	EPA requests revised response to sampling frequency comment.
March 16, 2010	Shaw submits revised responses to TCEQ comments.
March 10, 2010	Shaw provides summary of LHAAP-16 agreements during Monthly Managers Meeting.
February 25, 2010	Following communications on the variability of analytical results, TCEQ provides comments on the January 25, 2010, RTCs.
January 25, 2010	Shaw submits responses to TCEQ comments dated December 11, 2009.
December 11, 2009	TCEQ provides follow-up comments.
October 15, 2009	Shaw submits responses to regulator comments.

Notes:

Actions are presented in reverse order by date.

Track-changes documents are not included with the communications below since the changes have been incorporated into the final document. Final may be compared to draft final version to see net effect of revisions.

EPA Environmental Protection Agency, Region 6
MNA monitored natural attenuation
RTCs Responses to Comments
TCEQ Texas Commission on Environmental Quality

From: Fay Duke [mailto:FDUKE@tceq.state.tx.us]
Sent: Friday, March 26, 2010 10:06 AM
To: Srivastav, Praveen; Tzhone, Stephen
Cc: Duffield, Robert; Everett, Kay; Jones, Greg N; Lambert, John R SWT; Watson, Susan; Williams, Aaron K SWT; Zeiler, Rose Ms CIV USA OSA
Subject: Re: FW: LHAAP-16 FS Addendum - New Track-Changes Version

Rose/Praveen,

The TCEQ has reviewed the tracked-change version of the main text of the LHAAP-16 Feasibility Study Addendum. We concur with the revisions made and have no additional comments. Please proceed.

Thank you, fd

Fay Duke (MC-136)
Remediation Division, TCEQ
PO Box 13087
Austin, Texas 78711-3087
512-239-2443
512-239-2450 (Fax)

From: Tzhone.Stephen@epamail.epa.gov [mailto:Tzhone.Stephen@epamail.epa.gov]
Sent: Thursday, March 25, 2010 12:47 PM
To: Zeiler, Rose Ms CIV USA OSA
Cc: Fay Duke; Burton.Terry@epamail.epa.gov; Lambert, John R SWT; Williams, Aaron K SWT; Srivastav, Praveen; Jones, Greg N; Watson, Susan; Duffield, Robert; Everett, Kay
Subject: Longhorn: EPA Review on LHAAP-16 DF FS Addendum RTCs

Hi Rose:

The EPA has completed review of the revised Army RTCs to the regulatory comments on *DF Feasibility Study Addendum for LHAAP-16* (email 3/19/2010 and email 3/22/2010) and agrees with all revised RTCs and tracked changes.

Please proceed with finalization of the document.

Thanks,

Stephen L. Tzhone
Superfund Remedial Project Manager
USEPA Region 6 (6SF-RA)
214.665.8409
tzhone.stephen@epa.gov

From: Jones, Greg N
Sent: Monday, March 22, 2010 3:28 PM
To: Tzhone, Stephen; 'Fay Duke'
Cc: Lambert, John R SWT; Williams, Aaron K SWT; Zeiler, Rose Ms CIV USA OSA; Watson, Susan; Duffield, Robert; Everett, Kay; Srivastav, Praveen
Subject: FW: LHAAP-16 FS Addendum - New Track-Changes Version

Steve,

This is a follow-up to Praveen's earlier email. I extracted Comment #10 from Terry Burton's earlier comments in order to associate the appropriate text (from the track-changes document) with that specific comment. Please see the additional text (the 2nd paragraph with bullet items) that has been added and underlined.

Comment #	Page	Section/ Paragraph	Comment	C, D[1], E or X	<u>Revised</u> Response	A or D[2]
10			I feel that the reduction plan in sampling is overly aggressive. Given that source containment is not fully reached (more on that later), I would prefer a maintenance of quarterly sampling for a longer period of time, followed by a longer period of annual sampling.	<u>C</u>	As noted on pages 4-5 and 4-6, the monitoring frequencies on those pages have been assumed for estimating purposes and will be adjusted as data are collected. <u>As noted in the track-changes document issued to EPA and TCEQ on March 19th, the text of the FS Addendum has been modified to indicate quarterly sampling for the first two years following initiation of MNA. The overall assumptions regarding monitoring of groundwater were revised to read as follows (Section 4.5):</u> • <u>MNA sampling will be performed quarterly for the first two years.</u> • <u>After at least eight quarterly sampling events, the sampling frequency will be changed to semi-annually if the data suggests that less frequent sampling is appropriate.</u> • <u>After at least three years of semi-annual sampling events, the sampling frequency</u>	

Comment #	Page	Section/ Paragraph	Comment	C, D[1], E or X	<u>Revised</u> Response	A or D[2]
					<u>will be changed to annual if the data suggests that less frequent sampling is appropriate.</u> • <u>Annual sampling will continue until the next five-year review, then will be changed to once every five years if the data suggests that less frequent sampling is appropriate.</u>	

Thanks,
Gregary N. Jones, PhD, PE
Senior Environmental Engineer
Applied Science & Engineering
Shaw Environmental & Infrastructure Group
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281/531-3172 direct
281/796-1212 cell

From: Srivastav, Praveen
Sent: Friday, March 19, 2010 11:21 AM
To: Fay Duke; Tzhone, Stephen
Cc: Lambert, John R SWT; Williams, Aaron K SWT; Zeiler, Rose Ms CIV USA OSA; Jones, Greg N; Watson, Susan; Duffield, Robert; Everett, Kay
Subject: FW: LHAAP-16 FS Addendum - New Track-Changes Version

Attached is a tracked-change document for DF LHAAP-16 Feasibility Study Addendum. Please provide concurrence so we can prepare the Final document for submittal by the end of the month.

Steve: We will send you a revised response for your concurrence on Monday with respect to the sampling frequency. As you stated, the change is already reflected in the TCEQ response but we will get you a revised RTC anyway.

Thank you

Praveen Srivastav, PhD, PG, PMP
Project Manager
Federal Division/Project Management
Shaw Environmental & Infrastructure
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281.531.3188 direct
281.639.8743 cell
praveen.srivastav@shawgrp.com

From: Jones, Greg N
Sent: Thursday, March 18, 2010 6:37 PM
To: Williams, Aaron K SWT
Cc: Duffield, Robert; Everett, Kay; Jones, Greg N; Lambert, John R SWT; Watson, Susan; Zeiler, Rose Ms CIV USA OSA; Srivastav, Praveen
Subject: LHAAP-16 FS Addendum - New Track-Changes Version

Aaron,

The attached document is a tracked-changes version of the main text of LHAAP-16.

It incorporates revisions for the last round of TCEQ comments. Those largely address (1) additional COCs for 5 years of monitoring and (2) the removal of the compliance value table and text.
The revised text also includes a modification to the second paragraph of Section 4.5 to address TCEQ's request that we capture the bioremediation/MNA approach somewhere in the FS (see email below).

Please give this a quick look. If Army sees no problems, we plan to forward to the regulators.

Thanks,
Gregary N. Jones, PhD, PE
Senior Environmental Engineer
Applied Science & Engineering
Shaw Environmental & Infrastructure Group
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281/531-3172 direct
281/796-1212 cell

From: Fay Duke [mailto:FDUKE@tceq.state.tx.us]
Sent: Thursday, March 18, 2010 12:19 PM
To: Srivastav, Praveen
Cc: Duffield, Robert; Everett, Kay; Jones, Greg N; Lambert, John R SWT; Tzhone,Stephen; Watson, Susan; Williams, Aaron K SWT; Zeiler, Rose Ms CIV USA OSA
Subject: RE: FW: LHAAP-16 FS Addendum

Praveen,

Thanks for the clarification. I have no specific preference on what to call it. Please make sure that the approach is capture somewhere in the FS and the ROD. I have no other comments.

From: Srivastav, Praveen
Sent: Thursday, March 18, 2010 12:09 PM
To: Fay Duke; Tzhone, Stephen
Cc: Duffield, Robert; Everett, Kay; Jones, Greg N; Lambert, John R SWT; Watson, Susan; Williams, Aaron K SWT; Zeiler, Rose Ms CIV USA OSA
Subject: RE: FW: LHAAP-16 FS Addendum

Fay:

Our response meant to say that, in the second instance, where bioremediation has been implemented, we will consider re-application of bio-amendments if conditions for MNA are not established after the initial application. In other words: bioremediation -> MNA evaluation-> continuation of MNA or re-application of bio-amendments.

What we were trying to say was that the re-application of bio-amendments in the second instance will really not be a contingency but continuation of a bio remedy that has already been implemented by did not achieve the objective. We can call it a contingency if it makes you feel better. The net result will be the same.

Thank you,

Praveen Srivastav, PhD, PG, PMP
Project Manager
Federal Division/Project Management
Shaw Environmental & Infrastructure
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281.531.3188 direct
281.639.8743 cell
praveen.srivastav@shawgrp.com

From: Fay Duke [mailto:FDUKE@tceq.state.tx.us]
Sent: Wednesday, March 17, 2010 3:03 PM
To: Srivastav, Praveen; Tzhone, Stephen
Cc: Duffield, Robert; Everett, Kay; Jones, Greg N; Lambert, John R SWT; Watson, Susan; Williams, Aaron K SWT; Zeiler, Rose Ms CIV USA OSA
Subject: Re: FW: LHAAP-16 FS Addendum

Rose/Praveen,

We have reviewed the responses to our follow up questions/comments. With the exception of No. 3, we generally concur with the responses. We take exception to your response to Comment No. 3 which states:
The reviewer may be referring to either of two aspects of the remedy: MNA of outer regions of the shallow and intermediate plumes or MNA that follows bioremediation in the treatment areas.

In the first instance: Yes. We can indicate in the proposed plan and ROD, where appropriate, that the MNA in these areas will have a contingency, which would likely be injection of bioamendments.

In the second instance: No. Failure of MNA would be the result of failure of bioremediation. Hence, a contingency for MNA is not needed. Bioremediation itself would need to be revisited at that juncture. It is possible in the second example that MNA failed because concentrations of chlorinated ethenes are still too high for natural attenuation to take effect.

Let me know if you should have any questions.

Fay Duke (MC-136)
Remediation Division, TCEQ
PO Box 13087
Austin, Texas 78711-3087
512-239-2443
512-239-2450 (Fax)

From: Tzhone.Stephen@epamail.epa.gov [mailto:Tzhone.Stephen@epamail.epa.gov]
Sent: Wednesday, March 17, 2010 3:18 PM
To: Zeiler, Rose Ms CIV USA OSA
Cc: Lambert, John R SWT; Williams, Aaron K SWT; Srivastav, Praveen; Jones, Greg N; Fay Duke; Everett, Kay; Watson, Susan; Burton.Terry@epamail.epa.gov
Subject: Longhorn: EPA tentative agreement on LHAAP-16 DF FS Addendum

Hi Rose:

The EPA has completed review of the Army's RTCs to the regulatory comments on *DF Feasibility Study Addendum for LHAAP-16* (email 10/15/2009 and email 3/16/2010) and understands that discussions between the EPA, TCEQ and the Army resulted in agreement on the frequency of sampling for the monitoring program (specifically, quarterly for two years and semi-annually for three years afterwards to the first five year review).

The RTCs to TCEQ appears revised to reflect that agreement. Please revise the RTCs to EPA (i.e., comment #10) as well for EPA concurrence.

Thanks,

Stephen L. Tzhone
Superfund Remedial Project Manager
USEPA Region 6 (6SF-RA)
214.665.8409
tzhone.stephen@epa.gov

From: Srivastav, Praveen
Sent: Tuesday, March 16, 2010 8:34 AM
To: 'Fay Duke'; 'Tzhone, Stephen'
Cc: Williams, Aaron K SWT; Lambert, John R SWT; Zeiler, Rose Ms CIV USA OSA; Jones, Greg N; Watson, Susan; Everett, Kay; Duffield, Robert
Subject: FW: LHAAP-16 FS Addendum

Fay/Steve:

Please see attached responses to comments for the DF Feasibility Study for LHAAP-16. The responses have been prepared according to our discussion and agreement during the March 9, 2010 monthly managers' meeting. We are also preparing a tracked-changes document for you to review before we finalize the document. However, feel free to give us your concurrence to the RTCs before you receive the tracked-changes document so that we are all on the same page with respect to the changes to be made to the document.

Reminder: We still need some input from EPA before the document goes final.

Thank you,

Praveen Srivastav, PhD, PG, PMP
Project Manager
Federal Division/Project Management
Shaw Environmental & Infrastructure
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281.531.3188 direct
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praveen.srivastav@shawgrp.com

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	TCEQ Reply	Follow-up Response
The comments presented below were provided in an email on December 11, 2009, from F. Duke/TCEQ to R. Zeiler/BRAC.								
General			The TCEQ has completed its review of the response to comments on the LHAAP-16 DF Addendum To Final Feasibility Study. We believe that most of the responses adequately addressed our comments. However, without the revised text and additional information to be provided, we cannot give our concurrence at this time. Additionally, based on your responses, we have a few remaining concerns. [see following comments]		The revised text, in track-changes format, will be provided electronically. See below for responses to more detailed comments.		We have reviewed the revised document and concurs with the changes with the following exceptions. o We cannot concur with all the criteria used to eliminate COCs. COCs with concentration exceeding MCL or drinking water risk levels must be retained except when demonstration can be made that recent samples have shown the concentrations are below regulatory levels. At a minimum, groundwater impacted by these COCs must be retained and continued to be monitored. o It is stated in the second paragraph of Section 4.6 that "subsequent to completion of the MNA evaluation, four existing shallow monitoring wells (16WW12, 16WW22, 16WW30, and 16WW40) and one intermediate monitoring well (16WW41) will be sampled to monitor the concentration…" We have several concerns with this statement. We believe that the wells identify herein may not be sufficient for the evaluation of COC migration into Harrison Bayou. There are uncertainties associated with the groundwater gradient and contaminant migration after the extraction systems are turned off. The well system that will serve as the monitoring network should be evaluated during the remedial design and not specified in the FS. Additionally, due to the observed fluctuation of COC concentrations, groundwater and surface water monitoring must be performed at least on a quarterly basis to evaluate the cause and effect of the COC concentrations in groundwater.	In the table evaluating potential COCs, four chemicals were not selected as COCs while having results that exceeded comparison values in post-1999 sample analyses: • Arsenic exceeded its MCL in 4 of 89 results, which were from two intermediate wells. • Manganese exceeded its 95% UTL background (7.82 mg/L [GW-Res = 1.7 mg/L]) in 12 of 91 results, which were limited to four intermediate zone wells. • Nickel exceeded its GW-res in 6 of 87 results, of which 3 were from 16WW34. • 1,1,2-trichloroethane exceeded its MCL in 7 of 207 results, of which 6 were from 16EW02. These parameters are not indicative of widespread contamination associated with the landfill. Nonetheless, they can be monitored and included in reporting. The FS Addendum will be revised to indicate these chemicals are retained as COCs and that they will be monitored for 5 years at which point it will be decided whether to continue monitoring or they can be removed from the COC list. The associated monitoring locations, frequencies, and durations will be proposed in the remedial design. We agree that the monitoring program should be established in remedial design. Shaw will replace the 3rd paragraph of Section 4.6 with the following text to more clearly indicate that the specific locations are identified for cost estimating purposes: "Following completion of the MNA evaluation, groundwater and surface water monitoring will continue at a number of locations. The monitoring program will be established during remedial design. However, the following assumptions have been made for cost estimating purposes within this FS Addendum: • Four existing shallow monitoring wells (16WW12, 16WW22, 16WW30, and 16WW40) and one intermediate monitoring well (16WW41) will be sampled to monitor the concentration of groundwater COCs closest to Harrison Bayou. • Three existing shallow monitoring wells (16WW16, 16WW26, and 16WW36) and three intermediate monitoring wells (16WW13, 16WW35 and 16WW37) will be sampled to monitor the concentrations of groundwater COCs and confirm MNA continues to be effective in reducing COC concentrations within the groundwater plume. • Upper deep zone monitoring wells 16WW19 and 16WW21 will be monitored to ensure that vertical

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	TCEQ Reply	Follow-up Response
							o Finally, there are references in this section and elsewhere that the groundwater and surface water monitoring will be conducted annually subsequent to the MNA evaluation until the first five-year review. Please note that the first five-year review is completed and next five-year review may not coincide with this schedule. Please revise.	migration of COCs is effectively controlled. • Surface water will also be monitored at location HBW-1 adjacent to 16WW40 to provide additional data regarding Harrison Bayou. • The groundwater and surface water samples will be analyzed for VOCs and perchlorate. • Following the MNA evaluation, sampling will be conducted semi-annually for three years. Surface water and wells will then be sampled annually until the next five-year review and every 5 years thereafter." We will revise the document to indicate that the annual sampling will actually be semi-annual sampling and that it will continue for three years, rather than until the first five-year review. However, for cost estimating purposes, the first inclusion of the site in a five-year review will be assumed to occur at year 5.
1			There seem (*sic*) to be a disconnect regarding the action level of perchlorate. While it appears that Army agrees to use the TCEQ GW-Res MSC value as action level, we are unclear as to how Table 2-5 (Compliance value at Harrison Bayou) is to be used? Table 2-5 does not account for human consumption of water from Caddo Lake which Harrison Bayou discharges into.		The compliance values in Table 2-5 were originally provided by TCEQ (and subsequently incorporated into the Feasibility Study Addendum) as values protective of exposure to the surface water in Harrison Bayou. They are intended to be used as comparison values for surface water results from Harrison Bayou and LHAAP-16 groundwater sample results from the shallow monitoring wells nearest to the creek. These values will be used as remedy performance evaluation criteria to ensure that contaminant levels in the creek remain protective of human health. The GW-Res level for perchlorate and MCLs for other contaminants will be used as remedial goals for restoration of groundwater. Section 2.3 will be revised to clarify the current use of the compliance values.	D	The referenced value is solely for contact recreational exposure pathway. In developing remedial action goals, all pathways must be evaluated and the more stringent level should be adopted as the remedial action level. Because Harrison Bayou discharges to Caddo Lake, a drinking water source, the GW-Res levels should be adopted as compliance value absent any calculation of protective levels for groundwater to surface water pathway. Please revise.	As discussed in the March 9th Managers Meeting, the compliance values will be removed from the FS Addendum and comparisons will be tied to the cleanup levels. The compliance value table will be removed and subsequent references to the compliance values will either be removed or tied to cleanup levels as appropriate. Those cleanup levels will be a combination of MCLs, GW-Res values (for perchlorate and nickel), and background (for manganese).
2			From your responses to EPA and TCEQ, Remedial Alternative 7 has been expanded to include in-situ bioremediation of the intermediate aquifer and an additional biobarrier at the edge of the landfill and a slightly larger at the edge of the Harrison Bayou. We concur with these changes with the following caviar (*sic*): • The final location and size of the biobarrier at Harrison Bayou must take into consideration of the natural groundwater gradient and a better understanding of the area of discharge to Harrison Bayou. We are concern (*sic*) that when the extraction	C	Noted. This will be considered during remedial design.			

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	TCEQ Reply	Follow-up Response
			system is shut down, groundwater may again flow more easterly toward Harrison Bayou (as shown in Figure 3-2 and 3-3 of the RI report for LHAAP-16). If so, we remain concern (*sic*) with area between 16WW12 and 16WW30.	C	Please note that surface water samples from HBW-1 have occasionally exhibited exceedances of the proposed perchorate cleanup level (specifically in August 2007 and August 2003). The installation of the three bioremediation components (biobarrier near the landfill, ISEB zone around the extraction well locations, and biobarrier near the bayou) will serve to minimize the potential for future exceedances in the surface water and establish the proper environment for subsequent natural attenuation to achieve cleanup levels in the groundwater itself.	E		
			• The proposal to treat only contaminated groundwater above 15,000 ug/l of chlorinate (*sic*) ethenes remains a concern. No additional information is provided to suggest that at this level, the COC could reach cleanup level before discharging to Harrison Bayou		The references to 15,000 ug/L are outdated in regard to the new configuration of the remedy and have been replaced with text that indicates that the in situ enhanced bioremediation (ISEB) will address a region around the shallow extraction wells as identified in revised Figure 4-1. The remedial design will need to establish the treatment system in more detail, including a balance between the performance of the ISEB and the biobarriers.	E	The revised text specified that the ISB treatment system will be installed around the extraction system. In Section 5.3, it specifies that "a rectangular treatment area as shown in Figure 4-1" will be installed. We are concern with the prescriptive nature of the description. The shape as well as the number of wells should be determined in the design phase. Please note that additional sampling maybe necessary to confirm that high concentration is limited to and around the existing extraction wells.	Noted. The 3rd sentence of Section 5.3.1 will be replaced with the following: "In situ bioremediation will be implemented in the most contaminated portion of the shallow groundwater – a treatment area that currently appears to be centered on the shallow extraction wells. The approximate location of that treatment area is presented in **Figure 4-1**, but will be further evaluated during remedial design."
			• The remedy proposed for the intermediate zone is to apply bioaugmentation amendment to intermediate well exceeding the compliance value noted in Table 2-5. Although we concur with utilizing treatment technology, we have the following concerns and questions. Please explain the rational for the usage of the compliance value in Table 2-5. Not withstanding the apparent data gap between 16WW31 and 16WW29, the current well spacing appears to be greater than 250 feet. What is the expected radius of influence of the bioaugmentation apply to the well?	C	The intended use of the compliance values is discussed in the response to Comment 1. The objective of the intermediate zone bioremediation is to target the highest concentration area within the zone. Reductions of TCE could be anticipated to vary anywhere from approximately 80% to almost complete conversion. Treatability testing and actual performance evaluation will establish more exact design criteria and the need for reinjection, respectively. The performance objective would be to establish an environment in the intermediate zone in which natural attenuation could be expected to ultimately reduce concentrations to the cleanup goals.			

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	TCEQ Reply	Follow-up Response
3			We remain concern that data collected thus far does not support natural attenuation to be effective remedy for this site. Although Army responded to indicate that MNA is not the sole remedy at this site, we believe that a large portion of the plume with potential concentration of 15,000 ug/l (residual from the completion of in-situ bio-remediation), MNA may be the sole remedy. Therefore, we recommend that we take similar approach as other sites with similar uncertainties. That is, MNA for two years and follow by evaluation for subsequent MNA or additional bioremediation.	E	As noted above, the 15,000 ug/L level is misleading and will be revised. The reviewer is correct that MNA will be the sole remedy for some regions of the site that are outside the treatment area, but the large proportion of the area between the landfill and the bayou will be influenced by the two biobarriers and the ISEB treatment. Natural attenuation cannot be properly evaluated until the extraction system has been used to draw the ISEB materials across the treatment area. Shutdown of the extraction system could occur 2 to 4 years after ISEB injection. At that time, the microbial environment within the groundwater will be significantly different from what was evaluated in Appendix A of the FS Addendum. The question to be evaluated will be whether the bioremediation components of the remedy have served to establish a sustainable environment for MNA This situation is not analogous to other sites where MNA is proposed as the primary remedy with a contingency.		Please clarify whether a contingency remedy as suggested in our comment will be included in the proposed remedy.	**The reviewer may be referring to either of two aspects of the remedy:** MNA of outer regions of the shallow and intermediate plumes or MNA that follows bioremediation in the treatment areas. In the first instance: Yes. We can indicate in the proposed plan and ROD, where appropriate, that the MNA in these areas will have a contingency, which would likely be injection of bioamendments. In the second instance: No. Failure of MNA would be the result of failure of bioremediation. Hence, a contingency for MNA is not needed. Bioremediation itself would need to be revisited at that juncture.
4			The responses provided indicated that Shaw has installed and sampled six additional wells to address data gaps at this site. We will reserve our comments/concurrence until we review the additional data.	C	The additional data will be provided along with the track-changes document noted in the first general comment.		We have reviewed the additional data. The fluctuation of concentrations in some wells is a concern. Army responded that the fluctuation is likely due to the following factors: · " In monitoring wells, variations in groundwater level and flow rate related to rainfall or water levels in the creek · In extraction wells, variations in groundwater level and flow rate due to rainfall plus any variation in extraction pump operations · …variations in concentration simply due to the circumstances of the initial releases that caused the groundwater contamination (e.g., if those releases were intermittent, then there will be related variations in plume concentration). If one looks at the more stable wells, they are typically wells further from the creek and away from the heart of the plume. It can also be noted that the more soluble perchlorate is more erratic than the less soluble TCE, which would be evidence of the relative impact of groundwater level and flow rate variations on the two chemicals. " While we concur with Army's statement "While these variations make the data more difficult to evaluate, we feel they do not fundamentally alter the goals at the site or the evaluation of remedy relative to those goals," we believe that the sampling and monitoring program for the design and evaluation of the remedy performance must consider these issues. It is imperative that routine groundwater samples be collected for all wells in	Noted. While we agree with TCEQ's assertion that the monitoring details need to be established in the remedial design rather than the Feasibility Study (see responses above), we do not feel that "routine" sampling of "all wells" is appropriate. LHAAP-16 has a high density of wells and some appear to be redundant. Nonetheless, we understand TCEQ's desire for a more intensive sampling program and will consider that during remedial design. In particular, we understand that the sampling program will need to address fluctuations in concentrations in some of the wells pointed out by TCEQ and that this should be achieved by including sufficient monitoring to study trends in those wells.

00084377

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

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2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	TCEQ Reply	Follow-up Response
							order to evaluate and affirm the assumptions for the variation of COC concentrations.	
General			Despite these concerns, we believe that we can go forth with the remedy selection and address these concerns during the remedial design phase. Please let me know if you should have any questions regarding these comments.	---	It is noted that the TCEQ is prepared to move forward with remedy selection and subsequent design. However, the revisions noted above will be implemented in the FS Addendum to further clarify Alternative 7 prior to the Proposed Plan.			

From: Srivastav, Praveen
Sent: Wednesday, March 10, 2010 9:47 AM
To: Fay Duke; Zeiler, Rose
Cc: Duffield, Robert; Everett, Kay; Jones, Greg N; Lambert, John R SWT; Tzhone,Stephen; Watson, Susan; Williams, Aaron K SWT
Subject: RE: LHAAP-16 FS Addendum

Fay/Steve:

As discussed during the monthly managers' meeting yesterday, March 9, Shaw will provide responses to your additional comments. Shaw, Army, and regulators agreed that:

1. The COC list will be revised to included metals that were excluded based on frequency of detection arguments. The RD will specify that these metals will be monitored for 5-years and can be dropped from the list if their concentrations decrease below MCLs or don't change over the course of the sampling period, possibly indicating that the metals are not site-related contaminants.
2. The reference to compliance values will be replaced with MCLs or GW-Res throughout the document. MCLs are clean up goals for the groundwater and also target concentrations for the surface water in Harrison Bayou because the bayou flows into Caddo Lake which is a source of drinking water.
3. Fluctuations in concentrations in some of the wells pointed out by TCEQ will be addressed by including a sampling plan in the RD to study trends.

We will get these responses out later this week. Shaw requests that concurrence be provided to these responses and we get EPAS comments/concurrence as soon as possible so the feasibility study can be finalized in March 2010.

Thank you,

Praveen Srivastav, PhD, PG, PMP
Project Manager
Federal Division/Project Management
Shaw Environmental & Infrastructure
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281.531.3188 direct
281.639.8743 cell
praveen.srivastav@shawgrp.com

From: Fay Duke [mailto:FDUKE@tceq.state.tx.us]
Sent: Thursday, February 25, 2010 5:27 PM
To: Srivastav, Praveen; Zeiler, Rose
Cc: Duffield, Robert; Everett, Kay; Jones, Greg N; Lambert, John R SWT; Tzhone,Stephen; Watson, Susan; Williams, Aaron K SWT
Subject: RE: LHAAP-16 FS Addendum

Rose/Praveen,

We have completed the review of the LHAAP-16 FS Addendum and enclosed are our comments and concerns with the revised FS Addendum for LHAAP-16. Please review and let me know if you should have any questions regarding these comments. Thanks, fd

Fay Duke (MC-136)
Remediation Division, TCEQ
PO Box 13087
Austin, Texas 78711-3087
512-239-2443
512-239-2450 (Fax)

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

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Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	
The comments presented below were provided in an email on December 11, 2009, from F. Duke/TCEQ to R. Zeiler/BRAC.							
General			The TCEQ has completed its review of the response to comments on the LHAAP-16 DF Addendum To Final Feasibility Study. We believe that most of the responses adequately addressed our comments. However, without the revised text and additional information to be provided, we cannot give our concurrence at this time. Additionally, based on your responses, we have a few remaining concerns. [see following comments]		The revised text, in track-changes format, will be provided electronically. See below for responses to more detailed comments.		We have reviewed the revised document and concurs with the changes with the following exceptions. o We cannot concur with all the criteria used to eliminate COCs. COCs with concentration exceeding MCL or drinking water risk levels must be retained except when demonstration can be made that recent samples have shown the concentrations are below regulatory levels. At a minimum, groundwater impacted by these COCs must be retained and continued to be monitored. o It is stated in the second paragraph of Section 4.6 that "subsequent to completion of the MNA evaluation, four existing shallow monitoring wells (16WW12, 16WW22, 16WW30, and 16WW40) and one intermediate monitoring well (16WW41) will be sampled to monitor the concentration…" We have several concerns with this statement. We believe that the wells identify herein may not be sufficient for the evaluation of COC migration into Harrison Bayou. There are uncertainties associated with the groundwater gradient and contaminant migration after the extraction systems are turned off. The well system that will serve as the monitoring network should be evaluated during the remedial design and not specified in the FS. Additionally, due to the observed fluctuation of COC concentrations, groundwater and surface water monitoring must be performed at least on a quarterly basis to evaluate the cause and effect of the COC concentrations in groundwater. o Finally, there are references in this section and elsewhere that the groundwater and surface water monitoring will be conducted annually subsequent to the MNA evaluation until the first five-year review. Please note that the first five-year review is completed and next five-year review may not coincide with this schedule. Please revise.
1			There seem (*sic*) to be a disconnect regarding the action level of perchlorate. While it appears that Army agrees to use the TCEQ GW-Res MSC value as action level, we are unclear as to how Table 2-5 (Compliance value at Harrison Bayou) is to be used? Table 2-5 does not account for human consumption of water from Caddo Lake which Harrison Bayou discharges into.		The compliance values in Table 2-5 were originally provided by TCEQ (and subsequently incorporated into the Feasibility Study Addendum) as values protective of exposure to the surface water in Harrison Bayou. They are intended to be used as comparison values for surface water results from Harrison Bayou and LHAAP-16 groundwater sample results from the shallow monitoring wells nearest to the creek. These values will be used as remedy performance evaluation criteria to ensure that contaminant levels in the creek remain protective of human health. The GW-Res level for perchlorate and MCLs for other contaminants will be used as remedial goals for restoration of groundwater. Section 2.3 will be revised to clarify the current use of the compliance values.	D	The referenced value is solely for contact recreational exposure pathway. In developing remedial action goals, all pathways must be evaluated and the more stringent level should be adopted as the remedial action level. Because Harrison Bayou discharges to Caddo Lake, a drinking water source, the GW-Res levels should be adopted as compliance value absent any calculation of protective levels for groundwater to surface water pathway. Please revise.
2			From your responses to EPA and TCEQ, Remedial Alternative 7 has been expanded to include in-situ bioremediation of the intermediate aquifer and an additional biobarrier at the edge of the landfill and a slightly larger at the edge of the Harrison Bayou. We concur with these changes with the following caviar (*sic*): • The final location and size of the biobarrier at Harrison Bayou must take into consideration of	C	Noted. This will be considered during remedial design.		

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Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

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Respondent: Shaw Environmental, Inc.

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Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	
			the natural groundwater gradient and a better understanding of the area of discharge to Harrison Bayou. We are concern (*sic*) that when the extraction system is shut down, groundwater may again flow more easterly toward Harrison Bayou (as shown in Figure 3-2 and 3-3 of the RI report for LHAAP-16). If so, we remain concern (*sic*) with area between 16WW12 and 16WW30.	C	Please note that surface water samples from HBW-1 have occasionally exhibited exceedances of the proposed perchorate cleanup level (specifically in August 2007 and August 2003). The installation of the three bioremediation components (biobarrier near the landfill, ISEB zone around the extraction well locations, and biobarrier near the bayou) will serve to minimize the potential for future exceedances in the surface water and establish the proper environment for subsequent natural attenuation to achieve cleanup levels in the groundwater itself.	E	
			• The proposal to treat only contaminated groundwater above 15,000 ug/l of chlorinate (*sic*) ethenes remains a concern. No additional information is provided to suggest that at this level, the COC could reach cleanup level before discharging to Harrison Bayou		The references to 15,000 ug/L are outdated in regard to the new configuration of the remedy and have been replaced with text that indicates that the in situ enhanced bioremediation (ISEB) will address a region around the shallow extraction wells as identified in revised Figure 4-1. The remedial design will need to establish the treatment system in more detail, including a balance between the performance of the ISEB and the biobarriers.	E	The revised text specified that the ISB treatment system will be installed around the extraction system. In Section 5.3, it specifies that "a rectangular treatment area as shown in Figure 4-1" will be installed. We are concern with the prescriptive nature of the description. The shape as well as the number of wells should be determined in the design phase. Please note that additional sampling maybe necessary to confirm that high concentration is limited to and around the existing extraction wells.
			• The remedy proposed for the intermediate zone is to apply bioaugmentation amendment to intermediate well exceeding the compliance value noted in Table 2-5. Although we concur with utilizing treatment technology, we have the following concerns and questions. Please explain the rational for the usage of the compliance value in Table 2-5. Not withstanding the apparent data gap between 16WW31 and 16WW29, the current well spacing appears to be greater than 250 feet. What is the expected radius of influence of the bioaugmentation apply to the well?	C	The intended use of the compliance values is discussed in the response to Comment 1. The objective of the intermediate zone bioremediation is to target the highest concentration area within the zone. Reductions of TCE could be anticipated to vary anywhere from approximately 80% to almost complete conversion. Treatability testing and actual performance evaluation will establish more exact design criteria and the need for reinjection, respectively. The performance objective would be to establish an environment in the intermediate zone in which natural attenuation could be expected to ultimately reduce concentrations to the cleanup goals.		
3			We remain concern that data collected thus far does not support natural attenuation to be effective remedy for this site. Although Army responded to indicate that MNA is not the sole remedy at this site, we believe that a large portion of the plume with potential concentration of 15,000 ug/l (residual from the	E	As noted above, the 15,000 ug/L level is misleading and will be revised. The reviewer is correct that MNA will be the sole remedy for some regions of the site that are outside the treatment area, but the large proportion of the area between the landfill and the bayou will be influenced by the two biobarriers and the ISEB treatment. Natural attenuation cannot be properly evaluated until the		Please clarify whether a contingency remedy as suggested in our comment will be included in the proposed remedy.

Follow-up to Responses to TCEQ Comments on
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Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

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Respondent: Shaw Environmental, Inc.

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2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]	
			completion of in-situ bio-remediation), MNA may be the sole remedy. Therefore, we recommend that we take similar approach as other sites with similar uncertainties. That is, MNA for two years and follow by evaluation for subsequent MNA or additional bioremediation.		extraction system has been used to draw the ISEB materials across the treatment area. Shutdown of the extraction system could occur 2 to 4 years after ISEB injection. At that time, the microbial environment within the groundwater will be significantly different from what was evaluated in Appendix A of the FS Addendum. The question to be evaluated will be whether the bioremediation components of the remedy have served to establish a sustainable environment for MNA This situation is not analogous to other sites where MNA is proposed as the primary remedy with a contingency.		
4			The responses provided indicated that Shaw has installed and sampled six additional wells to address data gaps at this site. We will reserve our comments/concurrence until we review the additional data.	C	The additional data will be provided along with the track-changes document noted in the first general comment.		We have reviewed the additional data. The fluctuation of concentrations in some wells is a concern. Army responded that the fluctuation is likely due to the following factors: · " In monitoring wells, variations in groundwater level and flow rate related to rainfall or water levels in the creek · In extraction wells, variations in groundwater level and flow rate due to rainfall plus any variation in extraction pump operations · …variations in concentration simply due to the circumstances of the initial releases that caused the groundwater contamination (e.g., if those releases were intermittent, then there will be related variations in plume concentration). If one looks at the more stable wells, they are typically wells further from the creek and away from the heart of the plume. It can also be noted that the more soluble perchlorate is more erratic than the less soluble TCE, which would be evidence of the relative impact of groundwater level and flow rate variations on the two chemicals. " While we concur with Army's statement "While these variations make the data more difficult to evaluate, we feel they do not fundamentally alter the goals at the site or the evaluation of remedy relative to those goals," we believe that the sampling and monitoring program for the design and evaluation of the remedy performance must consider these issues. It is imperative that routine groundwater samples be collected for all wells in order to evaluate and affirm the assumptions for the variation of COC concentrations.
General			Despite these concerns, we believe that we can go forth with the remedy selection and address these concerns during the remedial design phase. Please let me know if you should have any questions regarding these comments.	---	It is noted that the TCEQ is prepared to move forward with remedy selection and subsequent design. However, the revisions noted above will be implemented in the FS Addendum to further clarify Alternative 7 prior to the Proposed Plan.		

From: Jones, Greg N
Sent: Monday, February 22, 2010 8:23 AM
To: 'Fay Duke'
Cc: Duffield, Robert; Everett, Kay; Lambert, John R SWT; Tzhone, Stephen; Watson, Susan; Williams, Aaron K SWT; Srivastav, Praveen; Zeiler, Rose
Subject: RE: LHAAP-16 FS Addendum

Fay,

The perchlorate analyses have been performed by the same method and by the same laboratory. Even though its name changed, the actual physical laboratory performing these analyses has remained the same. Therefore, the concentration variations are likely due to other factors.

We feel that the most significant factors causing concentration variation in perchlorate (and to a lesser extent in TCE and other VOCs) are:

- In monitoring wells, variations in groundwater level and flow rate related to rainfall or water levels in the creek
- In extraction wells, variations in groundwater level and flow rate due to rainfall plus any variation in extraction pump operations

These factors are in addition to variations in concentration simply due to the circumstances of the initial releases that caused the groundwater contamination (e.g., if those releases were intermittent, then there will be related variations in plume concentration). If one looks at the more stable wells, they are typically wells further from the creek and away from the heart of the plume. It can also be noted that the more soluble perchlorate is more erratic than the less soluble TCE, which would be evidence of the relative impact of groundwater level and flow rate variations on the two chemicals. While these variations make the data more difficult to evaluate, we feel they do not fundamentally alter the goals at the site or the evaluation of remedy relative to those goals.

Thanks,
Gregary N. Jones, PhD, PE
Senior Environmental Engineer
Applied Science & Engineering
Shaw Environmental & Infrastructure Group
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281/531-3172 direct
281/796-1212 cell

From: Fay Duke [mailto:FDUKE@tceq.state.tx.us]
Sent: Tuesday, February 09, 2010 3:57 PM
To: Jones, Greg N; Srivastav, Praveen; Zeiler, Rose
Cc: Duffield, Robert; Everett, Kay; Lambert, John R SWT; Tzhone, Stephen; Watson, Susan; Williams, Aaron K SWT
Subject: Re: LHAAP-16 FS Addendum

Rose/Praveen

Please address both types of samples (VOC and perchlorate). I just listed perchlorate as an example. Similar problems exist for the VOC data also.

>>> On 2/9/2010 at 3:38 PM, <FDUKE@tceq.state.tx.us> wrote:
Rose/Praveen,

Although I am not ready to provide my review comments, I would like some clarifications regarding the laboratory data. The clarifications may calm some of my concerns of the data set collected from 2007 to 2009. I noted there are many data set (especially the perchlorate) have drastic different results (orders of magnitude) when samples are collected within a fairly short time frame. For example, the April and October 08 samples of 16EW07 went from ND(<3) to 530 and EW08 went from 122 to <5. Similarly the June and Oct 07 data of 16WW12 were 322 and 5990. Were these data analyzed with the same method? At the same lab? The concentration fluctuation from ND to high concentrations really concerns me. Is there an explanation that I'm missing? Your assistance in this matter would be appreciated.

From: Jones, Greg N
Sent: Monday, January 25, 2010 12:56 PM
To: 'Fay Duke'; Stephen Tzhone
Cc: John R SWT Lambert; Rose Zeiler; Aaron K SWT Williams; Everett, Kay; Watson, Susan; Srivastav, Praveen; Duffield, Robert
Subject: LHAAP-16 FS Addendum

Fay and Steve,

In December, TCEQ made a few additional comments on the FS Addendum for LHAAP-16 and asked that we submit more information on the proposed changes, including data on the additional wells and sampling at LHAAP-16. Toward that end, the revised version of the LHAAP-16 FS Addendum, with change tracking, has been uploaded to the stakeholder portal under Shared Documents. The subfolder is titled "**LHAAP-16 FS Addendum - Track Changes Version**." The following is a direct link to the subfolder:
https://extranet.shawgrp.com/sites/Longhorn/stakeholders/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fsites%2fLonghorn%2fstakeholders%2fShared%20Documents%2fLHAAP%2d16%20FS%20Addendum%20%2d%20Track%20Changes%20Version&View=%7b1EAFB093%2d88CA%2d462B%2d8821%2dF199CAA68643%7d

A few notes on the files:
1. "Final FS Addendum LHAAP-16 -track changes" is a Word file with changes tracked. It is the main body of the text.
2. "RTCs TCEQ 121109 Comments on DF FS Addendum" is a Word file with responses to the TCEQ email of 12/11/09.
3. "Tables 2-2 and 2-4 for main text" is a pdf file containing the two tables for the main text that were not part of the Word file.
4. "Figures for Main Text" is a pdf file containing 17 figures.
5. "Appendix A_Nat Atten Eval_LHAAP-16 012210" is a pdf file with the entire Natural Attenuation Evaluation including tables and figures. This file changed so much (due to EPA structure instead of TCEQ, new data, and revised well zones) that a track-changes version did not seem to be of value.
6. "Appendix B" is a pdf file containing 2007-09 sampling data (through March 09) and the well logs for the six newest wells at LHAAP-16.
7. "Appendix C" is a pdf file with the revised estimate information.

Please let us know if you feel this document is ready to be finalized. Also, be aware that there is a January milestone date for this document, so your prompt attention is appreciated.

Thanks,
Gregary N. Jones, PhD, PE
Senior Environmental Engineer
Applied Science & Engineering
Shaw Environmental & Infrastructure Group
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281/531-3172 direct
281/796-1212 cell

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

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Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]
The comments presented below were provided in an email on December 11, 2009, from F. Duke/TCEQ to R. Zeiler/BRAC.						
General			The TCEQ has completed its review of the response to comments on the LHAAP-16 DF Addendum To Final Feasibility Study. We believe that most of the responses adequately addressed our comments. However, without the revised text and additional information to be provided, we cannot give our concurrence at this time. Additionally, based on your responses, we have a few remaining concerns. [see following comments]		The revised text, in track-changes format, will be provided electronically. See below for responses to more detailed comments.	
1			There seem (*sic*) to be a disconnect regarding the action level of perchlorate. While it appears that Army agrees to use the TCEQ GW-Res MSC value as action level, we are unclear as to how Table 2-5 (Compliance value at Harrison Bayou) is to be used? Table 2-5 does not account for human consumption of water from Caddo Lake which Harrison Bayou discharges into.		The compliance values in Table 2-5 were originally provided by TCEQ (and subsequently incorporated into the Feasibility Study Addendum) as values protective of exposure to the surface water in Harrison Bayou. They are intended to be used as comparison values for surface water results from Harrison Bayou and LHAAP-16 groundwater sample results from the shallow monitoring wells nearest to the creek. These values will be used as remedy performance evaluation criteria to ensure that contaminant levels in the creek remain protective of human health. The GW-Res level for perchlorate and MCLs for other contaminants will be used as remedial goals for restoration of groundwater. Section 2.3 will be revised to clarify the current use of the compliance values.	
2			From your responses to EPA and TCEQ, Remedial Alternative 7 has been expanded to include in-situ bioremediation of the intermediate aquifer and an additional biobarrier at the edge of the landfill and a slightly larger at the edge of the Harrison Bayou. We concur with these changes with the following caviar (*sic*): • The final location and size of the biobarrier at Harrison Bayou must take into consideration of	C	Noted. This will be considered during remedial design.	

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Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]
			the natural groundwater gradient and a better understanding of the area of discharge to Harrison Bayou. We are concern (*sic*) that when the extraction system is shut down, groundwater may again flow more easterly toward Harrison Bayou (as shown in Figure 3-2 and 3-3 of the RI report for LHAAP-16). If so, we remain concern (*sic*) with area between 16WW12 and 16WW30.			
			• The proposal to treat only contaminated groundwater above 15,000 ug/l of chlorinate (*sic*) ethenes remains a concern. No additional information is provided to suggest that at this level, the COC could reach cleanup level before discharging to Harrison Bayou	C	Please note that surface water samples from HBW-1 have occasionally exhibited exceedances of the proposed perchorate cleanup level (specifically in August 2007 and August 2003). The installation of the three bioremediation components (biobarrier near the landfill, ISEB zone around the extraction well locations, and biobarrier near the bayou) will serve to minimize the potential for future exceedances in the surface water and establish the proper environment for subsequent natural attenuation to achieve cleanup levels in the groundwater itself. The references to 15,000 ug/L are outdated in regard to the new configuration of the remedy and have been replaced with text that indicates that the in situ enhanced bioremediation (ISEB) will address a region around the shallow extraction wells as identified in revised Figure 4-1. The remedial design will need to establish the treatment system in more detail, including a balance between the performance of the ISEB and the biobarriers.	
			• The remedy proposed for the intermediate zone is to apply bioaugmentation amendment to intermediate well exceeding the compliance value noted in Table 2-5. Although we concur	C	The intended use of the compliance values is discussed in the response to Comment 1. The objective of the intermediate zone bioremediation is to target the highest concentration area within the zone. Reductions of TCE could be anticipated to vary anywhere from approximately 80% to almost complete conversion. Treatability testing and actual performance evaluation will establish more exact design criteria and the need for reinjection,	

Follow-up to Responses to TCEQ Comments on
Draft Final Addendum to the Final Feasibility for LHAAP-16
Longhorn Army Ammunition Plant, Karnack, Texas

December 2010

Reviewer: TCEQ
Respondent: Shaw Environmental, Inc.

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

Comment #	Page	Section/ Paragraph	Comment	C, D, E or X[1]	Response	A or D[2]
			with utilizing treatment technology, we have the following concerns and questions. Please explain the rational for the usage of the compliance value in Table 2-5. Not withstanding the apparent data gap between 16WW31 and 16WW29, the current well spacing appears to be greater than 250 feet. What is the expected radius of influence of the bioaugmentation apply to the well?		respectively. The performance objective would be to establish an environment in the intermediate zone in which natural attenuation could be expected to ultimately reduce concentrations to the cleanup goals.	
3			We remain concern that data collected thus far does not support natural attenuation to be effective remedy for this site. Although Army responded to indicate that MNA is not the sole remedy at this site, we believe that a large portion of the plume with potential concentration of 15,000 ug/l (residual from the completion of in-situ bio-remediation), MNA may be the sole remedy. Therefore, we recommend that we take similar approach as other sites with similar uncertainties. That is, MNA for two years and follow by evaluation for subsequent MNA or additional bioremediation.	E	As noted above, the 15,000 ug/L level is misleading and will be revised. The reviewer is correct that MNA will be the sole remedy for some regions of the site that are outside the treatment area, but the large proportion of the area between the landfill and the bayou will be influenced by the two biobarriers and the ISEB treatment. Natural attenuation cannot be properly evaluated until the extraction system has been used to draw the ISEB materials across the treatment area. Shutdown of the extraction system could occur 2 to 4 years after ISEB injection. At that time, the microbial environment within the groundwater will be significantly different from what was evaluated in Appendix A of the FS Addendum. The question to be evaluated will be whether the bioremediation components of the remedy have served to establish a sustainable environment for MNA This situation is not analogous to other sites where MNA is proposed as the primary remedy with a contingency.	
4			The responses provided indicated that Shaw has installed and sampled six additional wells to address data gaps at this site. We will reserve our comments/concurrence until we review the additional data.	C	The additional data will be provided along with the track-changes document noted in the first general comment.	

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Draft Final Addendum to the Final Feasibility for LHAAP-16
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December 2010

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Respondent: Shaw Environmental, Inc.

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General			Despite these concerns, we believe that we can go forth with the remedy selection and address these concerns during the remedial design phase. Please let me know if you should have any questions regarding these comments.	---	It is noted that the TCEQ is prepared to move forward with remedy selection and subsequent design. However, the revisions noted above will be implemented in the FS Addendum to further clarify Alternative 7 prior to the Proposed Plan.	

From: Fay Duke [mailto:FDUKE@tceq.state.tx.us]
Sent: Friday, December 11, 2009 11:22 AM
To: Stephen Tzhone; Srivastav, Praveen
Cc: Jones, Greg N; Everett, Kay; Watson, Susan; John R SWT Lambert; Rose Zeiler; Aaron K SWT Williams
Subject: Re: RTC LHAAP-16 DF Feasibility Study

Rose/Praveen,

The TCEQ has completed its review of the response to comments on the LHAAP-16 DF Addendum To Final Feasibility Study. We believe that most of the responses adequately addressed our comments. However, without the revised text and additional information to be provided, we cannot give our concurrence at this time. Additionally, based on your responses, we have a few remaining concerns.

1. There seem to be a disconnect regarding the action level of perchlorate. While it appears that Army agrees to use the TCEQ GW-Res MSC value as action level, we are unclear as to how Table 2-5 (Compliance value at Harrison Bayou) is to be used? Table 2-5 does not account for human consumption of water from Caddo Lake which Harrison Bayou discharges into.
2. From your responses to EPA and TCEQ, Remedial Alternative 7 has been expanded to include in-situ bioremediation of the intermediate aquifer and an additional biobarrier at the edge of the landfill and a slightly larger at the edge of the Harrison Bayou. We concur with these changes with the following caviar:
    - The final location and size of the biobarrier at Harrison Bayou must take into consideration of the natural groundwater gradient and a better understanding of the area of discharge to Harrison Bayou. We are concern that when the extraction system is shut down, groundwater may again flow more easterly toward Harrison Bayou (as shown in Figure 3-2 and 3-3 of the RI report for LHAAP-16). If so, we remain concern with area between 16WW12 and 16WW30.
    - The proposal to treat only contaminated groundwater above 15,000 ug/l of chlorinate ethenes remains a concern. No additional information is provided to suggest that at this level, the COC could reach cleanup level before discharging to Harrison Bayou
    - The remedy proposed for the intermediate zone is to apply bioaugmentation amendment to intermediate well exceeding the compliance value noted in Table 2-5. Although we concur with utilizing treatment technology, we have the following concerns and questions. Please explain the rational for the usage of the compliance value in Table 2-5. Not withstanding the apparent data gap between 16WW31 and 16WW29, the current well spacing appears to be greater than 250 feet. What is the expected radius of influence of the bioaugmentation apply to the well?
3. We remain concern that data collected thus far does not support natural attenuation to be effective remedy for this site. Although Army responded to indicate that MNA is not the sole remedy at this site, we believe that a large portion of the plume with potential concentration of 15,000 ug/l (residual from the completion of in-situ bio-remediation), MNA may be the sole remedy. Therefore, we recommend that we take similar approach as other sites with similar uncertainties. That is, MNA for two years and follow by evaluation for subsequent MNA or additional bioremediation.
4. The responses provided indicated that Shaw has installed and sampled six additional wells to address data gaps at this site. We will reserve our comments/concurrence until we review the additional data.

Despite these concerns, we believe that we can go forth with the remedy selection and address these concerns during the remedial design phase. Please let me know if you should have any questions regarding these comments.

Fay Duke (MC-136)
Remediation Division, TCEQ
PO Box 13087
Austin, Texas 78711-3087
512-239-2443
512-239-1212 (Fax)

From: Jones, Greg N
Sent: Thursday, October 15, 2009 3:59 PM
To: 'Stephen Tzhone'; 'Fay Duke'
Cc: 'Williams, Aaron K SWT'; 'Zeiler, Rose Ms CIV USA OSA'; 'Lambert, John R SWT'; Watson, Susan; Everett, Kay
Subject: LHAAP-16: RTCs for DF FS Addendum

Steve/Fay:

Please see attached responses to the regulatory comments on the DF Feasibility Study Addendum for LHAAP-16.

There are four files; the file names identify the reviewers.
If you feel hard copy versions of these files are needed, please let us know.

Please provide your concurrence or any questions at your earliest convenience so we can move forward with finalizing the FS.

Thanks,
Gregary N. Jones, PhD, PE
Senior Environmental Engineer
Applied Science & Engineering
Shaw Environmental & Infrastructure Group
3010 Briarpark Drive, Suite 400
Houston, TX 77042
713/996-4472 direct
281/796-1212 cell
713/996-4436 fax

Comments on Draft Final Feasibility Study Addendum, LHAAP-16 (published July 2008)
Longhorn Army Ammunition Plant, Karnack, Texas

October 2008

Reviewer: Terry Burton, U.S. Environmental Protection Agency
Respondents: Shaw Environmental, Inc.

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A		General	I am in favor of the in situ bioremediation remedy. Both the Army and Air Force have successfully used this remedy on other sites. As I recall, there is a site down in MacGregor, TX, that used in situ bioremediation as a remedy for perchlorate and chlorinated solvents simultaneously. I believe that it worked fairly well. Also, bioremediation is less expensive than other potential remedies, so I find it to be a good choice. I am much less bullish on the size of the bioremediation area and the biobarrier. Most troubling though, there appears to be no effort to treat the source right at the landfill boundary. Perhaps I missed it?	C C C	Noted. Final size of these remedial components will be established during remedial design. The existing RCRA cap on the landfill drastically reduces the infiltration of rainwater through the landfill contents. This prevents any further migration of contaminants into the groundwater and is expected to ultimately lead to separation of the plume from the landfill. This is exemplified by the lower concentrations at 16WW36 compared to Extraction Well #2. Nonetheless, additional sampling conducted in 2008 and 2009 indicated that while the highest concentrations are found at the extraction wells, there are significant and persistent concentrations in monitoring wells near the landfill. Alternative 7 will be revised to address this issue in the following manner: - A biobarrier will be applied to the depth of the shallow zone at the edge of the landfill between 16WW38 and 16WW13. - The biobarrier at Harrison Bayou will be made slightly larger. - The in situ bioremediation area will be moved closer to the extraction wells to address the higher concentrations there. - Bioaugmentation amendments will be applied to the intermediate zone wells which exceed the compliance values noted in Table 2-5. Figure 4-1 will also be revised to reflect these	

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					modifications (see attached figure).	
1			A target risk "range" of 10^{-4} to 10^{-6} is misleading; one could imply that risks are not cumulative. Has a cumulative risk assessment been performed?	C	The target risk range is generally understood to be cumulative risk (e.g., http://www.epa.gov/Region06//6pd/rcra_c/pd-o/chap4.pdf). A cumulative risk assessment has been performed for LHAAP-16 (Jacobs, 2001) and is provided in the Administrative Record.	
2	page 2-3		It is unclear whether each contaminant has an EEQ of 1, or whether it is cumulative. The latter is preferred, but difficult to assess.	E	EEQ's are calculated for individual contaminants as described in the Baseline Ecological Risk Assessment (Shaw, 2007).	
3			It is unclear how the background for TCDD was obtained.	C	Reference to the Final Background Soil Study Report (Shaw, 2004) will be added to Note b of Table 2-1. Text (page 2-6) and Table 2-4 (Note b).	
4	page 2-4		I infer that the 95% UCL implies that 5% of the parcel can be well above cleanup goals. I recommend caution before accepting this detail. As written, it seems that entire areas could be ignored. This is not a preferred plan. Certainly, I prefer to see this sort of plan in limited cases, after cleanup has been done, but one or two wells stubbornly are just above cleanup goals. Without more information, I urge caution on this issue, and due engineering diligence.	D	While the 5% inference is not correct, it is true that some locations could exceed the EcoPRG. However, the EcoPRGs are defined on that basis in a Baseline Ecological Risk Assessment (Shaw, 2007) that has been approved by the regulatory agencies.	
5		Table 2-4	Background vs. sample concentrations do not agree. "Maximum" background, especially if higher than sample concentration, leads one to question the previous background soil study. Order of magnitude differences for dioxin are troubling, even at somewhat low concentrations.	D	There is little reason at this site to assume that sample results for dioxins/furans would exceed background maximums. The two congener results that exceed background maximums by an order of magnitude are congeners with low TEFs; therefore the differences are not a significant concern.	
6	page 3-2		90% remediation with in situ bioremediation is a reasonable goal, given good engineering practices. Wilson's group (EPA, Ada, OK) has found that 90% is usually reasonable, 99% is often possible, and 99.9% reduction is the limit for predictive purposes.	C	Achieving 99+% reduction is an aggressive goal for bioremediation, but there are numerous sites with high initial concentrations where this has been achieved. However, Alternative 7 does not depend solely on bioremediation. Natural attenuation will be the remedial component that ultimately restores the	

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					aquifer. At the lower concentrations at which natural attenuation will be the active remedy, it is anticipated that biodegradation will be supported to a considerable degree by other attenuation mechanisms. These include, but are not limited to, dispersion, dilution, sorption, and volatilization.	
7			Are there any provisions for animal burrowing into the protective cap? Animal intrusion is a potential loss of integrity, and has rendered landfills unsuccessful at other sites.	C	Landfill caps must be routinely inspected to address these and other maintenance issues. As noted in Section 5.3.13: The long-term reliability of the LHAAP-16 landfill cap to control infiltration, contaminant runoff, and contaminant exposure depends on adequate long-term inspection and maintenance.	
8	page 4-2		Areas with 15 mg/L of chlorinated ethenes can not be assumed to eventually reach cleanup goals. See point 6 above.	---	Please see response to Comment #6	
9			Note that injecting bacteria into a field system is an art as much as a science. Do not assume bioaugmentation cultures are automatic. Perhaps a pilot study is in order.	C	Shaw has successfully injected bioaugmentation cultures at numerous sites across the nation, including sites in Texas. While it is considered readily implementable at LHAAP, the potential difficulties are understood. Site-specific studies may be appropriate and will be considered as part of the design effort. Costs will be added to the estimate for Alternative 7 to cover these studies.	
10			I feel that the reduction plan in sampling is overly aggressive. Given that source containment is not fully reached (more on that later), I would prefer a maintenance of quarterly sampling for a longer period of time, followed by a longer period of annual sampling.	E	As noted on pages 4-5 and 4-6, the monitoring frequencies on those pages have been assumed for estimating purposes and will be adjusted as data are collected.	
11			It is not immediately clear whether the biobarrier is long enough to fully capture the plume.	C	The biobarrier has been placed to intercept the width of plume exceeding the compliance values at Harrison Bayou. This will be rechecked at the design phase.	

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12			Note that biobarriers in sandy soils can be problematic. It does not take much plugging and/or biofouling to cause preferential pathways around such a barrier. A potential defeat of a biobarrier is another reason to not immediately go to longer sampling intervals.	C	Noted.	
13	page 5-3		The Fish and Wildlife Service does not do LUCs. This is a nonstarter for them. At best, they might agree to tend the grass at regular intervals.	- - -	Noted. Transfer issues are being addressed by BRAC.	
14			The step from vinyl chloride to ethene has a large activation energy, and slow kinetics. Also recall at near-surface depths oxygen will poison a bioremediation system.	C	Noted.	
15			The Texas MCL for perchlorate is 22 micrograms per liter, as I recall. If that is correct, why is the GW-Ind level at 72?	E	22 µg/L was a past interim action level. Based on subsequent revision of the reference dose, Texas set the GW-Ind value at 72 µg/L and the GW-Res at 26 µg/L. Recently, the USEPA established an Interim Health Advisory Level (IHAL) for perchlorate. The IHAL is 15 µg/L and is based on an adjustment to the DWEL (24.5 µg/L). Both the IHAL and the DWEL are more stringent than the GW-Ind or GW-Res. However, the GW-Ind and GW-Res are based on a promulgated rule while the IHAL and DWEL are guidance and have not yet been adopted by DoD. Therefore, as noted in the response to TCEQ Comment #1, the GW-Res will be used as a cleanup level until such time as Army policy specifically directs use of another standard.	
16			Lactate and other organic carbon sources can (and do) sorb to soils. While this may be favorable for soil cleanup, it can affect "radii of influence" calculations, and also the amount needed. While not a big effect for sandy soils, it still must be considered.	C	Noted.	

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17			I think the PRP should provide graphs showing electron concentration versus pH, and how the contaminants are affected by changes on the ORP. This would let you see at a glance how your system is doing, just by knowing a couple of parameters. The "pop" term is an eH/pH graph, or a pE/pH graph. They are the same thing, just different units for ORP.	C	This will be considered at the remedial design phase.	
18			High sulfates can inhibit chemical reduction, as noted in Appendix A. However, preliminary studies are showing that some sulfate concentration can catalyze the reactions to ethane in lab settings. It is uncertain whether sulfate is the key item, or something else. Regardless, bioremediation may still be worth a try in high sulfate areas.	C	Noted.	
19			I feel that attenuation rate estimations do not hold great validity at this time. The underlying differential equation assumes that a source is either "steady-state" or "zero". Given that the source is not fully characterized, I would not place any faith in such numbers because the critical assumption is not valid.	---	Noted.	
20			As alluded to in the previous point, the time estimates for "cleanup via natural attenuation" are merely a guess, and hold little "real-world" meaning at this time.	---	Noted. However, these estimates are the most reasonable approximations that can currently be generated.	
21		Appendix A	It is important to know whether perchlorate concentration-increases are seasonal variations or plume variations.	---	Noted. However, current data are inconclusive.	
22	page 3-9	Appendix A 1st paragraph	This reviewer assumes that one of the 1,2-DCE examples should be 1,1-DCE.23) Note that TCE /DCE/VC/ ethane definitely sorbs onto clayey soils. While the clay's sorption is a positive for remediation, there is also a possibility for releasing that contamination at some point in the future.	C C	The second occurrence of 1,2-DCE will be revised to 1,1-DCE. Noted.	

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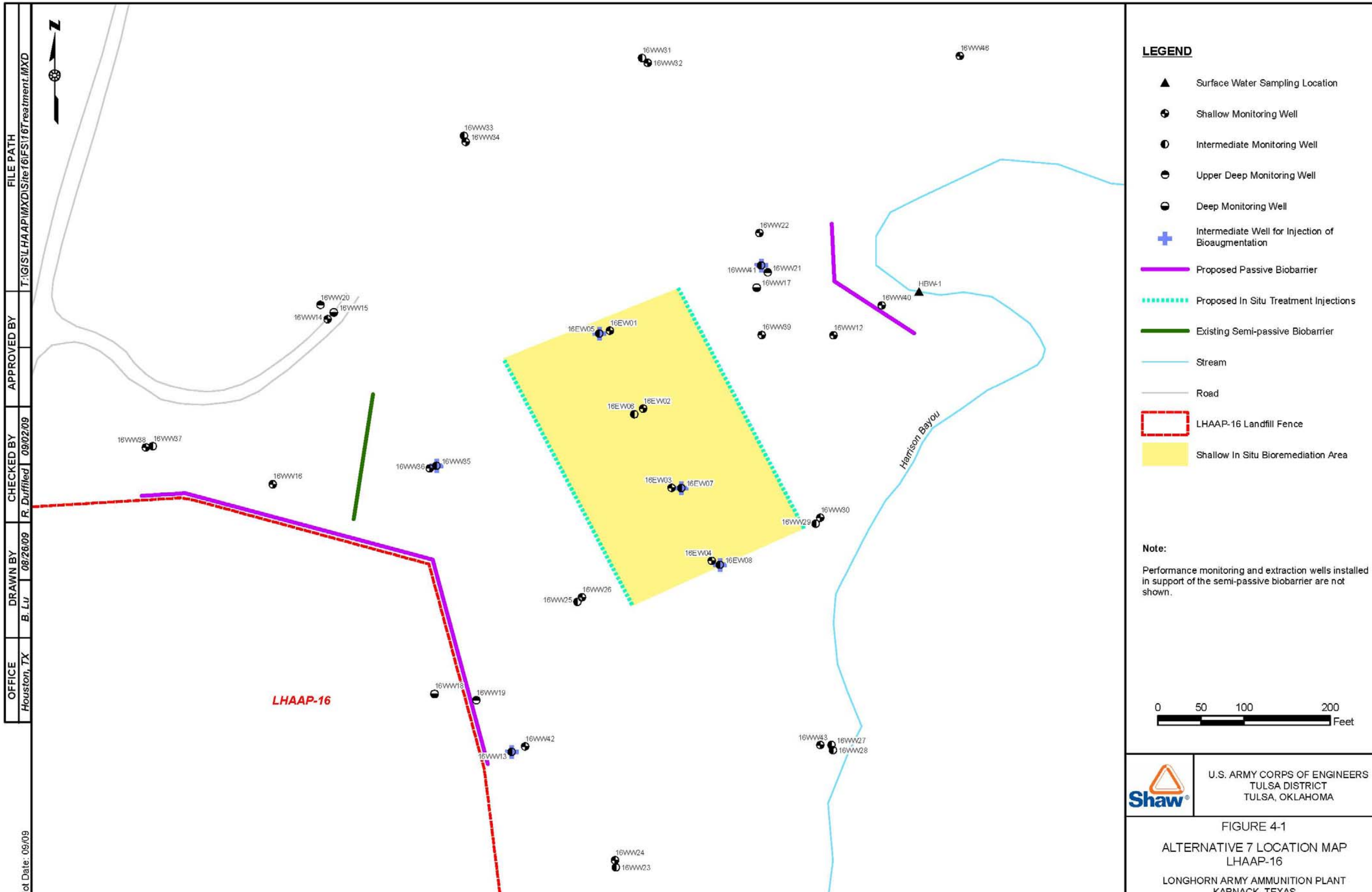

FILE PATH
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APPROVED BY
CHECKED BY
R. Duffiled 09/02/09
DRAWN BY
B. Lu 08/26/09
OFFICE
Houston, TX
Plot Date: 09/09
N
LEGEND
Surface Water Sampling Location
Shallow Monitoring Well
Intermediate Monitoring Well
Upper Deep Monitoring Well
Deep Monitoring Well
Intermediate Well for Injection of Bioaugmentation
Proposed Passive Biobarrier
Proposed In Situ Treatment Injections
Existing Semi-passive Biobarrier
Stream
Road
LHAAP-16 Landfill Fence
Shallow In Situ Bioremediation Area
Note:
Performance monitoring and extraction wells installed in support of the semi-passive biobarrier are not shown.
0 50 100 200
Feet
LHAAP-16
Harrison Bayou
HBW-1
16WW31
16WW32
16WW46
16WW33
16WW34
16WW22
16WW41
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16WW17
16WW40
16WW39
16WW12
16WW20
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16WW43
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16WW28
16WW24
16WW23
Shaw
U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA
FIGURE 4-1
ALTERNATIVE 7 LOCATION MAP
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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A		General	The recommended remedial alternative (#7) includes no source control but proposes treating downgradient areas of the plume with enhanced biodegradation and passive biobarriers. This alternative will serve to temporarily reduce concentrations in downgradient areas of the plume. At sometime in the future, if the source is not sufficiently attenuated nor treated, the plume will potentially redevelop.	E	The landfill cap will continue to prevent infiltration of water through the source material and thus prevent further addition of contaminant mass to the plume. This is expected to ultimately lead to separation of the plume from the landfill. This is exemplified by the lower concentrations at 16WW36 compared to Extraction Well #2. Additional sampling conducted in 2008 and 2009 indicated that while the highest concentrations are found at the extraction wells, there are significant and persistent concentrations in monitoring wells near the landfill. Alternative 7 will be revised to address this issue in the following manner: - A biobarrier will be applied to the depth of the shallow zone at the edge of the landfill between 16WW38 and 16WW13. - The biobarrier at Harrison Bayou will be made slightly larger. - The in situ bioremediation area will be moved closer to the extraction wells to address the higher concentrations there. - Bioaugmentation amendments will be applied to the intermediate zone wells which exceed the compliance values noted in Table 2-5. Figure 4-1 will also be revised to reflect these modifications (see attached figure).	
B		General	The evaluation of natural attenuation would significantly benefit from the inclusion of water-quality data from the extraction wells. Typically, cumulative mass extraction graphs are produced to estimate mass captured by extraction.	C	Noted. Data will be included in future evaluations. However, the data do not impact the overall findings of the FS. Mass extraction graphs will be useful for removal documentation, but will not directly demonstrate natural attenuation since the extraction wells are designed to remove the highest concentrations and operating them tends to disrupt natural attenuation within the radius of influence for the wells.	

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C		General	Mapping of contaminated ground-water discharge to the Bayou could be done to better identify areas of discharge. Several methods are available to perform this task including passive vapor sampling of the streambed pore water http://www.hydrol-earth-syst-sci-discuss.net/5/971/2008/hessd-5-971-2008-print.pdf. The optimal location of the proposed biobarrier can then be assessed because the effort will provide a more comprehensive coverage/map of the plume underlying the Bayou.	C	Noted. Methods to improve the design will be considered during the remedial design phase.	
D		General	The contaminants plumes are not at steady state as shown by increases in COC at wells near the Bayou. Analysis of attenuation rate constants as provided in the report for distance-rate constants require the assumption of steady-state conditions (Buscheck and Alcantar, 1995). The U.S. EPA has an excellent publication on methods in calculating rate constants: http://www.epa.gov/ada/download/issue/540S02500.pdf	C	Because contaminants are migrating toward the bayou, the new alternative includes additional components – biobarriers at the landfill and near Harrison Bayou, and in situ enhanced bioremediation around the extraction wells.	
E		General	The effects of terminating the extraction wells have not been factored into the analysis. This type of analysis is best done by use of a numerical solute transport models. For example, a numerical model can examine the effect that the current extraction wells have on concentrations adjacent to the Bayou?	E	The effects of the extraction wells on the potentiometric surface can be seen in figures provided in the Remedial Investigation Report (Jacobs, 2000) – see Figures 3-3 through 3-6. Given the complexities of the local hydrogeology, shutdown of the wells and subsequent sampling is likely to be the most reliable means of determining the impact on concentrations.	
F		General	The generally low concentrations of ethane/ethene in shallow and intermediate wells suggest that incomplete degradation of TCE>DCE>VC>ETHANE/ETHENE is occurring. Examination of concentrations of TCE, DCE, and VC at intermediate wells upgradient (16WW35) and downgradient (16WW25) for the March 2003 data set (prior to the passive barrier) shows that the molar fraction of VC increases from 19 to 60 percent. This indicates that contaminants are only partially being degraded.	C	It is not unusual for reductive dechlorination to be incomplete. This indicates the need to bioaugment, as discussed in Section 4.3 of the FS Addendum, to ensure that the microbial community is capable of degradation to ethene.	

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Respondent: Shaw Environmental, Inc.

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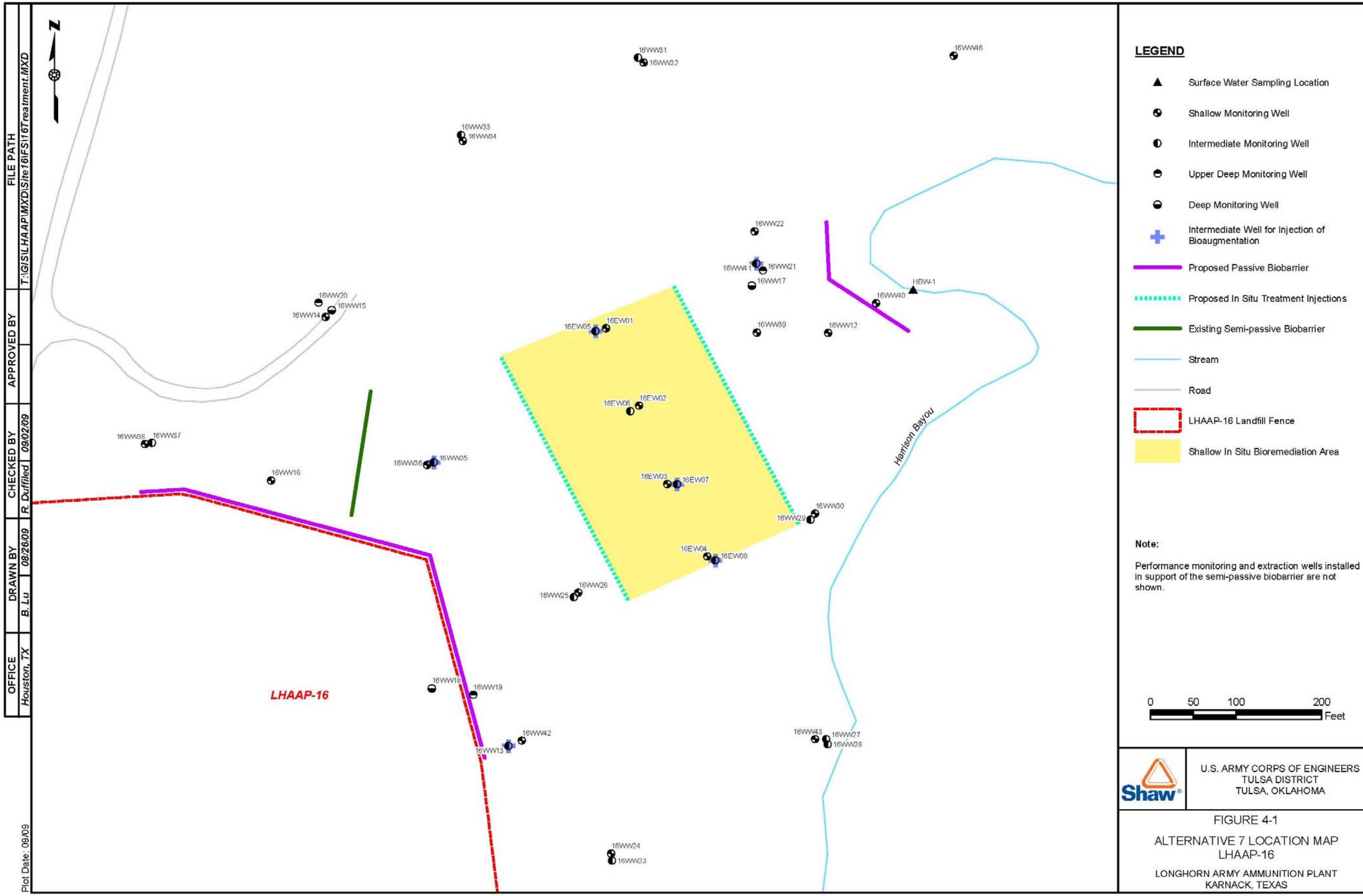
1			Units of measurement are missing throughout the tables and figures of the report.	E	The figures have units listed on the contours; notes will be added to the figures to clarify units. The tables were also checked; all had units of measure.	
2	Page 2-2		Additional information is needed to explain why only soils were used in the ecological risk assessment.	D	Rather than attempt to explain the basis of the ecological risk assessment within this document, the reviewer is requested to refer to the approved Baseline Ecological Risk Assessment (Shaw, 2007).	
3		Sec .2.1.1:	Please reference approach used in the ecological risk assessment.	- - -	Please see response to Comment #2.	
4	Page 2-4:		Why was the upper confidence level of 95 percent used? What were the statistical assumptions in creating the 95 percent confidence interval?	- - -	Please see response to Comment #2.	
5		Figs. 3-1 through 3-12	Try to use consistent contour intervals.	C	The figures will be revised to improve consistency of the intervals.	
6		Fig. 3-3	Well 16WW12 shows an increase in concentration from 46.3 to 322.	C	Noted. While several other wells show decreases, this well does show an increase, which highlights the importance of installing a biobarrier near the creek.	
7		Fig. 3-4-3-6 and Fig. 3-10-3-12	No intermediate wells are near the Bayou to determine plume extent.	E	16WW27, 16WW28 and 16WW29 are intermediate wells near the bayou. Additionally, a new intermediate well, 16WW41, was recently installed near the bayou in the vicinity of shallow well 16WW22.	
8		Fig. 3-13	Are there any water-level maps for the intermediate and deep wells?	C	These can be found in the Remedial Investigation Report (Jacobs, 2000). A more recent water-level map for the intermediate zone will be added as Figure 3-14.	
9		Appendix A page 3-9 sec. 3.2.1.1 1st para	Add a qualifier about the plume conditions and whether it is in steady state.	C	A statement will be added to indicate that the side-gradient regions of the intermediate plume appear to be stable with the exception of the anomalous result at 16WW29, which will continue to be monitored.	
10		Appendix A page 3-12	Ethane/Ethene concentrations are non-detect indicating incomplete degradation.	- - -	Please see the response to Comment F.	

00084403



LEGEND
Surface Water Sampling Location
Shallow Monitoring Well
Intermediate Monitoring Well
Upper Deep Monitoring Well
Deep Monitoring Well
Intermediate Well for Injection of Bioaugmentation
Proposed Passive Biobarrier
Proposed In Situ Treatment Injections
Existing Semi-passive Biobarrier
Stream
Road
LHAAP-16 Landfill Fence
Shallow In Situ Bioremediation Area
Note:
Performance monitoring and extraction wells installed in support of the semi-passive biobarrier are not shown.
0 50 100 200
Feet
U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA
FIGURE 4-1
ALTERNATIVE 7 LOCATION MAP
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
FILE PATH
T:\GIS\LHAAP\MXD\Site16\FS\16Treatment.MXD
APPROVED BY
CHECKED BY
R. Duffiled
09/02/09
DRAWN BY
B. Lu
08/26/09
OFFICE
Houston, TX
Plot Date: 09/09
LHAAP-16
Harrison Bayou
HBW-1
16WW31
16WW32
16WW46
16WW33
16WW34
16WW22
16WW41
16WW21
16WW17
16WW40
16WW20
16WW15
16WW14
16EW05
16EW01
16WW39
16WW12
16EW06
16EW02
16WW38
16WW37
16WW36
16WW35
16WW16
16EW03
16EW07
16WW30
16WW29
16EW04
16EW08
16WW26
16WW25
16WW18
16WW19
16WW42
16WW13
16WW43
16WW27
16WW28
16WW24
16WW23

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1		Remedial Action Objectives & Cleanup Levels	As the aquifer at this site is considered potential source of drinking water, the TCEQ requires restoration of the groundwater be one of the remedial action objectives (RAO) for this site.	C	The following RAO will be added in Section 2.2: "5. Restoration of groundwater in the shallow and intermediate zones to its potential beneficial use as drinking water, wherever practicable. If a return to potential beneficial uses is not practicable, these alternatives would still meet the NCP expectation to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction. Army recognizes USEPA's policy to restore groundwater to potential beneficial uses based on the non-binding programmatic expectation in the NCP." In conjunction with the above revision, the ARARs discussion will be revised as indicated in the response to the next portion of Comment #1. Also, the document will be checked for other paragraphs that need to be revised for the latest language on potential beneficial use as drinking water.	
			Additionally, because Harrison Bayou is a large watershed that feeds into Caddo Lake (a public drinking water source), MCL or residential MSC for groundwater should be used as the action level. However, if the Commercial/Industrial MSCs for groundwater are selected as the action levels, a groundwater/surface water modeling must be performed to demonstrate that the drinking water at Caddo Lake would not be impacted.	C	EPA's MCLs are relevant and appropriate at LHAAP-16 because it is an NPL site. To address TCEQ's comment, the MCLs will be used and the GW-Res will be used where MCLs are unavailable (i.e., for perchlorate). The GW-Res values will be used, where the GW-Ind values were previously indicated, for the following reasons: 1) Since both the GW-Ind and the GW-Res values default to MCLs for other COCs, perchlorate is the only COC that is impacted. 2) Microbes derive more energy from perchlorate degradation than from chlorinated solvent degradation, therefore perchlorate will typically be depleted prior to the chlorinated solvents. 3) The perchlorate GW-Ind is 72 ug/L while the GW-	

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					Res is 26 ug/L. Since they differ by a factor of less than 3, the impact of using one versus the other is not significant. In page 2-10, Section 2.4, the first paragraph will be replaced with the following: "Based on the anticipated future use of the facility as a wildlife refuge, the groundwater at LHAAP-16 will not be used in the future as a drinking water source. Although there is no current or planned future use of the groundwater as a drinking water source, the State of Texas views all groundwater as a potential drinking water source, unless otherwise classified, consistent with 30 TAC 335.563(h)(1). Therefore, this alternative will restore the contaminated groundwater at LHAAP-16 to its potential beneficial use as drinking water, wherever practicable, which for the purposes of this FS is considered to be attainment of the Safe Drinking Water Act (SDWA) MCLs to the extent practicable, and consistent with 40 C.F.R. § 300.430(e)(2)(i)(B&C). If a return to potential beneficial uses is not practicable, this alternative would still meet the NCP expectation to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction. RAO #3 is to prevent human exposure to groundwater contaminated with TCE, DCE, VC and perchlorate This must be maintained until the groundwater complies with drinking water standards (MCLs) for the volatile organic COCs. For COCs without MCLs (i.e., perchlorate), the Texas Groundwater Medium Specific Concentration for Residential Use (GW-Res) will be used as the cleanup requirement." In the next paragraph a table of applicable MCLs will	

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					be referenced, and the second sentence will be revised to read "As noted in Table 2-7, the GW-Res for perchlorate is 26…"	
			Finally, we noted that the development of the cleanup value did not take into consideration of all COC that exceeded the risk levels of 1x10-4 or HI of 1 based on the baseline risk assessment.	C	The FS Addendum currently focuses on TCE and its daughter products because they account for approximately 99% of the cancer risk and 97% of the non-cancer hazard associated with LHAAP-16. However, Section 2.2 will be revised to evaluate the chemicals presented in Table 4-9 of the Final Baseline Human Health Risk Assessment (Jacobs, 2001), plus perchlorate, to address all chemicals associated with the risk and HI indicated by the reviewer. In conjunction with this, the RAOs that refer to "TCE, DCE, VC, and perchlorate" will be modified to refer to "COCs." Attached Table 2-5 presents the evaluation of chemicals from the risk assessment. The right-most column identifies the COCs, and the notes at the bottom of the table explain the basis for including or excluding chemicals as COCs. The following text will be added to Section 2.2: "The COCs mentioned in the RAOs were identified by evaluation of the chemicals with risks exceeding 1E-4 and/or hazard indices exceeding 0.1. Those chemicals were identified in the Final Baseline Human Health Risk Assessment (Jacobs, 2001) and are presented in **Table 2-5**. That table also provides a summary of the sampling associated with each chemical, including tabulation of the number of results exceeding the appropriate comparison value for each chemical. The table notes summarize the reason for including or excluding chemicals as COCs. As noted in that evaluation, the resulting COCs were perchlorate, chromium, TCE, 1,1-DCE, 1,2-DCA, cis-1,2-DCE, vinyl chloride, and methylene chloride.	

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					In addition to perchlorate and the chlorinated solvents, chromium was retained as a chemical of concern. The occurrence of chromium is presented in **Figure X**. There are scattered occurrences of chromium above its MCL in a number of wells, but most consistently in stainless steel monitoring wells along the northern edge of the organics plume in the shallow groundwater. High chromium concentrations in groundwater at stainless steel wells has also been observed at other LHAAP sites. The 2002 Feasibility Study (Jacobs, 2002), indicates that '*Current and future metals concentrations in the groundwater seeping to the surface water are not projected to exceed ARARs or to cause a human health risk in Harrison Bayou* (page 1-34 of the FS for LHAAP-16).' Nonetheless, the remedy presented in this Addendum assumes that (1) chromium will continue to be monitored to verify that it does not impact surface water and (2) that the wells most affected by corrosion (as evidenced by elevated chromium) will be removed or replaced with wells of different material." In conjunction with the above, former Table 2-5 will be renumbered as 2-6, and the additional COCs (chromium and methylene chloride) will be added to that table. Also, a table (2-7) will be added to Section 2.4 to show the groundwater cleanup levels; it will include the additional COCs as well.	
			Please revise the report to fully address all the remedial action objectives.	C	Revisions will be implemented as noted above. The text will be searched for other references to GW-Ind and revised in conjunction with the above changes.	
2		General	Some design details of the remedial alternative are presented in this report for cost purposes. Please note that approval of remedial alternatives by the TCEQ does not automatically approve the design and construction of those alternatives. Design specifications for remedial actions will	C	Noted.	

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			be evaluated during the remedial design phase.			
3		Well Re-designation	Several monitoring wells at this site were re-designated as a result of the monitoring well evaluation. Please revise the report to reflect those changes.	C	The following five monitoring wells were re-designated: Well ID / Former Zone / New Zone 16WW13 shallow intermediate 16WW19 intermediate upper deep 16WW20 intermediate upper deep 16WW21 intermediate upper deep 16WW28 shallow intermediate The addendum will be revised to address these changes. Those revisions will include, but not be limited to, the following: • The Section 3 figures will be revised to reflect the new groundwater zones. • The well symbols on Figure 4-1 will be revised for the new zones. • In Section 4.6 of the main text, the proposed monitoring wells will be updated. • The MNA evaluation (Appendix A) will be revised by shifting information about 16WW13 and 16WW28 to the intermediate zone evaluation. (Other zones were not affected.) This affects figures and tables as well as text.	
4		Section 2.1.1	The report states "Because an ecological receptor is assumed to use all portion of the sub-area equally, it does not matter from which site within a sub-area the concentrations are remediation. For example, if sample locations are remediated at LHAAP-17 such that TNT 95% UCL for the entire Waste Sub-Area is reduced below 4.7 mg.kg, then no remediation would be necessary at LHAAP-16	E	This text was meant to clarify the overall purpose and use of EcoPRGs. Please refer to the BERA (Shaw, 2007) for further information. The example situation does not apply at LHAAP-16; therefore there is no need to elaborate within the LHAAP-16 FS Addendum.	

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			or any other site within the Waste Sub-Area, even if some elevated concentrations above the EcoPRG of 4.7 mg.kg are present.” Please elaborate on how will this be implemented? For example, what cleanup levels will be implemented at site LHAAP-17 to ensure that the entire Waste Sub-Area would be protective of the ecological receptors? Under the scenario described, would a post remediation assessment be conducted to ensure that the 95% UCL concentration of contaminants are below the EcoPRG for the entire Waste Sub Area?			
5		Section 2.1.2	Please include a figure depicting the sample locations which are discussed in this section.	E	To avoid repeating information found in previous documents, we will add a reference to the figures in the RI that show the sediment and monitoring well locations (Figure 2-4 and Figure 2-5, respectively). For the reviewer’s convenience, excerpts from those figures have been included at the end of these comments.	
6		Section 2.2 thru Section 2.4	Please see Comment 1. Please develop remedial/cleanup levels that meets all the remedial action objectives. We recommend that cleanup level be presented in tabular form with notation indicating which RAO drives the cleanup value.	E	Section 2.3 and 2.4 will be rearranged and revised to clarify that the MCLs and perchlorate GW-Res apply to RAO #3 while Compliance Values at Harrison Bayou apply to RAO #4. RAOs #1 and #2 are functional in nature (i.e., they are based on containment of landfill contents) and do not require chemical concentrations for evaluation or implementation. A new table listing Groundwater Cleanup Goals will be added to section 2. It will list the MCLs for the COCs, and will note the alternate Cleanup Goals for COCs that have no MCL (i.e., the GW-Res for perchlorate).	
7		Deep Groundwater	It is concluded that site contaminations have not impacted the Upper Deep or Deep Groundwater. However, we note that the last groundwater data collected in these two zones were from 2004. Because there are high concentrations of contaminants in the shallow and intermediate zone, regular	C	Additional sampling was performed at three Upper Deep wells (16WW19, 16WW20, and 16WW21) on December 4, 2008. The samples were analyzed for VOCs, and all results were non-detect. Because there were no detections in the Upper Deep wells, the Deep	

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			monitoring of the deeper zone is necessary. Please sample the wells located in the Upper Deep and Deep Groundwater. A sampling schedule should be established to monitor the deeper zone.		wells were not sampled. Appendix B will be expanded to include these new data. The Upper Deep zone will be added to the sampling schedule that is being established for LHAAP-16 in response to 5-Year Review recommendations.	
8		Section 4.1	We recommend that the report provides for a summary of Alternatives 1 through 6 to assist the reader on all seven alternatives.	E	In Section 4.0, the following text will be added: "Combining Alternative 7 with the alternatives provided in the Final Feasibility Study (Jacobs, 2002), the full list of alternatives is as follows: 1. No action 2. Cap, enhanced groundwater extraction 3a. Cap, monitored natural attenuation 3b. Cap, hot spot extraction, monitored natural attenuation 4. Cap, passive groundwater treatment 5a. Landfill hotspot removal Passive groundwater treatment 5b. Complete landfill removal Passive groundwater treatment 6. Landfill Source Treatment (in situ), monitored natural attenuation 7. Cap, monitored natural attenuation, in situ enhanced bioremediation, passive biobarriers All alternatives utilize some degree of LUCs as part of the remedy." As an addendum, this document provides information in addition to that already provided in the FS. The FS includes a detailed description of each alternative.	
9		Section 4.3 thru 4.4	The objective of each remedial technology should be described. The report should fully describe how each of the remedial technology in combination would meet the RAO for all COCs. The expected treatment effectiveness should be described including the rate and the completeness of	E	Sections 4.3 and 4.4, and associated text in Section 5 will be revised to include additional details on anticipated reduction of the TCE and its daughter products as well as perchlorate. The text will be presented to further support the evaluation of the	

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			reduction for all COC. We note that these sections of the report include some design details. Please provide the design basis for these details.		alternative with respect to CERCLA criteria.	
			There are always uncertainties associated with in-situ treatment technology. Site-specific conditions and multiple COCs may decrease the effectiveness and reliability of the treatment. Due to the close proximity of the contaminated plume to the Harrison Bayou, uncertainty in the treatment system must be kept to a minimum and a contingent remedy should be proposed to ensure contaminants are not being discharge to Harrison Bayou.	C	The remedy for the shallow groundwater comprises four components: biobarrier adjacent to the landfill, bioremediation of highest concentration zone, biobarrier near Harrison Bayou, and MNA. By its very nature, the passive biobarrier near the bayou offers contingency measures – it involves the placement of the biobarrier by DPT that allows re-injection at a later date, with the flexibility to adjust position to reflect changes at the site, if needed.	
			Please clarify whether treatability studies have been or will be conducted at this site to ensure that these remedial technologies would perform to the desire outcome. If treatability studies have been conducted, please direct us to the reports summarizing the results. If treatability studies have not been performed, we highly recommend studies be performed	C	Site-specific tests for both hydraulics (i.e., injection) and reagents will be considered during the early phases of remedial design. However, the proposed technologies have an established history with the types of contaminants found at LHAAP-16. Therefore, the existing information is considered adequate at the FS stage.	
			Based on historical VOC soil gas sampling results, several areas of elevated VOC exist in the landfill and may be continually contributing contamination to the groundwater. Please clarify whether the remedial alternatives took consideration of the continuing source.	E	While there may be areas of historically elevated VOCs in the landfill, the presumptive remedy of a RCRA cover was intended to eliminate infiltration of water through the landfill contents, and thus prevent any further migration of contaminants to the groundwater. Analytical data from the monitoring wells and the extraction wells indicate that the VOC concentrations near the landfill are lower than those further to the east. This indicates that the landfill is no longer a continuing source, or at least much less of a source than in the past. Additional sampling conducted in 2008 and 2009 indicated that the highest VOC concentrations are found at the extraction wells. However, there are significant and persistent concentrations in monitoring wells near the landfill.	

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					Therefore, Alternative 7 will be revised to address this issue in the following manner: - An extensive passive biobarrier will be applied to the depth of the shallow zone at the edge of the landfill between 16WW38 and 16WW13. - The passive biobarrier at Harrison Bayou will be made slightly larger. - The in situ bioremediation area will be moved closer to the extraction wells to address the higher concentrations there. - Bioaugmentation amendments will be applied to the intermediate zone wells which exceed the compliance values noted in Table 2-5.	
			The proposed design details for the in-situ bioremediation and biobarrier appear to address only the shallow aquifer. Please clarify whether any of the system will be included for the intermediate aquifer.	C	As noted above, the revised remedy specifically identifies locations in the intermediate zone where bioremediation amendments will be injected.	
10		Section 4.3	It states that in-situ bioremediation will be performed to treat the highest level of chlorinated solvent, above 15,000 µg/l. Please provide rationale for the 15,000 µg/l concentration threshold. Is the area targeted for treatment defined using total VOC or one particular COC above 15,000 µg/l?	C	In response to Terry Burton/USEPA Comment A and Philip Harte/USGS Comment A, the bioremediation and biobarriers have been reconfigured. This new configuration, like the earlier 15,000 µg/L configuration, was selected to maximize the gains from treatment of the source area and was based on the concept that the treated groundwater would ultimately migrate toward the passive biobarrier near the bayou. The treated water would further attenuate during its migration and then be treated during its transit through the passive biobarrier. Subsequently, the water would migrate to Harrison Bayou, and would attenuate further during that time as well. At the point of compliance, the COC concentrations in the migrating groundwater would be expected to satisfy the compliance values provided in Table 2-5.	

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					The treatment area was based on TCE concentration.	
11		Section 4.5	Based on the MNA evaluation conducted, at this time we cannot concur with the MNA remedy for this site. Please see TCEQ review comments below regarding MNA evaluation.	E	Appendix A provides only a preliminary MNA evaluation. A conclusive MNA evaluation is not possible because of the current nature of contamination at the site and the continued operation of the extraction wells. However, the results of the preliminary evaluation are such that MNA can be combined with other remedial components into a viable alternative. Natural attenuation is expected to accelerate once the extraction system is shut off and the bioremediation has been accomplished. It should also be noted that Appendix A will be updated to align with EPA guidance. The changes will be similar to those implemented in the revised Natural Attenuation Evaluation for LHAAP-58.	
12		Section 4.6	The groundwater monitoring program must be designed to adequately assess the performances of the remedial systems in meeting the RAO including monitoring for the performance of the remedial system to ensure restoration of groundwater will be achieved.	C	Noted. The monitoring program will be considered in more detail during remedial design.	
13		Section 4.7	The duration of the remedial alternative 7 should fully describe the periods in which each of the remedial technology is expected to be in operation and the duration in which the RAO for all COCs could be met.	E	The section will be revised to include a reference to the number of years to reach cleanup goals (which is already noted in Section 5.3.1.2). Groundwater use restrictions must be maintained that entire time. Maintenance of the cap is assumed to continue indefinitely. Duration of in situ bioremediation and the initial passive biobarrier injection are already noted to be 8 months.	
14		Section 4.8	It is stated that sampling and analysis of surface water and groundwater would be implemented at least every 5-years. Data collected will be used in support of the Five-year	D	As noted in Section 4.7, a total of about 24 months is needed to implement in situ bioremediation, install the passive biobarrier, and perform additional evaluation	

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			Review. This monitoring schedule is unacceptable. It is unclear to us whether upon completion of the installation of the remedial system a period of system evaluation will be performed before the long term operation		associated with MNA. The latter includes quarterly groundwater monitoring and provides an opportunity for evaluation prior to LTM. As noted in Section 4.6, annual sampling will continue until the first five year review. Only at that point would sampling frequency decrease to every 5 years, and Section 4.6 includes the caveat "unless the sampling results indicate more frequent sampling is necessary." The cost estimate will be rechecked to ensure that it includes these activities for the proper time periods.	
15		Section 5	The remedial alternatives for the intermediate aquifer appear to be only a subset of what is being proposed for the shallow aquifer. We believe that it should be clearly stated and the detailed analyses of the alternatives include distinct evaluations of the remedy for the intermediate aquifer.	C	The last sentence of Section 4.0 will be replaced with the following: "It does this through maintenance of the existing cap, groundwater use restrictions, installation of a biobarrier in the shallow groundwater zone adjacent to the landfill, in situ enhanced bioremediation in the shallow and intermediate groundwater zones, installation of a biobarrier in the shallow groundwater zone between LHAAP-16 and Harrison Bayou, and MNA of the shallow and intermediate groundwater zones." The second paragraph of Section 5.3.1.1 will be revised to read as follows: "The cap is considered an effective means of source control to reduce contamination entering the groundwater via prevention of surface water infiltration. In situ bioremediation would reduce the mass of contamination in the heart of the shallow groundwater plume and in specific target areas within the intermediate groundwater zones. The passive biobarriers would prevent the eastward migration of COCs in the shallow groundwater. Natural attenuation would also reduce the COC concentrations in both the shallow and intermediate groundwater plumes over	

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					time, thereby reducing the potential risk of human exposure. An MNA program would be implemented to ensure the effectiveness of monitored natural attenuation following shut down of the extraction wells and completion of the in situ bioremediation. Further monitoring would be used to evaluate contaminant migration and ensure that the COCs in the groundwater plumes continue to degrade or remain stable and do not discharge to Harrison Bayou at levels exceeding the compliance values."	
16		Section 5.3.1.2	The Action Specific ARARs need to be updated to include substantive requirements of the federal and state Underground Injection Control rules and regulations.	C	Since the federal government has granted primacy to Texas, a reference to the state rules will be added. The final paragraph of Section 5.3.1.2 will be revised by inserting the following text after the first sentence: "In addition to the ARARs provided in the FS, the action-specific ARARs will include the substantive requirements of the Texas Underground Injection Control Rules (TAC §331)."	
17		Section 6, Table 6-1	Under the comparative analysis for the reduction of toxicity, mobility, or volume through treatment category, the description reflects only the groundwater remedy. We believe the evaluation should also reflect that no source treatment is provided from capping the landfill. Under the implementability category, the description for natural attenuation under Alternative 3a/3b and Alternative 6 should be updated.	C C	Under the column for Alternative 7, the text "No source treatment" will be added to Reduction of toxicity, mobility or volume through treatment. The text "natural attenuation must be demonstrated" will be deleted from each.	
18		Figures	We noted that the COC contour maps in this report show only wells that have been samples [sic] during the sampling events. This makes plume delineation and data gap evaluation difficult. We recommend that COC contour or water levels maps include all existing wells and include notes such as "NS" to denote that wells were not sampled.	C	Other wells in the same zone will be added to each map.	

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			We note that the report did not include groundwater level maps for the intermediate aquifer. Please prepare and submit groundwater level maps for the intermediate zone.	C	An intermediate zone well location and piezometric surface map will be added as Figure 3-14. This map will use the latest well designations. Additionally, Section 3.0 will be revised to include a reference to this figure (see response to Comment #19).	
19		Data Gaps	We note that based on the existing data and the re-designation of monitoring wells, there are data gaps for the delineation of the extent of groundwater contamination. However, we have discussed these concerns in various teleconferences and it is our understanding that Shaw is currently installing additional wells to address these data gaps.	C	Shaw has installed and sampled six new wells at LHAAP-16. Text describing those wells and their sample results will be added to the end of Section 3. The complete results will be added to Appendix B.	
Appendix A						
20		Section 2.2.2	It states, "the most abundant chlorinated solvent at the site is methylene chloride." Please verify this statement. We were not aware that methylene chloride is a major COC at this site.	C	The statement will be deleted.	
21		Section 3.1.1.1	The report states that a semi-passive bio-barrier was established in 2004 between wells 16WW16 and 16WW36. It further states that an increasing trend of perchlorate was observed in well 16WW36 since the injection in 2004. There seem to be lack of discussions in how the semi-passive bio-barrier performed in reducing the perchlorate or TCE concentrations. Are there reports summarizing this study? Data associated with this study should be submitted for evaluation.	C	Limited information is available on the study. In Section 3.1.1.1 of the appendix, the word "however" will be removed from the beginning of the fourth sentence, and the following text will be added after the fourth sentence: "However, the groundwater monitoring results in the vicinity of the semi-passive biobarrier demonstrated that the barrier effectively reduced the concentration of perchlorate close to the barrier. These results were at study-specific monitoring points in close proximity to the biobarrier as shown in Figure 3-1." The referenced figure (Figure 3-1) will be added to the appendix and subsequent figures will be renumbered. A copy of the figure is attached to these responses. At the end of the paragraph, the following text will be added: "This work is largely documented in a 2005 paper	

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					(ESTCP, 2005), but the final groundwater monitoring event was conducted in May 2006. The results of the May 2006 event were provided to Shaw by Geosyntec (ESTCP, 2007), but the results were not included in any formal report." The following will be added to the references in Section 5.0: • Environmental Security Technology Certification Program (ESTCP), 2005, *DATA ANALYSIS WHITE PAPER FOR: Remediation of Perchlorate Through Semi-Passive Bioremediation at the Longhorn Army Ammunitions Plant, ESTCP Project 200219*, Revision 1.0, May. • ESTCP, 2007, Electronic mail correspondence between Geosyntec and Shaw summarizing March 2006 sampling results for semi-passive biobarrier study.	
22			We note that in the shallow zone, 16WW22 was often selected as the downgradient well for the natural attenuation (NA) rate evaluation. We believe that 16WW12 may be more appropriate because it is more likely to be within the flowline of 16WW36. Depending on the groundwater gradient for the intermediate zone, we are not certain that 16WW29 is the most downgradient well within the flow line of 16WW35. Please verify.	E	Flow from up-gradient areas of LHAAP-16 to Harrison Bayou is complicated by the presence of the shallow and intermediate zone extraction wells. Therefore, it is difficult to verify the direct flow line in either zone. Because of the likely flow pattern "around" the shallow extraction wells, 16WW22 is felt to be representative of the path down-gradient of 16WW36. 16WW29 was the most down-gradient intermediate well from 16WW35. However, a new intermediate well, 16WW41, has been installed in the vicinity of 16WW22 and is more likely to be on the proper flow line. It will be used for MNA analyses in the future.	
23			Please refer to the attached review comments of the MNA evaluation from the TCEQ Remediation Division Technical Support.	C	Please see responses to Comments from C. Stone/TCEQ.	

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Appendix C, Cost Estimates						
24			Please clarify the basis of the 7% discounted rate used to calculate the present worth. It seems high.	C	The discount rate of 7 percent will be revised to 2.7% based on the Office of Management and Budget Circular No A-94, December 2008. The discount rate typically has minor impact on order-of-magnitude cost estimates, and the 7% rate has been consistently used in earlier LHAAP documents. However, the 2.7% rate better reflects current real interest rates when inflation has been removed. This rate change will be made in the calculations, and the costs will be updated throughout the text and tables.	
			The report states that the cost estimates were based on the cost estimate in the Site 16 FS report (Jacobs, 2002). However, the presentation of the cost estimates did not allow us clearly to identify the cost elements that were revised/updated. We recommend the format of the cost estimates follow the presentation that is in the Site 16 FS.	C	The revised estimates will be included in Appendix C.	
			Additionally, the costs for the same remedial technologies (i.e. MNA) that are included in the various remedial alternatives should be the same.	C	MNA costs will be checked and revised where appropriate.	
			We also note that the cost estimate for Alternative 7 did not include budget allocation for treatability studies, remedial design submittal or remedial action report. Please clarify.	C	Costs for site-specific studies will be added to Alternative 7.	

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Table 2-5
Evaluation of Potential COCs

Parameter	Baseline Risk Assessment Results			Comparison Value		Maximum Result (ug/L)	Number of Samples			Number of Detected Results			Number of Detected Results that Exceed Comparison Value			Parameter is a COC?
	EPC (ug/L)	Risk	HI	Value (ug/L)	Basis		Total	Pre 1999	Post 1999	Total	Pre 1999	Post 1999	Total	Pre 1999	Post 1999	
Perchlorate	none	-	-	26	GW-res	5,990	439	0	439	257	0	257	213	0	213	YES, 3
1,3-Dinitrobenzene	1.56	-	0.15	3.7	GW-res	1.56										NO, 6
2,4,6-Trinitrotoluene	240	2.50E-05	4.6	18	GW-res	240	265	178	87	8	8	0	2	2	0	NO, 5
4-Amino-2,6-dinitrotoluene	1	3.50E-08	1.34	6.1	GW-res	1										NO, 6
Nitrobenzene	20	-	1.68	18	GW-res	20	288	201	87	13	9	4	1	1	0	NO, 5
RDX	200	7.70E-05	0.67	7.7	GW-res	200	258	171	87	14	14	0	1	1	0	NO, 5
Arsenic	34	1.80E-04	1.1	10	MCL	123	192	103	89	60	24	36	23	19	4	NO, 1
Barium	9,900	-	1.39	2,000	MCL	9,900	190	103	87	165	78	87	9	9	0	NO, 2
Cadmium	8	-	0.16	5	MCL	29	190	103	87	46	7	39	4	4	0	NO, 2
Chromium	5,220	-	17	100	MCL	32,400	199	103	96	148	52	96	56	21	35	YES, 3
Manganese	29,800	-	2.07	7,820	95% UTL Background	29,800	143	52	91	141	50	91	14	2	12	NO, 4
Nickel	1,630	-	0.8	730	GW-res	1,803.5	190	103	87	129	45	84	9	3	6	NO, 8
Silver	114	-	0.22	180	GW-res	114										NO, 6
Strontium	10,400	-	0.17	22,000	GW-res	12,300										NO, 6
Zinc	37,000	-	1.2	11,000	GW-res	37,000	139	52	87	111	26	85	2	2	0	NO, 5
Trichloroethene	160,000	2.38E-02	500	5	MCL	173,000	401	154	247	308	112	196	279	95	184	YES, 3
1,1-Dichloroethene	740	3.41E-04	0.859	7	MCL	740	385	154	231	84	16	68	56	9	47	YES, 3
1,2-Dichloroethane	160	2.41E-04	-	5	MCL	161	385	154	231	73	7	66	55	6	49	YES, 3
1,2-Dichloroethene	275,000	-	185.4	70	MCL for cis-1,2-DCE	275,000										NO, 7
cis-1,2-Dichloroethene	520,000	-	510	70	MCL	520,000	311	120	191	162	63	99	85	27	58	YES, 3
Vinyl chloride	11,000	1.11E-01	-	2	MCL	11,000	386	154	232	93	14	79	84	14	70	YES, 3
1,1,2-Trichloroethane	12	1.14E-05	0.03	5	MCL	23.6	361	154	207	19	2	17	8	1	7	NO, 9
Acetone	3,920	-	0.38	33,000	GW-res	14,000										NO, 6
Chloroform	120	1.34E-04	0.17	80	MCL for trihalomethanes	36										NO, 6
Methylene chloride	3,500	1.64E-04	0.72	5	MCL	9,500	361	154	207	44	10	34	27	6	21	YES, 3
Trichlorofluoromethane	892	-	0.196	80	MCL for trihalomethanes	892	290	139	151	2	2	0	1	1	0	NO, 5

Notes:
List of Chemicals is from Table 4-9 of the Final Baseline Human Health Risk Assessment for Site 16 Landfill (plus perchlorate).
Constituents/Parameters with Hazard Index (HI) > 0.1 or Cancer Risk (Risk) > 1.00E-5 are selected.
(1) Excluded as a COC because only 4 of 89 results, from only 2 locations, since 1999 exceeded the MCL, which is not indicative of widespread site-related contamination.
(2) Excluded as a COC because earlier exceedances of MCL were not confirmed by subsequent sampling.
(3) Retained as a COC because a significant number of results exceed the MCL or GW-res.
(4) Excluded as a COC because results that exceed site background are limited to four intermediate zone wells. The manganese is not migrating vertically from the shallow zone (i.e., is not associated with the landfill), nor does the manganese appear to be migrating horizontally.
(5) Excluded as a COC because only one or two anomalous sample results in early sampling were above the Comparison Value.
(6) Excluded as a COC because no detected result ever exceeded the comparison value.
(7) Excluded as a COC because the parameter will be superseded by cis-1,2-DCE.
(8) Excluded as a COC because most recent samples only exceed GW-res at 16WW34, which is not indicative of widespread site-related contamination.
(9) Excluded as a COC because most recent samples only exceed the MCL at 16EW02, which is not indicative of widespread site-related contamination.

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Table 2-6
Compliance Values at Harrison Bayou

Chemical of Concern	Compliance Value	Aquatic Life Protection [1]	Human Health - Incidental Fishery [2]	Contact Recreation [3]	Background
Perchlorate	395	NE	NE	395	NE
Trichloroethene	555	555	6,120	1,010	NE
cis-1,2-Dichloroethene	4,180	7,000	1,400,000	4,180	NE
1,1-Dichloroethene	196	6,300	739	196	NE
1,2-Dichloroethane	58	1,500	58	16,600	NE
Vinyl Chloride	113	2,820	4,150	113	NE
Methylene Chloride	3,370	11,000	59,000	3,370	NE
Chromium	109	109	33,200	126,000	8.8

Notes:

All values are in micrograms per liter (µg/L).

Source: This table was communicated to the U.S. Department of the Army by TCEQ in an email dated August 2, 2007 from F. Duke to R. Zeiler/BRAC and P. Srivastav/Shaw. The primary basis for the values in the three right-most columns are provided in the notes.

[1] Aquatic Life Surface Water RBEL Table and Human Health Surface Water RBEL Table. <http://www.tceq.state.tx.us/assets/public/remediation/trrp/swrbelstable.pdf>

[2] Texas Administrative Code (TAC), 307.6(d)(1), Table 3, Criteria in Water for Specific Toxic Materials. As noted in TAC 307.6(d)(b). Numerical criteria applicable to incidental fishery waters are therefore ten times the criteria listed in Columns B and C of Table 3.

[3] RG-366/TRRP-24, Determining PCLs for Surface Water and Sediments (TCEQ, 2002).

BRAC - U.S. Army, Base Realignment and Closure

NE - not established

RBEL - risk based exposure level

TCEQ - Texas Commission on Environmental Quality

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Table 2-7
Groundwater Cleanup Levels

Chemical of Concern	Applicable Cleanup Level	MCL	GW-Res
Perchlorate	26	NE	26
Trichloroethene	5	5	5
cis-1,2-Dichloroethene	70	70	70
1,1-Dichloroethene	7	7	7
1,2-Dichloroethane	5	5	5
Vinyl Chloride	2	2	2
Methylene Chloride	5	5	5
Chromium	100	100	100

Notes:

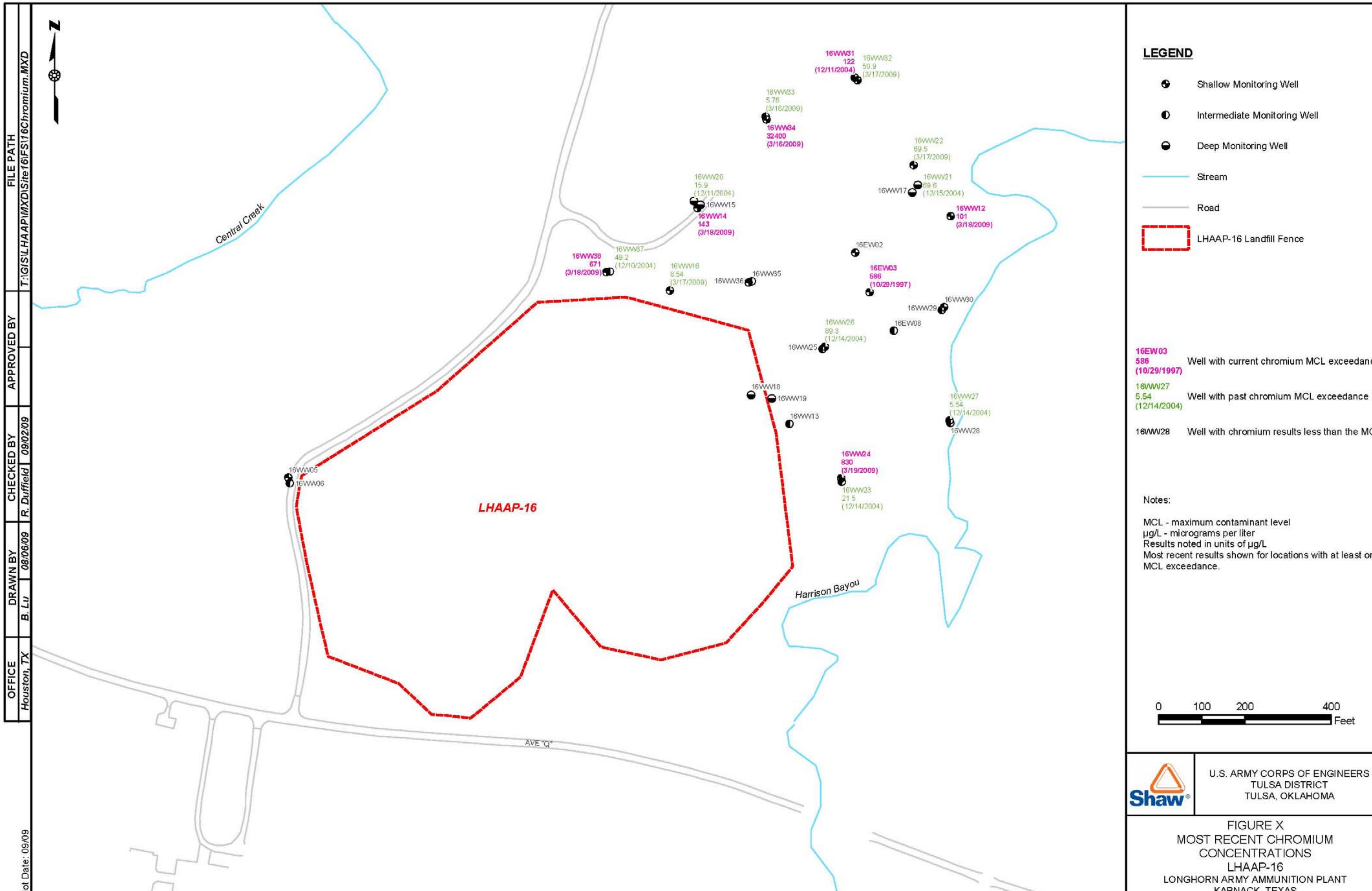
All values are in micrograms per liter (µg/L).

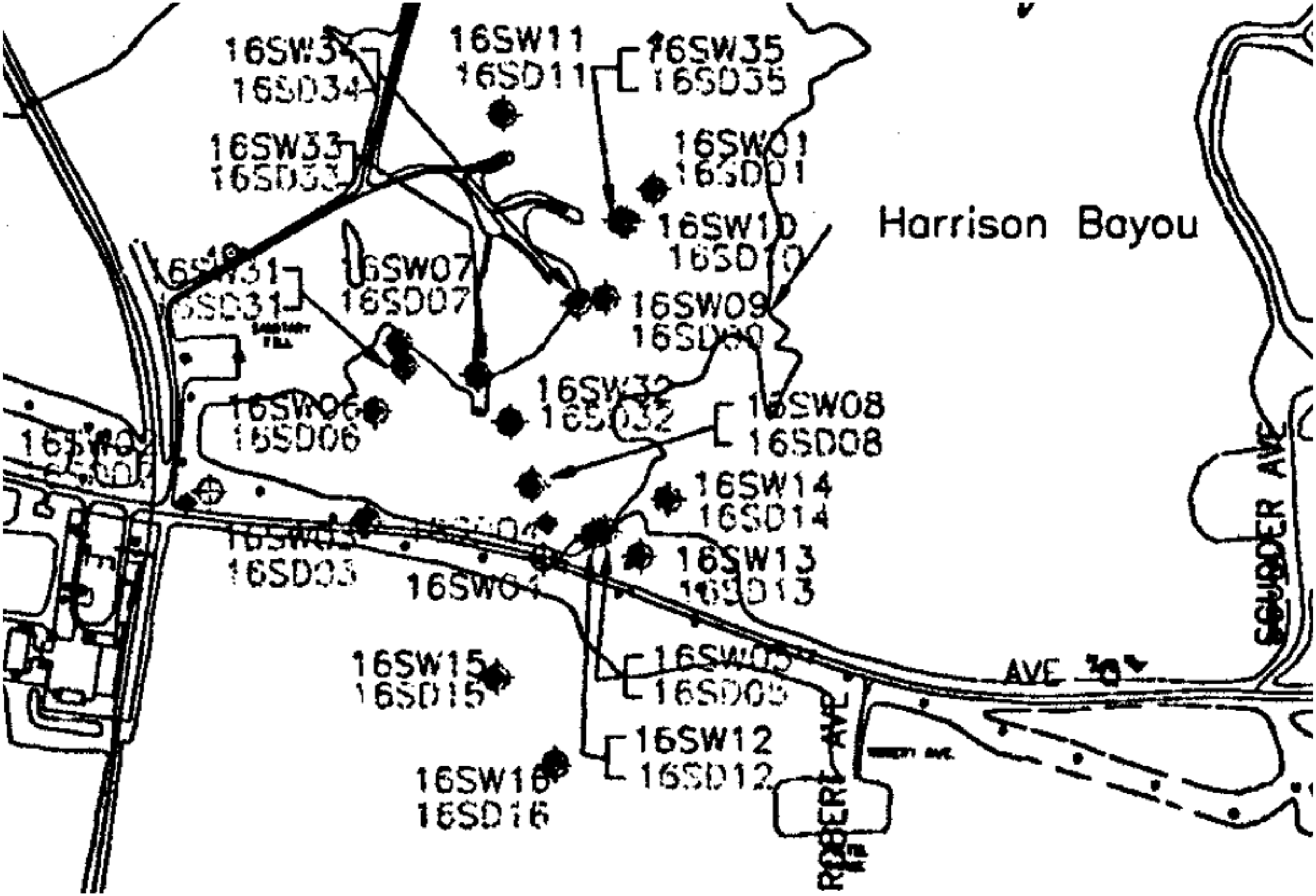
Source: TCEQ, 2006.

GW-Res - Texas Groundwater Medium-Specific Concentration for Residential Use

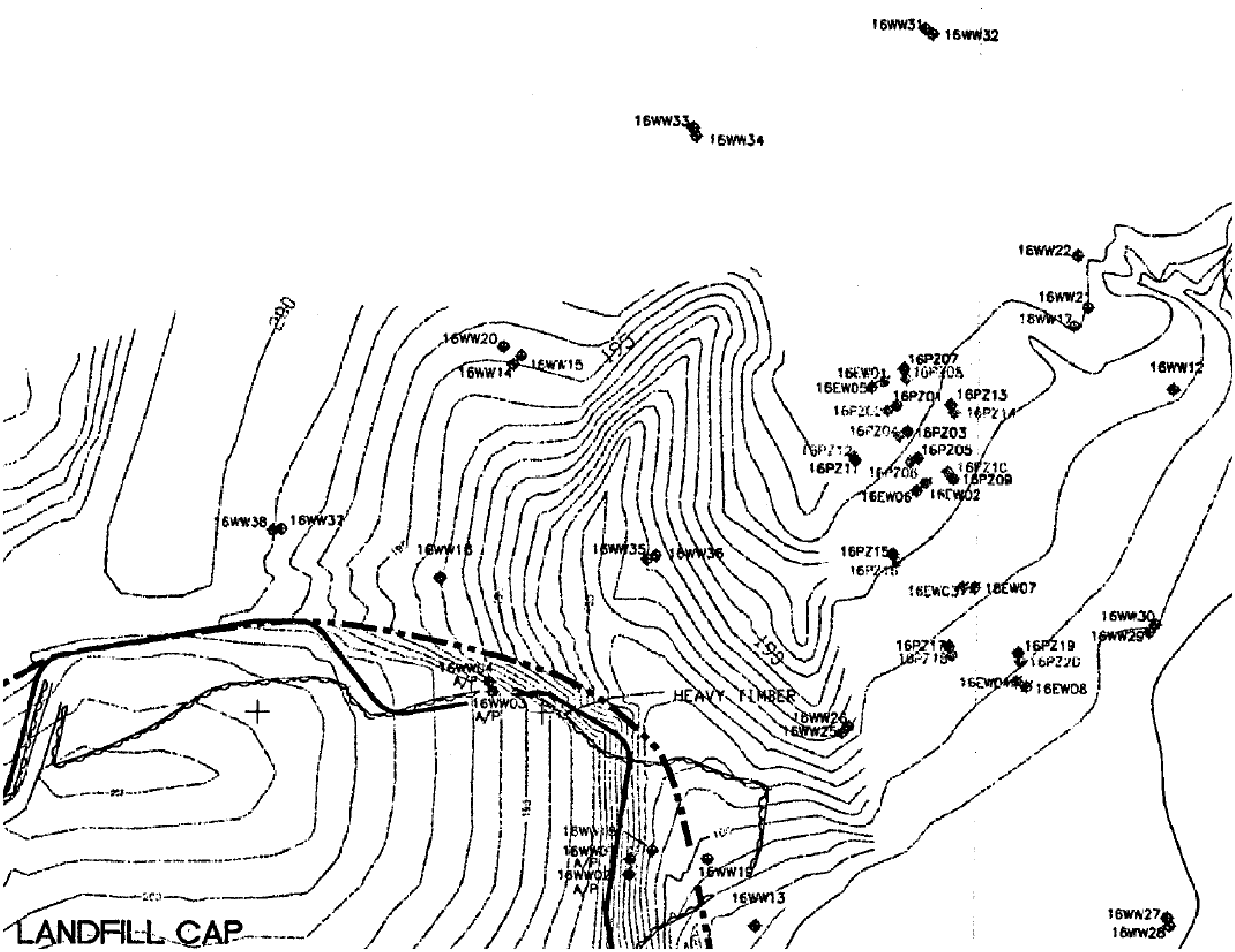
MCL - maximum contaminant level

NE - not established


N
FILE PATH
T:\GIS\LHAAP\MXD\Site16\FS\16Chromium.MXD
APPROVED BY
CHECKED BY
R. Duffield 09/02/09
DRAWN BY
B. Lu 08/06/09
OFFICE
Houston, TX
Plot Date: 09/09
Central Creek
16WW31
122
(12/11/2004)
16WW32
50.9
(3/17/2009)
16WW33
5.76
(3/16/2009)
16WW34
32400
(3/16/2009)
16WW22
69.5
(3/17/2009)
16WW21
69.6
(12/15/2004)
16WW17
16WW20
15.9
(12/11/2004)
16WW15
16WW14
143
(3/18/2009)
16WW12
101
(3/18/2009)
16EW02
16WW38
671
(3/18/2009)
16WW37
49.2
(12/10/2004)
16WW16
8.54
(3/17/2009)
16WW36
16WW35
16EW03
586
(10/29/1997)
16WW30
16WW29
16WW26
89.3
(12/14/2004)
16EW08
16WW25
16WW18
16WW19
16WW13
16WW27
5.54
(12/14/2004)
16WW28
16WW24
830
(3/19/2009)
16WW23
21.5
(12/14/2004)
16WW05
16WW06
LHAAP-16
Harrison Bayou
AVE "Q"
LEGEND
Shallow Monitoring Well
Intermediate Monitoring Well
Deep Monitoring Well
Stream
Road
LHAAP-16 Landfill Fence
16EW03
586
(10/29/1997)
Well with current chromium MCL exceedance
16WW27
5.54
(12/14/2004)
Well with past chromium MCL exceedance
16WW28
Well with chromium results less than the MCL
Notes:
MCL - maximum contaminant level
µg/L - micrograms per liter
Results noted in units of µg/L
Most recent results shown for locations with at least one MCL exceedance.
0 100 200 400
Feet
Shaw
U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA
FIGURE X
MOST RECENT CHROMIUM CONCENTRATIONS
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS



Attachment for Comment #5: Excerpt from Figure 2-4 (Bate #024899) of Remedial Investigation Report (Jacobs, 2000) showing locations of 16SD02 and 16SD11.



Attachment for Comment #5: Excerpt from Figure 2-5 (Bate #024900) of Remedial Investigation Report (Jacobs, 2000) showing locations of 16WW27, 16WW31, 16WW35, and 16WW37.

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Comment #	Page	Section/Paragraph	Comment	C, D[1], E or X	Response	A or D[2]
Response Action Objective						
A.1			Technical comments were previously provided by TCEQ regarding the preliminary monitored natural attenuation (MNA) demonstration, evaluation of various aspects of subject site conditions, interim action, and fate and transport modeling (TCEQ 2007). This document may reference pertinent sections of the earlier TCEQ technical memo.	- - -	Noted.	
A.2			The TCEQ recommended that a MNA demonstration be performed for Unit 16 (see Sec. H.2; TCEQ, 2007). Based on the information provided in Section 4.5 and Appendix A of the subject report, and for purposes of completing this review, the proposed response action for perchlorate and volatile organic compound (VOC) plume at Unit 16 is groundwater decontamination by MNA.	E	As noted in comment A.4, the recommended alternative (Section 7.0 of main text) includes MNA as one component of the remedy to address the plume, together with in situ bioremediation and a passive biobarrier.	
A.3			The subject report states, "*the extraction wells reduce contaminate mass within the plume, though it is limited by the low flow rate from the wells.*" Shaw proposes to implement MNA upon discontinuation of the extraction system operations.	- - -	Noted.	
A.4			Based on the conclusions (Sec. A.2 and A.3), MNA is proposed as a final remedy in conjunction with in-situ bioremediation to enhance reductive dechlorination within the plume and a passive biobarrier to prevent discharge of contaminants of concern (COCs) into Harrison Bayou	- - -	Noted.	
A.5			The objective of the groundwater decontamination response action by MNA (Sec. A.2) is to irreversibly reduce the levels of perchlorate and VOCs to target cleanup levels throughout the groundwater plume before reaching Harrison Bayou by natural attenuation (NA). MNA is being proposed for both the shallow and intermediate groundwater zones.	E	Please see response to Comment #2.	
Criteria for Evaluation of NA						

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B.1			In Appendix A of the subject report, Shaw attempted to demonstrate that NA is an effective remedy by using primary, secondary and other lines of evidence per TCEQ (2001) guidance.	E	Appendix A provides an evaluation of natural attenuation. However, Appendix A does not propose natural attenuation as the only component of a remedy for the site.	
B.2			According to the TCEQ (2001) guidance, primary lines of evidence (PLOE) rely on use of historical groundwater data that demonstrate a clear trend of stable or decreasing chemical of concern over time and distance away from the source at appropriate monitoring points.	- - -	Noted.	
B.3			For secondary lines of evidence (SLOE), the TCEQ (2001) guidance specifies the use of geochemical indicators as signatures to identify the type of NA processes occurring at the site, and destruction of COCs.	- - -	Noted.	
B.4			Other lines of evidence (OLOE) specified in the TCEQ (2001) guidance consist of using predictive modeling and other lab/field data to understand site specific NA process, and their effectiveness in controlling plume migration and decontamination of COC concentrations.	- - -	Noted.	
General Comments on PLOE - Evaluation of Trend Analyses						
C.1		Appendix A Tables 3.1, 3.2 and 3.3 and Section 3.1.1	Appendix A, Tables 3.1, 3.2 and 3.3 and Section 3.1.1 of the subject report, summarize groundwater analytical data from 1998 through 2007 collected from Unit 16 shallow and intermediate zone wells. The PLOE evaluation was limited to visual observations of graphic trends in perchlorate, trichlorethene (TCE), cis-1, 2-dichloroethene (DCE), vinyl chloride (VC) and 1, 1-DCE concentration trends.	- - -	Noted.	
C.2			In Appendix A, Section 3.1.1 of the subject report, claims that NA of perchlorate, and VOCs have been observed in the source area, sidegradient and downgradient of the plume. In addition, the Army claims the occurrence of daughter products cis-1,2-DCE and VC are direct evidence of reductive dechlorination is	- - -	Noted.	

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			occurring and supports MNA.			
C.3			The subject report shows that the shallow groundwater zone plume is migrating along the groundwater flow direction toward Harrison Bayou. The intermediate groundwater zone plume is more stable with less migration along the flow direction. Over all, the subject report proposes that MNA is a feasible remedy for the majority of the site.	E	Noted. However, as proposed in various alternatives, there are certain portions of the groundwater plume that should be addressed by more aggressive remedies prior to reliance on natural attenuation.	
C.4			Based on review of the subject report, no statistical test or other trend analyses was used to evaluate historical data as PLOE to further substantiate the claim that NA is occurring.	- - -	Noted.	
C.5			Based on the limited evaluation (Sec. C.1, C.2, C.3 and C.4) contained in the subject report, the TCEQ used the Wisconsin Department of Natural Resources, Mann-Kendall Statistical Test spreadsheets to evaluate trends with respect to the analytical data provided in the subject report. The statistical analyses tests for the presence of a trend, and whether the data show increasing or decreasing trend at both 80 percent and 90 percent confidence. Tables 1 and 2 summarize the results of the TCEQ statistical trend analyses for four (4) COCs measured in shallow and intermediate zone wells (see Sec. D and E).	- - -	While the TCEQ tables were not provided, responses have been formulated for the remaining comments without need to reference the TCEQ tables.	
Specific Comments on PLOE - TCEQ Evaluation of Statistical Trend Analyses for the Shallow Zone						
D.1			The wells located within the plume core can not be determined to be naturally attenuating because they are under hydraulic control as result of the active groundwater extraction system. Therefore, the wells within the plume core were not considered in the TCEQ's statistical trend analyses.	- - -	Noted.	
D.2		Table 1	Table 1 summarizes the results of the TCEQ statistical trend analyses conducted for those shallow zone wells located on the plume margin (Sec. C.5). The TCEQ	- - -	While the TCEQ tables were not provided, responses have been formulated for the remaining comments without need to reference the TCEQ tables.	

Comments on Draft Final Feasibility Study Addendum, LHAAP-16 (published July 2008)
Longhorn Army Ammunition Plant, Karnack, Texas

October 2008

Reviewer: Charles Stone, Texas Commission on Environmental Quality
Respondent: Shaw Environmental, Inc.

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			analyses indicate increasing trends of perchlorate concentrations in wells 16WW12 and 16WW26. Wells 16WW12, 16WW13, 16WW26, 16WW-30 and 16WW-38 also show increasing trends in one or more VOC constituent concentrations (specifically TCE, cis-1, 2-DCE and/or VC) indicating that NA is not occurring.			
D.3		Figure 4-1	Figure 4-1 of the subject report shows that wells 16WW12 and 16WW30 are located closest to Harrison Bayou. The results of the TCEQ analyses (Sec. D.2 and Table 1) show increased perchlorate and VOCs concentrations in wells 16WW12 and 16WW-30. The increasing trends observed in these wells raise concern that the plume continues to migrate downgradient toward Harrison Bayou (see Sec. C.3).	E	Noted. The results at 16WW12 support the need for the biobarrier in that vicinity. However, the results at 16WW30 are less significant. TCE concentrations have varied from 36 μg/L in 1997 to 20.1 μg/L in 2007, while perchlorate and vinyl chloride have largely been non-detect since 2002.	
D.4			Overall, the TCEQ trend analyses does not support the contention that NA evaluation criteria have been met (Sec. C.2).	E	The shallow groundwater at LHAAP-16 has areas of high VOC concentrations and areas with rising concentrations. Therefore, the various FS alternatives propose various treatment steps in addition to the long-term application of NA. Therefore, the NA evaluation is not intended to support MNA as a standalone component of the remedy within the shallow groundwater. Rather, MNA must be considered in conjunction with other remedy components. (see comment G.4 also)	
Specific Comments on PLOE – TCEQ Evaluation of Statistical Trend Analyses for the Intermediate Zone:						
E.1		Table 2	Table 2 summarizes the results of the TCEQ analyses conducted on those intermediate zone wells located on the plume margin to evaluate plume stability.	- - -	While the TCEQ tables were not provided, responses have been formulated for the remaining comments without need to reference the TCEQ tables.	
E.2		Figure 4-1	Figure 4-1 of the subject report shows that well 16WW29 is located close to Harrison Bayou. The TCEQ trend analyses for well 16WW29 indicates increasing trends of perchlorate, cis-1, 2-DCE and VC (see Table 1).	- - -	Noted. The detected concentrations at 16WW29 are all less than the compliance values noted in Table 2-5.	
E.3			The TCEQ analyses of well 16WW37 indicate an increasing trend in cis-1,2DCE. Figure 4-1 of the subject report shows well 16WW37 is located on the plume	E	As presented in Table 3-3, the results for 16WW37 are as follows: Date Cis-1,2-DCE (μg/L)	

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			margin but close to the source area, Unit 16.		10/21/97 50U 01/21/98 220 06/14/98 33 02/28/03 59.2 02/21/04 63 12/10/04 51.6 06/07/07 5.66J Text will be added to the appendix to indicate that the ratio of cis-1,2-DCE to trans-1,2-DCE at 16WW37 has varied from 14 to 43 since 2003, which is another indicator of on-going reductive dechlorination.	
E.4			A trend analyses was not performed for well 16WW35 because of it is located near the source area. Review of the analytical data for the last four sampling events (June 12, 1998; March 2, 2003; February 22, 2004 and December 13, 2004) provided in Appendix A of the subject report indicates TCE concentrations continue to increase.	- - -	Noted. There are relatively high concentrations at 16WW35, and they do not yet exhibit a downward trend. Some evidence (e.g., ratio of cis DCE to trans DCE at this location) does indicate biodegradation of TCE is occurring. However, this well has been selected as a location for injection of bioremediation amendments as discussed in the responses to Terry Burton/USEPA Comment A and Philip Harte/USGS Comment A.	
E.5			The increase in perchlorate and VOC concentrations does not indicate NA is occurring in these wells. The results of the TCEQ trend analyses conducted for well 16WW29 raises concern that perchlorate and daughter products have migrated downgradient toward Harrison Bayou. Overall, the trend analysis does not support the contention that the plume is stable (see Sec. C.3).	E	The appendix presents a preliminary evaluation of natural attenuation. Because the intermediate zone at LHAAP-16 has some areas with rising concentrations, Alternative 7 will be revised to indicate where injection of bioremediation amendments into the intermediate zone will be implemented. This bioremediation will control these areas until natural attenuation monitoring demonstrates that the plume is stable. See responses to Terry Burton/USEPA Comment A and Philip Harte/USGS Comment A.	
Specific Comment on PLOE – TCEQ Evaluation of Statistical Trend Analyses Conclusions						
F.1			Based on discussion in Sections D and E, the trend analysis does not support the Army's claim that NA is occurring in all wells. PLOE outlined in the TCEQ guidance (2001) rely on use of historical groundwater data that demonstrate a clear trend of stable or decreasing chemical of concern over time and with	E	The appendix presents a preliminary evaluation of natural attenuation. LHAAP-16 has areas of high VOC concentrations and areas with rising concentrations. Therefore, the various FS alternatives propose various treatment steps in addition to the long-term application of NA. The NA evaluation is not intended to support	

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			distance away from the source at appropriate monitoring points (see Sec B.2).		MNA as a standalone component of the remedy. Rather, MNA must be considered in conjunction with other remedy components. Also, it is anticipated that NA will be enhanced after other measures (i.e., in situ bioremediation) are implemented.	
F.2			The TCEQ analyses of the PLOE data provided in Attachment A of the subject report does not support the contention that NA is limiting plume migration in either the shallow zone or the intermediate zone. Even increases in concentration of daughter products such VC, as noted in the TCEQ trend analyses, is a higher of a risk than the parent product and the final remedy should address such concerns.	- - -	Please see response to Comment F.1.	
Specific Comment on SLOE - Observations of Geochemical Data:						
G.1			Appendix A, Tables 3-1, 3-2 and 3-3 of the subject report summarizes the site specific geochemical data for the shallow zone and intermediate zone wells in an attempt to support SLOE. NA parameters, such as gases (methane, ethane and ethane), and anions (sulfate, nitrate, nitrite, and chloride) were also sampled at all shallow zone and intermediate zone wells.	- - -	Noted.	
G.2			Review of the tables in the subject report indicates that field analysis for certain specific parameters (dissolved oxygen [DO], ferrous iron, oxygen reduction potential [ORP], etc.) were limited to two (2) shallow zone wells (16WW12 and 16WW16), and two (2) intermediate zone wells (16WW25 and 16WW16).	- - -	Noted.	
G.3			In general, DO and ORP are useful indicator to determine whether environmental conditions are aerobic or anaerobic. Review of the tables in the subject report indicate low DO (ranging from 0.39 to 0.89 mg/l) and high OPR (ranging from 127.2 to 161.7 mV) measurements. In Appendix A, Sections 2.3 and 3.3.1 of the subject report, states that DO readings contradict the OPR measurements and the DO readings are more reliable than OPR values. The subject report also states	- - -	Noted.	

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			DO readings indicate anaerobic conditions exist in the shallow groundwater. The high OPR readings indicate oxidative conditions (Stumm & Morgan, 1981). The subject report claim that anaerobic conditions exist need to be supported by low DO and low OPR measurements.			
G.4			The DO/OPR readings provided in the subject report for the intermediate zone wells suggest both aerobic and anaerobic conditions are present near the source at 16WW37 (with DO of 2.66 mg/l and OPR of 146.5 mV), and at 16WW25 (with DO of 0.23 mg/l and OPR of -43.8mV), respectively.	- - -	Noted.	
G.5			As a SLOE the TCEQ (2001) guidance specifies that proper analysis of geochemical indicators should be evaluated and presented to demonstrate COC decontamination is occurring. Based on the discussion in Section G.1 and G.2, the proper analysis of such prominent electron acceptors as DO are a key NA demonstration whereby a pattern of low DO concentrations in groundwater would coincide with the degradation of TCE which occurs in anaerobic conditions. Supplemental geochemical parameters such as TOC, ethenes/ethanes, methane, etc. are less reliable and more difficult to interpret (TCEQ 2001)	- - -	Noted.	
G.6			The overall interpretation of the geochemical indicator parameters for the NA demonstration should be presented in maps and/or graphs (2001). There is a lack of adequate DO/OPR data and presentation of SLOE data, and should be revisited. Overall, the geochemical analysis does not adequately support SLOE that the NA evaluation criteria have been met (see B.3).	E	The appendix presents a preliminary evaluation of natural attenuation. LHAAP-16 has areas of high VOC concentrations and areas with rising concentrations. Therefore, the various FS alternatives propose various treatment steps in addition to the long-term application of NA. The NA evaluation is not intended to support MNA as a standalone component of the remedy. Rather, MNA must be considered in conjunction with other remedy components. A full MNA evaluation can be effectively performed only after the other components of the remedy are implemented and the extraction wells are shut down.	

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Specific Comment on OLOE: Natural Attenuation Rates						
H.1			Appendix A, Sections 3.1.3 and 3.2.3, Tables 3-6 & 3-7, and Figures 3-1 through 3-14, of the subject report, provides estimates of time-dependent attenuation rates and distance dependent attenuation rates for each of the COCs.	- - -	Noted.	
H.2			The time-dependent attenuation rates for TCE were estimated in three (3) out of nine (9) shallow zone wells (16WW12, 16WW16, and 16WW22) and one (1) out of four (4) intermediate zone wells (16WW37). However, these four (4) wells where selected based on observation of decreasing TCE trends. The eight (8) wells that were not selected did not show decreasing TCE trends. The subject report claims that based on time-dependent rates the estimated cleanup will be 165 years and 231years for TCE to achieve maximum cleanup levels (MCLs) in wells 16WW16 and 16WW13, respectively located close to the source area. For well 16WW22 located close to Harrison Bayou, the estimated time-dependent cleanup will be 7.8 years for TCE to achieve MCL. For intermediate zone well 16WW37, the estimated time-dependent cleanup will be 19 years for TCE to achieve MCL.	E	The appendix presents a preliminary evaluation of natural attenuation. LHAAP-16 has areas of high VOC concentrations and areas with rising concentrations. Therefore, the various FS alternatives propose various treatment steps in addition to the long-term application of NA. The NA evaluation is not intended to support MNA as a standalone component of the remedy. Rather, MNA must be considered in conjunction with other remedy components. A full MNA evaluation can be effectively performed only after the other components of the remedy are implemented and the extraction wells are shut down. Also, 16WW13 was redesignated as an intermediate well, and the appendix will be revised to reflect this change.	
H.3			The subject report contains estimated distance-dependent attenuation rates for wells with the most elevated TCE concentrations which are located in the source area wells 16WW36 and 16WW35. The subject report claims that based on distance-dependent attenuation rates in the shallow zone well 16WW36 located near the source area, cleanup for TCE will range from 93 to 283 years. Using the distance-dependent attenuation rates, the cleanup time for TCE in intermediate zone well 16WW35 will range from 32 to 84 years. The time-dependent cleanup for TCE are not available for wells 16WW35 and 16WW36 where the maximum contaminate concentrations exist due to the	- - -	Noted.	

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			lack of decreasing trends in COCs.			
H.4			Review of Figures 3-15 and 3-16 in the subject report indicates the biodegradation rate λ is calculated and not derived from site specific field data as required by TCEQ guidance (2001). As a OLOE the TCEQ (2001) guidance specifies that lab/field data should be used to understand site specific NA process.	- - -	Noted.	
H.5			The TCEQ reviewed of the most recent groundwater analytical results, June 2007 provided in Table 3-1 of the subject report for those shallow zone wells (16WW12, 16WW22, and 16WW30) located closest to Harrison Bayou. The 2007 results indicate that TCE concentrations were detected in wells 16WW12, 16WW22, and 16WW30 at 3,849ug/l, 119ug/l, and 20ug/l, respectively. The TCE concentration in these wells exceeds the MCL of 5ug/l. This indicates that the plume continues to migrate downgradient toward Harrison Bayou (Sec. C.3 and D.3); impacting the wells closest to the Bayou while the extraction system is operating even though it is ineffective (Sec. A.3).	- - -	Noted.	
H.6			The attenuation rate estimates (see Sec. H.2 and H.3) in the subject report are based on conditions when the groundwater extraction system is operating. The bioremediation rate discussed in (Sec H.4) is an estimated value and does not meet TCEQ guidance. The observations discussed in Section H.5, raise concern that without the current extraction system capture zone the source area contaminate mass would migrate downgradient toward Harrison Bayou much faster then the rate of attenuation as estimated in the subject report. The June 2007 analytical data indicates the plume is impacting wells close to Harrison Bayou above risk-based cleanup levels. Overall, the evaluation in Sections H.2, H.3 and H.4 does not adequately support OLOE that the NA evaluation criteria have been	E	The appendix presents a preliminary evaluation of natural attenuation (NA). The extraction wells at LHAAP-16, along with areas of high VOC concentrations and areas with rising concentrations, make evaluation of NA difficult. Also, the NA evaluation is not intended to support MNA as a standalone component of the remedy. The FS alternatives propose various treatment steps in addition to the long-term application of NA, and MNA must be considered in conjunction with those other remedy components. A full MNA evaluation can be effectively performed only after other components of the remedy are implemented and the extraction wells are shut down While the extraction wells intercept some of the	

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			met (see B.4).		contaminant mass, contamination continues to migrate toward Harrison Bayou. Alternative 7 incorporates a biobarrier to help ensure that contamination does not discharge to Harrison Bayou at high concentrations.	
Observation on the Groundwater Extraction System and Proposed Alternative Remedies						
I.1			The TCEQ is concerned that when the operations of the extraction system cease at Unit 16 or should the system fail the likely probability that the high VOC and perchlorate concentrations detected in the groundwater within the extraction system capture zone in the shallow and intermediate zones will migrate to Harrison Bayou above risk-based cleanup levels. The TCEQ considers the potential to be a high-risk threat to Harrison Bayou. This potential still needs to be adequately addressed. This same issue was previously brought up by the TCEQ in items B.2, B.3, B.4, B.7, C.3, C.6, C.7, C,8, E.1 and E.2 (2007).	C	This concern is confirmed by the results at Wells 16WW39 and 16WW40. However, as noted in I.2, the extraction system is not an effective final remedy. Consequently, the recommended alternative includes implementation of in situ bioremediation, biobarriers, and natural attenuation. The extraction system will be utilized to assist the spread of bioremediation amendments, but will ultimately be shut down.	
I.2			The TCEQ also previously expressed concerns in Sections F.1, F.2, and F.3 (2007) that the existing extraction system is not effective or efficient as a final remedy to prevent further migration of the plume; and recommended in Sections H.2 that a MNA demonstration be performed.	C	Agreed.	
I.3			Based on TCEQ's evaluation of the PLOE, SLOE, and OLOE as discussed in Sections C, D, E, F, G and H of this memorandum regarding the NA demonstration provided in the subject report, MNA is not appropriate as a standalone final remedy. In conclusion, the NA demonstration does not meet the objective of Section A.5 and B.	E	MNA is not being proposed as a stand alone final remedy. It is proposed as a component of the final remedy when used in conjunction with a biobarrier and in situ bioremediation.	
I.4			As previously mentioned in Sections A.3 and A.4, the use of MNA is proposed in conjunction with in-situ bioremediation to enhance reductive dechlorination within the plume and a passive biobarrier to prevent discharge of COCs to the Harrison Bayou. The subject report provides a discussion of these proposed	E	This document is an FS Addendum. Plans will be provided in the Remedial Design/Work Plan.	

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			remedies. However, no engineering plans or design for the proposed final remedy are provided in the subject report. The TCEQ request this information to be submitted to complete evaluation of the final remedy.			
I.5			In Section 4.3 of the subject report, an in-situ bioremediation is planned to be implement after the groundwater extraction system is shut off. The plan assumes that 220 injections points will be required within the treatment area where the existing extraction system is shown in Figure 4.1 of the subject report. Since no engineering plans or design were provided in the subject report for the in-situ bioremediation, there is insufficient information to determine if the proposed system is adequate to address concerns discussed in Sections D, F.2, H.5, H.6, I.1 and I.2. The TCEQ requests that engineering plans or design be provided for the proposed in-situ bioremediation system.	E	This document is an FS Addendum. Plans will be provided in the Remedial Design/Work Plan.	
I.6			In Section 4.4 of the subject report, a passive barrier is planed for installation in the downgradient portion of the plume to prevent COCs from discharging into Harrison Bayou above MCLs. The location of the passive barrier is depicted in Figure 4-1 of the subject. Since no engineering plans or design were provided in the subject report for the passive barrier, there is insufficient information provided to determine if the design of the proposed passive barrier is adequate to address concerns discussed in Sections D, F.2, H.5, H.6, I.1 and I.2. The TCEQ requests that engineering plans or design be provided for the proposed passive barrier.	E	This document is an FS Addendum. Plans will be provided in the Remedial Design/Work Plan.	
I.7			In addition, the proposed final remedy (Sec. I.4) does not address increased COC concentrations observed in the intermediate zone wells as noted in Sections D, F.2, H.5, H.6, I.1 and I.2. The TCEQ requests that engineering plans and designs be provided for the final remedy to address vertical migration of COCs mass from the shallow into the intermediate zone.	E	This document is an FS Addendum. Plans will be provided in the Remedial Design/Work Plan.	

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FINAL ADDENDUM
TO
FINAL FEASIBILITY STUDY
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

ON THE LINE

Prepared for

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MARC No. W912QR-04-D-0027, Task Order No. DS02
Shaw Project No. 117591

March 2010

Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms and Abbreviations

µg/L	micrograms per liter
ARARs	applicable or relevant and appropriate requirements
Army	U.S. Department of the Army
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
COC	contaminant of concern
COPEC	chemical of potential ecological concern
DCE	dichloroethene
DNT	dinitrotoluene
DPT	direct push technology
EcoPRG	ecological preliminary remediation goal
EEQ	ecological effects quotient
ESTCP	Environmental Security Technology Certification Program
FS	Feasibility Study
ft	feet
GW-Res	groundwater MSC for residential use
Jacobs	Jacobs Engineering Group, Inc.
LHAAP	Longhorn Army Ammunition Plant
LOAEL	lowest-observed adverse effect level
LUC	land use control
MARC	Multiple Award Remediation Contract
MCL	maximum contaminant level
MDC	minimum detectable concentration
mg/kg	milligrams per kilogram
MNA	monitored natural attenuation
MSC	medium-specific concentration
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ng/kg	nanograms per kilogram

Acronyms and Abbreviations (continued)

NOAEL	no-observed adverse effect level
O&M	operation and maintenance
ORP	oxidation reduction potential
pH	hydrogen ion concentration
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
Shaw	Shaw Environmental, Inc.
STEP	Solutions to Environmental Problems, Inc.
TCDD TEQ	tetrachlorodibenzo-p-dioxin toxicity equivalent concentration
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TEF	toxicity equivalence factor
TNT	trinitrotoluene
TRRP	Texas Risk Reduction Program
UCL	upper confidence limit
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UTL	upper tolerance limit
VC	vinyl chloride
VOC	volatile organic compound

Executive Summary

This Feasibility Study (FS) addendum adds the following alternative to the Final FS for LHAAP-16, dated March 2002:

- Alternative 7 – Cap, Land Use Controls, In Situ Bioremediation, Passive Biobarrier, and Monitored Natural Attenuation. This includes maintenance of the current cap, land use controls (LUCs), injection of a carbon substrate to enhance bioremediation in the zone of highest chlorinated solvent concentrations, installation of passive biobarriers at the edge of the landfill between 16WW38 and 16WW13, and between LHAAP-16 and Harrison Bayou, and monitored natural attenuation (MNA). The LUCs include groundwater use restrictions, land use restrictions, and measures to protect the landfill cap.

Because the FS has been issued as a final report, this FS addendum presents and evaluates Alternative 7 in a level of detail similar to the FS. The new alternative will also be reflected in the Proposed Plan for LHAAP-16 when it is finalized. The Final FS was prepared by Jacobs Engineering Group, Inc. (Jacobs) for the U.S. Army Corps of Engineers (USACE), Tulsa District, under Contract DACA56-97-D-0001. This FS Addendum was prepared under Task Order No. DS02 of the Multiple Award Remediation Contract (MARC) No. W912QR-04-D-0027 issued by the Louisville District of USACE; the task order is managed by the Tulsa District of USACE. The Final FS presented an interim analysis of remedial alternatives for LHAAP-16 at Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Ecological risk and the extent of groundwater remediation were not addressed in that document. This FS Addendum incorporates the findings of the recently completed Baseline Ecological Risk Assessment (Shaw, 2007). Consistent with the intended future use of the site as part of a wildlife refuge, groundwater remediation focuses on steps that are necessary to protect the surface water adjacent to LHAAP-16. The latest analytical results for LHAAP-16 are also included in this FS Addendum. Together with the Final FS, this FS Addendum establishes the basis for the final evaluation of alternatives and selection of a remedy.

LHAAP is an inactive, government-owned, formerly contractor-operated and maintained Department of Defense facility located in central-east Texas. The entire installation was under the control of the U.S. Department of the Army (Army) until May 5, 2004, when approximately two-thirds of the property was transferred to the U.S. Fish and Wildlife Service (USFWS). The property transfer process is continuing as responses are completed at smaller parcels of land. The U.S. Army Environmental Command provides the funding for the environmental restoration program at LHAAP while the Base Realignment and Closure Office is responsible for implementation.

LHAAP-16 is a capped landfill located in the south-central portion of the LHAAP. The site encompasses approximately 20 acres, of which approximately 13 acres are covered by the landfill cap. Harrison Bayou runs along the northeastern edge of LHAAP-16. The landfill was established in the 1940s and was used for disposal of solid and industrial wastes until the 1980s when disposal activities were terminated. The Army and the USEPA signed a Record of Decision (ROD) in 1995 approving an interim remedial action for LHAAP-16 to mitigate potential risks posed by buried source material at the site. The interim remedial action included the construction of a landfill cap, which is a component of most of the remedial alternatives considered for the site. Construction of the multilayer landfill cap was completed in 1998. The ROD also specified that the Army would be required to “perform long-term maintenance of the cap and cover system.” The landfill cap would be inspected at regular intervals to check for erosion, settlement, and deep-rooted vegetation. Repairs would be implemented as needed. LUCs such as future use restrictions, fencing, and warning signs would also be required.

The Final FS for LHAAP-16 identified trichloroethene (TCE), cis-1,2-dichloroethene (DCE), vinyl chloride (VC), and perchlorate as contaminants of concern (COCs) for groundwater due to their unacceptable contribution to the carcinogenic risk and non-carcinogenic hazard or exceedance of recommended screening levels. In addition, the Final FS identified the following interim remedial action objective (RAOs) for LHAAP-16:

1. To prevent exposure to landfill and groundwater contamination in excess of the 1×10^{-4} to 1×10^{-6} target risk range and a HI value of 1.
2. To prevent discharges of contaminated groundwater that cause ARARs exceedances in Harrison Bayou.

Those interim RAOs have been replaced with final RAOs within this FS Addendum to allow for selection of a final remedy for the site.

The RAOs developed for LHAAP-16 include:

1) Protection of human health and the environment by preventing exposure to landfill contents.
2) Protection of human health and the environment by reducing leaching and migration of landfill hazardous substances into the groundwater.
3) Protection of human health by preventing human exposure to groundwater contaminated with COCs.
4) Protection of human health and the environment by preventing groundwater contaminated with COCs from migrating into nearby surface water.
5) Return groundwater in the shallow and intermediate zones to its potential beneficial use as drinking water, wherever practicable.

Final RAOs 1 and 3 replace interim RAO 1. Final RAO 2 amends the interim RAOs by addressing leaching. Final RAO 4 replaces interim RAO 2. Final RAO 5 is added to address the aquifer as a potential source of drinking water.

The remedial alternatives included within this FS Addendum were developed to meet the final RAOs for the site.

Table ES-1 summarizes the comparative analysis of the alternatives presented in the FS and this FS Addendum. Two additional criteria, State acceptance and community acceptance, will be evaluated during the Proposed Plan stage.

Table ES-1
Comparative Analysis of Alternatives

Criteria	Alternative 1 No Further Action (Maintenance of Existing Landfill Cap, Land Use Controls [Cap Only])	Alternative 2 Cap, Enhanced Groundwater Extraction, Land Use Controls	Alternative 3a/3b Cap, Monitored Natural Attenuation, Land Use Controls[1]	Alternative 4 Cap, Passive Groundwater Treatment, Land Use Controls	Alternative 5a/5b Landfill Removal, Passive Groundwater Treatment, Land Use Controls[2]	Alternative 6 Landfill Source Treatment, Monitored Natural Attenuation, Land Use Controls	Alternative 7 Cap, Monitored Natural Attenuation, Land Use Controls, In Situ Enhanced Bioremediation, Passive Biobarriers
Overall protection of human health and the environment	Protection of human health provided by cap and associated LUCs. No additional protection from exposure to groundwater. Does not demonstrate protection of Harrison Bayou from potential groundwater impacts.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by groundwater extraction.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by natural attenuation.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by permeable reactive barrier.	Protection of human health provided by cap (5a), source removal (5b) and land use controls. Protection of Harrison Bayou provide by passive groundwater treatment.	Protection of human health provided by removal and treatment of some source material and by cap and land use controls. Protection of Harrison Bayou provided by natural attenuation.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by passive biobarriers, in situ bioremediation, and natural attenuation.
Compliance with ARARs	No compliance with chemical-specific ARARs in groundwater. Complies with location- and action-specific ARARs.	Does not comply with ARARs that apply drinking water requirements to groundwater. Complies with location-and action-specific ARARs.	Meets all ARARs.	Does not comply with ARARs that apply drinking water requirements to groundwater. Complies with location-and action-specific ARARs.	Does not comply with ARARs that apply drinking water requirements to groundwater. Complies with location-and action-specific ARARs.	Meets all ARARs.	Meets all ARARs.
Long-term effectiveness and permanence	Landfill cap and associated LUCs would be effective and reliable so long as they are maintained indefinitely. Not effective for groundwater.	Effective reliability depends on long-term maintenance and controls and ability to locate extraction wells in complex geology.	Alternative 3b enhances effectiveness of MNA by reducing the mass of contamination. If MNA is not proven effective in the long term, a contingent action of groundwater extraction would be implemented (see Alternative 2)	Effectiveness of permeable reactive barrier is uncertain and relies on adequate long-term maintenance.	Similar to Alternative 4, but reliability enhanced with source removal. More aggressive remedial approach.	Similar to Alternative 3a but reliability is enhanced by source treatment.	Should be effective and permanent as indicated by the results of the technology demonstration and the preliminary MNA evaluation. In situ bioremediation will permanently reduce contaminant mass in its treatment area.

Table ES-1 *(continued)*
Comparative Analysis of Alternatives

Criteria	Alternative 1 No Further Action (Maintenance of Existing Landfill Cap, Land Use Controls [Cap Only])	Alternative 2 Cap, Enhanced Groundwater Extraction, Land Use Controls	Alternative 3a/3b Cap, Monitored Natural Attenuation, Land Use Controls[1]	Alternative 4 Cap, Passive Groundwater Treatment, Land Use Controls	Alternative 5a/5b Landfill Removal, Passive Groundwater Treatment, Land Use Controls[2]	Alternative 6 Landfill Source Treatment, Monitored Natural Attenuation, Land Use Controls	Alternative 7 Cap, Monitored Natural Attenuation, Land Use Controls, In Situ Enhanced Bioremediation, Passive Biobarriers
Reduction of toxicity, mobility, or volume through treatment	No active reduction.	Some reduction in groundwater toxicity and volume through active treatment. No source treatment.	Alternative 3a includes no active reduction in toxicity, mobility, or volume. Alternative 3b includes a small reduction in toxicity and volume. No source treatment.	Moderate reduction in groundwater toxicity. No source treatment.	Longer trench results in larger reduction in groundwater toxicity than Alternative 4. Source treatment only if RCRA waste is identified.	Significant source reduction in toxicity and volume. Groundwater COC reduction is identical to Alternative 3.	No source treatment. Provides permanent and irreversible reduction in groundwater toxicity and volume via in situ bioremediation, passive biobarriers, and MNA.
Short-term effectiveness	Minimal impact to the community, workers, or the environment from short-term activities.	Minimal impact to the community, workers, or the environment from short-term activities. Provides almost immediate protection.	Minimal impact to the community, workers, or the environment from short-term activities. Provides almost immediate protection.	Minor disruption due to installation of the permeable reactive barrier.	Significant short-term impacts to the community from transportation and for worker risk from excavation activities. Risks can be controlled.	Potential for worker risk during source treatment. Risks can be controlled.	Minimal disruption due to implementation of in situ bioremediation and passive biobarrier. Provides almost immediate protection with the implementation of land use controls.
Implementability	Readily implemented.	Readily implemented. Most of the components of this alternative are already in place.	If natural attenuation does not occur, Alternative 2 would be implemented.	Need to design an effective passive system considering hydraulics and biological process in situ.	Most difficult to implement. Coordination of excavation, waste sampling, transportation, and disposal would be difficult. Also, need to minimize releases of contaminated material during excavation activities.	Source action not typically applied to landfills. Therefore, initial testing will be required.	Readily implemented because equipment and personnel required for implementation of this alternative (including the design of the passive biobarrier) are readily available.

Table ES-1 *(continued)*
Comparative Analysis of Alternatives

Criteria	Alternative 1 No Further Action (Maintenance of Existing Landfill Cap, Land Use Controls [Cap Only])	Alternative 2 Cap, Enhanced Groundwater Extraction, Land Use Controls	Alternative 3a/3b Cap, Monitored Natural Attenuation, Land Use Controls[1]	Alternative 4 Cap, Passive Groundwater Treatment, Land Use Controls	Alternative 5a/5b Landfill Removal, Passive Groundwater Treatment, Land Use Controls[2]	Alternative 6 Landfill Source Treatment, Monitored Natural Attenuation, Land Use Controls	Alternative 7 Cap, Monitored Natural Attenuation, Land Use Controls, In Situ Enhanced Bioremediation, Passive Biobarriers
Cost[3]							
• Capital Expenditures	$0	$777,000	$620,000 (a) $1,307,000 (b)	$2,596,000	$3,138,000 (a) $111,826,000 (b)	$2,781,000	$393,000
• O&M Expenditures	$914,000	$13,898,000	$2,943,000 (a) $3,011,000 (b)	$2,889,000	$15,289,000 (a) $14,585,000 (b)	$4,676,000	$2,004,000
• Total Present Worth	$632,000	$9,816,000	$2,713,000 (a) $3,426,000 (b)	$4,563,000	$13,070,000 (a) $115,606,000 (b)	$6,399,000	$1,980,000

Notes and Abbreviations:

[1] Alternative 3b is identical to Alternative 3a except an extraction well network will be operated in the groundwater hot spot for approximately 5 years to reduce contaminant mass, followed by MNA throughout the rest of the O&M period.

[2] Alternative 5b is identical to Alternative 5a except all of the landfill waste will be removed (compared with hot spot removal under Alternative 5a).

[3] Costs have been rounded to the nearest $1,000. The capital and O&M expenditures are the sums of each year's costs without regard to discount rates or escalation rates. Each year's expenditures were converted to present worth using a 2.7% discount rate and were summed to yield the total present worth. The costs of Alternatives 1 through 6 have been updated to January 2008 using the Engineering News Record construction cost index, and the costs of 5-year reviews have been added to all alternatives. Per the Army's request, the costs for all alternatives have been modified by removing the standard escalation rate (average 3 percent per year) from the present worth calculation. Also, the cost of Alternative 1 has been updated to reflect the ongoing cap maintenance/inspection activities and the implementation of LUCs under the Interim ROD for LHAAP-16.

ARAR	applicable or relevant and appropriate requirement
FS	feasibility study
LHAAP	Longhorn Army Ammunition Plant
MNA	monitored natural attenuation
NA	not applicable
O&M	operation and maintenance
RAO	remedial action objective
VOC	volatile organic compound

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted by the U.S. Army Corps of Engineers (USACE) to perform remediation activities associated with Site Closure of Multiple Sites at the former Longhorn Army Ammunition Plant (LHAAP) under the Multiple Award Remediation Contract (MARC) No. W912QR-04-D-0027 issued by the Louisville District. Work performed under this contract is managed by the Tulsa District of USACE. Work by Shaw at the LHAAP is performed under Task Order No. DS02 of the above-referenced contract. One of the LHAAP sites addressed under TO DS02 is the Old Landfill, LHAAP-16.

1.1 Purpose

The Final Feasibility Study (FS) for LHAAP-16 was issued in March 2002. That document was prepared by Jacobs Engineering Group, Inc. (Jacobs) for the USACE under Total Environmental Restoration Contract DACA56-97-D-001. The FS presented an interim analysis of remedial alternatives for LHAAP-16. The FS did not address ecological risk or final groundwater remediation.

The purpose of this Addendum is to provide a basis for the selection of a final remedy for LHAAP-16 consistent with the intended future use of LHAAP-16 as part of a wildlife refuge while including the latest analytical data available for the site and incorporating the findings of the recently completed Baseline Ecological Risk Assessment (Shaw, 2007). A major focus of this Addendum is the addition of a new alternative to the existing FS. That new alternative, Alternative 7, comprises maintenance of the current cap, land use controls (LUCs), injection of a carbon substrate to enhance bioremediation in a target zone, installation of passive biobarriers at the edge of the landfill between 16WW38 and 16WW13, and between LHAAP-16 and Harrison Bayou, monitored natural attenuation (MNA), and groundwater monitoring. The description and evaluation of Alternative 7 will be included in the Final Proposed Plan for LHAAP-16.

1.2 Background

LHAAP-16, a capped landfill, is located in the south-central portion of the LHAAP (**Figure 1-1**) and covers an area of approximately 20 acres. Harrison Bayou runs along the northeastern edge of LHAAP-16. The landfill was established in the 1940s and was used for disposal of solid and industrial wastes until the 1980s when disposal activities were terminated. The U.S. Department of the Army (Army) and the USEPA signed a Record of Decision (ROD) in 1995 approving an interim remedial action for LHAAP-16 to mitigate potential risks posed by buried source material at the site. The interim remedial action included the construction of a landfill cap, considered a component of the final remedy for the site. Construction of the 13-acre multilayer cap was completed in 1998. The ROD also specified that the Army would be required to "perform long-term maintenance of the cap and cover system." The landfill cap would be inspected at regular intervals to check for erosion, settlement, and deep-rooted vegetation. Repairs would be implemented as needed. LUCs, such as future use restrictions, would also be required.

In addition, at the request of the regulatory authorities, but not pursuant to a decision document (e.g., a record of decision or consent order), a groundwater extraction system was voluntarily installed by the Army in 1996 and 1997 as a treatability study to prevent the groundwater plume from migrating to Harrison Bayou. Groundwater is extracted from LHAAP-16 and pumped to the existing groundwater treatment plant at LHAAP-18/24. **Figure 1-2** shows the locations of the extraction wells and monitoring wells at LHAAP-16. According to the letters written by the Army to USEPA and TCEQ (Army, 1996), the intended duration of operation of the extraction system at LHAAP-16 was 24 months. The extraction system has now been operating for over 10 years.

Alternative 7 has been added to the FS for the following reasons:

- The existing pump and treat system is inefficient. There has been excessive maintenance of the well pumps, and the associated air compressor has caused system downtime.
- The existing extraction system at LHAAP-16 has proven ineffective in capturing the entire groundwater plume. The average extraction rate is approximately 25 percent of the design extraction rate.
- Recent sampling and analysis have demonstrated that high concentrations of trichloroethene (TCE) have reached the immediate vicinity of Harrison Bayou.

Consequently, Alternative 7 will be added to the Final FS to identify an efficient, low maintenance remedial alternative in which the existing groundwater extraction and treatment system will be shut down.

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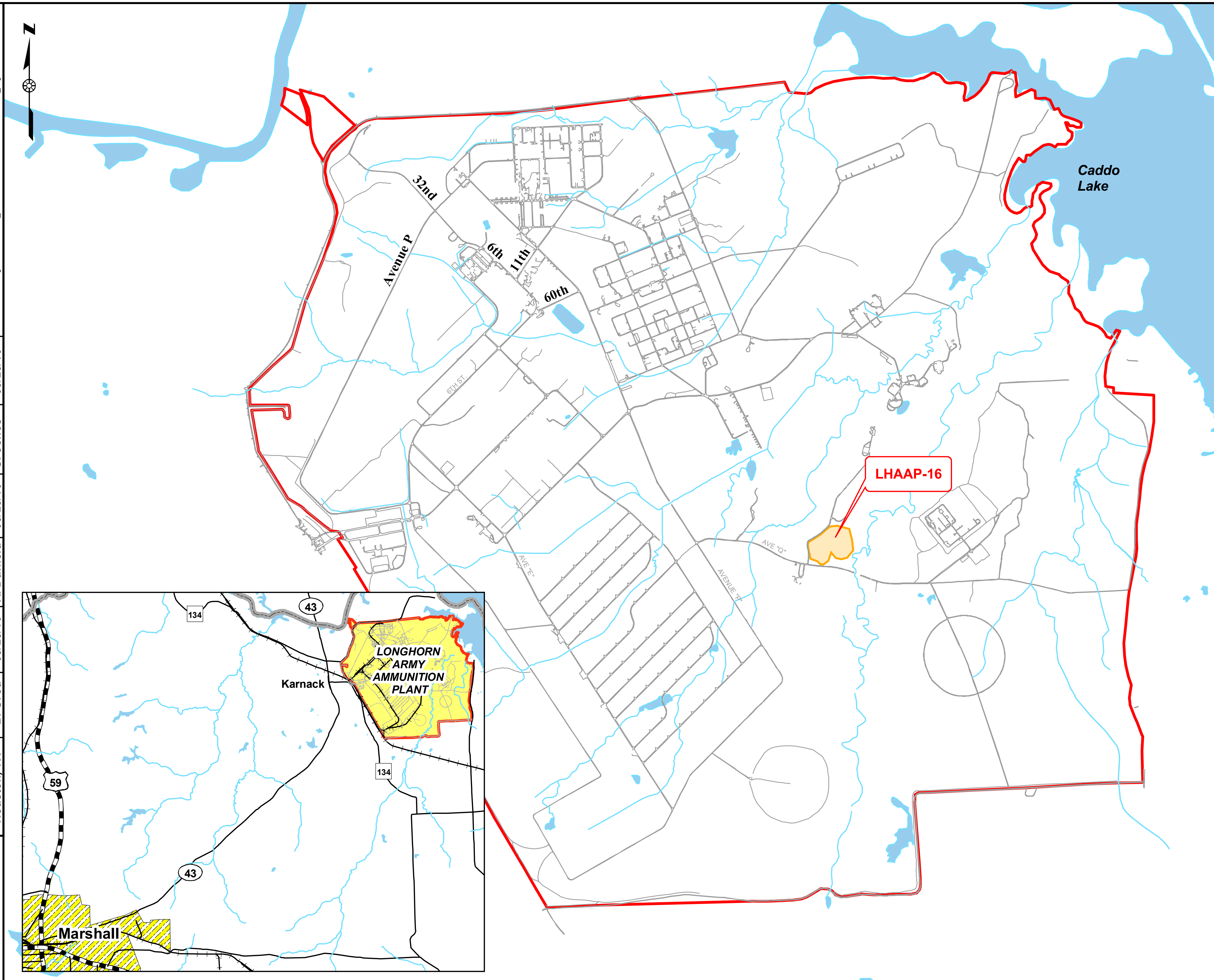

LEGEND

- Stream
- Road
- LHAAP Boundary
- Site
- Lake

N

0 1,250 2,500 5,000 Feet

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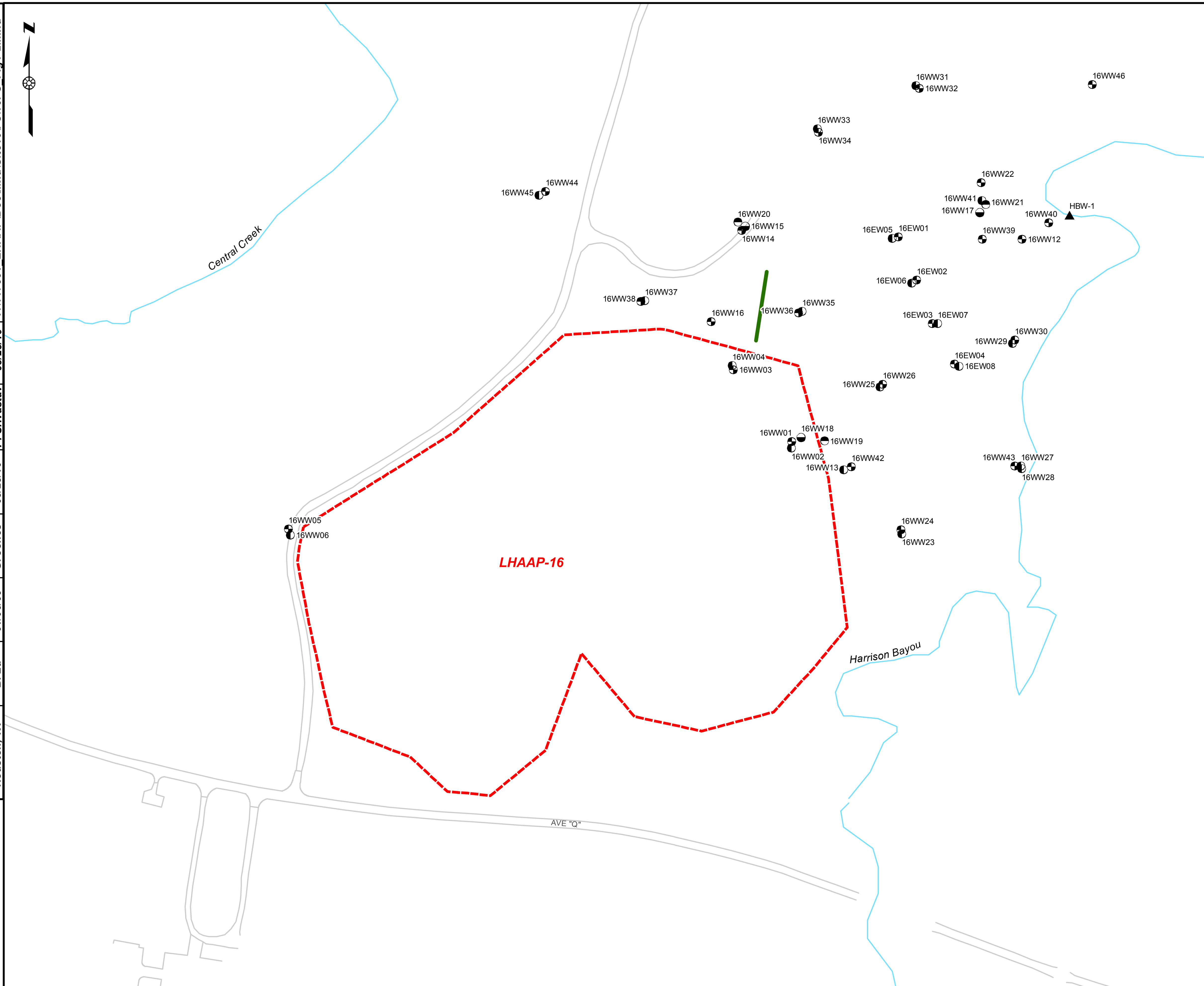
U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

FIGURE 1-1

SITE LOCATION MAP
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS



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LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Upper Deep Monitoring Well
- Deep Monitoring Well
- Surface Water Sampling Location
- Existing Semi-passive Biobarrier
- Stream
- Road
- LHAAP-16 Landfill Fence

Notes:

1. Performance monitoring and extraction wells installed in support of the semi-passive biobarrier are not shown.
2. 16WW19, 16WW20, and 16WW21 are upper deep monitoring wells.

0 100 200 400 Feet

Shaw

U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

FIGURE 1-2

MONITORING WELL LOCATION MAP
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

2.0 Chemicals of Concern and Remedial Action Objectives

The Final FS for LHAAP-16 identified TCE, cis-1,2-dichloroethene (DCE), vinyl chloride (VC), and perchlorate as contaminants of concern (COCs) for groundwater due to their unacceptable contribution to the carcinogenic risk and non-carcinogenic hazard or exceedance of recommended screening levels. In addition, the Final FS identified interim remedial action objectives (RAOs) for this site. The RAOs were considered interim because ecological risks and the extent of groundwater remediation had not been assessed at the time the Final FS was issued. Since that time, ecological risks have been fully assessed through the *Final Installation-Wide Baseline Ecological Risk Assessment* (Shaw, 2007). Consistent with the intended future use of the site as part of a wildlife refuge, this FS Addendum focuses on groundwater remediation activities that are necessary to protect the surface water adjacent to LHAAP-16. Therefore, the interim RAOs have been replaced with final RAOs within this FS Addendum to allow for selection of a final remedy for the site.

2.1 Summary of Ecological Risk

This summary of ecological risk is based on the conclusions presented in the *Final Installation-Wide Baseline Ecological Risk Assessment* (Shaw, 2007). The baseline ecological risk assessment (BERA) evaluated potential hazard to ecological resources at LHAAP by conducting an initial screening to identify chemicals of potential ecological concern (COPECs). These COPECs were evaluated for potential adverse effects to organisms that have direct contact with the COPECs (e.g., plants and earthworms growing and living in contaminated soil), and from food chain exposure (e.g., ingestion by a shrew of an earthworm living in the contaminated soil). For the food chain exposure assessment, a number of measurement receptors were selected as representative species for the various trophic levels in the food web that could be at risk from contaminants in site media. The measurement receptors that were selected and used in the food chain evaluation included the following:

- Deer Mouse (mammalian herbivore)
- Raccoon (mammalian omnivore)
- Modified Raccoon as a surrogate for the Louisiana Black Bear (mammalian omnivore)
- Short-Tailed Shrew (mammalian insectivore)
- Red Fox (mammalian carnivore)
- Muskrat (mammalian herbivore)
- River Otter (mammalian carnivore)
- Townsend’s Big-Eared Bat (mammalian insectivore)
- Common Snapping Turtle (reptilian carnivore)
- Bank Swallow (avian insectivore)

- American Woodcock (avian insectivore)
- Belted Kingfisher (avian piscivore)
- Red-Tailed Hawk (avian carnivore).

A food chain model was developed and used to estimate the total dose for each measurement receptor based on species-specific considerations such as diet, body weight, ingestion rates, etc., using conservative estimates.

The only medium of potential concern for ecological risk at LHAAP-16 is soil. Surface water and sediment samples were collected from the ditches/drainage ways that collect runoff from LHAAP-16, but the aquatic habitat associated with these ditches is limited. Furthermore, the site is part of the Harrison Bayou watershed, and no COPECs were identified in Harrison Bayou surface water or sediment (Shaw, 2007). Two different soil depths were used for modeling exposure to ecological receptors: surface soil (0 to 0.5 foot) and total soil (0 to 3 feet). Each receptor was assumed to be exposed to one of the two depths based on its life history characteristics (e.g., animals that burrow were assumed to be exposed to total soil). Bioaccumulation of chemicals up the food chain was initially estimated using uptake factors obtained from available literature, and then refined using site-specific data obtained during the BERA. Potential impacts to plants and soil invertebrates were also assessed.

Using the site-specific uptake factors, ecological effects quotients (EEQs) were developed for each of the measurement receptors. EEQs are similar to hazard quotients for human health, and are calculated by dividing the total dose to which the receptor is exposed by the toxicity reference value. The toxicity reference value is based on a no-observed adverse effect level (NOAEL) or the lowest-observed adverse effect level (LOAEL) concentration. If the EEQ exceeds 1 for a receptor (based on the NOAEL toxicity value), then that chemical has a realistic potential to cause adverse ecological impacts, and is considered a final COPEC for potential remediation. As discussed in the BERA, there are several important uncertainties associated with the assumptions used in the EEQ process, and it should be noted that EEQs greater than 1 are not definitive indicators of ecological risk.

2.1.1 Development and Interpretation of Ecological PRGs

An important difference between the human health and ecological risk assessment conducted at LHAAP is that the BERA was conducted on a broader spatial organization than the human health risk assessment, which was conducted on a site-by-site basis. For the BERA, the entire Installation was divided into three large sub-areas (Industrial Sub-Area, Waste Sub-Area, and Low Impact Sub-Area) for the terrestrial evaluation, and four watersheds (Goose Prairie Creek, Central Creek, Harrison Bayou, and Sanders Branch) for the aquatic evaluation. Therefore, the individual sites at LHAAP were grouped into the sub-areas, which were delineated based on commonalities of historical use, habitat type, and spatial proximity to each other. This type of spatial analysis was determined to be more appropriate for the evaluation of ecological effects because it more closely reflects the size of areas that ecological receptors would be expected to use. The BERA evaluated chemical concentrations and hazard levels on this sub-area and watershed scale, and final conclusions were also based on this spatial scale of organization. Conclusions regarding the potential for an individual site (such as LHAAP-16) to adversely affect the environment must be made in the context of the overall conclusions for the sub-area within which the site is located and the contribution of the ecological hazard from that site in relation to other sites in the sub-area. It is important to understand that LHAAP-16 is part of the Waste Sub-Area, which also includes LHAAP-12, LHAAP-17, LHAAP-18/24, and the former Pistol Range.

As documented in the BERA (Shaw, 2007), the Waste Sub-Area as a whole exhibited the potential for ecological hazard. The chemicals barium, lead, 2,4-dinitrotoluene (DNT), 2,6-DNT, 2,4,6-trinitrotoluene (TNT), and dioxin (expressed as 2,3,7,8-tetrachlorodibenzo-p-dioxin toxicity equivalent concentration [TCDD TEQ]) in soil were selected as final COPECs in the Waste Sub-Area because of their potential to cause adverse impacts to one or more ecological receptors.

Ecological preliminary remediation goals (EcoPRGs) were proposed in the BERA (Shaw, 2007). EcoPRGs for soil COPECs are concentrations that are considered acceptable for ecological resources at the site, and are calculated based on concentrations equivalent to an EEQ of 1 using a toxicity value between the NOAEL and the LOAEL. The final COPECs and EcoPRGs for the Waste Sub-Area are presented in **Table 2-1**.

Table 2-1
Final COPECs and EcoPRGs for the Waste Sub-Area

Final COPEC[a]	Surface Soil (0-0.5 foot) EcoPRG (mg/kg)	Total Soil (0-3 feet) EcoPRG (mg/kg)
Barium	222	520
2,4-DNT	NA (1)	12
2,6-DNT	NA (2)	6.8
2,4,6-TNT	NA (3)	4.7
Dioxin[b]	4E-06	4E-06

Notes and Abbreviations:

[a] Although lead was also determined to be a final COPEC in the Waste Sub-Area, the exposure point concentrations for lead in the Waste Sub-Area were 178 and 151 mg/kg for surface and total soil, respectively, which are below its EcoPRG of 441 mg/kg. Therefore, no further action for lead in soil is necessary to address ecological concerns (Shaw, 2007).

[b] Dioxin is evaluated based on 2,3,7,8-TCDD toxicity equivalent (TEQ) concentration. The EcoPRG for dioxin in soil is the background concentration (Shaw, 2004), because the hazard-based EcoPRG was below background.

COPEC chemical of potential ecological concern
DNT dinitrotoluene
EcoPRG ecological preliminary remediation goal
mg/kg milligrams per kilogram
NA Not Applicable; chemical either, (1) was not a threat at this depth interval, (2) had an exposure concentration that was already lower than its EcoPRG or (3) its surface soil EcoPRG was higher than its total soil EcoPRG, which makes it irrelevant since the total soil EcoPRG will be applied to the 0-0.5. foot interval as well.
TNT trinitrotoluene

As previously stated, the EcoPRGs are based on exposure and hazard calculated on a sub-area-wide basis, rather than a site-specific basis. Therefore, a demonstration of EcoPRG COPEC attainment should also be based on a sub-area-wide approach. Thus, a remedial option selected for any site within the 486-acre Waste Sub-Area to address ecological concerns associated with 2,6-DNT would be most appropriately applied if it reduces the overall chemical soil concentration in the sub-area to the recommended EcoPRG of 6.8 milligrams per kilogram (mg/kg).

Another important consideration is that the EcoPRGs are back-calculated values that incorporate the toxicity of the chemical relative to the exposure concentration that the ecological receptor is likely to experience. A 95% upper confidence limit (UCL) of the mean was used in the BERA as an exposure point concentration – the concentration to which receptors are assumed to be exposed. Therefore, the EcoPRG also represents a 95% UCL that, when met, results in acceptable hazard for the most sensitive measurement receptor. This detail potentially has major implications for remedial work because a fundamental property of the EcoPRG is that it is not a "not to exceed" value, and it is not necessary to remediate all locations where a concentration exceeds an EcoPRG in order to demonstrate ecological protection. Rather, only enough elevated concentrations of a chemical need to be remediated such that the 95% UCL of the entire Sub-Area is below the EcoPRG concentration. Because an ecological receptor is assumed to use all portions of the sub-area equally, it does not matter from which site within a sub-area the concentrations are remediated. For example, if sample locations are remediated at LHAAP-17 such that the TNT 95% UCL for the entire Waste Sub-Area is reduced below 4.7 mg/kg, then no remediation would be necessary at LHAAP-16 or any other site within the Waste Sub-Area, even if some elevated concentrations above the EcoPRG of 4.7 mg/kg are present.

2.1.2 Concentration of COPECs at LHAAP-16

The BERA evaluated analytical results for eleven soil samples (and one field duplicate) that were collected from outside the landfill during the remedial investigation. Soil sample locations are shown in the Final Remedial Investigation Report (Jacobs, 2000) in Figure 2-4 and Figure 2-5. The results for barium, 2,4-DNT, 2,6-DNT, 2,4,6-TNT, and dioxins/furans are provided in **Table 2-2**. As shown in that table, the EcoPRG for barium in total soil is not exceeded, while the EcoPRG for barium in surface soil is exceeded in only one sample by approximately 15%. Because of this, removal or treatment of barium-impacted soil at LHAAP-16 would not appreciably lower the 95% UCL for the barium exposure point concentration in the Waste Sub-Area. Barium within the Waste Sub-Area must be addressed at another site.

The TNT and DNT results at LHAAP-16 are below detection limits. The detection limits ranged from 0.25 to 0.5 mg/kg as shown on **Table 2-2**. Therefore, these explosive compounds do not contribute to the ecological risk at the Waste Sub-Area.

Table 2-2

Analytical Results for Samples Outside Landfill - Barium, TNT, DNT, and Dioxins/Furans

Analytical Suite	Parameter	Units	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF
LOCATION_CODE			16SD02				16SD02				16SD11				16WW27			
SAMPLE_NO			16SD02(000_0)				16SD02(0-1)				16SD11(000_0)				16WW27(0-0_5)			
SAMPLE_DATE			28-Feb-95				14-Apr-93				28-Feb-95				17-May-97			
DEPTH							0-1 Ft								0-0_5 Ft			
SAMPLE_PURPOSE			REG				REG				REG				REG			
Metals	Barium	mg/kg	53.8			1	52.5			1	86.1			1	168			1
Explosives	2,4,6-Trinitrotoluene	ug/kg	500	<	U	1	310	<	U	1	500	<	U	1	250	<	U	1
Explosives	2,4-Dinitrotoluene	ug/kg	500	<	U	1	310	<	U	1	500	<	U	1	250	<	U	1
Explosives	2,6-Dinitrotoluene	ug/kg	500	<	U	1	330	<	U	1	500	<	U	1	250	<	U	1
Semi-volatiles	2,4-Dinitrotoluene	ug/kg					418	<	U	1								
Semi-volatiles	2,6-Dinitrotoluene	ug/kg					418	<	U	1								
Dioxins/furans	1,2,3,4,6,7,8-Heptachlorodibenzofuran	ng/kg													9			1
Dioxins/furans	1,2,3,4,6,7,8-HpCDD	ng/kg													98		B	1
Dioxins/furans	1,2,3,4,7,8,9-Heptachlorodibenzofuran	ng/kg													1.3		J	1
Dioxins/furans	1,2,3,4,7,8-Hexachlorodibenzofuran	ng/kg													2.5		J	1
Dioxins/furans	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	ng/kg													1		J	1
Dioxins/furans	1,2,3,6,7,8-Hexachlordibenzo-p-dioxin	ng/kg													2.3		J	1
Dioxins/furans	1,2,3,6,7,8-Hexachlorodibenzofuran	ng/kg													0.73		J	1
Dioxins/furans	1,2,3,7,8,9-Hexachlordibenzo-p-dioxin	ng/kg													2.2		J	1
Dioxins/furans	1,2,3,7,8,9-Hexachlorodibenzofuran	ng/kg													1.1	<	U	1
Dioxins/furans	1,2,3,7,8-Pentachlordibenzo-p-dioxin	ng/kg													1.5	<	U	1
Dioxins/furans	1,2,3,7,8-Pentachlorodibenzofuran	ng/kg													1	<	U	1
Dioxins/furans	2,3,4,6,7,8-Hexachlorodibenzofuran	ng/kg													0.59		J	1
Dioxins/furans	2,3,4,7,8-Pentachlorodibenzofuran	ng/kg													1.4	<	U	1
Dioxins/furans	2,3,7,8-TCDD	ng/kg													1.2	<	U	1
Dioxins/furans	2,3,7,8-TCDF	ng/kg													1.1	<	U	1
Dioxins/furans	Heptachlorodibenzofuran	ng/kg													29			1
Dioxins/furans	Heptachlorodibenzo-p-dioxin	ng/kg													200		B	1
Dioxins/furans	Hexachloridibenzo-p-dioxin	ng/kg													26		QJ	1
Dioxins/furans	Hexachlorodibenzofuran	ng/kg													21		QJ	1
Dioxins/furans	Octachlorodibenzofuran	ng/kg													7.8		J	1
Dioxins/furans	Octachlorodibenzo-p-dioxin	ng/kg													4100		B	1
Dioxins/furans	Pentachlorodibenzofuran	ng/kg													2.2		J	1
Dioxins/furans	Pentachlorodibenzo-p-dioxin	ng/kg													1.7	<	U	1
Dioxins/furans	Tetrachlorodibenzofuran, Total	ng/kg													0.91		J	1
Dioxins/furans	Tetrachlorodibenzo-p-dioxin	ng/kg													2	<	U	1
Dioxins/furans	2,3,7,8-TCDD Toxic Equivalent Concentration [1]	ng/kg													4.1408			

Analytical Suite	Parameter	Units	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF
LOCATION_CODE			16WW27				16WW31				16WW31				16WW35			
SAMPLE_NO			16WW27(1-3)				16WW31(0-0_5)				16WW31(1-3)				16WW35(0-0_5)			
SAMPLE_DATE			17-May-97				29-May-97				29-May-97				25-Jun-97			
DEPTH			1-3 Ft				0-0_5 Ft				1-3 Ft				0-0_5 Ft			
SAMPLE_PURPOSE			REG				REG				REG				REG			
Metals	Barium	mg/kg	58.8			1	97.2			1	62.3			1	80.2			1
Explosives	2,4,6-Trinitrotoluene	ug/kg	250	<	U	1	250	<	U	1	250	<	U	1	250	<	U	1
Explosives	2,4-Dinitrotoluene	ug/kg	250	<	U	1	250	<	U	1	250	<	U	1	250	<	U	1
Explosives	2,6-Dinitrotoluene	ug/kg	250	<	U	1	250	<	U	1	250	<	U	1	250	<	U	1
Semi-volatiles	2,4-Dinitrotoluene	ug/kg																
Semi-volatiles	2,6-Dinitrotoluene	ug/kg																
Dioxins/furans	1,2,3,4,6,7,8-Heptachlorodibenzofuran	ng/kg	1.3	<	U	1	0.48	<	U	1	0.45	<	U	1	4.7	<	U	10
Dioxins/furans	1,2,3,4,6,7,8-HpCDD	ng/kg	110		B	1	4.8		J	1	16			1	9		J	10
Dioxins/furans	1,2,3,4,7,8,9-Heptachlorodibenzofuran	ng/kg	0.72	<	U	1	0.58	<	U	1	0.55	<	U	1	6.2	<	U	10
Dioxins/furans	1,2,3,4,7,8-Hexachlorodibenzofuran	ng/kg	1.6	<	U	1	0.87	<	U	1	0.18	<	U	1	3.1	<	U	10
Dioxins/furans	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	ng/kg	2.8	<	U	1	3.1	<	U	1	1	<	U	1	17	<	U	10
Dioxins/furans	1,2,3,6,7,8-Hexachlordibenzo-p-dioxin	ng/kg	2.6	<	U	1	2.9	<	U	1	0.91	<	U	1	19	<	U	10
Dioxins/furans	1,2,3,6,7,8-Hexachlorodibenzofuran	ng/kg	1.5	<	U	1	0.77	<	U	1	0.39	<	U	1	2.9	<	U	10
Dioxins/furans	1,2,3,7,8,9-Hexachlordibenzo-p-dioxin	ng/kg	1.8		J	1	2.8	<	U	1	0.54		J	1	18	<	U	10
Dioxins/furans	1,2,3,7,8,9-Hexachlorodibenzofuran	ng/kg	1.9	<	U	1	1	<	U	1	0.29	<	U	1	3	<	U	10
Dioxins/furans	1,2,3,7,8-Pentachlordibenzo-p-dioxin	ng/kg	2.1	<	U	1	2.1	<	U	1	2.1	<	U	1	7.8	<	U	10
Dioxins/furans	1,2,3,7,8-Pentachlorodibenzofuran	ng/kg	1.2	<	U	1	0.92	<	U	1	0.68	<	U	1	3.2	<	U	10
Dioxins/furans	2,3,4,6,7,8-Hexachlorodibenzofuran	ng/kg	1.6	<	U	1	0.86	<	U	1	0.74	<	U	1	4.7	<	U	10
Dioxins/furans	2,3,4,7,8-Pentachlorodibenzofuran	ng/kg	1.1	<	U	1	0.88	<	U	1	0.65	<	U	1	3.9	<	U	10
Dioxins/furans	2,3,7,8-TCDD	ng/kg	1.1	<	U	1	1.3	<	U	1	0.65	<	U	1	8.4	<	U	10
Dioxins/furans	2,3,7,8-TCDF	ng/kg	1.4	<	U	1	1.3	<	U	1	0.64	<	U	1	9.3	<	U	10
Dioxins/furans	Heptachlorodibenzofuran	ng/kg	1.6		J	1	0.53	<	U	1	0.5	<	U	1	12	<	U	10
Dioxins/furans	Heptachlorodibenzo-p-dioxin	ng/kg	210		B	1	12			1	35			1	21		J	10
Dioxins/furans	Hexachloridibenzo-p-dioxin	ng/kg	6.9		J	1	2.9	<	U	1	3.7		J	1	18	<	U	10
Dioxins/furans	Hexachlorodibenzofuran	ng/kg	1.6	<	U	1	0.87	<	U	1	0.75	<	U	1	4.9	<	U	10
Dioxins/furans	Octachlorodibenzofuran	ng/kg	0.91		J	1	0.71	<	U	1	1		J	1	7.6	<	U	10
Dioxins/furans	Octachlorodibenzo-p-dioxin	ng/kg	15000		BJ	1	200		B	1	2800		BJ	1	500		B	10
Dioxins/furans	Pentachlorodibenzofuran	ng/kg	1.2	<	U	1	0.9	<	U	1	0.67	<	U	1	7.8	<	U	10
Dioxins/furans	Pentachlorodibenzo-p-dioxin	ng/kg	2.1	<	U	1	2.1	<	U	1	2.1	<	U	1	7.8	<	U	10
Dioxins/furans	Tetrachlorodibenzofuran, Total	ng/kg	1.9	<	U	1	2.3	<	U	1	1.4	<	U	1	9.3	<	U	10
Dioxins/furans	Tetrachlorodibenzo-p-dioxin	ng/kg	2	<	U	1	2	<	U	1	1.2	<	U	1	13	<	U	10
Dioxins/furans	2,3,7,8-TCDD Toxic Equivalent Concentration [1]	ng/kg	4.2602				4.1243				2.6486				21.7899			

Analytical Suite	Parameter	Units	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF	Result	Qual	ValQual	DF
LOCATION_CODE			16WW35				16WW35				16WW37				16WW37			
SAMPLE_NO			16WW35(0-0_5)-FD				16WW35(1-3)				16WW37(0-0_5)				16WW37(1-3)			
SAMPLE_DATE			25-Jun-97				25-Jun-97				31-May-97				31-May-97			
DEPTH			0-0_5 Ft				1-3 Ft				0-0_5 Ft				1-3 Ft			
SAMPLE_PURPOSE			FD				REG				REG				REG			
Metals	Barium	mg/kg	88.7			1	47.4			1	256			1	208			1
Explosives	2,4,6-Trinitrotoluene	ug/kg	250	<	U	1	250	<	U	1	250	<	U	1	250	<	U	1
Explosives	2,4-Dinitrotoluene	ug/kg	250	<	U	1	250	<	U	1	250	<	U	1	250	<	U	1
Explosives	2,6-Dinitrotoluene	ug/kg	250	<	U	1	250	<	U	1	250	<	U	1	250	<	U	1
Semi-volatiles	2,4-Dinitrotoluene	ug/kg																
Semi-volatiles	2,6-Dinitrotoluene	ug/kg																
Dioxins/furans	1,2,3,4,6,7,8-Heptachlorodibenzofuran	ng/kg	2.2	<	U	10	2.3	<	U	10	3.4		J	1	0.27	<	UJ	1
Dioxins/furans	1,2,3,4,6,7,8-HpCDD	ng/kg	12		J	10	23		J	10	22			1	62			1
Dioxins/furans	1,2,3,4,7,8,9-Heptachlorodibenzofuran	ng/kg	2.7	<	U	10	2.8	<	U	10	0.84	<	UJ	1	0.24	<	UJ	1
Dioxins/furans	1,2,3,4,7,8-Hexachlorodibenzofuran	ng/kg	3.1	<	U	10	2.7	<	U	10	1.7	<	UJ	1	0.38	<	UJ	1
Dioxins/furans	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	ng/kg	6.6	<	U	10	4.4	<	U	10	2.2	<	UJ	1	0.49		J	1
Dioxins/furans	1,2,3,6,7,8-Hexachlordibenzo-p-dioxin	ng/kg	7	<	U	10	4.7	<	U	10	2	<	UJ	1	0.54		J	1
Dioxins/furans	1,2,3,6,7,8-Hexachlorodibenzofuran	ng/kg	2.9	<	U	10	2.5	<	U	10	0.39		J	1	0.34	<	UJ	1
Dioxins/furans	1,2,3,7,8,9-Hexachlordibenzo-p-dioxin	ng/kg	6.8	<	U	10	4.5	<	U	10	1.9	<	UJ	1	0.93		J	1
Dioxins/furans	1,2,3,7,8,9-Hexachlorodibenzofuran	ng/kg	3.6	<	U	10	3.1	<	U	10	0.32	<	UJ	1	0.24	<	UJ	1
Dioxins/furans	1,2,3,7,8-Pentachlordibenzo-p-dioxin	ng/kg	5.9	<	U	10	8	<	U	10	2.4	<	UJ	1	0.89	<	UJ	1
Dioxins/furans	1,2,3,7,8-Pentachlorodibenzofuran	ng/kg	4.7	<	U	10	3.9	<	U	10	0.98	<	UJ	1	0.89	<	UJ	1
Dioxins/furans	2,3,4,6,7,8-Hexachlorodibenzofuran	ng/kg	3.1	<	U	10	2.7	<	U	10	0.42		J	1	0.21		J	1
Dioxins/furans	2,3,4,7,8-Pentachlorodibenzofuran	ng/kg	4.5	<	U	10	3.8	<	U	10	1.1	<	UJ	1	0.85	<	UJ	1
Dioxins/furans	2,3,7,8-TCDD	ng/kg	3.8	<	U	10	3.6	<	U	10	0.58	<	UJ	1	0.7	<	UJ	1
Dioxins/furans	2,3,7,8-TCDF	ng/kg	4.2	<	U	10	2.8	<	U	10	0.81	<	UJ	1	0.27	<	UJ	1
Dioxins/furans	Heptachlorodibenzofuran	ng/kg	2.4	<	U	10	2.5	<	U	10	5.8		J	1	0.3	<	UJ	1
Dioxins/furans	Heptachlorodibenzo-p-dioxin	ng/kg	27		J	10	59		J	10	47			1	130			1
Dioxins/furans	Hexachloridibenzo-p-dioxin	ng/kg	6.8	<	U	10	3		J	10	4.8		J	1	7.4		J	1
Dioxins/furans	Hexachlorodibenzofuran	ng/kg	3.2	<	U	10	2.7	<	U	10	4.2		J	1	0.21		J	1
Dioxins/furans	Octachlorodibenzofuran	ng/kg	2.5	<	U	10	2.3	<	U	10	2.5		J	1	0.4	<	UJ	1
Dioxins/furans	Octachlorodibenzo-p-dioxin	ng/kg	1100		B	10	1900		B	10	750		B	1	10000		EJ	1
Dioxins/furans	Pentachlorodibenzofuran	ng/kg	4.6	<	U	10	3.9	<	U	10	0.81		J	1	0.87	<	UJ	1
Dioxins/furans	Pentachlorodibenzo-p-dioxin	ng/kg	5.9	<	U	10	8	<	U	10	2.4	<	UJ	1	0.89	<	UJ	1
Dioxins/furans	Tetrachlorodibenzofuran, Total	ng/kg	8	<	U	10	4.8	<	U	10	2.1	<	UJ	1	0.73	<	UJ	1
Dioxins/furans	Tetrachlorodibenzo-p-dioxin	ng/kg	13	<	U	10	7.9	<	U	10	0.46		J	1	1.1	<	UJ	1
Dioxins/furans	2,3,7,8-TCDD Toxic Equivalent Concentration [1]	ng/kg	12.5546				11.6606				3.6794				3.4831			

Notes:

B	Contaminant present in the method blank; result not used in calculation of toxic equivalent concentration
EJ	exceeded linear calibration range; result estimated
FD	field duplicate
Ft	feet
J	present below normal reporting limit; result is an estimate
mg/kg	milligrams per kilogram
ng/kg	nanograms per kilogram
QJ	non-conformance; result estimated
REG	regular sample
U	not detected
µg/kg	micrograms per kilogram

[1] Sum of individual congener results multiplied by TEFs (toxicity equivalency factors). One-half the detection limit is used as the result for non-detect (U) results. See Table 2-3 for TEFs that were used.

The results for dioxins/furans are presented in **Table 2-2** both as individual congeners and as 2,3,7,8-TCDD TEQs. As shown in that table, five samples (and one field duplicate) had TEQs exceeding the EcoPRG of 4×10^{-6} mg/kg (or 4 nanograms per kilogram [ng/kg]). However, it should be noted that the TEQs are largely a reflection of the detection limits for the dioxin/furan congeners and not the actual detected concentrations. For the samples from 16WW35, which had the highest TEQs, the dilution factor was 10 and the resulting detection limits were such that only two congeners were actually detected (1,2,3,4,6,7,8-heptachloroadibenzo-p-dioxin [toxicity equivalence factor {TEF}=0.01] and octachlorodibenzo-p-dioxin [TEF=0.0001]). The impact of the detection limits can be further demonstrated by comparing the TEQ values calculated when the detection limits are treated in different manners. **Table 2-3** provides a comparison of the calculated TEQ values when ½ the detection limit is included in the calculation and when the non-detects are omitted altogether. As can be seen in the right-most column of **Table 2-3**, the TEQs are well below the EcoPRGs for all samples when based only on the congeners that were detected. Thus, the TEQs do not indicate the presence of dioxins/furans at concentrations of ecological concern, but a very conservative estimate of the possible concentration in a given sample.

Individual congener data for LHAAP-16 samples were also compared to the maximum detected concentrations of congeners detected in the surface soil background data set (Shaw, 2004). Only two samples, 16WW27(0-0.5) and 16WW37(1-3), had at least one congener that exceeded their respective maximum detected background concentration (see **Table 2-4**). Therefore, only these two samples may be considered as having higher dioxin concentrations than background. However, the total TEQs for these two samples were 4.1×10^{-6} mg/kg and 3.5×10^{-6} mg/kg, respectively, using the conservative approach in which ½ the detection limit serves as the surrogate result for non-detects. These TEQs are essentially equal to or less than the EcoPRG of 4×10^{-6} mg/kg. When only detected congeners are included in the calculation of the TEQ, the TEQs for these two samples are 1.4×10^{-6} mg/kg and 2×10^{-6} mg/kg, respectively, which are well below the EcoPRG.

Removal or treatment of dioxins/furans at LHAAP-16 is not proposed, for the following reasons:

- For samples that exceeded the EcoPRG, most (65 percent to 99 percent) of the contribution to the TEQ is associated with the surrogate concentrations used for non-detects (i.e., ½ the detection limit);
- The TEQ for the congeners actually detected in soil at LHAAP-16 are well below the EcoPRG of 4×10^{-6} mg/kg;
- Only two samples had at least one congener that exceeded the background surface soil data congener MDCs. The TEQs for these samples do not exceed the EcoPRG when rounded to one significant digit, even when ½ the detection limit was used as a surrogate for non-detects.

Table 2-3
TEQ Comparison

Sample	TEQ[1] (ng/kg) when non-detects are set equal to: 1/2 DL	0	Percent of TEQ Associated with NDs
16WW27(0-0_5)	4.1408	1.4358	65.3%
16WW27(1-3)	4.2602	0.1801	95.8%
16WW31(0-0_5)	4.1243	0.0480	98.8%
16WW31(1-3)	2.6486	0.2141	91.9%
16WW35(0-0_5) [2]	17.1723	0.1050	99.4%
16WW35(1-3)	11.6606	0.2300	98.0%
16WW37(0-0_5)	3.6794	0.3352	90.9%
16WW37(1-3)	3.4831	2.0330	41.6%

Notes and Abbreviations:

[1] The TEQ was calculated by multiplying the result by the TEF (toxicity equivalence factor) for each congener and then summing the products. The TEFs are presented below:

DL detection limit
NDs non-detected results
ng/kg nanograms per kilogram
TCDD tetrachlorodibenzo-p-dioxin
TEQ 2,3,7,8-TCDD toxicity equivalent concentration

Dioxin or Furan Congener	TEF
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.01
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.01
1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.01
1,2,3,4,7,8-Hexachlorodibenzofuran	0.1
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.5
1,2,3,6,7,8-Hexachlordibenzo-p-dioxin	0.1
1,2,3,6,7,8-Hexachlorodibenzofuran	0.1
1,2,3,7,8,9-Hexachlordibenzo-p-dioxin	0.1
1,2,3,7,8,9-Hexachlorodibenzofuran	0.1
1,2,3,7,8-Pentachlordibenzo-p-dioxin	1
1,2,3,7,8-Pentachlorodibenzofuran	0.1
2,3,4,6,7,8-Hexachlorodibenzofuran	0.1
2,3,4,7,8-Pentachlorodibenzofuran	1
2,3,7,8-TCDD	1
2,3,7,8-TCDF	1
Octachlorodibenzofuran	0.0001
Octachlorodibenzo-p-dioxin	0.0001

Source: Van den Berg, M., Birnbaum, L., Bosveld, A.T.C., Brunstrom, B., Cook, P., Feeley, M., Giesy, J.P., Hanberg, A., Hasegawa, R., Kennedy, S.W., Kubiak, T., Larsen, J.C., van Leeuwen, F.X.R., Liem, A.K.D., Nolt, C., Peterson, R.E., Poellinger, L., Safe, S., Schrenk, D., Tillitt, D., Tysklind, M., Younes, M., Waern, F. and Zacharewski, T., 1998, Toxic Equivalency Factors (TEFs) for polychlorinated biphenyls (PCBs), PCDDs, PCDFs for Humans and Wildlife, Environmental Health Perspectives 106(12):775-792. Of the TEF values for mammals, fish, and birds, the highest TEF was used.

[2] The TEQ for 16WW35 (0-0_5) is the average of the TEQ values for the regular sample and the field duplicate.

Table 2-4
Comparison of Dioxins/Furans Detected in Soil to Background Concentrations

Dioxin/Furan Congener	Units	Background (Maximum) [b]	Detected Results by Location and Sample ID							
			16WW27	16WW27	16WW31	16WW31	16WW35 [a]	16WW35	16WW37	16WW37
			16WW27(0-0.5)	16WW27(1-3)	16WW31(0-0.5)	16WW31(1-3)	16WW35(0-0.5)	16WW35(1-3)	16WW37(0-0.5)	16WW37(1-3)
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	1.15E-05	9.00E-06	ND	ND	ND	ND	ND	3.40E-06	ND
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	mg/kg	7.01E-05	--	--	4.80E-06	1.60E-05	1.05E-05	2.30E-05	2.20E-05	6.20E-05
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	2.05E-07	1.30E-06	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-Hexachlordibenzo-p-dioxin	mg/kg	1.26E-06	1.00E-06	ND	ND	ND	ND	ND	ND	4.90E-07
1,2,3,4,7,8-Hexachlorodibenzo furan	mg/kg	1.17E-06	2.50E-06	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-Hexachlordibenzo-p-dioxin	mg/kg	2.65E-06	2.30E-06	ND	ND	ND	ND	ND	ND	5.40E-07
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	6.30E-07	7.30E-07	ND	ND	ND	ND	ND	3.90E-07	ND
1,2,3,7,8,9-Hexachlordibenzo-p-dioxin	mg/kg	2.98E-06	2.20E-06	1.80E-06	ND	5.40E-07	ND	ND	ND	9.30E-07
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	NE	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-Pentachlordibenzo-p-dioxin	mg/kg	7.36E-07	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	2.00E-07	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	8.33E-07	5.90E-07	ND	ND	ND	ND	ND	4.20E-07	2.10E-07
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	4.38E-07	ND	ND	ND	ND	ND	ND	ND	ND
2,3,7,8-TCDD	mg/kg	1.53E-07	ND	ND	ND	ND	ND	ND	ND	ND
2,3,7,8-TCDF	mg/kg	NE	ND	ND	ND	ND	ND	ND	ND	ND
Octachlorodibenzofuran	mg/kg	2.31E-05	7.80E-06	9.10E-07	ND	1.00E-06	ND	ND	2.50E-06	ND
Octachlorodibenzo-p-dioxin	mg/kg	5.40E-03	--	--	--	--	--	--	--	1.00E-02

Notes and Abbreviations:

ND not detected

NE not established

-- Data were rejected during data evaluation due to matrix interference, blank contamination, or other factors.

Shaded and bold cells indicate congener concentrations greater than background.

[a] Field Duplicate and Target sample results were averaged for 16WW35(0-0.5) samples to be consistent with the data evaluation approach used for the Longhorn Baseline Ecological Risk Assessment.

[b] Background congener concentrations were obtained from the background data set as presented in Shaw Environmental, Inc., 2004 *Background Soil Study Report, Longhorn Army Ammunition Plant, Karnack Texas*, Final, July.
Data from the surface soil (0-0.5 feet) depth interval were used, when available. Otherwise, data from the 1.5-2.5 feet interval were used.

Therefore, dioxin/furan concentrations at LHAAP-16 are not appreciably different from ambient concentrations, and do not exceed ecological criteria based on detected congeners. Because it cannot be shown that removal or treatment of soil will lower dioxin/furan concentrations, neither removal nor treatment is proposed.

2.2 Final Remedial Action Objectives

RAOs are specific goals for protecting human health and the environment. The Final FS (Jacobs, 2002) identified the following interim RAOs for LHAAP-16:

1) To prevent exposure to landfill and groundwater contamination in excess of the 1×10^{-4} to 1×10^{-6} target risk range and a HI value of 1.
2) To prevent discharges of contaminated groundwater that cause ARARs exceedances in Harrison Bayou.

