Analytical Resources, Incorporated
Analytical Chemists and Consultants

AMEC E&I
Received
OCT 10 2011
SEATTLE ORG. 5009

October 6, 2011

John Long
AMEC/Geomatrix
600 University Suite 600
Seattle, WA 98101

RE: Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Numbers: TL76, TL77

Dear John:

Please find enclosed the final data package for samples for the project referenced above. ARI received seven water samples and one trip blank on September 9, 2011.

Please refer to the case narrative for details on the analyses of these samples.

A copy of this package will be kept on file at ARI. If you have questions or problems, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
-For-
Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Enclosures

cc: file TL76_TL77

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

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Client: AMEC Geomatrix

Project: 8769 FRP 2011 Shoreline Investigation

AMEC E&E
Received
OCT 10 2011
SEATTLE OFFICE

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BC
Signature

September-20-2011
Date

Chain of Custody Documentation

ARI Job ID: TL76, TL77

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: T276	Turn-around Requested: STANDARD
ARI Client Company: AMEC	Phone: (206) 342-1773
Client Contact: NIK BAGHER / JOHN LONG	
Client Project Name: FRP 2011 SHORELINE INVESTIGATION	
Client Project #: 8769	Samplers: DEVIN O'REILLY

Page: 1 of 1	
Date: 9/9/11	Ice Present? Y
No. of Coolers: 1	Cooler Temps: 3.1

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Total Metals 6010B	Mercury 7470A	pH 150.1	VOCs 8260C	Cations – Ca, Mg, Na, K, Si 200.8	Anions – Cl, NO_3, SO_4, PO_4 300.0	Sulfide SM 4500	Ammonia 350.1	Alkalinity SM 2320	Specific Conductivity ASTM D1125B
FRP-090911-001	9/9/11	0955	H_2O	5	X	X	X	X						
FRP-090911-002	↓	1110	↓	11	X	X	X	X	X	X	X	X	X	X
FRP-090911-003		1255		5	X	X	X	X						
FRP-090911-004		1405		5	X	X	X	X						
FRP-090911-005		1520		5	X	X	X	X						
FRP-090911-006		1525		5	X	X	X	X						
FRP-090911-007		1540	↓	5	X	X	X	X						
TRIP BLANK	↓		H_2O	2				X						

Analysis Requested / Notes/Comments

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
METALS INCLUDE: Al, As, Cd, Cr, Cu, Pb, Ni, Se, Tl, V, Zn	(Signature)	(Signature)	(Signature)	(Signature)
H_2O VOAS NOT PRESERVED	Printed Name: DEVIN O'REILLY	Printed Name: Jennifer Miller	Printed Name:	Printed Name:
HEADSPACE IN FRP-090911-002 VOAS!