These interim RAOs did not address ecological risk or the extent of groundwater remediation at LHAAP-16. **Section 2.1** of this FS Addendum incorporates the findings of the recently completed Baseline Ecological Risk Assessment (Shaw, 2007) and demonstrates that environmental risks outside the capped landfill do not drive the need for a response at LHAAP-16. The RAOs need to address ecological risk only to ensure that ecological receptors do not come into contact with the landfill wastes that are currently covered by the cap at LHAAP-16. Therefore, the RAOs largely focus on goals to protect human health. Consistent with the intended future use of the site as part of a wildlife refuge, this includes RAOs for groundwater that focus on protecting the surface water adjacent to LHAAP-16. The final RAOs developed for LHAAP-16 are as follows:

1) Protection of human health and the environment by preventing exposure to landfill contents.
2) Protection of human health and the environment by reducing leaching and migration of landfill hazardous substances into the groundwater.
3) Protection of human health by preventing human exposure to groundwater contaminated with COCs.
4) Protection of human health and the environment by preventing groundwater contaminated with COCs from migrating into nearby surface water.
5) Return groundwater in the shallow and intermediate zones to its potential beneficial use as drinking water, wherever practicable.

Final RAOs 1 and 3 replace interim RAO 1. Final RAO 2 amends the interim RAOs by addressing leaching. Final RAO 4 replaces interim RAO 2. Final RAO 5 is added to address the aquifer as a potential source of drinking water. The final RAOs within this FS Addendum allow for selection of a final remedy for LHAAP-16. The remedial alternatives included within this FS Addendum were developed to meet the final RAOs for the site.

The COCs mentioned in the RAOs were identified by evaluation of the chemicals with risks exceeding 1×10^{-4} and/or hazard indices exceeding 0.1. Those chemicals were identified in the Final Baseline Human Health Risk Assessment (Jacobs, 2001) and are presented in **Table 2-5**. That table also provides a summary of the sampling associated with each chemical, including tabulation of the number of results exceeding the appropriate comparison value for each chemical. The table notes summarize the reason for including or excluding chemicals as COCs. As noted in that evaluation, the resulting COCs were perchlorate, TCE, 1,1-DCE, 1,2-DCA, cis-1,2-DCE, vinyl chloride, 1,1,2-TCA, methylene chloride, arsenic, chromium, manganese, and nickel.

In addition to perchlorate and the chlorinated solvents, certain inorganics (arsenic, chromium, manganese, and nickel) were retained as chemicals of concern. While these chemicals have occasional detections above their MCL or GW-Res values, their occurrence is not indicative of widespread contamination associated with the landfill. The most prevalent of these inorganic chemicals is chromium, which has scattered occurrences above its MCL in a number of wells as presented in **Figure 2-1**, but most consistently in stainless steel monitoring wells along the northern edge of the organics plume in the shallow groundwater. High chromium concentrations in groundwater at stainless steel wells have also been observed at other LHAAP sites. The 2002 Feasibility Study (Jacobs, 2002), indicates that *'Current and future metals concentrations in the groundwater seeping to the surface water are not projected to exceed ARARs or to cause a human health risk in Harrison Bayou (page 1-34 of the FS for LHAAP-16).'* Nonetheless, the remedy presented in this Addendum assumes that (1) arsenic, chromium, manganese, and nickel will continue to be monitored to verify that they do not impact surface water and (2) that the wells most affected by corrosion (as evidenced by elevated chromium) will be removed or replaced with wells of different material.

2.3 Surface Water in Harrison Bayou

The intent of Final RAO 4 is to prevent migration of contaminated groundwater into nearby surface water (Harrison Bayou). Based on discussion with TCEQ and USEPA, a number of potential contaminant levels were evaluated for use as compliance values at Harrison Bayou. When water is flowing in Harrison Bayou, it discharges into Caddo Lake, a potential drinking water source. Therefore, it was concluded that contaminant levels in Harrison Bayou will be compared to MCLs and GW-Res values. These values are presented, along with groundwater cleanup levels (see **Section 2.4**), in **Table 2-6**.

2.4 Groundwater ARARs

Based on the anticipated future use of the facility as a national wildlife refuge, the groundwater at LHAAP-16 will not be used in the future as a drinking water source. Although there is no current or planned future use of the groundwater as a drinking water source, the U.S. Army has considered the NCP's expectation to return useable groundwater to its beneficial use wherever practicable. The U.S. Army has also considered the State of Texas designation of all groundwater as a potential drinking water source, unless otherwise classified, consistent with 30 TAC 335.563(h)(1). Therefore, Final RAO 5 is to return contaminated groundwater at LHAAP-16 to its potential beneficial use as drinking water, which for the purposes of the FS is considered to be attainment of the Safe Drinking Water Act (SDWA) MCLs to the extent practicable, and consistent with 40 CFR§300.430(e)(2)(i)(B&C). If return to potential beneficial uses is not practicable, the NCP expectation is to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction. Final RAO 3 is to prevent human exposure to groundwater contaminated with COCs. This must be maintained until the groundwater complies with drinking water standards (MCLs) for the COCs. For COCs without MCLs (e.g., perchlorate), the Texas Groundwater Medium Specific Concentration for Residential Use (GW-Res) will be used as the cleanup requirement.

The drinking water standards were previously identified in the Final FS (Jacobs, 2002) and can be found in Table 2-3 of that document. The standards listed there and the standards for additional COCs identified in **Table 2-5** are shown in **Table 2-6**. For COCs that have no MCL (perchlorate), the GW-Res was used. As noted in **Table 2-6**, the GW-Res for perchlorate is 26 micrograms per liter (μg/L) (TCEQ, 2006).

Table 2-5
Evaluation of Potential COCs

Parameter	Baseline Risk Assessment Results			Comparison Value		Maximum Result (µg/L)	Number of Samples			Number of Detected Results			Number of Detected Results that Exceed Comparison Value			Parameter is a COC?
	EPC (µg/L)	Risk	HI	Value (µg/L)	Basis		Total	Pre 1999	Post 1999	Total	Pre 1999	Post 1999	Total	Pre 1999	Post 1999	
Perchlorate	none	-	-	26	GW-res	5,990	439	0	439	257	0	257	213	0	213	YES, 3
1,3-Dinitrobenzene	1.56	-	0.15	3.7	GW-res	1.56										NO, 6
2,4,6-Trinitrotoluene	240	2.50E-05	4.6	18	GW-res	240	265	178	87	8	8	0	2	2	0	NO, 5
4-Amino-2,6-dinitrotoluene	1	3.50E-08	1.34	6.1	GW-res	1										NO, 6
Nitrobenzene	20	-	1.68	18	GW-res	20	288	201	87	13	9	4	1	1	0	NO, 5
RDX	200	7.70E-05	0.67	7.7	GW-res	200	258	171	87	14	14	0	1	1	0	NO, 5
Arsenic	34	1.80E-04	1.1	10	MCL	123	192	103	89	60	24	36	23	19	4	YES, 1
Barium	9,900	-	1.39	2,000	MCL	9,900	190	103	87	165	78	87	9	9	0	NO, 2
Cadmium	8	-	0.16	5	MCL	29	190	103	87	46	7	39	4	4	0	NO, 2
Chromium	5,220	-	17	100	MCL	32,400	199	103	96	148	52	96	56	21	35	YES, 3
Manganese	29,800	-	2.07	7,820	95% UTL Background	29,800	143	52	91	141	50	91	14	2	12	YES, 1
Nickel	1,630	-	0.8	730	GW-res	1,803.5	190	103	87	129	45	84	9	3	6	YES, 1
Silver	114	-	0.22	180	GW-res	114										NO, 6
Strontium	10,400	-	0.17	22,000	GW-res	12,300										NO, 6
Zinc	37,000	-	1.2	11,000	GW-res	37,000	139	52	87	111	26	85	2	2	0	NO, 5
Trichloroethene	160,000	2.38E-02	500	5	MCL	173,000	401	154	247	308	112	196	279	95	184	YES, 3
1,1-Dichloroethene	740	3.41E-04	0.859	7	MCL	740	385	154	231	84	16	68	56	9	47	YES, 3
1,2-Dichloroethane	160	2.41E-04	-	5	MCL	161	385	154	231	73	7	66	55	6	49	YES, 3
1,2-Dichloroethene	275,000	-	185.4	70	MCL for cis-1,2-DCE	275,000										NO, 4
cis-1,2-Dichloroethene	520,000	-	510	70	MCL	520,000	311	120	191	162	63	99	85	27	58	YES, 3
Vinyl chloride	11,000	1.11E-01	-	2	MCL	11,000	386	154	232	93	14	79	84	14	70	YES, 3
1,1,2-Trichloroethane	12	1.14E-05	0.03	5	MCL	23.6	361	154	207	19	2	17	8	1	7	YES, 1
Acetone	3,920	-	0.38	33,000	GW-res	14,000										NO, 6
Chloroform	120	1.34E-04	0.17	80	MCL for trihalomethanes	36										NO, 6
Methylene chloride	3,500	1.64E-04	0.72	5	MCL	9,500	361	154	207	44	10	34	27	6	21	YES, 3
Trichlorofluoromethane	892	-	0.196	80	MCL for trihalomethanes	892	290	139	151	2	2	0	1	1	0	NO, 5

Notes:

List of Chemicals is from Table 4-9 of the Final Baseline Human Health Risk Assessment for Site 16 Landfill (plus perchlorate).
Constituents/Parameters with Hazard Index (HI) > 0.1 or Cancer Risk (Risk) > 1.00E-5 are selected.

(1) Retained as a COC to be monitored for five years, then evaluated again.
(2) Excluded as a COC because earlier exceedances of MCL were not confirmed by subsequent sampling.
(3) Retained as a COC because a significant number of results exceed the MCL or GW-res.
(4) Excluded as a COC because the parameter will be superseded by cis-1,2-DCE.
(5) Excluded as a COC because only one or two anomalous sample results in early sampling were above the Comparison Value.
(6) Excluded as a COC because no detected result ever exceeded the comparison value.

GW-Res Texas Groundwater Medium-Specific Concentration for Residential Use
MCL maximum contaminant level
95% UTL Value from Final Evaluation of Perimeter Well Data for Use as Groundwater Background (Shaw, 2007).

Table 2-6
Groundwater and Surface Water Cleanup Levels

Chemical of Concern	Applicable Cleanup Level	MCL	GW-Res	95% UTL Background
Perchlorate	26	NE	26	NE
Trichloroethene	5	5	5	NE
cis-1,2-Dichloroethene	70	70	70	NE
1,1-Dichloroethene	7	7	7	NE
1,2-Dichloroethane	5	5	5	NE
Vinyl Chloride	2	2	2	NE
1,1,2-Trichloroethane	5	5	5	NE
Methylene Chloride	5	5	5	NE
Chromium	100	100	100	15.8
Arsenic	10	10	10	0.167
Manganese	7,820	NE	1,700	7,820
Nickel	730	NE	730	211

Notes and Abbreviations:

All values are in micrograms per liter (µg/L).

Source: TCEQ, 2006.

GW-Res Texas Groundwater Medium-Specific Concentration for Residential Use
MCL maximum contaminant level
NE not established
95% UTL value from Final Evaluation of Perimeter Well Data for Use as Groundwater Background (Shaw, 2007)

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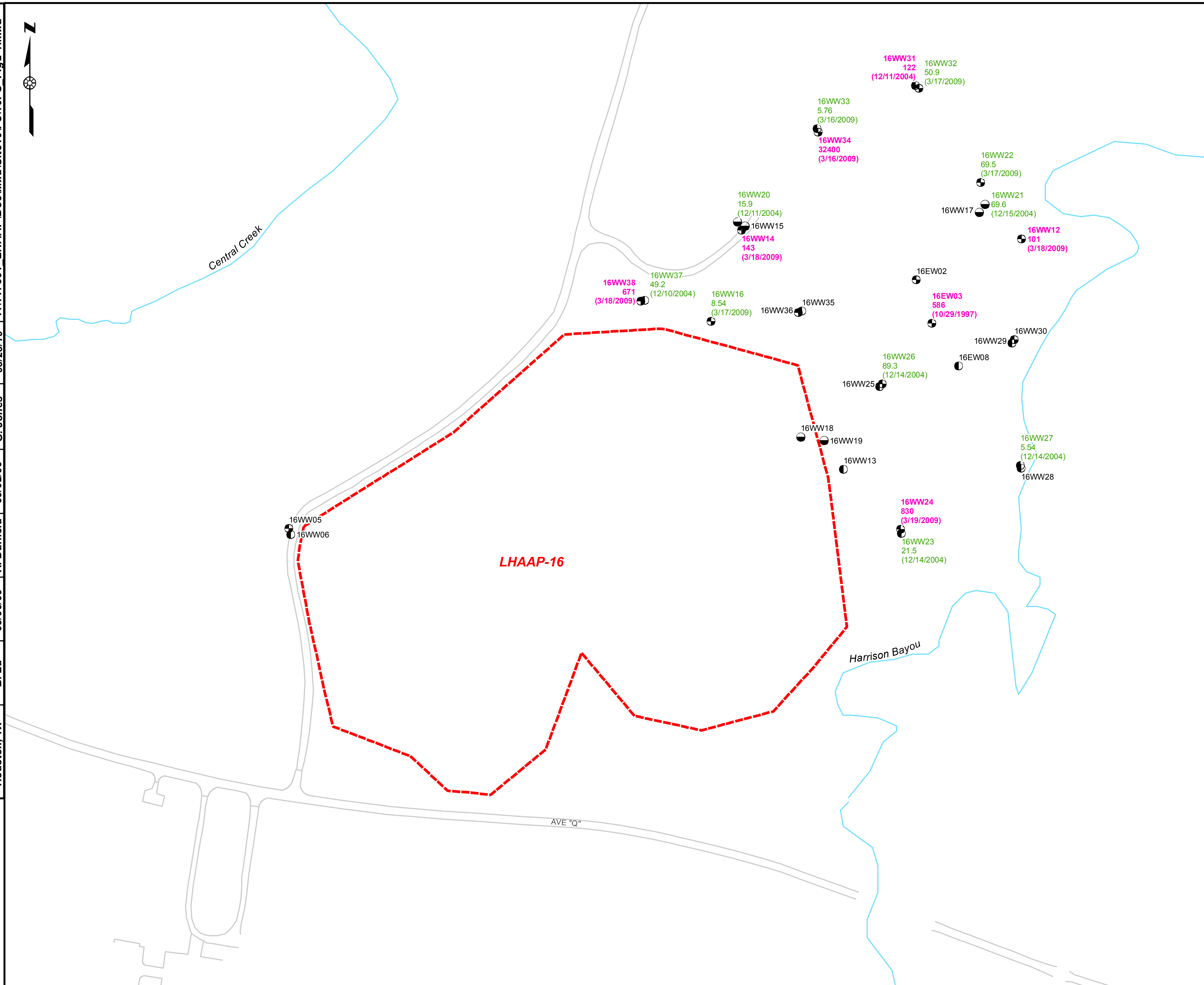

LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Deep Monitoring Well
- Stream
- Road
- LHAAP-16 Landfill Fence

16EW03 586 (10/29/1997) Well with current chromium MCL exceedance

16WW27 5.54 (12/14/2004) Well with past chromium MCL exceedance

16WW28 Well with chromium results less than the MCL

Notes:

MCL - maximum contaminant level
μg/L - micrograms per liter
Results noted in units of μg/L
Most recent results shown for locations with at least one MCL exceedance.

0 100 200 400 Feet

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FIGURE 2-1
MOST RECENT CHROMIUM CONCENTRATIONS
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

3.0 Summary of Investigations Conducted Subsequent to the Final FS

Subsequent to completion of the Final FS in March 2002, a number of investigations were performed that provide additional information regarding LHAAP-16. Those investigations were as follows:

- A plant-wide perchlorate investigation in 2002
- Three additional groundwater monitoring events in 2003 and 2004
- Sampling and analysis of MNA parameters in 2007
- Installation and sampling of wells near Harrison Bayou in 2007
- Installation and sampling of wells to address data gaps in 2008
- Sampling and analysis for metals, perchlorate, and VOCs in 2009

The following text provides a brief summary of each investigation.

In March 2003, Solutions to Environmental Problems, Inc. (STEP) completed a report summarizing perchlorate sampling conducted at LHAAP-16 in March and September 2002 (STEP, 2005). Surface and shallow subsurface soil and shallow and intermediate zone monitoring wells were sampled during the investigation. Perchlorate was detected in several shallow and intermediate zone monitoring wells with a maximum concentration of 2,430 µg/L in the shallow zone and 1,950 µg/L in the intermediate zone. No significant concentrations of perchlorate were detected in the surface or shallow soil at LHAAP-16.

In January 2006, USACE, Tulsa District, and ALL Consulting completed a groundwater monitoring report summarizing the results of groundwater monitoring conducted during Spring 2003, Spring 2004, and Winter 2004 at LHAAP-16 (USACE, 2006). Groundwater samples from twenty-nine monitoring wells were analyzed for anions (perchlorate, chloride, sulfate, nitrogen [nitrate/nitrite]), explosives, metals, volatile organic compounds (VOCs), total organic carbon, and field groundwater quality parameters. The primary contaminant detected during the three rounds of monitoring at LHAAP-16 was TCE. In addition, cis-1,2-DCE and VC (biodegradation products of TCE), and perchlorate were detected in the LHAAP-16 groundwater. The highest contaminant concentrations were detected in the shallow and intermediate groundwater zones in the monitoring wells located northeast of the landfill cap upgradient from Harrison Bayou. No VOCs were detected in the upper deep and deep groundwater zones at concentrations above the USEPA maximum contaminant levels (MCLs). Further, perchlorate was detected only during the Spring 2004 groundwater sampling event in two deep monitoring wells with a maximum concentration of 11.7 micrograms per liter (µg/L) (below the Texas Groundwater Medium-Specific Concentration for Residential Use, 26 µg/L). Metals were also detected within the shallow, intermediate, and deep groundwater zones. However, metals were not identified as significant contributors to risk or hazard in groundwater at LHAAP-16 during the human health risk assessment conducted for the site (Jacobs, 2001).

In June 2007, Shaw performed additional groundwater sampling at LHAAP-16. These data, together with historical results from the site, were used to prepare an initial MNA evaluation for the site. That evaluation is presented in **Appendix A**. The supporting sampling and analysis documentation is provided in **Appendix B**. **Figures 3-1** through **3-12** present groundwater monitoring results for perchlorate and VOCs from the February 2003, December 2004, and June 2007 sampling events.

In September 2007, Shaw installed two new monitoring wells, 16WW39 and 16WW40, in the shallow zone on the up-gradient and down-gradient sides of 16WW12, respectively. The locations of these wells are shown in **Figure 3-13**. **Table 3-1** presents the detected results from samples collected in early October 2007. The complete results of the October 2007 sampling and analysis are provided in **Appendix B**.

In December 2008, Shaw installed six new monitoring wells, 16WW41 through 16WW46, in the shallow and intermediate zones to address data gaps. The locations of these wells are shown in **Figure 1-2**. Groundwater elevations in the intermediate zone are shown in **Figure 3-14**. The results and supporting sampling and analysis documentation are provided in **Appendix B**.

In March 2009, Shaw performed additional groundwater sampling at 21 monitoring wells and eight extraction wells at LHAAP-16. The results and supporting sampling and analysis documentation are provided in **Appendix B**.

Table 3-1
Detected Results in Wells 16WW12, 16WW39, and 16WW40
October 2007

Parameter	Units	16WW39 10/11/07	16WW12 10/11/07	16WW40 10/10/07
TCE	µg/L	3460	4500	1060
1,1-DCE	µg/L	25 U	25 U	10 U
cis-1,2-DCE	µg/L	87	90.3	36.8
VC	µg/L	12.8 J	22.7 J	10 U
Methylene chloride	µg/L	15.4J	10.8 J	50 U
1,2-DCA	µg/L	6.71J	21.2 J	7.37 J
Perchlorate	µg/L	2760	5990	4540

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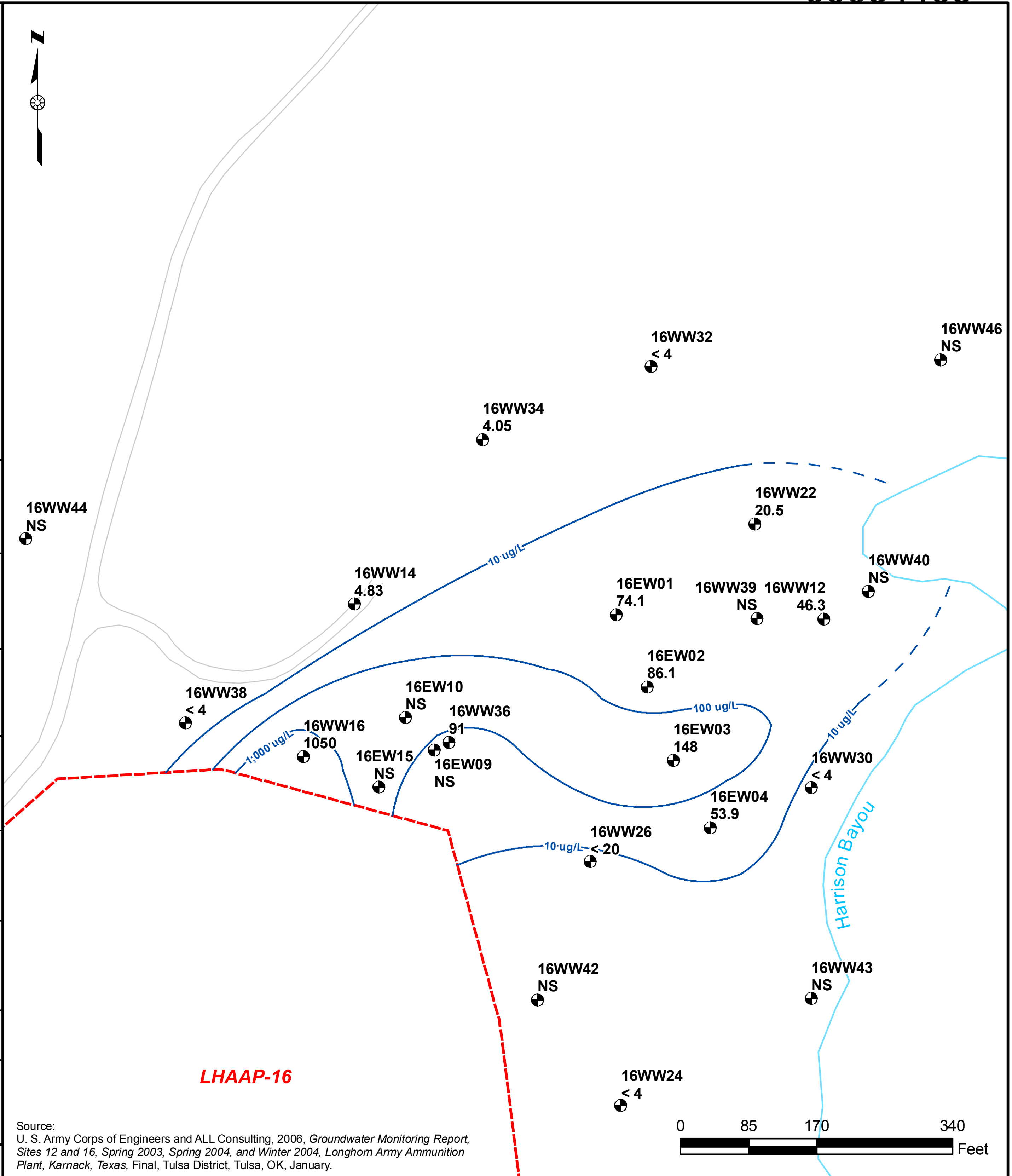

Source:
U. S. Army Corps of Engineers and ALL Consulting, 2006, *Groundwater Monitoring Report, Sites 12 and 16, Spring 2003, Spring 2004, and Winter 2004, Longhorn Army Ammunition Plant, Karnack, Texas,* Final, Tulsa District, Tulsa, OK, January.

Legend

- Shallow Monitoring Well
- Perchlorate Concentration Contour
- Inferred Perchlorate Concentration Contour
- Road
- Harrison Bayou
- LHAAP-16 Landfill Fence

Notes:

Results are in µg/L.
NS - not sampled

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FIGURE 3-1

PERCHLORATE CONCENTRATIONS
IN SHALLOW ZONE GROUNDWATER
FEBRUARY 2003 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

00084469

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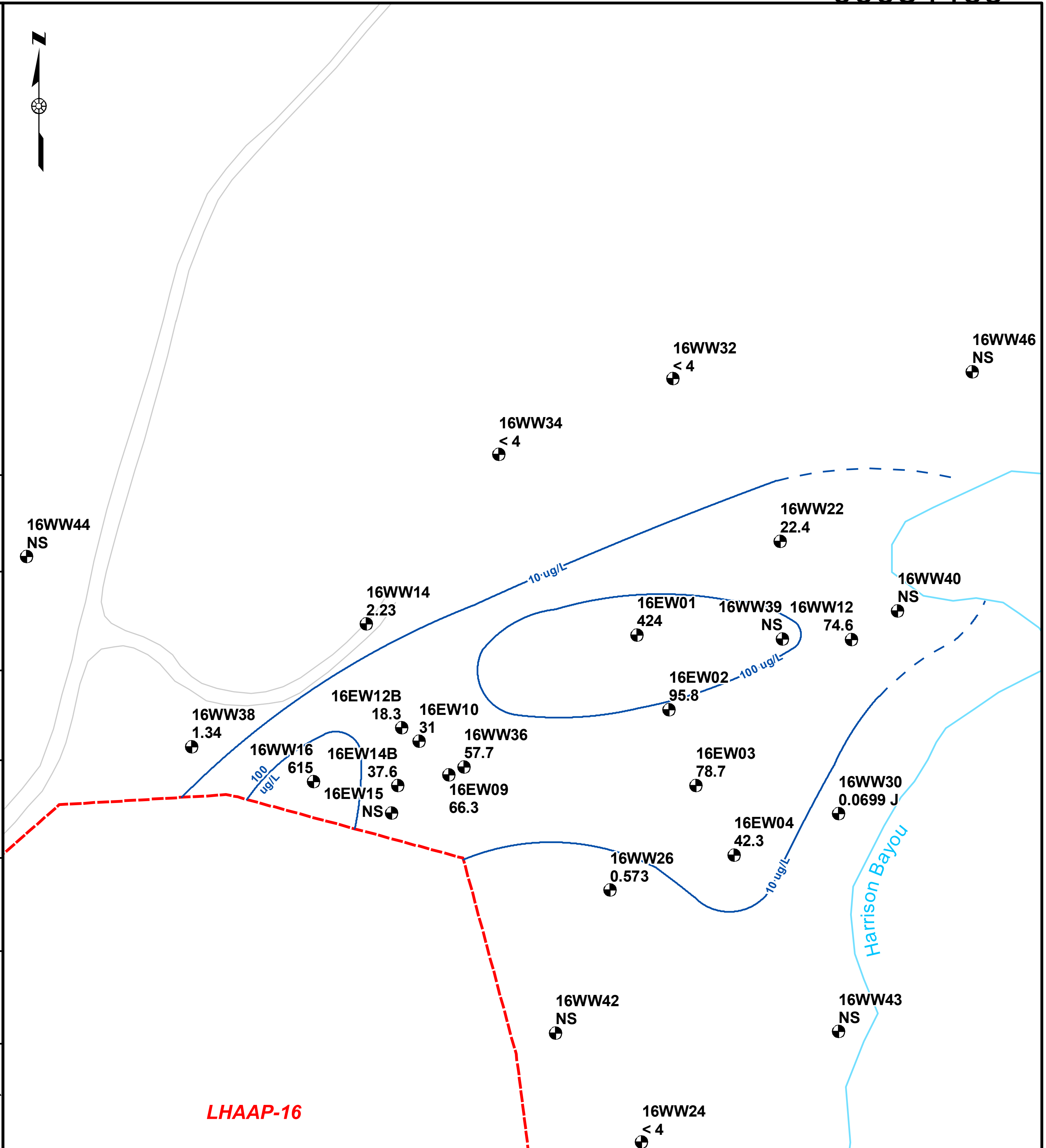

Source:
U. S. Army Corps of Engineers and ALL Consulting, 2006, *Groundwater Monitoring Report, Sites 12 and 16, Spring 2003, Spring 2004, and Winter 2004, Longhorn Army Ammunition Plant, Karnack, Texas,* Final, Tulsa District, Tulsa, OK, January.

Legend

- Shallow Monitoring Well
- Perchlorate Concentration Contour
- Inferred Perchlorate Concentration Contour
- Road
- Harrison Bayou
- LHAAP-16 Landfill Fence

Notes:

Results are in µg/L.
J - Estimated value
NS - not sampled

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FIGURE 3-2

PERCHLORATE CONCENTRATIONS
IN SHALLOW ZONE GROUNDWATER
DECEMBER 2004 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

00084470

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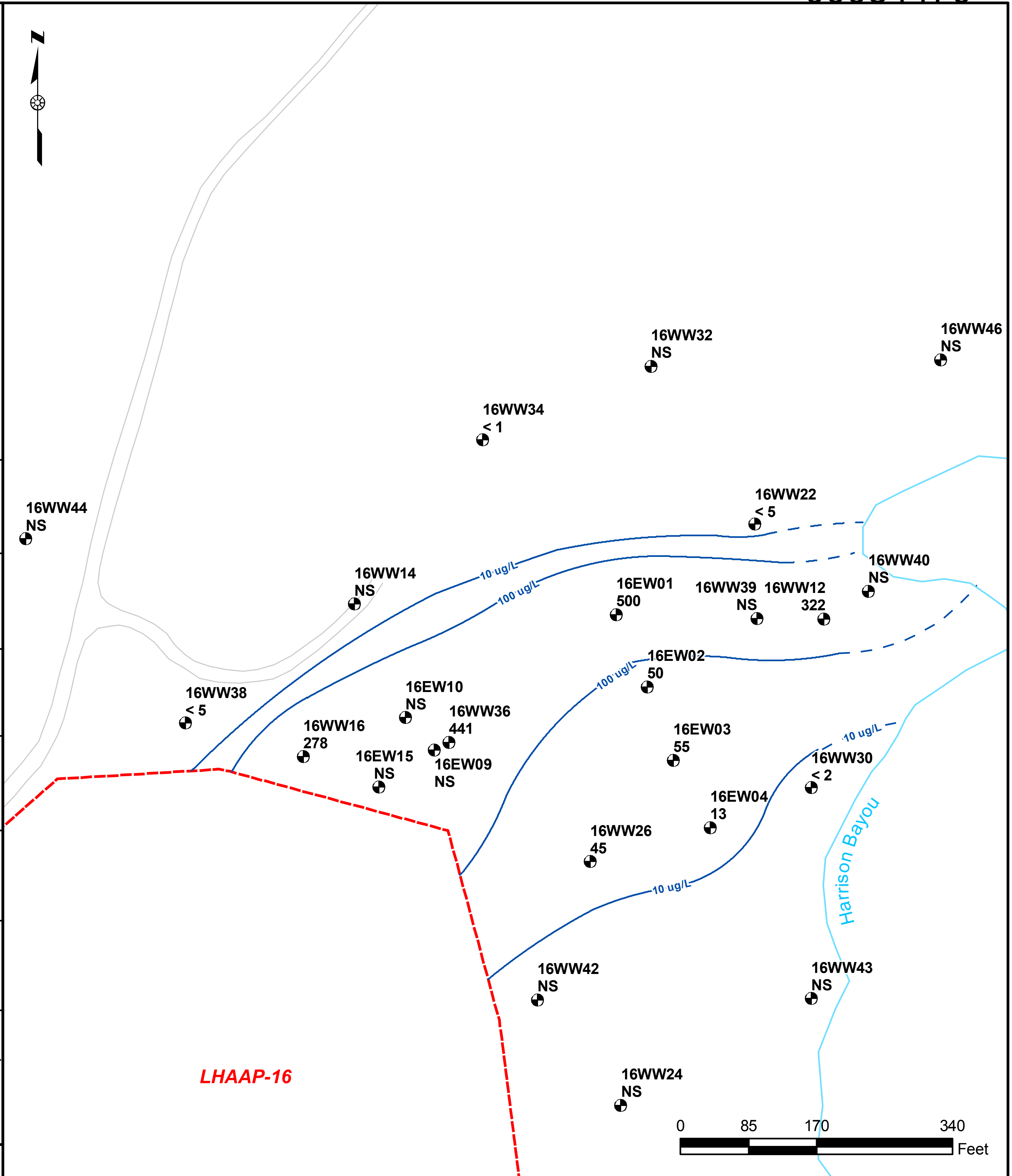

Legend

- Shallow Monitoring Well
- Perchlorate Concentration Contour
- Inferred Perchlorate Concentration Contour
- Road
- Harrison Bayou
- LHAAP-16 Landfill Fence

Notes:

Results are in µg/L.
U - Non-detect; detection limit provided
NS - not sampled

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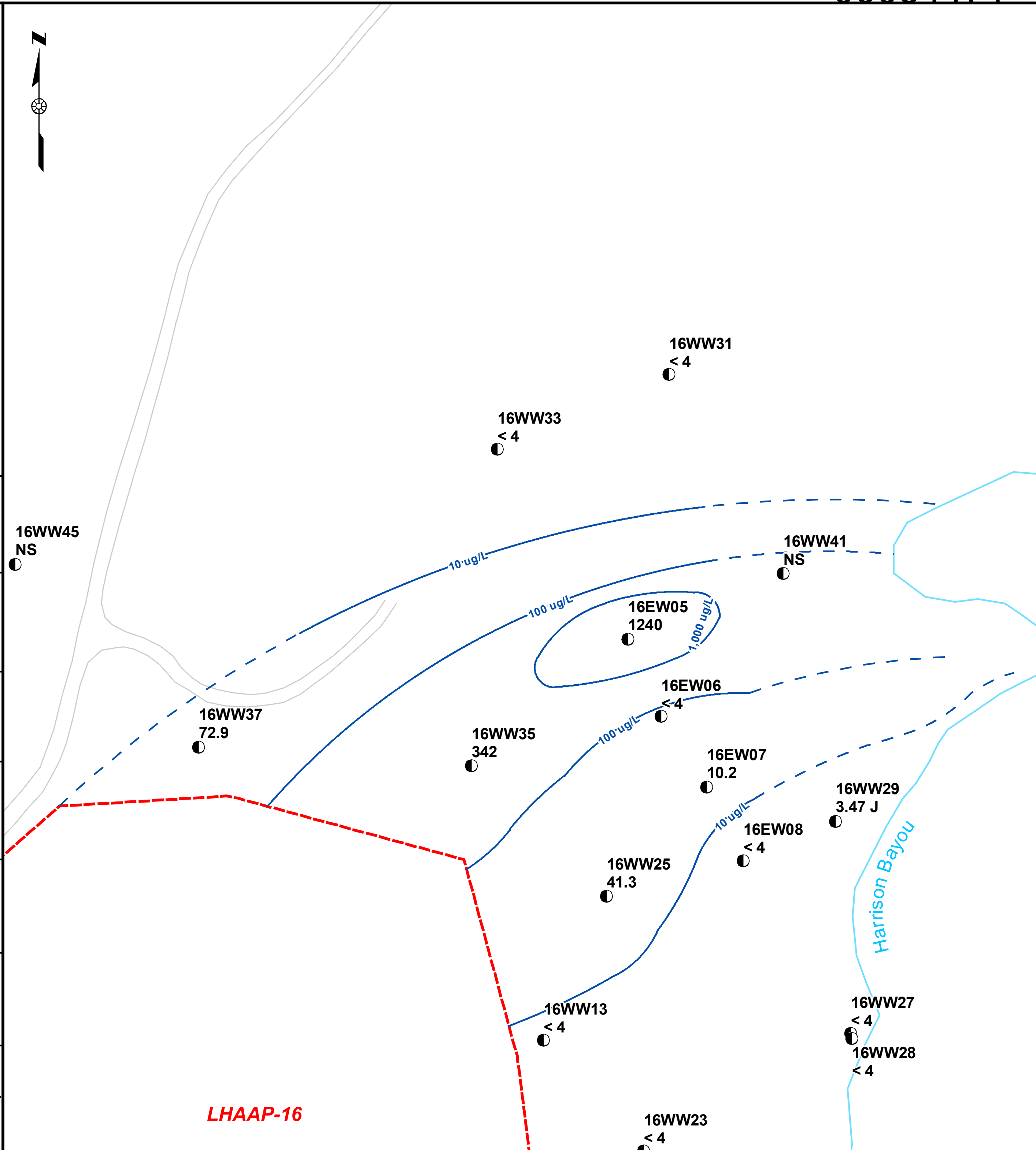
FIGURE 3-3

PERCHLORATE CONCENTRATIONS
IN SHALLOW ZONE GROUNDWATER
JUNE 2007 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

00084471



Source:
U. S. Army Corps of Engineers and ALL Consulting, 2006, *Groundwater Monitoring Report, Sites 12 and 16, Spring 2003, Spring 2004, and Winter 2004, Longhorn Army Ammunition Plant, Karnack, Texas,* Final, Tulsa District, Tulsa, OK, January.

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Legend

- Intermediate Monitoring Well
- Perchlorate Concentration Contour
- Inferred Perchlorate Concentration Contour
- Road
- Harrison Bayou
- LHAAP-16 Landfill Fence

Notes:

Results are in µg/L.
J - Estimated value
NS - not sampled

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TULSA, OKLAHOMA

FIGURE 3-4

PERCHLORATE CONCENTRATIONS
IN INTERMEDIATE ZONE GROUNDWATER
FEBRUARY 2003 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

00084472

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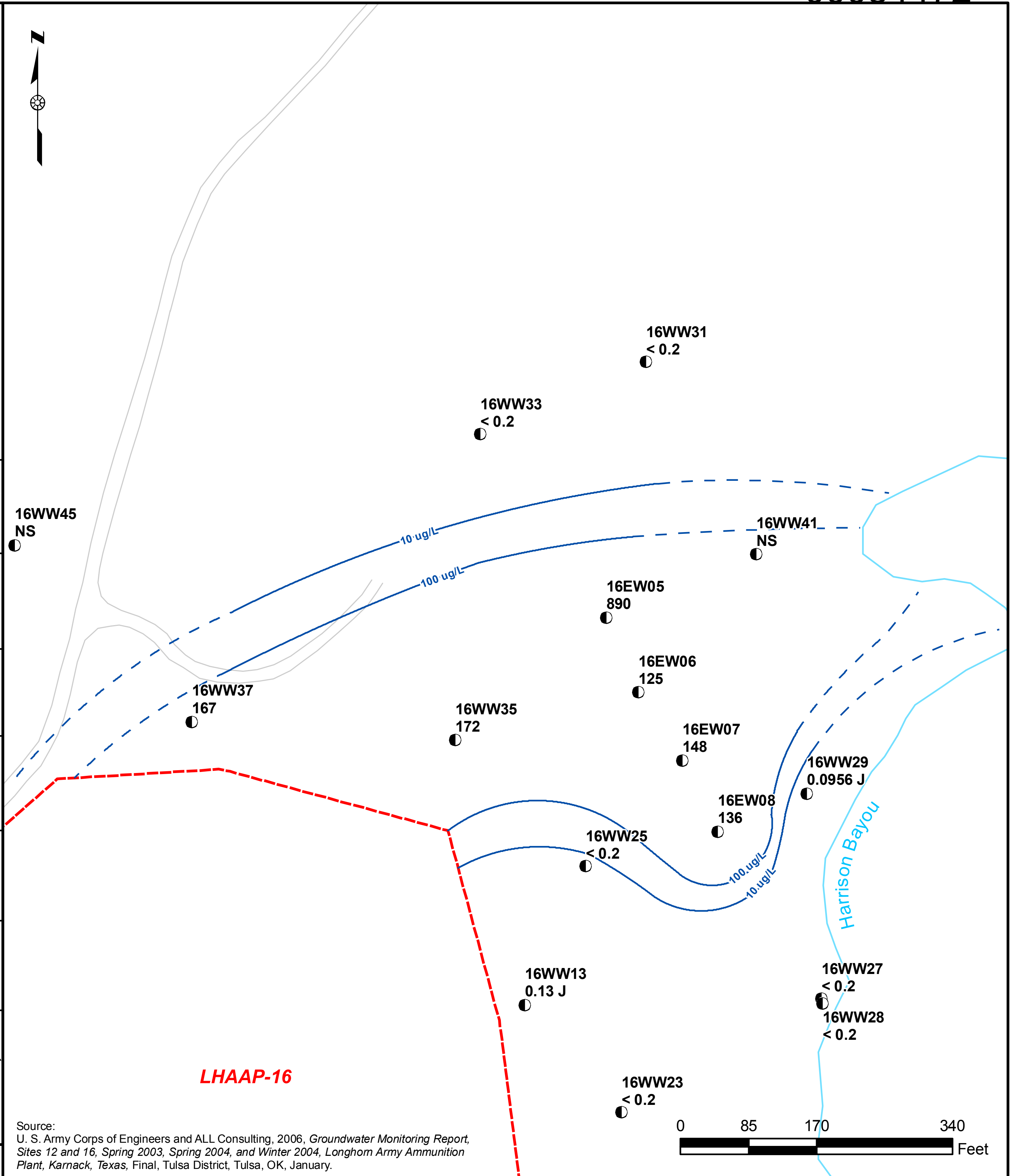

Source:
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Legend

- Intermediate Monitoring Well
- LHAAP-16 Landfill Fence
- Perchlorate Concentration Contour
- Inferred Perchlorate Concentration Contour
- Road
- Harrison Bayou

Notes:

Results are in µg/L.
J - Estimated value
NS - not sampled

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TULSA DISTRICT
TULSA, OKLAHOMA

FIGURE 3-5

PERCHLORATE CONCENTRATIONS
IN INTERMEDIATE ZONE GROUNDWATER
DECEMBER 2004 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

00084473

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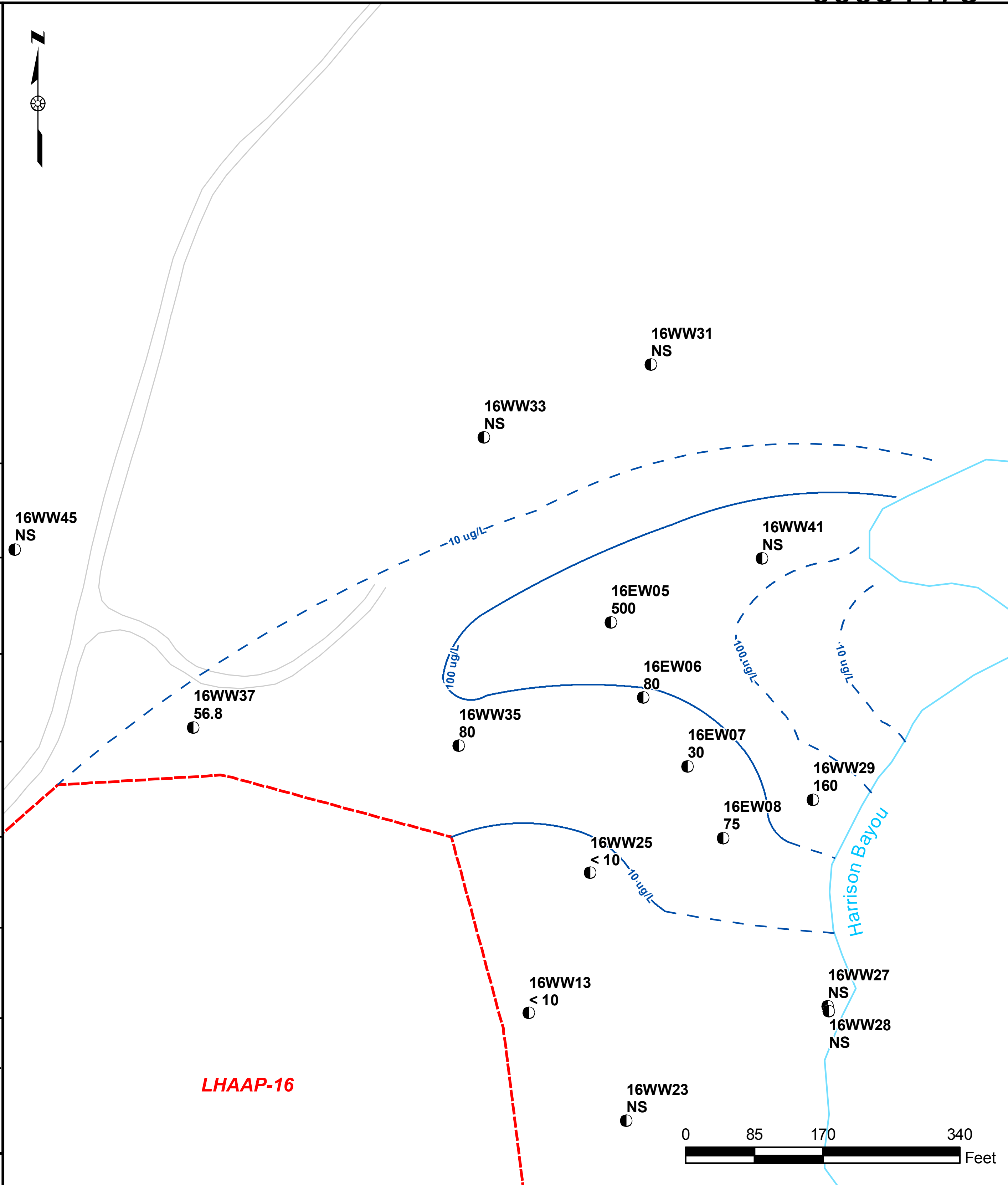

Legend

- Intermediate Monitoring Well
- Perchlorate Concentration Contour
- Inferred Perchlorate Concentration Contour
- Road
- Harrison Bayou
- LHAAP-16 Landfill Fence

Notes:

Results are in µg/L.
NS - not sampled

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FIGURE 3-6

PERCHLORATE CONCENTRATIONS
IN INTERMEDIATE ZONE GROUNDWATER
JUNE 2007 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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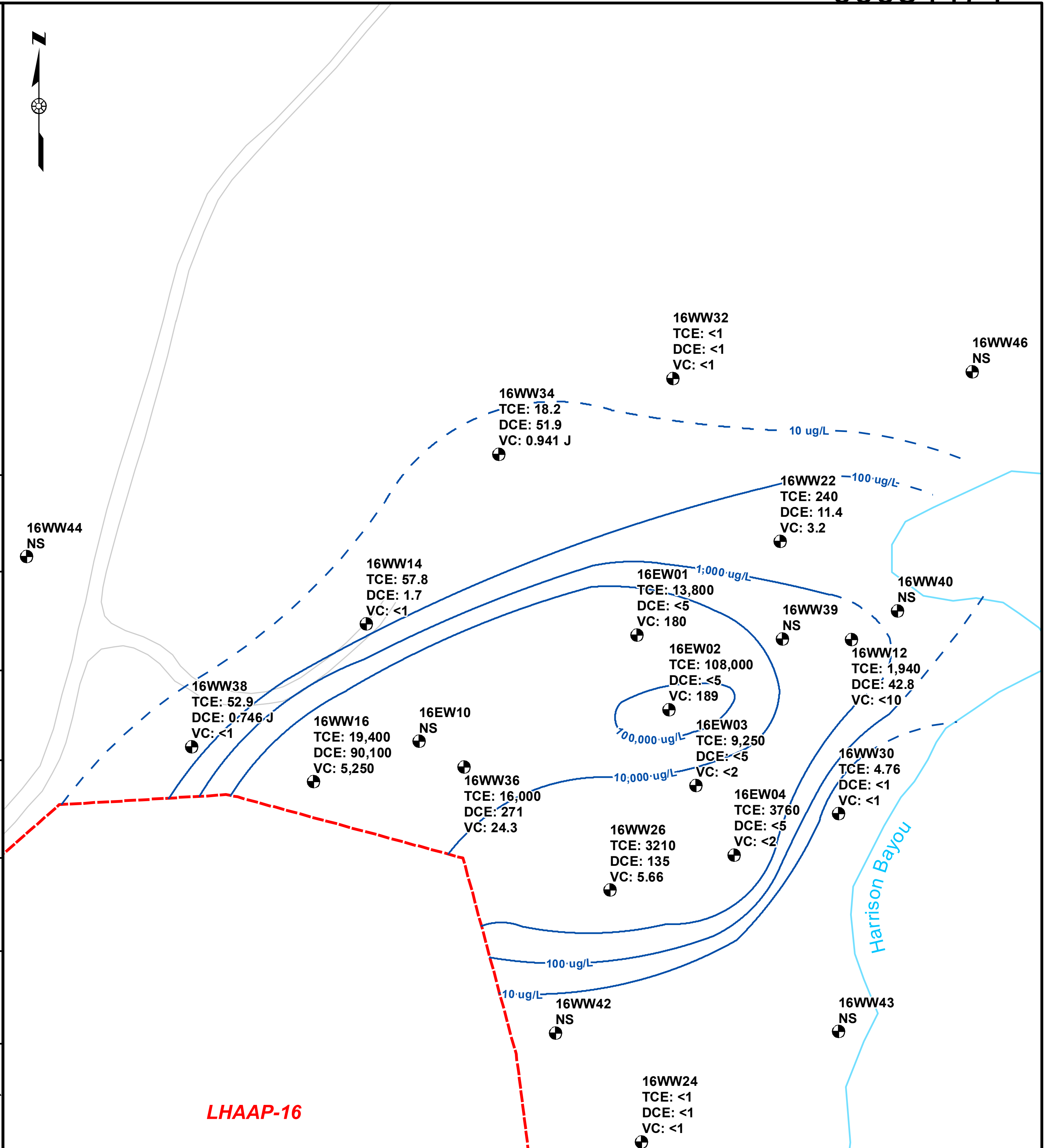

Source:
U. S. Army Corps of Engineers and ALL Consulting, 2006, *Groundwater Monitoring Report, Sites 12 and 16, Spring 2003, Spring 2004, and Winter 2004, Longhorn Army Ammunition Plant, Karnack, Texas,* Final, Tulsa District, Tulsa, OK, January.

Legend

- Shallow Monitoring Well
- LHAAP-16 Landfill Fence
- TCE Concentration Contour
- Inferred TCE Contour
- Road
- Harrison Bayou

Notes:
Results are in µg/L.
DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
VC - Vinyl chloride
J - Estimated value
NS - not sampled

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FIGURE 3-7

VOCs IN SHALLOW ZONE GROUNDWATER
TCE CONTOURS
FEBRUARY 2003 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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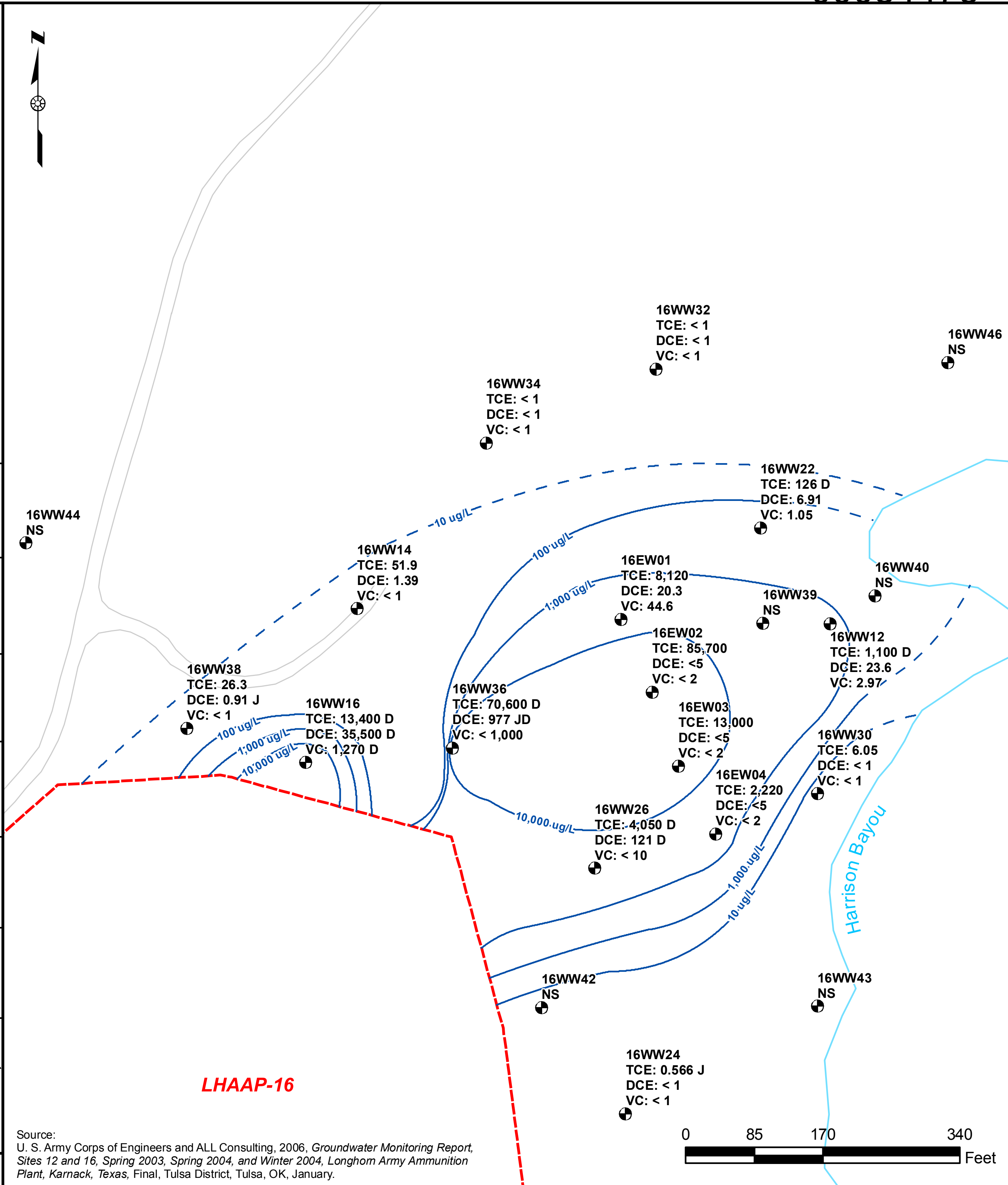

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Legend

- Shallow Monitoring Well
- LHAAP-16 Landfill Fence
- TCE Concentration Contour
- Inferred TCE Contour
- Road
- Harrison Bayou

Notes:
Results are in µg/L.
DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
VC - Vinyl chloride
J - Estimated value
D - Diluted sample
NS - not sampled

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FIGURE 3-8

VOCs IN SHALLOW ZONE GROUNDWATER
TCE CONTOURS
DECEMBER 2004 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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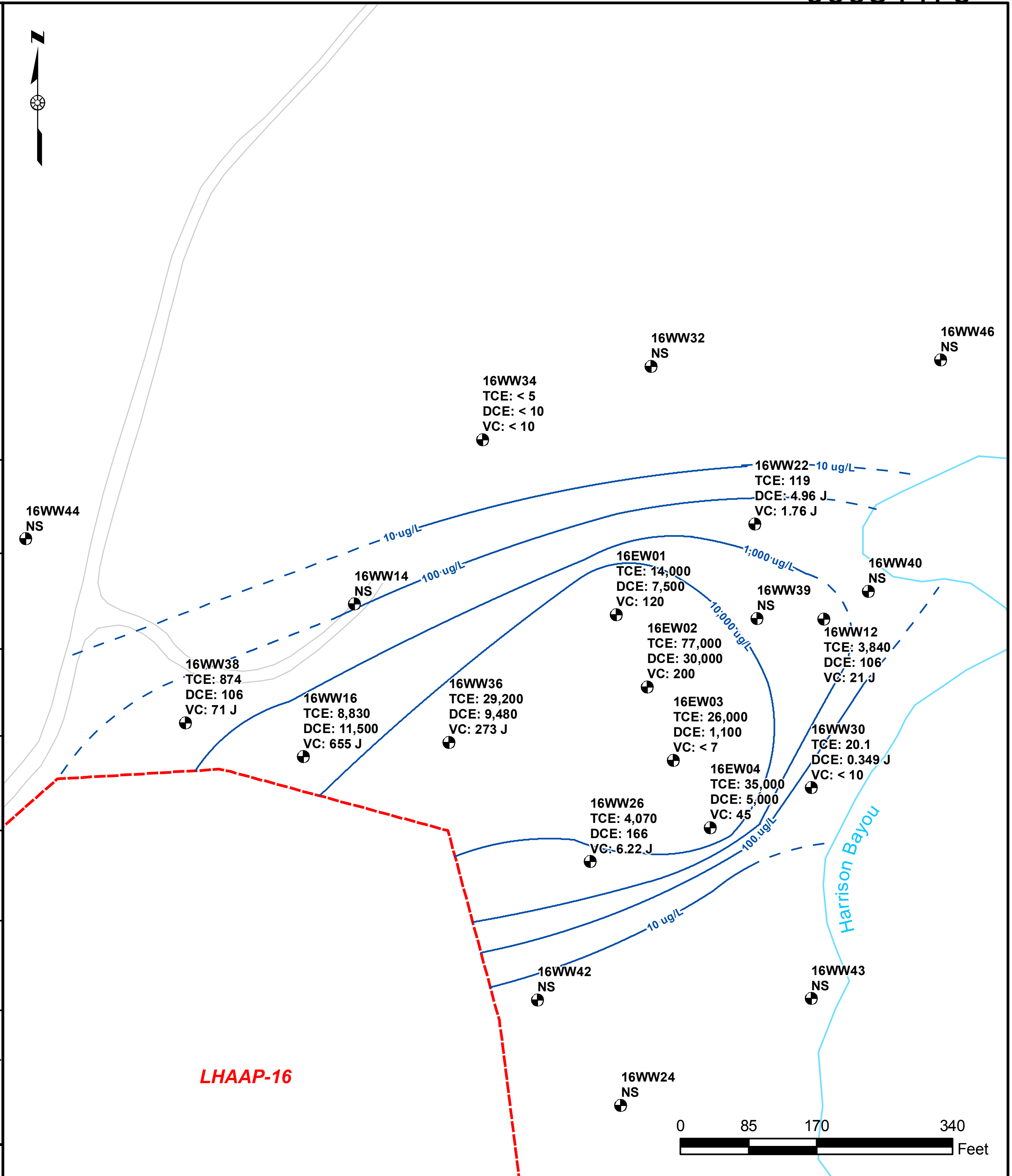

Legend

- Shallow Monitoring Well
- LHAAP-16 Landfill Fence
- TCE Concentration Contour
- Inferred TCE Contour
- Road
- Harrison Bayou

Notes:
Results are in µg/L.
DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
VC - Vinyl chloride
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NS - not sampled

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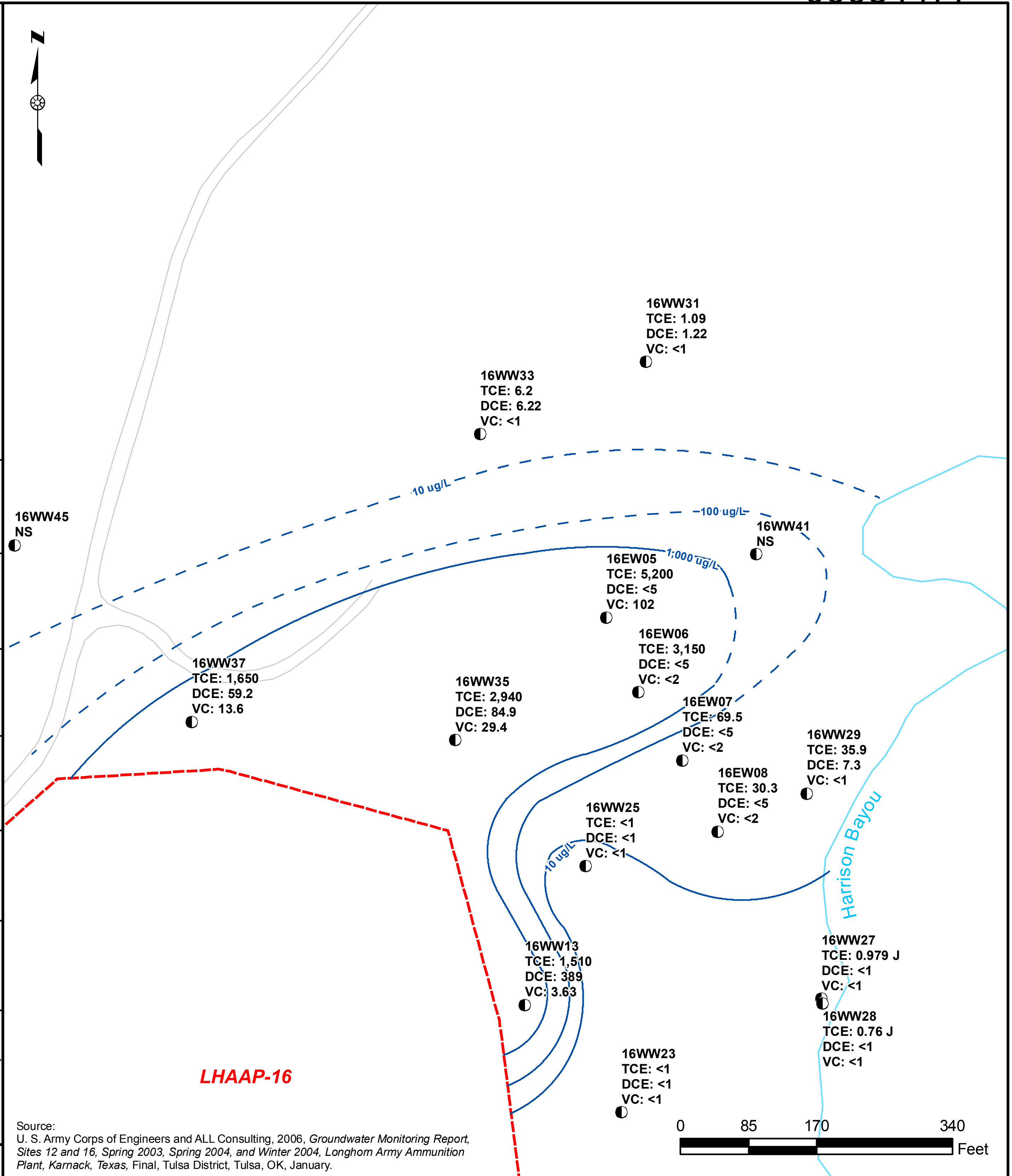
FIGURE 3-9

VOCs IN SHALLOW ZONE GROUNDWATER
TCE CONTOURS
JUNE 2007 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

00084477



Source:
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Legend

- Intermediate Monitoring Well
- LHAAP-16 Landfill Fence
- TCE Concentration Contour
- Inferred TCE Contour
- Road
- Harrison Bayou

Notes:
Results are in µg/L.
DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
VC - Vinyl chloride
J - Estimated value
NS - not sampled

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FIGURE 3-10
VOCs IN INTERMEDIATE ZONE GROUNDWATER
TCE CONTOURS
FEBRUARY 2003 DATA
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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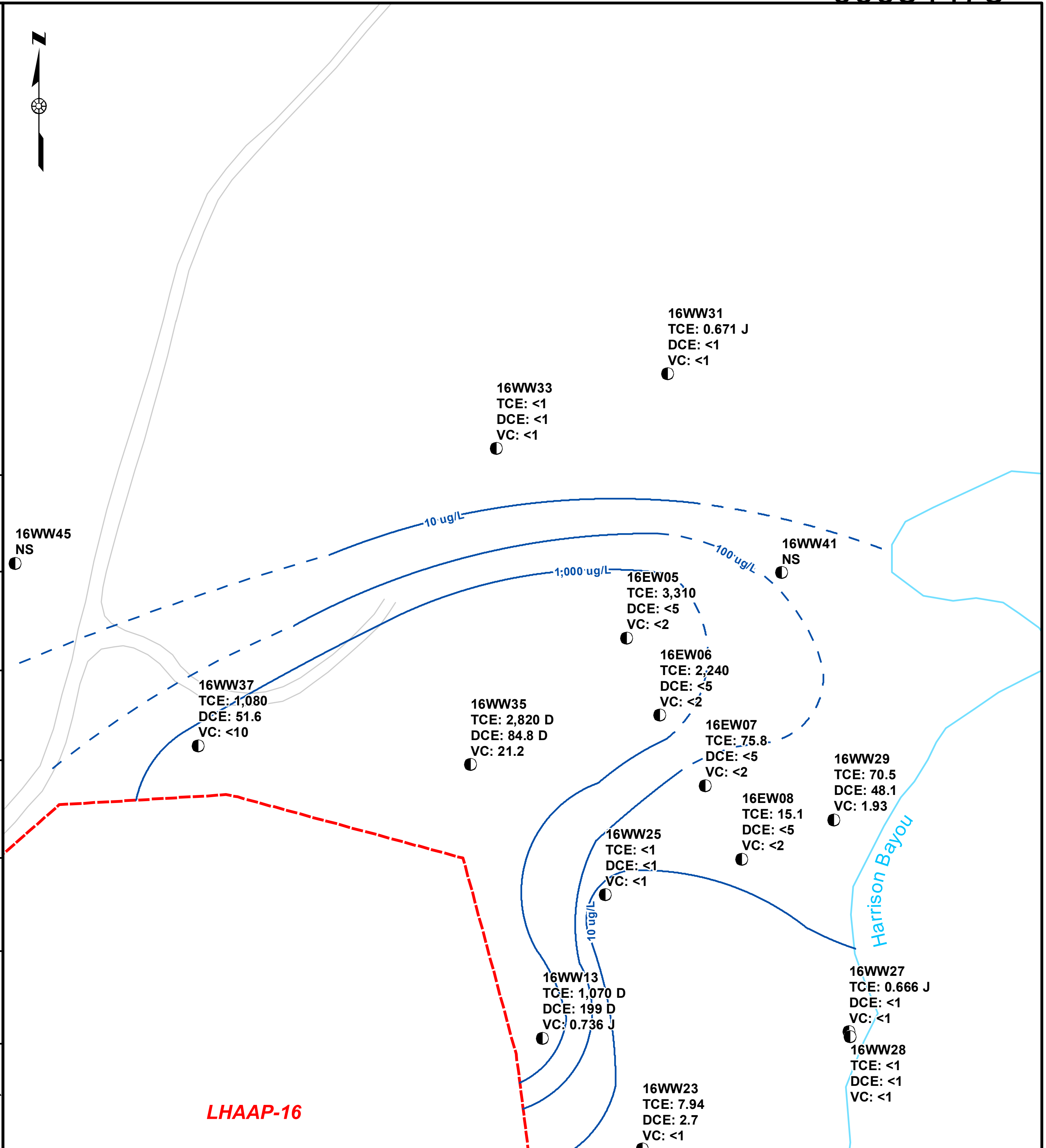

Source:
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Legend

- Intermediate Monitoring Well
- LHAAP-16 Landfill Fence
- TCE Concentration Contour
- Inferred TCE Contour
- Road
- Harrison Bayou

Notes:
Results are in µg/L.
DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
VC - Vinyl chloride
J - Estimated value
D - Diluted sample
NS - not sampled

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FIGURE 3-11
VOCs IN INTERMEDIATE ZONE
GROUNDWATER
TCE CONTOURS
DECEMBER 2004 DATA
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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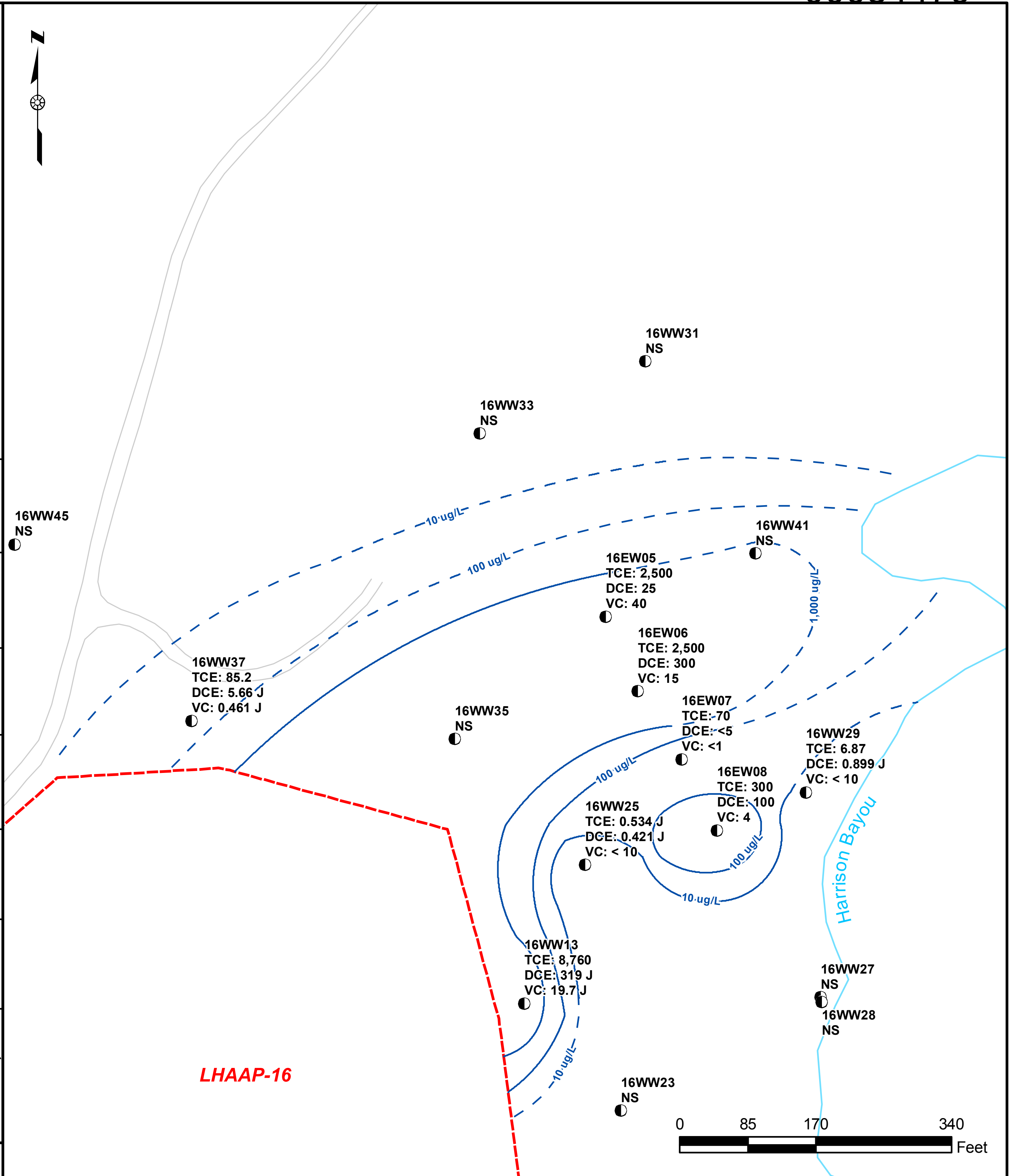

Legend

- Intermediate Monitoring Well
- LHAAP-16 Landfill Fence
- TCE Concentration Contour
- Inferred TCE Contour
- Road
- Harrison Bayou

Notes:
Results are in µg/L.
DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
VC - Vinyl chloride
J - Estimated value
NS - not sampled

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FIGURE 3-12
VOCs IN INTERMEDIATE ZONE GROUNDWATER
TCE CONTOURS
JUNE 2007 DATA
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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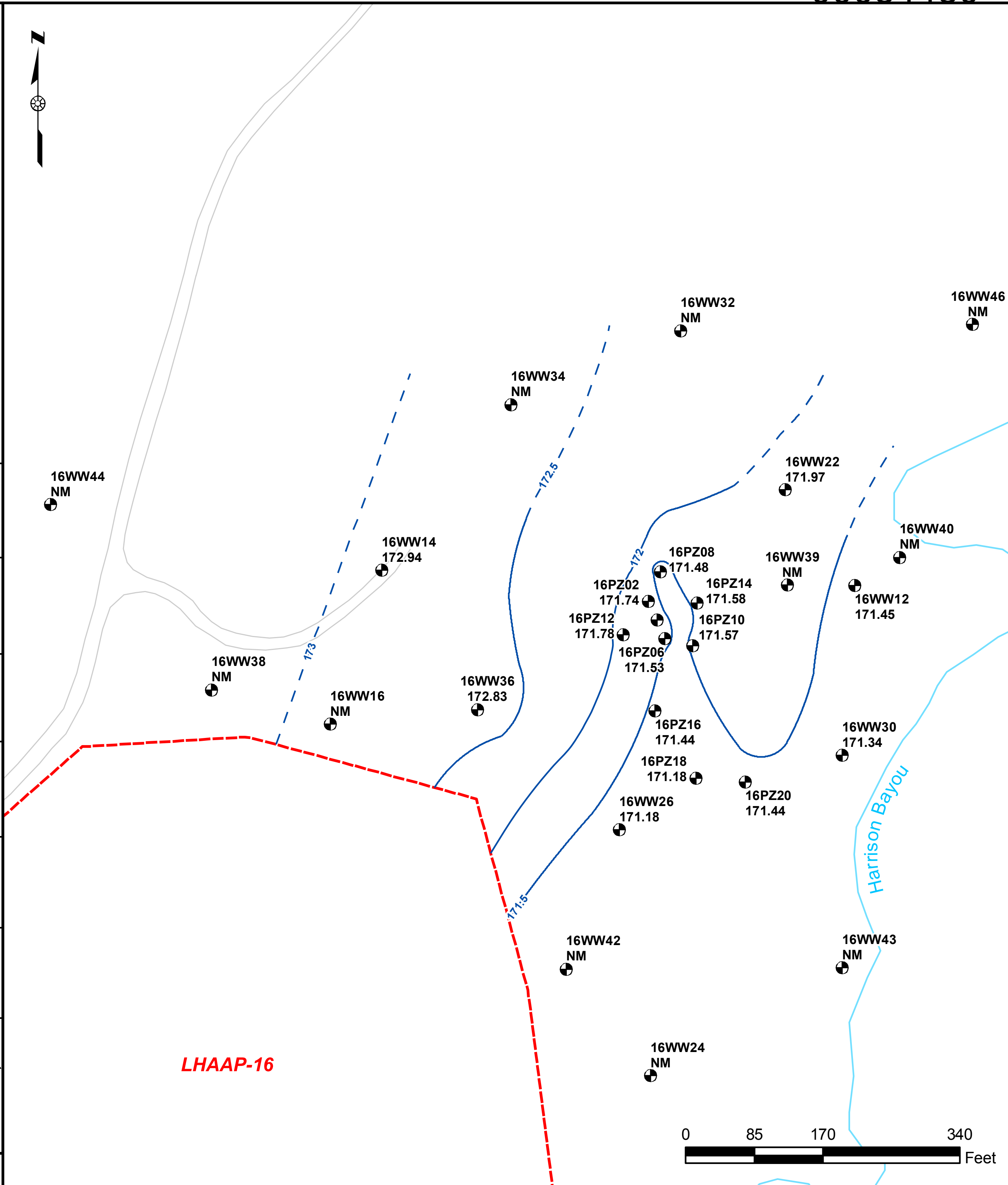

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Legend

- Shallow Monitoring Well
- LHAAP-16 Landfill Fence
- Groundwater Elevation Countour
- Inferred Groundwater Elevation Countour
- Road
- Harrison Bayou

NM - Not Measured

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FIGURE 3-13

SHALLOW ZONE
GROUNDWATER ELEVATIONS
JUNE 2007 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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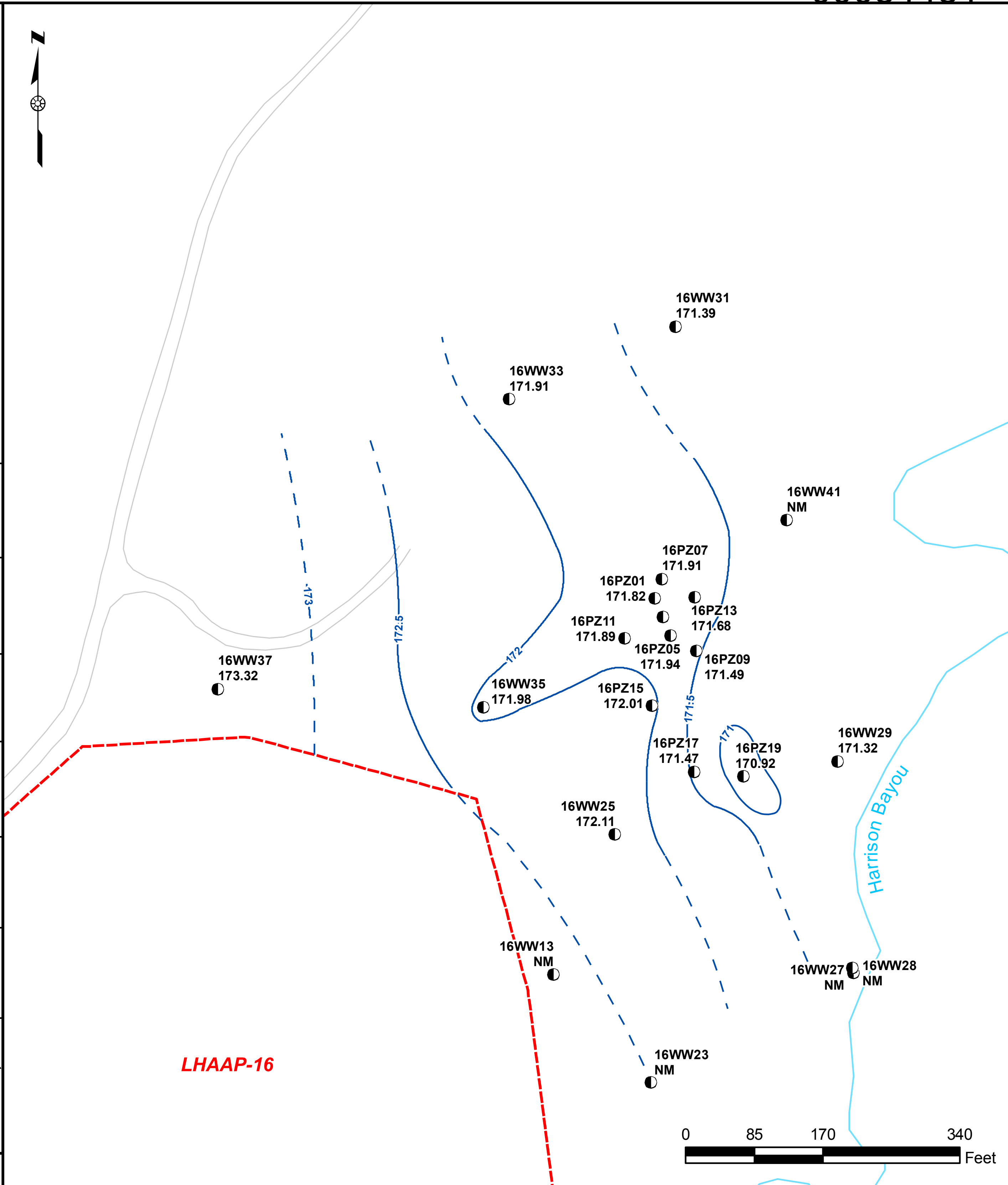

Legend

- Intermediate Monitoring Well
- Groundwater Elevation Countour
- Inferred Groundwater Elevation Countour
- Road
- Harrison Bayou
- LHAAP-16 Landfill Fence

NM - Not Measured

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FIGURE 3-14

INTERMEDIATE ZONE
GROUNDWATER ELEVATIONS
JUNE 2007 DATA
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

4.0 Remedial Alternative Descriptions

The following sections describe the remedial alternative added to the Final FS for LHAAP-16 – Alternative 7. Alternative 7 protects the future receptors at LHAAP-16, reduces COC concentrations in the groundwater plume, and prevents further degradation of Harrison Bayou water quality. It does this through maintenance of the existing cap, groundwater use restrictions, installation of a biobarrier in the shallow groundwater zone adjacent to the landfill, in situ enhanced bioremediation in the shallow and intermediate groundwater zones, installation of a biobarrier in the shallow groundwater zone between LHAAP-16 and Harrison Bayou, and MNA of the shallow and intermediate groundwater zones.

Combining Alternative 7 with the alternatives provided in the Final Feasibility Study (Jacobs, 2002), the full list of alternatives is as follows:

1. No action
2. Cap, enhanced groundwater extraction

3a. Cap, monitored natural attenuation

3b. Cap, hot spot extraction, monitored natural attenuation

4. Cap, passive groundwater treatment

5a. Landfill hotspot removal, passive groundwater treatment

5b. Complete landfill removal, passive groundwater treatment

6. Landfill Source Treatment (in situ), monitored natural attenuation
7. Cap, monitored natural attenuation, in situ enhanced bioremediation, passive biobarriers

All alternatives utilize some degree of LUCs as part of the remedy.

4.1 Cap Maintenance

The existing cap was designed as a standard RCRA-style multilayer cap, with the following layers above the subgrade material: a geocomposite clay liner, a 20-mil geomembrane, an 18-inch cover soil drainage layer, and 6 inches of topsoil. The surface of the cap has an average slope of three to five percent and is graded to promote sheet flow runoff to minimize erosion. Surface water controls were installed along with the cap, including ditches and swales to direct runoff around the cap. Erosion controls including silt fencing, woven geofabric, and riprap were installed to protect the cap surface at susceptible locations. The current cap meets USEPA performance standards established for hazardous waste landfill closure and post-closure care. Therefore, the current cap will not be modified as part of these alternatives.

Further, consistent with the requirements described in the 1995 ROD for LHAAP-16 establishing an interim remedial action for the site to mitigate potential risks posed by buried landfill waste, the existing cap would continue to be monitored, maintained, and repaired, as necessary, to ensure its long-term effectiveness. This includes inspections of the landfill to check for erosion, settlement, and deep-rooted vegetation and implementation of necessary repairs. Routine maintenance and repair of the cap would include actions needed to ensure that the integrity of the cap is maintained (e.g., mowing, seeding, and settlement/erosion repair).

4.2 Land Use Controls

The LUCs to be implemented under Alternative 7 include groundwater use restriction, and protection and maintenance of the existing landfill cap. The LUCs are described in the 1995 Interim ROD for LHAAP-12 and LHAAP-16 as future use restrictions, warning signs, and requirements for regular inspection and repair. The Final FS for LHAAP-16 expands on that description of the LUCs by including the following:

- Legal notices with maps of contaminated property to be filed with local authorities and to accompany property transfers
- Prohibitions/restrictions on uses that may result in exposure to buried wastes (e.g., excavation, drilling of wells, residential use, or agricultural use)
- Restrictions on any use of a capped area incompatible with cap integrity
- Fences, gates, and signs.
- Training of maintenance workers regarding site contamination
- Procedures that limit maintenance worker activities at the site
- Maintenance of the controls

Notification of LUCs will be recorded with Harrison County.

4.3 In Situ Bioremediation

Elevated levels of chlorinated ethenes (TCE 1,2-DCE, and VC) have been observed in the shallow groundwater zone downgradient of the landfill cap at LHAAP-16. To treat the highest levels of chlorinated ethenes, located in the vicinity of the shallow extraction wells and upgradient of those wells, in situ bioremediation will be performed. The goal of the bioremediation will be to reduce contaminant mass and lower the contaminant concentrations that reach the passive biobarrier in the future. This technology uses a carbon source and a bioaugmentation culture to create conditions favorable for reductive dechlorination.

As noted in **Appendix A**, evidence indicates that reductive dechlorination is taking place in the shallow groundwater zone at LHAAP-16, but carbon levels appear to decrease with distance from the landfill itself. Therefore, the addition of a carbon source will further encourage the growth of microorganisms in the subsurface. As the microorganisms multiply, they will consume available respiratory substrates including iron and sulfate. As those respiratory substrates are consumed, conditions are created which are favorable to destruction of chlorinated ethenes via reductive pathways. A bioaugmentation culture (e.g., SDC-9) will also be added to provide a microbial species specifically able to completely degrade TCE to harmless ethene.

To implement in situ bioremediation at LHAAP-16, it is proposed to inject the carbon source and bioaugmentation culture into the shallow zone using direct push technology (DPT), and into the intermediate zone by injection through existing wells. For cost estimating purposes, it has been assumed that approximately 40 injection points will be required within the treatment area (around the extraction wells) to deliver 385 pounds of the carbon source and 400 gallons of water at each point. The injection points will be placed in two rows approximately 100 feet from the shallow extraction wells and will be 15 feet apart. The pumping of the extraction wells will help draw the carbon source and bioaugmentation culture across the area with high TCE concentrations. Applying bioremediation to the intermediate zone will focus on those intermediate wells with the highest COC concentrations. The carbon source and bioaugmentation culture will be injected through these existing intermediate zone wells to treat the hot spots in the intermediate zone. For cost estimating purposes, it has been assumed that six intermediate zone wells will each have 800 pounds of the carbon source and 1,000 gallons of water injected. The approximate location of the two rows of shallow DPT injection points and the expected intermediate wells for direct injection are shown in **Figure 4-1**. The details of implementation would be established during remedial design. The number of DPT injection points and the injection volumes will be finalized at that time. The design effort will consider optional injection patterns. For example, it may be more effective to inject the carbon source in a grid of points rather than along a line to allow the extraction wells to be shut off sooner. Once the carbon source and the bioaugmentation culture have been injected into the subsurface, reducing conditions will be created, followed by a significant reduction in chlorinated ethene concentrations.

The natural attenuation rates measured for TCE in Appendix A showed half-lives ranging from less than 2 years to more than 25 years. Half-lives measured for TCE daughter products (cis-1,2-DCE and VC) and perchlorate were much faster, so the attenuation rate of TCE is expected to set the timetable for full remediation. After the application of in situ bioremediation, the half-life for TCE is expected to drop to between 2 and 5 years, giving a projected time to completed remediation of approximately 30 to 75 years. However, as groundwater is not currently used, nor anticipated for use as drinking water, plume stability and protection of Harrison Bayou are more important measures for evaluation than the time to completion.

4.4 Passive Biobarriers

As a component of Alternative 7, a passive biobarrier would be installed in the downgradient portion of the contaminant plume as a containment remedy to prevent contaminant concentrations in Harrison Bayou from exceeding cleanup levels. A second biobarrier would be installed at the edge of the landfill between 16WW38 and 16WW13 to contain potential migration of VOCs from the landfill. The purpose of the biobarriers (in conjunction with natural attenuation) would be to reduce groundwater concentrations and ensure that cleanup levels are met in Harrison Bayou, to contain potential migration of contaminants from the landfill, and to reduce groundwater contaminant mass.

Specifically, a row of injection points perpendicular to groundwater flow direction would be installed down-gradient of the shallow monitoring well close to Harrison Bayou (16WW12). The biobarrier would consist of emulsified oil that will enable ambient microorganisms to create favorable conditions and a bioaugmentation culture (e.g., SDC-9) to ensure that a microbial species is present that is able to completely degrade TCE to ethene. The emulsified oil is a slow-release carbon source with an enhanced subsurface longevity; it would be injected to provide a long-lasting source of fermentable carbon to stimulate the biological reduction of perchlorate and TCE and its daughter products.

The length of the Harrison Bayou biobarrier would be approximately 210 feet as illustrated in **Figure 4-1**. For cost estimating purposes, it is assumed that the bio-barrier will be installed as 14 DPT injection points placed at 15-foot centers along a line perpendicular to groundwater flow. The length of the landfill biobarrier would be approximately 500 feet as illustrated in **Figure 4-1**. For cost estimating purposes, it is assumed that the biobarrier will be installed as 33 bottom-up DPT injection points placed at 15-foot centers along the edge of the landfill from near 16WW38 to near 16WW13. Emulsified oil will be diluted with water, as recommended by the vendor, and will be pumped into the subsurface to create a permeable biobarrier. Actual materials, quantities, and depths would be finalized during remedial design.

Once reducing conditions are achieved in the biobarrier, bioaugmentation culture (e.g., SDC-9) would be added to ensure the correct microorganisms are available to completely degrade the chlorinated ethenes present in the treatment area. As shown in **Figure 4-1**, the emulsified oil would be injected across the path of shallow groundwater to form two passive biobarriers – one close to Harrison Bayou and another at the eastern edge of the landfill. Sufficient emulsified oil would be added to each injection point to provide a sustained carbon source for an estimated three to five years. Follow-up injections would be conducted if deemed necessary from the performance groundwater monitoring results. For the cost estimate, groundwater flow was used to determine the amount of emulsified oil required to influence the plume for 3-5 years. Also, the oil will be mixed with lactate to provide two types of carbon source:

- A smaller amount of lactate in the emulsification will provide an easily fermentable carbon source to quickly increase microbial activity.
- The larger portion (60%) in the emulsification is the plant-based oil. This fraction is slowly metabolized (3-5 years) and will provide a longer lasting carbon source and also absorbs to the soil matrix to create the barrier.

The biobarriers are expected to reduce migration of COCs. COC concentrations will be reduced as contaminated groundwater flows through the biobarrier. Concentrations of COCs downgradient of the biobarriers will be monitored to evaluate the continuing effectiveness of the biobarriers in meeting Final RAO 4.

4.5 Monitored Natural Attenuation

MNA reduces the concentrations of COCs in groundwater through natural processes including biodegradation, dispersion, adsorption, volatilization, and dilution over time and with distance from the source. To document that natural attenuation is occurring, a groundwater monitoring program will be implemented at the site. The USEPA provides guidance for MNA as a remedial action in the use of *Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites* (USEPA, 1999). This guidance is comparable to TCEQ guidance and will be used as a to-be-considered requirement in the development of the MNA component of these alternatives. The USEPA guidance specifies the recommended lines of evidence used to document MNA at a site. A preliminary MNA evaluation has been prepared based on sampling and analyses performed in June 2007 and historic sample results through March 2009; that evaluation is provided in **Appendix A**.

The MNA evaluation provided in **Appendix A** demonstrates that natural attenuation is occurring in some areas at LHAAP-16. The attenuation of perchlorate, TCE, 1,2-DCE, VC, and 1,1-DCE have been observed at the source and side-downgradient of the plume. However, the shallow groundwater zone plume is still migrating along the groundwater flow direction toward Harrison Bayou. The intermediate groundwater zone plume is more stable with less migration along the flow direction. Thus, natural attenuation is a feasible remedy for the majority of the site but not as a sole remedy due to migration concerns for the shallow zone. However, MNA is proposed for LHAAP-16 in conjunction with in situ bioremediation (see **Section 4.3**) to enhance reductive dechlorination within the plume and a passive biobarrier (see **Section 4.4**) to prevent the discharge of contaminants into surface water. Natural attenuation would be evaluated after two years of quarterly monitoring. If proper conditions for natural attenuation are established, monitoring would continue at a reduced frequency. Otherwise, re-application of bio-amendments (i.e., additional in situ bioremediation) would be implemented.

Under Alternative 7, operation of the current extraction system would be discontinued and further monitoring of natural attenuation will be conducted at the site. While the actual sampling frequency and analytical parameters will be identified during remedial design, a number of assumptions have been made for cost estimating purposes within this FS Addendum:

- Seven shallow monitoring wells (16WW12, 16, 22, 26, 30, 36, and 40) and five intermediate monitoring wells (16WW13, 29, 35, 37, and 41) will be sampled periodically until adequate data has been collected to support MNA as a final remedy for the site.
- MNA sampling will be performed quarterly for the first two years.
- After at least eight quarterly sampling events, the sampling frequency will be changed to semi-annually if the data suggests that less frequent sampling is appropriate.
- After at least three years of semi-annual sampling events, the sampling frequency will be changed to annual if the data suggests that less frequent sampling is appropriate.
- Annual sampling will continue until the next five-year review, then will be changed to once every five years if the data suggests that less frequent sampling is appropriate.
- The duration of the monitoring program is thirty years. Reports will be issued annually for the first five years and every five years thereafter.
- During the initial sampling event, the wells will be sampled for VOCs, perchlorate, dissolved oxygen, ORP, pH, temperature, ferrous iron, dissolved iron and manganese, nitrate, nitrite, sulfate, sulfide, chloride, alkalinity, total organic carbon, and dissolved gases (methane, ethane, and ethene).
- Samples collected in subsequent monitoring events will be analyzed for VOCs, metals, perchlorate, dissolved oxygen, ORP, pH, temperature and additional parameters, as required, to support the MNA evaluation.
- A surface water sample will be analyzed to confirm that concentrations in Harrison Bayou do not exceed cleanup levels presented in **Section 2.0**. The surface water sample will be collected in Harrison Bayou adjacent to 16WW40 (at HBW-1 in **Figure 4-1**) and analyzed for VOCs, metals, and perchlorate.

The groundwater and surface water sampling frequency and parameters will be adjusted as data is collected at LHAAP-16.

4.6 Groundwater Monitoring

Groundwater monitoring will continue at LHAAP-16 to evaluate the effectiveness of the cap, confirm the decrease in COC concentrations within the groundwater plume, and verify that cleanup levels (see **Section 2.0**) are not exceeded in Harrison Bayou.

Annual reports will be prepared as needed to document the program. The first year annual report will include a review of the first four quarters of MNA data. The second year annual report will include a review and evaluation for all eight quarters of MNA data. The sampling frequency or analytical suite may be modified based on the results of the sampling program.

Following completion of the MNA evaluation, groundwater and surface water monitoring will continue at a number of locations. The monitoring program will be established during remedial design. However, the following assumptions have been made for cost estimating purposes within this FS Addendum:

- Four existing shallow monitoring wells (16WW12, 16WW22, 16WW30, and 16WW40) and one intermediate monitoring well (16WW41) will be sampled to monitor the concentration of groundwater COCs closest to Harrison Bayou.
- Three existing shallow monitoring wells (16WW16, 16WW26, and 16WW36) and three intermediate monitoring wells (16WW13, 16WW35 and 16WW37) will be sampled to monitor the concentrations of groundwater COCs and confirm MNA continues to be effective in reducing COC concentrations within the groundwater plume.
- Upper deep zone monitoring wells 16WW19 and 16WW21 will be monitored to ensure that vertical migration of COCs is effectively controlled.
- Surface water will also be monitored at location HBW-1 adjacent to 16WW40 to provide additional data regarding Harrison Bayou.
- The groundwater and surface water samples will be analyzed for VOCs and perchlorate.
- Following the MNA evaluation, sampling will be conducted semi-annually for three years. Surface water and wells will then be sampled annually until the next five-year review and every 5 years thereafter.

4.7 Duration of Remedial Actions

For the purposes of this FS Addendum, it assumed that the duration of remedial design, pilot studies and field tests, in situ bioremediation field activities, and the initial passive biobarrier injection is approximately eight months. Quarterly monitoring and any additional data evaluation activities associated with MNA as part of Alternative 7 will take approximately 28 months subsequent to in situ bioremediation and discontinuation of groundwater extraction activities. Although many remedial activities under Alternative 7 will be completed within three years, a number of activities will be required during the remainder of the 30-year duration addressed by the cost estimate, and through additional years needed for complete remediation of COCs to cleanup levels (which could be 280 years or longer). Those activities include:

- LUC inspections
- Maintenance of LUCs
- Maintenance of the landfill cap
- Additional carbon source injections at the Passive Biobarriers
- Groundwater Monitoring

These activities are discussed further in **Section 4.8**.

4.8 Long-Term Operations

Long-term operations under Alternative 7 will include maintenance of the landfill cap, maintenance of LUCs, and groundwater and surface water monitoring. Under Alternative 7, additional injections (approximately every five years) of vegetable oil may be required at the passive biobarriers to ensure continued treatment effectiveness. For estimating purposes, two additional injections have been assumed.

Maintenance of the landfill cap includes regular mowing, necessary repairs, and other activities as described in **Section 4.1**. It is assumed that these activities will extend through and beyond the 30-year period used to estimate costs within this FS Addendum.

As described in **Section 4.2**, LUCs include activities to protect the integrity of the landfill cap and to restrict groundwater use at the site. Groundwater use restrictions would remain in place until groundwater COC concentrations drop to levels that allow unrestricted use of the groundwater. As with cap maintenance activities, LUC maintenance is assumed to extend through and beyond the 30-year cost estimate period.

Under Alternative 7, sampling and analysis of surface water and groundwater would also be performed at LHAAP-16 for multiple contaminants and general chemistry parameters. As noted in **Section 4.6**, groundwater and surface water monitoring will be implemented at least every 5 years. Monitoring would be required to demonstrate natural attenuation processes are occurring, as well as compliance with ARARs and the RAOs. Data obtained during the monitoring program will be used in support of the Five-Year Reviews required by Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 121(c). If sampling results show unusual trends of perturbations, additional investigative sampling may be performed. The monitoring program will be evaluated during the Five-Year Reviews and may be modified based on existing and expected future surface water and groundwater conditions. All water quality results, and the results of the review, will be provided in the Five-Year Review report. Monitoring will continue until a five-year review demonstrates that there is no further threat of releases of contaminated groundwater into the surface water and the groundwater can be used without restriction.

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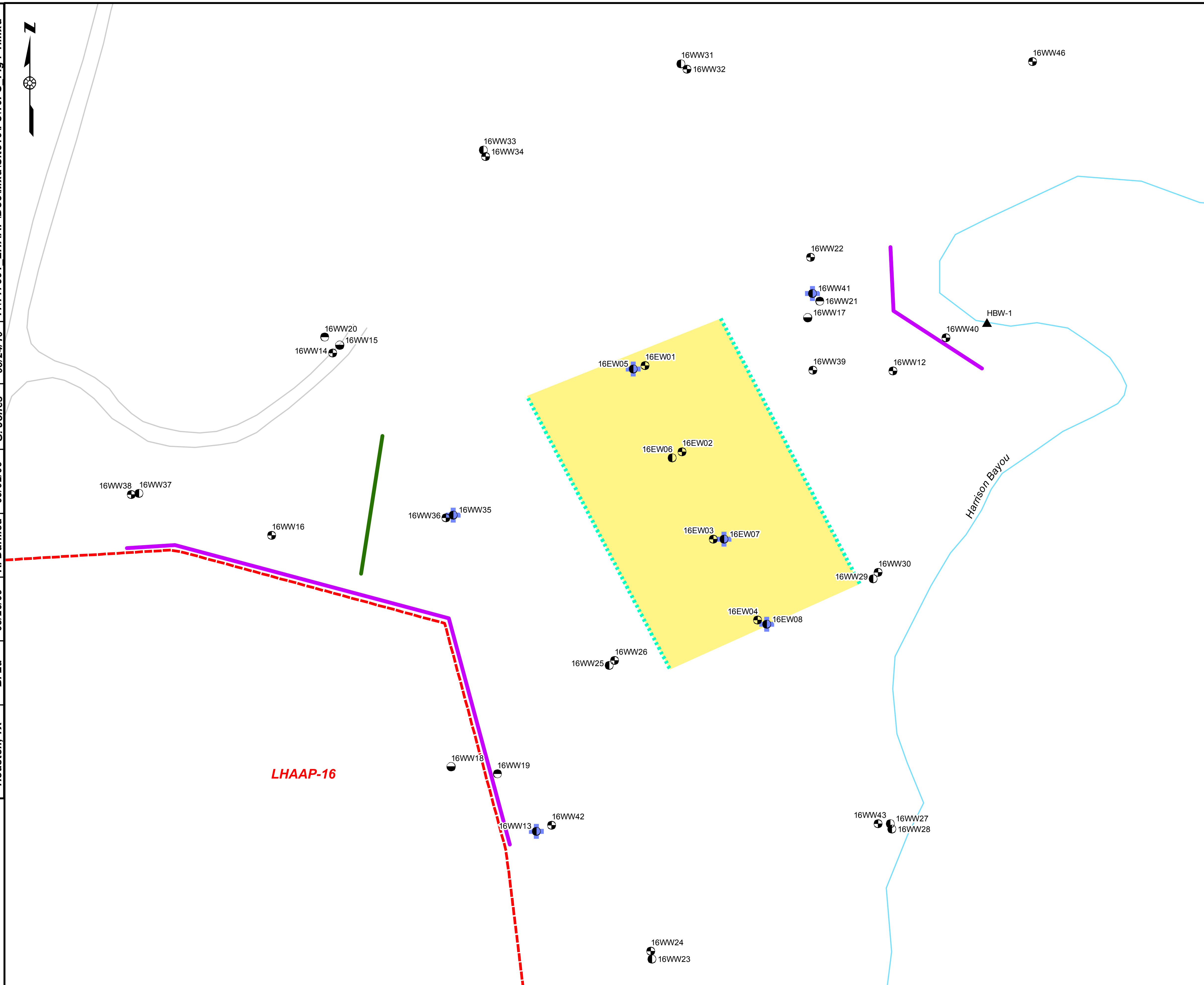

LEGEND

- Surface Water Sampling Location
- Shallow Monitoring Well
- Intermediate Monitoring Well
- Upper Deep Monitoring Well
- Deep Monitoring Well
- Intermediate Well for Injection of Bioaugmentation
- Proposed Passive Biobarrier
- Proposed In Situ Treatment Injections
- Existing Semi-passive Biobarrier
- Stream
- Road
- LHAAP-16 Landfill Fence
- Shallow In Situ Bioremediation Area

Note:

Performance monitoring and extraction wells installed in support of the semi-passive biobarrier are not shown.

0 50 100 200 Feet

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CHECKED BY	R. Duffiled 09/02/09
DRAWN BY	B. Lu 08/26/09
OFFICE	Houston, TX

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FIGURE 4-1

ALTERNATIVE 7 LOCATION MAP
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

5.0 Detailed Analysis of Alternative 7

5.1 Introduction

The detailed analysis of alternatives presents and assesses relevant information that provides the basis for selecting an alternative and preparing a ROD. **Section 5.2** provides an overview of the evaluation criteria. The detailed analysis begins with an individual analysis in **Section 5.3** where each alternative is individually evaluated according to the evaluation criteria identified in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR 300.430). Following the individual analysis, the alternatives are compared in relation to the two threshold criteria and then are assessed regarding the five balancing criteria, highlighting the key advantages, disadvantages, and trade-offs that are considered as part of the evaluation process.

5.2 Overview of the Evaluation Criteria

CERCLA, Section 121, as amended, specifies statutory requirements for remedial actions. These requirements include protection of human health and the environment, compliance with ARARs, a preference for permanent solutions that incorporate treatment as a principal element to the maximum extent practicable, and cost-effectiveness. To assess whether alternatives meet the requirements, the USEPA has identified nine criteria in the NCP (40 CFR 300.430) that must be evaluated for each alternative considered for selection (Section 300.430[e][9][iii]). Descriptions of the nine criteria and an overview of the approach taken by this FS Addendum to address these criteria are included in **Table 5-1**.

5.3 Individual Analysis of Alternative 7

5.3.1 Alternative 7 – Cap, Land Use Controls, In Situ Enhanced Bioremediation, Passive Biobarriers, and Monitored Natural Attenuation

This alternative includes capping, LUCs, in situ enhanced bioremediation in a target area, passive biobarriers, and MNA. The alternative meets the RAOs by maintenance of the existing landfill cap and implementation of LUCs to prevent human exposure to the landfill waste and contaminated groundwater. In situ bioremediation will be implemented in the most contaminated portion of the shallow groundwater – a treatment area that currently appears to be centered on the shallow extraction wells. The approximate location of that treatment area is presented in **Figure 4-1**, but will be further evaluated during remedial design. Bioremediation will involve the injection of a carbon substrate and a bioaugmentation culture. Because COC concentrations in wells near the landfill consistently exceed groundwater cleanup levels (see **Table 2-6**), this alternative will include installation of a passive biobarrier near the fence line of the landfill to degrade COCs. Because concentrations in wells near Harrison Bayou also currently exceed groundwater cleanup levels (see **Table 2-6**), this alternative will include

Table 5-1
Evaluation Criteria for Detailed Analysis of Alternatives

Evaluation Criteria	Detailed Description of Evaluation Criteria
Overall protection of human health and the environment	This criterion assesses whether the alternative achieves and maintains adequate protection of human health and the environment in accordance with the remedial action objectives (RAOs). Evaluation of this criterion describes how site risks associated with each pathway are eliminated, reduced, or mitigated through treatment, engineering, or LUCs.
Compliance with ARARs	This criterion addresses compliance with promulgated federal and state environmental requirements. The detailed analysis summarizes which requirements are applicable or relevant and appropriate (ARAR) to an alternative and how the alternative meets these requirements. There are three types of ARARs; chemical-specific, location-specific, and action-specific. The ARARs were presented in the Final FS for LHAAP-16.
Long-term effectiveness and permanence	This criterion evaluates the extent to which an alternative achieves an overall reduction in risk to human health and the environment after the RAOs are met. The principal factors addressed by this criterion include magnitude of residual risk and the adequacy and reliability of controls to address such risk.
Reduction of toxicity, mobility, or volume through treatment	This criterion reflects the statutory preference that remedial alternatives contain a principal component that substantially reduces toxicity, mobility, or volume of hazardous substances through treatment. The evaluation regarding this criterion considers the extent to which alternative technologies can effectively and permanently fix, transform, immobilize, or reduce the volume of waste materials and contaminated media.
Short-term effectiveness	This criterion addresses the effects of the construction and implementation phases of the alternative until the RAOs are achieved. The evaluation regarding this criterion considers the effect on human health and the environment posed by operations conducted during the remedial action phases. Both the potential effect and associated mitigative measures are examined for maintaining protectiveness for the community, remediation workers, and environmental receptors throughout the duration of activities. This evaluation also addresses the anticipated duration of remedial activities.
Implementability	This criterion examines the technical and administrative factors affecting implementation of an alternative and considers the availability of services and materials required during implementation. Technical factors to be assessed include the ease and reliability of construction and operations, the prospects for implementing a future action, and the adequacy of monitoring systems to detect failures. Administrative factors include permitting and coordination requirements between the lead agency and regulatory agencies. Service and material considerations include treatment, storage, and disposal capacities, equipment and operator availability, and prospective technology applicability or development requirements.
Cost	Cost estimates are included for each remedial alternative. The estimates have an expected accuracy of plus 50 percent to minus 30 percent for the scope of the alternative. The estimates are divided into capital cost and operation and maintenance (O&M) cost. They are developed according to an assumed schedule for the various activities based on similar project experience. Capital costs are defined as those expenditures required to initiate and install an alternative. O&M costs are long-term costs associated with ongoing remediation at a site. The costs include labor, materials, utilities, and services required to monitor, operate, and maintain the facilities for a period of up to 30 years. The estimated present worth of each remedial alternative is determined on a discount rate of 7 percent and a base maintenance/monitoring period of up to 30 years.
State acceptance	State acceptance of an alternative will be evaluated in the Proposed Plan issued for public comment. Therefore, this criterion is not considered in this FS Addendum.
Community acceptance	Community acceptance of each alternative will be evaluated after the Proposed Plan is issued for public comment. Therefore, this criterion is not considered in this FS Addendum.

installation of a passive biobarrier near Harrison Bayou to further degrade COCs. Following the reductions in COC concentrations caused by the in situ bioremediation and the passive biobarriers, natural attenuation will further reduce the concentrations of COCs in the groundwater so that surface water in Harrison Bayou does not exceed cleanup levels. A monitoring program will be implemented within this alternative to confirm the effectiveness of the various technologies.

5.3.1.1 Overall Protection of Human Health and the Environment

Protection of Human Health

This alternative would achieve the RAOs for LHAAP-16 by protecting human health from exposure to landfill waste and contaminated groundwater, reducing the COC concentrations within the groundwater plume, and reducing water quality impacts to Harrison Bayou such that cleanup levels are not exceeded. LUCs and continued maintenance of the existing cap would ensure that receptors are not exposed to landfill contents or contaminated groundwater. Notification of LUCs would be recorded with Harrison County. Upon transfer of the land to another federal agency (e.g., the U.S. Fish and Wildlife Service [USFWS]), the LUCs would be incorporated into the transferee's land management program. If LHAAP-16 is transferred out of federal control, restrictions would be required to prohibit or restrict property uses (e.g., drinking water well installation) that may result in exposure to landfill material or contaminated groundwater. The LUCs associated with the contaminated groundwater would be required while the COC concentrations exceed cleanup levels.

The cap is considered an effective means of source control to reduce contamination entering the groundwater via prevention of surface water infiltration. In situ bioremediation would reduce the mass of contamination in the heart of the shallow groundwater plume and in specific target areas within the intermediate groundwater zone. The passive biobarriers would prevent the eastward migration of COCs in the shallow groundwater. Natural attenuation would also reduce the COC concentrations in both the shallow and intermediate groundwater plumes over time, thereby reducing the potential risk of human exposure. An MNA program would be implemented to verify the effectiveness of monitored natural attenuation following shut down of the extraction wells and completion of the in situ bioremediation. Further monitoring would be used to evaluate contaminant migration, ensure that the COCs in the groundwater plumes continue to degrade or remain stable, and verify that contaminant levels in Harrison Bayou do not exceed the cleanup levels. The eventual groundwater concentration goal is to reduce COC concentrations to below groundwater cleanup levels (**Table 2-6**).

Protection of the Environment

A site-wide ecological baseline risk assessment has been performed for LHAAP. As noted in **Section 2.0**, no action is required to address soil concentrations outside the landfill to protect ecological receptors at LHAAP-16. Therefore, ecological risks can be controlled by preventing contact with contents of the landfill. Maintenance of the existing cap and enforcement of LUCs will achieve that objective.

5.3.1.2 Compliance with ARARs

Chemical-Specific ARARs

This alternative would comply with chemical-specific ARARs for groundwater contaminants that exceed the groundwater cleanup levels via the passive biobarriers, in situ bioremediation, and natural attenuation. The current MNA evaluation demonstrates that natural attenuation of perchlorate, TCE, 1,2-DCE, VC, and 1,1-DCE is occurring at LHAAP-16, and that the time frame could be approximately 280 years or longer **(Appendix A)**. The time frame will be re-evaluated after additional sampling is conducted following shut down of the extraction system and implementation of in situ bioremediation and the passive biobarriers. By reducing COC concentrations in the groundwater, this alternative would also ensure that concentrations in Harrison Bayou do not exceed the cleanup levels.

Location-Specific ARARs

The activities that would be conducted under this alternative would comply with location-specific ARARs. Activities (e.g., installation of passive biobarriers and surface water monitoring) included within this alternative will occur in the Harrison Bayou floodplain. Applicable requirements for activities in floodplains will be followed. Threatened and endangered species likely would not be impacted by activities conducted under this alternative.

Action-Specific ARARs

The activities that would be conducted under this alternative would comply with action-specific ARARs. In addition to the ARARs provided in the FS, the action-specific ARARs will include the substantive requirements of the Texas Underground Injection Control Rules (TAC§331). The existing landfill cap is in compliance with RCRA requirements although no RCRA waste is anticipated to be present.

5.3.1.3 Long-Term Effectiveness and Permanence

Landfill caps have been shown to be effective for reducing infiltration of surface water through the waste material. The long-term reliability of the LHAAP-16 landfill cap to control infiltration, contaminant runoff, and contaminant exposure depends on adequate long-term inspection and maintenance. If a portion of the cap is breached and contaminants subsequently leach into the groundwater, the passive biobarrier would capture the additional contamination. However, the breach would need to be corrected in a reasonable time frame, and the increased groundwater contaminant loading would increase the frequency of emulsified vegetable oil injections at the biobarrier.

The groundwater COCs at LHAAP-16 have been shown to be amenable to degradation by biological processes prior to discharge to Harrison Bayou based on the results of the ESTCP semi-passive biobarrier technology demonstration (ESTCP, 2005; ESTCP, 2007) and the preliminary MNA evaluation included in **Appendix A**. The USEPA guidance for MNA provides three lines of evidence to support that natural attenuation is occurring. The lines of evidence evaluated at LHAAP-16 are discussed in **Appendix A**. These same lines of evidence may be used to support the long-term effectiveness of this technology as a remedial action. Natural attenuation will continue to be monitored under this alternative to demonstrate the long-term effectiveness of this technology in reducing COC concentrations in the groundwater plume and in protecting Harrison Bayou.

The passive biobarriers between the landfill and Harrison Bayou will provide additional assurance that the RAOs are achieved at LHAAP-16 by reducing the COC concentrations in the groundwater discharging to Harrison Bayou. Harrison Bayou will be further protected from exceedances of the cleanup levels. The reduction in the concentration of COCs will reduce the potential for human exposure to contaminated groundwater. Groundwater sampling will be conducted under the long-term monitoring component of this alternative to confirm the continued reliability of the biobarriers and identify if the biobarriers require additional injections of emulsified vegetable oil.

The implementation of LUCs would protect potential human receptors from exposure to contaminated groundwater at LHAAP-16 and would ensure continued compliance with the RAOs. However, the reliability of LUCs would depend on the long-term maintenance of the controls. Maintenance of the LUCs and continued environmental monitoring would be required while the landfill waste materials remain on site and the groundwater COC concentrations exceed their respective cleanup levels. The effectiveness of LUCs, cap maintenance, and long-term monitoring would be evaluated during five-year CERCLA reviews and inspections of any physical mechanisms in place at LHAAP-16. The Five-Year Reviews may indicate the need for components of this alternative to be maintained, modified, or replaced.

5.3.1.4 Reduction of Toxicity, Mobility, or Volume through Treatment

This alternative would reduce the toxicity, mobility, or volume of COCs in groundwater through the implementation of in situ bioremediation and passive biobarriers. The in situ bioremediation would lower COC concentration in the most contaminated portion of the shallow groundwater plume to levels that could be effectively treated by the passive biobarrier near Harrison bayou. The biological activity in the passive biobarriers and the bioremediation treatment area would significantly reduce the overall mass of COCs in the groundwater. In conjunction with natural attenuation, these treatments would convert the COCs to innocuous byproducts, thereby reducing the toxicity of the contaminants. In addition, natural attenuation will provide a reduction in the volume of contaminated groundwater. Although none of the landfill waste will be actively treated, the potential mobility and toxicity of the landfill waste contaminants would be minimized through proper landfill cap maintenance, and the passive biobarrier near the landfill fence line.

5.3.1.5 Short-Term Effectiveness

Protection of the Community during Remedial Action

This alternative is protective of the surrounding community during remedy implementation primarily because all activities would occur on site with very little disturbance of contaminated material. A limited increase in truck traffic would result from the transport of equipment and materials to the site for the purpose of maintaining the landfill cap, implementation of in situ bioremediation, and installation of the passive biobarriers. In addition, additional vegetable oil injections could be required every three to five years at the passive biobarriers. Consequently, truck traffic through Karnack and the surrounding communities would increase slightly during these times. Because the landfill waste would not be disturbed, it would not be released via air or surface runoff during construction activities.

Protection of Workers during Remedial Action

Minimal exposure risks will exist to remedial workers under this alternative. However, worker exposure to contaminated groundwater is possible during sampling activities associated with the monitoring events. The landfill waste would not be disturbed, thereby eliminating the potential for human exposure to these materials. Construction activities (e.g., cap maintenance and vegetable oil injections) may pose minimal risks to workers generally associated with construction activities. The short-term risks associated with groundwater monitoring activities and cap maintenance may be minimized through implementation of an effective health and safety program.

Short-Term Environmental Effects

Since minimal disturbance of the landfill waste material would occur under this alternative, short-term impacts to the environment are unlikely. The implementation of proper engineering controls would minimize the risk of environmental impacts. Although the activities conducted under this alternative are anticipated to affect the floodplain area of Harrison Bayou, they are not expected to influence any wetland areas. Direct push technology is proposed for implementation of the Passive Biobarrier in order to minimize construction impacts, including the threat of silt entering Harrison Bayou.

Duration of Remedial Activities

Under this alternative, it is estimated that remedial design, pilot studies and field tests, in situ bioremediation injection, and passive biobarrier implementation will require approximately eight months following approval of the final ROD. The MNA quarterly monitoring, and data evaluation will take approximately 28 months subsequent to those activities and shut down of the existing groundwater extraction system. Although many remedial activities under this alternative will be completed within three years, several activities will be required during the remainder of the 30-year duration addressed by the cost estimate. Those activities include LUC inspections, maintenance of LUCs, maintenance of the landfill cap, additional carbon source injections at the passive biobarriers, and groundwater monitoring.

5.3.1.6 Implementability

Technical Feasibility

All components of this alternative are readily implementable. Routine inspection and maintenance of the landfill cap and LUCs would be conducted under this alternative. Implementation of in situ bioremediation and the passive biobarrier components of this alternative will require an engineering design. Using basic engineering and the hydrogeologic characteristics of LHAAP-16, the spacing and depth of the carbon substrate injections will be selected. Also, the quantity of substrate (e.g., emulsified vegetable oil and lactate) required per injection will need to be established based on groundwater modeling and/or prior experience. Equipment, services, and materials are readily available to conduct the activities for this alternative.

Administrative Feasibility

All actions under this alternative are implemented on site and thus do not require permits, though substantive provisions of permits that would otherwise be required are considered to be ARARs. By legal agreement (i.e., the Federal Facility Agreement), the Army shall submit to the USEPA and TCEQ a Responsiveness Summary and a draft ROD. Following consideration of any comments by TCEQ, the ROD will be finalized jointly by the Army and USEPA or, if they are unable to reach agreement about the selection of the remedial action, by the USEPA Administrator. By addressing the identified ARARs in the ROD, it is anticipated that the alternative would adequately address administrative issues.

LUCs, although administratively implementable, would require the following:

- Development of the LUCs in a remedial design document
- Development of an implementation plan
- A site approval process to approve land use changes to ensure the integrity of the controls
- Internal notices to relevant regulatory offices of the existence of the LUCs

Approval by the USEPA and the State of Texas is required prior to the modification or termination of LUCs, implementation actions, or modification of land use by the Army. The Army shall also seek concurrence from the USEPA and the State of Texas prior to any action that may disrupt the effectiveness of the LUCs or any action that alters or terminates the LUCs.

All equipment, material, personnel, and services required for implementation of the Alternative 7 are available or can be readily obtained. The design and implementation of in situ bioremediation and the passive biobarriers require more expertise than the other components of this alternative. However, Shaw has the capability and experience to design and implement both components. Consequently, there are no known administrative barriers to implementation of this alternative.

5.3.1.7 Cost

The total project present worth cost of this alternative is approximately $1,980,000. This includes capital costs for in situ bioremediation and the capital and operation and maintenance (O&M) costs for the passive biobarrier. The details of the cost estimate for Alternative 7 are presented in **Appendix C**. Summaries of the cost estimates for the alternatives from the FS, updated for inflation rates, are also presented in **Appendix C**.

Capital Cost

The total expenditures for capital cost are estimated at $393,000. This includes in situ bioremediation, the first injection for the passive biobarriers, and establishment of LUCs.

O&M Cost

The total O&M expenditures are estimated at approximately $2,004,000, which are spread across the 30 year life used in the estimate. The O&M costs include the MNA evaluation, maintenance of the cap, maintenance of the LUCs, long-term monitoring, and two additional emulsified vegetable oil injections subsequent to the initial implementation of the passive biobarriers. The long-term monitoring would support the required CERCLA Five-Year Reviews.

6.0 Comparative Analysis of Alternatives

Table 6-1 presents a comparative analysis of alternatives to evaluate the relative performance of each alternative with respect to the evaluation criteria presented in **Section 5.0**. This analysis addresses the first seven criteria; the remaining criteria (state acceptance and community acceptance) will be assessed after the public comment period. The purpose of this analysis is to determine the advantages and disadvantages of each alternative, which will ultimately provide the rationale for recommending a preferred alternative.

The comparative analysis addresses new chemical-specific ARARs for the COCs identified in **Table 2-6**:

- MCLs for volatile organics, arsenic, and chromium
- GW-Res for perchlorate and nickel
- 95% UTL background for manganese (**Table 2-6**)

Alternatives 2 through 7 are expected to meet the cleanup levels and protect Harrison Bayou. However, an alternative will not comply with the requirements to reach drinking water standards and the GW-Res for perchlorate unless it includes an active remedy to treat groundwater contamination within LHAAP-16. Alternatives 4 and 5a/5b rely on permeable reactive barriers that contain the groundwater contamination, but do not directly reduce it within the plume. Similarly, Alternative 2 includes enhanced groundwater extraction that will exert hydraulic control and containment, but will not necessarily achieve ARARs within the plume itself. These impacts change the comparative analysis as presented in the Final FS (Jacobs, 2002) and are reflected in **Table 6-1**. Alternatives 3a/3b, 6, and 7 include a natural attenuation component. The active biodegradation that occurs as part of that component, together with dilution, dispersion, and other natural processes, has the capability of ultimately reducing the COCs to satisfy the chemical-specific ARARs.

Table 6-1
Comparative Analysis of Alternatives

Criteria	Alternative 1 No Further Action (Maintenance of Existing Landfill Cap, Land Use Controls [Cap Only])	Alternative 2 Cap, Enhanced Groundwater Extraction, Land Use Controls	Alternative 3a/3b Cap, Monitored Natural Attenuation, Land Use Controls[1]	Alternative 4 Cap, Passive Groundwater Treatment, Land Use Controls	Alternative 5a/5b Landfill Removal, Passive Groundwater Treatment, Land Use Controls[2]	Alternative 6 Landfill Source Treatment, Monitored Natural Attenuation, Land Use Controls	Alternative 7 Cap, Monitored Natural Attenuation, Land Use Controls, In Situ Enhanced Bioremediation, Passive Biobarriers
Overall protection of human health and the environment	Protection of human health provided by cap and associated LUCs. No additional protection from exposure to groundwater. Does not demonstrate protection of Harrison Bayou from potential groundwater impacts.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by groundwater extraction.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by natural attenuation.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by permeable reactive barrier.	Protection of human health provided by cap (5a), source removal (5b) and land use controls. Protection of Harrison Bayou provide by passive groundwater treatment.	Protection of human health provided by removal and treatment of some source material and by cap and land use controls. Protection of Harrison Bayou provided by natural attenuation.	Protection of human health provided by cap and land use controls. Protection of Harrison Bayou provided by passive biobarriers, in situ bioremediation, and natural attenuation.
Compliance with ARARs	No compliance with chemical-specific ARARs in groundwater. Complies with location- and action-specific ARARs.	Does not comply with ARARs that apply drinking water requirements to groundwater. Complies with location-and action-specific ARARs.	Meets all ARARs.	Does not comply with ARARs that apply drinking water requirements to groundwater. Complies with location-and action-specific ARARs.	Does not comply with ARARs that apply drinking water requirements to groundwater. Complies with location-and action-specific ARARs.	Meets all ARARs.	Meets all ARARs.
Long-term effectiveness and permanence	Landfill cap and associated LUCs would be effective and reliable so long as they are maintained indefinitely. Not effective for groundwater.	Effective reliability depends on long-term maintenance and controls and ability to locate extraction wells in complex geology.	Alternative 3b enhances effectiveness of MNA by reducing the mass of contamination. If MNA is not proven effective in the long term, a contingent action of groundwater extraction would be implemented (see Alternative 2)	Effectiveness of permeable reactive barrier is uncertain and relies on adequate long-term maintenance.	Similar to Alternative 4, but reliability enhanced with source removal. More aggressive remedial approach.	Similar to Alternative 3a but reliability is enhanced by source treatment.	Should be effective and permanent as indicated by the results of the technology demonstration and the preliminary MNA evaluation. In situ bioremediation will permanently reduce contaminant mass in its treatment area.

Table 6-1 *(continued)*
Comparative Analysis of Alternatives

Criteria	Alternative 1 No Further Action (Maintenance of Existing Landfill Cap, Land Use Controls [Cap Only])	Alternative 2 Cap, Enhanced Groundwater Extraction, Land Use Controls	Alternative 3a/3b Cap, Monitored Natural Attenuation, Land Use Controls[1]	Alternative 4 Cap, Passive Groundwater Treatment, Land Use Controls	Alternative 5a/5b Landfill Removal, Passive Groundwater Treatment, Land Use Controls[2]	Alternative 6 Landfill Source Treatment, Monitored Natural Attenuation, Land Use Controls	Alternative 7 Cap, Monitored Natural Attenuation, Land Use Controls, In Situ Enhanced Bioremediation, Passive Biobarriers
Reduction of toxicity, mobility, or volume through treatment	No active reduction.	Some reduction in groundwater toxicity and volume through active treatment. No source treatment.	Alternative 3a includes no active reduction in toxicity, mobility, or volume. Alternative 3b includes a small reduction in toxicity and volume. No source treatment.	Moderate reduction in groundwater toxicity. No source treatment.	Longer trench results in larger reduction in groundwater toxicity than Alternative 4. Source treatment only if RCRA waste is identified.	Significant source reduction in toxicity and volume. Groundwater COC reduction is identical to Alternative 3.	No source treatment. Provides permanent and irreversible reduction in groundwater toxicity and volume via in situ bioremediation, passive biobarriers, and MNA.
Short-term effectiveness	Minimal impact to the community, workers, or the environment from short-term activities.	Minimal impact to the community, workers, or the environment from short-term activities. Provides almost immediate protection.	Minimal impact to the community, workers, or the environment from short-term activities. Provides almost immediate protection.	Minor disruption due to installation of the permeable reactive barrier.	Significant short-term impacts to the community from transportation and for worker risk from excavation activities. Risks can be controlled.	Potential for worker risk during source treatment. Risks can be controlled.	Minimal disruption due to implementation of in situ bioremediation and passive biobarrier. Provides almost immediate protection with the implementation of land use controls.
Implementability	Readily implemented.	Readily implemented. Most of the components of this alternative are already in place.	If natural attenuation does not occur, Alternative 2 would be implemented.	Need to design an effective passive system considering hydraulics and biological process in situ.	Most difficult to implement. Coordination of excavation, waste sampling, transportation, and disposal would be difficult. Also, need to minimize releases of contaminated material during excavation activities.	Source action not typically applied to landfills. Therefore, initial testing will be required.	Readily implemented because equipment and personnel required for implementation of this alternative (including the design of the passive biobarrier) are readily available.

Table 6-1 *(continued)*
Comparative Analysis of Alternatives

Criteria	Alternative 1 No Further Action (Maintenance of Existing Landfill Cap, Land Use Controls [Cap Only])	Alternative 2 Cap, Enhanced Groundwater Extraction, Land Use Controls	Alternative 3a/3b Cap, Monitored Natural Attenuation, Land Use Controls[1]	Alternative 4 Cap, Passive Groundwater Treatment, Land Use Controls	Alternative 5a/5b Landfill Removal, Passive Groundwater Treatment, Land Use Controls[2]	Alternative 6 Landfill Source Treatment, Monitored Natural Attenuation, Land Use Controls	Alternative 7 Cap, Monitored Natural Attenuation, Land Use Controls, In Situ Enhanced Bioremediation, Passive Biobarriers
Cost[3]							
• Capital Expenditures	$0	$777,000	$620,000 (a) $1,307,000 (b)	$2,596,000	$3,138,000 (a) $111,826,000 (b)	$2,781,000	$393,000
• O&M Expenditures	$914,000	$13,898,000	$2,943,000 (a) $3,011,000 (b)	$2,889,000	$15,289,000 (a) $14,585,000 (b)	$4,676,000	$2,004,000
• Total Present Worth	$632,000	$9,816,000	$2,713,000 (a) $3,426,000 (b)	$4,563,000	$13,070,000 (a) $115,606,000 (b)	$6,399,000	$1,980,000

Notes and Abbreviations:

[1] Alternative 3b is identical to Alternative 3a except an extraction well network will be operated in the groundwater hot spot for approximately 5 years to reduce contaminant mass, followed by MNA throughout the rest of the O&M period.

[2] Alternative 5b is identical to Alternative 5a except all of the landfill waste will be removed (compared with hot spot removal under Alternative 5a).

[3] Costs have been rounded to the nearest $1,000. The capital and O&M expenditures are the sums of each year's costs without regard to discount rates or escalation rates. Each year's expenditures were converted to present worth using a 2.7% discount rate and were summed to yield the total present worth. The costs of Alternatives 1 through 6 have been updated to January 2008 using the Engineering News Record construction cost index, and the costs of 5-year reviews have been added to all alternatives. Per the Army's request, the costs for all alternatives have been modified by removing the standard escalation rate (average 3 percent per year) from the present worth calculation. Also, the cost of Alternative 1 has been updated to reflect the ongoing cap maintenance/inspection activities and the implementation of LUCs under the Interim ROD for LHAAP-16.

ARAR	applicable or relevant and appropriate requirement
FS	feasibility study
LHAAP	Longhorn Army Ammunition Plant
MNA	monitored natural attenuation
NA	not applicable
O&M	operation and maintenance
RAO	remedial action objective
VOC	volatile organic compound

7.0 Recommended Remedial Alternative

Based on the detailed analysis of remedial alternatives, Alternative 7, Cap, Land Use Controls, In Situ Bioremediation, Passive Biobarriers, and Monitored Natural Attenuation, most appropriately addresses the groundwater contamination at LHAAP-16 in a manner that is cost-effective and consistent with the Army's intent to transfer the site to the USFWS for use as a wildlife refuge. Under this alternative, LUCs will address groundwater use restriction and protection and maintenance of the existing landfill. LUCs will include fences, signs (no-dig and cap protection), a no-dig restriction, and county notification of LUCs. The notification will include a survey of use-restricted areas (no-dig, cap protection, and no groundwater use), identify the need for signs and fencing, and list restricted activities. The LUCs will be implemented immediately subsequent to the final ROD to prevent human exposure to the landfill waste and contaminated groundwater. Notification of LUCs will be recorded with Harrison County. The duration of remedial design, pilot studies and field tests, bioremediation injection activities, and passive biobarrier implementation is approximately eight months. In addition, an MNA quarterly monitoring and data evaluation will be completed during the 28 month period following implementation of the passive biobarriers, in situ bioremediation, and discontinuation of groundwater extraction activities. Groundwater and surface water monitoring would also be conducted to support the MNA evaluation and to confirm cleanup levels are not exceeded in Harrison Bayou. The groundwater and surface water monitoring activities will be conducted quarterly for the initial two years (to support the MNA evaluation), semi-annually for at least three years, then annually until the next Five-Year Review, and every five years thereafter to support the subsequent Five-Year Reviews. In addition, follow-up emulsified oil injections for the passive biobarrier would be conducted in five year intervals if deemed necessary based on the performance groundwater monitoring results.

Alternative 7 is recommended because it would be protective of human health due to the implementation of LUCs prohibiting unauthorized use of the cap and groundwater, thereby eliminating the potential contaminant exposure pathway for human receptors. Further, this alternative would satisfy the RAOs for LHAAP-16 and would passively reduce the COC concentrations in groundwater and prevent discharge of contamination to Harrison Bayou. Groundwater and surface water monitoring would be conducted to confirm that COC concentrations in the groundwater plume are declining through natural processes and that Harrison Bayou is protected from ARAR exceedances. The passive biobarriers component of this alternative would provide additional protection of Harrison Bayou. Alternative 7 is readily implementable and no significant short-term risks to worker health and safety or to the community would be expected. The present worth cost of Alternative 7 is lower than the other remedial alternatives except for Alternative 1, the No Further Action alternative. Therefore, Alternative 7, Cap, Land Use Controls, In Situ Bioremediation, Passive Biobarriers, and Monitored Natural Attenuation, is recommended for implementation at LHAAP-16.

8.0 References

U.S. Department of the Army (Army), 1996, Letters written by U.S. Army Colonel James P. Fairall, Jr., to Mr. Myron O. Knudson, Direction of the Hazardous Waste Management Division of the USEPA and Mr. Barry J. Williams, Deputy Director, Office of Waste Management, Texas Natural Resource Conservation Commission, December 3.

Environmental Security Technology Certification Program (ESTCP), 2005, DATA ANALYSIS WHITE PAPER FOR: Remediation of Perchlorate Through Semi-Passive Bioremediation at the Longhorn Army Ammunitions Plant, ESTCP Project 200219, Revision 1.0, May.

ESTCP, 2007, Electronic mail correspondence between Geosyntec and Shaw summarizing March 2006 sampling results for semi-passive biobarrier study.

Jacobs Engineering Group, Inc. (Jacobs), 2000, Final Remedial Investigation Report, Site 16 Landfill Remedial Investigation and Feasibility Study, Longhorn Army Ammunition Plant, Karnack, Texas, October.

Jacobs, 2001, Final Site 16 Human Health Baseline Risk Assessment, Longhorn Army Ammunition Plant, Karnack, Texas, June.

Jacobs, 2002, Feasibility Study for Site 16, Longhorn Army Ammunition Plant, Karnack, Texas, Final, Oak Ridge, Tennessee, March.

Shaw Environmental, Inc. (Shaw), 2004, Final Background Soil Study Report, Longhorn Army Ammunition Plant, Karnack, Texas, July.

Shaw, 2007, Final Installation-Wide Baseline Ecological Risk Assessment, Longhorn Army Ammunition Plant, Karnack, Texas, November.

Solutions to Environmental Problems, 2005, Plant-Wide Perchlorate Investigation, Longhorn Army Ammunition Plant, Karnack, Texas, Draft Final, Tulsa, Oklahoma, April.

Texas Commission on Environmental Quality (TCEQ), 2006, "Updated Examples of Standard No. 2, Appendix II Medium-Specific Concentrations (MSCs)," http://www.tceq.state.tx.us/assets/public/remediation/rrr/msc-rbscn_2006.xls.

U.S. Army Corps of Engineers (USACE), Tulsa District and ALL Consulting, 2007, Groundwater Monitoring Report, Sites 12 and 16, Spring 2003, Spring 2004, and Winter 2004, Longhorn Army Ammunition Plant, Final, Tulsa, Oklahoma, January.

U.S. Environmental Protection Agency (USEPA), 1999, Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites, OSWER Directive 9200.1-17P.

Appendix A

Preliminary MNA Evaluation at LHAAP-16

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APPENDIX A
NATURAL ATTENUATION EVALUATION

FINAL ADDENDUM
TO
FINAL FEASIBILITY STUDY
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT

ON THE LINE

Prepared for

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Table of Contents

List of Tables

List of Figures

Acronyms and Abbreviations

Army	U.S. Department of the Army
CO_2	carbon dioxide
COC	chemicals of concern
Cl^-	chloride
ClO_2^-	chlorite
ClO_3^-	chlorate
ClO_4^-	perchlorate
DCE	dichloroethene
DCA	dichloroethane
DHC	*Dehalococcoides*
DO	dissolved oxygen
ESTCP	Environmental Security Technology Certification Program
Fe^{+3}	ferric iron
Fe^{+2}	ferrous iron
GW-Res	groundwater medium-specific concentration for residential use
LHAAP	Longhorn Army Ammunition Plant
MC	methylene chloride
MCL	maximum contaminant level
µg/L	micrograms per liter
mg/L	milligrams per liter
MNA	monitored natural attenuation
mV	millivolts
NO_3^-	nitrate
O_2	oxygen
ORP	oxidation-reduction potential
ROD	record of decision
Shaw	Shaw Environmental, Inc.
SO_4^{-2}	sulfate
TBC	to be considered
TCA	trichloroethane
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TOC	total organic carbon
TRRP	Texas Risk Reduction Program
USEPA	U.S. Environmental Protection Agency
VC	vinyl chloride

1.0 Introduction

The U.S. Army Corps of Engineers, Tulsa District, contracted Shaw Environmental, Inc. (Shaw), under Multiple Award Remediation Contract No. W912QR-04-D-0027, Task Order No. DS02, to conduct environmental restoration of LHAAP-16 at Longhorn Army Ammunition Plant (LHAAP). This report presents the evaluation for the occurrence of natural attenuation of groundwater contaminants at LHAAP-16.

LHAAP-16, a capped landfill, is located in the south-central portion of the LHAAP and covers an area of approximately 20 acres. Harrison Bayou runs along the eastern edge of LHAAP-16 (**Figure 1-1**). The landfill was established in the 1940s and was used for disposal of solid and industrial wastes until the 1980s when disposal activities were terminated. The U.S. Department of the Army (Army) and the U.S. Environmental Protection Agency (USEPA) signed a Record of Decision (ROD) in 1995 approving an interim remedial action for LHAAP-16 to mitigate potential risks posed by buried source material at the site. The interim remedial action included the construction of a landfill cap, considered a component of the final remedy for the site. Construction of the 13-acre multilayer cap was completed in 1998. The ROD also specified that the Army would be required to maintain the cap and cover system. The landfill cap would be inspected at regular intervals to check for erosion, settlement, and deep-rooted vegetation. Repairs would be implemented as needed. Land use controls (LUCs) such as future use restrictions, fencing, and warning signs would also be required.

The subsurface is composed of medium plastic sandy silt, fine sands, and clay. The clay layers tend to separate the groundwater into shallow, intermediate, upper deep, and deep groundwater zones. The flow direction is northeast toward Harrison Bayou in the shallow, intermediate, and deep groundwater zones, while flow direction is southeast toward Harrison Bayou in the upper deep groundwater zone.

Groundwater flow between the landfill and Harrison Bayou is also influenced by the presence of an extraction well system consisting of four wells in the shallow groundwater zone and four wells in the intermediate groundwater zone (see Wells 16EW01 through 16EW08 on **Figure 1-1**). The wells were installed in 1996 and 1997 as part of a treatability study. These wells extract water at a relatively low rate; the long term average of the total flow rate from all eight wells between June 2000 and June 2007 is approximately 1.3 gallons per minute. The extracted water is transferred to the groundwater treatment plant at LHAAP-18/24 for treatment.

The groundwater at LHAAP-16 is contaminated with volatile organic compounds (VOCs) including trichloroethene (TCE), dichloroethene (DCE), vinyl chloride (VC), and perchlorate

(ClO_4^-) as the primary chemicals of concern (COCs). The sample results through March 2009 are used in the evaluation of monitored natural attenuation (MNA).

2.0 Description of Natural Attenuation

Natural attenuation is defined as the reduction of contaminants from the combined effect of intrinsic biodegradation, advection, dispersion, dilution, volatilization, and adsorption mechanisms. Generally, intrinsic biodegradation is the most important natural attenuation mechanism that results in contaminant destruction. Intrinsic biodegradation can occur in any environment that supports microbial activity. The biodegradation may be limited by the lack of a suitable respiratory substrate or inorganic nutrients, extreme pH, or limited contaminant bioavailability. Accurate contamination delineation, subsurface conditions characterization, and contaminant migration determination are critical for defining the contribution of intrinsic biodegradation, for evaluating the effectiveness of natural attenuation, and for establishing regulatory support for use of natural attenuation at a site. Monitored natural attenuation (MNA) entails the use of natural attenuation within the context of a monitoring plan to demonstrate reductions in contaminant concentrations and the achievement of remedial objectives.

As noted in **Section 1.0**, extraction wells are removing water at a low rate from both the shallow and intermediate groundwater zones. The influence of those wells on contaminant attenuation would be difficult to quantify, and the calculations presented within this evaluation do not address that influence. However, the following should be noted:

- The extraction wells reduce contaminant mass within the plume, though this is limited by the low flow rate from the wells
- The extraction wells affect the direction of groundwater flow; that influence decreases rapidly with distance from the wells
- The extraction wells could be adding dissolved oxygen to the shallow aquifer, which would hinder or eliminate reductive dechlorination

While the term natural attenuation rate has been retained, the affects of the extraction wells have not been excluded from those rates. Thus, the rates actually represent all remediation mechanisms currently active at the site.

2.1 Natural Attenuation Lines of Evidence

The USEPA guidance, Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater (USEPA, 1998), will be used as guidance for the natural attenuation evaluation. The USEPA guidance specifies a tiered approach of recommended lines of evidence required for demonstrating that MNA is an effective remedy.

There are three lines of evidence according to the USEPA guidance document based on OSWER Directive 9200.4-17 (USEPA, 1999), which are described as follows:

1. **First line of evidence.** Observed Reduction in Contaminant Mass and Concentration. Relies on use of historical groundwater data that demonstrate a clear trend of stable or decreasing COC concentrations over time and with distance away from the source at appropriate monitoring or sampling points.

2. **Second line of evidence.** Identified and Quantified Natural Attenuation Processes. Uses geochemical indicators to document certain geochemical signatures or "footprints" in the groundwater that demonstrate (indirectly) the type of natural attenuation process(es) occurring at the site and the rate at which such processes will reduce COCs to the maximum contaminant levels (MCLs) or groundwater medium-specific concentration for residential use (GW-Res) levels established by the Texas Commission on Environmental Quality (TCEQ).

3. **Third line of evidence.** Microcosm Studies. Most often consists of predictive modeling studies and other laboratory/field studies that demonstrate the occurrence of natural attenuation process(es) at the site and its ability to degrade the COCs.

All three lines of evidence were evaluated for LHAAP-16 to demonstrate the occurrence of natural attenuation of groundwater COCs.

2.2 Biodegradation

Biodegradation occurs when bacteria use contaminants as carbon sources or electron acceptors. The COCs at LHAAP-16 include perchlorate and chlorinated solvents exceeding their MCLs or GW-Res. All contaminants can be degraded through microbial activity in the subsurface. Under the right conditions, all site COCs are amenable to biodegradation. A brief description of the various biodegradation pathways and mechanisms is provided in the subsequent sections.

The technical protocol for evaluating natural attenuation of chlorinated solvents in groundwater (USEPA, 1998) has a preliminary screening worksheet for evaluating whether anaerobic biodegradation is occurring. The worksheet assigns points for geochemistry and the presence of daughter products. A point total of 5 or less, denotes inadequate evidence of anaerobic degradation. A point total of 15 or more is adequate evidence for anaerobic biodegradation. In between 5 and 15, the score represents limited evidence for anaerobic degradation. The preliminary screening worksheet only addresses anaerobic degradation, not any of the other pathways for natural attenuation (aerobic biodegradation, diffusion, adsorbtion, etc.).

2.2.1 Perchlorate

Perchlorate is the soluble anion associated with ammonium, potassium, and sodium perchlorate. Perchlorate is used as an energetic booster or oxidant in solid propellant for rockets and missiles, and likely leached into the groundwater during the disposal of explosive materials and solid rocket fuel. The perchlorate anion is very mobile in aqueous systems and can persist in the environment for many decades under aerobic conditions due to its resistance to react with other available constituents. However, perchlorate can be reduced to chlorite and chloride in the presence of indigenous perchlorate-reducing microbes under anaerobic conditions (GWRTAC, 2001). The reduction in perchlorate concentrations can be direct evidence for the occurrence of biodegradation supporting the first line of evidence.

Perchlorate-reducing organisms couple the oxidization of an organic or inorganic electron donor to the reduction of perchlorate in a form of anaerobic respiration. Perchlorate (ClO_4^-) reduction produces chlorate (ClO_3^-), which can be further reduced to chlorite (ClO_2^-), then to the innocuous final product as chloride (Cl^-) and oxygen (O_2) (Rikken et al., 1996), as indicated in the following pathway:

$$ClO_4^- \rightarrow ClO_3^- \rightarrow ClO_2^- \rightarrow Cl^- + O_2$$

2.2.2 Chlorinated Solvents

The chlorinated solvents at this site are classified as chlorinated ethenes, ethanes, and methane. The most abundant chlorinated solvent at the site is trichloroethene (TCE). Chlorinated ethenes and ethanes include parent compounds (TCE, tetrachloroethene [PCE], 1,1,1-trichloroethane [TCA], 1,1,2-TCA) that biodegrade via multiple pathways and generate a variety of daughter products (cis-1,2-dichloroethene (DCE), 1,1-DCE, 1,2-dichloroethane [DCA], and vinyl chloride [VC]) that are generated from biotic or abiotic degradation of those parent compounds. Observing a decreasing trend of parent compounds and generation of daughter products provides direct evidence for the occurrence of biodegradation supporting the first line of evidence.

One of the most prevalent pathways for biodegradation of chlorinated solvents is via reductive dechlorination. During this process, a chlorinated hydrocarbon is used as an electron acceptor resulting in the replacement of a chlorine atom with a hydrogen atom. The biodegradation of TCE primarily produces cis-1,2-DCE, with trace amount of trans-1,2-DCE. 1,2-DCE isomers undergo reductive dechlorination resulting in the formation of VC, and subsequently the innocuous product ethene. When the 1,2-DCE isomers are generated, the cis-isomer is produced 10 to 100 times more often than the trans-isomer (Bouwer, 1994 and USEPA, 1998). The TCA compounds can also undergo reductive dechlorination, resulting in the formation of DCA isomers, followed by chloroethane, and then the harmless product ethane. The isomer 1,1-DCE is predominantly produced via abiotic hydrolysis of 1,1,1-TCA, and then further reduced to VC via reductive dechlorination.

Alternately, the DCE isomers and VC can be utilized as carbon sources and undergo biodegradation to carbon dioxide and chloride ions via aerobic or anaerobic oxidation. Although the chlorinated solvents can be degraded via multiple biodegradation pathways, reductive dechlorination is typically the most common pathway observed. Chlorinated solvent can also undergo biogeochemical reductive dechlorination under high sulfate and iron levels (U.S. Air Force Center for Environmental Excellence [USAFCEE], 2003). During this degradation pathway, sulfate reducing bacteria produce sulfite and mineral iron without VC generation.

2.3 Geomicrobiology

Biological monitoring parameters are indicators of microbiological activity in the subsurface and are evaluated in support of the second line of evidence. Microbial respiration is the biochemical process that leads to the oxidation of reduced organic carbon. Frequently encountered respiratory substrates (or electron acceptors) include oxygen (O_2), nitrate (NO_3^-), ferric iron (Fe^{+3}), sulfate (SO_4^{-2}), and carbon dioxide (CO_2). Respiratory substrates are used preferentially based on the amount of energy that can be derived from each of them. Respiratory substrates are used in the following order:

$$O_2 > NO_3^- > Fe^{+3} > SO_4^{-2} > CO_2$$

Biodegradation of perchlorate can occur under anaerobic nitrate-reducing conditions (GWRATC, 2001). Reductive dechlorination of chlorinated solvents occurs under anaerobic (reducing) conditions such as sulfate-reducing and methanogenic conditions (USEPA, 1998). Nitrate-reducing conditions provide more energy to microorganisms than iron-reducing, sulfate-reducing, or methanogenic conditions. Sulfate reduction and methanogenesis are inhibited until oxygen, nitrate, and ferric iron have been depleted (USAFCEE, 2004). When perchlorate contaminants are co-mingled with chlorinated solvents in groundwater, microbes derive more energy from perchlorate degradation, thus chlorinated solvents typically persist in groundwater until perchlorate is depleted.

The reduction of highly chlorinated compounds like TCE may occur under sulfate-reducing conditions; however, DCE isomers and VC require the more reducing methanogenic conditions to undergo reductive dechlorination, which typically commences once the sulfate concentrations near depletion.

As discussed above, the concentrations of microbial respiratory substrates and products can be used to demonstrate intrinsic biodegradation. Expected changes include depressed concentrations of dissolved oxygen (DO) and negative oxidation-reduction potential (ORP) values within and downgradient of actively degrading contaminant plumes. The concentrations of anaerobic respiratory substrates such as nitrate and sulfate should decrease in groundwater located within and downgradient of a contaminant plume that is actively undergoing intrinsic anaerobic biodegradation. Similarly, the concentrations of the products of anaerobic microbial respiration, specifically ferrous iron (Fe^{+2}) and methane, should increase under similar circumstances.

The biodegradation of perchlorate and chlorinated solvents, whether via reductive dechlorination, dichloroelimination, or anaerobic oxidation, releases chloride ions into groundwater. In areas where the groundwater has a very low background chloride concentration, an elevation in chloride concentration may be observed as a result of biodegradation of perchlorate and chlorinated solvents. However, high background chloride concentrations were observed at LHAAP, thus the slight contribution of chloride into the groundwater through biodegradation is not quantifiable.

2.4 Microbial Analysis

Microbial analysis can provide evidence to support the third line of evidence. A number of bacteria that contain nitrate reductases are capable of reducing perchlorate, such as *Staphylococcus epidermidis* and *Bacillus cereus* (GWRTAC 2001). Perchlorate-reducing bacteria appear to be nearly ubiquitous in natural environments such as soils, sediments, surface water, and groundwater aquifers. There are multiple strains that can dechlorinate TCE and TCA under anaerobic reductive conditions, but only one strain, *Dehalococcoides ethenogenes* (DHC), can completely reduce the DCE isomers and VC to ethene. The presence of DHC in the groundwater can be the evidence to support the third line of evidence.

3.0 Natural Attenuation Evaluation Results

The following sections present the results of the natural attenuation evaluation as they pertain to demonstrating MNA in accordance with the three lines of evidence.

Thirteen wells representing the different groundwater zones were sampled for natural attenuation parameters for the baseline sampling event in June 2007. Additional VOC and perchlorate samples were collected and analyzed in October 2007, December 2008, and March 2009. These analytical results are summarized in **Table A-1**. Current data along with historical data are summarized in **Tables 3-2**, **3-3, 3-4,** and **3-5** for the shallow, intermediate, upper deep, and deep groundwater zones respectively. The groundwater sample forms and laboratory reports associated with the June 2007, October 2007, December 2008, and March 2009 sampling events are presented in Appendix B of the Final Addendum to the Final Feasibility Study for LHAAP-16 (Shaw, 2009).

For the purposes of this evaluation, the USEPA MCLs for drinking water or the groundwater medium-specific concentrations for residential use (GW-Res) under TCEQ guidelines (Risk Reduction Rule Standard No. 2) are used as the cleanup levels for LHAAP-16. The GW-Res is used for the evaluation of the COCs without MCLs. COCs that exceed their MCLs at LHAAP-16 include TCE, cis-1,2-DCE, 1,1-DCE, 1,2-DCA, VC, and methylene chloride (MC). The COC at this site exceeding the GW-Res was identified as perchlorate.

The preliminary screening worksheet (USEPA, 1998) was used to evaluate if anaerobic biodegradation was occurring in nine shallow wells and six intermediate wells within or near the groundwater plumes at LHAAP-16 that had most of the requisite analytical test results. Wells 16WW14 and 16WW29 scored 4 points (<5), indicating anaerobic biodegradation is probably not occurring there. The other 13 wells showed totals ranging from 6 to 14 points (5-15), showing limited evidence of anaerobic biodegradation. The shallow wells 16WW12, 16WW16 and 16WW36 with the highest TCE concentrations showed the highest screening scores (13, 14, and 12, respectively). Because the preliminary screening shows limited evidence for anaerobic biodegradation, the data was evaluated using the lines of evidence.

3.1 Shallow Groundwater Zone

The shallow groundwater zone extends 33 feet below ground surface and contains the majority of contamination at LHAAP-16. A total of 18 monitoring wells are located in the shallow groundwater zone. The groundwater flow direction is to the northeast from the landfill capped area towards Harrison Bayou. Nine monitoring wells 16WW05, 16WW12, 16WW16, 16WW22, 16WW26, 16WW30, 16WW34, 16WW36, and 16WW38 were sampled for natural attenuation parameters during the June 2007 sampling event.

3.1.1 Change in COC Concentrations over Time

The change in groundwater COC concentrations over time and with distance was evaluated in the shallow groundwater zone at LHAAP-16. Wells with fewer than three sample results are not considered for trend analysis.

3.1.1.1 Perchlorate

Perchlorate has historically been detected above GW-Res in nine monitoring wells. Two wells (16WW39 and 16WW40) have fewer than three sample results and cannot be evaluated for concentration trends. Four wells (16WW22, 16WW30, 16WW32, and 16WW36) previously exceeded the GW-Res, but the most recent results show no detectable perchlorate. One well (16WW16) remains above the GW-Res and shows a decreasing trend, from a maximum of 1,050 µg/L in March, 2003, to 240 µg/L in March, 2009. Two wells (16WW12 and 16WW26) remain above the GW-Res and show rising trends, with the most recent samples collected in June, 2007. During the June 2007 sampling event, perchlorate was observed exceeding the GW-Res level of 26 µg/L in wells 16WW12, 16WW16, 16WW26, and 16WW36 (see **Table A-2**). Although perchlorate levels were rising in two wells, general decreasing trends were observed in most shallow monitoring wells over the course of performance monitoring. Time-based natural attenuation rates may be calculated for six of the nine wells where perchlorate has been found at concentrations exceeding the GW-Res. **Figure A-2** through **Figure A-5** show perchlorate concentration trends for wells 16WW12, 16WW16, 16WW22 and 16WW36, respectively.

In the upgradient well 16WW05, perchlorate concentrations have been below the detection limit, suggesting that no source exists upgradient of the capped landfill area (**Table A-2**). In 16WW32 and 16WW30, located side and downgradient, perchlorate levels were below the detection limit during the most recent sampling event. These data suggest that the perchlorate plume is limited within the narrow area along the groundwater flow direction. There are no obvious spatial correlations of perchlorate distribution with groundwater flow direction, evidenced by the June, 2007 analytical results from 16WW16, 16WW36, and 16WW22. Four extraction wells located between the landfill cap and Harrison Bayou are currently operating at LHAAP-16 (**Figure A-1**), which can enhance groundwater flow by pulling the plume toward the extraction wells. The groundwater extraction may interrupt the natural groundwater flow, resulting in lack of attenuation along the groundwater flow direction, although preventing perchlorate discharge into Harrison Bayou. Furthermore, perchlorate is very soluble and is not as adsorptive to soil particles as organic contaminants, thus extraction activity could have a greater effect on the perchlorate plume migration.

A semi-passive biobarrier was established in 2004 between monitoring wells 16WW16 and 16WW36 (**Figure A-6**). Three lactate injection events were conducted to treat perchlorate. The amount of electron donor (sodium lactate) added to the subsurface was intentionally limited to reduce only perchlorate. During the study period, an increasing trend of perchlorate was observed in 16WW36 after the injection in 2004. However, the groundwater monitoring results in the vicinity of the semi-passive barrier effectively reduced the concentration of perchlorate close to the barrier. These results were at study-specific monitoring points in close proximity to the biobarrier as shown in **Figure A-6**. Following the completion of lactate injections, the extraction wells associated with the semi-passive biobarrier were turned off; therefore lactate distribution was largely determined by the natural flow velocity (estimated as 54 to 452 ft/yr [Shaw, 2007]) and effects of the extraction wells to the east. Lactate lifespan is only six months in the subsurface; therefore, lactate could be consumed before reaching the vicinity of monitoring well 16WW36 located 100 feet from the semi-passive biobarrier. The most recent result at 16WW36 showed no detectable perchlorate in March, 2009. This semi-passive barrier is largely documented in a 2005 paper (ESTCP, 2005), but the final groundwater monitoring event was conducted in May 2006. The results of the May 2006 event were provided to Shaw by Geosyntec (ESTCP, 2007), but the results were not included in any formal report.

Based on the analytical results of perchlorate, natural attenuation is occurring in the shallow groundwater zone, as evidenced by the general decreasing trend of perchlorate. However, the perchlorate concentrations above the GW-Res are still observed in localized areas (16WW12, 16WW16, 16WW26, and two extraction wells).

3.1.1.2 Chlorinated Ethenes

According to historical and the most current data, TCE, cis-1,2-DCE, VC, and 1,1-DCE are the only chlorinated ethenes detected above their respective MCLs in the shallow groundwater.

TCE: TCE is the most widely distributed COC and presents the majority of contaminant mass at LHAAP-16. TCE has historically been detected above the MCL (5 µg/L) in 13 shallow monitoring wells (see **Table A-2**). Four wells (16WW39, 16WW40, 16WW42 and 16WW46) have fewer than three sample results and cannot be evaluated for concentration trends. One well (16WW34) previously exceeded the MCL, but the most recent results show no detectable TCE. Four wells (16WW12, 16WW16, 16WW22 and 16WW30) remain above the MCL and show a decreasing trend. The highest concentration among these four wells is at 16WW16 which fell from a maximum of 25,000 µg/L in October, 1997, to 18,900 µg/L in March, 2009. Four wells (16WW14, 16WW26, 16WW36 and 16WW38) remain above the MCL and show rising trends, with the most recent samples collected in December, 2004, June, 2007, or March, 2009. In June 2007, seven shallow monitoring wells exhibited TCE concentrations above the MCL. Although TCE levels were rising in four wells, general decreasing trends were observed in most shallow monitoring wells over the course of performance monitoring. Time-based natural attenuation rates may be calculated for five of the nine wells where TCE has been found at concentrations exceeding the MCL and at least three samples were collected. **Figure A-2** through **Figure A-5** show TCE concentration trends for wells 16WW12, 16WW16, 16WW22 and 16WW36, respectively.

Although perchlorate degradation is known largely to occur before TCE degradation, perchlorate is present at relatively low levels in the monitoring wells that exhibited elevated TCE concentrations. Thus, perchlorate would not significantly reduce TCE degradation. Based on the analytical results, lactate injection via the semi-passive biobarrier had no significant effect on TCE degradation, evidenced by the TCE concentration trend in 16WW36 since the injection event in 2004 (**Figure A-4**). The amount of electron donor (sodium lactate) added to the subsurface was intentionally limited to reduce only perchlorate.

Well 16WW05, located east of the landfill cap has not exhibited TCE, suggesting that the TCE source is not present upgradient of the landfill. Monitoring wells 16WW32 and 16WW34, located north of the identified TCE plume area, show no detectable TCE, indicating the plume is bounded in that direction. Monitoring wells 16WW30 and 16WW22, located adjacent to Harrison Bayou, exhibited decreasing trends of TCE concentrations, indicating that the plume is stable and controlled.

1,2-DCE: As TCE degrades via reductive dechlorination, cis-1,2-DCE is produced preferentially over trans-1,2-DCE (EPA 1998). In the monitoring wells where cis-1,2-DCE was detected exceeding its MCL (70 µg/L), the highest ratios of cis-1,2-DCE to trans-1,2-DCE were observed (**Table A-2**) – evidence that supports the occurrence of reductive dechlorination. For example, the ratio of cis-1,2-DCE to trans-1,2-DCE in well 16WW16, when both chemicals are detected, is consistently greater than 100. Trans-1,2-DCE concentrations were detected above its MCL (100 µg/L) only twice, once at 16WW16 in October 1997, and once at 16WW36 in March 2009. In both samples, the concentration of cis-1,2-DCE was much higher (ratios of 2000 and 31.2).

Cis-1,2-DCE has historically been detected above the MCL (70 µg/L) in eight shallow monitoring wells. Two wells (16WW39 and 16WW42) have fewer than three sample results and cannot be evaluated for concentration trends. One well (16WW22) previously exceeded the MCL, but the most recent results show a cis-1,2-DCE concentration of 4.96 J µg/L. Two wells (16WW16 and 16WW38) remain above the MCL and show a decreasing trend. The highest concentration among these two wells is at 16WW16 which fell from a maximum of 270,000 µg/L in January 1998, to 11,800 µg/L in March 2009. Three wells (16WW12, 16WW26 and 16WW36) remain above the MCL and show rising trends, with the most recent samples collected in October 2007, June 2007, and March 2009, respectively. In June 2007, cis-1,2-DCE concentrations were detected above the MCL in five monitoring wells (16WW12, 16WW16, 16WW26, 16WW36 and 16WW38). Time-based natural attenuation rates may be calculated for three of the six wells where cis-1,2-DCE has been found at concentrations exceeding the MCL and at least three samples were collected. **Figure A-2** through **Figure A-4** show cis-1,2-DCE concentration trends for wells 16WW12, 16WW16, 16WW22 and 16WW36, respectively.

Results from well 16WW05, located upgradient of the capped landfill area, did not indicate the presence of cis-1,2-DCE, suggesting there is no source located upgradient of landfill. 16WW30 located adjacent to Harrison Bayou, exhibited low cis-1,2-DCE concentrations, suggesting that cis-1,2-DCE has been attenuated along the groundwater flow direction. In the downgradient well 16WW22, the decreasing trend of cis-1,2-DCE could be the result of reductive dechlorination, indicating the plume is controlled.

1,1-DCE: The abiotic hydrolysis of 1,1,1-TCA produces 1,1-DCE which can undergo reductive dechlorination to VC and ethene or degrade via alternate pathways to carbon dioxide and chloride. Based on the historical analytical results, 1,1-DCE has been detected above the MCL (7 µg/L) in four shallow monitoring wells. One well (16WW12) previously exceeded the MCL, but the most recent results show no detectable 1,1-DCE. One well (16WW16) remains above the MCL and shows a decreasing trend. The 1,1-DCE concentration at 16WW16 fell from a maximum of 740 µg/L in October 1997, to 43.2 µg/L in March 2009. Two wells (16WW36 and 16WW38) remain above the MCL and show rising trends, with the most recent samples collected in March 2009 and June 2007, respectively. In June 2007, the most elevated 1,1-DCE concentration of 97.1 µg/L was observed at 16WW36 (**Table A-2**). Time-based natural attenuation rates may be calculated for two of the four wells where 1,1-DCE has been found at concentrations exceeding the MCL and at least three samples were collected.

VC: As the parent compounds TCE or TCA are reduced, VC is the final chlorinated daughter product of reductive dechlorination. VC has historically been detected above the MCL (2 µg/L) in seven shallow monitoring wells (see **Table A-2**). One well (16WW39) has fewer than three sample results and cannot be evaluated for concentration trends. One well (16WW22) had VC concentrations above the MCL in past samples, but the most recent sample of 1.76 J µg/L from June 2007 is less than the MCL. One well (16WW16) remains above the MCL and show a decreasing trend. The VC concentrations at 16WW16 fell from a maximum of 11,000 µg/L in October 1997, to 564 µg/L in March 2009. Four wells (16WW12, 16WW26, 16WW36 and 16WW38) remain above the MCL and show rising trends, with the most recent samples collected in October 2007, June 2007, March 2009, and June 2007, respectively. In June 2007, VC was detected in six monitoring wells and exceeded its MCL (2 µg/L) in five monitoring wells (16WW12, 16WW16, 16WW26, 16WW36, and 16WW38). Time-based natural attenuation rates may be calculated for two of the six wells where VC has been found at concentrations exceeding the MCL and at least three samples were collected. **Figure A-2** through **Figure A-5** show VC concentration trends for wells 16WW12, 16WW16, 16WW22 and 16WW36, respectively.

The presence of VC is evidence of reductive dechlorination. Results from well 16WW05, located upgradient of the capped landfill area, did not indicate the presence of VC, suggesting there is no source located upgradient of landfill. 16WW30, located adjacent to Harrison Bayou, exhibited no detectable VC concentrations, suggesting that VC has been attenuated along the groundwater flow direction. In the downgradient well 16WW22, the decreasing trend of VC concentrations could be the result of reductive dechlorination, indicating the plume is controlled. The increase in VC can be attributed to DCE degradation. The amount of VC produced will decrease as DCE is depleted.

The occurrence of the daughter products cis-1,2-DCE, 1,1-DCE, and VC are direct evidence that reductive dechlorination is occurring. The decreasing in-well trends of perchlorate, TCE, cis-DCE and VC near the landfill also support the occurrence of natural attenuation. The observation of lower COCs concentrations in the downgradient wells supports natural attenuation occurrence along groundwater flow direction.

3.1.2 Geochemical Indicators

Groundwater field parameters, including DO, ORP, pH, temperature, and conductivity, were analyzed in the field during the June 2007 sampling event. In addition, laboratory analyses for the following natural attenuation parameters were performed during the same sampling event: gases (methane, ethane, and ethene), anions (sulfate, nitrate, nitrite, and chloride), and total organic carbon (TOC).

Dissolved Oxygen: Oxygen is the preferred terminal electron acceptor during aerobic microbial respiration. Due to the low storativity of the shallow groundwater zone, the majority of shallow groundwater monitoring wells cannot be sampled with the low flow technique. After these monitoring wells were bailed dry, water samples were collected the following day. Only two wells, 16WW12 and 16WW16, were sampled with the low flow technique, and field test parameters were recorded at those wells. DO levels were 0.39 and 0.86 milligram per liter (mg/L) in the June 2007 sampling event (**Table A-2**). DO concentrations at these wells suggest anaerobic conditions in the shallow groundwater inside the plume area.

During the December 2008 sampling event (**Table A-2**), DO levels were measured at shallow monitoring wells 16WW42, 16WW43 and 16WW44. These wells are at the northern and southern periphery of the site and not within the plume area. DO concentrations at these wells ranged from 1.98 to 2.61 mg/L, suggesting aerobic conditions in the shallow groundwater zone away from the plume area.

Oxygen Reduction Potential: ORP often correlates with the dominant type of microbial activity. The lower the measurement, the more likely that sulfate-reducing or methanogenic conditions can occur in the subsurface. In June 2007, the ORP measurements were 161.7 millivolts (mV) in

16WW12 and 127.2 mV in 16WW16 (**Table A-2**), indicating the groundwater was under oxidative conditions. During the December 2008 sampling event (**Table A-2**), ORP measurements ranged from -420.9 to 71.1 at the shallow monitoring wells 16WW42, 16WW43, and 16WW44, indicated the groundwater was under reducing conditions.

The DO readings contradicted the ORP measurements, and DO readings are generally more reliable than ORP values.

Nitrate: Following oxygen, microorganisms preferentially use nitrate as a terminal electron acceptor. Concentrations of nitrate less than 1 mg/L are not expected to interfere with anaerobic reductive dechlorination (USEPA, 1998). Active nitrate-reducing conditions are often indicated by a depletion of nitrate in groundwater and a possible increase in nitrite, which is favorable for perchlorate degradation. In June 2007, nitrate and nitrite concentrations were below detection limits (**Table A-1**). Nitrate concentrations from other sampling events were also mostly below detection limits (**Table A-2**). Thus, nitrate levels are not expected to interfere with perchlorate and chlorinated ethene degradation.

Ferrous Iron: Once nitrate has been depleted, microorganisms use ferric iron as the next terminal electron acceptor. As an indirect indicator of reduced ferric iron, accumulation of ferrous iron may be observed. Ferrous iron levels above 1 mg/L suggest that groundwater conditions are favorable for reductive dechlorination (USEPA, 1998). During the June 2007 sampling event, ferrous iron levels ranged from 0 to 3.3 mg/L (**Table A-2**), and most iron detections exceeded 1 mg/L, suggesting that iron reduction is not likely to interfere with reductive dechlorination.

Sulfate: Reductive dechlorination of highly chlorinated compounds such as TCE occurs under sulfate-reducing conditions, but the reductive dechlorination of cis-1,2-DCE and VC is unlikely to occur under the same conditions. Sulfate-reducing conditions are favored when other electron acceptors such as oxygen, nitrate, and bioavailable ferric iron are depleted, leaving sulfate as the primary electron acceptor. Active sulfate reduction is often indicated by a depletion of sulfate in groundwater and a possible increase in sulfide. Concentrations of sulfate greater than 20 mg/L may cause competitive exclusion of complete reductive dechlorination (USEPA, 1998), but no significant effect on perchlorate degradation which could occur under nitrate-reducing conditions. As **Table A-2** indicates, June 2007 sulfate concentrations at LHAAP-16 ranged from 18.9 mg/L in 16WW05 to 2,190 mg/L in 16WW36; meanwhile sulfide was under its detection limit (1.0 mg/L) in all monitoring wells. These data suggest that the site groundwater is not under sulfate-reducing conditions, and the elevated sulfate levels will likely limit the biodegradation of chlorinated ethenes.

Methane: Methanogenesis occurs in highly reducing groundwater conditions, and an accumulation of methane above 0.5 mg/L is considered to be methanogenic conditions

(EPA, 1998). During the June 2007 sampling event, methane was detected in all monitoring wells, but only 16WW16 exhibited elevated methane concentrations at 1.3 mg/L, suggesting that methanogenic conditions have been established in the upgradient area (**Table A-2**).

Ethane and Ethene: Ethane and ethene are the end products of reductive dechlorination. In June 2007, ethane was detected at 6.1 μg/L in 16WW38; while ethene was detected at 11 μg/L in 16WW36. The detection of ethane and ethene suggest that complete reductive dechlorination is occurring at localized areas in the shallow groundwater zone (**Table A-2**).

Total Organic Carbon: Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA, 1998). In the wells sampled in June 2007, TOC ranged from 0.6 mg/L in 16WW34 to 16.7 mg/L in 16WW16 in the shallow groundwater zone (**Table A-2**). In monitoring wells 16WW16 and 16WW36, which exhibit the most elevated COCs, TOC levels were 16.7 and 3.4 mg/L respectively. Similar TOC concentrations were found during other sampling events, with a high of 21.3 mg/L at 16WW36 in December 2004 likely related to the injections of lactic acid at the semipassive biobarrier installed between 16WW16 and 16WW36.

These data suggest that TOC levels are close to the optimal range at a localized area adjacent to landfill, but decrease significantly with distance away from the landfill.

pH: Optimal pH range for microbial activity is between 6 and 8 standard units. The pH within the shallow groundwater monitoring wells 16WW12 and 16WW16 was 6.02 and 6.07 standard units during the June 2007 sampling event. Measured pH values from other sampling events ranged from 6.42 to 6.78 standard units (**Table A-2**). The pH values for the shallow groundwater at LHAAP-16 are within the optimal range to support biodegradation.

The quantitative assessment of the geochemical indicators in the shallow groundwater zone at LHAAP-16 presents evidence that geochemical conditions are favorable site wide for perchlorate degradation and favorable for chlorinated ethene degradation in localized areas. The DO values suggest that the groundwater conditions are anaerobic within the plume area. The absence of nitrate in areas impacted with contaminants indicates that conditions are favorable for the reduction of perchlorate. At localized areas (e.g., around 16WW36), elevated methane and the detection of ethene and ethane suggest that conditions favorable for complete dechlorination have been established. However, the elevated sulfate and limited TOC could limit complete reductive dechlorination at areas further downgradient of the landfill.

3.1.3 Natural Attenuation Rate Estimation and Microbial Analysis

Natural attenuation rate estimations and microbial analysis provide evidence supporting the third line of evidence for the shallow groundwater zone. These attenuation rate estimations incorporate all of the attenuation pathways, but cannot determine which pathway accounts for what portion of the attenuation.

3.1.3.1 Time-Dependent Attenuation Rates

Time-dependent attenuation rates were estimated for the COCs exceeding their MCLs or GW-Res during the most recent sampling events. The time-dependent attenuation rates were determined based on COC concentrations over time in monitoring wells, with the assumption of first-order degradation kinetics. In general the time-dependent attenuation rate is more accurate than the distance-dependent attenuation rate. The time-dependent attenuation rates of perchlorate, TCE, cis-1,2-DCE, 1,1-DCE and VC were calculated for the shallow groundwater zone and the results are summarized in **Table A-6**.

Figure A-7 is a graphical presentation of natural attenuation rate calculation for perchlorate in shallow groundwater monitoring wells (see **Table A-6**). In four monitoring wells (16WW22, 16WW30, 16WW32 and 16WW36) perchlorate concentrations have already fallen below the GW-Res value (26 µg/L). Natural attenuation rates calculated for these wells ranged from 0.0000132 to 0.00174 day^{-1}. In monitoring well 16WW16 the attenuation rate constant for perchlorate is 0.000264 day^{-1}, and the estimated time to reach the GW-Res is 24 years. Well 16WW12 exhibited the maximum perchlorate concentration, but the time dependent-attenuation rate was not calculated due to the lack of a decreasing trend for perchlorate at that well.

Figure A-8 is graphical presentation of natural attenuation rate constants calculation for TCE, in monitoring wells 16WW12, 16WW16, 16WW22, 16WW30 and 16WW34. In monitoring well 16WW34, the attenuation rate was 0.000157 day^{-1}, and TCE concentrations have already fallen below the MCL (5 µg/L). The estimated attenuation rates range from 0.0000379 to 0.00106 day^{-1}, and the estimated clean-up times range from 8.2 to 492 years (**Table A-6**). Wells 16WW14, 16WW26, 16WW36 and 16WW38 displayed increasing trends of TCE, thus in-well time dependent attenuation rates are not available for these wells.

Figure A-9 is a graphical presentation of the natural attenuation rate calculation for cis-1,2-DCE in wells 16WW16, 16WW22 and 16WW38. At monitoring well 16WW16, the attenuation rate of cis-1,2-DCE is 0.000743 day^{-1}, corresponding to an estimated cleanup time of 19 years. At monitoring well 16WW22, the attenuation rate of cis-1,2-DCE is 0.000879 day^{-1}, and the cis-1,2-DCE concentrations have already fallen below the MCL (70 µg/L). At monitoring well 16WW38, the attenuation rate of cis-1,2-DCE is 0.0000444 day^{-1}, corresponding to an estimated cleanup time of 26 years (see **Table A-6**). Monitoring wells 16WW12, 16WW26 and 16WW36 have cis-1,2-DCE levels above the MCL but lack decreasing trends, thus in-well attenuation rates cannot be calculated.

Figure A-10 is a graphical presentation of the natural attenuation rate calculation for 1,1-DCE in wells 16WW12 and 16WW16. At monitoring well 16WW12, the attenuation rate of 1,1-DCE is 0.000232 day^{-1}, and the 1,1-DCE concentrations have already fallen below the MCL (7 µg/L). At monitoring well 16WW16, the attenuation rate of 1,1-DCE is 0.000837 day^{-1}, corresponding to an estimated cleanup time of 6.0 years (see **Table A-6**). Monitoring wells 16WW36 and 16WW38 have 1,1-DCE levels above the MCL but lack decreasing trends, thus in-well attenuation rates cannot be calculated.

Figure A-11 is a graphical presentation of the natural attenuation rate calculation for VC in wells 16WW16 and 16WW22. At monitoring well 16WW16, the attenuation rate of VC is 0.000637 day^{-1}, corresponding to an estimated cleanup time of 24 years. At monitoring well 16WW22, the attenuation rate of VC is 0.000680 day^{-1}, and the VC concentrations have already fallen below the MCL (2 µg/L) (see **Table A-6**). Monitoring wells 16WW12, 16WW26, 16WW36 and 16WW38 have VC levels above the MCL but lack decreasing trends, thus in-well attenuation rates cannot be calculated.

3.1.3.2 Distance-Dependent Attenuation Rates

Distance-dependent attenuation rates were estimated for TCE using data from January 1998 and December 2004. The distance-dependent attenuation rates were calculated using a vector comprised of three wells aligned in the direction of groundwater flow (16WW16, 16WW36 and 16WW22). The distance-dependent attenuation rate can provide information when in-well concentrations of COC do not show a decreasing trend. The distance-dependent attenuation rates of TCE are summarized in **Table A-7**. For the monitoring well with most elevated TCE, 16WW36, time-dependent attenuation rates cannot be estimated from the in-well concentration trend. Thus the distance-dependent attenuation rates were estimated using the vector of wells which comprises 16WW16, 16WW36, and 16WW22 in the shallow zone. The distance-dependent rate correlates with the decreasing gradient of TCE concentration over the distance, with more significantly decreasing gradients generating higher attenuation rates. Along the vector of wells 16WW16, 16WW36 and 16WW22, the data from December 2004 and January 1998 demonstrate the most rapid and slowest decreasing gradient of concentration respectively, thus the rates obtained from these two sampling events represent the upper and lower range of the distance-dependent attenuation rates. **Figure A-12** is a graphical presentation of natural attenuation rate calculation for TCE using the data from December 2004. The intrinsic biodegradation rate and natural attenuation rate are estimated as 0.0620 and 0.0818 $year^{-1}$ respectively, the corresponding half-life is 11.2 and 8.5 years, respectively. Based on this result, intrinsic biodegradation of TCE contributes to 76% of natural attenuation. **Figure A-13** is a graphical presentation of natural attenuation rate calculation for TCE using the data from January

1998. The intrinsic biodegradation rate and natural attenuation rate are estimated as 0.0131 and 0.0206 year^{-1} respectively, the corresponding half-life is 52.8 and 33.6 years respectively. Based on this result, intrinsic biodegradation of TCE contributes to 64% of natural attenuation. Using the attenuation rates, the cleanup time of TCE in shallow zone will range from 106 to 421 years (**Table A-7**).

Based on the estimated natural attenuation rates for TCE, the cleanup via natural attenuation in the shallow groundwater zone will be less than 500 years under current site conditions at the most persistent locations. Most wells show indications of much faster attenuation (less than 40 years). Future monitoring results should provide the necessary data to verify the estimated attenuation rates and corresponding cleanup times in monitoring wells.

3.1.3.3 Microbial Analysis

Microbial analysis can support the third line of evidence. No samples from LHAAP-16 were subjected to microbial analysis. The apparent destruction of perchlorate during the test of the semi-passive biobarrier between 16WW16 and 16WW36 indicates that bacteria capable of reducing perchlorate are present, but species were not identified. The presence of daughter products from TCE biodegradation, DCE and VC, indicates that the microbes capable of completely reducing DCE isomers are likely to be present. However, without microbial analysis, the exact mix of species present has not been identified.

3.2 Intermediate Groundwater Zone

The intermediate groundwater zone extends from 35 to 62 feet bgs and is separated from the shallow and deep groundwater zones by clay layers. Three intermediate monitoring wells (16WW25, 16WW29, 16WW37) were sampled for natural attenuation parameters during the June 2007 sampling event. The interconnection between different groundwater zones varies with location, so contaminants could migrate from the shallow to the intermediate groundwater zone at certain locations. As the result of contaminants migrating into the lower aquifer, perchlorate, TCE, cis-1,2-DCE, 1,1-DCE, and VC have been detected exceeding MCL or GW-Res in the intermediate groundwater zone.

3.2.1 Change in COC Concentrations over Time and with Distance

The change in groundwater COC concentrations over time and with distance was evaluated in the intermediate groundwater at LHAAP-16.

3.2.1.1 Perchlorate

Perchlorate has historically been detected above GW-Res in seven monitoring wells. One well (16WW41) has fewer than three sample results and cannot be evaluated for concentration trends. Four wells (16WW13, 16WW25, 16WW27 and 16WW35) previously exceeded the GW-Res, but the most recent results show no detectable perchlorate. The most dramatic reduction has been at well 16WW35 where perchlorate concentrations fell from 342 µg/L in March 2003 to less than 5.5 µg/L in March 2009. One well (16WW37) remains above the GW-Res and shows a decreasing trend, from a maximum of 193 µg/L in February 2004, to 56.8 µg/L in June 2007. One well (16WW29) remains above the GW-Res and show a rising trend, with the most recent sample collected in June 2007. During the June 2007 sampling event, perchlorate was observed exceeding the GW-Res level of 26 µg/L in wells 16WW29 and 16WW37 (see **Table A-3**). Although perchlorate levels were rising in one well, general decreasing trends were observed in most intermediate monitoring wells over the course of performance monitoring. Time-based natural attenuation rates may be calculated for five of the seven wells where perchlorate has been found at concentrations exceeding the GW-Res. **Figures A-14, A-15** and **A-16** show perchlorate concentration trends for wells 16WW13, 16WW35 and 16WW37 respectively.

At the upgradient well 16WW06, perchlorate concentrations were below the detection limits, suggesting the contaminant source is not present upgradient of the landfill (**Table A-3**). In 16WW23 and 16WW27, located side-gradient along the groundwater flow direction, perchlorate was below detection limits during the most recent sampling event. The side-gradient regions of the intermediate plume appear to be stable. This suggests perchlorate contamination is limited to the region of intermediate groundwater directly downgradient from the source area. In the direct downgradient well 16WW29, the first occurrence of perchlorate concentration above GW-Res was observed in February 2001, and the second in June 2007. Future monitoring will determine whether the increase is a seasonal variation or the result of plume migration.

Based on the analytical results of perchlorate, natural attenuation is occurring in the intermediate groundwater zone, as evidenced by the general decreasing trend of perchlorate. However, the perchlorate concentrations above the GW-Res are still observed in localized areas (16WW29, 16WW37 and the four extraction wells).

3.2.1.2 Chlorinated Ethene

Historical and current data have shown that TCE has been detected at levels exceeding the MCL of 5 µg/L. The daughter products of TCE (cis-1,2-DCE, 1,1-DCE and VC) are also discussed in this section.

TCE: TCE has historically been detected above the MCL (5 µg/L) in nine intermediate monitoring wells. One well (16WW41) has fewer than three sample results and cannot be evaluated for concentration trends. One well (16WW33) previously exceeded the MCL, but the most recent results show no detectable TCE. Three wells (16WW13, 16WW29 and 16WW37) remain above the MCL and show a decreasing trend. The highest concentration among these three wells is at 16WW13 which fell from a maximum of 12,000 µg/L in October 1997, to 8,760 µg/L in June 2007. Four wells (16WW23, 16WW28, 16WW31 and 16WW35) remain above the MCL and show rising trends, with the most recent samples collected in December

2004 or March 2009. In June 2007, three monitoring wells exhibited TCE concentrations above the MCL (16WW13, 16WW29 and 16WW37). Although TCE levels were rising in four wells, general decreasing trends were observed in half the intermediate monitoring wells over the course of performance monitoring. Time-based natural attenuation rates may be calculated for four of the eight wells where TCE has been found at concentrations exceeding the MCL and at least three samples were collected. **Figures A-14, A-15** and **A-16** show TCE concentration trends for wells 16WW13, 16WW35 and 16WW37, respectively.

Well 16WW06 located upgradient of the landfill cap exhibited no detection of TCE, suggesting no source of TCE is present upgradient of the capped landfill area. The monitoring wells located adjacent to Harrison Bayou, (16WW27, 16WW28, and 16WW29) demonstrated low TCE concentrations or decreasing trends, suggesting that TCE has been attenuated along the groundwater flow direction.

Although perchlorate degradation is known to occur before TCE degradation, low perchlorate levels do not have a significant effect on TCE degradation. In comparison with the TCE plume in the shallow groundwater zone, TCE distribution in the intermediate groundwater zone is smaller in extent and lower in concentration. In most intermediate monitoring wells, decreasing trends of TCE have been observed, suggesting the occurrence of natural attenuation.

1,2-DCE: As TCE degrades via reductive dechlorination, cis-1,2-DCE is produced preferentially over trans-1,2-DCE (USEPA, 1998). In the monitoring wells where cis-1,2-DCE was detected exceeding its MCL (70 µg/L), the highest ratios of cis-1,2-DCE to trans-1,2-DCE were observed (**Table A-3**) – evidence that supports the occurrence of reductive dechlorination. For example, the ratio of cis-1,2-DCE to trans-1,2-DCE in well 16WW13, when both chemicals were detected, ranged between 47 and 72. At well 16WW35, when both isomers were detected, the ratio ranged from 53 to 102. Trans-1,2-DCE was below its MCL (100 µg/L) in all intermediate groundwater samples.

Cis-1,2-DCE has historically been detected above the MCL (70 µg/L) in five intermediate monitoring wells. One well (16WW41) has fewer than three sample results and cannot be evaluated for concentration trends. One well (16WW37) previously exceeded the MCL, but the most recent (2007) results show a cis-1,2-DCE concentration of 5.66 J µg/L. In 2003 and 2004, the ratio of cis-1,2-DCE to trans-1,2-DCE in well 16WW37 was approximately 50, which supports the occurrence of reductive dechlorination at that time. Three wells (16WW13, 16WW28 and 16WW35) remain above the MCL and show rising trends, with the most recent samples collected in June 2007 and March 2009. In June 2007, cis-1,2-DCE concentrations were detected above the MCL in one monitoring well (16WW13). Time-based natural attenuation rates may be calculated for one of the four wells where cis-1,2-DCE has been found at concentrations exceeding the MCL and at least three samples were collected. **Figures A-14,**

A-15 and **A-16** show cis-1,2-DCE concentration trends for wells 16WW13, 16WW35 and 16WW37, respectively.

At well 16WW06 located upgradient of landfill cap, cis-1,2-DCE has not been detected, suggesting the source is not present upgradient of landfill. The monitoring wells including 16WW27, 16WW28, and 16WW29 located adjacent to Harrison Bayou, exhibited undetectable or low cis-1,2-DCE concentrations, suggesting that attenuation along the groundwater flow direction has occurred.

1,1-DCE: The abiotic hydrolysis of 1,1,1-TCA produces 1,1-DCE which can undergo reductive dechlorination to VC and ethene or degrade via alternate pathways to carbon dioxide and chloride. Based on the historical analytical results, 1,1-DCE has been detected above the MCL (7 µg/L) in one intermediate monitoring well (16WW35). The 1,1-DCE concentration at 16WW35 fell from a maximum of 24 µg/L in October 1997, to 19.9 µg/L in March 2009. However, the overall trend in the well was upwards. In June 2007, the most elevated 1,1-DCE concentration of 3.05 J µg/L was observed at 16WW13 (**Table A-3**). Time-based natural attenuation rates may not be calculated for 1,1-DCE.

VC: As the parent compounds TCE or TCA are reduced, VC is the final chlorinated daughter product of reductive dechlorination. VC has historically been detected above the MCL (2 µg/L) in five intermediate monitoring wells. One well (16WW41) has fewer than three sample results and cannot be evaluated for concentration trends. One well (16WW37) had VC concentrations above the MCL in past samples, but the most recent result, 0.461 J µg/L from June 2007 is less than the MCL. One well (16WW13) remains above the MCL and shows a decreasing trend. The VC concentrations at 16WW13 showed a maximum of 19.7 µg/L in June 2007, but had been falling steadily before then. Two wells (16WW28 and 16WW35) remain above the MCL and show rising trends, with the most recent samples collected in March 2009. The highest recent VC concentration is 53.6 µg/L found at 16WW35 in March 2009. In June 2007, VC exceeded its MCL (2 µg/L) in one monitoring well (16WW13). Time-based natural attenuation rates may be calculated for two of the five wells where VC has been found at concentrations exceeding the MCL and at least three samples were collected. **Figures A-14, A-15** and **A-16** show VC concentration trends for wells 16WW13, 16WW35 and 16WW37, respectively.

The presence of VC is evidence of reductive dechlorination. Results from well 16WW06, located upgradient of the capped landfill area, did not indicate the presence of VC, suggesting there is no source located upgradient of landfill. Wells 16WW27, 16WW28 and 16WW29, located adjacent to Harrison Bayou, exhibited undetectable or low concentrations of VC, suggesting that VC has been attenuated along the groundwater flow direction. The increases in VC at some wells can be attributed to DCE degradation. The amount of VC produced will decrease as DCE is depleted.

The occurrence of the daughter products cis-1,2-DCE and VC are direct evidence that reductive dechlorination is occurring. The decreasing in-well trends of perchlorate, TCE, cis-12,-DCE and VC also support natural attenuation. The lower concentration of COCs at downgradient wells also suggest that contaminants have been attenuated along the groundwater flow direction. It is possible that an influx of COCs from upgradient locations have migrated downgradient, thus increasing COCs levels observed at localized areas.

3.2.2 Geochemical Indicators

Groundwater field parameters, including DO, ORP, pH, temperature, and conductivity, were analyzed in the field during the 2007 sampling event. In addition, laboratory analyses for the following natural attenuation parameters were performed during the same sampling event: gases (methane, ethane, and ethene), anions (sulfate, nitrate, nitrite, and chloride), and TOC.

Dissolved Oxygen: Oxygen is the preferred terminal electron acceptor during aerobic microbial respiration. DO levels ranged from 0.23 mg/L in 16WW25 to 2.66 mg/L in 16WW37 during June 2007 sampling event (**Table A-3**). Results from December 2008 also fall within this range. The data suggest that conditions in the intermediate groundwater zone range from aerobic to anaerobic.

Oxidation-Reduction Potential: ORP often correlates with the dominant type of microbial activity. The more negative the measurement, the more likely that sulfate-reducing or methanogenic conditions are occurring in the subsurface. During the June 2007 sampling event, ORP measurements were -43.8 and 146.5 mV in 16WW25 and 16WW37, respectively, and correlate with the DO readings (**Table A-3**). Results from December 2008 were -13.1 and -179.8 mV at 16WW41 and 16WW45, respectively. The data suggest that conditions are favorable for reductive dechlorination.

Nitrate, Ferrous Iron, and Sulfate: Following oxygen, microorganisms preferentially use nitrate, ferric iron, and sulfate in a sequential order as terminal electron acceptors. During the June 2007 sampling event, nitrate and nitrite were both below the detection limits (**Table A-3**), suggesting nitrate levels would not interfere with reductive dechlorination and perchlorate reduction. Ferrous iron levels were detected at 2.97 mg/L in 16WW25 and 0.09 in 16WW37, suggesting the iron-reducing conditions have been established in the vicinity of 16WW25 (**Table A-3**). Reductive dechlorination of highly chlorinated compounds such as TCE occurs under sulfate-reducing conditions, but reductive dechlorination of cis-1,2-DCE and VC is likely to occur under methanogenic conditions. Concentrations of sulfate greater than 20 mg/L may cause competitive exclusion of reductive dechlorination (USEPA, 1998). June 2007 sulfate concentrations range from 667 mg/L in 16WW29 to 4,630 mg/L in 16WW25, suggesting that sulfate levels could interfere with reductive dechlorination of the chlorinated ethenes in the intermediate groundwater zone.

Methane: Methanogenesis occurs in highly reducing conditions and an accumulation of methane above 0.5 mg/L is considered to suggest methanogenic conditions (USEPA, 1998). During the June 2007 sampling event, methane was detected in four monitoring wells sampled, but methane concentrations above 0.5 mg/L were not observed in the intermediate groundwater zone (**Table A-3**).

Ethane and Ethene: Ethane and ethene are the end products of reductive dechlorination. Ethene and ethane were below detection limits in June 2007. The lack of detection of ethane and ethene suggest that complete dechlorination may not be occurring in the intermediate groundwater zone (**Table A-3**).

Total Organic Carbon: Regardless of the electron acceptor being used, organic carbon is a required source of carbon and energy to sustain microbial activity. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA, 1998). TOC ranged from 5.92 mg/L in 16WW29 to 41.2 mg/L in 16WW25 during the sampling event in June 2007. TOC results from other sampling events ranged from 0.412 to 73.3 mg/L, with the highest results consistently found at 16WW35 (**Table A-3**). The data suggests that TOC levels are in the optimal range within localized areas adjacent to landfill, but have decreased significantly with distance.

pH: Optimal pH range for microbial activity is between 6 and 8 standard unit. pH in range of 5.97 to 7.17 standard unit was detected during the June 2007 sampling event (**Table A-3**). The historical pH data indicate the pH levels at LHAAP-16 were within the optimal range to support biodegradation.

The qualitative assessment of the geochemical indicators in the intermediate groundwater zone presents evidence that geochemical conditions are favorable for chlorinated ethene degradation in localized areas. The DO and ORP values suggest that the groundwater conditions range from aerobic to anaerobic. The absence of nitrate at areas impacted with contamination indicates that conditions are favorable for the reduction of perchlorate. The various iron levels indicate that iron-reducing has been established at some localized areas. Elevated sulfate and limited TOC at some areas could be the limiting factors to completing reductive dechlorination.

3.2.3 Natural Attenuation Rate Estimation

Natural attenuation rate estimations and microbial analysis provide evidence supporting the third line of evidence for the shallow groundwater zone. These attenuation rate estimations incorporate all of the attenuation pathways, but cannot determine which pathway accounts for what portion of the attenuation.

3.2.3.1 Time-Dependent Attenuation Rates

Time-dependent attenuation rates were estimated for the COCs exceeding their MCLs or GW-Res during the most recent sampling events. The time-dependent attenuation rates were determined based on COC concentrations over time in intermediate monitoring wells, with the assumption of first-order degradation kinetics. In general the time-dependent attenuation rate is more accurate than the distance-dependent attenuation rate. The time-dependent attenuation rates of perchlorate, TCE, cis-1,2-DCE, and VC were calculated for the intermediate groundwater zone and the results are summarized in **Table A-6**.

Figure A-17 is a graphical presentation of natural attenuation rate calculation for perchlorate in intermediate groundwater monitoring wells (see **Table A-6**). In four monitoring wells (16WW13, 16WW25, 16WW27 and 16WW35) perchlorate concentrations have already fallen below the GW-Res value (26 µg/L). Natural attenuation rates calculated for these wells ranged from 0.000845 to 0.00135 day^{-1}. In monitoring well 16WW37 the attenuation rate constant for perchlorate is 0.000102 day^{-1}, and the estimated time to reach the GW-Res is 24 years. Well 16WW29 exhibited the maximum recent perchlorate concentration, but the time dependent-attenuation rate was not calculated due to the lack of a decreasing trend for perchlorate at that well.

Figure A-18 is graphical presentation of natural attenuation rate constants calculation for TCE in intermediate monitoring wells (see **Table A-6**). In monitoring well 16WW33, the attenuation rate was 0.000351 day^{-1}, and TCE concentrations have already fallen below the MCL (5 µg/L). Monitoring wells 16WW13, 16WW29 and 16WW37 have TCE concentrations remaining above the MCL with decreasing concentration trends. The estimated attenuation rates range from 0.000179 to 0.000457 day^{-1}, and the estimated clean-up times range from 2.7 to 114 years (**Table A-6**). Wells 16WW23, 16WW28, 16WW31 and 16WW35 displayed increasing trends of TCE, thus in-well time dependent attenuation rates are not available for these wells.

Figure A-19 is a graphical presentation of the natural attenuation rate calculation for cis-1,2-DCE in intermediate monitoring wells (see **Table A-6**). At monitoring well 16WW37, the attenuation rate of cis-1,2-DCE is 0.00047 day^{-1}, and cis-1,2-DCE concentrations have already fallen below the MCL (70 µg/L). Monitoring wells 16WW13, 16WW28 and 16WW35 have cis-1,2-DCE levels above the MCL but lack decreasing trends, thus in-well attenuation rates cannot be calculated.

Figure A-20 is a graphical presentation of the natural attenuation rate calculation for VC in intermediate monitoring wells (see **Table A-6**). At monitoring well 16WW37, the attenuation rate of VC is 0.00112 day^{-1}, and VC concentrations have already fallen below the MCL (2 µg/L). At monitoring well 16WW13, the attenuation rate of VC is 0.000228 day^{-1}, and the estimated cleanup time is 27 years. Monitoring wells 16WW28 and 16WW35 have VC levels above the MCL but lack decreasing trends, thus in-well attenuation rates cannot be calculated.

3.2.3.2 Distance-Dependent Attenuation Rates

Distance-dependent attenuation rates were estimated for TCE using data from January 1998 and February 2004. The distance-dependent attenuation rates were calculated using a vector comprised of three wells aligned in the direction of groundwater flow (16WW37, 16WW35 and 16WW29). The distance-dependent attenuation rate can provide information when in-well concentrations of COC do not show a decreasing trend. The distance-dependent attenuation rates of TCE are summarized in **Table A-7**. For monitoring well 16WW35, time-dependent attenuation rates cannot be estimated from the in-well concentration trend. Thus the distance-dependent attenuation rates were estimated using the vector of wells which comprises 16WW37, 16WW35 and 16WW29 in the intermediate zone. The distance-dependent rate correlates with the decreasing gradient of TCE concentration over the distance, with more significantly decreasing gradients generating higher attenuation rates. Along the vector of wells 16WW37, 16WW35 and 16WW29, the data from January 1998 and February 2004 demonstrate slower and faster decreasing gradient of concentration respectively, thus the rates obtained from these two sampling events represent the lower and upper range of the distance-dependent attenuation rates. **Figure A-21** is a graphical presentation of natural attenuation rate calculation for TCE using the data from January 1998. The intrinsic biodegradation rate and natural attenuation rate are estimated at 0.0537 and 0.0779 year^{-1} respectively, the corresponding half-life is 12.9 and 8.9 years, respectively. Based on this result, intrinsic biodegradation of TCE contributes to 69% of natural attenuation. **Figure A-22** is a graphical presentation of natural attenuation rate calculation for TCE using the data from February 2004. The intrinsic biodegradation rate and natural attenuation rate are estimated at 0.0797 and 0.1096 year^{-1} respectively, the corresponding half-life is 8.7 and 6.3 years respectively. Based on this result, intrinsic biodegradation of TCE contributes to 73% of natural attenuation. Using these attenuation rates, the cleanup time of TCE in the intermediate zone will range from 56 to 78 years (**Table A-7**).

Based on the estimated natural attenuation rates for TCE, the cleanup via natural attenuation in the intermediate groundwater zone will be less than 120 years under current site conditions at the most persistent locations. Most wells show indications of much faster attenuation (less than 30 years). Future monitoring results should provide the necessary data to verify the estimated attenuation rates and corresponding cleanup times in monitoring wells.

3.2.3.3 Microbial Analysis

Microbial analysis can support the third line of evidence. No samples from LHAAP-16 were subjected to microbial analysis. The reduction of perchlorate concentrations in six monitoring wells suggests that bacteria capable of reducing perchlorate are present, but species were not identified. The presence of daughter products from TCE biodegradation, DCE and VC, indicates that microbes capable of completely reducing DCE isomers are likely to be present. However, without microbial analysis, the exact mix of species present has not been identified.

3.3 Upper Deep Groundwater Zone

The upper deep groundwater zone extends from approximately 80 to 111 feet below ground surface and is separated from the intermediate groundwater zone by clay layers. Monitoring wells in the upper deep groundwater zone include 16WW19, 16WW20, and 16WW21. COCs detected above MCLs in the upper deep groundwater zone included TCE, cis-1,2-DCE and VC. During the most recent sampling event for each monitoring well screened in the upper deep groundwater zone, no COC was detected exceeding MCLs. The data are presented in **Table A-4**, which shows that TCE, cis-1,2-DCE and VC were observed at concentrations of 140 and 360 and 4.8 µg/L, respectively, in 16WW21 in October 1997. TCE was observed at a concentration of 7.9 µg/L in 16WW20 in October 1997. These were followed by decreases to concentrations below their respective MCLs during all other sampling events. At the same location, sulfate concentrations exhibited similar trends, decreasing from 278 mg/L to 3.63 mg/L over the same time period. Generally, sulfate concentrations less than 20 mg/L do not impede reduction dechlorination. The co-occurrence of decreasing sulfate and chlorinated ethenes may be a result of sulfate being reduced to sulfite, which could establish favorable conditions for complete reductive dechlorination.

3.4 Deep Groundwater Zone

The deep groundwater zone extends below 220 feet. Monitoring wells screened in the deep groundwater zone include 16WW15, 16WW17, and 16WW18. There were no contaminants detected in the deep groundwater zone (**Table A-5**).

3.5 Comparison of Groundwater Zones

Comparing the distribution of COCs in the four different groundwater zones, the groundwater vertical movement is largely inhibited by the clay layers separating the different zones. However, connection among different groundwater zones may vary with location. COCs can migrate to deeper sediment, as suggested by the COCs detected in intermediate and upper deep groundwater zones. COCs have been detected mainly in the shallow groundwater zone and to a lesser extent in the intermediate groundwater zone.

4.0 Summary of Results and Conclusions

Historical perchlorate and VOC data and geochemical indicators for the groundwater at LHAAP-16 were evaluated to determine if MNA can be used as a feasible remedy for chlorinated solvents and perchlorate present in the shallow and intermediate groundwater. Preliminary screening of multiple wells at LHAAP-16 indicated limited evidence for anaerobic biodegradation, and a more detailed evaluation was made. A tiered approach using three lines of evidence was used to examine the occurrence of natural attenuation in site groundwater. The first line of evidence evaluated reductions in COC concentrations over time and with distance, the second line of evidence evaluated geochemical indicators, while the third line of evidence entailed estimation of natural attenuation rates. The results of the tiered evaluation and the conclusions are summarized below.

The COCs exceeding MCLs or GW-Res at LHAAP-16 are TCE, cis-1,2-DCE, 1,1-DCE, VC, and perchlorate in the shallow and intermediate groundwater zones. Wells designated as upper deep are not affected since October 1997. Wells designated as deep are not affected in any sampling event.

First Line of Evidence: Historical analytical trends indicate the occurrence of chlorinated solvent and perchlorate biodegradation at this site. The decreasing trends of COC concentrations in individual wells were observed in both shallow and intermediate groundwater. In the shallow groundwater zone, the detection of DCE, VC and ethene suggest the occurrence of complete reductive dechlorination. Decreasing trends in the source area and side-downgradient, along with the increases downgradient, suggests the plume is migrating downgradient toward Harrison Bayou, due to groundwater advection and extraction activities. In the intermediate groundwater zone, the reductions of perchlorate and TCE were also observed in most monitoring wells except for wells located downgradient of the source area. In the shallow and intermediate groundwater zones, natural attenuation is limiting contaminant plume migration and reducing the COC concentrations.

Second line of evidence: The qualitative assessment of the geochemical indicators in the shallow and intermediate groundwater zones at LHAAP-16 presents evidence that geochemical conditions are adequate for perchlorate degradation as evidenced by non-detect nitrate/nitrite. Chlorinated ethene degradation, is evidenced by elevated ferrous iron and adequate TOC levels in localized areas, such as the vicinity of 16WW36. The detection of methane and ethene in areas with elevated COCs suggested methogenic conditions which support complete dechlorination at localized areas. However, elevated sulfate levels at localized areas are capable of inhibiting complete reductive dechlorination in the shallow and intermediate groundwater zones. Furthermore, low TOC levels further downgradient from the landfill capped area could limit complete reductive dechlorination.

Third line of evidence: The time-dependent in-well natural attenuation rates were calculated for perchlorate, TCE, cis-1,2-DCE, 1,1-DCE, and VC. TCE attenuation is the limiting step to reach site wide cleanup. Based on the available in-well time-dependent attenuation rates, the longest estimated cleanup time would be 492 years for TCE to achieve the MCL in monitoring well 16WW12. However, in monitoring wells 16WW36 and 16WW35 where high contaminant concentrations were observed in shallow and intermediate groundwater zones respectively, the in-well time-dependent attenuation rates are not available due to lack of decreasing trends of COC concentrations. Based on the distance-dependent attenuation rates, the TCE concentration may reduce below MCL throughout the site in less than 500 years.

The MNA evaluation demonstrates that natural attenuation is occurring at LHAAP-16. The attenuation of perchlorate, TCE, cis-1,2-DCE, VC, and 1,1-DCE have been observed at the source and side-downgradient of the plume. However, the shallow groundwater zone plume is still migrating toward Harrison Bayou. The intermediate groundwater zone plume is relatively more stable with less migration along the flow direction. Thus, natural attenuation is a feasible remedy for the majority of the site, but may be an insufficient sole remedy to protect Harrison Bayou.

5.0 References

Bouwer, E.J., 1994, "Bioremediation of Chlorinated Solvents using Alternative Electron Acceptors," *Handbook of Bioremediation*, Norris, R.D., R.E. Hinchee, R. Brown, P.L. McCarty, L. Semprini, J.T. Wilson, D.H. Kampbell, M. Reinhard, E.J. Bouwer, R.C. Borden, T.M. Vogel, J.M. Thomas, and C.H. Ward, eds., Lewis Publishers, Boca Raton.

Environmental Security Technology Certification Program (ESTCP), 2005, *DATA ANALYSIS WHITE PAPER FOR: Remediation of Perchlorate Through Semi-Passive Bioremediation at the Longhorn Army Ammunitions Plant*, *ESTCP Project 200219*, Revision 1.0, May.

ESTCP, 2007, Electronic mail correspondence between Geosyntec and Shaw summarizing March 2006 sampling results for semi-passive biobarrier study.

Ground-Water Remediation Technologies Analysis Center (GWRTAC), 2001, *Technology Status Report: Perchlorate Treatment Technologies*, First Edition.

Rikken, G.B.; Kroon, A.G.M.; and van Ginkel, C.G., 1996, Transformation of (Per)chlorate into Chloride by a Newly Isolated Bacterium: Reduction and Dismutation, *Applied and Environmental Microbiology*, 45, 420–426.

Shaw Environmental, Inc. (Shaw), 2007, Groundwater Monitoring Report Site 12 and Site 16, Longhorn Army Ammunition Plant, Karnack, Texas.

Shaw, 2009, Final Addendum to Final Feasibility Study, LHAAP-16, Longhorn Army Ammunition Plant, Karnack, Texas.

U.S. Air Force Center for Environmental Excellence (USAFCEE), 2004, *Principle and Practice of Enhanced Anaerobic Bioremediation Final Draft,* Brook-City, Texas.

U.S. Environmental Protection Agency (USEPA), 1998, *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater,* U.S. EPA/600/R-98/128, Wiedemeier, T.H., M.A. Swanson, D.E. Moutoux, E.K. Gordon, J.T. Wilson, B.H. Wilson, D.H. Kampbell, P.E. Haas, R.N. Miller, J.E. Hansen, and F.H. Chapelle, Cincinnati, Ohio.

USEPA, 1999, *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites,* OSWER directive 9200.4-17P.

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Tables

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW05			16WW12			16WW12			16WW13			16WW13		
		Sample	16WW05-070606			16WW12-070611			16WW12-101107			16WW13-070612			16WW13-070612FD		
		Date	6-Jun-07			11-Jun-07			11-Oct-07			12-Jun-07			12-Jun-07		
		Purpose	REG			REG			REG			REG			FD		
		Zone	SHALLOW			SHALLOW			SHALLOW			INTERMEDIATE			INTERMEDIATE		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L					0.39											
Ferrous iron	mg/L		3.3			1.56											
Oxygen Reduction Potenti	mV					161.7											
pH	STD UNIT					6.02											
Specific Conductivity	µS/cm					5230											
Temperature	Deg C					20.48											
Turbidity	NTU					0.2											
GASES																	
Carbon Dioxide	ug/L		170000			260000						270000			310000		
Ethane	ug/L		5	U	U	5	U	U				5	U	U	5	U	U
Ethylene	ug/L		5	U	U	5	U	U				5	U	U	5	U	U
Methane	ug/L		84			7.7						110			130		
GEN CHEMISTRY																	
Chloride	mg/L		848			1030						200			172		
Nitrate	mg/L	10	6	U	U	60	U	U				6	U	U	6	U	U
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1	4	U	U	40	U	U				4	U	U	4	U	U
Perchlorate	ug/L	26	4	U	U	**322**			**5990**			10	U	U	10	U	U
Sulfate	mg/L		18.9			1950						3380			2860		
Sulfide	mg/L		1	U	U	1	U	U				1	U	U	1	U	U
Total Alkalinity	mg/L		161			255						54.5			57		
Total Organic Carbon	mg/L		1.45	J	J	7.99	J	J				11.4			19.2		
VOLATILES																	
1,1-Dichloroethene	ug/L	7	5	U	U	6.59			25	U	U	3.05	J	J	3.07	J	J
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	10	U	U	**106**			**90.3**			**319**	J	J	**315**	J	J
trans-1,2-Dichloroethene	ug/L	100	5	U	U	0.824	J	J	25	U	U	4.72	J	J	4.53	J	J
Trichloroethene	ug/L	5	5	U	U	**3840**			**4500**			**8760**			**8810**		
Vinyl chloride	ug/L	2	10	U	U	**21**		J	**22.7**	J	J	**19.7**		J	**19.4**		J
Groundwater Elevation																	
Water Level	msl		173.53			170.86											

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW16			16WW16			16WW19			16WW20			16WW20		
		Sample	16WW16-070607			16WW16-031709			16WW19-120408			16WW20-120408			16WW20-120408-FD		
		Date	7-Jun-07			17-Mar-09			4-Dec-08			4-Dec-08			4-Dec-08		
		Purpose	REG			REG			REG			REG			FD		
		Zone	SHALLOW			SHALLOW			UPPER DEEP			UPPER DEEP			UPPER DEEP		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L		0.86						0.57			-100.1					
Ferrous iron	mg/L																
Oxygen Reduction Potenti	mV		127.2						-135.2			-116					
pH	STD UNIT		6.07						8.97			8.75					
Specific Conductivity	µS/cm		5350						716			484					
Temperature	Deg C		21.72						19.18			16.84					
Turbidity	NTU		11.9						40.1			34.3					
GASES																	
Carbon Dioxide	ug/L		210000														
Ethane	ug/L		2.7	J	J												
Ethylene	ug/L		3.1	J	J												
Methane	ug/L		1300														
GEN CHEMISTRY																	
Chloride	mg/L		918			980											
Nitrate	mg/L	10	30	U	U												
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1	20	U	U												
Perchlorate	ug/L	26	**278**			**240**			0.22	U	U	0.11	U	U	0.11	U	U
Sulfate	mg/L		1180														
Sulfide	mg/L																
Total Alkalinity	mg/L																
Total Organic Carbon	mg/L		16.7														
VOLATILES																	
1,1-Dichloroethene	ug/L	7	**50.1**			**43.2**			0.5	U	U	0.5	U	U	0.5	U	U
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	**11500**			**11800**			0.25	U	U	0.25	U	U	0.25	U	U
trans-1,2-Dichloroethene	ug/L	100	33.8			24			0.25	U	U	0.25	U	U	0.25	U	U
Trichloroethene	ug/L	5	**8830**			**18900**			0.25	U	U	0.25	U	U	0.25	U	U
Vinyl chloride	ug/L	2	**655**	J	J	**564**			0.25	U	U	0.25	U	U	0.25	U	U
Groundwater Elevation																	
Water Level	msl		172.93														

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW21			16WW21			16WW21			16WW22			16WW24		
		Sample	16WW21-120408			16WW21-032409			16WW21-032409-FD			16WW22-070607			16WW24-031909		
		Date	4-Dec-08			24-Mar-09			24-Mar-09			7-Jun-07			19-Mar-09		
		Purpose	REG			REG			FD			REG			REG		
		Zone	UPPER DEEP			UPPER DEEP			UPPER DEEP			SHALLOW			SHALLOW		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L		1.85														
Ferrous iron	mg/L											0.37					
Oxygen Reduction Potenti	mV		-69.1														
pH	STD UNIT		7.84														
Specific Conductivity	µS/cm		552														
Temperature	Deg C		16.44														
Turbidity	NTU		19.6														
GASES																	
Carbon Dioxide	ug/L											98000					
Ethane	ug/L											5	U	U			
Ethylene	ug/L											5	U	U			
Methane	ug/L											4.8	J	J			
GEN CHEMISTRY																	
Chloride	mg/L					63.6			63.4			980			347		
Nitrate	mg/L	10										12	U	U			
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1										8	U	U			
Perchlorate	ug/L	26	0.11	U	U	0.22	U	U	0.11	U	U	5	U	U	1.1	U	U
Sulfate	mg/L											323					
Sulfide	mg/L											1	U	U			
Total Alkalinity	mg/L											204					
Total Organic Carbon	mg/L											2.52		U			
VOLATILES																	
1,1-Dichloroethene	ug/L	7	0.5	U	U	0.5	U	U	0.5	U	U	5	U	U	0.5	U	U
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	0.25	U	U	0.25	U	U	0.25	U	U	4.96	J	J	0.25	U	U
trans-1,2-Dichloroethene	ug/L	100	0.25	U	U	0.25	U	U	0.25	U	U	5	U	U	0.25	U	U
Trichloroethene	ug/L	5	0.25	U	U	0.25	U	U	0.25	U	U	**119**			1.43		
Vinyl chloride	ug/L	2	0.25	U	U	0.25	U	U	0.25	U	U	1.76	J	J	0.25	U	U
Groundwater Elevation																	
Water Level	msl											170.46					

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW25			16WW26			16WW28			16WW29			16WW30		
		Sample	16WW25-070611			16WW26-070611			16WW28-033009			16WW29-070612			16WW30-070612		
		Date	11-Jun-07			11-Jun-07			30-Mar-09			12-Jun-07			12-Jun-07		
		Purpose	REG			REG			REG			REG			REG		
		Zone	INTERMEDIATE			SHALLOW			INTERMEDIATE			INTERMEDIATE			SHALLOW		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L		0.23														
Ferrous iron	mg/L		2.97			2.05											
Oxygen Reduction Potenti	mV		-43.8														
pH	STD UNIT		5.97														
Specific Conductivity	µS/cm		7500														
Temperature	Deg C		19.22														
Turbidity	NTU		9.4														
GASES																	
Carbon Dioxide	ug/L		310000			210000						150000			68000		
Ethane	ug/L		5	U	U	5	U	U				5	U	U	5	U	U
Ethylene	ug/L		5	U	U	5	U	U				5	U	U	5	U	U
Methane	ug/L		61			22						61			17		
GEN CHEMISTRY																	
Chloride	mg/L		464			283			310			221			427		
Nitrate	mg/L	10	60	U	U	30	U	U				6	U	U	1.2	U	U
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1	40	U	U	20	U	U				4	U	U	0.8	U	U
Perchlorate	ug/L	26	10	U	U	**45**			0.55	U	U	**160**			2	U	U
Sulfate	mg/L		4630			1850						677			33		
Sulfide	mg/L		1	U	U	1	U	U				1	U	U	1	U	U
Total Alkalinity	mg/L		90			43	J	J				20.6			62.7		
Total Organic Carbon	mg/L		41.2			0.86	J	J				5.92			0.996	J	J
VOLATILES																	
1,1-Dichloroethene	ug/L	7	5	U	U	3.53	J	J	0.5	U	U	5	U	U	5	U	U
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	0.421	J	J	**166**			**78**			0.899	J	J	0.349	J	J
trans-1,2-Dichloroethene	ug/L	100	5	U	U	1.28	J	J	0.25	U	U	5	U	U	5	U	U
Trichloroethene	ug/L	5	0.534	J	J	**4070**			**46**			**6.87**			**20.1**		
Vinyl chloride	ug/L	2	10	U	U	**6.22**	J	J	**2.09**			10	U	U	10	U	U
Groundwater Elevation																	
Water Level	msl		171.42			170.78						171.32			171.34		

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW31			16WW32			16WW34			16WW35			16WW36		
		Sample	16WW31-032409			16WW32-031709			16WW34-070607			16WW35-031909			16WW36-070611		
		Date	24-Mar-09			17-Mar-09			7-Jun-07			19-Mar-09			11-Jun-07		
		Purpose	REG			REG			REG			REG			REG		
		Zone	INTERMEDIATE			SHALLOW			SHALLOW			INTERMEDIATE			SHALLOW		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L																
Ferrous iron	mg/L								3.26						0.26		
Oxygen Reduction Potenti	mV																
pH	STD UNIT																
Specific Conductivity	µS/cm																
Temperature	Deg C																
Turbidity	NTU																
GASES																	
Carbon Dioxide	ug/L								150000						430000		
Ethane	ug/L														5	U	U
Ethylene	ug/L														11		
Methane	ug/L														130		
GEN CHEMISTRY																	
Chloride	mg/L		295			336			218			648			587		
Nitrate	mg/L	10							24	U	U				30	U	U
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1							16	U	U				20	U	U
Perchlorate	ug/L	26	0.22	U	U	0.55	U	U	1	U	U	5.5	U	U	**441**		
Sulfate	mg/L								30.8	J	J				2190		
Sulfide	mg/L								1	U	U				1	U	U
Total Alkalinity	mg/L								186						508		
Total Organic Carbon	mg/L								0.603	J	U				3.43		
VOLATILES																	
1,1-Dichloroethene	ug/L	7	0.5	U	U	0.5	U	U	5	U	U	**19.9**			**97.1**		
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	0.25	U	U	0.25	U	U	10	U	U	**132**			**9480**		
trans-1,2-Dichloroethene	ug/L	100	0.25	U	U	0.25	U	U	5	U	U	2.5	U	U	67.8		
Trichloroethene	ug/L	5	**6.23**			0.25	U	U	5	U	U	**2180**			**29200**		
Vinyl chloride	ug/L	2	0.25	U	U	0.25	U	U	10	U	U	**53.6**			**273**	J	J
Groundwater Elevation																	
Water Level	msl								171.13						170.32		

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW36			16WW37			16WW38			16WW39			16WW40		
		Sample	16WW36-033009			16WW37-070606			16WW38-070606			16WW39-101107			16WW40-101007		
		Date	30-Mar-09			6-Jun-07			6-Jun-07			11-Oct-07			11-Oct-07		
		Purpose	REG			REG			REG			REG			REG		
		Zone	SHALLOW			INTERMEDIATE			SHALLOW			SHALLOW			SHALLOW		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L					2.66											
Ferrous iron	mg/L					0.09			3.3								
Oxygen Reduction Potenti	mV					146.5											
pH	STD UNIT					7.17											
Specific Conductivity	µS/cm					5970											
Temperature	Deg C					23.2											
Turbidity	NTU					42.2											
GASES																	
Carbon Dioxide	ug/L					30000			180000								
Ethane	ug/L					5	U	U	6.1								
Ethylene	ug/L					5	U	U	5	U	U						
Methane	ug/L					3.7	J	J	490								
GEN CHEMISTRY																	
Chloride	mg/L		889			1130			1320								
Nitrate	mg/L	10				60	U	U	6	U	U						
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1				40	U	U	4	U	U						
Perchlorate	ug/L	26	5.5	U	U	**56.8**			5	U	U	**2760**			**4540**		
Sulfate	mg/L					1160			112								
Sulfide	mg/L					1	U	U	1	U	U						
Total Alkalinity	mg/L					369			133								
Total Organic Carbon	mg/L					9.49			2.01								
VOLATILES																	
1,1-Dichloroethene	ug/L	7	250	U	U	5	U	U	**16.2**			25	U	U	10	U	U
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	**51800**			5.66	J	J	**106**			**87**			36.8		
trans-1,2-Dichloroethene	ug/L	100	**1660**			5	U	U	0.395	J	J	25	U	U	10	U	U
Trichloroethene	ug/L	5	**29300**			**85.2**			**874**			**3460**			**1060**		
Vinyl chloride	ug/L	2	**1700**			0.461	J	J	**71**	J	J	**12.8**	J	J	10	U	U
Groundwater Elevation																	
Water Level	msl					173.32			172.15								

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW40			16WW40			16WW41			16WW41			16WW42		
		Sample	16WW40-032409			16WW40-032509			16WW41-120208			16WW41-032409			16WW42-120108		
		Date	24-Mar-09			25-Mar-09			2-Dec-08			24-Mar-09			1-Dec-08		
		Purpose	REG			REG			REG			REG			REG		
		Zone	SHALLOW			SHALLOW			INTERMEDIATE			INTERMEDIATE			SHALLOW		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L								1.99						1.98		
Ferrous iron	mg/L																
Oxygen Reduction Potenti	mV								-13.1						-420.9		
pH	STD UNIT								6.49						6.42		
Specific Conductivity	µS/cm								6566						4183		
Temperature	Deg C								18.08						18.56		
Turbidity	NTU								4.2								
GASES																	
Carbon Dioxide	ug/L																
Ethane	ug/L																
Ethylene	ug/L																
Methane	ug/L																
GEN CHEMISTRY																	
Chloride	mg/L		881									474					
Nitrate	mg/L	10															
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1															
Perchlorate	ug/L	26				1.1	U	U				**250**					
Sulfate	mg/L																
Sulfide	mg/L																
Total Alkalinity	mg/L																
Total Organic Carbon	mg/L																
VOLATILES																	
1,1-Dichloroethene	ug/L	7	5.2	J	J				5	U	U	5	U	U	12.5	U	U
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	29.3						58.9			**209**			**1270**		
trans-1,2-Dichloroethene	ug/L	100	2.5	U	U				2.5	U	U	2.5	U	U	6.25	U	U
Trichloroethene	ug/L	5	**1320**						**1080**			**1690**			**3280**		
Vinyl chloride	ug/L	2	2.5	U	U				2.5	U	U	**22.4**			6.25	U	U
Groundwater Elevation																	
Water Level	msl																

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW42			16WW43			16WW44			16WW45			16WW45		
		Sample	16WW42-032409			16WW43-120108			16WW44-120108			16WW45-120208			16WW45-120208-FD		
		Date	24-Mar-09			1-Dec-08			1-Dec-08			2-Dec-08			2-Dec-08		
		Purpose	REG			REG			REG			REG			FD		
		Zone	SHALLOW			SHALLOW			SHALLOW			INTERMEDIATE			INTERMEDIATE		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual	Result	Qual	ValQual
FIELD TESTS																	
Dissolved Oxygen	mg/L					2.03			2.613			0.63					
Ferrous iron	mg/L																
Oxygen Reduction Potenti	mV					71.1			-53.1			-179.8					
pH	STD UNIT					6.78			6.61			10.31					
Specific Conductivity	µS/cm					3921			436			776					
Temperature	Deg C					17.38			18.81			17.23					
Turbidity	NTU								9.2			73.9					
GASES																	
Carbon Dioxide	ug/L																
Ethane	ug/L																
Ethylene	ug/L																
Methane	ug/L																
GEN CHEMISTRY																	
Chloride	mg/L		58.4														
Nitrate	mg/L	10															
Nitrate / Nitrite	mg/L																
Nitrite	mg/L	1															
Perchlorate	ug/L	26	0.22	U	U												
Sulfate	mg/L																
Sulfide	mg/L																
Total Alkalinity	mg/L																
Total Organic Carbon	mg/L																
VOLATILES																	
1,1-Dichloroethene	ug/L	7	0.5	U	U	0.5	U	U	0.5	U	U	0.5	U	U	0.5	U	U
1,2-Dichloroethene	ug/L	70															
cis-1,2-Dichloroethene	ug/L	70	3.63			0.25	U	U	0.25	U	U	0.25	U	U	0.25	U	U
trans-1,2-Dichloroethene	ug/L	100	0.25	U	U	0.25	U	U	0.25	U	U	0.25	U	U	0.25	U	U
Trichloroethene	ug/L	5	**9.11**			0.25	U	U	0.25	U	U	0.25	U	U	0.25	U	U
Vinyl chloride	ug/L	2	0.25	U	U	0.25	U	U	0.25	U	U	0.25	U	U	0.25	U	U
Groundwater Elevation																	
Water Level	msl																

Table A-1
Summary of Analytical Results from June 2007 to March 2009

		Location	16WW46		
		Sample	16WW46-120108		
		Date	1-Dec-08		
		Purpose	REG		
		Zone	SHALLOW		
Parameter	**Units**	**ARAR**	Result	Qual	ValQual
FIELD TESTS					
Dissolved Oxygen	mg/L				
Ferrous iron	mg/L				
Oxygen Reduction Potenti	mV				
pH	STD UNIT				
Specific Conductivity	µS/cm				
Temperature	Deg C				
Turbidity	NTU				
GASES					
Carbon Dioxide	ug/L				
Ethane	ug/L				
Ethylene	ug/L				
Methane	ug/L				
GEN CHEMISTRY					
Chloride	mg/L				
Nitrate	mg/L	10			
Nitrate / Nitrite	mg/L				
Nitrite	mg/L	1			
Perchlorate	ug/L	26			
Sulfate	mg/L				
Sulfide	mg/L				
Total Alkalinity	mg/L				
Total Organic Carbon	mg/L				
VOLATILES					
1,1-Dichloroethene	ug/L	7	0.5	U	U
1,2-Dichloroethene	ug/L	70			
cis-1,2-Dichloroethene	ug/L	70	3.5		
trans-1,2-Dichloroethene	ug/L	100	0.25	U	U
Trichloroethene	ug/L	5	**6.88**		
Vinyl chloride	ug/L	2	0.25	U	U
Groundwater Elevation					
Water Level	msl				

Notes:

µS/cm	microSeimens per centimeter
ARAR	applicable or relevant and appropriate requirement
Deg C	degrees Celsius
FD	field duplicate
mg/L	milligrams per liter
msl	mean sea level
mV	millivolts
NTU	Nephelometric turbidity units
Qual	laboratory qualifier
REG	regular sample
STD UNIT	standard units for measuring pH
ug/L	micrograms per liter
ValQual	validation qualifier
J	The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.
U	Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW05	9/27/00	16WW05-000927	Perchlorate	4	<	U	ug/L
16WW05	2/28/03	16WW05-030228	Perchlorate	4	<	U	ug/L
16WW05	2/21/04	16WW05-040221	Perchlorate	4	U		ug/L
16WW05	12/10/04	16WW05-041210	Perchlorate	4	U		ug/L
16WW05	6/6/07	16WW05-070606	Perchlorate	4	U	U	ug/L
16WW12	5/22/00	16WW12-000522	Perchlorate	**64**		J	ug/L
16WW12	9/28/00	16WW12-000928	Perchlorate	**200**			ug/L
16WW12	2/5/01	16WW12-010205	Perchlorate	**280**			ug/L
16WW12	3/17/02	16WW12-020317	Perchlorate	**2430**			ug/L
16WW12	9/21/02	16WW12-020921	Perchlorate	**747**			ug/L
16WW12	3/1/03	16WW12-030301	Perchlorate	**46.3**			ug/L
16WW12	2/24/04	16WW12-040224	Perchlorate	**86**			ug/L
16WW12	12/11/04	16WW12-041211	Perchlorate	**74.6**			ug/L
16WW12	6/11/07	16WW12-070611	Perchlorate	**322**			ug/L
16WW12	10/11/07	16WW12-101107	Perchlorate	**5990**			ug/L
16WW14	9/28/00	16WW14-000928	Perchlorate	4	<	U	ug/L
16WW14	2/28/03	16WW14-030228	Perchlorate	4.83			ug/L
16WW14	2/23/04	16WW14-040223	Perchlorate	4	U		ug/L
16WW14	12/11/04	16WW14-041211	Perchlorate	2.23			ug/L
16WW16	5/23/00	16WW16-000523	Perchlorate	**300**			ug/L
16WW16	10/3/00	16WW16-001003	Perchlorate	**861**			ug/L
16WW16	3/1/03	16WW16-030301	Perchlorate	**1050**			ug/L
16WW16	2/22/04	16WW16-040222	Perchlorate	**625**			ug/L
16WW16	12/13/04	16WW16-041213	Perchlorate	**615**			ug/L
16WW16	6/7/07	16WW16-070607	Perchlorate	**278**			ug/L
16WW16	3/17/09	16WW16-031709	Perchlorate	**240**			ug/L
16WW22	5/22/00	16WW22-000522	Perchlorate	**65.9**		J	ug/L
16WW22	9/28/00	16WW22-000928	Perchlorate	**97**			ug/L
16WW22	2/5/01	16WW22-010205	Perchlorate	**507**			ug/L
16WW22	3/16/02	16WW22-020316	Perchlorate	**38.4**	J	J	ug/L
16WW22	9/21/02	16WW22-020921	Perchlorate	**750**		J	ug/L
16WW22	3/1/03	16WW22-030301	Perchlorate	20.5			ug/L
16WW22	2/24/04	16WW22-040224	Perchlorate	**43.9**			ug/L
16WW22	12/11/04	16WW22-041211	Perchlorate	22.4			ug/L
16WW22	6/7/07	16WW22-070607	Perchlorate	5	U	U	ug/L
16WW24	9/19/00	16WW24-000919	Perchlorate	4			ug/L
16WW24	2/6/01	16WW24-010206	Perchlorate	7			ug/L
16WW24	3/17/02	16WW24-020317	Perchlorate	40	U	U	ug/L
16WW24	9/22/02	16WW24-020922	Perchlorate	80	U	U	ug/L
16WW24	3/3/03	16WW24-030303	Perchlorate	4	<	U	ug/L
16WW24	2/22/04	16WW24-040222	Perchlorate	4	U		ug/L
16WW24	12/14/04	16WW24-041214	Perchlorate	4	U		ug/L
16WW24	3/19/09	16WW24-031909	Perchlorate	1.1	U	U	ug/L
16WW26	5/22/00	16WW26-000522	Perchlorate	16.7			ug/L
16WW26	9/28/00	16WW26-000928	Perchlorate	4	<	U	ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW26	2/5/01	16WW26-010205	Perchlorate	0.85	<	U	ug/L
16WW26	3/2/03	16WW26-030302	Perchlorate	20	<	U	ug/L
16WW26	2/23/04	16WW26-040223	Perchlorate	4	U		ug/L
16WW26	12/14/04	16WW26-041214	Perchlorate	0.573			ug/L
16WW26	6/11/07	16WW26-070611	Perchlorate	**45**			ug/L
16WW30	9/29/00	16WW30-000929	Perchlorate	4	<	U	ug/L
16WW30	3/16/02	16WW30-020316	Perchlorate	**553**			ug/L
16WW30	9/23/02	16WW30-020923	Perchlorate	80	U	U	ug/L
16WW30	3/2/03	16WW30-030302	Perchlorate	4	<	U	ug/L
16WW30	2/24/04	16WW30-040224	Perchlorate	4	U		ug/L
16WW30	12/14/04	16WW30-041214	Perchlorate	0.0699	J		ug/L
16WW30	6/12/07	16WW30-070612	Perchlorate	2	U	U	ug/L
16WW32	9/21/00	16WW32-000921	Perchlorate	**58**			ug/L
16WW32	2/5/01	16WW32-010205	Perchlorate	0.85	<	U	ug/L
16WW32	3/16/02	16WW32-020316	Perchlorate	40	U	U	ug/L
16WW32	9/22/02	16WW32-020922	Perchlorate	4	U	U	ug/L
16WW32	3/1/03	16WW32-030301	Perchlorate	4	<	U	ug/L
16WW32	2/24/04	16WW32-040224	Perchlorate	10.2			ug/L
16WW32	12/11/04	16WW32-041211	Perchlorate	4	U		ug/L
16WW32	3/17/09	16WW32-031709	Perchlorate	0.55	U	U	ug/L
16WW34	9/21/00	16WW34-000921	Perchlorate	4	<	U	ug/L
16WW34	3/16/02	16WW34-020316	Perchlorate	40	U	U	ug/L
16WW34	9/22/02	16WW34-020922	Perchlorate	4	U	U	ug/L
16WW34	3/1/03	16WW34-030301	Perchlorate	4.05			ug/L
16WW34	2/24/04	16WW34-040224	Perchlorate	4	U		ug/L
16WW34	12/11/04	16WW34-041211	Perchlorate	4	U		ug/L
16WW34	6/7/07	16WW34-070607	Perchlorate	1	U	U	ug/L
16WW36	5/24/00	16WW36-000524	Perchlorate	**69.7**		J	ug/L
16WW36	10/3/00	16WW36-001003	Perchlorate	16	<	U	ug/L
16WW36	2/4/01	16WW36-010204	Perchlorate	**30**			ug/L
16WW36	3/2/03	16WW36-030302	Perchlorate	**91**			ug/L
16WW36	2/22/04	16WW36-040222	Perchlorate	**101**	J		ug/L
16WW36	12/13/04	16WW36-041213	Perchlorate	**57.7**			ug/L
16WW36	6/11/07	16WW36-070611	Perchlorate	**441**			ug/L
16WW36	3/30/09	16WW36-033009	Perchlorate	5.5	U	U	ug/L
16WW38	5/22/00	16WW38-000522	Perchlorate	7.63		J	ug/L
16WW38	9/28/00	16WW38-000928	Perchlorate	8	<	U	ug/L
16WW38	2/4/01	16WW38-010204	Perchlorate	1.7	<	U	ug/L
16WW38	3/16/02	16WW38-020316	Perchlorate	4	U	U	ug/L
16WW38	9/21/02	16WW38-020921	Perchlorate	4	U	U	ug/L
16WW38	2/28/03	16WW38-030228	Perchlorate	4	<	U	ug/L
16WW38	2/21/04	16WW38-040221	Perchlorate	2.91	J		ug/L
16WW38	12/10/04	16WW38-041210	Perchlorate	1.34			ug/L
16WW38	6/6/07	16WW38-070606	Perchlorate	5	U	U	ug/L
16WW39	10/11/07	16WW39-101107	Perchlorate	**2760**			ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW40	10/11/07	16WW40-101007	Perchlorate	**4540**			ug/L
16WW40	3/25/09	16WW40-032509	Perchlorate	1.1	U	U	ug/L
16WW42	3/24/09	16WW42-032409	Perchlorate	0.22	U	U	ug/L
16WW05	6/11/93	16WW05-930611	Trichloroethene	5	<	U	ug/L
16WW05	6/14/95	16WW05-950614	Trichloroethene	5	<	U	ug/L
16WW05	10/22/97	16WW05-971022	Trichloroethene	4.1			ug/L
16WW05	2/12/98	16WW05-980212	Trichloroethene	1	<	U	ug/L
16WW05	5/28/98	16WW05-980528	Trichloroethene	1	<	U	ug/L
16WW05	2/28/03	16WW05-030228	Trichloroethene	1	<	U	ug/L
16WW05	2/21/04	16WW05-040221	Trichloroethene	4	U		ug/L
16WW05	12/10/04	16WW05-041210	Trichloroethene	4	U		ug/L
16WW05	6/6/07	16WW05-070606	Trichloroethene	5	U	U	ug/L
16WW12	6/13/95	16WW12-950613	Trichloroethene	**1390**			ug/L
16WW12	10/27/97	16WW12-971027	Trichloroethene	**7500**			ug/L
16WW12	1/20/98	16WW12-980120	Trichloroethene	**5100**			ug/L
16WW12	6/11/98	16WW12-980611	Trichloroethene	**7100**			ug/L
16WW12	3/1/03	16WW12-030301	Trichloroethene	**1940**			ug/L
16WW12	2/24/04	16WW12-040224	Trichloroethene	**5520**			ug/L
16WW12	12/11/04	16WW12-041211	Trichloroethene	**1100**			ug/L
16WW12	6/11/07	16WW12-070611	Trichloroethene	**3840**			ug/L
16WW12	10/11/07	16WW12-101107	Trichloroethene	**4500**			ug/L
16WW14	6/13/95	16WW14-950613	Trichloroethene	**38**			ug/L
16WW14	10/24/97	16WW14-971024	Trichloroethene	**53**			ug/L
16WW14	1/20/98	16WW14-980120	Trichloroethene	**82**			ug/L
16WW14	6/15/98	16WW14-980615	Trichloroethene	**45**			ug/L
16WW14	2/28/03	16WW14-030228	Trichloroethene	**57.8**			ug/L
16WW14	2/23/04	16WW14-040223	Trichloroethene	**49.9**	B		ug/L
16WW14	12/11/04	16WW14-041211	Trichloroethene	**51.9**			ug/L
16WW16	6/15/95	16WW16-950615	Trichloroethene	**20900**			ug/L
16WW16	10/27/97	16WW16-971027	Trichloroethene	**25000**			ug/L
16WW16	1/21/98	16WW16-980121	Trichloroethene	**19000**			ug/L
16WW16	6/15/98	16WW16-980615	Trichloroethene	**15000**			ug/L
16WW16	5/23/00	16WW16-000523	Trichloroethene	**10000**		J	ug/L
16WW16	10/3/00	16WW16-001003	Trichloroethene	**13000**			ug/L
16WW16	3/1/03	16WW16-030301	Trichloroethene	**19400**			ug/L
16WW16	2/22/04	16WW16-040222	Trichloroethene	**15600**	B		ug/L
16WW16	12/13/04	16WW16-041213	Trichloroethene	**13400**			ug/L
16WW16	6/7/07	16WW16-070607	Trichloroethene	**8830**			ug/L
16WW16	3/17/09	16WW16-031709	Trichloroethene	**18900**			ug/L
16WW22	10/24/97	16WW22-971024	Trichloroethene	**2700**			ug/L
16WW22	1/20/98	16WW22-980120	Trichloroethene	**4300**			ug/L
16WW22	6/11/98	16WW22-980611	Trichloroethene	**2000**			ug/L
16WW22	3/1/03	16WW22-030301	Trichloroethene	**240**			ug/L
16WW22	2/24/04	16WW22-040224	Trichloroethene	**252**			ug/L
16WW22	12/11/04	16WW22-041211	Trichloroethene	**126**			ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW22	6/7/07	16WW22-070607	Trichloroethene	**119**			ug/L
16WW24	10/23/97	16WW24-971023	Trichloroethene	2.1			ug/L
16WW24	3/3/03	16WW24-030303	Trichloroethene	1	<	U	ug/L
16WW24	2/22/04	16WW24-040222	Trichloroethene	1	U		ug/L
16WW24	12/14/04	16WW24-041214	Trichloroethene	0.566	J		ug/L
16WW24	3/19/09	16WW24-031909	Trichloroethene	1.43			ug/L
16WW26	10/23/97	16WW26-971023	Trichloroethene	**95**			ug/L
16WW26	1/21/98	16WW26-980121	Trichloroethene	**270**			ug/L
16WW26	6/12/98	16WW26-980612	Trichloroethene	**32**			ug/L
16WW26	3/2/03	16WW26-030302	Trichloroethene	**3210**			ug/L
16WW26	2/23/04	16WW26-040223	Trichloroethene	**5300**	B		ug/L
16WW26	12/14/04	16WW26-041214	Trichloroethene	**4050**			ug/L
16WW26	6/11/07	16WW26-070611	Trichloroethene	**4070**			ug/L
16WW30	10/21/97	16WW30-971021	Trichloroethene	**36**			ug/L
16WW30	1/22/98	16WW30-980122	Trichloroethene	**9.3**			ug/L
16WW30	6/15/98	16WW30-980615	Trichloroethene	**11**			ug/L
16WW30	3/2/03	16WW30-030302	Trichloroethene	4.76			ug/L
16WW30	2/24/04	16WW30-040224	Trichloroethene	**13.8**			ug/L
16WW30	12/14/04	16WW30-041214	Trichloroethene	**6.05**			ug/L
16WW30	6/12/07	16WW30-070612	Trichloroethene	**20.1**			ug/L
16WW32	10/22/97	16WW32-971022	Trichloroethene	1.1			ug/L
16WW32	3/1/03	16WW32-030301	Trichloroethene	1	<	U	ug/L
16WW32	2/24/04	16WW32-040224	Trichloroethene	1	U		ug/L
16WW32	12/11/04	16WW32-041211	Trichloroethene	1	U		ug/L
16WW32	3/17/09	16WW32-031709	Trichloroethene	0.25	U	U	ug/L
16WW34	10/22/97	16WW34-971022	Trichloroethene	**7.7**			ug/L
16WW34	3/1/03	16WW34-030301	Trichloroethene	**18.2**			ug/L
16WW34	2/24/04	16WW34-040224	Trichloroethene	1	U		ug/L
16WW34	12/11/04	16WW34-041211	Trichloroethene	1	U		ug/L
16WW34	6/7/07	16WW34-070607	Trichloroethene	5	U	U	ug/L
16WW36	10/27/97	16WW36-971027	Trichloroethene	**11000**			ug/L
16WW36	1/20/98	16WW36-980120	Trichloroethene	**8600**			ug/L
16WW36	6/12/98	16WW36-980612	Trichloroethene	**8900**			ug/L
16WW36	5/24/00	16WW36-000524	Trichloroethene	**12000**			ug/L
16WW36	10/3/00	16WW36-001003	Trichloroethene	**12400**			ug/L
16WW36	3/2/03	16WW36-030302	Trichloroethene	**16000**			ug/L
16WW36	2/22/04	16WW36-040222	Trichloroethene	**37800**	B		ug/L
16WW36	12/13/04	16WW36-041213	Trichloroethene	**70600**			ug/L
16WW36	6/11/07	16WW36-070611	Trichloroethene	**29200**			ug/L
16WW36	3/30/09	16WW36-033009	Trichloroethene	**29300**			ug/L
16WW38	10/22/97	16WW38-971022	Trichloroethene	**23**			ug/L
16WW38	1/21/98	16WW38-980121	Trichloroethene	**160**			ug/L
16WW38	6/14/98	16WW38-980614	Trichloroethene	**73**			ug/L
16WW38	2/28/03	16WW38-030228	Trichloroethene	**52.9**			ug/L
16WW38	2/21/04	16WW38-040221	Trichloroethene	**92.5**			ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW38	12/10/04	16WW38-041210	Trichloroethene	**26.3**			ug/L
16WW38	6/6/07	16WW38-070606	Trichloroethene	**874**			ug/L
16WW39	10/11/07	16WW39-101107	Trichloroethene	**3460**			ug/L
16WW40	10/11/07	16WW40-101007	Trichloroethene	**1060**			ug/L
16WW40	3/24/09	16WW40-032409	Trichloroethene	**1320**			ug/L
16WW42	12/1/08	16WW42-120108	Trichloroethene	**3280**			ug/L
16WW42	3/24/09	16WW42-032409	Trichloroethene	**9.11**			ug/L
16WW43	12/1/08	16WW43-120108	Trichloroethene	0.25	U	U	ug/L
16WW44	12/1/08	16WW44-120108	Trichloroethene	0.25	U	U	ug/L
16WW46	12/1/08	16WW46-120108	Trichloroethene	**6.88**			ug/L
16WW05	6/14/95	16WW05-950614	1,2-Dichloroethene	5	<	U	ug/L
16WW12	6/13/95	16WW12-950613	1,2-Dichloroethene	5	<	U	ug/L
16WW14	6/13/95	16WW14-950613	1,2-Dichloroethene	5	<	U	ug/L
16WW16	6/15/95	16WW16-950615	1,2-Dichloroethene	**275000**			ug/L
16WW05	6/11/93	16WW05-930611	cis-1,2-Dichloroethene	5	<	U	ug/L
16WW05	10/22/97	16WW05-971022	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW05	2/12/98	16WW05-980212	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW05	5/28/98	16WW05-980528	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW05	2/28/03	16WW05-030228	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW05	2/21/04	16WW05-040221	cis-1,2-Dichloroethene	1	U		ug/L
16WW05	12/10/04	16WW05-041210	cis-1,2-Dichloroethene	1	U		ug/L
16WW05	6/6/07	16WW05-070606	cis-1,2-Dichloroethene	10	U	U	ug/L
16WW12	10/27/97	16WW12-971027	cis-1,2-Dichloroethene	**85**			ug/L
16WW12	1/20/98	16WW12-980120	cis-1,2-Dichloroethene	68		J	ug/L
16WW12	6/11/98	16WW12-980611	cis-1,2-Dichloroethene	**100**			ug/L
16WW12	3/1/03	16WW12-030301	cis-1,2-Dichloroethene	42.8			ug/L
16WW12	2/24/04	16WW12-040224	cis-1,2-Dichloroethene	**95.5**			ug/L
16WW12	12/11/04	16WW12-041211	cis-1,2-Dichloroethene	23.6			ug/L
16WW12	6/11/07	16WW12-070611	cis-1,2-Dichloroethene	**106**			ug/L
16WW12	10/11/07	16WW12-101107	cis-1,2-Dichloroethene	**90.3**			ug/L
16WW14	10/24/97	16WW14-971024	cis-1,2-Dichloroethene	0.96		J	ug/L
16WW14	1/20/98	16WW14-980120	cis-1,2-Dichloroethene	9.3			ug/L
16WW14	6/15/98	16WW14-980615	cis-1,2-Dichloroethene	0.94		J	ug/L
16WW14	2/28/03	16WW14-030228	cis-1,2-Dichloroethene	1.7			ug/L
16WW14	2/23/04	16WW14-040223	cis-1,2-Dichloroethene	1.83			ug/L
16WW14	12/11/04	16WW14-041211	cis-1,2-Dichloroethene	1.39			ug/L
16WW16	10/27/97	16WW16-971027	cis-1,2-Dichloroethene	**260000**			ug/L
16WW16	1/21/98	16WW16-980121	cis-1,2-Dichloroethene	**270000**			ug/L
16WW16	6/15/98	16WW16-980615	cis-1,2-Dichloroethene	**260000**			ug/L
16WW16	5/23/00	16WW16-000523	cis-1,2-Dichloroethene	**160000**		J	ug/L
16WW16	10/3/00	16WW16-001003	cis-1,2-Dichloroethene	**136000**			ug/L
16WW16	3/1/03	16WW16-030301	cis-1,2-Dichloroethene	**90100**			ug/L
16WW16	2/22/04	16WW16-040222	cis-1,2-Dichloroethene	**51200**			ug/L
16WW16	12/13/04	16WW16-041213	cis-1,2-Dichloroethene	**35500**			ug/L
16WW16	6/7/07	16WW16-070607	cis-1,2-Dichloroethene	**11500**			ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW16	3/17/09	16WW16-031709	cis-1,2-Dichloroethene	**11800**			ug/L
16WW22	10/24/97	16WW22-971024	cis-1,2-Dichloroethene	66			ug/L
16WW22	1/20/98	16WW22-980120	cis-1,2-Dichloroethene	**120**			ug/L
16WW22	6/11/98	16WW22-980611	cis-1,2-Dichloroethene	62			ug/L
16WW22	3/1/03	16WW22-030301	cis-1,2-Dichloroethene	11.4			ug/L
16WW22	2/24/04	16WW22-040224	cis-1,2-Dichloroethene	10.4			ug/L
16WW22	12/11/04	16WW22-041211	cis-1,2-Dichloroethene	6.91			ug/L
16WW22	6/7/07	16WW22-070607	cis-1,2-Dichloroethene	4.96	J	J	ug/L
16WW24	10/23/97	16WW24-971023	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW24	3/3/03	16WW24-030303	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW24	2/22/04	16WW24-040222	cis-1,2-Dichloroethene	1	U		ug/L
16WW24	12/14/04	16WW24-041214	cis-1,2-Dichloroethene	1	U		ug/L
16WW24	3/19/09	16WW24-031909	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW26	10/23/97	16WW26-971023	cis-1,2-Dichloroethene	2			ug/L
16WW26	1/21/98	16WW26-980121	cis-1,2-Dichloroethene	**570**			ug/L
16WW26	6/12/98	16WW26-980612	cis-1,2-Dichloroethene	0.72		J	ug/L
16WW26	3/2/03	16WW26-030302	cis-1,2-Dichloroethene	**135**			ug/L
16WW26	2/23/04	16WW26-040223	cis-1,2-Dichloroethene	**210**			ug/L
16WW26	12/14/04	16WW26-041214	cis-1,2-Dichloroethene	**121**			ug/L
16WW26	6/11/07	16WW26-070611	cis-1,2-Dichloroethene	**166**			ug/L
16WW30	10/21/97	16WW30-971021	cis-1,2-Dichloroethene	0.85		J	ug/L
16WW30	1/22/98	16WW30-980122	cis-1,2-Dichloroethene	11			ug/L
16WW30	6/15/98	16WW30-980615	cis-1,2-Dichloroethene	33			ug/L
16WW30	3/2/03	16WW30-030302	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW30	2/24/04	16WW30-040224	cis-1,2-Dichloroethene	1	U		ug/L
16WW30	12/14/04	16WW30-041214	cis-1,2-Dichloroethene	1	U		ug/L
16WW30	6/12/07	16WW30-070612	cis-1,2-Dichloroethene	0.349	J	J	ug/L
16WW32	10/22/97	16WW32-971022	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW32	3/1/03	16WW32-030301	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW32	2/24/04	16WW32-040224	cis-1,2-Dichloroethene	1	U		ug/L
16WW32	12/11/04	16WW32-041211	cis-1,2-Dichloroethene	1	U		ug/L
16WW32	3/17/09	16WW32-031709	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW34	10/22/97	16WW34-971022	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW34	3/1/03	16WW34-030301	cis-1,2-Dichloroethene	51.9			ug/L
16WW34	2/24/04	16WW34-040224	cis-1,2-Dichloroethene	0.586	J		ug/L
16WW34	12/11/04	16WW34-041211	cis-1,2-Dichloroethene	1	U		ug/L
16WW34	6/7/07	16WW34-070607	cis-1,2-Dichloroethene	10	U	U	ug/L
16WW36	10/27/97	16WW36-971027	cis-1,2-Dichloroethene	**76**			ug/L
16WW36	1/20/98	16WW36-980120	cis-1,2-Dichloroethene	**120**		J	ug/L
16WW36	6/12/98	16WW36-980612	cis-1,2-Dichloroethene	200	<	U	ug/L
16WW36	5/24/00	16WW36-000524	cis-1,2-Dichloroethene	**670**			ug/L
16WW36	10/3/00	16WW36-001003	cis-1,2-Dichloroethene	**430**			ug/L
16WW36	3/2/03	16WW36-030302	cis-1,2-Dichloroethene	**271**			ug/L
16WW36	2/22/04	16WW36-040222	cis-1,2-Dichloroethene	**842**	J		ug/L
16WW36	12/13/04	16WW36-041213	cis-1,2-Dichloroethene	**977**	J		ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW36	6/11/07	16WW36-070611	cis-1,2-Dichloroethene	**9480**			ug/L
16WW36	3/30/09	16WW36-033009	cis-1,2-Dichloroethene	**51800**			ug/L
16WW38	10/22/97	16WW38-971022	cis-1,2-Dichloroethene	0.52		J	ug/L
16WW38	1/21/98	16WW38-980121	cis-1,2-Dichloroethene	**520**			ug/L
16WW38	6/14/98	16WW38-980614	cis-1,2-Dichloroethene	2.6			ug/L
16WW38	2/28/03	16WW38-030228	cis-1,2-Dichloroethene	0.746		J	ug/L
16WW38	2/21/04	16WW38-040221	cis-1,2-Dichloroethene	0.668	J		ug/L
16WW38	12/10/04	16WW38-041210	cis-1,2-Dichloroethene	0.91	J		ug/L
16WW38	6/6/07	16WW38-070606	cis-1,2-Dichloroethene	**106**			ug/L
16WW39	10/11/07	16WW39-101107	cis-1,2-Dichloroethene	**87**			ug/L
16WW40	10/11/07	16WW40-101007	cis-1,2-Dichloroethene	36.8			ug/L
16WW40	3/24/09	16WW40-032409	cis-1,2-Dichloroethene	29.3			ug/L
16WW42	12/1/08	16WW42-120108	cis-1,2-Dichloroethene	**1270**			ug/L
16WW42	3/24/09	16WW42-032409	cis-1,2-Dichloroethene	3.63			ug/L
16WW43	12/1/08	16WW43-120108	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW44	12/1/08	16WW44-120108	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW46	12/1/08	16WW46-120108	cis-1,2-Dichloroethene	3.5			ug/L
16WW05	6/11/93	16WW05-930611	trans-1,2-Dichloroethene	5	<	U	ug/L
16WW05	10/22/97	16WW05-971022	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW05	2/12/98	16WW05-980212	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW05	5/28/98	16WW05-980528	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW05	2/28/03	16WW05-030228	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW05	2/21/04	16WW05-040221	trans-1,2-Dichloroethene	1	U		ug/L
16WW05	12/10/04	16WW05-041210	trans-1,2-Dichloroethene	1	U		ug/L
16WW05	6/6/07	16WW05-070606	trans-1,2-Dichloroethene	5	U	U	ug/L
16WW12	10/27/97	16WW12-971027	trans-1,2-Dichloroethene	0.56		J	ug/L
16WW12	1/20/98	16WW12-980120	trans-1,2-Dichloroethene	80	<	U	ug/L
16WW12	6/11/98	16WW12-980611	trans-1,2-Dichloroethene	80	<	U	ug/L
16WW12	3/1/03	16WW12-030301	trans-1,2-Dichloroethene	10	<	U	ug/L
16WW12	2/24/04	16WW12-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW12	12/11/04	16WW12-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW12	6/11/07	16WW12-070611	trans-1,2-Dichloroethene	0.824	J	J	ug/L
16WW12	10/11/07	16WW12-101107	trans-1,2-Dichloroethene	25	U	U	ug/L
16WW14	10/24/97	16WW14-971024	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW14	1/20/98	16WW14-980120	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW14	6/15/98	16WW14-980615	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW14	2/28/03	16WW14-030228	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW14	2/23/04	16WW14-040223	trans-1,2-Dichloroethene	1	U		ug/L
16WW14	12/11/04	16WW14-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW16	10/27/97	16WW16-971027	trans-1,2-Dichloroethene	**130**			ug/L
16WW16	1/21/98	16WW16-980121	trans-1,2-Dichloroethene	4000	<	U	ug/L
16WW16	6/15/98	16WW16-980615	trans-1,2-Dichloroethene	4000	<	U	ug/L
16WW16	5/23/00	16WW16-000523	trans-1,2-Dichloroethene	100	<	UJ	ug/L
16WW16	10/3/00	16WW16-001003	trans-1,2-Dichloroethene	2500	<	U	ug/L
16WW16	3/1/03	16WW16-030301	trans-1,2-Dichloroethene	500	<	U	ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW16	2/22/04	16WW16-040222	trans-1,2-Dichloroethene	34.5			ug/L
16WW16	12/13/04	16WW16-041213	trans-1,2-Dichloroethene	71.1			ug/L
16WW16	6/7/07	16WW16-070607	trans-1,2-Dichloroethene	33.8			ug/L
16WW16	3/17/09	16WW16-031709	trans-1,2-Dichloroethene	24			ug/L
16WW22	10/24/97	16WW22-971024	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW22	1/20/98	16WW22-980120	trans-1,2-Dichloroethene	50	<	U	ug/L
16WW22	6/11/98	16WW22-980611	trans-1,2-Dichloroethene	50	<	U	ug/L
16WW22	3/1/03	16WW22-030301	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW22	2/24/04	16WW22-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW22	12/11/04	16WW22-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW22	6/7/07	16WW22-070607	trans-1,2-Dichloroethene	5	U	U	ug/L
16WW24	10/23/97	16WW24-971023	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW24	3/3/03	16WW24-030303	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW24	2/22/04	16WW24-040222	trans-1,2-Dichloroethene	1	U		ug/L
16WW24	12/14/04	16WW24-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW24	3/19/09	16WW24-031909	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW26	10/23/97	16WW26-971023	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW26	1/21/98	16WW26-980121	trans-1,2-Dichloroethene	8	<	U	ug/L
16WW26	6/12/98	16WW26-980612	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW26	3/2/03	16WW26-030302	trans-1,2-Dichloroethene	0.705		J	ug/L
16WW26	2/23/04	16WW26-040223	trans-1,2-Dichloroethene	0.923	J		ug/L
16WW26	12/14/04	16WW26-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW26	6/11/07	16WW26-070611	trans-1,2-Dichloroethene	1.28	J	J	ug/L
16WW30	10/21/97	16WW30-971021	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW30	1/22/98	16WW30-980122	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW30	6/15/98	16WW30-980615	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW30	3/2/03	16WW30-030302	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW30	2/24/04	16WW30-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW30	12/14/04	16WW30-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW30	6/12/07	16WW30-070612	trans-1,2-Dichloroethene	5	U	U	ug/L
16WW32	10/22/97	16WW32-971022	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW32	3/1/03	16WW32-030301	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW32	2/24/04	16WW32-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW32	12/11/04	16WW32-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW32	3/17/09	16WW32-031709	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW34	10/22/97	16WW34-971022	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW34	3/1/03	16WW34-030301	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW34	2/24/04	16WW34-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW34	12/11/04	16WW34-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW34	6/7/07	16WW34-070607	trans-1,2-Dichloroethene	5	U	U	ug/L
16WW36	10/27/97	16WW36-971027	trans-1,2-Dichloroethene	10	<	U	ug/L
16WW36	1/20/98	16WW36-980120	trans-1,2-Dichloroethene	200	<	U	ug/L
16WW36	6/12/98	16WW36-980612	trans-1,2-Dichloroethene	200	<	U	ug/L
16WW36	5/24/00	16WW36-000524	trans-1,2-Dichloroethene	100	<	U	ug/L
16WW36	10/3/00	16WW36-001003	trans-1,2-Dichloroethene	200	<	U	ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW36	3/2/03	16WW36-030302	trans-1,2-Dichloroethene	1.69			ug/L
16WW36	2/22/04	16WW36-040222	trans-1,2-Dichloroethene	5.76			ug/L
16WW36	12/13/04	16WW36-041213	trans-1,2-Dichloroethene	9.63			ug/L
16WW36	6/11/07	16WW36-070611	trans-1,2-Dichloroethene	67.8			ug/L
16WW36	3/30/09	16WW36-033009	trans-1,2-Dichloroethene	**1660**			ug/L
16WW38	10/22/97	16WW38-971022	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW38	1/21/98	16WW38-980121	trans-1,2-Dichloroethene	10	<	U	ug/L
16WW38	6/14/98	16WW38-980614	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW38	2/28/03	16WW38-030228	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW38	2/21/04	16WW38-040221	trans-1,2-Dichloroethene	1	U		ug/L
16WW38	12/10/04	16WW38-041210	trans-1,2-Dichloroethene	1	U		ug/L
16WW38	6/6/07	16WW38-070606	trans-1,2-Dichloroethene	0.395	J	J	ug/L
16WW39	10/11/07	16WW39-101107	trans-1,2-Dichloroethene	25	U	U	ug/L
16WW40	10/11/07	16WW40-101007	trans-1,2-Dichloroethene	10	U	U	ug/L
16WW40	3/24/09	16WW40-032409	trans-1,2-Dichloroethene	2.5	U	U	ug/L
16WW42	12/1/08	16WW42-120108	trans-1,2-Dichloroethene	6.25	U	U	ug/L
16WW42	3/24/09	16WW42-032409	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW43	12/1/08	16WW43-120108	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW44	12/1/08	16WW44-120108	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW46	12/1/08	16WW46-120108	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW05	6/11/93	16WW05-930611	1,1-Dichloroethene	5	<	U	ug/L
16WW05	6/14/95	16WW05-950614	1,1-Dichloroethene	5	<	U	ug/L
16WW05	10/22/97	16WW05-971022	1,1-Dichloroethene	1	<	U	ug/L
16WW05	2/12/98	16WW05-980212	1,1-Dichloroethene	1	<	U	ug/L
16WW05	5/28/98	16WW05-980528	1,1-Dichloroethene	1	<	U	ug/L
16WW05	2/28/03	16WW05-030228	1,1-Dichloroethene	1	<	U	ug/L
16WW05	2/21/04	16WW05-040221	1,1-Dichloroethene	1	U		ug/L
16WW05	12/10/04	16WW05-041210	1,1-Dichloroethene	1	U		ug/L
16WW05	6/6/07	16WW05-070606	1,1-Dichloroethene	5	U	U	ug/L
16WW12	6/13/95	16WW12-950613	1,1-Dichloroethene	5	<	U	ug/L
16WW12	10/27/97	16WW12-971027	1,1-Dichloroethene	**7.4**			ug/L
16WW12	1/20/98	16WW12-980120	1,1-Dichloroethene	80	<	U	ug/L
16WW12	6/11/98	16WW12-980611	1,1-Dichloroethene	80	<	U	ug/L
16WW12	3/1/03	16WW12-030301	1,1-Dichloroethene	10	<	U	ug/L
16WW12	2/24/04	16WW12-040224	1,1-Dichloroethene	5.02	J		ug/L
16WW12	12/11/04	16WW12-041211	1,1-Dichloroethene	1.34			ug/L
16WW12	6/11/07	16WW12-070611	1,1-Dichloroethene	6.59			ug/L
16WW12	10/11/07	16WW12-101107	1,1-Dichloroethene	25	U	U	ug/L
16WW14	6/13/95	16WW14-950613	1,1-Dichloroethene	5	<	U	ug/L
16WW14	10/24/97	16WW14-971024	1,1-Dichloroethene	0.53		J	ug/L
16WW14	1/20/98	16WW14-980120	1,1-Dichloroethene	0.71		J	ug/L
16WW14	6/15/98	16WW14-980615	1,1-Dichloroethene	1	<	U	ug/L
16WW14	2/28/03	16WW14-030228	1,1-Dichloroethene	0.418		J	ug/L
16WW14	2/23/04	16WW14-040223	1,1-Dichloroethene	0.43	J		ug/L
16WW14	12/11/04	16WW14-041211	1,1-Dichloroethene	1	U		ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW16	6/15/95	16WW16-950615	1,1-Dichloroethene	**603**			ug/L
16WW16	10/27/97	16WW16-971027	1,1-Dichloroethene	**740**			ug/L
16WW16	1/21/98	16WW16-980121	1,1-Dichloroethene	4000	<	U	ug/L
16WW16	6/15/98	16WW16-980615	1,1-Dichloroethene	4000	<	U	ug/L
16WW16	5/23/00	16WW16-000523	1,1-Dichloroethene	**290**		J	ug/L
16WW16	10/3/00	16WW16-001003	1,1-Dichloroethene	2500	<	U	ug/L
16WW16	3/1/03	16WW16-030301	1,1-Dichloroethene	500	<	U	ug/L
16WW16	2/22/04	16WW16-040222	1,1-Dichloroethene	**124**	E		ug/L
16WW16	12/13/04	16WW16-041213	1,1-Dichloroethene	**110**	E		ug/L
16WW16	6/7/07	16WW16-070607	1,1-Dichloroethene	**50.1**			ug/L
16WW16	3/17/09	16WW16-031709	1,1-Dichloroethene	**43.2**			ug/L
16WW22	10/24/97	16WW22-971024	1,1-Dichloroethene	3.8			ug/L
16WW22	1/20/98	16WW22-980120	1,1-Dichloroethene	50	<	U	ug/L
16WW22	6/11/98	16WW22-980611	1,1-Dichloroethene	50	<	U	ug/L
16WW22	3/1/03	16WW22-030301	1,1-Dichloroethene	1	<	U	ug/L
16WW22	2/24/04	16WW22-040224	1,1-Dichloroethene	1	U		ug/L
16WW22	12/11/04	16WW22-041211	1,1-Dichloroethene	1	U		ug/L
16WW22	6/7/07	16WW22-070607	1,1-Dichloroethene	5	U	U	ug/L
16WW24	10/23/97	16WW24-971023	1,1-Dichloroethene	1	<	U	ug/L
16WW24	3/3/03	16WW24-030303	1,1-Dichloroethene	1	<	U	ug/L
16WW24	2/22/04	16WW24-040222	1,1-Dichloroethene	1	U		ug/L
16WW24	12/14/04	16WW24-041214	1,1-Dichloroethene	1	U		ug/L
16WW24	3/19/09	16WW24-031909	1,1-Dichloroethene	0.5	U	U	ug/L
16WW26	10/23/97	16WW26-971023	1,1-Dichloroethene	1	<	U	ug/L
16WW26	1/21/98	16WW26-980121	1,1-Dichloroethene	8	<	U	ug/L
16WW26	6/12/98	16WW26-980612	1,1-Dichloroethene	1	<	U	ug/L
16WW26	3/2/03	16WW26-030302	1,1-Dichloroethene	1.6			ug/L
16WW26	2/23/04	16WW26-040223	1,1-Dichloroethene	2.76			ug/L
16WW26	12/14/04	16WW26-041214	1,1-Dichloroethene	1	U		ug/L
16WW26	6/11/07	16WW26-070611	1,1-Dichloroethene	3.53	J	J	ug/L
16WW30	10/21/97	16WW30-971021	1,1-Dichloroethene	1	<	U	ug/L
16WW30	1/22/98	16WW30-980122	1,1-Dichloroethene	1	<	U	ug/L
16WW30	6/15/98	16WW30-980615	1,1-Dichloroethene	1	<	U	ug/L
16WW30	3/2/03	16WW30-030302	1,1-Dichloroethene	1	<	U	ug/L
16WW30	2/24/04	16WW30-040224	1,1-Dichloroethene	1	U		ug/L
16WW30	12/14/04	16WW30-041214	1,1-Dichloroethene	1	U		ug/L
16WW30	6/12/07	16WW30-070612	1,1-Dichloroethene	5	U	U	ug/L
16WW32	10/22/97	16WW32-971022	1,1-Dichloroethene	1	<	U	ug/L
16WW32	3/1/03	16WW32-030301	1,1-Dichloroethene	1	<	U	ug/L
16WW32	2/24/04	16WW32-040224	1,1-Dichloroethene	1	U		ug/L
16WW32	12/11/04	16WW32-041211	1,1-Dichloroethene	1	U		ug/L
16WW32	3/17/09	16WW32-031709	1,1-Dichloroethene	0.5	U	U	ug/L
16WW34	10/22/97	16WW34-971022	1,1-Dichloroethene	1	<	U	ug/L
16WW34	3/1/03	16WW34-030301	1,1-Dichloroethene	1	<	U	ug/L
16WW34	2/24/04	16WW34-040224	1,1-Dichloroethene	1	U		ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW34	12/11/04	16WW34-041211	1,1-Dichloroethene	1	U		ug/L
16WW34	6/7/07	16WW34-070607	1,1-Dichloroethene	5	U	U	ug/L
16WW36	10/27/97	16WW36-971027	1,1-Dichloroethene	**16**			ug/L
16WW36	1/20/98	16WW36-980120	1,1-Dichloroethene	200	<	U	ug/L
16WW36	6/12/98	16WW36-980612	1,1-Dichloroethene	200	<	U	ug/L
16WW36	5/24/00	16WW36-000524	1,1-Dichloroethene	100	<	U	ug/L
16WW36	10/3/00	16WW36-001003	1,1-Dichloroethene	200	<	U	ug/L
16WW36	3/2/03	16WW36-030302	1,1-Dichloroethene	**21.6**			ug/L
16WW36	2/22/04	16WW36-040222	1,1-Dichloroethene	**83.5**			ug/L
16WW36	12/13/04	16WW36-041213	1,1-Dichloroethene	**119**	E		ug/L
16WW36	6/11/07	16WW36-070611	1,1-Dichloroethene	**97.1**			ug/L
16WW36	3/30/09	16WW36-033009	1,1-Dichloroethene	250	U	U	ug/L
16WW38	10/22/97	16WW38-971022	1,1-Dichloroethene	1	<	U	ug/L
16WW38	1/21/98	16WW38-980121	1,1-Dichloroethene	10	<	U	ug/L
16WW38	6/14/98	16WW38-980614	1,1-Dichloroethene	1	<	U	ug/L
16WW38	2/28/03	16WW38-030228	1,1-Dichloroethene	0.486		J	ug/L
16WW38	2/21/04	16WW38-040221	1,1-Dichloroethene	1.26			ug/L
16WW38	12/10/04	16WW38-041210	1,1-Dichloroethene	1	U		ug/L
16WW38	6/6/07	16WW38-070606	1,1-Dichloroethene	**16.2**			ug/L
16WW39	10/11/07	16WW39-101107	1,1-Dichloroethene	25	U	U	ug/L
16WW40	10/11/07	16WW40-101007	1,1-Dichloroethene	10	U	U	ug/L
16WW40	3/24/09	16WW40-032409	1,1-Dichloroethene	5.2	J	J	ug/L
16WW42	12/1/08	16WW42-120108	1,1-Dichloroethene	12.5	U	U	ug/L
16WW42	3/24/09	16WW42-032409	1,1-Dichloroethene	0.5	U	U	ug/L
16WW43	12/1/08	16WW43-120108	1,1-Dichloroethene	0.5	U	U	ug/L
16WW44	12/1/08	16WW44-120108	1,1-Dichloroethene	0.5	U	U	ug/L
16WW46	12/1/08	16WW46-120108	1,1-Dichloroethene	0.5	U	U	ug/L
16WW05	6/11/93	16WW05-930611	Vinyl chloride	10	<	U	ug/L
16WW05	6/14/95	16WW05-950614	Vinyl chloride	10	<	U	ug/L
16WW05	10/22/97	16WW05-971022	Vinyl chloride	1	<	U	ug/L
16WW05	2/12/98	16WW05-980212	Vinyl chloride	1	<	U	ug/L
16WW05	5/28/98	16WW05-980528	Vinyl chloride	1	<	U	ug/L
16WW05	2/28/03	16WW05-030228	Vinyl chloride	1	<	U	ug/L
16WW05	2/21/04	16WW05-040221	Vinyl chloride	1	U		ug/L
16WW05	12/10/04	16WW05-041210	Vinyl chloride	1	U		ug/L
16WW05	6/6/07	16WW05-070606	Vinyl chloride	10	U	U	ug/L
16WW12	6/13/95	16WW12-950613	Vinyl chloride	10	<	U	ug/L
16WW12	10/27/97	16WW12-971027	Vinyl chloride	**12**			ug/L
16WW12	1/20/98	16WW12-980120	Vinyl chloride	80	<	U	ug/L
16WW12	6/11/98	16WW12-980611	Vinyl chloride	80	<	U	ug/L
16WW12	3/1/03	16WW12-030301	Vinyl chloride	10	<	U	ug/L
16WW12	2/24/04	16WW12-040224	Vinyl chloride	1	U		ug/L
16WW12	12/11/04	16WW12-041211	Vinyl chloride	**2.97**			ug/L
16WW12	6/11/07	16WW12-070611	Vinyl chloride	**21**		J	ug/L
16WW12	10/11/07	16WW12-101107	Vinyl chloride	**22.7**	J	J	ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW14	6/13/95	16WW14-950613	Vinyl chloride	10	<	U	ug/L
16WW14	10/24/97	16WW14-971024	Vinyl chloride	1	<	U	ug/L
16WW14	1/20/98	16WW14-980120	Vinyl chloride	1	<	U	ug/L
16WW14	6/15/98	16WW14-980615	Vinyl chloride	1	<	U	ug/L
16WW14	2/28/03	16WW14-030228	Vinyl chloride	1	<	U	ug/L
16WW14	2/23/04	16WW14-040223	Vinyl chloride	1	U		ug/L
16WW14	12/11/04	16WW14-041211	Vinyl chloride	1	U		ug/L
16WW16	6/15/95	16WW16-950615	Vinyl chloride	10000	<	UJ	ug/L
16WW16	10/27/97	16WW16-971027	Vinyl chloride	**11000**			ug/L
16WW16	1/21/98	16WW16-980121	Vinyl chloride	4000	<	U	ug/L
16WW16	6/15/98	16WW16-980615	Vinyl chloride	**11000**			ug/L
16WW16	5/23/00	16WW16-000523	Vinyl chloride	**6300**		J	ug/L
16WW16	10/3/00	16WW16-001003	Vinyl chloride	**6500**			ug/L
16WW16	3/1/03	16WW16-030301	Vinyl chloride	**5250**			ug/L
16WW16	2/22/04	16WW16-040222	Vinyl chloride	**2120**			ug/L
16WW16	12/13/04	16WW16-041213	Vinyl chloride	**1270**			ug/L
16WW16	6/7/07	16WW16-070607	Vinyl chloride	**655**	J	J	ug/L
16WW16	3/17/09	16WW16-031709	Vinyl chloride	**564**			ug/L
16WW22	10/24/97	16WW22-971024	Vinyl chloride	**14**			ug/L
16WW22	1/20/98	16WW22-980120	Vinyl chloride	50	<	U	ug/L
16WW22	6/11/98	16WW22-980611	Vinyl chloride	50	<	U	ug/L
16WW22	3/1/03	16WW22-030301	Vinyl chloride	**3.2**			ug/L
16WW22	2/24/04	16WW22-040224	Vinyl chloride	1	U		ug/L
16WW22	12/11/04	16WW22-041211	Vinyl chloride	1.05			ug/L
16WW22	6/7/07	16WW22-070607	Vinyl chloride	1.76	J	J	ug/L
16WW24	10/23/97	16WW24-971023	Vinyl chloride	1	<	U	ug/L
16WW24	3/3/03	16WW24-030303	Vinyl chloride	1	<	U	ug/L
16WW24	2/22/04	16WW24-040222	Vinyl chloride	1	U		ug/L
16WW24	12/14/04	16WW24-041214	Vinyl chloride	1	U		ug/L
16WW24	3/19/09	16WW24-031909	Vinyl chloride	0.25	U	U	ug/L
16WW26	10/23/97	16WW26-971023	Vinyl chloride	1	<	U	ug/L
16WW26	1/21/98	16WW26-980121	Vinyl chloride	5.1		J	ug/L
16WW26	6/12/98	16WW26-980612	Vinyl chloride	1	<	U	ug/L
16WW26	3/2/03	16WW26-030302	Vinyl chloride	**5.66**			ug/L
16WW26	2/23/04	16WW26-040223	Vinyl chloride	**5.19**			ug/L
16WW26	12/14/04	16WW26-041214	Vinyl chloride	1	U		ug/L
16WW26	6/11/07	16WW26-070611	Vinyl chloride	**6.22**	J	J	ug/L
16WW30	10/21/97	16WW30-971021	Vinyl chloride	1	<	U	ug/L
16WW30	1/22/98	16WW30-980122	Vinyl chloride	1	<	U	ug/L
16WW30	6/15/98	16WW30-980615	Vinyl chloride	1	<	U	ug/L
16WW30	3/2/03	16WW30-030302	Vinyl chloride	1	<	U	ug/L
16WW30	2/24/04	16WW30-040224	Vinyl chloride	1	U		ug/L
16WW30	12/14/04	16WW30-041214	Vinyl chloride	1	U		ug/L
16WW30	6/12/07	16WW30-070612	Vinyl chloride	10	U	U	ug/L
16WW32	10/22/97	16WW32-971022	Vinyl chloride	1	<	U	ug/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW32	3/1/03	16WW32-030301	Vinyl chloride	1	<	U	ug/L
16WW32	2/24/04	16WW32-040224	Vinyl chloride	1	U		ug/L
16WW32	12/11/04	16WW32-041211	Vinyl chloride	1	U		ug/L
16WW32	3/17/09	16WW32-031709	Vinyl chloride	0.25	U	U	ug/L
16WW34	10/22/97	16WW34-971022	Vinyl chloride	1	<	U	ug/L
16WW34	3/1/03	16WW34-030301	Vinyl chloride	0.941		J	ug/L
16WW34	2/24/04	16WW34-040224	Vinyl chloride	1	U		ug/L
16WW34	12/11/04	16WW34-041211	Vinyl chloride	1	U		ug/L
16WW34	6/7/07	16WW34-070607	Vinyl chloride	10	U	U	ug/L
16WW36	10/27/97	16WW36-971027	Vinyl chloride	10	<	U	ug/L
16WW36	1/20/98	16WW36-980120	Vinyl chloride	200	<	U	ug/L
16WW36	6/12/98	16WW36-980612	Vinyl chloride	200	<	U	ug/L
16WW36	5/24/00	16WW36-000524	Vinyl chloride	100	<	U	ug/L
16WW36	10/3/00	16WW36-001003	Vinyl chloride	200	<	U	ug/L
16WW36	3/2/03	16WW36-030302	Vinyl chloride	**24.3**			ug/L
16WW36	2/22/04	16WW36-040222	Vinyl chloride	**72.9**			ug/L
16WW36	12/13/04	16WW36-041213	Vinyl chloride	**115**	E		ug/L
16WW36	6/11/07	16WW36-070611	Vinyl chloride	**273**	J	J	ug/L
16WW36	3/30/09	16WW36-033009	Vinyl chloride	**1700**			ug/L
16WW38	10/22/97	16WW38-971022	Vinyl chloride	1	<	U	ug/L
16WW38	1/21/98	16WW38-980121	Vinyl chloride	**7.1**		J	ug/L
16WW38	6/14/98	16WW38-980614	Vinyl chloride	1	<	U	ug/L
16WW38	2/28/03	16WW38-030228	Vinyl chloride	1	<	U	ug/L
16WW38	2/21/04	16WW38-040221	Vinyl chloride	**3.35**			ug/L
16WW38	12/10/04	16WW38-041210	Vinyl chloride	1	U		ug/L
16WW38	6/6/07	16WW38-070606	Vinyl chloride	**71**	J	J	ug/L
16WW39	10/11/07	16WW39-101107	Vinyl chloride	**12.8**	J	J	ug/L
16WW40	10/11/07	16WW40-101007	Vinyl chloride	10	U	U	ug/L
16WW40	3/24/09	16WW40-032409	Vinyl chloride	2.5	U	U	ug/L
16WW42	12/1/08	16WW42-120108	Vinyl chloride	6.25	U	U	ug/L
16WW42	3/24/09	16WW42-032409	Vinyl chloride	0.25	U	U	ug/L
16WW43	12/1/08	16WW43-120108	Vinyl chloride	0.25	U	U	ug/L
16WW44	12/1/08	16WW44-120108	Vinyl chloride	0.25	U	U	ug/L
16WW46	12/1/08	16WW46-120108	Vinyl chloride	0.25	U	U	ug/L
16WW12	6/11/07	16WW12-070611	Dissolved Oxygen	0.39			mg/L
16WW16	6/7/07	16WW16-070607	Dissolved Oxygen	0.86			mg/L
16WW42	12/1/08	16WW42-120108	Dissolved Oxygen	1.98			mg/L
16WW43	12/1/08	16WW43-120108	Dissolved Oxygen	2.03			mg/L
16WW44	12/1/08	16WW44-120108	Dissolved Oxygen	2.613			mg/L
16WW12	6/11/07	16WW12-070611	Oxygen Reduction Potential	161.7			mV
16WW16	6/7/07	16WW16-070607	Oxygen Reduction Potential	127.2			mV
16WW42	12/1/08	16WW42-120108	Oxygen Reduction Potential	-420.9			mV
16WW43	12/1/08	16WW43-120108	Oxygen Reduction Potential	71.1			mV
16WW44	12/1/08	16WW44-120108	Oxygen Reduction Potential	-53.1			mV
16WW05	6/11/93	16WW05-930611	Nitrate	0.17			mg/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW05	6/6/07	16WW05-070606	Nitrate	6	U	U	mg/L
16WW12	6/11/07	16WW12-070611	Nitrate	60	U	U	mg/L
16WW16	6/7/07	16WW16-070607	Nitrate	30	U	U	mg/L
16WW22	6/7/07	16WW22-070607	Nitrate	12	U	U	mg/L
16WW26	6/11/07	16WW26-070611	Nitrate	30	U	U	mg/L
16WW30	6/12/07	16WW30-070612	Nitrate	1.2	U	U	mg/L
16WW34	6/7/07	16WW34-070607	Nitrate	24	U	U	mg/L
16WW36	6/11/07	16WW36-070611	Nitrate	30	U	U	mg/L
16WW38	6/6/07	16WW38-070606	Nitrate	6	U	U	mg/L
16WW05	10/22/97	16WW05-971022	Nitrate / Nitrite	0.05	<	U	mg/L
16WW05	2/28/03	16WW05-030228	Nitrate / Nitrite	0.25	<	U	mg/L
16WW05	2/21/04	16WW05-040221	Nitrate / Nitrite	0.25	U		mg/L
16WW05	12/10/04	16WW05-041210	Nitrate / Nitrite	0.25	U		mg/L
16WW12	10/27/97	16WW12-971027	Nitrate / Nitrite	2.36			mg/L
16WW12	3/1/03	16WW12-030301	Nitrate / Nitrite	0.25	<	U	mg/L
16WW12	2/24/04	16WW12-040224	Nitrate / Nitrite	0.09			mg/L
16WW12	12/11/04	16WW12-041211	Nitrate / Nitrite	0.25	U		mg/L
16WW14	10/24/97	16WW14-971024	Nitrate / Nitrite	0.052			mg/L
16WW14	2/28/03	16WW14-030228	Nitrate / Nitrite	0.25	<	U	mg/L
16WW14	2/23/04	16WW14-040223	Nitrate / Nitrite	0.25	U		mg/L
16WW14	12/11/04	16WW14-041211	Nitrate / Nitrite	0.25	U		mg/L
16WW16	10/27/97	16WW16-971027	Nitrate / Nitrite	0.084			mg/L
16WW16	3/1/03	16WW16-030301	Nitrate / Nitrite	2.7			mg/L
16WW16	2/22/04	16WW16-040222	Nitrate / Nitrite	0.26			mg/L
16WW16	12/13/04	16WW16-041213	Nitrate / Nitrite	0.0278			mg/L
16WW22	10/24/97	16WW22-971024	Nitrate / Nitrite	0.872			mg/L
16WW22	3/1/03	16WW22-030301	Nitrate / Nitrite	0.25	<	U	mg/L
16WW22	2/24/04	16WW22-040224	Nitrate / Nitrite	0.25	U		mg/L
16WW22	12/11/04	16WW22-041211	Nitrate / Nitrite	0.25	U		mg/L
16WW24	10/23/97	16WW24-971023	Nitrate / Nitrite	0.059		J	mg/L
16WW24	3/3/03	16WW24-030303	Nitrate / Nitrite	0.25	<	U	mg/L
16WW24	2/22/04	16WW24-040222	Nitrate / Nitrite	0.25	U		mg/L
16WW24	12/14/04	16WW24-041214	Nitrate / Nitrite	0.108	J		mg/L
16WW26	10/23/97	16WW26-971023	Nitrate / Nitrite	0.05	<	UJ	mg/L
16WW26	3/2/03	16WW26-030302	Nitrate / Nitrite	0.25	<	U	mg/L
16WW26	2/23/04	16WW26-040223	Nitrate / Nitrite	0.25	U		mg/L
16WW26	12/14/04	16WW26-041214	Nitrate / Nitrite	0.25	U		mg/L
16WW30	10/21/97	16WW30-971021	Nitrate / Nitrite	0.05	<	U	mg/L
16WW30	3/2/03	16WW30-030302	Nitrate / Nitrite	0.25	<	U	mg/L
16WW30	2/24/04	16WW30-040224	Nitrate / Nitrite	0.11			mg/L
16WW30	12/14/04	16WW30-041214	Nitrate / Nitrite	0.25	U		mg/L
16WW32	10/22/97	16WW32-971022	Nitrate / Nitrite	0.05	<	U	mg/L
16WW32	3/1/03	16WW32-030301	Nitrate / Nitrite	0.25	<	U	mg/L
16WW32	2/24/04	16WW32-040224	Nitrate / Nitrite	0.25	U		mg/L
16WW32	12/11/04	16WW32-041211	Nitrate / Nitrite	0.25	U		mg/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW34	10/22/97	16WW34-971022	Nitrate / Nitrite	0.124			mg/L
16WW34	3/1/03	16WW34-030301	Nitrate / Nitrite	0.25	<	U	mg/L
16WW34	2/24/04	16WW34-040224	Nitrate / Nitrite	0.25	U		mg/L
16WW34	12/11/04	16WW34-041211	Nitrate / Nitrite	0.25	U		mg/L
16WW36	10/27/97	16WW36-971027	Nitrate / Nitrite	0.05	<	U	mg/L
16WW36	3/2/03	16WW36-030302	Nitrate / Nitrite	0.25	<	U	mg/L
16WW36	2/22/04	16WW36-040222	Nitrate / Nitrite	0.25	U		mg/L
16WW36	12/13/04	16WW36-041213	Nitrate / Nitrite	0.00939	J		mg/L
16WW38	10/22/97	16WW38-971022	Nitrate / Nitrite	0.087			mg/L
16WW38	2/28/03	16WW38-030228	Nitrate / Nitrite	0.25	<	U	mg/L
16WW38	2/21/04	16WW38-040221	Nitrate / Nitrite	0.25	U		mg/L
16WW38	12/10/04	16WW38-041210	Nitrate / Nitrite	0.25	U		mg/L
16WW05	6/6/07	16WW05-070606	Nitrite	4	U	U	mg/L
16WW12	6/11/07	16WW12-070611	Nitrite	40	U	U	mg/L
16WW16	6/7/07	16WW16-070607	Nitrite	20	U	U	mg/L
16WW22	6/7/07	16WW22-070607	Nitrite	8	U	U	mg/L
16WW26	6/11/07	16WW26-070611	Nitrite	20	U	U	mg/L
16WW30	6/12/07	16WW30-070612	Nitrite	0.8	U	U	mg/L
16WW34	6/7/07	16WW34-070607	Nitrite	16	U	U	mg/L
16WW36	6/11/07	16WW36-070611	Nitrite	20	U	U	mg/L
16WW38	6/6/07	16WW38-070606	Nitrite	4	U	U	mg/L
16WW05	6/6/07	16WW05-070606	Ferrous iron	3.3			mg/L
16WW12	6/11/07	16WW12-070611	Ferrous iron	1.56			mg/L
16WW16	6/7/07	16WW16-070607	Ferrous iron	0			mg/L
16WW22	6/7/07	16WW22-070607	Ferrous iron	0.37			mg/L
16WW26	6/11/07	16WW26-070611	Ferrous iron	2.05			mg/L
16WW34	6/7/07	16WW34-070607	Ferrous iron	3.26			mg/L
16WW36	6/11/07	16WW36-070611	Ferrous iron	0.26			mg/L
16WW38	6/6/07	16WW38-070606	Ferrous iron	3.3			mg/L
16WW05	6/11/93	16WW05-930611	Sulfate	36.4			mg/L
16WW05	10/22/97	16WW05-971022	Sulfate	13.07			mg/L
16WW05	2/28/03	16WW05-030228	Sulfate	17.7			mg/L
16WW05	2/21/04	16WW05-040221	Sulfate	17.3			mg/L
16WW05	12/10/04	16WW05-041210	Sulfate	16.2			mg/L
16WW05	6/6/07	16WW05-070606	Sulfate	18.9			mg/L
16WW12	10/27/97	16WW12-971027	Sulfate	1200			mg/L
16WW12	3/1/03	16WW12-030301	Sulfate	506			mg/L
16WW12	2/24/04	16WW12-040224	Sulfate	458			mg/L
16WW12	12/11/04	16WW12-041211	Sulfate	461			mg/L
16WW12	6/11/07	16WW12-070611	Sulfate	1950			mg/L
16WW14	10/24/97	16WW14-971024	Sulfate	323			mg/L
16WW14	2/28/03	16WW14-030228	Sulfate	114			mg/L
16WW14	2/23/04	16WW14-040223	Sulfate	195			mg/L
16WW14	12/11/04	16WW14-041211	Sulfate	170			mg/L
16WW16	10/27/97	16WW16-971027	Sulfate	725			mg/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW16	3/1/03	16WW16-030301	Sulfate	690			mg/L
16WW16	2/22/04	16WW16-040222	Sulfate	959			mg/L
16WW16	12/13/04	16WW16-041213	Sulfate	1010			mg/L
16WW16	6/7/07	16WW16-070607	Sulfate	1180			mg/L
16WW22	10/24/97	16WW22-971024	Sulfate	5981			mg/L
16WW22	3/1/03	16WW22-030301	Sulfate	497			mg/L
16WW22	2/24/04	16WW22-040224	Sulfate	351			mg/L
16WW22	12/11/04	16WW22-041211	Sulfate	242			mg/L
16WW22	6/7/07	16WW22-070607	Sulfate	323			mg/L
16WW24	10/23/97	16WW24-971023	Sulfate	17			mg/L
16WW24	3/3/03	16WW24-030303	Sulfate	599			mg/L
16WW24	2/22/04	16WW24-040222	Sulfate	238			mg/L
16WW24	12/14/04	16WW24-041214	Sulfate	692			mg/L
16WW26	10/23/97	16WW26-971023	Sulfate	2631			mg/L
16WW26	3/2/03	16WW26-030302	Sulfate	425			mg/L
16WW26	2/23/04	16WW26-040223	Sulfate	915			mg/L
16WW26	12/14/04	16WW26-041214	Sulfate	890			mg/L
16WW26	6/11/07	16WW26-070611	Sulfate	1850			mg/L
16WW30	10/21/97	16WW30-971021	Sulfate	25.92			mg/L
16WW30	3/2/03	16WW30-030302	Sulfate	14.3			mg/L
16WW30	2/24/04	16WW30-040224	Sulfate	15.2			mg/L
16WW30	12/14/04	16WW30-041214	Sulfate	19.3			mg/L
16WW30	6/12/07	16WW30-070612	Sulfate	33			mg/L
16WW32	10/22/97	16WW32-971022	Sulfate	18.91			mg/L
16WW32	3/1/03	16WW32-030301	Sulfate	19.5			mg/L
16WW32	2/24/04	16WW32-040224	Sulfate	19.5			mg/L
16WW32	12/11/04	16WW32-041211	Sulfate	18.2			mg/L
16WW34	10/22/97	16WW34-971022	Sulfate	16.05			mg/L
16WW34	3/1/03	16WW34-030301	Sulfate	38.7			mg/L
16WW34	2/24/04	16WW34-040224	Sulfate	29.4			mg/L
16WW34	12/11/04	16WW34-041211	Sulfate	29.5			mg/L
16WW34	6/7/07	16WW34-070607	Sulfate	30.8	J	J	mg/L
16WW36	10/27/97	16WW36-971027	Sulfate	2136			mg/L
16WW36	3/2/03	16WW36-030302	Sulfate	469			mg/L
16WW36	2/22/04	16WW36-040222	Sulfate	1490			mg/L
16WW36	12/13/04	16WW36-041213	Sulfate	2510			mg/L
16WW36	6/11/07	16WW36-070611	Sulfate	2190			mg/L
16WW38	10/22/97	16WW38-971022	Sulfate	290			mg/L
16WW38	2/28/03	16WW38-030228	Sulfate	179			mg/L
16WW38	2/21/04	16WW38-040221	Sulfate	158			mg/L
16WW38	12/10/04	16WW38-041210	Sulfate	184			mg/L
16WW38	6/6/07	16WW38-070606	Sulfate	112			mg/L
16WW05	6/6/07	16WW05-070606	Sulfide	1	U	U	mg/L
16WW12	6/11/07	16WW12-070611	Sulfide	1	U	U	mg/L
16WW22	6/7/07	16WW22-070607	Sulfide	1	U	U	mg/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW26	6/11/07	16WW26-070611	Sulfide	1	U	U	mg/L
16WW30	6/12/07	16WW30-070612	Sulfide	1	U	U	mg/L
16WW34	6/7/07	16WW34-070607	Sulfide	1	U	U	mg/L
16WW36	6/11/07	16WW36-070611	Sulfide	1	U	U	mg/L
16WW38	6/6/07	16WW38-070606	Sulfide	1	U	U	mg/L
16WW05	6/6/07	16WW05-070606	Methane	84			ug/L
16WW12	6/11/07	16WW12-070611	Methane	7.7			ug/L
16WW16	6/7/07	16WW16-070607	Methane	1300			ug/L
16WW22	6/7/07	16WW22-070607	Methane	4.8	J	J	ug/L
16WW26	6/11/07	16WW26-070611	Methane	22			ug/L
16WW30	6/12/07	16WW30-070612	Methane	17			ug/L
16WW36	6/11/07	16WW36-070611	Methane	130			ug/L
16WW38	6/6/07	16WW38-070606	Methane	490			ug/L
16WW05	6/6/07	16WW05-070606	Ethane	5	U	U	ug/L
16WW12	6/11/07	16WW12-070611	Ethane	5	U	U	ug/L
16WW16	6/7/07	16WW16-070607	Ethane	2.7	J	J	ug/L
16WW22	6/7/07	16WW22-070607	Ethane	5	U	U	ug/L
16WW26	6/11/07	16WW26-070611	Ethane	5	U	U	ug/L
16WW30	6/12/07	16WW30-070612	Ethane	5	U	U	ug/L
16WW36	6/11/07	16WW36-070611	Ethane	5	U	U	ug/L
16WW38	6/6/07	16WW38-070606	Ethane	6.1			ug/L
16WW05	6/6/07	16WW05-070606	Ethylene	5	U	U	ug/L
16WW12	6/11/07	16WW12-070611	Ethylene	5	U	U	ug/L
16WW16	6/7/07	16WW16-070607	Ethylene	3.1	J	J	ug/L
16WW22	6/7/07	16WW22-070607	Ethylene	5	U	U	ug/L
16WW26	6/11/07	16WW26-070611	Ethylene	5	U	U	ug/L
16WW30	6/12/07	16WW30-070612	Ethylene	5	U	U	ug/L
16WW36	6/11/07	16WW36-070611	Ethylene	11			ug/L
16WW38	6/6/07	16WW38-070606	Ethylene	5	U	U	ug/L
16WW05	2/28/03	16WW05-030228	Total Organic Carbon	1.17			mg/L
16WW05	2/21/04	16WW05-040221	Total Organic Carbon	1.08			mg/L
16WW05	12/10/04	16WW05-041210	Total Organic Carbon	1.16			mg/L
16WW05	6/6/07	16WW05-070606	Total Organic Carbon	1.45	J	J	mg/L
16WW12	3/1/03	16WW12-030301	Total Organic Carbon	2			mg/L
16WW12	2/24/04	16WW12-040224	Total Organic Carbon	2.07			mg/L
16WW12	12/11/04	16WW12-041211	Total Organic Carbon	1.71			mg/L
16WW12	6/11/07	16WW12-070611	Total Organic Carbon	7.99	J	J	mg/L
16WW14	2/28/03	16WW14-030228	Total Organic Carbon	0.992			mg/L
16WW14	2/23/04	16WW14-040223	Total Organic Carbon	1.13			mg/L
16WW14	12/11/04	16WW14-041211	Total Organic Carbon	0.875			mg/L
16WW16	3/1/03	16WW16-030301	Total Organic Carbon	6.41			mg/L
16WW16	2/22/04	16WW16-040222	Total Organic Carbon	7.11			mg/L
16WW16	12/13/04	16WW16-041213	Total Organic Carbon	7.98			mg/L
16WW16	6/7/07	16WW16-070607	Total Organic Carbon	16.7			mg/L
16WW22	3/1/03	16WW22-030301	Total Organic Carbon	1.91			mg/L

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW22	2/24/04	16WW22-040224	Total Organic Carbon	2.29			mg/L
16WW22	12/11/04	16WW22-041211	Total Organic Carbon	3.11			mg/L
16WW22	6/7/07	16WW22-070607	Total Organic Carbon	2.52		U	mg/L
16WW24	3/3/03	16WW24-030303	Total Organic Carbon	1.62			mg/L
16WW24	2/22/04	16WW24-040222	Total Organic Carbon	1.13			mg/L
16WW24	12/14/04	16WW24-041214	Total Organic Carbon	1.47			mg/L
16WW26	3/2/03	16WW26-030302	Total Organic Carbon	3.45			mg/L
16WW26	2/23/04	16WW26-040223	Total Organic Carbon	5.74			mg/L
16WW26	12/14/04	16WW26-041214	Total Organic Carbon	6.01			mg/L
16WW26	6/11/07	16WW26-070611	Total Organic Carbon	0.86	J	J	mg/L
16WW30	3/2/03	16WW30-030302	Total Organic Carbon	0.778			mg/L
16WW30	2/24/04	16WW30-040224	Total Organic Carbon	0.894			mg/L
16WW30	12/14/04	16WW30-041214	Total Organic Carbon	0.713			mg/L
16WW30	6/12/07	16WW30-070612	Total Organic Carbon	0.996	J	J	mg/L
16WW32	3/1/03	16WW32-030301	Total Organic Carbon	0.828			mg/L
16WW32	2/24/04	16WW32-040224	Total Organic Carbon	0.687			mg/L
16WW32	12/11/04	16WW32-041211	Total Organic Carbon	0.846			mg/L
16WW34	3/1/03	16WW34-030301	Total Organic Carbon	0.781			mg/L
16WW34	2/24/04	16WW34-040224	Total Organic Carbon	0.906			mg/L
16WW34	12/11/04	16WW34-041211	Total Organic Carbon	1.36			mg/L
16WW34	6/7/07	16WW34-070607	Total Organic Carbon	0.603	J	U	mg/L
16WW36	3/2/03	16WW36-030302	Total Organic Carbon	12.1			mg/L
16WW36	2/22/04	16WW36-040222	Total Organic Carbon	14.6			mg/L
16WW36	12/13/04	16WW36-041213	Total Organic Carbon	21.3			mg/L
16WW36	6/11/07	16WW36-070611	Total Organic Carbon	3.43			mg/L
16WW38	2/28/03	16WW38-030228	Total Organic Carbon	1.08			mg/L
16WW38	2/21/04	16WW38-040221	Total Organic Carbon	1.13			mg/L
16WW38	12/10/04	16WW38-041210	Total Organic Carbon	1.33			mg/L
16WW38	6/6/07	16WW38-070606	Total Organic Carbon	2.01			mg/L
16WW05	6/11/93	16WW05-930611	pH	6.49			STD UNIT
16WW12	6/11/07	16WW12-070611	pH	6.02			STD UNIT
16WW16	6/7/07	16WW16-070607	pH	6.07			STD UNIT
16WW42	12/1/08	16WW42-120108	pH	6.42			STD UNIT
16WW43	12/1/08	16WW43-120108	pH	6.78			STD UNIT
16WW44	12/1/08	16WW44-120108	pH	6.61			STD UNIT

Table A-2
Summary of Shallow Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS

Notes:

mg/L	milligrams per liter
mV	millivolts
STD UNIT	standard units for measuring pH
ug/L	micrograms per liter
<	same as U
B	The concentration reported was detected in the associated blank
E	Exceeded calibration limits
J	The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.
U	Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW06	9/27/00	16WW06-000927	Perchlorate	4	<	U	ug/L
16WW06	2/28/03	16WW06-030228	Perchlorate	4	<	U	ug/L
16WW06	2/21/04	16WW06-040221	Perchlorate	4	U		ug/L
16WW06	12/10/04	16WW06-041210	Perchlorate	4	U		ug/L
16WW13	5/22/00	16WW13-000522	Perchlorate	**63.2**		J	ug/L
16WW13	9/21/00	16WW13-000921	Perchlorate	80	<	U	ug/L
16WW13	2/5/01	16WW13-010205	Perchlorate	4.3	<	U	ug/L
16WW13	3/3/03	16WW13-030303	Perchlorate	4	<	U	ug/L
16WW13	2/22/04	16WW13-040222	Perchlorate	**133**	J		ug/L
16WW13	12/13/04	16WW13-041213	Perchlorate	0.13	J		ug/L
16WW13	6/12/07	16WW13-070612	Perchlorate	10	U	U	ug/L
16WW23	9/19/00	16WW23-000919	Perchlorate	4	<	U	ug/L
16WW23	3/17/02	16WW23-020317	Perchlorate	12.6	J	J	ug/L
16WW23	9/22/02	16WW23-020922	Perchlorate	80	U	U	ug/L
16WW23	3/3/03	16WW23-030303	Perchlorate	4	<	U	ug/L
16WW23	2/22/04	16WW23-040222	Perchlorate	4	U		ug/L
16WW23	12/14/04	16WW23-041214	Perchlorate	4	U		ug/L
16WW25	9/28/00	16WW25-000928	Perchlorate	**65**			ug/L
16WW25	2/6/01	16WW25-010206	Perchlorate	**72**			ug/L
16WW25	3/17/02	16WW25-020317	Perchlorate	4000	U	U	ug/L
16WW25	9/23/02	16WW25-020923	Perchlorate	80	U	U	ug/L
16WW25	3/2/03	16WW25-030302	Perchlorate	**41.3**			ug/L
16WW25	2/23/04	16WW25-040223	Perchlorate	**296**	J		ug/L
16WW25	12/14/04	16WW25-041214	Perchlorate	4	U		ug/L
16WW25	6/11/07	16WW25-070611	Perchlorate	10	U	U	ug/L
16WW27	9/19/00	16WW27-000919	Perchlorate	7			ug/L
16WW27	2/5/01	16WW27-010205	Perchlorate	**110**			ug/L
16WW27	3/17/02	16WW27-020317	Perchlorate	11.1	J	J	ug/L
16WW27	9/22/02	16WW27-020922	Perchlorate	80	U	U	ug/L
16WW27	3/2/03	16WW27-030302	Perchlorate	4	<	U	ug/L
16WW27	2/22/04	16WW27-040222	Perchlorate	4	U		ug/L
16WW27	12/14/04	16WW27-041214	Perchlorate	4	U		ug/L
16WW28	9/19/00	16WW28-000919	Perchlorate	4	<	U	ug/L
16WW28	3/17/02	16WW28-020317	Perchlorate	12	J	J	ug/L
16WW28	9/22/02	16WW28-020922	Perchlorate	80	U	U	ug/L
16WW28	3/2/03	16WW28-030302	Perchlorate	4	<	U	ug/L
16WW28	2/22/04	16WW28-040222	Perchlorate	4	U		ug/L
16WW28	12/14/04	16WW28-041214	Perchlorate	4	U		ug/L
16WW28	3/30/09	16WW28-033009	Perchlorate	0.55	U	U	ug/L
16WW29	9/29/00	16WW29-000929	Perchlorate	20			ug/L
16WW29	2/6/01	16WW29-010206	Perchlorate	24			ug/L
16WW29	3/16/02	16WW29-020316	Perchlorate	2.99	J	J	ug/L
16WW29	9/23/02	16WW29-020923	Perchlorate	80	U	U	ug/L
16WW29	3/2/03	16WW29-030302	Perchlorate	3.47		J	ug/L
16WW29	2/23/04	16WW29-040223	Perchlorate	4	U		ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW29	12/14/04	16WW29-041214	Perchlorate	0.0956	J		ug/L
16WW29	6/12/07	16WW29-070612	Perchlorate	**160**			ug/L
16WW31	9/19/00	16WW31-000919	Perchlorate	4	<	U	ug/L
16WW31	3/16/02	16WW31-020316	Perchlorate	10.3	J	J	ug/L
16WW31	9/22/02	16WW31-020922	Perchlorate	4	U	U	ug/L
16WW31	3/1/03	16WW31-030301	Perchlorate	4	<	U	ug/L
16WW31	2/24/04	16WW31-040224	Perchlorate	4	U		ug/L
16WW31	12/11/04	16WW31-041211	Perchlorate	4	U		ug/L
16WW31	3/24/09	16WW31-032409	Perchlorate	0.22	U	U	ug/L
16WW33	9/19/00	16WW33-000919	Perchlorate	4	<	U	ug/L
16WW33	3/16/02	16WW33-020316	Perchlorate	40	U	U	ug/L
16WW33	9/22/02	16WW33-020922	Perchlorate	2.76	J	J	ug/L
16WW33	3/1/03	16WW33-030301	Perchlorate	4	<	U	ug/L
16WW33	2/24/04	16WW33-040224	Perchlorate	4	U		ug/L
16WW33	12/11/04	16WW33-041211	Perchlorate	4	U		ug/L
16WW35	9/30/00	16WW35-000930	Perchlorate	40	<	U	ug/L
16WW35	3/2/03	16WW35-030302	Perchlorate	**342**			ug/L
16WW35	2/22/04	16WW35-040222	Perchlorate	**143**	J		ug/L
16WW35	12/13/04	16WW35-041213	Perchlorate	**172**			ug/L
16WW35	3/19/09	16WW35-031909	Perchlorate	5.5	U	U	ug/L
16WW37	9/28/00	16WW37-000928	Perchlorate	**140**			ug/L
16WW37	2/5/01	16WW37-010205	Perchlorate	**130**			ug/L
16WW37	3/16/02	16WW37-020316	Perchlorate	**41.7**	J	J	ug/L
16WW37	9/22/02	16WW37-020922	Perchlorate	80	U	U	ug/L
16WW37	2/28/03	16WW37-030228	Perchlorate	**72.9**			ug/L
16WW37	2/21/04	16WW37-040221	Perchlorate	**193**	J		ug/L
16WW37	12/10/04	16WW37-041210	Perchlorate	**167**			ug/L
16WW37	6/6/07	16WW37-070606	Perchlorate	**56.8**			ug/L
16WW41	3/24/09	16WW41-032409	Perchlorate	**250**			ug/L
16WW06	6/11/93	16WW06-930611	Trichloroethene	5	<	U	ug/L
16WW06	6/14/95	16WW06-950614	Trichloroethene	5	<	U	ug/L
16WW06	10/22/97	16WW06-971022	Trichloroethene	1.6			ug/L
16WW06	2/12/98	16WW06-980212	Trichloroethene	1	<	U	ug/L
16WW06	5/28/98	16WW06-980528	Trichloroethene	1	<	U	ug/L
16WW06	2/28/03	16WW06-030228	Trichloroethene	1	<	U	ug/L
16WW06	2/21/04	16WW06-040221	Trichloroethene	1	U		ug/L
16WW06	12/10/04	16WW06-041210	Trichloroethene	1	U		ug/L
16WW13	6/13/95	16WW13-950613	Trichloroethene	**4820**			ug/L
16WW13	10/27/97	16WW13-971027	Trichloroethene	**12000**			ug/L
16WW13	3/3/03	16WW13-030303	Trichloroethene	**1510**			ug/L
16WW13	2/22/04	16WW13-040222	Trichloroethene	**3450**			ug/L
16WW13	12/13/04	16WW13-041213	Trichloroethene	**1070**			ug/L
16WW13	6/12/07	16WW13-070612	Trichloroethene	**8760**			ug/L
16WW23	10/23/97	16WW23-971023	Trichloroethene	1			ug/L
16WW23	3/3/03	16WW23-030303	Trichloroethene	1	<	U	ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW23	2/22/04	16WW23-040222	Trichloroethene	0.527	J		ug/L
16WW23	12/14/04	16WW23-041214	Trichloroethene	**7.94**			ug/L
16WW25	10/23/97	16WW25-971023	Trichloroethene	2.3			ug/L
16WW25	1/21/98	16WW25-980121	Trichloroethene	2.9			ug/L
16WW25	6/12/98	16WW25-980612	Trichloroethene	2			ug/L
16WW25	3/2/03	16WW25-030302	Trichloroethene	1	<	U	ug/L
16WW25	2/23/04	16WW25-040223	Trichloroethene	1	U		ug/L
16WW25	12/14/04	16WW25-041214	Trichloroethene	1	U		ug/L
16WW25	6/11/07	16WW25-070611	Trichloroethene	0.534	J	J	ug/L
16WW27	10/21/97	16WW27-971021	Trichloroethene	1	<	U	ug/L
16WW27	3/2/03	16WW27-030302	Trichloroethene	0.979		J	ug/L
16WW27	2/22/04	16WW27-040222	Trichloroethene	1	U		ug/L
16WW27	12/14/04	16WW27-041214	Trichloroethene	0.666	J		ug/L
16WW28	10/21/97	16WW28-971021	Trichloroethene	1	<	U	ug/L
16WW28	3/2/03	16WW28-030302	Trichloroethene	0.76		J	ug/L
16WW28	2/22/04	16WW28-040222	Trichloroethene	1	U		ug/L
16WW28	12/14/04	16WW28-041214	Trichloroethene	1	U		ug/L
16WW28	3/30/09	16WW28-033009	Trichloroethene	**46**			ug/L
16WW29	10/21/97	16WW29-971021	Trichloroethene	**59**			ug/L
16WW29	1/22/98	16WW29-980122	Trichloroethene	**66**			ug/L
16WW29	6/11/98	16WW29-980611	Trichloroethene	**25**			ug/L
16WW29	3/2/03	16WW29-030302	Trichloroethene	**35.9**			ug/L
16WW29	2/23/04	16WW29-040223	Trichloroethene	**27.2**	B		ug/L
16WW29	12/14/04	16WW29-041214	Trichloroethene	**70.5**			ug/L
16WW29	6/12/07	16WW29-070612	Trichloroethene	**6.87**			ug/L
16WW31	10/22/97	16WW31-971022	Trichloroethene	0.74		J	ug/L
16WW31	3/1/03	16WW31-030301	Trichloroethene	1.09			ug/L
16WW31	2/24/04	16WW31-040224	Trichloroethene	0.704	J		ug/L
16WW31	12/11/04	16WW31-041211	Trichloroethene	0.671	J		ug/L
16WW31	3/24/09	16WW31-032409	Trichloroethene	**6.23**			ug/L
16WW33	10/22/97	16WW33-971022	Trichloroethene	3			ug/L
16WW33	3/1/03	16WW33-030301	Trichloroethene	**6.2**			ug/L
16WW33	2/24/04	16WW33-040224	Trichloroethene	1	U		ug/L
16WW33	12/11/04	16WW33-041211	Trichloroethene	1	U		ug/L
16WW35	10/24/97	16WW35-971024	Trichloroethene	**1800**			ug/L
16WW35	1/21/98	16WW35-980121	Trichloroethene	**490**			ug/L
16WW35	6/12/98	16WW35-980612	Trichloroethene	**340**			ug/L
16WW35	3/2/03	16WW35-030302	Trichloroethene	**2940**			ug/L
16WW35	2/22/04	16WW35-040222	Trichloroethene	**5190**	B		ug/L
16WW35	12/13/04	16WW35-041213	Trichloroethene	**2820**			ug/L
16WW35	3/19/09	16WW35-031909	Trichloroethene	**2180**			ug/L
16WW37	10/21/97	16WW37-971021	Trichloroethene	**1200**			ug/L
16WW37	1/21/98	16WW37-980121	Trichloroethene	**1500**			ug/L
16WW37	6/14/98	16WW37-980614	Trichloroethene	**1400**			ug/L
16WW37	2/28/03	16WW37-030228	Trichloroethene	**1650**			ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW37	2/21/04	16WW37-040221	Trichloroethene	**1700**			ug/L
16WW37	12/10/04	16WW37-041210	Trichloroethene	**1080**			ug/L
16WW37	6/6/07	16WW37-070606	Trichloroethene	**85.2**			ug/L
16WW41	12/2/08	16WW41-120208	Trichloroethene	**1080**			ug/L
16WW41	3/24/09	16WW41-032409	Trichloroethene	**1690**			ug/L
16WW45	12/2/08	16WW45-120208	Trichloroethene	0.25	U	U	ug/L
16WW06	6/14/95	16WW06-950614	1,2-Dichloroethene	5	<	U	ug/L
16WW13	6/13/95	16WW13-950613	1,2-Dichloroethene	5	<	U	ug/L
16WW06	6/11/93	16WW06-930611	cis-1,2-Dichloroethene	5	<	U	ug/L
16WW06	10/22/97	16WW06-971022	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW06	2/12/98	16WW06-980212	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW06	5/28/98	16WW06-980528	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW06	2/28/03	16WW06-030228	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW06	2/21/04	16WW06-040221	cis-1,2-Dichloroethene	1	U		ug/L
16WW06	12/10/04	16WW06-041210	cis-1,2-Dichloroethene	1	U		ug/L
16WW13	10/27/97	16WW13-971027	cis-1,2-Dichloroethene	**160**		J	ug/L
16WW13	3/3/03	16WW13-030303	cis-1,2-Dichloroethene	**389**			ug/L
16WW13	2/22/04	16WW13-040222	cis-1,2-Dichloroethene	**263**			ug/L
16WW13	12/13/04	16WW13-041213	cis-1,2-Dichloroethene	**199**			ug/L
16WW13	6/12/07	16WW13-070612	cis-1,2-Dichloroethene	**319**	J	J	ug/L
16WW23	10/23/97	16WW23-971023	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW23	3/3/03	16WW23-030303	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW23	2/22/04	16WW23-040222	cis-1,2-Dichloroethene	1	U		ug/L
16WW23	12/14/04	16WW23-041214	cis-1,2-Dichloroethene	2.7			ug/L
16WW25	10/23/97	16WW25-971023	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW25	1/21/98	16WW25-980121	cis-1,2-Dichloroethene	7.9			ug/L
16WW25	6/12/98	16WW25-980612	cis-1,2-Dichloroethene	5			ug/L
16WW25	3/2/03	16WW25-030302	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW25	2/23/04	16WW25-040223	cis-1,2-Dichloroethene	1	U		ug/L
16WW25	12/14/04	16WW25-041214	cis-1,2-Dichloroethene	1	U		ug/L
16WW25	6/11/07	16WW25-070611	cis-1,2-Dichloroethene	0.421	J	J	ug/L
16WW27	10/21/97	16WW27-971021	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW27	3/2/03	16WW27-030302	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW27	2/22/04	16WW27-040222	cis-1,2-Dichloroethene	1	U		ug/L
16WW27	12/14/04	16WW27-041214	cis-1,2-Dichloroethene	1	U		ug/L
16WW28	10/21/97	16WW28-971021	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW28	3/2/03	16WW28-030302	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW28	2/22/04	16WW28-040222	cis-1,2-Dichloroethene	1	U		ug/L
16WW28	12/14/04	16WW28-041214	cis-1,2-Dichloroethene	1	U		ug/L
16WW28	3/30/09	16WW28-033009	cis-1,2-Dichloroethene	**78**			ug/L
16WW29	10/21/97	16WW29-971021	cis-1,2-Dichloroethene	0.57		J	ug/L
16WW29	1/22/98	16WW29-980122	cis-1,2-Dichloroethene	11			ug/L
16WW29	6/11/98	16WW29-980611	cis-1,2-Dichloroethene	3.2			ug/L
16WW29	3/2/03	16WW29-030302	cis-1,2-Dichloroethene	7.3			ug/L
16WW29	2/23/04	16WW29-040223	cis-1,2-Dichloroethene	5.77			ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW29	12/14/04	16WW29-041214	cis-1,2-Dichloroethene	48.1			ug/L
16WW29	6/12/07	16WW29-070612	cis-1,2-Dichloroethene	0.899	J	J	ug/L
16WW31	10/22/97	16WW31-971022	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW31	3/1/03	16WW31-030301	cis-1,2-Dichloroethene	1.22			ug/L
16WW31	2/24/04	16WW31-040224	cis-1,2-Dichloroethene	1	U		ug/L
16WW31	12/11/04	16WW31-041211	cis-1,2-Dichloroethene	1	U		ug/L
16WW31	3/24/09	16WW31-032409	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW33	10/22/97	16WW33-971022	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW33	3/1/03	16WW33-030301	cis-1,2-Dichloroethene	6.22			ug/L
16WW33	2/24/04	16WW33-040224	cis-1,2-Dichloroethene	1	U		ug/L
16WW33	12/11/04	16WW33-041211	cis-1,2-Dichloroethene	1	U		ug/L
16WW35	10/24/97	16WW35-971024	cis-1,2-Dichloroethene	52			ug/L
16WW35	1/21/98	16WW35-980121	cis-1,2-Dichloroethene	30			ug/L
16WW35	6/12/98	16WW35-980612	cis-1,2-Dichloroethene	15			ug/L
16WW35	3/2/03	16WW35-030302	cis-1,2-Dichloroethene	84.9			ug/L
16WW35	2/22/04	16WW35-040222	cis-1,2-Dichloroethene	169			ug/L
16WW35	12/13/04	16WW35-041213	cis-1,2-Dichloroethene	84.8			ug/L
16WW35	3/19/09	16WW35-031909	cis-1,2-Dichloroethene	132			ug/L
16WW37	10/21/97	16WW37-971021	cis-1,2-Dichloroethene	50	<	U	ug/L
16WW37	1/21/98	16WW37-980121	cis-1,2-Dichloroethene	220			ug/L
16WW37	6/14/98	16WW37-980614	cis-1,2-Dichloroethene	33			ug/L
16WW37	2/28/03	16WW37-030228	cis-1,2-Dichloroethene	59.2			ug/L
16WW37	2/21/04	16WW37-040221	cis-1,2-Dichloroethene	63			ug/L
16WW37	12/10/04	16WW37-041210	cis-1,2-Dichloroethene	51.6			ug/L
16WW37	6/6/07	16WW37-070606	cis-1,2-Dichloroethene	5.66	J	J	ug/L
16WW41	12/2/08	16WW41-120208	cis-1,2-Dichloroethene	58.9			ug/L
16WW41	3/24/09	16WW41-032409	cis-1,2-Dichloroethene	209			ug/L
16WW45	12/2/08	16WW45-120208	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW06	6/11/93	16WW06-930611	trans-1,2-Dichloroethene	5	<	U	ug/L
16WW06	10/22/97	16WW06-971022	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW06	2/12/98	16WW06-980212	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW06	5/28/98	16WW06-980528	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW06	2/28/03	16WW06-030228	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW06	2/21/04	16WW06-040221	trans-1,2-Dichloroethene	1	U		ug/L
16WW06	12/10/04	16WW06-041210	trans-1,2-Dichloroethene	1	U		ug/L
16WW13	10/27/97	16WW13-971027	trans-1,2-Dichloroethene	2.1			ug/L
16WW13	3/3/03	16WW13-030303	trans-1,2-Dichloroethene	5.84			ug/L
16WW13	2/22/04	16WW13-040222	trans-1,2-Dichloroethene	5.57			ug/L
16WW13	12/13/04	16WW13-041213	trans-1,2-Dichloroethene	3.45			ug/L
16WW13	6/12/07	16WW13-070612	trans-1,2-Dichloroethene	4.72	J	J	ug/L
16WW23	10/23/97	16WW23-971023	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW23	3/3/03	16WW23-030303	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW23	2/22/04	16WW23-040222	trans-1,2-Dichloroethene	1	U		ug/L
16WW23	12/14/04	16WW23-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW25	10/23/97	16WW25-971023	trans-1,2-Dichloroethene	1	<	U	ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW25	1/21/98	16WW25-980121	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW25	6/12/98	16WW25-980612	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW25	3/2/03	16WW25-030302	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW25	2/23/04	16WW25-040223	trans-1,2-Dichloroethene	1	U		ug/L
16WW25	12/14/04	16WW25-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW25	6/11/07	16WW25-070611	trans-1,2-Dichloroethene	5	U	U	ug/L
16WW27	10/21/97	16WW27-971021	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW27	3/2/03	16WW27-030302	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW27	2/22/04	16WW27-040222	trans-1,2-Dichloroethene	1	U		ug/L
16WW27	12/14/04	16WW27-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW28	10/21/97	16WW28-971021	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW28	3/2/03	16WW28-030302	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW28	2/22/04	16WW28-040222	trans-1,2-Dichloroethene	1	U		ug/L
16WW28	12/14/04	16WW28-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW28	3/30/09	16WW28-033009	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW29	10/21/97	16WW29-971021	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW29	1/22/98	16WW29-980122	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW29	6/11/98	16WW29-980611	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW29	3/2/03	16WW29-030302	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW29	2/23/04	16WW29-040223	trans-1,2-Dichloroethene	1	U		ug/L
16WW29	12/14/04	16WW29-041214	trans-1,2-Dichloroethene	1	U		ug/L
16WW29	6/12/07	16WW29-070612	trans-1,2-Dichloroethene	5	U	U	ug/L
16WW31	10/22/97	16WW31-971022	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW31	3/1/03	16WW31-030301	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW31	2/24/04	16WW31-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW31	12/11/04	16WW31-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW31	3/24/09	16WW31-032409	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW33	10/22/97	16WW33-971022	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW33	3/1/03	16WW33-030301	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW33	2/24/04	16WW33-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW33	12/11/04	16WW33-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW35	10/24/97	16WW35-971024	trans-1,2-Dichloroethene	0.79		J	ug/L
16WW35	1/21/98	16WW35-980121	trans-1,2-Dichloroethene	8	<	U	ug/L
16WW35	6/12/98	16WW35-980612	trans-1,2-Dichloroethene	5	<	U	ug/L
16WW35	3/2/03	16WW35-030302	trans-1,2-Dichloroethene	0.807		J	ug/L
16WW35	2/22/04	16WW35-040222	trans-1,2-Dichloroethene	1.34			ug/L
16WW35	12/13/04	16WW35-041213	trans-1,2-Dichloroethene	1	U		ug/L
16WW35	3/19/09	16WW35-031909	trans-1,2-Dichloroethene	2.5	U	U	ug/L
16WW37	10/21/97	16WW37-971021	trans-1,2-Dichloroethene	50	<	U	ug/L
16WW37	1/21/98	16WW37-980121	trans-1,2-Dichloroethene	25	<	U	ug/L
16WW37	6/14/98	16WW37-980614	trans-1,2-Dichloroethene	25	<	U	ug/L
16WW37	2/28/03	16WW37-030228	trans-1,2-Dichloroethene	1.36			ug/L
16WW37	2/21/04	16WW37-040221	trans-1,2-Dichloroethene	1	U		ug/L
16WW37	12/10/04	16WW37-041210	trans-1,2-Dichloroethene	1	U		ug/L
16WW37	6/6/07	16WW37-070606	trans-1,2-Dichloroethene	5	U	U	ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW41	12/2/08	16WW41-120208	trans-1,2-Dichloroethene	2.5	U	U	ug/L
16WW41	3/24/09	16WW41-032409	trans-1,2-Dichloroethene	2.5	U	U	ug/L
16WW45	12/2/08	16WW45-120208	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW06	6/11/93	16WW06-930611	1,1-Dichloroethene	5	<	U	ug/L
16WW06	6/14/95	16WW06-950614	1,1-Dichloroethene	5	<	U	ug/L
16WW06	10/22/97	16WW06-971022	1,1-Dichloroethene	1	<	U	ug/L
16WW06	2/12/98	16WW06-980212	1,1-Dichloroethene	1	<	U	ug/L
16WW06	5/28/98	16WW06-980528	1,1-Dichloroethene	1	<	U	ug/L
16WW06	2/28/03	16WW06-030228	1,1-Dichloroethene	1	<	U	ug/L
16WW06	2/21/04	16WW06-040221	1,1-Dichloroethene	1	U		ug/L
16WW06	12/10/04	16WW06-041210	1,1-Dichloroethene	1	U		ug/L
16WW13	6/13/95	16WW13-950613	1,1-Dichloroethene	5	<	U	ug/L
16WW13	10/27/97	16WW13-971027	1,1-Dichloroethene	1.7			ug/L
16WW13	3/3/03	16WW13-030303	1,1-Dichloroethene	0.747		J	ug/L
16WW13	2/22/04	16WW13-040222	1,1-Dichloroethene	1	U		ug/L
16WW13	12/13/04	16WW13-041213	1,1-Dichloroethene	1.01			ug/L
16WW13	6/12/07	16WW13-070612	1,1-Dichloroethene	3.05	J	J	ug/L
16WW23	10/23/97	16WW23-971023	1,1-Dichloroethene	1	<	U	ug/L
16WW23	3/3/03	16WW23-030303	1,1-Dichloroethene	1	<	U	ug/L
16WW23	2/22/04	16WW23-040222	1,1-Dichloroethene	1	U		ug/L
16WW23	12/14/04	16WW23-041214	1,1-Dichloroethene	1	U		ug/L
16WW25	10/23/97	16WW25-971023	1,1-Dichloroethene	1	<	U	ug/L
16WW25	1/21/98	16WW25-980121	1,1-Dichloroethene	1	<	U	ug/L
16WW25	6/12/98	16WW25-980612	1,1-Dichloroethene	1	<	U	ug/L
16WW25	3/2/03	16WW25-030302	1,1-Dichloroethene	1	<	U	ug/L
16WW25	2/23/04	16WW25-040223	1,1-Dichloroethene	1	U		ug/L
16WW25	12/14/04	16WW25-041214	1,1-Dichloroethene	1	U		ug/L
16WW25	6/11/07	16WW25-070611	1,1-Dichloroethene	5	U	U	ug/L
16WW27	10/21/97	16WW27-971021	1,1-Dichloroethene	1	<	U	ug/L
16WW27	3/2/03	16WW27-030302	1,1-Dichloroethene	1	<	U	ug/L
16WW27	2/22/04	16WW27-040222	1,1-Dichloroethene	1	U		ug/L
16WW27	12/14/04	16WW27-041214	1,1-Dichloroethene	1	U		ug/L
16WW28	10/21/97	16WW28-971021	1,1-Dichloroethene	1	<	U	ug/L
16WW28	3/2/03	16WW28-030302	1,1-Dichloroethene	1	<	U	ug/L
16WW28	2/22/04	16WW28-040222	1,1-Dichloroethene	1	U		ug/L
16WW28	12/14/04	16WW28-041214	1,1-Dichloroethene	1	U		ug/L
16WW28	3/30/09	16WW28-033009	1,1-Dichloroethene	0.5	U	U	ug/L
16WW29	10/21/97	16WW29-971021	1,1-Dichloroethene	1	<	U	ug/L
16WW29	1/22/98	16WW29-980122	1,1-Dichloroethene	1	<	U	ug/L
16WW29	6/11/98	16WW29-980611	1,1-Dichloroethene	1	<	U	ug/L
16WW29	3/2/03	16WW29-030302	1,1-Dichloroethene	1	<	U	ug/L
16WW29	2/23/04	16WW29-040223	1,1-Dichloroethene	1	U		ug/L
16WW29	12/14/04	16WW29-041214	1,1-Dichloroethene	1	U		ug/L
16WW29	6/12/07	16WW29-070612	1,1-Dichloroethene	5	U	U	ug/L
16WW31	10/22/97	16WW31-971022	1,1-Dichloroethene	1	<	U	ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW31	3/1/03	16WW31-030301	1,1-Dichloroethene	1	<	U	ug/L
16WW31	2/24/04	16WW31-040224	1,1-Dichloroethene	1	U		ug/L
16WW31	12/11/04	16WW31-041211	1,1-Dichloroethene	1	U		ug/L
16WW31	3/24/09	16WW31-032409	1,1-Dichloroethene	0.5	U	U	ug/L
16WW33	10/22/97	16WW33-971022	1,1-Dichloroethene	1	<	U	ug/L
16WW33	3/1/03	16WW33-030301	1,1-Dichloroethene	1	<	U	ug/L
16WW33	2/24/04	16WW33-040224	1,1-Dichloroethene	1	U		ug/L
16WW33	12/11/04	16WW33-041211	1,1-Dichloroethene	1	U		ug/L
16WW35	10/24/97	16WW35-971024	1,1-Dichloroethene	**24**			ug/L
16WW35	1/21/98	16WW35-980121	1,1-Dichloroethene	8	<	U	ug/L
16WW35	6/12/98	16WW35-980612	1,1-Dichloroethene	2.8		J	ug/L
16WW35	3/2/03	16WW35-030302	1,1-Dichloroethene	**8.88**			ug/L
16WW35	2/22/04	16WW35-040222	1,1-Dichloroethene	**14.6**			ug/L
16WW35	12/13/04	16WW35-041213	1,1-Dichloroethene	**9.38**			ug/L
16WW35	3/19/09	16WW35-031909	1,1-Dichloroethene	**19.9**			ug/L
16WW37	10/21/97	16WW37-971021	1,1-Dichloroethene	50	<	U	ug/L
16WW37	1/21/98	16WW37-980121	1,1-Dichloroethene	25	<	U	ug/L
16WW37	6/14/98	16WW37-980614	1,1-Dichloroethene	25	<	U	ug/L
16WW37	2/28/03	16WW37-030228	1,1-Dichloroethene	3.84			ug/L
16WW37	2/21/04	16WW37-040221	1,1-Dichloroethene	1	U		ug/L
16WW37	12/10/04	16WW37-041210	1,1-Dichloroethene	1	U		ug/L
16WW37	6/6/07	16WW37-070606	1,1-Dichloroethene	5	U	U	ug/L
16WW41	12/2/08	16WW41-120208	1,1-Dichloroethene	5	U	U	ug/L
16WW41	3/24/09	16WW41-032409	1,1-Dichloroethene	5	U	U	ug/L
16WW45	12/2/08	16WW45-120208	1,1-Dichloroethene	0.5	U	U	ug/L
16WW06	6/11/93	16WW06-930611	Vinyl chloride	10	<	U	ug/L
16WW06	6/14/95	16WW06-950614	Vinyl chloride	10	<	U	ug/L
16WW06	10/22/97	16WW06-971022	Vinyl chloride	1	<	U	ug/L
16WW06	2/12/98	16WW06-980212	Vinyl chloride	1	<	U	ug/L
16WW06	5/28/98	16WW06-980528	Vinyl chloride	1	<	U	ug/L
16WW06	2/28/03	16WW06-030228	Vinyl chloride	1	<	U	ug/L
16WW06	2/21/04	16WW06-040221	Vinyl chloride	1	U		ug/L
16WW06	12/10/04	16WW06-041210	Vinyl chloride	1	U		ug/L
16WW13	6/13/95	16WW13-950613	Vinyl chloride	10	<	UJ	ug/L
16WW13	10/27/97	16WW13-971027	Vinyl chloride	**8.8**			ug/L
16WW13	3/3/03	16WW13-030303	Vinyl chloride	**3.63**			ug/L
16WW13	2/22/04	16WW13-040222	Vinyl chloride	1	U		ug/L
16WW13	12/13/04	16WW13-041213	Vinyl chloride	0.736	J		ug/L
16WW13	6/12/07	16WW13-070612	Vinyl chloride	**19.7**		J	ug/L
16WW23	10/23/97	16WW23-971023	Vinyl chloride	1	<	U	ug/L
16WW23	3/3/03	16WW23-030303	Vinyl chloride	1	<	U	ug/L
16WW23	2/22/04	16WW23-040222	Vinyl chloride	1	U		ug/L
16WW23	12/14/04	16WW23-041214	Vinyl chloride	1	U		ug/L
16WW25	10/23/97	16WW25-971023	Vinyl chloride	1	<	U	ug/L
16WW25	1/21/98	16WW25-980121	Vinyl chloride	1	<	U	ug/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW25	6/12/98	16WW25-980612	Vinyl chloride	1	<	U	ug/L
16WW25	3/2/03	16WW25-030302	Vinyl chloride	1	<	U	ug/L
16WW25	2/23/04	16WW25-040223	Vinyl chloride	1	U		ug/L
16WW25	12/14/04	16WW25-041214	Vinyl chloride	1	U		ug/L
16WW25	6/11/07	16WW25-070611	Vinyl chloride	10	U	U	ug/L
16WW27	10/21/97	16WW27-971021	Vinyl chloride	1	<	U	ug/L
16WW27	3/2/03	16WW27-030302	Vinyl chloride	1	<	U	ug/L
16WW27	2/22/04	16WW27-040222	Vinyl chloride	1	U		ug/L
16WW27	12/14/04	16WW27-041214	Vinyl chloride	1	U		ug/L
16WW28	10/21/97	16WW28-971021	Vinyl chloride	1	<	U	ug/L
16WW28	3/2/03	16WW28-030302	Vinyl chloride	1	<	U	ug/L
16WW28	2/22/04	16WW28-040222	Vinyl chloride	1	U		ug/L
16WW28	12/14/04	16WW28-041214	Vinyl chloride	1	U		ug/L
16WW28	3/30/09	16WW28-033009	Vinyl chloride	**2.09**			ug/L
16WW29	10/21/97	16WW29-971021	Vinyl chloride	1	<	U	ug/L
16WW29	1/22/98	16WW29-980122	Vinyl chloride	1	<	U	ug/L
16WW29	6/11/98	16WW29-980611	Vinyl chloride	1	<	U	ug/L
16WW29	3/2/03	16WW29-030302	Vinyl chloride	1	<	U	ug/L
16WW29	2/23/04	16WW29-040223	Vinyl chloride	1	U		ug/L
16WW29	12/14/04	16WW29-041214	Vinyl chloride	1.93			ug/L
16WW29	6/12/07	16WW29-070612	Vinyl chloride	10	U	U	ug/L
16WW31	10/22/97	16WW31-971022	Vinyl chloride	1	<	U	ug/L
16WW31	3/1/03	16WW31-030301	Vinyl chloride	1	<	U	ug/L
16WW31	2/24/04	16WW31-040224	Vinyl chloride	1	U		ug/L
16WW31	12/11/04	16WW31-041211	Vinyl chloride	1	U		ug/L
16WW31	3/24/09	16WW31-032409	Vinyl chloride	0.25	U	U	ug/L
16WW33	10/22/97	16WW33-971022	Vinyl chloride	1	<	U	ug/L
16WW33	3/1/03	16WW33-030301	Vinyl chloride	1	<	U	ug/L
16WW33	2/24/04	16WW33-040224	Vinyl chloride	1	U		ug/L
16WW33	12/11/04	16WW33-041211	Vinyl chloride	1	U		ug/L
16WW35	10/24/97	16WW35-971024	Vinyl chloride	**9.9**			ug/L
16WW35	1/21/98	16WW35-980121	Vinyl chloride	8	<	U	ug/L
16WW35	6/12/98	16WW35-980612	Vinyl chloride	5	<	U	ug/L
16WW35	3/2/03	16WW35-030302	Vinyl chloride	**29.4**			ug/L
16WW35	2/22/04	16WW35-040222	Vinyl chloride	**42**			ug/L
16WW35	12/13/04	16WW35-041213	Vinyl chloride	**21.2**			ug/L
16WW35	3/19/09	16WW35-031909	Vinyl chloride	**53.6**			ug/L
16WW37	10/21/97	16WW37-971021	Vinyl chloride	50	<	U	ug/L
16WW37	1/21/98	16WW37-980121	Vinyl chloride	25	<	U	ug/L
16WW37	6/14/98	16WW37-980614	Vinyl chloride	25	<	U	ug/L
16WW37	2/28/03	16WW37-030228	Vinyl chloride	**13.6**			ug/L
16WW37	2/21/04	16WW37-040221	Vinyl chloride	**9.78**			ug/L
16WW37	12/10/04	16WW37-041210	Vinyl chloride	1	U		ug/L
16WW37	6/6/07	16WW37-070606	Vinyl chloride	0.461	J	J	ug/L
16WW41	12/2/08	16WW41-120208	Vinyl chloride	2.5	U	U	ug/L

Table A-3
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LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW41	3/24/09	16WW41-032409	Vinyl chloride	**22.4**			ug/L
16WW45	12/2/08	16WW45-120208	Vinyl chloride	0.25	U	U	ug/L
16WW25	6/11/07	16WW25-070611	Dissolved Oxygen	0.23			mg/L
16WW37	6/6/07	16WW37-070606	Dissolved Oxygen	2.66			mg/L
16WW41	12/2/08	16WW41-120208	Dissolved Oxygen	1.99			mg/L
16WW45	12/2/08	16WW45-120208	Dissolved Oxygen	0.63			mg/L
16WW25	6/11/07	16WW25-070611	Oxygen Reduction Potential	-43.8			mV
16WW37	6/6/07	16WW37-070606	Oxygen Reduction Potential	146.5			mV
16WW41	12/2/08	16WW41-120208	Oxygen Reduction Potential	-13.1			mV
16WW45	12/2/08	16WW45-120208	Oxygen Reduction Potential	-179.8			mV
16WW06	6/11/93	16WW06-930611	Nitrate	0.1	<	U	mg/L
16WW13	6/12/07	16WW13-070612	Nitrate	6	U	U	mg/L
16WW25	6/11/07	16WW25-070611	Nitrate	60	U	U	mg/L
16WW29	6/12/07	16WW29-070612	Nitrate	6	U	U	mg/L
16WW37	6/6/07	16WW37-070606	Nitrate	60	U	U	mg/L
16WW06	10/22/97	16WW06-971022	Nitrate / Nitrite	0.229			mg/L
16WW06	2/28/03	16WW06-030228	Nitrate / Nitrite	0.05		J	mg/L
16WW06	2/21/04	16WW06-040221	Nitrate / Nitrite	0.25	U		mg/L
16WW06	12/10/04	16WW06-041210	Nitrate / Nitrite	0.25	U		mg/L
16WW13	10/27/97	16WW13-971027	Nitrate / Nitrite	0.05	<	U	mg/L
16WW13	3/3/03	16WW13-030303	Nitrate / Nitrite	0.25	<	U	mg/L
16WW13	2/22/04	16WW13-040222	Nitrate / Nitrite	0.25	U		mg/L
16WW13	12/13/04	16WW13-041213	Nitrate / Nitrite	0.25	U		mg/L
16WW23	10/23/97	16WW23-971023	Nitrate / Nitrite	0.06		J	mg/L
16WW23	3/3/03	16WW23-030303	Nitrate / Nitrite	0.25	<	U	mg/L
16WW23	2/22/04	16WW23-040222	Nitrate / Nitrite	0.25	U		mg/L
16WW23	12/14/04	16WW23-041214	Nitrate / Nitrite	0.25	U		mg/L
16WW25	10/23/97	16WW25-971023	Nitrate / Nitrite	0.068		J	mg/L
16WW25	3/2/03	16WW25-030302	Nitrate / Nitrite	0.25	<	U	mg/L
16WW25	2/23/04	16WW25-040223	Nitrate / Nitrite	0.25	U		mg/L
16WW25	12/14/04	16WW25-041214	Nitrate / Nitrite	0.25	U		mg/L
16WW27	10/21/97	16WW27-971021	Nitrate / Nitrite	0.05	<	U	mg/L
16WW27	3/2/03	16WW27-030302	Nitrate / Nitrite	0.25	<	U	mg/L
16WW27	2/22/04	16WW27-040222	Nitrate / Nitrite	0.25	U		mg/L
16WW27	12/14/04	16WW27-041214	Nitrate / Nitrite	0.25	U		mg/L
16WW28	10/21/97	16WW28-971021	Nitrate / Nitrite	0.05	<	U	mg/L
16WW28	3/2/03	16WW28-030302	Nitrate / Nitrite	0.25	<	U	mg/L
16WW28	2/22/04	16WW28-040222	Nitrate / Nitrite	0.25	U		mg/L
16WW28	12/14/04	16WW28-041214	Nitrate / Nitrite	0.25	U		mg/L
16WW29	10/21/97	16WW29-971021	Nitrate / Nitrite	0.135			mg/L
16WW29	3/2/03	16WW29-030302	Nitrate / Nitrite	0.35			mg/L
16WW29	2/23/04	16WW29-040223	Nitrate / Nitrite	0.09			mg/L
16WW29	12/14/04	16WW29-041214	Nitrate / Nitrite	0.25	U		mg/L
16WW31	10/22/97	16WW31-971022	Nitrate / Nitrite	0.05	<	U	mg/L
16WW31	3/1/03	16WW31-030301	Nitrate / Nitrite	0.25	<	U	mg/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW31	2/24/04	16WW31-040224	Nitrate / Nitrite	0.25	U		mg/L
16WW31	12/11/04	16WW31-041211	Nitrate / Nitrite	0.25	U		mg/L
16WW33	10/22/97	16WW33-971022	Nitrate / Nitrite	0.05			mg/L
16WW33	3/1/03	16WW33-030301	Nitrate / Nitrite	0.25	<	U	mg/L
16WW33	2/24/04	16WW33-040224	Nitrate / Nitrite	0.25	U		mg/L
16WW33	12/11/04	16WW33-041211	Nitrate / Nitrite	0.25	U		mg/L
16WW35	10/24/97	16WW35-971024	Nitrate / Nitrite	0.115			mg/L
16WW35	3/2/03	16WW35-030302	Nitrate / Nitrite	0.25	<	U	mg/L
16WW35	2/22/04	16WW35-040222	Nitrate / Nitrite	0.25	U		mg/L
16WW35	12/13/04	16WW35-041213	Nitrate / Nitrite	0.0487			mg/L
16WW37	10/21/97	16WW37-971021	Nitrate / Nitrite	0.155			mg/L
16WW37	2/28/03	16WW37-030228	Nitrate / Nitrite	0.25	<	U	mg/L
16WW37	2/21/04	16WW37-040221	Nitrate / Nitrite	0.25	U		mg/L
16WW37	12/10/04	16WW37-041210	Nitrate / Nitrite	0.0127	J		mg/L
16WW13	6/12/07	16WW13-070612	Nitrite	4	U	U	mg/L
16WW25	6/11/07	16WW25-070611	Nitrite	40	U	U	mg/L
16WW29	6/12/07	16WW29-070612	Nitrite	4	U	U	mg/L
16WW37	6/6/07	16WW37-070606	Nitrite	40	U	U	mg/L
16WW25	6/11/07	16WW25-070611	Ferrous iron	2.97			mg/L
16WW37	6/6/07	16WW37-070606	Ferrous iron	0.09			mg/L
16WW06	6/11/93	16WW06-930611	Sulfate	4.6			mg/L
16WW06	10/22/97	16WW06-971022	Sulfate	5.92			mg/L
16WW06	2/28/03	16WW06-030228	Sulfate	9.13			mg/L
16WW06	2/21/04	16WW06-040221	Sulfate	6.95			mg/L
16WW06	12/10/04	16WW06-041210	Sulfate	7.63			mg/L
16WW13	10/27/97	16WW13-971027	Sulfate	3111			mg/L
16WW13	3/3/03	16WW13-030303	Sulfate	821			mg/L
16WW13	2/22/04	16WW13-040222	Sulfate	2490			mg/L
16WW13	12/13/04	16WW13-041213	Sulfate	1320			mg/L
16WW13	6/12/07	16WW13-070612	Sulfate	3380			mg/L
16WW23	10/23/97	16WW23-971023	Sulfate	592			mg/L
16WW23	3/3/03	16WW23-030303	Sulfate	111			mg/L
16WW23	2/22/04	16WW23-040222	Sulfate	264			mg/L
16WW23	12/14/04	16WW23-041214	Sulfate	232			mg/L
16WW25	10/23/97	16WW25-971023	Sulfate	6540			mg/L
16WW25	3/2/03	16WW25-030302	Sulfate	1820			mg/L
16WW25	2/23/04	16WW25-040223	Sulfate	3280			mg/L
16WW25	12/14/04	16WW25-041214	Sulfate	3670			mg/L
16WW25	6/11/07	16WW25-070611	Sulfate	4630			mg/L
16WW27	10/21/97	16WW27-971021	Sulfate	188			mg/L
16WW27	3/2/03	16WW27-030302	Sulfate	185			mg/L
16WW27	2/22/04	16WW27-040222	Sulfate	294			mg/L
16WW27	12/14/04	16WW27-041214	Sulfate	278			mg/L
16WW28	10/21/97	16WW28-971021	Sulfate	48.34			mg/L
16WW28	3/2/03	16WW28-030302	Sulfate	75.3			mg/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW28	2/22/04	16WW28-040222	Sulfate	74.4			mg/L
16WW28	12/14/04	16WW28-041214	Sulfate	85.8			mg/L
16WW29	10/21/97	16WW29-971021	Sulfate	347			mg/L
16WW29	3/2/03	16WW29-030302	Sulfate	256			mg/L
16WW29	2/23/04	16WW29-040223	Sulfate	350			mg/L
16WW29	12/14/04	16WW29-041214	Sulfate	390			mg/L
16WW29	6/12/07	16WW29-070612	Sulfate	677			mg/L
16WW31	10/22/97	16WW31-971022	Sulfate	38.85			mg/L
16WW31	3/1/03	16WW31-030301	Sulfate	25.2			mg/L
16WW31	2/24/04	16WW31-040224	Sulfate	22.4			mg/L
16WW31	12/11/04	16WW31-041211	Sulfate	22.3			mg/L
16WW33	10/22/97	16WW33-971022	Sulfate	63.1			mg/L
16WW33	3/1/03	16WW33-030301	Sulfate	70.8			mg/L
16WW33	2/24/04	16WW33-040224	Sulfate	65.3			mg/L
16WW33	12/11/04	16WW33-041211	Sulfate	68.1			mg/L
16WW35	10/24/97	16WW35-971024	Sulfate	9417			mg/L
16WW35	3/2/03	16WW35-030302	Sulfate	11300			mg/L
16WW35	2/22/04	16WW35-040222	Sulfate	10500			mg/L
16WW35	12/13/04	16WW35-041213	Sulfate	10500			mg/L
16WW37	10/21/97	16WW37-971021	Sulfate	6672			mg/L
16WW37	2/28/03	16WW37-030228	Sulfate	2810			mg/L
16WW37	2/21/04	16WW37-040221	Sulfate	3110			mg/L
16WW37	12/10/04	16WW37-041210	Sulfate	2850			mg/L
16WW37	6/6/07	16WW37-070606	Sulfate	1160			mg/L
16WW13	6/12/07	16WW13-070612	Sulfide	1	U	U	mg/L
16WW25	6/11/07	16WW25-070611	Sulfide	1	U	U	mg/L
16WW29	6/12/07	16WW29-070612	Sulfide	1	U	U	mg/L
16WW37	6/6/07	16WW37-070606	Sulfide	1	U	U	mg/L
16WW13	6/12/07	16WW13-070612	Methane	110			ug/L
16WW25	6/11/07	16WW25-070611	Methane	61			ug/L
16WW29	6/12/07	16WW29-070612	Methane	61			ug/L
16WW37	6/6/07	16WW37-070606	Methane	3.7	J	J	ug/L
16WW13	6/12/07	16WW13-070612	Ethane	5	U	U	ug/L
16WW25	6/11/07	16WW25-070611	Ethane	5	U	U	ug/L
16WW29	6/12/07	16WW29-070612	Ethane	5	U	U	ug/L
16WW37	6/6/07	16WW37-070606	Ethane	5	U	U	ug/L
16WW13	6/12/07	16WW13-070612	Ethylene	5	U	U	ug/L
16WW25	6/11/07	16WW25-070611	Ethylene	5	U	U	ug/L
16WW29	6/12/07	16WW29-070612	Ethylene	5	U	U	ug/L
16WW37	6/6/07	16WW37-070606	Ethylene	5	U	U	ug/L
16WW06	2/28/03	16WW06-030228	Total Organic Carbon	0.412			mg/L
16WW06	2/21/04	16WW06-040221	Total Organic Carbon	0.537			mg/L
16WW06	12/10/04	16WW06-041210	Total Organic Carbon	0.825			mg/L
16WW13	3/3/03	16WW13-030303	Total Organic Carbon	6.41			mg/L
16WW13	2/22/04	16WW13-040222	Total Organic Carbon	7.7			mg/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW13	12/13/04	16WW13-041213	Total Organic Carbon	6.34			mg/L
16WW13	6/12/07	16WW13-070612	Total Organic Carbon	11.4			mg/L
16WW23	3/3/03	16WW23-030303	Total Organic Carbon	0.831			mg/L
16WW23	2/22/04	16WW23-040222	Total Organic Carbon	1.17			mg/L
16WW23	12/14/04	16WW23-041214	Total Organic Carbon	0.946			mg/L
16WW25	3/2/03	16WW25-030302	Total Organic Carbon	9.79			mg/L
16WW25	2/23/04	16WW25-040223	Total Organic Carbon	19.8			mg/L
16WW25	12/14/04	16WW25-041214	Total Organic Carbon	23			mg/L
16WW25	6/11/07	16WW25-070611	Total Organic Carbon	41.2			mg/L
16WW27	3/2/03	16WW27-030302	Total Organic Carbon	1.68			mg/L
16WW27	2/22/04	16WW27-040222	Total Organic Carbon	2.43			mg/L
16WW27	12/14/04	16WW27-041214	Total Organic Carbon	2.46			mg/L
16WW28	3/2/03	16WW28-030302	Total Organic Carbon	1.22			mg/L
16WW28	2/22/04	16WW28-040222	Total Organic Carbon	0.987			mg/L
16WW28	12/14/04	16WW28-041214	Total Organic Carbon	1.07			mg/L
16WW29	3/2/03	16WW29-030302	Total Organic Carbon	2.45			mg/L
16WW29	2/23/04	16WW29-040223	Total Organic Carbon	3.71			mg/L
16WW29	12/14/04	16WW29-041214	Total Organic Carbon	3.02			mg/L
16WW29	6/12/07	16WW29-070612	Total Organic Carbon	5.92			mg/L
16WW31	3/1/03	16WW31-030301	Total Organic Carbon	0.677			mg/L
16WW31	2/24/04	16WW31-040224	Total Organic Carbon	0.616			mg/L
16WW31	12/11/04	16WW31-041211	Total Organic Carbon	0.624			mg/L
16WW33	3/1/03	16WW33-030301	Total Organic Carbon	0.858			mg/L
16WW33	2/24/04	16WW33-040224	Total Organic Carbon	0.707			mg/L
16WW33	12/11/04	16WW33-041211	Total Organic Carbon	0.876			mg/L
16WW35	3/2/03	16WW35-030302	Total Organic Carbon	65.4			mg/L
16WW35	2/22/04	16WW35-040222	Total Organic Carbon	61.2			mg/L
16WW35	12/13/04	16WW35-041213	Total Organic Carbon	73.2			mg/L
16WW37	2/28/03	16WW37-030228	Total Organic Carbon	23.7			mg/L
16WW37	2/21/04	16WW37-040221	Total Organic Carbon	23.5			mg/L
16WW37	12/10/04	16WW37-041210	Total Organic Carbon	16.5			mg/L
16WW37	6/6/07	16WW37-070606	Total Organic Carbon	9.49			mg/L
16WW06	6/11/93	16WW06-930611	pH	6.24			STD UNIT
16WW25	6/11/07	16WW25-070611	pH	5.97			STD UNIT
16WW37	6/6/07	16WW37-070606	pH	7.17			STD UNIT
16WW41	12/2/08	16WW41-120208	pH	6.49			STD UNIT
16WW45	12/2/08	16WW45-120208	pH	10.31			STD UNIT
16WW06	6/11/93	16WW06-930611	Chloride	455.1			mg/L
16WW06	10/22/97	16WW06-971022	Chloride	596			mg/L
16WW06	2/28/03	16WW06-030228	Chloride	403			mg/L
16WW06	2/21/04	16WW06-040221	Chloride	477			mg/L
16WW06	12/10/04	16WW06-041210	Chloride	458			mg/L
16WW13	10/27/97	16WW13-971027	Chloride	335			mg/L
16WW13	3/3/03	16WW13-030303	Chloride	95.1			mg/L
16WW13	2/22/04	16WW13-040222	Chloride	185			mg/L

Table A-3

Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW13	12/13/04	16WW13-041213	Chloride	150			mg/L
16WW13	6/12/07	16WW13-070612	Chloride	200			mg/L
16WW23	10/23/97	16WW23-971023	Chloride	520			mg/L
16WW23	3/3/03	16WW23-030303	Chloride	572			mg/L
16WW23	2/22/04	16WW23-040222	Chloride	701			mg/L
16WW23	12/14/04	16WW23-041214	Chloride	615			mg/L
16WW25	10/23/97	16WW25-971023	Chloride	929			mg/L
16WW25	3/2/03	16WW25-030302	Chloride	359			mg/L
16WW25	2/23/04	16WW25-040223	Chloride	377			mg/L
16WW25	12/14/04	16WW25-041214	Chloride	380			mg/L
16WW25	6/11/07	16WW25-070611	Chloride	464			mg/L
16WW27	10/21/97	16WW27-971021	Chloride	323			mg/L
16WW27	3/2/03	16WW27-030302	Chloride	300			mg/L
16WW27	2/22/04	16WW27-040222	Chloride	339			mg/L
16WW27	12/14/04	16WW27-041214	Chloride	343			mg/L
16WW28	10/21/97	16WW28-971021	Chloride	342			mg/L
16WW28	3/2/03	16WW28-030302	Chloride	248			mg/L
16WW28	2/22/04	16WW28-040222	Chloride	270			mg/L
16WW28	12/14/04	16WW28-041214	Chloride	263			mg/L
16WW28	3/30/09	16WW28-033009	Chloride	310			mg/L
16WW29	10/21/97	16WW29-971021	Chloride	240			mg/L
16WW29	3/2/03	16WW29-030302	Chloride	182			mg/L
16WW29	2/23/04	16WW29-040223	Chloride	214			mg/L
16WW29	12/14/04	16WW29-041214	Chloride	236			mg/L
16WW29	6/12/07	16WW29-070612	Chloride	221			mg/L
16WW31	10/22/97	16WW31-971022	Chloride	1016			mg/L
16WW31	3/1/03	16WW31-030301	Chloride	445			mg/L
16WW31	2/24/04	16WW31-040224	Chloride	386			mg/L
16WW31	12/11/04	16WW31-041211	Chloride	387			mg/L
16WW31	3/24/09	16WW31-032409	Chloride	295			mg/L
16WW33	10/22/97	16WW33-971022	Chloride	997			mg/L
16WW33	3/1/03	16WW33-030301	Chloride	516			mg/L
16WW33	2/24/04	16WW33-040224	Chloride	631			mg/L
16WW33	12/11/04	16WW33-041211	Chloride	676			mg/L
16WW35	10/24/97	16WW35-971024	Chloride	668			mg/L
16WW35	3/2/03	16WW35-030302	Chloride	646			mg/L
16WW35	2/22/04	16WW35-040222	Chloride	663			mg/L
16WW35	12/13/04	16WW35-041213	Chloride	650			mg/L
16WW35	3/19/09	16WW35-031909	Chloride	648			mg/L
16WW37	10/21/97	16WW37-971021	Chloride	596			mg/L
16WW37	2/28/03	16WW37-030228	Chloride	628			mg/L
16WW37	2/21/04	16WW37-040221	Chloride	683			mg/L
16WW37	12/10/04	16WW37-041210	Chloride	680			mg/L
16WW37	6/6/07	16WW37-070606	Chloride	1130			mg/L
16WW41	3/24/09	16WW41-032409	Chloride	474			mg/L

Table A-3
Summary of Intermediate Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW13	6/12/07	16WW13-070612	Total Alkalinity	54.5			mg/L
16WW25	6/11/07	16WW25-070611	Total Alkalinity	90			mg/L
16WW29	6/12/07	16WW29-070612	Total Alkalinity	20.6			mg/L
16WW37	6/6/07	16WW37-070606	Total Alkalinity	369			mg/L
16WW06	6/11/93	16WW06-930611	Specific Conductivity	1900			µS/cm
16WW25	6/11/07	16WW25-070611	Specific Conductivity	7500			µS/cm
16WW37	6/6/07	16WW37-070606	Specific Conductivity	5970			µS/cm
16WW41	12/2/08	16WW41-120208	Specific Conductivity	6566			µS/cm
16WW45	12/2/08	16WW45-120208	Specific Conductivity	776			µS/cm
16WW06	6/11/93	16WW06-930611	Temperature	19.6			Deg C
16WW25	6/11/07	16WW25-070611	Temperature	19.22			Deg C
16WW37	6/6/07	16WW37-070606	Temperature	23.2			Deg C
16WW41	12/2/08	16WW41-120208	Temperature	18.08			Deg C
16WW45	12/2/08	16WW45-120208	Temperature	17.23			Deg C
16WW25	6/11/07	16WW25-070611	Turbidity	9.4			NTU
16WW37	6/6/07	16WW37-070606	Turbidity	42.2			NTU
16WW41	12/2/08	16WW41-120208	Turbidity	4.2			NTU
16WW45	12/2/08	16WW45-120208	Turbidity	73.9			NTU
16WW13	6/12/07	16WW13-070612	Carbon Dioxide	270000			ug/L
16WW25	6/11/07	16WW25-070611	Carbon Dioxide	310000			ug/L
16WW29	6/12/07	16WW29-070612	Carbon Dioxide	150000			ug/L
16WW37	6/6/07	16WW37-070606	Carbon Dioxide	30000			ug/L

Notes:

Deg C	degrees Celsius
µS/cm	microSeimens per centimeter
mg/L	milligrams per liter
mV	millivolts
NTU	Nephelometric turbidity units
QUAL	Laboratory qualifier
STD UNIT	standard units for measuring pH
ug/L	micrograms per liter
VQ	Validation qualifier
<	same as U
B	The concentration reported was detected in the associated blank
J	The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.
U	Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

Table A-4
Summary of Upper Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW19	9/19/00	16WW19-000919	Perchlorate	4	<	U	ug/L
16WW19	3/3/03	16WW19-030303	Perchlorate	4	<	U	ug/L
16WW19	2/22/04	16WW19-040222	Perchlorate	4	U		ug/L
16WW19	12/15/04	16WW19-041215	Perchlorate	4	U		ug/L
16WW19	12/4/08	16WW19-120408	Perchlorate	0.22	U	U	ug/L
16WW20	9/19/00	16WW20-000919	Perchlorate	4	<	U	ug/L
16WW20	2/28/03	16WW20-030228	Perchlorate	4	<	U	ug/L
16WW20	2/24/04	16WW20-040224	Perchlorate	4	U		ug/L
16WW20	12/11/04	16WW20-041211	Perchlorate	4	U		ug/L
16WW20	12/4/08	16WW20-120408	Perchlorate	0.11	U	U	ug/L
16WW21	9/28/00	16WW21-000928	Perchlorate	4	<	U	ug/L
16WW21	3/1/03	16WW21-030301	Perchlorate	40	<	U	ug/L
16WW21	2/24/04	16WW21-040224	Perchlorate	4	U		ug/L
16WW21	12/15/04	16WW21-041215	Perchlorate	4	U		ug/L
16WW21	12/4/08	16WW21-120408	Perchlorate	0.11	U	U	ug/L
16WW21	3/24/09	16WW21-032409	Perchlorate	0.22	U	U	ug/L
16WW19	10/24/97	16WW19-971024	Trichloroethene	5			ug/L
16WW19	3/3/03	16WW19-030303	Trichloroethene	1	<	U	ug/L
16WW19	2/22/04	16WW19-040222	Trichloroethene	1.22			ug/L
16WW19	12/15/04	16WW19-041215	Trichloroethene	1	U		ug/L
16WW19	12/4/08	16WW19-120408	Trichloroethene	0.25	U	U	ug/L
16WW20	10/24/97	16WW20-971024	Trichloroethene	**7.9**			ug/L
16WW20	2/12/98	16WW20-980212	Trichloroethene	1	<	U	ug/L
16WW20	5/28/98	16WW20-980528	Trichloroethene	1	<	U	ug/L
16WW20	2/28/03	16WW20-030228	Trichloroethene	1	<	U	ug/L
16WW20	2/24/04	16WW20-040224	Trichloroethene	1	U		ug/L
16WW20	12/11/04	16WW20-041211	Trichloroethene	1	U		ug/L
16WW20	12/4/08	16WW20-120408	Trichloroethene	0.25	U	U	ug/L
16WW21	10/28/97	16WW21-971028	Trichloroethene	**140**			ug/L
16WW21	2/12/98	16WW21-980212	Trichloroethene	4.7			ug/L
16WW21	5/28/98	16WW21-980528	Trichloroethene	1	<	U	ug/L
16WW21	3/1/03	16WW21-030301	Trichloroethene	1	<	U	ug/L
16WW21	2/24/04	16WW21-040224	Trichloroethene	1	U		ug/L
16WW21	12/15/04	16WW21-041215	Trichloroethene	1	U		ug/L
16WW21	12/4/08	16WW21-120408	Trichloroethene	0.25	U	U	ug/L
16WW21	3/24/09	16WW21-032409	Trichloroethene	0.25	U	U	ug/L
16WW19	10/24/97	16WW19-971024	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW19	3/3/03	16WW19-030303	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW19	2/22/04	16WW19-040222	cis-1,2-Dichloroethene	0.738	J		ug/L
16WW19	12/15/04	16WW19-041215	cis-1,2-Dichloroethene	1	U		ug/L
16WW19	12/4/08	16WW19-120408	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW20	10/24/97	16WW20-971024	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW20	2/12/98	16WW20-980212	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW20	5/28/98	16WW20-980528	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW20	2/28/03	16WW20-030228	cis-1,2-Dichloroethene	1	<	U	ug/L

Table A-4
Summary of Upper Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW20	2/24/04	16WW20-040224	cis-1,2-Dichloroethene	1	U		ug/L
16WW20	12/11/04	16WW20-041211	cis-1,2-Dichloroethene	1	U		ug/L
16WW20	12/4/08	16WW20-120408	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW21	10/28/97	16WW21-971028	cis-1,2-Dichloroethene	**360**			ug/L
16WW21	2/12/98	16WW21-980212	cis-1,2-Dichloroethene	13.1			ug/L
16WW21	5/28/98	16WW21-980528	cis-1,2-Dichloroethene	2.4			ug/L
16WW21	3/1/03	16WW21-030301	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW21	2/24/04	16WW21-040224	cis-1,2-Dichloroethene	1	U		ug/L
16WW21	12/15/04	16WW21-041215	cis-1,2-Dichloroethene	1	U		ug/L
16WW21	12/4/08	16WW21-120408	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW21	3/24/09	16WW21-032409	cis-1,2-Dichloroethene	0.25	U	U	ug/L
16WW19	10/24/97	16WW19-971024	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW19	3/3/03	16WW19-030303	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW19	2/22/04	16WW19-040222	trans-1,2-Dichloroethene	1	U		ug/L
16WW19	12/15/04	16WW19-041215	trans-1,2-Dichloroethene	1	U		ug/L
16WW19	12/4/08	16WW19-120408	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW20	10/24/97	16WW20-971024	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW20	2/12/98	16WW20-980212	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW20	5/28/98	16WW20-980528	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW20	2/28/03	16WW20-030228	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW20	2/24/04	16WW20-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW20	12/11/04	16WW20-041211	trans-1,2-Dichloroethene	1	U		ug/L
16WW20	12/4/08	16WW20-120408	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW21	10/28/97	16WW21-971028	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW21	2/12/98	16WW21-980212	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW21	5/28/98	16WW21-980528	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW21	3/1/03	16WW21-030301	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW21	2/24/04	16WW21-040224	trans-1,2-Dichloroethene	1	U		ug/L
16WW21	12/15/04	16WW21-041215	trans-1,2-Dichloroethene	1	U		ug/L
16WW21	12/4/08	16WW21-120408	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW21	3/24/09	16WW21-032409	trans-1,2-Dichloroethene	0.25	U	U	ug/L
16WW19	10/24/97	16WW19-971024	1,1-Dichloroethene	1	<	U	ug/L
16WW19	3/3/03	16WW19-030303	1,1-Dichloroethene	1	<	U	ug/L
16WW19	2/22/04	16WW19-040222	1,1-Dichloroethene	1	U		ug/L
16WW19	12/15/04	16WW19-041215	1,1-Dichloroethene	1	U		ug/L
16WW19	12/4/08	16WW19-120408	1,1-Dichloroethene	0.5	U	U	ug/L
16WW20	10/24/97	16WW20-971024	1,1-Dichloroethene	1	<	U	ug/L
16WW20	2/12/98	16WW20-980212	1,1-Dichloroethene	1	<	U	ug/L
16WW20	5/28/98	16WW20-980528	1,1-Dichloroethene	1	<	U	ug/L
16WW20	2/28/03	16WW20-030228	1,1-Dichloroethene	1	<	U	ug/L
16WW20	2/24/04	16WW20-040224	1,1-Dichloroethene	1	U		ug/L
16WW20	12/11/04	16WW20-041211	1,1-Dichloroethene	1	U		ug/L
16WW20	12/4/08	16WW20-120408	1,1-Dichloroethene	0.5	U	U	ug/L
16WW21	10/28/97	16WW21-971028	1,1-Dichloroethene	0.99		J	ug/L
16WW21	2/12/98	16WW21-980212	1,1-Dichloroethene	1	<	U	ug/L

Table A-4
Summary of Upper Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW21	5/28/98	16WW21-980528	1,1-Dichloroethene	1	<	U	ug/L
16WW21	3/1/03	16WW21-030301	1,1-Dichloroethene	1	<	U	ug/L
16WW21	2/24/04	16WW21-040224	1,1-Dichloroethene	1	U		ug/L
16WW21	12/15/04	16WW21-041215	1,1-Dichloroethene	1	U		ug/L
16WW21	12/4/08	16WW21-120408	1,1-Dichloroethene	0.5	U	U	ug/L
16WW21	3/24/09	16WW21-032409	1,1-Dichloroethene	0.5	U	U	ug/L
16WW19	10/24/97	16WW19-971024	Vinyl chloride	1	<	U	ug/L
16WW19	3/3/03	16WW19-030303	Vinyl chloride	1	<	U	ug/L
16WW19	2/22/04	16WW19-040222	Vinyl chloride	1	U		ug/L
16WW19	12/15/04	16WW19-041215	Vinyl chloride	1	U		ug/L
16WW19	12/4/08	16WW19-120408	Vinyl chloride	0.25	U	U	ug/L
16WW20	10/24/97	16WW20-971024	Vinyl chloride	1	<	U	ug/L
16WW20	2/12/98	16WW20-980212	Vinyl chloride	1	<	U	ug/L
16WW20	5/28/98	16WW20-980528	Vinyl chloride	1	<	U	ug/L
16WW20	2/28/03	16WW20-030228	Vinyl chloride	1	<	U	ug/L
16WW20	2/24/04	16WW20-040224	Vinyl chloride	1	U		ug/L
16WW20	12/11/04	16WW20-041211	Vinyl chloride	1	U		ug/L
16WW20	12/4/08	16WW20-120408	Vinyl chloride	0.25	U	U	ug/L
16WW21	10/28/97	16WW21-971028	Vinyl chloride	**4.8**			ug/L
16WW21	2/12/98	16WW21-980212	Vinyl chloride	1	<	U	ug/L
16WW21	5/28/98	16WW21-980528	Vinyl chloride	1	<	U	ug/L
16WW21	3/1/03	16WW21-030301	Vinyl chloride	1	<	U	ug/L
16WW21	2/24/04	16WW21-040224	Vinyl chloride	1	U		ug/L
16WW21	12/15/04	16WW21-041215	Vinyl chloride	1	U		ug/L
16WW21	12/4/08	16WW21-120408	Vinyl chloride	0.25	U	U	ug/L
16WW21	3/24/09	16WW21-032409	Vinyl chloride	0.25	U	U	ug/L
16WW19	12/4/08	16WW19-120408	Dissolved Oxygen	0.57			mg/L
16WW20	12/4/08	16WW20-120408	Dissolved Oxygen	-100.1			mg/L
16WW21	12/4/08	16WW21-120408	Dissolved Oxygen	1.85			mg/L
16WW19	12/4/08	16WW19-120408	Oxygen Reduction Potential	-135.2			mV
16WW20	12/4/08	16WW20-120408	Oxygen Reduction Potential	-116			mV
16WW21	12/4/08	16WW21-120408	Oxygen Reduction Potential	-69.1			mV
16WW19	10/24/97	16WW19-971024	Nitrate / Nitrite	0.093			mg/L
16WW19	3/3/03	16WW19-030303	Nitrate / Nitrite	0.25	<	U	mg/L
16WW19	2/22/04	16WW19-040222	Nitrate / Nitrite	0.2			mg/L
16WW19	12/15/04	16WW19-041215	Nitrate / Nitrite	0.25	U		mg/L
16WW20	10/24/97	16WW20-971024	Nitrate / Nitrite	0.057			mg/L
16WW20	2/28/03	16WW20-030228	Nitrate / Nitrite	0.25	<	U	mg/L
16WW20	2/24/04	16WW20-040224	Nitrate / Nitrite	0.25	U		mg/L
16WW20	12/11/04	16WW20-041211	Nitrate / Nitrite	0.25	U		mg/L
16WW21	10/28/97	16WW21-971028	Nitrate / Nitrite	0.108			mg/L
16WW21	3/1/03	16WW21-030301	Nitrate / Nitrite	0.25	<	U	mg/L
16WW21	2/24/04	16WW21-040224	Nitrate / Nitrite	0.25	U		mg/L
16WW21	12/15/04	16WW21-041215	Nitrate / Nitrite	0.25	U		mg/L
16WW19	10/24/97	16WW19-971024	Sulfate	2312			mg/L

Table A-4
Summary of Upper Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW19	3/3/03	16WW19-030303	Sulfate	44.5			mg/L
16WW19	2/22/04	16WW19-040222	Sulfate	33.3			mg/L
16WW19	12/15/04	16WW19-041215	Sulfate	21.6			mg/L
16WW20	10/24/97	16WW20-971024	Sulfate	3.1			mg/L
16WW20	2/28/03	16WW20-030228	Sulfate	3.12			mg/L
16WW20	2/24/04	16WW20-040224	Sulfate	4.27			mg/L
16WW20	12/11/04	16WW20-041211	Sulfate	4.28			mg/L
16WW21	10/28/97	16WW21-971028	Sulfate	278			mg/L
16WW21	3/1/03	16WW21-030301	Sulfate	3.63			mg/L
16WW21	2/24/04	16WW21-040224	Sulfate	6.67			mg/L
16WW21	12/15/04	16WW21-041215	Sulfate	6.34			mg/L
16WW19	3/3/03	16WW19-030303	Total Organic Carbon	1.43			mg/L
16WW19	2/22/04	16WW19-040222	Total Organic Carbon	1.17			mg/L
16WW19	12/15/04	16WW19-041215	Total Organic Carbon	1.53			mg/L
16WW20	2/28/03	16WW20-030228	Total Organic Carbon	0.791			mg/L
16WW20	2/24/04	16WW20-040224	Total Organic Carbon	0.579			mg/L
16WW20	12/11/04	16WW20-041211	Total Organic Carbon	0.603			mg/L
16WW21	3/1/03	16WW21-030301	Total Organic Carbon	1.15			mg/L
16WW21	2/24/04	16WW21-040224	Total Organic Carbon	0.452			mg/L
16WW21	12/15/04	16WW21-041215	Total Organic Carbon	0.545			mg/L
16WW19	12/4/08	16WW19-120408	pH	8.97			STD UNIT
16WW20	12/4/08	16WW20-120408	pH	8.75			STD UNIT
16WW21	12/4/08	16WW21-120408	pH	7.84			STD UNIT
16WW19	10/24/97	16WW19-971024	Chloride	376			mg/L
16WW19	3/3/03	16WW19-030303	Chloride	64.3			mg/L
16WW19	2/22/04	16WW19-040222	Chloride	56.4			mg/L
16WW19	12/15/04	16WW19-041215	Chloride	56.1			mg/L
16WW20	10/24/97	16WW20-971024	Chloride	25			mg/L
16WW20	2/28/03	16WW20-030228	Chloride	28.9			mg/L
16WW20	2/24/04	16WW20-040224	Chloride	29.4			mg/L
16WW20	12/11/04	16WW20-041211	Chloride	26.6			mg/L
16WW21	10/28/97	16WW21-971028	Chloride	88			mg/L
16WW21	3/1/03	16WW21-030301	Chloride	63.5			mg/L
16WW21	2/24/04	16WW21-040224	Chloride	63.3			mg/L
16WW21	12/15/04	16WW21-041215	Chloride	57.2			mg/L
16WW21	3/24/09	16WW21-032409	Chloride	63.6			mg/L
16WW19	12/4/08	16WW19-120408	Specific Conductivity	716			µS/cm
16WW20	12/4/08	16WW20-120408	Specific Conductivity	484			µS/cm
16WW21	12/4/08	16WW21-120408	Specific Conductivity	552			µS/cm
16WW19	12/4/08	16WW19-120408	Temperature	19.18			Deg C
16WW20	12/4/08	16WW20-120408	Temperature	16.84			Deg C
16WW21	12/4/08	16WW21-120408	Temperature	16.44			Deg C
16WW19	12/4/08	16WW19-120408	Turbidity	40.1			NTU
16WW20	12/4/08	16WW20-120408	Turbidity	34.3			NTU
16WW21	12/4/08	16WW21-120408	Turbidity	19.6			NTU

Table A-4
Summary of Upper Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS

Notes:

Deg C	degrees Celsius
µS/cm	microSeimens per centimeter
mg/L	milligrams per liter
mV	millivolts
NTU	Nephelometric turbidity units
QUAL	Laboratory qualifier
STD UNIT	standard units for measuring pH
ug/L	micrograms per liter
VQ	Validation qualifier
<	same as U
J	The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.
U	Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

Table A-5
Summary of Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW15	9/30/00	16WW15-000930	Perchlorate	4	<	U	ug/L
16WW15	3/5/03	16WW15-030305	Perchlorate	4	<	U	ug/L
16WW15	2/25/04	16WW15-040225	Perchlorate	11.7			ug/L
16WW15	12/15/04	16WW15-041215	Perchlorate	4	U		ug/L
16WW17	9/28/00	16WW17-000928	Perchlorate	4	<	U	ug/L
16WW17	3/4/03	16WW17-030304	Perchlorate	4	<	U	ug/L
16WW17	2/25/04	16WW17-040225	Perchlorate	2.29	J		ug/L
16WW17	12/15/04	16WW17-041215	Perchlorate	4	U		ug/L
16WW18	9/29/00	16WW18-000929	Perchlorate	4	<	U	ug/L
16WW18	3/5/03	16WW18-030305	Perchlorate	4	<	U	ug/L
16WW18	2/23/04	16WW18-040223	Perchlorate	4	U		ug/L
16WW18	12/15/04	16WW18-041215	Perchlorate	4	U		ug/L
16WW15	6/22/95	16WW15-950622	Trichloroethene	5	<	U	ug/L
16WW15	10/28/97	16WW15-971028	Trichloroethene	1	<	U	ug/L
16WW15	3/5/03	16WW15-030305	Trichloroethene	1	<	U	ug/L
16WW15	2/25/04	16WW15-040225	Trichloroethene	1	U		ug/L
16WW15	12/15/04	16WW15-041215	Trichloroethene	1	U		ug/L
16WW17	6/16/95	16WW17-950616	Trichloroethene	5	<	U	ug/L
16WW17	10/27/97	16WW17-971027	Trichloroethene	1.3			ug/L
16WW17	2/12/98	16WW17-980212	Trichloroethene	1	<	U	ug/L
16WW17	5/28/98	16WW17-980528	Trichloroethene	1	<	U	ug/L
16WW17	3/4/03	16WW17-030304	Trichloroethene	1	<	U	ug/L
16WW17	2/25/04	16WW17-040225	Trichloroethene	1	U		ug/L
16WW17	12/15/04	16WW17-041215	Trichloroethene	1	U		ug/L
16WW18	6/15/95	16WW18-950615	Trichloroethene	5	<	U	ug/L
16WW18	10/28/97	16WW18-971028	Trichloroethene	1	<	U	ug/L
16WW18	3/5/03	16WW18-030305	Trichloroethene	1	<	U	ug/L
16WW18	2/23/04	16WW18-040223	Trichloroethene	1	U		ug/L
16WW18	12/15/04	16WW18-041215	Trichloroethene	1	U		ug/L
16WW15	6/22/95	16WW15-950622	1,2-Dichloroethene	5	<	U	ug/L
16WW17	6/16/95	16WW17-950616	1,2-Dichloroethene	5	<	U	ug/L
16WW18	6/15/95	16WW18-950615	1,2-Dichloroethene	5	<	U	ug/L
16WW15	10/28/97	16WW15-971028	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW15	3/5/03	16WW15-030305	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW15	2/25/04	16WW15-040225	cis-1,2-Dichloroethene	1	U		ug/L
16WW15	12/15/04	16WW15-041215	cis-1,2-Dichloroethene	1	U		ug/L
16WW17	10/27/97	16WW17-971027	cis-1,2-Dichloroethene	0.6		J	ug/L
16WW17	2/12/98	16WW17-980212	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW17	5/28/98	16WW17-980528	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW17	3/4/03	16WW17-030304	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW17	2/25/04	16WW17-040225	cis-1,2-Dichloroethene	1	U		ug/L
16WW17	12/15/04	16WW17-041215	cis-1,2-Dichloroethene	1	U		ug/L
16WW18	10/28/97	16WW18-971028	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW18	3/5/03	16WW18-030305	cis-1,2-Dichloroethene	1	<	U	ug/L
16WW18	2/23/04	16WW18-040223	cis-1,2-Dichloroethene	1	U		ug/L

Table A-5
Summary of Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW18	12/15/04	16WW18-041215	cis-1,2-Dichloroethene	1	U		ug/L
16WW15	10/28/97	16WW15-971028	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW15	3/5/03	16WW15-030305	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW15	2/25/04	16WW15-040225	trans-1,2-Dichloroethene	1	U		ug/L
16WW15	12/15/04	16WW15-041215	trans-1,2-Dichloroethene	1	U		ug/L
16WW17	10/27/97	16WW17-971027	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW17	2/12/98	16WW17-980212	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW17	5/28/98	16WW17-980528	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW17	3/4/03	16WW17-030304	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW17	2/25/04	16WW17-040225	trans-1,2-Dichloroethene	1	U		ug/L
16WW17	12/15/04	16WW17-041215	trans-1,2-Dichloroethene	1	U		ug/L
16WW18	10/28/97	16WW18-971028	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW18	3/5/03	16WW18-030305	trans-1,2-Dichloroethene	1	<	U	ug/L
16WW18	2/23/04	16WW18-040223	trans-1,2-Dichloroethene	1	U		ug/L
16WW18	12/15/04	16WW18-041215	trans-1,2-Dichloroethene	1	U		ug/L
16WW15	6/22/95	16WW15-950622	1,1-Dichloroethene	5	<	U	ug/L
16WW15	10/28/97	16WW15-971028	1,1-Dichloroethene	1	<	U	ug/L
16WW15	3/5/03	16WW15-030305	1,1-Dichloroethene	1	<	U	ug/L
16WW15	2/25/04	16WW15-040225	1,1-Dichloroethene	1	U		ug/L
16WW15	12/15/04	16WW15-041215	1,1-Dichloroethene	1	U		ug/L
16WW17	6/16/95	16WW17-950616	1,1-Dichloroethene	5	<	U	ug/L
16WW17	10/27/97	16WW17-971027	1,1-Dichloroethene	1	<	U	ug/L
16WW17	2/12/98	16WW17-980212	1,1-Dichloroethene	1	<	U	ug/L
16WW17	5/28/98	16WW17-980528	1,1-Dichloroethene	1	<	U	ug/L
16WW17	3/4/03	16WW17-030304	1,1-Dichloroethene	1	<	U	ug/L
16WW17	2/25/04	16WW17-040225	1,1-Dichloroethene	1	U		ug/L
16WW17	12/15/04	16WW17-041215	1,1-Dichloroethene	1	U		ug/L
16WW18	6/15/95	16WW18-950615	1,1-Dichloroethene	5	<	U	ug/L
16WW18	10/28/97	16WW18-971028	1,1-Dichloroethene	1	<	U	ug/L
16WW18	3/5/03	16WW18-030305	1,1-Dichloroethene	1	<	U	ug/L
16WW18	2/23/04	16WW18-040223	1,1-Dichloroethene	1	U		ug/L
16WW18	12/15/04	16WW18-041215	1,1-Dichloroethene	1	U		ug/L
16WW15	6/22/95	16WW15-950622	Vinyl chloride	10	<	U	ug/L
16WW15	10/28/97	16WW15-971028	Vinyl chloride	1	<	U	ug/L
16WW15	3/5/03	16WW15-030305	Vinyl chloride	1	<	U	ug/L
16WW15	2/25/04	16WW15-040225	Vinyl chloride	1	U		ug/L
16WW15	12/15/04	16WW15-041215	Vinyl chloride	1	U		ug/L
16WW17	6/16/95	16WW17-950616	Vinyl chloride	10	<	U	ug/L
16WW17	10/27/97	16WW17-971027	Vinyl chloride	1	<	U	ug/L
16WW17	2/12/98	16WW17-980212	Vinyl chloride	1	<	U	ug/L
16WW17	5/28/98	16WW17-980528	Vinyl chloride	1	<	U	ug/L
16WW17	3/4/03	16WW17-030304	Vinyl chloride	1	<	U	ug/L
16WW17	2/25/04	16WW17-040225	Vinyl chloride	1	U		ug/L
16WW17	12/15/04	16WW17-041215	Vinyl chloride	1	U		ug/L
16WW18	6/15/95	16WW18-950615	Vinyl chloride	10	<	U	ug/L

Table A-5
Summary of Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW18	10/28/97	16WW18-971028	Vinyl chloride	1	<	U	ug/L
16WW18	3/5/03	16WW18-030305	Vinyl chloride	1	<	U	ug/L
16WW18	2/23/04	16WW18-040223	Vinyl chloride	1	U		ug/L
16WW18	12/15/04	16WW18-041215	Vinyl chloride	1	U		ug/L
16WW15	10/28/97	16WW15-971028	Nitrate / Nitrite	0.05	<	U	mg/L
16WW15	3/5/03	16WW15-030305	Nitrate / Nitrite	0.25	<	U	mg/L
16WW15	2/25/04	16WW15-040225	Nitrate / Nitrite	0.25	U		mg/L
16WW15	12/15/04	16WW15-041215	Nitrate / Nitrite	0.25	U		mg/L
16WW17	10/27/97	16WW17-971027	Nitrate / Nitrite	0.05			mg/L
16WW17	3/4/03	16WW17-030304	Nitrate / Nitrite	0.25	<	U	mg/L
16WW17	2/25/04	16WW17-040225	Nitrate / Nitrite	0.25	U		mg/L
16WW17	12/15/04	16WW17-041215	Nitrate / Nitrite	0.25	U		mg/L
16WW18	10/28/97	16WW18-971028	Nitrate / Nitrite	0.05	<	U	mg/L
16WW18	3/5/03	16WW18-030305	Nitrate / Nitrite	0.25	<	U	mg/L
16WW18	2/23/04	16WW18-040223	Nitrate / Nitrite	0.25	U		mg/L
16WW18	12/15/04	16WW18-041215	Nitrate / Nitrite	0.25	U		mg/L
16WW15	10/28/97	16WW15-971028	Sulfate	1265			mg/L
16WW15	3/5/03	16WW15-030305	Sulfate	0.4	<	U	mg/L
16WW15	2/25/04	16WW15-040225	Sulfate	0.4	U		mg/L
16WW15	12/15/04	16WW15-041215	Sulfate	0.559			mg/L
16WW17	10/27/97	16WW17-971027	Sulfate	3.49			mg/L
16WW17	3/4/03	16WW17-030304	Sulfate	9.73			mg/L
16WW17	2/25/04	16WW17-040225	Sulfate	20.6			mg/L
16WW17	12/15/04	16WW17-041215	Sulfate	4.46			mg/L
16WW18	10/28/97	16WW18-971028	Sulfate	435			mg/L
16WW18	3/5/03	16WW18-030305	Sulfate	0.514			mg/L
16WW18	2/23/04	16WW18-040223	Sulfate	7.37			mg/L
16WW18	12/15/04	16WW18-041215	Sulfate	0.613			mg/L
16WW15	3/5/03	16WW15-030305	Total Organic Carbon	1.52			mg/L
16WW15	2/25/04	16WW15-040225	Total Organic Carbon	1.26			mg/L
16WW15	12/15/04	16WW15-041215	Total Organic Carbon	3.76			mg/L
16WW17	3/4/03	16WW17-030304	Total Organic Carbon	1.24			mg/L
16WW17	2/25/04	16WW17-040225	Total Organic Carbon	1.34			mg/L
16WW17	12/15/04	16WW17-041215	Total Organic Carbon	1.73			mg/L
16WW18	3/5/03	16WW18-030305	Total Organic Carbon	2.36			mg/L
16WW18	2/23/04	16WW18-040223	Total Organic Carbon	2.05			mg/L
16WW18	12/15/04	16WW18-041215	Total Organic Carbon	3.32			mg/L
16WW15	10/28/97	16WW15-971028	Chloride	120			mg/L
16WW15	3/5/03	16WW15-030305	Chloride	102			mg/L
16WW15	2/25/04	16WW15-040225	Chloride	94.2			mg/L
16WW15	12/15/04	16WW15-041215	Chloride	89.4			mg/L
16WW17	10/27/97	16WW17-971027	Chloride	105			mg/L
16WW17	3/4/03	16WW17-030304	Chloride	107			mg/L
16WW17	2/25/04	16WW17-040225	Chloride	106			mg/L
16WW17	12/15/04	16WW17-041215	Chloride	97			mg/L

Table A-5
Summary of Deep Groundwater Analytical Results

LOCATION	SDATE	SAMPLE_NO	PARAMETER	RESULT	QUAL	VQ	UNITS
16WW18	10/28/97	16WW18-971028	Chloride	104			mg/L
16WW18	3/5/03	16WW18-030305	Chloride	77.5			mg/L
16WW18	2/23/04	16WW18-040223	Chloride	73.2			mg/L
16WW18	12/15/04	16WW18-041215	Chloride	69.8			mg/L

Notes:

mg/L milligrams per liter
QUAL Laboratory qualifier
ug/L micrograms per liter
VQ Validation qualifier
< same as U
J The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.
U Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

Table A-6
Time-Dependent Attenuation Rates and Estimated Cleanup Times

Monitoring Well	Attenuation Rate Constant (day^{-1})	Attenuation Half-Life		Most Recent Concentration		Target Concentration (µg/L)	Estimated Cleanup Time (years)
		(days)	(years)	Date	(µg/L)		
SHALLOW GROUNDWATER							
Perchlorate							
16WW16	0.000264	2,626	7.2	3/17/09	240	23	24
16WW22	0.00128	542	1.5	6/7/07	< 5	23	Completed
16WW30	0.00174	398	1.1	6/12/07	< 2	23	Completed
16WW32	0.000939	738	2.0	3/17/09	< 0.55	23	Completed
16WW36	0.0000132	52,511	144	3/30/09	< 5.5	23	Completed
Trichloroethene (TCE)							
16WW12	0.0000379	18,289	50	10/11/07	4,500	5	492
16WW16	0.0000798	8,686	24	3/17/09	18,900	5	283
16WW22	0.00106	654	1.8	6/7/07	119	5	8.2
16WW30	0.0000999	6,938	19	6/12/07	20.1	5	38
16WW34	0.000157	4,415	12	6/7/07	< 5	5	Completed
cis-1,2-Dichloroethene (cis-1,2-DCE)							
16WW16	0.000743	933	2.6	3/17/09	11,800	70	19
16WW22	0.000879	789	2.2	6/7/07	4.96	70	Completed
16WW38	0.0000444	15,611	43	6/6/07	106	70	26
1,1-Dichloroethene (1,1-DCE)							
16WW12	0.000232	2,988	8.2	6/11/07	6.59	7	Completed
16WW16	0.000837	828	2.3	3/17/09	43.2	7	6.0
Vinyl Chloride (VC)							
16WW16	0.000637	1,088	3.0	3/17/09	564	2	24
16WW22	0.000680	1,019	2.8	6/7/07	1.76	2	Completed

Table A-6
Time-Dependent Attenuation Rates and Estimated Cleanup Times

Monitoring Well	Attenuation Rate Constant (day^{-1})	Attenuation Half-Life		Most Recent Concentration		Target Concentration (µg/L)	Estimated Cleanup Time (years)
		(days)	(years)	Date	(µg/L)		
INTERMEDIATE GROUNDWATER							
Perchlorate							
16WW13	0.000926	749	2.1	6/12/07	< 10	23	Completed
16WW25	0.0013	533	1.5	6/11/07	< 10	23	Completed
16WW27	0.00135	513	1.4	12/14/04	< 4	23	Completed
16WW35	0.000845	820	2.2	3/19/09	< 5.5	23	Completed
16WW37	0.000102	6,796	19	6/6/07	57	23	24
Trichloroethene (TCE)							
16WW13	0.000179	3,872	11	6/12/07	8,760	5	114
16WW29	0.000328	2,113	5.8	6/12/07	6.87	5	2.7
16WW33	0.000351	1,975	5.4	12/11/04	< 1	5	Completed
16WW37	0.000457	1,517	4.2	6/6/07	85.2	5	17
cis-1,2-Dichloroethene (cis-1,2-DCE)							
16WW37	0.00047	1,475	4.0	6/6/07	5.66 J	70	Completed
Vinyl Chloride (VC)							
16WW13	0.000228	3,040	8.3	6/12/07	19.7	2	27
16WW37	0.00112	619	1.7	6/6/07	0.461 J	2	Completed

Notes:

µg/L - micrograms per liter

Table A-7
Distance-Dependent Attenuation Rates and Estimated Cleanup Times

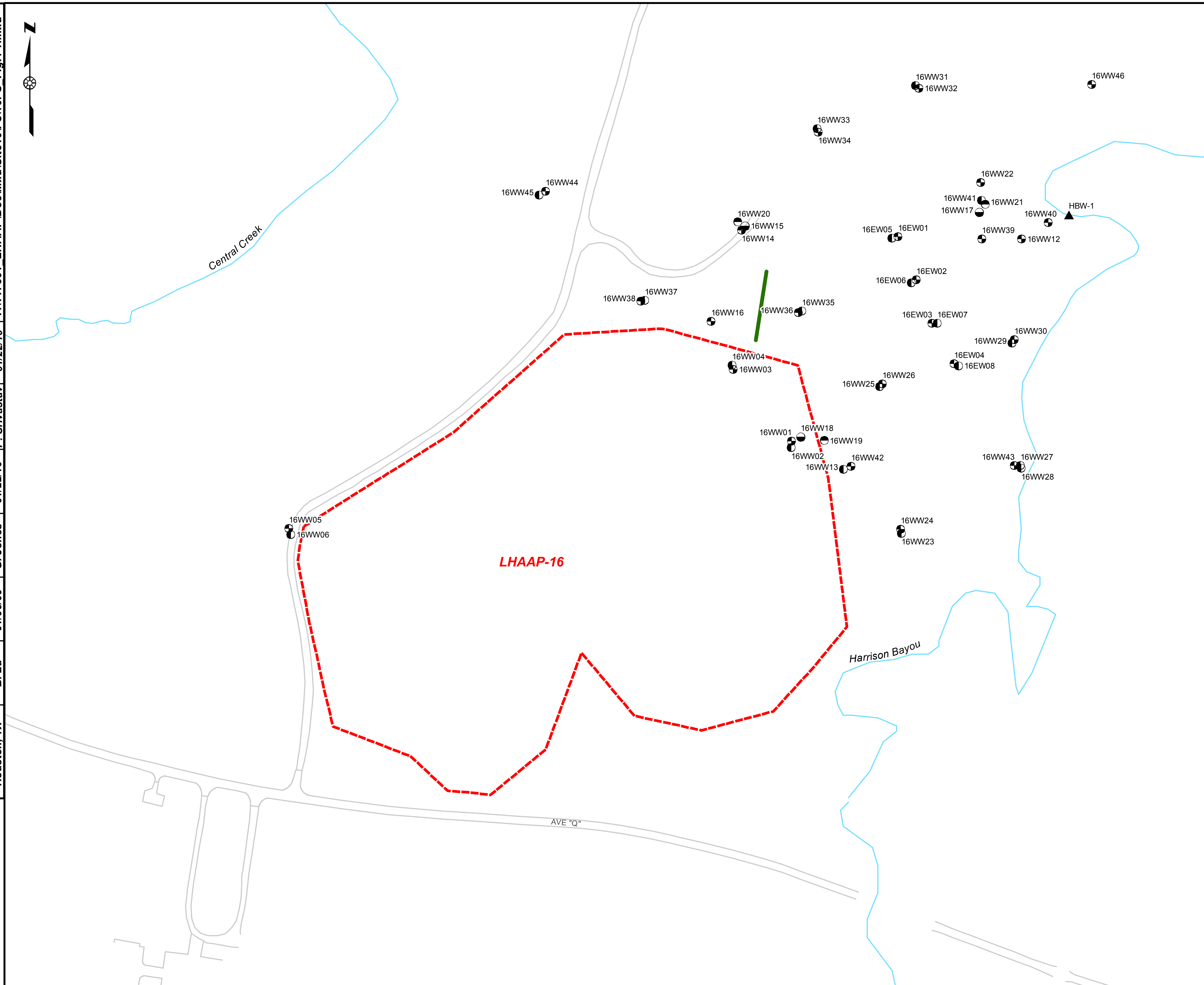
Monitoring Well	Sampling Event	Attenuation Rate Constant (day^{-1})	Attenuation Half-Life		Most Recent Concentration		Target Concentration (µg/L)	Estimated Cleanup Time (years)
			(days)	(years)	Date	(µg/L)		
SHALLOW GROUNDWATER								
Trichloroethene (TCE)								
16WW36	Jan-98	5.65E-05	12,268	34	3/30/09	29,300	5	421
16WW36	Dec-04	2.24E-04	3,094	8.5	3/30/09	29,300	5	106
INTERMEDIATE GROUNDWATER								
Trichloroethene (TCE)								
16WW35	Jan-98	0.000213	3,254	8.9	3/19/09	2180	5	78
16WW35	Feb-04	0.000300	2,310	6.3	3/19/09	2180	5	56

Notes:

µg/L - micrograms per liter

Figures

00084598



LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Upper Deep Monitoring Well
- Deep Monitoring Well
- Surface Water Sampling Location
- Existing Semi-passive Biobarrier
- Stream
- Road
- LHAAP-16 Landfill Fence

Notes:

1. Performance monitoring and extraction wells installed in support of the semi-passive biobarrier are not shown.
2. 16WW19, 16WW20, and 16WW21 are upper deep monitoring wells.

0 100 200 400
Feet

Shaw®

U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

FIGURE A-1

MONITORING WELL LOCATION MAP
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	FILE PATH
Houston, TX	B. Lu 01/06/09	G. Jones 01/22/10	P. Srivastav 01/22/10	T:\117591 LHAAP\Doc\Mxd\Site16\Fs\16FS_FigA-1.mxd

Figure A-2
Concentration Trends in Shallow Well 16WW22

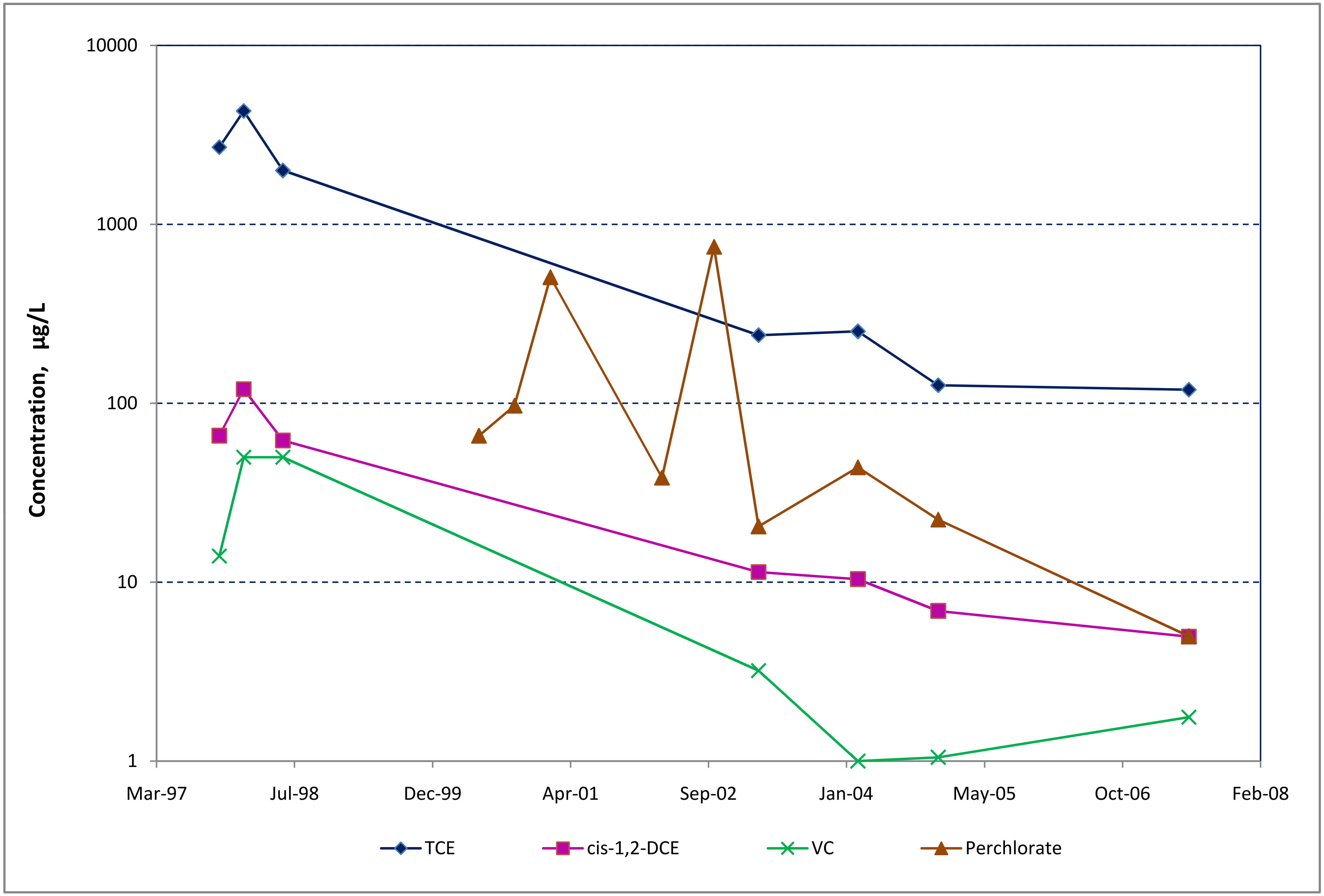


Figure A-3
Concentration Trends in Shallow Well 16WW16

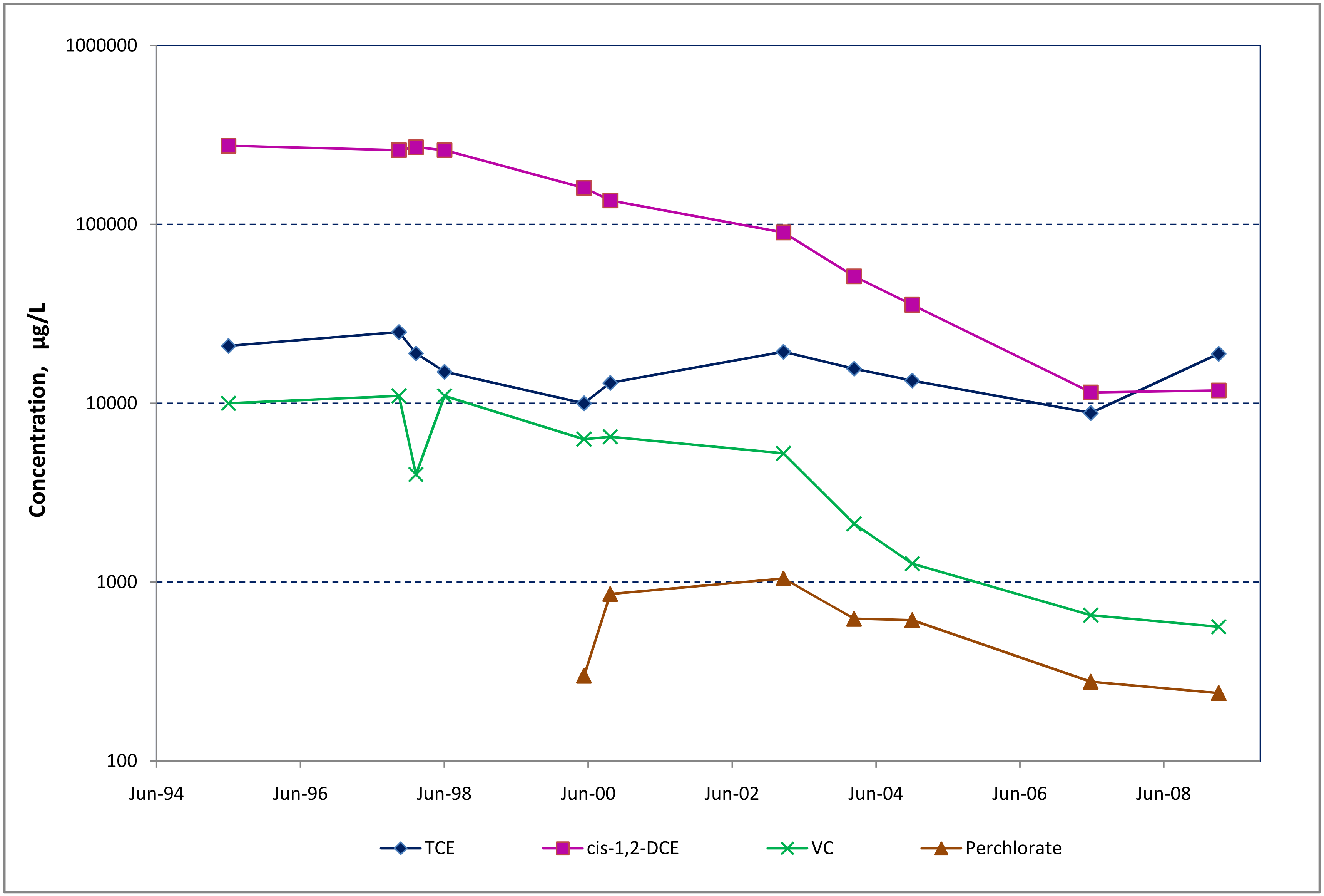


Figure A-4
Concentration Trends in Shallow Well 16WW36

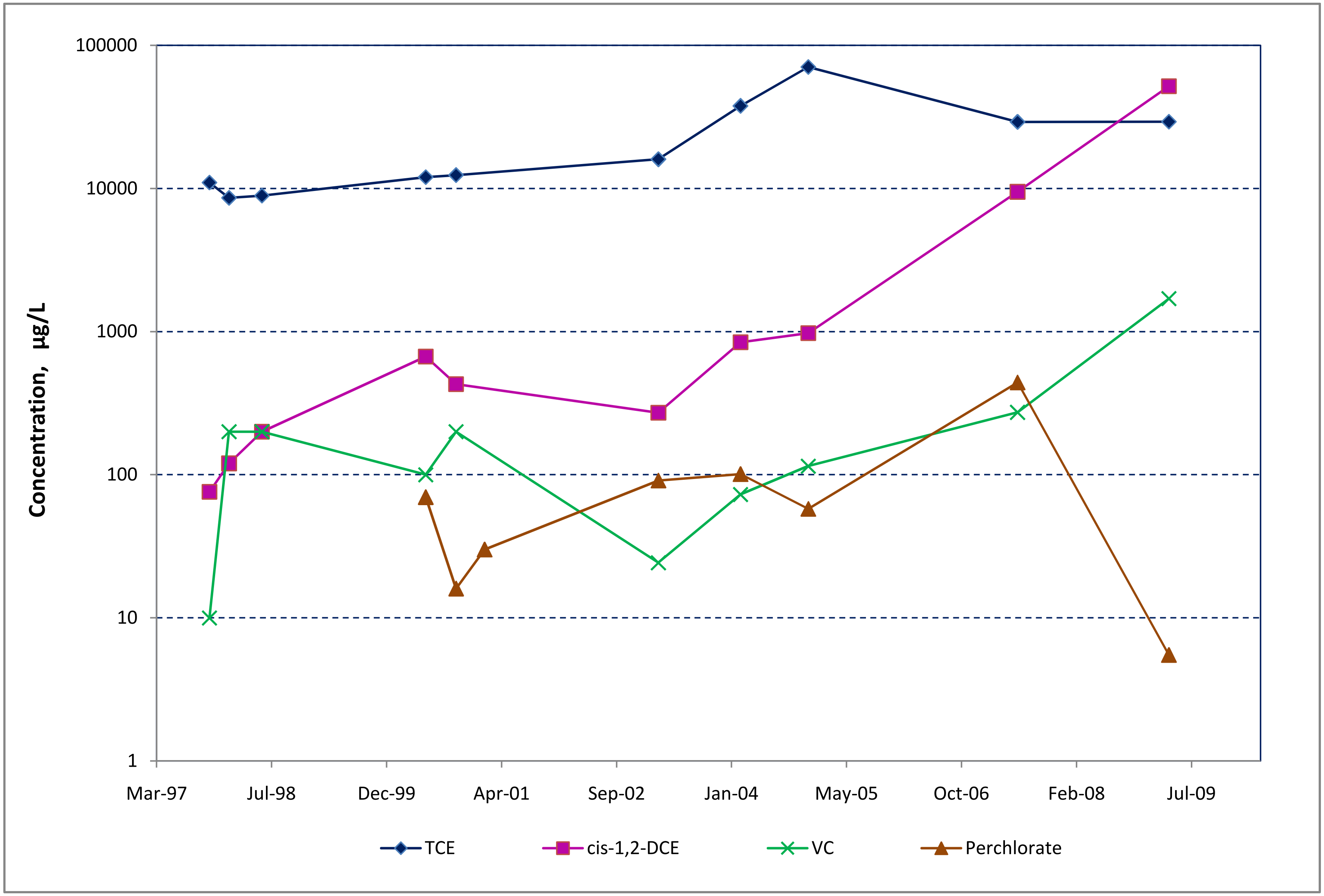
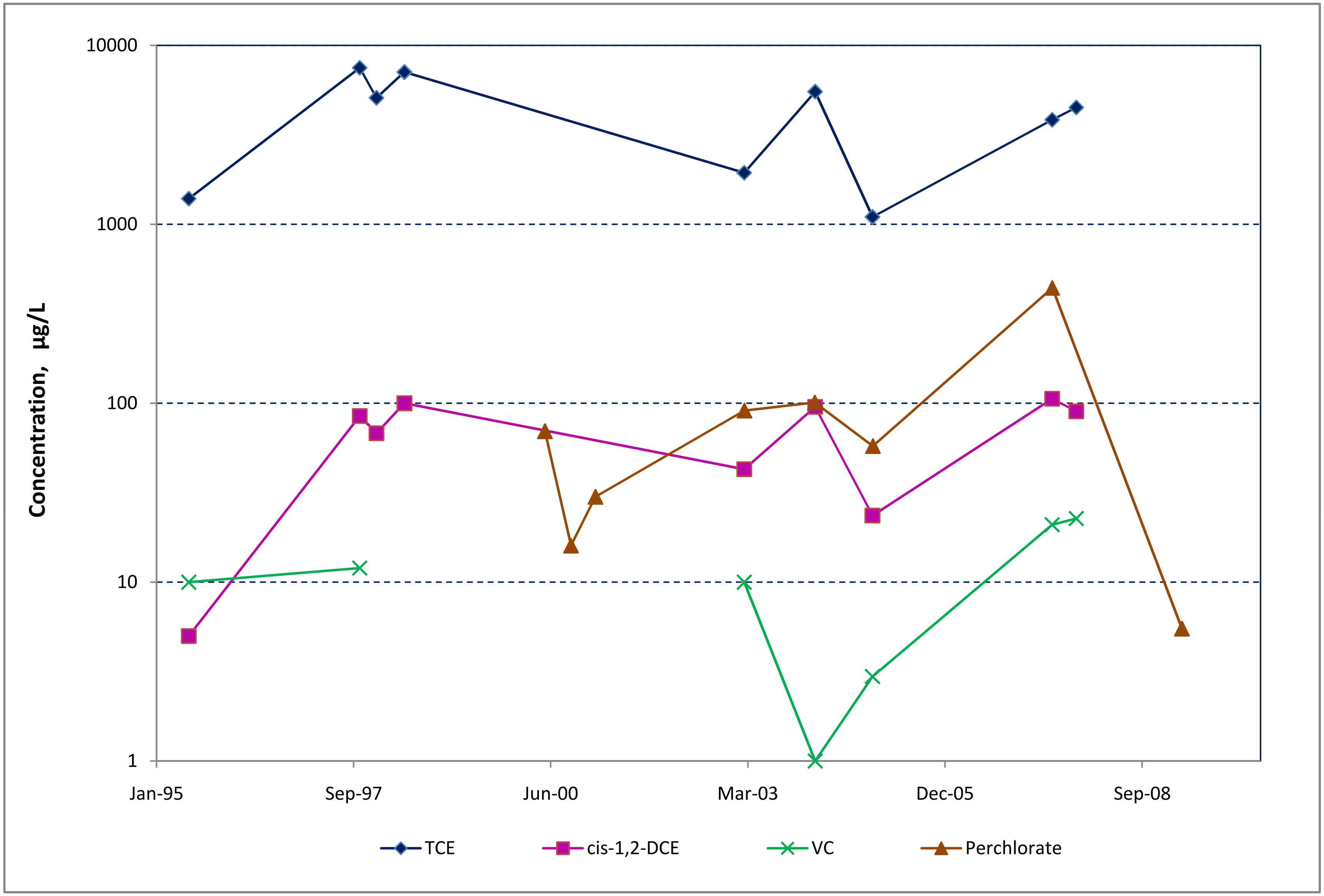
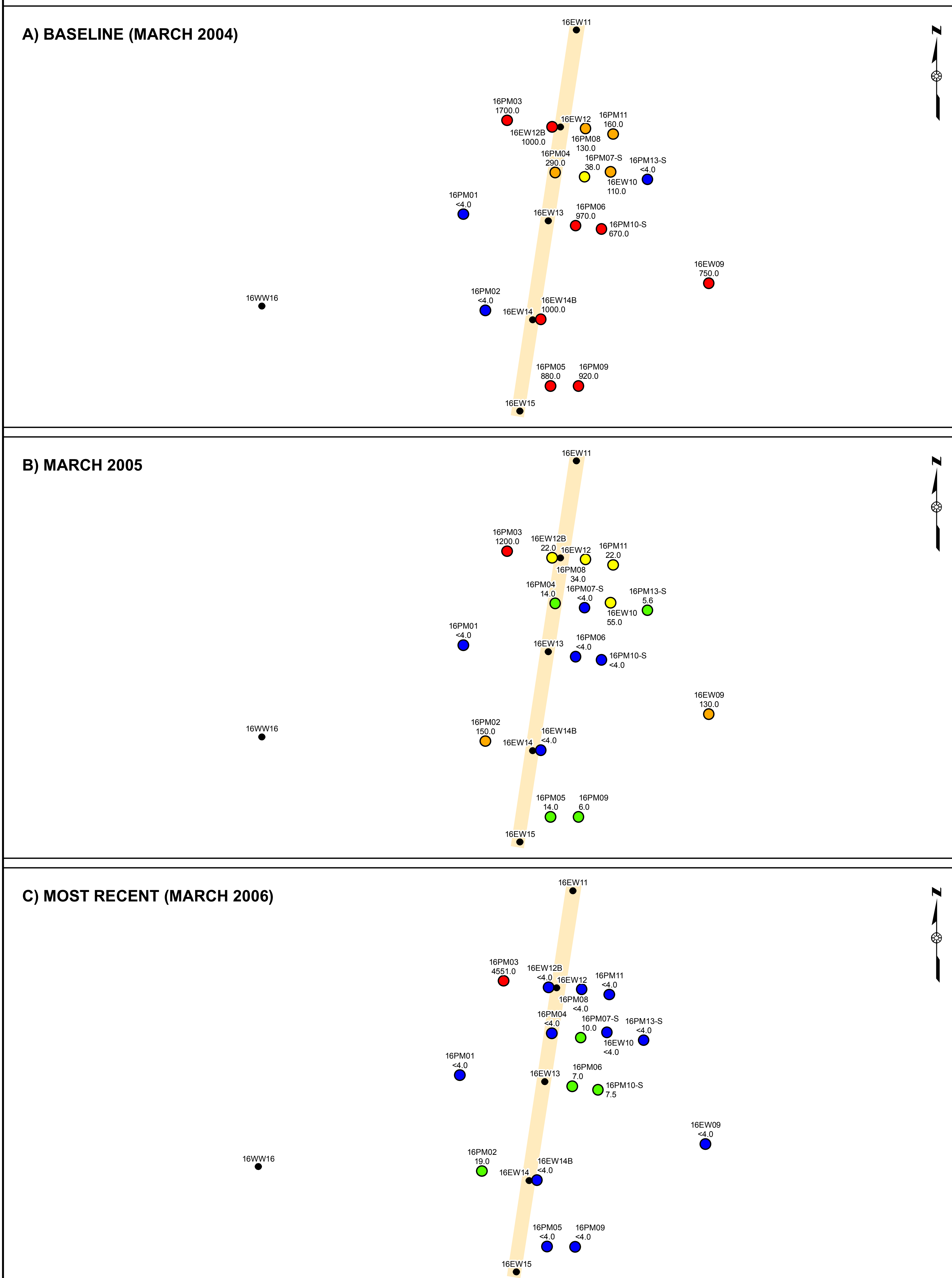


Figure A-5
Concentration Trends in Shallow Well 16WW12



OFFICE	DRAWN BY		CHECKED BY		APPROVED BY		FILE PATH
Houston, TX	B. Lu	02/27/08	G. Jones	02/28/08	P. Srivastav	02/28/08	T:\GIS\Longhorn\MXD\Site16\FS\16FS_FigA6.mxd



LEGEND

Perchlorate Concentrations (µg/L)

- 0.0 - 4.0 (Non-detect)
- 4.1 - 20.0
- 20.1 - 100.0
- 100.1 - 500.0
- 500.1 - 4551.0
- Well Not Sampled

Biobarrier

Source:

Environmental Security Technology Certification Program (ESTCP), 2005, *DATA ANALYSIS WHITE PAPER FOR: Remediation of Perchlorate Through Semi-Passive Bioremediation at the Longhorn Army Ammunition Plant, ESTCP Project 200219, Revision 1.0*, May.

0 17.5 35 70 Feet

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TULSA DISTRICT
TULSA, OKLAHOMA

FIGURE A-6
PERCHLORATE CONCENTRATION IN GROUNDWATER, PRE- AND POST-DEMONSTRATION
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Figure A-7
Natural Attenuation Rate Estimation for Perchlorate - Shallow

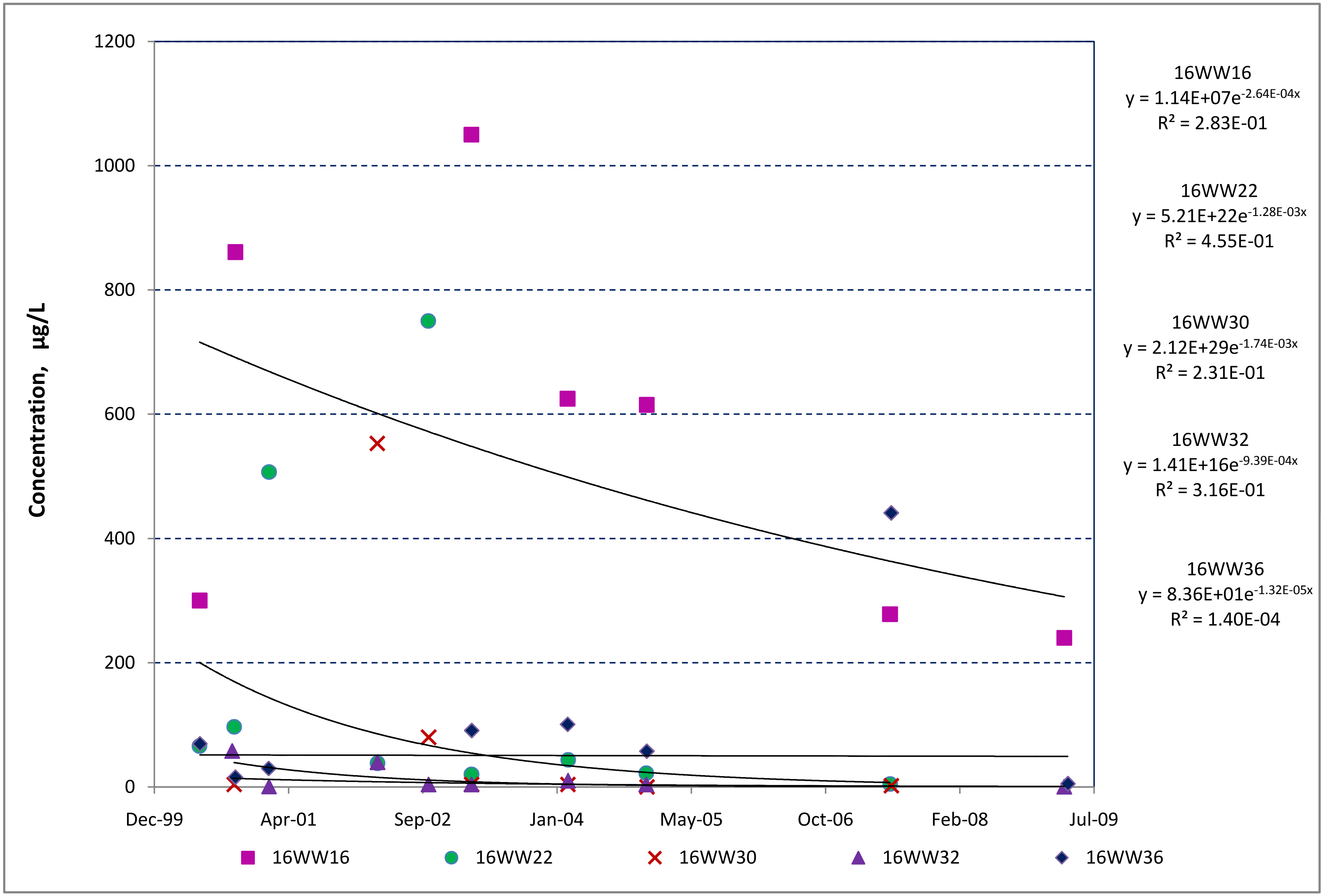


Figure A-8
Natural Attenuation Rate Estimation for TCE - Shallow

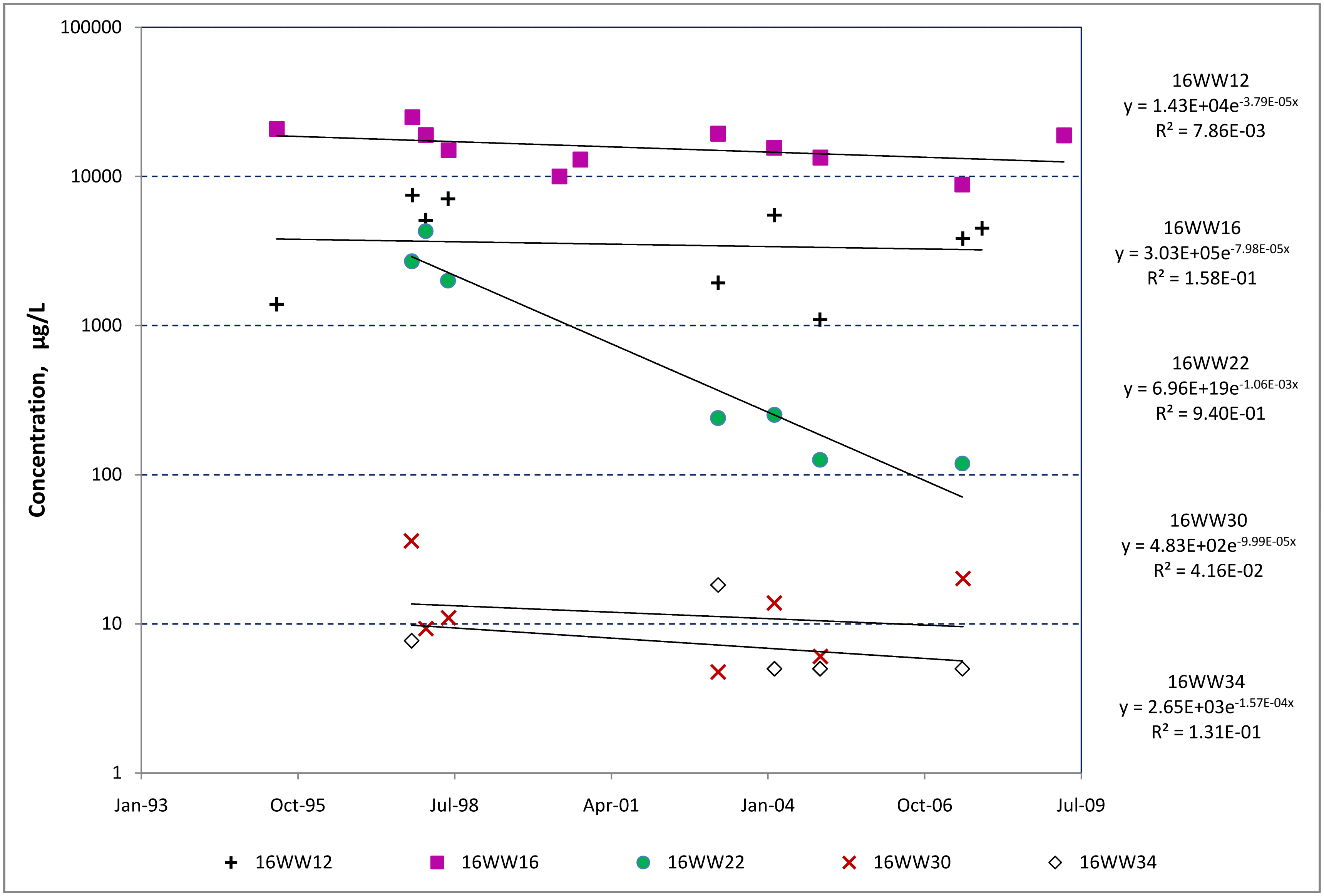


Figure A-9
Natural Attenuation Rate Estimation for cis-1,2-DCE - Shallow

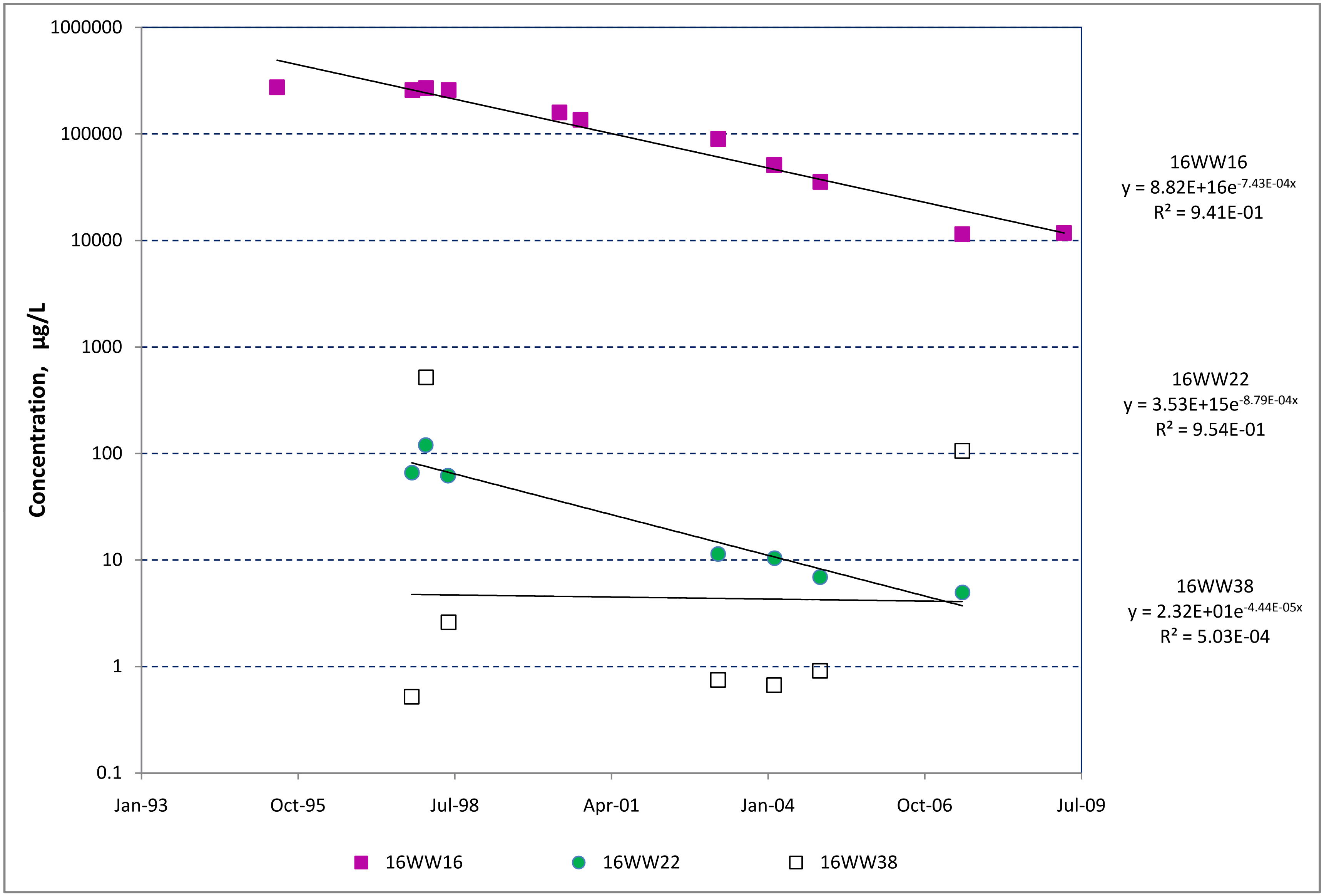


Figure A-10
Natural Attenuation Rate Estimation for 1,1-DCE - Shallow

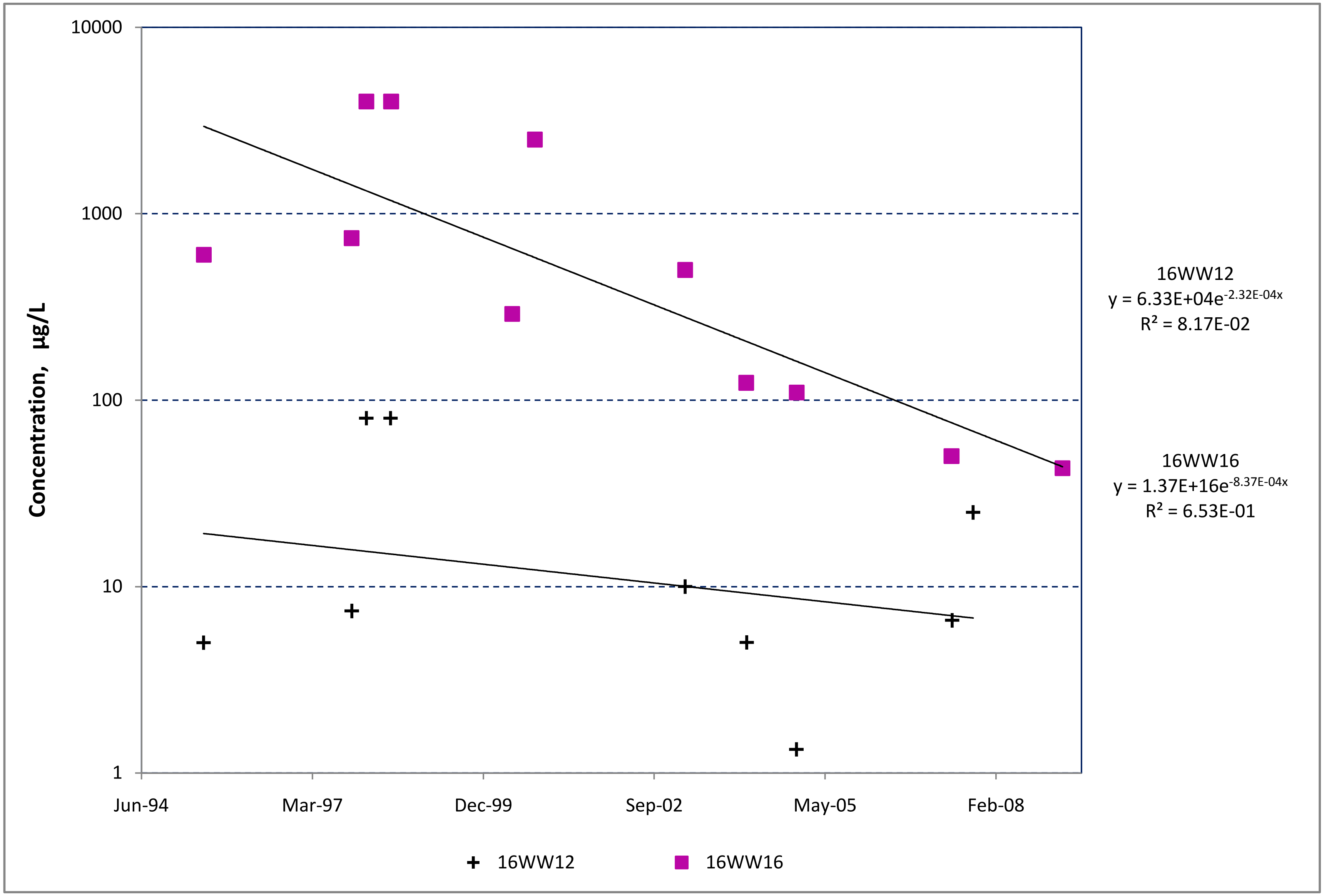


Figure A-11
Natural Attenuation Rate Estimation for VC - Shallow

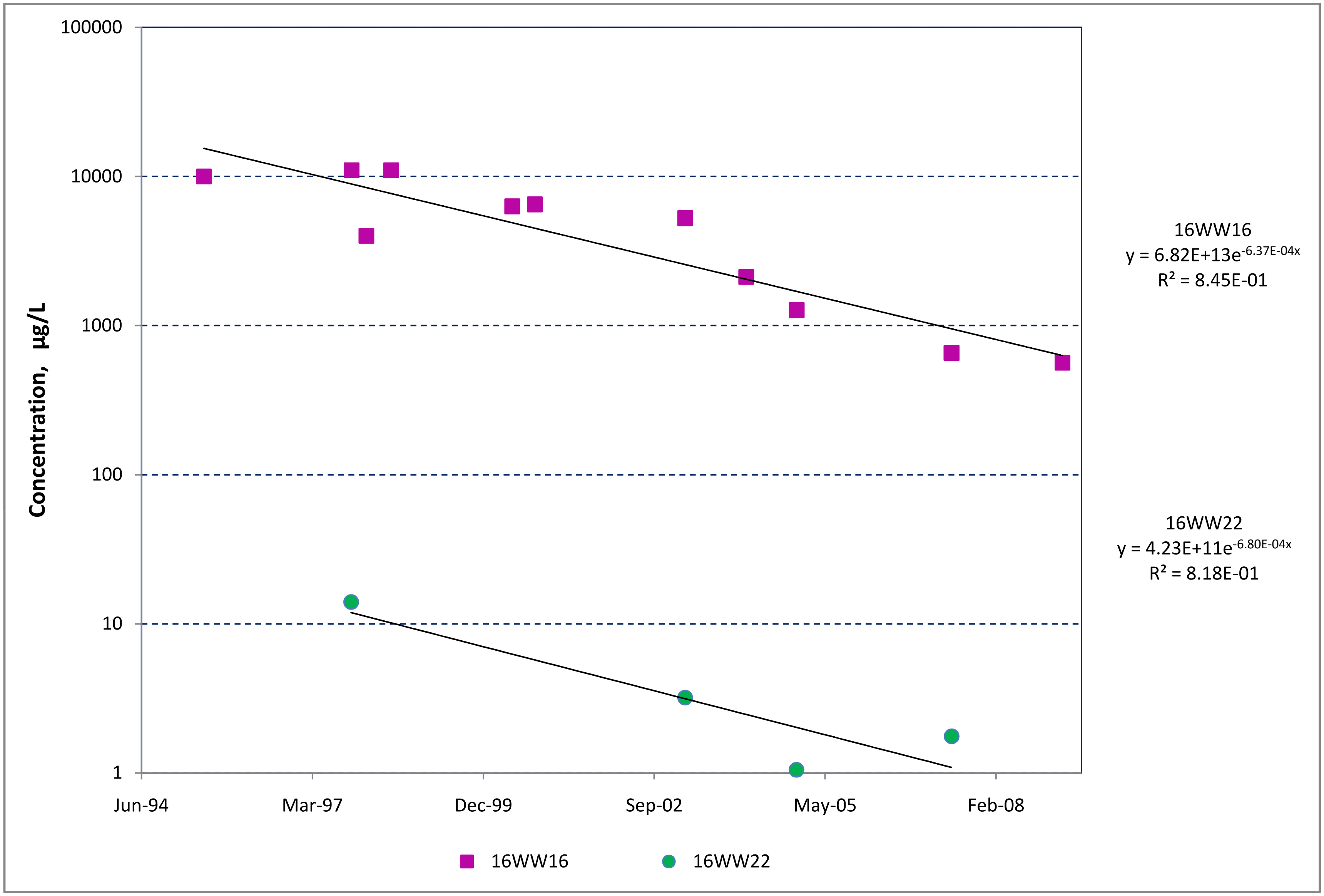


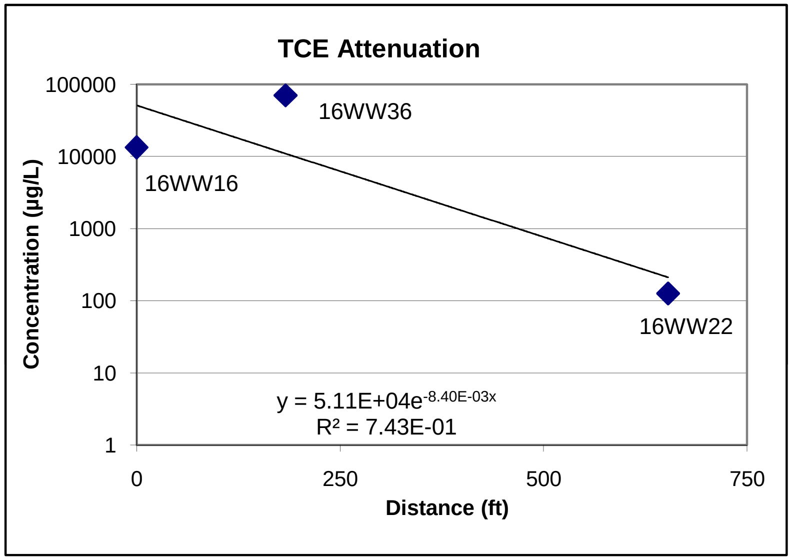
Figure A-12
Distance-Dependent TCE Attenuation and Biodegradation Rates - Shallow - December 2004

Natural Attenuation Rate Calculation, Buscheck and Alcantar Equation,
Reference: Buscheck, T. E. and C. M. Alcantar (1995) Regression Techniques and Analytical Solutions to Demonstrate Intrinsic Biodegradation in Intrinsic Bioremediation, eds. R. E. Hinchee, J. T. Wilson, and D. C. Downey, Battelle Press, Columbus, OH.
Slope of exponential regression versus distance (k/v_x)

Location: LHAAP-16 Shallow Groundwater TCE December 2004 Data

Monitoring Well	16WW16	16WW36	16WW22	Slope	R^2
Feet	**0**	**183**	**653**	-0.00840	0.743
Concentration	**13400**	**70600**	**126**		

Hydraulic Conductivity	**2.47**	ft/day	Geometric Mean for Shallow Zone Wells in Final RI (Jacobs, 2000)
Groundwater Gradient	**0.0027**	ft/ft	Average of Gradients measured from 16WW36 to 16WW22, Jan 2006 to Dec 2008
Total Porosity	**0.25**	unitless	An assumed value.
Average groundwater velocity, v_x =	**0.027**	ft/day	
	9.7	ft/year	



λ = $(v_c/4\alpha_x)\,([1+2\alpha_x(k/v_x)]^2 - 1)$

α_x = 5 % of flow field (distance separating two furthest wells)
32.65 ft

f_{oc} = **0.001** fraction organic carbon, default value.

K_{oc} = **100** L/kg Final Modeling Report (Shaw, 2007)

K_d = $K_{oc}f_{oc}$
0.1 L/kg

ρ_b = 1.7 kg/L bulk density default value

n = 0.25 total porosity

R = $1 + (\rho_b K_d/n)$ retardation factor
1.680

v_c = v_x/R
5.8 ft/year

Intrinsic Biodegradation

$(v_c/4\alpha_x)$ =	0.0444	/yr
(k/v_x) =	0.0084	/ft, slope of graph
$[1+2\alpha_x(k/v_x)]$	1.5485	
λ =	**0.0620**	/year
Half-life	**11.2**	years

Natural Attenuation Rate

k = average groundwater velocity (v_x) multiplied by slope of graph (k/v_x)

k =	**0.0818**	/year
half-life =	**8.5**	years
λ/k =	**76%**	

for Table A-7
k = **0.000224** /day

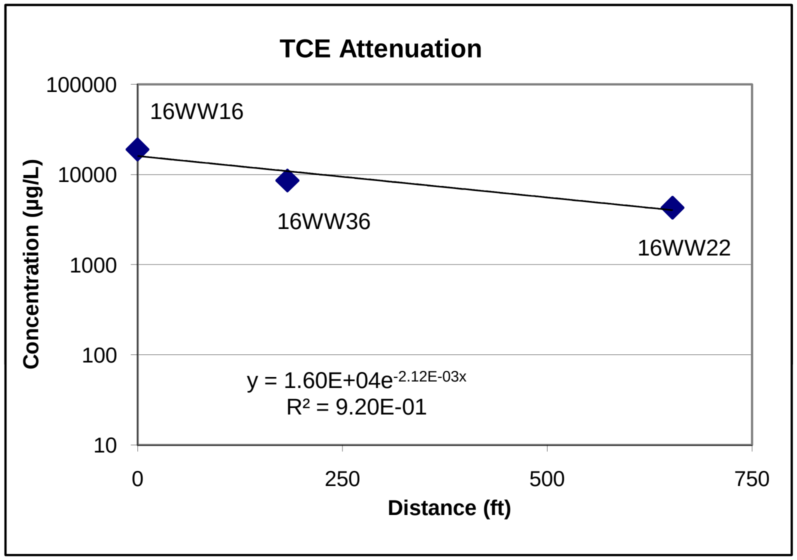
Figure A-13
Distance-Dependent TCE Attenuation and Biodegradation Rates - Shallow - January 1998

Natural Attenuation Rate Calculation, Buscheck and Alcantar Equation,
Reference: Buscheck, T. E. and C. M. Alcantar (1995) Regression Techniques and Analytical Solutions to Demonstrate Intrinsic Biodegradation in Intrinsic Bioremediation, eds. R. E. Hinchee, J. T. Wilson, and D. C. Downey, Battelle Press, Columbus, OH.
Slope of exponential regression versus distance (k/v_x)

Location: LHAAP-16 Shallow Groundwater TCE January 1998 Data

Monitoring Well	16WW16	16WW36	16WW22	Slope	R^2
Feet	**0**	**183**	**653**	-0.00212	0.920
Concentration	**19000**	**8600**	**4300**		

Hydraulic Conductivity	**2.47**	ft/day	Geometric Mean for Shallow Zone Wells in Final RI (Jacobs, 2000)
Groundwater Gradient	**0.0027**	ft/ft	Average of Gradients measured from 16WW36 to 16WW22, Jan 2006 to Dec 2008
Total Porosity	**0.25**	unitless	An assumed value.
Average groundwater velocity, v_x =	**0.027**	ft/day	
	9.7	ft/year	



λ = $(v_c/4\alpha_x)([1+2\alpha_x(k/v_x)]^2 - 1)$

α_x = 5 % of flow field (distance separating two furthest wells)
32.65 ft

f_{oc} = **0.001** fraction organic carbon, default value.

K_{oc} = **100** L/kg Final Modeling Report (Shaw, 2007)

K_d = $K_{oc}f_{oc}$
0.1 L/kg

ρ_b = 1.7 kg/L bulk density default value

n = 0.25 total porosity

R = $1 + (\rho_b K_d/n)$ retardation factor
1.680

v_c = v_x/R
5.8 ft/year

Intrinsic Biodegradation

$(v_c/4\alpha_x)$ = 0.0444 /yr
(k/v_x) = 0.0021 /ft, slope of graph
$[1+2\alpha_x(k/v_x)]$ 1.1384
λ = **0.0131** /year
Half-life **52.8** years

Natural Attenuation Rate

k = average groundwater velocity (v_x) multiplied by slope of graph (k/v_x)
k = **0.0206** /year
half-life = **33.6** years
λ/k = **64%**

for Table A-7
k = **0.0000565** /day

Figure A-14
Concentration Trends in Intermediate Well 16WW13

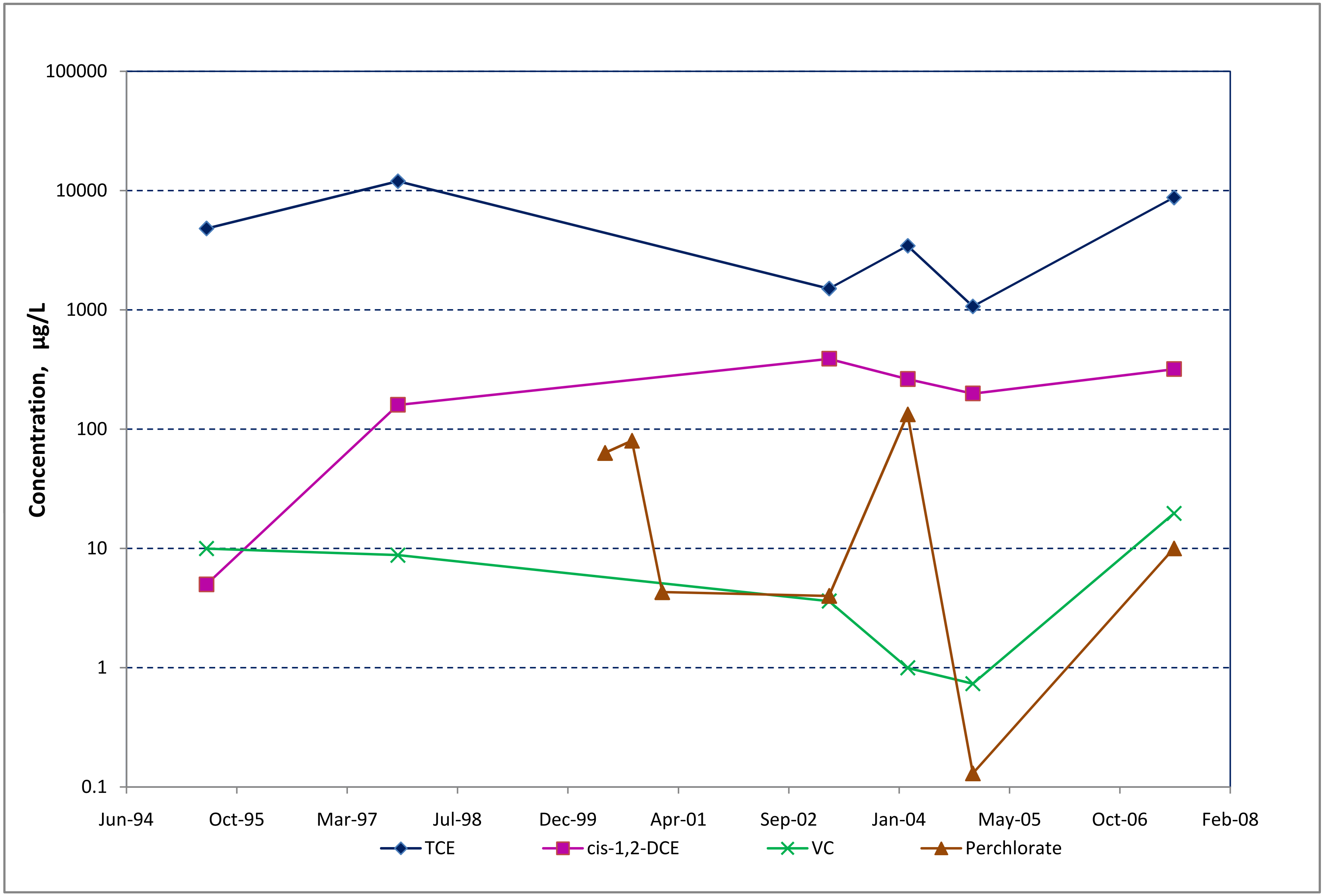


Figure A-15
Concentration Trends in Intermediate Well 16WW35

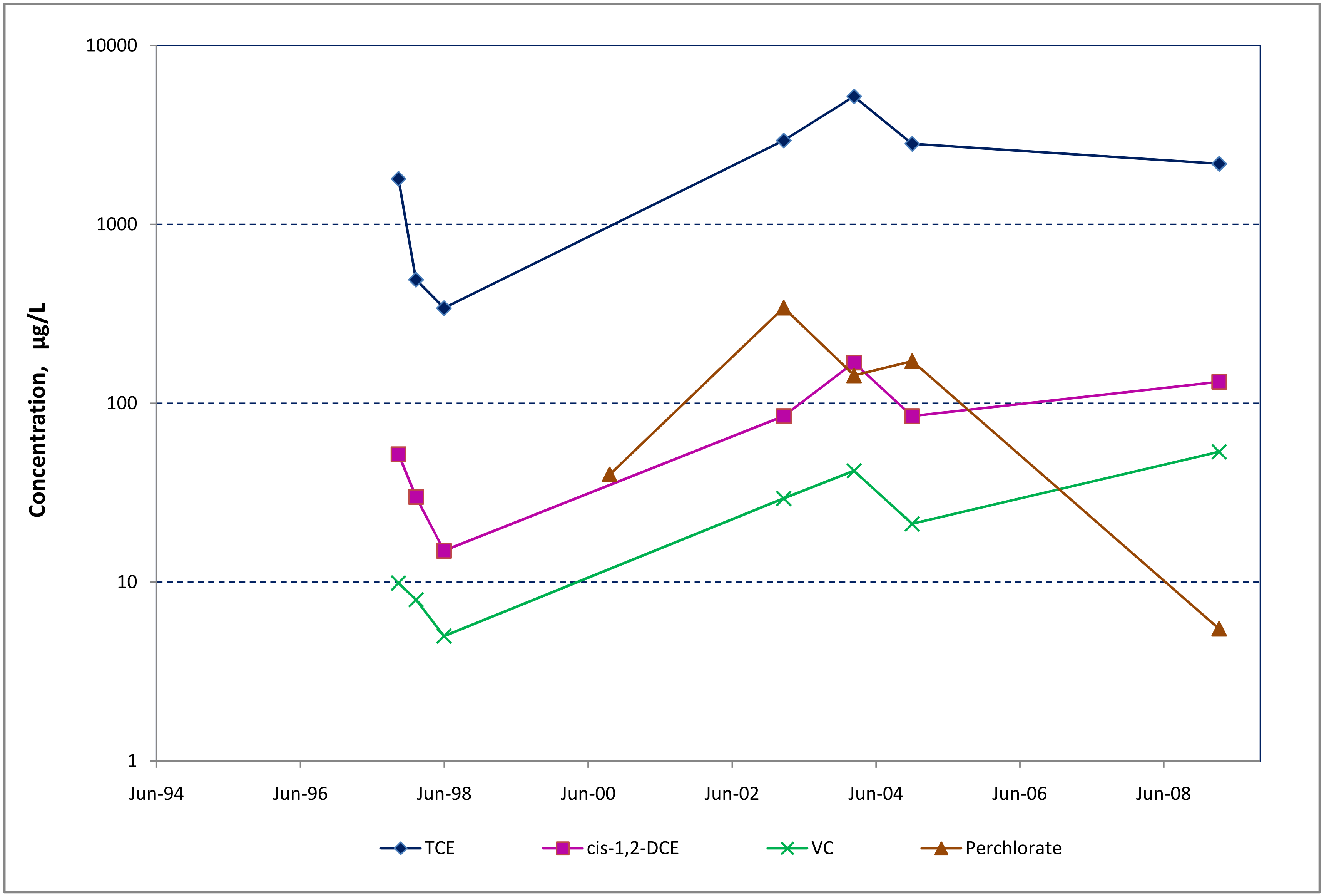
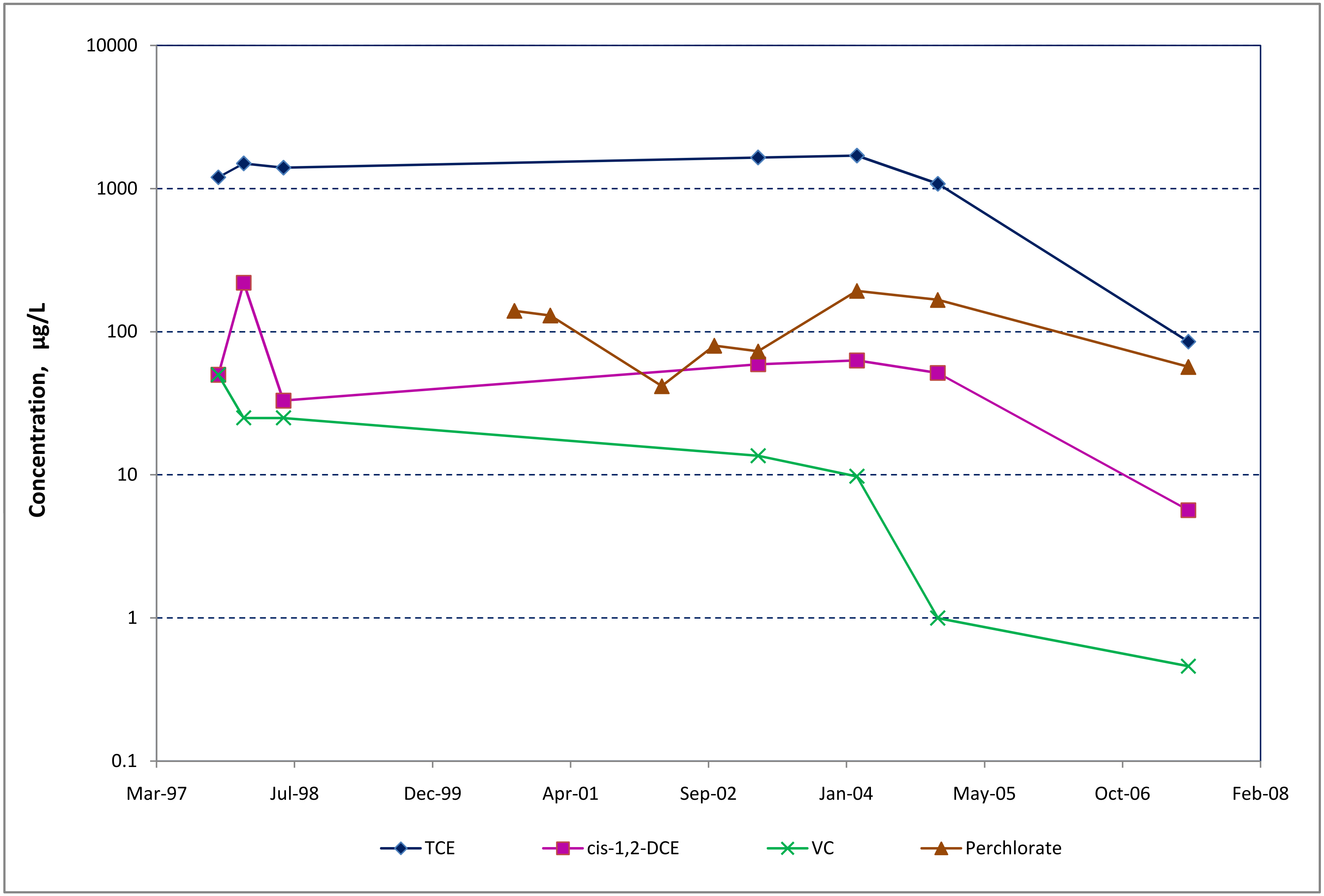


Figure A-16
Concentration Trends in Intermediate Well 16WW37



00084614

Figure A-17
Natural Attenuation Rate Estimation for Perchlorate - Intermediate

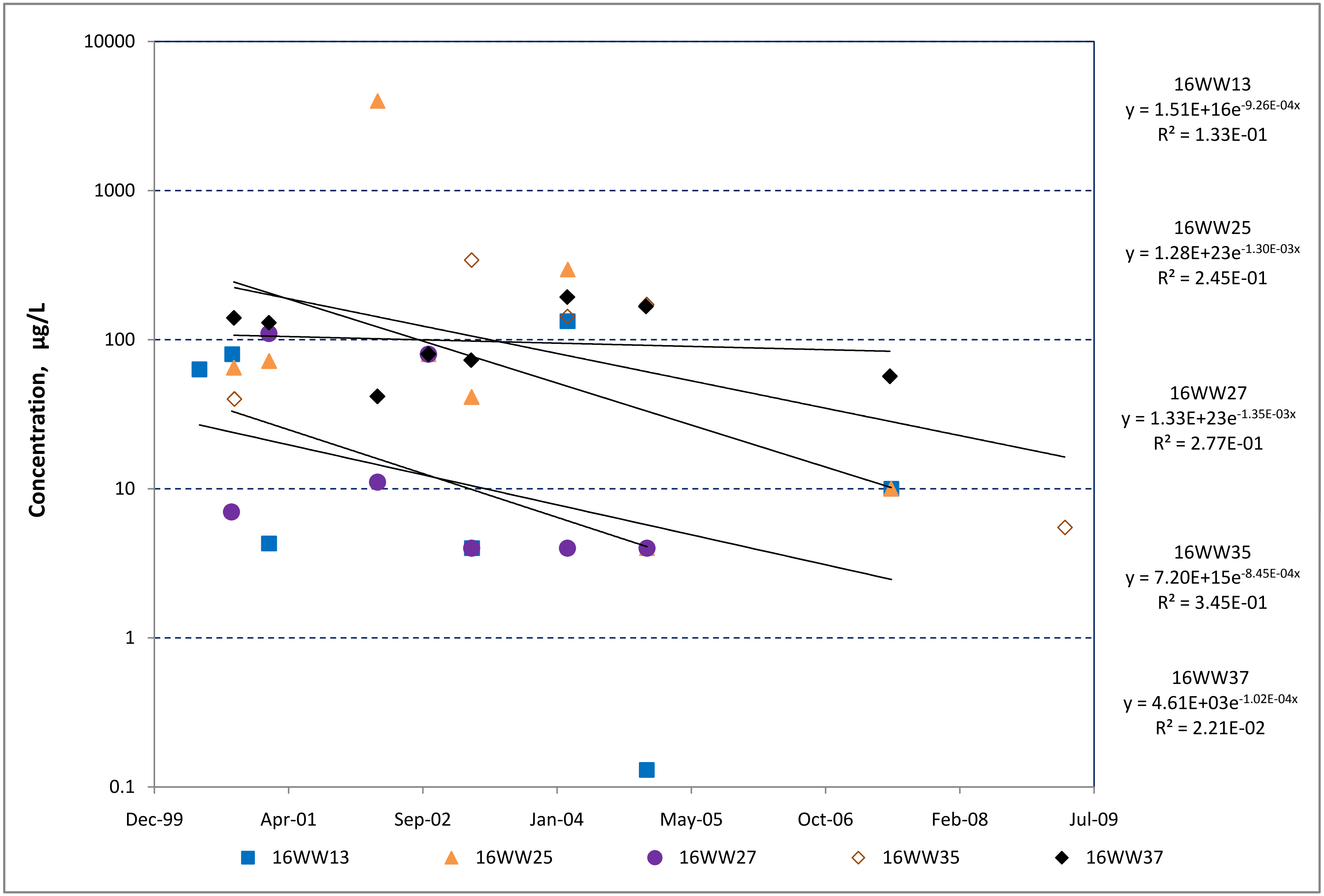


Figure A-18
Natural Attenuation Rate Estimation for TCE - Intermediate

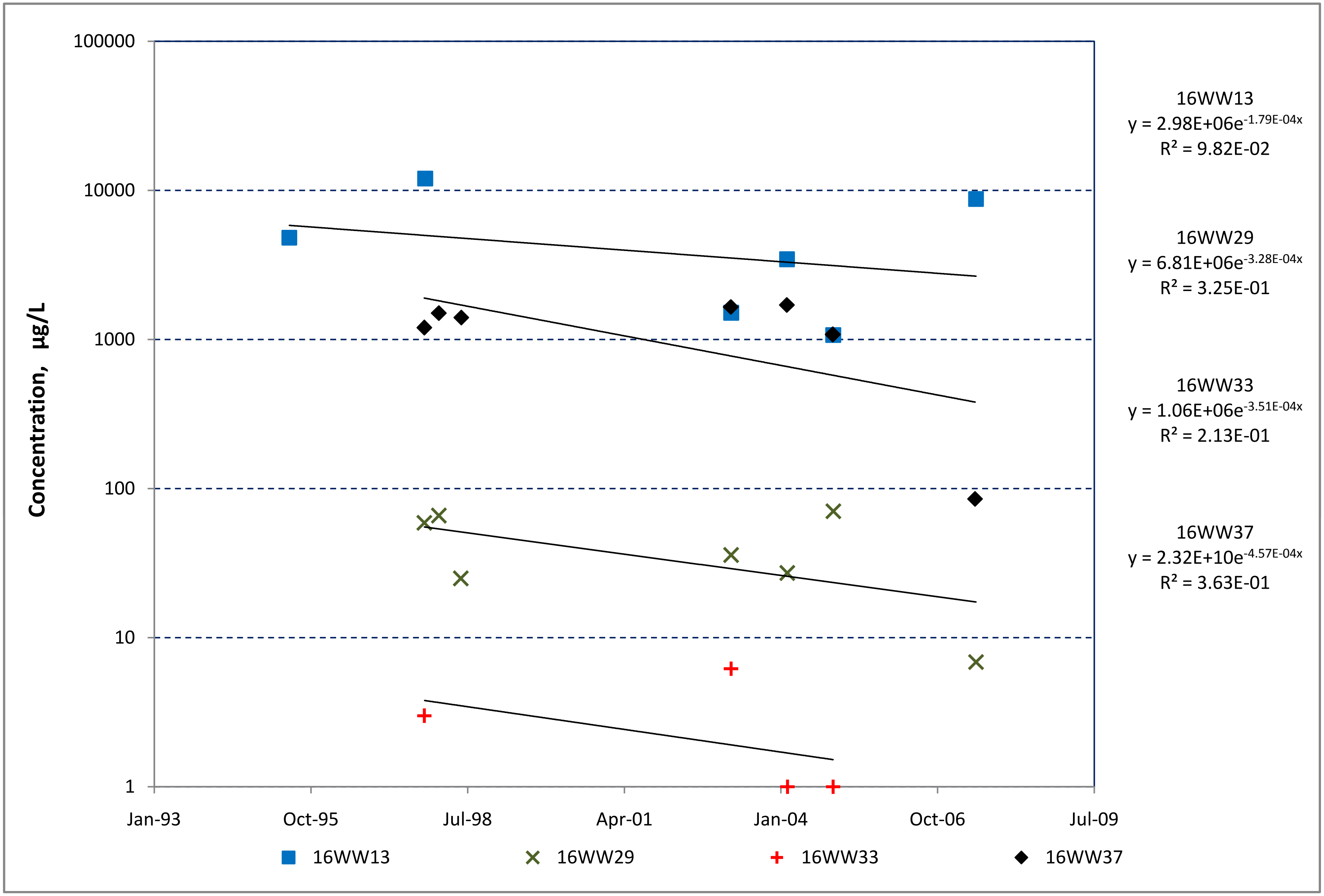


Figure A-19
Natural Attenuation Rate Estimation for cis-1,2-DCE - Intermediate

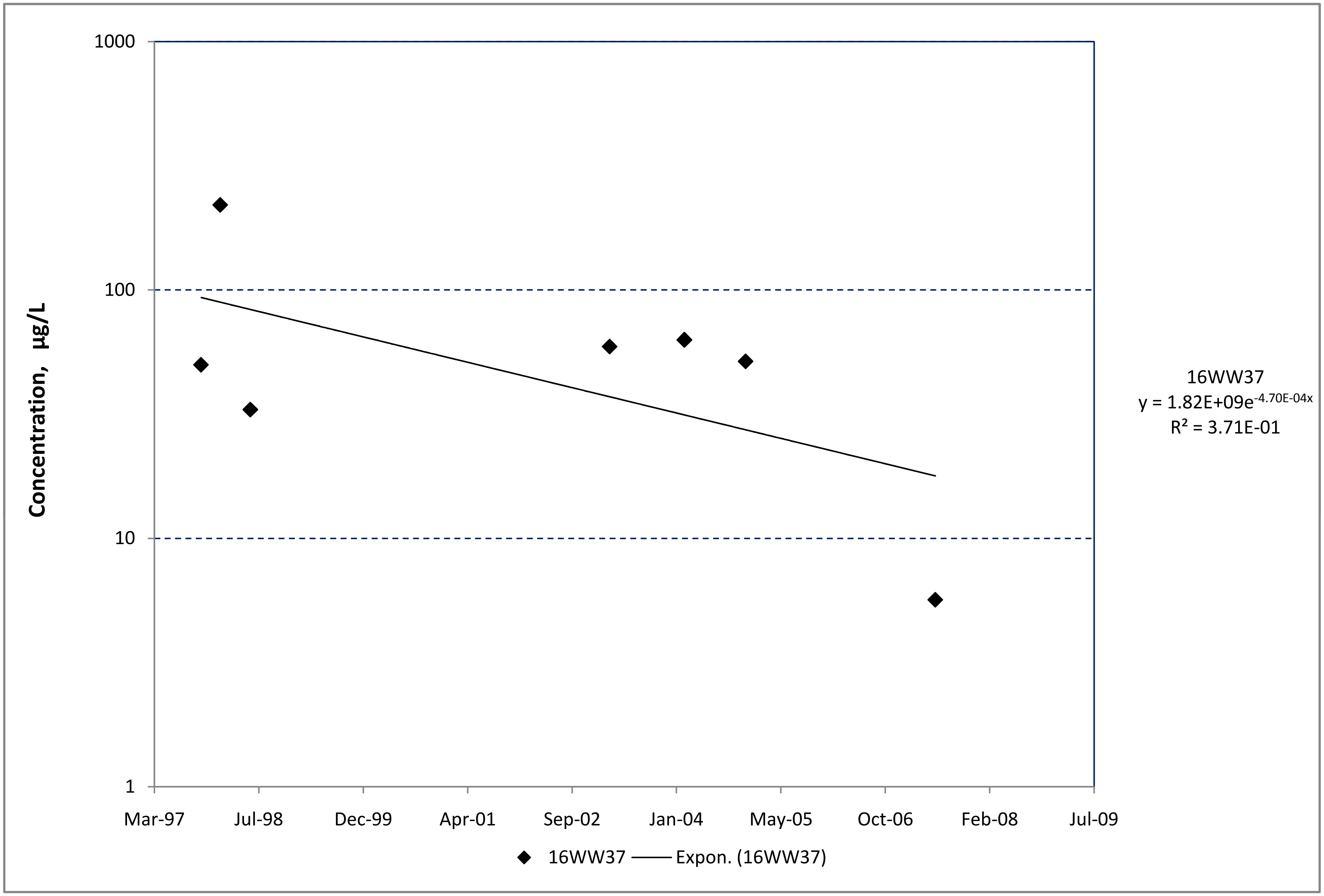


Figure A-20
Natural Attenuation Rate Estimation for VC - Intermediate

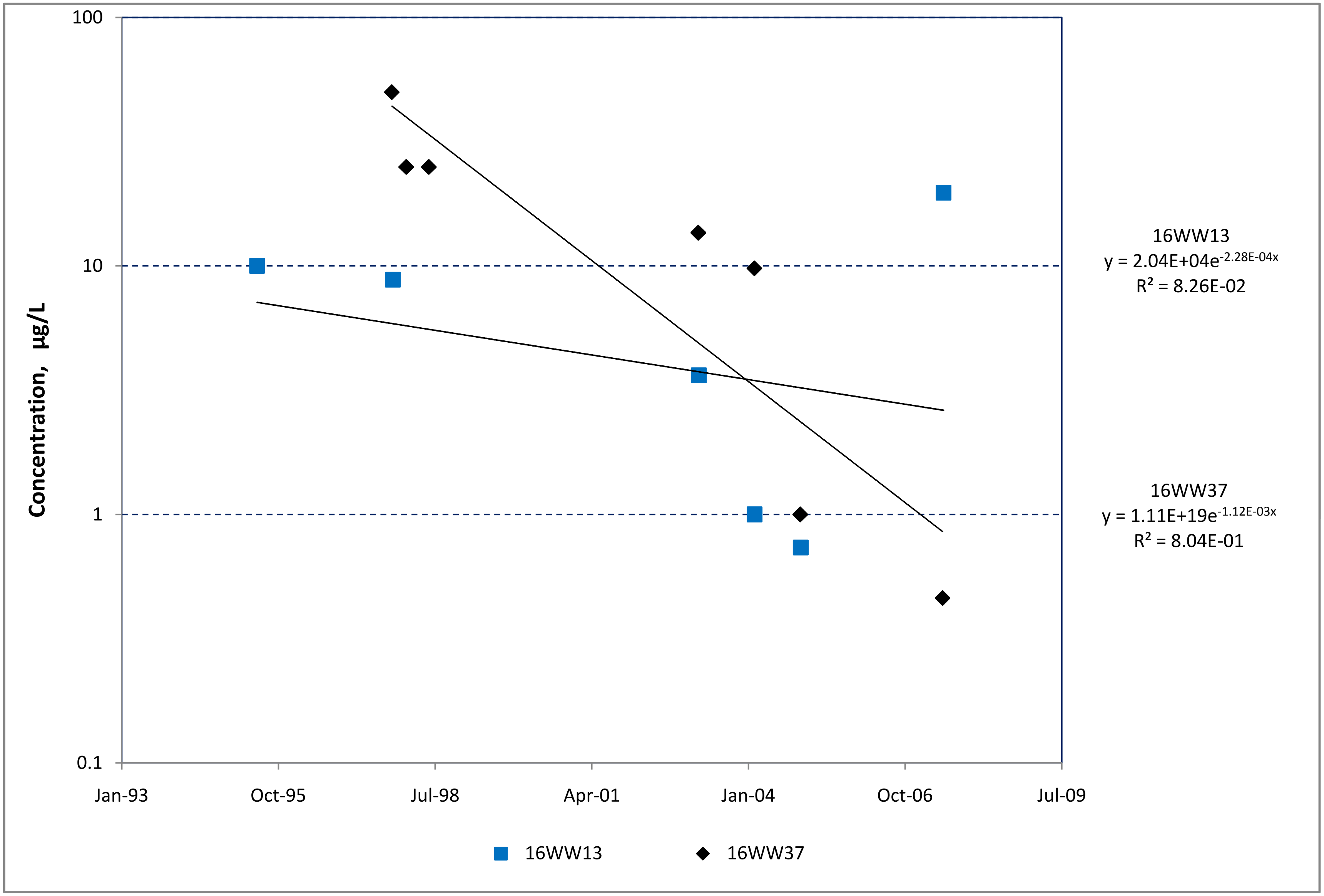


Figure A-21
Distance-Dependent TCE Attenuation and Biodegradation Rates - Intermediate - January 1998

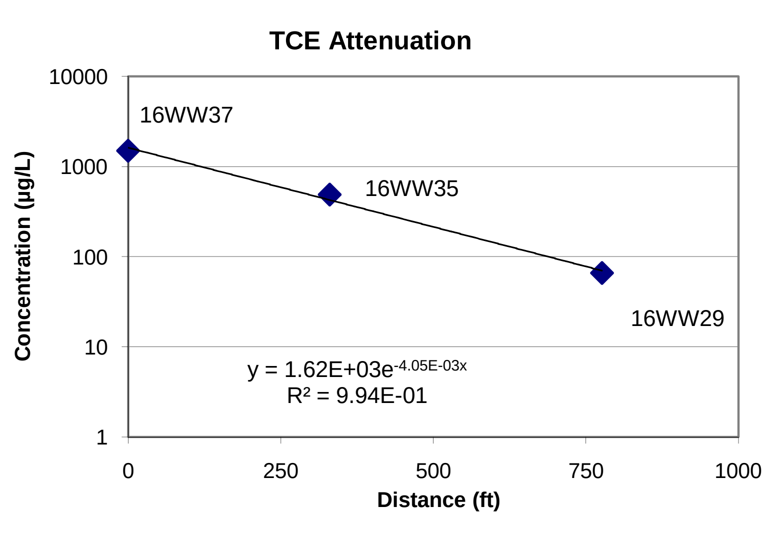
Natural Attenuation Rate Calculation, Buscheck and Alcantar Equation,

Reference: Buscheck, T. E. and C. M. Alcantar (1995) Regression Techniques and Analytical Solutions to Demonstrate Intrinsic Biodegradation in Intrinsic Bioremediation, eds. R. E. Hinchee, J. T. Wilson, and D. C. Downey, Battelle Press, Columbus, OH.
Slope of exponential regression versus distance (k/v_x)

Location: LHAAP-16 Intermediate Groundwater TCE January 1998 Data

Monitoring Well	16WW37	16WW35	16WW29	Slope	R^2
Feet	**0**	**330**	**776**	-0.00405	0.994
Concentration	**1500**	**490**	**66.0**		

Hydraulic Conductivity **4.25** ft/day Geometric Mean for Intermediate Zone Wells in Final RI (Jacobs, 2000)
Groundwater Gradient **0.0031** ft/ft Average of Gradients measured from 16WW35 to 16WW29, Jan 2006 to Dec 2008
Total Porosity **0.25** unitless An assumed value.
Average groundwater velocity, v_x = **0.053** ft/day
19.2 ft/year



λ = $(v_c/4\alpha_x)\ ([1+2\alpha_x(k/v_x)]^2 - 1)$

α_x = 5 % of flow field (distance separating two furthest wells)
38.8 ft
f_{oc} = **0.001** fraction organic carbon, default value.
K_{oc} = **100** L/kg Final Modeling Report (Shaw, 2007)
K_d = $K_{oc}f_{oc}$
0.1 L/kg
ρ_b = 1.7 kg/L bulk density default value
n = 0.25 total porosity
R = $1 + (\rho_b K_d/n)$ retardation factor
1.680
v_c = v_x/R
11.4 ft/year

Intrinsic Biodegradation

$(v_c/4\alpha_x)$ = 0.0738 /yr
(k/v_x) = 0.0041 /ft, slope of graph
$[1+2\alpha_x(k/v_x)]$ 1.3143
λ = **0.0537** /year
Half-life **12.9** years

Natural Attenuation Rate

k = average groundwater velocity (v_x) multiplied by slope of graph (k/v_x)
k = **0.0779** /year
half-life = **8.9** years
λ/k = **69%**

for Table A-7
k = **0.000213** /day

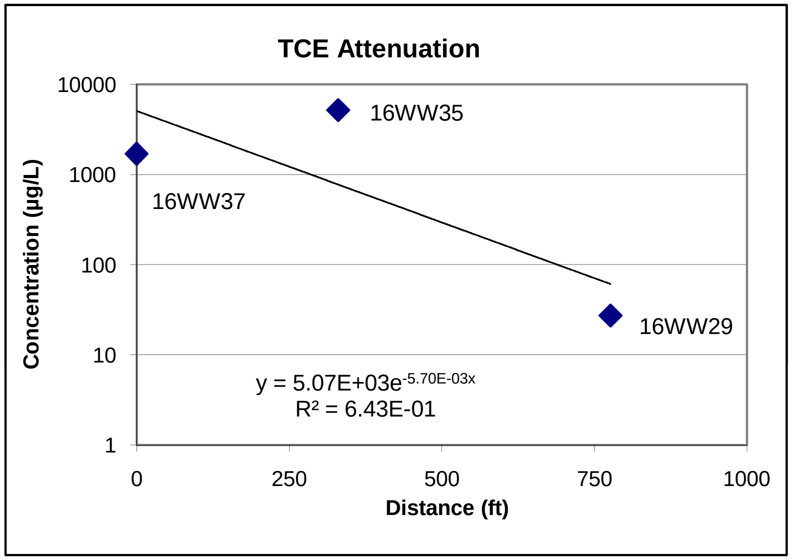
Figure A-22
Distance-Dependent TCE Attenuation and Biodegradation Rates - Intermediate - February 2004

Natural Attenuation Rate Calculation, Buscheck and Alcantar Equation,
Reference: Buscheck, T. E. and C. M. Alcantar (1995) Regression Techniques and Analytical Solutions to Demonstrate Intrinsic Biodegradation in Intrinsic Bioremediation, eds. R. E. Hinchee, J. T. Wilson, and D. C. Downey, Battelle Press, Columbus, OH.
Slope of exponential regression versus distance (k/v_x)

Location: LHAAP-16 Intermediate Groundwater TCE February 2004 Data

Monitoring Well	16WW37	16WW35	16WW29	Slope	R^2
Feet	**0**	**330**	**776**	-0.00570	0.643
Concentration	**1700**	**5190**	**27.2**		

Hydraulic Conductivity **4.25** ft/day Geometric Mean for Intermediate Zone Wells in Final RI (Jacobs, 2000)
Groundwater Gradient **0.0031** ft/ft Average of Gradients measured from 16WW35 to 16WW29, Jan 2006 to Dec 2008
Total Porosity **0.25** unitless An assumed value.
Average groundwater velocity, v_x = **0.053** ft/day
19.2 ft/year



$\lambda =$ $(v_c/4\alpha_x)\,([1+2\alpha_x(k/v_x)]^2 - 1)$

$\alpha_x =$ 5 % of flow field (distance separating two furthest wells)
38.8 ft
$f_{oc} =$ **0.001** fraction organic carbon, default value.
$K_{oc} =$ **100** L/kg Final Modeling Report (Shaw, 2007)
$K_d =$ $K_{oc}f_{oc}$
0.1 L/kg
$\rho_b =$ 1.7 kg/L bulk density default value
n = 0.25 total porosity
R = $1 + (\rho_b K_d/n)$ retardation factor
1.680
$v_c =$ v_x/R
11.4 ft/year

Intrinsic Biodegradation

$(v_c/4\alpha_x) =$ 0.0738 /yr
$(k/v_x) =$ 0.0057 /ft, slope of graph
$[1+2\alpha_x(k/v_x)]$ 1.4423
$\lambda =$ **0.0797** /year
Half-life **8.7** years

Natural Attenuation Rate

k = average groundwater velocity (v_x) multiplied by slope of graph (k/v_x)
k = **0.1096** /year
half-life = **6.3** years
$\lambda/k =$ **73%**

for Table A-7
k = **0.000300** /day

Appendix B

Sampling and Analysis
2006 – 2009

2007 Results

		LOCATION_CODE		16WW05					16WW12					16WW12					16WW13					16WW13				
		SAMPLE_NO		16WW05-070606					16WW12-070611					16WW12-101107					16WW13-070612					16WW13-070612FD				
		SAMPLE_DATE		6-Jun-07					11-Jun-07					11-Oct-07					12-Jun-07					12-Jun-07				
		PURPOSE		REG					REG					REG					REG					FD				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
FIELD TESTS	Dissolved Oxygen	mg/L							0.39				1															
FIELD TESTS	Ferrous iron	mg/L		3.3				1	1.56				1															
FIELD TESTS	Oxygen Reduction Potential	mV							161.7				1															
FIELD TESTS	pH	STD UNIT							6.02				1															
FIELD TESTS	Specific Conductivity	uS/cm							5230				1															
FIELD TESTS	Temperature	Deg C							20.48				1															
FIELD TESTS	Turbidity	NTU							0.2				1															
GASES	Carbon Dioxide	ug/L		170000				50	260000				100						270000				100	310000				100
GASES	Ethane	ug/L		5	U	U		10	5	U	U		10						5	U	U		10	5	U	U		10
GASES	Ethylene	ug/L		5	U	U		10	5	U	U		10						5	U	U		10	5	U	U		10
GASES	Methane	ug/L		84				10	7.7				10						110				10	130				10
GEN CHEMISTRY	Chloride	mg/L		848				100	1030				100						200				60	172				60
GEN CHEMISTRY	Nitrate	mg/L		6	U	U		10	60	U	U		100						6	U	U		10	6	U	U		10
GEN CHEMISTRY	Nitrite	mg/L		4	U	U		10	40	U	U		100						4	U	U		10	4	U	U		10
GEN CHEMISTRY	Perchlorate	ug/L		4	U	U		4	322				10	5990				60	10	U	U		10	10	U	U		10
GEN CHEMISTRY	Sulfate	mg/L		18.9				10	1950				100						3380				60	2860				60
GEN CHEMISTRY	Sulfide	mg/L		1	U	U		1	1	U	U		1						1	U	U		1	1	U	U		1
GEN CHEMISTRY	Total Alkalinity	mg/L		161				1	255				5						54.5				1	57				1
GEN CHEMISTRY	Total Organic Carbon	mg/L		1.45	J	J	15	2	7.99	J	J	06A, 15	10						11.4				5	19.2				5
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110											25	U	U		25										
VOLATILES	1,1,1-Trichloroethane	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	1,1,2-Trichloroethane	ug/L	5	5	U	U		1	5	U	U		1	**25**	U	U		25	0.678	J	J	15	1	0.795	J	J	15	1
VOLATILES	1,1-Dichloroethane	ug/L		5	U	U		1	0.496	J	J	15	1	25	U	U		25	0.445	J	J	15	1	0.467	J	J	15	1
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	5	U	U		1	6.59				1	**25**	U	U		25	3.05	J	J	15	1	3.07	J	J	15	1
VOLATILES	1,1-Dichloropropene	ug/L												25	U	U		25										
VOLATILES	1,2,3-Trichlorobenzene	ug/L												25	U	U		25										
VOLATILES	1,2,3-Trichloropropane	ug/L												25	U	U		25										
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	ug/L												25	U	U		25										
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**5**	U	U		1	**5**	U	U		1	**125**	U	U		25	**5**	U	U		1	**5**	U	U		1
VOLATILES	1,2-Dibromoethane	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	1,2-Dichlorobenzene	ug/L	600	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	5	U	U		1	**21.7**				1	**21.2**	J			25	5	U	U		1	5	U	U		1
VOLATILES	1,2-Dichloropropane	ug/L	5	5	U	U		1	5	U	U		1	**25**	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L												25	U	U		25										
VOLATILES	1,3,5-Trimethylbenzene	ug/L												25	U	U		25										
VOLATILES	1,3-Dichlorobenzene	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	1,3-Dichloropropane	ug/L		5	U	U		1						25	U	U		25										
VOLATILES	1,4-Dichlorobenzene	ug/L	75						5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	2,2-Dichloropropane	ug/L												25	U	U		25										
VOLATILES	2-Butanone	ug/L		10	U	U		1	10	U	U		1	250	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	ug/L												250	U	U		25										
VOLATILES	2-Chlorotoluene	ug/L												25	U	U		25										
VOLATILES	2-Hexanone	ug/L		10	U	U		1	10	U	U		1	250	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	4-Chlorotoluene	ug/L												25	U	U		25										
VOLATILES	Acetone	ug/L		10	U	U		1	10	U	U		1	250	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	Benzene	ug/L	5	5	U	U		1	3.1	J	J	15	1	**25**	U	U		25	0.175	J	J	15	1	0.176	J	J	15	1
VOLATILES	Bromobenzene	ug/L												25	U	U		25										
VOLATILES	Bromochloromethane	ug/L												25	U	U		25										
VOLATILES	Bromodichloromethane	ug/L	100	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Bromoform	ug/L	100	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Bromomethane	ug/L		10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	Carbon disulfide	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Carbon tetrachloride	ug/L	5	5	U	U		1	5	U	U		1	**25**	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Chlorobenzene	ug/L	100	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Chloroethane	ug/L		10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	Chloroform	ug/L	100	5	U	U		1	0.441	J	J	15	1	25	U	U		25	2.64	J	J	15	1	2.55	J	J	15	1
VOLATILES	Chloromethane	ug/L		10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	10	U	U		1	**106**				1	**90.3**				25	**319**	J	J	15	100	**315**	J	J	15	100
VOLATILES	cis-1,3-Dichloropropene	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Cyclohexane	ug/L		10	U	U		1	10	U	U		1						10	U	U		1	10	U	U		1
VOLATILES	Dibromochloromethane	ug/L	100	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Dibromomethane	ug/L												25	U	U		25										
VOLATILES	Dichlorodifluoromethane	ug/L		10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	Ethylbenzene	ug/L	700	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	Freon 113	ug/L		10	U	U		1	4.68	J	J	15	1						1.86	J	J	15	1	1.62	J	J	15	1
VOLATILES	Hexachlorobutadiene	ug/L												25	U	U		25										
VOLATILES	Isopropylbenzene	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	m,p-Xylenes	ug/L												25	U	U		25										
VOLATILES	Methyl Acetate	ug/L		10	U	U		1	10	U	U		1						10	U	U		1	10	U	U		1
VOLATILES	Methyl isobutyl ketone	ug/L		10	U	U		1	10	U	U		1	250	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	Methyl tert-butyl ether	ug/L		5	U	U		1	5	U	U		1						5	U	U		1	5	U	U		1
VOLATILES	Methylcyclohexane	ug/L		10	U	U		1	10	U	U		1						10	U	U		1	10	U	U		1
VOLATILES	**Methylene chloride**	ug/L	**5**	0.31	J	J	15	1	1.07	J	J	15	1	**10.8**	J	J	15	25	1.13	J	J	15	1	0.966	J	J	15	1
VOLATILES	Naphthalene	ug/L												25	U	U		25										
VOLATILES	n-BUTYLBENZENE	ug/L												25	U	U		25										
VOLATILES	n-PROPYLBENZENE	ug/L												25	U	U		25										
VOLATILES	p-ISOPROPYLTOLUENE	ug/L												25	U	U		25										
VOLATILES	sec-BUTYLBENZENE	ug/L												25	U	U		25										
VOLATILES	Styrene	ug/L	100	5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	tert-BUTYLBENZENE	ug/L												25	U	U		25										
VOLATILES	Tetrachloroethene	ug/L	5	5	U	U		1	5	U	U		1	**25**	U	U		25	0.663	J	J	15	1	0.73	J			1
VOLATILES	Toluene	ug/L	1000	5	U	U		1	5	U	U		1	25	U	U		25	0.268	J	J	15	1	0.274	J			1
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	5	U	U		1	0.824	J	J	15	1	25	U	U		25	4.72	J	J	15	1	4.53	J	J	15	1
VOLATILES	trans-1,3-Dichloropropene	ug/L		5	U	U		1	5	U	U		1	25	U	U		25	5	U	U		1	5	U	U		1
VOLATILES	**Trichloroethene**	ug/L	**5**	5	U	U		1	**3840**				50	**4500**				100	**8760**				100	**8810**				100
VOLATILES	Trichlorofluoromethane	ug/L		10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		1	10	U	U		1
VOLATILES	Vinyl acetate	ug/L		10	U	U		1						250	U	U		25										
VOLATILES	**Vinyl chloride**	ug/L	**2**						**21**		J	11A	1	**22.7**	J	J	15	25	**19.7**		J	11A	1	**19.4**		J	11A	1
VOLATILES	Xylenes, Total	ug/L		5	U	U		1	5	U	U		1						5	U	U	16	1	5	U	U		1

		LOCATION_CODE		16WW16					16WW22					16WW25					16WW26					16WW29				
		SAMPLE_NO		16WW16-070607					16WW22-070607					16WW25-070611					16WW26-070611					16WW29-070612				
		SAMPLE_DATE		7-Jun-07					7-Jun-07					11-Jun-07					11-Jun-07					12-Jun-07				
		PURPOSE		REG					REG					REG					REG					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
FIELD TESTS	Dissolved Oxygen	mg/L		0.86				1						0.23				1										
FIELD TESTS	Ferrous iron	mg/L						1	0.37				1	2.97				1	2.05				1					
FIELD TESTS	Oxygen Reduction Potential	mV		127.2				1						-43.8				1										
FIELD TESTS	pH	STD UNIT		6.07				1						5.97				1										
FIELD TESTS	Specific Conductivity	uS/cm		5350				1						7500				1										
FIELD TESTS	Temperature	Deg C		21.72				1						19.22				1										
FIELD TESTS	Turbidity	NTU		11.9				1						9.4				1										
GASES	Carbon Dioxide	ug/L		210000				50	98000				50	310000				100	210000				100	150000				50
GASES	Ethane	ug/L		2.7	J	J	15	10	5	U	U		10	5	U	U		10	5	U	U		10	5	U	U		10
GASES	Ethylene	ug/L		3.1	J	J	15	10	5	U	U		10	5	U	U		10	5	U	U		10	5	U	U		10
GASES	Methane	ug/L		1300				10	4.8	J	J	15	10	61				10	22				10	61				10
GEN CHEMISTRY	Chloride	mg/L		918				100	980				200	464				100	283				50	221				40
GEN CHEMISTRY	Nitrate	mg/L		30	U	U		50	12	U	U		20	60	U	U		100	30	U	U		50	6	U	U		10
GEN CHEMISTRY	Nitrite	mg/L		20	U	U		50	8	U	U		20	40	U	U		100	20	U	U		50	4	U	U		10
GEN CHEMISTRY	Perchlorate	ug/L		278				10	5	U	U		5	10	U	U		10	45				4	160				2
GEN CHEMISTRY	Sulfate	mg/L		1180				50	323				20	4630				100	1850				50	677				40
GEN CHEMISTRY	Sulfide	mg/L							1	U	U		1	1	U	U		1	1	U	U		1	1	U	U		1
GEN CHEMISTRY	Total Alkalinity	mg/L							204				1	90				5	43	J	J	15	5	20.6				1
GEN CHEMISTRY	Total Organic Carbon	mg/L		16.7				3	2.52		U	06A	1	41.2				10	0.86	J	J	06A, 15	1	5.92				1
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110																									
VOLATILES	1,1,1-Trichloroethane	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	1,1,2-Trichloroethane	ug/L	5	0.391	J	J	15	1	5	U	U		1	5	U	U		1	0.275	J	J	15	1	5	U	U		1
VOLATILES	1,1-Dichloroethane	ug/L		2.23	J	J	15	1	5	U	U		1	5	U	U		1	0.283	J	J	15	1	5	U	U		1
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	**50.1**				1	5	U	U		1	5	U	U		1	3.53	J	J	15	1	5	U	U		1
VOLATILES	1,1-Dichloropropene	ug/L																										
VOLATILES	1,2,3-Trichlorobenzene	ug/L																										
VOLATILES	1,2,3-Trichloropropane	ug/L																										
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	ug/L																										
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**5**	U	U		1	**5**	U	U		1	**5**	U	U		1	**5**	U	U		1	**5**	U	U		1
VOLATILES	1,2-Dibromoethane	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	1,2-Dichlorobenzene	ug/L	600	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	**45.9**				1	1.53	J	J	15	1	5	U	U		1	0.643	J	J	15	1	5	U	U		1
VOLATILES	1,2-Dichloropropane	ug/L	5	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L																										
VOLATILES	1,3,5-Trimethylbenzene	ug/L																										
VOLATILES	1,3-Dichlorobenzene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	1,3-Dichloropropane	ug/L																										
VOLATILES	1,4-Dichlorobenzene	ug/L	75	0.239	J	J	15	1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	2,2-Dichloropropane	ug/L																										
VOLATILES	2-Butanone	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	ug/L																										
VOLATILES	2-Chlorotoluene	ug/L																										
VOLATILES	2-Hexanone	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	4-Chlorotoluene	ug/L																										
VOLATILES	Acetone	ug/L		3.67	J	J	15	1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Benzene	ug/L	5	0.635	J	J	15	1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Bromobenzene	ug/L																										
VOLATILES	Bromochloromethane	ug/L																										
VOLATILES	Bromodichloromethane	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Bromoform	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Bromomethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Carbon disulfide	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Carbon tetrachloride	ug/L	5	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Chlorobenzene	ug/L	100	0.644	J	J	15	1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Chloroethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Chloroform	ug/L	100	1.43	J	J	15	1	5	U	U		1	5	U	U		1	1.97	J	J	15	1	5	U	U		1
VOLATILES	Chloromethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	**11500**				200	4.96	J	J	15	1	0.421	J	J	15	1	**166**				1	0.899	J	J	15	1
VOLATILES	cis-1,3-Dichloropropene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Cyclohexane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Dibromochloromethane	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Dibromomethane	ug/L																										
VOLATILES	Dichlorodifluoromethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Ethylbenzene	ug/L	700	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Freon 113	ug/L		77.1				1	10	U	U		1	10	U	U		1	36.7				1	10	U	U		1
VOLATILES	Hexachlorobutadiene	ug/L																										
VOLATILES	Isopropylbenzene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	m,p-Xylenes	ug/L																										
VOLATILES	Methyl Acetate	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Methyl isobutyl ketone	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Methyl tert-butyl ether	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	Methylcyclohexane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	**Methylene chloride**	ug/L	**5**	1.21	J	J	15	1	0.654	J	J	15	1	1.04	J	J	15	1	1.57	J	J	15	1	0.594	J	J	15	1
VOLATILES	Naphthalene	ug/L																										
VOLATILES	n-BUTYLBENZENE	ug/L																										
VOLATILES	n-PROPYLBENZENE	ug/L																										
VOLATILES	p-ISOPROPYLTOLUENE	ug/L																										
VOLATILES	sec-BUTYLBENZENE	ug/L																										
VOLATILES	Styrene	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	tert-BUTYLBENZENE	ug/L																										
VOLATILES	Tetrachloroethene	ug/L	5	0.709	J	J	15	1	0.4	J	J	15	1	0.629	J	J	15	1	0.54	J	J	15	1	0.478	J	J	15	1
VOLATILES	Toluene	ug/L	1000	0.327	J	J	15	1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	33.8				1	5	U	U		1	5	U	U		1	1.28	J	J	15	1	5	U	U		1
VOLATILES	trans-1,3-Dichloropropene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1
VOLATILES	**Trichloroethene**	ug/L	**5**	**8830**				200	**119**				1	0.534	J	J	15	1	**4070**				50	**6.87**				1
VOLATILES	Trichlorofluoromethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1
VOLATILES	Vinyl acetate	ug/L																										
VOLATILES	**Vinyl chloride**	ug/L	**2**	**655**	J	J	15	200	1.76	J	J	15	1	**10**	U	U		1	**6.22**	J	J	15	1	**10**	U	U		1
VOLATILES	Xylenes, Total	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1

2007 Results

		LOCATION_CODE		16WW30					16WW34					16WW36					16WW37					16WW38					16WW39					16WW40				
		SAMPLE_NO		16WW30-070612					16WW34-070607					16WW36-070611					16WW37-070606					16WW38-070606					16WW39-101107					16WW40-101007				
		SAMPLE_DATE		12-Jun-07					7-Jun-07					11-Jun-07					6-Jun-07					6-Jun-07					11-Oct-07					11-Oct-07				
		PURPOSE		REG					REG					REG					REG					REG					REG					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
FIELD TESTS	Dissolved Oxygen	mg/L																	2.66				1															
FIELD TESTS	Ferrous iron	mg/L							3.26				1	0.26				1	0.09				1	3.3				1										
FIELD TESTS	Oxygen Reduction Potential	mV																	146.5				1															
FIELD TESTS	pH	STD UNIT																	7.17				1															
FIELD TESTS	Specific Conductivity	uS/cm																	5970				1															
FIELD TESTS	Temperature	Deg C																	23.2				1															
FIELD TESTS	Turbidity	NTU																	42.2				1															
GASES	Carbon Dioxide	ug/L		68000				50	150000				50	430000				100	30000				10	180000				50										
GASES	Ethane	ug/L		5	U	U		10						5	U	U		10	5	U	U		10	6.1				10										
GASES	Ethylene	ug/L		5	U	U		10						11				10	5	U	U		10	5	U	U		10										
GASES	Methane	ug/L		17				10						130				10	3.7	J	J	15	10	490				10										
GEN CHEMISTRY	Chloride	mg/L		427				60	218				40	587				50	1130				100	1320				200										
GEN CHEMISTRY	Nitrate	mg/L		1.2	U	U		2	24	U	U		40	30	U	U		50	60	U	U		100	6	U	U		10										
GEN CHEMISTRY	Nitrite	mg/L		0.8	U	U		2	16	U	U		40	20	U	U		50	40	U	U		100	4	U	U		10										
GEN CHEMISTRY	Perchlorate	ug/L		2	U	U		2	1	U	U		1	441				20	56.8				10	5	U	U		5	2760				40	4540				40
GEN CHEMISTRY	Sulfate	mg/L		33				2	30.8	J	J	15	40	2190				50	1160				100	112			15	10										
GEN CHEMISTRY	Sulfide	mg/L		1	U	U		1	1	U	U		1	1	U	U		1	1	U	U		1	1	U	U		1										
GEN CHEMISTRY	Total Alkalinity	mg/L		62.7				1	186				1	508				5	369				4	133				1										
GEN CHEMISTRY	Total Organic Carbon	mg/L		0.996	J	J	06A, 15	1	0.603	J	U	06A	1	3.43				1	9.49				3	2.01				2										
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110																										25	U	U		25	10	U	U		10
VOLATILES	1,1,1-Trichloroethane	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	1,1,2-Trichloroethane	ug/L	5	5	U	U		1	5	U	U		1	4.38	J	J	15	1	5	U	U		1	5	U	U		1	**25**	U	U		25	**10**	U	U		10
VOLATILES	1,1-Dichloroethane	ug/L		5	U	U		1	5	U	U		1	6.44				1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	5	U	U		1	5	U	U		1	**97.1**				1	5	U	U		1	**16.2**				1	**25**	U	U		25	**10**	U	U		10
VOLATILES	1,1-Dichloropropene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	1,2,3-Trichlorobenzene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	1,2,3-Trichloropropane	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	1,2,4-Trimethylbenzene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**5**	U	U		1	**5**	U	U		1	**5**	U	U		1	**5**	U	U		1	**5**	U	U		1	**125**	U	U		25	**50**	U	U		10
VOLATILES	1,2-Dibromoethane	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	1,2-Dichlorobenzene	ug/L	600	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	5	U	U		1	5	U	U		1	**19.8**				1	5	U	U		1	5	U	U		1	**6.71**	J	J	15	25	**7.37**	J	J	15	10
VOLATILES	1,2-Dichloropropane	ug/L	5	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	**25**	U	U		25	**10**	U	U		10
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	1,3,5-Trimethylbenzene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	1,3-Dichlorobenzene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	1,3-Dichloropropane	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	1,4-Dichlorobenzene	ug/L	75	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	2,2-Dichloropropane	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	2-Butanone	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	250	U	U		25	100	U	U		10
VOLATILES	2-Chloroethyl vinyl ether	ug/L																											250	U	U		25	100	U	U		10
VOLATILES	2-Chlorotoluene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	2-Hexanone	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	250	U	U		25	100	U	U		10
VOLATILES	4-Chlorotoluene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Acetone	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	6.66	J	J	15	1	250	U	U		25	100	U	U		10
VOLATILES	Benzene	ug/L	5	5	U	U		1	5	U	U		1	0.458	J	J	15	1	5	U	U		1	5	U	U		1	**25**	U	U		25	**10**	U	U		10
VOLATILES	Bromobenzene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Bromochloromethane	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Bromodichloromethane	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Bromoform	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Bromomethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Carbon disulfide	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Carbon tetrachloride	ug/L	5	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	**25**	U	U		25	**10**	U	U		10
VOLATILES	Chlorobenzene	ug/L	100	5	U	U		1	5	U	U		1	0.126	J	J	15	1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Chloroethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Chloroform	ug/L	100	5	U	U		1	5	U	U		1	10.1				1	5	U	U		1	0.654	J	J	15	1	25	U	U		25	10	U	U		10
VOLATILES	Chloromethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	0.349	J	J	15	1	10	U	U		1	**9480**				500	5.66	J	J	15	1	**106**				1	**87**				25	36.8				10
VOLATILES	cis-1,3-Dichloropropene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Cyclohexane	ug/L		10	U	U		1	10	U	U		1	0.331	J	J	15	1	10	U	U		1	10	U	U		1										
VOLATILES	Dibromochloromethane	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Dibromomethane	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Dichlorodifluoromethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Ethylbenzene	ug/L	700	5	U	U		1	5	U	U		1	0.393	J	J	15	1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Freon 113	ug/L		10	U	U		1	10	U	U		1	253	J	J	15	100	1.19	J	J	15	1	187				1										
VOLATILES	Hexachlorobutadiene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Isopropylbenzene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	m,p-Xylenes	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Methyl Acetate	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1										
VOLATILES	Methyl isobutyl ketone	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	250	U	U		25	100	U	U		10
VOLATILES	Methyl tert-butyl ether	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1										
VOLATILES	Methylcyclohexane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1										
VOLATILES	**Methylene chloride**	ug/L	**5**	0.7	J	J	15	1	0.398	J	J	15	1	0.751	J	J	15	1	0.58	J	J	15	1	0.685	J	J	15	1	**15.4**	J	J	15	25	**50**	U	U		10
VOLATILES	Naphthalene	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	n-BUTYLBENZENE	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	n-PROPYLBENZENE	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	p-ISOPROPYLTOLUENE	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	sec-BUTYLBENZENE	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Styrene	ug/L	100	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	tert-BUTYLBENZENE	ug/L																											25	U	U		25	10	U	U		10
VOLATILES	Tetrachloroethene	ug/L	5	0.336	J	J	15	1	0.437	J	J	15	1	2.18	J	J	15	1	0.416	J	J	15	1	0.427	J	J	15	1	**25**	U	U		25	**10**	U	U		10
VOLATILES	Toluene	ug/L	1000	5	U	U		1	5	U	U		1	1.7	J	J	15	1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	5	U	U		1	5	U	U		1	67.8				1	5	U	U		1	0.395	J	J	15	1	25	U	U		25	10	U	U		10
VOLATILES	trans-1,3-Dichloropropene	ug/L		5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	5	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	**Trichloroethene**	ug/L	**5**	**20.1**				1	5	U	U		1	**29200**				500	**85.2**				1	**874**				50	**3460**				25	**1060**				10
VOLATILES	Trichlorofluoromethane	ug/L		10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	10	U	U		1	25	U	U		25	10	U	U		10
VOLATILES	Vinyl acetate	ug/L																											250	U	U		25	100	U	U		10
VOLATILES	**Vinyl chloride**	ug/L	**2**	**10**	U	U		1	**10**	U	U		1	**273**	J	J	15	100	0.461	J	J	15	1	**71**	J	J	15	50	**12.8**	J	J	15	25	**10**	U	U		10
VOLATILES	Xylenes, Total	ug/L		5	U	U		1	5	U	U		1	2.33	J	J	15	1	5	U	U		1	5	U	U		1										

Notes:

Deg C	degrees Celsius
DF	dilution factor
FD	field duplicate
MCL	maximum contaminant level
mg/L	milligrams per liter
mV	millivolts
NTU	nepheletic turbidity units
Qual	laboratory qualifier
RC	reason code
REG	regular sample
STD UNIT	Standard units of pH measurement
ug/L	micrograms per liter
uS/cm	microseconds per centimeter
ValQual	validation qualifier

Qualifiers and Reason Codes:

06A	Method or preparation blank
11A	Recovery
15	Quantitation
J	The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.
U	Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

2008 Results

		LOCATION_CODE		16EW01					16EW01					16EW02					16EW02					16EW02					16EW03				
		SAMPLE_NO		EXT1-040908					EXT1-102908					EXT2-040908					EXT2-102908					EXT2-102908-FD					EXT3-040908				
		SAMPLE_DATE		9-Apr-08					29-Oct-08					9-Apr-08					29-Oct-08					29-Oct-08					9-Apr-08				
		PURPOSE		REG					REG					REG					REG					FD					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
FIELD TESTS	Dissolved Oxygen	mg/L																															
FIELD TESTS	Oxygen Reduction Potential	mV																															
FIELD TESTS	pH	STD UNIT																															
FIELD TESTS	Specific Conductivity	uS/cm																															
FIELD TESTS	Temperature	Deg C																															
FIELD TESTS	Turbidity	NTU																															
GEN CHEMISTRY	Chloride	mg/L		833				100	810				20	611				100	660				10	661				10	355				50
GEN CHEMISTRY	Perchlorate	ug/L		698				12	570				50	3	U	U		6	37	J	J	15, 17	50	14	J	J	15, 17	25	2	U	U		4
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	1,1,1-Trichloroethane	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		6.25	U	U		50	12.5	U	U		100	6.25	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	**12.5**	U	U		50	**25**	U	U		100	**18.5**	J	J	15	50	**62.5**	U	U		250	**62.5**	U	U		250	**12.5**	U	U		50
VOLATILES	1,1-Dichloroethane	ug/L		6.25	U	U		50	12.5	U	U		100	6.25	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	**56.8**				50	**50**	U	U		100	**112**				50	**125**	U	U		250	**125**	U	U		250	**47**	J	J	15	50
VOLATILES	1,1-Dichloropropene	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	1,2,3-Trichlorobenzene	ug/L		7.5	U	U		50	15	U	U		100	7.5	U	U		50	37.5	U	U		250	37.5	U	U		250	7.5	U	U		50
VOLATILES	1,2,3-Trichloropropane	ug/L		25	U	U		50	50	U	U		100	25	U	U		50	125	U	U		250	125	U	U		250	25	U	U		50
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	10	U	U		50	20	U	U		100	10	U	U		50	50	U	U		250	50	U	U		250	10	U	U		50
VOLATILES	1,2,4-Trimethylbenzene	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**50**	U	U		50	**100**	U	U		100	**50**	U	U		50	**250**	U	U		250	**250**	U	U		250	**50**	U	U		50
VOLATILES	1,2-Dibromoethane	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250					
VOLATILES	1,2-Dichlorobenzene	ug/L	600	6.25	U	U		50	12.5	U	U		100	6.25	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	**108**				50	**85.6**	J	J	15	100	**86.1**				50	**84.5**	J	J	15	250	**102**	J	J	15	250	**12.5**	U	U		50
VOLATILES	1,2-Dichloropropane	ug/L	5	**10**	U	U		50	**20**	U	U		100	**10**	U	U		50	**50**	U	U		250	**50**	U	U		250	**10**	U	U		50
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	1,3,5-Trimethylbenzene	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	1,3-Dichlorobenzene	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	1,3-Dichloropropane	ug/L		10	U	U		50	20	U	U		100	10	U	U		50	50	U	U		250	50	U	U		250	10	U	U		50
VOLATILES	1,4-Dichlorobenzene	ug/L	75	6.25	U	U		50	12.5	U	U		100	6.25	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	2,2-Dichloropropane	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	2-Butanone	ug/L		125	U	U		50	250	U	U		100	125	U	U		50	625	U	U		250	625	U	U		250	125	U	U		50
VOLATILES	2-Chloroethyl vinyl ether	ug/L		100	U	U		50	200	U	U		100	100	U	U		50	500	U	U		250	500	U	U		250	100	U	U		50
VOLATILES	2-Chlorotoluene	ug/L		6.25	U	U		50	12.5	U	U		100	6.25	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	2-Hexanone	ug/L		125	U	U		50	250	U	U		100	125	U	U		50	625	U	U		250	625	U	U		250	125	U	U		50
VOLATILES	4-Chlorotoluene	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Acetone	ug/L		125	U	U		50	250	U	U		100	125	U	U		50	625	U	U		250	625	U	U		250	125	U	U		50
VOLATILES	Benzene	ug/L	5	**6.25**	U	U		50	**12.5**	U	U		100	**6.25**	U	U		50	**31.3**	U	U		250	**31.3**	U	U		250	**6.25**	U	U		50
VOLATILES	Bromobenzene	ug/L		6.25	U	U		50	12.5	U	U		100	6.25	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	Bromochloromethane	ug/L		10	U	U		50	20	U	U		100	10	U	U		50	50	U	U		250	50	U	U		250	10	U	U		50
VOLATILES	Bromodichloromethane	ug/L	100	12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Bromoform	ug/L	100	25	U	U		50	50	U	U		100	25	U	U		50	**125**	U	U		250	**125**	U	U		250	25	U	U		50
VOLATILES	Bromomethane	ug/L		25	U	U		50	50	U	U		100	25	U	U		50	125	U	U		250	125	U	U		250	25	U	U		50
VOLATILES	Carbon disulfide	ug/L		25	U	U		50	50	U	U		100	25	U	U		50	125	U	U		250	125	U	U		250	25	U	U		50
VOLATILES	Carbon tetrachloride	ug/L	5	**12.5**	U	U		50	**25**	U	U		100	**12.5**	U	U		50	**62.5**	U	U		250	**62.5**	U	U		250	**12.5**	U	U		50
VOLATILES	Chlorobenzene	ug/L	100	6.25	U	U		50	12.5	U	U		100	6.25	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	Chloroethane	ug/L		25	U	U		50	50	U	U		100	25	U	U		50	125	U	U		250	125	U	U		250	25	U	U		50
VOLATILES	Chloroform	ug/L	100	6.25	U	U		50	12.5	U	U		100	21.6	J	J	15	50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	Chloromethane	ug/L		12.5	U	U		50	25	U	U		100	37600				500	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	**7490**				50	**4810**				100	12.5	U	U		50	**28100**				250	**31200**				250	**1580**				50
VOLATILES	cis-1,3-Dichloropropene	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Dibromochloromethane	ug/L	100	12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Dibromomethane	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Dichlorodifluoromethane	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Ethylbenzene	ug/L	700	12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Hexachlorobutadiene	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Isopropylbenzene	ug/L		12.5	U	U		50	25	U	U		100	25	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	m,p-Xylenes	ug/L		25	U	U		50	50	U	U		100	125	U	U		50	125	U	U		250	125	U	U		250	25	U	U		50
VOLATILES	Methyl isobutyl ketone	ug/L		125	U	U		50	250	U	U		100	23.3	J	J	15	50	625	U	U		250	625	U	U		250	125	U	U		50
VOLATILES	**Methylene chloride**	ug/L	**5**	**12.5**	U	U		50	**71.3**	J	J	15	100	**10**	U	U		50	**62.5**	U	U		250	**62.5**	U	U		250	**12.5**	U	U		50
VOLATILES	Naphthalene	ug/L		10	U	U		50	20	U	U		100	12.5	U	U		50	50	U	U		250	50	U	U		250	10	U	U		50
VOLATILES	n-BUTYLBENZENE	ug/L		12.5	U	U		50	25	U	U		100	6.25	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	n-PROPYLBENZENE	ug/L		6.25	U	U		50	12.5	U	U		100	12.5	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	sec-BUTYLBENZENE	ug/L		12.5	U	U		50	25	U	U		100	6.25	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Styrene	ug/L	100	6.25	U	U		50	12.5	U	U		100	12.5	U	U		50	31.3	U	U		250	31.3	U	U		250	6.25	U	U		50
VOLATILES	tert-BUTYLBENZENE	ug/L		12.5	U	U		50	25	U	U		100	12.5	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Tetrachloroethene	ug/L	5	**12.5**	U	U		50	**25**	U	U		100	**12.5**	U	U		50	**62.5**	U	U		250	**62.5**	U	U		250	**12.5**	U	U		50
VOLATILES	Toluene	ug/L	1000	12.5	U	U		50	25	U	U		100	35	J	J	15	50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	15	J	J	15	50	25	U	U		100	25	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	trans-1,3-Dichloropropene	ug/L		25	U	U		50	50	U	U		100	94900				500	125	U	U		250	125	U	U		250	25	U	U		50
VOLATILES	**Trichloroethene**	ug/L	**5**	**11800**				200	**11300**				100	**12.5**	U	U		50	**114000**				2000	**59300**				2000	**22200**				250
VOLATILES	Trichlorofluoromethane	ug/L		12.5	U	U		50	25	U	U		100	125	U	U		50	62.5	U	U		250	62.5	U	U		250	12.5	U	U		50
VOLATILES	Vinyl acetate	ug/L		125	U	U		50	250	U	U		100	405	J			500	625	U	U		250	625	U	U		250	125	U	U		50
VOLATILES	**Vinyl chloride**	ug/L	**2**	**87.9**				50	**25**	U	U		100	**294**	Q			50	**730**				250	**820**				250	**12.5**	U	U		50

2008 Results

			LOCATION_CODE	16EW03					16EW04					16EW04					16EW05					16EW05					16EW06					16EW06					16EW07				
			SAMPLE_NO	EXT3-102908					EXT4-040908					EXT4-102908					EXT5-040908					EXT5-102908					EXT6-040908					EXT6-102908					EXT7-040908				
			SAMPLE_DATE	29-Oct-08					9-Apr-08					29-Oct-08					9-Apr-08					29-Oct-08					9-Apr-08					29-Oct-08					9-Apr-08				
			PURPOSE	REG					REG					REG					REG					REG					REG					REG					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
FIELD TESTS	Dissolved Oxygen	mg/L																																									
FIELD TESTS	Oxygen Reduction Potential	mV																																									
FIELD TESTS	pH	STD UNIT																																									
FIELD TESTS	Specific Conductivity	uS/cm																																									
FIELD TESTS	Temperature	Deg C																																									
FIELD TESTS	Turbidity	NTU																																									
GEN CHEMISTRY	Chloride	mg/L		648				10	682				100	629				10	285				100	230				10	793				100	772				10	533				80
GEN CHEMISTRY	Perchlorate	ug/L		5.5	U	U		50	3	U	U		6	1.1	U	U		10	288				5	160				5	100				12	320				25	3	U	U		6
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	**125**	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,1,1-Trichloroethane	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	**1,1,2-Trichloroethane**	ug/L	5	**125**	U	U		500	**12.5**	U	U		50	**12.5**	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,1-Dichloroethane	ug/L		62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	**1,1-Dichloroethene**	ug/L	7	**250**	U	U		500	**86.9**				50	**25**	U	U		50	2.56				2.5	0.5	U	U		1	**17.8**	J	J	15	20	2.5	U	U		5	0.5	U	U		1
VOLATILES	1,1-Dichloropropene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,2,3-Trichlorobenzene	ug/L		75	U	U		500	7.5	U	U		50	7.5	U	U		50	0.375	U	U		2.5	0.15	U	U		1	3	U	U		20	0.75	U	U		5	0.15	U	U		1
VOLATILES	1,2,3-Trichloropropane	ug/L		250	U	U		500	25	U	U		50	25	U	U		50	1.25	U	U		2.5	0.5	U	U		1	10	U	U		20	2.5	U	U		5	0.5	U	U		1
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	**100**	U	U		500	10	U	U		50	10	U	U		50	0.5	U	U		2.5	0.2	U	U		1	4	U	U		20	1	U	U		5	0.2	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**500**	U	U		500	**50**	U	U		50	**50**	U	U		50	**2.5**	U	U		2.5	**1**	U	U		1	**20**	U	U		20	**5**	U	U		5	**1**	U	U		1
VOLATILES	1,2-Dibromoethane	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,2-Dichlorobenzene	ug/L	600	62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	**1,2-Dichloroethane**	ug/L	5	**125**	U	U		500	**15.2**	J	J	15	50	**12.5**	U	U		50	1.92	J	J	15	2.5	0.568	J	J	15	1	5	U	U		20	**26.3**				5	0.25	U	U		1
VOLATILES	1,2-Dichloropropane	ug/L	5	**100**	U	U		500	**10**	U	U		50	**10**	U	U		50	0.5	U	U		2.5	0.2	U	U		1	4	U	U		20	1	U	U		5	0.2	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,3,5-Trimethylbenzene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,3-Dichlorobenzene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	1,3-Dichloropropane	ug/L		100	U	U		500	10	U	U		50	10	U	U		50	0.5	U	U		2.5	0.2	U	U		1	4	U	U		20	1	U	U		5	0.2	U	U		1
VOLATILES	1,4-Dichlorobenzene	ug/L	75	62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	2,2-Dichloropropane	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	2-Butanone	ug/L		1250	U	U		500	125	U	U		50	125	U	U		50	6.25	U	U		2.5	2.5	U	U		1	50	U	U		20	12.5	U	U		5	2.5	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	ug/L		1000	U	U		500	100	U	U		50	100	U	U		50	5	U	U		2.5	2	U	U		1	40	U	U		20	10	U	U		5	2	U	U		1
VOLATILES	2-Chlorotoluene	ug/L		62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	2-Hexanone	ug/L		1250	U	U		500	125	U	U		50	125	U	U		50	6.25	U	U		2.5	2.5	U	U		1	50	U	U		20	12.5	U	U		5	2.5	U	U		1
VOLATILES	4-Chlorotoluene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Acetone	ug/L		1250	U	U		500	125	U	U		50	125	U	U		50	6.25	U	U		2.5	2.5	U	U		1	50	U	U		20	12.5	U	U		5	2.5	U	U		1
VOLATILES	Benzene	ug/L	5	**152**	J	J	15	500	**6.25**	U	U		50	**6.25**	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	Bromobenzene	ug/L		62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	Bromochloromethane	ug/L		100	U	U		500	10	U	U		50	10	U	U		50	0.5	U	U		2.5	0.2	U	U		1	4	U	U		20	1	U	U		5	0.2	U	U		1
VOLATILES	Bromodichloromethane	ug/L	100	**125**	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Bromoform	ug/L	100	**250**	U	U		500	25	U	U		50	25	U	U		50	1.25	U	U		2.5	0.5	U	U		1	10	U	U		20	2.5	U	U		5	0.5	U	U		1
VOLATILES	Bromomethane	ug/L		250	U	U		500	25	U	U		50	25	U	U		50	1.25	U	U		2.5	0.5	U	U		1	10	U	U		20	2.5	U	U		5	0.5	U	U		1
VOLATILES	Carbon disulfide	ug/L		250	U	U		500	25	U	U		50	25	U	U		50	1.25	U	U		2.5	0.5	U	U		1	10	U	U		20	4.6	J	J	15	5	0.5	U	U		1
VOLATILES	Carbon tetrachloride	ug/L	5	**125**	U	U		500	**12.5**	U	U		50	**12.5**	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Chlorobenzene	ug/L	100	62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	Chloroethane	ug/L		250	U	U		500	25	U	U		50	25	U	U		50	1.25	U	U		2.5	0.5	U	U		1	10	U	U		20	2.5	U	U		5	0.5	U	U		1
VOLATILES	Chloroform	ug/L	100	62.5	U	U		500	10.4	J	J	15	50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	Chloromethane	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	**5050**				500	**6820**				50	**2200**				50	53.7				2.5	23.2				1	**480**				20	**741**				5	4.44				1
VOLATILES	cis-1,3-Dichloropropene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Dibromochloromethane	ug/L	100	**125**	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Dibromomethane	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Dichlorodifluoromethane	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Ethylbenzene	ug/L	700	125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Hexachlorobutadiene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Isopropylbenzene	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	m,p-Xylenes	ug/L		250	U	U		500	25	U	U		50	25	U	U		50	1.25	U	U		2.5	0.5	U	U		1	10	U	U		20	2.5	U	U		5	0.5	U	U		1
VOLATILES	Methyl isobutyl ketone	ug/L		1250	U	U		500	125	U	U		50	125	U	U		50	6.25	U	U		2.5	2.5	U	U		1	50	U	U		20	12.5	U	U		5	2.5	U	U		1
VOLATILES	**Methylene chloride**	ug/L	5	**370**	J	J	15	500	**12.5**	U	U		50	**12.5**	U	U		50	0.625	U	U		2.5	0.25	U	U		1	**5.27**	J	J	15	20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Naphthalene	ug/L		100	U	U		500	10	U	U		50	10	U	U		50	0.5	U	U		2.5	0.2	U	U		1	4	U	U		20	1	U	U		5	0.2	U	U		1
VOLATILES	n-BUTYLBENZENE	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	n-PROPYLBENZENE	ug/L		62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	sec-BUTYLBENZENE	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Styrene	ug/L	100	62.5	U	U		500	6.25	U	U		50	6.25	U	U		50	0.313	U	U		2.5	0.125	U	U		1	2.5	U	U		20	0.625	U	U		5	0.125	U	U		1
VOLATILES	tert-BUTYLBENZENE	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Tetrachloroethene	ug/L	5	**125**	U	U		500	**12.5**	U	U		50	**12.5**	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Toluene	ug/L	1000	125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	**125**	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	trans-1,3-Dichloropropene	ug/L		250	U	U		500	25	U	U		50	25	U	U		50	1.25	U	U		2.5	0.5	U	U		1	10	U	U		20	2.5	U	U		5	0.5	U	U		1
VOLATILES	**Trichloroethene**	ug/L	5	**79200**				500	**53300**				500	**7090**				500	**425**				2.5	**33.8**				1	**3080**				20	**474**				5	**58.1**				1
VOLATILES	Trichlorofluoromethane	ug/L		125	U	U		500	12.5	U	U		50	12.5	U	U		50	0.625	U	U		2.5	0.25	U	U		1	5	U	U		20	1.25	U	U		5	0.25	U	U		1
VOLATILES	Vinyl acetate	ug/L		1250	U	U		500	125	U	U		50	125	U	U		50	6.25	U	U		2.5	2.5	U	U		1	50	U	U		20	12.5	U	U		5	2.5	U	U		1
VOLATILES	**Vinyl chloride**	ug/L	2	**125**	U	U		500	**75.7**	Q			50	**12.5**	U	U		50	0.625	U	U		2.5	0.25	U	U		1	**25.4**	Q			20	1.25	U	U		5	0.25	U	U		1

2008 Results

			LOCATION_CODE	16EW07					16EW08					16EW08					16EW08					16WW19					16WW20					16WW20					16WW21				
			SAMPLE_NO	EXT7-102908					EXT8-040908					EXT8-040908FD					EXT8-102908					16WW19-120408					16WW20-120408					16WW20-120408-FD					16WW21-120408				
			SAMPLE_DATE	29-Oct-08					9-Apr-08					9-Apr-08					29-Oct-08					4-Dec-08					4-Dec-08					4-Dec-08					4-Dec-08				
			PURPOSE	REG					REG					FD					REG					REG					REG					FD					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
FIELD TESTS	Dissolved Oxygen	mg/L																						0.57				1	-100.1				1						1.85				1
FIELD TESTS	Oxygen Reduction Potential	mV																						-135.2				1	-116				1						-69.1				1
FIELD TESTS	pH	STD UNIT																						8.97				1	8.75				1						7.84				1
FIELD TESTS	Specific Conductivity	uS/cm																						716				1	484				1						552				1
FIELD TESTS	Temperature	Deg C																						19.18				1	16.84				1						16.44				1
FIELD TESTS	Turbidity	NTU																						40.1				1	34.3				1						19.6				1
GEN CHEMISTRY	Chloride	mg/L		779				10	158				25	156				25	124				3																				
GEN CHEMISTRY	Perchlorate	ug/L		530				25	122				2	109				2	5	J	J	15	5	0.22	U	U		2	0.11	U	U		1	0.11	U	U		1	0.11	U	U		1
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1,1-Trichloroethane	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1-Dichloroethane	ug/L		0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	1.25	U	U		2.5	4.34	J	J	15	5	4.21	J	J	15	5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	1,1-Dichloropropene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2,3-Trichlorobenzene	ug/L		0.375	U	U		2.5	0.75	U	U		5	0.75	U	U		5	0.15	U	U		1	0.15	U	U		1	0.15	U	U		1	0.15	U	U		1	0.15	U	U		1
VOLATILES	1,2,3-Trichloropropane	ug/L		1.25	U	U		2.5	2.5	U	U		5	2.5	U	U		5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	0.5	U	U		2.5	1	U	U		5	1	U	U		5	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**2.5**	U	U		2.5	**5**	U	U		5	**5**	U	U		5	**1**	U	U		1	**1**	U	U		1	**1**	U	U		1	**1**	U	U		1	**1**	U	U		1
VOLATILES	1,2-Dibromoethane	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dichlorobenzene	ug/L	600	0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	**5.55**				2.5	4.24	J	J	15	5	4.02	J	J	15	5	0.337	J	J	15	1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dichloropropane	ug/L	5	0.5	U	U		2.5	1	U	U		5	1	U	U		5	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3,5-Trimethylbenzene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3-Dichlorobenzene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3-Dichloropropane	ug/L		0.5	U	U		2.5	1	U	U		5	1	U	U		5	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	1,4-Dichlorobenzene	ug/L	75	0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	2,2-Dichloropropane	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	2-Butanone	ug/L		6.25	U	U		2.5	12.5	U	U		5	12.5	U	U		5	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	ug/L		5	U	U		2.5	10	U	U		5	10	U	U		5	2	U	U		1	2	U	U		1	2	U	U		1	2	U	U		1	2	U	U		1
VOLATILES	2-Chlorotoluene	ug/L		0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	2-Hexanone	ug/L		6.25	U	U		2.5	12.5	U	U		5	12.5	U	U		5	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	4-Chlorotoluene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Acetone	ug/L		6.25	U	U		2.5	12.5	U	U		5	12.5	U	U		5	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	Benzene	ug/L	5	0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	Bromobenzene	ug/L		0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	Bromochloromethane	ug/L		0.5	U	U		2.5	1	U	U		5	1	U	U		5	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	Bromodichloromethane	ug/L	100	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Bromoform	ug/L	100	1.25	U	U		2.5	2.5	U	U		5	2.5	U	U		5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Bromomethane	ug/L		1.25	U	U		2.5	2.5	U	U		5	2.5	U	U		5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Carbon disulfide	ug/L		1.25	U	U		2.5	2.5	U	U		5	2.5	U	U		5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Carbon tetrachloride	ug/L	5	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Chlorobenzene	ug/L	100	0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	Chloroethane	ug/L		1.25	U	U		2.5	2.5	U	U		5	2.5	U	U		5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Chloroform	ug/L	100	0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	Chloromethane	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	**309**				2.5	**339**				5	**320**				5	25.7				1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	cis-1,3-Dichloropropene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Dibromochloromethane	ug/L	100	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Dibromomethane	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Dichlorodifluoromethane	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Ethylbenzene	ug/L	700	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Hexachlorobutadiene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Isopropylbenzene	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	m,p-Xylenes	ug/L		1.25	U	U		2.5	2.5	U	U		5	2.5	U	U		5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Methyl isobutyl ketone	ug/L		6.25	U	U		2.5	12.5	U	U		5	12.5	U	U		5	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	**Methylene chloride**	ug/L	**5**	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Naphthalene	ug/L		0.5	U	U		2.5	1	U	U		5	1	U	U		5	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	n-BUTYLBENZENE	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	n-PROPYLBENZENE	ug/L		0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	sec-BUTYLBENZENE	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Styrene	ug/L	100	0.313	U	U		2.5	0.625	U	U		5	0.625	U	U		5	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	tert-BUTYLBENZENE	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Tetrachloroethene	ug/L	5	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Toluene	ug/L	1000	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	trans-1,3-Dichloropropene	ug/L		1.25	U	U		2.5	2.5	U	U		5	2.5	U	U		5	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	**Trichloroethene**	ug/L	**5**	**316**				2.5	**639**				5	**615**				5	**69.2**				1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Trichlorofluoromethane	ug/L		0.625	U	U		2.5	1.25	U	U		5	1.25	U	U		5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Vinyl acetate	ug/L		6.25	U	U		2.5	12.5	U	U		5	12.5	U	U		5	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	**Vinyl chloride**	ug/L	**2**	0.625	U	U		2.5	**6.92**				5	**6.14**				5	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1

2008 Results

			LOCATION_CODE	16WW41					16WW42					16WW43					16WW44					16WW45					16WW45					16WW46				
			SAMPLE_NO	16WW41-120208					16WW42-120108					16WW43-120108					16WW44-120108					16WW45-120208					16WW45-120208-FD					16WW46-120108				
			SAMPLE_DATE	2-Dec-08					1-Dec-08					1-Dec-08					1-Dec-08					2-Dec-08					2-Dec-08					1-Dec-08				
			PURPOSE	REG					REG					REG					REG					REG					FD					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
FIELD TESTS	Dissolved Oxygen	mg/L		1.99				1	1.98				1	2.03				1	2.613				1	0.63				1										
FIELD TESTS	Oxygen Reduction Potential	mV		-13.1				1	-420.9				1	71.1				1	-53.1				1	-179.8				1										
FIELD TESTS	pH	STD UNIT		6.49				1	6.42				1	6.78				1	6.61				1	10.31				1										
FIELD TESTS	Specific Conductivity	uS/cm		6566				1	4183				1	3921				1	436				1	776				1										
FIELD TESTS	Temperature	Deg C		18.08				1	18.56				1	17.38				1	18.81				1	17.23				1										
FIELD TESTS	Turbidity	NTU		4.2				1	0				1	0				1	9.2				1	73.9				1										
GEN CHEMISTRY	Chloride	mg/L																																				
GEN CHEMISTRY	Perchlorate	ug/L																																				
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1,1-Trichloroethane	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	2.5	U	U		10	**6.25**	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1-Dichloroethane	ug/L		1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	5	U	U		10	**12.5**	U	U		25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	1,1-Dichloropropene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2,3-Trichlorobenzene	ug/L		1.5	U	U		10	3.75	U	U		25	0.15	U	U		1	0.15	U	U		1	0.15	U	U		1	0.15	U	U		1	0.15	U	U		1
VOLATILES	1,2,3-Trichloropropane	ug/L		5	U	U		10	12.5	U	U		25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	2	U	U		10	5	U	U		25	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**10**	U	U		10	**25**	U	U		25	**1**	U	U		1	**1**	U	U		1	**1**	U	U		1	**1**	U	U		1	**1**	U	U		1
VOLATILES	1,2-Dibromoethane	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dichlorobenzene	ug/L	600	1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	2.5	U	U		10	**6.25**	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dichloropropane	ug/L	5	2	U	U		10	5	U	U		25	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3,5-Trimethylbenzene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3-Dichlorobenzene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3-Dichloropropane	ug/L		2	U	U		10	5	U	U		25	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	1,4-Dichlorobenzene	ug/L	75	1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	2,2-Dichloropropane	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	2-Butanone	ug/L		25	U	U		10	62.5	U	U		25	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	ug/L		20	U	U		10	50	U	U		25	2	U	U		1	2	U	U		1	2	U	U		1	2	U	U		1	2	U	U		1
VOLATILES	2-Chlorotoluene	ug/L		1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	2-Hexanone	ug/L		25	U	U		10	62.5	U	U		25	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	4-Chlorotoluene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Acetone	ug/L		25	U	U		10	62.5	U	U		25	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	Benzene	ug/L	5	1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	Bromobenzene	ug/L		1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	Bromochloromethane	ug/L		2	U	U		10	5	U	U		25	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	Bromodichloromethane	ug/L	100	2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Bromoform	ug/L	100	5	U	U		10	12.5	U	U		25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Bromomethane	ug/L		5	U	U		10	37				25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Carbon disulfide	ug/L		5	U	U		10	12.5	U	U		25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Carbon tetrachloride	ug/L	5	2.5	U	U		10	**6.25**	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Chlorobenzene	ug/L	100	1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	Chloroethane	ug/L		5	U	U		10	12.5	U	U		25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Chloroform	ug/L	100	1.25	U	U		10	3.13	U	U		25	0.422	J	J	15	1	0.428	J	J	15	1	0.6	J	J	15	1	0.66	J	J	15	1	0.317	J	J	15	1
VOLATILES	Chloromethane	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	58.9				10	**1270**				25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	3.5				1
VOLATILES	cis-1,3-Dichloropropene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Dibromochloromethane	ug/L	100	2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Dibromomethane	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Dichlorodifluoromethane	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Ethylbenzene	ug/L	700	2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Hexachlorobutadiene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Isopropylbenzene	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	m,p-Xylenes	ug/L		5	U	U		10	12.5	U	U		25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	Methyl isobutyl ketone	ug/L		25	U	U		10	62.5	U	U		25	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	**Methylene chloride**	ug/L	**5**	**8.16**	J	J	15	10	**21.8**	J	J	15	25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Naphthalene	ug/L		2	U	U		10	5	U	U		25	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1	0.2	U	U		1
VOLATILES	n-BUTYLBENZENE	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	n-PROPYLBENZENE	ug/L		1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	sec-BUTYLBENZENE	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Styrene	ug/L	100	1.25	U	U		10	3.13	U	U		25	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1	0.125	U	U		1
VOLATILES	tert-BUTYLBENZENE	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Tetrachloroethene	ug/L	5	2.5	U	U		10	**6.25**	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Toluene	ug/L	1000	2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	trans-1,3-Dichloropropene	ug/L		5	U	U		10	12.5	U	U		25	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1	0.5	U	U		1
VOLATILES	**Trichloroethene**	ug/L	**5**	**1080**				10	**3280**				25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	**6.88**				1
VOLATILES	Trichlorofluoromethane	ug/L		2.5	U	U		10	6.25	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1
VOLATILES	Vinyl acetate	ug/L		25	U	U		10	62.5	U	U		25	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1	2.5	U	U		1
VOLATILES	**Vinyl chloride**	ug/L	**2**	**2.5**	U	U		10	**6.25**	U	U		25	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1	0.25	U	U		1

Notes:

Deg C	degrees Celsius
DF	dilution factor
FD	field duplicate
MCL	maximum contaminant level
mg/L	milligrams per liter
mV	millivolts
NTU	nepheletic turbidity units
Qual	laboratory qualifier
RC	reason code
REG	regular sample
STD UNIT	Standard units of pH measurement
ug/L	micrograms per liter
uS/cm	microseconds per centimeter
ValQual	validation qualifier

Qualifiers and Reason Codes:

15	Quantitation
17	Field duplicate RPD criteria is exceeded
J	The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.
Q	Quantitation beyond calibration limits
U	Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

March 2009 Results

			LOCATION_CODE	16EW01					16EW02					16EW03					16EW04					16EW05					16EW06					16EW07				
			SAMPLE_NO	16EW01-032609					16EW02-032609					16EW03-032609					16EW04-032609					16EW05-032709					16EW06-032709					16EW07-032709				
			SAMPLE_DATE	26-Mar-09					26-Mar-09					26-Mar-09					26-Mar-09					27-Mar-09					27-Mar-09					27-Mar-09				
			PURPOSE	REG					REG					REG					REG					REG					REG					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
GEN CHEMISTRY	Chloride	mg/L																																				
GEN CHEMISTRY	Perchlorate	ug/L		910				20	39				20	2.2	U	U		20	2.2	U	U		20	710				50	270				20	490				20
METALS	Arsenic	mg/L	0.01																																			
METALS	**Chromium**	mg/L	**0.1**																																			
METALS	**Manganese**	mg/L	**14**																																			
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,1,1-Trichloroethane	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	**12.5**	U	U		50	**15.1**	J	J	15	50	**12.5**	U	U		50	**12.5**	U	U		50	**12.5**	U	U		50	1.25	U	U		5	**12.5**	U	U		50
VOLATILES	1,1-Dichloroethane	ug/L		6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	**25.7**	J	J	15	50	**94.9**				50	**56.9**				50	**55.7**				50	**25**	U	U		50	2.5	U	U		5	**25**	U	U		50
VOLATILES	1,1-Dichloropropene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,2,3-Trichlorobenzene	ug/L		7.5	U	U		50	7.5	U	U		50	7.5	U	U		50	7.5	U	U		50	7.5	U	U		50	0.75	U	U		5	7.5	U	U		50
VOLATILES	1,2,3-Trichloropropane	ug/L		25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	2.5	U	U		5	25	U	U		50
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	1	U	U		5	10	U	U		50
VOLATILES	1,2,4-Trimethylbenzene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**50**	U	U		50	**50**	U	U		50	**50**	U	U		50	**50**	U	U		50	**50**	U	U		50	**5**	U	U		5	**50**	U	U		50
VOLATILES	1,2-Dibromoethane	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,2-Dichlorobenzene	ug/L	600	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	**122**				50	**84.1**				50	**32.1**	J	J	15	50	**16.7**	J	J	15	50	**34**	J	J	15	50	1.58	J	J	15	5	**23.2**	J	J	15	50
VOLATILES	1,2-Dichloropropane	ug/L	5	**10**	U	U		50	**10**	U	U		50	**10**	U	U		50	**10**	U	U		50	**10**	U	U		50	1	U	U		5	**10**	U	U		50
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,3,5-Trimethylbenzene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,3-Dichlorobenzene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	1,3-Dichloropropane	ug/L		10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	1	U	U		5	10	U	U		50
VOLATILES	1,4-Dichlorobenzene	ug/L	75	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	2,2-Dichloropropane	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	2-Butanone	ug/L		125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	12.5	U	U		5	125	U	U		50
VOLATILES	2-Chloroethyl vinyl ether	ug/L		100	U	U		50	100	U	U		50	100	U	U		50	100	U	U		50	100	U	U		50	10	U	U		5	100	U	U		50
VOLATILES	2-Chlorotoluene	ug/L		6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	2-Hexanone	ug/L		125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	12.5	U	U		5	125	U	U		50
VOLATILES	4-Chlorotoluene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Acetone	ug/L		125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	12.5	U	U		5	125	U	U		50
VOLATILES	Benzene	ug/L	5	**6.25**	U	U		50	**6.25**	U	U		50	**6.25**	U	U		50	**6.25**	U	U		50	**6.25**	U	U		50	0.625	U	U		5	**6.25**	U	U		50
VOLATILES	Bromobenzene	ug/L		6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	Bromochloromethane	ug/L		10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	1	U	U		5	10	U	U		50
VOLATILES	Bromodichloromethane	ug/L	100	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Bromoform	ug/L	100	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	2.5	U	U		5	25	U	U		50
VOLATILES	Bromomethane	ug/L		25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	2.5	U	U		5	25	U	U		50
VOLATILES	Carbon disulfide	ug/L		25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	2.5	U	U		5	25	U	U		50
VOLATILES	Carbon tetrachloride	ug/L	5	**12.5**	U	U		50	**12.5**	U	U		50	**12.5**	U	U		50	**12.5**	U	U		50	**12.5**	U	U		50	1.25	U	U		5	**12.5**	U	U		50
VOLATILES	Chlorobenzene	ug/L	100	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	Chloroethane	ug/L		25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	2.5	U	U		5	25	U	U		50
VOLATILES	Chloroform	ug/L	100	6.25	U	U		50	19.1	J	J	15	50	13	J	J	15	50	9.14	J	J	15	50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	Chloromethane	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	**9770**				50	**38600**				1000	**5840**				50	**8470**				50	**4000**				50	**158**				5	**2910**				50
VOLATILES	cis-1,3-Dichloropropene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Dibromochloromethane	ug/L	100	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Dibromomethane	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Dichlorodifluoromethane	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Ethylbenzene	ug/L	700	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Hexachlorobutadiene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Isopropylbenzene	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	m,p-Xylenes	ug/L		25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	2.5	U	U		5	25	U	U		50
VOLATILES	Methyl isobutyl ketone	ug/L		125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	12.5	U	U		5	125	U	U		50
VOLATILES	**Methylene chloride**	ug/L	**5**	**12.5**	U	U		50	**12.5**	U	U		50	**18.5**	J	J	15	50	**12.5**	U	U		50	**12.5**	U	U		50	1.25	U	U		5	**12.5**	U	U		50
VOLATILES	Naphthalene	ug/L		10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	10	U	U		50	1	U	U		5	10	U	U		50
VOLATILES	n-BUTYLBENZENE	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	n-PROPYLBENZENE	ug/L		6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	sec-BUTYLBENZENE	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Styrene	ug/L	100	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	6.25	U	U		50	0.625	U	U		5	6.25	U	U		50
VOLATILES	tert-BUTYLBENZENE	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Tetrachloroethene	ug/L	5	**12.5**	U	U		50	**12.5**	U	U		50	**12.5**	U	U		50	**12.5**	U	U		50	**12.5**	U	U		50	1.25	U	U		5	**12.5**	U	U		50
VOLATILES	Toluene	ug/L	1000	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	18.9	J	J	15	50	38.8	J	J	15	50	13	J	J	15	50	18.6	J	J	15	50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	trans-1,3-Dichloropropene	ug/L		25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	25	U	U		50	2.5	U	U		5	25	U	U		50
VOLATILES	**Trichloroethene**	ug/L	**5**	**10600**				200	**131000**				1000	**77400**				1000	**40700**				1000	**9400**				50	**536**				5	**6040**				50
VOLATILES	Trichlorofluoromethane	ug/L		12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	12.5	U	U		50	1.25	U	U		5	12.5	U	U		50
VOLATILES	Vinyl acetate	ug/L		125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	125	U	U		50	12.5	U	U		5	125	U	U		50
VOLATILES	**Vinyl chloride**	ug/L	**2**	**228**				50	**364**				50	**77.7**				50	**54.9**				50	**109**				50	**2.41**	J	J	15	5	**12.5**	U	U		50

March 2009 Results

	LOCATION_CODE			16EW08				
	SAMPLE_NO			16EW08-032709				
	SAMPLE_DATE			27-Mar-09				
	PURPOSE			REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF
GEN CHEMISTRY	Chloride	mg/L						
GEN CHEMISTRY	Perchlorate	ug/L		51				10
METALS	Arsenic	mg/L	0.01					
METALS	**Chromium**	mg/L	**0.1**					
METALS	**Manganese**	mg/L	**14**					
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	6.25	U	U		25
VOLATILES	1,1,1-Trichloroethane	ug/L		6.25	U	U		25
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		3.13	U	U		25
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	**6.25**	U	U		25
VOLATILES	1,1-Dichloroethane	ug/L		3.13	U	U		25
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	**12.5**	U	U		25
VOLATILES	1,1-Dichloropropene	ug/L		6.25	U	U		25
VOLATILES	1,2,3-Trichlorobenzene	ug/L		3.75	U	U		25
VOLATILES	1,2,3-Trichloropropane	ug/L		12.5	U	U		25
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	5	U	U		25
VOLATILES	1,2,4-Trimethylbenzene	ug/L		6.25	U	U		25
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**25**	U	U		25
VOLATILES	1,2-Dibromoethane	ug/L		6.25	U	U		25
VOLATILES	1,2-Dichlorobenzene	ug/L	600	3.13	U	U		25
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	**21.7**	J	J	15	25
VOLATILES	1,2-Dichloropropane	ug/L	5	5	U	U		25
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		6.25	U	U		25
VOLATILES	1,3,5-Trimethylbenzene	ug/L		6.25	U	U		25
VOLATILES	1,3-Dichlorobenzene	ug/L		6.25	U	U		25
VOLATILES	1,3-Dichloropropane	ug/L		5	U	U		25
VOLATILES	1,4-Dichlorobenzene	ug/L	75	3.13	U	U		25
VOLATILES	2,2-Dichloropropane	ug/L		6.25	U	U		25
VOLATILES	2-Butanone	ug/L		62.5	U	U		25
VOLATILES	2-Chloroethyl vinyl ether	ug/L		50	U	U		25
VOLATILES	2-Chlorotoluene	ug/L		3.13	U	U		25
VOLATILES	2-Hexanone	ug/L		62.5	U	U		25
VOLATILES	4-Chlorotoluene	ug/L		6.25	U	U		25
VOLATILES	Acetone	ug/L		62.5	U	U		25
VOLATILES	Benzene	ug/L	5	3.13	U	U		25
VOLATILES	Bromobenzene	ug/L		3.13	U	U		25
VOLATILES	Bromochloromethane	ug/L		5	U	U		25
VOLATILES	Bromodichloromethane	ug/L	100	6.25	U	U		25
VOLATILES	Bromoform	ug/L	100	12.5	U	U		25
VOLATILES	Bromomethane	ug/L		12.5	U	U		25
VOLATILES	Carbon disulfide	ug/L		12.5	U	U		25
VOLATILES	Carbon tetrachloride	ug/L	5	**6.25**	U	U		25
VOLATILES	Chlorobenzene	ug/L	100	3.13	U	U		25
VOLATILES	Chloroethane	ug/L		12.5	U	U		25
VOLATILES	Chloroform	ug/L	100	3.13	U	U		25
VOLATILES	Chloromethane	ug/L		6.25	U	U		25
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	**2690**				25
VOLATILES	cis-1,3-Dichloropropene	ug/L		6.25	U	U		25
VOLATILES	Dibromochloromethane	ug/L	100	6.25	U	U		25
VOLATILES	Dibromomethane	ug/L		6.25	U	U		25
VOLATILES	Dichlorodifluoromethane	ug/L		6.25	U	U		25
VOLATILES	Ethylbenzene	ug/L	700	6.25	U	U		25
VOLATILES	Hexachlorobutadiene	ug/L		6.25	U	U		25
VOLATILES	Isopropylbenzene	ug/L		6.25	U	U		25
VOLATILES	m,p-Xylenes	ug/L		12.5	U	U		25
VOLATILES	Methyl isobutyl ketone	ug/L		62.5	U	U		25
VOLATILES	**Methylene chloride**	ug/L	**5**	**6.93**	J	J	15	25
VOLATILES	Naphthalene	ug/L		5	U	U		25
VOLATILES	n-BUTYLBENZENE	ug/L		6.25	U	U		25
VOLATILES	n-PROPYLBENZENE	ug/L		3.13	U	U		25
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		6.25	U	U		25
VOLATILES	sec-BUTYLBENZENE	ug/L		6.25	U	U		25
VOLATILES	Styrene	ug/L	100	3.13	U	U		25
VOLATILES	tert-BUTYLBENZENE	ug/L		6.25	U	U		25
VOLATILES	Tetrachloroethene	ug/L	5	**6.25**	U	U		25
VOLATILES	Toluene	ug/L	1000	6.25	U	U		25
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	6.25	U	U		25
VOLATILES	trans-1,3-Dichloropropene	ug/L		12.5	U	U		25
VOLATILES	**Trichloroethene**	ug/L	**5**	**4870**				50
VOLATILES	Trichlorofluoromethane	ug/L		6.25	U	U		25
VOLATILES	Vinyl acetate	ug/L		62.5	U	U		25
VOLATILES	**Vinyl chloride**	ug/L	**2**	**35**				25

	LOCATION_CODE	16WW12					16WW12					16WW13					16WW14				
	SAMPLE_NO	16WW12-031809					16WW12-031809-FD					16WW13-031709					16WW14-031809				
	SAMPLE_DATE	18-Mar-09					18-Mar-09					17-Mar-09					18-Mar-09				
	PURPOSE	REG					FD					REG					REG				
Test Group	Parameter	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
METALS	**Chromium**	**0.107**				5	**0.101**				5						**0.143**				50
METALS	**Manganese**											3.76				50					

	LOCATION_CODE	16WW16					16WW21				
	SAMPLE_NO	16WW16-031709					16WW21-032409				
	SAMPLE_DATE	17-Mar-09					24-Mar-09				
	PURPOSE	REG					REG				
Test Group	Parameter	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
GEN CHEMISTRY	Chloride	980				50	63.6				3
GEN CHEMISTRY	Perchlorate	240				10	0.22	U	U		2
METALS	Arsenic										
METALS	**Chromium**	0.00854	J	J	15	5					
METALS	**Manganese**										
VOLATILES	1,1,1,2-Tetrachloroethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,1,1-Trichloroethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	1.25	U	U		10	0.125	U	U		1
VOLATILES	**1,1,2-Trichloroethane**	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,1-Dichloroethane	1.25	U	U		10	0.125	U	U		1
VOLATILES	**1,1-Dichloroethene**	**43.2**				10	0.5	U	U		1
VOLATILES	1,1-Dichloropropene	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,2,3-Trichlorobenzene	1.5	U	U		10	0.15	U	U		1
VOLATILES	1,2,3-Trichloropropane	5	U	U		10	0.5	U	U		1
VOLATILES	1,2,4-Trichlorobenzene	2	U	U		10	0.2	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,2-Dibromo-3-chloropropane	**10**	U	U		10	**1**	U	U		1
VOLATILES	1,2-Dibromoethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,2-Dichlorobenzene	1.25	U	U		10	0.125	U	U		1
VOLATILES	**1,2-Dichloroethane**	**29.6**				10	0.25	U	U		1
VOLATILES	1,2-Dichloropropane	2	U	U		10	0.2	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,3,5-Trimethylbenzene	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,3-Dichlorobenzene	2.5	U	U		10	0.25	U	U		1
VOLATILES	1,3-Dichloropropane	2	U	U		10	0.2	U	U		1
VOLATILES	1,4-Dichlorobenzene	1.25	U	U		10	0.125	U	U		1
VOLATILES	2,2-Dichloropropane	2.5	U	U		10	0.25	U	U		1
VOLATILES	2-Butanone	25	U	U		10	2.5	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	20	U	U		10	2	U	U		1
VOLATILES	2-Chlorotoluene	1.25	U	U		10	0.125	U	U		1
VOLATILES	2-Hexanone	25	U	U		10	2.5	U	U		1
VOLATILES	4-Chlorotoluene	2.5	U	U		10	0.25	U	U		1
VOLATILES	Acetone	25	U	U		10	2.5	U	U		1
VOLATILES	Benzene	1.25	U	U		10	0.125	U	U		1
VOLATILES	Bromobenzene	1.25	U	U		10	0.125	U	U		1
VOLATILES	Bromochloromethane	2	U	U		10	0.2	U	U		1
VOLATILES	Bromodichloromethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	Bromoform	5	U	U		10	0.5	U	U		1
VOLATILES	Bromomethane	5	U	U		10	0.5	U	U		1
VOLATILES	Carbon disulfide	5	U	U		10	0.5	U	U		1
VOLATILES	Carbon tetrachloride	2.5	U	U		10	0.25	U	U		1
VOLATILES	Chlorobenzene	1.25	U	U		10	0.125	U	U		1
VOLATILES	Chloroethane	5	U	U		10	0.5	U	U		1
VOLATILES	Chloroform	1.25	U	U		10	0.125	U	U		1
VOLATILES	Chloromethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	**11800**				250	0.25	U	U		1
VOLATILES	cis-1,3-Dichloropropene	2.5	U	U		10	0.25	U	U		1
VOLATILES	Dibromochloromethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	Dibromomethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	Dichlorodifluoromethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	Ethylbenzene	2.5	U	U		10	0.25	U	U		1
VOLATILES	Hexachlorobutadiene	2.5	U	U		10	0.25	U	U		1
VOLATILES	Isopropylbenzene	2.5	U	U		10	0.25	U	U		1
VOLATILES	m,p-Xylenes	5	U	U		10	0.5	U	U		1
VOLATILES	Methyl isobutyl ketone	25	U	U		10	2.5	U	U		1
VOLATILES	**Methylene chloride**	2.5	U	U		10	0.25	U	U		1
VOLATILES	Naphthalene	2	U	U		10	0.2	U	U		1
VOLATILES	n-BUTYLBENZENE	2.5	U	U		10	0.25	U	U		1
VOLATILES	n-PROPYLBENZENE	1.25	U	U		10	0.125	U	U		1
VOLATILES	p-ISOPROPYLTOLUENE	2.5	U	U		10	0.25	U	U		1
VOLATILES	sec-BUTYLBENZENE	2.5	U	U		10	0.25	U	U		1
VOLATILES	Styrene	1.25	U	U		10	0.125	U	U		1
VOLATILES	tert-BUTYLBENZENE	2.5	U	U		10	0.25	U	U		1
VOLATILES	Tetrachloroethene	2.5	U	U		10	0.25	U	U		1
VOLATILES	Toluene	2.5	U	U		10	0.25	U	U		1
VOLATILES	trans-1,2-Dichloroethene	24				10	0.25	U	U		1
VOLATILES	trans-1,3-Dichloropropene	5	U	U		10	0.5	U	U		1
VOLATILES	**Trichloroethene**	**18900**				250	0.25	U	U		1
VOLATILES	Trichlorofluoromethane	2.5	U	U		10	0.25	U	U		1
VOLATILES	Vinyl acetate	25	U	U		10	2.5	U	U		1
VOLATILES	**Vinyl chloride**	**564**				10	0.25	U	U		1

March 2009 Results

			LOCATION_CODE	16WW21					16WW22					16WW23					16WW24					16WW25					16WW28					16WW31				
			SAMPLE_NO	16WW21-032409-FD					16WW22-031709					16WW23-031909					16WW24-031909					16WW25-031909					16WW28-033009					16WW31-032409				
			SAMPLE_DATE	24-Mar-09					17-Mar-09					19-Mar-09					19-Mar-09					19-Mar-09					30-Mar-09					24-Mar-09				
			PURPOSE	FD					REG					REG					REG					REG					REG					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
GEN CHEMISTRY	Chloride	mg/L		63.4				3											347				10						310				15	295				15
GEN CHEMISTRY	Perchlorate	ug/L		0.11	U	U		1											1.1	U	U		10						0.55	U	U		5	0.22	U	U		2
METALS	Arsenic	mg/L	0.01																					**0.105**				1										
METALS	**Chromium**	mg/L	**0.1**						0.0695				5						**0.83**				100															
METALS	**Manganese**	mg/L	**14**											**15.7**				100						7.19				100										
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1,1-Trichloroethane	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,1-Dichloroethane	ug/L		0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	1,1-Dichloropropene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2,3-Trichlorobenzene	ug/L		0.15	U	U		1											0.15	U	U		1						0.15	U	U		1	0.15	U	U		1
VOLATILES	1,2,3-Trichloropropane	ug/L		0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	0.2	U	U		1											0.2	U	U		1						0.2	U	U		1	0.2	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**1**	U	U		1											**1**	U	U		1						**1**	U	U		1	**1**	U	U		1
VOLATILES	1,2-Dibromoethane	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dichlorobenzene	ug/L	600	0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,2-Dichloropropane	ug/L	5	0.2	U	U		1											0.2	U	U		1						0.2	U	U		1	0.2	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3,5-Trimethylbenzene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3-Dichlorobenzene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	1,3-Dichloropropane	ug/L		0.2	U	U		1											0.2	U	U		1						0.2	U	U		1	0.2	U	U		1
VOLATILES	1,4-Dichlorobenzene	ug/L	75	0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	2,2-Dichloropropane	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	2-Butanone	ug/L		2.5	U	U		1											2.5	U	U		1						2.5	U	U		1	2.5	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	ug/L		2	U	U		1											2	U	U		1						2	U	U		1	2	U	U		1
VOLATILES	2-Chlorotoluene	ug/L		0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	2-Hexanone	ug/L		2.5	U	U		1											2.5	U	U		1						2.5	U	U		1	2.5	U	U		1
VOLATILES	4-Chlorotoluene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Acetone	ug/L		2.51	J	J	15	1											4.36	J	J	15	1						2.5	U	U		1	2.5	U	U		1
VOLATILES	Benzene	ug/L	5	0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	Bromobenzene	ug/L		0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	Bromochloromethane	ug/L		0.2	U	U		1											0.2	U	U		1						0.2	U	U		1	0.2	U	U		1
VOLATILES	Bromodichloromethane	ug/L	100	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Bromoform	ug/L	100	0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	Bromomethane	ug/L		0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	Carbon disulfide	ug/L		0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	Carbon tetrachloride	ug/L	5	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Chlorobenzene	ug/L	100	0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	Chloroethane	ug/L		0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	Chloroform	ug/L	100	0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	Chloromethane	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	0.25	U	U		1											0.25	U	U		1						**78**				1	0.25	U	U		1
VOLATILES	cis-1,3-Dichloropropene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Dibromochloromethane	ug/L	100	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Dibromomethane	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Dichlorodifluoromethane	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Ethylbenzene	ug/L	700	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Hexachlorobutadiene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Isopropylbenzene	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	m,p-Xylenes	ug/L		0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	Methyl isobutyl ketone	ug/L		2.5	U	U		1											2.5	U	U		1						2.5	U	U		1	2.5	U	U		1
VOLATILES	**Methylene chloride**	ug/L	**5**	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Naphthalene	ug/L		0.2	U	U		1											0.2	U	U		1						0.2	U	U		1	0.2	U	U		1
VOLATILES	n-BUTYLBENZENE	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	n-PROPYLBENZENE	ug/L		0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	sec-BUTYLBENZENE	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Styrene	ug/L	100	0.125	U	U		1											0.125	U	U		1						0.125	U	U		1	0.125	U	U		1
VOLATILES	tert-BUTYLBENZENE	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Tetrachloroethene	ug/L	5	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Toluene	ug/L	1000	0.262	J	J	15	1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	trans-1,3-Dichloropropene	ug/L		0.5	U	U		1											0.5	U	U		1						0.5	U	U		1	0.5	U	U		1
VOLATILES	**Trichloroethene**	ug/L	**5**	0.25	U	U		1											1.43				1						**46**				1	**6.23**				1
VOLATILES	Trichlorofluoromethane	ug/L		0.25	U	U		1											0.25	U	U		1						0.25	U	U		1	0.25	U	U		1
VOLATILES	Vinyl acetate	ug/L		2.5	U	U		1											2.5	U	U		1						2.5	U	U		1	2.5	U	U		1
VOLATILES	**Vinyl chloride**	ug/L	**2**	0.25	U	U		1											0.25	U	U		1						**2.09**				1	0.25	U	U		1

March 2009 Results

	LOCATION_CODE			16WW32					16WW33					16WW34				
	SAMPLE_NO			16WW32-031709					16WW33-031609					16WW34-031609				
	SAMPLE_DATE			17-Mar-09					16-Mar-09					16-Mar-09				
	PURPOSE			REG					REG					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
GEN CHEMISTRY	Chloride	mg/L		336				15										
GEN CHEMISTRY	Perchlorate	ug/L		0.55	U	U		5										
METALS	Arsenic	mg/L	0.01															
METALS	**Chromium**	mg/L	**0.1**	0.0509				5	0.00576	J	J	15	5	**32.4**				500
METALS	**Manganese**	mg/L	**14**															
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	0.25	U	U		1										
VOLATILES	1,1,1-Trichloroethane	ug/L		0.25	U	U		1										
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		0.125	U	U		1										
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	0.25	U	U		1										
VOLATILES	1,1-Dichloroethane	ug/L		0.125	U	U		1										
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	0.5	U	U		1										
VOLATILES	1,1-Dichloropropene	ug/L		0.25	U	U		1										
VOLATILES	1,2,3-Trichlorobenzene	ug/L		0.15	U	U		1										
VOLATILES	1,2,3-Trichloropropane	ug/L		0.5	U	U		1										
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	0.2	U	U		1										
VOLATILES	1,2,4-Trimethylbenzene	ug/L		0.25	U	U		1										
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**1**	U	U		1										
VOLATILES	1,2-Dibromoethane	ug/L		0.25	U	U		1										
VOLATILES	1,2-Dichlorobenzene	ug/L	600	0.125	U	U		1										
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	0.25	U	U		1										
VOLATILES	1,2-Dichloropropane	ug/L	5	0.2	U	U		1										
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		0.25	U	U		1										
VOLATILES	1,3,5-Trimethylbenzene	ug/L		0.25	U	U		1										
VOLATILES	1,3-Dichlorobenzene	ug/L		0.25	U	U		1										
VOLATILES	1,3-Dichloropropane	ug/L		0.2	U	U		1										
VOLATILES	1,4-Dichlorobenzene	ug/L	75	0.125	U	U		1										
VOLATILES	2,2-Dichloropropane	ug/L		0.25	U	U		1										
VOLATILES	2-Butanone	ug/L		2.5	U	U		1										
VOLATILES	2-Chloroethyl vinyl ether	ug/L		2	U	U		1										
VOLATILES	2-Chlorotoluene	ug/L		0.125	U	U		1										
VOLATILES	2-Hexanone	ug/L		2.5	U	U		1										
VOLATILES	4-Chlorotoluene	ug/L		0.25	U	U		1										
VOLATILES	Acetone	ug/L		2.5	U	U		1										
VOLATILES	Benzene	ug/L	5	0.125	U	U		1										
VOLATILES	Bromobenzene	ug/L		0.125	U	U		1										
VOLATILES	Bromochloromethane	ug/L		0.2	U	U		1										
VOLATILES	Bromodichloromethane	ug/L	100	0.25	U	U		1										
VOLATILES	Bromoform	ug/L	100	0.5	U	U		1										
VOLATILES	Bromomethane	ug/L		0.5	U	U		1										
VOLATILES	Carbon disulfide	ug/L		0.5	U	U		1										
VOLATILES	Carbon tetrachloride	ug/L	5	0.25	U	U		1										
VOLATILES	Chlorobenzene	ug/L	100	0.125	U	U		1										
VOLATILES	Chloroethane	ug/L		0.5	U	U		1										
VOLATILES	Chloroform	ug/L	100	0.125	U	U		1										
VOLATILES	Chloromethane	ug/L		0.25	U	U		1										
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	0.25	U	U		1										
VOLATILES	cis-1,3-Dichloropropene	ug/L		0.25	U	U		1										
VOLATILES	Dibromochloromethane	ug/L	100	0.25	U	U		1										
VOLATILES	Dibromomethane	ug/L		0.25	U	U		1										
VOLATILES	Dichlorodifluoromethane	ug/L		0.25	U	U		1										
VOLATILES	Ethylbenzene	ug/L	700	0.25	U	U		1										
VOLATILES	Hexachlorobutadiene	ug/L		0.25	U	U		1										
VOLATILES	Isopropylbenzene	ug/L		0.25	U	U		1										
VOLATILES	m,p-Xylenes	ug/L		0.5	U	U		1										
VOLATILES	Methyl isobutyl ketone	ug/L		2.5	U	U		1										
VOLATILES	**Methylene chloride**	ug/L	**5**	0.25	U	U		1										
VOLATILES	Naphthalene	ug/L		0.2	U	U		1										
VOLATILES	n-BUTYLBENZENE	ug/L		0.25	U	U		1										
VOLATILES	n-PROPYLBENZENE	ug/L		0.125	U	U		1										
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		0.25	U	U		1										
VOLATILES	sec-BUTYLBENZENE	ug/L		0.25	U	U		1										
VOLATILES	Styrene	ug/L	100	0.125	U	U		1										
VOLATILES	tert-BUTYLBENZENE	ug/L		0.25	U	U		1										
VOLATILES	Tetrachloroethene	ug/L	5	0.25	U	U		1										
VOLATILES	Toluene	ug/L	1000	0.25	U	U		1										
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	0.25	U	U		1										
VOLATILES	trans-1,3-Dichloropropene	ug/L		0.5	U	U		1										
VOLATILES	**Trichloroethene**	ug/L	**5**	0.25	U	U		1										
VOLATILES	Trichlorofluoromethane	ug/L		0.25	U	U		1										
VOLATILES	Vinyl acetate	ug/L		2.5	U	U		1										
VOLATILES	**Vinyl chloride**	ug/L	**2**	0.25	U	U		1										

	LOCATION_CODE	16WW35					16WW36					16WW38				
	SAMPLE_NO	16WW35-031909					16WW36-033009					16WW38-031809				
	SAMPLE_DATE	19-Mar-09					30-Mar-09					18-Mar-09				
	PURPOSE	REG					REG					REG				
Test Group	Parameter	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
GEN CHEMISTRY	Chloride	648				100	889				50					
GEN CHEMISTRY	Perchlorate	5.5	U	U		50	5.5	U	U		50					
METALS	Arsenic	**0.123**				5										
METALS	**Chromium**											**0.671**				5
METALS	**Manganese**	9.7				100										
VOLATILES	1,1,1,2-Tetrachloroethane	2.5	U	U		10	**125**	U	U		500					
VOLATILES	1,1,1-Trichloroethane	2.5	U	U		10	125	U	U		500					
VOLATILES	1,1,2,2-Tetrachloroethane	1.25	U	U		10	62.5	U	U		500					
VOLATILES	**1,1,2-Trichloroethane**	2.5	U	U		10	**125**	U	U		500					
VOLATILES	1,1-Dichloroethane	2.23	J	J	15	10	62.5	U	U		500					
VOLATILES	**1,1-Dichloroethene**	**19.9**				10	**250**	U	U		500					
VOLATILES	1,1-Dichloropropene	2.5	U	U		10	125	U	U		500					
VOLATILES	1,2,3-Trichlorobenzene	2.65	J	J	15	10	75	U	U		500					
VOLATILES	1,2,3-Trichloropropane	5	U	U		10	250	U	U		500					
VOLATILES	1,2,4-Trichlorobenzene	2	U	U		10	**100**	U	U		500					
VOLATILES	1,2,4-Trimethylbenzene	2.5	U	U		10	125	U	U		500					
VOLATILES	1,2-Dibromo-3-chloropropane	**10**	U	U		10	**500**	U	U		500					
VOLATILES	1,2-Dibromoethane	2.5	U	U		10	125	U	U		500					
VOLATILES	1,2-Dichlorobenzene	1.25	U	U		10	62.5	U	U		500					
VOLATILES	**1,2-Dichloroethane**	2.5	U	U		10	**125**	U	U		500					
VOLATILES	1,2-Dichloropropane	2	U	U		10	**100**	U	U		500					
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	2.5	U	U		10	125	U	U		500					
VOLATILES	1,3,5-Trimethylbenzene	2.5	U	U		10	125	U	U		500					
VOLATILES	1,3-Dichlorobenzene	2.5	U	U		10	125	U	U		500					
VOLATILES	1,3-Dichloropropane	2	U	U		10	100	U	U		500					
VOLATILES	1,4-Dichlorobenzene	1.25	U	U		10	62.5	U	U		500					
VOLATILES	2,2-Dichloropropane	2.5	U	U		10	125	U	U		500					
VOLATILES	2-Butanone	25	U	U		10	1250	U	U		500					
VOLATILES	2-Chloroethyl vinyl ether	20	U	U		10	1000	U	U		500					
VOLATILES	2-Chlorotoluene	1.25	U	U		10	62.5	U	U		500					
VOLATILES	2-Hexanone	25	U	U		10	1250	U	U		500					
VOLATILES	4-Chlorotoluene	2.5	U	U		10	125	U	U		500					
VOLATILES	Acetone	25	U	U		10	1250	U	U		500					
VOLATILES	Benzene	1.93	J	J	15	10	**62.5**	U	U		500					
VOLATILES	Bromobenzene	1.25	U	U		10	62.5	U	U		500					
VOLATILES	Bromochloromethane	2	U	U		10	100	U	U		500					
VOLATILES	Bromodichloromethane	2.5	U	U		10	**125**	U	U		500					
VOLATILES	Bromoform	5	U	U		10	**250**	U	U		500					
VOLATILES	Bromomethane	6.5	J	J	15	10	250	U	U		500					
VOLATILES	Carbon disulfide	5	U	U		10	250	U	U		500					
VOLATILES	Carbon tetrachloride	2.5	U	U		10	**125**	U	U		500					
VOLATILES	Chlorobenzene	1.25	U	U		10	62.5	U	U		500					
VOLATILES	Chloroethane	5	U	U		10	250	U	U		500					
VOLATILES	Chloroform	1.25	U	U		10	62.5	U	U		500					
VOLATILES	Chloromethane	2.5	U	U		10	125	U	U		500					
VOLATILES	**cis-1,2-Dichloroethene**	**132**				10	**51800**				500					
VOLATILES	cis-1,3-Dichloropropene	2.5	U	U		10	125	U	U		500					
VOLATILES	Dibromochloromethane	2.5	U	U		10	**125**	U	U		500					
VOLATILES	Dibromomethane	2.5	U	U		10	125	U	U		500					
VOLATILES	Dichlorodifluoromethane	2.5	U	U		10	125	U	U		500					
VOLATILES	Ethylbenzene	2.5	U	U		10	125	U	U		500					
VOLATILES	Hexachlorobutadiene	3.3	J	J	15	10	125	U	U		500					
VOLATILES	Isopropylbenzene	2.5	U	U		10	125	U	U		500					
VOLATILES	m,p-Xylenes	5	U	U		10	250	U	U		500					
VOLATILES	Methyl isobutyl ketone	25	U	U		10	1250	U	U		500					
VOLATILES	**Methylene chloride**	2.5	U	U		10	**125**	U	U		500					
VOLATILES	Naphthalene	4.95	J	J	15	10	100	U	U		500					
VOLATILES	n-BUTYLBENZENE	2.5	U	U		10	125	U	U		500					
VOLATILES	n-PROPYLBENZENE	1.25	U	U		10	62.5	U	U		500					
VOLATILES	p-ISOPROPYLTOLUENE	2.5	U	U		10	125	U	U		500					
VOLATILES	sec-BUTYLBENZENE	2.5	U	U		10	125	U	U		500					
VOLATILES	Styrene	9.17	J	J	15	10	62.5	U	U		500					
VOLATILES	tert-BUTYLBENZENE	2.5	U	U		10	125	U	U		500					
VOLATILES	Tetrachloroethene	2.5	U	U		10	**125**	U	U		500					
VOLATILES	Toluene	2.5	U	U		10	125	U	U		500					
VOLATILES	trans-1,2-Dichloroethene	2.5	U	U		10	**1660**				500					
VOLATILES	trans-1,3-Dichloropropene	5	U	U		10	250	U	U		500					
VOLATILES	**Trichloroethene**	**2180**				25	**29300**				500					
VOLATILES	Trichlorofluoromethane	2.5	U	U		10	125	U	U		500					
VOLATILES	Vinyl acetate	25	U	U		10	1250	U	U		500					
VOLATILES	**Vinyl chloride**	**53.6**				10	**1700**				500					

March 2009 Results

			LOCATION_CODE	16WW40					16WW40					16WW41					16WW42				
			SAMPLE_NO	16WW40-032409					16WW40-032509					16WW41-032409					16WW42-032409				
			SAMPLE_DATE	24-Mar-09					25-Mar-09					24-Mar-09					24-Mar-09				
			PURPOSE	REG					REG					REG					REG				
Test Group	Parameter	Units	MCL	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF	Result	Qual	ValQual	RC	DF
GEN CHEMISTRY	Chloride	mg/L		881				40						474				25	58.4				3
GEN CHEMISTRY	Perchlorate	ug/L							1.1	U	U		10	250				50	0.22	U	U		2
METALS	Arsenic	mg/L	0.01																				
METALS	**Chromium**	mg/L	**0.1**																				
METALS	**Manganese**	mg/L	**14**																				
VOLATILES	1,1,1,2-Tetrachloroethane	ug/L	110	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,1,1-Trichloroethane	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,1,2,2-Tetrachloroethane	ug/L		1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	**1,1,2-Trichloroethane**	ug/L	**5**	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,1-Dichloroethane	ug/L		1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	**1,1-Dichloroethene**	ug/L	**7**	5.2	J	J		10						5	U	U		10	0.5	U	U		1
VOLATILES	1,1-Dichloropropene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,2,3-Trichlorobenzene	ug/L		1.5	U	U		10						1.5	U	U		10	0.15	U	U		1
VOLATILES	1,2,3-Trichloropropane	ug/L		5	U	U		10						5	U	U		10	0.5	U	U		1
VOLATILES	1,2,4-Trichlorobenzene	ug/L	70	2	U	U		10						2	U	U		10	0.2	U	U		1
VOLATILES	1,2,4-Trimethylbenzene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,2-Dibromo-3-chloropropane	ug/L	0.2	**10**	U	U		10						**10**	U	U		10	**1**	U	U		1
VOLATILES	1,2-Dibromoethane	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,2-Dichlorobenzene	ug/L	600	1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	**1,2-Dichloroethane**	ug/L	**5**	**5.41**	J	J	15	10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,2-Dichloropropane	ug/L	5	2	U	U		10						2	U	U		10	0.2	U	U		1
VOLATILES	1,2-Dimethylbenzene (o-Xylene)	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,3,5-Trimethylbenzene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,3-Dichlorobenzene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	1,3-Dichloropropane	ug/L		2	U	U		10						2	U	U		10	0.2	U	U		1
VOLATILES	1,4-Dichlorobenzene	ug/L	75	1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	2,2-Dichloropropane	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	2-Butanone	ug/L		25	U	U		10						25	U	U		10	2.5	U	U		1
VOLATILES	2-Chloroethyl vinyl ether	ug/L		20	U	U		10						20	U	U		10	2	U	U		1
VOLATILES	2-Chlorotoluene	ug/L		1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	2-Hexanone	ug/L		25	U	U		10						25	U	U		10	2.5	U	U		1
VOLATILES	4-Chlorotoluene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Acetone	ug/L		25	U	U		10						25	U	U		10	2.5	U	U		1
VOLATILES	Benzene	ug/L	5	1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	Bromobenzene	ug/L		1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	Bromochloromethane	ug/L		2	U	U		10						2	U	U		10	0.2	U	U		1
VOLATILES	Bromodichloromethane	ug/L	100	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Bromoform	ug/L	100	5	U	U		10						5	U	U		10	0.5	U	U		1
VOLATILES	Bromomethane	ug/L		5	U	U		10						5	U	U		10	0.5	U	U		1
VOLATILES	Carbon disulfide	ug/L		5	U	U		10						5	U	U		10	0.5	U	U		1
VOLATILES	Carbon tetrachloride	ug/L	5	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Chlorobenzene	ug/L	100	1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	Chloroethane	ug/L		5	U	U		10						5	U	U		10	0.5	U	U		1
VOLATILES	Chloroform	ug/L	100	1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	Chloromethane	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	**cis-1,2-Dichloroethene**	ug/L	**70**	29.3				10						**209**				10	3.63				1
VOLATILES	cis-1,3-Dichloropropene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Dibromochloromethane	ug/L	100	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Dibromomethane	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Dichlorodifluoromethane	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Ethylbenzene	ug/L	700	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Hexachlorobutadiene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Isopropylbenzene	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	m,p-Xylenes	ug/L		5	U	U		10						5	U	U		10	0.5	U	U		1
VOLATILES	Methyl isobutyl ketone	ug/L		25	U	U		10						25	U	U		10	2.5	U	U		1
VOLATILES	**Methylene chloride**	ug/L	**5**	2.5	U	U		10						**6.52**	J	J	15	10	0.25	U	U		1
VOLATILES	Naphthalene	ug/L		2	U	U		10						2	U	U		10	0.2	U	U		1
VOLATILES	n-BUTYLBENZENE	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	n-PROPYLBENZENE	ug/L		1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	p-ISOPROPYLTOLUENE	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	sec-BUTYLBENZENE	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Styrene	ug/L	100	1.25	U	U		10						1.25	U	U		10	0.125	U	U		1
VOLATILES	tert-BUTYLBENZENE	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Tetrachloroethene	ug/L	5	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Toluene	ug/L	1000	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	trans-1,2-Dichloroethene	ug/L	100	2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	trans-1,3-Dichloropropene	ug/L		5	U	U		10						5	U	U		10	0.5	U	U		1
VOLATILES	**Trichloroethene**	ug/L	**5**	**1320**				10						**1690**				50	**9.11**				1
VOLATILES	Trichlorofluoromethane	ug/L		2.5	U	U		10						2.5	U	U		10	0.25	U	U		1
VOLATILES	Vinyl acetate	ug/L		25	U	U		10						25	U	U		10	2.5	U	U		1
VOLATILES	**Vinyl chloride**	ug/L	**2**	**2.5**	U	U		10						**22.4**				10	0.25	U	U		1

Notes:

DF	dilution factor
FD	field duplicate
MCL	maximum contaminant level
mg/L	milligrams per liter
Qual	laboratory qualifier
RC	reason code
REG	regular sample
STD UNIT	Standard units of pH measurement
ug/L	micrograms per liter
ValQual	validation qualifier

Qualifiers and Reason Codes:

15	Quantitation
J	The analyte was positively identified; the reportec value is the estimated concentration of the constituent detected in the sample analyzed.
U	Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

00084632

HOLE NO. 16WW41

BORING LOG	DIVISION Federal	INSTALLATION Longhorn AAP	SHEET 1 OF 1 SHEETS
1. PROJECT 117591		9. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
2. LOCATION Site 16		10. MANUFACTURER'S DESIGNATION OF DRILL HSA 10" / Mud Rotary	
3. DRILLING AGENCY ETTL		11. OVERBURDEN SAMPLES	DISTURBED — UNDISTURBED —
4. HOLE NO. (As shown on drawing title and file number) 16WW41		12. TOTAL NUMBER CORE BOXES —	
		13. ELEVATION GROUND WATER	
5. NAME OF DRILLER Jommy Cook		14. DATE HOLE	STARTED 09/30/08 COMPLETED 11/05/08
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED 0 DEG. FROM VERT.		15. ELEVATION TOP OF HOLE NA	
7. TOTAL DEPTH OF HOLE 50'		16. TOTAL CORE RECOVERY FOR BORING 55 %	
8. SIZE AND TYPE OF BIT 10" hollow stem		17. LOGGED BY Ollen	QC

PID (ppm) a	DEPTH b	USCS c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			(LITHOLOGY SAME AS 16WW22).			
	45		No recovery			
0.0	46	SC	Sand, clay, fine-grained damp	10%		
	47	CL	Clay, sand, ~~dense~~ soft, high plasticity, damp			
0.0	48	SC	Sand, clay, fine-grained, damp	100%		▼
	49					
	50	CL	Clay, sand, soft, high plasticity, moist			
			End of Boring			

00084633

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: Susan Oller / Shaw

DRILLING CONTRACTOR: ETTL

DRILLING TECHNIQUE: Mud Rotary

AUGER SIZE AND TYPE: 10"

BOREHOLE IDENTIFICATION: LH16WW ~~42~~ 41

BOREHOLE DIAMETER: 10"

WELL IDENTIFICATION: LH16WW ~~42~~ 41

WELL CONSTRUCTION START DATE: 11/04/08

WELL CONSTRUCTION COMPLETE DATE: 11/05/08

SCREEN MATERIAL: Sch 40 PVC

SCREEN DIAMETER: 4"

STRATUM-SCREENED INTERVAL (FT): 10

CASING MATERIAL: Sch 40 PVC

CASING DIAMETER: 4"

TYPE OF FILTER PACK: Quartz Sand

GRADIATION: 20/40

AMOUNT OF FILTER PACK USED: 15 bgs

TYPE OF BENTONITE: Pellets

AMOUNT BENTONITE USED: 50 pounds

TYPE OF CEMENT: Portland

AMOUNT CEMENT USED: 11

GROUT MATERIALS USED: Bentonite

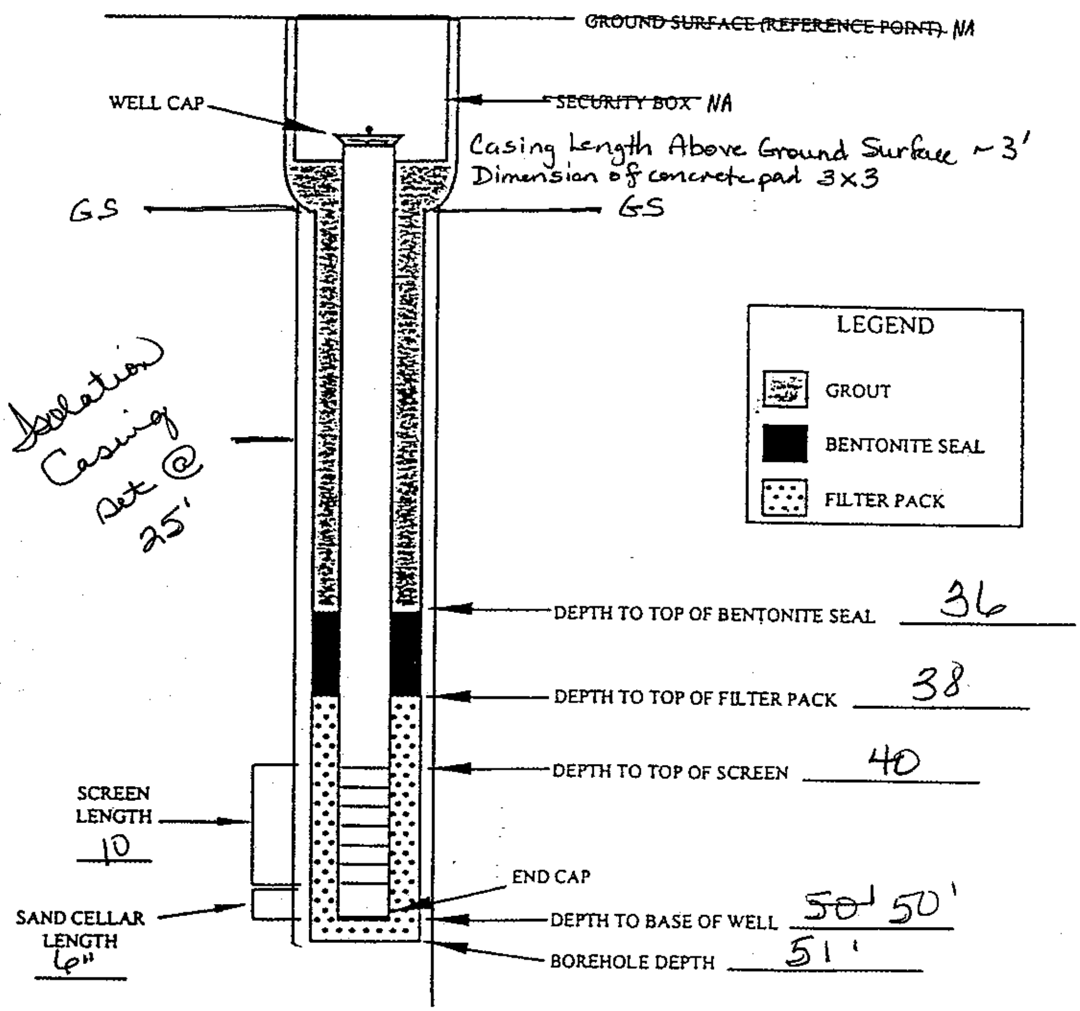
DIMENSIONS OF SECURITY BOX: NA

TYPE OF WELL CAP: Plugging cap

TYPE OF END CAP: Sch 40 PVC

COMMENTS:

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: ETTL

INSTALLATION OBSERVED BY: Susan Oller

DISCREPANCIES: NONE

00084634

HOLE NO. 16WW42

DRILLING LOG	DIVISION FEDERAL	INSTALLATION Longhorn	SHEET 1 OF SHEETS

1. PROJECT LHAAP	10. SIZE AND TYPE OF BIT 8" I.D. HSA
2. LOCATION (Coordinates or Station) Karnack, Texas	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
3. DRILLING AGENCY ETTL	12. MANUFACTURER'S DESIGNATION OF DRILL 5500 CME
4. HOLE NO. (As shown on drawing title and file number) 16WW42	13. OVERBURDEN SAMPLES — DISTURBED: — UNDISTURBED: ✓
5. NAME OF DRILLER Doug Hinds	14. TOTAL NUMBER CORE BOXES NR
6. DIRECTION OF HOLE ☑ VERTICAL ☐ INCLINED 0° DEG. FROM VERT.	15. ELEVATION GROUND WATER NA
	16. DATE HOLE — STARTED 11/4/08 — COMPLETED 11/4/08
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE NR
8. DEPTH DRILLED INTO ROCK 0'	18. TOTAL CORE RECOVERY FOR BORING NR %
9. TOTAL DEPTH OF HOLE 12'	ALLEN WILLMORE INSPECTOR

~~ELEVATION~~ PID a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
3.2		SC	SAND CLAYEY, low plasticity, moist, soft, slightly organic, reddish-brown			
2.1				100%		
3.6		SM	SAND, SILTY, FINE-GRAINED PALE GRAY, MOIST, LOOSE			
0.4	5					
4.3			— BECOMES LIGHTER GRAY	100%		
9.1						
	10					
		CL	CLAY, SANDY, moist, soft, fine-grained	10%		
			END OF BORING @ 12'			

00084635
~~16DDW42~~ 16WW42

WELL COMPLETION FORM (Stickup or Above Grade Completion Well)

FIELD REPRESENTATIVE: A. Willmore
DRILLING CONTRACTOR: ETTL

DRILLING TECHNIQUE: HSA
AUGER SIZE AND TYPE: 10"

BOREHOLE IDENTIFICATION: 16WW42
BOREHOLE DIAMETER: @ ~~16WW42 at~~ 16"
WELL IDENTIFICATION: 16WW42

WELL CONSTRUCTION START DATE: 11/4/08
WELL CONSTRUCTION COMPLETE DATE: 11/4/08

SCREEN MATERIAL: Sch. 40 PVC
SCREEN DIAMETER: 4"
STRATUM-SCREENED INTERVAL (FT): 10'

CASING MATERIAL: Sch. 40 PVC
CASING DIAMETER: 4"

TYPE OF FILTER PACK: Silica Sand
GRADIATION: 20/40
AMOUNT OF FILTER PACK USED:

TYPE OF BENTONITE: bentonite pellets
AMOUNT BENTONITE USED:

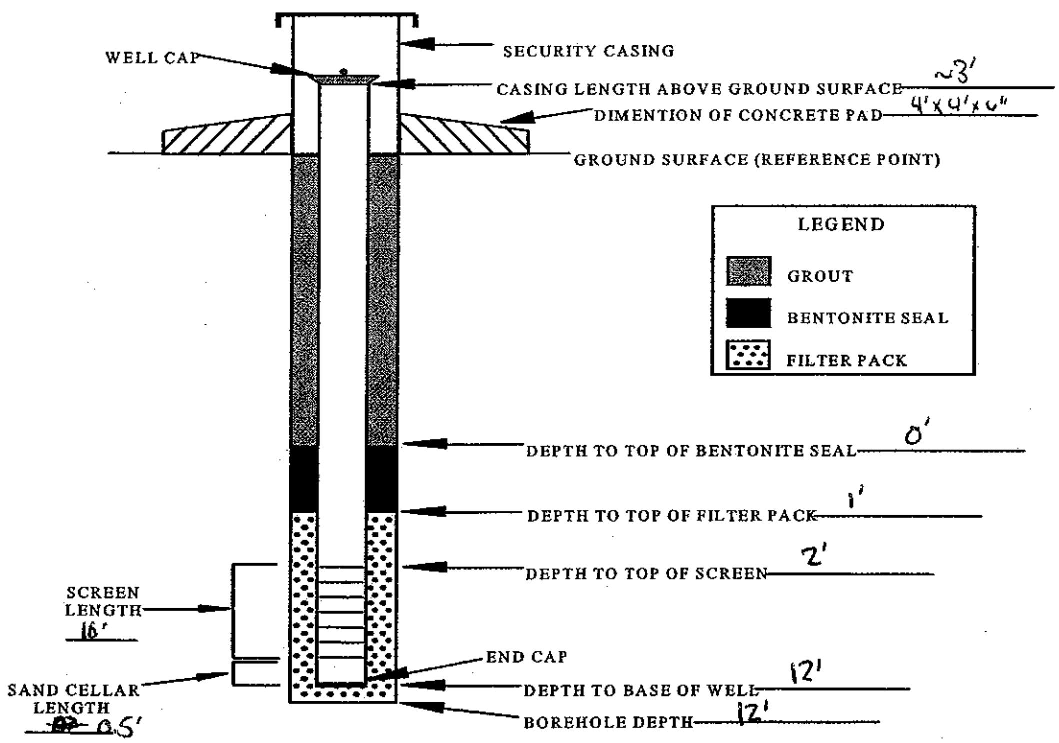
TYPE OF CEMENT: Portland
AMOUNT CEMENT USED:
GROUT MATERIALS USED: bentonite

DIMENSIONS OF SECURITY CASING: 8" x 8" x 5'

TYPE OF WELL CAP: plugging cap
TYPE OF END CAP: Sch 40 pvc

COMMENTS:

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Billy Ragon INSTALLATION OBSERVED BY: Allen Willmore

DISCREPANCIES: See log for 16DPT01 for lithology

00084636

HOLE NO. 16WW43

DRILLING LOG	DIVISION FEDERAL	INSTALLATION Longhorn	SHEET 1 OF 1 SHEETS

1. PROJECT LHAAP	10. SIZE AND TYPE OF BIT 8" I.D. HSA
2. LOCATION (Coordinates or Station) Karnack, Texas	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
3. DRILLING AGENCY ETTL	12. MANUFACTURER'S DESIGNATION OF DRILL 5500 CME
4. HOLE NO. (As shown on drawing title and file number) WW 16WW43	13. OVERBURDEN SAMPLES DISTURBED UNDISTURBED ✓
5. NAME OF DRILLER Doug Hinds	14. TOTAL NUMBER CORE BOXES NR
6. DIRECTION OF HOLE ☑ VERTICAL ☐ INCLINED 0° DEG. FROM VERT.	15. ELEVATION GROUND WATER
	16. DATE HOLE STARTED 11/4/08 COMPLETED 11/4/08
	17. ELEVATION TOP OF HOLE NR
7. THICKNESS OF OVERBURDEN 12'	18. TOTAL CORE RECOVERY FOR BORING NR %
8. DEPTH DRILLED INTO ROCK 0'	
9. TOTAL DEPTH OF HOLE 12'	Allen Willmore INSPECTOR

~~ELEVATION~~ PID a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
0.0			Sand, SILTY, fine-grained, dry, loose organic			
0.0				100%		
0.0		SM				
	5		← Increasing moisture			
0.0				100%		
0.0						
0.0			- Become wet & pale brown			
0.0	10			100%		
0.0		CL	CLAY, SOFT, MOIST, Low Plasticity			
			END OF BORING @ 12'			

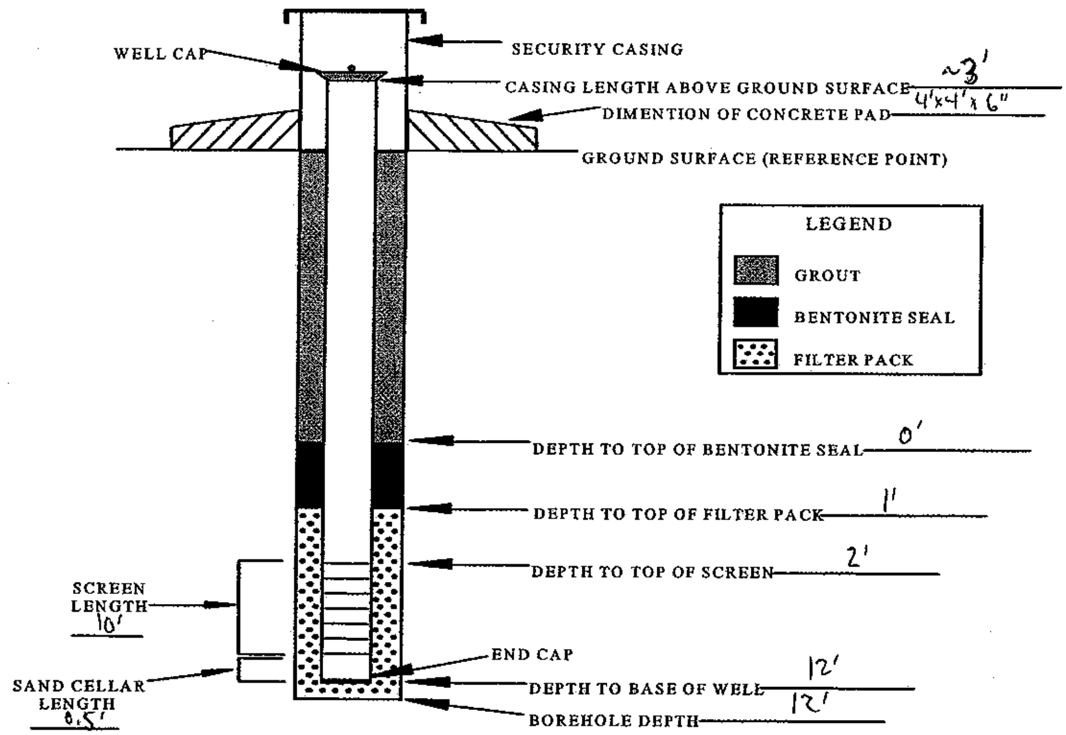
00084637
16WW43

WELL COMPLETION FORM (Stickup or Above Grade Completion Well)

FIELD REPRESENTATIVE: A. Willmore
DRILLING CONTRACTOR: ETTL
DRILLING TECHNIQUE: HSA
AUGER SIZE AND TYPE: 10"
BOREHOLE IDENTIFICATION: 16WW43
BOREHOLE DIAMETER: 10"
WELL IDENTIFICATION: 16WW43
WELL CONSTRUCTION START DATE: 11/4/00
WELL CONSTRUCTION COMPLETE DATE: 11/4/00
SCREEN MATERIAL: sch. 40 PVC
SCREEN DIAMETER: 4"
STRATUM-SCREENED INTERVAL (FT): 10'
CASING MATERIAL: sch. 40 PVC
CASING DIAMETER: 4"

TYPE OF FILTER PACK: silica sand
GRADIATION: 20/40
AMOUNT OF FILTER PACK USED:
TYPE OF BENTONITE: bentonite pellets
AMOUNT BENTONITE USED:
TYPE OF CEMENT: portland - cement
AMOUNT CEMENT USED:
GROUT MATERIALS USED: bentonite
DIMENSIONS OF SECURITY CASING: 8" x 8" x ~5'
TYPE OF WELL CAP: plugging cap
TYPE OF END CAP: sch. 40 PVC
COMMENTS:

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Billy Ragon
INSTALLATION OBSERVED BY: Allen Willmore
DISCREPANCIES: See log for 16DPT02 for lithology

00084638

HOLE NO. 16WW44

BORING LOG	DIVISION Federal	INSTALLATION Longhorn AAP	SHEET 1 OF 3 SHEETS
1. PROJECT 117591		9. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
2. LOCATION Site 19		10. MANUFACTURER'S DESIGNATION OF DRILL 10" HSA	
3. DRILLING AGENCY ETTL		11. OVERBURDEN SAMPLES	DISTURBED — / UNDISTURBED —
4. HOLE NO. (As shown on drawing title and file number) ~~16WW~~ 11/5/08 OLA 16WW44		12. TOTAL NUMBER CORE BOXES —	
		13. ELEVATION GROUND WATER	
5. NAME OF DRILLER Tommy Cook		14. DATE HOLE	STARTED 11/05/08 / COMPLETED 11/06/08
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED 0 DEG. FROM VERT.		15. ELEVATION TOP OF HOLE	
7. TOTAL DEPTH OF HOLE 30'		16. TOTAL CORE RECOVERY FOR BORING 100 %	
8. SIZE AND TYPE OF BIT 10" hollow stem		17. LOGGED BY OLA	QC KE

PID (ppm) a	DEPTH b	USCS c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0–3					Top 3ft removed during clearing.
0.0 ~~100~~ OLA 11/5/08	3–5	CL	Clay, sand, dense, low plasticity, dry, brown	100%		
	5–6	SC	Sand, clay, fine-grained, dry, brown			
	6–7	CL	Clay, sand, dense, low plasticity, dry, brown			
~~1~~ OLA 11/5/08	7–8	SC	Sand, clay, fine to very fine grained, dry, tan			
	8–9	CL	Clay, sand, very dense, dry, brown			
0.0	9–13	SC	Sand, clay, fine to medium-grained, dry, brown - becomes more clayey	100%		

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE | Hole No. 16WW44

PROJECT 117591 | INSTALLATION Longhorn AAP | SHEET 2 OF 3 SHEETS

ELEVATION PID a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	13					
	14					
	15					
0.0	16			100%		
	17					
	18–20	SC	Sand, clay, some silt, mottling dense, course-grained dry, gray			
0.0	20–27	CL	Clay, sand, some silt, low plasticity dense, dry, brown - becomes moist - becomes clayey	100%		
	27–	SC	Sand, silt, clay, dense, course-grained wet, iron staining			

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MAR 71

PROJECT | HOLE NO.

00084640

DRILLING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. 16WW44
PROJECT 117591	INSTALLATION Longhorn AAP	SHEET 3 OF 3 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
0.0	28			100%		
	29	CL	Clay, sand, dense, no plasticity, dry			
	30		End of Boring			

ENG FORM 1836—A PREVIOUS EDITIONS ARE OBSOLETE.
MAR 71

PROJECT | HOLE NO.

00084641

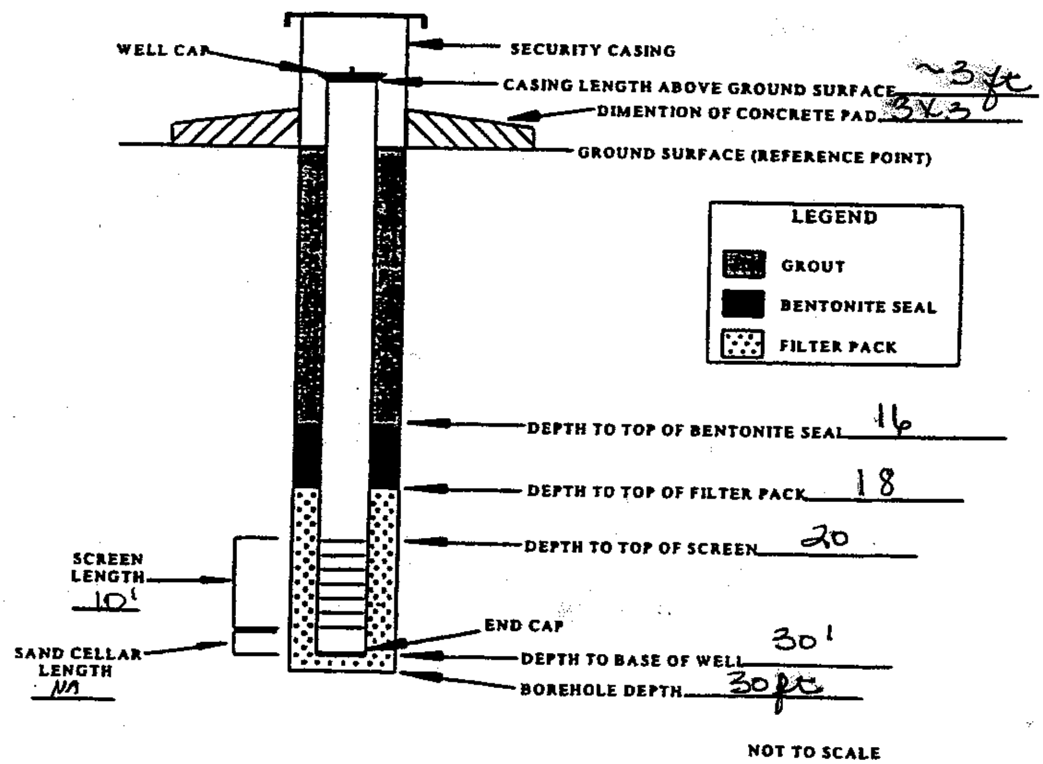
16WW44

WELL CONSTRUCTION DIAGRAM (Stickup or Above Grade Completion Well)

FIELD REPRESENTATIVE:	Susan Allen	TYPE OF FILTER PACK:	#2 Silica Sand
DRILLING CONTRACTOR:	ETTL	GRADATION:	20/40
DRILLING TECHNIQUE:	Hollow Stem	AMOUNT OF FILTER PACK USED:	12
AUGER SIZE AND TYPE:	10"	AMOUNT BENTONITE USED:	50 pounds
BOREHOLE IDENTIFICATION:	16WW45 44	TYPE OF CEMENT:	Portland
BOREHOLE DIAMETER:	10"	AMOUNT CEMENT USED:	12
WELL IDENTIFICATION:	16WW45 44	GROUT MATERIALS USED:	Bentonite
WELL CONSTRUCTION START DATE:	11/05/08		
WELL CONSTRUCTION COMPLETE DATE:	11/06/08	DIMENSIONS OF SECURITY BOX:	8"x8"x~3'
SCREEN MATERIAL:	Sch 40 PVC		
SCREEN DIAMETER:	10"	TYPE OF WELL CAP:	plugging cap
STRATUM-SCREENED INTERVAL (FT):	10'	TYPE OF END CAP:	pvc
CASING MATERIAL:	Sch 40 PVC	COMMENTS:	
CASING DIAMETER:	10"		

11/06/08 SA

SPECIAL CONDITIONS
(describe and draw)



INSTALLED BY: Doug Hinds

INSTALLATION OBSERVED BY: Susan Allen

DISCREPANCIES: None

00084642

HOLE NO. 16WW45

BORING LOG	DIVISION Federal	INSTALLATION Longhorn AAP	SHEET 1 OF 4 SHEETS
1. PROJECT 117591		9. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
2. LOCATION Site 16		10. MANUFACTURER'S DESIGNATION OF DRILL HSA 10" / Mud Rotary	
3. DRILLING AGENCY ETTL		11. OVERBURDEN SAMPLES	DISTURBED — / UNDISTURBED —
4. HOLE NO. (As shown on drawing title and file number) 16WW45		12. TOTAL NUMBER CORE BOXES —	
		13. ELEVATION GROUND WATER —	
5. NAME OF DRILLER Billy		14. DATE HOLE	STARTED 11/5/08 / COMPLETED 11/12/08
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED 0 DEG. FROM VERT.		15. ELEVATION TOP OF HOLE NA	
7. TOTAL DEPTH OF HOLE 51'		16. TOTAL CORE RECOVERY FOR BORING ≈80 %	
8. SIZE AND TYPE OF BIT 10" hollow stem		17. LOGGED BY [illegible signature]	QC KE

PID (ppm) a	DEPTH b	USCS c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
0.0	3, 4, 5	CL	Clay, sand, dense, low plasticity, dry - becomes damp	100%		Top 3' removed during clearing.
0.0	5, 6	SC	Sand, clay, fine-grained dry	100%		
	6, 7	CL	Clay, sand, dense, low plasticity, dry			
	7, 8	SC	Sand, clay, fine to very fine, dry			
	8, 9	CL	11/05/08 ~~Sand~~, Clay, sand, very dense, dry, brown			
	9, 10	SC	Sand, clay, fine to med grained, dry brown			
0.0	10, 11, 12, 13, 14		- becomes more clayey			—Allen Willmore Takes over Log ~~fo~~ from S. Oller

00084643

DRILLING LOG (Cont Sheet)	ELEVATION TOP OF HOLE NA	Hole No. 16WW45
PROJECT 117591	INSTALLATION Longhorn AAP	SHEET 2 OF 4 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
0.0						
0.0	18	SC	Sand, clayey, mottling (little), dense poorly-sorted slightly, gray			
0.0	20	CL	CLAY, SILTY, LOW PLASTICITY, STIFF brown, dry -becomes damp -becomes harder			
	25		-becomes more clayey			
	29	SP	SAND, SILTY, MODERATELY DENSE, POORLY SORTED, WET, IRON STAINING, GRAY			

ENG FORM 1836—A PREVIOUS EDITIONS ARE OBSOLETE. MAR 71	PROJECT	HOLE NO.

00084644

DRILLING LOG (Cont Sheet)	ELEVATION TOP OF HOLE NA	Hole No. 16WW45
PROJECT 117591	INSTALLATION Longhorn AAP	SHEET 3 OF 4 SHEETS

~~ELEVATION~~ PID	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						- Set isolation casing @ 30' bgs.
0.0	30–32	CL	Clay, sand, dense no plasticity, dry - becomes moist to wet	70%		- Ollen takes over from Willemon
0.0	32–34	SC	Sand, clay, dense fine to very fine-grained, moist	80%		
	34		lignite			
0.0	35–36	SC	Sand, clay, dense coarse-grained, some iron staining damp	80%		
0.0	37	CL	Clay, sand, dense low plasticity	80%		
0.0	38–40	SC	Sand, clay, soft, fine-grained, moist, brownish gray			
0.0	41		- becomes clayey	80%		
	42		- becomes less clayey			
0.0	43–44					

ENG FORM 1836—A PREVIOUS EDITIONS ARE OBSOLETE.
MAR 71

PROJECT | HOLE NO.

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE NA | Hole No. 16WW45

PROJECT 117591 | INSTALLATION Longhorn AAP | SHEET 4 OF 4 SHEETS

~~ELEVATION~~ P.ID	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0	45					
	46		- organics (black)			
0.0	47					
	48					
0.0	49	Cl	Clay, sand dense no plasticity dry			Well set @ 50' bgs.
	50					
	51		End of Boring			

ENG FORM 1836—A PREVIOUS EDITIONS ARE OBSOLETE. MAR 71 | PROJECT | HOLE NO.

00084646

16WW45

WELL CONSTRUCTION DIAGRAM (Stickup or Above Grade Completion Well)

FIELD REPRESENTATIVE: Susan Oller
DRILLING CONTRACTOR: ETTL
DRILLING TECHNIQUE: Mud Rotary
AUGER SIZE AND TYPE: 10"

BOREHOLE IDENTIFICATION: 16WW45
BOREHOLE DIAMETER: 10"
WELL IDENTIFICATION: 16WW45

WELL CONSTRUCTION START DATE: 11/04/08
WELL CONSTRUCTION COMPLETE DATE: ~~11/05/08~~ 11/12/08 also 11/12/08

SCREEN MATERIAL: Sch 40 PVC
SCREEN DIAMETER: 10"
STRATUM-SCREENED INTERVAL (FT): 10'

CASING MATERIAL: Sch 40 PVC
CASING DIAMETER: 10"

TYPE OF FILTER PACK: Silica Sand
GRADATION: 20/40
AMOUNT OF FILTER PACK USED: 11
AMOUNT BENTONITE USED: 50 pounds

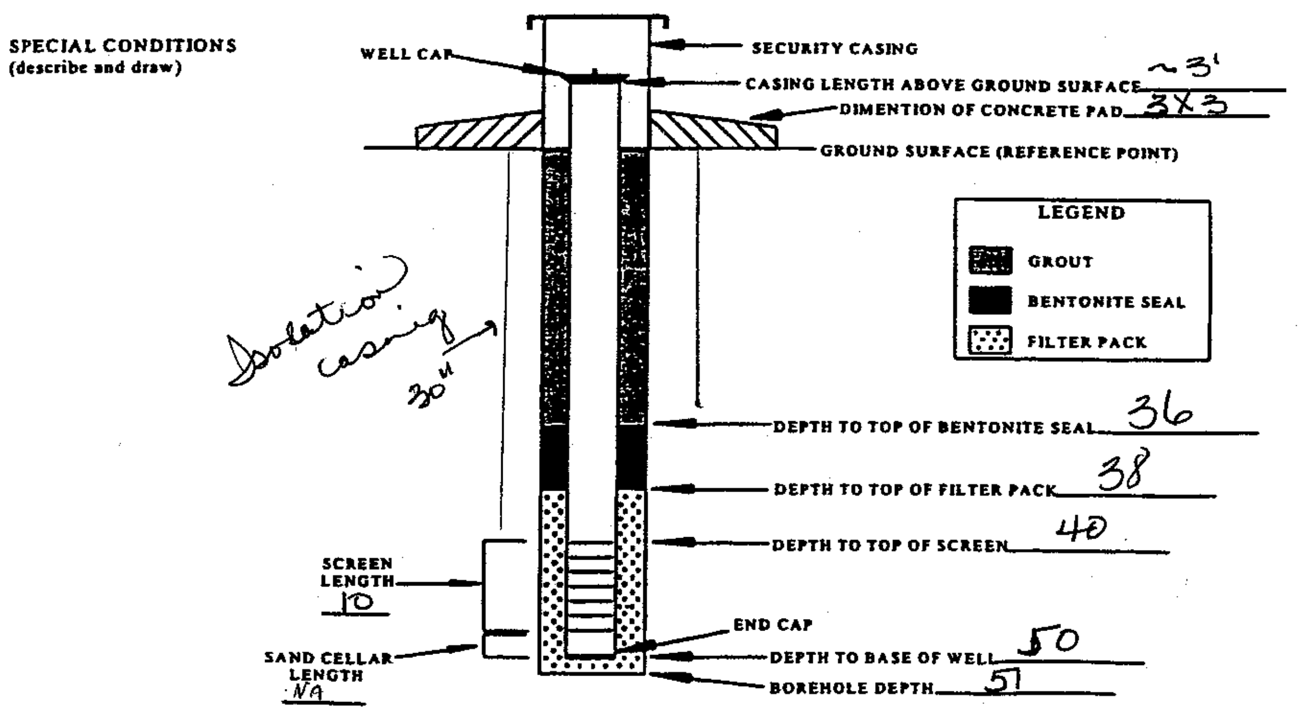
TYPE OF CEMENT: Portland
AMOUNT CEMENT USED: 12
GROUT MATERIALS USED: Bentonite

DIMENSIONS OF SECURITY BOX: ~~3x~~ 8"x8"x3'

TYPE OF WELL CAP: Plugging Cap
TYPE OF END CAP: Sch 40 PVC

COMMENTS:

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: ETTL

INSTALLATION OBSERVED BY: Susan Oller

DISCREPANCIES: None

00084647

HOLE NO. 16WW46

BORING LOG	DIVISION Federal	INSTALLATION Longhorn AAP	SHEET 1 OF 2 SHEETS

1. PROJECT 117591	9. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
2. LOCATION LHAAP-16	10. MANUFACTURER'S DESIGNATION OF DRILL HSA 10"
3. DRILLING AGENCY ETTL	11. OVERBURDEN SAMPLES — DISTURBED — ; UNDISTURBED —
4. HOLE NO. (As shown on drawing title and file number) 16WW ~~44~~ 46 Ollen 11/06/08	12. TOTAL NUMBER CORE BOXES —
	13. ELEVATION GROUND WATER ~17'
5. NAME OF DRILLER Tommy Cook	14. DATE HOLE — STARTED 11/06/08; COMPLETED 11/06/08
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED 0 DEG. FROM VERT.	15. ELEVATION TOP OF HOLE NA
7. TOTAL DEPTH OF HOLE 20'	16. TOTAL CORE RECOVERY FOR BORING ~100 %
8. SIZE AND TYPE OF BIT 10" hollow stem	17. LOGGED BY Ollen; QC KC

PID (ppm) a	DEPTH b	USCS c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
—	0–4			0%		
0.0	4–10		No Recovery (4–7.5)	20%		13:45
	7.5–9		Clay, sand, dense, no plasticity, dry			
	9–10		Sand, clay, fine to med-grained, ~~moist~~ Ollen 11/6/08			
0.0	10–13		– becomes more clayey	100% ~~80%~~ Ollen 11/06/08		14:00

00084648

DRILLING LOG (Cont Sheet)	ELEVATION TOP OF HOLE NA	Hole No. 16WW46	
PROJECT 117591	INSTALLATION Longhorn AAP		SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	13		Clay, sand, dense, med to high plasticity, damp			
	14					
	15		Sand, clay, fine-grained, damp			
	16		Clay, Sand, dense high plasticity damp			14:15
0.0	17		Sand, clay, fine-grained, damp	100%		
	18		Clay, sand, dense, high plasticity, damp			
	19					
	20		End of Boring			

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PROJECT | HOLE NO.

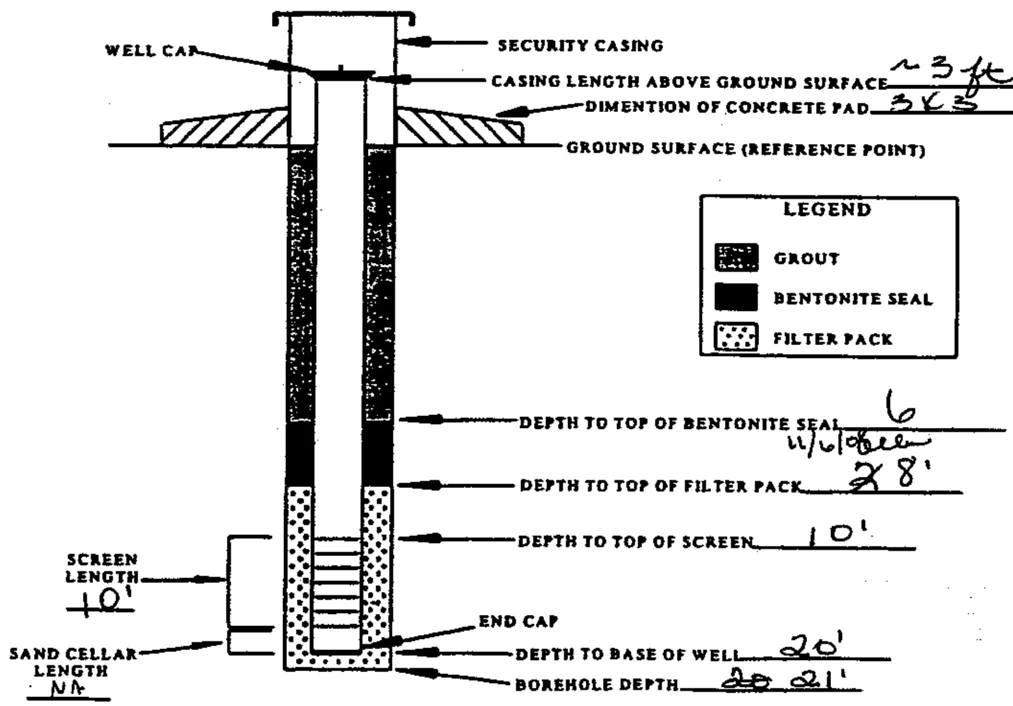
00084649

16WW46

WELL CONSTRUCTION DIAGRAM (Stickup or Above Grade Completion Well)

FIELD REPRESENTATIVE:	Susan Oller	TYPE OF FILTER PACK:	Silica Sand
DRILLING CONTRACTOR:	ETTL	GRADATION:	20/40
		AMOUNT OF FILTER PACK USED:	12
DRILLING TECHNIQUE:	hollow stem	AMOUNT BENTONITE USED:	50 pounds
AUGER SIZE AND TYPE:	10"		
BOREHOLE IDENTIFICATION:	16WW46	TYPE OF CEMENT:	Portland
BOREHOLE DIAMETER:	10"	AMOUNT CEMENT USED:	12
WELL IDENTIFICATION:	16WW46	GROUT MATERIALS USED:	Bentonite
WELL CONSTRUCTION START DATE:	11/06/08		
WELL CONSTRUCTION COMPLETE DATE:	11/06/08	DIMENSIONS OF SECURITY BOX:	8"x8"x~3'
SCREEN MATERIAL:	Sch 40 PVC		
SCREEN DIAMETER:	10"	TYPE OF WELL CAP:	Plugging
STRATUM-SCREENED INTERVAL (FT):	10'	TYPE OF END CAP:	Sch. 40 PVC.
CASING MATERIAL:	Sch 40 PVC	COMMENTS:	
CASING DIAMETER:	10"		

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Tommy Cook ETTL

INSTALLATION OBSERVED BY: Susan Oller

DISCREPANCIES: None

Laboratory Reports

Lab Report	Date Range		Analyses
L0706148.pdf	6/6/07	6/6/07	VOCs, perchlorate, Gen Chem
L0706194.pdf	6/7/07	6/7/07	VOCs, perchlorate, Gen Chem
L0706260.pdf	6/11/07	6/11/07	VOCs, perchlorate, Gen Chem
L0706285.pdf	6/12/07	6/12/07	VOCs, perchlorate, Gen Chem
L0710370.pdf	10/11/07	10/11/07	VOCs, perchlorate
L08040312.pdf	4/9/08	4/9/08	VOCs, perchlorate, Gen Chem
CLO4 Ext wells L08100900.pdf	10/29/08	10/29/08	Perchlorate
L08100887.pdf	10/29/08	10/29/08	VOCs
L08120101.pdf	12/1/08	12/2/08	VOCs
CLO4 (680-42849-1) L08120706.pdf	12/4/08	12/4/08	Perchlorate
L08120133.pdf	12/4/08	12/4/08	VOCs
LH16(0316-18)L09030427.pdf	3/16/09	3/18/09	VOCs, Chromium, Manganese
CLO4 LH16 (0317-27) 45913-1.pdf	3/17/09	3/27/09	Perchlorate
LH16(0319)L09030497.pdf	3/19/09	3/19/09	VOCs
LH16(0324-27)L09030649-Revised.pdf	3/24/09	3/27/09	VOCs
CLO4 LH16 (0330) 45945-1.pdf	3/30/09	3/30/09	Perchlorate
LH16(0330)L09030671.pdf	3/30/09	3/30/09	VOCs

Laboratory reports are available on the compact disk provided with this document.

KEMRON ENVIRONMENTAL SERVICES

156 Starlite Drive, Marietta, OH 45750 • TEL 740-373-4071 • FAX 740-373-4835 • http://www.kemron.com

Laboratory Report Number: L0706148

Please find enclosed the analytical results for the samples you submitted to KEMRON Environmental Services.

Review and compilation of your report was completed by KEMRON's Sales and Service Team. If you have questions, comments or require further assistance regarding this report, please contact your team member noted in the reviewed box bleow at 800-373-4071. Team member e-mail addresses also appear here for your convenience.

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This report was reviewed on June 20, 2007.

Stephanie Mossburg

STEPHANIE MOSSBURG - Team Chemist/Data Specialist

I certify that all test results meet all of the requirements of the NELAP standards and other applicable contract terms and conditions. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of KEMRON Environmental Services.

This report was certified on June 20, 2007.

David E. Vandenberg

David Vandenberg - Vice President

FL DOH NELAP ID: E8755
This report contains a total of 363 pages.

Protecting Our Environmental Future

Ethics Service Quality Environmental ACIL 2006 Seal of Excellence Program

KEMRON REPORT L0706148
PREPARED FOR Shaw E I, Inc.
WORK ID: LONGHORN AAP KARNACK TX

1.0 Introduction

KEMRON ENVIRONMENTAL SERVICES
REPORT NARRATIVE

KEMRON Login No.: L0706148

CHAIN OF CUSTODY: The chain of custody numbers were 10201 and 10441.

SHIPMENT CONDITIONS: The chain of custody forms were received sealed in a cooler. The cooler temperature was 3 degrees C.

SAMPLE MANAGEMENT: All samples received were intact.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and KEMRON Environmental Services, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Approved: 08-JUN-07
Stephanie Mossburg

Laboratory Data Package Cover Page

00084656

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:

- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	June 14, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

RG-366/TRRP-13 December 2002 A1

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	SULFIDE
Prep Batch Number(s):	WG242032
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?		✓			
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?			✓		
Were percent differences for each analyte within the method-required QC limits?			✓		
Was the ICAL curve verified for each analyte?			✓		
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

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Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	SULFIDE
Prep Batch Number(s):	WG242032
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

EXCEPTIONS REPORT
ER# - Description
Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:
R1 Field chain-of-custody documentation;
R2 sample identification cross-reference;
R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) Cleanup methods, and
e) If required for the project, tentatively identified compounds (TICs)
R4 Surrogate recovery data including:
a) Calculated recovery (%R) for each analyte, and
b) The laboratory's surrogate QC limits.
✓R5 Test reports/summary forms for blank samples;
✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:
a) LCS spiking amount,
b) Calculated %R for each analyte, and
c) The laboratory"s LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %R and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) revocery and precision:
a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for anlytical duplicates.
R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
R10 Other problems or anomalies.
The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	June 14, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242228
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	✓				
Were MS/MSD analyzed at the appropriate frequency?	✓				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	✓				

Description	Yes	No	NA(1)	NR(2)	LR(3)
Were MS/MSD RPDs within laboratory QC limits?	✓				

Checklist ID: **18077**

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242228
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		

Checklist ID: **18077**

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242228
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242228
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

EXCEPTIONS REPORT
ER# - Description
Footnotes:
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a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10

b) dilution factors,

c) preparation methods,

d) Cleanup methods, and

e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

a) Calculated recovery (%R) for each analyte, and

b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amount,

b) Calculated %R for each analyte, and

c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,

b) MS/MSD spiking amounts,

c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d) Calculated %R and relative percent differences (RPDs), and

e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:

a) the amount of analyte measured in the duplicate,

b) the calculated RPD, and

c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

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DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	June 14, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

RG-366/TRRP-13 December 2002 A1

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	TOC
Prep Batch Number(s):	WG242321, WG242441
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	✓				
Were MS/MSD analyzed at the appropriate frequency?	✓				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?	✓				
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	TOC
Prep Batch Number(s):	WG242321, WG242441
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 14, 2007

EXCEPTIONS REPORT
ER# - Description
Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

00084672

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:

- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

✓The exception Report for every "No" or "Not Reviewed (NR)" item IN laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MICHAEL D. COCHRAN	Michael Cochran	Semivolatiles Lab Supervisor	June 15, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	CLO4-314
Prep Batch Number(s):	WG242735
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 14, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				1
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services

Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	CLO4-314
Prep Batch Number(s):	WG242735
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 14, 2007

EXCEPTIONS REPORT

ER# - Description

1. All samples were analyzed at a dilution only due to sample conductivity greater than the working MCT.

(1) NA = Not applicable to method or project

(2) NR = Not reviewed

(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

✓R1 Field chain-of-custody documentation;

✓R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

✓R4 Surrogate recovery data including:

- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory"s LCS QC limits.

✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory's MS/MSD QC limits

✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:

- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for anlytical duplicates.

✓R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

✓R10 Other problems or anomalies.

✓The exception Report for every "No" or "Not Reviewed (NR)" item IN laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, if applicable: [✓] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

MIKE D. ALBERTSON	Mike Albertson	Volatiles Lab Supervisor	June 20, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	RSK175
Prep Batch Number(s):	WG242372, WG242585
Reviewer Name:	MIKE D. ALBERTSON
LRC Date:	June 20, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER#(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

EXCEPTIONS REPORT
ER# - Description
There were no exceptions.

Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page 00084681

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10

b) dilution factors,

c) preparation methods,

d) Cleanup methods, and

e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

a) Calculated recovery (%R) for each analyte, and

b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amount,

b) Calculated %R for each analyte, and

c) The laboratory"s LCS QC limits.

✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,

b) MS/MSD spiking amounts,

c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d) Calculated %R and relative percent differences (RPDs), and

e) The laboratory's MS/MSD QC limits

✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:

a) the amount of analyte measured in the duplicate,

b) the calculated RPD, and

c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MICHAEL D. COCHRAN	Michael Cochran	Semivolatiles Lab Supervisor	June 14, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

RG-366/TRRP-13 December 2002 A1

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	9056-300
Prep Batch Number(s):	WG242403, WG242420
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 11, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				1
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			NA		2
Were MS/MSD analyzed at the appropriate frequency?			NA		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			NA		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			NA		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				3
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?		✓			4
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	9056-300
Prep Batch Number(s):	WG242403, WG242420
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 11, 2007

EXCEPTIONS REPORT
ER# - Description
1. All samples were re-analyzed after the final CCV did not pass. For the initial analysis their analytical hold times were not missed.
2. The MS/MSD results were not associated with this sample group.
3. All ssamples were analyzed at a dilution only because pre-run screens indicated very high chloride and sulfate results. This was done to avoid possible damage to the instrument.
4. The final CCV for the run sequence (WG242403) was below the acceptable

(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

✓R1 Field chain-of-custody documentation;

✓R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) Cleanup methods, and
e) If required for the project, tentatively identified compounds (TICs)

✓R4 Surrogate recovery data including:

a) Calculated recovery (%R) for each analyte, and
b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amount,
b) Calculated %R for each analyte, and
c) The laboratory"s LCS QC limits.

✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %R and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits

✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:

a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for anlytical duplicates.

✓R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

✓R10 Other problems or anomalies.

✓The exception Report for every "No" or "Not Reviewed (NR)" item IN laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, if applicable: [✓] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

MIKE D. ALBERTSON	[signature]	Volatiles Lab Supervisor	June 18, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706148
Project Name:	798-LONGHORN
Method:	8260B
Prep Batch Number(s):	242206, 242252
Reviewer Name:	MIKE D. ALBERTSON
LRC Date:	June 18, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?	✓				
Were surrogate percent recoveries in all samples within the laboratory QC limits?	✓				
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		✓			1
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?	✓				
Were ion abundance data within the method-required QC limits?	✓				
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?	✓				
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER#(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

EXCEPTIONS REPORT
ER# - Description
#1: Dichlorodifluoromethane exceeded the upper advisory limit in the water LCS/LCSD analyzed 06/10/07 on HPMS-10.

Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

LABORATORY REPORT

00084693

L0706148

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW37	L0706148-01	8260B	1	07-JUN-07
16WW05	L0706148-02	8260B	1	07-JUN-07
16WW38	L0706148-03	8260B	1	07-JUN-07
16WW38	L0706148-03	8260B	50	07-JUN-07

KEMRON FORMS - Modified 11/30/2005 1 OF 1
Version 1.5 PDF File ID: 796957
Report generated 06/20/2007 14:57

Sample Number: L0706148-01	PrePrep Method: NONE	Instrument: HPMS10
Client ID: 16WW37	Prep Method: 5030B	Prep Date: 06/10/2007 14:59
Matrix: Water	Analytical Method: 8260B	Cal Date: 05/17/2007 15:55
Workgroup Number: WG242206	Analyst: MES	Run Date: 06/10/2007 14:59
Collect Date: 06/06/2007 10:30	Dilution: 1	File ID: 10M55970
Sample Tag: 01	Units: ug/L	

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	5.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	5.00	0.125
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1.19	J	10.0	0.250
1,1,2-Trichloroethane	79-00-5		U	5.00	0.250
1,1-Dichloroethane	75-34-3		U	5.00	0.125
1,1-Dichloroethene	75-35-4		U	5.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	5.00	0.200
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	5.00	0.250
1,2-Dichlorobenzene	95-50-1		U	5.00	0.125
1,2-Dichloroethane	107-06-2		U	5.00	0.250
cis-1,2-Dichloroethene	156-59-2	5.66	J	10.0	0.250
trans-1,2-Dichloroethene	156-60-5		U	5.00	0.250
1,2-Dichloropropane	78-87-5		U	5.00	0.200
1,3-Dichlorobenzene	541-73-1		U	5.00	0.250
1,4-Dichlorobenzene	106-46-7		U	5.00	0.125
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	5.00	0.125
Bromodichloromethane	75-27-4		U	5.00	0.250
Bromoform	75-25-2		U	5.00	0.500
Bromomethane	74-83-9		U	10.0	0.500
Carbon disulfide	75-15-0		U	5.00	0.500
Carbon tetrachloride	56-23-5		U	5.00	0.250
Chlorobenzene	108-90-7		U	5.00	0.125
Chloroethane	75-00-3		U	10.0	0.500
Chloroform	67-66-3		U	5.00	0.125
Chloromethane	74-87-3		U	10.0	0.250
cis-1,3-Dichloropropene	10061-01-5		U	5.00	0.250
Cyclohexane	110-82-7		U	10.0	0.250
Dibromochloromethane	124-48-1		U	5.00	0.250
Dichlorodifluoromethane	75-71-8		U	10.0	0.250
Ethyl benzene	100-41-4		U	5.00	0.250
Isopropylbenzene	98-82-8		U	5.00	0.250
Methyl acetate	79-20-9		U	10.0	0.250
Methyl tert-butyl ether	1634-04-4		U	5.00	0.500
Methylcyclohexane	108-87-2		U	10.0	0.250
Methylene chloride	75-09-2	0.580	J	5.00	0.250
Styrene	100-42-5		U	5.00	0.125
Tetrachloroethene	127-18-4	0.416	J	5.00	0.250
Toluene	108-88-3		U	5.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	5.00	0.500
Trichloroethene	79-01-6	85.2		5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250
Vinyl chloride	75-01-4	0.461	J	10.0	0.250
Xylenes, Total	1330-20-7		U	5.00	0.500

Sample Number:	L0706148-01	PrePrep Method:	NONE	Instrument:	HPMS10
Client ID:	16WW37	Prep Method:	5030B	Prep Date:	06/10/2007 14:59
Matrix:	Water	Analytical Method:	8260B	Cal Date:	05/17/2007 15:55
Workgroup Number:	WG242206	Analyst:	MES	Run Date:	06/10/2007 14:59
Collect Date:	06/06/2007 10:30	Dilution:	1	File ID:	10M55970
Sample Tag:	01	Units:	ug/L		

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	106	80	120	
Dibromofluoromethane	102	86	118	
p-Bromofluorobenzene	98.2	86	115	
Toluene-d8	99.7	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number: L0706148-02
Client ID: 16WW05
Matrix: Water
Workgroup Number: WG242206
Collect Date: 06/06/2007 13:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS10
Prep Date: 06/10/2007 15:32
Cal Date: 05/17/2007 15:55
Run Date: 06/10/2007 15:32
File ID: 10M55971

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	5.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	5.00	0.125
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	10.0	0.250
1,1,2-Trichloroethane	79-00-5		U	5.00	0.250
1,1-Dichloroethane	75-34-3		U	5.00	0.125
1,1-Dichloroethene	75-35-4		U	5.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	5.00	0.200
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	5.00	0.250
1,2-Dichlorobenzene	95-50-1		U	5.00	0.125
1,2-Dichloroethane	107-06-2		U	5.00	0.250
cis-1,2-Dichloroethene	156-59-2		U	10.0	0.250
trans-1,2-Dichloroethene	156-60-5		U	5.00	0.250
1,2-Dichloropropane	78-87-5		U	5.00	0.200
1,3-Dichlorobenzene	541-73-1		U	5.00	0.250
1,4-Dichlorobenzene	106-46-7		U	5.00	0.125
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	5.00	0.125
Bromodichloromethane	75-27-4		U	5.00	0.250
Bromoform	75-25-2		U	5.00	0.500
Bromomethane	74-83-9		U	10.0	0.500
Carbon disulfide	75-15-0		U	5.00	0.500
Carbon tetrachloride	56-23-5		U	5.00	0.250
Chlorobenzene	108-90-7		U	5.00	0.125
Chloroethane	75-00-3		U	10.0	0.500
Chloroform	67-66-3		U	5.00	0.125
Chloromethane	74-87-3		U	10.0	0.250
cis-1,3-Dichloropropene	10061-01-5		U	5.00	0.250
Cyclohexane	110-82-7		U	10.0	0.250
Dibromochloromethane	124-48-1		U	5.00	0.250
Dichlorodifluoromethane	75-71-8		U	10.0	0.250
Ethyl benzene	100-41-4		U	5.00	0.250
Isopropylbenzene	98-82-8		U	5.00	0.250
Methyl acetate	79-20-9		U	10.0	0.250
Methyl tert-butyl ether	1634-04-4		U	5.00	0.500
Methylcyclohexane	108-87-2		U	10.0	0.250
Methylene chloride	75-09-2	0.310	J	5.00	0.250
Styrene	100-42-5		U	5.00	0.125
Tetrachloroethene	127-18-4		U	5.00	0.250
Toluene	108-88-3		U	5.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	5.00	0.500
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250
Vinyl chloride	75-01-4		U	10.0	0.250
Xylenes, Total	1330-20-7		U	5.00	0.500

Sample Number: L0706148-02
Client ID: 16WW05
Matrix: Water
Workgroup Number: WG242206
Collect Date: 06/06/2007 13:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS10
Prep Date: 06/10/2007 15:32
Cal Date: 05/17/2007 15:55
Run Date: 06/10/2007 15:32
File ID: 10M55971

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	101	86	118	
p-Bromofluorobenzene	95.7	86	115	
Toluene-d8	98.9	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number:L0706148-03
Client ID:16WW38
Matrix:Water
Workgroup Number:WG242206
Collect Date:06/06/2007 13:40
Sample Tag:01

PrePrep Method:NONE
Prep Method:5030B
Analytical Method:8260B
Analyst:MES
Dilution:1
Units:ug/L

Instrument:HPMS10
Prep Date:06/10/2007 16:04
Cal Date:05/17/2007 15:55
Run Date:06/10/2007 16:04
File ID:10M55972

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	5.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	5.00	0.125
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	187		10.0	0.250
1,1,2-Trichloroethane	79-00-5		U	5.00	0.250
1,1-Dichloroethane	75-34-3		U	5.00	0.125
1,1-Dichloroethene	75-35-4	16.2		5.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	5.00	0.200
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	5.00	0.250
1,2-Dichlorobenzene	95-50-1		U	5.00	0.125
1,2-Dichloroethane	107-06-2		U	5.00	0.250
cis-1,2-Dichloroethene	156-59-2	106		10.0	0.250
trans-1,2-Dichloroethene	156-60-5	0.395	J	5.00	0.250
1,2-Dichloropropane	78-87-5		U	5.00	0.200
1,3-Dichlorobenzene	541-73-1		U	5.00	0.250
1,4-Dichlorobenzene	106-46-7		U	5.00	0.125
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	6.66	J	10.0	2.50
Benzene	71-43-2		U	5.00	0.125
Bromodichloromethane	75-27-4		U	5.00	0.250
Bromoform	75-25-2		U	5.00	0.500
Bromomethane	74-83-9		U	10.0	0.500
Carbon disulfide	75-15-0		U	5.00	0.500
Carbon tetrachloride	56-23-5		U	5.00	0.250
Chlorobenzene	108-90-7		U	5.00	0.125
Chloroethane	75-00-3		U	10.0	0.500
Chloroform	67-66-3	0.654	J	5.00	0.125
Chloromethane	74-87-3		U	10.0	0.250
cis-1,3-Dichloropropene	10061-01-5		U	5.00	0.250
Cyclohexane	110-82-7		U	10.0	0.250
Dibromochloromethane	124-48-1		U	5.00	0.250
Dichlorodifluoromethane	75-71-8		U	10.0	0.250
Ethyl benzene	100-41-4		U	5.00	0.250
Isopropylbenzene	98-82-8		U	5.00	0.250
Methyl acetate	79-20-9		U	10.0	0.250
Methyl tert-butyl ether	1634-04-4		U	5.00	0.500
Methylcyclohexane	108-87-2		U	10.0	0.250
Methylene chloride	75-09-2	0.685	J	5.00	0.250
Styrene	100-42-5		U	5.00	0.125
Tetrachloroethene	127-18-4	0.427	J	5.00	0.250
Toluene	108-88-3		U	5.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	5.00	0.500
Trichloroethene	79-01-6	1040	I	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250
Vinyl chloride	75-01-4		I	10.0	0.250
Xylenes, Total	1330-20-7		U	5.00	0.500

Sample Number:	L0706148-03	PrePrep Method:	NONE	Instrument:	HPMS10
Client ID:	16WW38	Prep Method:	5030B	Prep Date:	06/10/2007 16:04
Matrix:	Water	Analytical Method:	8260B	Cal Date:	05/17/2007 15:55
Workgroup Number:	WG242206	Analyst:	MES	Run Date:	06/10/2007 16:04
Collect Date:	06/06/2007 13:40	Dilution:	1	File ID:	10M55972
Sample Tag:	01	Units:	ug/L		

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	109	80	120	
Dibromofluoromethane	104	86	118	
p-Bromofluorobenzene	96.7	86	115	
Toluene-d8	99.3	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL
I Semiquantitative result (out of instrument calibration range)

Sample Number: L0706148-03
Client ID: 16WW38
Matrix: Water
Workgroup Number: WG242252
Collect Date: 06/06/2007 13:40
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 5030B
Analytical Method: 8260B
Analyst: CMS
Dilution: 50
Units: ug/L

Instrument: HPMS11
Prep Date: 06/11/2007 14:57
Cal Date: 05/08/2007 15:05
Run Date: 06/11/2007 14:57
File ID: 11M43104

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	250	12.5
1,1,2,2-Tetrachloroethane	79-34-5		U	250	6.25
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	41.2	J	500	12.5
1,1,2-Trichloroethane	79-00-5		U	250	12.5
1,1-Dichloroethane	75-34-3		U	250	6.25
1,1-Dichloroethene	75-35-4		U	250	25.0
1,2,4-Trichlorobenzene	120-82-1		U	250	10.0
1,2-Dibromo-3-chloropropane	96-12-8		U	250	50.0
1,2-Dibromoethane	106-93-4		U	250	12.5
1,2-Dichlorobenzene	95-50-1		U	250	6.25
1,2-Dichloroethane	107-06-2		U	250	12.5
cis-1,2-Dichloroethene	156-59-2	76.2	J	500	12.5
trans-1,2-Dichloroethene	156-60-5		U	250	12.5
1,2-Dichloropropane	78-87-5		U	250	10.0
1,3-Dichlorobenzene	541-73-1		U	250	12.5
1,4-Dichlorobenzene	106-46-7		U	250	6.25
2-Butanone	78-93-3		U	500	125
2-Hexanone	591-78-6		U	500	125
4-Methyl-2-pentanone	108-10-1		U	500	125
Acetone	67-64-1		U	500	125
Benzene	71-43-2		U	250	6.25
Bromodichloromethane	75-27-4		U	250	12.5
Bromoform	75-25-2		U	250	25.0
Bromomethane	74-83-9		U	500	25.0
Carbon disulfide	75-15-0		U	250	25.0
Carbon tetrachloride	56-23-5		U	250	12.5
Chlorobenzene	108-90-7		U	250	6.25
Chloroethane	75-00-3		U	500	25.0
Chloroform	67-66-3		U	250	6.25
Chloromethane	74-87-3		U	500	12.5
cis-1,3-Dichloropropene	10061-01-5		U	250	12.5
Cyclohexane	110-82-7		U	500	12.5
Dibromochloromethane	124-48-1		U	250	12.5
Dichlorodifluoromethane	75-71-8		U	500	12.5
Ethyl benzene	100-41-4		U	250	12.5
Isopropylbenzene	98-82-8		U	250	12.5
Methyl acetate	79-20-9		U	500	12.5
Methyl tert-butyl ether	1634-04-4		U	250	25.0
Methylcyclohexane	108-87-2		U	500	12.5
Methylene chloride	75-09-2		U	250	12.5
Styrene	100-42-5		U	250	6.25
Tetrachloroethene	127-18-4		U	250	12.5
Toluene	108-88-3		U	250	12.5
trans-1,3-Dichloropropene	10061-02-6		U	250	25.0
Trichloroethene	79-01-6	874		250	12.5
Trichlorofluoromethane	75-69-4		U	500	12.5
Vinyl chloride	75-01-4	71.0	J	500	12.5
Xylenes, Total	1330-20-7		U	250	25.0

Sample Number:	L0706148-03	PrePrep Method:	NONE	Instrument:	HPMS11
Client ID:	16WW38	Prep Method:	5030B	Prep Date:	06/11/2007 14:57
Matrix:	Water	Analytical Method:	8260B	Cal Date:	05/08/2007 15:05
Workgroup Number:	WG242252	Analyst:	CMS	Run Date:	06/11/2007 14:57
Collect Date:	06/06/2007 13:40	Dilution:	50	File ID:	11M43104
Sample Tag:	DL01	Units:	ug/L		

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	107	86	118	
p-Bromofluorobenzene	96.9	86	115	
Toluene-d8	99.6	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

2.1.1.2 QC Summary Data

Example 8260 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

where:

	Example
Ax = Area of the characteristic ion for the compound being measured:	3399156
Cis = Concentration of the specific internal standard (ug/mL)	25
Ais = Area of the characteristic ion of the specific internal standard	846471
Cx = Concentration of the compound in the standard being measured (ug/mL)	100
RF = Calculated Response Factor	**1.0039**

2.0 Calculating the concentration (C) of a compound in water using the average RF: *

Cx = [(Ax) (Cis) (Vn)(D)] / [(Ais) (RF) (Vs)]

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Vs = Purge volume of sample (mL)	**10**
Vn = Nominal purge volume of sample (mL) (10.0 mL)	**10**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

3.0 Calculating the concentration (C) of a compound in soil using the average RF: *

Cx = [(Ax) (Cis) (Wn)(D)] / [(Ais) (RF) (Ws)]

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Ws = Weight of sample purged (g)	**5**
Wn = Nominal purge weight (g) (5.0 g)	**5**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

Dry weight correction:

Percent solids (PCT_S)	**50**
Cd = (Cx) (100)/PCT_S	**254.4856**

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve = 0.213

b = intercept from curve = - 0.00642

Step 2: Calculate y from Quantitation Report

y = 86550/593147 = 0.1459

Step 3: Solve for x

x = (y - b)/m = [(0.1459 -(- 0.00642)]/ 0.213 = 0.7152

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.7152) = 17.88

Example Spreadsheet Calculation:

Slope from curve, m:	**0.213**
Intercept from curve, b:	**-0.00642**
Area of analyte, Ax:	**86550**
Area of Internal Standard , Ais:	**593147**
Concentration of IS, Cis	**25.00**
Response Ratio:	**0.145917**
Amount Ratio:	**0.715195**
Concentration:	**17.87988**
Units of Internal Standard:	**ug/L**

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a\left(c - y\right)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**-0.00629**	
Value of B from plot:	**0.511**	
Value of C from plot:	**-0.0276**	
Area of unknown from quantitation report:	**293821**	
Area of IS from quantiation report:	**784848**	
Response ratio, y:	**0.374367**	
C - y:	**-0.40197**	
Root 1 - Computed amount ratio , X1:	**80.44567**	
Root 2 - Computed amount ratio , X2:	**0.794396**	use this solution
Concentration of IS, Cis:	**25.00**	
Concentration of analyte, Cx:	**19.86**	ug/L

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS11 Dataset: 050807

Analyst1: CMS Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 624 SOP: MSV10 Rev: 9

Method: 5030B SOP: PAT01 Rev: 10

Maintenance Log ID: 19075

Internal Standard: STD18829 Surrogate Standard: STD19157

CCV: STD19281 LCS: STD19260 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG239761

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	11M42272	WG239761-01 BFB 50ng STD 8260	NA	1	1	STD19115	05/08/07 06:47
2	11M42273	WG239761-01 BFB 50ng STD 8260	NA	1	1	STD19115	05/08/07 07:02
3	11M42274	WG239761-02 50ug/L STD 8260	NA	1	1	STD19238	05/08/07 07:31
4	11M42275	SYSTEM BLANK	NA	1	1		05/08/07 08:02
5	11M42276	WG239761-02 0.30ug/L STD 8260	NA	1	1	STD19281	05/08/07 08:46
6	11M42277	WG239761-03 0.40ug/L STD 8260	NA	1	1	STD19281	05/08/07 09:17
7	11M42278	WG239761-04 1ug/L STD 8260	NA	1	1	STD19281	05/08/07 09:48
8	11M42279	WG239761-03 0.40ug/L STD 8260	NA	1	1	STD19281	05/08/07 10:19
9	11M42280	WG239761-05 2ug/L STD 8260	NA	1	1	STD19281	05/08/07 10:50
10	11M42281	WG239761-06 5ug/L STD 8260	NA	1	1	STD19281	05/08/07 11:21
11	11M42282	WG239761-07 20ug/L STD 8260	NA	1	1	STD19281	05/08/07 11:52
12	11M42283	WG239761-08 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 12:22
13	11M42284	WG239761-09 100ug/L STD 8260	NA	1	1	STD19281	05/08/07 12:53
14	11M42285	WG239761-10 200ug/L STD 8260	NA	1	1	STD19281	05/08/07 13:24
15	11M42286	SYSTEM BLANK	NA	1	1		05/08/07 13:55
16	11M42287	SYSTEM BLANK	NA	1	1		05/08/07 14:25
17	11M42288	WG239761-03 0.4ug/L STD 8260	NA	1	1	STD19281	05/08/07 15:05
18	11M42289	WG239761-11 20ug/L ALT SOURCE STD 8	NA	1	1	STD19260	05/08/07 15:55
19	11M42290	WG239850-01 BFB 50ug STD 8260	NA	1	1	STD19115	05/08/07 16:26
20	11M42291	WG239850-02 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 16:54
21	11M42292	WG239850-02 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 17:26
22	11M42293	SYSTEM BLANK	NA	1	1		05/08/07 18:02
23	11M42294	SYSTEM BLANK	NA	1	1		05/08/07 18:33
24	11M42295	SYSTEM BLANK	NA	1	1		05/08/07 19:04
25	11M42296	SYSTEM BLANK	NA	1	1		05/08/07 19:35
26	11M42297	SYSTEM BLANK	NA	1	1		05/08/07 20:06
27	11M42298	SYSTEM BLANK	NA	1	1		05/08/07 20:37
28	11M42299	SYSTEM BLANK	NA	1	1		05/08/07 21:08
29	11M42300	SYSTEM BLANK	NA	1	1		05/08/07 21:39
30	11M42301	SYSTEM BLANK	NA	1	1		05/08/07 22:10
31	11M42302	SYSTEM BLANK	NA	1	1		05/08/07 22:40
32	11M42303	SYSTEM BLANK	NA	1	1		05/08/07 23:11
33	11M42304	SYSTEM BLANK	NA	1	1		05/08/07 23:42

Approved: May 11, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS11	Dataset:	050807		
Analyst1:	CMS	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	624	SOP:	MSV10	Rev:	9
Method:	5030B	SOP:	PAT01	Rev:	10
Maintenance Log ID:	19075				

Internal Standard:	STD18829	Surrogate Standard:	STD19157		
CCV:	STD19281	LCS:	STD19260	MS/MSD:	NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG239761

Comments

Seq.	Rerun	Dil.	Reason	Analytes
1	X			
File ID:	11M42272			
	Tune failed/DNR			
3	X		Check Standard Failure	
File ID:	11M42274			
	DNR-RR CURVE			
6	X			
File ID:	11M42277			
	DNR			
8	X			
File ID:	11M42279			
	DNR			
20	X		Check Standard Failure	
File ID:	11M42291			
	IS TOO HIGH			
21	X		Check Standard Failure	
File ID:	11M42292			
	IS TOO HIGH			

Approved: May 11, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS10 Dataset: 051707

Analyst1: MES Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 5030/5035 SOP: PAT01 Rev: 10

Maintenance Log ID: 19217

Internal Standard: STD19516 Surrogate Standard: STD19475

CCV: STD19405 LCS: STD19455 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG240519/WG240585

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	10M55392	SYSTEM BLANK	NA	1	1		05/17/07 08:00
2	10M55393	WG240519-01 50NG BFB STD 8260	NA	1	1	STD19115	05/17/07 08:30
3	10M55394	SYSTEM BLANK	NA	1	1		05/17/07 08:53
4	10M55395	WG240519-02 0.3ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 09:35
5	10M55396	WG240519-03 0.4 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 10:07
6	10M55397	WG240519-02 0.3 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 10:39
7	10M55398	WG240519-02 0.3 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 11:11
8	10M55399	WG240519-03 0.4 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 11:42
9	10M55400	WG240519-04 1 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 12:14
10	10M55401	WG240519-05 2 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 12:45
11	10M55402	WG240519-06 5 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 13:17
12	10M55403	WG240519-07 20 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 13:48
13	10M55404	WG240519-08 50 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 14:20
14	10M55405	WG240519-09 100 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 14:51
15	10M55406	WG240519-10 200 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 15:24
16	10M55407	WG240519-11 300 ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 15:55
17	10M55408	SYSTEM BLANK	NA	1	1		05/17/07 16:27
18	10M55409	WG240519-12 20ug/L ALT SOURCE	NA	1	1	STD19455	05/17/07 16:59
19	10M55410	WG240584-01 50NG BFB STD 8260	NA	1	1	STD19115	05/17/07 18:06
20	10M55411	WG240584-01 50NG BFB STD 8260	NA	1	1	STD19115	05/17/07 18:23
21	10M55412	WG240584-02 50ug/L WATER STD 8260	NA	1	1	STD19405	05/17/07 18:47
22	10M55413	WG240585-01 VBLK0517 BLANK 8260	NA	1	1		05/17/07 19:19
23	10M55414	WG240585-01 VBLK0517 BLANK 8260	NA	1	1		05/17/07 19:51
24	10M55415	WG240585-02 20ug/L LCS 8260	NA	1	1	STD19455	05/17/07 20:24
25	10M55416	WG240585-03 20ug/L LCSDUP 8260	NA	1	1	STD19455	05/17/07 20:56
26	10M55417	L0705370-01 A 826-LOW	<2	1	1		05/17/07 21:28
27	10M55418	L0705213-03 A 826-SPE	<2	1	1		05/17/07 22:00
28	10M55419	L0705262-03 A 8260	<2	1	1		05/17/07 22:32
29	10M55420	L0705245-01 A 826-SPE	<2	1	1		05/17/07 23:04
30	10M55421	L0705245-02 A 826-SPE	<2	1	1		05/17/07 23:36
31	10M55422	L0705245-03 A 826-SPE	<2	1	1		05/18/07 00:08
32	10M55423	L0705245-04 A 826-SPE	<2	1	1		05/18/07 00:40
33	10M55424	L0705245-05 A 826-SPE	<2	1	1		05/18/07 01:11
34	10M55425	L0705245-06 A 826-SPE	<2	1	1		05/18/07 01:43

Approved: May 21, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS10 Dataset: 051707

Analyst1: MES Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 5030/5035 SOP: PAT01 Rev: 10

Maintenance Log ID: 19217

Internal Standard: STD19516 Surrogate Standard: STD19475

CCV: STD19405 LCS: STD19455 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG240519/WG240585

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
35	10M55426	L0705245-08 A 826-SPE	<2	1	1		05/18/07 02:15
36	10M55427	L0705245-09 A 826-SPE	<2	1	1		05/18/07 02:47
37	10M55428	L0705245-10 A 826-SPE	<2	1	1		05/18/07 03:18
38	10M55429	L0705212-06 A 826-SPE	<2	1	1		05/18/07 03:50
39	10M55430	L0705212-07 A 826-SPE	<2	1	1		05/18/07 04:22
40	10M55431	L0705212-08 A 10X 826-SPE	NA	1	10		05/18/07 04:53
41	10M55432	L0705212-09 A 826-SPE	<2	1	1		05/18/07 05:25
42	10M55433	L0705213-01 A 826-SPE	<2	1	1		05/18/07 05:57
43	10M55434	L0705213-02 A 826-SPE	<2	1	1		05/18/07 06:29
44	10M55435	SYSTEM BLANK	NA	1	1		05/18/07 07:00

Comments

Seq.	Rerun	Dil.	Reason	Analytes
4 File ID: 10M55395				
RR-sparge tube leaking.				
5 File ID: 10M55396				
RR-sparge tube leaking.				
6 File ID: 10M55397				
RR-sparge tube leaking.				
19 File ID: 10M55410				
RR, BFB failed.				
40 File ID: 10M55431	X	100	Over Calibration Range	acetone
Sample contains permanganate.				
43 File ID: 10M55434	X	1	Missed Tune	

Approved: May 21, 2007

Page: 2

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS10 Dataset: 061007

Analyst1: MES Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 624 SOP: MSV10 Rev: 9

Method: 5030/5035 SOP: PAT01 Rev: 10

Maintenance Log ID: 19511

Internal Standard: STD19516 Surrogate Standard: STD19793

CCV: STD19851 LCS: STD19731 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242206

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	10M55961	SYSTEM BLANK	NA	1	1		06/10/07 10:18
2	10M55962	WG242205-01 50NG BFB STD 8260	NA	1	1	STD19781	06/10/07 10:50
3	10M55963	WG242205-02 50ug/L WATER STD 8260	NA	1	1	STD19851	06/10/07 11:13
4	10M55964	WG242205-02 50ug/L WATER STD 8260	NA	1	1	STD19851	06/10/07 11:45
5	10M55965	WG242206-01 VBLK0610 BLANK 8260	NA	1	1		06/10/07 12:18
6	10M55966	WG242206-01 VBLK0610 BLANK 8260	NA	1	1		06/10/07 12:50
7	10M55967	WG242206-02 20ug/L LCS 8260	NA	1	1	STD19731	06/10/07 13:22
8	10M55968	WG242206-03 20ug/L LCSDUP 8260	NA	1	1	STD19731	06/10/07 13:55
9	10M55969	L0706016-07 B D1 10X 826-SPE	<2	1	10		06/10/07 14:27
10	10M55970	L0706148-01 A 826-SPE	<2	1	1		06/10/07 14:59
11	10M55971	L0706148-02 A 826-SPE	<2	1	1		06/10/07 15:32
12	10M55972	L0706148-03 A 826-SPE	<2	1	1		06/10/07 16:04
13	10M55973	L0706097-02 A 826-LOW	<2	1	1		06/10/07 16:35
14	10M55974	L0706103-01 A 826-LOW	<2	1	1		06/10/07 17:06
15	10M55975	L0706175-01 A 826-LOW	<2	1	1		06/10/07 17:38
16	10M55976	L0706176-01 A 826-LOW	<2	1	1		06/10/07 18:09
17	10M55977	L0706119-08 A 826-SPE	<2	1	1		06/10/07 18:40
18	10M55978	L0706119-01 A 826-SPE	<2	1	1		06/10/07 19:12
19	10M55979	L0706119-02 A 826-SPE	<2	1	1		06/10/07 19:44
20	10M55980	L0706119-03 A 826-SPE	<2	1	1		06/10/07 20:15
21	10M55981	L0706119-04 A 826-SPE	<2	1	1		06/10/07 20:47
22	10M55982	L0706119-05 A 826-SPE	<2	1	1		06/10/07 21:19
23	10M55983	L0706097-01 A 826-SPE	<2	1	1		06/10/07 21:50
24	10M55984	SYSTEM BLANK	NA	1	1		06/10/07 22:22
25	10M55985	WG242206-04 624 BLANK	NA	1	1		06/10/07 22:54
26	10M55986	L0706211-11 B 5X 624-SPE	7	2	5		06/10/07 23:27
27	10M55987	L0706211-14 B 624-SPE	7	2	1		06/11/07 00:02
28	10M55988	L0706211-17 B 5X 624-SPE	7	2	5		06/11/07 00:37
29	10M55989	L0706211-15 A 624-SPE	7	2	1		06/11/07 01:11
30	10M55990	L0706211-18 A 624-SPE	7	2	1		06/11/07 01:44
31	10M55991	SYSTEM BLANK	NA	2	1		06/11/07 02:16

Comments

Approved: June 13, 2007

Janice Schimmel

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS10	Dataset:	061007		
Analyst1:	MES	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	624	SOP:	MSV10	Rev:	9
Method:	5030/5035	SOP:	PAT01	Rev:	10
Maintenance Log ID:	19511				

Internal Standard:	STD19516	Surrogate Standard:	STD19793		
CCV:	STD19851	LCS:	STD19731	MS/MSD:	NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242206

Comments

Seq.	Rerun	Dil.	Reason	Analytes
3				
File ID: 10M55963				
RR, vc is high.				
12	X	50	Over Calibration Range	TCE and vinyl chloride
File ID: 10M55972				
13	X	1	Carry-over contamination	
File ID: 10M55973				
Do not report.				
28	X	50	Over Calibration Range	isopropylbenzene
File ID: 10M55988				
30	X	50	Over Calibration Range	isopropylbenzene
File ID: 10M55990				

Approved: June 13, 2007

Page: 2

Janice Schimmel

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS11	Dataset:	061107		
Analyst1:	CMS	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	5030B	SOP:	PAT01	Rev:	10

Maintenance Log ID: 19520

Internal Standard: STD19421 Surrogate Standard: STD19492

CCV: STD19920 LCS: STD19943 MS/MSD: STD19943

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242252

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	11M43094	SYSTEM CHECK	NA	1	1		06/11/07 09:22
2	11M43095	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 10:11
3	11M43096	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 11:27
4	11M43097	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 11:39
5	11M43098	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 11:55
6	11M43099	WG242250-02 50ug/L STD 8260	NA	1	1	STD19920	06/11/07 12:22
7	11M43100	WG242252-01 VBLK0611 BLANK 8260	NA	1	1		06/11/07 12:53
8	11M43101	WG242252-01 VBLK0611 BLANK 8260	NA	1	1		06/11/07 13:24
9	11M43102	WG242252-02 20ug/L LCS STD 8260	NA	1	1	STD19943	06/11/07 13:55
10	11M43103	L0706094-03 B 5X 826-SPE1	<2	1	5		06/11/07 14:26
11	11M43104	L0706148-03 B 50X 826-SPE	<2	1	50		06/11/07 14:57
12	11M43105	L0706194-01 B 200X 826-SPE	<2	1	200		06/11/07 15:28
13	11M43106	L0706176-02 A 826-LOW	<2	1	1		06/11/07 15:59
14	11M43107	L0706175-02 A 826-LOW	<2	1	1		06/11/07 16:30
15	11M43108	L0706175-04 A 826-LOW	<2	1	1		06/11/07 17:01
16	11M43109	L0706175-05 MS A 826-LOW	<2	1	1	STD19943	06/11/07 17:32
17	11M43110	L0706175-06 MSD A 826-LOW	<2	1	1	STD19943	06/11/07 18:03
18	11M43111	L0706175-03 A 826-LOW	<2	1	1		06/11/07 18:34
19	11M43112	L0706175-07 A 826-LOW	<2	1	1		06/11/07 19:05
20	11M43113	L0706175-08 A 826-LOW	<2	1	1		06/11/07 19:36
21	11M43114	L0706175-09 A 826-LOW	<2	1	1		06/11/07 20:07
22	11M43115	L0706175-10 A 826-LOW	<2	1	1		06/11/07 20:38
23	11M43116	L0706176-03 A 826-LOW	<2	1	1		06/11/07 21:09
24	11M43117	L0706176-04 A 826-LOW	<2	1	1		06/11/07 21:40
25	11M43118	L0706176-05 A 826-LOW	<2	1	1		06/11/07 22:10
26	11M43119	L0706176-06 A 826-LOW	<2	1	1		06/11/07 22:41
27	11M43120	L0706176-07 A 826-LOW	<2	1	1		06/11/07 23:12
28	11M43121	L0706145-01 A 826-LOW	<2	1	1		06/11/07 23:43
29	11M43122	SYSTEM BLANK	NA	1	1		06/12/07 00:14
30	11M43123	SYSTEM CHECK	NA	1	1		06/12/07 00:45
31	11M43124	SYSTEM CHECK	NA	1	1		06/12/07 07:25

Comments

Approved: June 14, 2007

Crystal Stephens

Page: 1

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS11	Dataset:	061107		
Analyst1:	CMS	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	5030B	SOP:	PAT01	Rev:	10

Maintenance Log ID: 19520

Internal Standard:	STD19421	Surrogate Standard:	STD19492		
CCV:	STD19920	LCS:	STD19943	MS/MSD:	STD19943

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242252

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7	X		Blank Failure	
File ID: 11M43100				
19	X	10	Over Calibration Range	Pce, cis-1,2-DCE
File ID: 11M43112				
21	X	10	Over Calibration Range	Pce
File ID: 11M43114				
22	X	10	Over Calibration Range	pce
File ID: 11M43115				
25	X	10	Over Calibration Range	tce
File ID: 11M43118				
26	X	10	Over Calibration Range	cis-,1,2-dce, tce
File ID: 11M43119				
27	X	20	Over Calibration Range	Cis-1,2-dce, tce, pce
File ID: 11M43120				
28	X		Internal standard failure	
File ID: 11M43121				

Approved: June 14, 2007

Crystal Stephens

KEMRON Environmental Services
Data Checklist

Date: 08-MAY-2007
Analyst: CMS
Analyst: NA
Method: 8260B/624
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 16086
Analytical Workgroups: WG239761

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	NA
Recoveries	NA
Surrogates	NA
MS/MSD/Duplicates	NA
Samples	NA
TCL Hits	NA
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	X
Case Narrative	NA
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	CMS
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
10-MAY-2007

Secondary Reviewer:
11-MAY-2007

Generated: MAY-11-2007 12:46:35

KEMRON Environmental Services
Data Checklist

Date: 17-MAY-2007
Analyst: MES
Analyst: NA
Method: 8260
Instrument: HPMS10
Curve Workgroup: NA
Runlog ID: 16250
Analytical Workgroups: WG240585/WG240519

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	MES
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
21-MAY-2007

Secondary Reviewer:
21-MAY-2007

Generated: MAY-21-2007 13:54:09

Checklist ID: 17986 00084715

KEMRON Environmental Services
Data Checklist

Date: 10-JUN-2007
Analyst: MES
Analyst: NA
Method: 8260/624
Instrument: HPMS10
Curve Workgroup: NA
Runlog ID: 16595
Analytical Workgroups: WG242206

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	MES
Secondary Reviewer	JLS
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer: 12-JUN-2007

Secondary Reviewer: 13-JUN-2007

Generated: JUN-13-2007 14:45:39

Checklist ID: 18009

KEMRON Environmental Services

Data Checklist

Date: 11-JUN-2007

Analyst: CMS

Analyst: NA

Method: 8260B

Instrument: HPMS11

Curve Workgroup: NA

Runlog ID: 16604

Analytical Workgroups: WG242252

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	X
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	X
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JLS
Secondary Reviewer	CMS
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer: 13-JUN-2007 Janice Schimmel

Secondary Reviewer: 14-JUN-2007 Crystal Stephens

Generated: JUN-14-2007 11:45:17

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

00084717

Analytical Method: 8260B

AAB#: WG242252

Login Number: L0706148

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW38	06/06/07	06/07/07	06/11/07	14	5.05	06/11/07	14	5.05	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 793621
Report generated 06/18/2007 09:37

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B

Login Number: L0706148

AAB#: WG242206

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW37	06/06/07	06/07/07	06/10/07	14	4.19	06/10/07	14	4.19	
16WW38	06/06/07	06/07/07	06/10/07	14	4.10	06/10/07	14	4.10	
16WW05	06/06/07	06/07/07	06/10/07	14	4.11	06/10/07	14	4.11	

* EXT = SEE PROJECT QAPP REQUIREMENTS

*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 793621
Report generated 06/18/2007 09:37

00084719

SURROGATE STANDARDS

Login Number: L0706148
Instrument Id: HPMS11
Workgroup (AAB#): WG242252

Method: 8260
CAL ID: HPMS11 - 08-MAY-07
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L0706148-03	50.0	DL01	105	107	96.9	99.6
WG242252-01	1.00	01	105	104	96.4	97.4
WG242252-02	1.00	01	102	104	96.8	98.5

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	80	-	120
2 - Dibromofluoromethane	86	-	118
3 - p-Bromofluorobenzene	86	-	115
4 - Toluene-d8	88	-	110

Underline = Result out of surrogate limits

DL = surrogate diluted out

ND = surrogate not detected

KEMRON FORMS - Modified 09/27/2006
Version 1.5 PDF File ID: 793627
Report generated 06/18/2007 09:37

00084720

SURROGATE STANDARDS

Login Number: L0706148
Instrument Id: HPMS10
Workgroup (AAB#): WG242206

Method: 8260
CAL ID: HPMS10 - 17-MAY-07
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L0706148-01	1.00	01	106	102	98.2	99.7
L0706148-02	1.00	01	105	101	95.7	98.9
L0706148-03	1.00	01	109	104	96.7	99.3
WG242206-01	1.00	01	102	99.4	96.3	97.3
WG242206-02	1.00	01	106	102	92.2	96.8
WG242206-03	1.00	01	105	103	95.8	99.3
WG242206-04	1.00	01	<u>121</u>	108	98.5	96.2

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	80	-	120
2 - Dibromofluoromethane	86	-	118
3 - p-Bromofluorobenzene	86	-	115
4 - Toluene-d8	88	-	110

<u>Underline</u> = Result out of surrogate limits

DL = surrogate diluted out

ND = surrogate not detected

KEMRON FORMS - Modified 09/27/2006
Version 1.5 PDF File ID: 793627
Report generated 06/18/2007 09:37

METHOD BLANK SUMMARY

Login Number: L0706148
Blank File ID: 10M55966
Prep Date: 06/10/07 12:50
Analyzed Date: 06/10/07 12:50
Analyst: MES

Work Group: WG242206
Blank Sample ID: WG242206-01
Instrument ID: HPMS10
Method: 8260B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242206-02	10M55967	06/10/07 13:22	01
LCS2	WG242206-03	10M55968	06/10/07 13:55	01
16WW37	L0706148-01	10M55970	06/10/07 14:59	01
16WW05	L0706148-02	10M55971	06/10/07 15:32	01
16WW38	L0706148-03	10M55972	06/10/07 16:04	01

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 789700
Report generated 06/18/2007 09:37

METHOD BLANK SUMMARY

Login Number: L0706148
Blank File ID: 11M43101
Prep Date: 06/11/07 13:24
Analyzed Date: 06/11/07 13:24
Analyst: CMS

Work Group: WG242252
Blank Sample ID: WG242252-01
Instrument ID: HPMS11
Method: 8260B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242252-02	11M43102	06/11/07 13:55	01
16WW38	L0706148-03	11M43104	06/11/07 14:57	DL01

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 789700
Report generated 06/18/2007 09:37

METHOD BLANK REPORT

00084723

Login Number: L0706148 | Prep Date: 06/10/07 12:50 | Sample ID: WG242206-01
Instrument ID: HPMS10 | Run Date: 06/10/07 12:50 | Prep Method: 5030B
File ID: 10M55966 | Analyst: MES | Method: 8260B
Workgroup (AAB#): WG242206 | Matrix: Water | Units: ug/L
Contract #: DACA56-94-D-0020 | Cal ID: HPMS10 - 17-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.250	5.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.125	5.00	0.125	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.250	10.0	0.250	1	U
1,1,2-Trichloroethane	0.250	5.00	0.250	1	U
1,1-Dichloroethane	0.125	5.00	0.125	1	U
1,1-Dichloroethene	0.500	5.00	0.500	1	U
1,2,4-Trichlorobenzene	0.200	5.00	0.200	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	5.00	0.250	1	U
1,2-Dichlorobenzene	0.125	5.00	0.125	1	U
1,2-Dichloroethane	0.250	5.00	0.250	1	U
cis-1,2-Dichloroethene	0.250	10.0	0.250	1	U
trans-1,2-Dichloroethene	0.250	5.00	0.250	1	U
1,2-Dichloropropane	0.200	5.00	0.200	1	U
1,3-Dichlorobenzene	0.250	5.00	0.250	1	U
1,4-Dichlorobenzene	0.125	5.00	0.125	1	U
2-Butanone	2.50	10.0	2.50	1	U
2-Hexanone	2.50	10.0	2.50	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	5.00	0.125	1	U
Bromodichloromethane	0.250	5.00	0.250	1	U
Bromoform	0.500	5.00	0.500	1	U
Bromomethane	0.500	10.0	0.500	1	U
Carbon disulfide	0.500	5.00	0.500	1	U
Carbon tetrachloride	0.250	5.00	0.250	1	U
Chlorobenzene	0.125	5.00	0.125	1	U
Chloroethane	0.500	10.0	0.500	1	U
Chloroform	0.125	5.00	0.125	1	U
Chloromethane	0.250	10.0	0.250	1	U
cis-1,3-Dichloropropene	0.250	5.00	0.250	1	U
Cyclohexane	0.250	10.0	0.250	1	U
Dibromochloromethane	0.250	5.00	0.250	1	U
Dichlorodifluoromethane	0.250	10.0	0.250	1	U
Ethyl benzene	0.250	5.00	0.250	1	U
Isopropylbenzene	0.250	5.00	0.250	1	U
Methyl acetate	0.250	10.0	0.250	1	U
Methyl tert-butyl ether	0.500	5.00	0.500	1	U
Methylcyclohexane	0.250	10.0	0.250	1	U
Methylene chloride	0.250	5.00	0.250	1	U
Styrene	0.125	5.00	0.125	1	U
Tetrachloroethene	0.250	5.00	0.250	1	U

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 789701
Report generated 06/18/2007 09:37

METHOD BLANK REPORT

Login Number: L0706148 Prep Date: 06/10/07 12:50 Sample ID: WG242206-01
Instrument ID: HPMS10 Run Date: 06/10/07 12:50 Prep Method: 5030B
File ID: 10M55966 Analyst: MES Method: 8260B
Workgroup (AAB#): WG242206 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS10 - 17-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Toluene	0.250	5.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	5.00	0.500	1	U
Trichloroethene	0.250	5.00	0.250	1	U
Trichlorofluoromethane	0.250	10.0	0.250	1	U
Vinyl chloride	0.250	10.0	0.250	1	U
Xylenes, Total	0.500	5.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	102	80 - 120	PASS
Dibromofluoromethane	99.4	86 - 118	PASS
p-Bromofluorobenzene	96.3	86 - 115	PASS
Toluene-d8	97.3	88 - 110	PASS

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 789701
Report generated 06/18/2007 09:37

METHOD BLANK REPORT

00084725

Login Number: L0706148 Prep Date: 06/11/07 13:24 Sample ID: WG242252-01
Instrument ID: HPMS11 Run Date: 06/11/07 13:24 Prep Method: 5030B
File ID: 11M43101 Analyst: CMS Method: 8260B
Workgroup (AAB#): WG242252 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS11 - 08-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.250	5.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.125	5.00	0.125	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.250	10.0	0.250	1	U
1,1,2-Trichloroethane	0.250	5.00	0.250	1	U
1,1-Dichloroethane	0.125	5.00	0.125	1	U
1,1-Dichloroethene	0.500	5.00	0.500	1	U
1,2,4-Trichlorobenzene	0.200	5.00	0.200	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	5.00	0.250	1	U
1,2-Dichlorobenzene	0.125	5.00	0.125	1	U
1,2-Dichloroethane	0.250	5.00	0.250	1	U
cis-1,2-Dichloroethene	0.250	10.0	0.250	1	U
trans-1,2-Dichloroethene	0.250	5.00	0.250	1	U
1,2-Dichloropropane	0.200	5.00	0.200	1	U
1,3-Dichlorobenzene	0.250	5.00	0.250	1	U
1,4-Dichlorobenzene	0.125	5.00	0.125	1	U
2-Butanone	2.50	10.0	2.50	1	U
2-Hexanone	2.50	10.0	2.50	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	5.00	0.125	1	U
Bromodichloromethane	0.250	5.00	0.250	1	U
Bromoform	0.500	5.00	0.500	1	U
Bromomethane	0.500	10.0	0.500	1	U
Carbon disulfide	0.500	5.00	0.500	1	U
Carbon tetrachloride	0.250	5.00	0.250	1	U
Chlorobenzene	0.125	5.00	0.125	1	U
Chloroethane	0.500	10.0	0.500	1	U
Chloroform	0.125	5.00	0.125	1	U
Chloromethane	0.250	10.0	0.250	1	U
cis-1,3-Dichloropropene	0.250	5.00	0.250	1	U
Cyclohexane	0.250	10.0	0.250	1	U
Dibromochloromethane	0.250	5.00	0.250	1	U
Dichlorodifluoromethane	0.250	10.0	0.250	1	U
Ethyl benzene	0.250	5.00	0.250	1	U
Isopropylbenzene	0.250	5.00	0.250	1	U
Methyl acetate	0.250	10.0	0.250	1	U
Methyl tert-butyl ether	0.500	5.00	0.500	1	U
Methylcyclohexane	0.250	10.0	0.250	1	U
Methylene chloride	0.250	5.00	0.250	1	U
Styrene	0.125	5.00	0.125	1	U
Tetrachloroethene	0.250	5.00	0.250	1	U

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 789701
Report generated 06/18/2007 09:37

00084726

METHOD BLANK REPORT

Login Number: L0706148
Prep Date: 06/11/07 13:24
Sample ID: WG242252-01
Instrument ID: HPMS11
Run Date: 06/11/07 13:24
Prep Method: 5030B
File ID: 11M43101
Analvst: CMS
Method: 8260B
Workgroup (AAB#): WG242252
Matrix: Water
Units: ug/L
Contract #: DACA56-94-D-0020
Cal ID: HPMS11 - 08-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Toluene	0.250	5.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	5.00	0.500	1	U
Trichloroethene	0.250	5.00	0.250	1	U
Trichlorofluoromethane	0.250	10.0	0.250	1	U
Vinyl chloride	0.250	10.0	0.250	1	U
Xylenes, Total	0.500	5.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	105	80 - 120	PASS
Dibromofluoromethane	104	86 - 118	PASS
p-Bromofluorobenzene	96.4	86 - 115	PASS
Toluene-d8	97.4	88 - 110	PASS

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 789701
Report generated 06/18/2007 09:37

00084727

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 | Run Date: 06/11/2007 | Sample ID: WG242252-02
Instrument ID: HPMS11 | Run Time: 13:55 | Prep Method: 5030B
File ID: 11M43102 | Analyst: CMS | Method: 8260B
Workgroup (AAB#): WG242252 | Matrix: Water | Units: ug/L
Contract #: DACA56-94-D-0020 | Cal ID: HPMS11 - 08-MAY-07

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,1,1-Trichloroethane	20.0	25.1	125	80 - 134	
1,1,2,2-Tetrachloroethane	20.0	18.0	90.0	79 - 125	
1,1,2-Trichloro-1,2,2-Trifluoroethane	20.0	22.2	111	80 - 130	
1,1,2-Trichloroethane	20.0	20.3	102	80 - 125	
1,1-Dichloroethane	20.0	19.9	99.4	80 - 125	
1,1-Dichloroethene	20.0	18.6	93.1	80 - 132	
1,2,4-Trichlorobenzene	20.0	20.6	103	65 - 135	
1,2-Dibromo-3-chloropropane	20.0	18.9	94.5	50 - 130	
1,2-Dibromoethane	20.0	21.1	105	80 - 125	
1,2-Dichlorobenzene	20.0	19.1	95.4	80 - 125	
1,2-Dichloroethane	20.0	21.9	110	80 - 129	
cis-1,2-Dichloroethene	20.0	20.1	101	70 - 125	
trans-1,2-Dichloroethene	20.0	20.0	100	80 - 127	
1,2-Dichloropropane	20.0	19.0	94.8	80 - 120	
1,3-Dichlorobenzene	20.0	19.3	96.5	80 - 120	
1,4-Dichlorobenzene	20.0	18.7	93.4	80 - 120	
2-Butanone	20.0	14.7	73.6	30 - 150	
2-Hexanone	20.0	15.6	77.8	55 - 130	
4-Methyl-2-pentanone	20.0	17.8	88.8	64 - 140	
Acetone	20.0	15.1	75.6	40 - 142	
Benzene	20.0	18.7	93.7	80 - 121	
Bromodichloromethane	20.0	25.0	125	80 - 131	
Bromoform	20.0	22.4	112	70 - 130	
Bromomethane	20.0	21.6	108	30 - 145	
Carbon disulfide	20.0	19.1	95.6	58 - 138	
Carbon tetrachloride	20.0	24.2	121	65 - 140	
Chlorobenzene	20.0	19.6	98.1	80 - 120	
Chloroethane	20.0	19.0	95.2	60 - 135	
Chloroform	20.0	22.6	113	80 - 125	
Chloromethane	20.0	19.3	96.4	40 - 125	
cis-1,3-Dichloropropene	20.0	22.0	110	70 - 130	
Cyclohexane	20.0	19.6	98.2	80 - 130	
Dibromochloromethane	20.0	21.4	107	60 - 135	
Dichlorodifluoromethane	20.0	23.4	117	50 - 133	
Ethyl benzene	20.0	19.9	99.6	80 - 122	
Isopropylbenzene	20.0	19.6	98.1	80 - 122	
Methyl acetate	20.0	16.7	83.7	80 - 130	
Methyl tert-butyl ether	20.0	23.4	117	65 - 125	
Methylcyclohexane	20.0	22.5	113	80 - 130	
Methylene chloride	20.0	17.4	86.8	80 - 123	
Styrene	20.0	20.1	101	80 - 123	

KEMRON FORMS - Modified 12/15/2006
Version 1.5 PDF File ID: 789703
Report generated 06/13/2007 09:18

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148	Run Date: 06/11/2007	Sample ID: WG242252-02
Instrument ID: HPMS11	Run Time: 13:55	Prep Method: 5030B
File ID: 11M43102	Analyst: CMS	Method: 8260B
Workgroup (AAB#): WG242252	Matrix: Water	Units: ug/L
Contract #: DACA56-94-D-0020	Cal ID: HPMS11 - 08-MAY-07	

Analytes	Expected	Found	% Rec	LCS Limits	Q
Tetrachloroethene	20.0	21.9	109	80 - 124	
Toluene	20.0	19.2	95.8	80 - 124	
trans-1,3-Dichloropropene	20.0	21.2	106	80 - 130	
Trichloroethene	20.0	20.8	104	80 - 122	
Trichlorofluoromethane	20.0	20.8	104	62 - 151	
Vinyl chloride	20.0	23.6	118	65 - 140	
Xylenes, Total	60.0	59.5	99.2	80 - 121	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	102	80 - 120	PASS
Dibromofluoromethane	104	86 - 118	PASS
p-Bromofluorobenzene	96.8	86 - 115	PASS
Toluene-d8	98.5	88 - 110	PASS

* FAILS %REC LIMIT

KEMRON FORMS - Modified 12/15/2006
Version 1.5 PDF File ID: 789703
Report generated 06/13/2007 09:18

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 Analyst: MES Prep Method: 5030B
Instrument ID: HPMS10 Matrix: Water Method: 8260B
Workgroup (AAB#): WG242206 Units: ug/L
Sample ID: WG242206-02 LCS File ID: 10M55967 Run Date: 06/10/2007 13:22
Sample ID: WG242206-03 LCS2 File ID: 10M55968 Run Date: 06/10/2007 13:55

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,1,1-Trichloroethane	20.0	24.0	120	20.0	23.4	117	2.63	80 - 134	20	
1,1,2,2-Tetrachloroethane	20.0	20.1	101	20.0	20.1	101	0.144	79 - 125	20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	20.0	23.6	118	20.0	22.9	114	3.05	80 - 130	20	
1,1,2-Trichloroethane	20.0	21.9	110	20.0	22.1	110	0.695	80 - 125	20	
1,1-Dichloroethane	20.0	22.6	113	20.0	22.5	112	0.649	80 - 125	20	
1,1-Dichloroethene	20.0	21.2	106	20.0	20.7	104	2.37	80 - 132	20	
1,2,4-Trichlorobenzene	20.0	17.4	87.0	20.0	17.9	89.6	2.95	65 - 135	20	
1,2-Dibromo-3-chloropropane	20.0	14.8	73.9	20.0	14.5	72.3	2.25	50 - 130	20	
1,2-Dibromoethane	20.0	21.4	107	20.0	21.7	109	1.74	80 - 125	20	
1,2-Dichlorobenzene	20.0	19.2	95.8	20.0	20.1	100	4.63	80 - 125	20	
1,2-Dichloroethane	20.0	23.5	117	20.0	22.6	113	3.59	80 - 129	20	
cis-1,2-Dichloroethene	20.0	22.5	112	20.0	22.5	113	0.254	70 - 125	20	
trans-1,2-Dichloroethene	20.0	22.1	111	20.0	21.5	107	2.94	80 - 127	20	
1,2-Dichloropropane	20.0	22.5	113	20.0	22.4	112	0.493	80 - 120	20	
1,3-Dichlorobenzene	20.0	20.2	101	20.0	20.0	100	1.16	80 - 120	20	
1,4-Dichlorobenzene	20.0	19.5	97.3	20.0	19.7	98.7	1.45	80 - 120	20	
2-Butanone	20.0	20.9	105	20.0	20.8	104	0.653	30 - 150	20	
2-Hexanone	20.0	18.3	91.4	20.0	18.1	90.6	0.887	55 - 130	20	
4-Methyl-2-pentanone	20.0	19.4	97.1	20.0	18.9	94.5	2.70	64 - 140	20	
Acetone	20.0	18.9	94.3	20.0	18.7	93.4	0.895	40 - 142	20	
Benzene	20.0	22.0	110	20.0	21.8	109	0.843	80 - 121	20	
Bromodichloromethane	20.0	24.3	122	20.0	23.7	118	2.81	80 - 131	20	
Bromoform	20.0	17.3	86.3	20.0	17.5	87.6	1.45	70 - 130	20	
Bromomethane	20.0	25.6	128	20.0	25.2	126	1.41	30 - 145	20	
Carbon disulfide	20.0	20.1	101	20.0	19.6	97.8	2.91	58 - 138	20	
Carbon tetrachloride	20.0	21.8	109	20.0	21.0	105	3.63	65 - 140	20	
Chlorobenzene	20.0	21.0	105	20.0	21.1	105	0.367	80 - 120	20	
Chloroethane	20.0	23.7	118	20.0	23.5	118	0.612	60 - 135	20	
Chloroform	20.0	23.1	116	20.0	22.7	113	1.96	80 - 125	20	
Chloromethane	20.0	24.8	124	20.0	24.5	123	1.10	40 - 125	20	
cis-1,3-Dichloropropene	20.0	22.6	113	20.0	22.7	113	0.433	70 - 130	20	
Cyclohexane	20.0	21.2	106	20.0	21.0	105	1.01	80 - 130	20	
Dibromochloromethane	20.0	18.8	94.2	20.0	18.7	93.4	0.876	60 - 135	20	
Dichlorodifluoromethane	20.0	28.8	144	20.0	27.8	139	3.41	50 - 133	20	*
Ethyl benzene	20.0	22.1	111	20.0	21.9	110	0.854	80 - 122	20	
Isopropylbenzene	20.0	20.6	103	20.0	20.5	102	0.720	80 - 122	20	
Methyl acetate	20.0	19.8	98.8	20.0	20.1	100	1.60	80 - 130	20	
Methyl tert-butyl ether	20.0	21.2	106	20.0	21.1	105	0.807	65 - 125	20	
Methylcyclohexane	20.0	20.4	102	20.0	20.5	102	0.413	80 - 130	20	
Methylene chloride	20.0	20.0	100	20.0	20.3	102	1.53	80 - 123	20	
Styrene	20.0	19.7	98.7	20.0	19.8	98.9	0.131	80 - 123	20	
Tetrachloroethene	20.0	21.8	109	20.0	21.0	105	3.35	80 - 124	20	

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 Analvst: MES Prep Method: 5030B
Instrument ID: HPMS10 Matrix: Water Method: 8260B
Workgroup (AAB#): WG242206 Units: ug/L
Sample ID: WG242206-02 LCS File ID: 10M55967 Run Date: 06/10/2007 13:22
Sample ID: WG242206-03 LCS2 File ID: 10M55968 Run Date: 06/10/2007 13:55

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Toluene	20.0	21.8	109	20.0	21.5	108	1.29	80 - 124	20	
trans-1,3-Dichloropropene	20.0	21.3	106	20.0	21.1	106	0.709	80 - 130	20	
Trichloroethene	20.0	22.1	110	20.0	21.7	109	1.55	80 - 122	20	
Trichlorofluoromethane	20.0	19.3	96.4	20.0	18.4	92.1	4.53	62 - 151	20	
Vinyl chloride	20.0	27.2	136	20.0	24.7	124	9.67	65 - 140	20	
Xylenes, Total	60.0	65.7	110	60.0	65.4	109	0.513	80 - 121	20	

Surogates	LCS % Recovery	LCS2 % Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	102	103	86 - 118	PASS
1,2-Dichloroethane-d4	106	105	80 - 120	PASS
Toluene-d8	96.8	99.3	88 - 110	PASS
p-Bromofluorobenzene	92.2	95.8	86 - 115	PASS

* FAILS %REC LIMIT

\# FAILS RPD LIMIT

KEMRON ENVIRONMENTAL SERVICES
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706148
Instrument: HPMS10
Analyst: MES
Workgroup: WG240519

Tune ID: WG240519-01
Run Date: 05/17/2007
Run Time: 08:30
File ID: 10M55393
Cal ID: HPMS10 - 17-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	18.4	5990	PASS
75.0	95.0	30.0	60.0	45.2	14728	PASS
95.0	95.0	100	100	100	32600	PASS
96.0	95.0	5.00	9.00	6.48	2111	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	88.5	28850	PASS
175	174	5.00	9.00	8.45	2437	PASS
176	174	95.0	101	98.9	28525	PASS
177	176	5.00	9.00	7.09	2021	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG240519-02	STD	01	05/17/2007 11:11	
WG240519-03	STD	01	05/17/2007 11:42	
WG240519-04	STD	01	05/17/2007 12:14	
WG240519-05	STD	01	05/17/2007 12:45	
WG240519-06	STD	01	05/17/2007 13:17	
WG240519-07	STD	01	05/17/2007 13:48	
WG240519-08	STD-CCV	01	05/17/2007 14:20	
WG240519-09	STD	01	05/17/2007 14:51	
WG240519-10	STD	01	05/17/2007 15:24	
WG240519-11	STD	01	05/17/2007 15:55	
WG240519-12	SSCV	01	05/17/2007 16:59	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 793624
Report generated 06/18/2007 09:37

KEMRON ENVIRONMENTAL SERVICES
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706148
Instrument: HPMS10
Analyst: MES
Workgroup: WG242205

Tune ID: WG242205-01
Run Date: 06/10/2007
Run Time: 10:50
File ID: 10M55962
Cal ID: HPMS10 - 17-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	19.0	4239	PASS
75.0	95.0	30.0	60.0	45.2	10082	PASS
95.0	95.0	100	100	100	22301	PASS
96.0	95.0	5.00	9.00	6.64	1481	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	84.0	18738	PASS
175	174	5.00	9.00	6.72	1260	PASS
176	174	95.0	101	96.7	18125	PASS
177	176	5.00	9.00	6.12	1109	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG242205-02	CCV	01	06/10/2007 11:45	
WG242206-01	BLANK	01	06/10/2007 12:50	
WG242206-02	LCS	01	06/10/2007 13:22	
WG242206-03	LCS2	01	06/10/2007 13:55	
L0706148-01	16WW37	01	06/10/2007 14:59	
L0706148-02	16WW05	01	06/10/2007 15:32	
L0706148-03	16WW38	01	06/10/2007 16:04	
WG242206-04	BLANK2	01	06/10/2007 22:54	*

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 793624
Report generated 06/18/2007 09:37

KEMRON ENVIRONMENTAL SERVICES
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706148
Instrument: HPMS11
Analyst: CMS
Workgroup: WG239761

Tune ID: WG239761-01
Run Date: 05/08/2007
Run Time: 07:02
File ID: 11M42273
Cal ID: HPMS11 - 08-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	28.0	10122	PASS
75.0	95.0	30.0	60.0	53.0	19178	PASS
95.0	95.0	100	100	100	36200	PASS
96.0	95.0	5.00	9.00	7.04	2548	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	76.4	27672	PASS
175	174	5.00	9.00	6.79	1878	PASS
176	174	95.0	101	96.1	26581	PASS
177	176	5.00	9.00	6.73	1788	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG239761-02	STD	01	05/08/2007 08:46	
WG239761-04	STD	01	05/08/2007 09:48	
WG239761-05	STD	01	05/08/2007 10:50	
WG239761-06	STD	01	05/08/2007 11:21	
WG239761-07	STD	01	05/08/2007 11:52	
WG239761-08	STD-CCV	01	05/08/2007 12:22	
WG239761-09	STD	01	05/08/2007 12:53	
WG239761-10	STD	01	05/08/2007 13:24	
WG239761-03	STD	01	05/08/2007 15:05	
WG239761-11	SSCV	01	05/08/2007 15:55	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 793624
Report generated 06/18/2007 09:37

KEMRON ENVIRONMENTAL SERVICES

ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706148
Instrument: HPMS11
Analyst: CMS
Workgroup: WG242250

Tune ID: WG242250-01
Run Date: 06/11/2007
Run Time: 11:55
File ID: 11M43098
Cal ID: HPMS11 - 08-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	21.8	6387	PASS
75.0	95.0	30.0	60.0	50.0	14629	PASS
95.0	95.0	100	100	100	29253	PASS
96.0	95.0	5.00	9.00	6.83	1997	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	78.6	22989	PASS
175	174	5.00	9.00	7.00	1610	PASS
176	174	95.0	101	99.7	22909	PASS
177	176	5.00	9.00	6.56	1502	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG242250-02	CCV	01	06/11/2007 12:22	
WG242252-01	BLANK	01	06/11/2007 13:24	
WG242252-02	LCS	01	06/11/2007 13:55	
L0706148-03	16WW38	DL01	06/11/2007 14:57	
WG242252-03	REF	01	06/11/2007 17:01	
WG242252-04	MS	01	06/11/2007 17:32	
WG242252-05	MSD	01	06/11/2007 18:03	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 793624
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B
ICAL Workgroup: WG240519

Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
1,1-Dichloroethene	CCC	0.2764	5.64		
1,2-Dichloropropane	CCC	0.2625	7.42		
Chloroform	CCC	0.5574	4.19		
Ethylbenzene	CCC	0.5143	6.01		
Toluene	CCC	1.387	3.90		
Vinyl Chloride	CCC	0.2037	16.0		1.00
1,1,2,2-Tetrachloroethane	SPCC	0.4157	9.92		
1,1-Dichloroethane	SPCC	0.5338	6.43		
Bromoform	SPCC	0.1770	17.7		0.999
Chlorobenzene	SPCC	0.9900	3.95		
Chloromethane	SPCC	0.2471	12.0		
1,1,1-Trichloroethane		0.5063	11.0		
1,1,2-Trichloro-1,2,2-Trifluoroethane		0.3009	4.25		
1,1,2-Trichloroethane		0.2185	8.35		
1,2,4-Trichlorobenzene		0.9616	5.66		
1,2-Dibromo-3-Chloropropane		0.08230	18.5	0.999	
1,2-Dibromoethane		0.2423	9.34		
1,2-Dichlorobenzene		1.368	4.20		
1,2-Dichloroethane		0.3788	4.83		
1,3-Dichlorobenzene		1.547	4.47		
1,4-Dichlorobenzene		1.596	5.22		
2-Butanone		0.06063	4.48		
2-Hexanone		0.1020	6.38		
4-Methyl-2-Pentanone		0.05347	6.21		
Acetone		0.04278	8.25		
Benzene		1.105	3.54		
Bromodichloromethane		0.3712	10.2		
Bromomethane		0.2069	2.47		
Carbon Disulfide		0.8610	3.83		
Carbon Tetrachloride		0.4578	15.3		1.00
Chloroethane		0.1906	4.26		
Cyclohexane		0.4854	4.41		
Dibromochloromethane		0.3081	17.2		1.00
Dichlorodifluoromethane		0.3517	6.85		
Isopropylbenzene		1.492	10.2		
Methyl Tert Butyl Ether		0.5939	6.04		
Methyl acetate		0.1181	3.15		
Methylcyclohexane		0.4600	4.50		
Methylene Chloride		0.2974	9.31		
Styrene		0.9315	15.3		1.00
Tetrachloroethene		0.3300	4.58		
Trichloroethene		0.3429	5.48		
Trichlorofluoromethane		0.5440	21.4		1.00
cis-1,2-Dichloroethene		0.3117	7.82		
cis-1,3-Dichloropropene		0.4064	11.7		

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 793622
Report generated 06/18/2007 09:37

INITIAL CALIBRATION SUMMARY

Login Number: L0706148
Analytical Method: 8260B
ICAL Workgroup: WG240519

Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
m-,p-Xylene		0.6228	5.84		
o-Xylene		0.6004	6.22		
trans-1,2-Dichloroethene		0.2961	9.21		
trans-1,3-Dichloropropene		0.4261	13.1		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B
ICAL Workgroup: WG239761

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
1,1-Dichloroethene	CCC	0.6045	16.3	1.00	
1,2-Dichloropropane	CCC	0.3407	4.74		
Chloroform	CCC	0.4739	7.55		
Ethylbenzene	CCC	0.5061	8.68		
Toluene	CCC	1.316	7.06		
Vinyl Chloride	CCC	0.3189	14.3		
1,1,2,2-Tetrachloroethane	SPCC	0.4352	5.23		
1,1-Dichloroethane	SPCC	0.6728	8.31		
Bromoform	SPCC	0.1294	24.3		1.00
Chlorobenzene	SPCC	0.9477	5.60		
Chloromethane	SPCC	0.3479	6.93		
1,1,1-Trichloroethane		0.3875	14.5		
1,1,2-Trichloro-1,2,2-Trifluoroethane		0.2696	9.28		
1,1,2-Trichloroethane		0.2001	9.06		
1,2,4-Trichlorobenzene		0.8320	14.1		
1,2-Dibromo-3-Chloropropane		0.07198	15.8		1.00
1,2-Dibromoethane		0.2126	6.67		
1,2-Dichlorobenzene		1.277	5.51		
1,2-Dichloroethane		0.4365	4.41		
1,3-Dichlorobenzene		1.430	6.33		
1,4-Dichlorobenzene		1.483	5.85		
2-Butanone		0.07306	3.36		
2-Hexanone		0.1350	4.78		
4-Methyl-2-Pentanone		0.08000	3.84		
Acetone		0.05236	3.74		
Benzene		1.032	6.77		
Bromodichloromethane		0.3129	10.9		
Bromomethane		0.2158	11.6		
Carbon Disulfide		0.7774	13.2		
Carbon Tetrachloride		0.3326	20.7	1.00	
Chloroethane		0.2818	6.97		
Cyclohexane		0.6530	13.6		
Dibromochloromethane		0.2460	20.4		1.00
Dichlorodifluoromethane		0.4189	5.02		
Isopropylbenzene		1.430	13.5		
Methyl Tert Butyl Ether		0.5244	9.14		
Methyl acetate		0.1521	2.54		
Methylcyclohexane		0.3439	13.5		
Methylene Chloride		0.2969	14.6		
Styrene		0.9887	14.2		
Tetrachloroethene		0.2427	14.6		
Trichloroethene		0.2784	9.45		
Trichlorofluoromethane		0.5208	9.74		
cis-1,2-Dichloroethene		0.2758	9.12		
cis-1,3-Dichloropropene		0.3755	8.74		

Login Number: L0706148
Analytical Method: 8260B
ICAL Workgroup: WG239761

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
m-,p-Xylene		0.6201	9.87		
o-Xylene		0.6112	8.99		
trans-1,2-Dichloroethene		0.2620	13.1		
trans-1,3-Dichloropropene		0.4074	8.65		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INITIAL CALIBRATION DATA

Login Number: L0706148
Analytical Method: 8260B

Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte	WG240519-02			WG240519-03			WG240519-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	1.00	6148.00000	0.2510
1,2-Dichloropropane	NA	NA	NA	0.400	2240.00000	0.2275	1.00	5977.00000	0.2440
Chloroform	0.300	4251.00000	0.5668	0.400	5491.00000	0.5576	1.00	12613.0000	0.5150
Ethylbenzene	NA	NA	NA	0.400	3930.00000	0.4628	1.00	10034.0000	0.4867
Toluene	NA	NA	NA	0.400	11228.0000	1.322	1.00	27233.0000	1.321
Vinyl Chloride	NA	NA	NA	0.400	1631.00000	0.1656	1.00	6120.00000	0.2499
1,1,2,2-Tetrachloroethane	NA	NA	NA	0.400	1477.00000	0.3557	1.00	3653.00000	0.3574
1,1-Dichloroethane	NA	NA	NA	0.400	4627.00000	0.4699	1.00	12491.0000	0.5100
Bromoform	NA	NA	NA	NA	NA	NA	1.00	2572.00000	0.1247
Chlorobenzene	NA	NA	NA	0.400	8363.00000	0.9849	1.00	20877.0000	1.013
Chloromethane	NA	NA	NA	NA	NA	NA	1.00	7318.00000	0.2988
1,1,1-Trichloroethane	NA	NA	NA	0.400	3799.00000	0.3858	1.00	11788.0000	0.4813
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	0.400	1618.00000	0.1905	1.00	4083.00000	0.1980
1,2,4-Trichlorobenzene	NA	NA	NA	0.400	3929.00000	0.9462	1.00	8871.00000	0.8680
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	0.400	1747.00000	0.2057	1.00	4497.00000	0.2181
1,2-Dichlorobenzene	0.300	4287.00000	1.350	0.400	5686.00000	1.369	1.00	13378.0000	1.309
1,2-Dichloroethane	NA	NA	NA	0.400	3485.00000	0.3539	1.00	9028.00000	0.3686
1,3-Dichlorobenzene	NA	NA	NA	0.400	6139.00000	1.479	1.00	15068.0000	1.474
1,4-Dichlorobenzene	0.300	5493.00000	1.730	0.400	6395.00000	1.540	1.00	15597.0000	1.526
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	0.400	10845.0000	1.101	1.00	25801.0000	1.054
Bromodichloromethane	NA	NA	NA	0.400	3112.00000	0.3160	1.00	8021.00000	0.3275
Bromomethane	NA	NA	NA	NA	NA	NA	1.00	5102.00000	0.2083
Carbon Disulfide	NA	NA	NA	NA	NA	NA	1.00	19965.0000	0.8152
Carbon Tetrachloride	NA	NA	NA	0.400	3030.00000	0.3077	1.00	10291.0000	0.4202
Chloroethane	NA	NA	NA	NA	NA	NA	1.00	4361.00000	0.1781
Cyclohexane	NA	NA	NA	NA	NA	NA	1.00	11168.0000	0.4560
Dibromochloromethane	NA	NA	NA	0.400	1857.00000	0.2187	1.00	5086.00000	0.2467
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	1.00	8525.00000	0.3481
Isopropylbenzene	NA	NA	NA	0.400	10279.0000	1.211	1.00	27875.0000	1.352
Methyl Tert Butyl Ether	NA	NA	NA	NA	NA	NA	1.00	13205.0000	0.5392
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NA	NA	NA	NA	NA	NA	1.00	10473.0000	0.4276
Methylene Chloride	NA	NA	NA	0.400	3528.00000	0.3583	1.00	7247.00000	0.2959
Styrene	NA	NA	NA	0.400	6096.00000	0.7179	1.00	15547.0000	0.7540
Tetrachloroethene	NA	NA	NA	0.400	2537.00000	0.2988	1.00	6803.00000	0.3299
Trichloroethene	NA	NA	NA	0.400	3067.00000	0.3115	1.00	8486.00000	0.3465

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B

Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte	WG240519-05			WG240519-06			WG240519-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	2.00	13254.0000	0.2703	5.00	32558.0000	0.2666	20.0	144646.000	0.2901
1,2-Dichloropropane	2.00	13098.0000	0.2671	5.00	31515.0000	0.2580	20.0	139185.000	0.2792
Chloroform	2.00	27383.0000	0.5584	5.00	66907.0000	0.5478	20.0	289738.000	0.5811
Ethylbenzene	2.00	21821.0000	0.5259	5.00	52992.0000	0.5182	20.0	231257.000	0.5509
Toluene	2.00	57143.0000	1.377	5.00	142255.000	1.391	20.0	610755.000	1.455
Vinyl Chloride	2.00	11837.0000	0.2414	5.00	25240.0000	0.2067	20.0	100232.000	0.2010
1,1,2,2-Tetrachloroethane	2.00	9453.00000	0.4543	5.00	21357.0000	0.4110	20.0	97277.0000	0.4601
1,1-Dichloroethane	2.00	26215.0000	0.5346	5.00	65801.0000	0.5388	20.0	284736.000	0.5711
Bromoform	2.00	6351.00000	0.1531	5.00	16627.0000	0.1626	20.0	83506.0000	0.1989
Chlorobenzene	2.00	41673.0000	1.004	5.00	100739.000	0.9851	20.0	433591.000	1.033
Chloromethane	2.00	13278.0000	0.2708	5.00	29153.0000	0.2387	20.0	124662.000	0.2500
1,1,1-Trichloroethane	2.00	25289.0000	0.5157	5.00	61641.0000	0.5047	20.0	274997.000	0.5516
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.00	15181.0000	0.3096	5.00	34276.0000	0.2807	20.0	154871.000	0.3106
1,1,2-Trichloroethane	2.00	9181.00000	0.2213	5.00	22044.0000	0.2156	20.0	102266.000	0.2436
1,2,4-Trichlorobenzene	2.00	20581.0000	0.9891	5.00	47237.0000	0.9090	20.0	213256.000	1.009
1,2-Dibromo-3-Chloropropane	2.00	1351.00000	0.06490	5.00	3304.00000	0.06360	20.0	17469.0000	0.08260
1,2-Dibromoethane	2.00	9818.00000	0.2366	5.00	24475.0000	0.2393	20.0	111118.000	0.2647
1,2-Dichlorobenzene	2.00	29992.0000	1.441	5.00	69982.0000	1.347	20.0	302971.000	1.433
1,2-Dichloroethane	2.00	18693.0000	0.3812	5.00	46267.0000	0.3788	20.0	199830.000	0.4008
1,3-Dichlorobenzene	2.00	32683.0000	1.571	5.00	80763.0000	1.554	20.0	344139.000	1.628
1,4-Dichlorobenzene	2.00	34794.0000	1.672	5.00	81556.0000	1.569	20.0	347901.000	1.646
2-Butanone	NA	NA	NA	5.00	7420.00000	0.06080	20.0	30777.0000	0.06170
2-Hexanone	NA	NA	NA	5.00	9783.00000	0.09570	20.0	45175.0000	0.1076
4-Methyl-2-Pentanone	NA	NA	NA	5.00	6163.00000	0.05050	20.0	27836.0000	0.05580
Acetone	NA	NA	NA	5.00	5792.00000	0.04740	20.0	22241.0000	0.04460
Benzene	2.00	53667.0000	1.095	5.00	134030.000	1.098	20.0	573077.000	1.149
Bromodichloromethane	2.00	18114.0000	0.3694	5.00	42894.0000	0.3512	20.0	203269.000	0.4077
Bromomethane	2.00	10399.0000	0.2121	5.00	24986.0000	0.2046	20.0	104332.000	0.2093
Carbon Disulfide	2.00	41391.0000	0.8441	5.00	106566.000	0.8726	20.0	445926.000	0.8944
Carbon Tetrachloride	2.00	22294.0000	0.4547	5.00	56240.0000	0.4605	20.0	255880.000	0.5132
Chloroethane	2.00	9539.00000	0.1945	5.00	23357.0000	0.1913	20.0	99217.0000	0.1990
Cyclohexane	2.00	22997.0000	0.4690	5.00	59369.0000	0.4861	20.0	253035.000	0.5075
Dibromochloromethane	2.00	12326.0000	0.2970	5.00	30826.0000	0.3014	20.0	145269.000	0.3461
Dichlorodifluoromethane	2.00	18783.0000	0.3831	5.00	42829.0000	0.3507	20.0	184477.000	0.3700
Isopropylbenzene	2.00	60489.0000	1.458	5.00	156422.000	1.530	20.0	687473.000	1.638
Methyl Tert Butyl Ether	2.00	28493.0000	0.5811	5.00	69504.0000	0.5691	20.0	307203.000	0.6162
Methyl acetate	2.00	5849.00000	0.1193	5.00	14178.0000	0.1161	20.0	59819.0000	0.1200
Methylcyclohexane	2.00	21674.0000	0.4420	5.00	56908.0000	0.4660	20.0	237004.000	0.4754
Methylene Chloride	2.00	15089.0000	0.3077	5.00	34998.0000	0.2866	20.0	146985.000	0.2948
Styrene	2.00	35969.0000	0.8668	5.00	94311.0000	0.9222	20.0	445228.000	1.061
Tetrachloroethene	2.00	13666.0000	0.3293	5.00	33283.0000	0.3255	20.0	143518.000	0.3419
Trichloroethene	2.00	16187.0000	0.3301	5.00	40784.0000	0.3339	20.0	181235.000	0.3635

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B
Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte	WG240519-08			WG240519-09			WG240519-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	50.0	365432.000	0.2932	100	731852.000	0.2904	200	1462549.00	0.2731
1,2-Dichloropropane	50.0	352435.000	0.2828	100	708563.000	0.2812	200	1391308.00	0.2598
Chloroform	50.0	731048.000	0.5866	100	1443430.00	0.5728	200	2839772.00	0.5302
Ethylbenzene	50.0	576072.000	0.5437	100	1122107.00	0.5345	200	2148390.00	0.4919
Toluene	50.0	1529561.00	1.444	100	3020115.00	1.439	200	5896322.00	1.350
Vinyl Chloride	50.0	240863.000	0.1933	100	423027.000	0.1679	NA	NA	NA
1,1,2,2-Tetrachloroethane	50.0	231110.000	0.4339	100	481090.000	0.4473	200	894506.000	0.4055
1,1-Dichloroethane	50.0	711393.000	0.5708	100	1404292.00	0.5572	200	2774113.00	0.5180
Bromoform	50.0	211646.000	0.1998	100	447221.000	0.2130	200	817210.000	0.1871
Chlorobenzene	50.0	1070474.00	1.010	100	2071936.00	0.9870	200	3941580.00	0.9025
Chloromethane	50.0	295290.000	0.2369	100	565531.000	0.2244	200	1126616.00	0.2104
1,1,1-Trichloroethane	50.0	694935.000	0.5576	100	1385178.00	0.5497	200	2699843.00	0.5041
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.0	388503.000	0.3117	100	762423.000	0.3025	200	1553902.00	0.2901
1,1,2-Trichloroethane	50.0	242672.000	0.2290	100	497527.000	0.2370	200	929903.000	0.2129
1,2,4-Trichlorobenzene	50.0	532120.000	0.9990	100	1105011.00	1.028	200	2084954.00	0.9452
1,2-Dibromo-3-Chloropropane	50.0	46815.0000	0.08790	100	108254.000	0.1007	200	207524.000	0.09410
1,2-Dibromoethane	50.0	275580.000	0.2601	100	567974.000	0.2706	200	1061476.00	0.2430
1,2-Dichlorobenzene	50.0	756844.000	1.421	100	1472811.00	1.370	200	2799550.00	1.269
1,2-Dichloroethane	50.0	493629.000	0.3961	100	996385.000	0.3954	200	1902448.00	0.3552
1,3-Dichlorobenzene	50.0	867829.000	1.629	100	1703140.00	1.584	200	3211107.00	1.456
1,4-Dichlorobenzene	50.0	868792.000	1.631	100	1707896.00	1.588	200	3214113.00	1.457
2-Butanone	50.0	73684.0000	0.05910	100	164754.000	0.06540	200	309395.000	0.05780
2-Hexanone	50.0	108798.000	0.1027	100	234128.000	0.1115	200	428612.000	0.09810
4-Methyl-2-Pentanone	50.0	69052.0000	0.05540	100	145848.000	0.05790	200	267450.000	0.04990
Acetone	50.0	53080.0000	0.04260	100	112497.000	0.04460	200	211866.000	0.03960
Benzene	50.0	1442919.00	1.158	100	2847842.00	1.130	200	5650412.00	1.055
Bromodichloromethane	50.0	511855.000	0.4107	100	1040996.00	0.4131	200	2002950.00	0.3740
Bromomethane	50.0	265043.000	0.2127	100	509825.000	0.2023	200	1065681.00	0.1990
Carbon Disulfide	50.0	1114781.00	0.8945	100	2222684.00	0.8820	200	4415024.00	0.8244
Carbon Tetrachloride	50.0	652753.000	0.5238	100	1287755.00	0.5110	200	2521874.00	0.4709
Chloroethane	50.0	247214.000	0.1984	100	483611.000	0.1919	200	970035.000	0.1811
Cyclohexane	50.0	633977.000	0.5087	100	1265274.00	0.5021	200	2507018.00	0.4681
Dibromochloromethane	50.0	376004.000	0.3549	100	773466.000	0.3684	200	1447670.00	0.3315
Dichlorodifluoromethane	50.0	451137.000	0.3620	100	857827.000	0.3404	200	1649047.00	0.3079
Isopropylbenzene	50.0	1739821.00	1.642	100	3403769.00	1.621	200	6476939.00	1.483
Methyl Tert Butyl Ether	50.0	751935.000	0.6034	100	1642695.00	0.6518	200	3195251.00	0.5966
Methyl acetate	50.0	142984.000	0.1147	100	312367.000	0.1240	200	612065.000	0.1143
Methylcyclohexane	50.0	602937.000	0.4838	100	1198877.00	0.4757	200	2406573.00	0.4494
Methylene Chloride	50.0	361067.000	0.2897	100	712625.000	0.2828	200	1410886.00	0.2634
Styrene	50.0	1139803.00	1.076	100	2254656.00	1.074	200	4281831.00	0.9804
Tetrachloroethene	50.0	364834.000	0.3443	100	724779.000	0.3452	200	1420182.00	0.3252
Trichloroethene	50.0	453561.000	0.3639	100	906116.000	0.3596	200	1788275.00	0.3339

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

INITIAL CALIBRATION DATA

Login Number: L0706148
Analytical Method: 8260B

Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte	WG240519-11		
	CONC	RESP	RF
1,1-Dichloroethene	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA
Chloroform	NA	NA	NA
Ethylbenzene	NA	NA	NA
Toluene	NA	NA	NA
Vinyl Chloride	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA
Bromoform	NA	NA	NA
Chlorobenzene	NA	NA	NA
Chloromethane	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA
2-Butanone	300	480000.000	0.05900
2-Hexanone	300	658208.000	0.09620
4-Methyl-2-Pentanone	300	417117.000	0.05130
Acetone	300	308730.000	0.03790
Benzene	NA	NA	NA
Bromodichloromethane	NA	NA	NA
Bromomethane	NA	NA	NA
Carbon Disulfide	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA
Chloroethane	NA	NA	NA
Cyclohexane	NA	NA	NA
Dibromochloromethane	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA
Isopropylbenzene	NA	NA	NA
Methyl Tert Butyl Ether	NA	NA	NA
Methyl acetate	NA	NA	NA
Methylcyclohexane	NA	NA	NA
Methylene Chloride	NA	NA	NA
Styrene	NA	NA	NA
Tetrachloroethene	NA	NA	NA
Trichloroethene	NA	NA	NA

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B
Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte	WG240519-02			WG240519-03			WG240519-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	NA	NA	NA	0.400	2615.00000	0.2656	1.00	14154.0000	0.5779
cis-1,2-Dichloroethene	NA	NA	NA	0.400	2596.00000	0.2636	1.00	7239.00000	0.2956
cis-1,3-Dichloropropene	NA	NA	NA	0.400	3264.00000	0.3315	1.00	8847.00000	0.3612
m-,p-Xylene	NA	NA	NA	0.800	9485.00000	0.5585	2.00	25148.0000	0.6098
o-Xylene	NA	NA	NA	0.400	4615.00000	0.5435	1.00	11996.0000	0.5818
trans-1,2-Dichloroethene	NA	NA	NA	0.400	2375.00000	0.2412	1.00	6852.00000	0.2798
trans-1,3-Dichloropropene	NA	NA	NA	0.400	2840.00000	0.3345	1.00	7376.00000	0.3577

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

KEMRON Environmental Services

INITIAL CALIBRATION DATA

Login Number:L0706148
Analytical Method:8260B
Instrument ID:HPMS10
Initial Calibration Date:17-MAY-07 15:55
Column ID:F

Analyte	WG240519-05			WG240519-06			WG240519-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	2.00	30051.0000	0.6128	5.00	71043.0000	0.5817	20.0	304019.000	0.6098
cis-1,2-Dichloroethene	2.00	15144.0000	0.3088	5.00	37903.0000	0.3104	20.0	166870.000	0.3347
cis-1,3-Dichloropropene	2.00	18801.0000	0.3834	5.00	47760.0000	0.3911	20.0	224541.000	0.4504
m-,p-Xylene	4.00	50675.0000	0.6106	10.0	128856.000	0.6300	40.0	560276.000	0.6674
o-Xylene	2.00	23763.0000	0.5727	5.00	60368.0000	0.5903	20.0	269037.000	0.6409
trans-1,2-Dichloroethene	2.00	14481.0000	0.2953	5.00	35190.0000	0.2881	20.0	158062.000	0.3170
trans-1,3-Dichloropropene	2.00	17344.0000	0.4180	5.00	43248.0000	0.4229	20.0	199709.000	0.4758

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B

Instrument ID: HPMS10
Initial Calibration Date: 17-MAY-07 15:55
Column ID: F

Analyte	WG240519-08			WG240519-09			WG240519-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	50.0	755871.000	0.6065	100	1451138.00	0.5758	200	2793257.00	0.5216
cis-1,2-Dichloroethene	50.0	420231.000	0.3372	100	836057.000	0.3318	200	1668532.00	0.3115
cis-1,3-Dichloropropene	50.0	571919.000	0.4589	100	1153957.00	0.4579	200	2233622.00	0.4171
m-,p-Xylene	100	1402093.00	0.6616	200	2718994.00	0.6476	400	5215488.00	0.5971
o-Xylene	50.0	684554.000	0.6461	100	1340396.00	0.6385	200	2575307.00	0.5897
trans-1,2-Dichloroethene	50.0	402919.000	0.3233	100	810116.000	0.3215	200	1618813.00	0.3023
trans-1,3-Dichloropropene	50.0	503024.000	0.4748	100	1022811.00	0.4872	200	1913348.00	0.4381

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

INITIAL CALIBRATION DATA

Login Number: L0706148

Analytical Method: 8260B

Instrument ID: HPMS10

Initial Calibration Date: 17-MAY-07 15:55

Column ID: F

Analyte	WG240519-11		
	CONC	RESP	RF
Trichlorofluoromethane	NA	NA	NA
cis-1,2-Dichloroethene	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA
m-,p-Xylene	NA	NA	NA
o-Xylene	NA	NA	NA
trans-1,2-Dichloroethene	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B
Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-02			WG239761-03			WG239761-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	NA	NA	NA	0.400	5395.00000	0.4655	1.00	16136.0000	0.6331
1,2-Dichloropropane	NA	NA	NA	0.400	3686.00000	0.3181	1.00	8465.00000	0.3321
Chloroform	0.300	3560.00000	0.4393	0.400	5037.00000	0.4346	1.00	12745.0000	0.5000
Ethylbenzene	NA	NA	NA	0.400	4232.00000	0.4797	1.00	9934.00000	0.5032
Toluene	NA	NA	NA	0.400	11461.0000	1.299	1.00	25654.0000	1.299
Vinyl Chloride	NA	NA	NA	0.400	3821.00000	0.3297	1.00	9552.00000	0.3748
1,1,2,2-Tetrachloroethane	NA	NA	NA	0.400	1687.00000	0.3875	1.00	4397.00000	0.4509
1,1-Dichloroethane	NA	NA	NA	0.400	7242.00000	0.6249	1.00	17090.0000	0.6705
Bromoform	NA	NA	NA	NA	NA	NA	1.00	1708.00000	0.08650
Chlorobenzene	NA	NA	NA	0.400	8302.00000	0.9409	1.00	19462.0000	0.9858
Chloromethane	NA	NA	NA	NA	NA	NA	1.00	9639.00000	0.3782
1,1,1-Trichloroethane	NA	NA	NA	0.400	3768.00000	0.3251	1.00	9655.00000	0.3788
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	NA	NA	NA	NA	NA	1.00	5851.00000	0.2296
1,1,2-Trichloroethane	NA	NA	NA	0.400	1394.00000	0.1580	1.00	3838.00000	0.1944
1,2,4-Trichlorobenzene	NA	NA	NA	0.400	4561.00000	1.048	1.00	7746.00000	0.7944
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	0.400	1703.00000	0.1930	1.00	4046.00000	0.2049
1,2-Dichlorobenzene	0.300	4195.00000	1.365	0.400	5755.00000	1.322	1.00	11931.0000	1.224
1,2-Dichloroethane	NA	NA	NA	0.400	4661.00000	0.4022	1.00	11459.0000	0.4496
1,3-Dichlorobenzene	NA	NA	NA	0.400	6437.00000	1.478	1.00	13692.0000	1.404
1,4-Dichlorobenzene	0.300	4915.00000	1.599	0.400	6620.00000	1.520	1.00	14581.0000	1.495
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	0.400	12128.0000	1.047	1.00	26903.0000	1.056
Bromodichloromethane	NA	NA	NA	0.400	3047.00000	0.2629	1.00	7411.00000	0.2908
Bromomethane	NA	NA	NA	0.400	1984.00000	0.1712	1.00	5477.00000	0.2149
Carbon Disulfide	NA	NA	NA	NA	NA	NA	1.00	17857.0000	0.7006
Carbon Tetrachloride	NA	NA	NA	0.400	2669.00000	0.2303	1.00	8593.00000	0.3371
Chloroethane	NA	NA	NA	0.400	2852.00000	0.2461	1.00	6690.00000	0.2625
Cyclohexane	NA	NA	NA	NA	NA	NA	1.00	15095.0000	0.5922
Dibromochloromethane	NA	NA	NA	0.400	1471.00000	0.1667	1.00	4072.00000	0.2062
Dichlorodifluoromethane	NA	NA	NA	0.400	4796.00000	0.4138	1.00	11413.0000	0.4478
Isopropylbenzene	NA	NA	NA	0.400	11062.0000	1.254	1.00	27719.0000	1.404
Methyl Tert Butyl Ether	NA	NA	NA	0.400	5022.00000	0.4333	1.00	12529.0000	0.4915
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NA	NA	NA	NA	NA	NA	1.00	7730.00000	0.3033
Methylene Chloride	NA	NA	NA	0.400	3923.00000	0.3385	1.00	9751.00000	0.3826
Styrene	NA	NA	NA	0.400	7226.00000	0.8190	1.00	17157.0000	0.8690
Tetrachloroethene	NA	NA	NA	0.400	1752.00000	0.1986	1.00	4747.00000	0.2404
Trichloroethene	NA	NA	NA	0.400	3057.00000	0.2638	1.00	7324.00000	0.2873

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-05			WG239761-06			WG239761-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	2.00	27881.0000	0.5607	5.00	57830.0000	0.4547	20.0	342431.000	0.6801
1,2-Dichloropropane	2.00	16508.0000	0.3320	5.00	41047.0000	0.3228	20.0	179073.000	0.3557
Chloroform	2.00	21955.0000	0.4415	5.00	54778.0000	0.4307	20.0	251395.000	0.4993
Ethylbenzene	2.00	18629.0000	0.4802	5.00	41950.0000	0.4281	20.0	216455.000	0.5501
Toluene	2.00	48528.0000	1.251	5.00	110891.000	1.132	20.0	556490.000	1.414
Vinyl Chloride	2.00	18375.0000	0.3695	5.00	40186.0000	0.3160	20.0	159412.000	0.3166
1,1,2,2-Tetrachloroethane	2.00	8682.00000	0.4484	5.00	21989.0000	0.4443	20.0	89938.0000	0.4472
1,1-Dichloroethane	2.00	31022.0000	0.6239	5.00	74212.0000	0.5835	20.0	358089.000	0.7112
Bromoform	2.00	3722.00000	0.09590	5.00	10944.0000	0.1117	20.0	54574.0000	0.1387
Chlorobenzene	2.00	35675.0000	0.9196	5.00	83117.0000	0.8483	20.0	395980.000	1.006
Chloromethane	2.00	18540.0000	0.3729	5.00	43247.0000	0.3400	20.0	182995.000	0.3635
1,1,1-Trichloroethane	2.00	17565.0000	0.3533	5.00	38171.0000	0.3001	20.0	216227.000	0.4295
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.00	13389.0000	0.2693	5.00	30609.0000	0.2407	20.0	145726.000	0.2894
1,1,2-Trichloroethane	2.00	7749.00000	0.1997	5.00	20569.0000	0.2099	20.0	84211.0000	0.2140
1,2,4-Trichlorobenzene	2.00	13121.0000	0.6777	5.00	34313.0000	0.6934	20.0	165337.000	0.8221
1,2-Dibromo-3-Chloropropane	2.00	987.000000	0.05100	5.00	3339.00000	0.06750	20.0	15823.0000	0.07870
1,2-Dibromoethane	2.00	7522.00000	0.1939	5.00	20556.0000	0.2098	20.0	89069.0000	0.2264
1,2-Dichlorobenzene	2.00	22700.0000	1.172	5.00	57990.0000	1.172	20.0	259748.000	1.292
1,2-Dichloroethane	2.00	21644.0000	0.4353	5.00	53644.0000	0.4218	20.0	229195.000	0.4552
1,3-Dichlorobenzene	2.00	25582.0000	1.321	5.00	62919.0000	1.271	20.0	293161.000	1.458
1,4-Dichlorobenzene	2.00	26652.0000	1.377	5.00	65013.0000	1.314	20.0	296732.000	1.475
2-Butanone	NA	NA	NA	5.00	9255.00000	0.07280	20.0	37521.0000	0.07450
2-Hexanone	NA	NA	NA	5.00	12447.0000	0.1270	20.0	55330.0000	0.1406
4-Methyl-2-Pentanone	NA	NA	NA	5.00	9522.00000	0.07490	20.0	40573.0000	0.08060
Acetone	NA	NA	NA	5.00	6546.00000	0.05150	20.0	27483.0000	0.05460
Benzene	2.00	48317.0000	0.9717	5.00	112401.000	0.8838	20.0	548501.000	1.089
Bromodichloromethane	2.00	14577.0000	0.2932	5.00	35829.0000	0.2817	20.0	171198.000	0.3400
Bromomethane	2.00	10495.0000	0.2111	5.00	24590.0000	0.1934	20.0	111775.000	0.2220
Carbon Disulfide	2.00	31073.0000	0.6249	5.00	87566.0000	0.6885	20.0	428988.000	0.8520
Carbon Tetrachloride	2.00	14301.0000	0.2876	5.00	31295.0000	0.2461	20.0	195227.000	0.3878
Chloroethane	2.00	14039.0000	0.2823	5.00	35097.0000	0.2760	20.0	150538.000	0.2990
Cyclohexane	2.00	26185.0000	0.5266	5.00	72290.0000	0.5684	20.0	375140.000	0.7451
Dibromochloromethane	2.00	8040.00000	0.2072	5.00	22387.0000	0.2285	20.0	108974.000	0.2770
Dichlorodifluoromethane	2.00	21170.0000	0.4258	5.00	50660.0000	0.3983	20.0	226293.000	0.4495
Isopropylbenzene	2.00	47988.0000	1.237	5.00	113038.000	1.154	20.0	621111.000	1.579
Methyl Tert Butyl Ether	2.00	24573.0000	0.4942	5.00	68371.0000	0.5376	20.0	284098.000	0.5643
Methyl acetate	2.00	7275.00000	0.1463	5.00	19438.0000	0.1528	20.0	77611.0000	0.1541
Methylcyclohexane	2.00	14145.0000	0.2845	5.00	37680.0000	0.2963	20.0	192333.000	0.3820
Methylene Chloride	2.00	14974.0000	0.3012	5.00	31977.0000	0.2514	20.0	140794.000	0.2796
Styrene	2.00	33439.0000	0.8619	5.00	87037.0000	0.8883	20.0	431722.000	1.097
Tetrachloroethene	2.00	8482.00000	0.2186	5.00	18875.0000	0.1926	20.0	106073.000	0.2696
Trichloroethene	2.00	12795.0000	0.2573	5.00	28972.0000	0.2278	20.0	151159.000	0.3002

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B
Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-08			WG239761-09			WG239761-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	50.0	908161.000	0.6772	100	1893475.00	0.6909	200	3972673.00	0.6735
1,2-Dichloropropane	50.0	474357.000	0.3537	100	979993.000	0.3576	200	2083728.00	0.3533
Chloroform	50.0	671865.000	0.5010	100	1400670.00	0.5111	200	2995288.00	0.5078
Ethylbenzene	50.0	587289.000	0.5498	100	1216603.00	0.5530	200	2378796.00	0.5047
Toluene	50.0	1474571.00	1.380	100	3055475.00	1.389	200	6439310.00	1.366
Vinyl Chloride	50.0	371165.000	0.2768	100	681532.000	0.2487	NA	NA	NA
1,1,2,2-Tetrachloroethane	50.0	247081.000	0.4550	100	505242.000	0.4293	200	1094094.00	0.4188
1,1-Dichloroethane	50.0	955343.000	0.7124	100	2008147.00	0.7327	200	4267517.00	0.7235
Bromoform	50.0	158076.000	0.1480	100	350864.000	0.1595	200	780462.000	0.1656
Chlorobenzene	50.0	1048379.00	0.9814	100	2173525.00	0.9880	200	4294254.00	0.9112
Chloromethane	50.0	431385.000	0.3217	100	870936.000	0.3178	200	2011492.00	0.3410
1,1,1-Trichloroethane	50.0	579048.000	0.4318	100	1202107.00	0.4386	200	2613616.00	0.4431
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.0	374509.000	0.2793	100	784212.000	0.2861	200	1728657.00	0.2931
1,1,2-Trichloroethane	50.0	223778.000	0.2095	100	458294.000	0.2083	200	976578.000	0.2072
1,2,4-Trichlorobenzene	50.0	475021.000	0.8748	100	1034858.00	0.8792	200	2264618.00	0.8669
1,2-Dibromo-3-Chloropropane	50.0	44438.0000	0.08180	100	91871.0000	0.07810	200	195462.000	0.07480
1,2-Dibromoethane	50.0	239641.000	0.2243	100	495507.000	0.2252	200	1053965.00	0.2236
1,2-Dichlorobenzene	50.0	713883.000	1.315	100	1562195.00	1.327	200	3415301.00	1.307
1,2-Dichloroethane	50.0	608373.000	0.4537	100	1235385.00	0.4508	200	2496785.00	0.4233
1,3-Dichlorobenzene	50.0	808954.000	1.490	100	1796465.00	1.526	200	3895710.00	1.491
1,4-Dichlorobenzene	50.0	825440.000	1.520	100	1811544.00	1.539	200	3933548.00	1.506
2-Butanone	50.0	101990.000	0.07610	100	198064.000	0.07230	200	410319.000	0.06960
2-Hexanone	50.0	151772.000	0.1421	100	297495.000	0.1352	200	614231.000	0.1303
4-Methyl-2-Pentanone	50.0	110688.000	0.08250	100	225103.000	0.08210	200	471354.000	0.07990
Acetone	50.0	72368.0000	0.05400	100	142470.000	0.05200	200	293363.000	0.04970
Benzene	50.0	1429107.00	1.066	100	2968485.00	1.083	200	6247437.00	1.059
Bromodichloromethane	50.0	463017.000	0.3453	100	948070.000	0.3459	200	2024583.00	0.3433
Bromomethane	50.0	300116.000	0.2238	100	679795.000	0.2480	200	1429097.00	0.2423
Carbon Disulfide	50.0	1143928.00	0.8531	100	2395776.00	0.8742	200	5003672.00	0.8484
Carbon Tetrachloride	50.0	524875.000	0.3914	100	1087776.00	0.3969	200	2261111.00	0.3834
Chloroethane	50.0	392284.000	0.2925	100	833691.000	0.3042	200	1722584.00	0.2921
Cyclohexane	50.0	983593.000	0.7335	100	1965876.00	0.7173	200	4055875.00	0.6877
Dibromochloromethane	50.0	308678.000	0.2890	100	647913.000	0.2945	200	1407526.00	0.2987
Dichlorodifluoromethane	50.0	556582.000	0.4151	100	1118289.00	0.4080	200	2315330.00	0.3926
Isopropylbenzene	50.0	1680774.00	1.573	100	3608906.00	1.641	200	7553404.00	1.603
Methyl Tert Butyl Ether	50.0	772336.000	0.5760	100	1527630.00	0.5574	200	3191365.00	0.5411
Methyl acetate	50.0	211531.000	0.1577	100	415866.000	0.1517	200	884352.000	0.1499
Methylcyclohexane	50.0	512282.000	0.3820	100	1036020.00	0.3780	200	2249884.00	0.3815
Methylene Chloride	50.0	366236.000	0.2731	100	760366.000	0.2774	200	1599154.00	0.2711
Styrene	50.0	1187062.00	1.111	100	2541194.00	1.155	200	5222861.00	1.108
Tetrachloroethene	50.0	285394.000	0.2672	100	606937.000	0.2759	200	1314822.00	0.2790
Trichloroethene	50.0	392796.000	0.2929	100	823985.000	0.3007	200	1754985.00	0.2975

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B
Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-02			WG239761-03			WG239761-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	NA	NA	NA	0.400	4871.00000	0.4203	1.00	12608.0000	0.4946
cis-1,2-Dichloroethene	NA	NA	NA	0.400	2868.00000	0.2475	1.00	7205.00000	0.2827
cis-1,3-Dichloropropene	NA	NA	NA	0.400	3974.00000	0.3429	1.00	8881.00000	0.3484
m-,p-Xylene	NA	NA	NA	0.800	9555.00000	0.5415	2.00	24327.0000	0.6161
o-Xylene	NA	NA	NA	0.400	5475.00000	0.6205	1.00	10983.0000	0.5563
trans-1,2-Dichloroethene	NA	NA	NA	0.400	2491.00000	0.2149	1.00	6374.00000	0.2501
trans-1,3-Dichloropropene	NA	NA	NA	0.400	3320.00000	0.3763	1.00	7024.00000	0.3558

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-05			WG239761-06			WG239761-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	2.00	27815.0000	0.5594	5.00	61325.0000	0.4822	20.0	283990.000	0.5641
cis-1,2-Dichloroethene	2.00	12339.0000	0.2482	5.00	30902.0000	0.2430	20.0	146935.000	0.2918
cis-1,3-Dichloropropene	2.00	17058.0000	0.3431	5.00	43915.0000	0.3453	20.0	202620.000	0.4024
m-,p-Xylene	4.00	44998.0000	0.5799	10.0	106448.000	0.5432	40.0	539855.000	0.6860
o-Xylene	2.00	21636.0000	0.5577	5.00	51898.0000	0.5297	20.0	256072.000	0.6508
trans-1,2-Dichloroethene	2.00	12389.0000	0.2492	5.00	27383.0000	0.2153	20.0	144639.000	0.2873
trans-1,3-Dichloropropene	2.00	14542.0000	0.3748	5.00	39019.0000	0.3982	20.0	173836.000	0.4418

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

Login Number: L0706148
Analytical Method: 8260B

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-08			WG239761-09			WG239761-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	50.0	728452.000	0.5432	100	1514020.00	0.5524	200	3246364.00	0.5504
cis-1,2-Dichloroethene	50.0	393726.000	0.2936	100	827112.000	0.3018	200	1757627.00	0.2980
cis-1,3-Dichloropropene	50.0	542463.000	0.4045	100	1122564.00	0.4096	200	2406566.00	0.4080
m-,p-Xylene	100	1457701.00	0.6823	200	3015424.00	0.6854	400	5904894.00	0.6265
o-Xylene	50.0	701917.000	0.6571	100	1477047.00	0.6714	200	3045730.00	0.6463
trans-1,2-Dichloroethene	50.0	387677.000	0.2891	100	812924.000	0.2966	200	1729184.00	0.2932
trans-1,3-Dichloropropene	50.0	471325.000	0.4412	100	957731.000	0.4354	200	2054093.00	0.4358

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793622
Report generated 06/18/2007 09:37

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706148
Run Date: 05/17/2007
Sample ID: WG240519-12
Instrument ID: HPMS10
Run Time: 16:59
Method: 8260B
File ID: 10M55409
Analvst: MES
ICal Workgroup: WG240519
Cal ID: HPMS10 - 17-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	20.0	22.0	ug/L	0.304	10.0	30	
1,2-Dichloropropane	CCC	20.0	22.3	ug/L	0.293	11.7	30	
Chloroform	CCC	20.0	20.9	ug/L	0.583	4.60	30	
Ethylbenzene	CCC	20.0	22.7	ug/L	0.585	13.7	30	
Toluene	CCC	20.0	21.7	ug/L	1.51	8.70	30	
Vinyl Chloride	CCC	20.0	20.2	ug/L	0.208	0.800	30	
1,1,2,2-Tetrachloroethane	SPCC	20.0	22.3	ug/L	0.463	11.4	30	
1,1-Dichloroethane	SPCC	20.0	21.4	ug/L	0.571	7.00	30	
Bromoform	SPCC	20.0	18.0	ug/L	0.188	10.1	30	
Chlorobenzene	SPCC	20.0	21.4	ug/L	1.06	6.90	30	
Chloromethane	SPCC	20.0	24.0	ug/L	0.296	19.8	30	
1,1,1-Trichloroethane		20.0	22.1	ug/L	0.559	10.4	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane		20.0	22.2	ug/L	0.334	10.9	30	
1,1,2-Trichloroethane		20.0	22.8	ug/L	0.249	14.1	30	
1,2,4-Trichlorobenzene		20.0	22.1	ug/L	1.06	10.4	30	
1,2-Dibromo-3-Chloropropane		20.0	20.6	ug/L	0.0927	3.20	30	
1,2-Dibromoethane		20.0	22.0	ug/L	0.267	10.1	30	
1,2-Dichlorobenzene		20.0	21.5	ug/L	1.47	7.40	30	
1,2-Dichloroethane		20.0	20.9	ug/L	0.395	4.40	30	
cis-1,2-Dichloroethene		20.0	22.7	ug/L	0.353	13.4	30	
trans-1,2-Dichloroethene		20.0	22.3	ug/L	0.330	11.5	30	
1,3-Dichlorobenzene		20.0	21.3	ug/L	1.65	6.50	30	
1,4-Dichlorobenzene		20.0	20.6	ug/L	1.65	3.20	30	
2-Butanone		20.0	24.4	ug/L	0.0739	21.8	30	
2-Hexanone		20.0	20.5	ug/L	0.105	2.50	30	
4-Methyl-2-Pentanone		20.0	21.2	ug/L	0.0566	5.90	30	
Acetone		20.0	22.7	ug/L	0.0487	13.7	30	
Benzene		20.0	21.8	ug/L	1.21	9.20	30	
Bromodichloromethane		20.0	22.5	ug/L	0.418	12.6	30	
Bromomethane		20.0	21.8	ug/L	0.225	8.90	30	
Carbon Disulfide		20.0	19.7	ug/L	0.850	1.30	30	
Carbon Tetrachloride		20.0	19.3	ug/L	0.511	3.40	30	
Chloroethane		20.0	22.3	ug/L	0.212	11.3	30	
cis-1,3-Dichloropropene		20.0	22.8	ug/L	0.464	14.2	30	
Cyclohexane		20.0	21.1	ug/L	0.512	5.40	30	
Dibromochloromethane		20.0	18.8	ug/L	0.346	6.20	30	
Dichlorodifluoromethane		20.0	23.3	ug/L	0.410	16.5	30	
Isopropylbenzene		20.0	20.6	ug/L	1.53	2.90	30	
Methyl acetate		20.0	20.2	ug/L	0.120	1.20	30	
Methyl Tert Butyl Ether		20.0	22.2	ug/L	0.658	10.8	30	
Methylcyclohexane		20.0	21.3	ug/L	0.489	6.40	30	
Methylene Chloride		20.0	20.1	ug/L	0.299	0.500	30	

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 793623
Report generated 06/18/2007 09:37

KEMRON Environmental Services

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706148 Run Date: 05/17/2007 Sample ID: WG240519-12
Instrument ID: HPMS10 Run Time: 16:59 Method: 8260B
File ID: 10M55409 Analyst: MES
ICal Workgroup: WG240519 Cal ID: HPMS10 - 17-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Styrene		20.0	20.1	ug/L	1.10	0.400	30	
Tetrachloroethene		20.0	21.8	ug/L	0.360	9.00	30	
trans-1,3-Dichloropropene		20.0	20.8	ug/L	0.443	4.00	30	
Trichloroethene		20.0	22.5	ug/L	0.385	12.4	30	
Trichlorofluoromethane		20.0	19.6	ug/L	0.604	1.90	30	
Xylenes		60.0	67.2	ug/L	0.684	11.9	30	
m-,p-Xylene		40.0	44.8	ug/L	0.698	12.1	30	
1,2-Dichloroethene		40.0	45.0	ug/L	0.342	12.4	30	
o-Xylene		20.0	22.3	ug/L	0.670	11.6	30	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 793623
Report generated 06/18/2007 09:37

Login Number: L0706148 Run Date: 05/08/2007 Sample ID: WG239761-11
Instrument ID: HPMS11 Run Time: 15:55 Method: 8260B
File ID: 11M42289 Analyst: CMS
ICal Workgroup: WG239761 Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	20.0	19.6	ug/L	0.657	2.10	30	
1,2-Dichloropropane	CCC	20.0	20.5	ug/L	0.350	2.60	30	
Chloroform	CCC	20.0	20.7	ug/L	0.490	3.50	30	
Ethylbenzene	CCC	20.0	22.2	ug/L	0.561	10.8	30	
Toluene	CCC	20.0	21.6	ug/L	1.42	8.20	30	
Vinyl Chloride	CCC	20.0	16.8	ug/L	0.268	16.1	30	
1,1,2,2-Tetrachloroethane	SPCC	20.0	19.2	ug/L	0.418	3.90	30	
1,1-Dichloroethane	SPCC	20.0	20.7	ug/L	0.696	3.40	30	
Bromoform	SPCC	20.0	16.7	ug/L	0.119	16.4	30	
Chlorobenzene	SPCC	20.0	21.1	ug/L	1.00	5.50	30	
Chloromethane	SPCC	20.0	19.9	ug/L	0.346	0.300	30	
1,1,1-Trichloroethane		20.0	21.6	ug/L	0.419	8.20	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane		20.0	22.6	ug/L	0.305	13.1	30	
1,1,2-Trichloroethane		20.0	20.1	ug/L	0.201	0.600	30	
1,2,4-Trichlorobenzene		20.0	19.8	ug/L	0.826	0.800	30	
1,2-Dibromo-3-Chloropropane		20.0	16.8	ug/L	0.0664	16.1	30	
1,2-Dibromoethane		20.0	19.4	ug/L	0.206	3.00	30	
1,2-Dichlorobenzene		20.0	19.6	ug/L	1.25	1.80	30	
1,2-Dichloroethane		20.0	18.9	ug/L	0.412	5.70	30	
cis-1,2-Dichloroethene		20.0	21.8	ug/L	0.301	9.10	30	
trans-1,2-Dichloroethene		20.0	21.5	ug/L	0.282	7.70	30	
1,3-Dichlorobenzene		20.0	20.3	ug/L	1.45	1.60	30	
1,4-Dichlorobenzene		20.0	19.6	ug/L	1.45	2.10	30	
2-Butanone		20.0	16.9	ug/L	0.0618	15.4	30	
2-Hexanone		20.0	16.6	ug/L	0.112	17.2	30	
4-Methyl-2-Pentanone		20.0	16.2	ug/L	0.0646	19.2	30	
Acetone		20.0	18.3	ug/L	0.0479	8.50	30	
Benzene		20.0	21.0	ug/L	1.08	5.10	30	
Bromodichloromethane		20.0	20.8	ug/L	0.325	3.90	30	
Bromomethane		20.0	19.7	ug/L	0.213	1.30	30	
Carbon Disulfide		20.0	22.9	ug/L	0.891	14.6	30	
Carbon Tetrachloride		20.0	19.8	ug/L	0.380	1.20	30	
Chloroethane		20.0	21.2	ug/L	0.298	5.90	30	
cis-1,3-Dichloropropene		20.0	20.5	ug/L	0.385	2.60	30	
Cyclohexane		20.0	23.2	ug/L	0.757	16.0	30	
Dibromochloromethane		20.0	18.1	ug/L	0.255	9.50	30	
Dichlorodifluoromethane		20.0	20.0	ug/L	0.419	0.100	30	
Isopropylbenzene		20.0	20.3	ug/L	1.46	1.70	30	
Methyl acetate		20.0	18.7	ug/L	0.142	6.70	30	
Methyl Tert Butyl Ether		20.0	20.0	ug/L	0.525	0.100	30	
Methylcyclohexane		20.0	23.4	ug/L	0.402	16.8	30	
Methylene Chloride		20.0	18.3	ug/L	0.271	8.60	30	

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 793623
Report generated 06/18/2007 09:37

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706148
Run Date: 05/08/2007
Sample ID: WG239761-11
Instrument ID: HPMS11
Run Time: 15:55
Method: 8260B
File ID: 11M42289
Analyst: CMS
ICal Workgroup: WG239761
Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Styrene		20.0	22.0	ug/L	1.09	10.2	30	
Tetrachloroethene		20.0	22.4	ug/L	0.272	12.1	30	
trans-1,3-Dichloropropene		20.0	18.8	ug/L	0.384	5.90	30	
Trichloroethene		20.0	20.9	ug/L	0.291	4.50	30	
Trichlorofluoromethane		20.0	20.3	ug/L	0.528	1.40	30	
Xylenes		60.0	65.9	ug/L	0.671	9.80	30	
m-,p-Xylene		40.0	44.7	ug/L	0.693	11.7	30	
1,2-Dichloroethene		40.0	43.4	ug/L	0.292	8.40	30	
o-Xylene		20.0	21.2	ug/L	0.649	6.10	30	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 793623
Report generated 06/18/2007 09:37

CONTINUING CALIBRATION VERIFICATION (CCV)

00084757

Login Number: L0706148 | Run Date: 06/10/2007 | Sample ID: WG242205-02
Instrument ID: HPMS10 | Run Time: 11:45 | Method: 8260B
File ID: 10M55964 | Analyst: MES
Workgroup (AAB#): WG242206 | Cal ID: HPMS10 - 17-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	47.9	ug/L	0.265	4.19	20	
1,2-Dichloropropane	CCC	50.0	52.7	ug/L	0.277	5.47	20	
Chloroform	CCC	50.0	52.4	ug/L	0.584	4.76	20	
Ethylbenzene	CCC	50.0	50.4	ug/L	0.519	0.803	20	
Toluene	CCC	50.0	48.9	ug/L	1.36	2.25	20	
Vinyl Chloride	CCC	50.0	56.7	ug/L	0.214	13.4	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	49.3	ug/L	0.410	1.41	40	
1,1-Dichloroethane	SPCC	50.0	51.8	ug/L	0.553	3.54	40	
Bromoform	SPCC	50.0	46.0	ug/L	0.197	7.90	40	
Chlorobenzene	SPCC	50.0	48.2	ug/L	0.954	3.64	40	
Chloromethane	SPCC	50.0	52.4	ug/L	0.259	4.74	40	
1,1,1-Trichloroethane		50.0	54.5	ug/L	0.552	8.97	40	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	52.4	ug/L	0.315	4.76	40	
1,1,2-Trichloroethane		50.0	51.1	ug/L	0.223	2.16	40	
1,2,4-Trichlorobenzene		50.0	42.0	ug/L	0.807	16.0	40	
1,2-Dibromo-3-Chloropropane		50.0	39.4	ug/L	0.0730	21.2	40	
1,2-Dibromoethane		50.0	51.6	ug/L	0.250	3.13	40	
1,2-Dichlorobenzene		50.0	46.9	ug/L	1.28	6.23	40	
1,2-Dichloroethane		50.0	54.7	ug/L	0.415	9.48	40	
cis-1,2-Dichloroethene		50.0	51.2	ug/L	0.319	2.47	40	
trans-1,2-Dichloroethene		50.0	51.0	ug/L	0.302	2.03	40	
1,3-Dichlorobenzene		50.0	48.8	ug/L	1.51	2.49	40	
1,4-Dichlorobenzene		50.0	46.8	ug/L	1.49	6.38	40	
2-Butanone		50.0	47.6	ug/L	0.0577	4.76	40	
2-Hexanone		50.0	49.5	ug/L	0.101	0.966	40	
4-Methyl-2-Pentanone		50.0	50.5	ug/L	0.0540	1.04	40	
Acetone		50.0	45.4	ug/L	0.0389	9.18	40	
Benzene		50.0	49.4	ug/L	1.09	1.19	40	
Bromodichloromethane		50.0	56.2	ug/L	0.418	12.5	40	
Bromomethane		50.0	53.0	ug/L	0.219	6.07	40	
Carbon Disulfide		50.0	47.1	ug/L	0.811	5.76	40	
Carbon Tetrachloride		50.0	50.3	ug/L	0.529	0.528	40	
Chloroethane		50.0	52.8	ug/L	0.201	5.55	40	
cis-1,3-Dichloropropene		50.0	54.6	ug/L	0.444	9.20	40	
Cyclohexane		50.0	48.5	ug/L	0.471	2.96	40	
Dibromochloromethane		50.0	46.7	ug/L	0.347	6.69	40	
Dichlorodifluoromethane		50.0	57.5	ug/L	0.405	15.1	40	
Isopropylbenzene		50.0	51.7	ug/L	1.54	3.33	40	
Methyl acetate		50.0	44.7	ug/L	0.106	10.6	40	
Methyl Tert Butyl Ether		50.0	49.8	ug/L	0.591	0.486	40	
Methylcyclohexane		50.0	47.3	ug/L	0.435	5.40	40	
Methylene Chloride		50.0	46.2	ug/L	0.275	7.51	40	

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 793625
Report generated 06/18/2007 09:37

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706148
Run Date: 06/10/2007
Sample ID: WG242205-02
Instrument ID: HPMS10
Run Time: 11:45
Method: 8260B
File ID: 10M55964
Analyst: MES
Workgroup (AAB#): WG242206
Cal ID: HPMS10 - 17-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Styrene		50.0	45.8	ug/L	1.01	8.32	40	
Tetrachloroethene		50.0	49.1	ug/L	0.324	1.90	40	
trans-1,3-Dichloropropene		50.0	55.0	ug/L	0.468	9.91	40	
Trichloroethene		50.0	50.2	ug/L	0.344	0.380	40	
Trichlorofluoromethane		50.0	53.4	ug/L	0.643	6.84	40	
Xylenes		150	150	ug/L	0.613	0.0305	40	
m-,p-Xylene		100	99.6	ug/L	0.620	0.419	40	
1,2-Dichloroethene		100	102	ug/L	0.311	2.25	40	
o-Xylene		50.0	50.4	ug/L	0.605	0.746	40	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 793625
Report generated 06/18/2007 09:37

CONTINUING CALIBRATION VERIFICATION (CCV)

00084759

Login Number: L0706148   Run Date: 06/11/2007   Sample ID: WG242250-02
Instrument ID: HPMS11   Run Time: 12:22   Method: 8260B
File ID: 11M43099   Analyst: CMS
Workgroup (AAB#): WG242252   Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	46.6	ug/L	0.629	6.89	20	
1,2-Dichloropropane	CCC	50.0	45.2	ug/L	0.308	9.68	20	
Chloroform	CCC	50.0	55.0	ug/L	0.521	9.92	20	
Ethylbenzene	CCC	50.0	49.4	ug/L	0.500	1.16	20	
Toluene	CCC	50.0	48.0	ug/L	1.26	4.08	20	
Vinyl Chloride	CCC	50.0	51.1	ug/L	0.326	2.16	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	42.7	ug/L	0.372	14.5	40	
1,1-Dichloroethane	SPCC	50.0	49.6	ug/L	0.667	0.874	40	
Bromoform	SPCC	50.0	52.9	ug/L	0.161	5.79	40	
Chlorobenzene	SPCC	50.0	48.3	ug/L	0.915	3.41	40	
Chloromethane	SPCC	50.0	47.6	ug/L	0.331	4.73	40	
1,1,1-Trichloroethane		50.0	61.2	ug/L	0.474	22.3	40	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	56.8	ug/L	0.307	13.6	40	
1,1,2-Trichloroethane		50.0	46.7	ug/L	0.187	6.69	40	
1,2,4-Trichlorobenzene		50.0	50.8	ug/L	0.845	1.56	40	
1,2-Dibromo-3-Chloropropane		50.0	45.5	ug/L	0.0729	9.04	40	
1,2-Dibromoethane		50.0	49.8	ug/L	0.212	0.318	40	
1,2-Dichlorobenzene		50.0	46.8	ug/L	1.20	6.43	40	
1,2-Dichloroethane		50.0	50.9	ug/L	0.444	1.79	40	
cis-1,2-Dichloroethene		50.0	49.3	ug/L	0.272	1.37	40	
trans-1,2-Dichloroethene		50.0	51.4	ug/L	0.269	2.75	40	
1,3-Dichlorobenzene		50.0	48.1	ug/L	1.38	3.71	40	
1,4-Dichlorobenzene		50.0	46.8	ug/L	1.39	6.36	40	
2-Butanone		50.0	36.9	ug/L	0.0539	26.3	40	
2-Hexanone		50.0	38.0	ug/L	0.103	24.0	40	
4-Methyl-2-Pentanone		50.0	40.6	ug/L	0.0649	18.9	40	
Acetone		50.0	37.0	ug/L	0.0388	25.9	40	
Benzene		50.0	46.0	ug/L	0.949	8.01	40	
Bromodichloromethane		50.0	56.3	ug/L	0.353	12.7	40	
Bromomethane		50.0	53.6	ug/L	0.231	7.20	40	
Carbon Disulfide		50.0	52.1	ug/L	0.811	4.28	40	
Carbon Tetrachloride		50.0	57.4	ug/L	0.443	14.7	40	
Chloroethane		50.0	48.0	ug/L	0.271	4.01	40	
cis-1,3-Dichloropropene		50.0	52.2	ug/L	0.392	4.45	40	
Cyclohexane		50.0	48.4	ug/L	0.633	3.13	40	
Dibromochloromethane		50.0	51.8	ug/L	0.301	3.67	40	
Dichlorodifluoromethane		50.0	52.7	ug/L	0.442	5.40	40	
Isopropylbenzene		50.0	53.9	ug/L	1.54	7.88	40	
Methyl acetate		50.0	39.8	ug/L	0.121	20.4	40	
Methyl Tert Butyl Ether		50.0	53.1	ug/L	0.557	6.28	40	
Methylcyclohexane		50.0	55.5	ug/L	0.382	11.1	40	
Methylene Chloride		50.0	41.3	ug/L	0.245	17.5	40	

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3   PDF File ID: 793625
Report generated 06/18/2007 09:37

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242250-02
Instrument ID: HPMS11
Run Time: 12:22
Method: 8260B
File ID: 11M43099
Analyst: CMS
Workgroup (AAB#): WG242252
Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Styrene		50.0	50.2	ug/L	0.992	0.353	40	
Tetrachloroethene		50.0	54.7	ug/L	0.265	9.32	40	
trans-1,3-Dichloropropene		50.0	54.3	ug/L	0.442	8.57	40	
Trichloroethene		50.0	50.9	ug/L	0.283	1.75	40	
Trichlorofluoromethane		50.0	61.0	ug/L	0.636	22.0	40	
Xylenes		150	149	ug/L	0.608	0.656	40	
m-,p-Xylene		100	101	ug/L	0.625	0.711	40	
1,2-Dichloroethene		100	101	ug/L	0.271	0.689	40	
o-Xylene		50.0	48.3	ug/L	0.591	3.39	40	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 793625
Report generated 06/18/2007 09:37

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L0706148
Instrument ID: HPMS10
Workgroup (AAB#): WG242206

CCV Number: WG242205-02
CAL ID: HPMS10 - 17-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242205-02	NA	NA	258802	499507	585743
Upper Limit	NA	NA	517604	999014	1171486
Lower Limit	NA	NA	129401	249754	292872
L0706148-01	1.00	01	213308	433310	510364
L0706148-02	1.00	01	216451	421388	505701
L0706148-03	1.00	01	212352	417988	500489
WG242206-01	1.00	01	226791	452279	538946
WG242206-02	1.00	01	249072	470351	554423
WG242206-03	1.00	01	243886	463631	550276
WG242206-04	1.00	01	185637	367648	433089

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 793626
Report generated 06/18/2007 09:37

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L0706148
Instrument ID: HPMS11
Workgroup (AAB#): WG242252

CCV Number: WG242250-02
CAL ID: HPMS11 - 08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242250-02	NA	NA	257380	483384	613031
Upper Limit	NA	NA	514760	966768	1226062
Lower Limit	NA	NA	128690	241692	306516
L0706148-03	50.0	DL01	203343	392866	492381
WG242252-01	1.00	01	219699	422653	526754
WG242252-02	1.00	01	230511	431735	529382
WG242252-03	1.00	01	174853	333410	419978
WG242252-04	1.00	01	195027	350471	427866
WG242252-05	1.00	01	201888	366163	451674

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 793626
Report generated 06/18/2007 09:37

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L0706148
Instrument ID: HPMS10
Workgroup (AAB#): WG242206

CCV Number: WG242205-02
CAL ID: HPMS10 - 17-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242205-02	NA	NA	17.74	14.73	10.86
Upper Limit	NA	NA	18.24	15.23	11.36
Lower Limit	NA	NA	17.24	14.23	10.36
L0706148-01	1.00	01	17.75	14.73	10.86
L0706148-02	1.00	01	17.75	14.74	10.86
L0706148-03	1.00	01	17.75	14.73	10.86
WG242206-01	1.00	01	17.74	14.73	10.86
WG242206-02	1.00	01	17.74	14.74	10.86
WG242206-03	1.00	01	17.75	14.73	10.86
WG242206-04	1.00	01	17.75	14.73	10.86

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 793628
Report generated 06/18/2007 09:37

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L0706148
Instrument ID: HPMS11
Workgroup (AAB#): WG242252

CCV Number: WG242250-02
CAL ID: HPMS11-08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242250-02	NA	NA	17.05	14.25	10.61
Upper Limit	NA	NA	17.55	14.75	11.11
Lower Limit	NA	NA	16.55	13.75	10.11
L0706148-03	50.0	DL01	17.048	14.241	10.606
WG242252-01	1.00	01	17.048	14.241	10.606
WG242252-02	1.00	01	17.048	14.241	10.606
WG242252-03	1.00	01	17.048	14.241	10.606
WG242252-04	1.00	01	17.054	14.241	10.607
WG242252-05	1.00	01	17.048	14.241	10.607

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 793628
Report generated 06/18/2007 09:37

2.1.2 RSK 175

2.1.2.1 Summary Data

LABORATORY REPORT

00084767

L0706148

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW37	L0706148-01	RSK175	10	07-JUN-07
16WW05	L0706148-02	RSK175	10	07-JUN-07
16WW05	L0706148-02	RSK175	50	07-JUN-07
16WW38	L0706148-03	RSK175	10	07-JUN-07
16WW38	L0706148-03	RSK175	50	07-JUN-07

Sample Number:L0706148-01
Client ID:16WW37
Matrix:Water
Workgroup Number:WG242372
Collect Date:06/06/2007 10:30
Sample Tag:DL01

PrePrep Method:NONE
Prep Method:5021
Analytical Method:RSK175
Analyst:FJB
Dilution:10
Units:ug/L

Instrument:HP16
Prep Date:06/12/2007 10:20
Cal Date:01/08/2007 16:52
Run Date:06/12/2007 10:20
File ID:16G7521

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	3.7	J	5.0	2.5
Ethene	74-85-1		U	5.0	2.5
Ethane	74-84-0		U	5.0	2.5
Carbon Dioxide		30000		5000	2500

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number:	L0706148-02	PrePrep Method:	NONE	Instrument:	HP16
Client ID:	16WW05	Prep Method:	5021	Prep Date:	06/12/2007 10:34
Matrix:	Water	Analytical Method:	RSK175	Cal Date:	01/08/2007 16:52
Workgroup Number:	WG242372	Analyst:	FJB	Run Date:	06/12/2007 10:34
Collect Date:	06/06/2007 13:00	Dilution:	10	File ID:	16G7522
Sample Tag:	DL01	Units:	ug/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	84		5.0	2.5
Ethene	74-85-1		U	5.0	2.5
Ethane	74-84-0		U	5.0	2.5
Carbon Dioxide		120000	I	5000	2500

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number: L0706148-02
Client ID: 16WW05
Matrix: Water
Workgroup Number: WG242585
Collect Date: 06/06/2007 13:00
Sample Tag: DL02

PrePrep Method: NONE
Prep Method: 5021
Analytical Method: RSK175
Analyst: FJB
Dilution: 50
Units: ug/L

Instrument: HP16
Prep Date: 06/14/2007 11:29
Cal Date: 01/08/2007 16:52
Run Date: 06/14/2007 11:29
File ID: 16G7576

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	49		25	13
Ethene	74-85-1		U	25	13
Ethane	74-84-0		U	25	13
Carbon Dioxide		170000		25000	13000

U Not detected at or above adjusted sample detection limit

Sample Number: L0706148-03
Client ID: 16WW38
Matrix: Water
Workgroup Number: WG242372
Collect Date: 06/06/2007 13:40
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 5021
Analytical Method: RSK175
Analyst: FJB
Dilution: 10
Units: ug/L

Instrument: HP16
Prep Date: 06/12/2007 10:48
Cal Date: 01/08/2007 16:52
Run Date: 06/12/2007 10:48
File ID: 16G7523

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	490		5.0	2.5
Ethene	74-85-1		U	5.0	2.5
Ethane	74-84-0	6.1		5.0	2.5
Carbon Dioxide		140000	I	5000	2500

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number: L0706148-03	PrePrep Method: NONE	Instrument: HP16
Client ID: 16WW38	Prep Method: 5021	Prep Date: 06/14/2007 11:43
Matrix: Water	Analytical Method: RSK175	Cal Date: 01/08/2007 16:52
Workgroup Number: WG242585	Analyst: FJB	Run Date: 06/14/2007 11:43
Collect Date: 06/06/2007 13:40	Dilution: 50	File ID: 16G7577
Sample Tag: DL02	Units: ug/L	

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	350		25	13
Ethene	74-85-1		U	25	13
Ethane	74-84-0		U	25	13
Carbon Dioxide		180000		25000	13000

U Not detected at or above adjusted sample detection limit

2.1.2.2 QC Summary Data

KEMRON Environmental Services
Data Checklist

Date: 08-JAN-2007
Analyst: JLS
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 14130
Analytical Workgroups: WG231016

System Performance Check	NA
BFB	NA
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Excel Spreadsheets	X
Case Narrative	X
Narrative Summary	NA
Results Reporting/Data Qualifiers	X
Client Data Package Assembly	X
Check for Completeness	X
Primary Reviewer	FJB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
11-JAN-2007

Secondary Reviewer:
12-JAN-2007

Generated: JAN-16-2007 10:45:32

KEMRON Environmental Services
Data Checklist

Date: 12-JUN-2007
Analyst: FJB
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 16685
Analytical Workgroups: WG242372

System Performance Check	NA
BFB	NA
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Excel Spreadsheets	X
Case Narrative	X
Narrative Summary	NA
Results Reporting/Data Qualifiers	X
Client Data Package Assembly	X
Check for Completeness	X
Primary Reviewer	SMH
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
15-JUN-2007
Shauna Hyde

Secondary Reviewer:
19-JUN-2007

Generated: JUN-19-2007 08:32:52

KEMRON Environmental Services
Data Checklist

Date: 14-JUN-2007
Analyst: FJB
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 16687
Analytical Workgroups: WG242585

System Performance Check	NA
BFB	NA
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Excel Spreadsheets	X
Case Narrative	X
Narrative Summary	NA
Results Reporting/Data Qualifiers	X
Client Data Package Assembly	X
Check for Completeness	X
Primary Reviewer	SMH
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
15-JUN-2007
Shauna Hyde

Secondary Reviewer:
18-JUN-2007

Generated: JUN-18-2007 09:59:21

RSK-175 - Example Calculation for Methane

ICAL Plot - Linear Regression (y = ax)

1.0 Calculate the Regression Constant (a)

Where:
ICAL_x = the ICAL concentration = x
ICAL_r = the ICAL response (area) = y

ICAL_x	ICAL_r	[ICAL_r}^2	[ICAL-x][ICAL-r]
0.1	21538	463885444	2153.8
1	77578	6018346084	77578
10	665937	4.43472E+11	6659370
20	1376031	1.89346E+12	27520620
50	3424931	1.17302E+13	171246550
100	6927945	4.79964E+13	692794500
200	14533928	2.11235E+14	2906785600
300	21776507	4.74216E+14	6532952100
		7.47521E+14	10338038472
		a:	**72307.84758**

2.0 Calculate the concentration in extract, x:

Where:
y = response of methane from quant report = **37493410**
x = y/a = 37493410/72307 = 518.52

3.0 Calculate the concentration in sample, Cs:

Cs = x (MW/Tf) (HS/S) (DF)

Where:

x = Concentration in extract	**518.5247695**	umol/mol
MW = molecular weight of analyte	**16.04**	ug/umol
TF = temperature factor = (22.45)(313/273)	**25.68**	L/mol
HS = headspace volume	**0.015**	L
S = sample volume remaining after headspace removal	**0.00547**	L
DF = dilution factor	**10**	
Cs = calculated sample concentration	**8881.427692**	ug/L

RSK-175 - Example Calculation for Carbon Dioxide

ICAL Plot - Quadratic Regression (y = Ax^2 + Bx +C)

Ax^2 + Bx + (C - y) = 0

Step 1 - Calculate the concentration in extract, x:

<u>Data from quadratic regression plot:</u>		
Value of A from plot:	**0.916**	
Value of B from plot:	**1540**	
Value of C from plot:	**0**	
Response for carbon dioxide from quantitation report (y):	**8763828**	
Value of C - y	**-8763828**	
<u>Solving for x using the quadratic formula:</u>		
Root 1 - Computed x1:	**2364.716284**	umol/mol
Root 2 - Computed x2:	**-4045.938991**	

Step 2 - Calculate the concentration in sample, Cs:

Cs = x (MW/Tf) (HS/S) (DF)

Where:

x = Concentration in extract :	**2364.716284**	umol/mol
MW = molecular weight of analyte:	**44**	ug/umol
TF = temperature factor = (22.45)(313/273):	**25.68**	L/mol
HS = initial headspace volume (extraction log):	**0.015**	L
S = final volume (extraction log):	**0.00547**	L
DF = dilution factor:	**1**	
Cs = calculated sample concentration:	**11110.6798**	ug/L

Note: Temperature = 40 C = 313 K

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 010807

Analyst1: JLS Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Method: 5021 SOP: RSK01 Rev: 7

Maintenance Log ID: 17380

Internal Standard: NA Surrogate Standard: NA

CCV: STD15381 LCS: STD15381 MS/MSD: STD15381

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG231016

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	16G5766	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 10:36
2	16G5767	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 11:00
3	16G5768	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 12:39
4	16G5769	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 14:19
5	16G5770	WG231016-01 .1umol/mol STD	NA	1	1	STD15381	01/08/07 15:14
6	16G5771	WG231016-02 1umol/mol STD	NA	1	1	STD15381	01/08/07 15:28
7	16G5772	WG231016-03 10umol/mol STD	NA	1	1	STD15381	01/08/07 15:42
8	16G5773	WG231016-04 20umol/mol STD	NA	1	1	STD15381	01/08/07 15:56
9	16G5774	WG231016-05 50umol/mol STD	NA	1	1	STD15381	01/08/07 16:10
10	16G5775	WG231016-06 100umol/mol STD	NA	1	1	STD15381	01/08/07 16:24
11	16G5776	WG231016-07 200umol/mol STD	NA	1	1	STD15381	01/08/07 16:38
12	16G5777	WG231016-08 300umol/mol STD	NA	1	1	STD15381	01/08/07 16:52
13	16G5778	WG231016-09 20umol/mol ALT SOURCE	NA	1	1	STD15381	01/08/07 17:06

Comments

Seq.	Rerun	Dil.	Reason	Analytes
4 File ID: 16G5769				
RUN NEW CURVE				

Approved: January 12, 2007

Page: 1 of 1

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061207

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19584

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242372

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	16G7517	WG242371-01 50umol/mol STD	NA	1	1	STD18652	06/12/07 09:11
2	16G7518	WG242372-01 BLANK	NA	1	1		06/12/07 09:33
3	16G7519	WG242372-02 20umol/mol LCS	NA	1	1	STD18652	06/12/07 09:47
4	16G7520	WG242372-03 20umol/mol LCS DUP	NA	1	1	STD18652	06/12/07 10:01
5	16G7521	L0706148-01 A 10X	7	1	10		06/12/07 10:20
6	16G7522	L0706148-02 A 10X	7	1	10		06/12/07 10:34
7	16G7523	L0706148-03 A 10X	7	1	10		06/12/07 10:48
8	16G7524	L0706194-01 A 10X	7	1	10		06/12/07 11:02
9	16G7525	L0706194-02 A 10X	7	1	10		06/12/07 11:16
10	16G7526	L0706194-03 A 10X	7	1	10		06/12/07 11:30
11	16G7527	WG242371-02 50umol/mol STD	NA	1	1	STD18652	06/12/07 11:44
12	16G7528	L0706073-10 A 10X	7	1	10		06/12/07 12:27
13	16G7529	L0706073-11 A 10X	7	1	10		06/12/07 12:41
14	16G7530	L0706073-12 A 10X	7	1	10		06/12/07 12:55
15	16G7531	L0706073-13 B 10X	7	1	10		06/12/07 13:09
16	16G7532	WG242371-03 50umol/mol STD	7	1	1	STD18652	06/12/07 13:23
17	16G7533	L0706190-01 A	NA	1	1		06/12/07 14:52
18	16G7534	L0706190-03 A	7	1	1		06/12/07 15:06
19	16G7535	L0706250-04 A	7	1	1		06/12/07 15:20
20	16G7536	L0706250-05 A MS	7	1	1	STD18652	06/12/07 15:38
21	16G7537	L0706250-06 A MSD	7	1	1	STD18652	06/12/07 15:52
22	16G7538	L0706250-07 A	7	1	1		06/12/07 16:06
23	16G7539	L0706250-08 A	4	1	1		06/12/07 16:20
24	16G7540	L0706254-02 A	7	1	1		06/12/07 16:34
25	16G7541	L0706254-03 A	7	1	1		06/12/07 16:48
26	16G7542	L0706254-04 A	7	1	1		06/12/07 17:02
27	16G7543	WG242371-04 50umol/mol STD	NA	1	1	STD18652	06/12/07 17:16

Comments

Seq.	Rerun	Dil.	Reason	Analytes
6	X	50	Over Calibration Range	CO2
File ID: 16G7522				

Approved: June 19, 2007

Page: 1

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061207

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19584

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242372

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7	X	50	Over Calibration Range	CO2
File ID: 16G7523				
8	X	50	Over Calibration Range	CO2
File ID: 16G7524				
9	X	50	Over Calibration Range	CO2
File ID: 16G7525				
10	X	50	Over Calibration Range	CO2
File ID: 16G7526				
12	X	50	Over Calibration Range	CO2
File ID: 16G7528				
13	X	50	Over Calibration Range	CO2
File ID: 16G7529				
14	X	50	Over Calibration Range	CO2
File ID: 16G7530				
15	X	50	Over Calibration Range	CO2
File ID: 16G7531				
19	X	10	Over Calibration Range	METHANE
File ID: 16G7535				
22	X	50	Over Calibration Range	METHANE
File ID: 16G7538				
23	X	50	Over Calibration Range	CO2
File ID: 16G7539				
24	X	10	Over Calibration Range	METHANE
File ID: 16G7540				
25	X	100	Over Calibration Range	METHANE

Approved: June 19, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061207

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19584

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242372

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 16G7541				
26	X	100	Over Calibration Range	METHANE
File ID: 16G7542				

Approved: June 19, 2007

Page: 3

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061407

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19586

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242585

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	16G7570	WG242582-01 50umol/mol STD	NA	1	1	STD18652	06/14/07 09:55
2	16G7571	WG242585-01 BLANK	NA	1	1		06/14/07 10:14
3	16G7572	WG242585-02 20umol/mol LCS	NA	1	1	STD18652	06/14/07 10:28
4	16G7573	WG242585-03 20umol/mol LCS DUP	NA	1	1	STD18652	06/14/07 10:42
5	16G7574	L0706043-15 C 100X	7	1	100		06/14/07 11:01
6	16G7575	L0706043-16 C 50X	7	1	50		06/14/07 11:15
7	16G7576	L0706148-02 B 50X	7	1	50		06/14/07 11:29
8	16G7577	L0706148-03 B 50X	7	1	50		06/14/07 11:43
9	16G7578	L0706194-01 B 50X	7	1	50		06/14/07 11:57
10	16G7579	L0706194-02 B 50X	7	1	50		06/14/07 12:11
11	16G7580	L0706194-03 B 50X	7	1	50		06/14/07 12:25
12	16G7581	WG242582-02 50umol/mol STD	NA	1	1	STD18652	06/14/07 12:39
13	16G7582	L0706073-14 A 10X	7	1	10		06/14/07 12:57
14	16G7583	L0706073-15 A 10X	7	1	10		06/14/07 13:11
15	16G7584	WG242582-03 50umol/mol STD	NA	1	1	STD18652	06/14/07 13:25
16	16G7585	L0706073-01 B 50X	7	1	50		06/14/07 14:20
17	16G7586	L0706073-02 B 50X	7	1	50		06/14/07 14:34
18	16G7587	L0706073-03 B 10X	7	1	10		06/14/07 14:49
19	16G7588	L0706073-04 B 10X MS	7	1	10	STD18652	06/14/07 15:09
20	16G7589	L0706073-05 B 10X MSD	7	1	10	STD18652	06/14/07 15:23
21	16G7590	WG242582-04 50umol/mol STD	NA	1	1	STD18652	06/14/07 15:37
22	16G7591	L0706073-06 B 50X	7	1	50		06/14/07 15:51
23	16G7592	L0706073-07 B 50X	7	1	50		06/14/07 16:05
24	16G7593	L0706073-08 B 100X	7	1	100		06/14/07 16:19
25	16G7594	L0706073-09 B 50X	7	1	50		06/14/07 16:33
26	16G7595	L0706073-10 B 50X	7	1	50		06/14/07 16:47
27	16G7596	L0706104-01 A 10X	7	1	10		06/14/07 17:01
28	16G7597	WG242582-05 50umol/mol STD	NA	1	1	STD18652	06/14/07 17:15

Comments

Seq.	Rerun	Dil.	Reason	Analytes
27	X	100	Over Calibration Range	CO2
File ID: 16G7596				

Approved: June 18, 2007

Page: 1

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061407

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19586

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242585

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Approved: June 18, 2007

Page: 2

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: RSK175 AAB#: WG242372

Login Number: L0706148

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW05	06/06/07	06/07/07	06/12/07	14	5.90	06/12/07	14	5.90	
16WW38	06/06/07	06/07/07	06/12/07	14	5.88	06/12/07	14	5.88	
16WW37	06/06/07	06/07/07	06/12/07	14	5.99	06/12/07	14	5.99	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 796766
Report generated 06/20/2007 13:20

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: RSK175 AAB#: WG242585

Login Number: L0706148

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW05	06/06/07	06/07/07	06/14/07	14	7.94	06/14/07	14	7.94	
16WW38	06/06/07	06/07/07	06/14/07	14	7.92	06/14/07	14	7.92	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 796766
Report generated 06/20/2007 13:20

SURROGATE STANDARDS

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

METHOD BLANK SUMMARY

Login Number: L0706148
Blank File ID: 16G7518
Prep Date: 06/12/07 09:33
Analyzed Date: 06/12/07 09:33
Analyst: FJB

Work Group: WG242372
Blank Sample ID: WG242372-01
Instrument ID: HP16
Method: RSK175

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242372-02	16G7519	06/12/07 09:47	01
LCS2	WG242372-03	16G7520	06/12/07 10:01	01
16WW37	L0706148-01	16G7521	06/12/07 10:20	DL01
16WW05	L0706148-02	16G7522	06/12/07 10:34	DL01
16WW38	L0706148-03	16G7523	06/12/07 10:48	DL01

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 793227
Report generated 06/20/2007 13:20

METHOD BLANK SUMMARY

Login Number: L0706148
Work Group: WG242585
Blank File ID: 16G7571
Blank Sample ID: WG242585-01
Prep Date: 06/14/07 10:14
Instrument ID: HP16
Analyzed Date: 06/14/07 10:14
Method: RSK175
Analyst: FJB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242585-02	16G7572	06/14/07 10:28	01
LCS2	WG242585-03	16G7573	06/14/07 10:42	01
16WW05	L0706148-02	16G7576	06/14/07 11:29	DL02
16WW38	L0706148-03	16G7577	06/14/07 11:43	DL02

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 793227
Report generated 06/20/2007 13:20

00084790

METHOD BLANK REPORT

Login Number: L0706148
Prep Date: 06/12/07 09:33
Sample ID: WG242372-01
Instrument ID: HP16
Run Date: 06/12/07 09:33
Prep Method: 5021
File ID: 16G7518
Analvst: FJB
Method: RSK175
Workgroup (AAB#): WG242372
Matrix: Water
Units: ug/L
Contract #: DACA56-94-D-0020
Cal ID: HP16 - 08-JAN-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Methane	0.250	0.50	0.250	1	U
Ethene	0.250	0.50	0.250	1	U
Ethane	0.250	0.50	0.250	1	U
Carbon Dioxide	250	500	250	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 793228
Report generated 06/20/2007 13:20

METHOD BLANK REPORT

Login Number: L0706148 Prep Date: 06/14/07 10:14 Sample ID: WG242585-01
Instrument ID: HP16 Run Date: 06/14/07 10:14 Prep Method: 5021
File ID: 16G7571 Analyst: FJB Method: RSK175
Workgroup (AAB#): WG242585 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HP16 - 08-JAN-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Methane	0.250	0.50	0.281	1	J
Ethene	0.250	0.50	0.250	1	U
Ethane	0.250	0.50	0.250	1	U
Carbon Dioxide	250	500	250	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 793228
Report generated 06/20/2007 13:20

KEMRON Environmental Services

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 Analvst: FJB Prep Method: 5021
Instrument ID: HP16 Matrix: Water Method: RSK175
Workgroup (AAB#): WG242585 Units: ug/L
Sample ID: WG242585-02 LCS File ID: 16G7572 Run Date: 06/14/2007 10:28
Sample ID: WG242585-03 LCS2 File ID: 16G7573 Run Date: 06/14/2007 10:42

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Methane	34.3	30.1	87.8	34.3	32.6	95.3	8.21	56 - 140	40	
Ethene	59.9	53.1	88.7	59.9	58.0	96.8	8.72	56 - 140	40	
Ethane	64.2	56.3	87.8	64.2	61.4	95.6	8.58	56 - 137	40	
Carbon Dioxide	1410	1500	106	1410	1210	86.0	21.2	50 - 150	40	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 793229
Report generated 06/20/2007 13:20

00084793

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 Analvst: FJB Prep Method: 5021
Instrument ID: HP16 Matrix: Water Method: RSK175
Workgroup (AAB#): WG242372 Units: ug/L
Sample ID: WG242372-02 LCS File ID: 16G7519 Run Date: 06/12/2007 09:47
Sample ID: WG242372-03 LCS2 File ID: 16G7520 Run Date: 06/12/2007 10:01

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Methane	34.3	33.6	98.2	34.3	30.3	88.6	10.3	56 - 140	40	
Ethene	59.9	59.3	99.0	59.9	54.2	90.5	9.06	56 - 140	40	
Ethane	64.2	63.2	98.5	64.2	58.1	90.4	8.54	56 - 137	40	
Carbon Dioxide	1410	1400	99.0	1410	1410	100	1.17	50 - 150	40	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 793229
Report generated 06/20/2007 13:20

KEMRON Environmental Services

INITIAL CALIBRATION SUMMARY

Login Number: L0706148
Analytical Method: RSK175
ICAL Workgroup: WG231016

Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
carbon dioxide		3063	21.6		0.999
ethane		157300	15.9	0.999	
ethene		156800	21.1	0.999	
methane		111400	70.0	0.999	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 796767
Report generated 06/20/2007 13:20

INITIAL CALIBRATION DATA

Login Number: L0706148
Analytical Method: RSK175
Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte	WG231016-01			WG231016-02			WG231016-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
carbon dioxide	50.0	193826.000	3877	100	354261.000	3543	200	527788.000	2639
ethane	0.100	21151.0000	211500	1.00	156994.000	157000	10.0	1466086.00	146600
ethene	0.100	23051.0000	230500	1.00	150346.000	150300	10.0	1436526.00	143700
methane	0.100	28696.0000	287000	1.00	102622.000	102600	10.0	785304.000	78530

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 796767
Report generated 06/20/2007 13:20

KEMRON Environmental Services

INITIAL CALIBRATION DATA

Login Number: L0706148
Analytical Method: RSK175
Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte	WG231016-04			WG231016-06			WG231016-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
carbon dioxide	300	722371.000	2408	500	1155791.00	2312	1000	2874182.00	2874
ethane	20.0	2721136.00	136100	100	14910718.0	149100	200	28920601.0	144600
ethene	20.0	2678018.00	133900	100	14417593.0	144200	200	28265113.0	141300
methane	20.0	1459030.00	72950	100	7868122.00	78680	200	15414754.0	77070

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 796767
Report generated 06/20/2007 13:20

Login Number: L0706148
Analytical Method: RSK175
Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte	WG231016-08		
	CONC	RESP	RF
carbon dioxide	2000	7581941.00	3791
ethane	300	46954497.0	156500
ethene	300	46020766.0	153400
methane	300	24903631.0	83010

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 796767
Report generated 06/20/2007 13:20

KEMRON Environmental Services

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706148
Run Date: 01/08/2007
Sample ID: WG231016-09
Instrument ID: HP16
Run Time: 17:06
Method: RSK175
File ID: 16G5778
Analyst: JLS
ICal Workgroup: WG231016
Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
methane		34.3	31.5	ug/L	74300	8.10	30	
ethene		59.9	53.8	ug/L	134000	10.1	30	
ethane		64.2	57.7	ug/L	137000	10.0	30	
carbon dioxide		1410	741	ug/L	1180	47.4	60	

* Exceeds %D Limit

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 796789
Report generated 06/20/2007 13:34

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706148 Run Date: 06/12/2007 Sample ID: WG242371-01
Instrument ID: HP16 Run Time: 09:11 Method: RSK175
File ID: 16G7517 Analyst: FJB
Workgroup (AAB#): WG242372 Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	80.3	ug/L	75900	6.18	25	
ethene		150	144	ug/L	143000	3.95	25	
ethane		160	153	ug/L	145000	4.89	25	
carbon dioxide		1880	1430	ug/L	1800	23.7	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796768
Report generated 06/20/2007 13:20

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706148
Run Date: 06/12/2007
Sample ID: WG242371-02
Instrument ID: HP16
Run Time: 11:44
Method: RSK175
File ID: 16G7527
Analyst: FJB
Workgroup (AAB#): WG242372
Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	72.7	ug/L	68700	15.1	25	
ethene		150	129	ug/L	128000	14.0	25	
ethane		160	138	ug/L	131000	14.3	25	
carbon dioxide		1880	1450	ug/L	1830	22.8	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796768
Report generated 06/20/2007 13:20

CONTINUING CALIBRATION VERIFICATION (CCV)

00084801

Login Number: L0706148
Run Date: 06/14/2007
Sample ID: WG242582-01
Instrument ID: HP16
Run Time: 09:55
Method: RSK175
File ID: 16G7570
Analyst: FJB
Workgroup (AAB#): WG242585
Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	71.3	ug/L	67400	16.7	25	
ethene		150	128	ug/L	128000	14.4	25	
ethane		160	136	ug/L	129000	15.5	25	
carbon dioxide		1880	2030	ug/L	2660	7.95	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796768
Report generated 06/20/2007 13:20

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706148
Run Date: 06/14/2007
Sample ID: WG242582-02
Instrument ID: HP16
Run Time: 12:39
Method: RSK175
File ID: 16G7581
Analvst: FJB
Workgroup (AAB#): WG242585
Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	84.9	ug/L	80200	0.815	25	
ethene		150	150	ug/L	149000	0.0550	25	
ethane		160	160	ug/L	152000	0.534	25	
carbon dioxide		1880	1000	ug/L	1220	46.6	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796768
Report generated 06/20/2007 13:20

2.2 General Chemistry Data

2.2.1 Method 9056

2.2.1.1 Summary Data

LABORATORY REPORT

00084806

L0706148

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW37	L0706148-01	300.0	100	07-JUN-07
16WW05	L0706148-02	300.0	10	07-JUN-07
16WW05	L0706148-02	300.0	100	07-JUN-07
16WW38	L0706148-03	300.0	10	07-JUN-07
16WW38	L0706148-03	300.0	200	07-JUN-07

Sample Number: L0706148-01
Client ID: 16WW37
Matrix: Water
Workgroup Number: WG242420
Collect Date: 06/06/2007 10:30
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 300.0
Analytical Method: 300.0
Analyst: DSF
Dilution: 100
Units: mg/L

Instrument: IC2
Prep Date: 06/11/2007 11:20
Cal Date: 03/24/2007 11:20
Run Date: 06/11/2007 11:20
File ID: I2061107.19

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	1130		20.0	10.0
Nitrate	14797-55-8		U	60.0	10.0
Nitrite	14797-65-0		U	40.0	10.0
Sulfate	14808-79-8	1160		100	50.0

U Not detected at or above adjusted sample detection limit

Sample Number: L0706148-02
Client ID: 16WW05
Matrix: Water
Workgroup Number: WG242420
Collect Date: 06/06/2007 13:00
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 300.0
Analytical Method: 300.0
Analyst: DSF
Dilution: 10
Units: mg/L

Instrument: IC2
Prep Date: 06/11/2007 11:37
Cal Date: 03/24/2007 11:20
Run Date: 06/11/2007 11:37
File ID: I2061107.20

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	888	I	2.00	1.00
Nitrate	14797-55-8		U	6.00	1.00
Nitrite	14797-65-0		U	4.00	1.00
Sulfate	14808-79-8	18.9		10.0	5.00

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number: L0706148-02
Client ID: 16WW05
Matrix: Water
Workgroup Number: WG242420
Collect Date: 06/06/2007 13:00
Sample Tag: DL02

PrePrep Method: NONE
Prep Method: 300.0
Analytical Method: 300.0
Analyst: DSF
Dilution: 100
Units: mg/L

Instrument: IC2
Prep Date: 06/11/2007 13:04
Cal Date: 03/24/2007 11:20
Run Date: 06/11/2007 13:04
File ID: I2061107.25

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	848		20.0	10.0
Nitrate	14797-55-8		U	60.0	10.0
Nitrite	14797-65-0		U	40.0	10.0
Sulfate	14808-79-8		U	100	50.0

U Not detected at or above adjusted sample detection limit

Sample Number:	**L0706148-03**	PrePrep Method:	**NONE**	Instrument:	**IC2**
Client ID:	**16WW38**	Prep Method:	**300.0**	Prep Date:	**06/11/2007 11:55**
Matrix:	**Water**	Analytical Method:	**300.0**	Cal Date:	**03/24/2007 11:20**
Workgroup Number:	**WG242420**	Analyst:	**DSF**	Run Date:	**06/11/2007 11:55**
Collect Date:	**06/06/2007 13:40**	Dilution:	**10**	File ID:	**I2061107.21**
Sample Tag:	**DL01**	Units:	**mg/L**		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	**16887-00-6**	**1280**	**I**	**2.00**	**1.00**
Nitrate	**14797-55-8**		**U**	**6.00**	**1.00**
Nitrite	**14797-65-0**		**U**	**4.00**	**1.00**
Sulfate	**14808-79-8**	**112**		**10.0**	**5.00**

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number: **L0706148-03**
Client ID: **16WW38**
Matrix: **Water**
Workgroup Number: **WG242420**
Collect Date: **06/06/2007 13:40**
Sample Tag: **DL02**

PrePrep Method: **NONE**
Prep Method: **300.0**
Analytical Method: **300.0**
Analyst: **DSF**
Dilution: **200**
Units: **mg/L**

Instrument: **IC2**
Prep Date: **06/11/2007 13:22**
Cal Date: **03/24/2007 11:20**
Run Date: **06/11/2007 13:22**
File ID: **I2061107.26**

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	1320		40.0	20.0
Nitrate	14797-55-8		U	120	20.0
Nitrite	14797-65-0		U	80.0	20.0
Sulfate	14808-79-8	124	J	200	100

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

2.2.1.2 QC Summary Data

The concentrations (ppm) of the calibration standards and the resulting area counts are used to determine the equation of a linear or quadratic plot.
The slope and y-intercept of that line are used to calculate the quantity of the analyzed unkown samples.
Amount(ppm) = [(slope)(area count of unknown) + y-intercept](dilution)
(The slope is the amt/area also identified as the CF or calibration factor)

KEMRON Environmental Services

Instrument Run Log

Instrument: IC2 Dataset: 032407 CURVE IC2.SEQ

Analyst1: JWR Analyst2: NA

Method: 9056/300 SOP: IC1 Rev: 7

Maintenance Log ID: 18409

Column 1 ID: AS14A-4MM Column 2 ID: NA

Workgroups: WG236271

Internal STD: NA Surrogate STD: NA Calibration STD STD17414

Comments: Method 300/9056 Calibration Curve and Alt. Source were analyzed only.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I2032407.01	WG236271-01 STD \#1	1	1		03/24/07 09:36
2	I2032407.02	WG236271-02 STD \#1.5	1	1		03/24/07 09:53
3	I2032407.03	WG236271-03 STD \#2	1	1		03/24/07 10:11
4	I2032407.04	WG236271-04 STD \#3	1	1		03/24/07 10:28
5	I2032407.05	WG236271-05 STD \#4	1	1		03/24/07 10:46
6	I2032407.06	WG236271-06 STD \#5	1	1		03/24/07 11:03
7	I2032407.07	WG236271-07 STD \#6	1	1		03/24/07 11:20
8	I2032407.08	WG236271-08 ALT STD	1	1		03/24/07 11:38
9	I2032407.09	ELUENT	1	1		03/24/07 11:55
10	I2032407.10	DI WATER	1	1		03/24/07 12:13

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1 of 1 Approved: 27-MAR-07

KEMRON Environmental Services

Instrument Run Log

Instrument: IC2 Dataset: 061107 IC2.SEQ

Analyst1: DSF Analyst2: NA

Method: 9056/300 SOP: IC1 Rev: 7

Maintenance Log ID: 19512

Column 1 ID: AS14A-4MM Column 2 ID: NA

Workgroups: WG242420

Internal STD: NA Surrogate STD: NA Calibration STD STD17414

Comments: L0706134 samples were analyzed for Cl and SO4.
L0706148 samples were analyzed for Cl, NO2, NO3 and SO4.
L0706201-02 was analyzed for Br in a dilution from a previous sequence run.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I2061107.09	ELUENT	1	1		06/11/07 08:25
2	I2061107.10	DI WATER	1	1		06/11/07 08:43
3	I2061107.11	WG242421-01 ANION CCV	1	1		06/11/07 09:00
4	I2061107.12	WG242421-02 ANION CCB	1	1		06/11/07 09:18
5	I2061107.13	WG242420-01 ANION BLANK	1	1		06/11/07 09:35
6	I2061107.14	WG242420-02 ANION LCS	1	1		06/11/07 09:53
7	I2061107.15	L0706134-01 (Cl, SO4) 1/100	1	100		06/11/07 10:10
8	I2061107.16	L0706134-03 (Cl, SO4) 1/10	1	10		06/11/07 10:27
9	I2061107.17	L0706134-05 (Cl, SO4) 1/10	1	10		06/11/07 10:45
10	I2061107.18	L0706136-05 RR Cl 1/3	1	3		06/11/07 11:02
11	I2061107.19	L0706148-01 (Cl, NO2, NO3, SO4) 1/100	1	100		06/11/07 11:20
12	I2061107.20	L0706148-02 (Cl, NO2, NO3, SO4) 1/10	1	10		06/11/07 11:37
13	I2061107.21	L0706148-03 (Cl,NO2,NO3,SO4) 1/10 REF	1	10		06/11/07 11:55
14	I2061107.22	WG242420-04 DUP 148-03 1/10	1	10		06/11/07 12:12
15	I2061107.23	WG242421-03 ANION CCV	1	1		06/11/07 12:29
16	I2061107.24	WG242421-04 ANION CCB	1	1		06/11/07 12:47
17	I2061107.25	L0706148-02 RR Cl 1/100	1	100		06/11/07 13:04
18	I2061107.26	L0706148-03 RR Cl 1/200	1	200		06/11/07 13:22
19	I2061107.27	L0706201-02 RR Br 1/20	1	20		06/11/07 13:39
20	I2061107.28	WG242421-05 ANION CCV	1	1		06/11/07 13:56
21	I2061107.29	WG242421-06 ANION CCB	1	1		06/11/07 14:14

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7		100	Over Calibration Range	Chloride, Sulfate
	Sample analyzed at a dilution only due to very high pre-run screen results for chloride and sulfate. This was done to prevent possible damage to the instrument.			
8		10	Over Calibration Range	Chloride, Sulfate
	Sample analyzed at a dilution only due to very high pre-run screen results for chloride and sulfate. This was done to prevent possible damage to the instrument.			
9		10	Over Calibration Range	Chloride, Sulfate
	Sample analyzed at a dilution only due to very high pre-run screen results for chloride and sulfate. This was done to prevent possible damage to the instrument.			
10		3	Over Calibration Range	Chloride
	Sample was originally analyzed in WG242403 and needed a dilution for chloride.			
11		100	Over Calibration Range	Chloride, Sulfate
	Sample analyzed at a dilution only due to very high pre-run screen results for chloride and sulfate. This was done to prevent possible			

Page: 1 Approved: 14-JUN-07

KEMRON Environmental Services

Instrument Run Log

Instrument: IC2 Dataset: 061107 IC2.SEQ

Analyst1: DSF Analyst2: NA

Method: 9056/300 SOP: IC1 Rev: 7

Maintenance Log ID: 19512

Column 1 ID: AS14A-4MM Column 2 ID: NA

Workgroups: WG242420

Internal STD: NA Surrogate STD: NA STD17414

Comments

Seq.	Rerun	Dil.	Reason	Analytes
	damage to the instrument.			
12		100	Over Calibration Range	Chloride, Sulfate
	Sample analyzed at a dilution only due to very high pre-run screen results for chloride and sulfate. Needed re-analyzed at a 1/100 dilution for chloride being over its calibration range.			
13	X	200	Over Calibration Range	Chloride, Sulfate
	Sample analyzed at a dilution only due to very high pre-run screen results for chloride and sulfate. Sample re-run at a 1/200 dilution for chloride being over its calibration range.			
19		20		Bromide
	Sample was originally analyzed in WG242403 and needed 1/20 dilution for bromide being over its calibration range.			

Approved: 14-JUN-07

KEMRON Environmental Services
Data Checklist

Date: 24-MAR-2007
Analyst: JWR
Analyst: NA
Method: 300/9056
Instrument: IC2
Curve Workgroup: WG236271
Runlog ID: 15285
Analytical Workgroups: NA

System Performance Check	
Eluent check	X
Initial Calibration	X
Average RF	
Linear Reg or Higher Order Curve	03/24/07
Alt Source Check	03/24/07
Continuing Calibration	
Continuing Calibration	
Client Specific Requirements	
Blanks	
Quant Report / Chromatogram	X
Spike Compounds	
MS/MSD	
Excel Spreadsheet	
Samples	
TCL Hits	X
Manual Integrations	X
Data Package	
Level 2	
Level 3	
Level 4	
Primary Reviewer	JWR
Secondary Reviewer	MDC
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	NA
Check the resonableness of the results	X
Comments:	
Method 300/9056 Calibration Curve and Alt. Source were analyzed on this day.	
ASRS ULTRA II Suppressor was installed on this IC on 03/23/07.	

Primary Reviewer: 24-MAR-2007
John Richards

Secondary Reviewer: 27-MAR-2007
Michael Cochran

Generated: MAR-27-2007 14:57:19

KEMRON Environmental Services
Data Checklist

Date: 11-JUN-2007
Analyst: DSF
Analyst: NA
Method: 300/9056
Instrument: IC2
Curve Workgroup: NA
Runlog ID: 16596
Analytical Workgroups: L0706134, L0706136, L0706148, L0706201-02

ANALYTICAL	
System Performance Check	
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	X
Window standard (FID)	NA
Initial Calibration	
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	
% D/% Drift	X
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	X
Special standards	NA
Blanks	X
TCL hits	NA
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	
Recoveries	X
%RPD	X
Samples	
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	X
Reruns	X
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	X
Check for completeness	X
Primary Reviewer	DSF
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MDC

Primary Reviewer: 13-JUN-2007
Debra S. Frederick

Secondary Reviewer: 14-JUN-2007
Michael Cochran

Generated: JUN-18-2007 09:40:16

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 300.0 AAB#: WG242420
Login Number: L0706148

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW05	06/06/07	06/07/07	06/11/07	2	4.94	06/11/07	2	4.94	*ANAL
16WW38	06/06/07	06/07/07	06/11/07	2	4.93	06/11/07	2	4.93	*ANAL
16WW37	06/06/07	06/07/07	06/11/07	2	5.03	06/11/07	2	5.03	*ANAL
16WW05	06/06/07	06/07/07	06/11/07	2	5.00	06/11/07	2	5.00	*ANAL
16WW38	06/06/07	06/07/07	06/11/07	2	4.99	06/11/07	2	4.99	*ANAL

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 789201
Report generated 06/14/2007 10:38

METHOD BLANK SUMMARY

Login Number:	L0706148	Work Group:	WG242420
Blank File ID:	I2061107.13	Blank Sample ID:	WG242420-01
Prep Date:	06/11/07 09:35	Instrument ID:	IC2
Analyzed Date:	06/11/07 09:35	Method:	300.0
Analyst:	DSF		

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242420-02	I2061107.14	06/11/07 09:53	01
16WW37	L0706148-01	I2061107.19	06/11/07 11:20	DL01
16WW05	L0706148-02	I2061107.20	06/11/07 11:37	DL01
16WW38	L0706148-03	I2061107.21	06/11/07 11:55	DL01
DUP	WG242420-04	I2061107.22	06/11/07 12:12	DL01
16WW05	L0706148-02	I2061107.25	06/11/07 13:04	DL02
16WW38	L0706148-03	I2061107.26	06/11/07 13:22	DL02

KEMRON Environmental Services

METHOD BLANK REPORT

Login Number: L0706148 Prep Date: 06/11/07 09:35 Sample ID: WG242420-01
Instrument ID: IC2 Run Date: 06/11/07 09:35 Prep Method: 300.0
File ID: I2061107.13 Analyst: DSF Method: 300.0
Workgroup (AAB#): WG242420 Matrix: Water Units: mg/L
Contract #: DACA56-94-D-0020 Cal ID: IC2 - 24-MAR-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0.100	1	U
Nitrate	0.100	0.600	0.100	1	U
Nitrite	0.100	0.400	0.100	1	U
Sulfate	0.500	1.00	0.500	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 789203
Report generated 06/14/2007 10:38

KEMRON Environmental Services

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242420-02
Instrument ID: IC2
Run Time: 09:53
Prep Method: 300.0
File ID: I2061107.14
Analyst: DSF
Method: 300.0
Workgroup (AAB#): WG242420
Matrix: Water
Units: mg/L
Contract #: DACA56-94-D-0020
Cal ID: IC2 - 24-MAR-07

Analytes	Expected	Found	% Rec	LCS Limits	Q
Chloride	6.00	5.86	97.7	90 - 110	
Nitrate	4.07	4.19	103	90 - 110	
Nitrite	3.65	3.68	101	90 - 110	
Sulfate	30.0	30.6	102	90 - 110	

KEMRON FORMS - Modified 12/15/2006
Version 1.5 PDF File ID: 789204
Report generated 06/14/2007 10:38

DUPLICATE (DUP)

Sample Ref: L0706148-03 Cal ID: IC2 - Worknum: WG242420
Instrument ID: IC2 Method: 9056
Sample ID: WG242420-03 File ID: I2061107.21 Dil: 10 Matrix: WATER
Duplicate ID: WG242420-04 File ID: I2061107.22 Dil: 10 Units: mg/L

Analyte	Sample	Duplicate	RPD	RPD Limit	Q
Chloride	1280	1290	0.309	20	
Nitrate	ND	ND	0	20	
Nitrite	ND	ND	0	20	
Sulfate	112	113	0.750	20	

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

KEMRON FORMS - Modified 03/06/2006
Version 1.5 PDF File ID: 789205
Report generated 06/14/2007 10:38

INITIAL CALIBRATION SUMMARY

Login Number: L0706148
Analytical Method: 300.0
ICAL Workgroup: WG236271

Instrument ID: IC2
Initial Calibration Date: 24-MAR-07 11:20
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
Chloride		9.558	8.39		
Nitrate		3.934	6.21		
Nitrite		4.410	5.98		
Sulfate		12.39	5.81		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum
This method always uses quadratic calibration model (R^2)

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 791126
Report generated 06/14/2007 10:38

KEMRON Environmental Services

INITIAL CALIBRATION DATA

Login Number: L0706148
Analytical Method: 300.0
Instrument ID: IC2
Initial Calibration Date: 24-MAR-07 11:20
Column ID: F

Analyte	WG236271-01			WG236271-02			WG236271-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	0.200	0.0190000000	10.53	1.00	0.0970000000	10.31	2.00	0.194000000	10.31
Nitrate	0.136	0.0310000000	4.371	0.678	0.166000000	4.083	1.36	0.336000000	4.034
Nitrite	0.122	0.0250000000	4.872	0.609	0.132000000	4.613	1.22	0.272000000	4.477
Sulfate	1.00	0.0750000000	13.33	5.00	0.384000000	13.02	10.0	0.781000000	12.80

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 791126
Report generated 06/14/2007 10:38

Login Number: L0706148
Analytical Method: 300.0

Instrument ID: IC2
Initial Calibration Date: 24-MAR-07 11:20
Column ID: F

Analyte	WG236271-04			WG236271-05			WG236271-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	4.00	0.433000000	9.238	6.00	0.654000000	9.174	8.00	0.931000000	8.593
Nitrate	2.71	0.699000000	3.878	4.07	1.07900000	3.768	5.42	1.43000000	3.791
Nitrite	2.44	0.559000000	4.357	3.65	0.854000000	4.278	4.87	1.15800000	4.207
Sulfate	20.0	1.61500000	12.38	30.0	2.50300000	11.99	40.0	3.37800000	11.84

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 791126
Report generated 06/14/2007 10:38

INITIAL CALIBRATION DATA

Login Number: L0706148
Analytical Method: 300.0

Instrument ID: IC2
Initial Calibration Date: 24-MAR-07 11:20
Column ID: F

Analyte	WG236271-07		
	CONC	RESP	RF
Chloride	12.0	1.37000000	8.759
Nitrate	8.13	2.25100000	3.613
Nitrite	7.31	1.79600000	4.068
Sulfate	60.0	5.29600000	11.33

KEMRON Environmental Services

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706148
Run Date: 03/24/2007
Sample ID: WG236271-08
Instrument ID: IC2
Run Time: 11:38
Method: 300.0
File ID: I2032407.08
Analyst: JWR
ICal Workgroup: WG236271
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chloride		6.00	5.91	mg/L	9.12	1.50	10	
Nitrate		4.07	4.11	mg/L	3.78	1.10	10	
Nitrite		3.65	3.66	mg/L	4.27	0.300	10	
Sulfate		30.0	30.2	mg/L	12.0	0.600	10	

* Exceeds %D Limit

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 791127
Report generated 06/14/2007 10:38

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242421-02
Instrument ID: IC2
Run Time: 09:18
Method: 300.0
File ID: I2061107.12
Analyst: DSF
Units: mg/L
Workgroup (AAB#): WG242420
Cal ID: IC2 -

Analytes	MDL	RDL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0		U
Nitrate	0.100	0.600	0		U
Nitrite	0.100	0.400	0		U
Sulfate	0.500	1.00	0		U

U = Result is less than MDL
F = Result is between MDL and RL
* = Result is above RL

KEMRON FORMS - Modified 09/27/2006
Version 2.0 PDF File ID: 789207
Report generated 06/14/2007 10:38

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242421-04
Instrument ID: IC2
Run Time: 12:47
Method: 300.0
File ID: I2061107.24
Analyst: DSF
Units: mg/L
Workgroup (AAB#): WG242420
Cal ID: IC2 -

Analytes	MDL	RDL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0		U
Nitrate	0.100	0.600	0		U
Nitrite	0.100	0.400	0		U
Sulfate	0.500	1.00	0		U

U = Result is less than MDL
F = Result is between MDL and RL
* = Result is above RL

00084831

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242421-06
Instrument ID: IC2
Run Time: 14:14
Method: 300.0
File ID: I2061107.29
Analyst: DSF
Units: mg/L
Workgroup (AAB#): WG242420
Cal ID: IC2 -

Analytes	MDL	RDL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0		U
Nitrate	0.100	0.600	0		U
Nitrite	0.100	0.400	0		U
Sulfate	0.500	1.00	0		U

U = Result is less than MDL
F = Result is between MDL and RL
* = Result is above RL

KEMRON FORMS - Modified 09/27/2006
Version 2.0 PDF File ID: 789207
Report generated 06/14/2007 10:38

CONTINUING CALIBRATION VERIFICATION (CCV)

00084832

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242421-01
Instrument ID: IC2
Run Time: 09:00
Method: 300.0
File ID: I2061107.11
Analyst: DSF
Workgroup (AAB#): WG242420
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		6.00	5.87	mg/L	9.19	2.25	10	
Nitrate		4.07	4.09	mg/L	3.80	0.487	10	
Nitrite		3.65	3.58	mg/L	4.38	2.12	10	
Sulfate		30.0	30.5	mg/L	11.8	1.79	10	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 789206
Report generated 06/14/2007 10:38

CONTINUING CALIBRATION VERIFICATION (CCV)

00084833

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242421-03
Instrument ID: IC2
Run Time: 12:29
Method: 300.0
File ID: I2061107.23
Analyst: DSF
Workgroup (AAB#): WG242420
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		6.00	5.87	mg/L	9.17	2.17	10	
Nitrate		4.07	4.05	mg/L	3.83	0.349	10	
Nitrite		3.65	3.58	mg/L	4.38	2.15	10	
Sulfate		30.0	30.7	mg/L	11.8	2.31	10	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 789206
Report generated 06/14/2007 10:38

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706148
Run Date: 06/11/2007
Sample ID: WG242421-05
Instrument ID: IC2
Run Time: 13:56
Method: 300.0
File ID: I2061107.28
Analyst: DSF
Workgroup (AAB#): WG242420
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		6.00	5.85	mg/L	9.22	2.55	10	
Nitrate		4.07	4.09	mg/L	3.79	0.634	10	
Nitrite		3.65	3.58	mg/L	4.37	1.90	10	
Sulfate		30.0	30.8	mg/L	11.7	2.83	10	

* Exceeds %D Criteria

2.2.2 Perchlorate Data

2.2.2.1 Summary Data

LABORATORY REPORT

00084837

L0706148

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW37	L0706148-01	314.0	10	07-JUN-07
16WW05	L0706148-02	314.0	4	07-JUN-07
16WW38	L0706148-03	314.0	5	07-JUN-07

Sample Number:	**L0706148-01**	PrePrep Method:	**NONE**	Instrument:	**IC1**
Client ID:	**16WW37**	Prep Method:	**314.0**	Prep Date:	**06/14/2007 16:44**
Matrix:	**Water**	Analytical Method:	**314.0**	Cal Date:	**06/14/2007 13:40**
Workgroup Number:	**WG242735**	Analyst:	**DSF**	Run Date:	**06/14/2007 16:44**
Collect Date:	**06/06/2007 10:30**	Dilution:	**10**	File ID:	**I1061407.15**
Sample Tag:	**DL01**	Units:	**ug/L**		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Perchlorate	**14797-73-0**	**56.8**		**10.0**	**5.00**

Sample Number:	**L0706148-02**	PrePrep Method:	**NONE**	Instrument:	**IC1**
Client ID:	**16WW05**	Prep Method:	**314.0**	Prep Date:	**06/14/2007 17:04**
Matrix:	**Water**	Analytical Method:	**314.0**	Cal Date:	**06/14/2007 13:40**
Workgroup Number:	**WG242735**	Analyst:	**DSF**	Run Date:	**06/14/2007 17:04**
Collect Date:	**06/06/2007 13:00**	Dilution:	**4**	File ID:	**I1061407.16**
Sample Tag:	**DL01**	Units:	**ug/L**		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Perchlorate	**14797-73-0**		**U**	**4.00**	**2.00**

U Not detected at or above adjusted sample detection limit

Sample Number:	L0706148-03	PrePrep Method:	NONE	Instrument:	IC1
Client ID:	16WW38	Prep Method:	314.0	Prep Date:	06/14/2007 17:24
Matrix:	Water	Analytical Method:	314.0	Cal Date:	06/14/2007 13:40
Workgroup Number:	WG242735	Analyst:	DSF	Run Date:	06/14/2007 17:24
Collect Date:	06/06/2007 13:40	Dilution:	5	File ID:	I1061407.17
Sample Tag:	DL01	Units:	ug/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Perchlorate	14797-73-0		U	5.00	2.50

U Not detected at or above adjusted sample detection limit

2.2.2.2 QC Summary Data

2.2.3 Alkalinity Data

2.2.3.1 Summary Data

LABORATORY REPORT

00084844

L0706148

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW37	L0706148-01	310.2	4	07-JUN-07
16WW05	L0706148-02	310.2	1	07-JUN-07
16WW38	L0706148-03	310.2	1	07-JUN-07

KEMRON FORMS - Modified 11/30/2005 1 OF 1
Version 1.5 PDF File ID: 796961
Report generated 06/20/2007 14:57

Sample Number: L0706148-01
Client ID: 16WW37
Matrix: Water
Workgroup Number: WG242228
Collect Date: 06/06/2007 10:30
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 310.2
Analytical Method: 310.2
Analyst: DIH
Dilution: 4
Units: mg/L

Instrument: SMARTCHEM
Prep Date: 06/11/2007 09:37
Cal Date: 06/11/2007 09:33
Run Date: 06/11/2007 09:37
File ID: SC070611001.012

Analyte	CAS. Number	Result	Qual	PQL	SQL
Alkalinity, Total		369		40.0	20.0

Sample Number: **L0706148-02**
Client ID: **16WW05**
Matrix: **Water**
Workgroup Number: **WG242228**
Collect Date: **06/06/2007 13:00**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **310.2**
Analytical Method: **310.2**
Analyst: **DIH**
Dilution: **1**
Units: **mg/L**

Instrument: **SMARTCHEM**
Prep Date: **06/11/2007 09:37**
Cal Date: **06/11/2007 09:33**
Run Date: **06/11/2007 09:37**
File ID: **SC070611001.013**

Analyte	CAS. Number	Result	Qual	PQL	SQL
Alkalinity, Total		161		10.0	5.00

Sample Number: **L0706148-03**
Client ID: **16WW38**
Matrix: **Water**
Workgroup Number: **WG242228**
Collect Date: **06/06/2007 13:40**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **310.2**
Analytical Method: **310.2**
Analyst: **DIH**
Dilution: **1**
Units: **mg/L**

Instrument: **SMARTCHEM**
Prep Date: **06/11/2007 09:38**
Cal Date:
Run Date: **06/11/2007 09:38**
File ID: **SC070611001.014**

Analyte	CAS. Number	Result	Qual	PQL	SQL
Alkalinity, Total		**133**		**10.0**	**5.00**

2.2.3.2 QC Summary Data

Example Alkalinity (Colormetric) Calculations

(absorbance - intercept)/(slope * dilution) = mg/L

where:

absorbance = reading from the spectrophotometer
intercept = calculated from calibration standard absorbencies
slope = calculated from calibration standard absorbencies
dilution = dilution of the distillate in decimal form (ex. 1/5 dilution = 0.2)

KEMRON Environmental Services
Data Checklist

Date: 11-JUN-2007
Analyst: DIH
Analyst: NA
Method: ALK
Instrument: SC
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG242228 WG242229 WG242230

Calibration/Linearity	6/11/07
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DIH
Secondary Reviewer	
Comments	

Primary Reviewer:
13-JUN-2007
Donna Hesson

Secondary Reviewer:

Generated: JUN-13-2007 16:27:13

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 310.2 AAB#: WG242228

Login Number: L0706148

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW38	06/06/07	06/07/07	06/11/07	14	4.83	06/11/07	14	4.83	
16WW37	06/06/07	06/07/07	06/11/07	14	4.96	06/11/07	14	4.96	
16WW05	06/06/07	06/07/07	06/11/07	14	4.86	06/11/07	14	4.86	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790651
Report generated 06/13/2007 15:52

METHOD BLANK SUMMARY

Login Number: L0706148
Blank File ID: SC070611001.009
Prep Date: 06/11/07 09:35
Analyzed Date: 06/11/07 09:35
Analyst: DIH

Work Group: WG242228
Blank Sample ID: WG242228-01
Instrument ID: SMARTCHEM
Method: 310.2

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242228-02	SC070611001.010	06/11/07 09:36	01
LCS2	WG242228-03	SC070611001.011	06/11/07 09:36	01
16WW37	L0706148-01	SC070611001.012	06/11/07 09:37	DL01
16WW05	L0706148-02	SC070611001.013	06/11/07 09:37	01
16WW38	L0706148-03	SC070611001.014	06/11/07 09:38	01
DUP	WG242228-05	SC070611001.017	06/11/07 09:39	01

METHOD BLANK REPORT

00084853

Login Number: L0706148
Prep Date: 06/11/07 09:35
Sample ID: WG242228-01
Instrument ID: SMARTCHEM
Run Date: 06/11/07 09:35
Prep Method: 310.2
File ID: SC070611001.009
Analyst: DIH
Method: 310.2
Workgroup (AAB#): WG242228
Matrix: Water
Units: mg/L
Contract #: DACA56-94-D-0020
Cal ID: SMARTC - 11-JUN-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Alkalinity, Total	5.00	10.0	5.00	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 790653
Report generated 06/13/2007 15:52

00084854

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 Analyst: DIH Prep Method: 310.2
Instrument ID: SMARTCHEM Matrix: Water Method: 310.2
Workgroup (AAB#): WG242228 Units: mg/L
Sample ID: WG242228-02 LCS File ID: SC070611001.010 Run Date: 06/11/2007 09:36
Sample ID: WG242228-03 LCS2 File ID: SC070611001.011 Run Date: 06/11/2007 09:36

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Alkalinity, Total	200	214	107	200	214	107	0.130	85 - 115	25	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 790654
Report generated 06/13/2007 15:52

2.2.3.3 Raw Data

KEMRON ENVIRONMENTAL SERVICES

WORKGROUP: WG242228
242229
242230

SMARTCHEM RUN LOG

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [ ] NO3 Reagent bottle connected / purged
- [ ] NO3 pH adj to pH 5-9
- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** ______
Plan # 20070611001
2) **Workgroup** ______
Plan # ______
3) **Workgroup** ______
Plan # ______

Analyte		1	2	3
		ALK		
User Prepared Curve				
SC Prepared Curve				
Position				
1-1	ICV 250			
1-2	BlK			
1-3	LCS 200			
1-4	LCS DUP			
1-5	06-148-01	1/4		color
1-6	02			
1-7	03			
1-8	06-093-07			
1-9	08			
1-10	DUP 08			
1-11	MS 09			
1-12	MSD 10			
1-13	06-094-01	1/2		
1-14	03	1/2		
1-15	05	1/2		
1-16	07	1/2		
1-17	09	1/2		
1-18	06-136-03	1/2		
1-19	05	1/2		
1-20	07	1/2		
1-21	09	1/2		
1-22	11	1/2		
2-1	06-203-01			
2-2	BlK			
2-3	LCS			

Position	Analyte	1	2	3
2-4	LCS DUP			
2-5	06-194-01	1/4		color
2-6	02			
2-7	03			
2-8	06-229-02	1/4		color
2-9	03	1/4		
2-10	05	1/4		
2-11	06	1/4		
2-12	08	1/4 •		
2-13	09	1/4		↓
2-14	06-190-01	1/2		
2-15	03	1/2 •		
2-16	06-073-01			
2-17	02			
2-18	03			
2-19	DUP 03			
2-20	MS 04			
2-21	MSD 05			
2-22	06			
2-23	07			
2-24	08			
2-25	09			
2-26	10			
3-1	~~0~~ 11			
3-2	BlK			

NOTES:
* Run NO2 std on NO3 runs
* LCS/LCS Dup all parameters
* MS/MSD (NO3, TKN, NH3)

DCN#69667

KEMRON ENVIRONMENTAL SERVICES

WORKGROUP: WG242228

SMARTCHEM RUN LOG

Analyte		1	2	3
Position				
3-3	LCS			
3-4	LCSDUP			
3-5	06-073-12			
3-6	13			
3-7	14			
3-8	15			
3-9	06-147-03			
3-10	04			
3-11	05			
3-12	06-104 01			
3-13	02			
3-14	03			
3-15	04			

Analyte		1	2	3
Position				
3-16	06-104-05			
3-17	06			
3-18	07			
3-19	08			
3-20	09			
3-21	10			
3-22	11			
3-23	12			
3-24	13			
3-25	DUP 13			
3-26	R 06-094-05			
3-27				
3-28				

- ☐ Chloride — EPA 325.2/SM 4500-Cl⁻ E
- ☐ Sulfate — EPA 375.4
- ☑ Alkalinity — EPA 310.2
- ☐ Nitrate-Nitrite — EPA 353.2/SM 4500-NO3 F
- ☐ Ammonia — EPA 350.1/SM 4500-NH3 B
- ☐ TKN — EPA 351.2
- ☐ Phos — EPA 365.4

Analyte	ALK		
SOP & Revision	K 3102 R11		
Curve Stock (SC made)	std 17115		
Curve ID (user made)			
ICV	std 19385		
CCV	std 19887		
LCS	std 19386		
MS	std 18026 Dilution 0.25(250c)=100		

Comments: ______

Analyst: Deanna Hosse Date: 6/11/07

DCN#69667

KEMRON ENVIRONMENTAL

SMARTCHEM REPORT

UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.00	0.1503	0.00		9:28:33 AM
DIL-1	RBL	0.00	0.1523	0.00		9:28:51 AM
DIL-1	RBL	0.00	0.1500	0.00		9:30:03 AM
DIL-1	Std-1	0.00	0.0038	0.00	INV	9:30:21 AM
SR5-1	Std-2	10.00	-0.0027	0.00		9:31:16 AM
SR5-2	Std-3	20.00	-0.0016	0.00		9:31:34 AM
SR5-3	Std-4	50.00	-0.0173	0.00		9:32:27 AM
SR5-4	Std-5	100.00	-0.0285	0.00		9:32:46 AM
SR5-5	Std-6	200.00	-0.0749	0.00		9:33:40 AM
SR5-6	Std-7	300.00	-0.1012	0.00		9:33:57 AM
1	ICV 250	260.26	-0.0906	0.00		9:34:52 AM
2	WG242228-01 BLANK	-5.99	0.0054	0.00	INV,><,LL	9:35:09 AM
3	WG242228-02 LCS	214.22	-0.0740	0.00		9:36:04 AM
4	WG242228-03 LCSDUP	213.95	-0.0739	0.00		9:36:22 AM
5	L0706148-01 (4)	92.19	-0.0300	0.00		9:37:16 AM
6	L0706148-02	160.97	-0.0548	0.00		9:37:33 AM
7	L0706148-03	132.68	-0.0446	0.00		9:38:28 AM
8	L0706093-07	205.90	-0.0710	0.00		9:38:46 AM
9	L0706093-08	104.67	-0.0345	0.00		9:39:40 AM
10	WG242228-05 DUP	103.28	-0.0340	0.00		9:39:58 AM
ST-2	CCV1 (200 mg/L)	216.17	-0.0747	108.08		9:40:52 AM
ST-3	CCB (0 mg/L)	-10.15	0.0070	0.00	INV,><,LL	9:41:10 AM
11	L0706093-09 MS	204.79	-0.0706	0.00		9:42:04 AM
12	L0706093-10 MSD	193.70	-0.0666	0.00		9:42:22 AM
13	L0706094-01 (2)	253.05	-0.0880	0.00		9:43:16 AM
14	L0706094-03 (2)	203.69	-0.0702	0.00		9:43:34 AM
15	L0706094-05 (2)	92.19 X	-0.0300	0.00		9:44:28 AM
16	L0706094-07 (2)	205.90	-0.0710	0.00		9:44:46 AM
17	L0706094-09 (2)	210.90	-0.0728	0.00		9:45:40 AM
18	L0706136-03 (2)	147.11	-0.0498	0.00		9:45:58 AM
19	L0706136-05 (2)	230.59	-0.0799	0.00		9:46:52 AM
20	L0706136-07 (2)	119.65	-0.0399	0.00		9:47:10 AM

Report Date :06/11/2007 Run Date :6/11/2007 Operator : WESTCO Plan # :20070611001

Plan Description : ALK-A-DIH/6/11/2007

KEMRON ENVIRONMENTAL

SMARTCHEM REPORT

UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
ST-2	CCV1 (200 mg/L)	212.28	-0.0733	106.14		9:48:04 AM
ST-3	CCB (0 mg/L)	-11.26	0.0073	0.00	INV,><,LL	9:48:22 AM
21	L0706136-09 (2)	116.87	-0.0389	0.00		9:49:16 AM
22	L0706136-11 (2)	168.74	-0.0576	0.00		9:49:34 AM
23	L0706203-01	56.97	-0.0173	0.00		9:50:28 AM
24	WG242229-01 BLANK	-22.91	0.0115	0.00	INV,><,LL	9:50:46 AM
25	WG242229-02 LCS	208.40	-0.0719	0.00		9:51:40 AM
26	WG242229-03 LCSDUP	207.29	-0.0715	0.00		9:51:58 AM
27	L0706194-01 (4)	61.40	-0.0189	0.00		9:52:52 AM
28	L0706194-02	204.24	-0.0704	0.00		9:53:10 AM
29	L0706194-03	186.49	-0.0640	0.00		9:54:04 AM
30	L0706229-02 (4)	279.96	-0.0977	0.00		9:54:22 AM
ST-2	CCV1 (200 mg/L)	206.46	-0.0712	103.23		9:55:16 AM
ST-3	CCB (0 mg/L)	-25.96	0.0127	0.00	INV,><,LL	9:55:34 AM
31	L0706229-03 (4)	184.83	-0.0634	0.00		9:56:28 AM
32	L0706229-05 (4)	276.07	-0.0963	0.00		9:56:46 AM
33	L0706229-06 (4)	182.05	-0.0624	0.00		9:57:40 AM
34	L0706229-08 (4)	337.37	-0.1184	0.00	><,LH	9:57:58 AM
35	L0706229-09 (4)	198.42	-0.0683	0.00		9:58:52 AM
36	L0706190-01 (2)	130.74	-0.0439	0.00		9:59:10 AM
37	L0706190-03 (2)	301.59	-0.1055	0.00	><,LH	10:00:04 AM
38	L0706073-01	153.21	-0.0520	0.00		10:00:22 AM
39	L0706073-02	116.32	-0.0387	0.00		10:01:16 AM
40	L0706073-03	208.95	-0.0721	0.00		10:01:34 AM
ST-2	CCV1 (200 mg/L)	205.35	-0.0708	102.67		10:02:28 AM
ST-3	CCB (0 mg/L)	-22.91	0.0115	0.00	INV,><,LL	10:02:46 AM
41	WG242229-05 DUP	208.68	-0.0720	0.00		10:03:40 AM
42	L0706073-04 MS	258.60	-0.0900	0.00		10:03:58 AM
43	L0706073-05 MSD	261.93	-0.0912	0.00		10:04:52 AM
44	L0706073-06	184.27	-0.0632	0.00		10:05:46 AM
45	L0706073-07	91.36	-0.0297	0.00		10:06:04 AM
46	L0706073-08	76.10	-0.0242	0.00		10:06:58 AM

Report Date :06/11/2007 **Run Date :6/11/2007** **Operator : WESTCO** **Plan # :20070611001**

Plan Description : ALK-A-DIH/6/11/2007

KEMRON ENVIRONMENTAL

SMARTCHEM REPORT

UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
47	L0706073-09	65.29	-0.0203	0.00		10:07:16 AM
48	L0706073-10	108.55	-0.0359	0.00		10:08:10 AM
49	L0706073-11	66.95	-0.0209	0.00		10:08:28 AM
50	WG242230-01 BLANK	-32.06	0.0149	0.00	INV,><,LL	10:09:22 AM
ST-2	CCV1 (200 mg/L)	207.85	-0.0717	103.92	EPL	10:09:40 AM
ST-3	CCB (0 mg/L)	-29.57	0.0140	0.00	INV,><,LL	10:10:34 AM
51	WG242230-02 LCS	207.01	-0.0714	0.00		10:10:52 AM
52	WG242230-03 LCSDUP	209.51	-0.0723	0.00		10:11:47 AM
53	L0706073-12	353.73	-0.1243	0.00	><,LH	10:12:04 AM
54	L0706073-13	236.69	-0.0821	0.00		10:12:59 AM
55	L0706073-14	245.29	-0.0852	0.00		10:13:16 AM
56	L0706073-15	205.90	-0.0710	0.00		10:14:10 AM
57	L0706147-03	18.41	-0.0034	0.00		10:14:28 AM
58	L0706147-04	-6.82	0.0058	0.00	INV,><,LL	10:15:23 AM
59	L0706147-05	-17.09	0.0095	0.00	INV,><,LL	10:15:40 AM
60	L0706104-01	294.10	-0.1028	0.00	><	10:16:34 AM
ST-2	CCV1 (200 mg/L)	208.95	-0.0721	104.48		10:16:52 AM
ST-3	CCB (0 mg/L)	-31.23	0.0146	0.00	INV,><,LL	10:17:46 AM
61	L0706104-02	131.30	-0.0441	0.00	EPL	10:18:04 AM
62	L0706104-03	294.38	-0.1029	0.00	><	10:18:58 AM
63	L0706104-04	286.34	-0.1000	0.00		10:19:16 AM
64	L0706104-05	342.08	-0.1201	0.00	><,LH	10:20:10 AM
65	L0706104-06	334.59	-0.1174	0.00	><,LH	10:20:28 AM
66	L0706104-07	45.60	-0.0132	0.00		10:21:22 AM
67	L0706104-08	59.46	-0.0182	0.00		10:21:40 AM
68	L0706104-09	336.26	-0.1180	0.00	><,LH	10:22:34 AM
69	L0706104-10	242.24	-0.0841	0.00		10:22:52 AM
70	L0706104-11	161.81	-0.0551	0.00		10:23:46 AM
ST-2	CCV1 (200 mg/L)	209.79	-0.0724	104.89		10:24:04 AM
ST-3	CCB (0 mg/L)	-36.50	0.0165	0.00	INV,><,LL	10:24:58 AM
71	L0706104-12	322.39	-0.1130	0.00	><,LH	10:25:16 AM
72	L0706104-13	243.07	-0.0844	0.00		10:26:10 AM

Report Date :06/11/2007 **Run Date :6/11/2007** **Operator : WESTCO** **Plan # :20070611001**

Plan Description : ALK-A-DIH/6/11/2007

KEMRON ENVIRONMENTAL

SMARTCHEM REPORT

UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
73	WG242230-05 DUP	244.46	-0.0849	0.00		10:26:28 AM
74	~~ID 74~~ 06-094-05 -	171.24	-0.0585	0.00		10:27:22 AM
75	ID 75	-43.43	0.0190	0.00	INV,><,LL	10:27:40 AM
76	ID 76	-16.25	0.0091	0.00	INV,><,LL	10:28:34 AM
ST-2	CCV1 (200 mg/L)	209.51	-0.0723	104.75		10:28:52 AM
ST-3	CCB (0 mg/L)	-42.05	0.0184	0.00	INV,><,LL	10:29:46 AM
34-[1/2]	L0706229-08 (4)	492.24	-0.0855	0.00	LH	10:41:56 AM
37-[1/2]	L0706190-03 (2)	324.72	-0.0553	0.00	LH	10:43:08 AM
53-[1/2]	L0706073-12	685.28	-0.1203	0.00	><,LH	10:44:21 AM
64-[1/2]	L0706104-05	701.92	-0.1233	0.00	><,LH	10:45:33 AM
ST-2	CCV1 (200 mg/L)	198.42	-0.0683	99.21		10:45:33 AM
ST-3	CCB (0 mg/L)	-55.36	0.0233	0.00	INV,><,LL	10:46:26 AM
65-[1/2]	L0706104-06	606.51	-0.1061	0.00	><,LH	10:47:56 AM
68-[1/2]	L0706104-09	613.16	-0.1073	0.00	><,LH	10:49:08 AM
71-[1/2]	L0706104-12	505.00	-0.0878	0.00	LH	10:50:20 AM
ST-2	CCV1 (200 mg/L)	202.30	-0.0697	101.15		10:50:20 AM
ST-3	CCB (0 mg/L)	-64.24	0.0264	0.00	INV,><,LL	10:51:15 AM
53-[1/5]	L0706073-12	1581.45	-0.1108	0.00	><,LH	11:03:25 AM
64-[1/5]	L0706104-05	1567.58	-0.1098	0.00	><,LH	11:04:37 AM
65-[1/5]	L0706104-06	947.70	-0.0651	0.00	LH	11:05:48 AM
68-[1/5]	L0706104-09	879.75	-0.0602	0.00	LH	11:07:01 AM
ST-2	CCV1 (200 mg/L)	194.81	-0.0670	97.40		11:07:01 AM
ST-3	CCB (0 mg/L)	-81.43	0.0326	0.00	INV,><,LL	11:07:55 AM
53-[1/10]	L0706073-12	2463.97	-0.0856	0.00	LH	11:20:05 AM
64-[1/10]	L0706104-05	2952.11	-0.1032	0.00	><,LH	11:21:17 AM
ST-2	CCV1 (200 mg/L)	185.10	-0.0635	92.55		11:21:17 AM
ST-3	CCB (0 mg/L)	-130.80	0.0505	0.00	INV,><,LL	11:22:11 AM

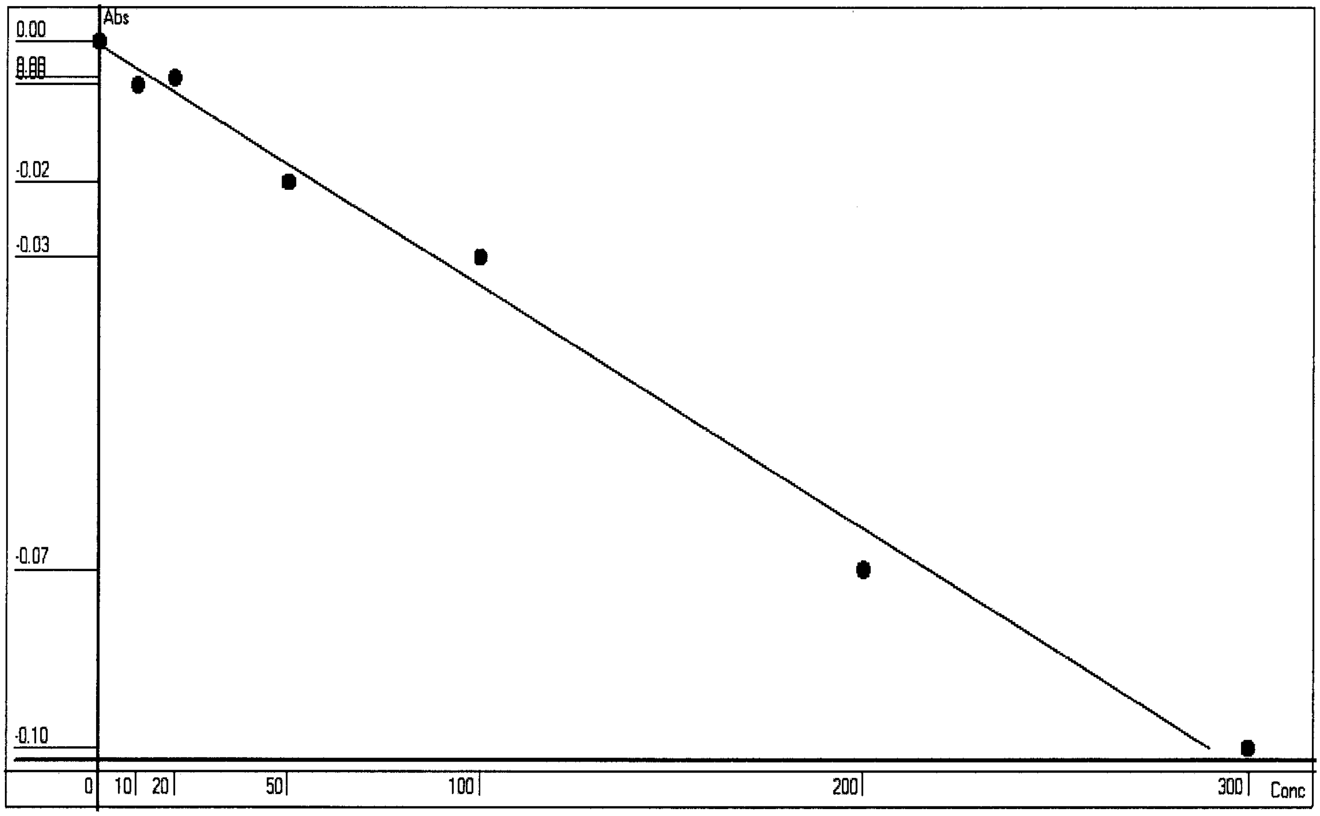
Report Date :06/11/2007 **Run Date :6/11/2007** **Operator : WESTCO** **Plan # :20070611001**

Plan Description : ALK-A-DIH/6/11/2007

Calibrant Report - WALK -

Calib Lot #:010104 Exp Date:1/1/2010 User:KEMRON

Plan # : 20070611001 Description : [ALK-A-DIH/6/11/2007]



Point	OD	Conc	Recalc Conc	% Error
1	0.0038	0	-1.4156	-141.56
2	-0.0027	10	16.6122	66.12
3	-0.0016	20	13.5613	-32.19
4	-0.0173	50	57.1053	14.21
5	-0.0285	100	88.1686	-11.83
6	-0.0749	200	216.8592	8.43
7	-0.1012	300	289.8024	-3.40

Conc= -2773.505*Abso +9.1237 **R^2=0.9913**

RBL
0.1502
0

Report Date 6/11/2007 Run Date 6/11/2007

2.2.4 Sulfide Data

2.2.4.1 Summary Data

LABORATORY REPORT

00084865

L0706148

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW37	L0706148-01	376.1	1	07-JUN-07
16WW05	L0706148-02	376.1	1	07-JUN-07
16WW38	L0706148-03	376.1	1	07-JUN-07

Sample Number: L0706148-01
Client ID: 16WW37
Matrix: Water
Workgroup Number: WG242032
Collect Date: 06/06/2007 10:30

PrePrep Method: NONE
Prep Method: 376.1
Analytical Method: 376.1
Analyst: DLP
Dilution: 1
Units: mg/L

Instrument: BURET
Prep Date: 06/07/2007 15:00
Cal Date:
Run Date: 06/07/2007 15:00
File ID: ET.0706071500-18

Analyte	CAS. Number	Result	Qual	PQL	SQL
Sulfide	18496-25-8		U	1.00	0.500

U Not detected at or above adjusted sample detection limit

Sample Number: L0706148-02
Client ID: 16WW05
Matrix: Water
Workgroup Number: WG242032
Collect Date: 06/06/2007 13:00

PrePrep Method: NONE
Prep Method: 376.1
Analytical Method: 376.1
Analyst: DLP
Dilution: 1
Units: mg/L

Instrument: BURET
Prep Date: 06/07/2007 15:00
Cal Date:
Run Date: 06/07/2007 15:00
File ID: ET.0706071500-19

Analyte	CAS. Number	Result	Qual	PQL	SQL
Sulfide	18496-25-8		U	1.00	0.500

U Not detected at or above adjusted sample detection limit

Sample Number: L0706148-03
Client ID: 16WW38
Matrix: Water
Workgroup Number: WG242032
Collect Date: 06/06/2007 13:40

PrePrep Method: NONE
Prep Method: 376.1
Analytical Method: 376.1
Analyst: DLP
Dilution: 1
Units: mg/L

Instrument: BURET
Prep Date: 06/07/2007 15:00
Cal Date:
Run Date: 06/07/2007 15:00
File ID: ET.0706071500-20

Analyte	CAS. Number	Result	Qual	PQL	SQL
Sulfide	18496-25-8		U	1.00	0.500

U Not detected at or above adjusted sample detection limit

2.2.4.2 QC Summary Data

Example Total Sulfide(Liquid) Calculations

[mL Iodine * N Iodide) - (mL titrant * N titrant)] * 16000/(volume * dilution) = mg/L Sulfide

where:

mL Iodine = mL of Iodine used
N Iodine = normality of Iodine
mL titrant = mL of titrant used
N titrant = normality of titrant
16000 = factor: 1mL of 0.025 N iodine reacts with 0.4mg sulfide
volume = mL filtered of mL titrated(if not filtered)
dilution = dilution in decimal form (1/5 = 0.2)

Example Total Sulfide(Soil) Calculations

[(mL Iodine * N Iodine) - (mL titrant * N titrant)] * 16.03/weight = mg/kg sulfide

where:

mL Iodine = mL of Iodine used
N Iodine = normality of Iodine
mL titrant = normality of titrant
16.03 = 32.06 grams per 2 equivalents
weight = kg of sample used

KEMRON Environmental Services
Data Checklist

Date: 07-JUN-2007
Analyst: DLP
Analyst: NA
Method: SULFIDE
Instrument: BURET
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG242032

Calibration/Linearity	06-04-07
Second Source Check	
ICV/CCV (std)	
ICB/CCB	
Blank	X
LCS/LCS Dup	X
MS/MSD	
Duplicate	
Upload Results	X
Client Forms	
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	
Primary Reviewer	DLP
Secondary Reviewer	DIH
Comments	

Primary Reviewer: 12-JUN-2007 Dwitty Payne

Secondary Reviewer: 13-JUN-2007 Donna Hesson

Generated: JUN-13-2007 13:41:54

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 376.1
Login Number: L0706148

AAB#: WG242032

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW38	06/06/07	06/07/07	06/07/07	7	1.06	06/07/07	7	1.06	
16WW05	06/06/07	06/07/07	06/07/07	7	1.08	06/07/07	7	1.08	
16WW37	06/06/07	06/07/07	06/07/07	7	1.19	06/07/07	7	1.19	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790091
Report generated 06/13/2007 13:37

METHOD BLANK SUMMARY

Login Number: L0706148
Blank File ID: ET.0706071500-01
Prep Date: 06/07/07 15:00
Analyzed Date: 06/07/07 15:00
Analyst: DLP

Work Group: WG242032
Blank Sample ID: WG242032-01
Instrument ID: BURET
Method: 376.1

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242032-02	ET.0706071500-02	06/07/07 15:00	
LCS2	WG242032-03	ET.0706071500-03	06/07/07 15:00	
16WW37	L0706148-01	ET.0706071500-18	06/07/07 15:00	
16WW05	L0706148-02	ET.0706071500-19	06/07/07 15:00	
16WW38	L0706148-03	ET.0706071500-20	06/07/07 15:00	

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 790092
Report generated 06/13/2007 13:37

METHOD BLANK REPORT

00084874

Login Number: L0706148 Prep Date: 06/07/07 15:00 Sample ID: WG242032-01
Instrument ID: BURET Run Date: 06/07/07 15:00 Prep Method: 376.1
File ID: ET.0706071500-01 Analyst: DLP Method: 376.1
Workgroup (AAB#): WG242032 Matrix: Water Units: mg/L
Contract #: DACA56-94-D-0020 Cal ID: BURET -

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Sulfide	0.500	1.00	0.500	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 790093
Report generated 06/13/2007 13:37

00084875

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148   Analvst: DLP   Prep Method: 376.1
Instrument ID: BURET   Matrix: Water   Method: 376.1
Workgroup (AAB#): WG242032   Units: mg/L
Sample ID: WG242032-02 LCS   File ID: ET.0706071500-02   Run Date: 06/07/2007 15:00
Sample ID: WG242032-03 LCS2   File ID: ET.0706071500-03   Run Date: 06/07/2007 15:00

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Sulfide	20.6	20.0	97.4	20.6	20.4	99.3	2.00	85 - 115	10	

KEMRON FORMS - Modified 02/08/2007
Version 1.5   PDF File ID: 790094
Report generated 06/13/2007 13:37

2.2.4.3 Raw Data

WORKGROUP: WG242032

SULFIDE

☐ EPA 376.1 / SM4500-S(-2)-F
SOP 3761 Revision #: 12

☐ Other

Instrument: Buret

LCS: STD 19892

Iodine standardization (0.025N and 0.1N) 6-4-07

mL 0.025N titrant: 10.0
Volume I: 10 mL
Normality I: 0.0253

mL 0.025 N titrant: 8.1
Volume I: 2.0 mL
Normality I: 0.1025

Stock standardization (in duplicate) 10 mL stock
mL I 1) 10 2) 10
N I 1) 0.1025 2) 0.1025
mL 0.025 titrant 1) 26.0 2) 26.0
LCS daily dilution 7(588)/200 = 20.58 mg/L

588 = stock conc (mg/L)

SAMPLE	Volume Filtered mL	mL Iodine	N Iodine	___ N Sodium Thiosulfate
BLANK	200	15	0.0253	14.8
LCS (mL)	200			5.1
LCSDUP (mL)	200			4.9
06-104-01	550			13.5
-02	530			14.8
-03	530			15.0
-04	540			14.9
-05	510			15.0
-06	520			15.0
-07	530			14.9
-08	520			15.0
-09	550			15.0
-10	510			12.0
-11	530			15.0
-12	510			15.0
-13	510			13.0
06-097-01	530			14.5
06-148-01	540		0.02530	14.9
-02	510			15.0
03	520			15.0
06-151-04	500			15.0
-05	530			15.0
-07	530			15.0

Analyst: Quatey Payne Date/Time: 06-07-07/1500

DCN#69630

Donna Jesson
Approved: June 13, 2007

KEMRON ENVIRONMENTAL SERVICES
TITRAMETRIC REPORT

Workgroup (AAB#): WG242032
Product: 376.1
Analyte: Sulfide

Analyst: DLP
Run Date: 06/07/2007 15:00

SAMPLE NUMBER	Volume	Vol I	Nor I	Vol T	Nor T	Dil	Analytical	Reported	Units
WG242032-01	200.0	15	.0253	14.8	.0253	1	0.405	0.4048	mg/L
WG242032-02	200.0	15	.0253	5.1	.0253	1	20.0	20.04	mg/L
WG242032-03	200.0	15	.0253	4.9	.0253	1	20.4	20.44	mg/L
L0706104-01	550.0	15	.0253	13.5	.0253	1	1.10	1.104	mg/L
L0706104-02	530.0	15	.0253	14.8	.0253	1	0.153	ND	mg/L
L0706104-03	530.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706104-04	540.0	15	.0253	14.9	.0253	1	0.0750	ND	mg/L
L0706104-05	510.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706104-06	520.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706104-07	530.0	15	.0253	14.9	.0253	1	0.0764	ND	mg/L
L0706104-08	520.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706104-09	550.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706104-10	510.0	15	.0253	12	.0253	1	2.38	2.381	mg/L
L0706104-11	530.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706104-12	510.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706104-13	510.0	15	.0253	13	.0253	1	1.59	1.587	mg/L
L0706097-01	530.0	15	.0253	14.5	.0253	1	0.382	ND	mg/L
L0706148-01	540.0	15	.0253	14.9	.0253	1	0.0750	ND	mg/L
L0706148-02	510.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706148-03	520.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706151-04	500.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706151-05	530.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706151-07	530.0	15	.0253	15	.0253	1	0	ND	mg/L

KEMRON FORMS - Modified 08/27/2004
Version 1.0
Report generated 06/12/2007 14:42

Donna Ilsson

Approved: June 13, 2007

2.2.5 Total Organic Carbon Data

2.2.5.1 Summary Data

LABORATORY REPORT

00084881

L0706148

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW37	L0706148-01	415.1	3	07-JUN-07
16WW05	L0706148-02	415.1	2	07-JUN-07
16WW38	L0706148-03	415.1	2	07-JUN-07

00084882

Sample Number:	L0706148-01	PrePrep Method:	NONE	Instrument:	TOC-VWP
Client ID:	16WW37	Prep Method:	415.1	Prep Date:	06/12/2007 11:51
Matrix:	Water	Analytical Method:	415.1	Cal Date:	02/26/2007 11:40
Workgroup Number:	WG242321	Analyst:	DIH	Run Date:	06/12/2007 11:51
Collect Date:	06/06/2007 10:30	Dilution:	3	File ID:	TC06-12-2007.07
Sample Tag:	DL01	Units:	mg/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Total Organic Carbon		9.49		3.00	1.50

Sample Number: **L0706148-02**	PrePrep Method: **NONE**	Instrument: **TOC-VWP**
Client ID: **16WW05**	Prep Method: **415.1**	Prep Date: **06/13/2007 14:15**
Matrix: **Water**	Analytical Method: **415.1**	Cal Date: **02/26/2007 11:40**
Workgroup Number: **WG242441**	Analyst: **DIH**	Run Date: **06/13/2007 14:15**
Collect Date: **06/06/2007 13:00**	Dilution: **2**	File ID: **TC06-13-2007.20**
Sample Tag: **DL01**	Units: **mg/L**	

Analyte	CAS. Number	Result	Qual	PQL	SQL
Total Organic Carbon		1.45	J	2.00	1.00

J The analyte was positively identified, but the quantitation was below the RL

Sample Number: L0706148-03	PrePrep Method: NONE	Instrument: TOC-VWP
Client ID: 16WW38	Prep Method: 415.1	Prep Date: 06/13/2007 14:30
Matrix: Water	Analytical Method: 415.1	Cal Date: 02/26/2007 11:40
Workgroup Number: WG242441	Analyst: DIH	Run Date: 06/13/2007 14:30
Collect Date: 06/06/2007 13:40	Dilution: 2	File ID: TC06-13-2007.21
Sample Tag: DL01	Units: mg/L	

Analyte	CAS. Number	Result	Qual	PQL	SQL
Total Organic Carbon		2.01		2.00	1.00

2.2.5.2 QC Summary Data

Total Organic Carbon Example Calculations
(Direct Readout Parameter)

$$(\text{Readout})/(\text{dilution}) = \text{mg/L}$$

where:

Readout = direct readout from the instrument
dilution = dilution in decimal form (ex. 1/5 dilution = 0.2)

KEMRON Environmental Services
Data Checklist

Date: 12-JUN-2007
Analyst: DIH
Analyst: NA
Method: TOC
Instrument: TOC
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG242321 WG242322

Calibration/Linearity	2/26/2007
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DIH
Secondary Reviewer	
Comments	

Primary Reviewer:
13-JUN-2007

Donna Hesson

Secondary Reviewer:

Generated: JUN-13-2007 16:26:23

KEMRON Environmental Services
Data Checklist

Date: 13-JUN-2007
Analyst: DIH
Analyst: NA
Method: TOC
Instrument: TOC
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG242442 WG242441

Calibration/Linearity	2/26/2007
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DIH
Secondary Reviewer	
Comments	

Primary Reviewer: 15-JUN-2007
Secondary Reviewer:

Donna Hesson

Generated: JUN-15-2007 13:59:01

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 415.1

Login Number: L0706148

AAB#: WG242321

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW37	06/06/07	06/07/07	06/12/07	28	6.06	06/12/07	28	6.06	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790704
Report generated 06/14/2007 11:41

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 415.1 AAB#: WG242441

Login Number: L0706148

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW38	06/06/07	06/07/07	06/13/07	28	7.03	06/13/07	28	7.03	
16WW05	06/06/07	06/07/07	06/13/07	28	7.05	06/13/07	28	7.05	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790704
Report generated 06/14/2007 11:41

METHOD BLANK SUMMARY

Login Number: L0706148
Blank File ID: TC06-12-2007.04
Prep Date: 06/12/07 11:04
Analyzed Date: 06/12/07 11:04
Analyst: DIH

Work Group: WG242321
Blank Sample ID: WG242321-01
Instrument ID: TOC-VWP
Method: 415.1

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242321-02	TC06-12-2007.05	06/12/07 11:19	01
LCS2	WG242321-03	TC06-12-2007.06	06/12/07 11:35	01
16WW37	L0706148-01	TC06-12-2007.07	06/12/07 11:51	DL01
DUP	WG242321-05	TC06-12-2007.17	06/12/07 14:28	DL01

METHOD BLANK SUMMARY

Login Number: L0706148
Work Group: WG242441
Blank File ID: TC06-13-2007.04
Blank Sample ID: WG242441-01
Prep Date: 06/13/07 09:59
Instrument ID: TOC-VWP
Analyzed Date: 06/13/07 09:59
Method: 415.1
Analyst: DIH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242441-02	TC06-13-2007.05	06/13/07 10:15	01
LCS2	WG242441-03	TC06-13-2007.06	06/13/07 10:30	01
DUP	WG242441-05	TC06-13-2007.14	06/13/07 12:46	01
16WW05	L0706148-02	TC06-13-2007.20	06/13/07 14:15	DL01
16WW38	L0706148-03	TC06-13-2007.21	06/13/07 14:30	DL01

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 790705
Report generated 06/14/2007 11:41

METHOD BLANK REPORT

Login Number: L0706148 | Prep Date: 06/12/07 11:04 | Sample ID: WG242321-01
Instrument ID: TOC-VWP | Run Date: 06/12/07 11:04 | Prep Method: 415.1
File ID: TC06-12-2007.04 | Analyst: DIH | Method: 415.1
Workgroup (AAB#): WG242321 | Matrix: Water | Units: mg/L
Contract #: DACA56-94-D-0020 | Cal ID: TOC-VW - 26-FEB-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Total Organic Carbon	0.500	1.00	0.534	1	J

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 790706
Report generated 06/14/2007 11:41

KEMRON Environmental Services

METHOD BLANK REPORT

Login Number: L0706148
Prep Date: 06/13/07 09:59
Sample ID: WG242441-01
Instrument ID: TOC-VWP
Run Date: 06/13/07 09:59
Prep Method: 415.1
File ID: TC06-13-2007.04
Analyst: DIH
Method: 415.1
Workgroup (AAB#): WG242441
Matrix: Water
Units: mg/L
Contract #: DACA56-94-D-0020
Cal ID: TOC-VW-26-FEB-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Total Organic Carbon	0.500	1.00	0.554	1	J

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 790706
Report generated 06/14/2007 11:41

00084895

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 Analvst: DIH Prep Method: 415.1
Instrument ID: TOC-VWP Matrix: Water Method: 415.1
Workgroup (AAB#): WG242321 Units: mg/L
Sample ID: WG242321-02 LCS File ID: TC06-12-2007.05 Run Date: 06/12/2007 11:19
Sample ID: WG242321-03 LCS2 File ID: TC06-12-2007.06 Run Date: 06/12/2007 11:35

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Total Organic Carbon	25.0	24.1	96.3	25.0	26.9	108	11.2	85 - 115	15	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 790707
Report generated 06/14/2007 11:41

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706148 Analvst: DIH Prep Method: 415.1
Instrument ID: TOC-VWP Matrix: Water Method: 415.1
Workgroup (AAB#): WG242441 Units: mg/L
Sample ID: WG242441-02 LCS File ID: TC06-13-2007.05 Run Date: 06/13/2007 10:15
Sample ID: WG242441-03 LCS2 File ID: TC06-13-2007.06 Run Date: 06/13/2007 10:30

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Total Organic Carbon	25.0	24.1	96.2	25.0	26.8	107	10.9	85 - 115	15	

2.2.5.3 Raw Data

00084898

TC/TIC
Curves

Kemron
ENVIRONMENTAL SERVICES

Total Organic Carbon

MAKE DAILY

CCV (TOC): ______ $\left(\frac{10}{200}(1000) = 50\ mg/L\right)$ $\left(\frac{2}{200}(1000) = 10\ mg/L\right)$

CCV (TIC): ______ $\left(\frac{5}{200}(1000) = 25\ mg/L\right)$

See below

LCS (TOC): ______ $\left(\frac{5}{200}(1000) = 25\ mg/L\right)$

MS (TOC): ______

Calibration Curve Date: ______

SOP: K 4151 Rev. 11

Instrument: Shimadza TOC-VWP/ASI

☑ EPA 415.1 TOC / TOC-4 / TOC-D / TOCLOW

☐ SW846 9060 TOC-14 / TOC-44

DAILY CHECK

☑ drain reservoir filled
☑ ASI water bottle full
☑ dilution water bottle full
☑ 3rd bottle full
☑ sufficient gas
☑ sufficient persulfate
☑ sufficient acid
☑ waste container

Position	Sample ID	Dilution
1	TC Curve	
2	TIC curve	
3	TC ICV	
4	TIC ICV	
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Position	Sample ID	Dilution
26	curve std	
27	TC: STD17869	
28	TIC: STD16475	
29		
30		
31	ICV:	
32	TC STD 16885	
33	TIC STD 17080	
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

Position	Sample ID	Dilution
51		
52	from SOP	
53	"	"
54		
55		
56		
57	5/200(1000)=25	
58	↓	↓
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		

Analyst: Deanna Henry Date: 2/26/07 Time: ______

DCN#68372

Deanna Roberts

Approved: March 19, 2007

Instr.Information

System TOCVW ASI
Detector Wet Chemical

Cal. Curve

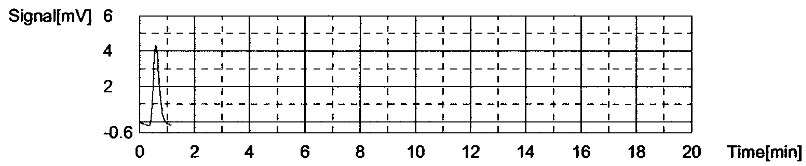
Sample Name: TC CURVE
Sample ID: Untitled
Cal. Curve: TCCURVE-02-26-2007.2007_02_26_10_12_35.cal
Status Completed

Type	Anal.
Standard	TC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	6.664	500uL	1	*******		02/26/2007 10:16:35 AM

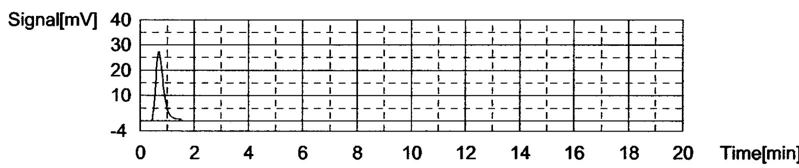
Acid Add. 0.000%
Mean Area 6.664



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	53.24	500uL	1	*******		02/26/2007 10:23:07 AM

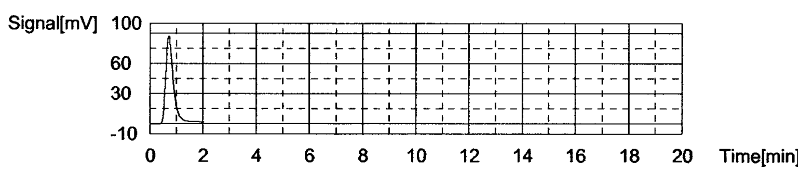
Acid Add. 0.000%
Mean Area 53.24



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	175.0	500uL	1	*******		02/26/2007 10:30:22 AM

Acid Add. 0.000%
Mean Area 175.0

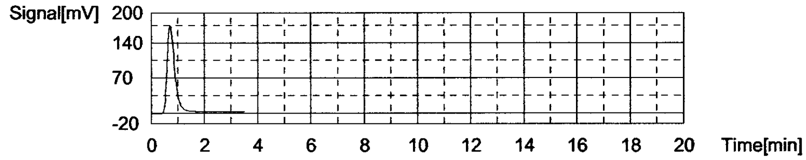


Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	369.9	500uL	1	*******		02/26/2007 10:39:05 AM

Deanna Roberts
Approved: March 19, 2007

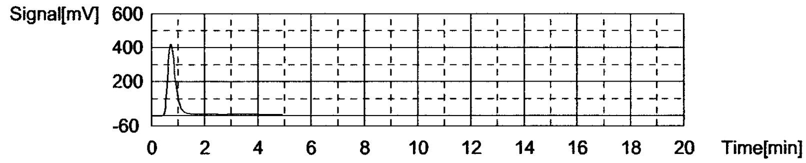
Acid Add. 0.000%
Mean Area 369.9



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	965.1	500uL	1	T******		02/26/2007 10:49:12 AM

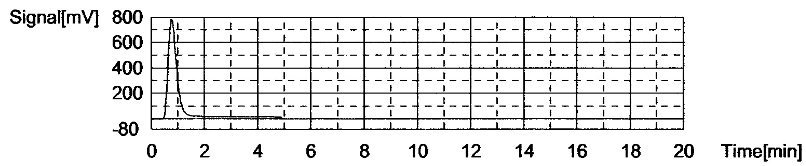
Acid Add. 0.000%
Mean Area 965.1



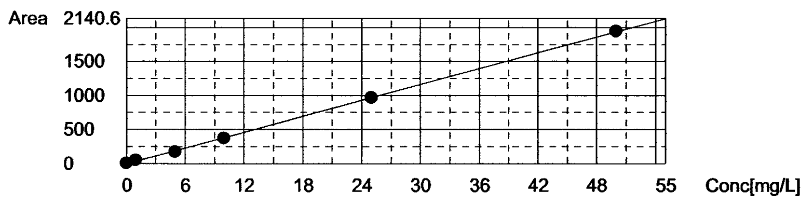
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1946	500uL	1	T******		02/26/2007 10:59:19 AM

Acid Add. 0.000%
Mean Area 1946



Slope: 38.88
Intercept -3.633
r^2 0.999663
Zero Shift No



Cal. Curve

Sample Name: TIC CURVE
Sample ID: Untitled
Cal. Curve: TICCURVE-02-26-2007.2007_02_26_10_59_19.cal
Status Completed

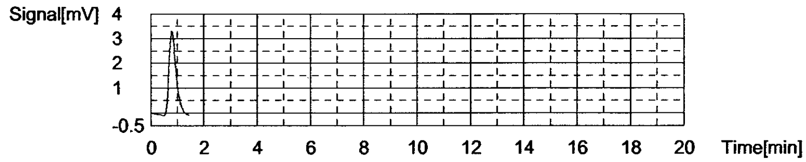
Type	Anal.
Standard	IC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	6.426	500uL	1	*******		02/26/2007 11:03:55 AM

Deanna Roberts
Approved: March 19, 2007

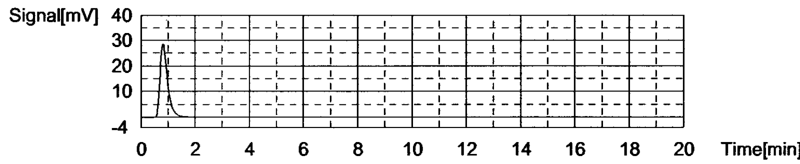
Acid Add. 10.00%
Mean Area 6.426



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	55.25	500uL	1	*******		02/26/2007 11:12:40 AM

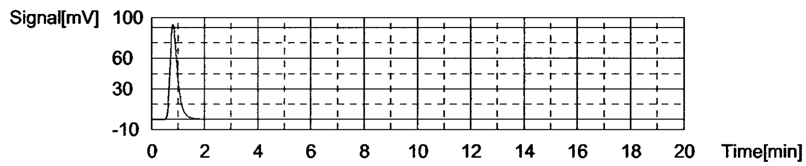
Acid Add. 10.00%
Mean Area 55.25



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	183.5	500uL	1	*******		02/26/2007 11:21:45 AM

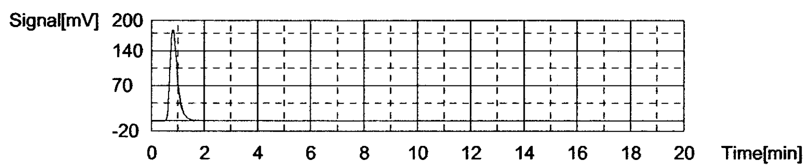
Acid Add. 10.00%
Mean Area 183.5



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	363.0	500uL	1	*******		02/26/2007 11:31:02 AM

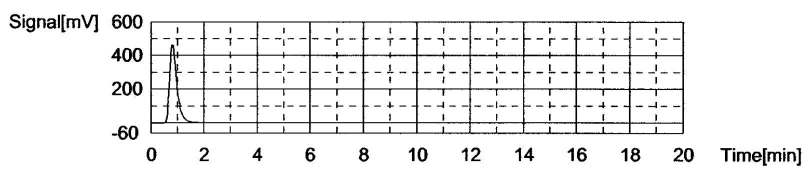
Acid Add. 10.00%
Mean Area 363.0



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	909.5	500uL	1	*******		02/26/2007 11:40:45 AM

Acid Add. 10.00%
Mean Area 909.5

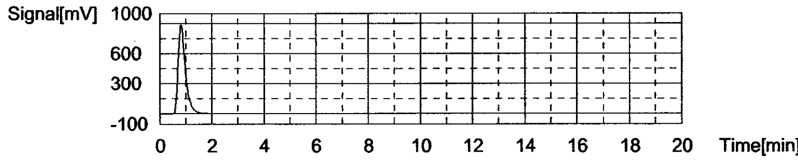


Conc: 50.00mg/L

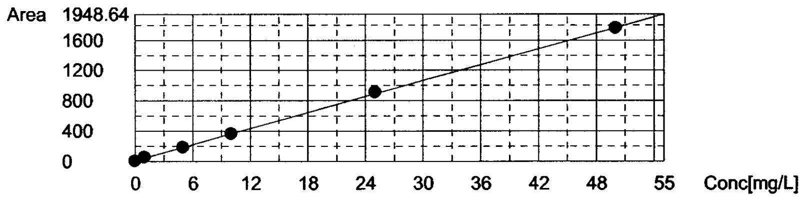
Deanna Roberts
Approved: March 19, 2007

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1764	500uL	1	*******		02/26/2007 11:51:14 AM

Acid Add. 10.00%
Mean Area 1764



Slope: 35.15
Intercept 13.77
r^2 0.999794
Zero Shift No



Sample

Sample Name: TC ICV
Sample ID: Untitled
Origin: TCCURVE-02-26-2007.cal
Status Completed
Chk. Result

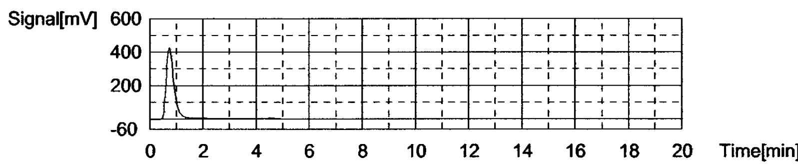
Type	Anal.	Dil.	Result
Unknown	TC	1.000	TC:23.83mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	922.8	23.83mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	02/26/2007 12:02:39 PM

Mean Area 922.8
Mean Conc. 23.83mg/L



Sample

Sample Name: TIC CURVE
Sample ID: Untitled
Origin: TICCURVE-02-26-2007.cal
Status Completed
Chk. Result

Type	Anal.	Dil.	Result
Unknown	IC	1.000	IC:23.43mg/L

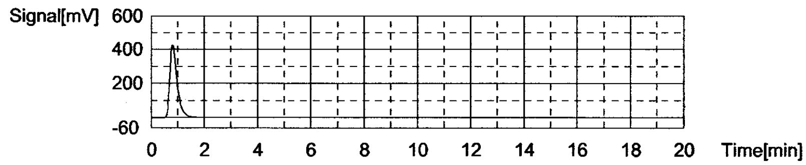
1. Det

Deanna Roberts
Approved: March 19, 2007

Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	837.6	23.43mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	02/26/2007 12:10:52 PM

Mean Area 837.6
Mean Conc. 23.43mg/L



Neanna Roberts
Approved: March 19, 2007

WORKGROUP: WG242441

242442

Kemron ENVIRONMENTAL SERVICES

WG#: ____________

Total Organic Carbon

MAKE DAILY

CCV (TOC): STD 19122
$(10/200)(1000) = 50\ mg/L$ $(2/200)(1000) = 10\ mg/L$

LCS (TOC): ST018349
$(5/200)(1000) = 25\ mg/L$

CCV (TIC): std19753
$(5/200)(1000) = 25\ mg/L$

MS (TOC): 0.4/40(1000) = 10

Calibration Curve Date: 2/26/07

☑ EPA 415.1 / SM5310-C TOC / TOC-4 / TOC-D / TOCLOW
☐ SW846 9060 TOC-14 / TOC-44

SOP: K 4151 Rev. 11
Instrument: Shimadza TOC-VWP/ASI

DAILY CHECK

☑ drain reservoir filled
☑ ASI water bottle full
☑ dilution water bottle full
☑ 3rd bottle full
☑ sufficient gas
☑ sufficient persulfate
☑ sufficient acid
☑ waste container

Position	Sample ID	Dilution
1	CCV 50	
2	CCBV 10	
3	TIC 25	
4	BLK	
5	LCS 25	
6	LCS DUP	
7	06-075-03	
8	04	
9	05	
10	06	
11	07	
12	08	
13	09	
14	DUP 09	
15	CCV	
16	CCB	
17	MS 10	
18	MSD 11	
19	12	
20	06-148-02	1/2
21	03	1/2
22 *	06-260-01	1/10
23 *	02	1/10
24	03	
25	04	

Position	Sample ID	Dilution
26	06-104-01	1/3
27	CCV	
28	CCB	
29	06-104-02	
30	03	
31	04	
32	05	1/3
33	06	1/3
34	BLK	
35	LCS 25	
36	LCS DUP	
37	06-104-07	
38	08	
39	CCV	
40	CCB	
41	06-104-09	1/3
42	10	1/3
43	11	
44	12	
45	13	
46	06-147-03	
47	04	
48	05	
49	06-261-01	
50	02	

Position	Sample ID	Dilution
51	CCV	
52	CCB	
53	06-274-01	
54	02	
55	DUP 147-03	
56	MS ↓	
57	06-151-01	
58	02	
59	03	
60	04	
61	05	
62	06	1/3
63	CCV	
64	CCB	
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		

Analyst: Deanna Hesson Date: 6/13/07 Time: ________

* matrix/odor

DCN#69691

	Analysi	Sample Name	Result	Status	Date / Time	Vial
1	TOC	CCV 50	!!Error!! TOC:48.50mg/L TC:48.22mg/L IC:-0.2758mg/L	Comp	06/13/2007 09:19:25 AM	1
2	TOC	CCV 10	!!Error!! TOC:9.744mg/L TC:9.464mg/L IC:-0.2801mg/L	Comp	06/13/2007 09:33:14 AM	2
3	TOC	TIC 25	TOC:1.072mg/L TC:24.94mg/L IC:23.87mg/L	Comp	06/13/2007 09:50:10 AM	3
4	TOC	WG242441-01 BLANK	!!Error!! TOC:0.5543mg/L TC:0.3342mg/L IC:-0.2202mg	Comp	06/13/2007 09:59:39 AM	0
5	TOC	WG242441-02 LCS	!!Error!! TOC:24.05mg/L TC:23.78mg/L IC:-0.2715mg/L	Comp	06/13/2007 10:15:20 AM	5
6	TOC	WG242441-03 LCSDUP	!!Error!! TOC:26.83mg/L TC:26.56mg/L IC:-0.2682mg/L	Comp	06/13/2007 10:30:43 AM	6
7	TOC	L0706075-03 X	!!Error!! TOC:-1.786mg/L TC:59.44mg/L IC:61.22mg/L	Comp	06/13/2007 10:48:26 AM	7
8	TOC	L0706075-04 X	!!Error!! TOC:-1.807mg/L TC:59.10mg/L IC:60.91mg/L	Comp	06/13/2007 11:06:11 AM	8
9	TOC	L706075-05 X	!!Error!! TOC:-2.425mg/L TC:65.74mg/L IC:68.16mg/L	Comp	06/13/2007 11:23:51 AM	9
10	TOC	L0706075-06 X	!!Error!! TOC:-2.615mg/L TC:74.25mg/L IC:76.87mg/L	Comp	06/13/2007 11:41:27 AM	10
11	TOC	L0706075-07 X	!!Error!! TOC:-1.069mg/L TC:54.55mg/L IC:55.62mg/L	Comp	06/13/2007 11:58:56 AM	11
12	TOC	L0706075-08	TOC:0.4587mg/L TC:6.954mg/L IC:6.495mg/L	Comp	06/13/2007 12:12:13 PM	12
13	TOC	L0706075-09	TOC:1.282mg/L TC:35.03mg/L IC:33.74mg/L	Comp	06/13/2007 12:29:22 PM	13
14	TOC	WG242441-05 DUP	TOC:2.239mg/L TC:35.93mg/L IC:33.69mg/L	Comp	06/13/2007 12:46:40 PM	14
15	TOC	CCV	!!Error!! TOC:51.60mg/L TC:51.46mg/L IC:-0.1374mg/L	Comp	06/13/2007 01:02:16 PM	15
16	TOC	CCB	!!Error!! TOC:0.4665mg/L TC:0.2595mg/L IC:-0.2071mg	Comp	06/13/2007 01:11:35 PM	0
17	TOC	L0706075-10 MS	TOC:12.93mg/L TC:33.74mg/L IC:20.81mg/L	Comp	06/13/2007 01:28:12 PM	17
18	TOC	L0706075-11 MSD	TOC:11.22mg/L TC:34.95mg/L IC:23.73mg/L	Comp	06/13/2007 01:45:03 PM	18
19	TOC	L0706075-12	TOC:2.363mg/L TC:37.98mg/L IC:35.62mg/L	Comp	06/13/2007 02:02:11 PM	19
20	TOC	L0706148-02 (2)	TOC:0.7258mg/L TC:6.956mg/L IC:6.231mg/L	Comp	06/13/2007 02:15:36 PM	20
21	TOC	L0706148-03 (2)	TOC:1.003mg/L TC:11.16mg/L IC:10.16mg/L	Comp	06/13/2007 02:30:02 PM	21
22	TOC	L0706260-01 (10)	TOC:4.115mg/L TC:9.819mg/L IC:5.704mg/L	Comp	06/13/2007 02:44:30 PM	22
23	TOC	L0706260-02 (10)	TOC:0.7993mg/L TC:8.788mg/L IC:7.988mg/L	Comp	06/13/2007 02:58:22 PM	23
24	TOC	L0706260-03	TOC:0.8597mg/L TC:4.348mg/L IC:3.488mg/L	Comp	06/13/2007 03:11:15 PM	24
25	TOC	L0706260-04	TOC:3.428mg/L TC:16.95mg/L IC:13.52mg/L	Comp	06/13/2007 03:27:14 PM	25
26	TOC	L0706104-01 (3) X	TOC:83.26mg/L TC:98.25mg/L IC:14.99mg/L	Comp	06/13/2007 03:43:47 PM	26
27	TOC	CCV	!!Error!! TOC:52.16mg/L TC:51.98mg/L IC:-0.1875mg/L	Comp	06/13/2007 03:59:20 PM	27
28	TOC	CCB	!!Error!! TOC:0.4654mg/L TC:0.2528mg/L IC:-0.2125mg	Comp	06/13/2007 04:08:38 PM	0
29	TOC	L0706104-02	TOC:0.6916mg/L TC:11.39mg/L IC:10.70mg/L	Comp	06/13/2007 04:22:43 PM	29
30	TOC	L0706104-03 X	TOC:89.07mg/L TC:114.6mg/L IC:25.49mg/L	Comp	06/13/2007 04:39:39 PM	30
31	TOC	L0706104-04 X	TOC:146.0mg/L TC:158.3mg/L IC:12.31mg/L	Comp	06/13/2007 04:55:54 PM	31
32	TOC	L0706104-05 (3) X	TOC:162.3mg/L TC:257.3mg/L IC:94.96mg/L	Comp	06/13/2007 05:15:03 PM	32
33	TOC	L0706104-06 (3) X	TOC:123.4mg/L TC:141.2mg/L IC:17.78mg/L	Comp	06/13/2007 05:33:09 PM	33
34	TOC	WG242442-01 BLANK	!!Error!! TOC:0.4672mg/L TC:0.3517mg/L IC:-0.1155mg	Comp	06/13/2007 05:42:44 PM	0
35	TOC	WG242442-02 LCS	!!Error!! TOC:26.78mg/L TC:26.59mg/L IC:-0.1884mg/L	Comp	06/13/2007 05:58:07 PM	35
36	TOC	WG242442-03 LCSDUP	!!Error!! TOC:26.67mg/L TC:26.46mg/L IC:-0.2073mg/L	Comp	06/13/2007 06:13:08 PM	36
37	TOC	L0706104-07	TOC:0.3027mg/L TC:6.439mg/L IC:6.137mg/L	Comp	06/13/2007 06:25:50 PM	37
38	TOC	L0706104-08	TOC:0.09289mg/L TC:8.098mg/L IC:8.006mg/L	Comp	06/13/2007 06:38:46 PM	38
39	TOC	CCV	!!Error!! TOC:52.38mg/L TC:52.18mg/L IC:-0.1932mg/L	Comp	06/13/2007 06:53:49 PM	39
40	TOC	CCB	!!Error!! TOC:0.4710mg/L TC:0.2593mg/L IC:-0.2118mg	Comp	06/13/2007 07:03:08 PM	0
41	TOC	L0706104-09 (3) X	TOC:129.7mg/L TC:162.8mg/L IC:33.09mg/L	Comp	06/13/2007 07:20:11 PM	41
42	TOC	L0706104-10 (3)	TOC:7.388mg/L TC:17.03mg/L IC:9.644mg/L	Comp	06/13/2007 07:34:27 PM	42
43	TOC	L0706104-11	TOC:39.97mg/L TC:47.96mg/L IC:7.991mg/L	Comp	06/13/2007 07:50:35 PM	43
44	TOC	L0706104-12 X	TOC:246.7mg/L TC:257.3mg/L IC:10.59mg/L	Comp	06/13/2007 08:06:47 PM	44
45	TOC	L0706104-13	TOC:23.74mg/L TC:34.56mg/L IC:10.82mg/L	Comp	06/13/2007 08:22:38 PM	45
46	TOC	L0706147-03	TOC:0.5193mg/L TC:1.426mg/L IC:0.9069mg/L	Comp	06/13/2007 08:34:52 PM	46
47	TOC	L0706147-04	TOC:0.3134mg/L TC:2.167mg/L IC:1.854mg/L	Comp	06/13/2007 08:47:24 PM	47
48	TOC	L0706147-05	TOC:0.4906mg/L TC:1.007mg/L IC:0.5163mg/L	Comp	06/13/2007 08:59:43 PM	48
49	TOC	L0706261-01	TOC:5.380mg/L TC:19.66mg/L IC:14.28mg/L	Comp	06/13/2007 09:15:29 PM	49
50	TOC	L0706261-02	TOC:2.084mg/L TC:2.334mg/L IC:0.2498mg/L	Comp	06/13/2007 09:27:46 PM	50
51	TOC	CCV	!!Error!! TOC:50.56mg/L TC:50.36mg/L IC:-0.2047mg/L	Comp	06/13/2007 09:43:17 PM	51
52	TOC	CCB	!!Error!! TOC:0.4778mg/L TC:0.2688mg/L IC:-0.2090mg	Comp	06/13/2007 09:52:42 PM	0
53	TOC	L0706274-01	TOC:9.933mg/L TC:13.09mg/L IC:3.161mg/L	Comp	06/13/2007 10:07:31 PM	53
54	TOC	L0706274-02	TOC:6.621mg/L TC:7.319mg/L IC:0.6981mg/L	Comp	06/13/2007 10:20:28 PM	54
55	TOC	WG242442-05 DUP	TOC:0.4823mg/L TC:1.155mg/L IC:0.6730mg/L	Comp	06/13/2007 10:32:43 PM	55
56	TOC	WG242442-06 MS	TOC:9.564mg/L TC:11.60mg/L IC:2.032mg/L	Comp	06/13/2007 10:46:51 PM	56
57	TOC	L0706151-01 X	TOC:100.1mg/L TC:106.7mg/L IC:6.526mg/L	Comp	06/13/2007 11:03:08 PM	57
58	TOC	L0706151-02 X	TOC:116.5mg/L TC:120.0mg/L IC:3.514mg/L	Comp	06/13/2007 11:19:00 PM	58
59	TOC	L0706151-03 X	TOC:100.5mg/L TC:105.5mg/L IC:4.990mg/L	Comp	06/13/2007 11:35:12 PM	59
60	TOC	L0706151-04 X	TOC:252.1mg/L TC:257.3mg/L IC:5.215mg/L	Comp	06/13/2007 11:51:21 PM	60
61	TOC	L0706151-05 X	TOC:139.3mg/L TC:140.7mg/L IC:1.466mg/L	Comp	06/14/2007 12:07:14 AM	61
62	TOC	L0706151-06 (3) X	TOC:60.44mg/L TC:81.04mg/L IC:20.61mg/L	Comp	06/14/2007 12:24:11 AM	62
63	TOC	CCV	!!Error!! TOC:49.39mg/L TC:49.25mg/L IC:-0.1432mg/L	Comp	06/14/2007 12:39:50 AM	63
64	TOC	CCB	!!Error!! TOC:0.5034mg/L TC:0.3065mg/L IC:-0.1969mg	Comp	06/14/2007 12:49:20 AM	0

Instr.Information

System	TOCVW ASI
Detector	Wet Chemical

Sample

Sample Name:	CCV 50
Sample ID:	<Untitled>
Origin:	TOC-02-26-2007.met
Status	Completed
Chk. Result	

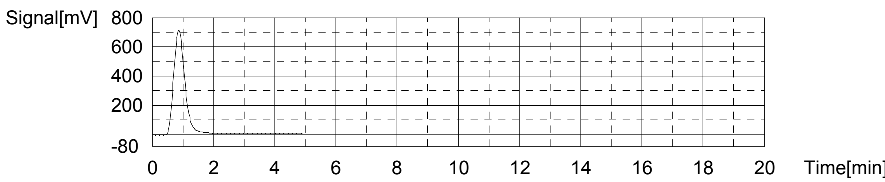
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:48.50mg/L TC:48.22mg/L IC:-0.2758mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1871	48.22mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:14:41 AM

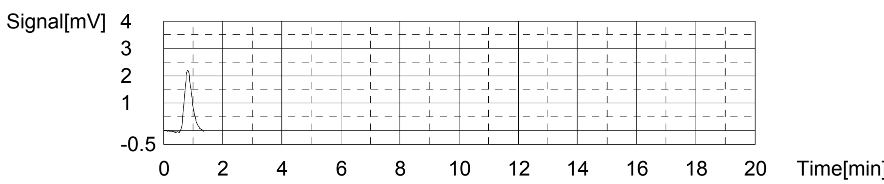
Mean Area	1871
Mean Conc.	48.22mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.073	-0.2758mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:19:25 AM

Mean Area	4.073
Mean Conc.	-0.2758mg/L



Sample

Sample Name:	CCV 10
Sample ID:	<Untitled>
Origin:	TOC-02-26-2007.met
Status	Completed
Chk. Result	

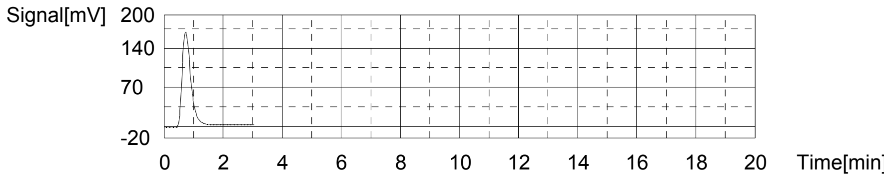
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:9.744mg/L TC:9.464mg/L IC:-0.2801mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	364.3	9.464mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:28:30 AM

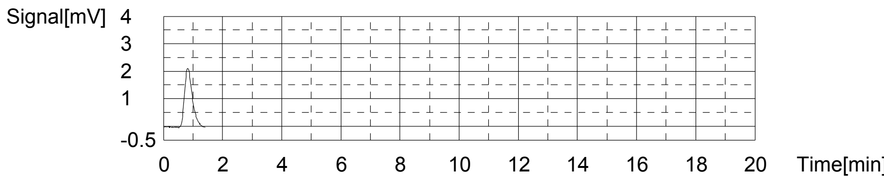
Mean Area 364.3
Mean Conc. 9.464mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.923	-0.2801mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:33:14 AM

Mean Area 3.923
Mean Conc. -0.2801mg/L



Sample

Sample Name: TIC 25
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

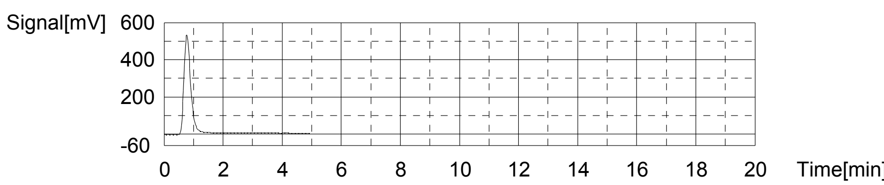
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.072mg/L TC:24.94mg/L IC:23.87mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	965.9	24.94mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:44:18 AM

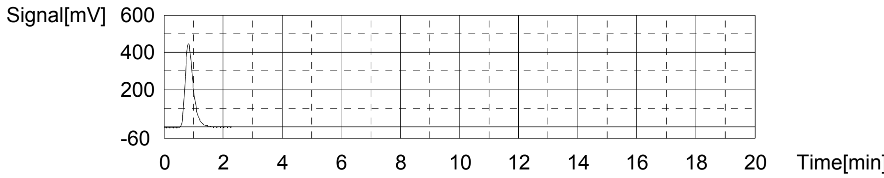
Mean Area 965.9
Mean Conc. 24.94mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	852.8	23.87mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:50:10 AM

Mean Area 852.8
Mean Conc. 23.87mg/L



Sample

Sample Name: WG242441-01 BLANK
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

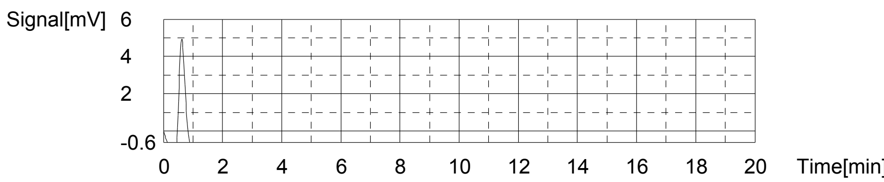
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.5543mg/L TC:0.3342mg/L IC:-0.2202mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.358	0.3342mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:55:32 AM

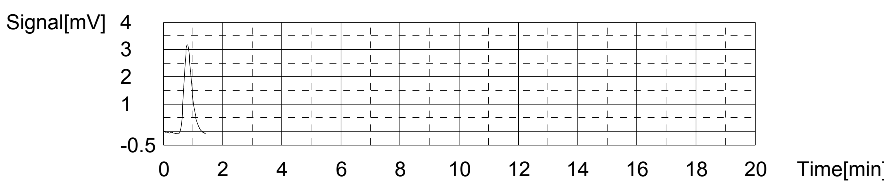
Mean Area 9.358
Mean Conc. 0.3342mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.030	-0.2202mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:59:39 AM

Mean Area 6.030
Mean Conc. -0.2202mg/L



Sample

Sample Name: WG242441-02 LCS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

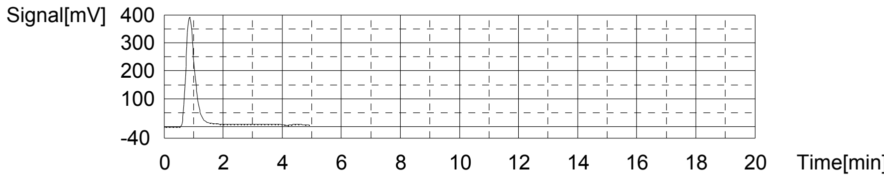
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:24.05mg/L TC:23.78mg/L IC:-0.2715mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	920.8	23.78mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:10:43 AM

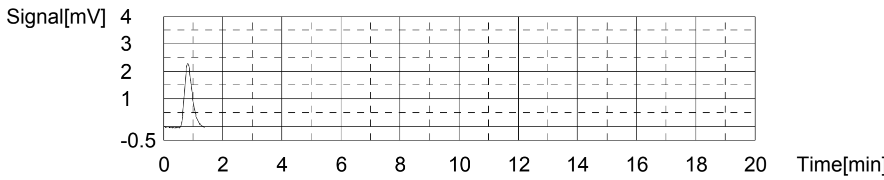
Mean Area 920.8
Mean Conc. 23.78mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.227	-0.2715mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 10:15:20 AM

Mean Area 4.227
Mean Conc. -0.2715mg/L



Sample

Sample Name: WG242441-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

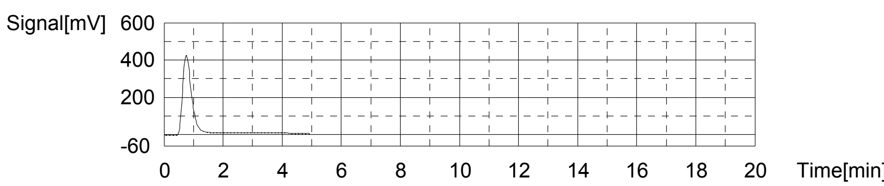
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.83mg/L TC:26.56mg/L IC:-0.2682mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1029	26.56mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:26:17 AM

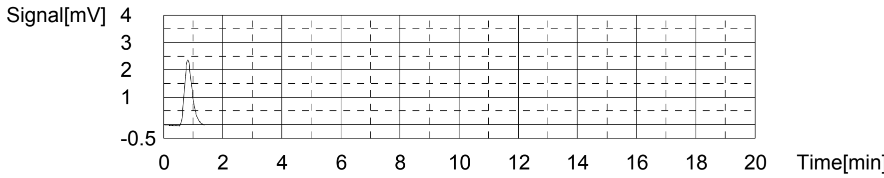
Mean Area 1029
Mean Conc. 26.56mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.342	-0.2682mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 10:30:43 AM

Mean Area 4.342
Mean Conc. -0.2682mg/L



Sample

Sample Name: L0706075-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

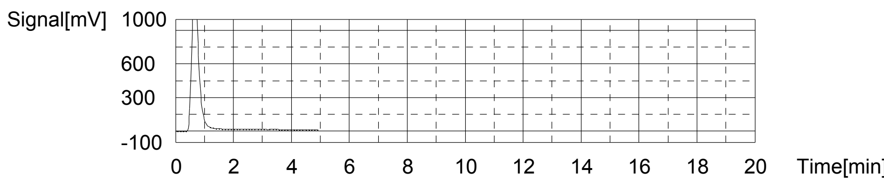
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-1.786mg/L TC:59.44mg/L IC:61.22mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2307	59.44mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:41:41 AM

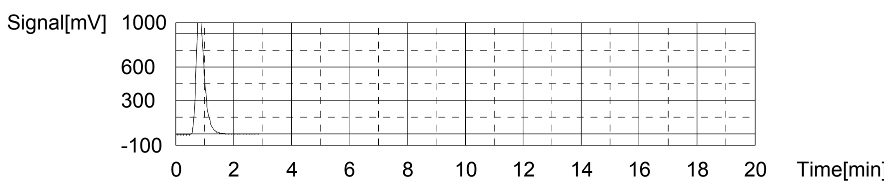
Mean Area 2307
Mean Conc. 59.44mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2166	61.22mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 10:48:26 AM

Mean Area 2166
Mean Conc. 61.22mg/L



Sample

Sample Name: L0706075-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

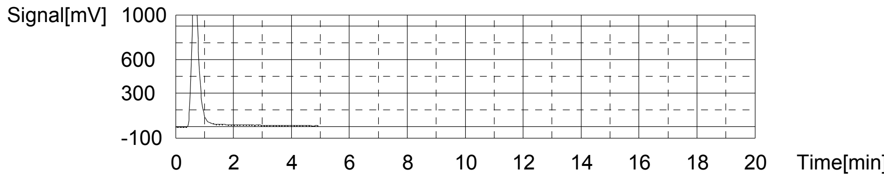
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-1.807mg/L TC:59.10mg/L IC:60.91mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2294	59.10mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:59:37 AM

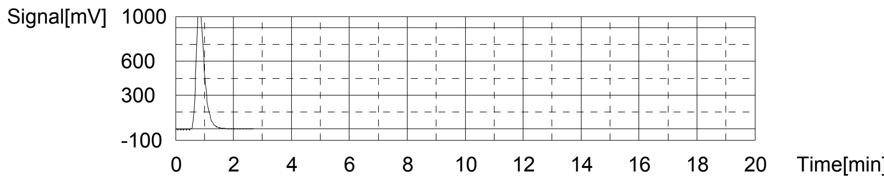
Mean Area 2294
Mean Conc. 59.10mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2155	60.91mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:06:11 AM

Mean Area 2155
Mean Conc. 60.91mg/L



Sample

Sample Name: L706075-05
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

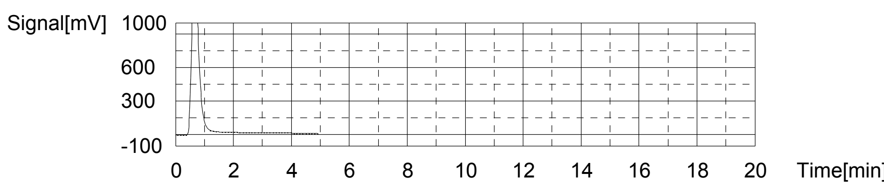
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-2.425mg/L TC:65.74mg/L IC:68.16mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2552	65.74mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 11:17:08 AM

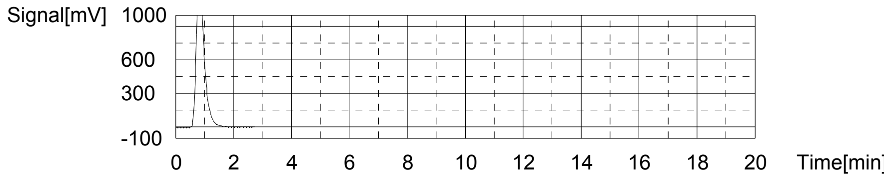
Mean Area 2552
Mean Conc. 65.74mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2410	68.16mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:23:51 AM

Mean Area 2410
Mean Conc. 68.16mg/L



Sample

Sample Name: L0706075-06
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

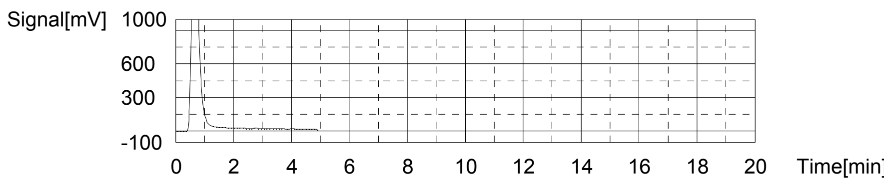
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-2.615mg/L TC:74.25mg/L IC:76.87mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2883	74.25mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 11:34:47 AM

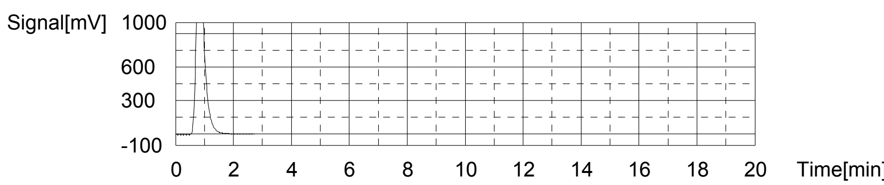
Mean Area 2883
Mean Conc. 74.25mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2716	76.87mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:41:27 AM

Mean Area 2716
Mean Conc. 76.87mg/L



Sample

Sample Name: L0706075-07
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

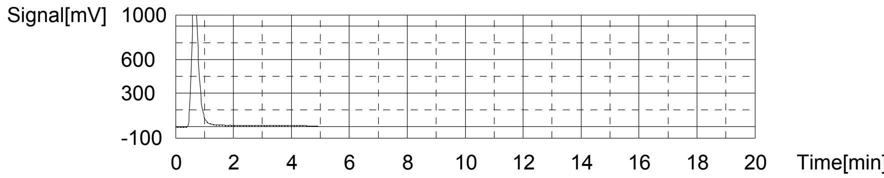
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-1.069mg/L TC:54.55mg/L IC:55.62mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2117	54.55mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 11:52:24 AM

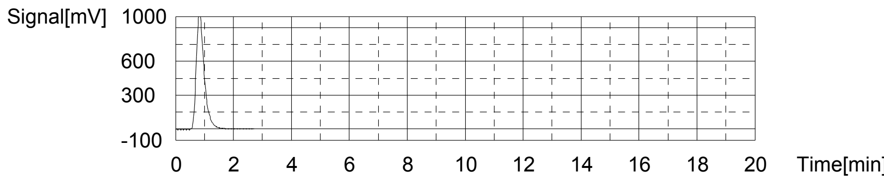
Mean Area 2117
Mean Conc. 54.55mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1969	55.62mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:58:56 AM

Mean Area 1969
Mean Conc. 55.62mg/L



Sample

Sample Name: L0706075-08
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

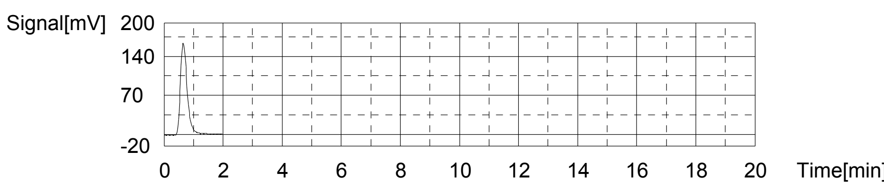
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.4587mg/L TC:6.954mg/L IC:6.495mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	266.7	6.954mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:06:56 PM

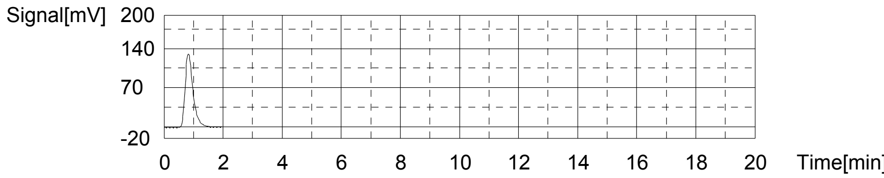
Mean Area 266.7
Mean Conc. 6.954mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	242.1	6.495mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:12:13 PM

Mean Area 242.1
Mean Conc. 6.495mg/L



Sample

Sample Name: L0706075-09
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

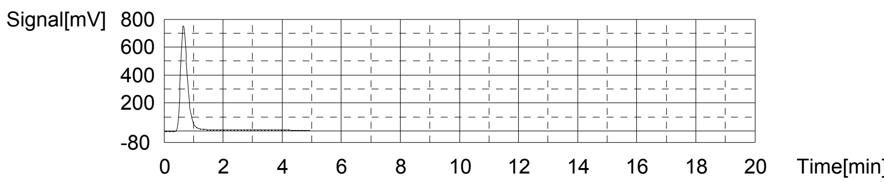
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.282mg/L TC:35.03mg/L IC:33.74mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1358	35.03mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:23:11 PM

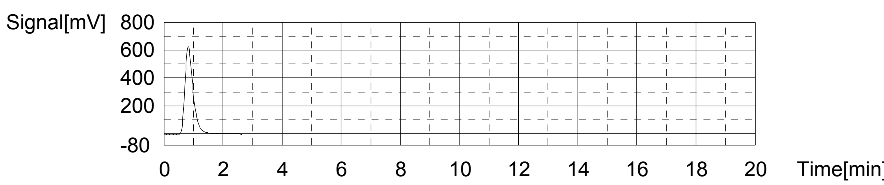
Mean Area 1358
Mean Conc. 35.03mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1200	33.74mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:29:22 PM

Mean Area 1200
Mean Conc. 33.74mg/L



Sample

Sample Name: WG242441-05 DUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

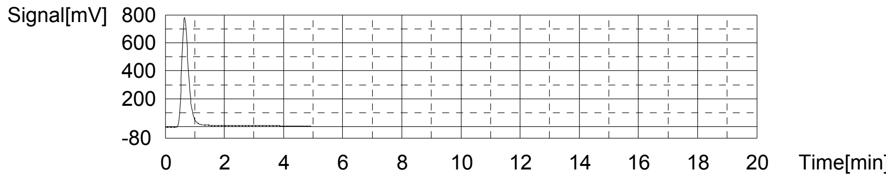
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.239mg/L TC:35.93mg/L IC:33.69mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1393	35.93mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:40:18 PM

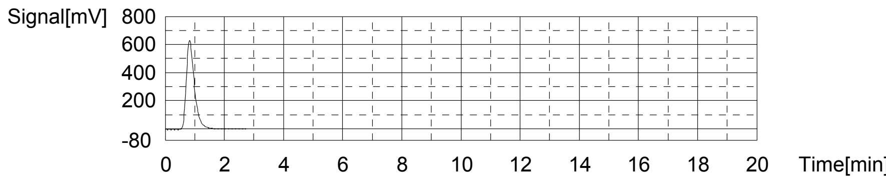
Mean Area 1393
Mean Conc. 35.93mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1198	33.69mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:46:40 PM

Mean Area 1198
Mean Conc. 33.69mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

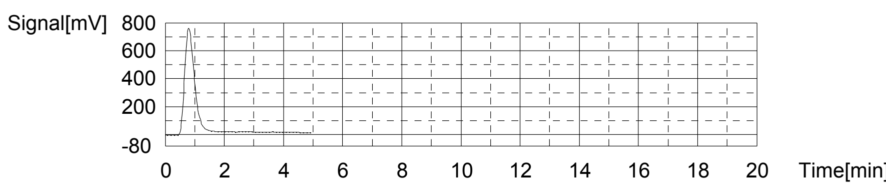
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.60mg/L TC:51.46mg/L IC:-0.1374mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1997	51.46mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:57:38 PM

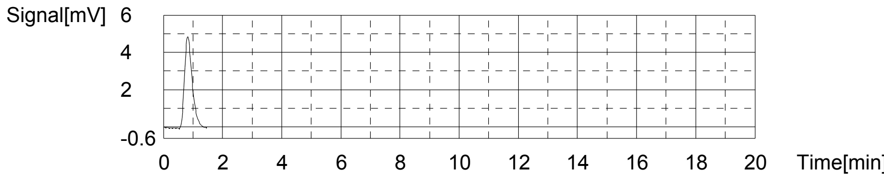
Mean Area 1997
Mean Conc. 51.46mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.940	-0.1374mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:02:16 PM

Mean Area 8.940
Mean Conc. -0.1374mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

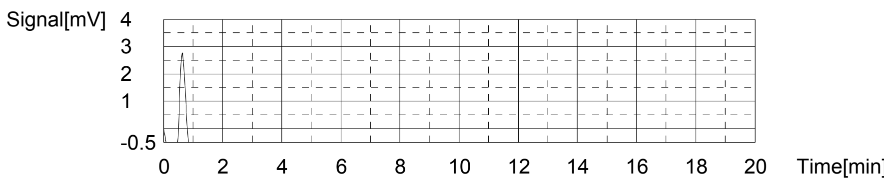
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4665mg/L TC:0.2595mg/L IC:-0.2071mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.455	0.2595mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/13/2007 01:07:30 PM

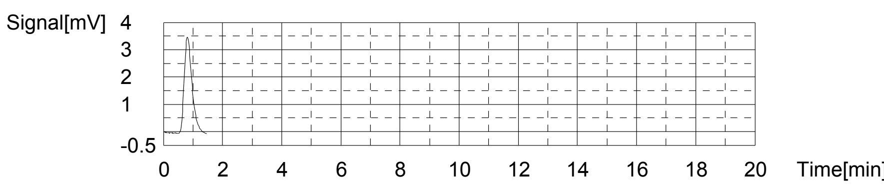
Mean Area 6.455
Mean Conc. 0.2595mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.491	-0.2071mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:11:35 PM

Mean Area 6.491
Mean Conc. -0.2071mg/L



Sample

Sample Name: L0706075-10 MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

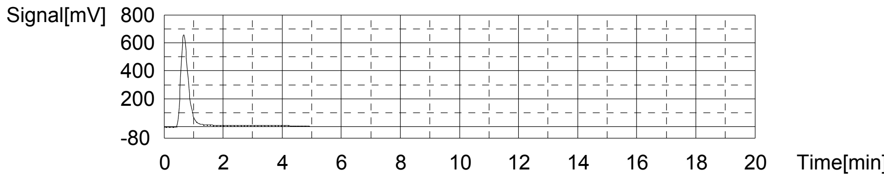
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:12.93mg/L TC:33.74mg/L IC:20.81mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1308	33.74mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:22:17 PM

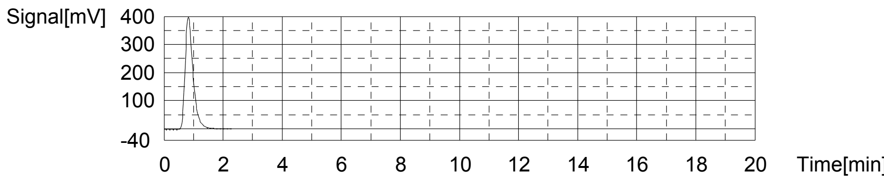
Mean Area 1308
Mean Conc. 33.74mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	745.3	20.81mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:28:12 PM

Mean Area 745.3
Mean Conc. 20.81mg/L



Sample

Sample Name: L0706075-11 MSD
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

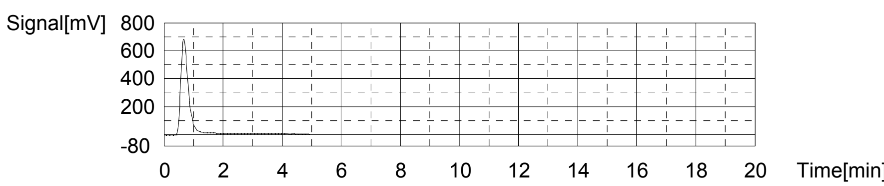
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:11.22mg/L TC:34.95mg/L IC:23.73mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1355	34.95mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:39:08 PM

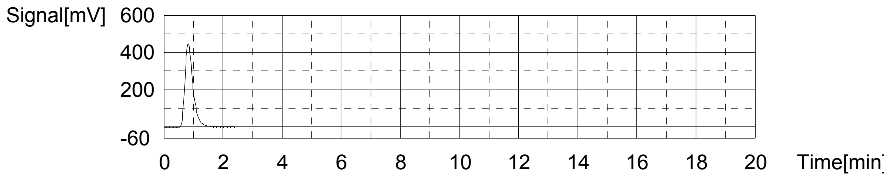
Mean Area 1355
Mean Conc. 34.95mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	847.9	23.73mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:45:03 PM

Mean Area 847.9
Mean Conc. 23.73mg/L



Sample

Sample Name: L0706075-12
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

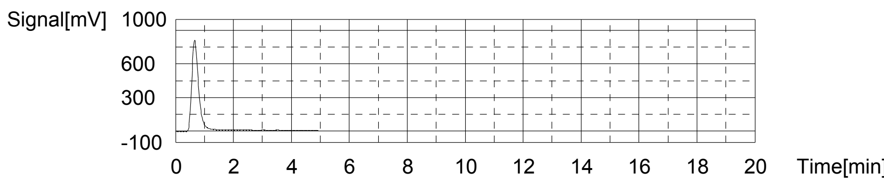
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.363mg/L TC:37.98mg/L IC:35.62mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1473	37.98mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:55:59 PM

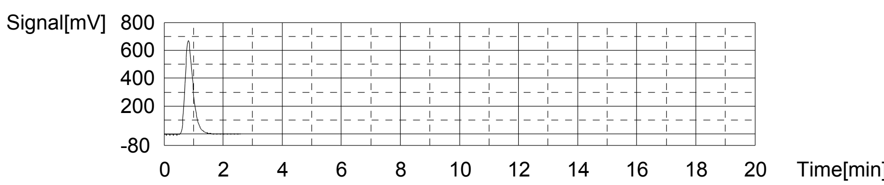
Mean Area 1473
Mean Conc. 37.98mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1266	35.62mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 02:02:11 PM

Mean Area 1266
Mean Conc. 35.62mg/L



Sample

Sample Name: L0706148-02 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

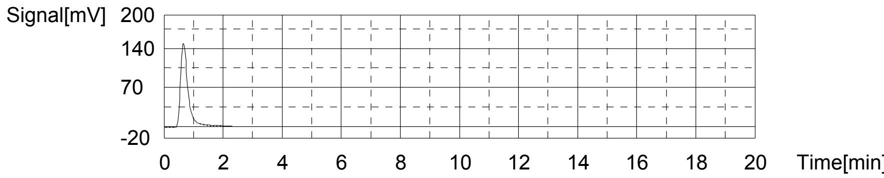
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.7258mg/L TC:6.956mg/L IC:6.231mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	266.8	6.956mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 02:10:17 PM

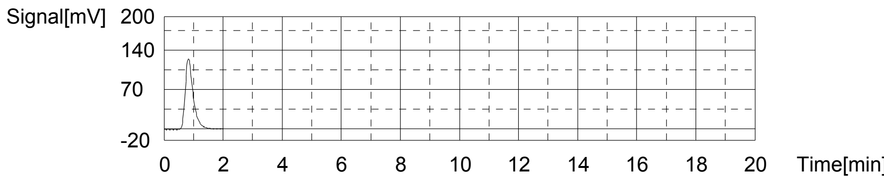
Mean Area 266.8
Mean Conc. 6.956mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	232.8	6.231mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 02:15:36 PM

Mean Area 232.8
Mean Conc. 6.231mg/L



Sample

Sample Name: L0706148-03 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

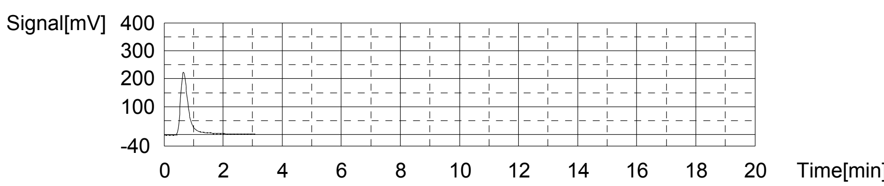
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.003mg/L TC:11.16mg/L IC:10.16mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	430.2	11.16mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 02:24:36 PM

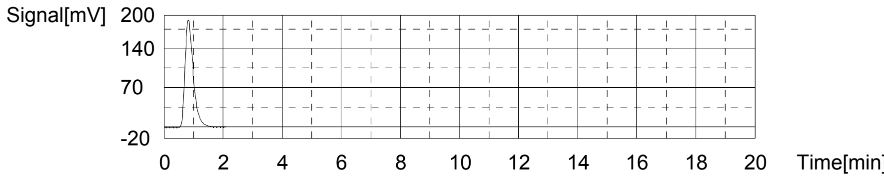
Mean Area 430.2
Mean Conc. 11.16mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	370.8	10.16mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 02:30:02 PM

Mean Area 370.8
Mean Conc. 10.16mg/L



Sample

Sample Name: L0706260-01 (10)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

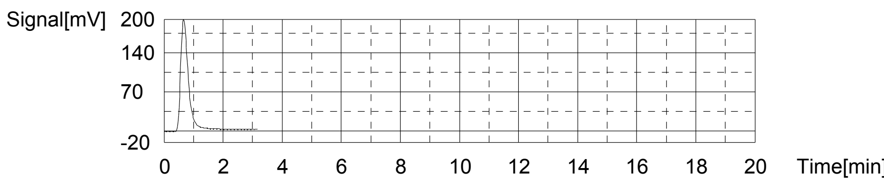
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.115mg/L TC:9.819mg/L IC:5.704mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	378.1	9.819mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 02:39:14 PM

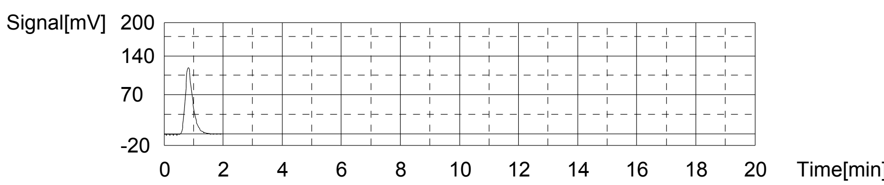
Mean Area 378.1
Mean Conc. 9.819mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	214.3	5.704mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 02:44:30 PM

Mean Area 214.3
Mean Conc. 5.704mg/L



Sample

Sample Name: L0706260-02 (10)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

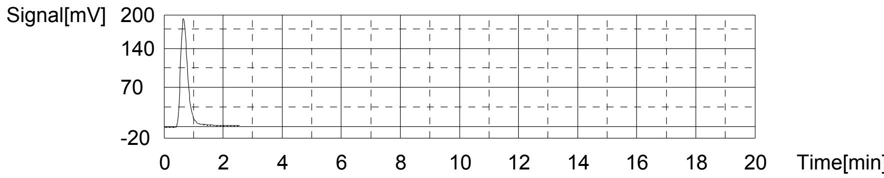
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.7993mg/L TC:8.788mg/L IC:7.988mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	338.0	8.788mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 02:53:06 PM

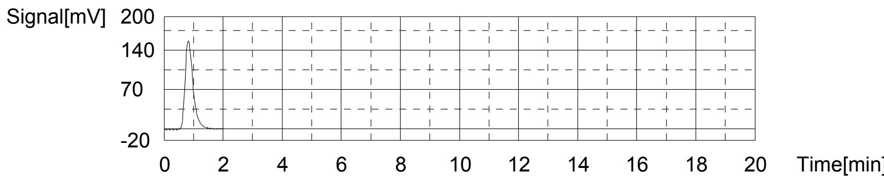
Mean Area 338.0
Mean Conc. 8.788mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	294.6	7.988mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 02:58:22 PM

Mean Area 294.6
Mean Conc. 7.988mg/L



Sample

Sample Name: L0706260-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

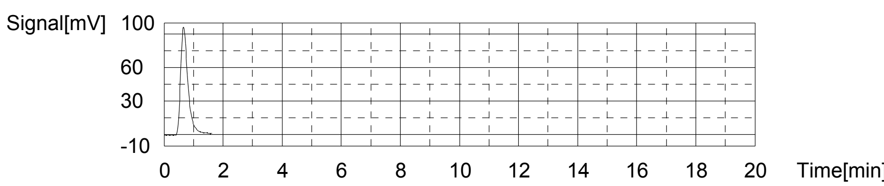
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.8597mg/L TC:4.348mg/L IC:3.488mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	165.4	4.348mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 03:06:08 PM

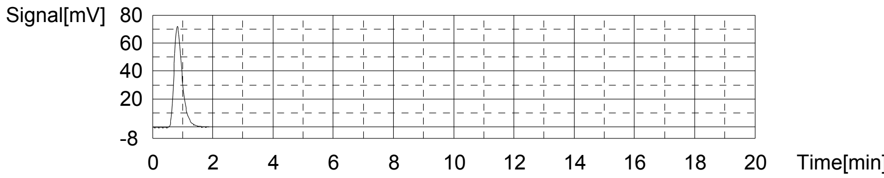
Mean Area 165.4
Mean Conc. 4.348mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	136.4	3.488mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 03:11:15 PM

Mean Area 136.4
Mean Conc. 3.488mg/L



Sample

Sample Name: L0706260-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

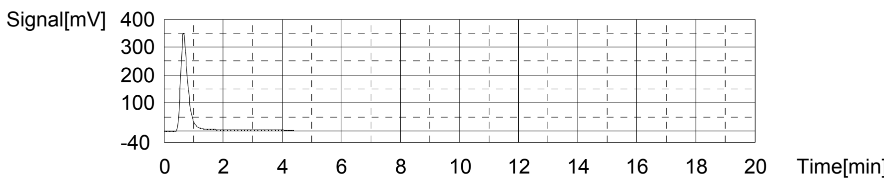
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.428mg/L TC:16.95mg/L IC:13.52mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	655.4	16.95mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 03:21:40 PM

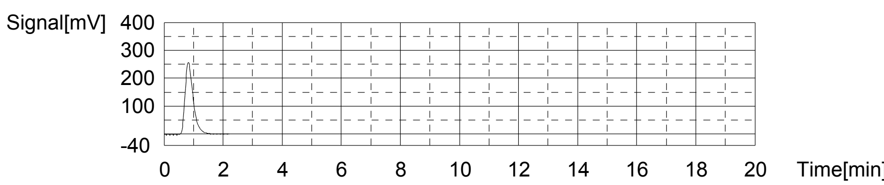
Mean Area 655.4
Mean Conc. 16.95mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	489.2	13.52mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 03:27:14 PM

Mean Area 489.2
Mean Conc. 13.52mg/L



Sample

Sample Name: L0706104-01 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

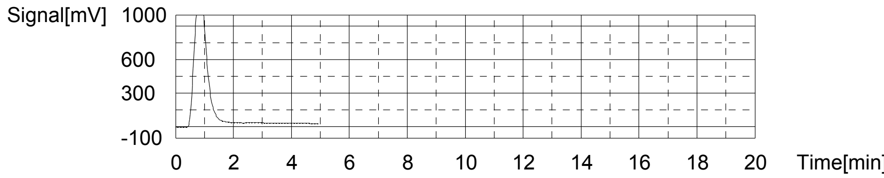
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:83.26mg/L TC:98.25mg/L IC:14.99mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3816	98.25mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 03:38:17 PM

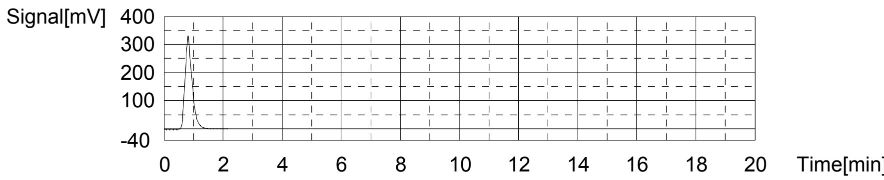
Mean Area 3816
Mean Conc. 98.25mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	540.9	14.99mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 03:43:47 PM

Mean Area 540.9
Mean Conc. 14.99mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

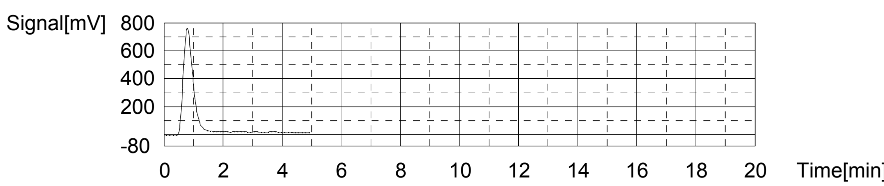
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:52.16mg/L TC:51.98mg/L IC:-0.1875mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2017	51.98mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 03:54:44 PM

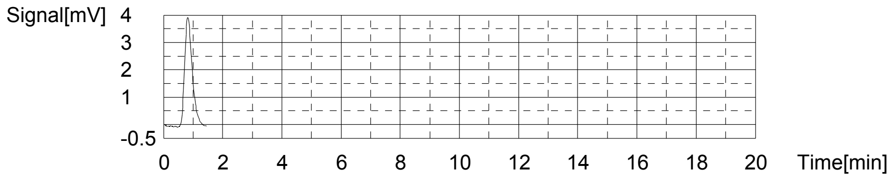
Mean Area 2017
Mean Conc. 51.98mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.177	-0.1875mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 03:59:20 PM

Mean Area 7.177
Mean Conc. -0.1875mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

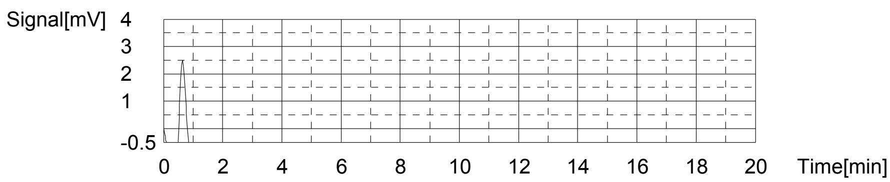
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4654mg/L TC:0.2528mg/L IC:-0.2125mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.197	0.2528mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 04:04:34 PM

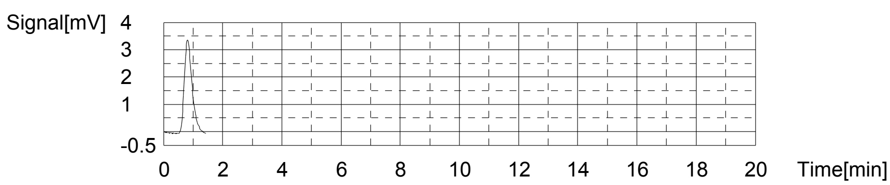
Mean Area 6.197
Mean Conc. 0.2528mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.298	-0.2125mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 04:08:38 PM

Mean Area 6.298
Mean Conc. -0.2125mg/L



Sample

Sample Name: L0706104-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

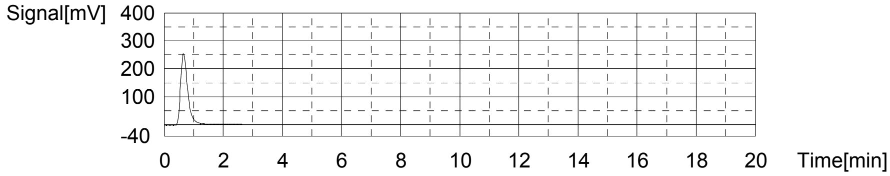
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.6916mg/L TC:11.39mg/L IC:10.70mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	439.2	11.39mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 04:17:20 PM

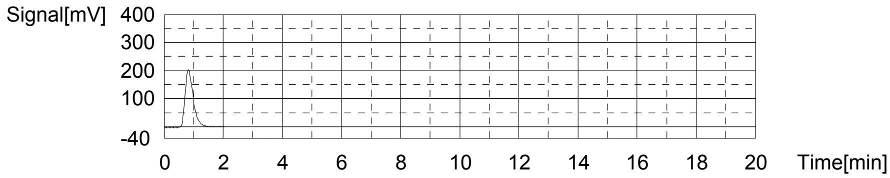
Mean Area 439.2
Mean Conc. 11.39mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	389.9	10.70mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 04:22:43 PM

Mean Area 389.9
Mean Conc. 10.70mg/L



Sample

Sample Name: L0706104-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

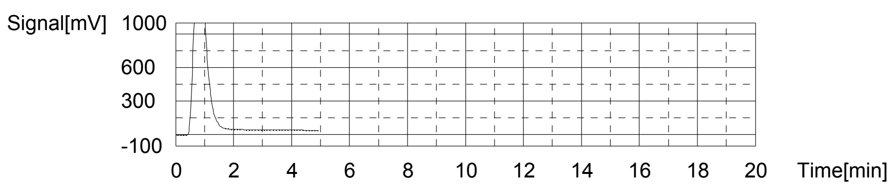
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:89.07mg/L TC:114.6mg/L IC:25.49mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4450	114.6mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 04:33:41 PM

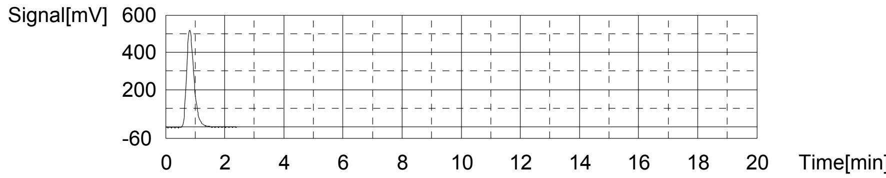
Mean Area 4450
Mean Conc. 114.6mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	910.0	25.49mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 04:39:39 PM

Mean Area 910.0
Mean Conc. 25.49mg/L



Sample

Sample Name: L0706104-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

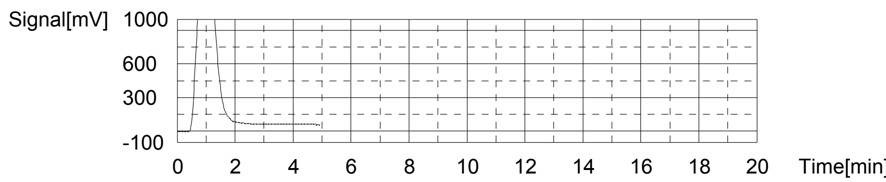
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:146.0mg/L TC:158.3mg/L IC:12.31mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6151	158.3mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 04:50:22 PM

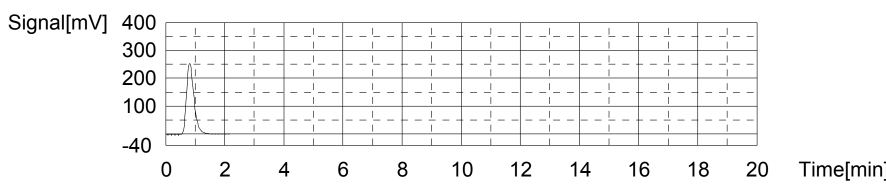
Mean Area 6151
Mean Conc. 158.3mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	446.6	12.31mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 04:55:54 PM

Mean Area 446.6
Mean Conc. 12.31mg/L



Sample

Sample Name: L0706104-05 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

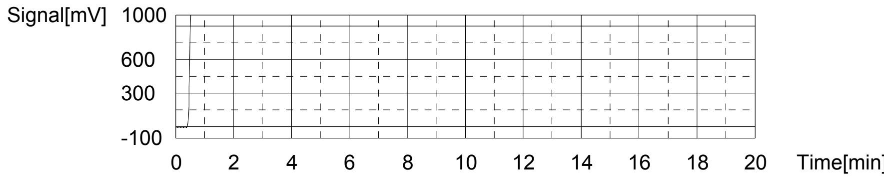
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:162.3mg/L TC:257.3mg/L IC:94.96mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9999	257.3mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 05:06:52 PM

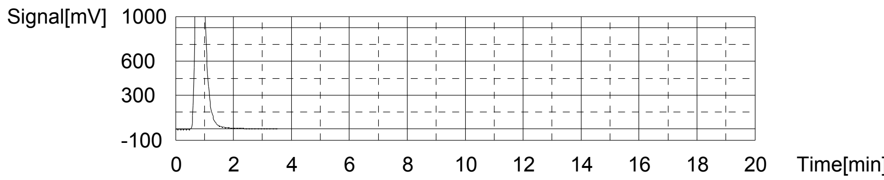
Mean Area 9999
Mean Conc. 257.3mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3352	94.96mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 05:15:03 PM

Mean Area 3352
Mean Conc. 94.96mg/L



Sample

Sample Name: L0706104-06 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

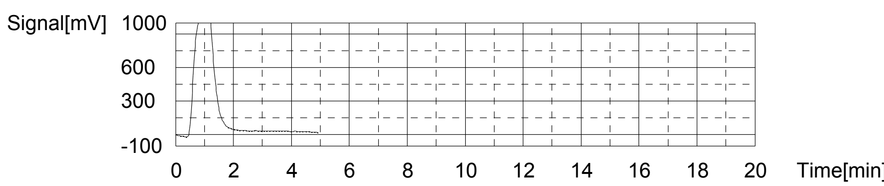
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:123.4mg/L TC:141.2mg/L IC:17.78mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5486	141.2mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 05:27:13 PM

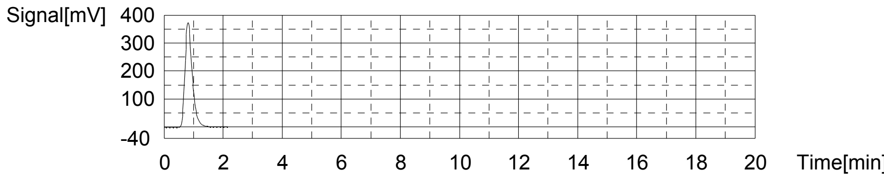
Mean Area 5486
Mean Conc. 141.2mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	638.9	17.78mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 05:33:09 PM

Mean Area 638.9
Mean Conc. 17.78mg/L



Sample

Sample Name: WG242442-01 BLANK
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

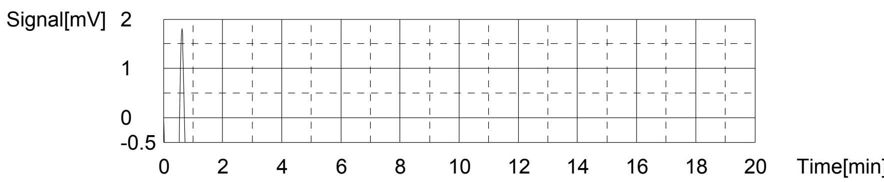
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4672mg/L TC:0.3517mg/L IC:-0.1155mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.04	0.3517mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 05:38:31 PM

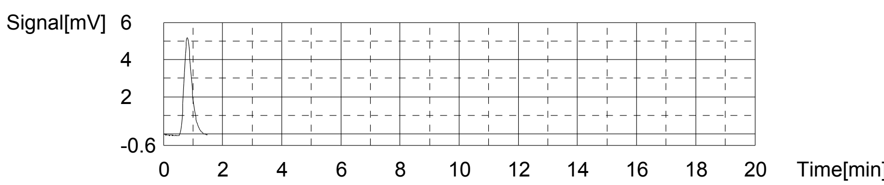
Mean Area 10.04
Mean Conc. 0.3517mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.711	-0.1155mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 05:42:44 PM

Mean Area 9.711
Mean Conc. -0.1155mg/L



Sample

Sample Name: WG242442-02 LCS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

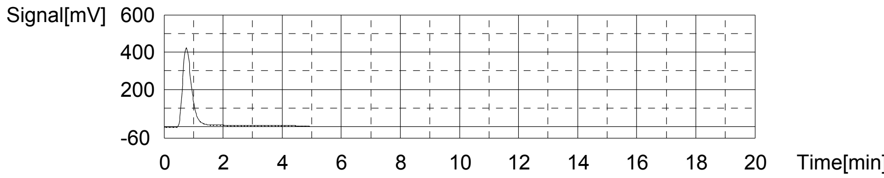
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.78mg/L TC:26.59mg/L IC:-0.1884mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1030	26.59mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 05:53:35 PM

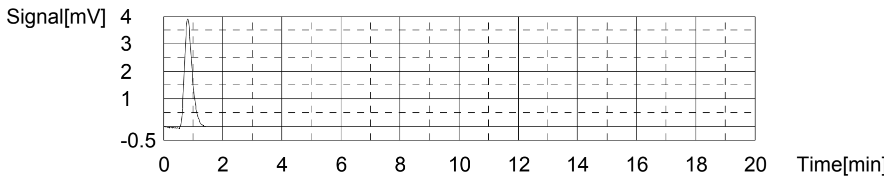
Mean Area 1030
Mean Conc. 26.59mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.147	-0.1884mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 05:58:07 PM

Mean Area 7.147
Mean Conc. -0.1884mg/L



Sample

Sample Name: WG242442-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

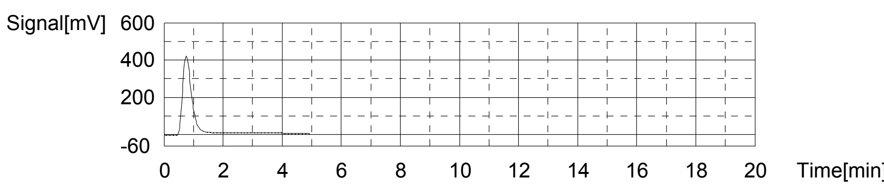
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.67mg/L TC:26.46mg/L IC:-0.2073mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1025	26.46mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 06:08:50 PM

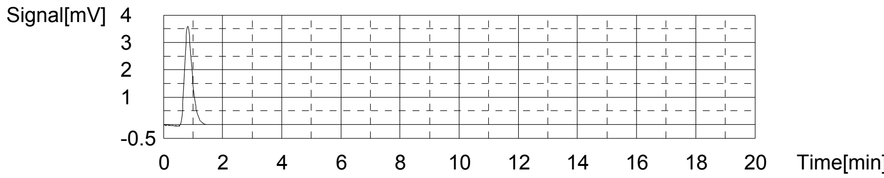
Mean Area 1025
Mean Conc. 26.46mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.484	-0.2073mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 06:13:08 PM

Mean Area 6.484
Mean Conc. -0.2073mg/L



Sample

Sample Name: L0706104-07
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

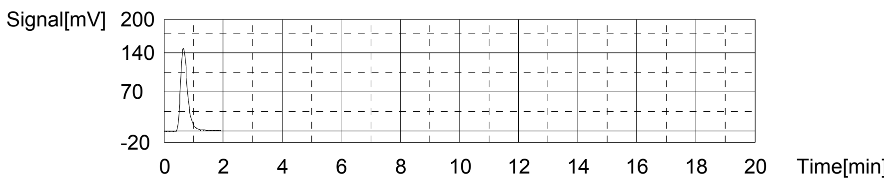
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.3027mg/L TC:6.439mg/L IC:6.137mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	246.7	6.439mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 06:20:52 PM

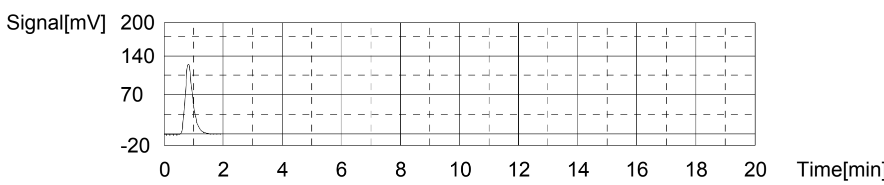
Mean Area 246.7
Mean Conc. 6.439mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	229.5	6.137mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 06:25:50 PM

Mean Area 229.5
Mean Conc. 6.137mg/L



Sample

Sample Name: L0706104-08
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

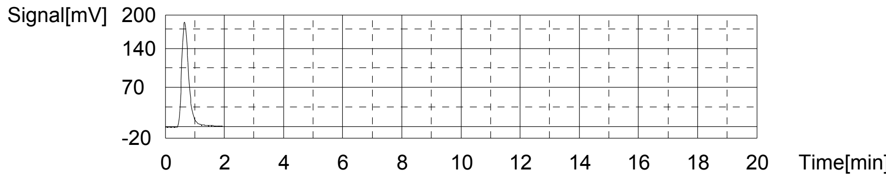
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.09289mg/L TC:8.098mg/L IC:8.006mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	311.2	8.098mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 06:33:34 PM

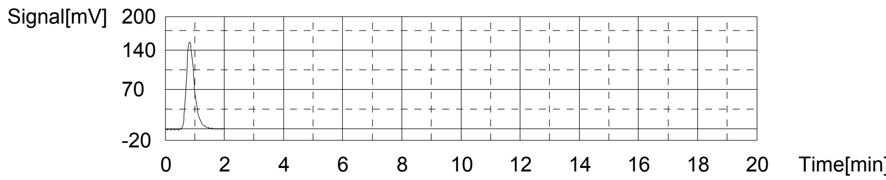
Mean Area 311.2
Mean Conc. 8.098mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	295.2	8.006mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 06:38:46 PM

Mean Area 295.2
Mean Conc. 8.006mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

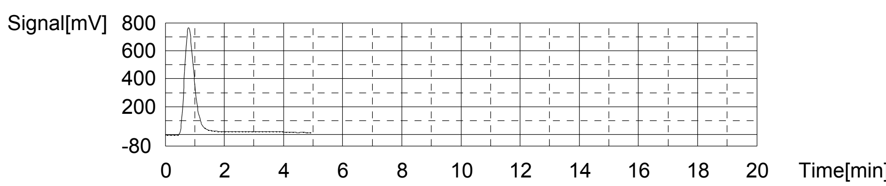
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:52.38mg/L TC:52.18mg/L IC:-0.1932mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2025	52.18mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 06:49:29 PM

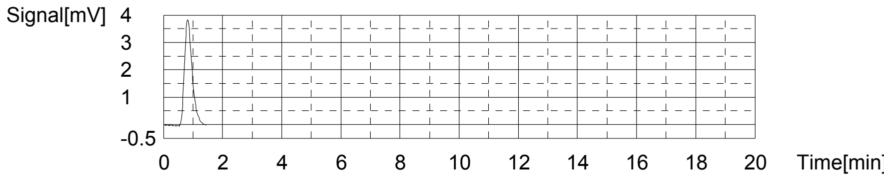
Mean Area 2025
Mean Conc. 52.18mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.979	-0.1932mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 06:53:49 PM

Mean Area 6.979
Mean Conc. -0.1932mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

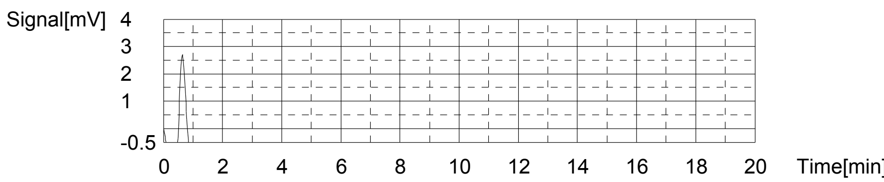
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4710mg/L TC:0.2593mg/L IC:-0.2118mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.446	0.2593mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/13/2007 06:59:03 PM

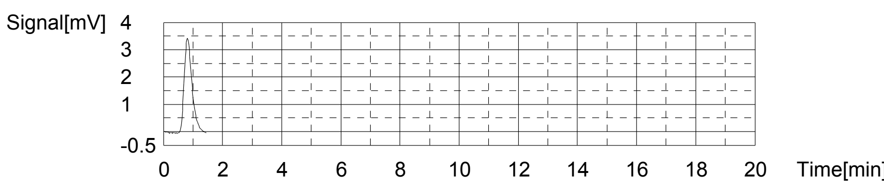
Mean Area 6.446
Mean Conc. 0.2593mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.325	-0.2118mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 07:03:08 PM

Mean Area 6.325
Mean Conc. -0.2118mg/L



Sample

Sample Name: L0706104-09 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

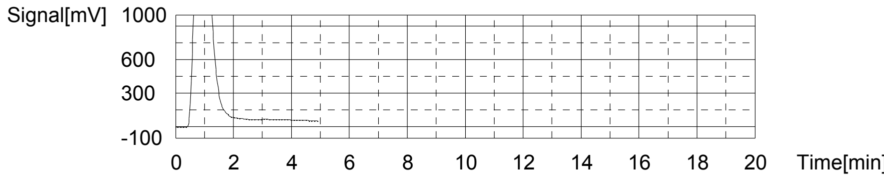
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:129.7mg/L TC:162.8mg/L IC:33.09mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6325	162.8mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 07:14:05 PM

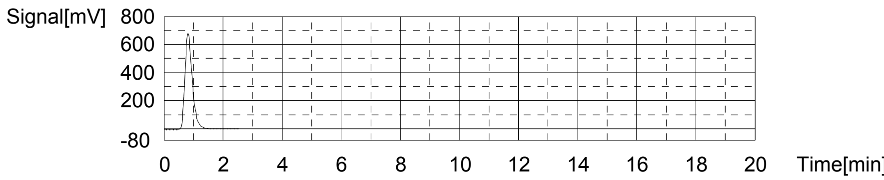
Mean Area 6325
Mean Conc. 162.8mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1177	33.09mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 07:20:11 PM

Mean Area 1177
Mean Conc. 33.09mg/L



Sample

Sample Name: L0706104-10 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

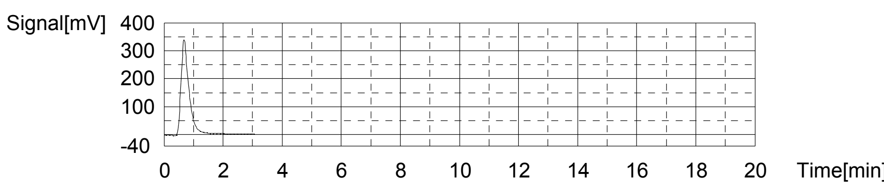
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:7.388mg/L TC:17.03mg/L IC:9.644mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	658.5	17.03mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 07:29:05 PM

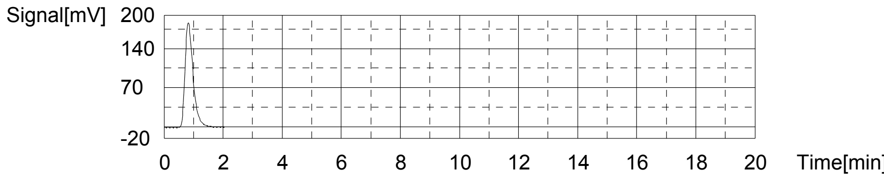
Mean Area 658.5
Mean Conc. 17.03mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	352.8	9.644mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 07:34:27 PM

Mean Area 352.8
Mean Conc. 9.644mg/L



Sample

Sample Name: L0706104-11
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

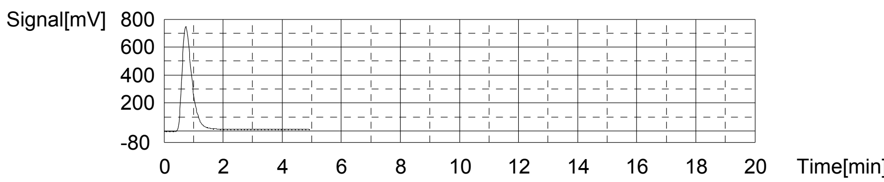
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:39.97mg/L TC:47.96mg/L IC:7.991mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1861	47.96mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 07:45:23 PM

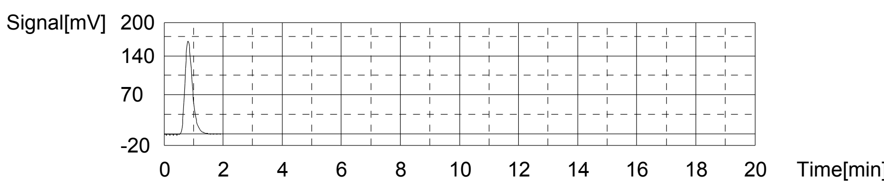
Mean Area 1861
Mean Conc. 47.96mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	294.7	7.991mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 07:50:35 PM

Mean Area 294.7
Mean Conc. 7.991mg/L



Sample

Sample Name: L0706104-12
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

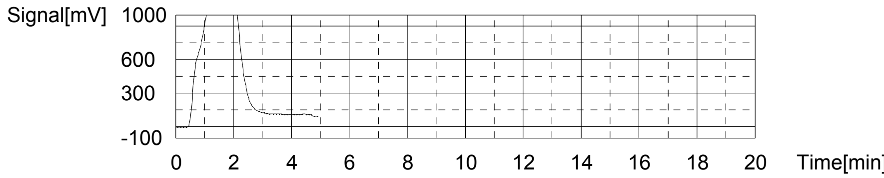
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:246.7mg/L TC:257.3mg/L IC:10.59mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9999	257.3mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 08:01:32 PM

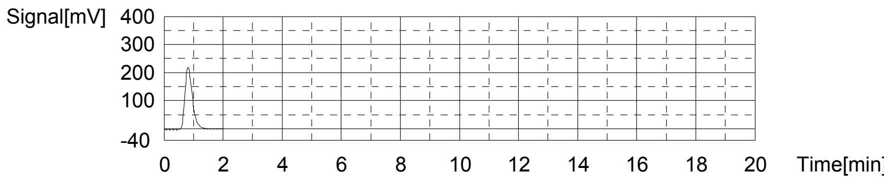
Mean Area 9999
Mean Conc. 257.3mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	386.2	10.59mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 08:06:47 PM

Mean Area 386.2
Mean Conc. 10.59mg/L



Sample

Sample Name: L0706104-13
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

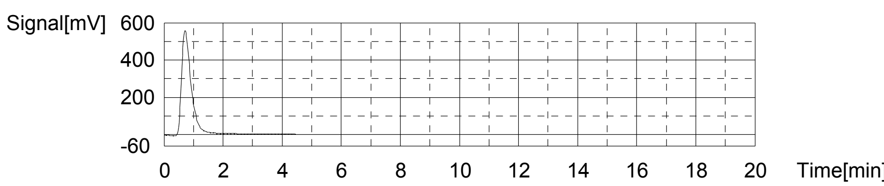
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:23.74mg/L TC:34.56mg/L IC:10.82mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1340	34.56mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 08:17:15 PM

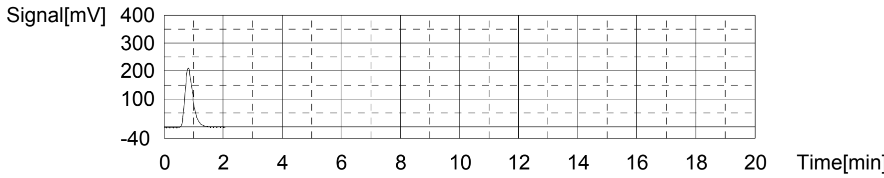
Mean Area 1340
Mean Conc. 34.56mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	394.3	10.82mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 08:22:38 PM

Mean Area 394.3
Mean Conc. 10.82mg/L



Sample

Sample Name: L0706147-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

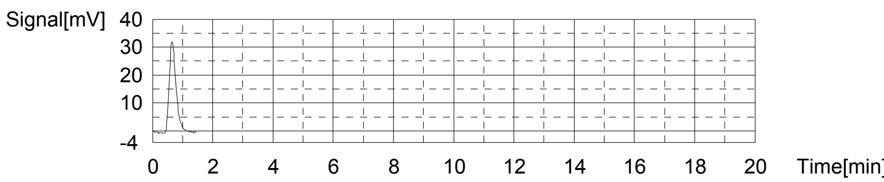
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.5193mg/L TC:1.426mg/L IC:0.9069mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	51.81	1.426mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/13/2007 08:30:01 PM

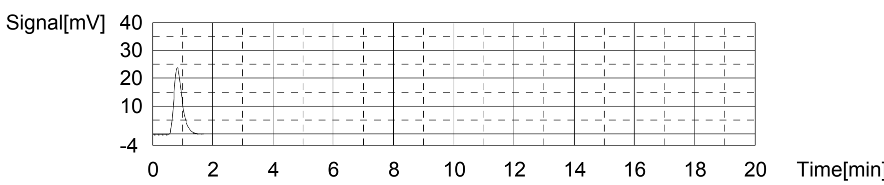
Mean Area 51.81
Mean Conc. 1.426mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	45.65	0.9069mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 08:34:52 PM

Mean Area 45.65
Mean Conc. 0.9069mg/L



Sample

Sample Name: L0706147-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

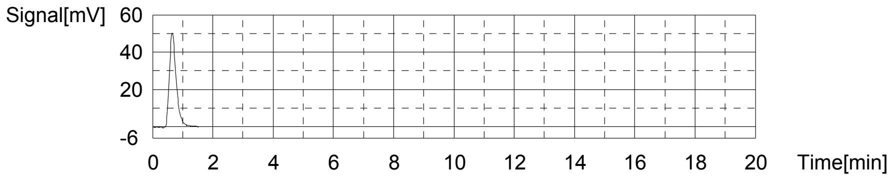
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.3134mg/L TC:2.167mg/L IC:1.854mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	80.61	2.167mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/13/2007 08:42:26 PM

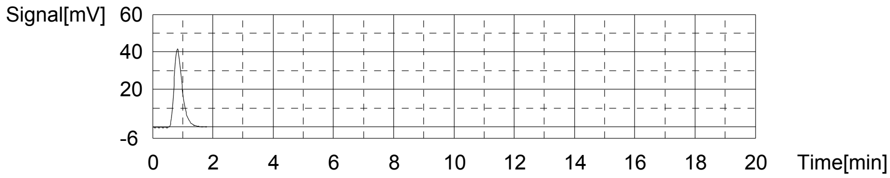
Mean Area 80.61
Mean Conc. 2.167mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	78.93	1.854mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 08:47:24 PM

Mean Area 78.93
Mean Conc. 1.854mg/L



Sample

Sample Name: L0706147-05
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

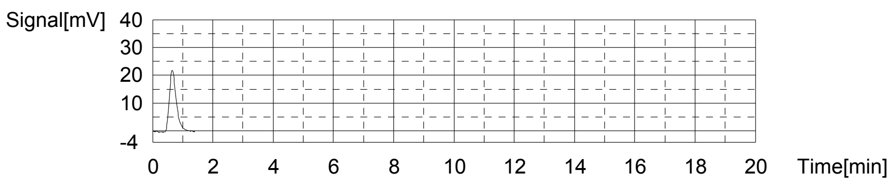
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.4906mg/L TC:1.007mg/L IC:0.5163mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	35.51	1.007mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/13/2007 08:54:52 PM

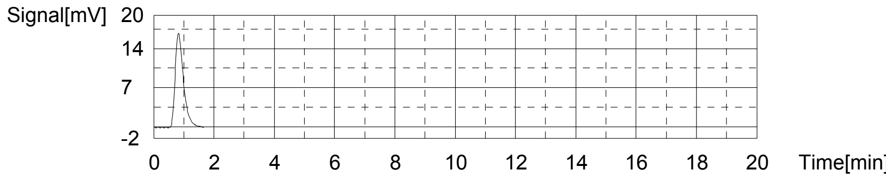
Mean Area 35.51
Mean Conc. 1.007mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	31.92	0.5163mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 08:59:43 PM

Mean Area 31.92
Mean Conc. 0.5163mg/L



Sample

Sample Name: L0706261-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

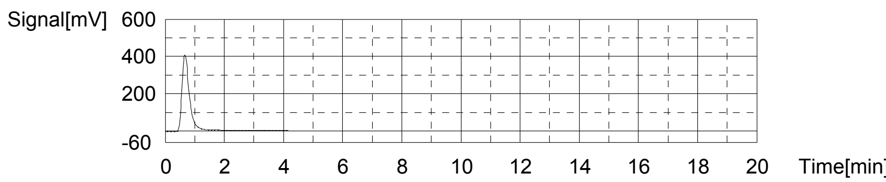
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:5.380mg/L TC:19.66mg/L IC:14.28mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	760.6	19.66mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:09:56 PM

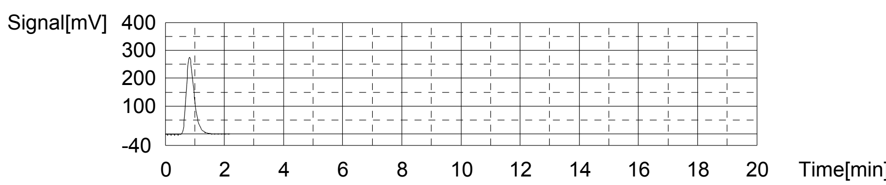
Mean Area 760.6
Mean Conc. 19.66mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	515.7	14.28mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:15:29 PM

Mean Area 515.7
Mean Conc. 14.28mg/L



Sample

Sample Name: L0706261-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

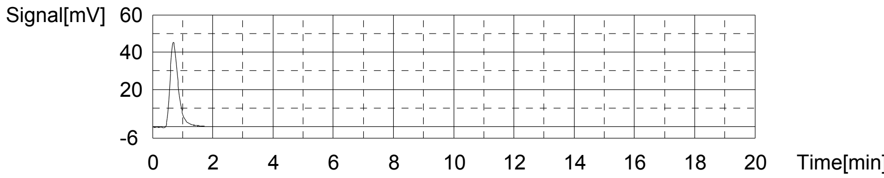
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.084mg/L TC:2.334mg/L IC:0.2498mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	87.11	2.334mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:23:02 PM

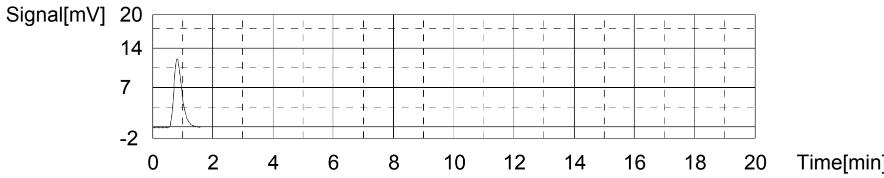
Mean Area 87.11
Mean Conc. 2.334mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	22.55	0.2498mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:27:46 PM

Mean Area 22.55
Mean Conc. 0.2498mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

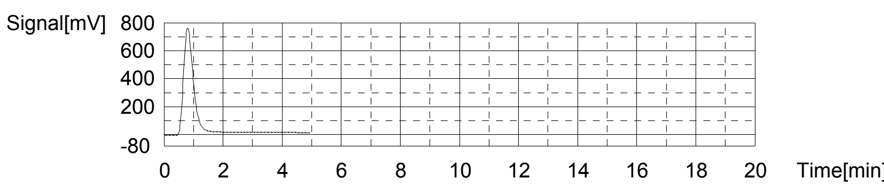
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:50.56mg/L TC:50.36mg/L IC:-0.2047mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1954	50.36mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:38:44 PM

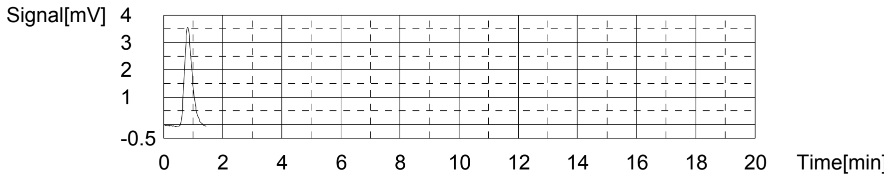
Mean Area 1954
Mean Conc. 50.36mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.572	-0.2047mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:43:17 PM

Mean Area 6.572
Mean Conc. -0.2047mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

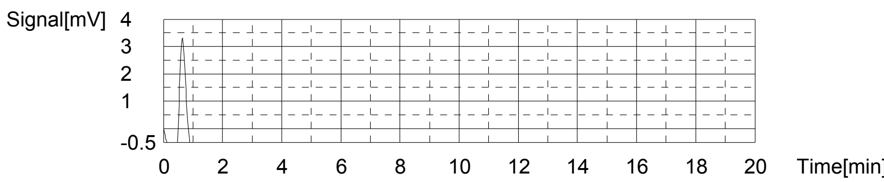
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4778mg/L TC:0.2688mg/L IC:-0.2090mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.819	0.2688mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 09:48:36 PM

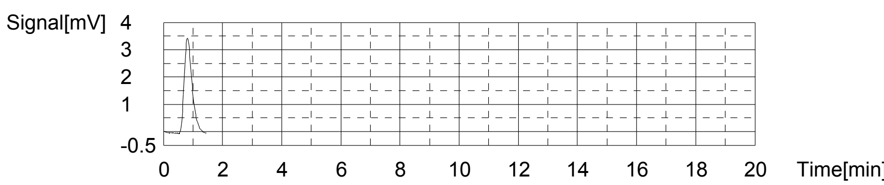
Mean Area 6.819
Mean Conc. 0.2688mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.424	-0.2090mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 09:52:42 PM

Mean Area 6.424
Mean Conc. -0.2090mg/L



Sample

Sample Name: L0706274-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

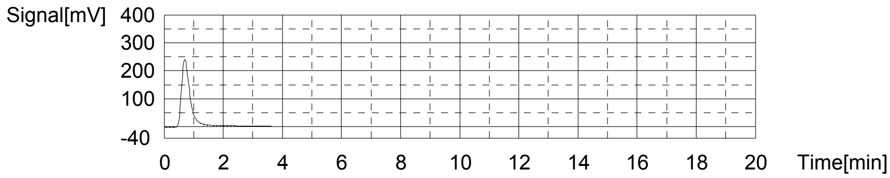
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:9.933mg/L TC:13.09mg/L IC:3.161mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	505.4	13.09mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:02:16 PM

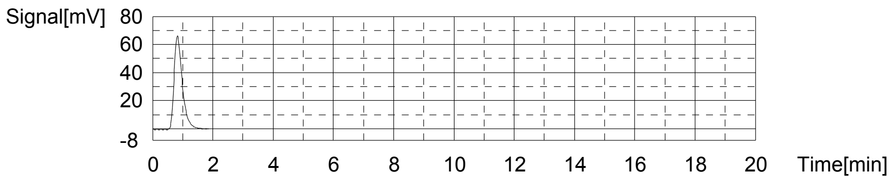
Mean Area 505.4
Mean Conc. 13.09mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	124.9	3.161mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 10:07:31 PM

Mean Area 124.9
Mean Conc. 3.161mg/L



Sample

Sample Name: L0706274-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

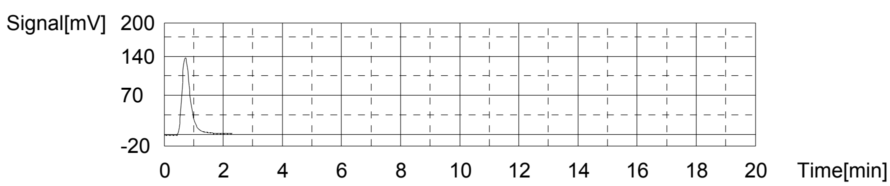
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:6.621mg/L TC:7.319mg/L IC:0.6981mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	280.9	7.319mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:15:38 PM

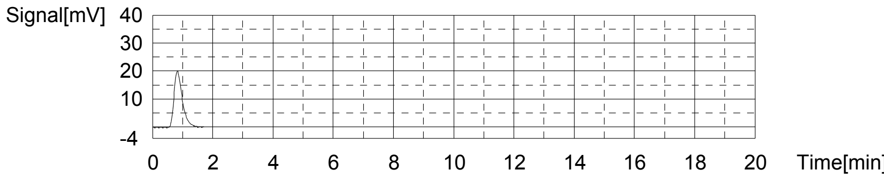
Mean Area 280.9
Mean Conc. 7.319mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	38.31	0.6981mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 10:20:28 PM

Mean Area 38.31
Mean Conc. 0.6981mg/L



Sample

Sample Name: WG242442-05 DUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

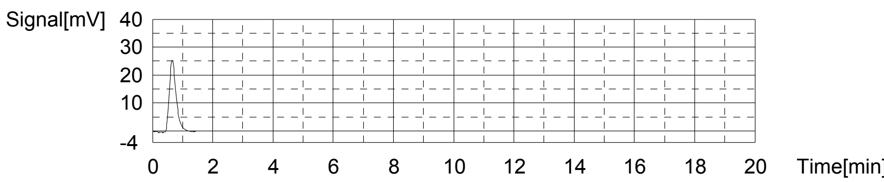
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.4823mg/L TC:1.155mg/L IC:0.6730mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	41.28	1.155mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/13/2007 10:27:51 PM

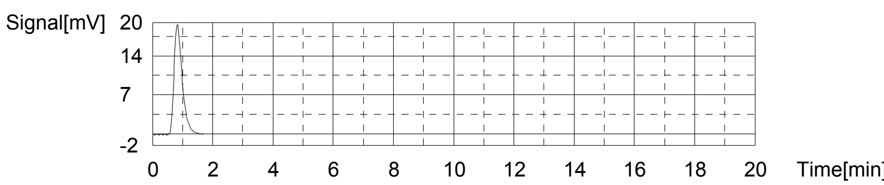
Mean Area 41.28
Mean Conc. 1.155mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	37.43	0.6730mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 10:32:43 PM

Mean Area 37.43
Mean Conc. 0.6730mg/L



Sample

Sample Name: WG242442-06 MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

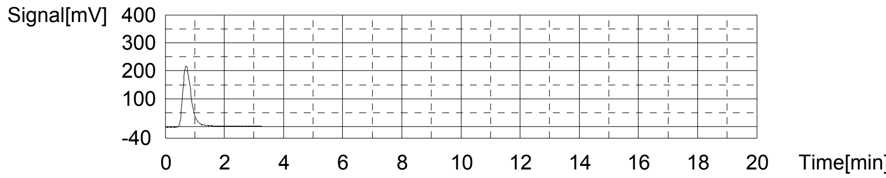
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:9.564mg/L TC:11.60mg/L IC:2.032mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	447.2	11.60mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:41:55 PM

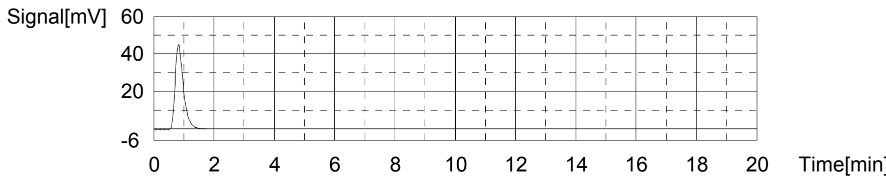
Mean Area 447.2
Mean Conc. 11.60mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	85.22	2.032mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 10:46:51 PM

Mean Area 85.22
Mean Conc. 2.032mg/L



Sample

Sample Name: L0706151-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

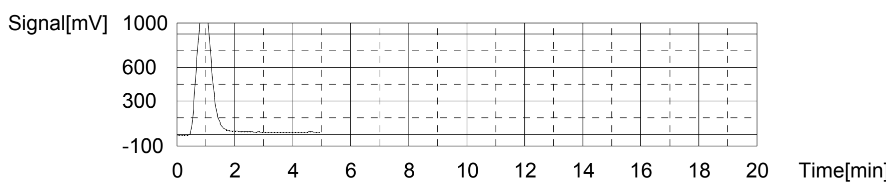
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:100.1mg/L TC:106.7mg/L IC:6.526mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4143	106.7mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 10:57:55 PM

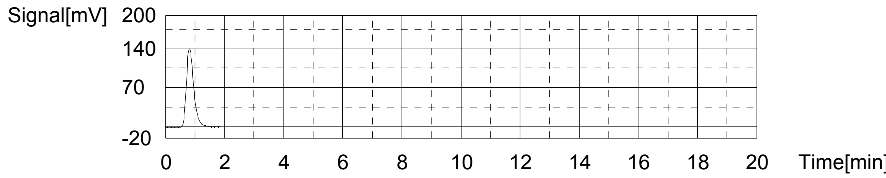
Mean Area 4143
Mean Conc. 106.7mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	243.2	6.526mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:03:08 PM

Mean Area 243.2
Mean Conc. 6.526mg/L



Sample

Sample Name: L0706151-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

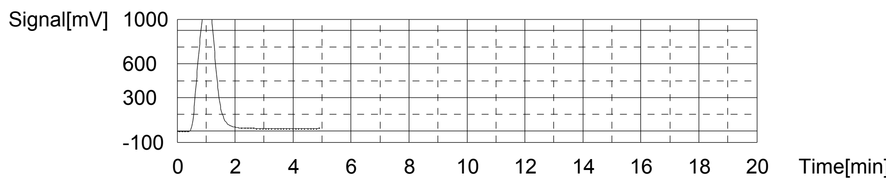
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:116.5mg/L TC:120.0mg/L IC:3.514mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4663	120.0mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 11:13:58 PM

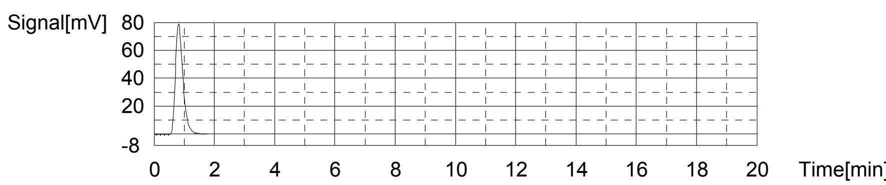
Mean Area 4663
Mean Conc. 120.0mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	137.3	3.514mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:19:00 PM

Mean Area 137.3
Mean Conc. 3.514mg/L



Sample

Sample Name: L0706151-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

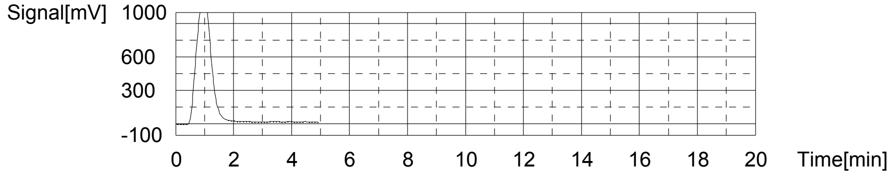
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:100.5mg/L TC:105.5mg/L IC:4.990mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4099	105.5mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 11:30:04 PM

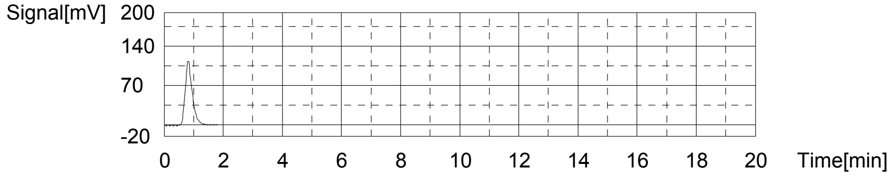
Mean Area 4099
Mean Conc. 105.5mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	189.2	4.990mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:35:12 PM

Mean Area 189.2
Mean Conc. 4.990mg/L



Sample

Sample Name: L0706151-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

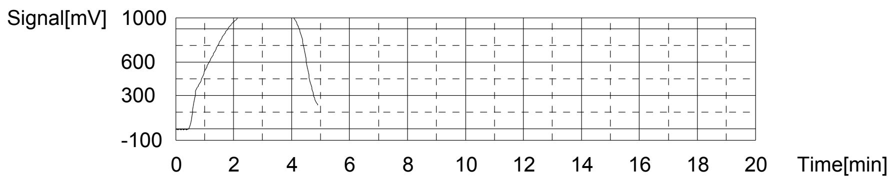
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:252.1mg/L TC:257.3mg/L IC:5.215mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9999	257.3mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 11:46:09 PM

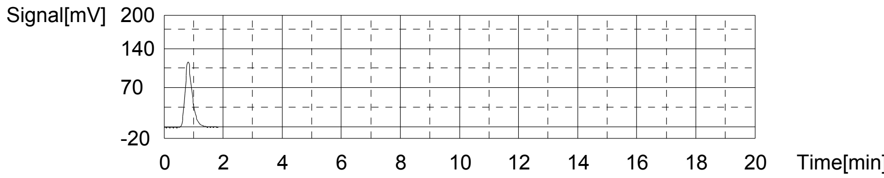
Mean Area 9999
Mean Conc. 257.3mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	197.1	5.215mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 11:51:21 PM

Mean Area 197.1
Mean Conc. 5.215mg/L



Sample

Sample Name: L0706151-05
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

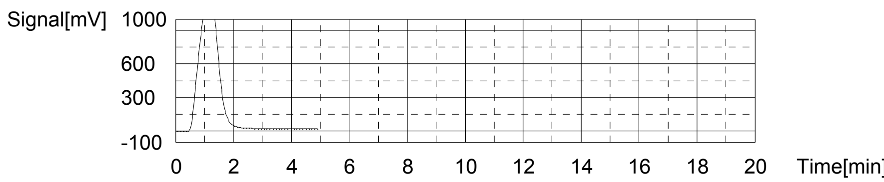
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:139.3mg/L TC:140.7mg/L IC:1.466mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5467	140.7mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/14/2007 12:02:12 AM

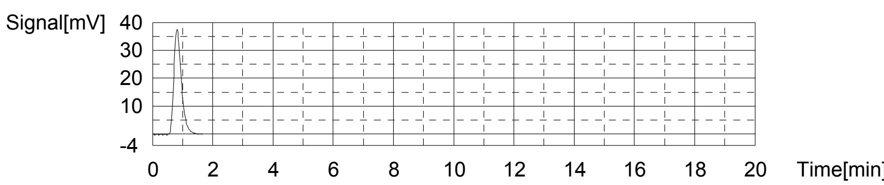
Mean Area 5467
Mean Conc. 140.7mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	65.29	1.466mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/14/2007 12:07:14 AM

Mean Area 65.29
Mean Conc. 1.466mg/L



Sample

Sample Name: L0706151-06 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

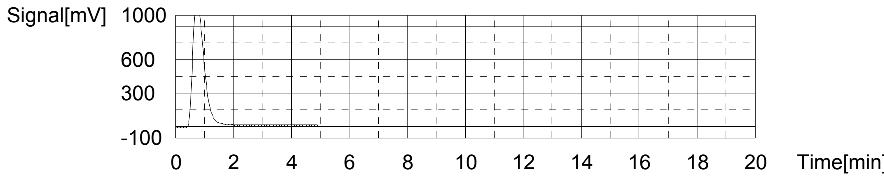
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:60.44mg/L TC:81.04mg/L IC:20.61mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3147	81.04mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/14/2007 12:18:13 AM

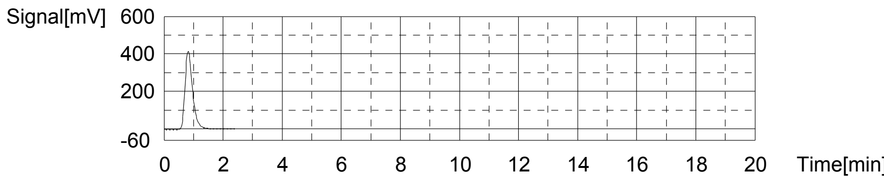
Mean Area 3147
Mean Conc. 81.04mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	738.2	20.61mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/14/2007 12:24:11 AM

Mean Area 738.2
Mean Conc. 20.61mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

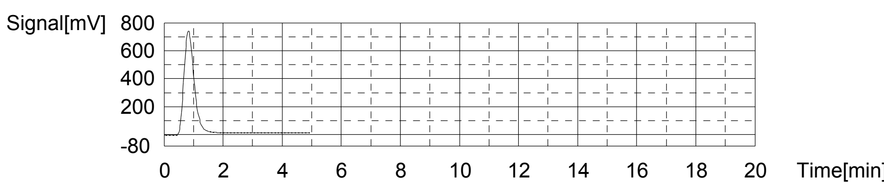
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:49.39mg/L TC:49.25mg/L IC:-0.1432mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1911	49.25mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/14/2007 12:34:55 AM

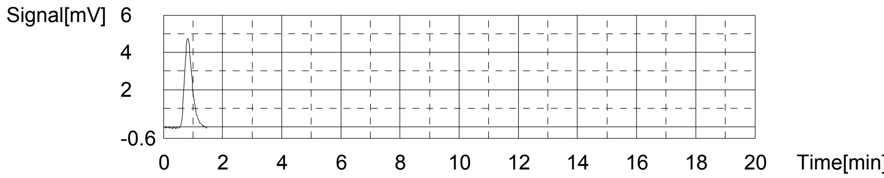
Mean Area 1911
Mean Conc. 49.25mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.737	-0.1432mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/14/2007 12:39:50 AM

Mean Area 8.737
Mean Conc. -0.1432mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

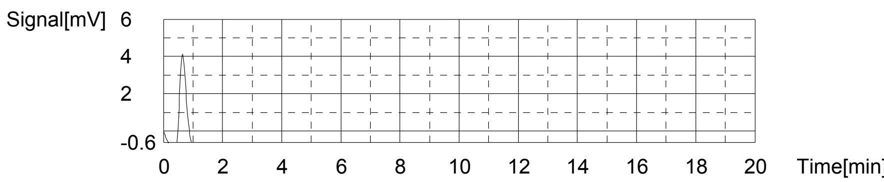
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.5034mg/L TC:0.3065mg/L IC:-0.1969mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.282	0.3065mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/14/2007 12:45:12 AM

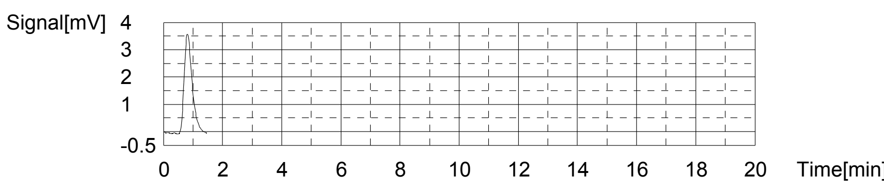
Mean Area 8.282
Mean Conc. 0.3065mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.847	-0.1969mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/14/2007 12:49:20 AM

Mean Area 6.847
Mean Conc. -0.1969mg/L



WORKGROUP: WG242321
242322

Kemron
ENVIRONMENTAL SERVICES

WG#: ______________

Total Organic Carbon

MAKE DAILY

CCV (TOC): STD19122
$\left(\frac{10}{200}(1000) = 50\ mg/L\right)$ $\left(\frac{2}{200}(1000) = 10\ mg/L\right)$

CCV (TIC): STD19753
$\left(\frac{5}{200}(1000) = 25\ mg/L\right)$

LCS (TOC): STD18349
$\left(\frac{5}{200}(1000) = 25\ mg/L\right)$

MS (TOC): 0.4/40(1000) = 10

Calibration Curve Date: 2/26/07

☑ EPA 415.1 / SM5310-C TOC / TOC-4 / TOC-D / TOCLOW
☐ SW846 9060 TOC-14 / TOC-44

SOP: K 4151 Rev. 11
Instrument: Shimadza TOC-VWP/ASI

DAILY CHECK

☑ drain reservoir filled
☑ ASI water bottle full
☑ dilution water bottle full
☑ 3rd bottle full
☑ sufficient gas
☑ sufficient persulfate
☑ sufficient acid
☑ waste container

Position	Sample ID	Dilution
1	CCV 50	
2	CCV 10	
3	TIC 25	
4	BLank	
5	LCS 25	
6	LCSDUP	
7	06-148-01	1/3
8	02	
9	03	
10	06-094-01	1/3
11	03	1/2
12	06-073-03	1/4
13	MS04	1/4
14	MSd05	1/4
15	CCV	
16	CCB	
17	DUP073-03	1/4
18	06-073-12	1/100
19	14	1/3
20	15	1/2
21	06-194-01	1/3
22	02	
23	03	
24	06-149-01	
25	06-150-01	

Position	Sample ID	Dilution
26	06-166-01	1/2CL
27	CCV	
28	CCB	
29	06-171-01	
30	02	
31	03	
32	06-190-01	1/2
33	03	1/2
34	BLK	
35	LCS	
36	LCSDUP	
37	06-175-02	
38	03	
39	CCV	
40	CCB	
41	06-175-04	
42	DUP04	
43	MS05	
44	MSD06	
45	07	
46	08	
47	09	
48	10	
49	06-176-02	
50	03	

Position	Sample ID	Dilution
51	CCV	
52	CCB	
53	06-176-04	
54	05	
55	06	
56	07	
57	06-138-01	1/4
58	06-146-01	
59	MS02	
60	MSd03	
61	04	
62	RR 06-094-01	1/6
63	CCV	
64	CCB	
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		

Analyst: Deanna Abbott Date: 6/12/07 Time: ______

DCN#69680

	Analysi	Sample Name	Result	Status	Date / Time	Vial
1	TOC	CCV 50	!!Error!! TOC:49.43mg/L TC:49.20mg/L IC:-0.2351mg/L	Comp	06/12/2007 10:23:19 AM	1
2	TOC	CCV 10	!!Error!! TOC:9.976mg/L TC:9.740mg/L IC:-0.2362mg/L	Comp	06/12/2007 10:37:24 AM	2
3	TOC	TIC 25	!!Error!! TOC:-0.09936mg/L TC:24.05mg/L IC:24.15mg/L	Comp	06/12/2007 10:54:31 AM	3
4	TOC	WG242321-01 BLANK	!!Error!! TOC:0.5339mg/L TC:0.3934mg/L IC:-0.1405mg	Comp	06/12/2007 11:04:19 AM	0
5	TOC	WG242321-02 LCS	!!Error!! TOC:24.08mg/L TC:23.84mg/L IC:-0.2347mg/L	Comp	06/12/2007 11:19:57 AM	5
6	TOC	WG242321-03 LCSDUP	!!Error!! TOC:26.93mg/L TC:26.69mg/L IC:-0.2352mg/L	Comp	06/12/2007 11:35:28 AM	6
7	TOC	L0706148-01 (3)	TOC:3.162mg/L TC:23.58mg/L IC:20.42mg/L	Comp	06/12/2007 11:51:50 AM	7
8	TOC	L0706148-02	TOC:1.033mg/L TC:52.16mg/L IC:51.12mg/L	Comp	06/12/2007 12:09:49 PM	8
9	TOC	L0706148-03	TOC:3.418mg/L TC:54.34mg/L IC:50.92mg/L	Comp	06/12/2007 12:27:51 PM	9
10	TOC	L0706094-01 (3)	TOC:2.073mg/L TC:53.08mg/L IC:51.01mg/L	Comp	06/12/2007 12:45:29 PM	10
11	TOC	L0706094-03 (2)	TOC:1.229mg/L TC:11.91mg/L IC:10.68mg/L	Comp	06/12/2007 12:59:43 PM	11
12	TOC	L0706073-03 (4)	TOC:21.85mg/L TC:24.94mg/L IC:3.087mg/L	Comp	06/12/2007 01:15:55 PM	12
13	TOC	L07060[illegible]0-04 (4) MS	TOC:25.86mg/L TC:27.67mg/L IC:1.804mg/L	Comp	06/12/2007 01:32:07 PM	13
14	TOC	L070607[illegible]-05 (4) MSD	TOC:26.04mg/L TC:27.54mg/L IC:1.502mg/L	Comp	06/12/2007 01:48:01 PM	14
15	TOC	CCV	!!Error!! TOC:52.19mg/L TC:51.98mg/L IC:-0.2093mg/L	Comp	06/12/2007 02:03:37 PM	15
16	TOC	CCB	!!Error!! TOC:0.4711mg/L TC:0.3185mg/L IC:-0.1525mg	Comp	06/12/2007 02:13:10 PM	0
17	TOC	WG242321-05 (4) DUP	TOC:22.12mg/L TC:24.83mg/L IC:2.706mg/L	Comp	06/12/2007 02:28:58 PM	17
18	TOC	L0706073-12 (100)	TOC:21.11mg/L TC:21.83mg/L IC:0.7131mg/L	Comp	06/12/2007 02:44:28 PM	18
19	TOC	L0706073-14 (3)	TOC:24.37mg/L TC:28.47mg/L IC:4.097mg/L	Comp	06/12/2007 03:00:28 PM	19
20	TOC	L0706073-15 (2)	TOC:33.66mg/L TC:36.03mg/L IC:2.373mg/L	Comp	06/12/2007 03:16:18 PM	20
21	TOC	L0706194-01 (3)	TOC:5.551mg/L TC:28.98mg/L IC:23.43mg/L	Comp	06/12/2007 03:32:47 PM	21
22	TOC	L0706194-02	TOC:2.519mg/L TC:37.31mg/L IC:34.80mg/L	Comp	06/12/2007 03:49:54 PM	22
23	TOC	L0706194-03	TOC:0.6033mg/L TC:18.11mg/L IC:17.51mg/L	Comp	06/12/2007 04:05:25 PM	23
24	TOC	L0706149-01	TOC:6.810mg/L TC:16.68mg/L IC:9.874mg/L	Comp	06/12/2007 04:21:12 PM	24
25	TOC	L0706150-01	!!Error!! TOC:0.6437mg/L TC:0.4888mg/L IC:-0.1549mg	Comp	06/12/2007 04:32:56 PM	25
26	TOC	L0706166-01 (2)	TOC:2.475mg/L TC:4.688mg/L IC:2.212mg/L	Comp	06/12/2007 04:46:21 PM	26
27	TOC	CCV	!!Error!! TOC:51.50mg/L TC:51.31mg/L IC:-0.1970mg/L	Comp	06/12/2007 05:01:45 PM	27
28	TOC	CCB	!!Error!! TOC:0.4759mg/L TC:0.3189mg/L IC:-0.1570mg	Comp	06/12/2007 05:11:19 PM	0
29	TOC	L0706171-01	TOC:0.7667mg/L TC:5.979mg/L IC:5.212mg/L	Comp	06/12/2007 05:24:22 PM	29
30	TOC	L0706171-02	TOC:0.3381mg/L TC:6.534mg/L IC:6.196mg/L	Comp	06/12/2007 05:37:20 PM	30
31	TOC	L0706171-03	TOC:2.526mg/L TC:34.02mg/L IC:31.50mg/L	Comp	06/12/2007 05:54:52 PM	31
32	TOC	L0706190-01 (2)	TOC:0.9598mg/L TC:6.439mg/L IC:5.480mg/L	Comp	06/12/2007 06:07:56 PM	32
33	TOC	L0706190-03 (2)	TOC:4.449mg/L TC:40.58mg/L IC:36.13mg/L	Comp	06/12/2007 06:24:50 PM	33
34	TOC	WG242322-01 BLANK	!!Error!! TOC:0.4916mg/L TC:0.4567mg/L IC:-0.03498mg	Comp	06/12/2007 06:34:20 PM	0
35	TOC	WG242322-02 LCS	!!Error!! TOC:26.96mg/L TC:26.79mg/L IC:-0.1674mg/L	Comp	06/12/2007 06:50:01 PM	35
36	TOC	WG242322-03 LCSDUP	!!Error!! TOC:26.96mg/L TC:26.77mg/L IC:-0.1942mg/L	Comp	06/12/2007 07:05:38 PM	36
37	TOC	L0706175-02	!!Error!! TOC:0.7804mg/L TC:0.5878mg/L IC:-0.1925mg	Comp	06/12/2007 07:17:25 PM	37
38	TOC	L0706175-03	TOC:1.690mg/L TC:28.16mg/L IC:26.47mg/L	Comp	06/12/2007 07:34:06 PM	38
39	TOC	CCV	!!Error!! TOC:51.96mg/L TC:51.82mg/L IC:-0.1335mg/L	Comp	06/12/2007 07:49:42 PM	39
40	TOC	CCB	!!Error!! TOC:0.4554mg/L TC:0.3036mg/L IC:-0.1518mg	Comp	06/12/2007 07:59:09 PM	0
41	TOC	L0706175-04	TOC:1.332mg/L TC:20.17mg/L IC:18.84mg/L	Comp	06/12/2007 08:15:01 PM	41
42	TOC	WG242322-05 DUP	TOC:1.121mg/L TC:19.59mg/L IC:18.47mg/L	Comp	06/12/2007 08:30:34 PM	42
43	TOC	L0706175-05 MS	TOC:10.37mg/L TC:37.70mg/L IC:27.33mg/L	Comp	06/12/2007 08:47:28 PM	43
44	TOC	L0706175-06 MSD	TOC:10.46mg/L TC:29.34mg/L IC:18.88mg/L	Comp	06/12/2007 09:03:56 PM	44
45	TOC	L0706175-07	TOC:2.183mg/L TC:36.18mg/L IC:34.00mg/L	Comp	06/12/2007 09:20:40 PM	45
46	TOC	L0706175-08	TOC:1.969mg/L TC:19.67mg/L IC:17.70mg/L	Comp	06/12/2007 09:36:35 PM	46
47	TOC	L0706175-09	TOC:1.198mg/L TC:17.33mg/L IC:16.13mg/L	Comp	06/12/2007 09:51:25 PM	47
48	TOC	L0706175-10	TOC:1.444mg/L TC:13.87mg/L IC:12.43mg/L	Comp	06/12/2007 10:05:54 PM	48
49	TOC	L0706176-02	!!Error!! TOC:1.048mg/L TC:0.9130mg/L IC:-0.1350mg/L	Comp	06/12/2007 10:18:17 PM	49
50	TOC	L0706176-03	TOC:0.8992mg/L TC:9.806mg/L IC:8.907mg/L	Comp	06/12/2007 10:32:09 PM	50
51	TOC	CCV	!!Error!! TOC:51.09mg/L TC:50.92mg/L IC:-0.1686mg/L	Comp	06/12/2007 10:47:50 PM	51
52	TOC	CCB	!!Error!! TOC:0.4647mg/L TC:0.3097mg/L IC:-0.1549mg	Comp	06/12/2007 10:57:44 PM	0
53	TOC	L0706176-04	TOC:0.4969mg/L TC:11.48mg/L IC:10.99mg/L	Comp	06/12/2007 11:11:22 PM	53
54	TOC	L0706176-05	TOC:1.775mg/L TC:18.73mg/L IC:16.96mg/L	Comp	06/12/2007 11:27:17 PM	54
55	TOC	L0706176-06	TOC:2.039mg/L TC:11.96mg/L IC:9.926mg/L	Comp	06/12/2007 11:41:20 PM	55
56	TOC	L0706176-07	TOC:1.148mg/L TC:12.59mg/L IC:11.44mg/L	Comp	06/12/2007 11:55:30 PM	56
57	TOC	L0706138-01 (4)	TOC:2.420mg/L TC:5.678mg/L IC:3.258mg/L	Comp	06/13/2007 12:08:48 AM	57
58	TOC	L0706146-01	TOC:0.6868mg/L TC:1.166mg/L IC:0.4793mg/L	Comp	06/13/2007 12:21:02 AM	58
59	TOC	L0706146-02 MS	TOC:10.37mg/L TC:10.38mg/L IC:0.01110mg/L	Comp	06/13/2007 12:35:22 AM	59
60	TOC	L0706146-03 MSD	TOC:9.780mg/L TC:10.03mg/L IC:0.2478mg/L	Comp	06/13/2007 12:49:05 AM	60
61	TOC	L0706146-04	TOC:1.371mg/L TC:10.00mg/L IC:8.631mg/L	Comp	06/13/2007 01:03:40 AM	61
62	TOC	L0706094-01 (6)	TOC:0.1691mg/L TC:21.08mg/L IC:20.91mg/L	Comp	06/13/2007 01:20:14 AM	62
63	TOC	CCV	!!Error!! TOC:51.29mg/L TC:51.13mg/L IC:-0.1645mg/L	Comp	06/13/2007 01:36:20 AM	63
64	TOC	CCB	!!Error!! TOC:0.4823mg/L TC:0.3264mg/L IC:-0.1559mg	Comp	06/13/2007 01:45:47 AM	0

Instr.Information

System	TOCVW ASI
Detector	Wet Chemical

Sample

Sample Name:	CCV 50
Sample ID:	<Untitled>
Origin:	TOC-02-26-2007.met
Status	Completed
Chk. Result	

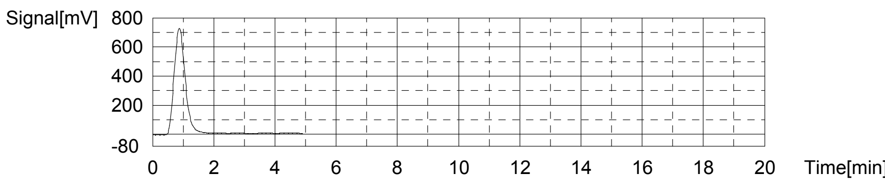
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:49.43mg/L TC:49.20mg/L IC:-0.2351mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1909	49.20mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:18:31 AM

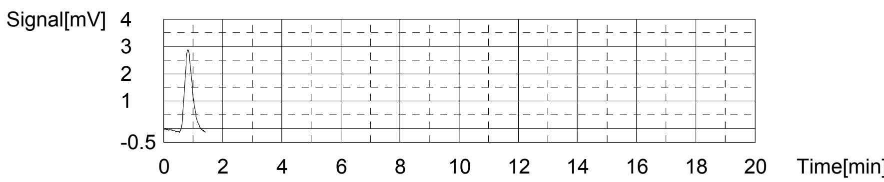
Mean Area	1909
Mean Conc.	49.20mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.506	-0.2351mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:23:19 AM

Mean Area	5.506
Mean Conc.	-0.2351mg/L



Sample

Sample Name:	CCV 10
Sample ID:	<Untitled>
Origin:	TOC-02-26-2007.met
Status	Completed
Chk. Result	

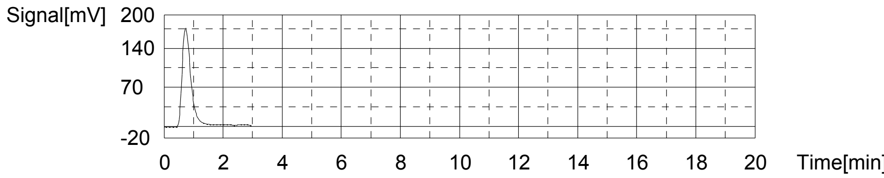
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:9.976mg/L TC:9.740mg/L IC:-0.2362mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	375.0	9.740mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:32:32 AM

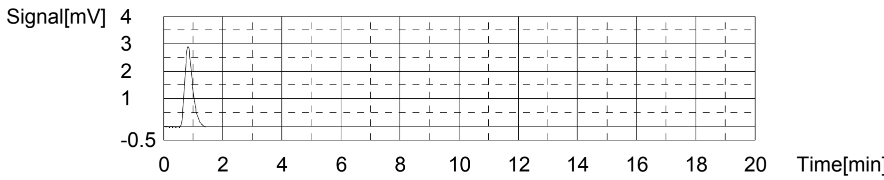
Mean Area 375.0
Mean Conc. 9.740mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.466	-0.2362mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:37:24 AM

Mean Area 5.466
Mean Conc. -0.2362mg/L



Sample

Sample Name: TIC 25
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

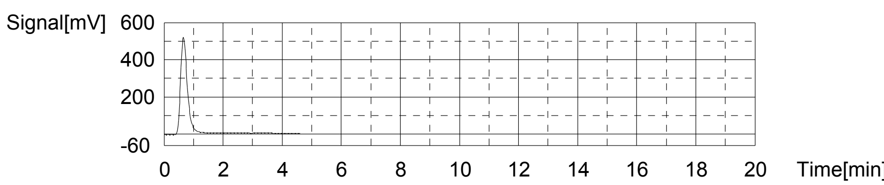
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-0.09936mg/L TC:24.05mg/L IC:24.15mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	931.3	24.05mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:48:24 AM

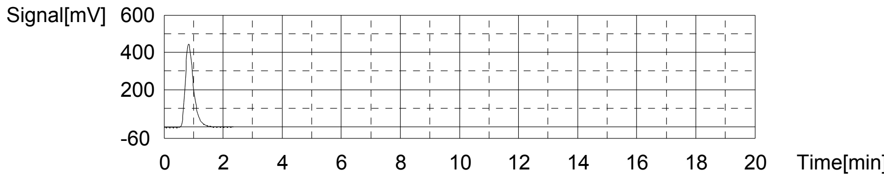
Mean Area 931.3
Mean Conc. 24.05mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	862.7	24.15mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:54:31 AM

Mean Area 862.7
Mean Conc. 24.15mg/L



Sample

Sample Name: WG242321-01 BLANK
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

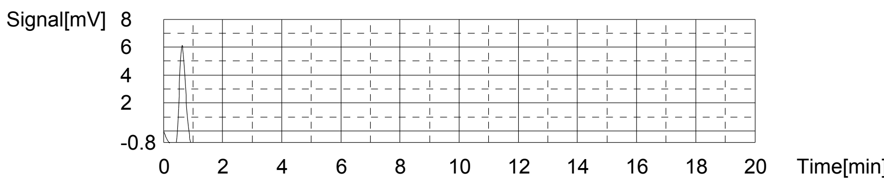
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.5339mg/L TC:0.3934mg/L IC:-0.1405mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	11.66	0.3934mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:59:52 AM

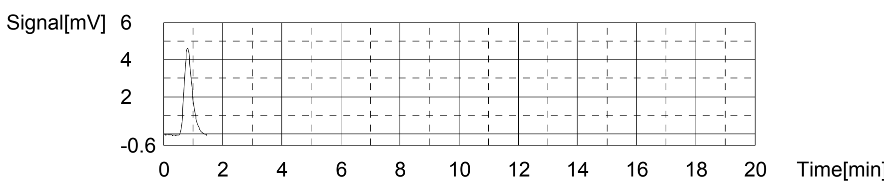
Mean Area 11.66
Mean Conc. 0.3934mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.831	-0.1405mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:04:19 AM

Mean Area 8.831
Mean Conc. -0.1405mg/L



Sample

Sample Name: WG242321-02 LCS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

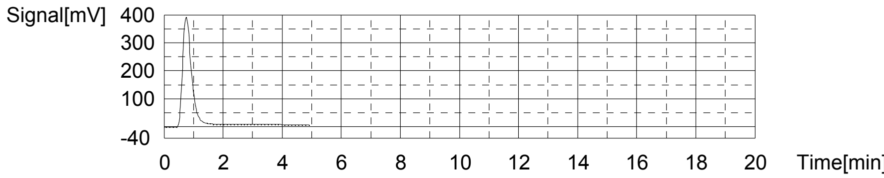
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:24.08mg/L TC:23.84mg/L IC:-0.2347mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	923.2	23.84mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:15:14 AM

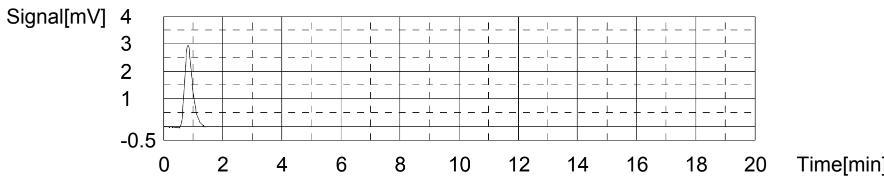
Mean Area 923.2
Mean Conc. 23.84mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.520	-0.2347mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:19:57 AM

Mean Area 5.520
Mean Conc. -0.2347mg/L



Sample

Sample Name: WG242321-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

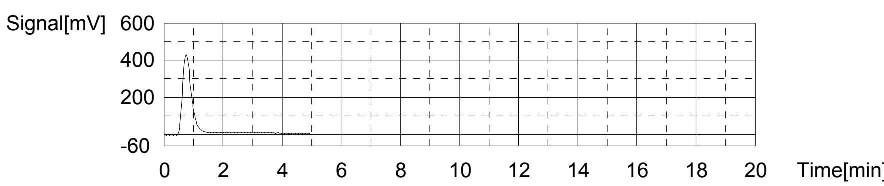
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.93mg/L TC:26.69mg/L IC:-0.2352mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1034	26.69mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:30:47 AM

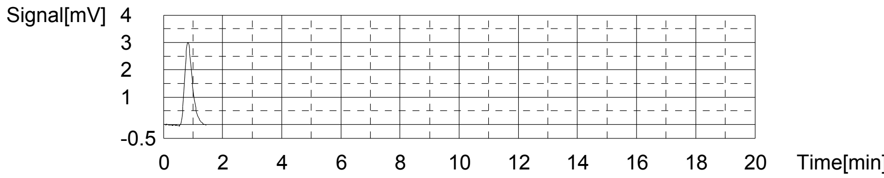
Mean Area 1034
Mean Conc. 26.69mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.502	-0.2352mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:35:28 AM

Mean Area 5.502
Mean Conc. -0.2352mg/L



Sample

Sample Name: L0706148-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

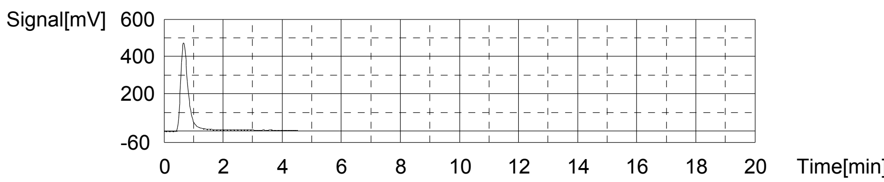
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.162mg/L TC:23.58mg/L IC:20.42mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	913.1	23.58mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:46:02 AM

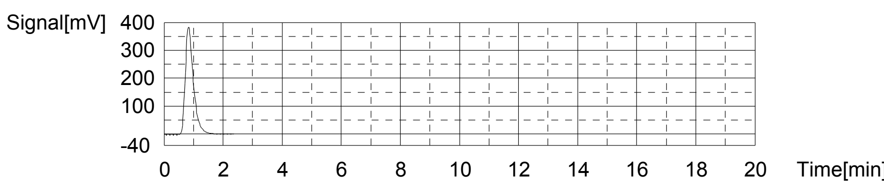
Mean Area 913.1
Mean Conc. 23.58mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	731.6	20.42mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:51:50 AM

Mean Area 731.6
Mean Conc. 20.42mg/L



Sample

Sample Name: L0706148-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

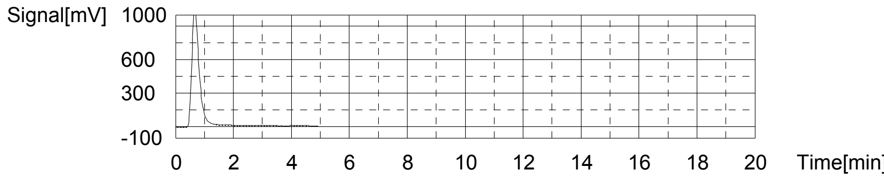
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.033mg/L TC:52.16mg/L IC:51.12mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2024	52.16mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:02:53 PM

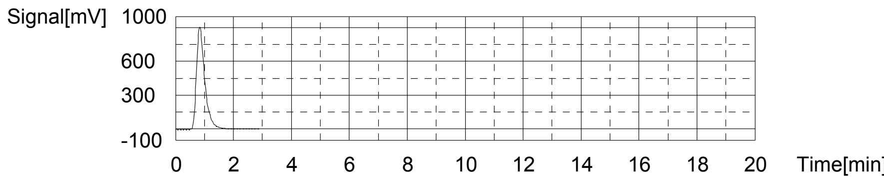
Mean Area 2024
Mean Conc. 52.16mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1811	51.12mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:09:49 PM

Mean Area 1811
Mean Conc. 51.12mg/L



Sample

Sample Name: L0706148-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

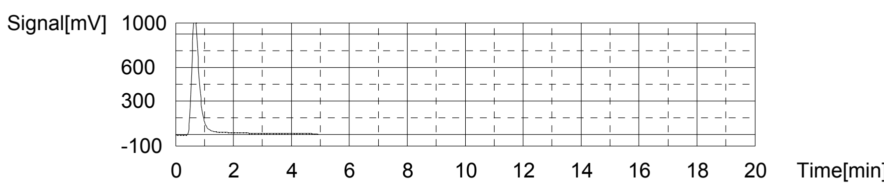
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.418mg/L TC:54.34mg/L IC:50.92mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2109	54.34mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:20:59 PM

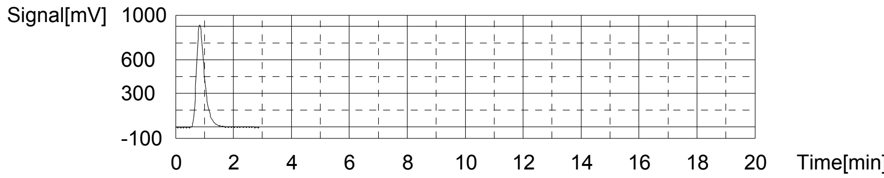
Mean Area 2109
Mean Conc. 54.34mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1804	50.92mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:27:51 PM

Mean Area 1804
Mean Conc. 50.92mg/L



Sample

Sample Name: L0706094-01 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

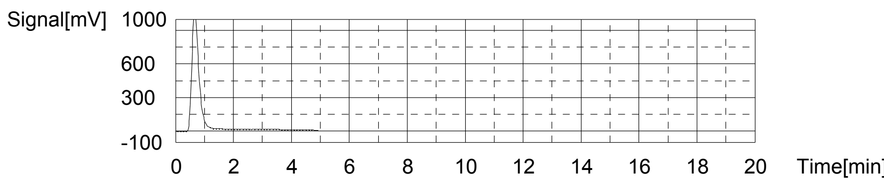
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.073mg/L TC:53.08mg/L IC:51.01mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2060	53.08mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:38:53 PM

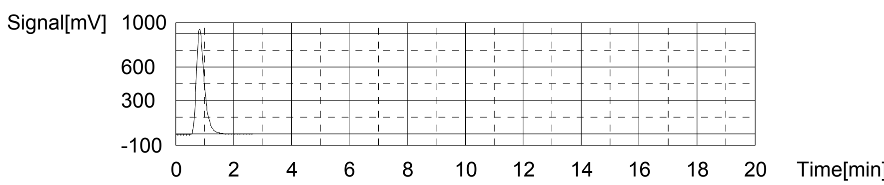
Mean Area 2060
Mean Conc. 53.08mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1807	51.01mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:45:29 PM

Mean Area 1807
Mean Conc. 51.01mg/L



Sample

Sample Name: L0706094-03 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

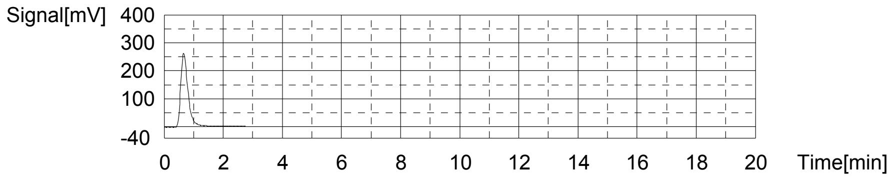
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.229mg/L TC:11.91mg/L IC:10.68mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	459.2	11.91mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:54:09 PM

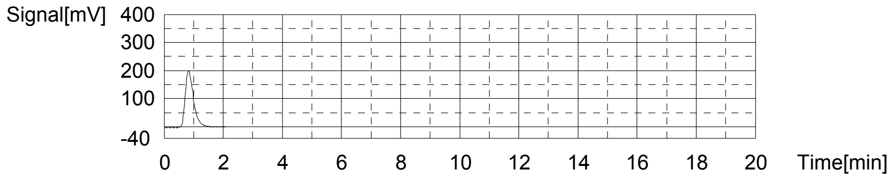
Mean Area 459.2
Mean Conc. 11.91mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	389.1	10.68mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:59:43 PM

Mean Area 389.1
Mean Conc. 10.68mg/L



Sample

Sample Name: L0706073-03 (4)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

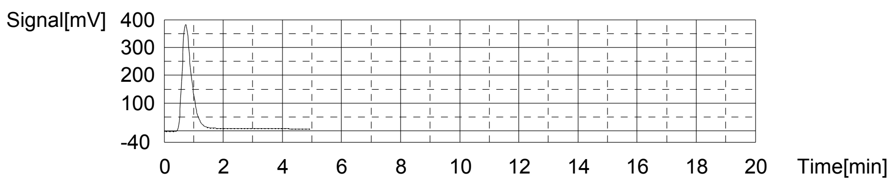
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:21.85mg/L TC:24.94mg/L IC:3.087mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	965.8	24.94mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 01:10:46 PM

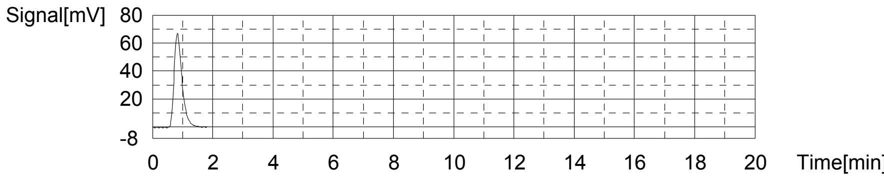
Mean Area 965.8
Mean Conc. 24.94mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	122.3	3.087mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 01:15:55 PM

Mean Area 122.3
Mean Conc. 3.087mg/L



Sample

Sample Name: L07060730-04 (4) MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

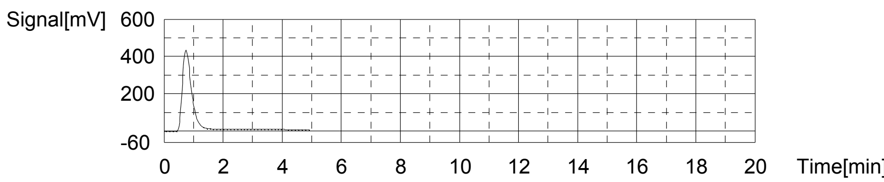
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.86mg/L TC:27.67mg/L IC:1.804mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1072	27.67mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 01:27:12 PM

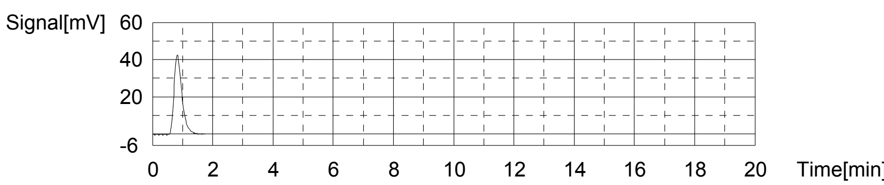
Mean Area 1072
Mean Conc. 27.67mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	77.20	1.804mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 01:32:07 PM

Mean Area 77.20
Mean Conc. 1.804mg/L



Sample

Sample Name: L0706074-05 (4) MSD
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

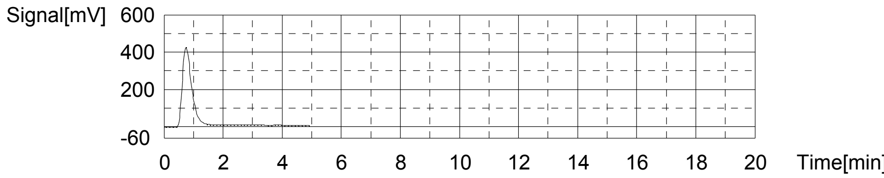
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:26.04mg/L TC:27.54mg/L IC:1.502mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1067	27.54mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/12/2007 01:43:03 PM

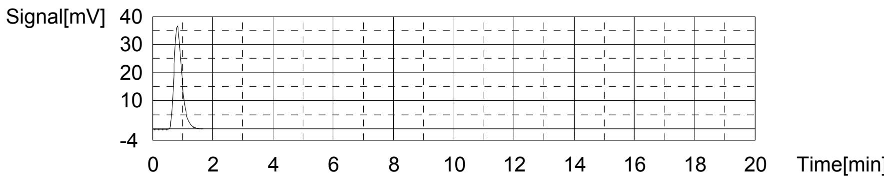
Mean Area 1067
Mean Conc. 27.54mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	66.57	1.502mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 01:48:01 PM

Mean Area 66.57
Mean Conc. 1.502mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

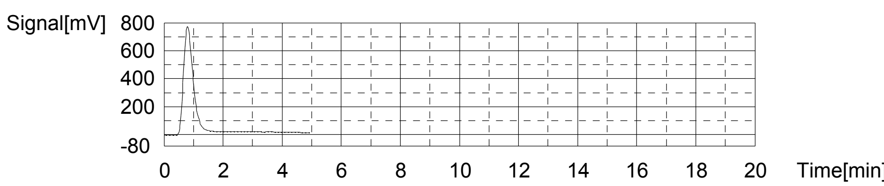
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:52.19mg/L TC:51.98mg/L IC:-0.2093mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2017	51.98mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/12/2007 01:59:03 PM

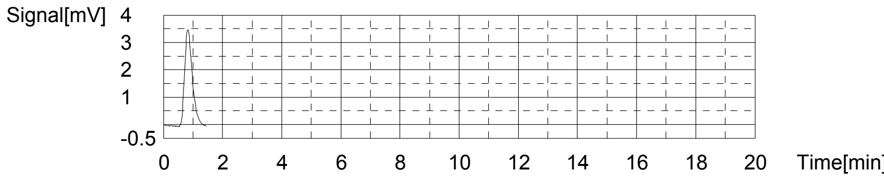
Mean Area 2017
Mean Conc. 51.98mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.413	-0.2093mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:03:37 PM

Mean Area 6.413
Mean Conc. -0.2093mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

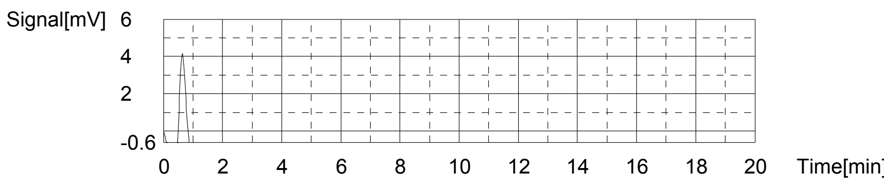
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4711mg/L TC:0.3185mg/L IC:-0.1525mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.751	0.3185mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:09:00 PM

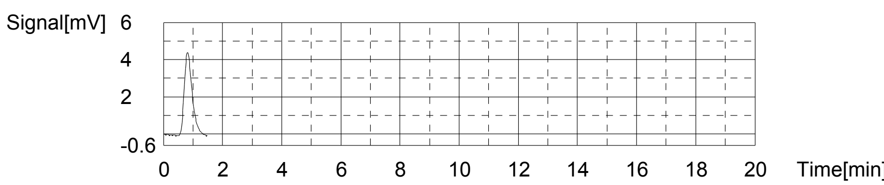
Mean Area 8.751
Mean Conc. 0.3185mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.408	-0.1525mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:13:10 PM

Mean Area 8.408
Mean Conc. -0.1525mg/L



Sample

Sample Name: WG242321-05 (4) DUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

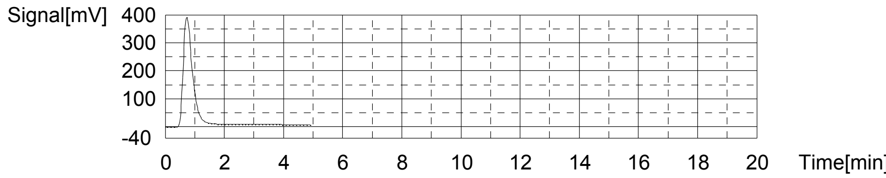
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:22.12mg/L TC:24.83mg/L IC:2.706mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	961.6	24.83mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:23:52 PM

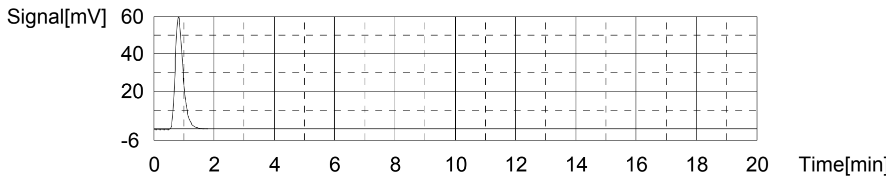
Mean Area 961.6
Mean Conc. 24.83mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.9	2.706mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:28:58 PM

Mean Area 108.9
Mean Conc. 2.706mg/L



Sample

Sample Name: L0706073-12 (100)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

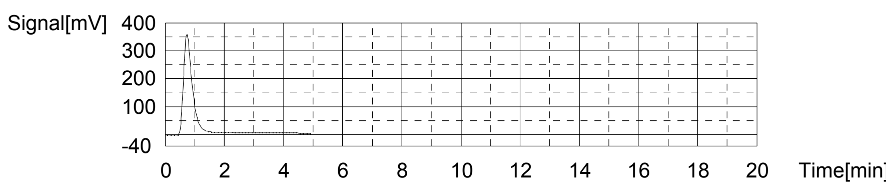
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:21.11mg/L TC:21.83mg/L IC:0.7131mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	844.9	21.83mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:39:39 PM

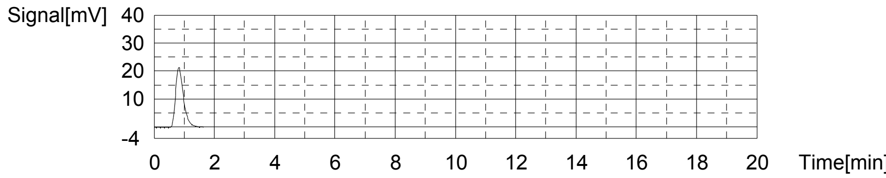
Mean Area 844.9
Mean Conc. 21.83mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	38.84	0.7131mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:44:28 PM

Mean Area 38.84
Mean Conc. 0.7131mg/L



Sample

Sample Name: L0706073-14 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

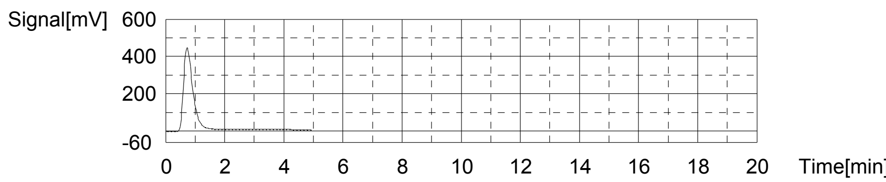
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:24.37mg/L TC:28.47mg/L IC:4.097mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1103	28.47mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:55:23 PM

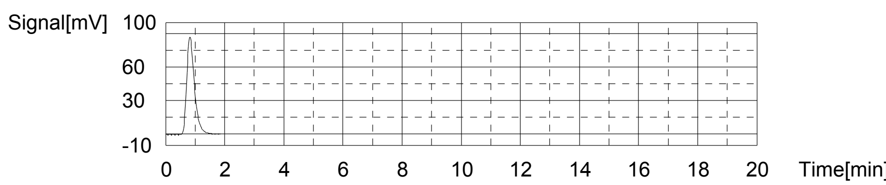
Mean Area 1103
Mean Conc. 28.47mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	157.8	4.097mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:00:28 PM

Mean Area 157.8
Mean Conc. 4.097mg/L



Sample

Sample Name: L0706073-15 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

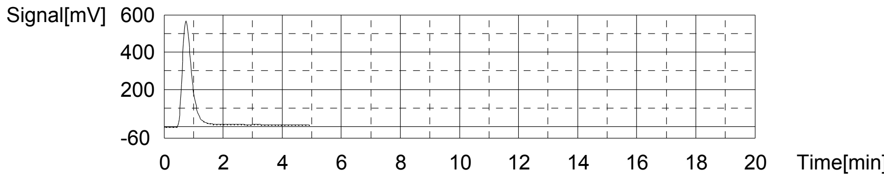
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:33.66mg/L TC:36.03mg/L IC:2.373mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1397	36.03mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:11:22 PM

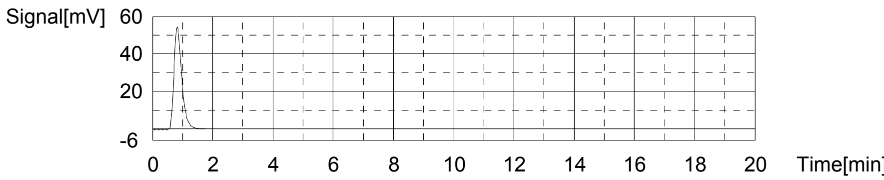
Mean Area 1397
Mean Conc. 36.03mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	97.18	2.373mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:16:18 PM

Mean Area 97.18
Mean Conc. 2.373mg/L



Sample

Sample Name: L0706194-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

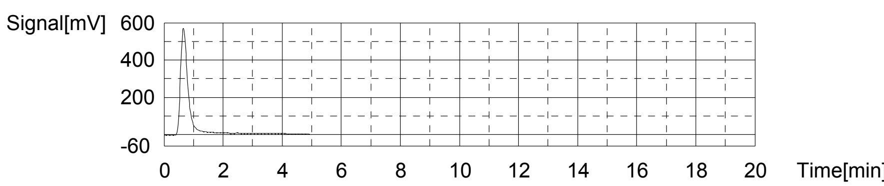
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:5.551mg/L TC:28.98mg/L IC:23.43mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1123	28.98mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:26:59 PM

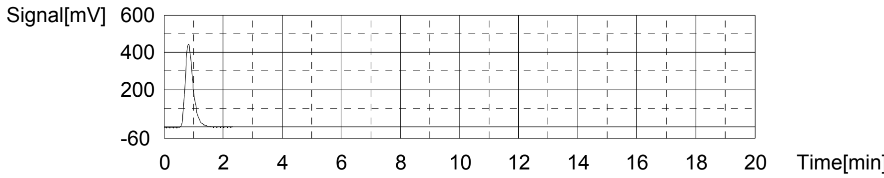
Mean Area 1123
Mean Conc. 28.98mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	837.4	23.43mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:32:47 PM

Mean Area 837.4
Mean Conc. 23.43mg/L



Sample

Sample Name: L0706194-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

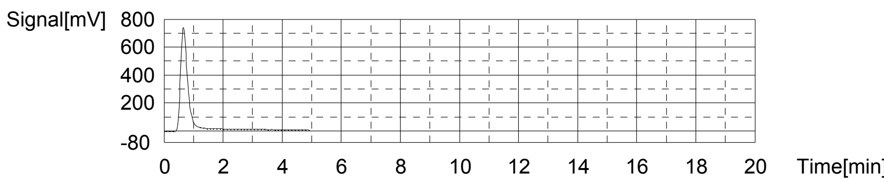
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.519mg/L TC:37.31mg/L IC:34.80mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1447	37.31mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:43:50 PM

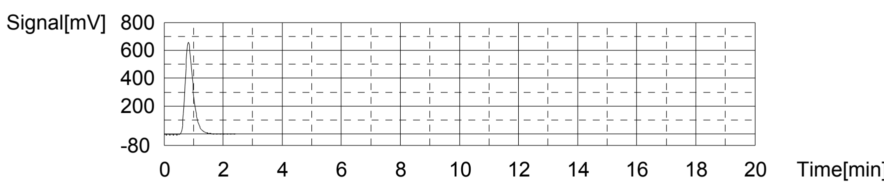
Mean Area 1447
Mean Conc. 37.31mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1237	34.80mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:49:54 PM

Mean Area 1237
Mean Conc. 34.80mg/L



Sample

Sample Name: L0706194-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

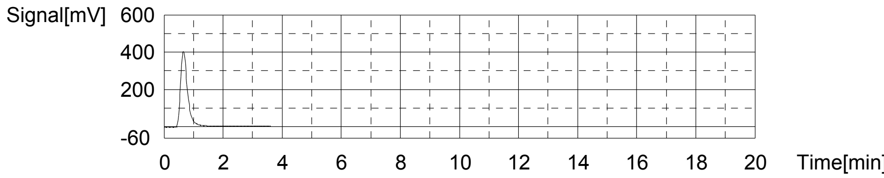
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.6033mg/L TC:18.11mg/L IC:17.51mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	700.4	18.11mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:59:39 PM

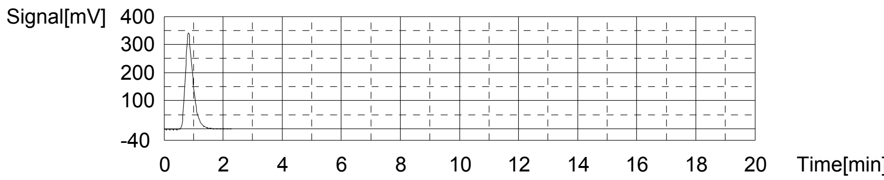
Mean Area 700.4
Mean Conc. 18.11mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	629.2	17.51mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:05:25 PM

Mean Area 629.2
Mean Conc. 17.51mg/L



Sample

Sample Name: L0706149-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

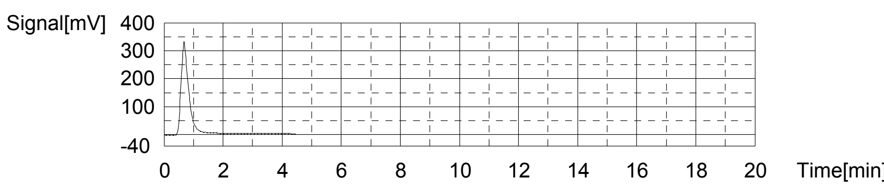
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:6.810mg/L TC:16.68mg/L IC:9.874mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	645.0	16.68mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:15:46 PM

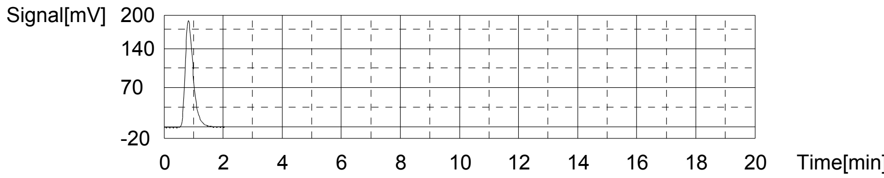
Mean Area 645.0
Mean Conc. 16.68mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	360.9	9.874mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:21:12 PM

Mean Area 360.9
Mean Conc. 9.874mg/L



Sample

Sample Name: L0706150-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

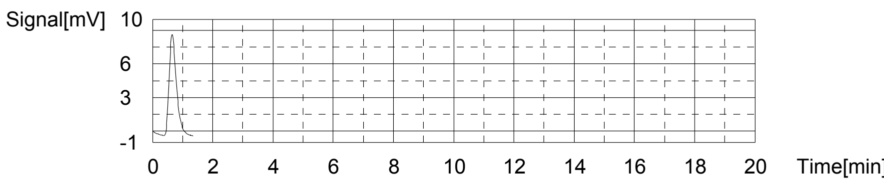
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.6437mg/L TC:0.4888mg/L IC:-0.1549mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	15.37	0.4888mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:28:19 PM

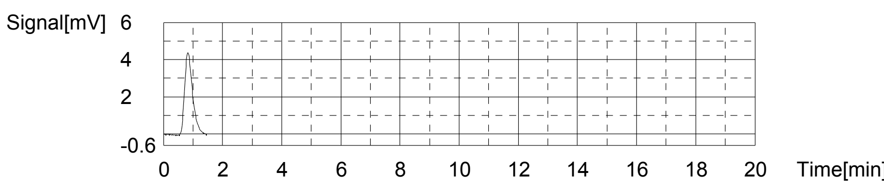
Mean Area 15.37
Mean Conc. 0.4888mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.324	-0.1549mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:32:56 PM

Mean Area 8.324
Mean Conc. -0.1549mg/L



Sample

Sample Name: L0706166-01 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

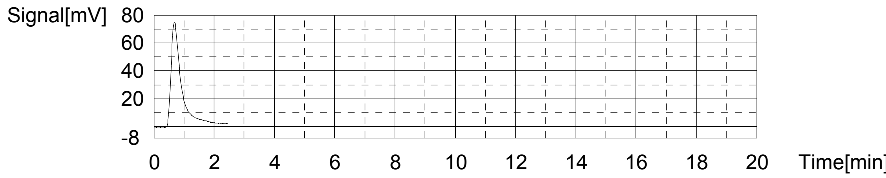
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.475mg/L TC:4.688mg/L IC:2.212mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	178.6	4.688mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:41:17 PM

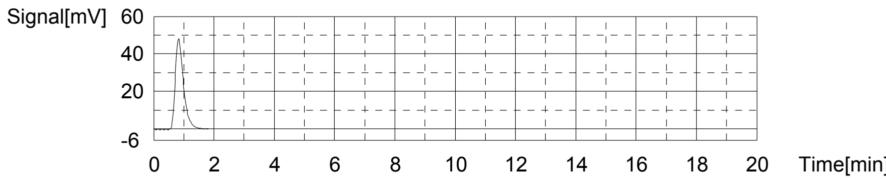
Mean Area 178.6
Mean Conc. 4.688mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	91.54	2.212mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:46:21 PM

Mean Area 91.54
Mean Conc. 2.212mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

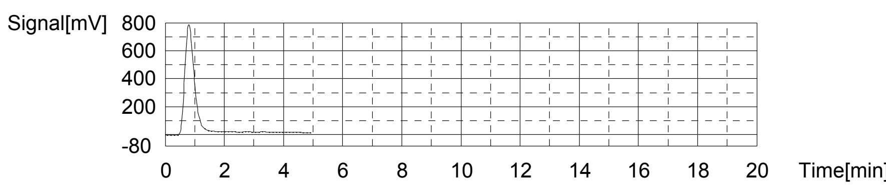
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.50mg/L TC:51.31mg/L IC:-0.1970mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1991	51.31mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:57:09 PM

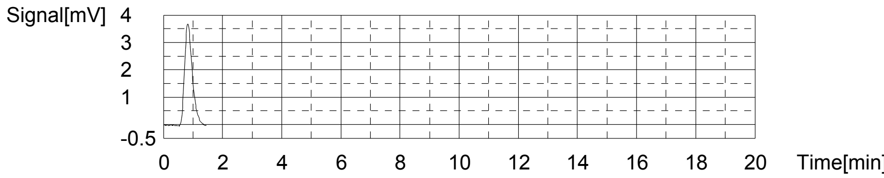
Mean Area 1991
Mean Conc. 51.31mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.845	-0.1970mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:01:45 PM

Mean Area 6.845
Mean Conc. -0.1970mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

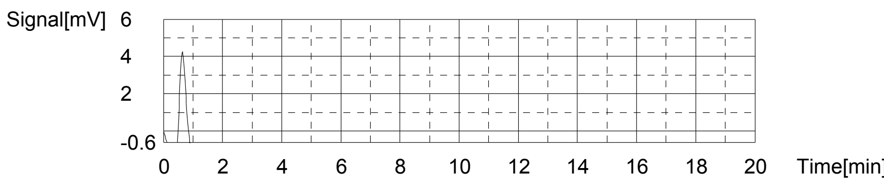
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4759mg/L TC:0.3189mg/L IC:-0.1570mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.764	0.3189mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:07:09 PM

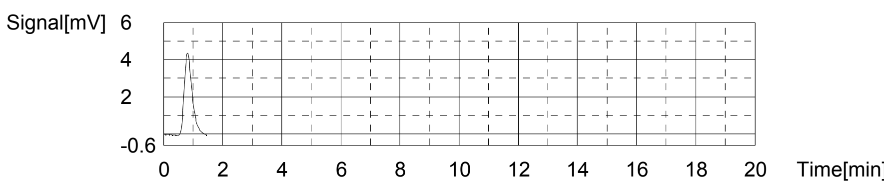
Mean Area 8.764
Mean Conc. 0.3189mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.249	-0.1570mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:11:19 PM

Mean Area 8.249
Mean Conc. -0.1570mg/L



Sample

Sample Name: L0706171-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

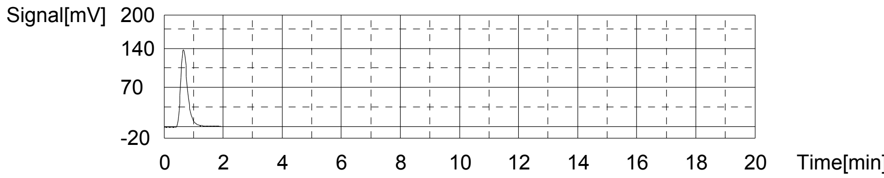
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.7667mg/L TC:5.979mg/L IC:5.212mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	228.8	5.979mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:19:05 PM

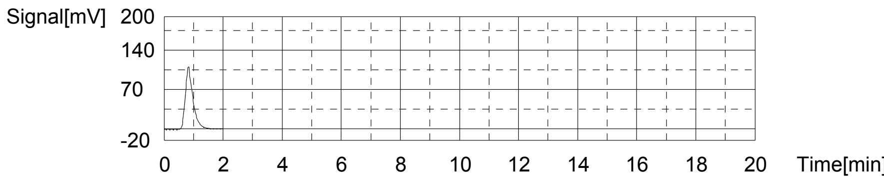
Mean Area 228.8
Mean Conc. 5.979mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	197.0	5.212mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:24:22 PM

Mean Area 197.0
Mean Conc. 5.212mg/L



Sample

Sample Name: L0706171-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

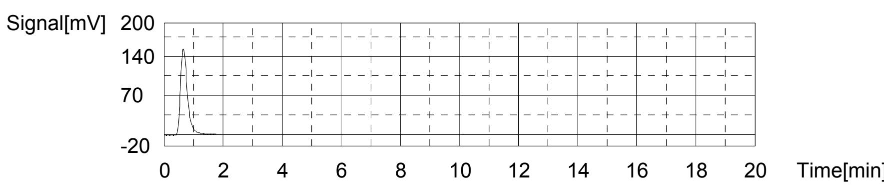
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.3381mg/L TC:6.534mg/L IC:6.196mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	250.4	6.534mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:32:02 PM

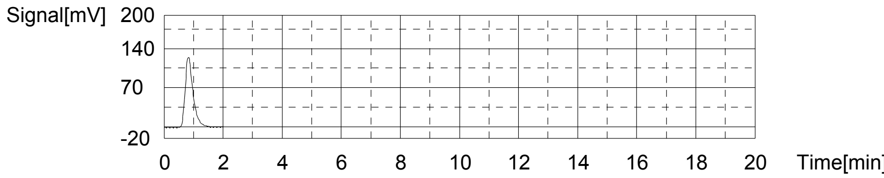
Mean Area 250.4
Mean Conc. 6.534mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	231.6	6.196mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:37:20 PM

Mean Area 231.6
Mean Conc. 6.196mg/L



Sample

Sample Name: L0706171-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

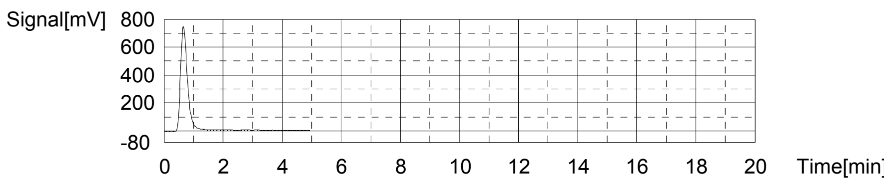
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.526mg/L TC:34.02mg/L IC:31.50mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1319	34.02mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:48:44 PM

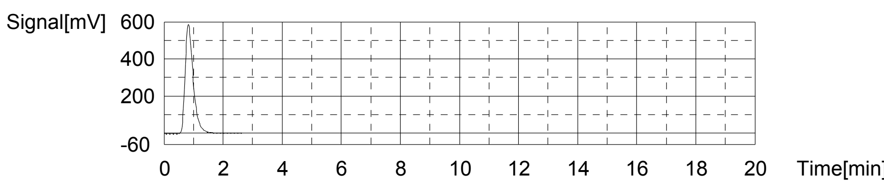
Mean Area 1319
Mean Conc. 34.02mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1121	31.50mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:54:52 PM

Mean Area 1121
Mean Conc. 31.50mg/L



Sample

Sample Name: L0706190-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

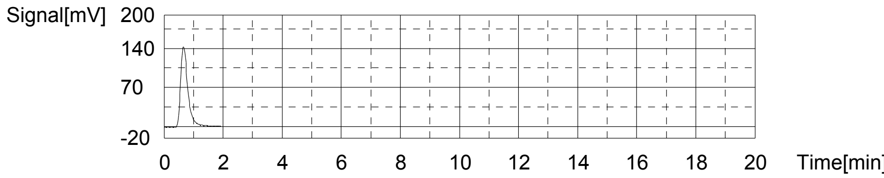
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.9598mg/L TC:6.439mg/L IC:5.480mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	246.7	6.439mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:02:42 PM

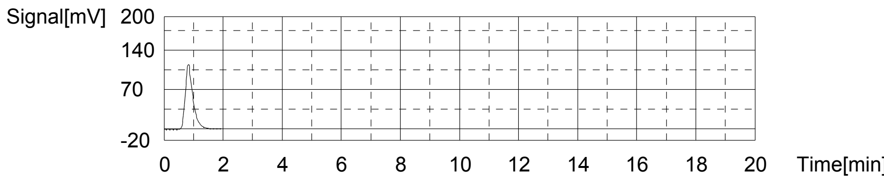
Mean Area 246.7
Mean Conc. 6.439mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	206.4	5.480mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:07:56 PM

Mean Area 206.4
Mean Conc. 5.480mg/L



Sample

Sample Name: L0706190-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

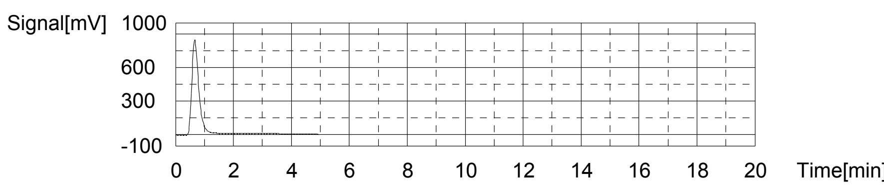
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.449mg/L TC:40.58mg/L IC:36.13mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1574	40.58mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:18:39 PM

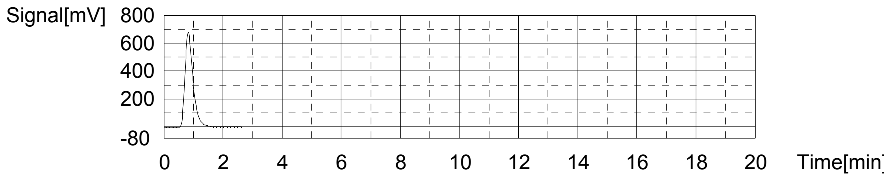
Mean Area 1574
Mean Conc. 40.58mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1284	36.13mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:24:50 PM

Mean Area 1284
Mean Conc. 36.13mg/L



Sample

Sample Name: WG242322-01 BLANK
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

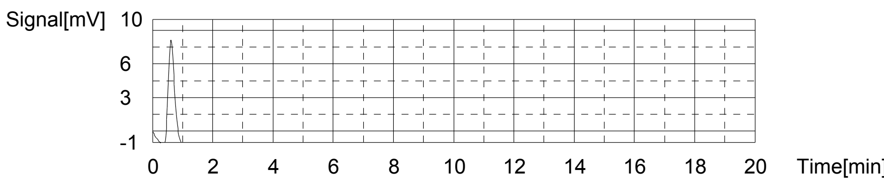
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4916mg/L TC:0.4567mg/L IC:-0.03498mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.12	0.4567mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:30:04 PM

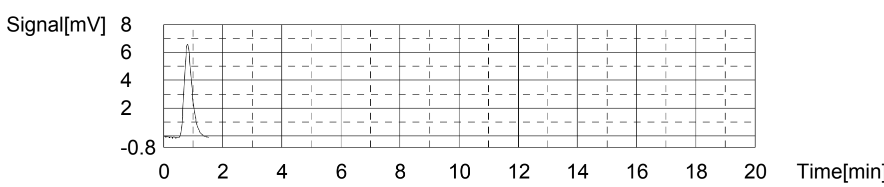
Mean Area 14.12
Mean Conc. 0.4567mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.54	-0.03498mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:34:20 PM

Mean Area 12.54
Mean Conc. -0.03498mg/L



Sample

Sample Name: WG242322-02 LCS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

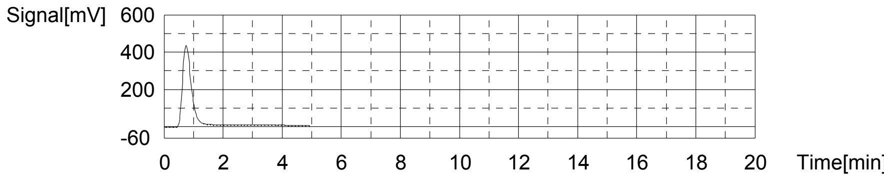
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.96mg/L TC:26.79mg/L IC:-0.1674mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1038	26.79mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:45:17 PM

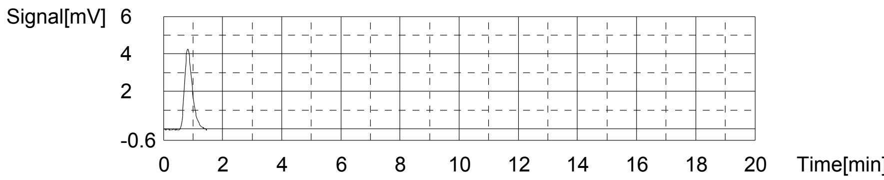
Mean Area 1038
Mean Conc. 26.79mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.884	-0.1674mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:50:01 PM

Mean Area 7.884
Mean Conc. -0.1674mg/L



Sample

Sample Name: WG242322-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

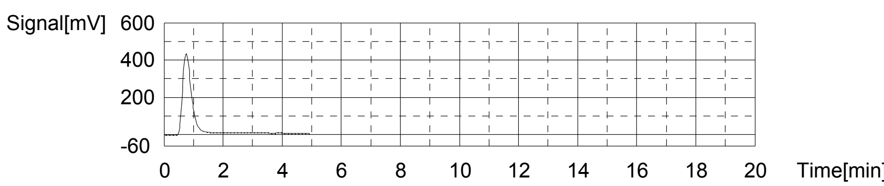
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.96mg/L TC:26.77mg/L IC:-0.1942mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1037	26.77mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:00:57 PM

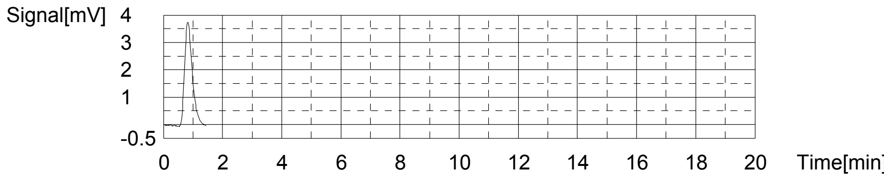
Mean Area 1037
Mean Conc. 26.77mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.944	-0.1942mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:05:38 PM

Mean Area 6.944
Mean Conc. -0.1942mg/L



Sample

Sample Name: L0706175-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

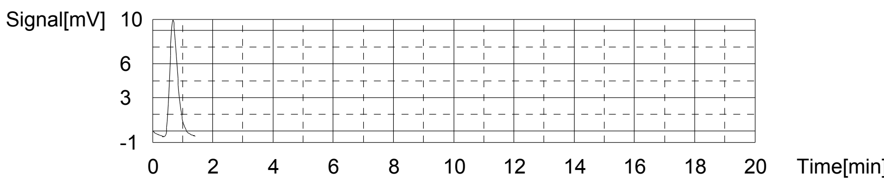
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.7804mg/L TC:0.5878mg/L IC:-0.1925mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	19.22	0.5878mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:12:51 PM

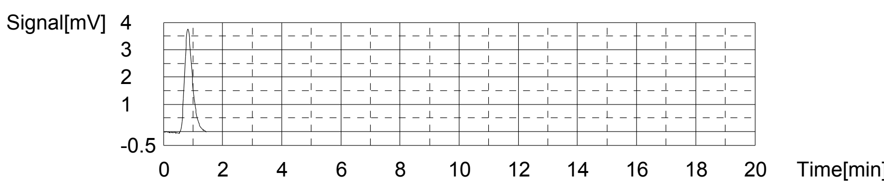
Mean Area 19.22
Mean Conc. 0.5878mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.002	-0.1925mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:17:25 PM

Mean Area 7.002
Mean Conc. -0.1925mg/L



Sample

Sample Name: L0706175-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

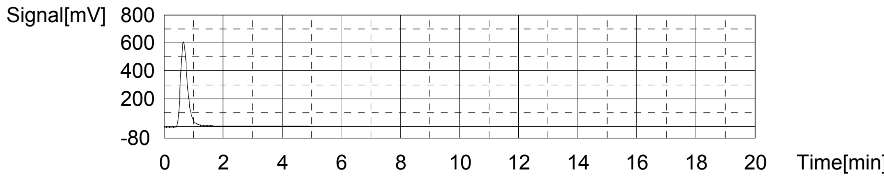
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.690mg/L TC:28.16mg/L IC:26.47mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1091	28.16mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:28:07 PM

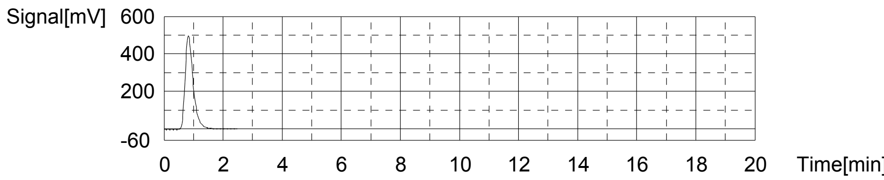
Mean Area 1091
Mean Conc. 28.16mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	944.2	26.47mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:34:06 PM

Mean Area 944.2
Mean Conc. 26.47mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

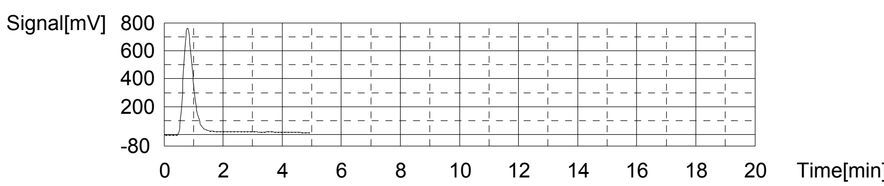
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.96mg/L TC:51.82mg/L IC:-0.1335mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2011	51.82mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:45:03 PM

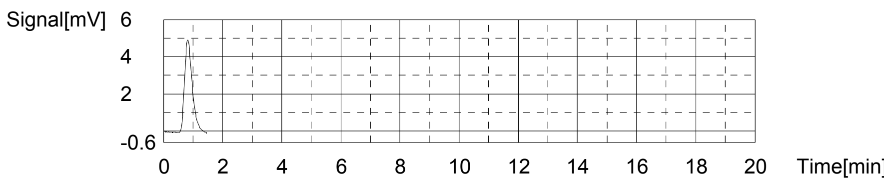
Mean Area 2011
Mean Conc. 51.82mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.078	-0.1335mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:49:42 PM

Mean Area 9.078
Mean Conc. -0.1335mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

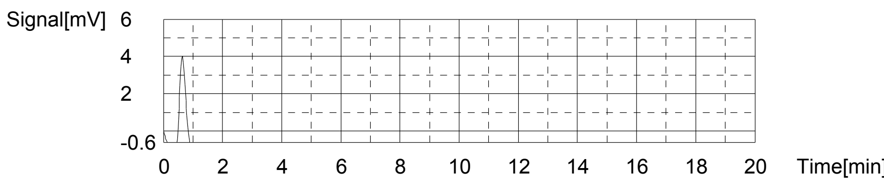
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4554mg/L TC:0.3036mg/L IC:-0.1518mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.170	0.3036mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:54:57 PM

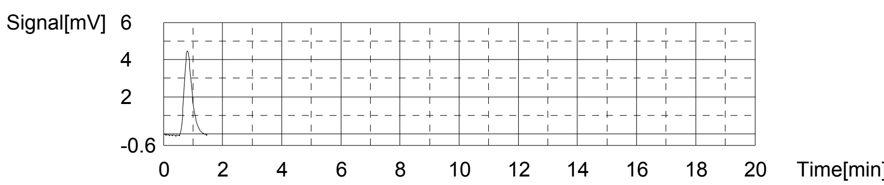
Mean Area 8.170
Mean Conc. 0.3036mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.432	-0.1518mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:59:09 PM

Mean Area 8.432
Mean Conc. -0.1518mg/L



Sample

Sample Name: L0706175-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

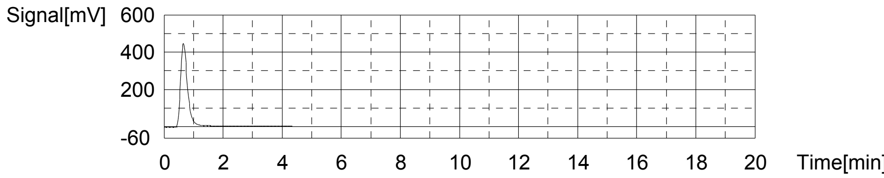
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.332mg/L TC:20.17mg/L IC:18.84mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	780.6	20.17mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:09:17 PM

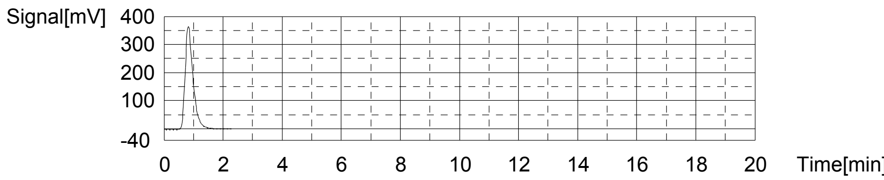
Mean Area 780.6
Mean Conc. 20.17mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	676.1	18.84mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 08:15:01 PM

Mean Area 676.1
Mean Conc. 18.84mg/L



Sample

Sample Name: WG242322-05 DUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

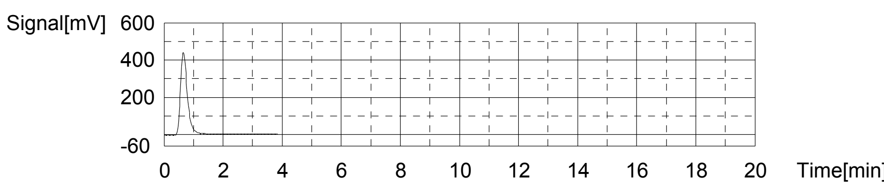
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.121mg/L TC:19.59mg/L IC:18.47mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	757.9	19.59mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:24:39 PM

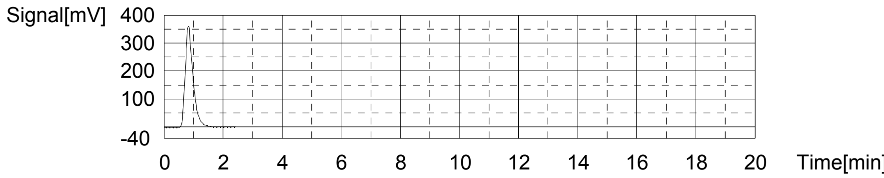
Mean Area 757.9
Mean Conc. 19.59mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	663.0	18.47mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 08:30:34 PM

Mean Area 663.0
Mean Conc. 18.47mg/L



Sample

Sample Name: L0706175-05 MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

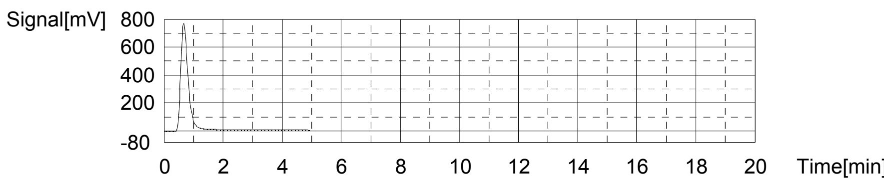
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:10.37mg/L TC:37.70mg/L IC:27.33mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1462	37.70mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:41:30 PM

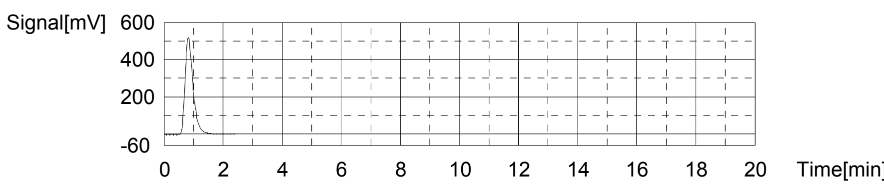
Mean Area 1462
Mean Conc. 37.70mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	974.4	27.33mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 08:47:28 PM

Mean Area 974.4
Mean Conc. 27.33mg/L



Sample

Sample Name: L0706175-06 MSD
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

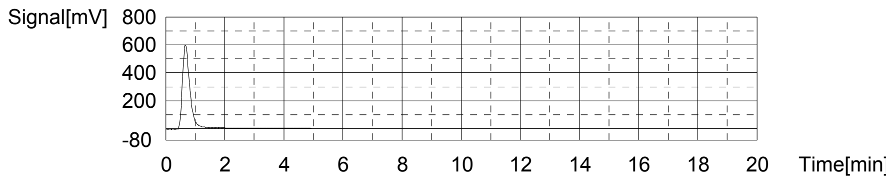
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:10.46mg/L TC:29.34mg/L IC:18.88mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1137	29.34mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:58:11 PM

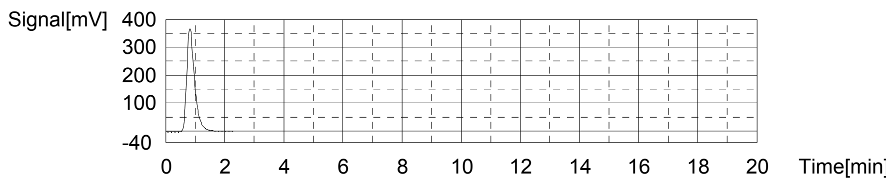
Mean Area 1137
Mean Conc. 29.34mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	677.5	18.88mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:03:56 PM

Mean Area 677.5
Mean Conc. 18.88mg/L



Sample

Sample Name: L0706175-07
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

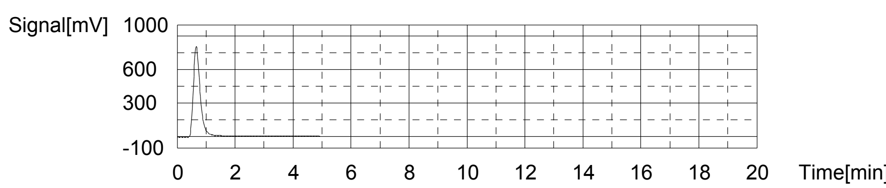
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.183mg/L TC:36.18mg/L IC:34.00mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1403	36.18mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 09:14:38 PM

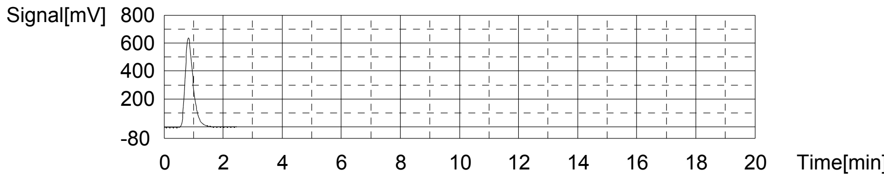
Mean Area 1403
Mean Conc. 36.18mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1209	34.00mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:20:40 PM

Mean Area 1209
Mean Conc. 34.00mg/L



Sample

Sample Name: L0706175-08
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

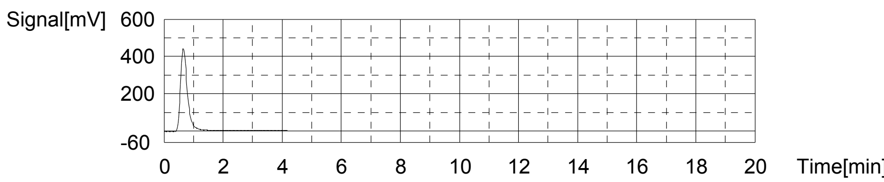
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.969mg/L TC:19.67mg/L IC:17.70mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	760.9	19.67mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 09:31:00 PM

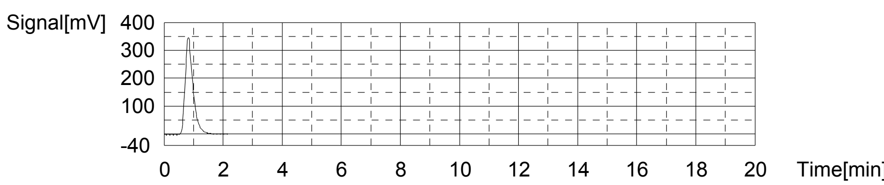
Mean Area 760.9
Mean Conc. 19.67mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	635.9	17.70mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:36:35 PM

Mean Area 635.9
Mean Conc. 17.70mg/L



Sample

Sample Name: L0706175-09
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

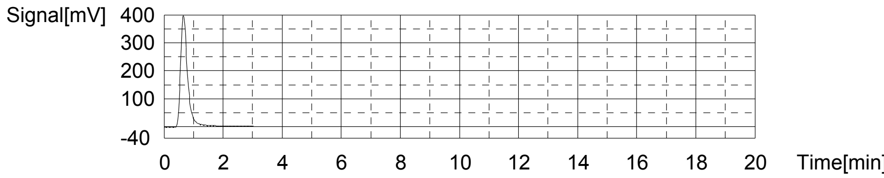
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.198mg/L TC:17.33mg/L IC:16.13mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	669.9	17.33mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 09:45:46 PM

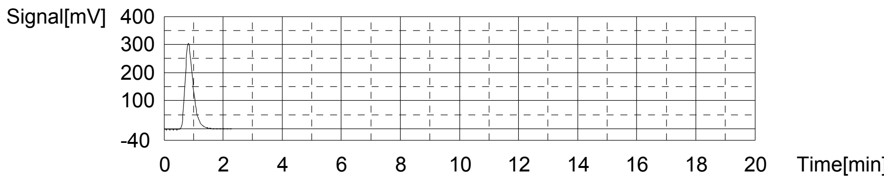
Mean Area 669.9
Mean Conc. 17.33mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	580.7	16.13mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:51:25 PM

Mean Area 580.7
Mean Conc. 16.13mg/L



Sample

Sample Name: L0706175-10
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

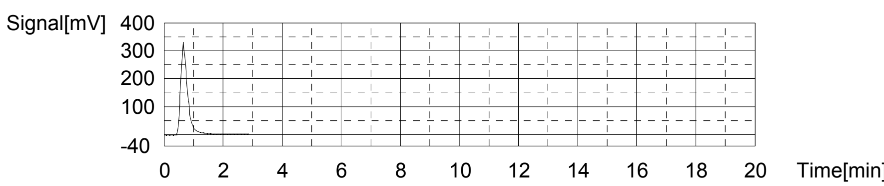
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.444mg/L TC:13.87mg/L IC:12.43mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	535.7	13.87mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:00:21 PM

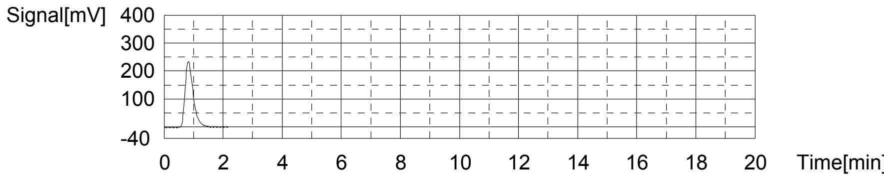
Mean Area 535.7
Mean Conc. 13.87mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	450.7	12.43mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:05:54 PM

Mean Area 450.7
Mean Conc. 12.43mg/L



Sample

Sample Name: L0706176-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

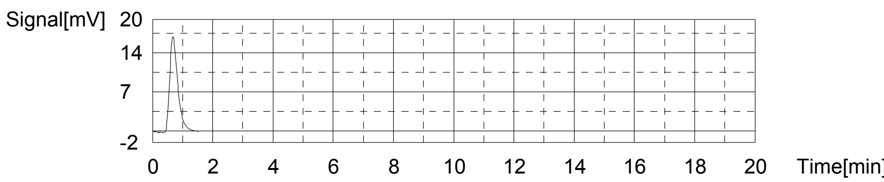
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:1.048mg/L TC:0.9130mg/L IC:-0.1350mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	31.86	0.9130mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:13:35 PM

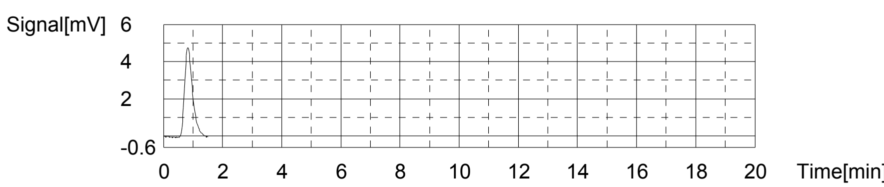
Mean Area 31.86
Mean Conc. 0.9130mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.023	-0.1350mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:18:17 PM

Mean Area 9.023
Mean Conc. -0.1350mg/L



Sample

Sample Name: L0706176-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

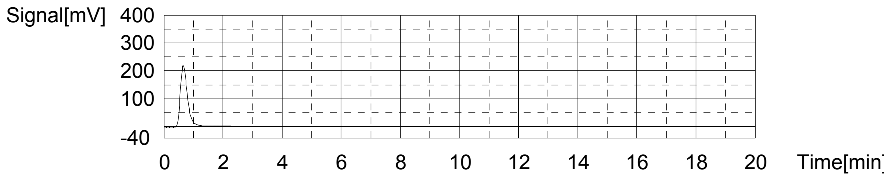
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.8992mg/L TC:9.806mg/L IC:8.907mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	377.6	9.806mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/12/2007 10:26:51 PM

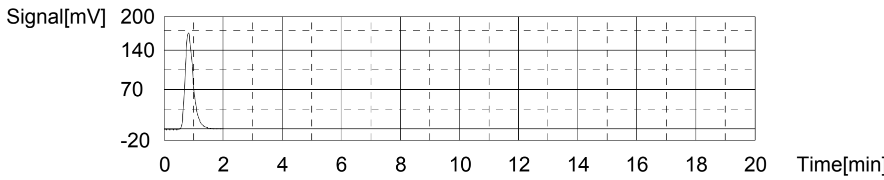
Mean Area 377.6
Mean Conc. 9.806mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	326.9	8.907mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:32:09 PM

Mean Area 326.9
Mean Conc. 8.907mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

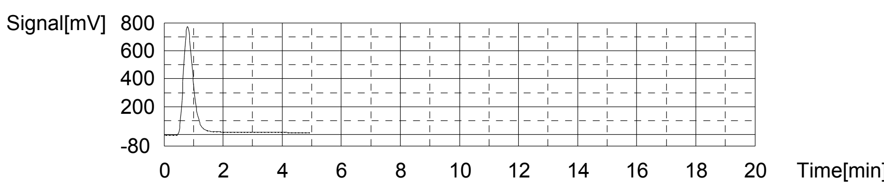
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.09mg/L TC:50.92mg/L IC:-0.1686mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1976	50.92mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/12/2007 10:43:14 PM

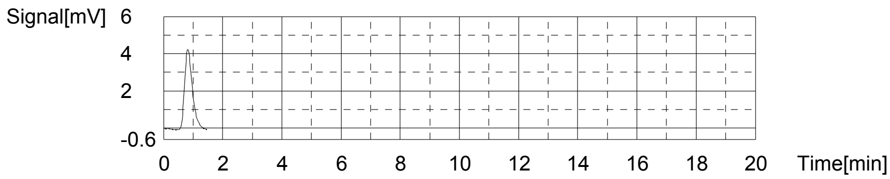
Mean Area 1976
Mean Conc. 50.92mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.843	-0.1686mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:47:50 PM

Mean Area 7.843
Mean Conc. -0.1686mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

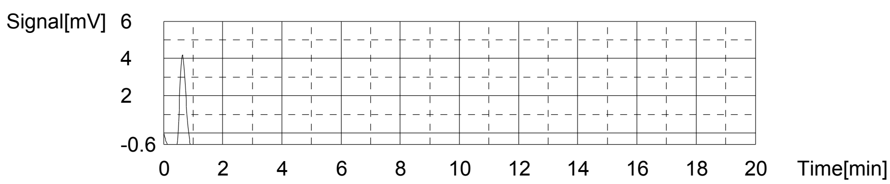
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4647mg/L TC:0.3097mg/L IC:-0.1549mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.409	0.3097mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:53:26 PM

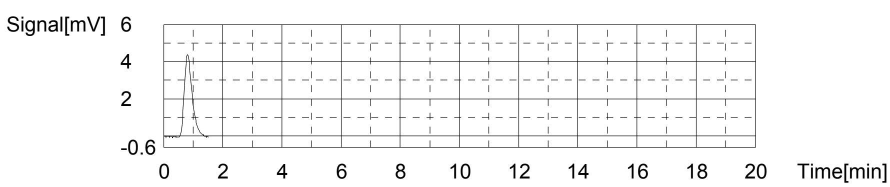
Mean Area 8.409
Mean Conc. 0.3097mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.324	-0.1549mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:57:44 PM

Mean Area 8.324
Mean Conc. -0.1549mg/L



Sample

Sample Name: L0706176-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

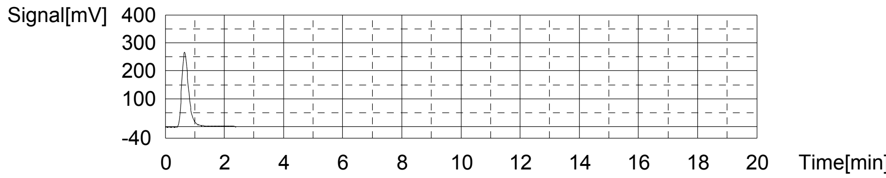
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.4969mg/L TC:11.48mg/L IC:10.99mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	442.8	11.48mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:05:56 PM

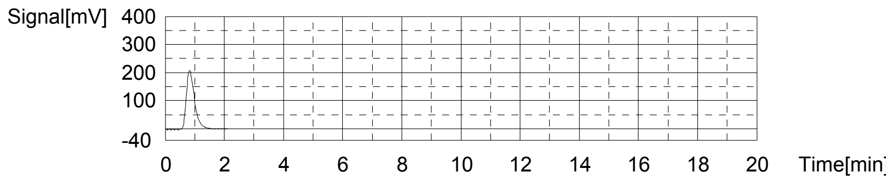
Mean Area 442.8
Mean Conc. 11.48mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	400.0	10.99mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:11:22 PM

Mean Area 400.0
Mean Conc. 10.99mg/L



Sample

Sample Name: L0706176-05
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

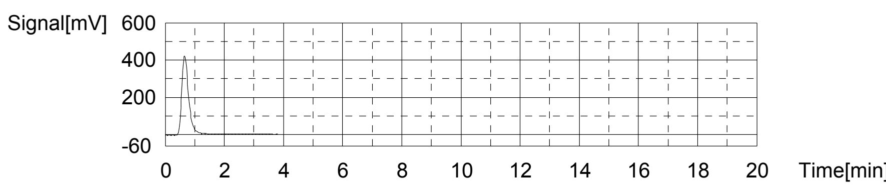
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.775mg/L TC:18.73mg/L IC:16.96mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	724.7	18.73mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:21:36 PM

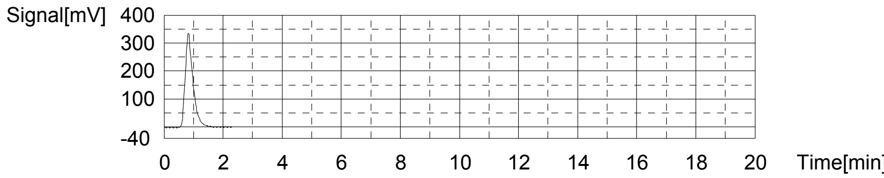
Mean Area 724.7
Mean Conc. 18.73mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	610.0	16.96mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:27:17 PM

Mean Area 610.0
Mean Conc. 16.96mg/L



Sample

Sample Name: L0706176-06
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

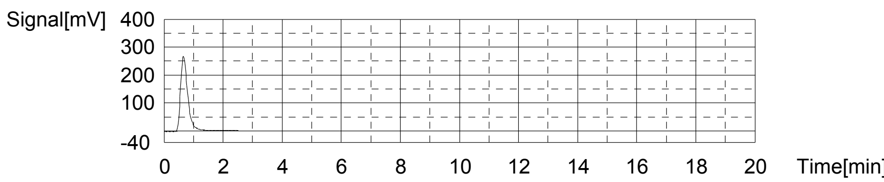
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.039mg/L TC:11.96mg/L IC:9.926mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	461.5	11.96mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:35:56 PM

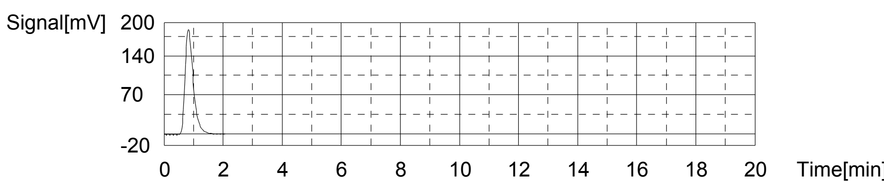
Mean Area 461.5
Mean Conc. 11.96mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	362.7	9.926mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:41:20 PM

Mean Area 362.7
Mean Conc. 9.926mg/L



Sample

Sample Name: L0706176-07
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

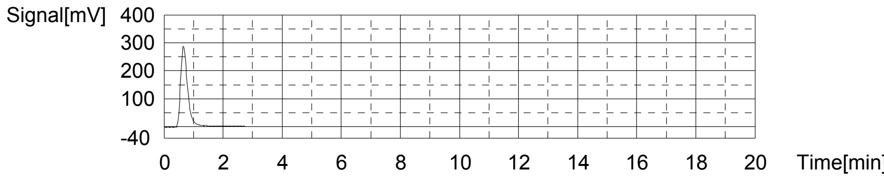
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.148mg/L TC:12.59mg/L IC:11.44mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	485.8	12.59mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:50:01 PM

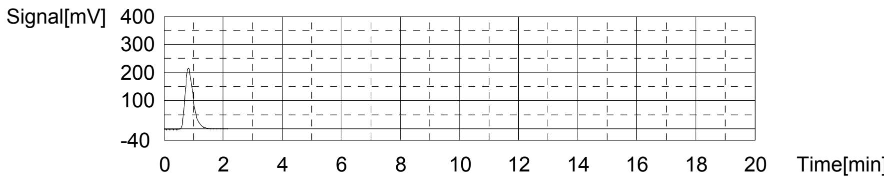
Mean Area 485.8
Mean Conc. 12.59mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	416.0	11.44mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:55:30 PM

Mean Area 416.0
Mean Conc. 11.44mg/L



Sample

Sample Name: L0706138-01 (4)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

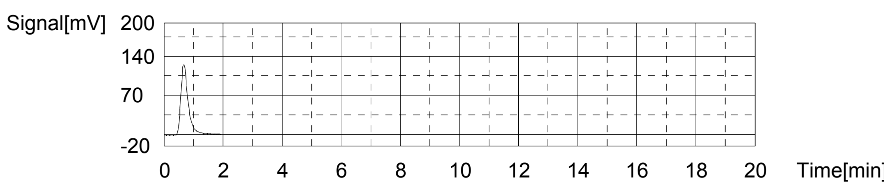
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.420mg/L TC:5.678mg/L IC:3.258mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	217.1	5.678mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:03:41 AM

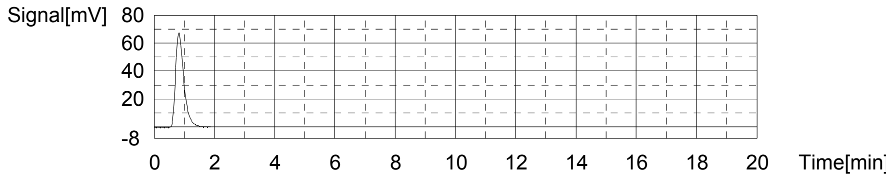
Mean Area 217.1
Mean Conc. 5.678mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	128.3	3.258mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:08:48 AM

Mean Area 128.3
Mean Conc. 3.258mg/L



Sample

Sample Name: L0706146-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

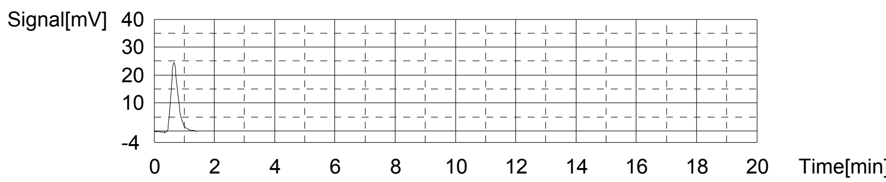
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.6868mg/L TC:1.166mg/L IC:0.4793mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	41.70	1.166mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:16:13 AM

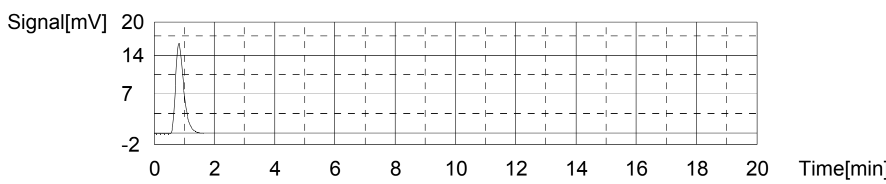
Mean Area 41.70
Mean Conc. 1.166mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	30.62	0.4793mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:21:02 AM

Mean Area 30.62
Mean Conc. 0.4793mg/L



Sample

Sample Name: L0706146-02 MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

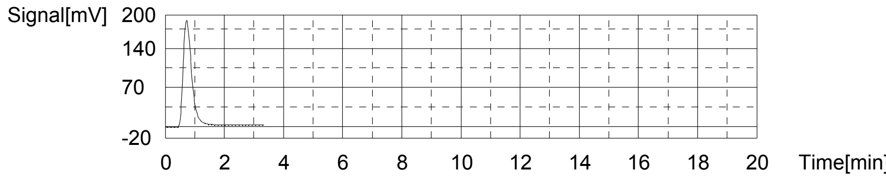
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:10.37mg/L TC:10.38mg/L IC:0.01110mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	400.0	10.38mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:30:25 AM

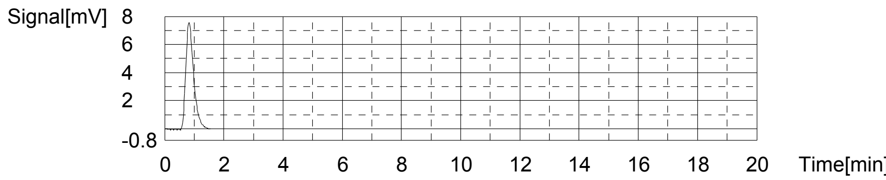
Mean Area 400.0
Mean Conc. 10.38mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.16	0.01110mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:35:22 AM

Mean Area 14.16
Mean Conc. 0.01110mg/L



Sample

Sample Name: L0706146-03 MSD
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

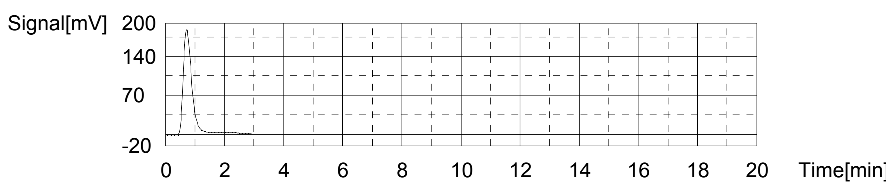
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:9.780mg/L TC:10.03mg/L IC:0.2478mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	386.2	10.03mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:44:20 AM

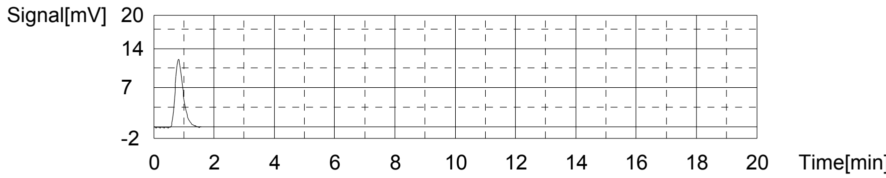
Mean Area 386.2
Mean Conc. 10.03mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	22.48	0.2478mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:49:05 AM

Mean Area 22.48
Mean Conc. 0.2478mg/L



Sample

Sample Name: L0706146-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

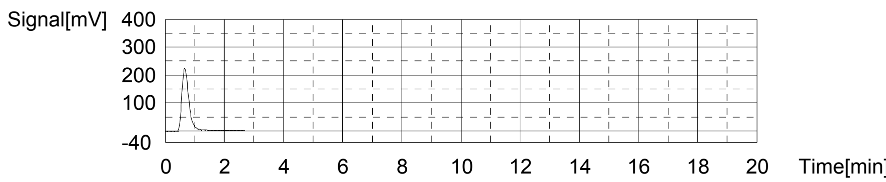
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.371mg/L TC:10.00mg/L IC:8.631mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	385.2	10.00mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:58:19 AM

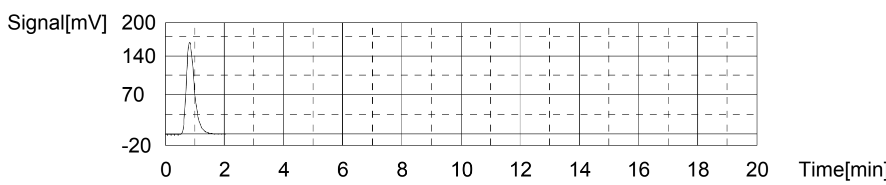
Mean Area 385.2
Mean Conc. 10.00mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	317.2	8.631mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:03:40 AM

Mean Area 317.2
Mean Conc. 8.631mg/L



Sample

Sample Name: L0706094-01 (6)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

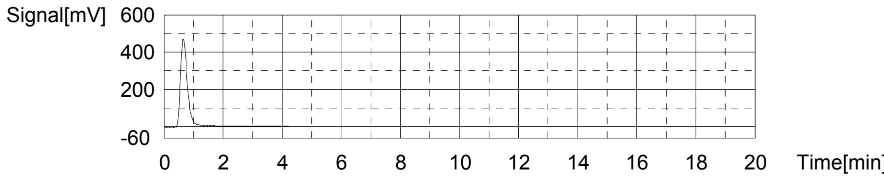
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.1691mg/L TC:21.08mg/L IC:20.91mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	816.0	21.08mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:13:57 AM

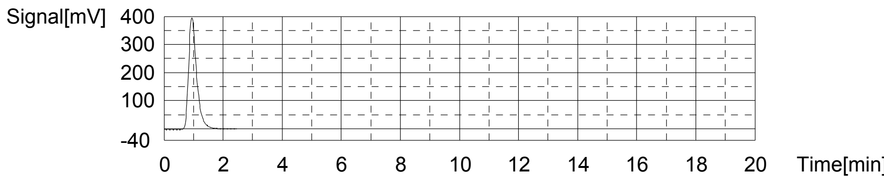
Mean Area 816.0
Mean Conc. 21.08mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	749.0	20.91mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:20:14 AM

Mean Area 749.0
Mean Conc. 20.91mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

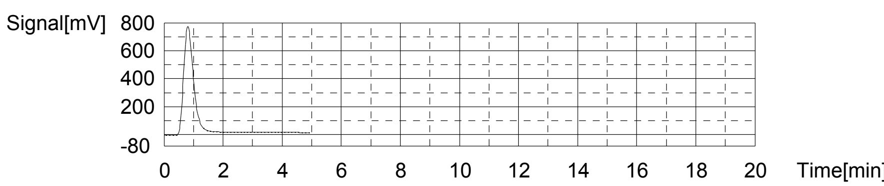
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.29mg/L TC:51.13mg/L IC:-0.1645mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1984	51.13mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:31:14 AM

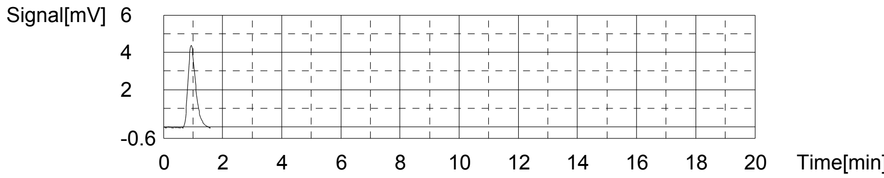
Mean Area 1984
Mean Conc. 51.13mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.986	-0.1645mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:36:20 AM

Mean Area 7.986
Mean Conc. -0.1645mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

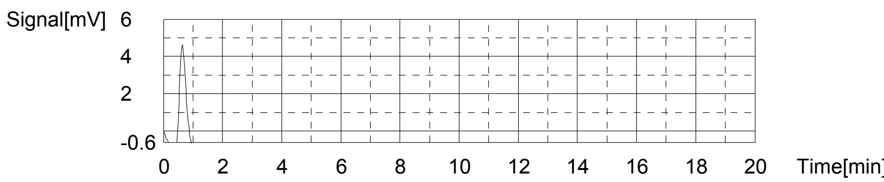
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4823mg/L TC:0.3264mg/L IC:-0.1559mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.056	0.3264mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3!	06/13/2007 01:41:36 AM

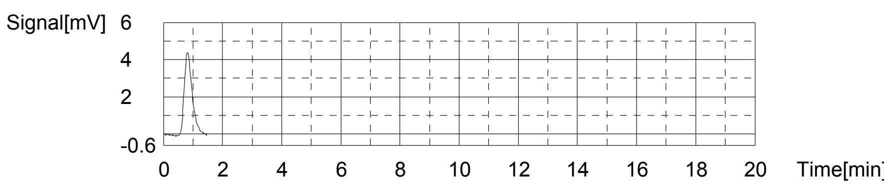
Mean Area 9.056
Mean Conc. 0.3264mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.290	-0.1559mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:45:47 AM

Mean Area 8.290
Mean Conc. -0.1559mg/L



3.0 Attachments

Kemron Environmental Services
Analyst Listing
June 20, 2007

AJF - AMANDA J. FICKIESEN	AJM - ANTHONY J. MOSSBURG	ALB - ANNIE L. BOCK
ARA - ADRIAN R. ACHTERMANN	ASP - AARON S. PETRIE	BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN	CAF - CHERYL A. FLOWERS	CAK - CHERYL A. KOELSCH
CEB - CHAD E. BARNES	CLC - CHRYS L. CRAWFORD	CLS - CARA L. STRICKLER
CLW - CHARISSA L. WINTERS	CM - CHARLIE MARTIN	CMS - CRYSTAL M. STEPHENS
CPD - CHAD P. DAVIS	CSH - CHRIS S. HILL	DD - DIANE M. DENNIS
DDE - DEBRA D. ELLIOTT	DEL - DON E. LIGHTFRITZ	DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER	DIH - DEANNA I. HESSON	DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE	DLR - DIANNA L. RAUCH	DR - DEANNA ROBERTS
DRP - DAVE R. PITZER	DSF - DEBRA S. FREDERICK	DST - DENNIS S. TEPE
ECL - ERIC C. LAWSON	ED - EMILY E. DECKER	ERE - ERIN R. ELDER
FJB - FRANCES J. BOLDEN	HAV - HEMA VILASAGAR	HJR - HOLLY J. REED
JAB - JUANITA A. BECKER	JAL - JOHN A. LENT	JKT - JANE K. THOMPSON
JLS - JANICE L. SCHIMMEL	JNB - JOSHUA N. BOOTH	JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES	JYH - JI Y. HU	KCZ - KEVIN C. ZUMBRO
KEB - KATHRYN E. BARNES	KHR - KIM H. RHODES	KRA - KATHY R. ALBERTSON
KRV - KATHRINE R. VICKERS	LKN - LINDA K. NEDEFF	LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON	MDC - MICHAEL D. COCHRAN	MES - MARY E. SCHILLING
MKZ - MARILYN K. ZUMBRO	MLR - MARY L. ROCHOTTE	MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR	MSW - MATT S. WILSON	NJB - NATALIE J. BOOTH
PJM - PAUL J. MILLER	RAH - ROY A. HALSTEAD	RB - ROBERT BUCHANAN
REK - ROBERT E. KYER	RNP - RICK N. PETTY	RWC - RODNEY W. CAMPBELL
SLM - STEPHANIE L. MOSSBURG	SLP - SHERI L. PFALZGRAF	SMH - SHAUNA M. HYDE
TDH - TRICIA D. HUCK	TMB - TIFFANY M. BAILEY	TMM - TAMMY M. MORRIS
VC - VICKI COLLIER	WFM - WALTER F. MARTIN	

KEMRON Environmental Services

List of Valid Qualifiers

June 20, 2007

Qualkey: STD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	Analyte present in method blank
C	Confirmed by GC/MS
CG	Confluent growth
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
FL	Free Liquid
I	Semiquantitative result (out of instrument calibration range)
J	The analyte was positively identified, but the quantitation was below the RL
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	ESTIMATE & COLUMNS DON'T AGREE TO WITHIN 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit
ND,L	Not detected; sample reporting limit (RL) elevated due to interference
ND,S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria fail. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Undetected; the concentration is below the reported MDL.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
Z	Cannot be resolved from isomer - see below

*****Special Notes for Organic Analytes**

1. Acrolein and acrylonitrile by method 624 are semi-quantitative screens only.
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene.
3. N-nitrosodiphenylamine cannot be separated from diphenylamine.
4. 3-Methylphenol and 4-Methylphenol are unresolvable compounds.
5. m-Xylene and p-Xylene are unresolvable compounds.
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound an are matrix dependent.

00084997

Chain of Custody

NO. 10201

Shaw® Shaw Environmental & Infrastructure, Inc.
3010 Briarpark Drive, Suite 400
Houston, TX 77042
(713) 996-4400

Laboratory Name: Kemron | Address: 156 Starlite DR. Marietta, OH. 45750 | Contact: Stephanie Mossberg

Project Name: LHAAP Site 16 | Project Location: Karnack, TX.

Project No.: 117591 | Project Contact: Kay Everett | Project Telephone No.: 713-996-4421

Point of Contact: Kay Everett | Project Manager/Supervisor:

Telephone No.: 713-996-4421

Analysis and Method Desired (Indicate separate containers)

Item No.	~~Telephone~~ Sample Number	Date	Time	Comp	Grab	Matrix	Sample Description, Location	Number of Containers	Carbon Dioxide						Remarks
1	16WW37	6/6/07	10:30			W	Groundwater, Site 16	3	3						
2	16WW05	6/6/07	1:00			W	Groundwater, Site 16	3	3						
3	16WW38	6/6/07	1:40			W	Groundwater, Site 16	3	3						
4															
5															
6															
7															
8															
9															
10															

Transfers Relinquished By (signature)	Date/Time	Transfers Accepted By (signature)	Date/Time	
Scott Beesinger	6/6/07 4:30	Janet Thompson	6/7/07 915	Special Instructions
				FedEx Airbill No.:
		Laboratory		Sampler's Signature Scott Beesinger

TAT: ____ Standard ✓ Rush Date ____ Seals Intact? ____ Y ____ N Received Good Condition ____ Y ____ N ____ Cold

White - Lab Copy Canary - Field Copy Pink - File Copy

Form Number: 433_1
Rev. 03-19-07

00084998

Page 347

Shaw® Shaw Environmental, Inc.

3010 Briarpark Drive, Suite 4N
Houston, TX 77042 (713) 996-4400

CHAIN-OF-CUSTODY

No. 10441

Laboratory Name: Kemron
Address: 156 Starlite Dr. Marietta, OH. 45750
Contact: Stephanie Mossberg

Project Name: LHAAP Site 16
Project Location: KARNACK, TX.
Project No.: 117591
Project Contact: KAY EVERETT
Project Telephone No.: 713-996-4421
Point of contact: Kay Everett
Telephone No.: 713-996-4421
Project Manager/Supervisor:

Analysis and Method Desired (Indicate separate containers)

Item No.	Sample Number	Date	Time	Comp	Grab	Matrix	Sample Description, Location	Number of Containers	ANIONS	VOC-8260	Sulfide	Perchlorate	GASES	ALKALINITY	TOC	Remarks
1	16WW37	6/6/07	10:30		✓	W	Groundwater, Site 16	13	1	3	1	1	3	1	3	
2	16WW05	6/6/07	11:00		✓	W	Groundwater, Site 16	13	1	3	1	1	3	1	3	
3	16WW38	6/6/07	1:40		✓	W	Groundwater, Site 16	13	1	3	1	1	3	1	3	
4																
5																
6																
7																
8																
9																
10																

Transfers Relinquished By (Signature)	Date/Time	Transfers Accepted By (Signature)	Date/Time
Scott Beesinger	6/6/07 4:30	Janet K. Thompson	6/7/07 0915
		Laboratory	

Special Instructions

FedEx Airbill No.:

Sampler's Signature: Scott Beesinger

TAT: _____ Standard _____ Rush Due: ___ Seals Intact? _____ Y _____ N Received Good Condition _____ Y _____ N _____ Cold

White - Lab Copy Canary - Field Copy Pink - File Copy

156 Starlite Drive
Marietta, OH 45750
(740) 373-4071

Client: SHAW					
Workorder Number: B 2705					
Date Received: 6-7-07					
Delivered by:	( ) Fedx	(✓) UPS	( ) Client	( ) Courier	Time: 915
Opened by: EE					
IR Temp Gun:	( ) D	(✓) G			
Logged by: BG				L 6-148	

Cooler information

Cooler ID	Temp C	Airbill#	COC#	Other
897	3	1Z4016632710066319	10201,	10441

Inspection Checklist	Y	N	NA	Discrepancy ID
Were shipping coolers sealed?	✓			
Were custody seals intact?	✓			
Were COC's received/ information complete/signed and dated?	✓			
Were cooler temperatures in range of 0 - 6?	✓			
Was ice present?	✓			
Were sample containers and labels intact and match COC?		✓		1
Were the correct containers and volumes received?				
Were correct preservatives used? (water only)				
Were pH ranges acceptable? (voa's excluded)				
Were VOA samples free of headspace?				
Were samples received within EPA hold times?				

Discrepancy/Comments/Other Problems

1 Rec'd 3 vials TOC / mislabel TOC/4C PH<2
also no date, time on 16WW05 but has ID.
RSK's Rec'd 6 vials on 2 chains KT 6/7/07

Distribution

Name of KEMRON representative	
Client/Company:	
Person Contacted:	
Date contacted:	

Resolution/other comments:

KEMRON Environmental Services

Internal Chain of Custody Report

Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-02	344960	300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	07-JUN-2007 12:45	BRG	
2	ANALYZ	L1	SEM	07-JUN-2007 13:32	DSF	JKT
3	STORE	SEM	A1	12-JUN-2007 09:06	ERE	DSF

Samplenum	Container ID	Products
L0706148-03	344971	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 4

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 5

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 6

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services

Internal Chain of Custody Report

Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-03	344972	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 07:42	DIH	ERE
3	STORE	WET	A1	11-JUN-2007 16:01	ERE	DIH

Samplenum	Container ID	Products
L0706148-01	344957	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:13	MRT	JKT

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:13	MRT	JKT

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:13	MRT	JKT

Bottle: 4

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:13	MRT	JKT

Bottle: 5

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:13	MRT	JKT

Bottle: 6

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services

Internal Chain of Custody Report

Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-02	344961	826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Samplenum	Container ID	Products
L0706148-02	344966	TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	12-JUN-2007 07:34	DIH	ERE
3	STORE	WET	A1	15-JUN-2007 10:13	DEL	DIH

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services

Internal Chain of Custody Report

Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-03	344968	826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Samplenum	Container ID	Products
L0706148-03	344969	S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	07-JUN-2007 14:42	TMM	AJM
3	STORE	WET	A1	08-JUN-2007 08:23	JKT	DLP

Samplenum	Container ID	Products
L0706148-02	344962	S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	07-JUN-2007 14:42	TMM	AJM
3	STORE	WET	A1	08-JUN-2007 08:23	JKT	DLP

Samplenum	Container ID	Products
L0706148-01	344956	CLO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	SEM	13-JUN-2007 10:42	DSF	ERE
3	STORE	SEM	A1	15-JUN-2007 14:25	ERE	DSF

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services
Internal Chain of Custody Report

Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-02	344964	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 4

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 5

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Bottle: 6

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	07-JUN-2007 12:45	BRG	
2	ANALYZ	A1	ORG4	08-JUN-2007 08:14	MRT	JKT

Samplenum	Container ID	Products
L0706148-02	344965	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 07:42	DIH	ERE
3	STORE	WET	A1	11-JUN-2007 16:01	ERE	DIH

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services
Internal Chain of Custody Report
Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-03	344967	300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	07-JUN-2007 12:45	BRG	
2	ANALYZ	L1	SEM	07-JUN-2007 13:32	DSF	JKT
3	STORE	SEM	A1	12-JUN-2007 09:06	ERE	DSF

Samplenum	Container ID	Products
L0706148-01	344959	TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	12-JUN-2007 07:33	DIH	ERE
3	STORE	WET	A1	13-JUN-2007 07:53	ERE	DIH

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	

Samplenum	Container ID	Products
L0706148-02	344963	CLO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	SEM	13-JUN-2007 10:42	DSF	ERE
3	STORE	SEM	A1	15-JUN-2007 14:25	ERE	DSF

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services
Internal Chain of Custody Report
Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-03	344973	TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	12-JUN-2007 07:34	DIH	ERE
3	STORE	WET	A1	15-JUN-2007 10:13	DEL	DIH

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	

Samplenum	Container ID	Products
L0706148-01	344953	300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	07-JUN-2007 12:45	BRG	
2	ANALYZ	L1	SEM	07-JUN-2007 13:32	DSF	JKT
3	STORE	SEM	A1	12-JUN-2007 09:06	ERE	DSF

Samplenum	Container ID	Products
L0706148-01	344954	826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	07-JUN-2007 12:45	BRG	
2	ANALYZ	V1	ORG4	07-JUN-2007 13:39	JNB	AJM

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services

Internal Chain of Custody Report

00085007

Login: L0706148
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 14-JUN-2007

Samplenum	Container ID	Products
L0706148-01	344958	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 07:41	DIH	ERE
3	STORE	WET	A1	11-JUN-2007 16:01	ERE	DIH

Samplenum	Container ID	Products
L0706148-03	344970	CLO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	SEM	13-JUN-2007 10:42	DSF	ERE
3	STORE	SEM	A1	15-JUN-2007 14:25	ERE	DSF

Samplenum	Container ID	Products
L0706148-01	344955	S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	07-JUN-2007 12:45	BRG	
2	ANALYZ	W1	WET	07-JUN-2007 14:42	TMM	AJM
3	STORE	WET	A1	08-JUN-2007 08:23	JKT	DLP

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

WORKGROUP SUMMARY BY METHOD

WORKGROUP SUMMARY BY METHOD

Analysis: Sulfide
Analytical Method: 376.1
Workgroup: WG242032

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/07/07 15:00		BURET	DLP
L0706148-02	16WW05			06/07/07 15:00		BURET	DLP
L0706148-03	16WW38			06/07/07 15:00		BURET	DLP

Analysis: Sulfide
Extraction Method: 376.1
Workgroup: WG242032

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/07/07 15:00		BURET	DLP
L0706148-02	16WW05			06/07/07 15:00		BURET	DLP
L0706148-03	16WW38			06/07/07 15:00		BURET	DLP

Analysis: Special List - 8260
Analytical Method: 8260B
Workgroup: WG242206

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/10/07 14:59	01	HPMS10	MES
L0706148-02	16WW05			06/10/07 15:32	01	HPMS10	MES
L0706148-03	16WW38			06/10/07 16:04	01	HPMS10	MES

Analysis: Special List - 8260
Extraction Method: 5030B
Workgroup: WG242206

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37				242206	HPMS10	MES
L0706148-02	16WW05				242206	HPMS10	MES
L0706148-03	16WW38				242206	HPMS10	MES

WORKGROUP SUMMARY BY METHOD

Analysis: Alkalinity, Total
Analytical Method: 310.2
Workgroup: WG242228

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/11/07 09:37	DL01	SMARTCHEM	DIH
L0706148-02	16WW05			06/11/07 09:37	01	SMARTCHEM	DIH
L0706148-03	16WW38			06/11/07 09:38	01	SMARTCHEM	DIH

Analysis: Alkalinity, Total
Extraction Method: 310.2
Workgroup: WG242228

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/11/07 09:37	DL01	SMARTCHEM	DIH
L0706148-02	16WW05			06/11/07 09:37	01	SMARTCHEM	DIH
L0706148-03	16WW38			06/11/07 09:38	01	SMARTCHEM	DIH

Analysis: Special List - 8260
Analytical Method: 8260B
Workgroup: WG242252

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-03	16WW38			06/11/07 14:57	DL01	HPMS11	CMS

Analysis: Special List - 8260
Extraction Method: 5030B
Workgroup: WG242252

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-03	16WW38				242252	HPMS11	CMS

WORKGROUP SUMMARY BY METHOD

Analysis: Total Organic Carbon
Analytical Method: 415.1
Workgroup: WG242321

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/12/07 11:51	DL01	TOC-VWP	DIH

Analysis: Total Organic Carbon
Extraction Method: 415.1
Workgroup: WG242321

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/12/07 11:51	DL01	TOC-VWP	DIH

Analysis: Dissolved Gases - Special List
Analytical Method: RSK175
Workgroup: WG242372

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/12/07 10:20	DL01	HP16	FJB
L0706148-02	16WW05			06/12/07 10:34	DL01	HP16	FJB
L0706148-03	16WW38			06/12/07 10:48	DL01	HP16	FJB

Analysis: Dissolved Gases - Special List
Extraction Method: 5021
Workgroup: WG242372

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37				242372	HP16	SMH
L0706148-02	16WW05				242372	HP16	SMH
L0706148-03	16WW38				242372	HP16	SMH

WORKGROUP SUMMARY BY METHOD

Analysis: Common Anions
Extraction Method: METHOD
Workgroup: WG242403

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37		06/07/07 09:01			FILTER	DSF
L0706148-02	16WW05		06/07/07 09:01			FILTER	DSF
L0706148-03	16WW38		06/07/07 09:01			FILTER	DSF

Analysis: Common Anions
Analytical Method: 300.0
Workgroup: WG242420

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/11/07 11:20	DL01	IC2	DSF
L0706148-02	16WW05			06/11/07 11:37	DL01	IC2	DSF
L0706148-02	16WW05			06/11/07 13:04	DL02	IC2	DSF
L0706148-03	16WW38			06/11/07 11:55	DL01	IC2	DSF
L0706148-03	16WW38			06/11/07 13:22	DL02	IC2	DSF

Analysis: Common Anions
Extraction Method: METHOD
Workgroup: WG242420

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37		06/11/07 09:00		02	FILTER	DSF
L0706148-02	16WW05		06/11/07 09:00		02	FILTER	DSF
L0706148-03	16WW38		06/11/07 09:00		02	FILTER	DSF

Analysis: Total Organic Carbon
Analytical Method: 415.1
Workgroup: WG242441

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-02	16WW05			06/13/07 14:15	DL01	TOC-VWP	DIH
L0706148-03	16WW38			06/13/07 14:30	DL01	TOC-VWP	DIH

WORKGROUP SUMMARY BY METHOD

Analysis: Total Organic Carbon
Extraction Method: 415.1
Workgroup: WG242441

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-02	16WW05			06/13/07 14:15	DL01	TOC-VWP	DIH
L0706148-03	16WW38			06/13/07 14:30	DL01	TOC-VWP	DIH

Analysis: Dissolved Gases - Special List
Analytical Method: RSK175
Workgroup: WG242585

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-02	16WW05			06/14/07 11:29	DL02	HP16	FJB
L0706148-03	16WW38			06/14/07 11:43	DL02	HP16	FJB

Analysis: Dissolved Gases - Special List
Extraction Method: 5021
Workgroup: WG242585

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-02	16WW05				242585	HP16	FJB
L0706148-03	16WW38				242585	HP16	FJB

Analysis: Perchlorate
Analytical Method: 314.0
Workgroup: WG242735

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37			06/14/07 16:44	DL01	IC1	DSF
L0706148-02	16WW05			06/14/07 17:04	DL01	IC1	DSF
L0706148-03	16WW38			06/14/07 17:24	DL01	IC1	DSF

WORKGROUP SUMMARY BY METHOD

Analysis: Perchlorate
Extraction Method: 314.0
Workgroup: WG242735

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706148-01	16WW37		06/14/07 15:42			FILTER	DSF
L0706148-02	16WW05		06/14/07 15:42			FILTER	DSF
L0706148-03	16WW38		06/14/07 15:42			FILTER	DSF

KEMRON ENVIRONMENTAL SERVICES

156 Starlite Drive, Marietta, OH 45750 • TEL 740-373-4071 • FAX 740-373-4835 • http://www.kemron.com

Laboratory Report Number: L0706194

Please find enclosed the analytical results for the samples you submitted to KEMRON Environmental Services.

Review and compilation of your report was completed by KEMRON's Sales and Service Team. If you have questions, comments or require further assistance regarding this report, please contact your team member noted in the reviewed box bleow at 800-373-4071. Team member e-mail addresses also appear here for your convenience.

Debra Elliott - Team Leader
delliott@kemron-lab.com

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ckoelsch@kemron-lab.com

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Brenda Gregory - Client Services Specialist
bgregory@kemron-lab.com

This report was reviewed on June 20, 2007.

Stephanie Mossburg

STEPHANIE MOSSBURG - Team Chemist/Data Specialist

I certify that all test results meet all of the requirements of the NELAP standards and other applicable contract terms and conditions. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of KEMRON Environmental Services.

This report was certified on June 20, 2007.

David E. Vandenberg

David Vandenberg - Vice President

FL DOH NELAP ID: E8755
This report contains a total of 325 pages.

Protecting Our Environmental Future

ACIL 2006 Seal of Excellence Program — Ethics Service Quality Environmental

KEMRON REPORT L0706194
PREPARED FOR Shaw E I, Inc.
WORK ID: LONGHORN AAP KARNACK TX

1.0 Introduction

KEMRON ENVIRONMENTAL SERVICES
REPORT NARRATIVE

KEMRON Login No.: L0706194

CHAIN OF CUSTODY: The chain of custody number was 10207.

SHIPMENT CONDITIONS: The chain of custody forms were received sealed in a cooler. The cooler temperature was 2 degrees C.

SAMPLE MANAGEMENT: All samples received were intact.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and KEMRON Environmental Services, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Approved: 11-JUN-07
Stephanie Mossburg

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory"s LCS QC limits.

✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory's MS/MSD QC limits

✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:

- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

✓The exception Report for every "No" or "Not Reviewed (NR)" item IN laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MICHAEL D. COCHRAN	Michael Cochran	Semivolatiles Lab Supervisor	June 15, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

RG-366/TRRP-13 December 2002 A1

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	CLO4-314
Prep Batch Number(s):	WG242735
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 14, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	✓				
Were MS/MSD analyzed at the appropriate frequency?	✓				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?	✓				
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				1
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	CLO4-314
Prep Batch Number(s):	WG242735
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 14, 2007

EXCEPTIONS REPORT
ER# - Description
1. Samples -01 and -02 were analyzed at a dilution only due to sample conductivity greater than the working MCT.

(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

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R2 sample identification cross-reference;

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a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) Cleanup methods, and
e) If required for the project, tentatively identified compounds (TICs)

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a) Calculated recovery (%R) for each analyte, and
b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amount,
b) Calculated %R for each analyte, and
c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %R and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:

a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna I Hesson	Conventional Lab Supervisor	June 15, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services

Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	SULFIDE
Prep Batch Number(s):	WG242280
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

00085026

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?		✓			
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?			✓		
Were percent differences for each analyte within the method-required QC limits?			✓		
Was the ICAL curve verified for each analyte?			✓		
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services

Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	SULFIDE
Prep Batch Number(s):	WG242280
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

EXCEPTIONS REPORT

ER# - Description

Footnotes:

(1) NA = Not applicable to method or project

(2) NR = Not reviewed

(3) ER# = Exception report number

Laboratory Data Package Cover Page

00085029

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10

b) dilution factors,

c) preparation methods,

d) Cleanup methods, and

e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

a) Calculated recovery (%R) for each analyte, and

b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amount,

b) Calculated %R for each analyte, and

c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,

b) MS/MSD spiking amounts,

c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d) Calculated %R and relative percent differences (RPDs), and

e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:

a) the amount of analyte measured in the duplicate,

b) the calculated RPD, and

c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna I Hesson	Conventional Lab Supervisor	June 15, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242229
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	✓				
Were MS/MSD analyzed at the appropriate frequency?	✓				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?	✓				

Checklist ID: **18109**

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242229
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		

Checklist ID: **18109**

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242229
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	ALKALINITY
Prep Batch Number(s):	WG242229
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

EXCEPTIONS REPORT
ER# - Description
Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:

- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna I Hesson	Conventional Lab Supervisor	June 15, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	TOC
Prep Batch Number(s):	WG242321
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	✓				
Were MS/MSD analyzed at the appropriate frequency?	✓				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?	✓				
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	TOC
Prep Batch Number(s):	WG242321
Reviewer Name:	DEANNA I. HESSON
LRC Date:	June 15, 2007

EXCEPTIONS REPORT
ER# - Description
Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory"s LCS QC limits.

✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory's MS/MSD QC limits

✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:

- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

Name (Printed)	Signature	Official Title (printed)	DATE
MICHAEL D. COCHRAN	Michael Cochran	Semivolatiles Lab Supervisor	June 18, 2007

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	9056-300
Prep Batch Number(s):	WG242485
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 08, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?	✓				
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			NA		1
Were MS/MSD analyzed at the appropriate frequency?			NA		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			NA		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			NA		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				2
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	9056-300
Prep Batch Number(s):	WG242485
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	June 08, 2007

EXCEPTIONS REPORT
ER# - Description
1. The MS/MSD results were not associated with this sample delivery group.
2. All samples were analyzed at a dilution only because of very high pre-run screen results for chloride and sulfate.

(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

✓R1 Field chain-of-custody documentation;

✓R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) Cleanup methods, and
e) If required for the project, tentatively identified compounds (TICs)

✓R4 Surrogate recovery data including:

a) Calculated recovery (%R) for each analyte, and
b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amount,
b) Calculated %R for each analyte, and
c) The laboratory"s LCS QC limits.

✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %R and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits

✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:

a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for anlytical duplicates.

✓R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

✓R10 Other problems or anomalies.

✓The exception Report for every "No" or "Not Reviewed (NR)" item IN laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, if applicable: [✓] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

MIKE D. ALBERTSON		Volatiles Lab Supervisor	June 20, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	RSK175
Prep Batch Number(s):	WG242372, WG242585
Reviewer Name:	MIKE D. ALBERTSON
LRC Date:	June 20, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

EXCEPTIONS REPORT
ER# - Description
There were no exceptions.

Footnotes:
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(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

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✓R2 sample identification cross-reference;

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a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) Cleanup methods, and
e) If required for the project, tentatively identified compounds (TICs)

✓R4 Surrogate recovery data including:

a) Calculated recovery (%R) for each analyte, and
b) The laboratory's surrogate QC limits.

✓R5 Test reports/summary forms for blank samples;

✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amount,
b) Calculated %R for each analyte, and
c) The laboratory"s LCS QC limits.

✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %R and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits

✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:

a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for anlytical duplicates.

✓R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

✓R10 Other problems or anomalies.

✓The exception Report for every "No" or "Not Reviewed (NR)" item IN laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, if applicable: [✓] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

MIKE D. ALBERTSON	[signature]	Volatiles Lab Supervisor	June 15, 2007
Name (Printed)	Signature	Official Title (printed)	DATE

KEMRON Environmental Services
Laboratory Review Checklist

Laboratory Name:	KEMRON
Laboratory Log Number:	L0706194
Project Name:	798-LONGHORN
Method:	8260B
Prep Batch Number(s):	242208, 242252, 242225
Reviewer Name:	MIKE D. ALBERTSON
LRC Date:	June 15, 2007

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?	✓				
Were surrogate percent recoveries in all samples within the laboratory QC limits?	✓				
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?	✓				
Were ion abundance data within the method-required QC limits?	✓				
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?	✓				
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

EXCEPTIONS REPORT
ER# - Description
There were no exceptions.

Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

LABORATORY REPORT

00085056

L0706194

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW16	L0706194-01	8260B	1	08-JUN-07
16WW16	L0706194-01	8260B	200	08-JUN-07
16WW22	L0706194-02	8260B	1	08-JUN-07
16WW34	L0706194-03	8260B	1	08-JUN-07

Sample Number: L0706194-01	PrePrep Method: NONE	Instrument: HPMS11
Client ID: 16WW16	Prep Method: 5030B	Prep Date: 06/10/2007 21:46
Matrix: Water	Analytical Method: 8260B	Cal Date: 05/08/2007 15:05
Workgroup Number: WG242208	Analyst: MES	Run Date: 06/10/2007 21:46
Collect Date: 06/07/2007 08:50	Dilution: 1	File ID: 11M43084
Sample Tag: 01	Units: ug/L	

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	5.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	5.00	0.125
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	77.1		10.0	0.250
1,1,2-Trichloroethane	79-00-5	0.391	J	5.00	0.250
1,1-Dichloroethane	75-34-3	2.23	J	5.00	0.125
1,1-Dichloroethene	75-35-4	50.1		5.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	5.00	0.200
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	5.00	0.250
1,2-Dichlorobenzene	95-50-1		U	5.00	0.125
1,2-Dichloroethane	107-06-2	45.9		5.00	0.250
cis-1,2-Dichloroethene	156-59-2	7560	I	10.0	0.250
trans-1,2-Dichloroethene	156-60-5	33.8		5.00	0.250
1,2-Dichloropropane	78-87-5		U	5.00	0.200
1,3-Dichlorobenzene	541-73-1		U	5.00	0.250
1,4-Dichlorobenzene	106-46-7	0.239	J	5.00	0.125
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	3.67	J	10.0	2.50
Benzene	71-43-2	0.635	J	5.00	0.125
Bromodichloromethane	75-27-4		U	5.00	0.250
Bromoform	75-25-2		U	5.00	0.500
Bromomethane	74-83-9		U	10.0	0.500
Carbon disulfide	75-15-0		U	5.00	0.500
Carbon tetrachloride	56-23-5		U	5.00	0.250
Chlorobenzene	108-90-7	0.644	J	5.00	0.125
Chloroethane	75-00-3		U	10.0	0.500
Chloroform	67-66-3	1.43	J	5.00	0.125
Chloromethane	74-87-3		U	10.0	0.250
cis-1,3-Dichloropropene	10061-01-5		U	5.00	0.250
Cyclohexane	110-82-7		U	10.0	0.250
Dibromochloromethane	124-48-1		U	5.00	0.250
Dichlorodifluoromethane	75-71-8		U	10.0	0.250
Ethyl benzene	100-41-4		U	5.00	0.250
Isopropylbenzene	98-82-8		U	5.00	0.250
Methyl acetate	79-20-9		U	10.0	0.250
Methyl tert-butyl ether	1634-04-4		U	5.00	0.500
Methylcyclohexane	108-87-2		U	10.0	0.250
Methylene chloride	75-09-2	1.21	J	5.00	0.250
Styrene	100-42-5		U	5.00	0.125
Tetrachloroethene	127-18-4	0.709	J	5.00	0.250
Toluene	108-88-3	0.327	J	5.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	5.00	0.500
Trichloroethene	79-01-6	6080	I	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250
Vinyl chloride	75-01-4	879	I	10.0	0.250
Xylenes, Total	1330-20-7		U	5.00	0.500

Sample Number:	L0706194-01	PrePrep Method:	NONE	Instrument:	HPMS11
Client ID:	16WW16	Prep Method:	5030B	Prep Date:	06/10/2007 21:46
Matrix:	Water	Analytical Method:	8260B	Cal Date:	05/08/2007 15:05
Workgroup Number:	WG242208	Analyst:	MES	Run Date:	06/10/2007 21:46
Collect Date:	06/07/2007 08:50	Dilution:	1	File ID:	11M43084
Sample Tag:	01	Units:	ug/L		

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	119	80	120	
Dibromofluoromethane	113	86	118	
p-Bromofluorobenzene	99.6	86	115	
Toluene-d8	92.6	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL
I Semiquantitative result (out of instrument calibration range)

Sample Number: L0706194-01
Client ID: 16WW16
Matrix: Water
Workgroup Number: WG242252
Collect Date: 06/07/2007 08:50
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 5030B
Analytical Method: 8260B
Analyst: CMS
Dilution: 200
Units: ug/L

Instrument: HPMS11
Prep Date: 06/11/2007 15:28
Cal Date: 05/08/2007 15:05
Run Date: 06/11/2007 15:28
File ID: 11M43105

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	1000	50.0
1,1,2,2-Tetrachloroethane	79-34-5		U	1000	25.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	2000	50.0
1,1,2-Trichloroethane	79-00-5		U	1000	50.0
1,1-Dichloroethane	75-34-3		U	1000	25.0
1,1-Dichloroethene	75-35-4		U	1000	100
1,2,4-Trichlorobenzene	120-82-1		U	1000	40.0
1,2-Dibromo-3-chloropropane	96-12-8		U	1000	200
1,2-Dibromoethane	106-93-4		U	1000	50.0
1,2-Dichlorobenzene	95-50-1		U	1000	25.0
1,2-Dichloroethane	107-06-2		U	1000	50.0
cis-1,2-Dichloroethene	156-59-2	11500		2000	50.0
trans-1,2-Dichloroethene	156-60-5		U	1000	50.0
1,2-Dichloropropane	78-87-5		U	1000	40.0
1,3-Dichlorobenzene	541-73-1		U	1000	50.0
1,4-Dichlorobenzene	106-46-7		U	1000	25.0
2-Butanone	78-93-3		U	2000	500
2-Hexanone	591-78-6		U	2000	500
4-Methyl-2-pentanone	108-10-1		U	2000	500
Acetone	67-64-1		U	2000	500
Benzene	71-43-2		U	1000	25.0
Bromodichloromethane	75-27-4		U	1000	50.0
Bromoform	75-25-2		U	1000	100
Bromomethane	74-83-9		U	2000	100
Carbon disulfide	75-15-0		U	1000	100
Carbon tetrachloride	56-23-5		U	1000	50.0
Chlorobenzene	108-90-7		U	1000	25.0
Chloroethane	75-00-3		U	2000	100
Chloroform	67-66-3		U	1000	25.0
Chloromethane	74-87-3		U	2000	50.0
cis-1,3-Dichloropropene	10061-01-5		U	1000	50.0
Cyclohexane	110-82-7		U	2000	50.0
Dibromochloromethane	124-48-1		U	1000	50.0
Dichlorodifluoromethane	75-71-8		U	2000	50.0
Ethyl benzene	100-41-4		U	1000	50.0
Isopropylbenzene	98-82-8		U	1000	50.0
Methyl acetate	79-20-9		U	2000	50.0
Methyl tert-butyl ether	1634-04-4		U	1000	100
Methylcyclohexane	108-87-2		U	2000	50.0
Methylene chloride	75-09-2		U	1000	50.0
Styrene	100-42-5		U	1000	25.0
Tetrachloroethene	127-18-4		U	1000	50.0
Toluene	108-88-3		U	1000	50.0
trans-1,3-Dichloropropene	10061-02-6		U	1000	100
Trichloroethene	79-01-6	8830		1000	50.0
Trichlorofluoromethane	75-69-4		U	2000	50.0
Vinyl chloride	75-01-4	655	J	2000	50.0
Xylenes, Total	1330-20-7		U	1000	100

Sample Number: L0706194-01
Client ID: 16WW16
Matrix: Water
Workgroup Number: WG242252
Collect Date: 06/07/2007 08:50
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 5030B
Analytical Method: 8260B
Analyst: CMS
Dilution: 200
Units: ug/L

Instrument: HPMS11
Prep Date: 06/11/2007 15:28
Cal Date: 05/08/2007 15:05
Run Date: 06/11/2007 15:28
File ID: 11M43105

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	107	80	120	
Dibromofluoromethane	108	86	118	
p-Bromofluorobenzene	97.5	86	115	
Toluene-d8	100	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Report Number: **L0706194**
Report Date : **June 20, 2007**

00085061

Sample Number: **L0706194-02**
Client ID: **16WW22**
Matrix: **Water**
Workgroup Number: **WG242225**
Collect Date: **06/07/2007 12:00**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **5030B**
Analytical Method: **8260B**
Analyst: **CMS**
Dilution: **1**
Units: **ug/L**

Instrument: **HPMS6**
Prep Date: **06/11/2007 18:51**
Cal Date: **05/08/2007 16:28**
Run Date: **06/11/2007 18:51**
File ID: **6M66629**

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	5.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	5.00	0.125
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	10.0	0.250
1,1,2-Trichloroethane	79-00-5		U	5.00	0.250
1,1-Dichloroethane	75-34-3		U	5.00	0.125
1,1-Dichloroethene	75-35-4		U	5.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	5.00	0.200
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	5.00	0.250
1,2-Dichlorobenzene	95-50-1		U	5.00	0.125
1,2-Dichloroethane	107-06-2	1.53	J	5.00	0.250
cis-1,2-Dichloroethene	156-59-2	4.96	J	10.0	0.250
trans-1,2-Dichloroethene	156-60-5		U	5.00	0.250
1,2-Dichloropropane	78-87-5		U	5.00	0.200
1,3-Dichlorobenzene	541-73-1		U	5.00	0.250
1,4-Dichlorobenzene	106-46-7		U	5.00	0.125
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	5.00	0.125
Bromodichloromethane	75-27-4		U	5.00	0.250
Bromoform	75-25-2		U	5.00	0.500
Bromomethane	74-83-9		U	10.0	0.500
Carbon disulfide	75-15-0		U	5.00	0.500
Carbon tetrachloride	56-23-5		U	5.00	0.250
Chlorobenzene	108-90-7		U	5.00	0.125
Chloroethane	75-00-3		U	10.0	0.500
Chloroform	67-66-3		U	5.00	0.125
Chloromethane	74-87-3		U	10.0	0.250
cis-1,3-Dichloropropene	10061-01-5		U	5.00	0.250
Cyclohexane	110-82-7		U	10.0	0.250
Dibromochloromethane	124-48-1		U	5.00	0.250
Dichlorodifluoromethane	75-71-8		U	10.0	0.250
Ethyl benzene	100-41-4		U	5.00	0.250
Isopropylbenzene	98-82-8		U	5.00	0.250
Methyl acetate	79-20-9		U	10.0	0.250
Methyl tert-butyl ether	1634-04-4		U	5.00	0.500
Methylcyclohexane	108-87-2		U	10.0	0.250
Methylene chloride	75-09-2	0.654	J	5.00	0.250
Styrene	100-42-5		U	5.00	0.125
Tetrachloroethene	127-18-4	0.400	J	5.00	0.250
Toluene	108-88-3		U	5.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	5.00	0.500
Trichloroethene	79-01-6	119		5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250
Vinyl chloride	75-01-4	1.76	J	10.0	0.250
Xylenes, Total	1330-20-7		U	5.00	0.500

Sample Number: L0706194-02
Client ID: 16WW22
Matrix: Water
Workgroup Number: WG242225
Collect Date: 06/07/2007 12:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B
Analytical Method: 8260B
Analyst: CMS
Dilution: 1
Units: ug/L

Instrument: HPMS6
Prep Date: 06/11/2007 18:51
Cal Date: 05/08/2007 16:28
Run Date: 06/11/2007 18:51
File ID: 6M66629

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	112	80	120	
Dibromofluoromethane	107	86	118	
p-Bromofluorobenzene	100	86	115	
Toluene-d8	96.1	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number: L0706194-03	PrePrep Method: NONE	Instrument: HPMS6
Client ID: 16WW34	Prep Method: 5030B	Prep Date: 06/11/2007 19:23
Matrix: Water	Analytical Method: 8260B	Cal Date: 05/08/2007 16:28
Workgroup Number: WG242225	Analyst: CMS	Run Date: 06/11/2007 19:23
Collect Date: 06/07/2007 14:00	Dilution: 1	File ID: 6M66630
Sample Tag: 01	Units: ug/L	

Analyte	CAS. Number	Result	Qual	PQL	SQL
1,1,1-Trichloroethane	71-55-6		U	5.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	5.00	0.125
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	10.0	0.250
1,1,2-Trichloroethane	79-00-5		U	5.00	0.250
1,1-Dichloroethane	75-34-3		U	5.00	0.125
1,1-Dichloroethene	75-35-4		U	5.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	5.00	0.200
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	5.00	0.250
1,2-Dichlorobenzene	95-50-1		U	5.00	0.125
1,2-Dichloroethane	107-06-2		U	5.00	0.250
cis-1,2-Dichloroethene	156-59-2		U	10.0	0.250
trans-1,2-Dichloroethene	156-60-5		U	5.00	0.250
1,2-Dichloropropane	78-87-5		U	5.00	0.200
1,3-Dichlorobenzene	541-73-1		U	5.00	0.250
1,4-Dichlorobenzene	106-46-7		U	5.00	0.125
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	5.00	0.125
Bromodichloromethane	75-27-4		U	5.00	0.250
Bromoform	75-25-2		U	5.00	0.500
Bromomethane	74-83-9		U	10.0	0.500
Carbon disulfide	75-15-0		U	5.00	0.500
Carbon tetrachloride	56-23-5		U	5.00	0.250
Chlorobenzene	108-90-7		U	5.00	0.125
Chloroethane	75-00-3		U	10.0	0.500
Chloroform	67-66-3		U	5.00	0.125
Chloromethane	74-87-3		U	10.0	0.250
cis-1,3-Dichloropropene	10061-01-5		U	5.00	0.250
Cyclohexane	110-82-7		U	10.0	0.250
Dibromochloromethane	124-48-1		U	5.00	0.250
Dichlorodifluoromethane	75-71-8		U	10.0	0.250
Ethyl benzene	100-41-4		U	5.00	0.250
Isopropylbenzene	98-82-8		U	5.00	0.250
Methyl acetate	79-20-9		U	10.0	0.250
Methyl tert-butyl ether	1634-04-4		U	5.00	0.500
Methylcyclohexane	108-87-2		U	10.0	0.250
Methylene chloride	75-09-2	0.398	J	5.00	0.250
Styrene	100-42-5		U	5.00	0.125
Tetrachloroethene	127-18-4	0.437	J	5.00	0.250
Toluene	108-88-3		U	5.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	5.00	0.500
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250
Vinyl chloride	75-01-4		U	10.0	0.250
Xylenes, Total	1330-20-7		U	5.00	0.500

Sample Number:L0706194-03
Client ID:16WW34
Matrix:Water
Workgroup Number:WG242225
Collect Date:06/07/2007 14:00
Sample Tag:01

PrePrep Method:NONE
Prep Method:5030B
Analytical Method:8260B
Analyst:CMS
Dilution:1
Units:ug/L

Instrument:HPMS6
Prep Date:06/11/2007 19:23
Cal Date:05/08/2007 16:28
Run Date:06/11/2007 19:23
File ID:6M66630

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	115	80	120	
Dibromofluoromethane	106	86	118	
p-Bromofluorobenzene	101	86	115	
Toluene-d8	96.0	88	110	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

2.1.1.2 QC Summary Data

Example 8260 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

where:

	Example
Ax = Area of the characteristic ion for the compound being measured:	3399156
Cis = Concentration of the specific internal standard (ug/mL)	25
Ais = Area of the characteristic ion of the specific internal standard	846471
Cx = Concentration of the compound in the standard being measured (ug/mL)	100
RF = Calculated Response Factor	**1.0039**

2.0 Calculating the concentration (C) of a compound in water using the average RF: *

Cx = [(Ax) (Cis) (Vn)(D)] / [(Ais) (RF) (Vs)]

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Vs = Purge volume of sample (mL)	**10**
Vn = Nominal purge volume of sample (mL) (10.0 mL)	**10**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

3.0 Calculating the concentration (C) of a compound in soil using the average RF: *

Cx = [(Ax) (Cis) (Wn)(D)] / [(Ais) (RF) (Ws)]

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Ws = Weight of sample purged (g)	**5**
Wn = Nominal purge weight (g) (5.0 g)	**5**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

Dry weight correction:

Percent solids (PCT_S)	**50**
Cd = (Cx) (100)/PCT_S	**254.4856**

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve = 0.213

b = intercept from curve = - 0.00642

Step 2: Calculate y from Quantitation Report

y = 86550/593147 = 0.1459

Step 3: Solve for x

x = (y - b)/m = [(0.1459 -(- 0.00642)]/ 0.213 = 0.7152

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.7152) = 17.88

Example Spreadsheet Calculation:

Slope from curve, m:	**0.213**
Intercept from curve, b:	**-0.00642**
Area of analyte, Ax:	**86550**
Area of Internal Standard , Ais:	**593147**
Concentration of IS, Cis	**25.00**
Response Ratio:	**0.145917**
Amount Ratio:	**0.715195**
Concentration:	**17.87988**
Units of Internal Standard:	**ug/L**

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a(c - y)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**-0.00629**	
Value of B from plot:	**0.511**	
Value of C from plot:	**-0.0276**	
Area of unknown from quantitation report:	**293821**	
Area of IS from quantiation report:	**784848**	
Response ratio, y:	**0.374367**	
C - y:	**-0.40197**	
Root 1 - Computed amount ratio , X1:	**80.44567**	
Root 2 - Computed amount ratio , X2:	**0.794396**	use this solution
Concentration of IS, Cis:	**25.00**	
Concentration of analyte, Cx:	**19.86**	ug/L

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS6	Dataset:	050807		
Analyst1:	CMS	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	624	SOP:	MSV10	Rev:	9
Method:	5030B	SOP:	PAT01	Rev:	10
Maintenance Log ID:	19068				

Internal Standard: STD19123　Surrogate Standard: STD18866

CCV: STD19281　LCS: STD019260　MS/MSD: STD19260

Column 1 ID: RTX502.2　Column 2 ID: NA

Workgroups: WG239757;WG239858

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	6M65863	WG239757-01 BFB 50ng STD 8260	NA	1	1	STD19115	05/08/07 06:36
2	6M65864	WG239757-02 50ug/L STD 8260	NA	1	1	STD19156	05/08/07 07:07
3	6M65865	WG239757-02 50ug/L STD 8260	NA	1	1	STD19156	05/08/07 07:43
4	6M65866	SYSTEM BLANK	NA	1	1		05/08/07 08:15
5	6M65867	WG239757-02 0.30ug/L STD 8260	NA	1	1	STD19281	05/08/07 08:50
6	6M65868	WG239757-03 0.40ug/L STD 8260	NA	1	1	STD19281	05/08/07 09:23
7	6M65869	WG239757-04 1ug/L STD 8260	NA	1	1	STD19281	05/08/07 09:55
8	6M65870	WG239757-05 2ug/L STD 8260	NA	1	1	STD19281	05/08/07 10:26
9	6M65871	WG239757-06 5ug/L STD 8260	NA	1	1	STD19281	05/08/07 10:58
10	6M65872	WG239757-07 20ug/L STD 8260	NA	1	1	STD19281	05/08/07 11:31
11	6M65873	WG239757-08 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 12:03
12	6M65874	WG239757-09 100ug/L STD 8260	NA	1	1	STD19281	05/08/07 12:35
13	6M65875	WG239757-10 200ug/L STD 8260	NA	1	1	STD19281	05/08/07 13:07
14	6M65876	WG239757-11 300ug/L STD 8260	NA	1	1	STD19281	05/08/07 13:39
15	6M65877	SYSTEM BLANK	NA	1	1		05/08/07 14:11
16	6M65878	SYSTEM BLANK	NA	1	1		05/08/07 14:42
17	6M65879	WG239757-03 0.40ug/L STD 8260	NA	1	1	STD19281	05/08/07 15:14
18	6M65880	WG239757-04 1ug/L STD 8260	NA	1	1	STD19281	05/08/07 15:46
19	6M65881	WG239757-05 2ug/L STD 8260	NA	1	1	STD19281	05/08/07 16:28
20	6M65882	WG239757-12 20ug/L ALT SOURCE STD 8	NA	1	1	STD19260	05/08/07 17:21
21	6M65883	WG239857-01 BFB 50ng STD 8260	NA	1	1	STD19115	05/08/07 17:52
22	6M65884	WG239857-01 BFB 50ng STD 8260	NA	1	1	STD19115	05/08/07 18:16
23	6M65885	WG239857-02 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 18:47
24	6M65886	WG239858-01 VBLK0508 BLANK 8260	NA	1	1		05/08/07 19:19
25	6M65887	WG239858-01 VBLK0508 BLANK 8260	NA	1	1		05/08/07 19:51
26	6M65888	WG239858-02 20ug/L LCS STD 8260	NA	1	1	STD19260	05/08/07 20:23
27	6M65889	L0705002-06 B 2X 826-SPE	<2	1	2		05/08/07 20:56
28	6M65890	L0705002-10 B 826-SPE	<2	1	1		05/08/07 21:29
29	6M65891	L0705015-01 826-SPE	<2	1	1		05/08/07 22:01
30	6M65892	L0705015-07 826-SPE	<2	1	1		05/08/07 22:33
31	6M65893	L0705014-13 826-SPE	<2	1	1		05/08/07 23:06
32	6M65894	L0705014-05 826-SPE	<2	1	1		05/08/07 23:39
33	6M65895	L0705014-07 MS 826-SPE	<2	1	1	STD19260	05/09/07 00:12
34	6M65896	L0705014-08 MSD 826-SPE	<2	1	1	STD19260	05/09/07 00:45

Approved: May 11, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS6	Dataset:	050807		
Analyst1:	CMS	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	624	SOP:	MSV10	Rev:	9
Method:	5030B	SOP:	PAT01	Rev:	10
Maintenance Log ID:	19068				

Internal Standard:	STD19123	Surrogate Standard:	STD18866		
CCV:	STD19281	LCS:	STD019260	MS/MSD:	STD19260

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG239757;WG239858

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
35	6M65897	L0705014-01 826-SPE	<2	1	1		05/09/07 01:18

Comments

Seq.	Rerun	Dil.	Reason	Analytes
2	X		Check Standard Failure	
File ID: 6M65864				
	DNR			
3	X		Check Standard Failure	
File ID: 6M65865				
	DNR-RR CURVE			
6	X			
File ID: 6M65868				
	DNR			
7	X			
File ID: 6M65869				
	DNR			
8	X			
File ID: 6M65870				
	DNR			
21	X			
File ID: 6M65883				
	Tune failed/DNR			
24	X		Carry-over contamination	
File ID: 6M65886				
	DNR			

Approved: May 11, 2007

Page: 2 of 2

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS11 Dataset: 050807

Analyst1: CMS Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 624 SOP: MSV10 Rev: 9

Method: 5030B SOP: PAT01 Rev: 10

Maintenance Log ID: 19075

Internal Standard: STD18829 Surrogate Standard: STD19157

CCV: STD19281 LCS: STD19260 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG239761

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	11M42272	WG239761-01 BFB 50ng STD 8260	NA	1	1	STD19115	05/08/07 06:47
2	11M42273	WG239761-01 BFB 50ng STD 8260	NA	1	1	STD19115	05/08/07 07:02
3	11M42274	WG239761-02 50ug/L STD 8260	NA	1	1	STD19238	05/08/07 07:31
4	11M42275	SYSTEM BLANK	NA	1	1		05/08/07 08:02
5	11M42276	WG239761-02 0.30ug/L STD 8260	NA	1	1	STD19281	05/08/07 08:46
6	11M42277	WG239761-03 0.40ug/L STD 8260	NA	1	1	STD19281	05/08/07 09:17
7	11M42278	WG239761-04 1ug/L STD 8260	NA	1	1	STD19281	05/08/07 09:48
8	11M42279	WG239761-03 0.40ug/L STD 8260	NA	1	1	STD19281	05/08/07 10:19
9	11M42280	WG239761-05 2ug/L STD 8260	NA	1	1	STD19281	05/08/07 10:50
10	11M42281	WG239761-06 5ug/L STD 8260	NA	1	1	STD19281	05/08/07 11:21
11	11M42282	WG239761-07 20ug/L STD 8260	NA	1	1	STD19281	05/08/07 11:52
12	11M42283	WG239761-08 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 12:22
13	11M42284	WG239761-09 100ug/L STD 8260	NA	1	1	STD19281	05/08/07 12:53
14	11M42285	WG239761-10 200ug/L STD 8260	NA	1	1	STD19281	05/08/07 13:24
15	11M42286	SYSTEM BLANK	NA	1	1		05/08/07 13:55
16	11M42287	SYSTEM BLANK	NA	1	1		05/08/07 14:25
17	11M42288	WG239761-03 0.4ug/L STD 8260	NA	1	1	STD19281	05/08/07 15:05
18	11M42289	WG239761-11 20ug/L ALT SOURCE STD 8	NA	1	1	STD19260	05/08/07 15:55
19	11M42290	WG239850-01 BFB 50ug STD 8260	NA	1	1	STD19115	05/08/07 16:26
20	11M42291	WG239850-02 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 16:54
21	11M42292	WG239850-02 50ug/L STD 8260	NA	1	1	STD19281	05/08/07 17:26
22	11M42293	SYSTEM BLANK	NA	1	1		05/08/07 18:02
23	11M42294	SYSTEM BLANK	NA	1	1		05/08/07 18:33
24	11M42295	SYSTEM BLANK	NA	1	1		05/08/07 19:04
25	11M42296	SYSTEM BLANK	NA	1	1		05/08/07 19:35
26	11M42297	SYSTEM BLANK	NA	1	1		05/08/07 20:06
27	11M42298	SYSTEM BLANK	NA	1	1		05/08/07 20:37
28	11M42299	SYSTEM BLANK	NA	1	1		05/08/07 21:08
29	11M42300	SYSTEM BLANK	NA	1	1		05/08/07 21:39
30	11M42301	SYSTEM BLANK	NA	1	1		05/08/07 22:10
31	11M42302	SYSTEM BLANK	NA	1	1		05/08/07 22:40
32	11M42303	SYSTEM BLANK	NA	1	1		05/08/07 23:11
33	11M42304	SYSTEM BLANK	NA	1	1		05/08/07 23:42

Approved: May 11, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS11	Dataset:	050807		
Analyst1:	CMS	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	624	SOP:	MSV10	Rev:	9
Method:	5030B	SOP:	PAT01	Rev:	10
Maintenance Log ID:	19075				

Internal Standard:	STD18829	Surrogate Standard:	STD19157		
CCV:	STD19281	LCS:	STD19260	MS/MSD:	NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG239761

Comments

Seq.	Rerun	Dil.	Reason	Analytes
1	X			
File ID:	11M42272			
	Tune failed/DNR			
3	X		Check Standard Failure	
File ID:	11M42274			
	DNR-RR CURVE			
6	X			
File ID:	11M42277			
	DNR			
8	X			
File ID:	11M42279			
	DNR			
20	X		Check Standard Failure	
File ID:	11M42291			
	IS TOO HIGH			
21	X		Check Standard Failure	
File ID:	11M42292			
	IS TOO HIGH			

Approved: May 11, 2007

Page: 2 of 2

KEMRON Environmental Services

Instrument Run Log

Instrument:	HPMS11	Dataset:	061007		
Analyst1:	MES	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	10
Method:	5030B	SOP:	PAT01	Rev:	10

Maintenance Log ID: 19503

Internal Standard: STD19421 Surrogate Standard: STD19492

CCV: STD19851 LCS: STD19731 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242208

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	11M43066	WG242207-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/10/07 12:36
2	11M43067	WG242207-02 50ug/L STD 8260	NA	1	1	STD19851	06/10/07 12:59
3	11M43068	WG242208-01 VBLK0610 BLANK 8260	NA	1	1		06/10/07 13:30
4	11M43069	WG242208-01 VBLK0610 BLANK 8260	NA	1	1		06/10/07 14:01
5	11M43070	WG242208-02 20ug/L LCS 8260	NA	1	1	STD19731	06/10/07 14:33
6	11M43071	WG242208-03 20ug/L LCSDUP 8260	NA	1	1	STD19731	06/10/07 15:03
7	11M43072	L0706073-15 B 10X 826-SPE	<2	1	10		06/10/07 15:34
8	11M43073	L0706204-04 A 826-SPE	<2	1	1		06/10/07 16:05
9	11M43074	L0706204-03 A 826-SPE	<2	1	1		06/10/07 16:36
10	11M43075	L0706094-11 A 286-SPE1	<2	1	1		06/10/07 17:07
11	11M43076	L0706136-13 A 826-SPE1	<2	1	1		06/10/07 17:39
12	11M43077	L0706136-01 A 826-SPE1	<2	1	1		06/10/07 18:10
13	11M43078	L0706221-04 A 826-SPE	<2	1	1		06/10/07 18:41
14	11M43079	L0706094-01 A 10X 826-SPE1	<2	1	10		06/10/07 19:12
15	11M43080	L0706094-03 A 826-SPE1	<2	1	1		06/10/07 19:43
16	11M43081	L0706094-05 A 826-SPE1	<2	1	1		06/10/07 20:13
17	11M43082	L0706094-07 A 826-SPE1	<2	1	1		06/10/07 20:44
18	11M43083	L0706094-09 A 10X 826-SPE1	<2	1	10		06/10/07 21:15
19	11M43084	L0706194-01 A 826-SPE	<2	1	1		06/10/07 21:46
20	11M43085	L0706194-02 A 826-SPE	<2	1	1		06/10/07 22:18
21	11M43086	L0706194-03 A 826-SPE	<2	1	1		06/10/07 22:49
22	11M43087	L0706221-01 A 50X 826-SPE	<2	1	50		06/10/07 23:20
23	11M43088	L0706221-02 A 5X 826-SPE	<2	1	5		06/10/07 23:51
24	11M43089	L0706221-03 A 826-SPE	<2	1	1		06/11/07 00:22
25	11M43090	WG242208-04 624 BLANK	NA	2	1		06/11/07 00:54
26	11M43091	L0706166-04 A 624	NA	2	1		06/11/07 01:24
27	11M43092	SYSTEM CHECK	NA	2	1		06/11/07 01:55

Comments

Seq.	Rerun	Dil.	Reason	Analytes
15	X	5		Cis-1,2-dce
File ID: 11M43080				

Approved: June 14, 2007

Page: 1

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS11 Dataset: 061007

Analyst1: MES Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 5030B SOP: PAT01 Rev: 10

Maintenance Log ID: 19503

Internal Standard: STD19421 Surrogate Standard: STD19492

CCV: STD19851 LCS: STD19731 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242208

Comments

Seq.	Rerun	Dil.	Reason	Analytes
16	X		Carry-over contamination	
File ID: 11M43081				
18	X	1	Analyzed too dilute	
File ID: 11M43083				
19	X	200	Over Calibration Range	Vinyl chloride, cis-1,2-dce, tce
File ID: 11M43084				
20	X		Carry-over contamination	
File ID: 11M43085				
21	X		Carry-over contamination	
File ID: 11M43086				
22	X		Internal standard failure	
File ID: 11M43087				
23	X	1	Analyzed too dilute	
File ID: 11M43088				
24	X		Internal standard failure	
File ID: 11M43089				
25	X		Internal standard failure	
File ID: 11M43090				
26	X		Internal standard failure	
File ID: 11M43091				

Approved: June 14, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS6 Dataset: 061107

Analyst1: CMS Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 5030B SOP: PAT01 Rev: 10

Maintenance Log ID: 19530

Internal Standard: STD19921 Surrogate Standard: STD19922

CCV: STD19851 LCS: STD19731 MS/MSD: STD19943

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242225

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	6M66608	WG242224-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 07:31
2	6M66609	WG242224-02 50ug/L STD 8260	NA	1	1	STD19851	06/11/07 08:07
3	6M66610	WG242225-01 VBLK0611 BLANK 8260	NA	1	1		06/11/07 08:40
4	6M66611	WG242225-02 20ug/L LCS STD 8260	NA	1	1	STD19731	06/11/07 09:13
5	6M66612	L0706027-04 B 10X 826-TC	NA	17	10		06/11/07 09:45
6	6M66613	L0706126-02 B 200X 826-SPE D1	<2	1	200		06/11/07 10:18
7	6M66614	L0706126-01 B 20X 826-SPE	<2	1	20		06/11/07 10:50
8	6M66615	L0706185-01 B 826-SPE	<2	1	1		06/11/07 11:22
9	6M66616	L0706079-04 A 826-SPE	<2	1	1		06/11/07 11:54
10	6M66617	L0706079-05 A 826-SPE	<2	1	1		06/11/07 12:26
11	6M66618	L0706105-01 A 826-SPE	<2	1	1		06/11/07 12:58
12	6M66619	L0706202-16 A 8260/826-LS	<2	1	1		06/11/07 13:31
13	6M66620	L0706202-17 A 8260/826-LS	<2	1	1		06/11/07 14:03
14	6M66621	L0706103-02 A 826-LOW	<2	1	1		06/11/07 14:35
15	6M66622	L0706103-03 A 826-LOW	<2	1	1		06/11/07 15:07
16	6M66623	WG242225-03 L0706103-04 A 826-LOW	<2	1	1		06/11/07 15:39
17	6M66624	WG242225-04 L0706103-05 MS A 826-LO	<2	1	1	STD19943	06/11/07 16:11
18	6M66625	WG242225-05 L0706103-06 MSD A 826-L	<2	1	1	STD19943	06/11/07 16:43
19	6M66626	L0706221-03 B 826-SPE	<2	1	1		06/11/07 17:15
20	6M66627	L0706221-02 B 826-SPE	<2	1	1		06/11/07 17:47
21	6M66628	L0706221-01 B 50X 826-SPE	<2	1	50		06/11/07 18:19
22	6M66629	L0706194-02 B 826-SPE	<2	1	1		06/11/07 18:51
23	6M66630	L0706194-03 B 826-SPE	<2	1	1		06/11/07 19:23
24	6M66631	SYSTEM CHECK	NA	1	1		06/11/07 19:56
25	6M66632	SYSTEM CHECK	NA	1	1		06/11/07 20:28

Comments

Seq.	Rerun	Dil.	Reason	Analytes
11	X	10	Over Calibration Range	Acetone
File ID: 6M66618				

Approved: June 14, 2007

Janice Schimmel

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS11 Dataset: 061107

Analyst1: CMS Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 5030B SOP: PAT01 Rev: 10

Maintenance Log ID: 19520

Internal Standard: STD19421 Surrogate Standard: STD19492

CCV: STD19920 LCS: STD19943 MS/MSD: STD19943

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242252

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	11M43094	SYSTEM CHECK	NA	1	1		06/11/07 09:22
2	11M43095	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 10:11
3	11M43096	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 11:27
4	11M43097	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 11:39
5	11M43098	WG242250-01 BFB 50ng STD 8260	NA	1	1	STD19781	06/11/07 11:55
6	11M43099	WG242250-02 50ug/L STD 8260	NA	1	1	STD19920	06/11/07 12:22
7	11M43100	WG242252-01 VBLK0611 BLANK 8260	NA	1	1		06/11/07 12:53
8	11M43101	WG242252-01 VBLK0611 BLANK 8260	NA	1	1		06/11/07 13:24
9	11M43102	WG242252-02 20ug/L LCS STD 8260	NA	1	1	STD19943	06/11/07 13:55
10	11M43103	L0706094-03 B 5X 826-SPE1	<2	1	5		06/11/07 14:26
11	11M43104	L0706148-03 B 50X 826-SPE	<2	1	50		06/11/07 14:57
12	11M43105	L0706194-01 B 200X 826-SPE	<2	1	200		06/11/07 15:28
13	11M43106	L0706176-02 A 826-LOW	<2	1	1		06/11/07 15:59
14	11M43107	L0706175-02 A 826-LOW	<2	1	1		06/11/07 16:30
15	11M43108	L0706175-04 A 826-LOW	<2	1	1		06/11/07 17:01
16	11M43109	L0706175-05 MS A 826-LOW	<2	1	1	STD19943	06/11/07 17:32
17	11M43110	L0706175-06 MSD A 826-LOW	<2	1	1	STD19943	06/11/07 18:03
18	11M43111	L0706175-03 A 826-LOW	<2	1	1		06/11/07 18:34
19	11M43112	L0706175-07 A 826-LOW	<2	1	1		06/11/07 19:05
20	11M43113	L0706175-08 A 826-LOW	<2	1	1		06/11/07 19:36
21	11M43114	L0706175-09 A 826-LOW	<2	1	1		06/11/07 20:07
22	11M43115	L0706175-10 A 826-LOW	<2	1	1		06/11/07 20:38
23	11M43116	L0706176-03 A 826-LOW	<2	1	1		06/11/07 21:09
24	11M43117	L0706176-04 A 826-LOW	<2	1	1		06/11/07 21:40
25	11M43118	L0706176-05 A 826-LOW	<2	1	1		06/11/07 22:10
26	11M43119	L0706176-06 A 826-LOW	<2	1	1		06/11/07 22:41
27	11M43120	L0706176-07 A 826-LOW	<2	1	1		06/11/07 23:12
28	11M43121	L0706145-01 A 826-LOW	<2	1	1		06/11/07 23:43
29	11M43122	SYSTEM BLANK	NA	1	1		06/12/07 00:14
30	11M43123	SYSTEM CHECK	NA	1	1		06/12/07 00:45
31	11M43124	SYSTEM CHECK	NA	1	1		06/12/07 07:25

Comments

Approved: June 14, 2007

Crystal Stephens

KEMRON Environmental Services

Instrument Run Log

Instrument: HPMS11 Dataset: 061107

Analyst1: CMS Analyst2: NA

Method: 8260B SOP: MSV01 Rev: 10

Method: 5030B SOP: PAT01 Rev: 10

Maintenance Log ID: 19520

Internal Standard: STD19421 Surrogate Standard: STD19492

CCV: STD19920 LCS: STD19943 MS/MSD: STD19943

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG242252

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7	X		Blank Failure	
File ID: 11M43100				
19	X	10	Over Calibration Range	Pce, cis-1,2-DCE
File ID: 11M43112				
21	X	10	Over Calibration Range	Pce
File ID: 11M43114				
22	X	10	Over Calibration Range	pce
File ID: 11M43115				
25	X	10	Over Calibration Range	tce
File ID: 11M43118				
26	X	10	Over Calibration Range	cis-,1,2-dce, tce
File ID: 11M43119				
27	X	20	Over Calibration Range	Cis-1,2-dce, tce, pce
File ID: 11M43120				
28	X		Internal standard failure	
File ID: 11M43121				

Approved: June 14, 2007

Page: 2

KEMRON Environmental Services
Data Checklist

Date: 08-MAY-2007
Analyst: CMS
Analyst: NA
Method: 8260B/624
Instrument: HPMS6
Curve Workgroup: NA
Runlog ID: 16079
Analytical Workgroups: WG239757;WG239858

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	NA
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	CMS
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
10-MAY-2007

Secondary Reviewer:
11-MAY-2007

Generated: MAY-11-2007 13:00:04

KEMRON Environmental Services
Data Checklist

Date: 08-MAY-2007
Analyst: CMS
Analyst: NA
Method: 8260B/624
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 16086
Analytical Workgroups: WG239761

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	NA
Recoveries	NA
Surrogates	NA
MS/MSD/Duplicates	NA
Samples	NA
TCL Hits	NA
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	X
Case Narrative	NA
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	CMS
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
10-MAY-2007
Crystal Stephens

Secondary Reviewer:
11-MAY-2007

Generated: MAY-11-2007 12:46:35

KEMRON Environmental Services
Data Checklist

Date: 10-JUN-2007
Analyst: MES
Analyst: NA
Method: 8260B
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 16584
Analytical Workgroups: WG242208

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	X
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	X
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JLS
Secondary Reviewer	CMS
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
12-JUN-2007
Janice Schimmel

Secondary Reviewer:
14-JUN-2007
Crystal Stephens

Generated: JUN-14-2007 12:14:46

KEMRON Environmental Services
Data Checklist

Date: 11-JUN-2007
Analyst: CMS
Analyst: NA
Method: 8260B
Instrument: HPMS6
Curve Workgroup: NA
Runlog ID: 16615
Analytical Workgroups: WG242225

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	CMS
Secondary Reviewer	JLS
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
13-JUN-2007
Crystal Stephens

Secondary Reviewer:
14-JUN-2007
Janice Schimmel

Generated: JUN-14-2007 14:20:03

KEMRON Environmental Services
Data Checklist

Date: 11-JUN-2007
Analyst: CMS
Analyst: NA
Method: 8260B
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 16604
Analytical Workgroups: WG242252

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	X
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	X
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JLS
Secondary Reviewer	CMS
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:	Secondary Reviewer:
13-JUN-2007	14-JUN-2007
Janice Schimmel	Crystal Stephens

Generated: JUN-14-2007 11:45:17

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B   AAB#: WG242252
Login Number: L0706194

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW16	06/07/07	06/08/07	06/11/07	14	4.28	06/11/07	14	4.28	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790095
Report generated 06/15/2007 09:31

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B AAB#: WG242225

Login Number: L0706194

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW34	06/07/07	06/08/07	06/11/07	14	4.22	06/11/07	14	4.22	
16WW22	06/07/07	06/08/07	06/11/07	14	4.29	06/11/07	14	4.29	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790095
Report generated 06/15/2007 09:31

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B

AAB#: WG242208

Login Number: L0706194

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW16	06/07/07	06/08/07	06/10/07	14	3.54	06/10/07	14	3.54	

* EXT = SEE PROJECT QAPP REQUIREMENTS

*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790095
Report generated 06/15/2007 09:31

SURROGATE STANDARDS

Login Number: L0706194
Instrument Id: HPMS11
Workgroup (AAB#): WG242208

Method: 8260
CAL ID: HPMS11-08-MAY-07
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L0706194-01	1.00	01	119	113	99.6	92.6
WG242208-01	1.00	01	101	103	96.0	95.8
WG242208-02	1.00	01	102	104	99.2	98.4
WG242208-03	1.00	01	100	104	95.8	95.7

Surrogates	Surrogate Limits
1 - 1,2-Dichloroethane-d4	80 - 120
2 - Dibromofluoromethane	86 - 118
3 - p-Bromofluorobenzene	86 - 115
4 - Toluene-d8	88 - 110

Underline = Result out of surrogate limits

DL = surrogate diluted out

ND = surrogate not detected

SURROGATE STANDARDS

Login Number: L0706194

Instrument Id: HPMS11

Workgroup (AAB#): WG242252

Method: 8260

CAL ID: HPMS11 - 08-MAY-07

Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L0706194-01	200	DL01	107	108	97.5	100
WG242252-01	1.00	01	105	104	96.4	97.4
WG242252-02	1.00	01	102	104	96.8	98.5

	Surrogates	Surrogate Limits		
1	- 1,2-Dichloroethane-d4	80	-	120
2	- Dibromofluoromethane	86	-	118
3	- p-Bromofluorobenzene	86	-	115
4	- Toluene-d8	88	-	110

Underline = Result out of surrogate limits

DL = surrogate diluted out

ND = surrogate not detected

00085087

SURROGATE STANDARDS

Login Number: L0706194
Instrument Id: HPMS6
Workgroup (AAB#): WG242225

Method: 8260
CAL ID: HPMS6 - 08-MAY-07
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L0706194-02	1.00	01	112	107	100	96.1
L0706194-03	1.00	01	115	106	101	96.0
WG242225-01	1.00	01	99.6	101	94.7	94.9
WG242225-02	1.00	01	97.9	99.7	94.5	92.2

Surrogates	Surrogate Limits
1 - 1,2-Dichloroethane-d4	80 - 120
2 - Dibromofluoromethane	86 - 118
3 - p-Bromofluorobenzene	86 - 115
4 - Toluene-d8	88 - 110

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

KEMRON FORMS - Modified 09/27/2006
Version 1.5 PDF File ID: 790101
Report generated 06/15/2007 09:31

METHOD BLANK SUMMARY

Login Number: L0706194
Blank File ID: 11M43069
Prep Date: 06/10/07 14:01
Analyzed Date: 06/10/07 14:01
Analyst: MES

Work Group: WG242208
Blank Sample ID: WG242208-01
Instrument ID: HPMS11
Method: 8260B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242208-02	11M43070	06/10/07 14:33	01
LCS2	WG242208-03	11M43071	06/10/07 15:03	01
16WW16	L0706194-01	11M43084	06/10/07 21:46	01

METHOD BLANK SUMMARY

Login Number: L0706194
Blank File ID: 11M43101
Prep Date: 06/11/07 13:24
Analyzed Date: 06/11/07 13:24
Analyst: CMS

Work Group: WG242252
Blank Sample ID: WG242252-01
Instrument ID: HPMS11
Method: 8260B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242252-02	11M43102	06/11/07 13:55	01
16WW16	L0706194-01	11M43105	06/11/07 15:28	DL01

METHOD BLANK SUMMARY

Login Number: L0706194
Work Group: WG242225
Blank File ID: 6M66610
Blank Sample ID: WG242225-01
Prep Date: 06/11/07 08:40
Instrument ID: HPMS6
Analyzed Date: 06/11/07 08:40
Method: 8260B
Analyst: CMS

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242225-02	6M66611	06/11/07 09:13	01
16WW22	L0706194-02	6M66629	06/11/07 18:51	01
16WW34	L0706194-03	6M66630	06/11/07 19:23	01

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 788583
Report generated 06/15/2007 09:31

Login Number: L0706194 Prep Date: 06/10/07 14:01 Sample ID: WG242208-01
Instrument ID: HPMS11 Run Date: 06/10/07 14:01 Prep Method: 5030B
File ID: 11M43069 Analyst: MES Method: 8260B
Workgroup (AAB#): WG242208 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS11 - 08-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.250	5.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.125	5.00	0.125	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.250	10.0	0.250	1	U
1,1,2-Trichloroethane	0.250	5.00	0.250	1	U
1,1-Dichloroethane	0.125	5.00	0.125	1	U
1,1-Dichloroethene	0.500	5.00	0.500	1	U
1,2,4-Trichlorobenzene	0.200	5.00	0.200	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	5.00	0.250	1	U
1,2-Dichlorobenzene	0.125	5.00	0.125	1	U
1,2-Dichloroethane	0.250	5.00	0.250	1	U
cis-1,2-Dichloroethene	0.250	10.0	0.250	1	U
trans-1,2-Dichloroethene	0.250	5.00	0.250	1	U
1,2-Dichloropropane	0.200	5.00	0.200	1	U
1,3-Dichlorobenzene	0.250	5.00	0.250	1	U
1,4-Dichlorobenzene	0.125	5.00	0.125	1	U
2-Butanone	2.50	10.0	2.50	1	U
2-Hexanone	2.50	10.0	2.50	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	5.00	0.125	1	U
Bromodichloromethane	0.250	5.00	0.250	1	U
Bromoform	0.500	5.00	0.500	1	U
Bromomethane	0.500	10.0	0.500	1	U
Carbon disulfide	0.500	5.00	0.500	1	U
Carbon tetrachloride	0.250	5.00	0.250	1	U
Chlorobenzene	0.125	5.00	0.125	1	U
Chloroethane	0.500	10.0	0.500	1	U
Chloroform	0.125	5.00	0.125	1	U
Chloromethane	0.250	10.0	0.250	1	U
cis-1,3-Dichloropropene	0.250	5.00	0.250	1	U
Cyclohexane	0.250	10.0	0.250	1	U
Dibromochloromethane	0.250	5.00	0.250	1	U
Dichlorodifluoromethane	0.250	10.0	0.250	1	U
Ethyl benzene	0.250	5.00	0.250	1	U
Isopropylbenzene	0.250	5.00	0.250	1	U
Methyl acetate	0.250	10.0	0.250	1	U
Methyl tert-butyl ether	0.500	5.00	0.500	1	U
Methylcyclohexane	0.250	10.0	0.250	1	U
Methylene chloride	0.250	5.00	0.250	1	U
Styrene	0.125	5.00	0.125	1	U
Tetrachloroethene	0.250	5.00	0.250	1	U

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 788584
Report generated 06/15/2007 09:31

METHOD BLANK REPORT

Login Number: L0706194 Prep Date: 06/10/07 14:01 Sample ID: WG242208-01
Instrument ID: HPMS11 Run Date: 06/10/07 14:01 Prep Method: 5030B
File ID: 11M43069 Analyst: MES Method: 8260B
Workgroup (AAB#): WG242208 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS11 - 08-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Toluene	0.250	5.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	5.00	0.500	1	U
Trichloroethene	0.250	5.00	0.250	1	U
Trichlorofluoromethane	0.250	10.0	0.250	1	U
Vinyl chloride	0.250	10.0	0.250	1	U
Xylenes, Total	0.500	5.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	101	80 - 120	PASS
Dibromofluoromethane	103	86 - 118	PASS
p-Bromofluorobenzene	96.0	86 - 115	PASS
Toluene-d8	95.8	88 - 110	PASS

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 788584
Report generated 06/15/2007 09:31

METHOD BLANK REPORT

Login Number: L0706194 | Prep Date: 06/11/07 13:24 | Sample ID: WG242252-01
Instrument ID: HPMS11 | Run Date: 06/11/07 13:24 | Prep Method: 5030B
File ID: 11M43101 | Analyst: CMS | Method: 8260B
Workgroup (AAB#): WG242252 | Matrix: Water | Units: ug/L
Contract #: DACA56-94-D-0020 | Cal ID: HPMS11 - 08-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.250	5.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.125	5.00	0.125	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.250	10.0	0.250	1	U
1,1,2-Trichloroethane	0.250	5.00	0.250	1	U
1,1-Dichloroethane	0.125	5.00	0.125	1	U
1,1-Dichloroethene	0.500	5.00	0.500	1	U
1,2,4-Trichlorobenzene	0.200	5.00	0.200	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	5.00	0.250	1	U
1,2-Dichlorobenzene	0.125	5.00	0.125	1	U
1,2-Dichloroethane	0.250	5.00	0.250	1	U
cis-1,2-Dichloroethene	0.250	10.0	0.250	1	U
trans-1,2-Dichloroethene	0.250	5.00	0.250	1	U
1,2-Dichloropropane	0.200	5.00	0.200	1	U
1,3-Dichlorobenzene	0.250	5.00	0.250	1	U
1,4-Dichlorobenzene	0.125	5.00	0.125	1	U
2-Butanone	2.50	10.0	2.50	1	U
2-Hexanone	2.50	10.0	2.50	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	5.00	0.125	1	U
Bromodichloromethane	0.250	5.00	0.250	1	U
Bromoform	0.500	5.00	0.500	1	U
Bromomethane	0.500	10.0	0.500	1	U
Carbon disulfide	0.500	5.00	0.500	1	U
Carbon tetrachloride	0.250	5.00	0.250	1	U
Chlorobenzene	0.125	5.00	0.125	1	U
Chloroethane	0.500	10.0	0.500	1	U
Chloroform	0.125	5.00	0.125	1	U
Chloromethane	0.250	10.0	0.250	1	U
cis-1,3-Dichloropropene	0.250	5.00	0.250	1	U
Cyclohexane	0.250	10.0	0.250	1	U
Dibromochloromethane	0.250	5.00	0.250	1	U
Dichlorodifluoromethane	0.250	10.0	0.250	1	U
Ethyl benzene	0.250	5.00	0.250	1	U
Isopropylbenzene	0.250	5.00	0.250	1	U
Methyl acetate	0.250	10.0	0.250	1	U
Methyl tert-butyl ether	0.500	5.00	0.500	1	U
Methylcyclohexane	0.250	10.0	0.250	1	U
Methylene chloride	0.250	5.00	0.250	1	U
Styrene	0.125	5.00	0.125	1	U
Tetrachloroethene	0.250	5.00	0.250	1	U

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 788584
Report generated 06/15/2007 09:31

Login Number:	L0706194	Prep Date:	06/11/07 13:24	Sample ID:	WG242252-01
Instrument ID:	HPMS11	Run Date:	06/11/07 13:24	Prep Method:	5030B
File ID:	11M43101	Analyst:	CMS	Method:	8260B
Workgroup (AAB#):	WG242252	Matrix:	Water	Units:	ug/L
Contract #:	DACA56-94-D-0020	Cal ID:	HPMS11 - 08-MAY-07		

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Toluene	0.250	5.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	5.00	0.500	1	U
Trichloroethene	0.250	5.00	0.250	1	U
Trichlorofluoromethane	0.250	10.0	0.250	1	U
Vinyl chloride	0.250	10.0	0.250	1	U
Xylenes, Total	0.500	5.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	105	80 - 120	PASS
Dibromofluoromethane	104	86 - 118	PASS
p-Bromofluorobenzene	96.4	86 - 115	PASS
Toluene-d8	97.4	88 - 110	PASS

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 788584
Report generated 06/15/2007 09:31

Login Number: L0706194 Prep Date: 06/11/07 08:40 Sample ID: WG242225-01
Instrument ID: HPMS6 Run Date: 06/11/07 08:40 Prep Method: 5030B
File ID: 6M66610 Analyst: CMS Method: 8260B
Workgroup (AAB#): WG242225 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS6 - 08-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.250	5.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.125	5.00	0.125	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.250	10.0	0.250	1	U
1,1,2-Trichloroethane	0.250	5.00	0.250	1	U
1,1-Dichloroethane	0.125	5.00	0.125	1	U
1,1-Dichloroethene	0.500	5.00	0.500	1	U
1,2,4-Trichlorobenzene	0.200	5.00	0.200	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	5.00	0.250	1	U
1,2-Dichlorobenzene	0.125	5.00	0.125	1	U
1,2-Dichloroethane	0.250	5.00	0.250	1	U
cis-1,2-Dichloroethene	0.250	10.0	0.250	1	U
trans-1,2-Dichloroethene	0.250	5.00	0.250	1	U
1,2-Dichloropropane	0.200	5.00	0.200	1	U
1,3-Dichlorobenzene	0.250	5.00	0.250	1	U
1,4-Dichlorobenzene	0.125	5.00	0.125	1	U
2-Butanone	2.50	10.0	2.50	1	U
2-Hexanone	2.50	10.0	2.50	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	5.00	0.125	1	U
Bromodichloromethane	0.250	5.00	0.250	1	U
Bromoform	0.500	5.00	0.500	1	U
Bromomethane	0.500	10.0	0.500	1	U
Carbon disulfide	0.500	5.00	0.500	1	U
Carbon tetrachloride	0.250	5.00	0.250	1	U
Chlorobenzene	0.125	5.00	0.125	1	U
Chloroethane	0.500	10.0	0.500	1	U
Chloroform	0.125	5.00	0.125	1	U
Chloromethane	0.250	10.0	0.250	1	U
cis-1,3-Dichloropropene	0.250	5.00	0.250	1	U
Cyclohexane	0.250	10.0	0.250	1	U
Dibromochloromethane	0.250	5.00	0.250	1	U
Dichlorodifluoromethane	0.250	10.0	0.250	1	U
Ethyl benzene	0.250	5.00	0.250	1	U
Isopropylbenzene	0.250	5.00	0.250	1	U
Methyl acetate	0.250	10.0	0.250	1	U
Methyl tert-butyl ether	0.500	5.00	0.500	1	U
Methylcyclohexane	0.250	10.0	0.250	1	U
Methylene chloride	0.250	5.00	0.250	1	U
Styrene	0.125	5.00	0.125	1	U
Tetrachloroethene	0.250	5.00	0.250	1	U

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 788584
Report generated 06/15/2007 09:31

METHOD BLANK REPORT

00085096

Login Number: L0706194 Prep Date: 06/11/07 08:40 Sample ID: WG242225-01
Instrument ID: HPMS6 Run Date: 06/11/07 08:40 Prep Method: 5030B
File ID: 6M66610 Analyst: CMS Method: 8260B
Workgroup (AAB#): WG242225 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS6 - 08-MAY-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Toluene	0.250	5.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	5.00	0.500	1	U
Trichloroethene	0.250	5.00	0.250	1	U
Trichlorofluoromethane	0.250	10.0	0.250	1	U
Vinyl chloride	0.250	10.0	0.250	1	U
Xylenes, Total	0.500	5.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	99.6	80 - 120	PASS
Dibromofluoromethane	101	86 - 118	PASS
p-Bromofluorobenzene	94.7	86 - 115	PASS
Toluene-d8	94.9	88 - 110	PASS

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

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Version 1.5 PDF File ID: 788584
Report generated 06/15/2007 09:31

00085097

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194
Run Date: 06/11/2007
Sample ID: WG242252-02
Instrument ID: HPMS11
Run Time: 13:55
Prep Method: 5030B
File ID: 11M43102
Analyst: CMS
Method: 8260B
Workgroup (AAB#): WG242252
Matrix: Water
Units: ug/L
Contract #: DACA56-94-D-0020
Cal ID: HPMS11 - 08-MAY-07

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,1,1-Trichloroethane	20.0	25.1	125	80 - 134	
1,1,2,2-Tetrachloroethane	20.0	18.0	90.0	79 - 125	
1,1,2-Trichloro-1,2,2-Trifluoroethane	20.0	22.2	111	80 - 130	
1,1,2-Trichloroethane	20.0	20.3	102	80 - 125	
1,1-Dichloroethane	20.0	19.9	99.4	80 - 125	
1,1-Dichloroethene	20.0	18.6	93.1	80 - 132	
1,2,4-Trichlorobenzene	20.0	20.6	103	65 - 135	
1,2-Dibromo-3-chloropropane	20.0	18.9	94.5	50 - 130	
1,2-Dibromoethane	20.0	21.1	105	80 - 125	
1,2-Dichlorobenzene	20.0	19.1	95.4	80 - 125	
1,2-Dichloroethane	20.0	21.9	110	80 - 129	
cis-1,2-Dichloroethene	20.0	20.1	101	70 - 125	
trans-1,2-Dichloroethene	20.0	20.0	100	80 - 127	
1,2-Dichloropropane	20.0	19.0	94.8	80 - 120	
1,3-Dichlorobenzene	20.0	19.3	96.5	80 - 120	
1,4-Dichlorobenzene	20.0	18.7	93.4	80 - 120	
2-Butanone	20.0	14.7	73.6	30 - 150	
2-Hexanone	20.0	15.6	77.8	55 - 130	
4-Methyl-2-pentanone	20.0	17.8	88.8	64 - 140	
Acetone	20.0	15.1	75.6	40 - 142	
Benzene	20.0	18.7	93.7	80 - 121	
Bromodichloromethane	20.0	25.0	125	80 - 131	
Bromoform	20.0	22.4	112	70 - 130	
Bromomethane	20.0	21.6	108	30 - 145	
Carbon disulfide	20.0	19.1	95.6	58 - 138	
Carbon tetrachloride	20.0	24.2	121	65 - 140	
Chlorobenzene	20.0	19.6	98.1	80 - 120	
Chloroethane	20.0	19.0	95.2	60 - 135	
Chloroform	20.0	22.6	113	80 - 125	
Chloromethane	20.0	19.3	96.4	40 - 125	
cis-1,3-Dichloropropene	20.0	22.0	110	70 - 130	
Cyclohexane	20.0	19.6	98.2	80 - 130	
Dibromochloromethane	20.0	21.4	107	60 - 135	
Dichlorodifluoromethane	20.0	23.4	117	50 - 133	
Ethyl benzene	20.0	19.9	99.6	80 - 122	
Isopropylbenzene	20.0	19.6	98.1	80 - 122	
Methyl acetate	20.0	16.7	83.7	80 - 130	
Methyl tert-butyl ether	20.0	23.4	117	65 - 125	
Methylcyclohexane	20.0	22.5	113	80 - 130	
Methylene chloride	20.0	17.4	86.8	80 - 123	
Styrene	20.0	20.1	101	80 - 123	

KEMRON FORMS - Modified 12/15/2006
Version 1.5 PDF File ID: 789711
Report generated 06/13/2007 13:37

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Run Date: 06/11/2007 Sample ID: WG242252-02
Instrument ID: HPMS11 Run Time: 13:55 Prep Method: 5030B
File ID: 11M43102 Analyst: CMS Method: 8260B
Workgroup (AAB#): WG242252 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS11 - 08-MAY-07

Analytes	Expected	Found	% Rec	LCS Limits	Q
Tetrachloroethene	20.0	21.9	109	80 - 124	
Toluene	20.0	19.2	95.8	80 - 124	
trans-1,3-Dichloropropene	20.0	21.2	106	80 - 130	
Trichloroethene	20.0	20.8	104	80 - 122	
Trichlorofluoromethane	20.0	20.8	104	62 - 151	
Vinyl chloride	20.0	23.6	118	65 - 140	
Xylenes, Total	60.0	59.5	99.2	80 - 121	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	102	80 - 120	PASS
Dibromofluoromethane	104	86 - 118	PASS
p-Bromofluorobenzene	96.8	86 - 115	PASS
Toluene-d8	98.5	88 - 110	PASS

* FAILS %REC LIMIT

KEMRON FORMS - Modified 12/15/2006
Version 1.5 PDF File ID: 789711
Report generated 06/13/2007 13:37

00085099

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194	Run Date: 06/11/2007	Sample ID: WG242225-02
Instrument ID: HPMS6	Run Time: 09:13	Prep Method: 5030B
File ID: 6M66611	Analyst: CMS	Method: 8260B
Workgroup (AAB#): WG242225	Matrix: Water	Units: ug/L
Contract #: DACA56-94-D-0020	Cal ID: HPMS6 - 08-MAY-07	

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,1,1-Trichloroethane	20.0	22.3	111	80 - 134	
1,1,2,2-Tetrachloroethane	20.0	21.5	108	79 - 125	
1,1,2-Trichloro-1,2,2-Trifluoroethane	20.0	21.5	108	80 - 130	
1,1,2-Trichloroethane	20.0	20.5	103	80 - 125	
1,1-Dichloroethane	20.0	19.3	96.7	80 - 125	
1,1-Dichloroethene	20.0	18.9	94.7	80 - 132	
1,2,4-Trichlorobenzene	20.0	20.1	101	65 - 135	
1,2-Dibromo-3-chloropropane	20.0	24.4	122	50 - 130	
1,2-Dibromoethane	20.0	21.7	108	80 - 125	
1,2-Dichlorobenzene	20.0	19.7	98.3	80 - 125	
1,2-Dichloroethane	20.0	21.9	109	80 - 129	
cis-1,2-Dichloroethene	20.0	19.6	97.8	70 - 125	
trans-1,2-Dichloroethene	20.0	18.3	91.7	80 - 127	
1,2-Dichloropropane	20.0	19.2	95.8	80 - 120	
1,3-Dichlorobenzene	20.0	19.2	95.9	80 - 120	
1,4-Dichlorobenzene	20.0	18.5	92.5	80 - 120	
2-Butanone	20.0	26.5	132	30 - 150	
2-Hexanone	20.0	22.3	112	55 - 130	
4-Methyl-2-pentanone	20.0	22.1	111	64 - 140	
Acetone	20.0	25.4	127	40 - 142	
Benzene	20.0	18.7	93.6	80 - 121	
Bromodichloromethane	20.0	22.4	112	80 - 131	
Bromoform	20.0	21.6	108	70 - 130	
Bromomethane	20.0	19.3	96.4	30 - 145	
Carbon disulfide	20.0	18.6	93.0	58 - 138	
Carbon tetrachloride	20.0	23.3	116	65 - 140	
Chlorobenzene	20.0	18.7	93.7	80 - 120	
Chloroethane	20.0	19.2	95.8	60 - 135	
Chloroform	20.0	20.5	102	80 - 125	
Chloromethane	20.0	20.4	102	40 - 125	
cis-1,3-Dichloropropene	20.0	21.0	105	70 - 130	
Cyclohexane	20.0	20.1	101	80 - 130	
Dibromochloromethane	20.0	20.7	104	60 - 135	
Dichlorodifluoromethane	20.0	22.8	114	50 - 133	
Ethyl benzene	20.0	19.0	95.2	80 - 122	
Isopropylbenzene	20.0	18.3	91.4	80 - 122	
Methyl acetate	20.0	21.4	107	80 - 130	
Methyl tert-butyl ether	20.0	23.4	117	65 - 125	
Methylcyclohexane	20.0	20.5	102	80 - 130	
Methylene chloride	20.0	17.4	87.2	80 - 123	
Styrene	20.0	20.0	99.9	80 - 123	

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Version 1.5 PDF File ID: 789711
Report generated 06/13/2007 13:37

KEMRON Environmental Services

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Run Date: 06/11/2007 Sample ID: WG242225-02
Instrument ID: HPMS6 Run Time: 09:13 Prep Method: 5030B
File ID: 6M66611 Analyst: CMS Method: 8260B
Workgroup (AAB#): WG242225 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HPMS6 - 08-MAY-07

Analytes	Expected	Found	% Rec	LCS Limits	Q
Tetrachloroethene	20.0	19.4	96.8	80 - 124	
Toluene	20.0	18.7	93.6	80 - 124	
trans-1,3-Dichloropropene	20.0	20.0	100	80 - 130	
Trichloroethene	20.0	20.0	99.8	80 - 122	
Trichlorofluoromethane	20.0	18.4	92.0	62 - 151	
Vinyl chloride	20.0	22.9	115	65 - 140	
Xylenes, Total	60.0	56.8	94.6	80 - 121	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	97.9	80 - 120	PASS
Dibromofluoromethane	99.7	86 - 118	PASS
p-Bromofluorobenzene	94.5	86 - 115	PASS
Toluene-d8	92.2	88 - 110	PASS

* FAILS %REC LIMIT

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Version 1.5 PDF File ID: 789711
Report generated 06/13/2007 13:37

00085101

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 | Analyst: MES | Prep Method: 5030B
Instrument ID: HPMS11 | Matrix: Water | Method: 8260B
Workgroup (AAB#): WG242208 | Units: ug/L
Sample ID: WG242208-02 LCS | File ID: 11M43070 | Run Date: 06/10/2007 14:33
Sample ID: WG242208-03 LCS2 | File ID: 11M43071 | Run Date: 06/10/2007 15:03

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,1,1-Trichloroethane	20.0	24.7	124	20.0	25.6	128	3.43	80 - 134	20	
1,1,2,2-Tetrachloroethane	20.0	19.1	95.6	20.0	18.7	93.7	1.99	79 - 125	20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	20.0	22.1	110	20.0	22.6	113	2.43	80 - 130	20	
1,1,2-Trichloroethane	20.0	20.6	103	20.0	20.4	102	0.919	80 - 125	20	
1,1-Dichloroethane	20.0	20.3	102	20.0	20.9	104	2.69	80 - 125	20	
1,1-Dichloroethene	20.0	18.4	91.8	20.0	19.1	95.7	4.12	80 - 132	20	
1,2,4-Trichlorobenzene	20.0	20.2	101	20.0	20.7	103	2.31	65 - 135	20	
1,2-Dibromo-3-chloropropane	20.0	20.0	100	20.0	20.1	101	0.566	50 - 130	20	
1,2-Dibromoethane	20.0	21.5	108	20.0	21.4	107	0.407	80 - 125	20	
1,2-Dichlorobenzene	20.0	19.2	96.0	20.0	19.3	96.5	0.444	80 - 125	20	
1,2-Dichloroethane	20.0	22.6	113	20.0	22.4	112	0.736	80 - 129	20	
cis-1,2-Dichloroethene	20.0	20.6	103	20.0	21.3	107	3.36	70 - 125	20	
trans-1,2-Dichloroethene	20.0	20.5	103	20.0	21.0	105	2.32	80 - 127	20	
1,2-Dichloropropane	20.0	19.5	97.3	20.0	19.8	99.0	1.67	80 - 120	20	
1,3-Dichlorobenzene	20.0	18.8	93.9	20.0	18.9	94.6	0.740	80 - 120	20	
1,4-Dichlorobenzene	20.0	18.6	92.9	20.0	18.6	93.2	0.300	80 - 120	20	
2-Butanone	20.0	18.4	92.1	20.0	17.1	85.6	7.24	30 - 150	20	
2-Hexanone	20.0	17.9	89.7	20.0	17.2	86.0	4.21	55 - 130	20	
4-Methyl-2-pentanone	20.0	19.7	98.7	20.0	19.6	98.2	0.565	64 - 140	20	
Acetone	20.0	19.2	96.0	20.0	18.4	92.2	4.06	40 - 142	20	
Benzene	20.0	19.5	97.5	20.0	20.0	100	2.56	80 - 121	20	
Bromodichloromethane	20.0	24.5	123	20.0	25.1	125	2.15	80 - 131	20	
Bromoform	20.0	22.2	111	20.0	22.4	112	0.686	70 - 130	20	
Bromomethane	20.0	20.5	102	20.0	22.6	113	10.1	30 - 145	20	
Carbon disulfide	20.0	19.6	97.9	20.0	20.2	101	3.35	58 - 138	20	
Carbon tetrachloride	20.0	23.1	115	20.0	24.0	120	4.07	65 - 140	20	
Chlorobenzene	20.0	19.5	97.5	20.0	19.7	98.4	0.903	80 - 120	20	
Chloroethane	20.0	19.5	97.6	20.0	20.3	101	3.83	60 - 135	20	
Chloroform	20.0	22.9	115	20.0	23.4	117	2.24	80 - 125	20	
Chloromethane	20.0	17.5	87.5	20.0	19.6	98.2	11.5	40 - 125	20	
cis-1,3-Dichloropropene	20.0	22.6	113	20.0	22.5	113	0.249	70 - 130	20	
Cyclohexane	20.0	19.1	95.7	20.0	20.2	101	5.33	80 - 130	20	
Dibromochloromethane	20.0	21.4	107	20.0	22.0	110	2.83	60 - 135	20	
Dichlorodifluoromethane	20.0	22.0	110	20.0	22.6	113	2.82	50 - 133	20	
Ethyl benzene	20.0	19.9	99.5	20.0	20.1	100	0.902	80 - 122	20	
Isopropylbenzene	20.0	19.3	96.4	20.0	19.7	98.6	2.22	80 - 122	20	
Methyl acetate	20.0	18.7	93.5	20.0	18.3	91.5	2.21	80 - 130	20	
Methyl tert-butyl ether	20.0	24.9	125	20.0	24.9	124	0.262	65 - 125	20	
Methylcyclohexane	20.0	21.6	108	20.0	22.4	112	3.68	80 - 130	20	
Methylene chloride	20.0	17.9	89.3	20.0	17.9	89.4	0.0855	80 - 123	20	
Styrene	20.0	20.2	101	20.0	20.4	102	0.849	80 - 123	20	
Tetrachloroethene	20.0	21.5	108	20.0	22.3	112	3.61	80 - 124	20	

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Version 1.5 PDF File ID: 788585
Report generated 06/15/2007 09:31

KEMRON Environmental Services

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Analvst: MES Prep Method: 5030B
Instrument ID: HPMS11 Matrix: Water Method: 8260B
Workgroup (AAB#): WG242208 Units: ug/L
Sample ID: WG242208-02 LCS File ID: 11M43070 Run Date: 06/10/2007 14:33
Sample ID: WG242208-03 LCS2 File ID: 11M43071 Run Date: 06/10/2007 15:03

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Toluene	20.0	19.3	96.5	20.0	19.5	97.6	1.11	80 - 124	20	
trans-1,3-Dichloropropene	20.0	21.3	107	20.0	21.2	106	0.617	80 - 130	20	
Trichloroethene	20.0	21.3	106	20.0	22.0	110	3.16	80 - 122	20	
Trichlorofluoromethane	20.0	19.6	97.8	20.0	20.5	103	4.80	62 - 151	20	
Vinyl chloride	20.0	21.9	110	20.0	22.2	111	1.15	65 - 140	20	
Xylenes, Total	60.0	59.0	98.4	60.0	60.2	100	1.98	80 - 121	20	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
Dibromofluoromethane	104	104	86 - 118	PASS
1,2-Dichloroethane-d4	102	100	80 - 120	PASS
Toluene-d8	98.4	95.7	88 - 110	PASS
p-Bromofluorobenzene	99.2	95.8	86 - 115	PASS

* FAILS %REC LIMIT

FAILS RPD LIMIT

KEMRON ENVIRONMENTAL SERVICES
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706194
Instrument: HPMS11
Analyst: CMS
Workgroup: WG239761

Tune ID: WG239761-01
Run Date: 05/08/2007
Run Time: 07:02
File ID: 11M42273
Cal ID: HPMS11 - 08-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	28.0	10122	PASS
75.0	95.0	30.0	60.0	53.0	19178	PASS
95.0	95.0	100	100	100	36200	PASS
96.0	95.0	5.00	9.00	7.04	2548	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	76.4	27672	PASS
175	174	5.00	9.00	6.79	1878	PASS
176	174	95.0	101	96.1	26581	PASS
177	176	5.00	9.00	6.73	1788	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG239761-02	STD	01	05/08/2007 08:46	
WG239761-04	STD	01	05/08/2007 09:48	
WG239761-05	STD	01	05/08/2007 10:50	
WG239761-06	STD	01	05/08/2007 11:21	
WG239761-07	STD	01	05/08/2007 11:52	
WG239761-08	STD-CCV	01	05/08/2007 12:22	
WG239761-09	STD	01	05/08/2007 12:53	
WG239761-10	STD	01	05/08/2007 13:24	
WG239761-03	STD	01	05/08/2007 15:05	
WG239761-11	SSCV	01	05/08/2007 15:55	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 790098
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706194
Instrument: HPMS11
Analyst: MES
Workgroup: WG242207

Tune ID: WG242207-01
Run Date: 06/10/2007
Run Time: 12:36
File ID: 11M43066
Cal ID: HPMS11 - 08-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	24.0	11551	PASS
75.0	95.0	30.0	60.0	48.5	23365	PASS
95.0	95.0	100	100	100	48181	PASS
96.0	95.0	5.00	9.00	6.88	3317	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	79.5	38280	PASS
175	174	5.00	9.00	6.65	2545	PASS
176	174	95.0	101	95.2	36461	PASS
177	176	5.00	9.00	5.94	2166	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG242207-02	CCV	01	06/10/2007 12:59	
WG242208-01	BLANK	01	06/10/2007 14:01	
WG242208-02	LCS	01	06/10/2007 14:33	
WG242208-03	LCS2	01	06/10/2007 15:03	
L0706194-01	16WW16	01	06/10/2007 21:46	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 790098
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES

ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706194
Instrument: HPMS11
Analyst: CMS
Workgroup: WG242250

Tune ID: WG242250-01
Run Date: 06/11/2007
Run Time: 11:55
File ID: 11M43098
Cal ID: HPMS11 - 08-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	21.8	6387	PASS
75.0	95.0	30.0	60.0	50.0	14629	PASS
95.0	95.0	100	100	100	29253	PASS
96.0	95.0	5.00	9.00	6.83	1997	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	78.6	22989	PASS
175	174	5.00	9.00	7.00	1610	PASS
176	174	95.0	101	99.7	22909	PASS
177	176	5.00	9.00	6.56	1502	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG242250-02	CCV	01	06/11/2007 12:22	
WG242252-01	BLANK	01	06/11/2007 13:24	
WG242252-02	LCS	01	06/11/2007 13:55	
L0706194-01	16WW16	DL01	06/11/2007 15:28	
WG242252-03	REF	01	06/11/2007 17:01	
WG242252-04	MS	01	06/11/2007 17:32	
WG242252-05	MSD	01	06/11/2007 18:03	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 790098
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706194
Instrument: HPMS6
Analyst: CMS
Workgroup: WG239757

Tune ID: WG239757-01
Run Date: 05/08/2007
Run Time: 06:36
File ID: 6M65863
Cal ID: HPMS6 - 08-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	24.8	18040	PASS
75.0	95.0	30.0	60.0	49.3	35936	PASS
95.0	95.0	100	100	100	72850	PASS
96.0	95.0	5.00	9.00	6.60	4808	PASS
173	174	0	2.00	0.290	155	PASS
174	95.0	50.0	100	73.3	53413	PASS
175	174	5.00	9.00	7.30	3898	PASS
176	174	95.0	101	101	53762	PASS
177	176	5.00	9.00	6.77	3640	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG239757-02	STD	01	05/08/2007 08:50	
WG239757-06	STD	01	05/08/2007 10:58	
WG239757-07	STD	01	05/08/2007 11:31	
WG239757-08	STD-CCV	01	05/08/2007 12:03	
WG239757-09	STD	01	05/08/2007 12:35	
WG239757-10	STD	01	05/08/2007 13:07	
WG239757-11	STD	01	05/08/2007 13:39	
WG239757-03	STD	01	05/08/2007 15:14	
WG239757-04	STD	01	05/08/2007 15:46	
WG239757-05	STD	01	05/08/2007 16:28	
WG239757-12	SSCV	01	05/08/2007 17:21	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 790098
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L0706194
Instrument: HPMS6
Analyst: CMS
Workgroup: WG242224

Tune ID: WG242224-01
Run Date: 06/11/2007
Run Time: 07:31
File ID: 6M66608
Cal ID: HPMS6 - 08-MAY-07

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
50.0	95.0	15.0	40.0	26.6	11907	PASS
75.0	95.0	30.0	60.0	49.4	22117	PASS
95.0	95.0	100	100	100	44802	PASS
96.0	95.0	5.00	9.00	5.87	2632	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	72.1	32285	PASS
175	174	5.00	9.00	7.33	2365	PASS
176	174	95.0	101	97.9	31605	PASS
177	176	5.00	9.00	6.01	1901	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG242224-02	CCV	01	06/11/2007 08:07	
WG242225-01	BLANK	01	06/11/2007 08:40	
WG242225-01	BLANK	01	06/11/2007 08:40	
WG242225-02	LCS	01	06/11/2007 09:13	
WG242225-03	REF	01	06/11/2007 15:39	
WG242225-04	MS	01	06/11/2007 16:11	
WG242225-05	MSD	01	06/11/2007 16:43	
L0706194-02	16WW22	01	06/11/2007 18:51	
L0706194-03	16WW34	01	06/11/2007 19:23	

* Sample past 12 hour tune limit

KEMRON FORMS - Modified 03/12/2007
Version 1.3 PDF File ID: 790098
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
ICAL Workgroup: WG239761

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
1,1-Dichloroethene	CCC	0.6045	16.3	1.00	
1,2-Dichloropropane	CCC	0.3407	4.74		
Chloroform	CCC	0.4739	7.55		
Ethylbenzene	CCC	0.5061	8.68		
Toluene	CCC	1.316	7.06		
Vinyl Chloride	CCC	0.3189	14.3		
1,1,2,2-Tetrachloroethane	SPCC	0.4352	5.23		
1,1-Dichloroethane	SPCC	0.6728	8.31		
Bromoform	SPCC	0.1294	24.3		1.00
Chlorobenzene	SPCC	0.9477	5.60		
Chloromethane	SPCC	0.3479	6.93		
1,1,1-Trichloroethane		0.3875	14.5		
1,1,2-Trichloro-1,2,2-Trifluoroethane		0.2696	9.28		
1,1,2-Trichloroethane		0.2001	9.06		
1,2,4-Trichlorobenzene		0.8320	14.1		
1,2-Dibromo-3-Chloropropane		0.07198	15.8		1.00
1,2-Dibromoethane		0.2126	6.67		
1,2-Dichlorobenzene		1.277	5.51		
1,2-Dichloroethane		0.4365	4.41		
1,3-Dichlorobenzene		1.430	6.33		
1,4-Dichlorobenzene		1.483	5.85		
2-Butanone		0.07306	3.36		
2-Hexanone		0.1350	4.78		
4-Methyl-2-Pentanone		0.08000	3.84		
Acetone		0.05236	3.74		
Benzene		1.032	6.77		
Bromodichloromethane		0.3129	10.9		
Bromomethane		0.2158	11.6		
Carbon Disulfide		0.7774	13.2		
Carbon Tetrachloride		0.3326	20.7	1.00	
Chloroethane		0.2818	6.97		
Cyclohexane		0.6530	13.6		
Dibromochloromethane		0.2460	20.4		1.00
Dichlorodifluoromethane		0.4189	5.02		
Isopropylbenzene		1.430	13.5		
Methyl Tert Butyl Ether		0.5244	9.14		
Methyl acetate		0.1521	2.54		
Methylcyclohexane		0.3439	13.5		
Methylene Chloride		0.2969	14.6		
Styrene		0.9887	14.2		
Tetrachloroethene		0.2427	14.6		
Trichloroethene		0.2784	9.45		
Trichlorofluoromethane		0.5208	9.74		
cis-1,2-Dichloroethene		0.2758	9.12		
cis-1,3-Dichloropropene		0.3755	8.74		

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 790096
Report generated 06/15/2007 09:31

INITIAL CALIBRATION SUMMARY

Login Number: L0706194
Analytical Method: 8260B
ICAL Workgroup: WG239761

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
m-,p-Xylene		0.6201	9.87		
o-Xylene		0.6112	8.99		
trans-1,2-Dichloroethene		0.2620	13.1		
trans-1,3-Dichloropropene		0.4074	8.65		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
ICAL Workgroup: WG239757

Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
1,1-Dichloroethene	CCC	0.4844	3.66		
1,2-Dichloropropane	CCC	0.2576	5.75		
Chloroform	CCC	0.4839	5.82		
Ethylbenzene	CCC	0.5199	5.69		
Toluene	CCC	1.314	6.37		
Vinyl Chloride	CCC	0.2230	18.3		1.00
1,1,2,2-Tetrachloroethane	SPCC	0.3618	9.01		
1,1-Dichloroethane	SPCC	0.5229	4.49		
Bromoform	SPCC	0.1414	19.9		1.00
Chlorobenzene	SPCC	0.9354	5.55		
Chloromethane	SPCC	0.3336	13.6		
1,1,1-Trichloroethane		0.4145	6.26		
1,1,2-Trichloro-1,2,2-Trifluoroethane		0.2455	6.59		
1,1,2-Trichloroethane		0.1974	4.51		
1,2,4-Trichlorobenzene		0.8319	11.2		
1,2-Dibromo-3-Chloropropane		0.07470	8.99		
1,2-Dibromoethane		0.2124	5.63		
1,2-Dichlorobenzene		1.237	7.44		
1,2-Dichloroethane		0.3536	4.06		
1,3-Dichlorobenzene		1.376	4.68		
1,4-Dichlorobenzene		1.454	8.52		
2-Butanone		0.07120	2.57		
2-Hexanone		0.1374	6.25		
4-Methyl-2-Pentanone		0.05478	7.34		
Acetone		0.04887	8.18		
Benzene		0.9829	5.05		
Bromodichloromethane		0.3242	7.13		
Bromomethane		0.1894	7.37		
Carbon Disulfide		0.7591	8.32		
Carbon Tetrachloride		0.3477	9.03		
Chloroethane		0.2212	6.83		
Cyclohexane		0.4687	10.1		
Dibromochloromethane		0.2494	16.9	1.00	
Dichlorodifluoromethane		0.3559	9.68		
Isopropylbenzene		1.552	5.36		
Methyl Tert Butyl Ether		0.4941	2.89		
Methyl acetate		0.1447	6.18		
Methylcyclohexane		0.3347	10.5		
Methylene Chloride		0.2827	13.4		
Styrene		1.055	5.52		
Tetrachloroethene		0.3323	5.29		
Trichloroethene		0.2582	5.27		
Trichlorofluoromethane		0.5106	4.16		
cis-1,2-Dichloroethene		0.2655	4.04		
cis-1,3-Dichloropropene		0.3682	6.17		

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 790096
Report generated 06/15/2007 09:31

INITIAL CALIBRATION SUMMARY

Login Number: L0706194
Analytical Method: 8260B
ICAL Workgroup: WG239757

Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
m-,p-Xylene		0.5909	38.4		
o-Xylene		0.6391	4.09		
trans-1,2-Dichloroethene		0.2526	5.39		
trans-1,3-Dichloropropene		0.4241	6.48		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-02			WG239761-03			WG239761-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	NA	NA	NA	0.400	5395.00000	0.4655	1.00	16136.0000	0.6331
1,2-Dichloropropane	NA	NA	NA	0.400	3686.00000	0.3181	1.00	8465.00000	0.3321
Chloroform	0.300	3560.00000	0.4393	0.400	5037.00000	0.4346	1.00	12745.0000	0.5000
Ethylbenzene	NA	NA	NA	0.400	4232.00000	0.4797	1.00	9934.00000	0.5032
Toluene	NA	NA	NA	0.400	11461.0000	1.299	1.00	25654.0000	1.299
Vinyl Chloride	NA	NA	NA	0.400	3821.00000	0.3297	1.00	9552.00000	0.3748
1,1,2,2-Tetrachloroethane	NA	NA	NA	0.400	1687.00000	0.3875	1.00	4397.00000	0.4509
1,1-Dichloroethane	NA	NA	NA	0.400	7242.00000	0.6249	1.00	17090.0000	0.6705
Bromoform	NA	NA	NA	NA	NA	NA	1.00	1708.00000	0.08650
Chlorobenzene	NA	NA	NA	0.400	8302.00000	0.9409	1.00	19462.0000	0.9858
Chloromethane	NA	NA	NA	NA	NA	NA	1.00	9639.00000	0.3782
1,1,1-Trichloroethane	NA	NA	NA	0.400	3768.00000	0.3251	1.00	9655.00000	0.3788
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	NA	NA	NA	NA	NA	1.00	5851.00000	0.2296
1,1,2-Trichloroethane	NA	NA	NA	0.400	1394.00000	0.1580	1.00	3838.00000	0.1944
1,2,4-Trichlorobenzene	NA	NA	NA	0.400	4561.00000	1.048	1.00	7746.00000	0.7944
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	0.400	1703.00000	0.1930	1.00	4046.00000	0.2049
1,2-Dichlorobenzene	0.300	4195.00000	1.365	0.400	5755.00000	1.322	1.00	11931.0000	1.224
1,2-Dichloroethane	NA	NA	NA	0.400	4661.00000	0.4022	1.00	11459.0000	0.4496
1,3-Dichlorobenzene	NA	NA	NA	0.400	6437.00000	1.478	1.00	13692.0000	1.404
1,4-Dichlorobenzene	0.300	4915.00000	1.599	0.400	6620.00000	1.520	1.00	14581.0000	1.495
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	0.400	12128.0000	1.047	1.00	26903.0000	1.056
Bromodichloromethane	NA	NA	NA	0.400	3047.00000	0.2629	1.00	7411.00000	0.2908
Bromomethane	NA	NA	NA	0.400	1984.00000	0.1712	1.00	5477.00000	0.2149
Carbon Disulfide	NA	NA	NA	NA	NA	NA	1.00	17857.0000	0.7006
Carbon Tetrachloride	NA	NA	NA	0.400	2669.00000	0.2303	1.00	8593.00000	0.3371
Chloroethane	NA	NA	NA	0.400	2852.00000	0.2461	1.00	6690.00000	0.2625
Cyclohexane	NA	NA	NA	NA	NA	NA	1.00	15095.0000	0.5922
Dibromochloromethane	NA	NA	NA	0.400	1471.00000	0.1667	1.00	4072.00000	0.2062
Dichlorodifluoromethane	NA	NA	NA	0.400	4796.00000	0.4138	1.00	11413.0000	0.4478
Isopropylbenzene	NA	NA	NA	0.400	11062.0000	1.254	1.00	27719.0000	1.404
Methyl Tert Butyl Ether	NA	NA	NA	0.400	5022.00000	0.4333	1.00	12529.0000	0.4915
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NA	NA	NA	NA	NA	NA	1.00	7730.00000	0.3033
Methylene Chloride	NA	NA	NA	0.400	3923.00000	0.3385	1.00	9751.00000	0.3826
Styrene	NA	NA	NA	0.400	7226.00000	0.8190	1.00	17157.0000	0.8690
Tetrachloroethene	NA	NA	NA	0.400	1752.00000	0.1986	1.00	4747.00000	0.2404
Trichloroethene	NA	NA	NA	0.400	3057.00000	0.2638	1.00	7324.00000	0.2873

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-05			WG239761-06			WG239761-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	2.00	27881.0000	0.5607	5.00	57830.0000	0.4547	20.0	342431.000	0.6801
1,2-Dichloropropane	2.00	16508.0000	0.3320	5.00	41047.0000	0.3228	20.0	179073.000	0.3557
Chloroform	2.00	21955.0000	0.4415	5.00	54778.0000	0.4307	20.0	251395.000	0.4993
Ethylbenzene	2.00	18629.0000	0.4802	5.00	41950.0000	0.4281	20.0	216455.000	0.5501
Toluene	2.00	48528.0000	1.251	5.00	110891.000	1.132	20.0	556490.000	1.414
Vinyl Chloride	2.00	18375.0000	0.3695	5.00	40186.0000	0.3160	20.0	159412.000	0.3166
1,1,2,2-Tetrachloroethane	2.00	8682.00000	0.4484	5.00	21989.0000	0.4443	20.0	89938.0000	0.4472
1,1-Dichloroethane	2.00	31022.0000	0.6239	5.00	74212.0000	0.5835	20.0	358089.000	0.7112
Bromoform	2.00	3722.00000	0.09590	5.00	10944.0000	0.1117	20.0	54574.0000	0.1387
Chlorobenzene	2.00	35675.0000	0.9196	5.00	83117.0000	0.8483	20.0	395980.000	1.006
Chloromethane	2.00	18540.0000	0.3729	5.00	43247.0000	0.3400	20.0	182995.000	0.3635
1,1,1-Trichloroethane	2.00	17565.0000	0.3533	5.00	38171.0000	0.3001	20.0	216227.000	0.4295
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.00	13389.0000	0.2693	5.00	30609.0000	0.2407	20.0	145726.000	0.2894
1,1,2-Trichloroethane	2.00	7749.00000	0.1997	5.00	20569.0000	0.2099	20.0	84211.0000	0.2140
1,2,4-Trichlorobenzene	2.00	13121.0000	0.6777	5.00	34313.0000	0.6934	20.0	165337.000	0.8221
1,2-Dibromo-3-Chloropropane	2.00	987.000000	0.05100	5.00	3339.00000	0.06750	20.0	15823.0000	0.07870
1,2-Dibromoethane	2.00	7522.00000	0.1939	5.00	20556.0000	0.2098	20.0	89069.0000	0.2264
1,2-Dichlorobenzene	2.00	22700.0000	1.172	5.00	57990.0000	1.172	20.0	259748.000	1.292
1,2-Dichloroethane	2.00	21644.0000	0.4353	5.00	53644.0000	0.4218	20.0	229195.000	0.4552
1,3-Dichlorobenzene	2.00	25582.0000	1.321	5.00	62919.0000	1.271	20.0	293161.000	1.458
1,4-Dichlorobenzene	2.00	26652.0000	1.377	5.00	65013.0000	1.314	20.0	296732.000	1.475
2-Butanone	NA	NA	NA	5.00	9255.00000	0.07280	20.0	37521.0000	0.07450
2-Hexanone	NA	NA	NA	5.00	12447.0000	0.1270	20.0	55330.0000	0.1406
4-Methyl-2-Pentanone	NA	NA	NA	5.00	9522.00000	0.07490	20.0	40573.0000	0.08060
Acetone	NA	NA	NA	5.00	6546.00000	0.05150	20.0	27483.0000	0.05460
Benzene	2.00	48317.0000	0.9717	5.00	112401.000	0.8838	20.0	548501.000	1.089
Bromodichloromethane	2.00	14577.0000	0.2932	5.00	35829.0000	0.2817	20.0	171198.000	0.3400
Bromomethane	2.00	10495.0000	0.2111	5.00	24590.0000	0.1934	20.0	111775.000	0.2220
Carbon Disulfide	2.00	31073.0000	0.6249	5.00	87566.0000	0.6885	20.0	428988.000	0.8520
Carbon Tetrachloride	2.00	14301.0000	0.2876	5.00	31295.0000	0.2461	20.0	195227.000	0.3878
Chloroethane	2.00	14039.0000	0.2823	5.00	35097.0000	0.2760	20.0	150538.000	0.2990
Cyclohexane	2.00	26185.0000	0.5266	5.00	72290.0000	0.5684	20.0	375140.000	0.7451
Dibromochloromethane	2.00	8040.00000	0.2072	5.00	22387.0000	0.2285	20.0	108974.000	0.2770
Dichlorodifluoromethane	2.00	21170.0000	0.4258	5.00	50660.0000	0.3983	20.0	226293.000	0.4495
Isopropylbenzene	2.00	47988.0000	1.237	5.00	113038.000	1.154	20.0	621111.000	1.579
Methyl Tert Butyl Ether	2.00	24573.0000	0.4942	5.00	68371.0000	0.5376	20.0	284098.000	0.5643
Methyl acetate	2.00	7275.00000	0.1463	5.00	19438.0000	0.1528	20.0	77611.0000	0.1541
Methylcyclohexane	2.00	14145.0000	0.2845	5.00	37680.0000	0.2963	20.0	192333.000	0.3820
Methylene Chloride	2.00	14974.0000	0.3012	5.00	31977.0000	0.2514	20.0	140794.000	0.2796
Styrene	2.00	33439.0000	0.8619	5.00	87037.0000	0.8883	20.0	431722.000	1.097
Tetrachloroethene	2.00	8482.00000	0.2186	5.00	18875.0000	0.1926	20.0	106073.000	0.2696
Trichloroethene	2.00	12795.0000	0.2573	5.00	28972.0000	0.2278	20.0	151159.000	0.3002

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-08			WG239761-09			WG239761-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	50.0	908161.000	0.6772	100	1893475.00	0.6909	200	3972673.00	0.6735
1,2-Dichloropropane	50.0	474357.000	0.3537	100	979993.000	0.3576	200	2083728.00	0.3533
Chloroform	50.0	671865.000	0.5010	100	1400670.00	0.5111	200	2995288.00	0.5078
Ethylbenzene	50.0	587289.000	0.5498	100	1216603.00	0.5530	200	2378796.00	0.5047
Toluene	50.0	1474571.00	1.380	100	3055475.00	1.389	200	6439310.00	1.366
Vinyl Chloride	50.0	371165.000	0.2768	100	681532.000	0.2487	NA	NA	NA
1,1,2,2-Tetrachloroethane	50.0	247081.000	0.4550	100	505242.000	0.4293	200	1094094.00	0.4188
1,1-Dichloroethane	50.0	955343.000	0.7124	100	2008147.00	0.7327	200	4267517.00	0.7235
Bromoform	50.0	158076.000	0.1480	100	350864.000	0.1595	200	780462.000	0.1656
Chlorobenzene	50.0	1048379.00	0.9814	100	2173525.00	0.9880	200	4294254.00	0.9112
Chloromethane	50.0	431385.000	0.3217	100	870936.000	0.3178	200	2011492.00	0.3410
1,1,1-Trichloroethane	50.0	579048.000	0.4318	100	1202107.00	0.4386	200	2613616.00	0.4431
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.0	374509.000	0.2793	100	784212.000	0.2861	200	1728657.00	0.2931
1,1,2-Trichloroethane	50.0	223778.000	0.2095	100	458294.000	0.2083	200	976578.000	0.2072
1,2,4-Trichlorobenzene	50.0	475021.000	0.8748	100	1034858.00	0.8792	200	2264618.00	0.8669
1,2-Dibromo-3-Chloropropane	50.0	44438.0000	0.08180	100	91871.0000	0.07810	200	195462.000	0.07480
1,2-Dibromoethane	50.0	239641.000	0.2243	100	495507.000	0.2252	200	1053965.00	0.2236
1,2-Dichlorobenzene	50.0	713883.000	1.315	100	1562195.00	1.327	200	3415301.00	1.307
1,2-Dichloroethane	50.0	608373.000	0.4537	100	1235385.00	0.4508	200	2496785.00	0.4233
1,3-Dichlorobenzene	50.0	808954.000	1.490	100	1796465.00	1.526	200	3895710.00	1.491
1,4-Dichlorobenzene	50.0	825440.000	1.520	100	1811544.00	1.539	200	3933548.00	1.506
2-Butanone	50.0	101990.000	0.07610	100	198064.000	0.07230	200	410319.000	0.06960
2-Hexanone	50.0	151772.000	0.1421	100	297495.000	0.1352	200	614231.000	0.1303
4-Methyl-2-Pentanone	50.0	110688.000	0.08250	100	225103.000	0.08210	200	471354.000	0.07990
Acetone	50.0	72368.0000	0.05400	100	142470.000	0.05200	200	293363.000	0.04970
Benzene	50.0	1429107.00	1.066	100	2968485.00	1.083	200	6247437.00	1.059
Bromodichloromethane	50.0	463017.000	0.3453	100	948070.000	0.3459	200	2024583.00	0.3433
Bromomethane	50.0	300116.000	0.2238	100	679795.000	0.2480	200	1429097.00	0.2423
Carbon Disulfide	50.0	1143928.00	0.8531	100	2395776.00	0.8742	200	5003672.00	0.8484
Carbon Tetrachloride	50.0	524875.000	0.3914	100	1087776.00	0.3969	200	2261111.00	0.3834
Chloroethane	50.0	392284.000	0.2925	100	833691.000	0.3042	200	1722584.00	0.2921
Cyclohexane	50.0	983593.000	0.7335	100	1965876.00	0.7173	200	4055875.00	0.6877
Dibromochloromethane	50.0	308678.000	0.2890	100	647913.000	0.2945	200	1407526.00	0.2987
Dichlorodifluoromethane	50.0	556582.000	0.4151	100	1118289.00	0.4080	200	2315330.00	0.3926
Isopropylbenzene	50.0	1680774.00	1.573	100	3608906.00	1.641	200	7553404.00	1.603
Methyl Tert Butyl Ether	50.0	772336.000	0.5760	100	1527630.00	0.5574	200	3191365.00	0.5411
Methyl acetate	50.0	211531.000	0.1577	100	415866.000	0.1517	200	884352.000	0.1499
Methylcyclohexane	50.0	512282.000	0.3820	100	1036020.00	0.3780	200	2249884.00	0.3815
Methylene Chloride	50.0	366236.000	0.2731	100	760366.000	0.2774	200	1599154.00	0.2711
Styrene	50.0	1187062.00	1.111	100	2541194.00	1.155	200	5222861.00	1.108
Tetrachloroethene	50.0	285394.000	0.2672	100	606937.000	0.2759	200	1314822.00	0.2790
Trichloroethene	50.0	392796.000	0.2929	100	823985.000	0.3007	200	1754985.00	0.2975

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-02			WG239761-03			WG239761-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	NA	NA	NA	0.400	4871.00000	0.4203	1.00	12608.0000	0.4946
cis-1,2-Dichloroethene	NA	NA	NA	0.400	2868.00000	0.2475	1.00	7205.00000	0.2827
cis-1,3-Dichloropropene	NA	NA	NA	0.400	3974.00000	0.3429	1.00	8881.00000	0.3484
m-,p-Xylene	NA	NA	NA	0.800	9555.00000	0.5415	2.00	24327.0000	0.6161
o-Xylene	NA	NA	NA	0.400	5475.00000	0.6205	1.00	10983.0000	0.5563
trans-1,2-Dichloroethene	NA	NA	NA	0.400	2491.00000	0.2149	1.00	6374.00000	0.2501
trans-1,3-Dichloropropene	NA	NA	NA	0.400	3320.00000	0.3763	1.00	7024.00000	0.3558

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194

Analytical Method: 8260B

Instrument ID: HPMS11

Initial Calibration Date: 08-MAY-07 15:05

Column ID: F

Analyte	WG239761-05			WG239761-06			WG239761-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	2.00	27815.0000	0.5594	5.00	61325.0000	0.4822	20.0	283990.000	0.5641
cis-1,2-Dichloroethene	2.00	12339.0000	0.2482	5.00	30902.0000	0.2430	20.0	146935.000	0.2918
cis-1,3-Dichloropropene	2.00	17058.0000	0.3431	5.00	43915.0000	0.3453	20.0	202620.000	0.4024
m-,p-Xylene	4.00	44998.0000	0.5799	10.0	106448.000	0.5432	40.0	539855.000	0.6860
o-Xylene	2.00	21636.0000	0.5577	5.00	51898.0000	0.5297	20.0	256072.000	0.6508
trans-1,2-Dichloroethene	2.00	12389.0000	0.2492	5.00	27383.0000	0.2153	20.0	144639.000	0.2873
trans-1,3-Dichloropropene	2.00	14542.0000	0.3748	5.00	39019.0000	0.3982	20.0	173836.000	0.4418

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B

Instrument ID: HPMS11
Initial Calibration Date: 08-MAY-07 15:05
Column ID: F

Analyte	WG239761-08			WG239761-09			WG239761-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	50.0	728452.000	0.5432	100	1514020.00	0.5524	200	3246364.00	0.5504
cis-1,2-Dichloroethene	50.0	393726.000	0.2936	100	827112.000	0.3018	200	1757627.00	0.2980
cis-1,3-Dichloropropene	50.0	542463.000	0.4045	100	1122564.00	0.4096	200	2406566.00	0.4080
m-,p-Xylene	100	1457701.00	0.6823	200	3015424.00	0.6854	400	5904894.00	0.6265
o-Xylene	50.0	701917.000	0.6571	100	1477047.00	0.6714	200	3045730.00	0.6463
trans-1,2-Dichloroethene	50.0	387677.000	0.2891	100	812924.000	0.2966	200	1729184.00	0.2932
trans-1,3-Dichloropropene	50.0	471325.000	0.4412	100	957731.000	0.4354	200	2054093.00	0.4358

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-02			WG239757-03			WG239757-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	NA	NA	NA	0.400	7734.00000	0.4824	1.00	19120.0000	0.4765
1,2-Dichloropropane	NA	NA	NA	0.400	3638.00000	0.2269	1.00	9980.00000	0.2487
Chloroform	0.300	6829.00000	0.5427	0.400	7592.00000	0.4736	1.00	19668.0000	0.4902
Ethylbenzene	NA	NA	NA	0.400	6136.00000	0.5104	1.00	17114.0000	0.5701
Toluene	NA	NA	NA	0.400	15272.0000	1.270	1.00	40883.0000	1.362
Vinyl Chloride	NA	NA	NA	0.400	4474.00000	0.2791	1.00	10547.0000	0.2629
1,1,2,2-Tetrachloroethane	NA	NA	NA	0.400	2110.00000	0.2971	1.00	5959.00000	0.3339
1,1-Dichloroethane	NA	NA	NA	0.400	7806.00000	0.4869	1.00	21379.0000	0.5328
Bromoform	NA	NA	NA	NA	NA	NA	1.00	3153.00000	0.1050
Chlorobenzene	NA	NA	NA	0.400	11776.0000	0.9796	1.00	29870.0000	0.9951
Chloromethane	NA	NA	NA	NA	NA	NA	1.00	16266.0000	0.4054
1,1,1-Trichloroethane	NA	NA	NA	0.400	5857.00000	0.3654	1.00	15984.0000	0.3984
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	NA	NA	NA	NA	NA	1.00	10506.0000	0.2618
1,1,2-Trichloroethane	NA	NA	NA	0.400	2131.00000	0.1773	1.00	5834.00000	0.1944
1,2,4-Trichlorobenzene	NA	NA	NA	0.400	7066.00000	0.9950	1.00	16153.0000	0.9051
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA	1.00	1133.00000	0.06350
1,2-Dibromoethane	NA	NA	NA	0.400	2315.00000	0.1926	1.00	6066.00000	0.2021
1,2-Dichlorobenzene	0.300	8061.00000	1.436	0.400	8276.00000	1.165	1.00	23109.0000	1.295
1,2-Dichloroethane	NA	NA	NA	0.400	5485.00000	0.3422	1.00	14407.0000	0.3591
1,3-Dichlorobenzene	NA	NA	NA	0.400	10116.0000	1.425	1.00	25438.0000	1.425
1,4-Dichlorobenzene	0.300	9286.00000	1.655	0.400	11301.0000	1.591	1.00	27290.0000	1.529
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	0.400	15029.0000	0.9375	1.00	40893.0000	1.019
Bromodichloromethane	NA	NA	NA	0.400	4474.00000	0.2791	1.00	12610.0000	0.3143
Bromomethane	NA	NA	NA	0.400	3034.00000	0.1893	1.00	7470.00000	0.1862
Carbon Disulfide	NA	NA	NA	NA	NA	NA	1.00	30471.0000	0.7594
Carbon Tetrachloride	NA	NA	NA	0.400	4766.00000	0.2973	1.00	13118.0000	0.3269
Chloroethane	NA	NA	NA	0.400	3317.00000	0.2069	1.00	9488.00000	0.2365
Cyclohexane	NA	NA	NA	NA	NA	NA	1.00	19188.0000	0.4782
Dibromochloromethane	NA	NA	NA	0.400	2076.00000	0.1727	1.00	6837.00000	0.2278
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	1.00	16049.0000	0.4000
Isopropylbenzene	NA	NA	NA	0.400	18209.0000	1.515	1.00	47101.0000	1.569
Methyl Tert Butyl Ether	NA	NA	NA	NA	NA	NA	1.00	19665.0000	0.4901
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NA	NA	NA	NA	NA	NA	1.00	13097.0000	0.3264
Methylene Chloride	NA	NA	NA	0.400	5576.00000	0.3478	1.00	13262.0000	0.3305
Styrene	NA	NA	NA	0.400	11653.0000	0.9694	1.00	31669.0000	1.055
Tetrachloroethene	NA	NA	NA	0.400	4294.00000	0.3572	1.00	10172.0000	0.3389
Trichloroethene	NA	NA	NA	0.400	3723.00000	0.2322	1.00	10939.0000	0.2726

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

INITIAL CALIBRATION DATA

00085119

Login Number: L0706194
Analytical Method: 8260B

Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-05			WG239757-06			WG239757-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	2.00	41316.0000	0.5101	5.00	90260.0000	0.4501	20.0	413231.000	0.4984
1,2-Dichloropropane	2.00	22290.0000	0.2752	5.00	50989.0000	0.2543	20.0	222853.000	0.2688
Chloroform	2.00	40975.0000	0.5059	5.00	93603.0000	0.4668	20.0	406616.000	0.4904
Ethylbenzene	2.00	31802.0000	0.5200	5.00	79173.0000	0.5118	20.0	345779.000	0.5471
Toluene	2.00	87295.0000	1.427	5.00	199299.000	1.288	20.0	886463.000	1.403
Vinyl Chloride	2.00	21145.0000	0.2610	5.00	42021.0000	0.2096	20.0	178970.000	0.2158
1,1,2,2-Tetrachloroethane	2.00	12452.0000	0.3508	5.00	35683.0000	0.3905	20.0	139841.000	0.3748
1,1-Dichloroethane	2.00	45262.0000	0.5588	5.00	101521.000	0.5063	20.0	453355.000	0.5468
Bromoform	2.00	6828.00000	0.1116	5.00	19739.0000	0.1276	20.0	88218.0000	0.1396
Chlorobenzene	2.00	59191.0000	0.9678	5.00	141516.000	0.9147	20.0	609802.000	0.9648
Chloromethane	2.00	31546.0000	0.3895	5.00	63082.0000	0.3146	20.0	272466.000	0.3286
1,1,1-Trichloroethane	2.00	35044.0000	0.4326	5.00	79864.0000	0.3983	20.0	362982.000	0.4378
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.00	21577.0000	0.2664	5.00	45221.0000	0.2255	20.0	208347.000	0.2513
1,1,2-Trichloroethane	2.00	11969.0000	0.1957	5.00	31152.0000	0.2014	20.0	127239.000	0.2013
1,2,4-Trichlorobenzene	2.00	31228.0000	0.8797	5.00	74292.0000	0.8131	20.0	308979.000	0.8281
1,2-Dibromo-3-Chloropropane	2.00	2382.00000	0.06710	5.00	7229.00000	0.07910	20.0	28405.0000	0.07610
1,2-Dibromoethane	2.00	12348.0000	0.2019	5.00	33335.0000	0.2155	20.0	137938.000	0.2182
1,2-Dichlorobenzene	2.00	44697.0000	1.259	5.00	110400.000	1.208	20.0	471737.000	1.264
1,2-Dichloroethane	2.00	28617.0000	0.3533	5.00	74392.0000	0.3710	20.0	305944.000	0.3690
1,3-Dichlorobenzene	2.00	51651.0000	1.455	5.00	124662.000	1.364	20.0	523753.000	1.404
1,4-Dichlorobenzene	2.00	53042.0000	1.494	5.00	127273.000	1.393	20.0	534355.000	1.432
2-Butanone	NA	NA	NA	5.00	14360.0000	0.07160	20.0	56856.0000	0.06860
2-Hexanone	NA	NA	NA	5.00	19359.0000	0.1251	20.0	81657.0000	0.1292
4-Methyl-2-Pentanone	NA	NA	NA	5.00	9840.00000	0.04910	20.0	42611.0000	0.05140
Acetone	NA	NA	NA	5.00	11127.0000	0.05550	20.0	41798.0000	0.05040
Benzene	2.00	85729.0000	1.058	5.00	194150.000	0.9682	20.0	845450.000	1.020
Bromodichloromethane	2.00	25146.0000	0.3104	5.00	64015.0000	0.3192	20.0	281098.000	0.3390
Bromomethane	2.00	15425.0000	0.1904	5.00	32256.0000	0.1609	20.0	154185.000	0.1860
Carbon Disulfide	2.00	63392.0000	0.7826	5.00	124034.000	0.6185	20.0	662507.000	0.7990
Carbon Tetrachloride	2.00	28072.0000	0.3466	5.00	63285.0000	0.3156	20.0	311116.000	0.3752
Chloroethane	2.00	19894.0000	0.2456	5.00	40335.0000	0.2011	20.0	182087.000	0.2196
Cyclohexane	2.00	39382.0000	0.4862	5.00	73780.0000	0.3679	20.0	414077.000	0.4994
Dibromochloromethane	2.00	13447.0000	0.2199	5.00	37437.0000	0.2420	20.0	166399.000	0.2633
Dichlorodifluoromethane	2.00	31909.0000	0.3939	5.00	66623.0000	0.3322	20.0	304987.000	0.3678
Isopropylbenzene	2.00	98349.0000	1.608	5.00	226757.000	1.466	20.0	1051083.00	1.663
Methyl Tert Butyl Ether	2.00	38011.0000	0.4693	5.00	98738.0000	0.4924	20.0	420497.000	0.5071
Methyl acetate	2.00	12354.0000	0.1525	5.00	29684.0000	0.1480	20.0	112193.000	0.1353
Methylcyclohexane	2.00	28011.0000	0.3458	5.00	52190.0000	0.2603	20.0	302164.000	0.3644
Methylene Chloride	2.00	23786.0000	0.2937	5.00	54242.0000	0.2705	20.0	218162.000	0.2631
Styrene	2.00	63790.0000	1.043	5.00	160425.000	1.037	20.0	718369.000	1.137
Tetrachloroethene	2.00	21417.0000	0.3502	5.00	47720.0000	0.3085	20.0	214642.000	0.3396
Trichloroethene	2.00	21931.0000	0.2708	5.00	48945.0000	0.2441	20.0	219349.000	0.2645

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

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Analytical Method: 8260B

Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-08			WG239757-09			WG239757-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	50.0	1050662.00	0.4883	100	2059557.00	0.4780	200	4547593.00	0.4912
1,2-Dichloropropane	50.0	562220.000	0.2613	100	1136579.00	0.2638	200	2426360.00	0.2621
Chloroform	50.0	1025703.00	0.4767	100	1991576.00	0.4623	200	4134154.00	0.4465
Ethylbenzene	50.0	864192.000	0.5215	100	1723058.00	0.5093	200	3458349.00	0.4690
Toluene	50.0	2189839.00	1.322	100	4302489.00	1.272	200	8605216.00	1.167
Vinyl Chloride	50.0	435763.000	0.2025	100	824509.000	0.1914	200	1496630.00	0.1616
1,1,2,2-Tetrachloroethane	50.0	388587.000	0.3821	100	835048.000	0.3893	200	1673299.00	0.3756
1,1-Dichloroethane	50.0	1138324.00	0.5290	100	2216487.00	0.5145	200	4704973.00	0.5082
Bromoform	50.0	263462.000	0.1590	100	588289.000	0.1739	200	1274848.00	0.1729
Chlorobenzene	50.0	1524858.00	0.9203	100	3059297.00	0.9042	200	6167697.00	0.8365
Chloromethane	50.0	653611.000	0.3037	100	1275025.00	0.2959	200	2753367.00	0.2974
1,1,1-Trichloroethane	50.0	945607.000	0.4394	100	1858208.00	0.4313	200	3821911.00	0.4128
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.0	533137.000	0.2478	100	1035284.00	0.2403	200	2087469.00	0.2255
1,1,2-Trichloroethane	50.0	335580.000	0.2025	100	695017.000	0.2054	200	1485667.00	0.2015
1,2,4-Trichlorobenzene	50.0	795026.000	0.7817	100	1603389.00	0.7475	200	3142181.00	0.7053
1,2-Dibromo-3-Chloropropane	50.0	81954.0000	0.08060	100	171478.000	0.07990	200	341067.000	0.07660
1,2-Dibromoethane	50.0	368717.000	0.2225	100	763914.000	0.2258	200	1625705.00	0.2205
1,2-Dichlorobenzene	50.0	1224705.00	1.204	100	2541205.00	1.185	200	4990258.00	1.120
1,2-Dichloroethane	50.0	770802.000	0.3582	100	1504056.00	0.3491	200	3029011.00	0.3271
1,3-Dichlorobenzene	50.0	1369923.00	1.347	100	2843857.00	1.326	200	5607669.00	1.259
1,4-Dichlorobenzene	50.0	1393700.00	1.370	100	2896230.00	1.350	200	5652975.00	1.269
2-Butanone	50.0	151776.000	0.07050	100	316024.000	0.07340	200	675993.000	0.07300
2-Hexanone	50.0	231092.000	0.1395	100	496610.000	0.1468	200	1023988.00	0.1389
4-Methyl-2-Pentanone	50.0	120119.000	0.05580	100	256286.000	0.05950	200	541174.000	0.05840
Acetone	50.0	104763.000	0.04870	100	207810.000	0.04820	200	435493.000	0.04700
Benzene	50.0	2131994.00	0.9908	100	4157740.00	0.9650	200	8370589.00	0.9041
Bromodichloromethane	50.0	738009.000	0.3430	100	1493546.00	0.3467	200	3166133.00	0.3420
Bromomethane	50.0	414384.000	0.1926	100	860369.000	0.1997	200	1941217.00	0.2097
Carbon Disulfide	50.0	1698481.00	0.7893	100	3360251.00	0.7799	200	7266806.00	0.7848
Carbon Tetrachloride	50.0	816841.000	0.3796	100	1626193.00	0.3774	200	3359811.00	0.3629
Chloroethane	50.0	483296.000	0.2246	100	970601.000	0.2253	200	1941554.00	0.2097
Cyclohexane	50.0	1081688.00	0.5027	100	2114898.00	0.4909	200	4215187.00	0.4553
Dibromochloromethane	50.0	466851.000	0.2817	100	1000618.00	0.2957	200	2152233.00	0.2919
Dichlorodifluoromethane	50.0	756851.000	0.3517	100	1478624.00	0.3432	200	2800310.00	0.3024
Isopropylbenzene	50.0	2660840.00	1.606	100	5342855.00	1.579	200	10393022.0	1.410
Methyl Tert Butyl Ether	50.0	1097482.00	0.5100	100	2171340.00	0.5040	200	4497040.00	0.4857
Methyl acetate	50.0	291244.000	0.1353	100	605141.000	0.1405	200	1446896.00	0.1563
Methylcyclohexane	50.0	763664.000	0.3549	100	1531308.00	0.3554	200	3109408.00	0.3358
Methylene Chloride	50.0	546179.000	0.2538	100	1087790.00	0.2525	200	2310154.00	0.2495
Styrene	50.0	1847075.00	1.115	100	3705027.00	1.095	200	7305313.00	0.9908
Tetrachloroethene	50.0	548379.000	0.3309	100	1090532.00	0.3223	200	2292351.00	0.3109
Trichloroethene	50.0	558934.000	0.2598	100	1128065.00	0.2618	200	2405085.00	0.2598

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-11		
	CONC	RESP	RF
1,1-Dichloroethene	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA
Chloroform	NA	NA	NA
Ethylbenzene	NA	NA	NA
Toluene	NA	NA	NA
Vinyl Chloride	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA
Bromoform	NA	NA	NA
Chlorobenzene	NA	NA	NA
Chloromethane	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA
2-Butanone	300	928123.000	0.07010
2-Hexanone	300	1457928.00	0.1449
4-Methyl-2-Pentanone	300	721519.000	0.05450
Acetone	300	574865.000	0.04340
Benzene	NA	NA	NA
Bromodichloromethane	NA	NA	NA
Bromomethane	NA	NA	NA
Carbon Disulfide	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA
Chloroethane	NA	NA	NA
Cyclohexane	NA	NA	NA
Dibromochloromethane	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA
Isopropylbenzene	NA	NA	NA
Methyl Tert Butyl Ether	NA	NA	NA
Methyl acetate	NA	NA	NA
Methylcyclohexane	NA	NA	NA
Methylene Chloride	NA	NA	NA
Styrene	NA	NA	NA
Tetrachloroethene	NA	NA	NA
Trichloroethene	NA	NA	NA

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-02			WG239757-03			WG239757-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	NA	NA	NA	0.400	8154.00000	0.5086	1.00	20596.0000	0.5133
cis-1,2-Dichloroethene	NA	NA	NA	0.400	4340.00000	0.2707	1.00	10995.0000	0.2740
cis-1,3-Dichloropropene	NA	NA	NA	0.400	5356.00000	0.3341	1.00	14010.0000	0.3492
m-,p-Xylene	NA	NA	NA	0.800	16510.0000	0.6867	2.00	43708.0000	0.7281
o-Xylene	NA	NA	NA	0.400	7583.00000	0.6308	1.00	19605.0000	0.6531
trans-1,2-Dichloroethene	NA	NA	NA	0.400	3977.00000	0.2481	1.00	10875.0000	0.2710
trans-1,3-Dichloropropene	NA	NA	NA	0.400	4463.00000	0.3713	1.00	12277.0000	0.4090

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

KEMRON Environmental Services

INITIAL CALIBRATION DATA

00085123

Login Number: L0706194
Analytical Method: 8260B

Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-05			WG239757-06			WG239757-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	2.00	43432.0000	0.5362	5.00	92888.0000	0.4632	20.0	424588.000	0.5121
cis-1,2-Dichloroethene	2.00	22966.0000	0.2835	5.00	51650.0000	0.2576	20.0	223699.000	0.2698
cis-1,3-Dichloropropene	2.00	28462.0000	0.3514	5.00	71958.0000	0.3588	20.0	316254.000	0.3814
m-,p-Xylene	4.00	86237.0000	0.7050	10.0	195215.000	0.6309	40.0	884778.000	0.7000
o-Xylene	2.00	40231.0000	0.6578	5.00	95089.0000	0.6146	20.0	425058.000	0.6725
trans-1,2-Dichloroethene	2.00	21984.0000	0.2714	5.00	47729.0000	0.2380	20.0	215516.000	0.2599
trans-1,3-Dichloropropene	2.00	25251.0000	0.4129	5.00	64583.0000	0.4175	20.0	276408.000	0.4373

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194
Analytical Method: 8260B
Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-08			WG239757-09			WG239757-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Trichlorofluoromethane	50.0	1099476.00	0.5110	100	2216129.00	0.5144	200	4866778.00	0.5256
cis-1,2-Dichloroethene	50.0	561154.000	0.2608	100	1101234.00	0.2556	200	2334803.00	0.2522
cis-1,3-Dichloropropene	50.0	829268.000	0.3854	100	1712980.00	0.3976	200	3589279.00	0.3877
m-,p-Xylene	100	2199706.00	0.6638	200	4317657.00	0.6381	400	8344415.00	0.5659
o-Xylene	50.0	1078156.00	0.6507	100	2173049.00	0.6423	200	4358249.00	0.5911
trans-1,2-Dichloroethene	50.0	538463.000	0.2502	100	1059947.00	0.2460	200	2187287.00	0.2362
trans-1,3-Dichloropropene	50.0	743055.000	0.4484	100	1546752.00	0.4572	200	3240797.00	0.4395

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

INITIAL CALIBRATION DATA

Login Number: L0706194
Analytical Method: 8260B

Instrument ID: HPMS6
Initial Calibration Date: 08-MAY-07 16:28
Column ID: F

Analyte	WG239757-11		
	CONC	RESP	RF
Trichlorofluoromethane	NA	NA	NA
cis-1,2-Dichloroethene	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA
m-,p-Xylene	300	0	0
o-Xylene	NA	NA	NA
trans-1,2-Dichloroethene	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 790096
Report generated 06/15/2007 09:31

Login Number: L0706194 Run Date: 05/08/2007 Sample ID: WG239761-11
Instrument ID: HPMS11 Run Time: 15:55 Method: 8260B
File ID: 11M42289 Analyst: CMS
ICal Workgroup: WG239761 Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	20.0	19.6	ug/L	0.657	2.10	30	
1,2-Dichloropropane	CCC	20.0	20.5	ug/L	0.350	2.60	30	
Chloroform	CCC	20.0	20.7	ug/L	0.490	3.50	30	
Ethylbenzene	CCC	20.0	22.2	ug/L	0.561	10.8	30	
Toluene	CCC	20.0	21.6	ug/L	1.42	8.20	30	
Vinyl Chloride	CCC	20.0	16.8	ug/L	0.268	16.1	30	
1,1,2,2-Tetrachloroethane	SPCC	20.0	19.2	ug/L	0.418	3.90	30	
1,1-Dichloroethane	SPCC	20.0	20.7	ug/L	0.696	3.40	30	
Bromoform	SPCC	20.0	16.7	ug/L	0.119	16.4	30	
Chlorobenzene	SPCC	20.0	21.1	ug/L	1.00	5.50	30	
Chloromethane	SPCC	20.0	19.9	ug/L	0.346	0.300	30	
1,1,1-Trichloroethane		20.0	21.6	ug/L	0.419	8.20	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane		20.0	22.6	ug/L	0.305	13.1	30	
1,1,2-Trichloroethane		20.0	20.1	ug/L	0.201	0.600	30	
1,2,4-Trichlorobenzene		20.0	19.8	ug/L	0.826	0.800	30	
1,2-Dibromo-3-Chloropropane		20.0	16.8	ug/L	0.0664	16.1	30	
1,2-Dibromoethane		20.0	19.4	ug/L	0.206	3.00	30	
1,2-Dichlorobenzene		20.0	19.6	ug/L	1.25	1.80	30	
1,2-Dichloroethane		20.0	18.9	ug/L	0.412	5.70	30	
cis-1,2-Dichloroethene		20.0	21.8	ug/L	0.301	9.10	30	
trans-1,2-Dichloroethene		20.0	21.5	ug/L	0.282	7.70	30	
1,3-Dichlorobenzene		20.0	20.3	ug/L	1.45	1.60	30	
1,4-Dichlorobenzene		20.0	19.6	ug/L	1.45	2.10	30	
2-Butanone		20.0	16.9	ug/L	0.0618	15.4	30	
2-Hexanone		20.0	16.6	ug/L	0.112	17.2	30	
4-Methyl-2-Pentanone		20.0	16.2	ug/L	0.0646	19.2	30	
Acetone		20.0	18.3	ug/L	0.0479	8.50	30	
Benzene		20.0	21.0	ug/L	1.08	5.10	30	
Bromodichloromethane		20.0	20.8	ug/L	0.325	3.90	30	
Bromomethane		20.0	19.7	ug/L	0.213	1.30	30	
Carbon Disulfide		20.0	22.9	ug/L	0.891	14.6	30	
Carbon Tetrachloride		20.0	19.8	ug/L	0.380	1.20	30	
Chloroethane		20.0	21.2	ug/L	0.298	5.90	30	
cis-1,3-Dichloropropene		20.0	20.5	ug/L	0.385	2.60	30	
Cyclohexane		20.0	23.2	ug/L	0.757	16.0	30	
Dibromochloromethane		20.0	18.1	ug/L	0.255	9.50	30	
Dichlorodifluoromethane		20.0	20.0	ug/L	0.419	0.100	30	
Isopropylbenzene		20.0	20.3	ug/L	1.46	1.70	30	
Methyl acetate		20.0	18.7	ug/L	0.142	6.70	30	
Methyl Tert Butyl Ether		20.0	20.0	ug/L	0.525	0.100	30	
Methylcyclohexane		20.0	23.4	ug/L	0.402	16.8	30	
Methylene Chloride		20.0	18.3	ug/L	0.271	8.60	30	

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 790097
Report generated 06/15/2007 09:31

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706194
Run Date: 05/08/2007
Sample ID: WG239761-11
Instrument ID: HPMS11
Run Time: 15:55
Method: 8260B
File ID: 11M42289
Analyst: CMS
ICal Workgroup: WG239761
Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Styrene		20.0	22.0	ug/L	1.09	10.2	30	
Tetrachloroethene		20.0	22.4	ug/L	0.272	12.1	30	
trans-1,3-Dichloropropene		20.0	18.8	ug/L	0.384	5.90	30	
Trichloroethene		20.0	20.9	ug/L	0.291	4.50	30	
Trichlorofluoromethane		20.0	20.3	ug/L	0.528	1.40	30	
Xylenes		60.0	65.9	ug/L	0.671	9.80	30	
m-,p-Xylene		40.0	44.7	ug/L	0.693	11.7	30	
1,2-Dichloroethene		40.0	43.4	ug/L	0.292	8.40	30	
o-Xylene		20.0	21.2	ug/L	0.649	6.10	30	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 790097
Report generated 06/15/2007 09:31

Login Number: L0706194 Run Date: 05/08/2007 Sample ID: WG239757-12
Instrument ID: HPMS6 Run Time: 17:21 Method: 8260B
File ID: 6M65882 Analvst: CMS
ICal Workgroup: WG239757 Cal ID: HPMS6 - 08-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	20.0	19.0	ug/L	0.459	5.20	30	
1,2-Dichloropropane	CCC	20.0	20.1	ug/L	0.259	0.400	30	
Chloroform	CCC	20.0	19.5	ug/L	0.471	2.60	30	
Ethylbenzene	CCC	20.0	20.7	ug/L	0.537	3.30	30	
Toluene	CCC	20.0	20.7	ug/L	1.36	3.40	30	
Vinyl Chloride	CCC	20.0	18.0	ug/L	0.194	10.0	30	
1,1,2,2-Tetrachloroethane	SPCC	20.0	20.7	ug/L	0.375	3.50	30	
1,1-Dichloroethane	SPCC	20.0	20.1	ug/L	0.526	0.600	30	
Bromoform	SPCC	20.0	16.8	ug/L	0.130	16.2	30	
Chlorobenzene	SPCC	20.0	19.9	ug/L	0.932	0.400	30	
Chloromethane	SPCC	20.0	19.5	ug/L	0.325	2.50	30	
1,1,1-Trichloroethane		20.0	19.9	ug/L	0.412	0.700	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane		20.0	20.9	ug/L	0.257	4.60	30	
1,1,2-Trichloroethane		20.0	20.1	ug/L	0.198	0.300	30	
1,2,4-Trichlorobenzene		20.0	19.5	ug/L	0.809	2.70	30	
1,2-Dibromo-3-Chloropropane		20.0	18.8	ug/L	0.0703	5.90	30	
1,2-Dibromoethane		20.0	19.4	ug/L	0.206	3.00	30	
1,2-Dichlorobenzene		20.0	19.9	ug/L	1.23	0.500	30	
1,2-Dichloroethane		20.0	19.5	ug/L	0.345	2.50	30	
cis-1,2-Dichloroethene		20.0	20.0	ug/L	0.265	0.100	30	
trans-1,2-Dichloroethene		20.0	19.2	ug/L	0.243	3.90	30	
1,3-Dichlorobenzene		20.0	19.9	ug/L	1.37	0.600	30	
1,4-Dichlorobenzene		20.0	19.2	ug/L	1.40	3.90	30	
2-Butanone		20.0	20.7	ug/L	0.0739	3.60	30	
2-Hexanone		20.0	17.5	ug/L	0.120	12.3	30	
4-Methyl-2-Pentanone		20.0	17.6	ug/L	0.0483	11.8	30	
Acetone		20.0	21.0	ug/L	0.0513	4.90	30	
Benzene		20.0	20.2	ug/L	0.992	0.900	30	
Bromodichloromethane		20.0	20.2	ug/L	0.327	0.900	30	
Bromomethane		20.0	18.9	ug/L	0.179	5.50	30	
Carbon Disulfide		20.0	21.7	ug/L	0.823	8.40	30	
Carbon Tetrachloride		20.0	20.4	ug/L	0.355	2.00	30	
Chloroethane		20.0	20.4	ug/L	0.225	1.80	30	
cis-1,3-Dichloropropene		20.0	19.9	ug/L	0.367	0.300	30	
Cyclohexane		20.0	21.1	ug/L	0.495	5.50	30	
Dibromochloromethane		20.0	17.9	ug/L	0.251	10.5	30	
Dichlorodifluoromethane		20.0	18.2	ug/L	0.324	9.10	30	
Isopropylbenzene		20.0	18.8	ug/L	1.46	5.80	30	
Methyl acetate		20.0	19.6	ug/L	0.142	1.90	30	
Methyl Tert Butyl Ether		20.0	20.0	ug/L	0.493	0.200	30	
Methylcyclohexane		20.0	22.1	ug/L	0.369	10.3	30	
Methylene Chloride		20.0	18.5	ug/L	0.261	7.70	30	

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 790097
Report generated 06/15/2007 09:31

Login Number: L0706194 Run Date: 05/08/2007 Sample ID: WG239757-12
Instrument ID: HPMS6 Run Time: 17:21 Method: 8260B
File ID: 6M65882 Analyst: CMS
ICal Workgroup: WG239757 Cal ID: HPMS6 - 08-MAY-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Styrene		20.0	21.0	ug/L	1.11	4.80	30	
Tetrachloroethene		20.0	19.7	ug/L	0.328	1.30	30	
trans-1,3-Dichloropropene		20.0	18.8	ug/L	0.400	5.80	30	
Trichloroethene		20.0	19.6	ug/L	0.254	1.80	30	
Trichlorofluoromethane		20.0	17.8	ug/L	0.455	10.9	30	
Xylenes		60.0	60.6	ug/L	0.659	1.10	30	
m-,p-Xylene		40.0	40.5	ug/L	0.673	1.20	30	
1,2-Dichloroethene		40.0	39.2	ug/L	0.254	2.00	30	
o-Xylene		20.0	20.2	ug/L	0.644	0.800	30	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 790097
Report generated 06/15/2007 09:31

CONTINUING CALIBRATION VERIFICATION (CCV)

00085130

Login Number:	L0706194	Run Date:	06/10/2007	Sample ID:	WG242207-02
Instrument ID:	HPMS11	Run Time:	12:59	Method:	8260B
File ID:	11M43067	Analyst:	MES		
Workgroup (AAB#):	WG242208	Cal ID:	HPMS11 - 08-MAY-07		

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	49.0	ug/L	0.661	2.07	20	
1,2-Dichloropropane	CCC	50.0	48.0	ug/L	0.327	3.92	20	
Chloroform	CCC	50.0	57.1	ug/L	0.541	14.2	20	
Ethylbenzene	CCC	50.0	49.4	ug/L	0.500	1.16	20	
Toluene	CCC	50.0	48.4	ug/L	1.28	3.12	20	
Vinyl Chloride	CCC	50.0	49.9	ug/L	0.319	0.104	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	44.4	ug/L	0.386	11.2	40	
1,1-Dichloroethane	SPCC	50.0	53.0	ug/L	0.713	6.02	40	
Bromoform	SPCC	50.0	52.7	ug/L	0.161	5.47	40	
Chlorobenzene	SPCC	50.0	48.3	ug/L	0.915	3.41	40	
Chloromethane	SPCC	50.0	48.4	ug/L	0.336	3.18	40	
1,1,1-Trichloroethane		50.0	62.7	ug/L	0.486	25.3	40	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	59.5	ug/L	0.321	19.0	40	
1,1,2-Trichloroethane		50.0	47.1	ug/L	0.189	5.72	40	
1,2,4-Trichlorobenzene		50.0	51.7	ug/L	0.860	3.41	40	
1,2-Dibromo-3-Chloropropane		50.0	47.5	ug/L	0.0762	4.97	40	
1,2-Dibromoethane		50.0	49.7	ug/L	0.211	0.662	40	
1,2-Dichlorobenzene		50.0	47.2	ug/L	1.21	5.58	40	
1,2-Dichloroethane		50.0	52.2	ug/L	0.456	4.36	40	
cis-1,2-Dichloroethene		50.0	52.0	ug/L	0.287	4.02	40	
trans-1,2-Dichloroethene		50.0	54.7	ug/L	0.287	9.49	40	
1,3-Dichlorobenzene		50.0	48.4	ug/L	1.39	3.15	40	
1,4-Dichlorobenzene		50.0	47.7	ug/L	1.41	4.59	40	
2-Butanone		50.0	45.0	ug/L	0.0658	9.95	40	
2-Hexanone		50.0	41.7	ug/L	0.113	16.6	40	
4-Methyl-2-Pentanone		50.0	44.5	ug/L	0.0712	11.0	40	
Acetone		50.0	51.8	ug/L	0.0543	3.66	40	
Benzene		50.0	48.7	ug/L	1.01	2.53	40	
Bromodichloromethane		50.0	58.8	ug/L	0.368	17.6	40	
Bromomethane		50.0	53.2	ug/L	0.230	6.34	40	
Carbon Disulfide		50.0	54.5	ug/L	0.847	8.95	40	
Carbon Tetrachloride		50.0	59.4	ug/L	0.458	18.8	40	
Chloroethane		50.0	52.4	ug/L	0.295	4.74	40	
cis-1,3-Dichloropropene		50.0	55.0	ug/L	0.413	10.0	40	
Cyclohexane		50.0	50.8	ug/L	0.664	1.69	40	
Dibromochloromethane		50.0	51.4	ug/L	0.298	2.90	40	
Dichlorodifluoromethane		50.0	55.0	ug/L	0.461	10.1	40	
Isopropylbenzene		50.0	53.7	ug/L	1.54	7.31	40	
Methyl acetate		50.0	44.2	ug/L	0.135	11.6	40	
Methyl Tert Butyl Ether		50.0	54.3	ug/L	0.570	8.65	40	
Methylcyclohexane		50.0	56.6	ug/L	0.389	13.2	40	
Methylene Chloride		50.0	44.5	ug/L	0.264	10.9	40	

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 790099
Report generated 06/15/2007 09:31

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194 Run Date: 06/10/2007 Sample ID: WG242207-02
Instrument ID: HPMS11 Run Time: 12:59 Method: 8260B
File ID: 11M43067 Analyst: MES
Workgroup (AAB#): WG242208 Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Styrene		50.0	50.6	ug/L	1.00	1.28	40	
Tetrachloroethene		50.0	54.7	ug/L	0.266	9.43	40	
trans-1,3-Dichloropropene		50.0	54.4	ug/L	0.443	8.78	40	
Trichloroethene		50.0	53.2	ug/L	0.296	6.33	40	
Trichlorofluoromethane		50.0	62.6	ug/L	0.652	25.2	40	
Xylenes		150	150	ug/L	0.611	0.114	40	
m-,p-Xylene		100	101	ug/L	0.628	1.19	40	
1,2-Dichloroethene		100	107	ug/L	0.287	6.75	40	
o-Xylene		50.0	48.6	ug/L	0.595	2.71	40	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 790099
Report generated 06/15/2007 09:31

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194 | Run Date: 06/11/2007 | Sample ID: WG242250-02
Instrument ID: HPMS11 | Run Time: 12:22 | Method: 8260B
File ID: 11M43099 | Analyst: CMS
Workgroup (AAB#): WG242252 | Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	46.6	ug/L	0.629	6.89	20	
1,2-Dichloropropane	CCC	50.0	45.2	ug/L	0.308	9.68	20	
Chloroform	CCC	50.0	55.0	ug/L	0.521	9.92	20	
Ethylbenzene	CCC	50.0	49.4	ug/L	0.500	1.16	20	
Toluene	CCC	50.0	48.0	ug/L	1.26	4.08	20	
Vinyl Chloride	CCC	50.0	51.1	ug/L	0.326	2.16	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	42.7	ug/L	0.372	14.5	40	
1,1-Dichloroethane	SPCC	50.0	49.6	ug/L	0.667	0.874	40	
Bromoform	SPCC	50.0	52.9	ug/L	0.161	5.79	40	
Chlorobenzene	SPCC	50.0	48.3	ug/L	0.915	3.41	40	
Chloromethane	SPCC	50.0	47.6	ug/L	0.331	4.73	40	
1,1,1-Trichloroethane		50.0	61.2	ug/L	0.474	22.3	40	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	56.8	ug/L	0.307	13.6	40	
1,1,2-Trichloroethane		50.0	46.7	ug/L	0.187	6.69	40	
1,2,4-Trichlorobenzene		50.0	50.8	ug/L	0.845	1.56	40	
1,2-Dibromo-3-Chloropropane		50.0	45.5	ug/L	0.0729	9.04	40	
1,2-Dibromoethane		50.0	49.8	ug/L	0.212	0.318	40	
1,2-Dichlorobenzene		50.0	46.8	ug/L	1.20	6.43	40	
1,2-Dichloroethane		50.0	50.9	ug/L	0.444	1.79	40	
cis-1,2-Dichloroethene		50.0	49.3	ug/L	0.272	1.37	40	
trans-1,2-Dichloroethene		50.0	51.4	ug/L	0.269	2.75	40	
1,3-Dichlorobenzene		50.0	48.1	ug/L	1.38	3.71	40	
1,4-Dichlorobenzene		50.0	46.8	ug/L	1.39	6.36	40	
2-Butanone		50.0	36.9	ug/L	0.0539	26.3	40	
2-Hexanone		50.0	38.0	ug/L	0.103	24.0	40	
4-Methyl-2-Pentanone		50.0	40.6	ug/L	0.0649	18.9	40	
Acetone		50.0	37.0	ug/L	0.0388	25.9	40	
Benzene		50.0	46.0	ug/L	0.949	8.01	40	
Bromodichloromethane		50.0	56.3	ug/L	0.353	12.7	40	
Bromomethane		50.0	53.6	ug/L	0.231	7.20	40	
Carbon Disulfide		50.0	52.1	ug/L	0.811	4.28	40	
Carbon Tetrachloride		50.0	57.4	ug/L	0.443	14.7	40	
Chloroethane		50.0	48.0	ug/L	0.271	4.01	40	
cis-1,3-Dichloropropene		50.0	52.2	ug/L	0.392	4.45	40	
Cyclohexane		50.0	48.4	ug/L	0.633	3.13	40	
Dibromochloromethane		50.0	51.8	ug/L	0.301	3.67	40	
Dichlorodifluoromethane		50.0	52.7	ug/L	0.442	5.40	40	
Isopropylbenzene		50.0	53.9	ug/L	1.54	7.88	40	
Methyl acetate		50.0	39.8	ug/L	0.121	20.4	40	
Methyl Tert Butyl Ether		50.0	53.1	ug/L	0.557	6.28	40	
Methylcyclohexane		50.0	55.5	ug/L	0.382	11.1	40	
Methylene Chloride		50.0	41.3	ug/L	0.245	17.5	40	

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 790099
Report generated 06/15/2007 09:31

CONTINUING CALIBRATION VERIFICATION (CCV)

00085133

Login Number: L0706194
Run Date: 06/11/2007
Sample ID: WG242250-02
Instrument ID: HPMS11
Run Time: 12:22
Method: 8260B
File ID: 11M43099
Analyst: CMS
Workgroup (AAB#): WG242252
Cal ID: HPMS11 - 08-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Styrene		50.0	50.2	ug/L	0.992	0.353	40	
Tetrachloroethene		50.0	54.7	ug/L	0.265	9.32	40	
trans-1,3-Dichloropropene		50.0	54.3	ug/L	0.442	8.57	40	
Trichloroethene		50.0	50.9	ug/L	0.283	1.75	40	
Trichlorofluoromethane		50.0	61.0	ug/L	0.636	22.0	40	
Xylenes		150	149	ug/L	0.608	0.656	40	
m-,p-Xylene		100	101	ug/L	0.625	0.711	40	
1,2-Dichloroethene		100	101	ug/L	0.271	0.689	40	
o-Xylene		50.0	48.3	ug/L	0.591	3.39	40	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 790099
Report generated 06/15/2007 09:31

CONTINUING CALIBRATION VERIFICATION (CCV)

00085134

Login Number: L0706194
Run Date: 06/11/2007
Sample ID: WG242224-02
Instrument ID: HPMS6
Run Time: 08:07
Method: 8260B
File ID: 6M66609
Analyst: CMS
Workgroup (AAB#): WG242225
Cal ID: HPMS6 - 08-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	48.2	ug/L	0.467	3.69	20	
1,2-Dichloropropane	CCC	50.0	46.4	ug/L	0.239	7.12	20	
Chloroform	CCC	50.0	48.3	ug/L	0.467	3.46	20	
Ethylbenzene	CCC	50.0	45.6	ug/L	0.474	8.75	20	
Toluene	CCC	50.0	45.2	ug/L	1.19	9.68	20	
Vinyl Chloride	CCC	50.0	51.1	ug/L	0.209	2.11	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	51.8	ug/L	0.375	3.60	40	
1,1-Dichloroethane	SPCC	50.0	47.2	ug/L	0.494	5.50	40	
Bromoform	SPCC	50.0	51.7	ug/L	0.172	3.30	40	
Chlorobenzene	SPCC	50.0	45.5	ug/L	0.851	8.98	40	
Chloromethane	SPCC	50.0	48.5	ug/L	0.323	3.10	40	
1,1,1-Trichloroethane		50.0	53.8	ug/L	0.446	7.69	40	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	51.4	ug/L	0.253	2.89	40	
1,1,2-Trichloroethane		50.0	48.4	ug/L	0.191	3.20	40	
1,2,4-Trichlorobenzene		50.0	47.5	ug/L	0.790	5.02	40	
1,2-Dibromo-3-Chloropropane		50.0	58.2	ug/L	0.0870	16.4	40	
1,2-Dibromoethane		50.0	50.7	ug/L	0.216	1.47	40	
1,2-Dichlorobenzene		50.0	47.3	ug/L	1.17	5.47	40	
1,2-Dichloroethane		50.0	50.1	ug/L	0.354	0.206	40	
cis-1,2-Dichloroethene		50.0	46.4	ug/L	0.247	7.15	40	
trans-1,2-Dichloroethene		50.0	46.6	ug/L	0.236	6.72	40	
1,3-Dichlorobenzene		50.0	47.1	ug/L	1.29	5.87	40	
1,4-Dichlorobenzene		50.0	45.6	ug/L	1.33	8.74	40	
2-Butanone		50.0	55.1	ug/L	0.0786	10.2	40	
2-Hexanone		50.0	54.1	ug/L	0.149	8.27	40	
4-Methyl-2-Pentanone		50.0	53.3	ug/L	0.0584	6.63	40	
Acetone		50.0	61.1	ug/L	0.0598	22.3	40	
Benzene		50.0	45.9	ug/L	0.903	8.16	40	
Bromodichloromethane		50.0	53.3	ug/L	0.345	6.51	40	
Bromomethane		50.0	49.4	ug/L	0.187	1.17	40	
Carbon Disulfide		50.0	52.3	ug/L	0.794	4.54	40	
Carbon Tetrachloride		50.0	57.9	ug/L	0.403	15.8	40	
Chloroethane		50.0	45.5	ug/L	0.201	9.06	40	
cis-1,3-Dichloropropene		50.0	51.0	ug/L	0.375	1.90	40	
Cyclohexane		50.0	50.7	ug/L	0.475	1.39	40	
Dibromochloromethane		50.0	50.0	ug/L	0.289	0.0998	40	
Dichlorodifluoromethane		50.0	49.5	ug/L	0.353	0.903	40	
Isopropylbenzene		50.0	48.1	ug/L	1.49	3.83	40	
Methyl acetate		50.0	46.3	ug/L	0.134	7.34	40	
Methyl Tert Butyl Ether		50.0	53.0	ug/L	0.523	5.93	40	
Methylcyclohexane		50.0	50.5	ug/L	0.338	0.915	40	
Methylene Chloride		50.0	43.9	ug/L	0.248	12.2	40	

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 790099
Report generated 06/15/2007 09:31

CONTINUING CALIBRATION VERIFICATION (CCV)

00085135

Login Number: L0706194
Run Date: 06/11/2007
Sample ID: WG242224-02
Instrument ID: HPMS6
Run Time: 08:07
Method: 8260B
File ID: 6M66609
Analyst: CMS
Workgroup (AAB#): WG242225
Cal ID: HPMS6 - 08-MAY-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Styrene		50.0	47.7	ug/L	1.01	4.67	40	
Tetrachloroethene		50.0	46.9	ug/L	0.311	6.29	40	
trans-1,3-Dichloropropene		50.0	51.1	ug/L	0.433	2.14	40	
Trichloroethene		50.0	48.6	ug/L	0.251	2.84	40	
Trichlorofluoromethane		50.0	58.1	ug/L	0.593	16.1	40	
Xylenes		150	136	ug/L	0.590	9.65	40	
m-,p-Xylene		100	90.0	ug/L	0.599	9.95	40	
1,2-Dichloroethene		100	93.1	ug/L	0.241	6.94	40	
o-Xylene		50.0	45.5	ug/L	0.581	9.05	40	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 790099
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L0706194
Instrument ID: HPMS11
Workgroup (AAB#): WG242208

CCV Number: WG242207-02
CAL ID: HPMS11 - 08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242207-02	NA	NA	290274	548533	670480
Upper Limit	NA	NA	580548	1097066	1340960
Lower Limit	NA	NA	145137	274267	335240
L0706194-01	1.00	01	146842	288524	348042
WG242208-01	1.00	01	246317	467354	571344
WG242208-02	1.00	01	247889	469304	565442
WG242208-03	1.00	01	255748	473528	566085

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 790100
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L0706194
Instrument ID: HPMS6
Workgroup (AAB#): WG242225

CCV Number: WG242224-02
CAL ID: HPMS6 - 08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242224-02	NA	NA	449131	744359	942050
Upper Limit	NA	NA	898262	1488718	1884100
Lower Limit	NA	NA	224566	372180	471025
L0706194-02	1.00	01	295831	508944	665186
L0706194-03	1.00	01	285757	488160	636410
WG242225-01	1.00	01	398362	665684	864532
WG242225-02	1.00	01	412930	671993	850808
WG242225-03	1.00	01	320219	549252	711934
WG242225-04	1.00	01	344241	566558	722345
WG242225-05	1.00	01	352850	580660	746580

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 790100
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L0706194
Instrument ID: HPMS11
Workgroup (AAB#): WG242252

CCV Number: WG242250-02
CAL ID: HPMS11 - 08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242250-02	NA	NA	257380	483384	613031
Upper Limit	NA	NA	514760	966768	1226062
Lower Limit	NA	NA	128690	241692	306516
L0706194-01	200	DL01	194595	378765	475714
WG242252-01	1.00	01	219699	422653	526754
WG242252-02	1.00	01	230511	431735	529382
WG242252-03	1.00	01	174853	333410	419978
WG242252-04	1.00	01	195027	350471	427866
WG242252-05	1.00	01	201888	366163	451674

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

<u>Underline</u> = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 790100
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L0706194
Instrument ID: HPMS11
Workgroup (AAB#): WG242208

CCV Number: WG242207-02
CAL ID: HPMS11-08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242207-02	NA	NA	17.05	14.25	10.61
Upper Limit	NA	NA	17.55	14.75	11.11
Lower Limit	NA	NA	16.55	13.75	10.11
L0706194-01	1.00	01	17.048	14.246	10.606
WG242208-01	1.00	01	17.053	14.241	10.606
WG242208-02	1.00	01	17.048	14.241	10.606
WG242208-03	1.00	01	17.048	14.246	10.606

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 790102
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L0706194
Instrument ID: HPMS6
Workgroup (AAB#): WG242225

CCV Number: WG242224-02
CAL ID: HPMS6 - 08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242224-02	NA	NA	19.35	15.79	11.3
Upper Limit	NA	NA	19.85	16.29	11.8
Lower Limit	NA	NA	18.85	15.29	10.8
L0706194-02	1.00	01	19.35	15.78	11.29
L0706194-03	1.00	01	19.34	15.78	11.29
WG242225-01	1.00	01	19.35	15.78	11.29
WG242225-02	1.00	01	19.35	15.78	11.3
WG242225-03	1.00	01	19.34	15.78	11.3
WG242225-04	1.00	01	19.35	15.78	11.29
WG242225-05	1.00	01	19.34	15.78	11.29

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 790102
Report generated 06/15/2007 09:31

KEMRON ENVIRONMENTAL SERVICES
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L0706194
Instrument ID: HPMS11
Workgroup (AAB#): WG242252

CCV Number: WG242250-02
CAL ID: HPMS11 - 08-MAY-07
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG242250-02	NA	NA	17.05	14.25	10.61
Upper Limit	NA	NA	17.55	14.75	11.11
Lower Limit	NA	NA	16.55	13.75	10.11
L0706194-01	200	DL01	17.048	14.241	10.606
WG242252-01	1.00	01	17.048	14.241	10.606
WG242252-02	1.00	01	17.048	14.241	10.606
WG242252-03	1.00	01	17.048	14.241	10.606
WG242252-04	1.00	01	17.054	14.241	10.607
WG242252-05	1.00	01	17.048	14.241	10.607

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

KEMRON FORMS - Modified 02/20/2007
Version 1.3 PDF File ID: 790102
Report generated 06/15/2007 09:31

2.1.2 RSK 175

2.1.2.1 Summary Data

LABORATORY REPORT

00085144

L0706194

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW16	L0706194-01	RSK175	10	08-JUN-07
16WW16	L0706194-01	RSK175	50	08-JUN-07
16WW22	L0706194-02	RSK175	10	08-JUN-07
16WW22	L0706194-02	RSK175	50	08-JUN-07
16WW34	L0706194-03	RSK175	10	08-JUN-07
16WW34	L0706194-03	RSK175	50	08-JUN-07

Sample Number:L0706194-01
Client ID:16WW16
Matrix:Water
Workgroup Number:WG242372
Collect Date:06/07/2007 08:50
Sample Tag:DL01

PrePrep Method:NONE
Prep Method:5021
Analytical Method:RSK175
Analyst:FJB
Dilution:10
Units:ug/L

Instrument:HP16
Prep Date:06/12/2007 11:02
Cal Date:01/08/2007 16:52
Run Date:06/12/2007 11:02
File ID:16G7524

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	1300		5.0	2.5
Ethene	74-85-1	3.1	J	5.0	2.5
Ethane	74-84-0	2.7	J	5.0	2.5
Carbon Dioxide		170000	I	5000	2500

J The analyte was positively identified, but the quantitation was below the RL
I Semiquantitative result (out of instrument calibration range)

Sample Number:L0706194-01
Client ID:16WW16
Matrix:Water
Workgroup Number:WG242585
Collect Date:06/07/2007 08:50
Sample Tag:DL02

PrePrep Method:NONE
Prep Method:5021
Analytical Method:RSK175
Analyst:FJB
Dilution:50
Units:ug/L

Instrument:HP16
Prep Date:06/14/2007 11:57
Cal Date:01/08/2007 16:52
Run Date:06/14/2007 11:57
File ID:16G7578

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	1100		25	13
Ethene	74-85-1		U	25	13
Ethane	74-84-0		U	25	13
Carbon Dioxide		210000		25000	13000

U Not detected at or above adjusted sample detection limit

Sample Number: L0706194-02
Client ID: 16WW22
Matrix: Water
Workgroup Number: WG242372
Collect Date: 06/07/2007 12:00
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 5021
Analytical Method: RSK175
Analyst: FJB
Dilution: 10
Units: ug/L

Instrument: HP16
Prep Date: 06/12/2007 11:16
Cal Date: 01/08/2007 16:52
Run Date: 06/12/2007 11:16
File ID: 16G7525

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	4.8	J	5.0	2.5
Ethene	74-85-1		U	5.0	2.5
Ethane	74-84-0		U	5.0	2.5
Carbon Dioxide		100000	I	5000	2500

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL
I Semiquantitative result (out of instrument calibration range)

Sample Number: **L0706194-02**
Client ID: **16WW22**
Matrix: **Water**
Workgroup Number: **WG242585**
Collect Date: **06/07/2007 12:00**
Sample Tag: **DL02**

PrePrep Method: **NONE**
Prep Method: **5021**
Analytical Method: **RSK175**
Analyst: **FJB**
Dilution: **50**
Units: **ug/L**

Instrument: **HP16**
Prep Date: **06/14/2007 12:11**
Cal Date: **01/08/2007 16:52**
Run Date: **06/14/2007 12:11**
File ID: **16G7579**

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	29		25	13
Ethene	74-85-1		U	25	13
Ethane	74-84-0		U	25	13
Carbon Dioxide		98000		25000	13000

U Not detected at or above adjusted sample detection limit

Sample Number:	L0706194-03	PrePrep Method:	NONE	Instrument:	HP16
Client ID:	16WW34	Prep Method:	5021	Prep Date:	06/12/2007 11:30
Matrix:	Water	Analytical Method:	RSK175	Cal Date:	01/08/2007 16:52
Workgroup Number:	WG242372	Analyst:	FJB	Run Date:	06/12/2007 11:30
Collect Date:	06/07/2007 14:00	Dilution:	10	File ID:	16G7526
Sample Tag:	DL01	Units:	ug/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	5.1		5.0	2.5
Ethene	74-85-1		U	5.0	2.5
Ethane	74-84-0		U	5.0	2.5
Carbon Dioxide		110000	I	5000	2500

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number: **L0706194-03**
Client ID: **16WW34**
Matrix: **Water**
Workgroup Number: **WG242585**
Collect Date: **06/07/2007 14:00**
Sample Tag: **DL02**

PrePrep Method: **NONE**
Prep Method: **5021**
Analytical Method: **RSK175**
Analyst: **FJB**
Dilution: **50**
Units: **ug/L**

Instrument: **HP16**
Prep Date: **06/14/2007 12:25**
Cal Date: **01/08/2007 16:52**
Run Date: **06/14/2007 12:25**
File ID: **16G7580**

Analyte	CAS. Number	Result	Qual	PQL	SQL
Methane	74-82-8	34		25	13
Ethene	74-85-1		U	25	13
Ethane	74-84-0		U	25	13
Carbon Dioxide		150000		25000	13000

U Not detected at or above adjusted sample detection limit

2.1.2.2 QC Summary Data

Checklist ID: 13641 00085152

KEMRON Environmental Services
Data Checklist

Date: 08-JAN-2007
Analyst: JLS
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 14130
Analytical Workgroups: WG231016

System Performance Check	NA
BFB	NA
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Excel Spreadsheets	X
Case Narrative	X
Narrative Summary	NA
Results Reporting/Data Qualifiers	X
Client Data Package Assembly	X
Check for Completeness	X
Primary Reviewer	FJB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
11-JAN-2007

Secondary Reviewer:
12-JAN-2007

Generated: JAN-16-2007 10:45:32

KEMRON Environmental Services
Data Checklist

Date: 12-JUN-2007
Analyst: FJB
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 16685
Analytical Workgroups: WG242372

System Performance Check	NA
BFB	NA
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Excel Spreadsheets	X
Case Narrative	X
Narrative Summary	NA
Results Reporting/Data Qualifiers	X
Client Data Package Assembly	X
Check for Completeness	X
Primary Reviewer	SMH
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
15-JUN-2007
Shauna Hyde

Secondary Reviewer:
19-JUN-2007

Generated: JUN-19-2007 08:32:52

KEMRON Environmental Services
Data Checklist

Date: 14-JUN-2007
Analyst: FJB
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 16687
Analytical Workgroups: WG242585

System Performance Check	NA
BFB	NA
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Excel Spreadsheets	X
Case Narrative	X
Narrative Summary	NA
Results Reporting/Data Qualifiers	X
Client Data Package Assembly	X
Check for Completeness	X
Primary Reviewer	SMH
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
15-JUN-2007
Shauna Hyde

Secondary Reviewer:
18-JUN-2007

Generated: JUN-18-2007 09:59:21

RSK-175 - Example Calculation for Methane

ICAL Plot - Linear Regression (y = ax)

1.0 Calculate the Regression Constant (a)

Where:
ICAL_x = the ICAL concentration = x
ICAL_r = the ICAL response (area) = y

ICAL_x	ICAL_r	[ICAL_r}^2	[ICAL-x][ICAL-r]
0.1	21538	463885444	2153.8
1	77578	6018346084	77578
10	665937	4.43472E+11	6659370
20	1376031	1.89346E+12	27520620
50	3424931	1.17302E+13	171246550
100	6927945	4.79964E+13	692794500
200	14533928	2.11235E+14	2906785600
300	21776507	4.74216E+14	6532952100
		7.47521E+14	10338038472
		a:	**72307.84758**

2.0 Calculate the concentration in extract, x:

Where:
y = response of methane from quant report = **37493410**
x = y/a = 37493410/72307 = 518.52

3.0 Calculate the concentration in sample, Cs:

Cs = x (MW/Tf) (HS/S) (DF)

Where:

x = Concentration in extract	**518.5247695**	umol/mol
MW = molecular weight of analyte	**16.04**	ug/umol
TF = temperature factor = (22.45)(313/273)	**25.68**	L/mol
HS = headspace volume	**0.015**	L
S = sample volume remaining after headspace removal	**0.00547**	L
DF = dilution factor	**10**	
Cs = calculated sample concentration	**8881.427692**	ug/L

RSK-175 - Example Calculation for Carbon Dioxide

ICAL Plot - Quadratic Regression (y = Ax^2 + Bx +C)

Ax^2 + Bx + (C - y) = 0

Step 1 - Calculate the concentration in extract, x:

<u>Data from quadratic regression plot:</u>		
Value of A from plot:	**0.916**	
Value of B from plot:	**1540**	
Value of C from plot:	**0**	
Response for carbon dioxide from quantitation report (y):	**8763828**	
Value of C - y	**-8763828**	
<u>Solving for x using the quadratic formula:</u>		
Root 1 - Computed x1:	**2364.716284**	umol/mol
Root 2 - Computed x2:	**-4045.938991**	

Step 2 - Calculate the concentration in sample, Cs:

Cs = x (MW/Tf) (HS/S) (DF)

Where:

x = Concentration in extract :	**2364.716284**	umol/mol
MW = molecular weight of analyte:	**44**	ug/umol
TF = temperature factor = (22.45)(313/273):	**25.68**	L/mol
HS = initial headspace volume (extraction log):	**0.015**	L
S = final volume (extraction log):	**0.00547**	L
DF = dilution factor:	**1**	
Cs = calculated sample concentration:	**11110.6798**	ug/L

Note: Temperature = 40 C = 313 K

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 010807

Analyst1: JLS Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Method: 5021 SOP: RSK01 Rev: 7

Maintenance Log ID: 17380

Internal Standard: NA Surrogate Standard: NA

CCV: STD15381 LCS: STD15381 MS/MSD: STD15381

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG231016

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	16G5766	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 10:36
2	16G5767	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 11:00
3	16G5768	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 12:39
4	16G5769	WG231016-01 50umol/mol STD	NA	1	1	STD15381	01/08/07 14:19
5	16G5770	WG231016-01 .1umol/mol STD	NA	1	1	STD15381	01/08/07 15:14
6	16G5771	WG231016-02 1umol/mol STD	NA	1	1	STD15381	01/08/07 15:28
7	16G5772	WG231016-03 10umol/mol STD	NA	1	1	STD15381	01/08/07 15:42
8	16G5773	WG231016-04 20umol/mol STD	NA	1	1	STD15381	01/08/07 15:56
9	16G5774	WG231016-05 50umol/mol STD	NA	1	1	STD15381	01/08/07 16:10
10	16G5775	WG231016-06 100umol/mol STD	NA	1	1	STD15381	01/08/07 16:24
11	16G5776	WG231016-07 200umol/mol STD	NA	1	1	STD15381	01/08/07 16:38
12	16G5777	WG231016-08 300umol/mol STD	NA	1	1	STD15381	01/08/07 16:52
13	16G5778	WG231016-09 20umol/mol ALT SOURCE	NA	1	1	STD15381	01/08/07 17:06

Comments

Seq.	Rerun	Dil.	Reason	Analytes
4				
File ID: 16G5769				
	RUN NEW CURVE			

Approved: January 12, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061207

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19584

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242372

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	16G7517	WG242371-01 50umol/mol STD	NA	1	1	STD18652	06/12/07 09:11
2	16G7518	WG242372-01 BLANK	NA	1	1		06/12/07 09:33
3	16G7519	WG242372-02 20umol/mol LCS	NA	1	1	STD18652	06/12/07 09:47
4	16G7520	WG242372-03 20umol/mol LCS DUP	NA	1	1	STD18652	06/12/07 10:01
5	16G7521	L0706148-01 A 10X	7	1	10		06/12/07 10:20
6	16G7522	L0706148-02 A 10X	7	1	10		06/12/07 10:34
7	16G7523	L0706148-03 A 10X	7	1	10		06/12/07 10:48
8	16G7524	L0706194-01 A 10X	7	1	10		06/12/07 11:02
9	16G7525	L0706194-02 A 10X	7	1	10		06/12/07 11:16
10	16G7526	L0706194-03 A 10X	7	1	10		06/12/07 11:30
11	16G7527	WG242371-02 50umol/mol STD	NA	1	1	STD18652	06/12/07 11:44
12	16G7528	L0706073-10 A 10X	7	1	10		06/12/07 12:27
13	16G7529	L0706073-11 A 10X	7	1	10		06/12/07 12:41
14	16G7530	L0706073-12 A 10X	7	1	10		06/12/07 12:55
15	16G7531	L0706073-13 B 10X	7	1	10		06/12/07 13:09
16	16G7532	WG242371-03 50umol/mol STD	7	1	1	STD18652	06/12/07 13:23
17	16G7533	L0706190-01 A	NA	1	1		06/12/07 14:52
18	16G7534	L0706190-03 A	7	1	1		06/12/07 15:06
19	16G7535	L0706250-04 A	7	1	1		06/12/07 15:20
20	16G7536	L0706250-05 A MS	7	1	1	STD18652	06/12/07 15:38
21	16G7537	L0706250-06 A MSD	7	1	1	STD18652	06/12/07 15:52
22	16G7538	L0706250-07 A	7	1	1		06/12/07 16:06
23	16G7539	L0706250-08 A	4	1	1		06/12/07 16:20
24	16G7540	L0706254-02 A	7	1	1		06/12/07 16:34
25	16G7541	L0706254-03 A	7	1	1		06/12/07 16:48
26	16G7542	L0706254-04 A	7	1	1		06/12/07 17:02
27	16G7543	WG242371-04 50umol/mol STD	NA	1	1	STD18652	06/12/07 17:16

Comments

Seq.	Rerun	Dil.	Reason	Analytes
6	X	50	Over Calibration Range	CO2
File ID: 16G7522				

Approved: June 19, 2007

Page: 1

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061207

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19584

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242372

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7	X	50	Over Calibration Range	CO2
File ID: 16G7523				
8	X	50	Over Calibration Range	CO2
File ID: 16G7524				
9	X	50	Over Calibration Range	CO2
File ID: 16G7525				
10	X	50	Over Calibration Range	CO2
File ID: 16G7526				
12	X	50	Over Calibration Range	CO2
File ID: 16G7528				
13	X	50	Over Calibration Range	CO2
File ID: 16G7529				
14	X	50	Over Calibration Range	CO2
File ID: 16G7530				
15	X	50	Over Calibration Range	CO2
File ID: 16G7531				
19	X	10	Over Calibration Range	METHANE
File ID: 16G7535				
22	X	50	Over Calibration Range	METHANE
File ID: 16G7538				
23	X	50	Over Calibration Range	CO2
File ID: 16G7539				
24	X	10	Over Calibration Range	METHANE
File ID: 16G7540				
25	X	100	Over Calibration Range	METHANE

Approved: June 19, 2007

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061207

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19584

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242372

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 16G7541				
26	X	100	Over Calibration Range	METHANE
File ID: 16G7542				

Approved: June 19, 2007

Page: 3

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061407
Analyst1: FJB Analyst2: NA
Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19586

Internal Standard: NA Surrogate Standard: NA
CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT
Workgroups: WG242585

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	16G7570	WG242582-01 50umol/mol STD	NA	1	1	STD18652	06/14/07 09:55
2	16G7571	WG242585-01 BLANK	NA	1	1		06/14/07 10:14
3	16G7572	WG242585-02 20umol/mol LCS	NA	1	1	STD18652	06/14/07 10:28
4	16G7573	WG242585-03 20umol/mol LCS DUP	NA	1	1	STD18652	06/14/07 10:42
5	16G7574	L0706043-15 C 100X	7	1	100		06/14/07 11:01
6	16G7575	L0706043-16 C 50X	7	1	50		06/14/07 11:15
7	16G7576	L0706148-02 B 50X	7	1	50		06/14/07 11:29
8	16G7577	L0706148-03 B 50X	7	1	50		06/14/07 11:43
9	16G7578	L0706194-01 B 50X	7	1	50		06/14/07 11:57
10	16G7579	L0706194-02 B 50X	7	1	50		06/14/07 12:11
11	16G7580	L0706194-03 B 50X	7	1	50		06/14/07 12:25
12	16G7581	WG242582-02 50umol/mol STD	NA	1	1	STD18652	06/14/07 12:39
13	16G7582	L0706073-14 A 10X	7	1	10		06/14/07 12:57
14	16G7583	L0706073-15 A 10X	7	1	10		06/14/07 13:11
15	16G7584	WG242582-03 50umol/mol STD	NA	1	1	STD18652	06/14/07 13:25
16	16G7585	L0706073-01 B 50X	7	1	50		06/14/07 14:20
17	16G7586	L0706073-02 B 50X	7	1	50		06/14/07 14:34
18	16G7587	L0706073-03 B 10X	7	1	10		06/14/07 14:49
19	16G7588	L0706073-04 B 10X MS	7	1	10	STD18652	06/14/07 15:09
20	16G7589	L0706073-05 B 10X MSD	7	1	10	STD18652	06/14/07 15:23
21	16G7590	WG242582-04 50umol/mol STD	NA	1	1	STD18652	06/14/07 15:37
22	16G7591	L0706073-06 B 50X	7	1	50		06/14/07 15:51
23	16G7592	L0706073-07 B 50X	7	1	50		06/14/07 16:05
24	16G7593	L0706073-08 B 100X	7	1	100		06/14/07 16:19
25	16G7594	L0706073-09 B 50X	7	1	50		06/14/07 16:33
26	16G7595	L0706073-10 B 50X	7	1	50		06/14/07 16:47
27	16G7596	L0706104-01 A 10X	7	1	10		06/14/07 17:01
28	16G7597	WG242582-05 50umol/mol STD	NA	1	1	STD18652	06/14/07 17:15

Comments

Seq.	Rerun	Dil.	Reason	Analytes
27	X	100	Over Calibration Range	CO2
File ID: 16G7596				

Approved: June 18, 2007

Page: 1

KEMRON Environmental Services

Instrument Run Log

Instrument: HP16 Dataset: 061407

Analyst1: FJB Analyst2: NA

Method: RSK175 SOP: RSK01 Rev: 7

Maintenance Log ID: 19586

Internal Standard: NA Surrogate Standard: NA

CCV: STD18652 LCS: STD18652 MS/MSD: STD18652

Column 1 ID: RTQPLOT Column 2 ID: RTQPLOT

Workgroups: WG242585

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Approved: June 18, 2007

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: RSK175 AAB#: WG242372

Login Number: L0706194

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW34	06/07/07	06/08/07	06/12/07	14	4.90	06/12/07	14	4.90	
16WW16	06/07/07	06/08/07	06/12/07	14	5.09	06/12/07	14	5.09	
16WW22	06/07/07	06/08/07	06/12/07	14	4.97	06/12/07	14	4.97	

* EXT = SEE PROJECT QAPP REQUIREMENTS

*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 796785
Report generated 06/20/2007 13:34

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: RSK175 AAB#: WG242585

Login Number: L0706194

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW16	06/07/07	06/08/07	06/14/07	14	7.13	06/14/07	14	7.13	
16WW22	06/07/07	06/08/07	06/14/07	14	7.01	06/14/07	14	7.01	
16WW34	06/07/07	06/08/07	06/14/07	14	6.93	06/14/07	14	6.93	

* EXT = SEE PROJECT QAPP REQUIREMENTS

*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 796785
Report generated 06/20/2007 13:34

METHOD BLANK SUMMARY

Login Number:	L0706194	Work Group:	WG242372
Blank File ID:	16G7518	Blank Sample ID:	WG242372-01
Prep Date:	06/12/07 09:33	Instrument ID:	HP16
Analyzed Date:	06/12/07 09:33	Method:	RSK175
Analyst:	FJB		

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242372-02	16G7519	06/12/07 09:47	01
LCS2	WG242372-03	16G7520	06/12/07 10:01	01
16WW16	L0706194-01	16G7524	06/12/07 11:02	DL01
16WW22	L0706194-02	16G7525	06/12/07 11:16	DL01
16WW34	L0706194-03	16G7526	06/12/07 11:30	DL01

METHOD BLANK SUMMARY

Login Number: L0706194
Blank File ID: 16G7571
Prep Date: 06/14/07 10:14
Analyzed Date: 06/14/07 10:14
Analyst: FJB

Work Group: WG242585
Blank Sample ID: WG242585-01
Instrument ID: HP16
Method: RSK175

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242585-02	16G7572	06/14/07 10:28	01
LCS2	WG242585-03	16G7573	06/14/07 10:42	01
16WW16	L0706194-01	16G7578	06/14/07 11:57	DL02
16WW22	L0706194-02	16G7579	06/14/07 12:11	DL02
16WW34	L0706194-03	16G7580	06/14/07 12:25	DL02

METHOD BLANK REPORT

Login Number: L0706194 Prep Date: 06/12/07 09:33 Sample ID: WG242372-01
Instrument ID: HP16 Run Date: 06/12/07 09:33 Prep Method: 5021
File ID: 16G7518 Analvst: FJB Method: RSK175
Workgroup (AAB#): WG242372 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HP16 - 08-JAN-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Methane	0.250	0.50	0.250	1	U
Ethene	0.250	0.50	0.250	1	U
Ethane	0.250	0.50	0.250	1	U
Carbon Dioxide	250	500	250	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 793234
Report generated 06/20/2007 13:34

METHOD BLANK REPORT

Login Number: L0706194 Prep Date: 06/14/07 10:14 Sample ID: WG242585-01
Instrument ID: HP16 Run Date: 06/14/07 10:14 Prep Method: 5021
File ID: 16G7571 Analyst: FJB Method: RSK175
Workgroup (AAB#): WG242585 Matrix: Water Units: ug/L
Contract #: DACA56-94-D-0020 Cal ID: HP16 - 08-JAN-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Methane	0.250	0.50	0.281	1	J
Ethene	0.250	0.50	0.250	1	U
Ethane	0.250	0.50	0.250	1	U
Carbon Dioxide	250	500	250	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 793234
Report generated 06/20/2007 13:34

KEMRON Environmental Services

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Analvst: FJB Prep Method: 5021
Instrument ID: HP16 Matrix: Water Method: RSK175
Workgroup (AAB#): WG242585 Units: ug/L
Sample ID: WG242585-02 LCS File ID: 16G7572 Run Date: 06/14/2007 10:28
Sample ID: WG242585-03 LCS2 File ID: 16G7573 Run Date: 06/14/2007 10:42

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Methane	34.3	30.1	87.8	34.3	32.6	95.3	8.21	56 - 140	40	
Ethene	59.9	53.1	88.7	59.9	58.0	96.8	8.72	56 - 140	40	
Ethane	64.2	56.3	87.8	64.2	61.4	95.6	8.58	56 - 137	40	
Carbon Dioxide	1410	1500	106	1410	1210	86.0	21.2	50 - 150	40	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 793235
Report generated 06/20/2007 13:34

00085170

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Analvst: FJB Prep Method: 5021
Instrument ID: HP16 Matrix: Water Method: RSK175
Workgroup (AAB#): WG242372 Units: ug/L
Sample ID: WG242372-02 LCS File ID: 16G7519 Run Date: 06/12/2007 09:47
Sample ID: WG242372-03 LCS2 File ID: 16G7520 Run Date: 06/12/2007 10:01

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Methane	34.3	33.6	98.2	34.3	30.3	88.6	10.3	56 - 140	40	
Ethene	59.9	59.3	99.0	59.9	54.2	90.5	9.06	56 - 140	40	
Ethane	64.2	63.2	98.5	64.2	58.1	90.4	8.54	56 - 137	40	
Carbon Dioxide	1410	1400	99.0	1410	1410	100	1.17	50 - 150	40	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 793235
Report generated 06/20/2007 13:34

Login Number: L0706194
Analytical Method: RSK175
ICAL Workgroup: WG231016

Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
carbon dioxide		3063	21.6		0.999
ethane		157300	15.9	0.999	
ethene		156800	21.1	0.999	
methane		111400	70.0	0.999	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 796786
Report generated 06/20/2007 13:34

INITIAL CALIBRATION DATA

00085172

Login Number: L0706194
Analytical Method: RSK175
Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte	WG231016-01			WG231016-02			WG231016-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
carbon dioxide	50.0	193826.000	3877	100	354261.000	3543	200	527788.000	2639
ethane	0.100	21151.0000	211500	1.00	156994.000	157000	10.0	1466086.00	146600
ethene	0.100	23051.0000	230500	1.00	150346.000	150300	10.0	1436526.00	143700
methane	0.100	28696.0000	287000	1.00	102622.000	102600	10.0	785304.000	78530

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 796786
Report generated 06/20/2007 13:34

Login Number: L0706194
Analytical Method: RSK175
Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte	WG231016-04			WG231016-06			WG231016-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
carbon dioxide	300	722371.000	2408	500	1155791.00	2312	1000	2874182.00	2874
ethane	20.0	2721136.00	136100	100	14910718.0	149100	200	28920601.0	144600
ethene	20.0	2678018.00	133900	100	14417593.0	144200	200	28265113.0	141300
methane	20.0	1459030.00	72950	100	7868122.00	78680	200	15414754.0	77070

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 796786
Report generated 06/20/2007 13:34

Login Number: L0706194
Analytical Method: RSK175
Instrument ID: HP16
Initial Calibration Date: 08-JAN-07 16:52
Column ID: F

Analyte	WG231016-08		
	CONC	RESP	RF
carbon dioxide	2000	7581941.00	3791
ethane	300	46954497.0	156500
ethene	300	46020766.0	153400
methane	300	24903631.0	83010

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 796786
Report generated 06/20/2007 13:34

KEMRON Environmental Services

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706194 Run Date: 01/08/2007 Sample ID: WG231016-09
Instrument ID: HP16 Run Time: 17:06 Method: RSK175
File ID: 16G5778 Analvst: JLS
ICal Workgroup: WG231016 Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
methane		34.3	31.5	ug/L	74300	8.10	30	
ethene		59.9	53.8	ug/L	134000	10.1	30	
ethane		64.2	57.7	ug/L	137000	10.0	30	
carbon dioxide		1410	741	ug/L	1180	47.4	60	

* Exceeds %D Limit

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 796787
Report generated 06/20/2007 13:34

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194
Run Date: 06/12/2007
Sample ID: WG242371-01
Instrument ID: HP16
Run Time: 09:11
Method: RSK175
File ID: 16G7517
Analyst: FJB
Workgroup (AAB#): WG242372
Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	80.3	ug/L	75900	6.18	25	
ethene		150	144	ug/L	143000	3.95	25	
ethane		160	153	ug/L	145000	4.89	25	
carbon dioxide		1880	1430	ug/L	1800	23.7	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796788
Report generated 06/20/2007 13:34

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194 Run Date: 06/12/2007 Sample ID: WG242371-02
Instrument ID: HP16 Run Time: 11:44 Method: RSK175
File ID: 16G7527 Analyst: FJB
Workgroup (AAB#): WG242372 Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	72.7	ug/L	68700	15.1	25	
ethene		150	129	ug/L	128000	14.0	25	
ethane		160	138	ug/L	131000	14.3	25	
carbon dioxide		1880	1450	ug/L	1830	22.8	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796788
Report generated 06/20/2007 13:34

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194
Run Date: 06/14/2007
Sample ID: WG242582-01
Instrument ID: HP16
Run Time: 09:55
Method: RSK175
File ID: 16G7570
Analyst: FJB
Workgroup (AAB#): WG242585
Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	71.3	ug/L	67400	16.7	25	
ethene		150	128	ug/L	128000	14.4	25	
ethane		160	136	ug/L	129000	15.5	25	
carbon dioxide		1880	2030	ug/L	2660	7.95	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796788
Report generated 06/20/2007 13:34

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194 Run Date: 06/14/2007 Sample ID: WG242582-02
Instrument ID: HP16 Run Time: 12:39 Method: RSK175
File ID: 16G7581 Analyst: FJB
Workgroup (AAB#): WG242585 Cal ID: HP16 - 08-JAN-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		85.6	84.9	ug/L	80200	0.815	25	
ethene		150	150	ug/L	149000	0.0550	25	
ethane		160	160	ug/L	152000	0.534	25	
carbon dioxide		1880	1000	ug/L	1220	46.6	60	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 796788
Report generated 06/20/2007 13:34

2.2 General Chemistry Data

2.2.1 Method 9056

2.2.1.1 Summary Data

LABORATORY REPORT

00085183

L0706194

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW16	L0706194-01	300.0	50	08-JUN-07
16WW16	L0706194-01	300.0	100	08-JUN-07
16WW22	L0706194-02	300.0	20	08-JUN-07
16WW22	L0706194-02	300.0	200	08-JUN-07
16WW34	L0706194-03	300.0	2	08-JUN-07
16WW34	L0706194-03	300.0	40	08-JUN-07

Sample Number: L0706194-01
Client ID: 16WW16
Matrix: Water
Workgroup Number: WG242485
Collect Date: 06/07/2007 08:50
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 300.0
Analytical Method: 300.0
Analyst: DSF
Dilution: 50
Units: mg/L

Instrument: IC2
Prep Date: 06/08/2007 12:45
Cal Date: 03/24/2007 11:20
Run Date: 06/08/2007 12:45
File ID: I2060807.15

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	938	I	10.0	5.00
Nitrate	14797-55-8		U	30.0	5.00
Nitrite	14797-65-0		U	20.0	5.00
Sulfate	14808-79-8	1180		50.0	25.0

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number:	L0706194-01	PrePrep Method:	NONE	Instrument:	IC2
Client ID:	16WW16	Prep Method:	300.0	Prep Date:	06/08/2007 17:06
Matrix:	Water	Analytical Method:	300.0	Cal Date:	03/24/2007 11:20
Workgroup Number:	WG242485	Analyst:	DSF	Run Date:	06/08/2007 17:06
Collect Date:	06/07/2007 08:50	Dilution:	100	File ID:	I2060807.30
Sample Tag:	DL02	Units:	mg/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	918		20.0	10.0
Nitrate	14797-55-8		U	60.0	10.0
Nitrite	14797-65-0		U	40.0	10.0
Sulfate	14808-79-8	1170		100	50.0

U Not detected at or above adjusted sample detection limit

Sample Number:L0706194-02
Client ID:16WW22
Matrix:Water
Workgroup Number:WG242485
Collect Date:06/07/2007 12:00
Sample Tag:DL01

PrePrep Method:NONE
Prep Method:300.0
Analytical Method:300.0
Analyst:DSF
Dilution:20
Units:mg/L

Instrument:IC2
Prep Date:06/08/2007 13:02
Cal Date:03/24/2007 11:20
Run Date:06/08/2007 13:02
File ID:I2060807.16

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	1040	I	4.00	2.00
Nitrate	14797-55-8		U	12.0	2.00
Nitrite	14797-65-0		U	8.00	2.00
Sulfate	14808-79-8	323		20.0	10.0

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number: L0706194-02
Client ID: 16WW22
Matrix: Water
Workgroup Number: WG242485
Collect Date: 06/07/2007 12:00
Sample Tag: DL02

PrePrep Method: NONE
Prep Method: 300.0
Analytical Method: 300.0
Analyst: DSF
Dilution: 200
Units: mg/L

Instrument: IC2
Prep Date: 06/08/2007 17:24
Cal Date: 03/24/2007 11:20
Run Date: 06/08/2007 17:24
File ID: I2060807.31

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	980		40.0	20.0
Nitrate	14797-55-8		U	120	20.0
Nitrite	14797-65-0		U	80.0	20.0
Sulfate	14808-79-8	317		200	100

U Not detected at or above adjusted sample detection limit

Sample Number: **L0706194-03**
Client ID: **16WW34**
Matrix: **Water**
Workgroup Number: **WG242485**
Collect Date: **06/07/2007 14:00**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **300.0**
Analytical Method: **300.0**
Analyst: **DSF**
Dilution: **2**
Units: **mg/L**

Instrument: **IC2**
Prep Date: **06/08/2007 13:20**
Cal Date: **03/24/2007 11:20**
Run Date: **06/08/2007 13:20**
File ID: **I2060807.17**

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	223	I	0.400	0.200
Nitrate	14797-55-8		U	1.20	0.200
Nitrite	14797-65-0		U	0.800	0.200
Sulfate	14808-79-8	33.5		2.00	1.00

U Not detected at or above adjusted sample detection limit
I Semiquantitative result (out of instrument calibration range)

Sample Number:	L0706194-03	PrePrep Method:	NONE	Instrument:	IC2
Client ID:	16WW34	Prep Method:	300.0	Prep Date:	06/08/2007 17:41
Matrix:	Water	Analytical Method:	300.0	Cal Date:	03/24/2007 11:20
Workgroup Number:	WG242485	Analyst:	DSF	Run Date:	06/08/2007 17:41
Collect Date:	06/07/2007 14:00	Dilution:	40	File ID:	I2060807.32
Sample Tag:	DL02	Units:	mg/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Chloride	16887-00-6	218		8.00	4.00
Nitrate	14797-55-8		U	24.0	4.00
Nitrite	14797-65-0		U	16.0	4.00
Sulfate	14808-79-8	30.8	J	40.0	20.0

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

2.2.1.2 QC Summary Data

The concentrations (ppm) of the calibration standards and the resulting area counts are used to determine the equation of a linear or quadratic plot.
The slope and y-intercept of that line are used to calculate the quantity of the analyzed unkown samples.
Amount(ppm) = [(slope)(area count of unknown) + y-intercept](dilution)
(The slope is the amt/area also identified as the CF or calibration factor)

Run Log ID: 15285

00085192

KEMRON Environmental Services

Instrument Run Log

Instrument: IC2 Dataset: 032407 CURVE IC2.SEQ

Analyst1: JWR Analyst2: NA

Method: 9056/300 SOP: IC1 Rev: 7

Maintenance Log ID: 18409

Column 1 ID: AS14A-4MM Column 2 ID: NA

Workgroups: WG236271

Internal STD: NA Surrogate STD: NA Calibration STD STD17414

Comments: Method 300/9056 Calibration Curve and Alt. Source were analyzed only.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I2032407.01	WG236271-01 STD \#1	1	1		03/24/07 09:36
2	I2032407.02	WG236271-02 STD \#1.5	1	1		03/24/07 09:53
3	I2032407.03	WG236271-03 STD \#2	1	1		03/24/07 10:11
4	I2032407.04	WG236271-04 STD \#3	1	1		03/24/07 10:28
5	I2032407.05	WG236271-05 STD \#4	1	1		03/24/07 10:46
6	I2032407.06	WG236271-06 STD \#5	1	1		03/24/07 11:03
7	I2032407.07	WG236271-07 STD \#6	1	1		03/24/07 11:20
8	I2032407.08	WG236271-08 ALT STD	1	1		03/24/07 11:38
9	I2032407.09	ELUENT	1	1		03/24/07 11:55
10	I2032407.10	DI WATER	1	1		03/24/07 12:13

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Approved: 27-MAR-07

KEMRON Environmental Services

Instrument Run Log

Instrument: IC2 Dataset: 060807 IC2.SEQ

Analyst1: DSF Analyst2: NA

Method: 9056/300 SOP: IC1 Rev: 7

Maintenance Log ID: 19538

Column 1 ID: AS14A-4MM Column 2 ID: NA

Workgroups: WG242485

Internal STD: NA Surrogate STD: NA Calibration STD STD17414

Comments: L0706194 samples were analyzed for Cl, NO2, NO3 and SO4.
L0706201 samples were analyzed for Cl, NO2, Br, NO3 and SO4.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I2060807.09	ELUENT	1	1		06/08/07 11:01
2	I2060807.10	DI WATER	1	1		06/08/07 11:18
3	I2060807.11	WG242486-01 ANION CCV	1	1		06/08/07 11:35
4	I2060807.12	WG242486-02 ANION CCB	1	1		06/08/07 11:53
5	I2060807.13	WG242485-01 ANION BLANK	1	1		06/08/07 12:10
6	I2060807.14	WG242485-02 ANION LCS	1	1		06/08/07 12:28
7	I2060807.15	L0706194-01 (Cl, NO2, NO3, SO4) 1/50	1	50		06/08/07 12:45
8	I2060807.16	L0706194-02 (Cl, NO2, NO3, SO4) 1/20	1	20		06/08/07 13:02
9	I2060807.17	L0706194-03 (Cl, NO2, NO3, SO4) REF 1/2	1	2		06/08/07 13:20
10	I2060807.18	WG242485-04 DUP 194-03 1/2	1	2		06/08/07 13:37
11	I2060807.19	L0706201-02 (Cl, NO2, Br, NO3, SO4)	1	1		06/08/07 13:55
12	I2060807.20	L0706201-03 (Cl, NO2, Br, NO3, SO4)	1	1		06/08/07 14:12
13	I2060807.21	L0706201-04 (Cl, NO2, Br, NO3, SO4) REF	1	1		06/08/07 14:30
14	I2060807.22	WG242485-06 DUP 201-04	1	1		06/08/07 14:47
15	I2060807.23	WG242486-03 ANION CCV	1	1		06/08/07 15:04
16	I2060807.24	WG242486-04 ANION CCB	1	1		06/08/07 15:22
17	I2060807.25	L0706201-05 MS	1	1		06/08/07 15:39
18	I2060807.26	L0706201-06 MSD	1	1		06/08/07 15:57
19	I2060807.27	L0706201-07 (Cl, NO2, Br, NO3, SO4)	1	1		06/08/07 16:14
20	I2060807.28	L0706201-08 (Cl, NO2, Br, NO3, SO4)	1	1		06/08/07 16:32
21	I2060807.29	L0706201-10 (Cl, NO2, Br, NO3, SO4)	1	1		06/08/07 16:49
22	I2060807.30	L0706194-01 RR Cl 1/100	1	100		06/08/07 17:06
23	I2060807.31	L0706194-02 RR Cl 1/200	1	200		06/08/07 17:24
24	I2060807.32	L0706194-03 RR Cl 1/40	1	40		06/08/07 17:41
25	I2060807.33	L0706201-02 RR Cl 1/5	1	5		06/08/07 17:59
26	I2060807.34	L0706201-03 RR Cl, Br 1/5	1	5		06/08/07 18:16
27	I2060807.35	WG242486-05 ANION CCV	1	1		06/08/07 18:33
28	I2060807.36	WG242486-06 ANION CCB	1	1		06/08/07 18:51
29	I2060807.37	L0706201-04 RR Cl 1/5	1	5		06/08/07 19:08
30	I2060807.38	L0706201-07 RR Cl 1/5	1	5		06/08/07 19:26
31	I2060807.39	L0706201-08 RR Cl 1/5	1	5		06/08/07 19:43
32	I2060807.40	L0706201-10 RR Cl 1/5	1	5		06/08/07 20:01
33	I2060807.41	WG242486-07 ANION CCV	1	1		06/08/07 20:18
34	I2060807.42	WG242486-08 ANION CCB	1	1		06/08/07 20:35

Approved: 15-JUN-07

Michael Cochran

KEMRON Environmental Services

Instrument Run Log

Instrument: IC2 Dataset: 060807 IC2.SEQ

Analyst1: DSF Analyst2: NA

Method: 9056/300 SOP: IC1 Rev: 7

Maintenance Log ID: 19538

Column 1 ID: AS14A-4MM Column 2 ID: NA

Workgroups: WG242485

Internal STD: NA Surrogate STD: NA STD17414

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7	X	100	Over Calibration Range	Chloride
	Sample re-ran at a dilution due to chloride over its calibration range. Sample ran at a dilution only because of high pre-run screen results for chloride and sulfate.			
8	X	200	Over Calibration Range	Chloride
	Sample re-ran at a dilution due to chloride over its calibration range. Sample ran at a dilution only because of high pre-run screen results for chloride and sulfate.			
9	X	40	Over Calibration Range	Chloride
	Sample re-ran at a dilution due to chloride over its calibration range. Sample ran at a dilution only because of high pre-run screen results for chloride and sulfate.			
11	X	5	Over Calibration Range	Chloride, Bromide
	Sample re-ran at a dilution due to chloride and bromide being over their calibration range. The sample was re-ran in WG242420 at a 1/20 dilution for bromide over its calibration range.			
12	X	5	Over Calibration Range	Chloride, Bromide
	Sample re-ran at a dilution due to chloride and bromide being over their calibration range.			
13	X	5	Over Calibration Range	Chloride
	Sample re-ran at a dilution due to chloride over its calibration range.			
25	X	20	Over Calibration Range	Bromide
	Sample re-ran at a dilution in WG242420 due to bromide being over its calibration range.			

Approved: 15-JUN-07

Checklist ID: 15689

00085195

KEMRON Environmental Services
Data Checklist

Date: 24-MAR-2007
Analyst: JWR
Analyst: NA
Method: 300/9056
Instrument: IC2
Curve Workgroup: WG236271
Runlog ID: 15285
Analytical Workgroups: NA

System Performance Check	
Eluent check	X
Initial Calibration	X
Average RF	
Linear Reg or Higher Order Curve	03/24/07
Alt Source Check	03/24/07
Continuing Calibration	
Continuing Calibration	
Client Specific Requirements	
Blanks	
Quant Report / Chromatogram	X
Spike Compounds	
MS/MSD	
Excel Spreadsheet	
Samples	
TCL Hits	X
Manual Integrations	X
Data Package	
Level 2	
Level 3	
Level 4	
Primary Reviewer	JWR
Secondary Reviewer	MDC
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	NA
Check the resonableness of the results	X
Comments:	
Method 300/9056 Calibration Curve and Alt. Source were analyzed on this day.	
ASRS ULTRA II Suppressor was installed on this IC on 03/23/07.	

Primary Reviewer: 24-MAR-2007 John Richards

Secondary Reviewer: 27-MAR-2007 Michael Cordova

Generated: MAR-27-2007 14:57:19

Checklist ID: 18051

00085196

KEMRON Environmental Services
Data Checklist

Date: 08-JUN-2007

Analyst: DSF

Analyst: NA

Method: 300/9056

Instrument: IC2

Curve Workgroup: NA

Runlog ID: 16630

Analytical Workgroups: L0706194, L0706201

ANALYTICAL	
System Performance Check	
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	X
Window standard (FID)	NA
Initial Calibration	
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	
% D/% Drift	X
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	X
Special standards	NA
Blanks	X
TCL hits	NA
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	
Recoveries	X
%RPD	X
Samples	
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	X
Reruns	X
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	X
Check for completeness	X
Primary Reviewer	DSF
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MDC

Primary Reviewer:
14-JUN-2007
Debra S. Frederick

Secondary Reviewer:
15-JUN-2007
Michael Cochran

Generated: JUN-15-2007 11:06:47

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 300.0
Login Number: L0706194

AAB#: WG242485

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW16	06/07/07	06/08/07	06/08/07	2	1.16	06/08/07	2	1.16	
16WW16	06/07/07	06/08/07	06/08/07	2	1.34	06/08/07	2	1.34	
16WW34	06/07/07	06/08/07	06/08/07	2	0.972	06/08/07	2	0.972	
16WW22	06/07/07	06/08/07	06/08/07	2	1.23	06/08/07	2	1.23	
16WW22	06/07/07	06/08/07	06/08/07	2	1.04	06/08/07	2	1.04	
16WW34	06/07/07	06/08/07	06/08/07	2	1.15	06/08/07	2	1.15	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 791058
Report generated 06/15/2007 15:55

METHOD BLANK SUMMARY

Login Number: L0706194
Blank File ID: I2060807.13
Prep Date: 06/08/07 12:10
Analyzed Date: 06/08/07 12:10
Analyst: DSF

Work Group: WG242485
Blank Sample ID: WG242485-01
Instrument ID: IC2
Method: 300.0

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242485-02	I2060807.14	06/08/07 12:28	01
16WW16	L0706194-01	I2060807.15	06/08/07 12:45	DL01
16WW22	L0706194-02	I2060807.16	06/08/07 13:02	DL01
16WW34	L0706194-03	I2060807.17	06/08/07 13:20	DL01
DUP	WG242485-04	I2060807.18	06/08/07 13:37	DL01
DUP	WG242485-06	I2060807.22	06/08/07 14:47	01
16WW16	L0706194-01	I2060807.30	06/08/07 17:06	DL02
16WW22	L0706194-02	I2060807.31	06/08/07 17:24	DL02
16WW34	L0706194-03	I2060807.32	06/08/07 17:41	DL02

KEMRON FORMS - Modified 01/31/2007
Version 1.5 PDF File ID: 791059
Report generated 06/15/2007 15:55

00085199

METHOD BLANK REPORT

Login Number: L0706194 Prep Date: 06/08/07 12:10 Sample ID: WG242485-01
Instrument ID: IC2 Run Date: 06/08/07 12:10 Prep Method: 300.0
File ID: I2060807.13 Analyst: DSF Method: 300.0
Workgroup (AAB#): WG242485 Matrix: Water Units: mg/L
Contract #: DACA56-94-D-0020 Cal ID: IC2 - 24-MAR-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0.100	1	U
Nitrate	0.100	0.600	0.100	1	U
Nitrite	0.100	0.400	0.100	1	U
Sulfate	0.500	1.00	0.500	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 791060
Report generated 06/15/2007 15:55

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194
Run Date: 06/08/2007
Sample ID: WG242485-02
Instrument ID: IC2
Run Time: 12:28
Prep Method: 300.0
File ID: I2060807.14
Analyst: DSF
Method: 300.0
Workgroup (AAB#): WG242485
Matrix: Water
Units: mg/L
Contract #: DACA56-94-D-0020
Cal ID: IC2 - 24-MAR-07

Analytes	Expected	Found	% Rec	LCS Limits	Q
Chloride	6.00	6.04	101	90 - 110	
Nitrate	4.07	4.07	100	90 - 110	
Nitrite	3.65	3.88	106	90 - 110	
Sulfate	30.0	30.6	102	90 - 110	

KEMRON FORMS - Modified 12/15/2006
Version 1.5 PDF File ID: 791061
Report generated 06/15/2007 15:55

DUPLICATE (DUP)

Sample Ref: L0706194-03 Cal ID: IC2 - Worknum: WG242485
Instrument ID: IC2 Method: 9056
Sample ID: WG242485-03 File ID: I2060807.17 Dil: 2 Matrix: WATER
Duplicate ID: WG242485-04 File ID: I2060807.18 Dil: 2 Units: mg/L

Analyte	Sample	Duplicate	RPD	RPD Limit	Q
Chloride	223	223	0.0404	20	
Nitrate	ND	ND	0	20	
Nitrite	ND	ND	0	20	
Sulfate	33.5	33.6	0.490	20	

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

KEMRON FORMS - Modified 03/06/2006
Version 1.5 PDF File ID: 791062
Report generated 06/15/2007 15:55

KEMRON Environmental Services

INITIAL CALIBRATION SUMMARY

Login Number: L0706194
Analytical Method: 300.0
ICAL Workgroup: WG236271

Instrument ID: IC2
Initial Calibration Date: 24-MAR-07 11:20
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD(R^2)
Chloride		9.558	8.39		
Nitrate		3.934	6.21		
Nitrite		4.410	5.98		
Sulfate		12.39	5.81		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum
This method always uses quadratic calibration model (R^2)

KEMRON FORMS - Modified 01/18/2007
Version 1.5 PDF File ID: 793071
Report generated 06/15/2007 15:55

KEMRON Environmental Services

INITIAL CALIBRATION DATA

00085203

Login Number: L0706194

Analytical Method: 300.0

Instrument ID: IC2

Initial Calibration Date: 24-MAR-07 11:20

Column ID: F

Analyte	WG236271-01			WG236271-02			WG236271-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	0.200	0.0190000000	10.53	1.00	0.0970000000	10.31	2.00	0.194000000	10.31
Nitrate	0.136	0.0310000000	4.371	0.678	0.166000000	4.083	1.36	0.336000000	4.034
Nitrite	0.122	0.0250000000	4.872	0.609	0.132000000	4.613	1.22	0.272000000	4.477
Sulfate	1.00	0.0750000000	13.33	5.00	0.384000000	13.02	10.0	0.781000000	12.80

Login Number: L0706194
Analytical Method: 300.0

Instrument ID: IC2
Initial Calibration Date: 24-MAR-07 11:20
Column ID: F

Analyte	WG236271-04			WG236271-05			WG236271-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	4.00	0.433000000	9.238	6.00	0.654000000	9.174	8.00	0.931000000	8.593
Nitrate	2.71	0.699000000	3.878	4.07	1.07900000	3.768	5.42	1.43000000	3.791
Nitrite	2.44	0.559000000	4.357	3.65	0.854000000	4.278	4.87	1.15800000	4.207
Sulfate	20.0	1.61500000	12.38	30.0	2.50300000	11.99	40.0	3.37800000	11.84

INITIAL CALIBRATION DATA

Login Number: L0706194
Analytical Method: 300.0
Instrument ID: IC2
Initial Calibration Date: 24-MAR-07 11:20
Column ID: F

Analyte	WG236271-07		
	CONC	RESP	RF
Chloride	12.0	1.37000000	8.759
Nitrate	8.13	2.25100000	3.613
Nitrite	7.31	1.79600000	4.068
Sulfate	60.0	5.29600000	11.33

KEMRON FORMS - Modified 10/13/2006
Version 1.6 PDF File ID: 793071
Report generated 06/15/2007 15:55

KEMRON Environmental Services

ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L0706194
Run Date: 03/24/2007
Sample ID: WG236271-08
Instrument ID: IC2
Run Time: 11:38
Method: 300.0
File ID: I2032407.08
Analvst: JWR
ICal Workgroup: WG236271
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chloride		6.00	5.91	mg/L	9.12	1.50	10	
Nitrate		4.07	4.11	mg/L	3.78	1.10	10	
Nitrite		3.65	3.66	mg/L	4.27	0.300	10	
Sulfate		30.0	30.2	mg/L	12.0	0.600	10	

* Exceeds %D Limit

KEMRON FORMS - Modified 03/21/2007 - (ALT)
Version 1.5 PDF File ID: 793072
Report generated 06/15/2007 15:55

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L0706194
Run Date: 06/08/2007
Sample ID: WG242486-02
Instrument ID: IC2
Run Time: 11:53
Method: 300.0
File ID: I2060807.12
Analyst: DSF
Units: mg/L
Workgroup (AAB#): WG242485
Cal ID: IC2 -

Analytes	MDL	RDL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0		U
Nitrate	0.100	0.600	0		U
Nitrite	0.100	0.400	0		U
Sulfate	0.500	1.00	0		U

U = Result is less than MDL
F = Result is between MDL and RL
* = Result is above RL

KEMRON Environmental Services

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L0706194
Run Date: 06/08/2007
Sample ID: WG242486-04
Instrument ID: IC2
Run Time: 15:22
Method: 300.0
File ID: I2060807.24
Analyst: DSF
Units: mg/L
Workgroup (AAB#): WG242485
Cal ID: IC2 -

Analytes	MDL	RDL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0		U
Nitrate	0.100	0.600	0		U
Nitrite	0.100	0.400	0		U
Sulfate	0.500	1.00	0		U

U = Result is less than MDL
F = Result is between MDL and RL
* = Result is above RL

KEMRON FORMS - Modified 09/27/2006
Version 2.0 PDF File ID: 791064
Report generated 06/15/2007 15:55

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L0706194
Run Date: 06/08/2007
Sample ID: WG242486-06
Instrument ID: IC2
Run Time: 18:51
Method: 300.0
File ID: I2060807.36
Analyst: DSF
Units: mg/L
Workgroup (AAB#): WG242485
Cal ID: IC2 -

Analytes	MDL	RDL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0		U
Nitrate	0.100	0.600	0		U
Nitrite	0.100	0.400	0		U
Sulfate	0.500	1.00	0		U

U = Result is less than MDL
F = Result is between MDL and RL
* = Result is above RL

CONTINUING CALIBRATION VERIFICATION (CCV)

00085210

Login Number: L0706194
Run Date: 06/08/2007
Sample ID: WG242486-01
Instrument ID: IC2
Run Time: 11:35
Method: 300.0
File ID: I2060807.11
Analyst: DSF
Workgroup (AAB#): WG242485
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		6.00	5.77	mg/L	9.35	3.88	10	
Nitrate		4.07	4.05	mg/L	3.84	0.374	10	
Nitrite		3.65	3.66	mg/L	4.27	0.208	10	
Sulfate		30.0	30.3	mg/L	11.9	1.11	10	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 791063
Report generated 06/15/2007 15:55

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194
Run Date: 06/08/2007
Sample ID: WG242486-03
Instrument ID: IC2
Run Time: 15:04
Method: 300.0
File ID: I2060807.23
Analyst: DSF
Workgroup (AAB#): WG242485
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		6.00	5.75	mg/L	9.38	4.13	10	
Nitrate		4.07	4.00	mg/L	3.88	1.60	10	
Nitrite		3.65	3.55	mg/L	4.42	2.91	10	
Sulfate		30.0	30.2	mg/L	12.0	0.597	10	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 791063
Report generated 06/15/2007 15:55

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L0706194
Run Date: 06/08/2007
Sample ID: WG242486-05
Instrument ID: IC2
Run Time: 18:33
Method: 300.0
File ID: I2060807.35
Analyst: DSF
Workgroup (AAB#): WG242485
Cal ID: IC2 - 24-MAR-07

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		6.00	6.02	mg/L	8.94	0.350	10	
Nitrate		4.07	4.14	mg/L	3.75	1.69	10	
Nitrite		3.65	3.89	mg/L	4.01	6.34	10	
Sulfate		30.0	30.3	mg/L	11.9	1.15	10	

* Exceeds %D Criteria

KEMRON FORMS - Modified 12/11/2006 - (CCV)
Version 1.3 PDF File ID: 791063
Report generated 06/15/2007 15:55

2.2.2 Perchlorate Data

2.2.2.1 Summary Data

LABORATORY REPORT

00085215

L0706194

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW16	L0706194-01	314.0	10	08-JUN-07
16WW22	L0706194-02	314.0	5	08-JUN-07
16WW34	L0706194-03	314.0	1	08-JUN-07

Sample Number: L0706194-01
Client ID: 16WW16
Matrix: Water
Workgroup Number: WG242735
Collect Date: 06/07/2007 08:50
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 314.0
Analytical Method: 314.0
Analyst: DSF
Dilution: 10
Units: ug/L

Instrument: IC1
Prep Date: 06/14/2007 17:45
Cal Date: 06/14/2007 13:40
Run Date: 06/14/2007 17:45
File ID: I1061407.18

Analyte	CAS. Number	Result	Qual	PQL	SQL
Perchlorate	14797-73-0	278		10.0	5.00

Sample Number: L0706194-02
Client ID: 16WW22
Matrix: Water
Workgroup Number: WG242735
Collect Date: 06/07/2007 12:00
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 314.0
Analytical Method: 314.0
Analyst: DSF
Dilution: 5
Units: ug/L

Instrument: IC1
Prep Date: 06/14/2007 18:05
Cal Date: 06/14/2007 13:40
Run Date: 06/14/2007 18:05
File ID: I1061407.19

Analyte	CAS. Number	Result	Qual	PQL	SQL
Perchlorate	14797-73-0		U	5.00	2.50

U Not detected at or above adjusted sample detection limit

Sample Number:	L0706194-03	PrePrep Method:	NONE	Instrument:	IC1
Client ID:	16WW34	Prep Method:	314.0	Prep Date:	06/14/2007 18:26
Matrix:	Water	Analytical Method:	314.0	Cal Date:	06/14/2007 13:40
Workgroup Number:	WG242735	Analyst:	DSF	Run Date:	06/14/2007 18:26
Collect Date:	06/07/2007 14:00	Dilution:	1	File ID:	I1061407.20
Sample Tag:	01	Units:	ug/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Perchlorate	14797-73-0		U	1.00	0.500

U Not detected at or above adjusted sample detection limit

2.2.2.2 QC Summary Data

2.2.3 Alkalinity Data

2.2.3.1 Summary Data

LABORATORY REPORT

00085222

L0706194

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW16	L0706194-01	310.2	4	08-JUN-07
16WW22	L0706194-02	310.2	1	08-JUN-07
16WW34	L0706194-03	310.2	1	08-JUN-07

Sample Number:	**L0706194-01**	PrePrep Method:	**NONE**	Instrument:	**SMARTCHEM**
Client ID:	**16WW16**	Prep Method:	**310.2**	Prep Date:	**06/11/2007 09:52**
Matrix:	**Water**	Analytical Method:	**310.2**	Cal Date:	**06/11/2007 09:33**
Workgroup Number:	**WG242229**	Analyst:	**DIH**	Run Date:	**06/11/2007 09:52**
Collect Date:	**06/07/2007 08:50**	Dilution:	**4**	File ID:	**SC070611001.038**
Sample Tag:	**DL01**	Units:	**mg/L**		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Alkalinity, Total		**246**		**40.0**	**20.0**

Sample Number: L0706194-02
Client ID: 16WW22
Matrix: Water
Workgroup Number: WG242229
Collect Date: 06/07/2007 12:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 310.2
Analytical Method: 310.2
Analyst: DIH
Dilution: 1
Units: mg/L

Instrument: SMARTCHEM
Prep Date: 06/11/2007 09:53
Cal Date: 06/11/2007 09:33
Run Date: 06/11/2007 09:53
File ID: SC070611001.039

Analyte	CAS. Number	Result	Qual	PQL	SQL
Alkalinity, Total		204		10.0	5.00

Sample Number:	L0706194-03	PrePrep Method:	NONE	Instrument:	SMARTCHEM
Client ID:	16WW34	Prep Method:	310.2	Prep Date:	06/11/2007 09:54
Matrix:	Water	Analytical Method:	310.2	Cal Date:	06/11/2007 09:33
Workgroup Number:	WG242229	Analyst:	DIH	Run Date:	06/11/2007 09:54
Collect Date:	06/07/2007 14:00	Dilution:	1	File ID:	SC070611001.040
Sample Tag:	01	Units:	mg/L		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Alkalinity, Total		186		10.0	5.00

2.2.3.2 QC Summary Data

Example Alkalinity (Colormetric) Calculations

(absorbance - intercept)/(slope * dilution) = mg/L

where:

absorbance = reading from the spectrophotometer
intercept = calculated from calibration standard absorbencies
slope = calculated from calibration standard absorbencies
dilution = dilution of the distillate in decimal form (ex. 1/5 dilution = 0.2)

KEMRON Environmental Services
Data Checklist

Date: 11-JUN-2007
Analyst: DIH
Analyst: NA
Method: ALK
Instrument: SC
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG242228 WG242229 WG242230

Calibration/Linearity	6/11/07
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DIH
Secondary Reviewer	
Comments	

Primary Reviewer:
13-JUN-2007
Donna Hesson

Secondary Reviewer:

Generated: JUN-13-2007 16:27:13

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 310.2

Login Number: L0706194

AAB#: WG242229

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW16	06/07/07	06/08/07	06/11/07	14	4.04	06/11/07	14	4.04	
16WW34	06/07/07	06/08/07	06/11/07	14	3.83	06/11/07	14	3.83	
16WW22	06/07/07	06/08/07	06/11/07	14	3.91	06/11/07	14	3.91	

* EXT = SEE PROJECT QAPP REQUIREMENTS

*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790665
Report generated 06/13/2007 15:57

METHOD BLANK SUMMARY

Login Number: L0706194
Work Group: WG242229
Blank File ID: SC070611001.035
Blank Sample ID: WG242229-01
Prep Date: 06/11/07 09:50
Instrument ID: SMARTCHEM
Analyzed Date: 06/11/07 09:50
Method: 310.2
Analyst: DIH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242229-02	SC070611001.036	06/11/07 09:51	01
LCS2	WG242229-03	SC070611001.037	06/11/07 09:51	01
16WW16	L0706194-01	SC070611001.038	06/11/07 09:52	DL01
16WW22	L0706194-02	SC070611001.039	06/11/07 09:53	01
16WW34	L0706194-03	SC070611001.040	06/11/07 09:54	01
DUP	WG242229-05	SC070611001.056	06/11/07 10:03	01

KEMRON Environmental Services

METHOD BLANK REPORT

Login Number:	L0706194	Prep Date:	06/11/07 09:50	Sample ID:	WG242229-01
Instrument ID:	SMARTCHEM	Run Date:	06/11/07 09:50	Prep Method:	310.2
File ID:	SC070611001.035	Analyst:	DIH	Method:	310.2
Workgroup (AAB#):	WG242229	Matrix:	Water	Units:	mg/L
Contract #:	DACA56-94-D-0020	Cal ID:	SMARTC-11-JUN-07		

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Alkalinity, Total	5.00	10.0	5.00	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 790667
Report generated 06/13/2007 15:57

00085232

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Analvst: DIH Prep Method: 310.2
Instrument ID: SMARTCHEM Matrix: Water Method: 310.2
Workgroup (AAB#): WG242229 Units: mg/L
Sample ID: WG242229-02 LCS File ID: SC070611001.036 Run Date: 06/11/2007 09:51
Sample ID: WG242229-03 LCS2 File ID: SC070611001.037 Run Date: 06/11/2007 09:51

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Alkalinity, Total	200	208	104	200	207	104	0.534	85 - 115	25	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 790668
Report generated 06/13/2007 15:57

2.2.3.3 Raw Data

KEMRON
ENVIRONMENTAL SERVICES

WORKGROUP: WG242228

242229
242230

SMARTCHEM RUN LOG

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [ ] NO3 Reagent bottle connected / purged
- [ ] NO3 pH adj to pH 5-9
- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** ____________
Plan # 20070611001
2) **Workgroup** ____________
Plan # ____________
3) **Workgroup** ____________
Plan # ____________

Analyte		1 ALK	2	3
User Prepared Curve				
SC Prepared Curve				
Position				
1-1	ICV 250			
1-2	BlK			
1-3	LCS 200			
1-4	LCS DUP			
1-5	06-148-01	1/4		color
1-6	02			
1-7	03			
1-8	06-093-07			
1-9	08			
1-10	DUP 08			
1-11	MS 09			
1-12	MSD 10			
1-13	06-094-01	1/2		
1-14	03	1/2		
1-15	05	1/2		
1-16	07	1/2		
1-17	09	1/2		
1-18	06-136-03	1/2		
1-19	05	1/2		
1-20	07	1/2		
1-21	09	1/2		
1-22	11	1/2		
2-1	06-203-01			
2-2	BlK			
2-3	LCS			

Analyte		1	2	3
Position				
2-4	LCSDUP			
2-5	06-194-01	1/4		color
2-6	02			
2-7	03			
2-8	06-229-02	1/4		color
2-9	03	1/4		
2-10	05	1/4		
2-11	06	1/4		
2-12	08	1/4		
2-13	09	1/4		
2-14	06-190-01	1/2		
2-15	03	1/2		
2-16	06-073-01			
2-17	02			
2-18	03			
2-19	DUP 03			
2-20	MS 04			
2-21	MSD 05			
2-22	06			
2-23	07			
2-24	08			
2-25	09			
2-26	10			
3-1	~~P~~ 11			
3-2	BlK			

NOTES:
* Run NO2 std on NO3 runs
* LCS/LCS Dup all parameters
* MS/MSD (NO3, TKN, NH3)

DCN#69667

Kemron
ENVIRONMENTAL SERVICES

WORKGROUP: WG242228

SMARTCHEM RUN LOG

Position	Analyte	1	2	3
3-3	LCS			
3-4	LCSDUP			
3-5	06-073-12			
3-6	13			
3-7	14			
3-8	15			
3-9	06-147-03			
3-10	04			
3-11	05			
3-12	06-104-01			
3-13	02			
3-14	03			
3-15	04			

Position	Analyte	1	2	3
3-16	06-104-05			
3-17	06			
3-18	07			
3-19	08			
3-20	09			
3-21	10			
3-22	11			
3-23	12			
3-24	13			
3-25	DUP 13			
3-26	R 06-094-05			
3-27				
3-28				

☐ Chloride EPA 325.2/SM 4500-Cl⁻ E
☐ Sulfate EPA 375.4
☑ Alkalinity EPA 310.2
☐ Nitrate-Nitrite EPA 353.2/SM 4500-NO3 F
☐ Ammonia EPA 350.1/SM 4500-NH3 B
☐ TKN EPA 351.2
☐ Phos EPA 365.4

Analyte	ALK		
SOP & Revision	K 3102 R11		
Curve Stock (SC made)	std 17115		
Curve ID (user made)			
ICV	std 19385		
CCV	std 19887		
LCS	std 19386		
MS	std 18026 Dilution 0.25(250c)=100		

Comments:

Analyst: Deanna Hesson Date: 6/11/07

DCN#69667

00085236

KEMRON ENVIRONMENTAL
SMARTCHEM REPORT
UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.00	0.1503	0.00		9:28:33 AM
DIL-1	RBL	0.00	0.1523	0.00		9:28:51 AM
DIL-1	RBL	0.00	0.1500	0.00		9:30:03 AM
DIL-1	Std-1	0.00	0.0038	0.00	INV	9:30:21 AM
SR5-1	Std-2	10.00	-0.0027	0.00		9:31:16 AM
SR5-2	Std-3	20.00	-0.0016	0.00		9:31:34 AM
SR5-3	Std-4	50.00	-0.0173	0.00		9:32:27 AM
SR5-4	Std-5	100.00	-0.0285	0.00		9:32:46 AM
SR5-5	Std-6	200.00	-0.0749	0.00		9:33:40 AM
SR5-6	Std-7	300.00	-0.1012	0.00		9:33:57 AM
1	ICV 250	260.26	-0.0906	0.00		9:34:52 AM
2	WG242228-01 BLANK	-5.99	0.0054	0.00	INV,><,LL	9:35:09 AM
3	WG242228-02 LCS	214.22	-0.0740	0.00		9:36:04 AM
4	WG242228-03 LCSDUP	213.95	-0.0739	0.00		9:36:22 AM
5	L0706148-01 (4)	92.19	-0.0300	0.00		9:37:16 AM
6	L0706148-02	160.97	-0.0548	0.00		9:37:33 AM
7	L0706148-03	132.68	-0.0446	0.00		9:38:28 AM
8	L0706093-07	205.90	-0.0710	0.00		9:38:46 AM
9	L0706093-08	104.67	-0.0345	0.00		9:39:40 AM
10	WG242228-05 DUP	103.28	-0.0340	0.00		9:39:58 AM
ST-2	CCV1 (200 mg/L)	216.17	-0.0747	108.08		9:40:52 AM
ST-3	CCB (0 mg/L)	-10.15	0.0070	0.00	INV,><,LL	9:41:10 AM
11	L0706093-09 MS	204.79	-0.0706	0.00		9:42:04 AM
12	L0706093-10 MSD	193.70	-0.0666	0.00		9:42:22 AM
13	L0706094-01 (2)	253.05	-0.0880	0.00		9:43:16 AM
14	L0706094-03 (2)	203.69	-0.0702	0.00		9:43:34 AM
15	L0706094-05 (2)	92.19 X	-0.0300	0.00		9:44:28 AM
16	L0706094-07 (2)	205.90	-0.0710	0.00		9:44:46 AM
17	L0706094-09 (2)	210.90	-0.0728	0.00		9:45:40 AM
18	L0706136-03 (2)	147.11	-0.0498	0.00		9:45:58 AM
19	L0706136-05 (2)	230.59	-0.0799	0.00		9:46:52 AM
20	L0706136-07 (2)	119.65	-0.0399	0.00		9:47:10 AM

Report Date :06/11/2007 Run Date :6/11/2007 Operator : WESTCO Plan # :20070611001

Plan Description : ALK-A-DIH/6/11/2007

KEMRON ENVIRONMENTAL
SMARTCHEM REPORT
UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
ST-2	CCV1 (200 mg/L)	212.28	-0.0733	106.14		9:48:04 AM
ST-3	CCB (0 mg/L)	-11.26	0.0073	0.00	INV,><,LL	9:48:22 AM
21	L0706136-09 (2)	116.87	-0.0389	0.00		9:49:16 AM
22	L0706136-11 (2)	168.74	-0.0576	0.00		9:49:34 AM
23	L0706203-01	56.97	-0.0173	0.00		9:50:28 AM
24	WG242229-01 BLANK	-22.91	0.0115	0.00	INV,><,LL	9:50:46 AM
25	WG242229-02 LCS	208.40	-0.0719	0.00		9:51:40 AM
26	WG242229-03 LCSDUP	207.29	-0.0715	0.00		9:51:58 AM
27	L0706194-01 (4)	61.40	-0.0189	0.00		9:52:52 AM
28	L0706194-02	204.24	-0.0704	0.00		9:53:10 AM
29	L0706194-03	186.49	-0.0640	0.00		9:54:04 AM
30	L0706229-02 (4)	279.96	-0.0977	0.00		9:54:22 AM
ST-2	CCV1 (200 mg/L)	206.46	-0.0712	103.23		9:55:16 AM
ST-3	CCB (0 mg/L)	-25.96	0.0127	0.00	INV,><,LL	9:55:34 AM
31	L0706229-03 (4)	184.83	-0.0634	0.00		9:56:28 AM
32	L0706229-05 (4)	276.07	-0.0963	0.00		9:56:46 AM
33	L0706229-06 (4)	182.05	-0.0624	0.00		9:57:40 AM
34	L0706229-08 (4)	337.37	-0.1184	0.00	><,LH	9:57:58 AM
35	L0706229-09 (4)	198.42	-0.0683	0.00		9:58:52 AM
36	L0706190-01 (2)	130.74	-0.0439	0.00		9:59:10 AM
37	L0706190-03 (2)	301.59	-0.1055	0.00	><,LH	10:00:04 AM
38	L0706073-01	153.21	-0.0520	0.00		10:00:22 AM
39	L0706073-02	116.32	-0.0387	0.00		10:01:16 AM
40	L0706073-03	208.95	-0.0721	0.00		10:01:34 AM
ST-2	CCV1 (200 mg/L)	205.35	-0.0708	102.67		10:02:28 AM
ST-3	CCB (0 mg/L)	-22.91	0.0115	0.00	INV,><,LL	10:02:46 AM
41	WG242229-05 DUP	208.68	-0.0720	0.00		10:03:40 AM
42	L0706073-04 MS	258.60	-0.0900	0.00		10:03:58 AM
43	L0706073-05 MSD	261.93	-0.0912	0.00		10:04:52 AM
44	L0706073-06	184.27	-0.0632	0.00		10:05:46 AM
45	L0706073-07	91.36	-0.0297	0.00		10:06:04 AM
46	L0706073-08	76.10	-0.0242	0.00		10:06:58 AM

Report Date :06/11/2007 **Run Date :6/11/2007** **Operator : WESTCO** **Plan # :20070611001**

Plan Description : ALK-A-DIH/6/11/2007

KEMRON ENVIRONMENTAL

SMARTCHEM REPORT

UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
47	L0706073-09	65.29	-0.0203	0.00		10:07:16 AM
48	L0706073-10	108.55	-0.0359	0.00		10:08:10 AM
49	L0706073-11	66.95	-0.0209	0.00		10:08:28 AM
50	WG242230-01 BLANK	-32.06	0.0149	0.00	INV,><,LL	10:09:22 AM
ST-2	CCV1 (200 mg/L)	207.85	-0.0717	103.92	EPL	10:09:40 AM
ST-3	CCB (0 mg/L)	-29.57	0.0140	0.00	INV,><,LL	10:10:34 AM
51	WG242230-02 LCS	207.01	-0.0714	0.00		10:10:52 AM
52	WG242230-03 LCSDUP	209.51	-0.0723	0.00		10:11:47 AM
53	L0706073-12	353.73	-0.1243	0.00	><,LH	10:12:04 AM
54	L0706073-13	236.69	-0.0821	0.00		10:12:59 AM
55	L0706073-14	245.29	-0.0852	0.00		10:13:16 AM
56	L0706073-15	205.90	-0.0710	0.00		10:14:10 AM
57	L0706147-03	18.41	-0.0034	0.00		10:14:28 AM
58	L0706147-04	-6.82	0.0058	0.00	INV,><,LL	10:15:23 AM
59	L0706147-05	-17.09	0.0095	0.00	INV,><,LL	10:15:40 AM
60	L0706104-01	294.10	-0.1028	0.00	><	10:16:34 AM
ST-2	CCV1 (200 mg/L)	208.95	-0.0721	104.48		10:16:52 AM
ST-3	CCB (0 mg/L)	-31.23	0.0146	0.00	INV,><,LL	10:17:46 AM
61	L0706104-02	131.30	-0.0441	0.00	EPL	10:18:04 AM
62	L0706104-03	294.38	-0.1029	0.00	><	10:18:58 AM
63	L0706104-04	286.34	-0.1000	0.00		10:19:16 AM
64	L0706104-05	342.08	-0.1201	0.00	><,LH	10:20:10 AM
65	L0706104-06	334.59	-0.1174	0.00	><,LH	10:20:28 AM
66	L0706104-07	45.60	-0.0132	0.00		10:21:22 AM
67	L0706104-08	59.46	-0.0182	0.00		10:21:40 AM
68	L0706104-09	336.26	-0.1180	0.00	><,LH	10:22:34 AM
69	L0706104-10	242.24	-0.0841	0.00		10:22:52 AM
70	L0706104-11	161.81	-0.0551	0.00		10:23:46 AM
ST-2	CCV1 (200 mg/L)	209.79	-0.0724	104.89		10:24:04 AM
ST-3	CCB (0 mg/L)	-36.50	0.0165	0.00	INV,><,LL	10:24:58 AM
71	L0706104-12	322.39	-0.1130	0.00	><,LH	10:25:16 AM
72	L0706104-13	243.07	-0.0844	0.00		10:26:10 AM

Report Date :06/11/2007 **Run Date :6/11/2007** **Operator : WESTCO** **Plan # :20070611001**

Plan Description : ALK-A-DIH/6/11/2007

KEMRON ENVIRONMENTAL
SMARTCHEM REPORT
UNITS: MG/L

Method : WALK - EPA 310.2 Alkalinity

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
73	WG242230-05 DUP	244.46	-0.0849	0.00		10:26:28 AM
74	~~ID 74~~ 06-094-05 -	171.24	-0.0585	0.00		10:27:22 AM
75	ID 75	-43.43	0.0190	0.00	INV,><,LL	10:27:40 AM
76	ID 76	-16.25	0.0091	0.00	INV,><,LL	10:28:34 AM
ST-2	CCV1 (200 mg/L)	209.51	-0.0723	104.75		10:28:52 AM
ST-3	CCB (0 mg/L)	-42.05	0.0184	0.00	INV,><,LL	10:29:46 AM
34-[1/2]	L0706229-08 (4)	492.24	-0.0855	0.00	LH	10:41:56 AM
37-[1/2]	L0706190-03 (2)	324.72	-0.0553	0.00	LH	10:43:08 AM
53-[1/2]	L0706073-12	685.28	-0.1203	0.00	><,LH	10:44:21 AM
64-[1/2]	L0706104-05	701.92	-0.1233	0.00	><,LH	10:45:33 AM
ST-2	CCV1 (200 mg/L)	198.42	-0.0683	99.21		10:45:33 AM
ST-3	CCB (0 mg/L)	-55.36	0.0233	0.00	INV,><,LL	10:46:26 AM
65-[1/2]	L0706104-06	606.51	-0.1061	0.00	><,LH	10:47:56 AM
68-[1/2]	L0706104-09	613.16	-0.1073	0.00	><,LH	10:49:08 AM
71-[1/2]	L0706104-12	505.00	-0.0878	0.00	LH	10:50:20 AM
ST-2	CCV1 (200 mg/L)	202.30	-0.0697	101.15		10:50:20 AM
ST-3	CCB (0 mg/L)	-64.24	0.0264	0.00	INV,><,LL	10:51:15 AM
53-[1/5]	L0706073-12	1581.45	-0.1108	0.00	><,LH	11:03:25 AM
64-[1/5]	L0706104-05	1567.58	-0.1098	0.00	><,LH	11:04:37 AM
65-[1/5]	L0706104-06	947.70	-0.0651	0.00	LH	11:05:48 AM
68-[1/5]	L0706104-09	879.75	-0.0602	0.00	LH	11:07:01 AM
ST-2	CCV1 (200 mg/L)	194.81	-0.0670	97.40		11:07:01 AM
ST-3	CCB (0 mg/L)	-81.43	0.0326	0.00	INV,><,LL	11:07:55 AM
53-[1/10]	L0706073-12	2463.97	-0.0856	0.00	LH	11:20:05 AM
64-[1/10]	L0706104-05	2952.11	-0.1032	0.00	><,LH	11:21:17 AM
ST-2	CCV1 (200 mg/L)	185.10	-0.0635	92.55		11:21:17 AM
ST-3	CCB (0 mg/L)	-130.80	0.0505	0.00	INV,><,LL	11:22:11 AM

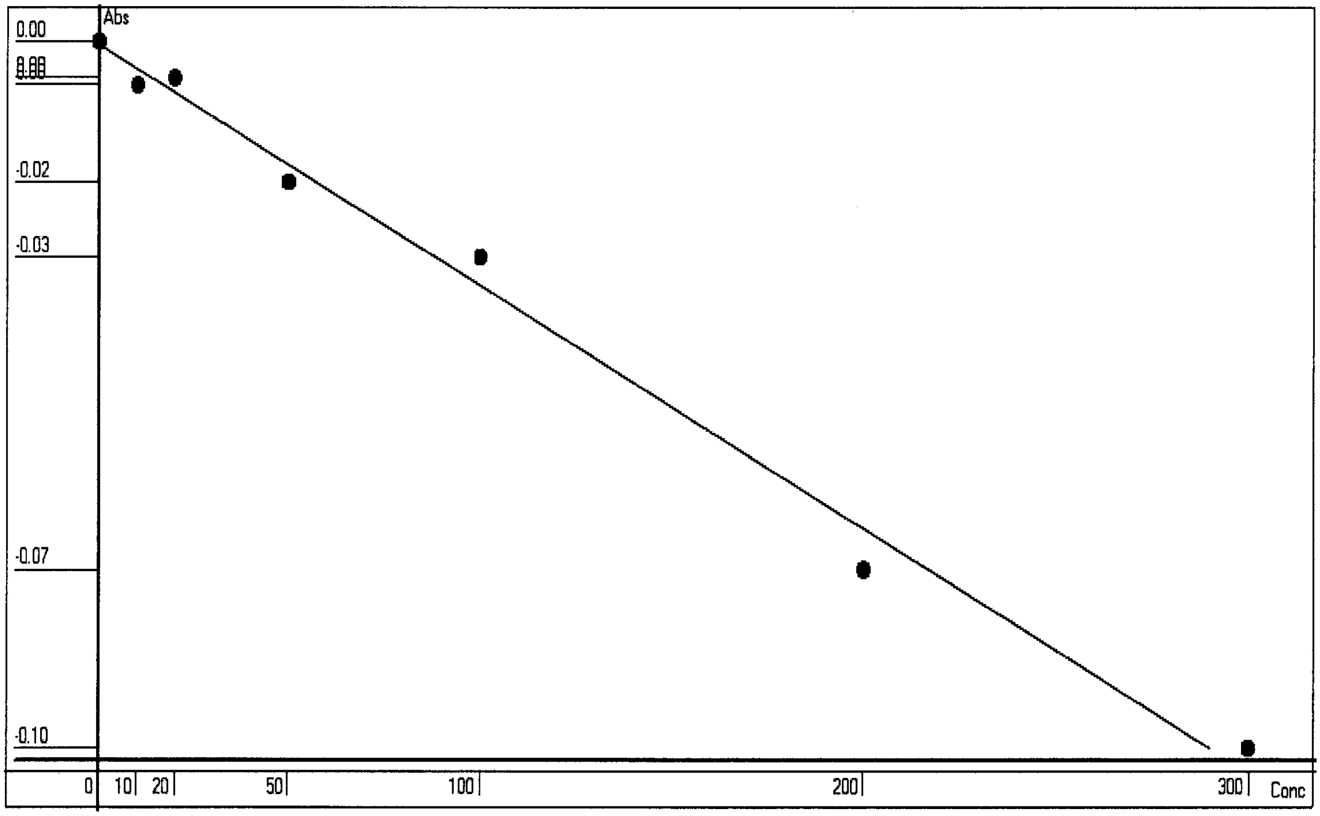
Report Date :06/11/2007 **Run Date :6/11/2007** **Operator : WESTCO** **Plan # :20070611001**

Plan Description : ALK-A-DIH/6/11/2007

Calibrant Report - WALK -

Calib Lot #:010104 Exp Date:1/1/2010 User:KEMRON

Plan # : 20070611001 Description : [ALK-A-DIH/6/11/2007]



Point	OD	Conc	Recalc Conc	% Error
1	0.0038	0	-1.4156	-141.56
2	-0.0027	10	16.6122	66.12
3	-0.0016	20	13.5613	-32.19
4	-0.0173	50	57.1053	14.21
5	-0.0285	100	88.1686	-11.83
6	-0.0749	200	216.8592	8.43
7	-0.1012	300	289.8024	-3.40
				RBL 0.1502 0

Conc= -2773.505*Abso +9.1237 **R^2=0.9913**

Report Date 6/11/2007 Run Date 6/11/2007

2.2.4 Sulfide Data

2.2.4.1 Summary Data

LABORATORY REPORT

00085243

L0706194

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW16	L0706194-01	376.1	1	08-JUN-07
16WW22	L0706194-02	376.1	1	08-JUN-07
16WW34	L0706194-03	376.1	1	08-JUN-07

Report Number: **L0706194**
Report Date : **June 20, 2007**

00085244

Sample Number:	**L0706194-01**	PrePrep Method:	**NONE**	Instrument:	**BURET**
Client ID:	**16WW16**	Prep Method:	**376.1**	Prep Date:	**06/11/2007 09:10**
Matrix:	**Water**	Analytical Method:	**376.1**	Cal Date:	
Workgroup Number:	**WG242280**	Analyst:	**DR**	Run Date:	**06/11/2007 09:10**
Collect Date:	**06/07/2007 08:50**	Dilution:	**1**	File ID:	**ET.0706110910-24**
		Units:	**mg/L**		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Sulfide	18496-25-8		U	1.00	0.500

U Not detected at or above adjusted sample detection limit

Sample Number:**L0706194-02**
Client ID:**16WW22**
Matrix:**Water**
Workgroup Number:**WG242280**
Collect Date:**06/07/2007 12:00**

PrePrep Method:**NONE**
Prep Method:**376.1**
Analytical Method:**376.1**
Analyst:**DR**
Dilution:**1**
Units:**mg/L**

Instrument:**BURET**
Prep Date:**06/11/2007 09:10**
Cal Date:
Run Date:**06/11/2007 09:10**
File ID:**ET.0706110910-25**

Analyte	CAS. Number	Result	Qual	PQL	SQL
Sulfide	18496-25-8		U	1.00	0.500

U Not detected at or above adjusted sample detection limit

Sample Number: L0706194-03
Client ID: 16WW34
Matrix: Water
Workgroup Number: WG242280
Collect Date: 06/07/2007 14:00

PrePrep Method: NONE
Prep Method: 376.1
Analytical Method: 376.1
Analyst: DR
Dilution: 1
Units: mg/L

Instrument: BURET
Prep Date: 06/11/2007 09:10
Cal Date:
Run Date: 06/11/2007 09:10
File ID: ET.0706110910-26

Analyte	CAS. Number	Result	Qual	PQL	SQL
Sulfide	18496-25-8		U	1.00	0.500

U Not detected at or above adjusted sample detection limit

2.2.4.2 QC Summary Data

Example Total Sulfide(Liquid) Calculations

[mL Iodine * N Iodide) - (mL titrant * N titrant)] * 16000/(volume * dilution) = mg/L Sulfide

where:

mL Iodine = mL of Iodine used
N Iodine = normality of Iodine
mL titrant = mL of titrant used
N titrant = normality of titrant
16000 = factor: 1mL of 0.025 N iodine reacts with 0.4mg sulfide
volume = mL filtered of mL titrated(if not filtered)
dilution = dilution in decimal form (1/5 = 0.2)

Example Total Sulfide(Soil) Calculations

[(mL Iodine * N Iodine) - (mL titrant * N titrant)] * 16.03/weight = mg/kg sulfide

where:

mL Iodine = mL of Iodine used
N Iodine = normality of Iodine
mL titrant = normality of titrant
16.03 = 32.06 grams per 2 equivalents
weight = kg of sample used

KEMRON Environmental Services
Data Checklist

Date: 11-JUN-2007
Analyst: DR
Analyst: NA
Method: S
Instrument: BURET
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG242280

Calibration/Linearity	6/11/2007
Second Source Check	
ICV/CCV (std)	
ICB/CCB	
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	
Upload Results	X
Client Forms	X
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DR
Secondary Reviewer	DIH
Comments	

Primary Reviewer:	Secondary Reviewer:
11-JUN-2007	20-JUN-2007
Deanna Roberts	Donna Hesson

Generated: JUN-20-2007 07:50:39

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 376.1 AAB#: WG242280

Login Number: L0706194

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW22	06/07/07	06/08/07	06/11/07	7	3.88	06/11/07	7	3.88	
16WW16	06/07/07	06/08/07	06/11/07	7	4.01	06/11/07	7	4.01	
16WW34	06/07/07	06/08/07	06/11/07	7	3.80	06/11/07	7	3.80	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 789990
Report generated 06/13/2007 12:38

METHOD BLANK SUMMARY

Login Number: L0706194
Work Group: WG242280
Blank File ID: ET.0706110910-01
Blank Sample ID: WG242280-01
Prep Date: 06/11/07 09:10
Instrument ID: BURET
Analyzed Date: 06/11/07 09:10
Method: 376.1
Analyst: DR

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242280-02	ET.0706110910-02	06/11/07 09:10	
LCS2	WG242280-03	ET.0706110910-03	06/11/07 09:10	
16WW16	L0706194-01	ET.0706110910-24	06/11/07 09:10	
16WW22	L0706194-02	ET.0706110910-25	06/11/07 09:10	
16WW34	L0706194-03	ET.0706110910-26	06/11/07 09:10	

KEMRON Environmental Services

METHOD BLANK REPORT

Login Number: L0706194
Prep Date: 06/11/07 09:10
Sample ID: WG242280-01
Instrument ID: BURET
Run Date: 06/11/07 09:10
Prep Method: 376.1
File ID: ET.0706110910-01
Analyst: DR
Method: 376.1
Workgroup (AAB#): WG242280
Matrix: Water
Units: mg/L
Contract #: DACA56-94-D-0020
Cal ID: BURET -

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Sulfide	0.500	1.00	0.500	1	U

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 789992
Report generated 06/13/2007 12:38

KEMRON Environmental Services

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Analvst: DR Prep Method: 376.1
Instrument ID: BURET Matrix: Water Method: 376.1
Workgroup (AAB#): WG242280 Units: mg/L
Sample ID: WG242280-02 LCS File ID: ET.0706110910-02 Run Date: 06/11/2007 09:10
Sample ID: WG242280-03 LCS2 File ID: ET.0706110910-03 Run Date: 06/11/2007 09:10

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Sulfide	19.8	19.0	95.9	19.8	19.0	95.9	0.00	85 - 115	10	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 789993
Report generated 06/13/2007 12:38

2.2.4.3 Raw Data

W6242280 00085[redacted]55

SULFIDE

✓EPA 376.1 / SM4500-S(-2)-F
SOP 3761 Revision #: 12

☐ Other

Instrument: Buret

LCS: Std 19945

Iodine standardization (0.025N and 0.1N)

mL 0.025N titrant: 10.0 mL 0.025 N titrant: 8.10
Volume I: 10.0 mL Volume I: 2.0 mL
Normality I: 0.0253 Normality I: 0.1025

Stock standardization (in duplicate) 10 mL stock
mL I 1) 10 2) 10
N I 1) 0.1025 2) 0.1025 567 = stock conc (mg/L)
mL 0.025 titrant 1) 26.5 2) 26.5
LCS daily dilution: $\frac{7(567)}{200}$ = 19.85 mg/L

MS $\frac{7(567)}{520}$ = 7.63 MS $\frac{7(567)}{510}$ = 7.78

SAMPLE	Volume Filtered mL	mL Iodine	N Iodine	0.0253 N Sodium Thiosulfate
BLANK	200	15	0.0253	15.20
LCS (19.85 mL)	200	↓	↓	5.60
LCSDUP (19.85 mL)	200	↓	↓	5.60
06-151-02	500	↓	↓	14.2
06	510	↓	↓	14.6
08	500	↓	↓	14.8
10	490	↓	↓	13.4
(7.63) MS 11	520	↓	↓	4.6
(7.63) MSD 12	520	↓	↓	4.5
09	550	↓	↓	15.0
14	510	↓	↓	15.5
15	540	↓	↓	14.7
16	530	↓	↓	14.7
13	510	↓	↓	16.5
18	510	↓	↓	14.7
06-201-02	500	↓	↓	15.5
03	520	↓	↓	15.3
04	510	↓	↓	15.2
(7.78) MS 05	510	↓	↓	5.70
(7.63) MSD 06	520	↓	↓	5.80
07	510	↓	↓	15.6
08	530	↓	↓	15.3
10	510	↓	↓	16.0

Analyst: Deanna Roberts Date/Time: 6/11/2007 @ 0910

06-194-01	500	15	0.0253	15.0
02	520	↓	↓	14.8
03	510	↓	↓	15.4

DCN#69669

Deanna Hesson
Approved: June 20, 2007

KEMRON ENVIRONMENTAL SERVICES
TITRAMETRIC REPORT

Workgroup (AAB#): WG242280 Analyst: DR
Product: 376.1 Run Date: 06/11/2007 09:10
Analyte: Sulfide

SAMPLE NUMBER	Volume	Vol I	Nor I	Vol T	Nor T	Dil	Analytical	Reported	Units
WG242280-01	200.0	15	.0253	15.2	.0253	1	-0.405	-0.4048	mg/L
WG242280-02	200.0	15	.0253	5.6	.0253	1	19.0	19.03	mg/L
WG242280-03	200.0	15	.0253	5.6	.0253	1	19.0	19.03	mg/L
L0706151-02	500.0	15	.0253	14.2	.0253	1	0.648	0.6477 F	mg/L
L0706151-06	510.0	15	.0253	14.6	.0253	1	0.317	ND	mg/L
L0706151-08	500.0	15	.0253	14.8	.0253	1	0.162	ND	mg/L
L0706151-10	490.0	15	.0253	13.4	.0253	1	1.32	1.322	mg/L
WG242280-04	490.0	15	.0253	13.4	.0253	1	1.32	1.322	mg/L
L0706151-11	520.0	15	.0253	4.6	.0253	1	8.10	8.096	mg/L
WG242280-05	520.0	15	.0253	4.6	.0253	1	8.10	8.096	mg/L
L0706151-12	520.0	15	.0253	4.5	.0253	1	8.17	8.174	mg/L
WG242280-06	520.0	15	.0253	4.5	.0253	1	8.17	8.174	mg/L
L0706151-09	550.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706151-14	510.0	15	.0253	15.5	.0253	1	-0.397	ND	mg/L
L0706151-15	540.0	15	.0253	14.7	.0253	1	0.225	ND	mg/L
L0706151-16	530.0	15	.0253	14.7	.0253	1	0.229	ND	mg/L
L0706151-13	510.0	15	.0253	16.5	.0253	1	-1.19	ND	mg/L
L0706151-18	510.0	15	.0253	14.7	.0253	1	0.238	ND	mg/L
L0706201-02	500.0	15	.0253	15.5	.0253	1	-0.405	ND	mg/L
L0706201-03	520.0	15	.0253	15.3	.0253	1	-0.234	ND	mg/L
[illegible]6201-04	510.0	15	.0253	15.2	.0253	1	-0.159	ND	mg/L
WG242280-07	510.0	15	.0253	15.2	.0253	1	-0.159	-0.1587	mg/L
L0706201-05	510.0	15	.0253	5.7	.0253	1	7.38	7.382	mg/L
WG242280-08	510.0	15	.0253	5.7	.0253	1	7.38	7.382	mg/L
L0706201-06	520.0	15	.0253	5.8	.0253	1	7.16	7.162	mg/L
WG242280-09	520.0	15	.0253	5.8	.0253	1	7.16	7.162	mg/L
L0706201-07	510.0	15	.0253	15.6	.0253	1	-0.476	ND	mg/L
L0706201-08	530.0	15	.0253	15.3	.0253	1	-0.229	ND	mg/L
L0706201-10	510.0	15	.0253	16	.0253	1	-0.794	ND	mg/L
L0706194-01	500.0	15	.0253	15	.0253	1	0	ND	mg/L
L0706194-02	520.0	15	.0253	14.8	.0253	1	0.156	ND	mg/L
L0706194-03	510.0	15	.0253	15.4	.0253	1	-0.317	ND	mg/L

KEM[illegible] FORMS - Modified 08/27/2004
Version 1.0
Report generated 06/11/2007 14:16

Donna [illegible]

Approved: June 20, 2007

2.2.5 Total Organic Carbon Data

2.2.5.1 Summary Data

LABORATORY REPORT

00085259

L0706194

06/20/07 14:57

Submitted By

KEMRON Environmental Services
156 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Diane Meyer

Account Number: 2773
Work ID: LHAAP SITE 16

P.O. Number: 200328

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
16WW16	L0706194-01	415.1	3	08-JUN-07
16WW22	L0706194-02	415.1	1	08-JUN-07
16WW34	L0706194-03	415.1	1	08-JUN-07

Sample Number: **L0706194-01**	PrePrep Method: **NONE**	Instrument: **TOC-VWP**
Client ID: **16WW16**	Prep Method: **415.1**	Prep Date: **06/12/2007 15:32**
Matrix: **Water**	Analytical Method: **415.1**	Cal Date: **02/26/2007 11:40**
Workgroup Number: **WG242321**	Analyst: **DIH**	Run Date: **06/12/2007 15:32**
Collect Date: **06/07/2007 08:50**	Dilution: **3**	File ID: **TC06-12-2007.21**
Sample Tag: **DL01**	Units: **mg/L**	

Analyte	CAS. Number	Result	Qual	PQL	SQL
Total Organic Carbon		16.7		3.00	1.50

Report Number: **L0706194**
Report Date : **June 20, 2007**

00085261

Sample Number:	**L0706194-02**	PrePrep Method:	**NONE**	Instrument:	**TOC-VWP**
Client ID:	**16WW22**	Prep Method:	**415.1**	Prep Date:	**06/12/2007 15:49**
Matrix:	**Water**	Analytical Method:	**415.1**	Cal Date:	**02/26/2007 11:40**
Workgroup Number:	**WG242321**	Analyst:	**DIH**	Run Date:	**06/12/2007 15:49**
Collect Date:	**06/07/2007 12:00**	Dilution:	**1**	File ID:	**TC06-12-2007.22**
Sample Tag:	**01**	Units:	**mg/L**		

Analyte	CAS. Number	Result	Qual	PQL	SQL
Total Organic Carbon		2.52		1.00	0.500

2 of 3

Sample Number: L0706194-03
Client ID: 16WW34
Matrix: Water
Workgroup Number: WG242321
Collect Date: 06/07/2007 14:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 415.1
Analytical Method: 415.1
Analyst: DIH
Dilution: 1
Units: mg/L

Instrument: TOC-VWP
Prep Date: 06/12/2007 16:05
Cal Date: 02/26/2007 11:40
Run Date: 06/12/2007 16:05
File ID: TC06-12-2007.23

Analyte	CAS. Number	Result	Qual	PQL	SQL
Total Organic Carbon		0.603	J	1.00	0.500

J The analyte was positively identified, but the quantitation was below the RL

2.2.5.2 QC Summary Data

Total Organic Carbon Example Calculations
(Direct Readout Parameter)

(Readout)/(dilution) = mg/L

where:

Readout = direct readout from the instrument
dilution = dilution in decimal form (ex. 1/5 dilution = 0.2)

Checklist ID: 18035

KEMRON Environmental Services

Data Checklist

Date: 12-JUN-2007

Analyst: DIH

Analyst: NA

Method: TOC

Instrument: TOC

Curve Workgroup: NA

Runlog ID:

Analytical Workgroups: WG242321 WG242322

Calibration/Linearity	2/26/2007
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DIH
Secondary Reviewer	
Comments	

Primary Reviewer: 13-JUN-2007

Donna Hesson

Secondary Reviewer:

Generated: JUN-13-2007 16:26:23

KEMRON Environmental Services
HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 415.1

AAB#: WG242321

Login Number: L0706194

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
16WW16	06/07/07	06/08/07	06/12/07	28	5.28	06/12/07	28	5.28	
16WW22	06/07/07	06/08/07	06/12/07	28	5.16	06/12/07	28	5.16	
16WW34	06/07/07	06/08/07	06/12/07	28	5.09	06/12/07	28	5.09	

* EXT = SEE PROJECT QAPP REQUIREMENTS

*ANAL = SEE PROJECT QAPP REQUIREMENTS

KEMRON FORMS - Modified 11/20/2006
Version 1.5 PDF File ID: 790728
Report generated 06/13/2007 16:13

METHOD BLANK SUMMARY

Login Number: L0706194
Work Group: WG242321
Blank File ID: TC06-12-2007.04
Blank Sample ID: WG242321-01
Prep Date: 06/12/07 11:04
Instrument ID: TOC-VWP
Analyzed Date: 06/12/07 11:04
Method: 415.1
Analyst: DIH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG242321-02	TC06-12-2007.05	06/12/07 11:19	01
LCS2	WG242321-03	TC06-12-2007.06	06/12/07 11:35	01
DUP	WG242321-05	TC06-12-2007.17	06/12/07 14:28	DL01
16WW16	L0706194-01	TC06-12-2007.21	06/12/07 15:32	DL01
16WW22	L0706194-02	TC06-12-2007.22	06/12/07 15:49	01
16WW34	L0706194-03	TC06-12-2007.23	06/12/07 16:05	01

METHOD BLANK REPORT

Login Number: L0706194
Prep Date: 06/12/07 11:04
Sample ID: WG242321-01
Instrument ID: TOC-VWP
Run Date: 06/12/07 11:04
Prep Method: 415.1
File ID: TC06-12-2007.04
Analyst: DIH
Method: 415.1
Workgroup (AAB#): WG242321
Matrix: Water
Units: mg/L
Contract #: DACA56-94-D-0020
Cal ID: TOC-VW-26-FEB-07

Analytes	SQL	PQL	Concentration	Dilution	Qualifier
Total Organic Carbon	0.500	1.00	0.534	1	J

SQL Method Detection Limit
PQL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* Analyte concentration > RL

KEMRON FORMS - Modified 12/07/2006
Version 1.5 PDF File ID: 790730
Report generated 06/13/2007 16:13

00085269

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L0706194 Analvst: DIH Prep Method: 415.1
Instrument ID: TOC-VWP Matrix: Water Method: 415.1
Workgroup (AAB#): WG242321 Units: mg/L
Sample ID: WG242321-02 LCS File ID: TC06-12-2007.05 Run Date: 06/12/2007 11:19
Sample ID: WG242321-03 LCS2 File ID: TC06-12-2007.06 Run Date: 06/12/2007 11:35

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Total Organic Carbon	25.0	24.1	96.3	25.0	26.9	108	11.2	85 - 115	15	

KEMRON FORMS - Modified 02/08/2007
Version 1.5 PDF File ID: 790731
Report generated 06/13/2007 16:13

2.2.5.3 Raw Data

TC/TIC
Curves

KEMRON
ENVIRONMENTAL SERVICES

Total Organic Carbon

MAKE DAILY

CCV (TOC): ____________ $\left(\frac{10}{200}\right)(1000) = 50\ mg/L$ $\left(\frac{2}{200}\right)(1000) = 10\ mg/L$

CCV (TIC): ____________ $\left(\frac{5}{200}\right)(1000) = 25\ mg/L$

See below

LCS (TOC): ____________ $\left(\frac{5}{200}\right)(1000) = 25\ mg/L$

MS (TOC): ____________

Calibration Curve Date: ____________

SOP: K 4151 Rev. 1

Instrument: Shimadza TOC-VWP/ASI

☑ EPA 415.1 TOC / TOC-4 / TOC-D / TOCLOW

☐ SW846 9060 TOC-14 / TOC-44

DAILY CHECK

☑ drain reservoir filled
☑ ASI water bottle full
☑ dilution water bottle full

☑ 3rd bottle full
☑ sufficient gas
☑ sufficient persulfate

☑ sufficient acid
☑ waste container

Position	Sample ID	Dilution
1	TC Curve	
2	TIC curve	
3	TC ICV	
4	TIC ICV	
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Position	Sample ID	Dilution
26	curve std	
27	TC: STD17869	
28	TIC: STD16475	
29		
30		
31	ICV:	
32	TC STD 16885	
33	TIC STD 17080	
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

Position	Sample ID	Dilution
51		
52	from SOP	
53	"	"
54		
55		
56		
57	5/200(1000)=25	
58	↓	↓
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		

Analyst: Deanna Henry Date: 2/26/07 Time: ________

DCN#68372

Deanna Roberts

Approved: March 19, 2007

Instr.Information

System	TOCVW ASI
Detector	Wet Chemical

Cal. Curve

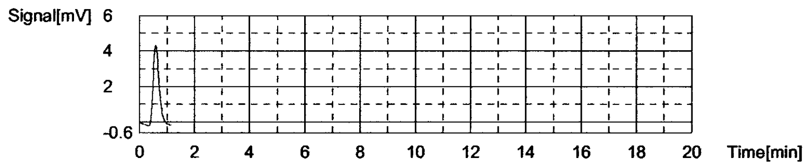
Sample Name:	TC CURVE
Sample ID:	Untitled
Cal. Curve:	TCCURVE-02-26-2007.2007_02_26_10_12_35.cal
Status	Completed

Type	Anal.
Standard	TC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	6.664	500uL	1	*******		02/26/2007 10:16:35 AM

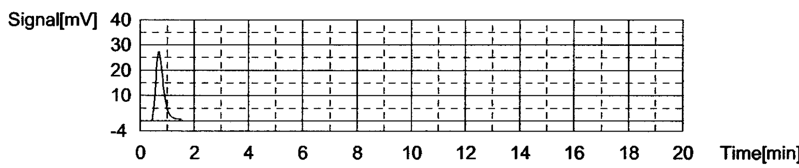
Acid Add. 0.000%
Mean Area 6.664



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	53.24	500uL	1	*******		02/26/2007 10:23:07 AM

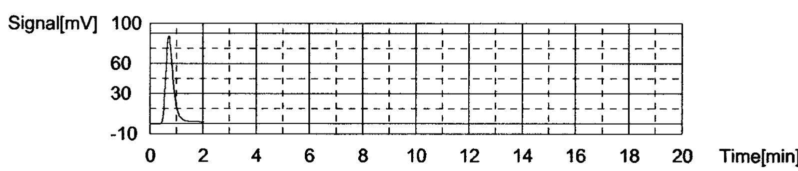
Acid Add. 0.000%
Mean Area 53.24



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	175.0	500uL	1	*******		02/26/2007 10:30:22 AM

Acid Add. 0.000%
Mean Area 175.0

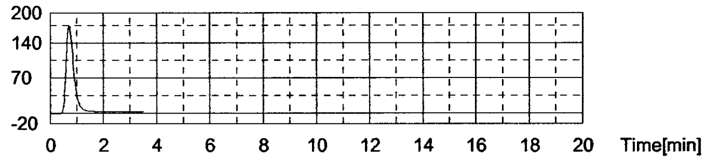


Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	369.9	500uL	1	*******		02/26/2007 10:39:05 AM

Deanna Roberts
Approved: March 19, 2007

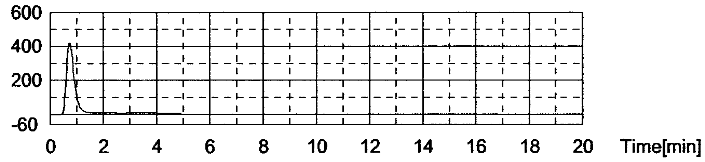
Acid Add. 0.000%
Mean Area 369.9



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	965.1	500uL	1	T******		02/26/2007 10:49:12 AM

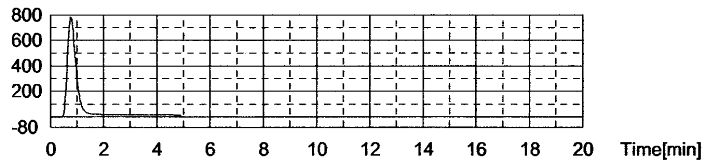
Acid Add. 0.000%
Mean Area 965.1



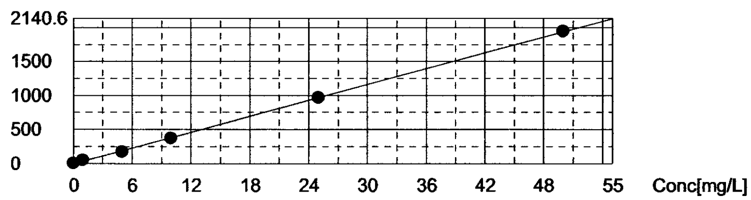
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1946	500uL	1	T******		02/26/2007 10:59:19 AM

Acid Add. 0.000%
Mean Area 1946



Slope: 38.88
Intercept -3.633
r^2 0.999663
Zero Shift No



Cal. Curve

Sample Name: TIC CURVE
Sample ID: Untitled
Cal. Curve: TICCURVE-02-26-2007.2007_02_26_10_59_19.cal
Status Completed

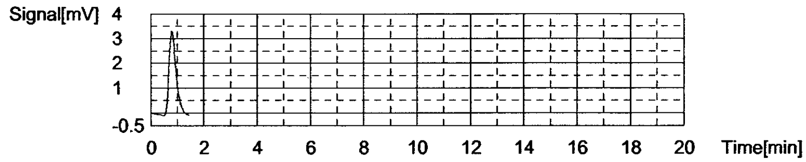
Type	Anal.
Standard	IC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	6.426	500uL	1	*******		02/26/2007 11:03:55 AM

Approved: March 19, 2007

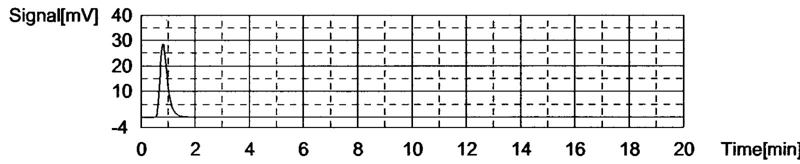
Acid Add. 10.00%
Mean Area 6.426



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	55.25	500uL	1	*******		02/26/2007 11:12:40 AM

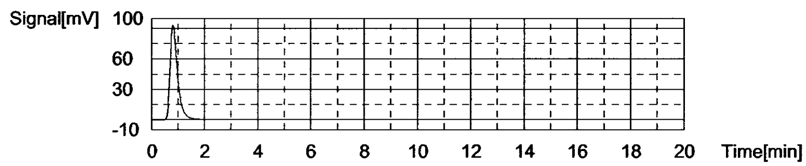
Acid Add. 10.00%
Mean Area 55.25



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	183.5	500uL	1	*******		02/26/2007 11:21:45 AM

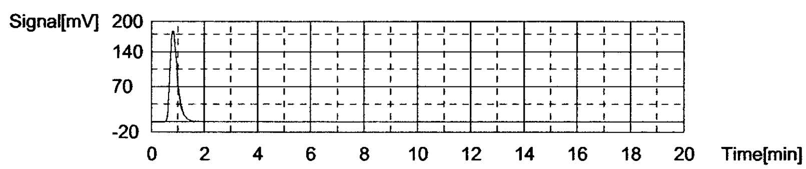
Acid Add. 10.00%
Mean Area 183.5



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	363.0	500uL	1	*******		02/26/2007 11:31:02 AM

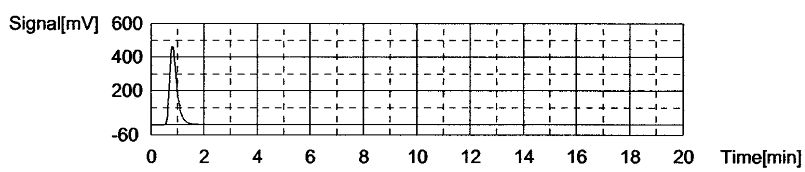
Acid Add. 10.00%
Mean Area 363.0



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	909.5	500uL	1	*******		02/26/2007 11:40:45 AM

Acid Add. 10.00%
Mean Area 909.5

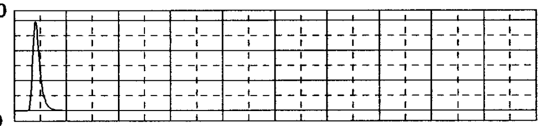


Conc: 50.00mg/L

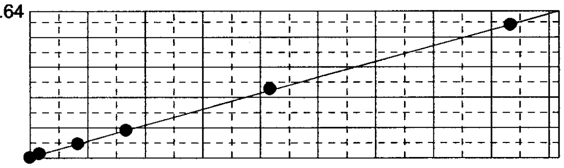
Deanna Roberts
Approved: March 19, 2007

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1764	500uL	1	*******		02/26/2007 11:51:14 AM

Acid Add. 10.00%
Mean Area 1764



Slope: 35.15
Intercept 13.77
r^2 0.999794
Zero Shift No



Sample

Sample Name: TC ICV
Sample ID: Untitled
Origin: TCCURVE-02-26-2007.cal
Status Completed
Chk. Result

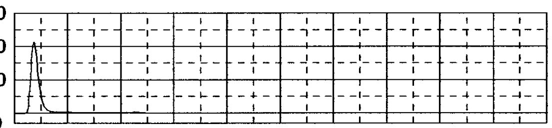
Type	Anal.	Dil.	Result
Unknown	TC	1.000	TC:23.83mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	922.8	23.83mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	02/26/2007 12:02:39 PM

Mean Area 922.8
Mean Conc. 23.83mg/L



Sample

Sample Name: TIC CURVE
Sample ID: Untitled
Origin: TICCURVE-02-26-2007.cal
Status Completed
Chk. Result

Type	Anal.	Dil.	Result
Unknown	IC	1.000	IC:23.43mg/L

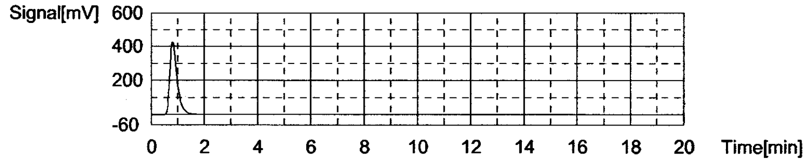
1. Det

Deanna Roberts
Approved: March 19, 2007

Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	837.6	23.43mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	02/26/2007 12:10:52 PM

Mean Area 837.6
Mean Conc. 23.43mg/L



Approved: March 19, 2007

00085277

WORKGROUP: WG242321

242322

KEMRON ENVIRONMENTAL SERVICES

WG#: ____________

Total Organic Carbon

MAKE DAILY

CCV (TOC): STD19122
$(10/200)(1000) = 50\ mg/L$ $(2/200)(1000) = 10\ mg/L$

CCV (TIC): STD19753
$(5/200)(1000) = 25\ mg/L$

LCS (TOC): STD18349
$(5/200)(1000) = 25\ mg/L$

MS (TOC): 0.4/40(1000) = 10

Calibration Curve Date: 2/26/07

☑ EPA 415.1 / SM5310-C TOC / TOC-4 / TOC-D / TOCLOW
☐ SW846 9060 TOC-14 / TOC-44

SOP: K 4151 Rev. 11

Instrument: Shimadza TOC-VWP/ASI

DAILY CHECK

☑ drain reservoir filled
☑ ASI water bottle full
☑ dilution water bottle full

☑ 3rd bottle full
☑ sufficient gas
☑ sufficient persulfate

☑ sufficient acid
☑ waste container

Position	Sample ID	Dilution
1	CCV 50	
2	CCV 10	
3	TIC 25	
4	BLANK	
5	LCS 25	
6	LCSDUP	
7	06-148-01	1/3
8	02	
9	03	
10	06-094-01	1/3
11	03	1/2
12	06-073-03	1/4
13	MS04	1/4
14	MSD05	1/4
15	CCV	
16	CCB	
17	DUP073-03	1/4
18	06-073-12	1/100
19	14	1/3
20	15	1/2
21	06-194-01	1/3
22	02	
23	03	
24	06-149-01	
25	06-150-01	

Position	Sample ID	Dilution
26	06-166-01	1/2CL
27	CCV	
28	CCB	
29	06-171-01	
30	02	
31	03	
32	06-190-01	1/2
33	03	1/2
34	BLK	
35	LCS	
36	LCSDUP	
37	06-175-02	
38	03	
39	CCV	
40	CCB	
41	06-175-04	
42	DUP04	
43	MS05	
44	MSD06	
45	07	
46	08	
47	09	
48	10	
49	06-176-02	
50	03	

Position	Sample ID	Dilution
51	CCV	
52	CCB	
53	06-176-04	
54	05	
55	06	
56	07	
57	06-138-01	1/4
58	06-146-01	
59	MS02	
60	MSD03	
61	04	
62	RR 06-094-01	1/6
63	CCV	
64	CCB	
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		

Analyst: Deanna Hesson Date: 6/12/07 Time: ________

DCN#69680

	Analysi	Sample Name	Result	Status	Date / Time	Vial
1	TOC	CCV 50	!!Error!! TOC:49.43mg/L TC:49.20mg/L IC:-0.2351mg/L	Comp	06/12/2007 10:23:19 AM	1
2	TOC	CCV 10	!!Error!! TOC:9.976mg/L TC:9.740mg/L IC:-0.2362mg/L	Comp	06/12/2007 10:37:24 AM	2
3	TOC	TIC 25	!!Error!! TOC:-0.09936mg/L TC:24.05mg/L IC:24.15mg/L	Comp	06/12/2007 10:54:31 AM	3
4	TOC	WG242321-01 BLANK	!!Error!! TOC:0.5339mg/L TC:0.3934mg/L IC:-0.1405mg	Comp	06/12/2007 11:04:19 AM	0
5	TOC	WG242321-02 LCS	!!Error!! TOC:24.08mg/L TC:23.84mg/L IC:-0.2347mg/L	Comp	06/12/2007 11:19:57 AM	5
6	TOC	WG242321-03 LCSDUP	!!Error!! TOC:26.93mg/L TC:26.69mg/L IC:-0.2352mg/L	Comp	06/12/2007 11:35:28 AM	6
7	TOC	L0706148-01 (3)	TOC:3.162mg/L TC:23.58mg/L IC:20.42mg/L	Comp	06/12/2007 11:51:50 AM	7
8	TOC	L0706148-02	TOC:1.033mg/L TC:52.16mg/L IC:51.12mg/L	Comp	06/12/2007 12:09:49 PM	8
9	TOC	L0706148-03	TOC:3.418mg/L TC:54.34mg/L IC:50.92mg/L	Comp	06/12/2007 12:27:51 PM	9
10	TOC	L0706094-01 (3)	TOC:2.073mg/L TC:53.08mg/L IC:51.01mg/L	Comp	06/12/2007 12:45:29 PM	10
11	TOC	L0706094-03 (2)	TOC:1.229mg/L TC:11.91mg/L IC:10.68mg/L	Comp	06/12/2007 12:59:43 PM	11
12	TOC	L0706073-03 (4)	TOC:21.85mg/L TC:24.94mg/L IC:3.087mg/L	Comp	06/12/2007 01:15:55 PM	12
13	TOC	L07060[illegible]0-04 (4) MS	TOC:25.86mg/L TC:27.67mg/L IC:1.804mg/L	Comp	06/12/2007 01:32:07 PM	13
14	TOC	L0706074-05 (4) MSD	TOC:26.04mg/L TC:27.54mg/L IC:1.502mg/L	Comp	06/12/2007 01:48:01 PM	14
15	TOC	CCV	!!Error!! TOC:52.19mg/L TC:51.98mg/L IC:-0.2093mg/L	Comp	06/12/2007 02:03:37 PM	15
16	TOC	CCB	!!Error!! TOC:0.4711mg/L TC:0.3185mg/L IC:-0.1525mg	Comp	06/12/2007 02:13:10 PM	0
17	TOC	WG242321-05 (4) DUP	TOC:22.12mg/L TC:24.83mg/L IC:2.706mg/L	Comp	06/12/2007 02:28:58 PM	17
18	TOC	L0706073-12 (100)	TOC:21.11mg/L TC:21.83mg/L IC:0.7131mg/L	Comp	06/12/2007 02:44:28 PM	18
19	TOC	L0706073-14 (3)	TOC:24.37mg/L TC:28.47mg/L IC:4.097mg/L	Comp	06/12/2007 03:00:28 PM	19
20	TOC	L0706073-15 (2)	TOC:33.66mg/L TC:36.03mg/L IC:2.373mg/L	Comp	06/12/2007 03:16:18 PM	20
21	TOC	L0706194-01 (3)	TOC:5.551mg/L TC:28.98mg/L IC:23.43mg/L	Comp	06/12/2007 03:32:47 PM	21
22	TOC	L0706194-02	TOC:2.519mg/L TC:37.31mg/L IC:34.80mg/L	Comp	06/12/2007 03:49:54 PM	22
23	TOC	L0706194-03	TOC:0.6033mg/L TC:18.11mg/L IC:17.51mg/L	Comp	06/12/2007 04:05:25 PM	23
24	TOC	L0706149-01	TOC:6.810mg/L TC:16.68mg/L IC:9.874mg/L	Comp	06/12/2007 04:21:12 PM	24
25	TOC	L0706150-01	!!Error!! TOC:0.6437mg/L TC:0.4888mg/L IC:-0.1549mg	Comp	06/12/2007 04:32:56 PM	25
26	TOC	L0706166-01 (2)	TOC:2.475mg/L TC:4.688mg/L IC:2.212mg/L	Comp	06/12/2007 04:46:21 PM	26
27	TOC	CCV	!!Error!! TOC:51.50mg/L TC:51.31mg/L IC:-0.1970mg/L	Comp	06/12/2007 05:01:45 PM	27
28	TOC	CCB	!!Error!! TOC:0.4759mg/L TC:0.3189mg/L IC:-0.1570mg	Comp	06/12/2007 05:11:19 PM	0
29	TOC	L0706171-01	TOC:0.7667mg/L TC:5.979mg/L IC:5.212mg/L	Comp	06/12/2007 05:24:22 PM	29
30	TOC	L0706171-02	TOC:0.3381mg/L TC:6.534mg/L IC:6.196mg/L	Comp	06/12/2007 05:37:20 PM	30
31	TOC	L0706171-03	TOC:2.526mg/L TC:34.02mg/L IC:31.50mg/L	Comp	06/12/2007 05:54:52 PM	31
32	TOC	L0706190-01 (2)	TOC:0.9598mg/L TC:6.439mg/L IC:5.480mg/L	Comp	06/12/2007 06:07:56 PM	32
33	TOC	L0706190-03 (2)	TOC:4.449mg/L TC:40.58mg/L IC:36.13mg/L	Comp	06/12/2007 06:24:50 PM	33
34	TOC	WG242322-01 BLANK	!!Error!! TOC:0.4916mg/L TC:0.4567mg/L IC:-0.03498mg	Comp	06/12/2007 06:34:20 PM	0
35	TOC	WG242322-02 LCS	!!Error!! TOC:26.96mg/L TC:26.79mg/L IC:-0.1674mg/L	Comp	06/12/2007 06:50:01 PM	35
36	TOC	WG242322-03 LCSDUP	!!Error!! TOC:26.96mg/L TC:26.77mg/L IC:-0.1942mg/L	Comp	06/12/2007 07:05:38 PM	36
37	TOC	L0706175-02	!!Error!! TOC:0.7804mg/L TC:0.5878mg/L IC:-0.1925mg	Comp	06/12/2007 07:17:25 PM	37
38	TOC	L0706175-03	TOC:1.690mg/L TC:28.16mg/L IC:26.47mg/L	Comp	06/12/2007 07:34:06 PM	38
39	TOC	CCV	!!Error!! TOC:51.96mg/L TC:51.82mg/L IC:-0.1335mg/L	Comp	06/12/2007 07:49:42 PM	39
40	TOC	CCB	!!Error!! TOC:0.4554mg/L TC:0.3036mg/L IC:-0.1518mg	Comp	06/12/2007 07:59:09 PM	0
41	TOC	L0706175-04	TOC:1.332mg/L TC:20.17mg/L IC:18.84mg/L	Comp	06/12/2007 08:15:01 PM	41
42	TOC	WG242322-05 DUP	TOC:1.121mg/L TC:19.59mg/L IC:18.47mg/L	Comp	06/12/2007 08:30:34 PM	42
43	TOC	L0706175-05 MS	TOC:10.37mg/L TC:37.70mg/L IC:27.33mg/L	Comp	06/12/2007 08:47:28 PM	43
44	TOC	L0706175-06 MSD	TOC:10.46mg/L TC:29.34mg/L IC:18.88mg/L	Comp	06/12/2007 09:03:56 PM	44
45	TOC	L0706175-07	TOC:2.183mg/L TC:36.18mg/L IC:34.00mg/L	Comp	06/12/2007 09:20:40 PM	45
46	TOC	L0706175-08	TOC:1.969mg/L TC:19.67mg/L IC:17.70mg/L	Comp	06/12/2007 09:36:35 PM	46
47	TOC	L0706175-09	TOC:1.198mg/L TC:17.33mg/L IC:16.13mg/L	Comp	06/12/2007 09:51:25 PM	47
48	TOC	L0706175-10	TOC:1.444mg/L TC:13.87mg/L IC:12.43mg/L	Comp	06/12/2007 10:05:54 PM	48
49	TOC	L0706176-02	!!Error!! TOC:1.048mg/L TC:0.9130mg/L IC:-0.1350mg/L	Comp	06/12/2007 10:18:17 PM	49
50	TOC	L0706176-03	TOC:0.8992mg/L TC:9.806mg/L IC:8.907mg/L	Comp	06/12/2007 10:32:09 PM	50
51	TOC	CCV	!!Error!! TOC:51.09mg/L TC:50.92mg/L IC:-0.1686mg/L	Comp	06/12/2007 10:47:50 PM	51
52	TOC	CCB	!!Error!! TOC:0.4647mg/L TC:0.3097mg/L IC:-0.1549mg	Comp	06/12/2007 10:57:44 PM	0
53	TOC	L0706176-04	TOC:0.4969mg/L TC:11.48mg/L IC:10.99mg/L	Comp	06/12/2007 11:11:22 PM	53
54	TOC	L0706176-05	TOC:1.775mg/L TC:18.73mg/L IC:16.96mg/L	Comp	06/12/2007 11:27:17 PM	54
55	TOC	L0706176-06	TOC:2.039mg/L TC:11.96mg/L IC:9.926mg/L	Comp	06/12/2007 11:41:20 PM	55
56	TOC	L0706176-07	TOC:1.148mg/L TC:12.59mg/L IC:11.44mg/L	Comp	06/12/2007 11:55:30 PM	56
57	TOC	L0706138-01 (4)	TOC:2.420mg/L TC:5.678mg/L IC:3.258mg/L	Comp	06/13/2007 12:08:48 AM	57
58	TOC	L0706146-01	TOC:0.6868mg/L TC:1.166mg/L IC:0.4793mg/L	Comp	06/13/2007 12:21:02 AM	58
59	TOC	L0706146-02 MS	TOC:10.37mg/L TC:10.38mg/L IC:0.01110mg/L	Comp	06/13/2007 12:35:22 AM	59
60	TOC	L0706146-03 MSD	TOC:9.780mg/L TC:10.03mg/L IC:0.2478mg/L	Comp	06/13/2007 12:49:05 AM	60
61	TOC	L0706146-04	TOC:1.371mg/L TC:10.00mg/L IC:8.631mg/L	Comp	06/13/2007 01:03:40 AM	61
62	TOC	L0706094-01 (6)	TOC:0.1691mg/L TC:21.08mg/L IC:20.91mg/L	Comp	06/13/2007 01:20:14 AM	62
63	TOC	CCV	!!Error!! TOC:51.29mg/L TC:51.13mg/L IC:-0.1645mg/L	Comp	06/13/2007 01:36:20 AM	63
64	TOC	CCB	!!Error!! TOC:0.4823mg/L TC:0.3264mg/L IC:-0.1559mg	Comp	06/13/2007 01:45:47 AM	0

Instr.Information

System	TOCVW ASI
Detector	Wet Chemical

Sample

Sample Name:	CCV 50
Sample ID:	<Untitled>
Origin:	TOC-02-26-2007.met
Status	Completed
Chk. Result	

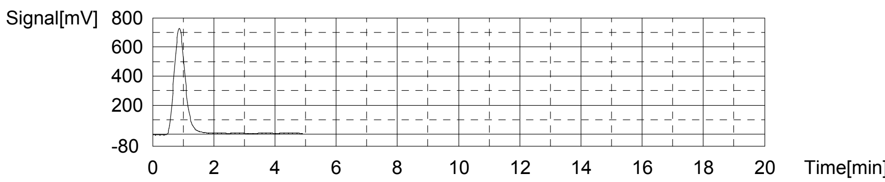
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:49.43mg/L TC:49.20mg/L IC:-0.2351mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1909	49.20mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:18:31 AM

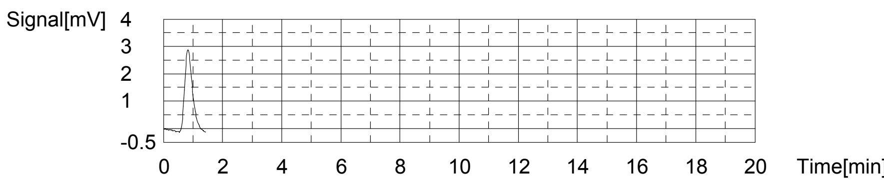
Mean Area 1909
Mean Conc. 49.20mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.506	-0.2351mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:23:19 AM

Mean Area 5.506
Mean Conc. -0.2351mg/L



Sample

Sample Name:	CCV 10
Sample ID:	<Untitled>
Origin:	TOC-02-26-2007.met
Status	Completed
Chk. Result	

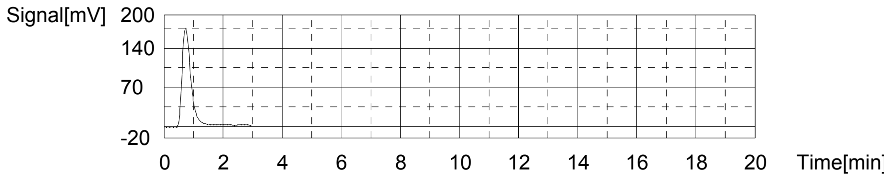
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:9.976mg/L TC:9.740mg/L IC:-0.2362mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	375.0	9.740mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:32:32 AM

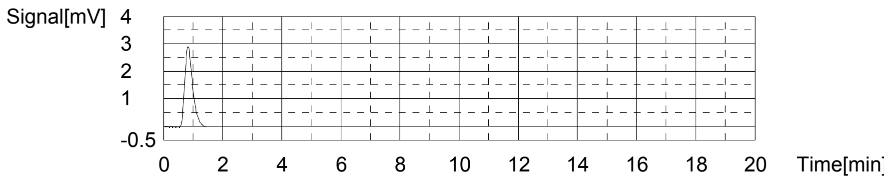
Mean Area 375.0
Mean Conc. 9.740mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.466	-0.2362mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:37:24 AM

Mean Area 5.466
Mean Conc. -0.2362mg/L



Sample

Sample Name: TIC 25
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

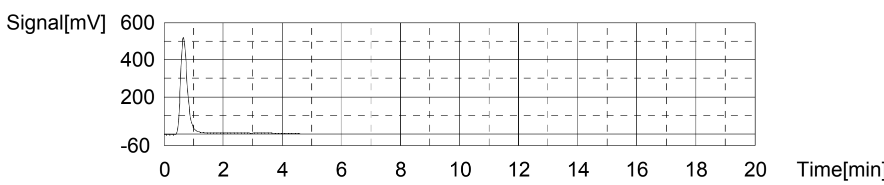
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-0.09936mg/L TC:24.05mg/L IC:24.15mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	931.3	24.05mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:48:24 AM

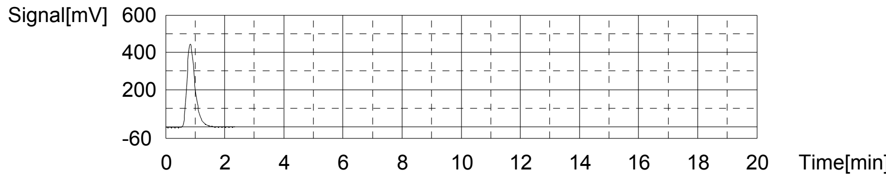
Mean Area 931.3
Mean Conc. 24.05mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	862.7	24.15mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:54:31 AM

Mean Area 862.7
Mean Conc. 24.15mg/L



Sample

Sample Name: WG242321-01 BLANK
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

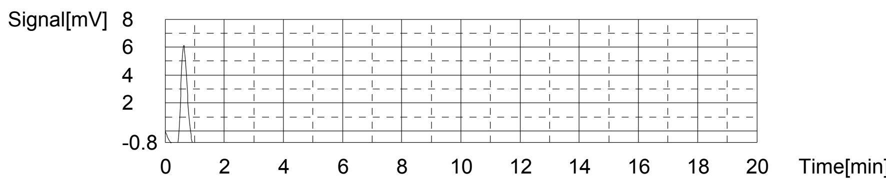
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.5339mg/L TC:0.3934mg/L IC:-0.1405mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	11.66	0.3934mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:59:52 AM

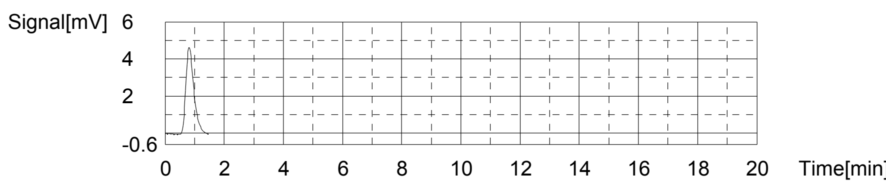
Mean Area 11.66
Mean Conc. 0.3934mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.831	-0.1405mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:04:19 AM

Mean Area 8.831
Mean Conc. -0.1405mg/L



Sample

Sample Name: WG242321-02 LCS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

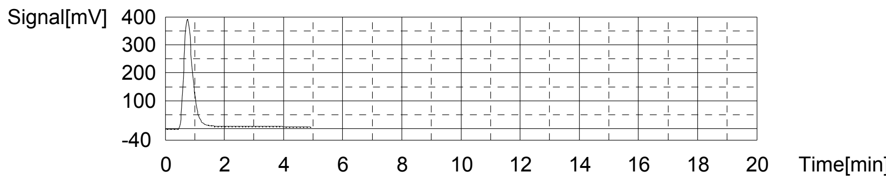
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:24.08mg/L TC:23.84mg/L IC:-0.2347mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	923.2	23.84mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:15:14 AM

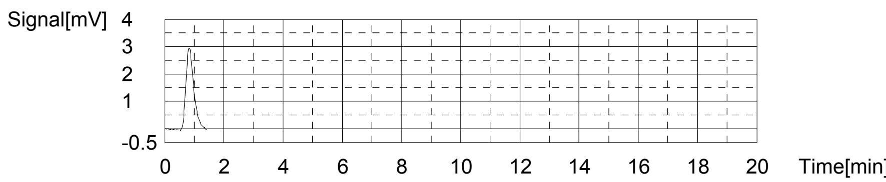
Mean Area 923.2
Mean Conc. 23.84mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.520	-0.2347mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:19:57 AM

Mean Area 5.520
Mean Conc. -0.2347mg/L



Sample

Sample Name: WG242321-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

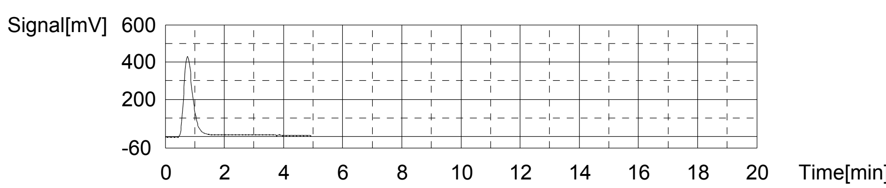
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.93mg/L TC:26.69mg/L IC:-0.2352mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1034	26.69mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:30:47 AM

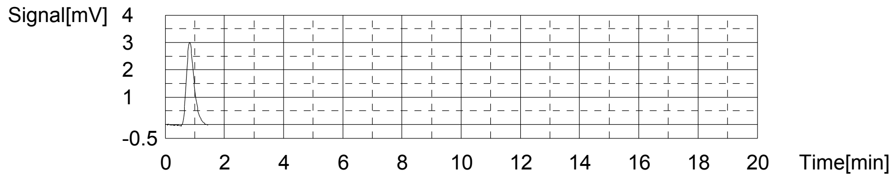
Mean Area 1034
Mean Conc. 26.69mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.502	-0.2352mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:35:28 AM

Mean Area 5.502
Mean Conc. -0.2352mg/L



Sample

Sample Name: L0706148-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

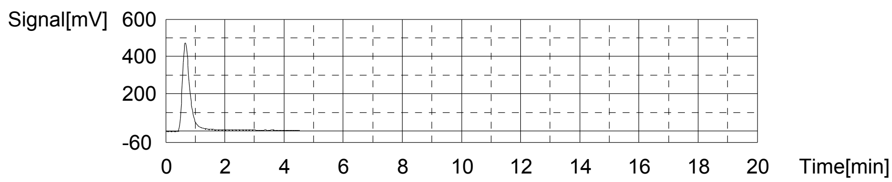
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.162mg/L TC:23.58mg/L IC:20.42mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	913.1	23.58mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:46:02 AM

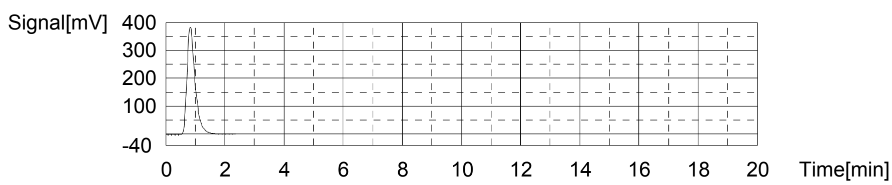
Mean Area 913.1
Mean Conc. 23.58mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	731.6	20.42mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:51:50 AM

Mean Area 731.6
Mean Conc. 20.42mg/L



Sample

Sample Name: L0706148-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

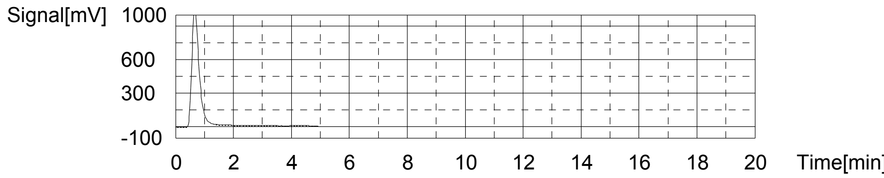
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.033mg/L TC:52.16mg/L IC:51.12mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2024	52.16mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:02:53 PM

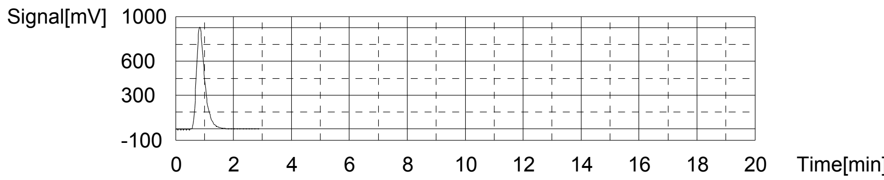
Mean Area 2024
Mean Conc. 52.16mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1811	51.12mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:09:49 PM

Mean Area 1811
Mean Conc. 51.12mg/L



Sample

Sample Name: L0706148-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

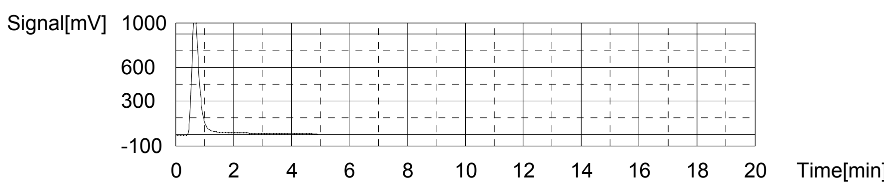
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.418mg/L TC:54.34mg/L IC:50.92mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2109	54.34mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:20:59 PM

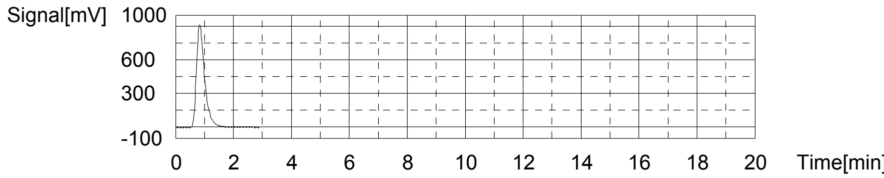
Mean Area 2109
Mean Conc. 54.34mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1804	50.92mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:27:51 PM

Mean Area 1804
Mean Conc. 50.92mg/L



Sample

Sample Name: L0706094-01 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

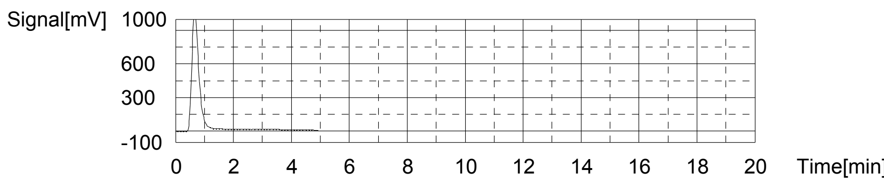
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.073mg/L TC:53.08mg/L IC:51.01mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2060	53.08mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:38:53 PM

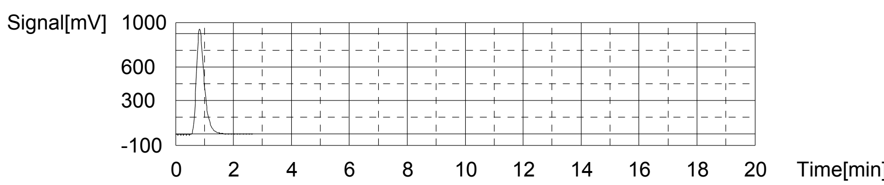
Mean Area 2060
Mean Conc. 53.08mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1807	51.01mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:45:29 PM

Mean Area 1807
Mean Conc. 51.01mg/L



Sample

Sample Name: L0706094-03 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

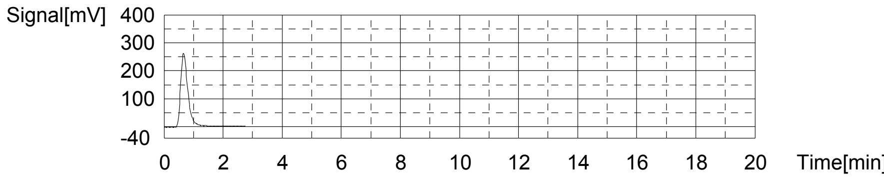
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.229mg/L TC:11.91mg/L IC:10.68mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	459.2	11.91mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 12:54:09 PM

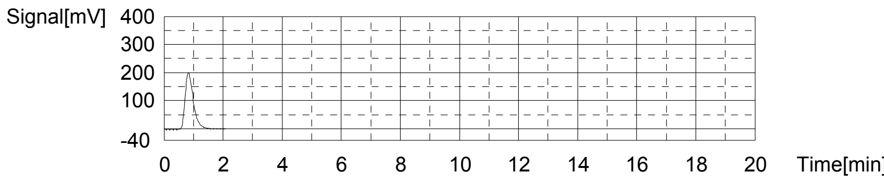
Mean Area 459.2
Mean Conc. 11.91mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	389.1	10.68mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 12:59:43 PM

Mean Area 389.1
Mean Conc. 10.68mg/L



Sample

Sample Name: L0706073-03 (4)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

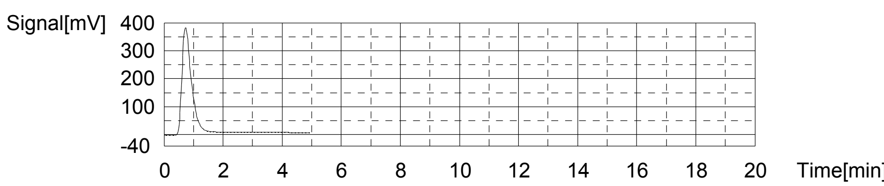
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:21.85mg/L TC:24.94mg/L IC:3.087mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	965.8	24.94mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 01:10:46 PM

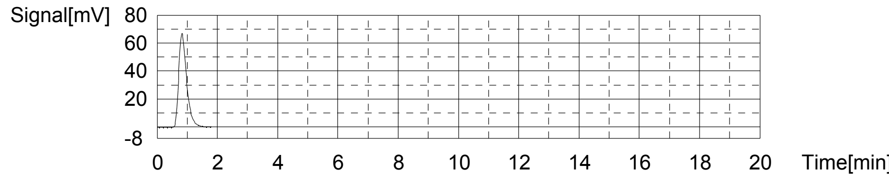
Mean Area 965.8
Mean Conc. 24.94mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	122.3	3.087mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 01:15:55 PM

Mean Area 122.3
Mean Conc. 3.087mg/L



Sample

Sample Name: L07060730-04 (4) MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

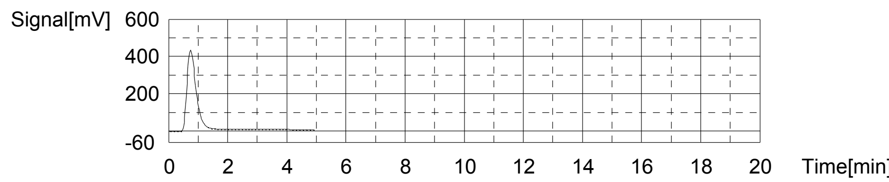
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.86mg/L TC:27.67mg/L IC:1.804mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1072	27.67mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 01:27:12 PM

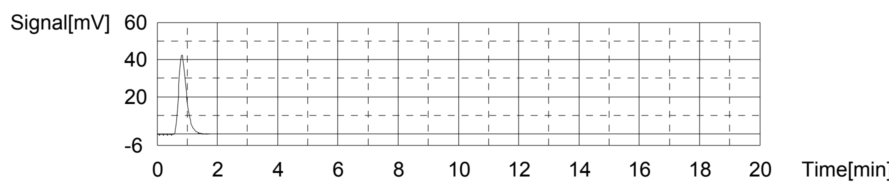
Mean Area 1072
Mean Conc. 27.67mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	77.20	1.804mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 01:32:07 PM

Mean Area 77.20
Mean Conc. 1.804mg/L



Sample

Sample Name: L0706074-05 (4) MSD
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

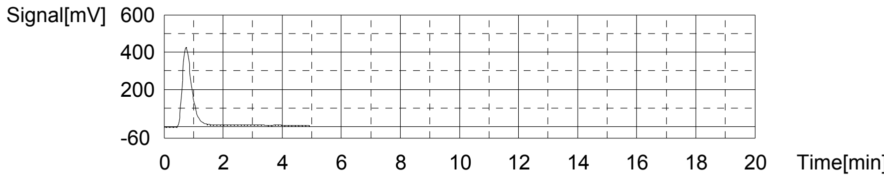
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:26.04mg/L TC:27.54mg/L IC:1.502mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1067	27.54mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 01:43:03 PM

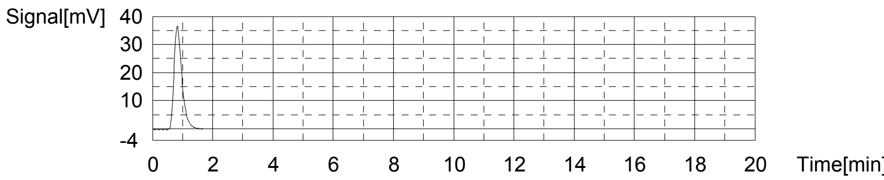
Mean Area 1067
Mean Conc. 27.54mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	66.57	1.502mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 01:48:01 PM

Mean Area 66.57
Mean Conc. 1.502mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

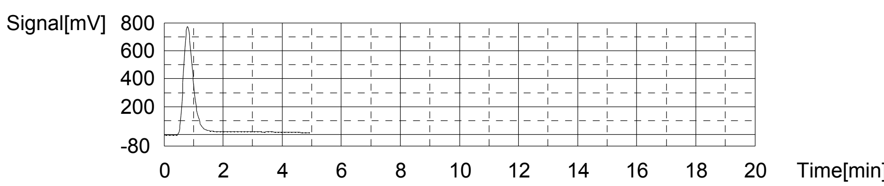
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:52.19mg/L TC:51.98mg/L IC:-0.2093mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2017	51.98mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 01:59:03 PM

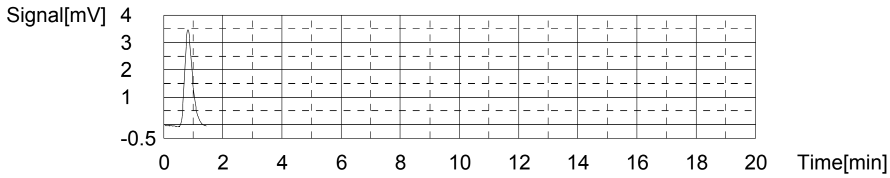
Mean Area 2017
Mean Conc. 51.98mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.413	-0.2093mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:03:37 PM

Mean Area 6.413
Mean Conc. -0.2093mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

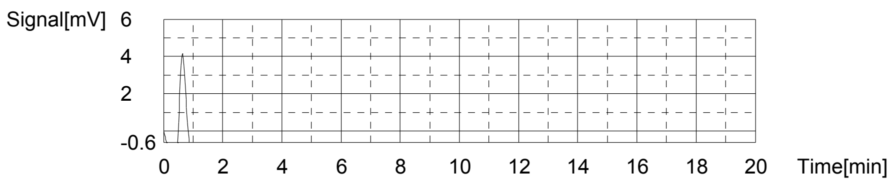
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4711mg/L TC:0.3185mg/L IC:-0.1525mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.751	0.3185mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:09:00 PM

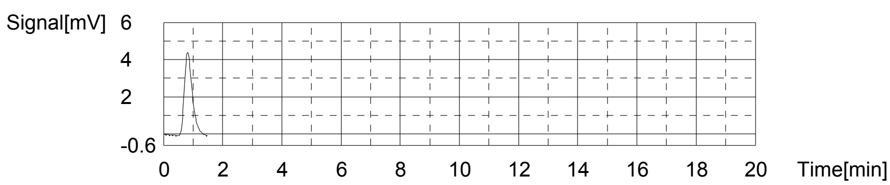
Mean Area 8.751
Mean Conc. 0.3185mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.408	-0.1525mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:13:10 PM

Mean Area 8.408
Mean Conc. -0.1525mg/L



Sample

Sample Name: WG242321-05 (4) DUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

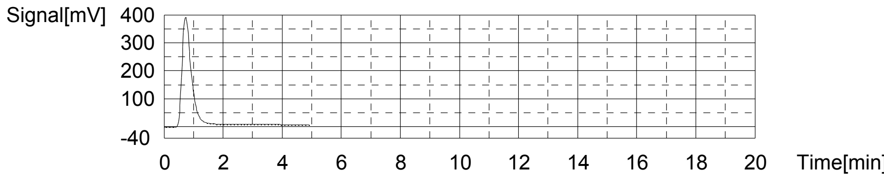
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:22.12mg/L TC:24.83mg/L IC:2.706mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	961.6	24.83mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:23:52 PM

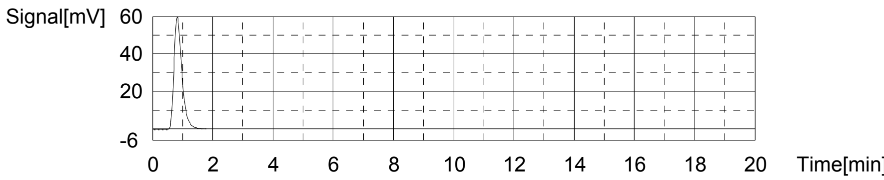
Mean Area 961.6
Mean Conc. 24.83mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.9	2.706mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:28:58 PM

Mean Area 108.9
Mean Conc. 2.706mg/L



Sample

Sample Name: L0706073-12 (100)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

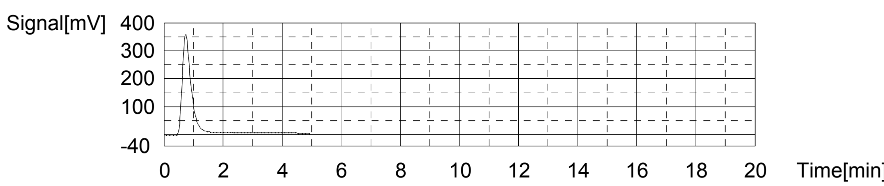
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:21.11mg/L TC:21.83mg/L IC:0.7131mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	844.9	21.83mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:39:39 PM

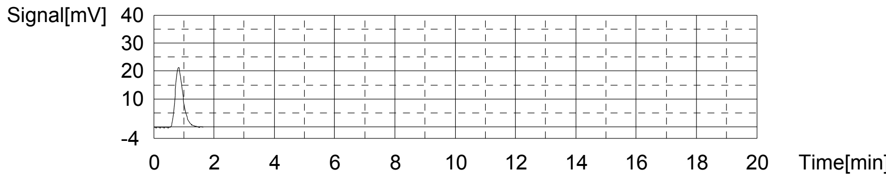
Mean Area 844.9
Mean Conc. 21.83mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	38.84	0.7131mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 02:44:28 PM

Mean Area 38.84
Mean Conc. 0.7131mg/L



Sample

Sample Name: L0706073-14 (3)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

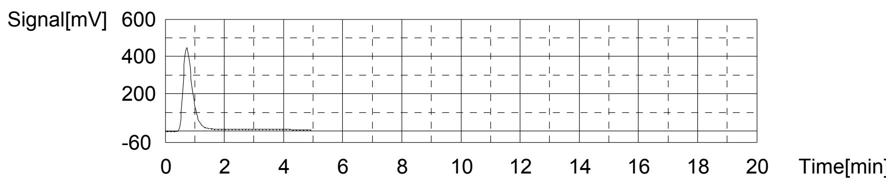
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:24.37mg/L TC:28.47mg/L IC:4.097mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1103	28.47mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 02:55:23 PM

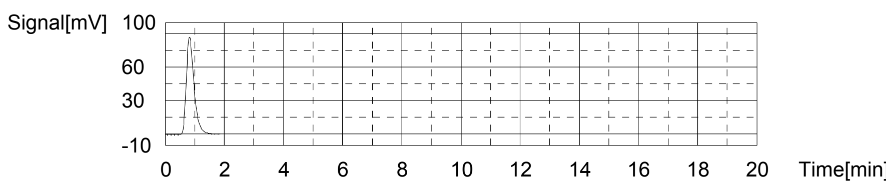
Mean Area 1103
Mean Conc. 28.47mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	157.8	4.097mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:00:28 PM

Mean Area 157.8
Mean Conc. 4.097mg/L



Sample

Sample Name: L0706073-15 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

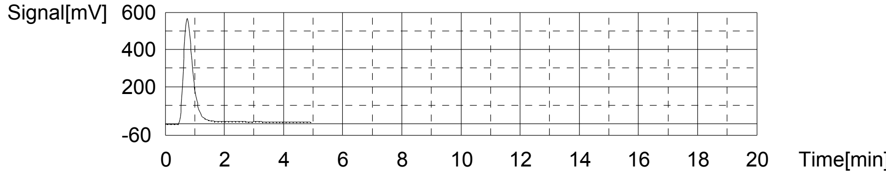
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:33.66mg/L TC:36.03mg/L IC:2.373mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1397	36.03mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:11:22 PM

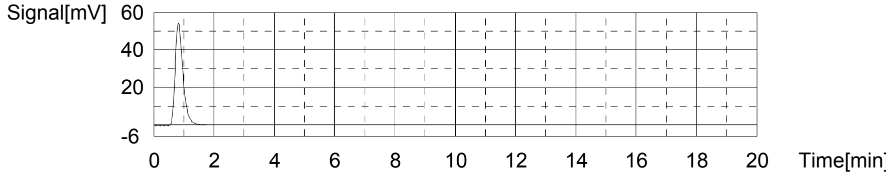
Mean Area 1397
Mean Conc. 36.03mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	97.18	2.373mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:16:18 PM

Mean Area 97.18
Mean Conc. 2.373mg/L



Sample

Sample Name: L0706194-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

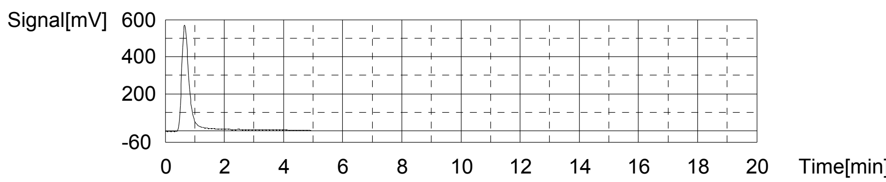
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:5.551mg/L TC:28.98mg/L IC:23.43mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1123	28.98mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:26:59 PM

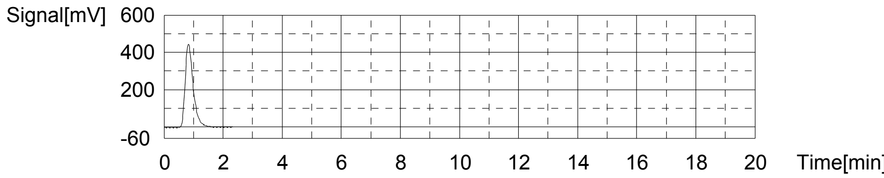
Mean Area 1123
Mean Conc. 28.98mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	837.4	23.43mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:32:47 PM

Mean Area 837.4
Mean Conc. 23.43mg/L



Sample

Sample Name: L0706194-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

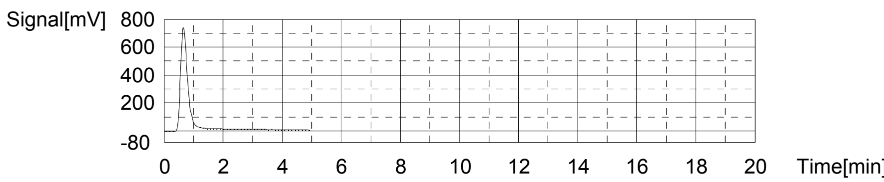
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.519mg/L TC:37.31mg/L IC:34.80mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1447	37.31mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:43:50 PM

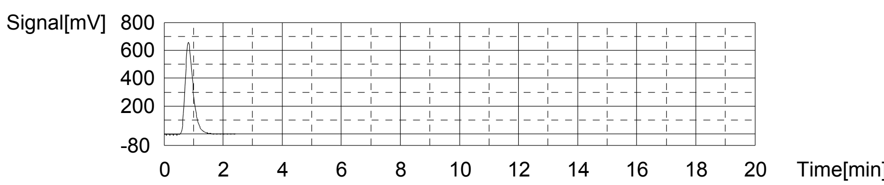
Mean Area 1447
Mean Conc. 37.31mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1237	34.80mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 03:49:54 PM

Mean Area 1237
Mean Conc. 34.80mg/L



Sample

Sample Name: L0706194-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

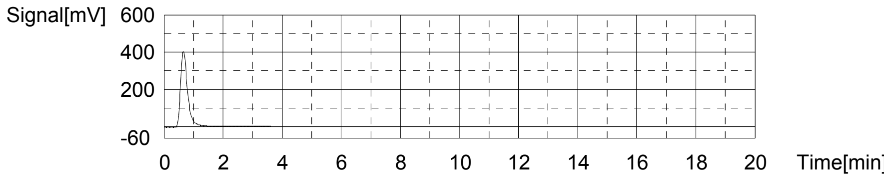
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.6033mg/L TC:18.11mg/L IC:17.51mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	700.4	18.11mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 03:59:39 PM

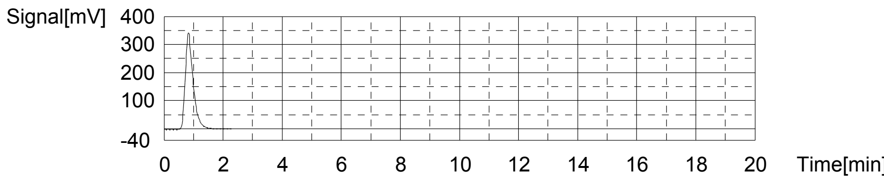
Mean Area 700.4
Mean Conc. 18.11mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	629.2	17.51mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:05:25 PM

Mean Area 629.2
Mean Conc. 17.51mg/L



Sample

Sample Name: L0706149-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

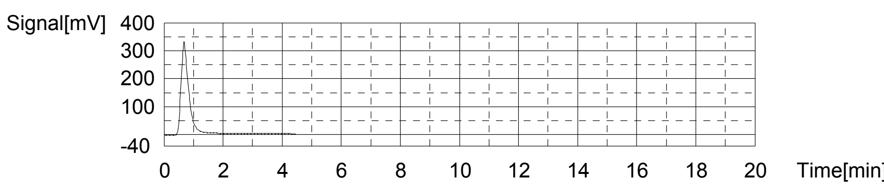
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:6.810mg/L TC:16.68mg/L IC:9.874mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	645.0	16.68mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:15:46 PM

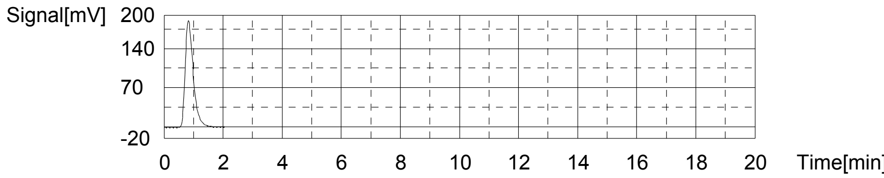
Mean Area 645.0
Mean Conc. 16.68mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	360.9	9.874mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:21:12 PM

Mean Area 360.9
Mean Conc. 9.874mg/L



Sample

Sample Name: L0706150-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

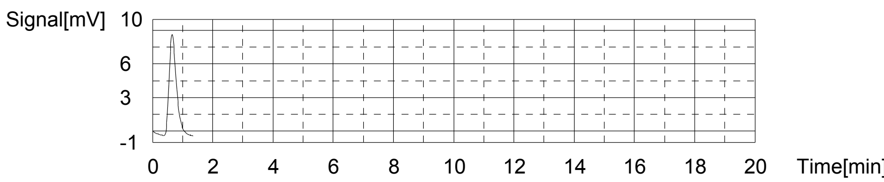
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.6437mg/L TC:0.4888mg/L IC:-0.1549mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	15.37	0.4888mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:28:19 PM

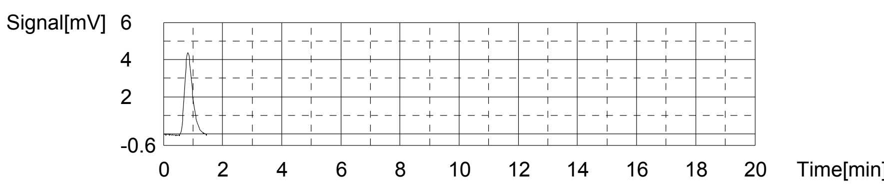
Mean Area 15.37
Mean Conc. 0.4888mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.324	-0.1549mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:32:56 PM

Mean Area 8.324
Mean Conc. -0.1549mg/L



Sample

Sample Name: L0706166-01 (2)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

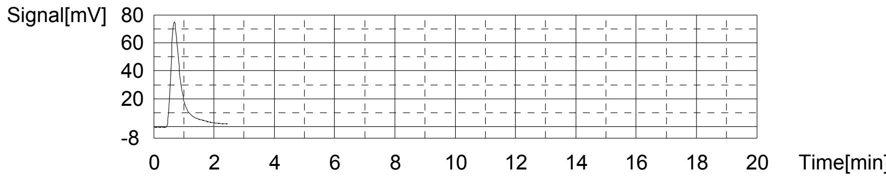
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.475mg/L TC:4.688mg/L IC:2.212mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	178.6	4.688mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:41:17 PM

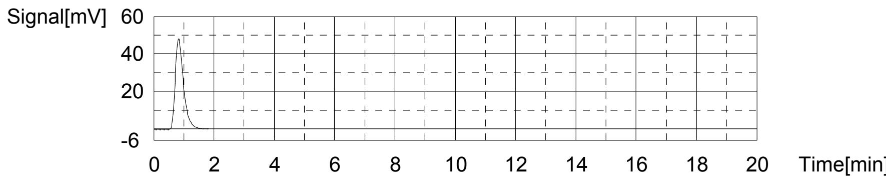
Mean Area 178.6
Mean Conc. 4.688mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	91.54	2.212mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 04:46:21 PM

Mean Area 91.54
Mean Conc. 2.212mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

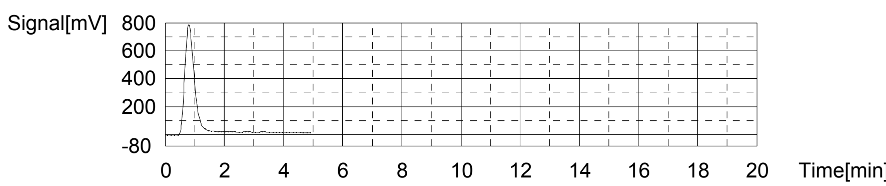
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.50mg/L TC:51.31mg/L IC:-0.1970mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1991	51.31mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 04:57:09 PM

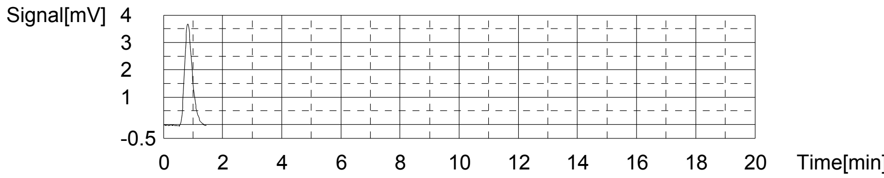
Mean Area 1991
Mean Conc. 51.31mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.845	-0.1970mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:01:45 PM

Mean Area 6.845
Mean Conc. -0.1970mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

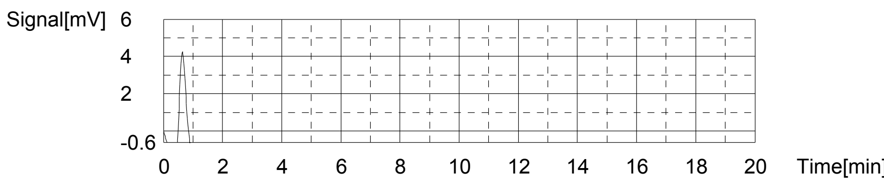
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4759mg/L TC:0.3189mg/L IC:-0.1570mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.764	0.3189mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:07:09 PM

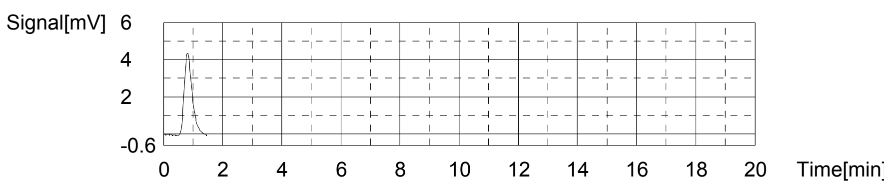
Mean Area 8.764
Mean Conc. 0.3189mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.249	-0.1570mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:11:19 PM

Mean Area 8.249
Mean Conc. -0.1570mg/L



Sample

Sample Name: L0706171-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

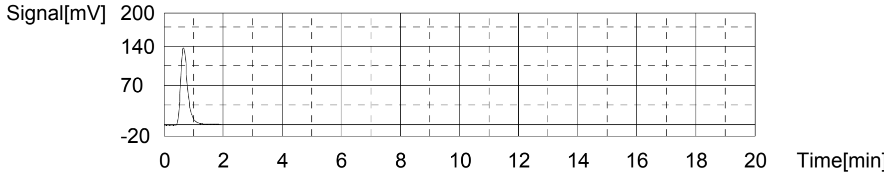
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.7667mg/L TC:5.979mg/L IC:5.212mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	228.8	5.979mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:19:05 PM

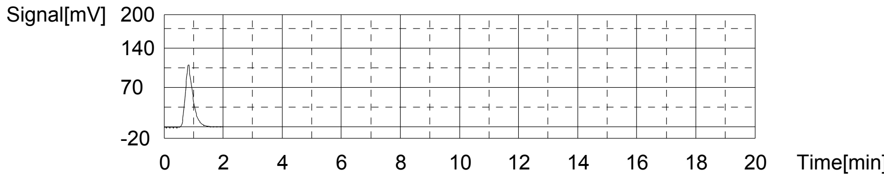
Mean Area 228.8
Mean Conc. 5.979mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	197.0	5.212mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:24:22 PM

Mean Area 197.0
Mean Conc. 5.212mg/L



Sample

Sample Name: L0706171-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

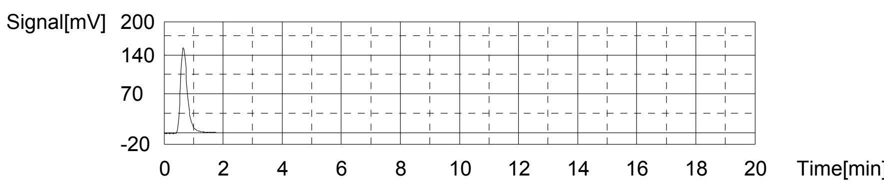
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.3381mg/L TC:6.534mg/L IC:6.196mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	250.4	6.534mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:32:02 PM

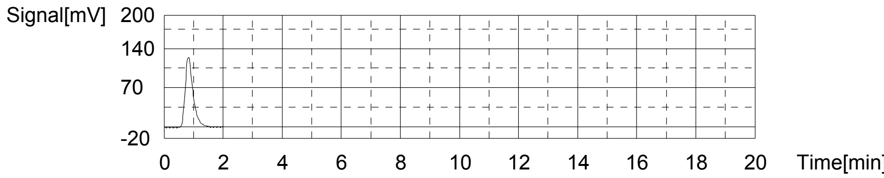
Mean Area 250.4
Mean Conc. 6.534mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	231.6	6.196mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:37:20 PM

Mean Area 231.6
Mean Conc. 6.196mg/L



Sample

Sample Name: L0706171-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

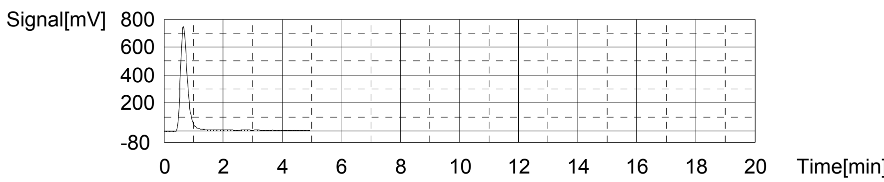
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.526mg/L TC:34.02mg/L IC:31.50mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1319	34.02mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 05:48:44 PM

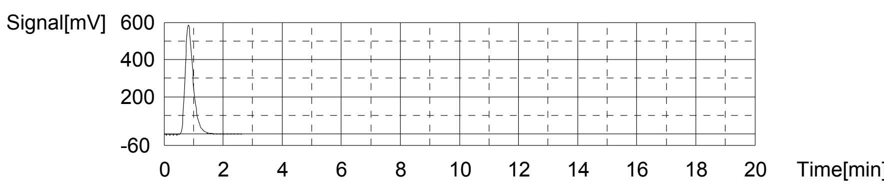
Mean Area 1319
Mean Conc. 34.02mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1121	31.50mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 05:54:52 PM

Mean Area 1121
Mean Conc. 31.50mg/L



Sample

Sample Name: L0706190-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

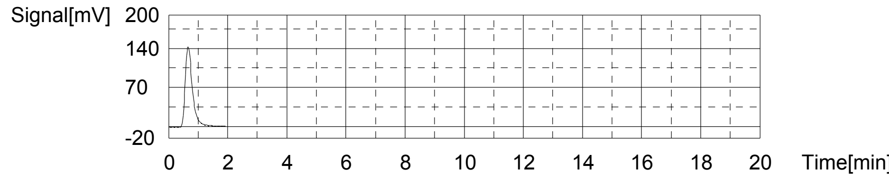
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.9598mg/L TC:6.439mg/L IC:5.480mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	246.7	6.439mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:02:42 PM

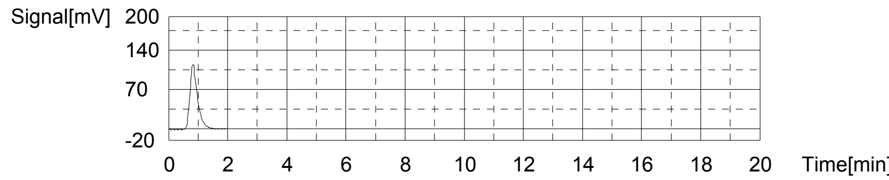
Mean Area 246.7
Mean Conc. 6.439mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	206.4	5.480mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:07:56 PM

Mean Area 206.4
Mean Conc. 5.480mg/L



Sample

Sample Name: L0706190-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

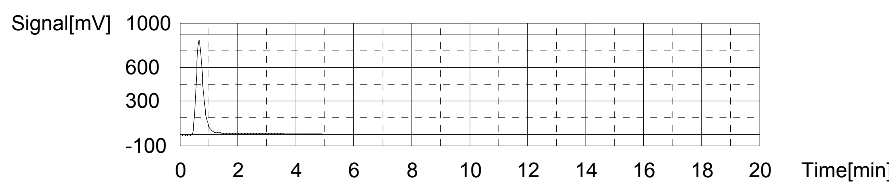
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.449mg/L TC:40.58mg/L IC:36.13mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1574	40.58mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:18:39 PM

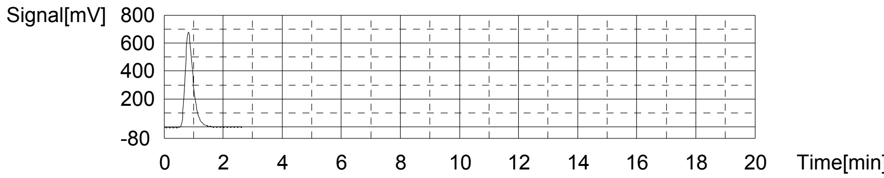
Mean Area 1574
Mean Conc. 40.58mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1284	36.13mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:24:50 PM

Mean Area 1284
Mean Conc. 36.13mg/L



Sample

Sample Name: WG242322-01 BLANK
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

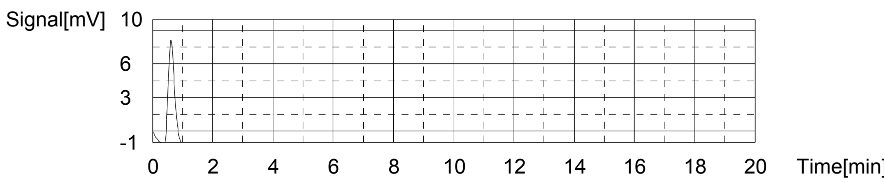
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4916mg/L TC:0.4567mg/L IC:-0.03498mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.12	0.4567mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:30:04 PM

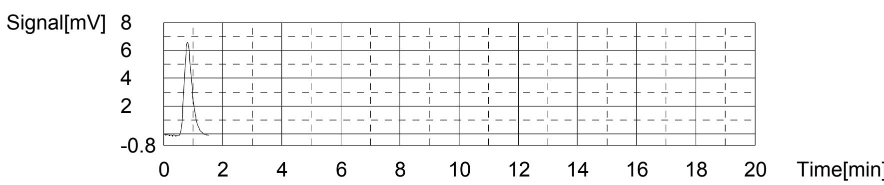
Mean Area 14.12
Mean Conc. 0.4567mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.54	-0.03498mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:34:20 PM

Mean Area 12.54
Mean Conc. -0.03498mg/L



Sample

Sample Name: WG242322-02 LCS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

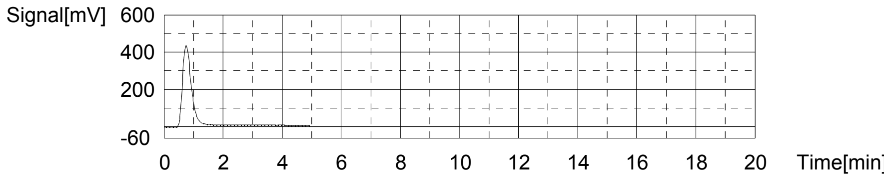
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.96mg/L TC:26.79mg/L IC:-0.1674mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1038	26.79mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 06:45:17 PM

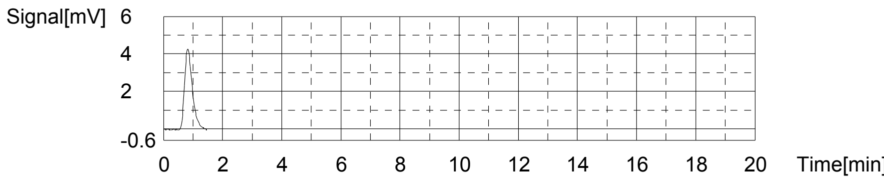
Mean Area 1038
Mean Conc. 26.79mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.884	-0.1674mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 06:50:01 PM

Mean Area 7.884
Mean Conc. -0.1674mg/L



Sample

Sample Name: WG242322-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

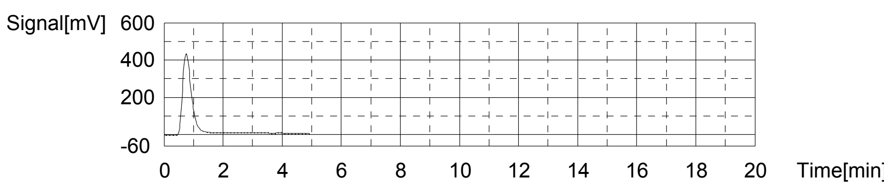
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:26.96mg/L TC:26.77mg/L IC:-0.1942mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1037	26.77mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:00:57 PM

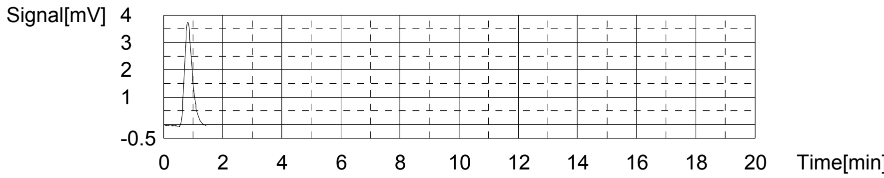
Mean Area 1037
Mean Conc. 26.77mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.944	-0.1942mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:05:38 PM

Mean Area 6.944
Mean Conc. -0.1942mg/L



Sample

Sample Name: L0706175-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

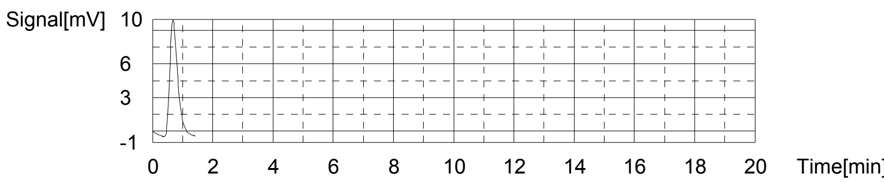
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.7804mg/L TC:0.5878mg/L IC:-0.1925mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	19.22	0.5878mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:12:51 PM

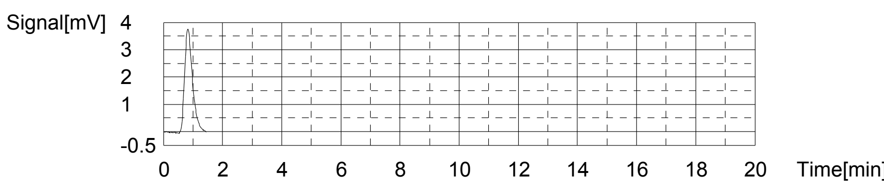
Mean Area 19.22
Mean Conc. 0.5878mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.002	-0.1925mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:17:25 PM

Mean Area 7.002
Mean Conc. -0.1925mg/L



Sample

Sample Name: L0706175-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

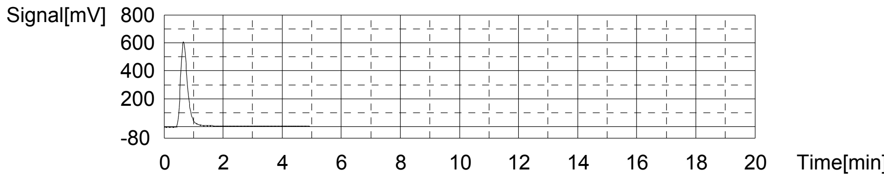
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.690mg/L TC:28.16mg/L IC:26.47mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1091	28.16mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:28:07 PM

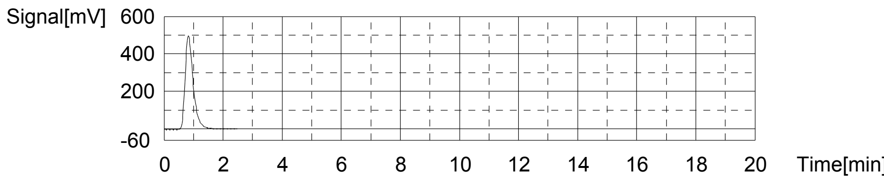
Mean Area 1091
Mean Conc. 28.16mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	944.2	26.47mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:34:06 PM

Mean Area 944.2
Mean Conc. 26.47mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

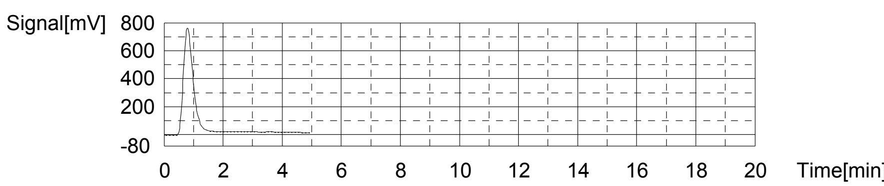
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.96mg/L TC:51.82mg/L IC:-0.1335mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2011	51.82mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:45:03 PM

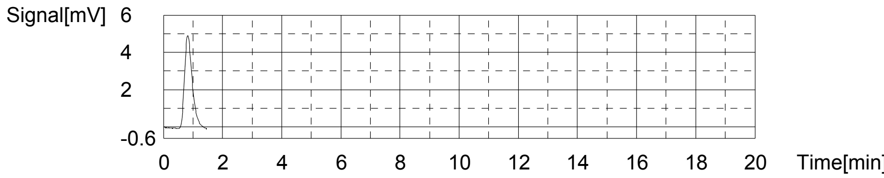
Mean Area 2011
Mean Conc. 51.82mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.078	-0.1335mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:49:42 PM

Mean Area 9.078
Mean Conc. -0.1335mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

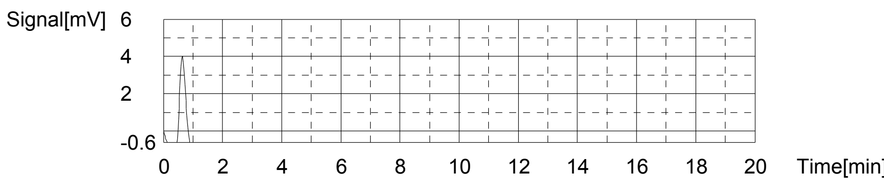
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4554mg/L TC:0.3036mg/L IC:-0.1518mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.170	0.3036mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 07:54:57 PM

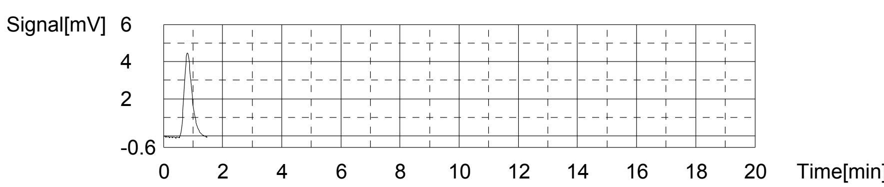
Mean Area 8.170
Mean Conc. 0.3036mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.432	-0.1518mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 07:59:09 PM

Mean Area 8.432
Mean Conc. -0.1518mg/L



Sample

Sample Name: L0706175-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

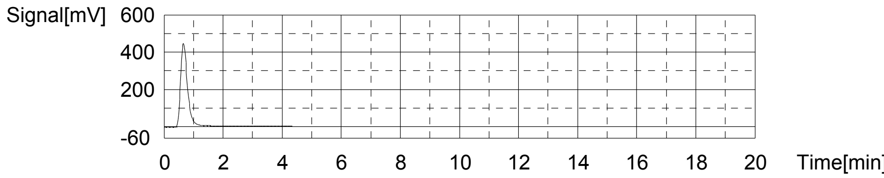
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.332mg/L TC:20.17mg/L IC:18.84mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	780.6	20.17mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:09:17 PM

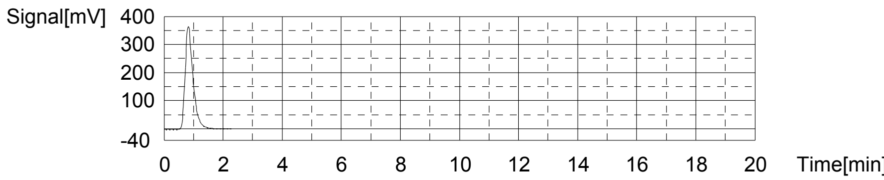
Mean Area 780.6
Mean Conc. 20.17mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	676.1	18.84mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 08:15:01 PM

Mean Area 676.1
Mean Conc. 18.84mg/L



Sample

Sample Name: WG242322-05 DUP
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

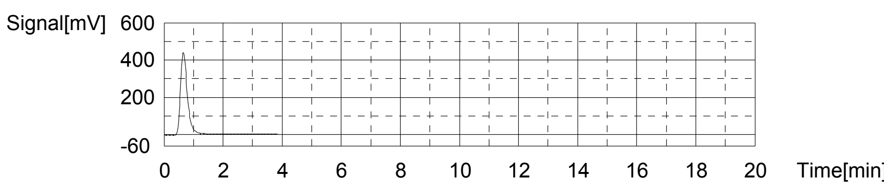
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.121mg/L TC:19.59mg/L IC:18.47mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	757.9	19.59mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:24:39 PM

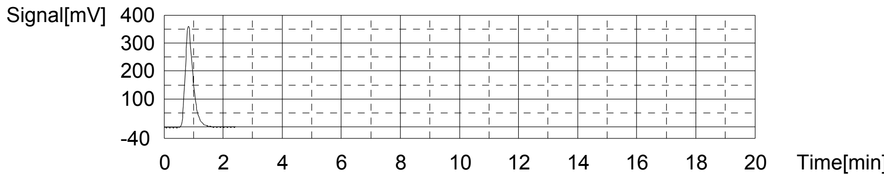
Mean Area 757.9
Mean Conc. 19.59mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	663.0	18.47mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 08:30:34 PM

Mean Area 663.0
Mean Conc. 18.47mg/L



Sample

Sample Name: L0706175-05 MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

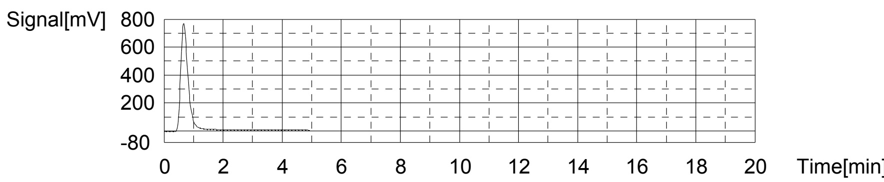
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:10.37mg/L TC:37.70mg/L IC:27.33mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1462	37.70mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:41:30 PM

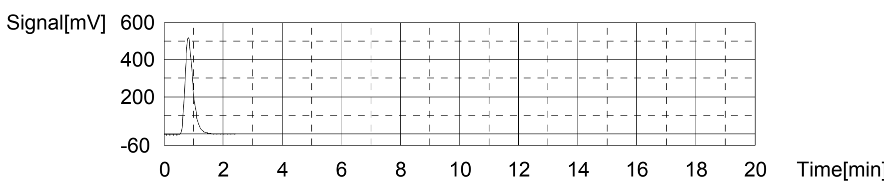
Mean Area 1462
Mean Conc. 37.70mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	974.4	27.33mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 08:47:28 PM

Mean Area 974.4
Mean Conc. 27.33mg/L



Sample

Sample Name: L0706175-06 MSD
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

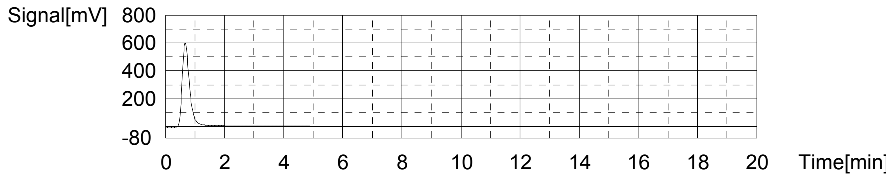
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:10.46mg/L TC:29.34mg/L IC:18.88mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1137	29.34mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 08:58:11 PM

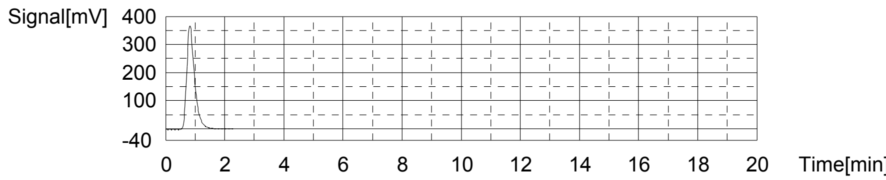
Mean Area 1137
Mean Conc. 29.34mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	677.5	18.88mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:03:56 PM

Mean Area 677.5
Mean Conc. 18.88mg/L



Sample

Sample Name: L0706175-07
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

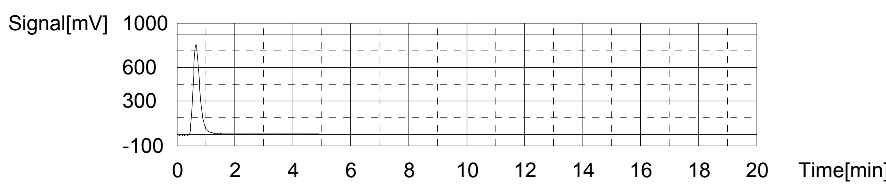
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.183mg/L TC:36.18mg/L IC:34.00mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1403	36.18mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 09:14:38 PM

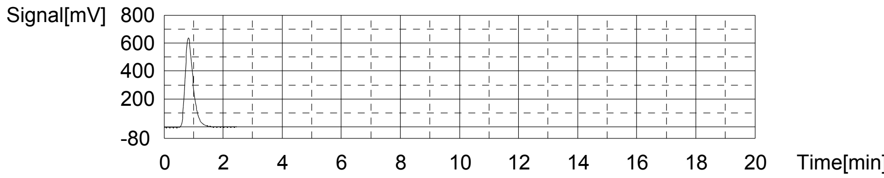
Mean Area 1403
Mean Conc. 36.18mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1209	34.00mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:20:40 PM

Mean Area 1209
Mean Conc. 34.00mg/L



Sample

Sample Name: L0706175-08
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

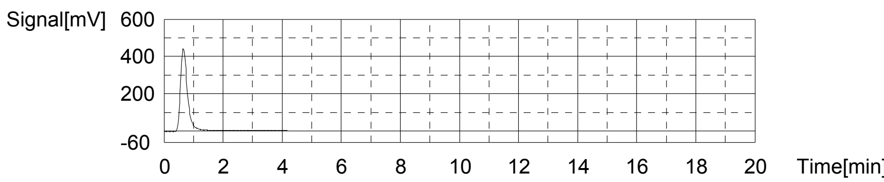
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.969mg/L TC:19.67mg/L IC:17.70mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	760.9	19.67mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 09:31:00 PM

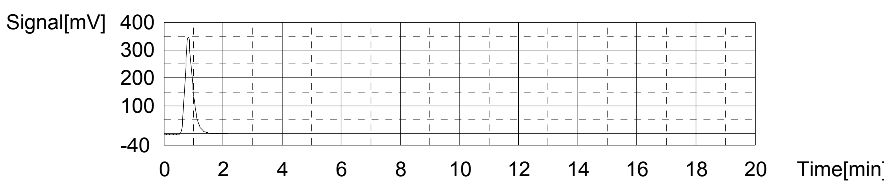
Mean Area 760.9
Mean Conc. 19.67mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	635.9	17.70mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:36:35 PM

Mean Area 635.9
Mean Conc. 17.70mg/L



Sample

Sample Name: L0706175-09
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

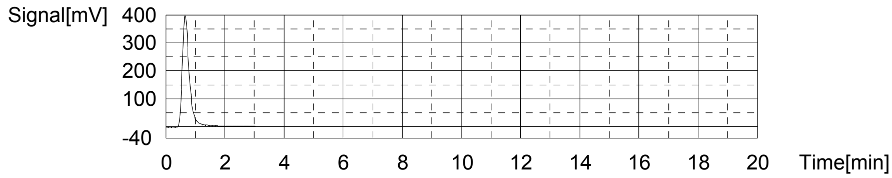
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.198mg/L TC:17.33mg/L IC:16.13mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	669.9	17.33mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 09:45:46 PM

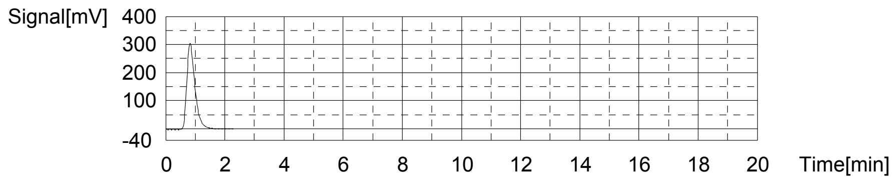
Mean Area 669.9
Mean Conc. 17.33mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	580.7	16.13mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 09:51:25 PM

Mean Area 580.7
Mean Conc. 16.13mg/L



Sample

Sample Name: L0706175-10
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

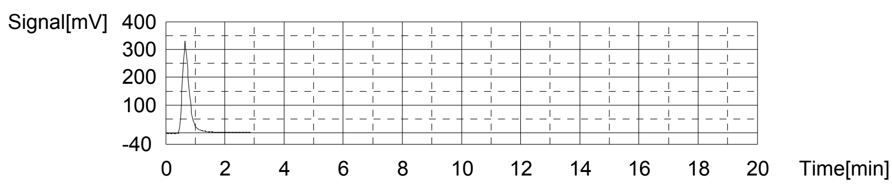
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.444mg/L TC:13.87mg/L IC:12.43mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	535.7	13.87mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:00:21 PM

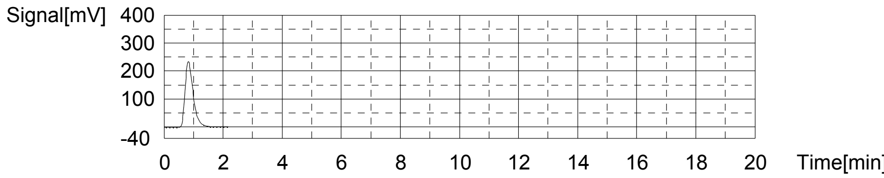
Mean Area 535.7
Mean Conc. 13.87mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	450.7	12.43mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:05:54 PM

Mean Area 450.7
Mean Conc. 12.43mg/L



Sample

Sample Name: L0706176-02
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

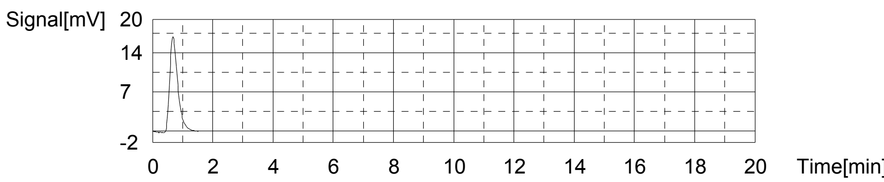
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:1.048mg/L TC:0.9130mg/L IC:-0.1350mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	31.86	0.9130mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:13:35 PM

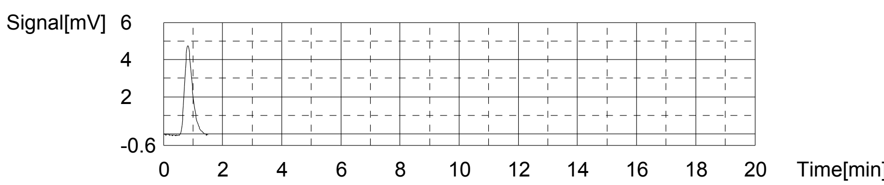
Mean Area 31.86
Mean Conc. 0.9130mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.023	-0.1350mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:18:17 PM

Mean Area 9.023
Mean Conc. -0.1350mg/L



Sample

Sample Name: L0706176-03
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

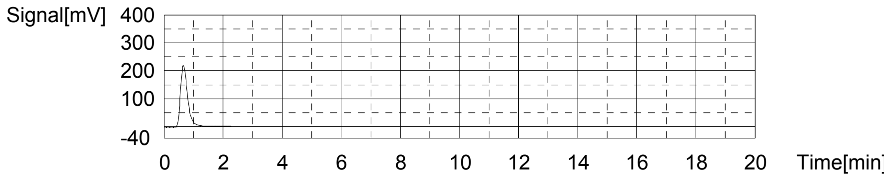
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.8992mg/L TC:9.806mg/L IC:8.907mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	377.6	9.806mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:26:51 PM

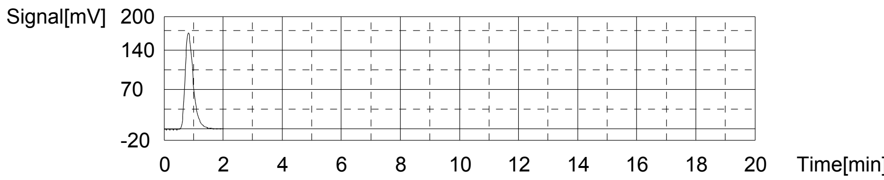
Mean Area 377.6
Mean Conc. 9.806mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	326.9	8.907mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:32:09 PM

Mean Area 326.9
Mean Conc. 8.907mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

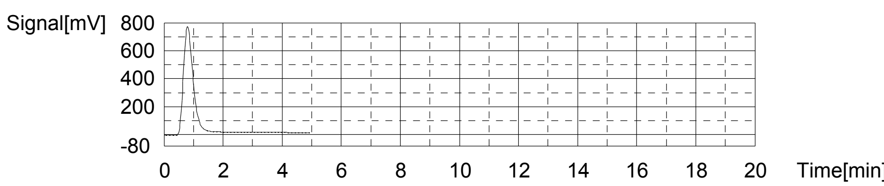
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.09mg/L TC:50.92mg/L IC:-0.1686mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1976	50.92mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:43:14 PM

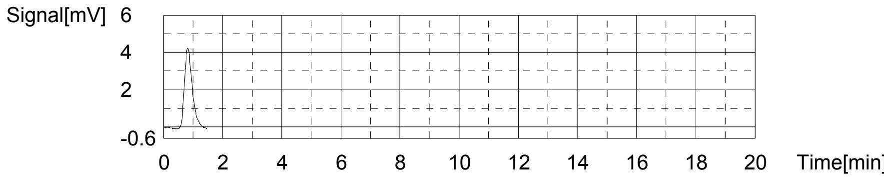
Mean Area 1976
Mean Conc. 50.92mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.843	-0.1686mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:47:50 PM

Mean Area 7.843
Mean Conc. -0.1686mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

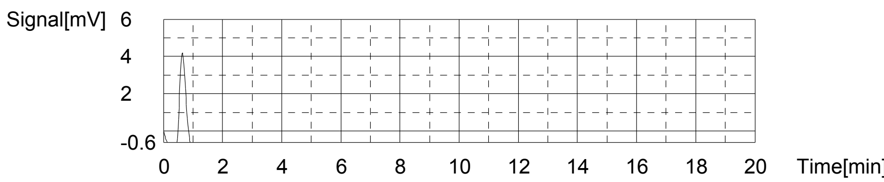
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4647mg/L TC:0.3097mg/L IC:-0.1549mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.409	0.3097mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 10:53:26 PM

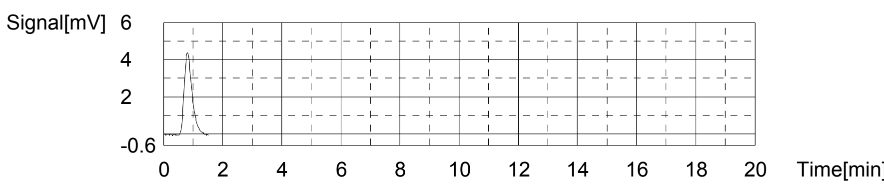
Mean Area 8.409
Mean Conc. 0.3097mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.324	-0.1549mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 10:57:44 PM

Mean Area 8.324
Mean Conc. -0.1549mg/L



Sample

Sample Name: L0706176-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

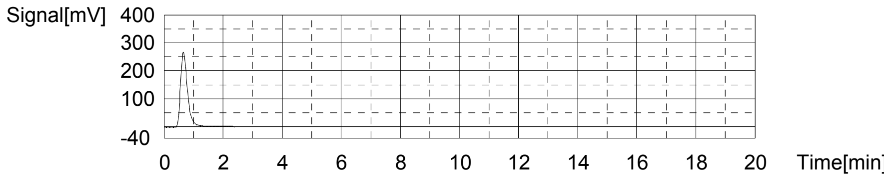
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.4969mg/L TC:11.48mg/L IC:10.99mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	442.8	11.48mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:05:56 PM

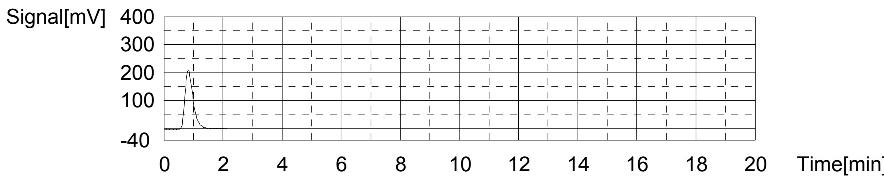
Mean Area 442.8
Mean Conc. 11.48mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	400.0	10.99mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:11:22 PM

Mean Area 400.0
Mean Conc. 10.99mg/L



Sample

Sample Name: L0706176-05
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

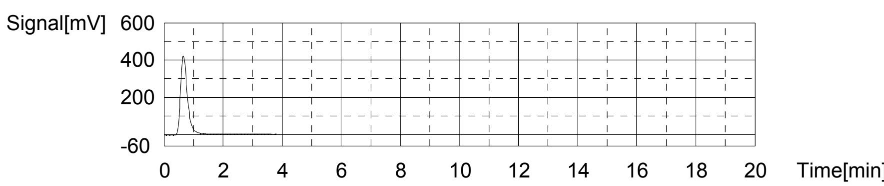
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.775mg/L TC:18.73mg/L IC:16.96mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	724.7	18.73mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:21:36 PM

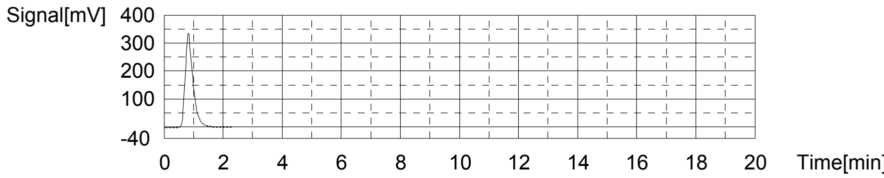
Mean Area 724.7
Mean Conc. 18.73mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	610.0	16.96mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:27:17 PM

Mean Area 610.0
Mean Conc. 16.96mg/L



Sample

Sample Name: L0706176-06
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

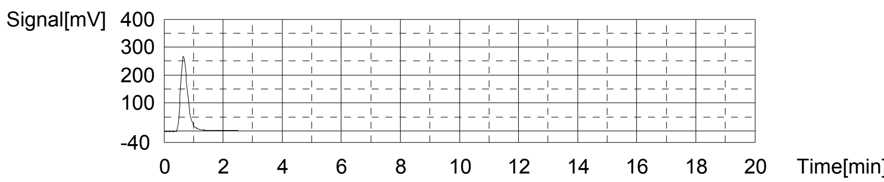
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.039mg/L TC:11.96mg/L IC:9.926mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	461.5	11.96mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:35:56 PM

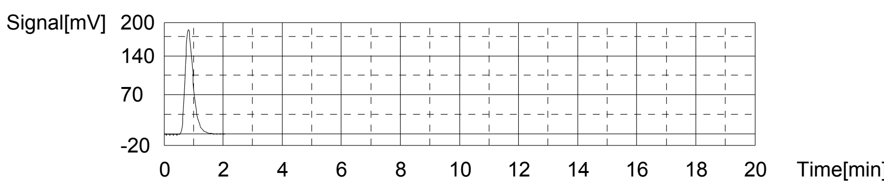
Mean Area 461.5
Mean Conc. 11.96mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	362.7	9.926mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:41:20 PM

Mean Area 362.7
Mean Conc. 9.926mg/L



Sample

Sample Name: L0706176-07
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

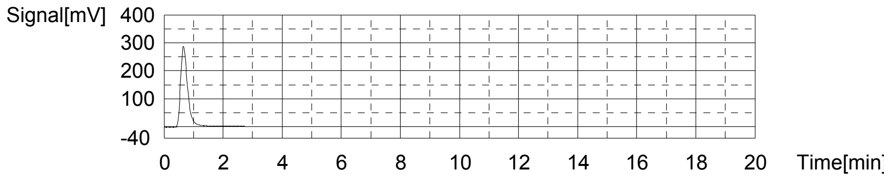
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.148mg/L TC:12.59mg/L IC:11.44mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	485.8	12.59mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/12/2007 11:50:01 PM

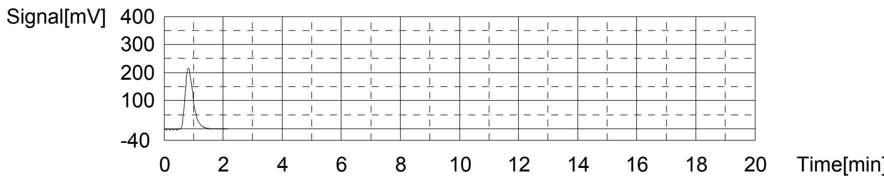
Mean Area 485.8
Mean Conc. 12.59mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	416.0	11.44mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/12/2007 11:55:30 PM

Mean Area 416.0
Mean Conc. 11.44mg/L



Sample

Sample Name: L0706138-01 (4)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

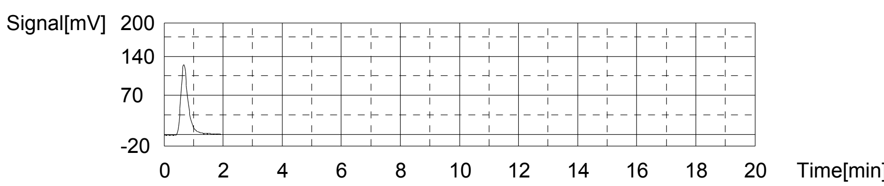
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.420mg/L TC:5.678mg/L IC:3.258mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	217.1	5.678mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:03:41 AM

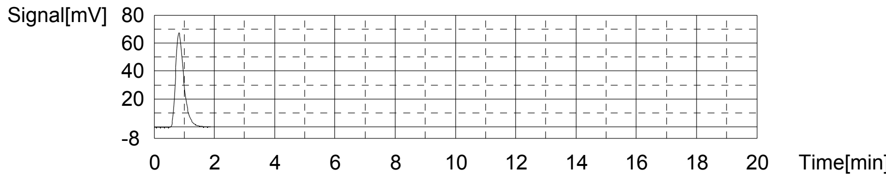
Mean Area 217.1
Mean Conc. 5.678mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	128.3	3.258mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:08:48 AM

Mean Area 128.3
Mean Conc. 3.258mg/L



Sample

Sample Name: L0706146-01
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

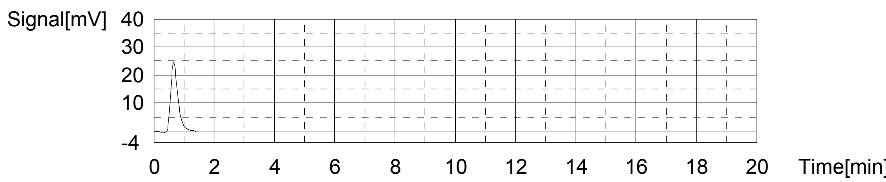
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.6868mg/L TC:1.166mg/L IC:0.4793mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	41.70	1.166mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:16:13 AM

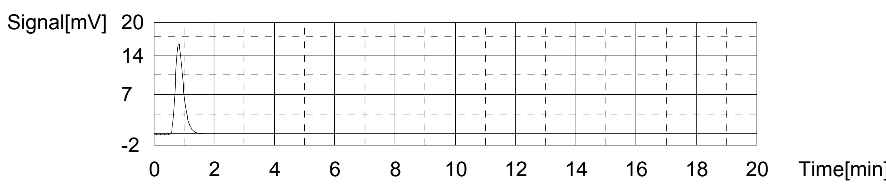
Mean Area 41.70
Mean Conc. 1.166mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	30.62	0.4793mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:21:02 AM

Mean Area 30.62
Mean Conc. 0.4793mg/L



Sample

Sample Name: L0706146-02 MS
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

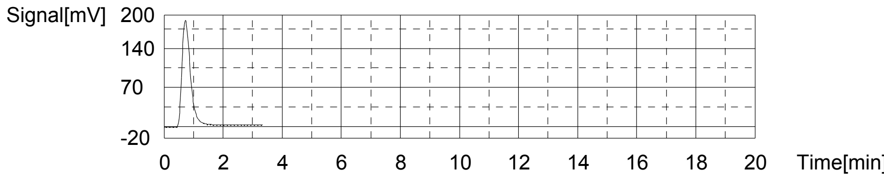
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:10.37mg/L TC:10.38mg/L IC:0.01110mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	400.0	10.38mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:30:25 AM

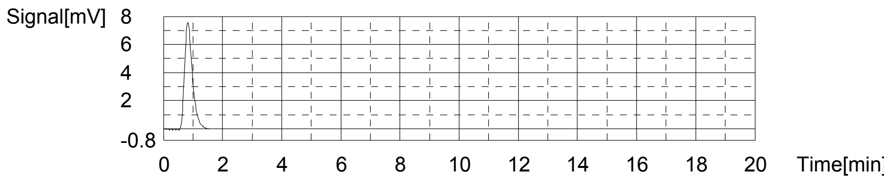
Mean Area 400.0
Mean Conc. 10.38mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.16	0.01110mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:35:22 AM

Mean Area 14.16
Mean Conc. 0.01110mg/L



Sample

Sample Name: L0706146-03 MSD
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

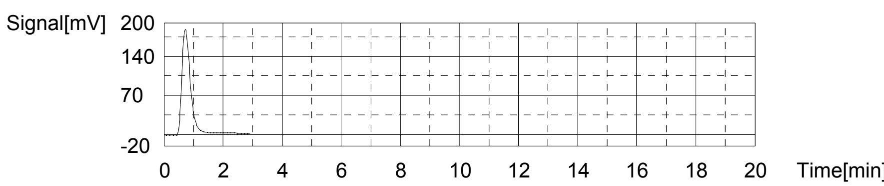
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:9.780mg/L TC:10.03mg/L IC:0.2478mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	386.2	10.03mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:44:20 AM

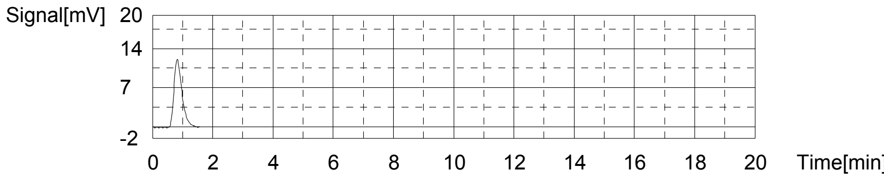
Mean Area 386.2
Mean Conc. 10.03mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	22.48	0.2478mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 12:49:05 AM

Mean Area 22.48
Mean Conc. 0.2478mg/L



Sample

Sample Name: L0706146-04
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

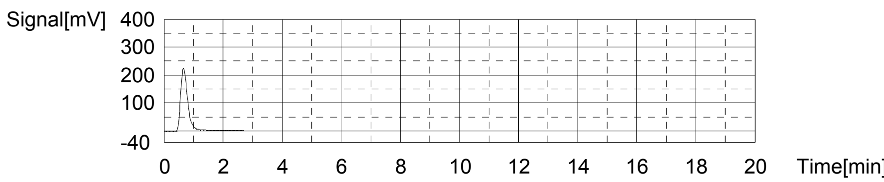
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.371mg/L TC:10.00mg/L IC:8.631mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	385.2	10.00mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 12:58:19 AM

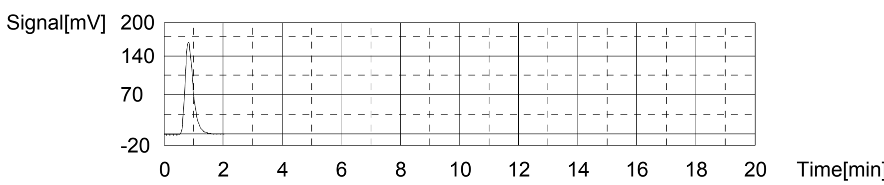
Mean Area 385.2
Mean Conc. 10.00mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	317.2	8.631mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:03:40 AM

Mean Area 317.2
Mean Conc. 8.631mg/L



Sample

Sample Name: L0706094-01 (6)
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

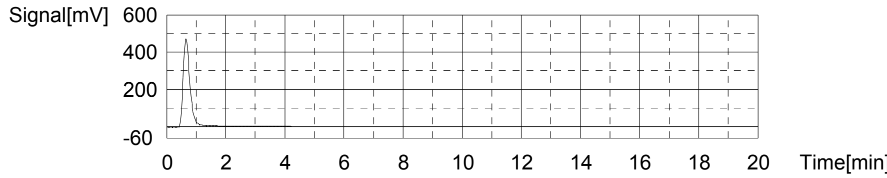
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.1691mg/L TC:21.08mg/L IC:20.91mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	816.0	21.08mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:13:57 AM

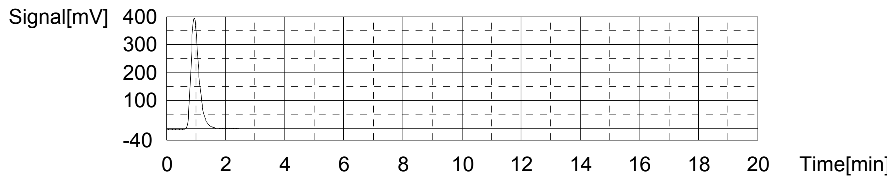
Mean Area 816.0
Mean Conc. 21.08mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	749.0	20.91mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:20:14 AM

Mean Area 749.0
Mean Conc. 20.91mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

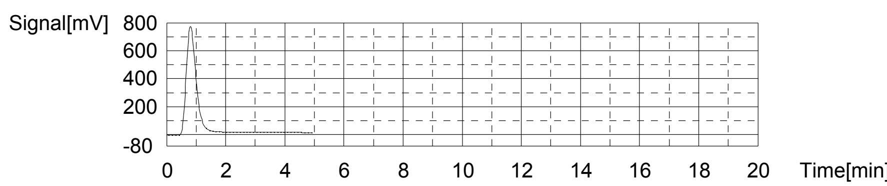
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:51.29mg/L TC:51.13mg/L IC:-0.1645mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1984	51.13mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:31:14 AM

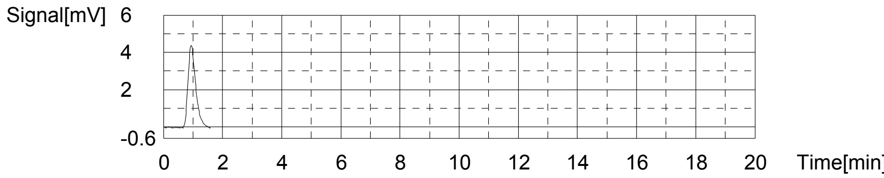
Mean Area 1984
Mean Conc. 51.13mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.986	-0.1645mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:36:20 AM

Mean Area 7.986
Mean Conc. -0.1645mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-26-2007.met
Status Completed
Chk. Result

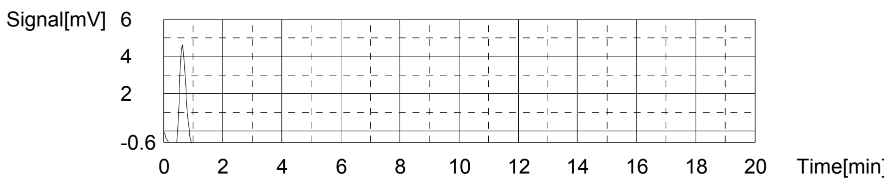
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4823mg/L TC:0.3264mg/L IC:-0.1559mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.056	0.3264mg/L	500uL	1		TCCURVE-02-26-2007.2007_02_26_10_12_3	06/13/2007 01:41:36 AM

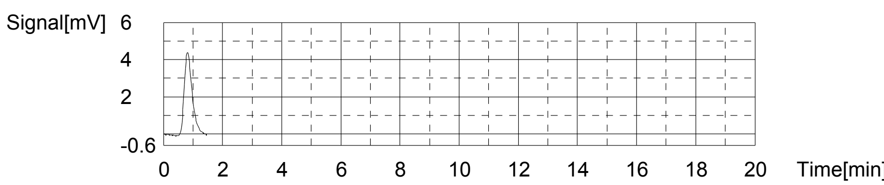
Mean Area 9.056
Mean Conc. 0.3264mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.290	-0.1559mg/L	500uL	1		TICCURVE-02-26-2007.2007_02_26_10_59_1	06/13/2007 01:45:47 AM

Mean Area 8.290
Mean Conc. -0.1559mg/L



3.0 Attachments

Kemron Environmental Services
Analyst Listing
June 20, 2007

AJF - AMANDA J. FICKIESEN	AJM - ANTHONY J. MOSSBURG	ALB - ANNIE L. BOCK
ARA - ADRIAN R. ACHTERMANN	ASP - AARON S. PETRIE	BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN	CAF - CHERYL A. FLOWERS	CAK - CHERYL A. KOELSCH
CEB - CHAD E. BARNES	CLC - CHRYS L. CRAWFORD	CLS - CARA L. STRICKLER
CLW - CHARISSA L. WINTERS	CM - CHARLIE MARTIN	CMS - CRYSTAL M. STEPHENS
CPD - CHAD P. DAVIS	CSH - CHRIS S. HILL	DD - DIANE M. DENNIS
DDE - DEBRA D. ELLIOTT	DEL - DON E. LIGHTFRITZ	DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER	DIH - DEANNA I. HESSON	DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE	DLR - DIANNA L. RAUCH	DR - DEANNA ROBERTS
DRP - DAVE R. PITZER	DSF - DEBRA S. FREDERICK	DST - DENNIS S. TEPE
ECL - ERIC C. LAWSON	ED - EMILY E. DECKER	ERE - ERIN R. ELDER
FJB - FRANCES J. BOLDEN	HAV - HEMA VILASAGAR	HJR - HOLLY J. REED
JAB - JUANITA A. BECKER	JAL - JOHN A. LENT	JKT - JANE K. THOMPSON
JLS - JANICE L. SCHIMMEL	JNB - JOSHUA N. BOOTH	JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES	JYH - JI Y. HU	KCZ - KEVIN C. ZUMBRO
KEB - KATHRYN E. BARNES	KHR - KIM H. RHODES	KRA - KATHY R. ALBERTSON
KRV - KATHRINE R. VICKERS	LKN - LINDA K. NEDEFF	LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON	MDC - MICHAEL D. COCHRAN	MES - MARY E. SCHILLING
MKZ - MARILYN K. ZUMBRO	MLR - MARY L. ROCHOTTE	MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR	MSW - MATT S. WILSON	NJB - NATALIE J. BOOTH
PJM - PAUL J. MILLER	RAH - ROY A. HALSTEAD	RB - ROBERT BUCHANAN
REK - ROBERT E. KYER	RNP - RICK N. PETTY	RWC - RODNEY W. CAMPBELL
SLM - STEPHANIE L. MOSSBURG	SLP - SHERI L. PFALZGRAF	SMH - SHAUNA M. HYDE
TDH - TRICIA D. HUCK	TMB - TIFFANY M. BAILEY	TMM - TAMMY M. MORRIS
VC - VICKI COLLIER	WFM - WALTER F. MARTIN	

KEMRON Environmental Services

List of Valid Qualifiers

June 20, 2007

Qualkey: STD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	Analyte present in method blank
C	Confirmed by GC/MS
CG	Confluent growth
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
FL	Free Liquid
I	Semiquantitative result (out of instrument calibration range)
J	The analyte was positively identified, but the quantitation was below the RL
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	ESTIMATE & COLUMNS DON'T AGREE TO WITHIN 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit
ND,L	Not detected; sample reporting limit (RL) elevated due to interference
ND,S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria fail. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Undetected; the concentration is below the reported MDL.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
Z	Cannot be resolved from isomer - see below

*****Special Notes for Organic Analytes**

1. Acrolein and acrylonitrile by method 624 are semi-quantitative screens only.
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene.
3. N-nitrosodiphenylamine cannot be separated from diphenylamine.
4. 3-Methylphenol and 4-Methylphenol are unresolvable compounds.
5. m-Xylene and p-Xylene are unresolvable compounds.
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound an are matrix dependent.

00085325

Page 311

Chain of Custody

NO. 10207

Shaw® Shaw Environmental & Infrastructure, Inc.
3010 Briarpark Drive, Suite 400
Houston, TX 77042
(713) 996-4400

Laboratory Name: KEMRON
Address: 156 Starlite DR. Marietta, OH. 45750
Contact: Stephanie Mossberg

Project Name: LHAAP Site 16
Project Location:
Project No.: 117591
Project Contact: Kay Everett
Project Telephone No.: 713-996-4421
Point of Contact: Kay Everett
Telephone No.: 713-996-4421
Project Manager/Supervisor:

Analysis and Method Desired (Indicate separate containers)

Item No.	~~Telephone~~ Sample Number	Date	Time	Comp	Grab	Matrix	Sample Description, Location	Number of Containers	VOC	GASES CARBON DIOXIDE	TOC	Anions	Perchlorate	Alkalinity	Sulfide	Remarks
1	16WW16	6/7/07	8:50		✓	W	Groundwater, Site 16	11	3	3	1	1	1	1	1	
2	16WW22	6/7/07	12:00		✓	W	Groundwater, Site 16	11	3	3	1	1	1	1	1	
3	16WW34	6/7/07	2:00		✓	W	Groundwater, Site 16	11	3	3	1	1	1	1	1	
4																
5																
6																
7																
8																
9																
10																

Transfers Relinquished By (signature)	Date/Time	Transfers Accepted By (signature)	Date/Time
Scott Beesinger	6/7/07 4:30	Jane K. Thompson	6/8/07 0930
		Laboratory	

Special Instructions:

FedEx Airbill No.:

Sampler's Signature: Scott Beesinger

TAT: _____ Standard _____ Rush Date _____ Seals Intact? _____ Y _____ N Received Good Condition _____ Y _____ N _____ Cold

White - Lab Copy Canary - Field Copy Pink - File Copy

Form Number: 433_1
Rev. 03-19-07

Client: ShAw	
Workorder Number: B 2705	
Date Received: 6-8-07	
Delivered by: ( ) Fedx (✓) UPS ( ) Client ( ) Courier	Time: 930
Opened by: gg	
IR Temp Gun: ( ) D (✓) G	
Logged by: BG	L 6-194

Cooler information

Cooler ID	Temp C	Airbill#	COC#	Other
899	2	1Z 4016632210006328	10267	

Inspection Checklist	Y	N	NA	Discrepancy ID
Were shipping coolers sealed?	✓			
Were custody seals intact?	✓			
Were COC's received/ information complete/signed and dated?	✓			
Were cooler temperatures in range of 0 - 6?	✓			
Was ice present?	✓			
Were sample containers and labels intact and match COC?	✓			
Were the correct containers and volumes received?	✓			
Were correct preservatives used? (water only)	✓			
Were pH ranges acceptable? (voa's excluded)	✓			
Were VOA samples free of headspace?	✓			
Were samples received within EPA hold times?	✓			

Discrepancy/Comments/Other Problems

Distribution

Name of KEMRON representative	
Client/Company:	
Person Contacted:	
Date contacted:	

Resolution/other comments:

KEMRON Environmental Services
Internal Chain of Custody Report

Login: L0706194
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 15-JUN-2007

Samplenum	Container ID	Products
L0706194-02	345453	300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	08-JUN-2007 10:17	BRG	
2	ANALYZ	L1	SEM	08-JUN-2007 10:45	DSF	ERE
3	STORE	SEM	A1	12-JUN-2007 09:08	ERE	DSF

Samplenum	Container ID	Products
L0706194-03	345460	300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	08-JUN-2007 10:17	BRG	
2	ANALYZ	L1	SEM	08-JUN-2007 10:45	DSF	ERE
3	STORE	SEM	A1	12-JUN-2007 09:08	ERE	DSF

Samplenum	Container ID	Products
L0706194-02	345459	TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	12-JUN-2007 07:33	DIH	ERE
3	STORE	WET	A1	13-JUN-2007 07:53	ERE	DIH

Samplenum	Container ID	Products
L0706194-01	345449	CLO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	SEM	13-JUN-2007 10:42	DSF	ERE
3	STORE	SEM	A1	15-JUN-2007 14:25	ERE	DSF

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services
Internal Chain of Custody Report

Login: L0706194
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 15-JUN-2007

Samplenum	Container ID	Products
L0706194-01	345447	826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Samplenum	Container ID	Products
L0706194-03	345463	CLO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	SEM	13-JUN-2007 10:42	DSF	ERE
3	STORE	SEM	A1	15-JUN-2007 14:25	ERE	DSF

Samplenum	Container ID	Products
L0706194-02	345456	CLO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	SEM	13-JUN-2007 10:42	DSF	ERE
3	STORE	SEM	A1	15-JUN-2007 14:25	ERE	DSF

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services
Internal Chain of Custody Report
Login: L0706194
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 15-JUN-2007

Samplenum	Container ID	Products
L0706194-02	345457	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Samplenum	Container ID	Products
L0706194-01	345452	TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	12-JUN-2007 07:33	DIH	ERE
3	STORE	WET	A1	13-JUN-2007 07:53	ERE	DIH

Samplenum	Container ID	Products
L0706194-01	345448	S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 08:19	DR	ERE

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services

Internal Chain of Custody Report

Login: L0706194
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 15-JUN-2007

Samplenum	Container ID	Products
L0706194-01	345450	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Samplenum	Container ID	Products
L0706194-03	345461	826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Samplenum	Container ID	Products
L0706194-02	345455	S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 08:19	DR	ERE

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

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KEMRON Environmental Services

Internal Chain of Custody Report

Login: L0706194
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 15-JUN-2007

Samplenum	Container ID	Products
L0706194-01	345446	300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	08-JUN-2007 10:17	BRG	
2	ANALYZ	L1	SEM	08-JUN-2007 10:45	DSF	ERE
3	STORE	SEM	A1	12-JUN-2007 09:08	ERE	DSF

Samplenum	Container ID	Products
L0706194-03	345466	TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	12-JUN-2007 07:34	DIH	ERE
3	STORE	WET	A1	13-JUN-2007 07:53	ERE	DIH

Samplenum	Container ID	Products
L0706194-02	345458	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 07:42	DIH	ERE
3	STORE	WET	A1	11-JUN-2007 16:01	ERE	DIH

Samplenum	Container ID	Products
L0706194-03	345462	S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 08:19	DR	ERE

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services
Internal Chain of Custody Report

Login: L0706194
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 15-JUN-2007

Samplenum	Container ID	Products
L0706194-02	345454	826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	08-JUN-2007 10:17	BRG	
2	ANALYZ	V1	ORG4	10-JUN-2007 16:06	MES	ERE

Samplenum	Container ID	Products
L0706194-01	345451	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 07:42	DIH	ERE
3	STORE	WET	A1	11-JUN-2007 16:01	ERE	DIH

Samplenum	Container ID	Products
L0706194-03	345465	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	08-JUN-2007 10:17	BRG	
2	ANALYZ	W1	WET	11-JUN-2007 07:42	DIH	ERE
3	STORE	WET	A1	11-JUN-2007 16:01	ERE	DIH

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

KEMRON Environmental Services
Internal Chain of Custody Report
Login: L0706194
Account: 2773
Project: 2773.025
Samples: 3
Due Date: 15-JUN-2007

Samplenum	Container ID	Products
L0706194-03	345464	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	A1	08-JUN-2007 10:17	BRG	
2	ANALYZ	A1	ORG4	12-JUN-2007 09:31	MRT	RWC

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

WORKGROUP SUMMARY BY METHOD

WORKGROUP SUMMARY BY METHOD

Analysis: Special List - 8260
Analytical Method: 8260B
Workgroup: WG242208

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/10/07 21:46	01	HPMS11	MES

Analysis: Special List - 8260
Extraction Method: 5030B
Workgroup: WG242208

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16				242208	HPMS11	MES

Analysis: Special List - 8260
Analytical Method: 8260B
Workgroup: WG242225

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-02	16WW22			06/11/07 18:51	01	HPMS6	CMS
L0706194-03	16WW34			06/11/07 19:23	01	HPMS6	CMS

Analysis: Special List - 8260
Extraction Method: 5030B
Workgroup: WG242225

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-02	16WW22				242225	HPMS6	CMS
L0706194-03	16WW34				242225	HPMS6	CMS

WORKGROUP SUMMARY BY METHOD

Analysis: Alkalinity, Total
Analytical Method: 310.2
Workgroup: WG242229

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/11/07 09:52	DL01	SMARTCHEM	DIH
L0706194-02	16WW22			06/11/07 09:53	01	SMARTCHEM	DIH
L0706194-03	16WW34			06/11/07 09:54	01	SMARTCHEM	DIH

Analysis: Alkalinity, Total
Extraction Method: 310.2
Workgroup: WG242229

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/11/07 09:52	DL01	SMARTCHEM	DIH
L0706194-02	16WW22			06/11/07 09:53	01	SMARTCHEM	DIH
L0706194-03	16WW34			06/11/07 09:54	01	SMARTCHEM	DIH

Analysis: Special List - 8260
Analytical Method: 8260B
Workgroup: WG242252

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/11/07 15:28	DL01	HPMS11	CMS

Analysis: Special List - 8260
Extraction Method: 5030B
Workgroup: WG242252

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16				242252	HPMS11	CMS

WORKGROUP SUMMARY BY METHOD

Analysis: Sulfide
Analytical Method: 376.1
Workgroup: WG242280

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/11/07 09:10		BURET	DR
L0706194-02	16WW22			06/11/07 09:10		BURET	DR
L0706194-03	16WW34			06/11/07 09:10		BURET	DR

Analysis: Sulfide
Extraction Method: 376.1
Workgroup: WG242280

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/11/07 09:10		BURET	DR
L0706194-02	16WW22			06/11/07 09:10		BURET	DR
L0706194-03	16WW34			06/11/07 09:10		BURET	DR

Analysis: Total Organic Carbon
Analytical Method: 415.1
Workgroup: WG242321

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/12/07 15:32	DL01	TOC-VWP	DIH
L0706194-02	16WW22			06/12/07 15:49	01	TOC-VWP	DIH
L0706194-03	16WW34			06/12/07 16:05	01	TOC-VWP	DIH

Analysis: Total Organic Carbon
Extraction Method: 415.1
Workgroup: WG242321

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/12/07 15:32	DL01	TOC-VWP	DIH
L0706194-02	16WW22			06/12/07 15:49	01	TOC-VWP	DIH
L0706194-03	16WW34			06/12/07 16:05	01	TOC-VWP	DIH

WORKGROUP SUMMARY BY METHOD

Analysis: Dissolved Gases - Special List
Analytical Method: RSK175
Workgroup: WG242372

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/12/07 11:02	DL01	HP16	FJB
L0706194-02	16WW22			06/12/07 11:16	DL01	HP16	FJB
L0706194-03	16WW34			06/12/07 11:30	DL01	HP16	FJB

Analysis: Dissolved Gases - Special List
Extraction Method: 5021
Workgroup: WG242372

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16				242372	HP16	SMH
L0706194-02	16WW22				242372	HP16	SMH
L0706194-03	16WW34				242372	HP16	SMH

Analysis: Common Anions
Analytical Method: 300.0
Workgroup: WG242485

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/08/07 12:45	DL01	IC2	DSF
L0706194-01	16WW16			06/08/07 17:06	DL02	IC2	DSF
L0706194-02	16WW22			06/08/07 13:02	DL01	IC2	DSF
L0706194-02	16WW22			06/08/07 17:24	DL02	IC2	DSF
L0706194-03	16WW34			06/08/07 13:20	DL01	IC2	DSF
L0706194-03	16WW34			06/08/07 17:41	DL02	IC2	DSF

Analysis: Common Anions
Extraction Method: METHOD
Workgroup: WG242485

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16		06/08/07 11:35			FILTER	DSF
L0706194-02	16WW22		06/08/07 11:35			FILTER	DSF
L0706194-03	16WW34		06/08/07 11:35			FILTER	DSF

WORKGROUP SUMMARY BY METHOD

Analysis: Dissolved Gases - Special List
Analytical Method: RSK175
Workgroup: WG242585

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/14/07 11:57	DL02	HP16	FJB
L0706194-02	16WW22			06/14/07 12:11	DL02	HP16	FJB
L0706194-03	16WW34			06/14/07 12:25	DL02	HP16	FJB

Analysis: Dissolved Gases - Special List
Extraction Method: 5021
Workgroup: WG242585

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16				242585	HP16	FJB
L0706194-02	16WW22				242585	HP16	FJB
L0706194-03	16WW34				242585	HP16	FJB

Analysis: Perchlorate
Analytical Method: 314.0
Workgroup: WG242735

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16			06/14/07 17:45	DL01	IC1	DSF
L0706194-02	16WW22			06/14/07 18:05	DL01	IC1	DSF
L0706194-03	16WW34			06/14/07 18:26	01	IC1	DSF

Analysis: Perchlorate
Extraction Method: 314.0
Workgroup: WG242735

Lab ID	Client ID	Tclp Date	Prep Date	Analysis Date	Tag	Inst Id	Analyst
L0706194-01	16WW16		06/14/07 15:42			FILTER	DSF
L0706194-02	16WW22		06/14/07 15:42			FILTER	DSF
L0706194-03	16WW34		06/14/07 15:42			FILTER	DSF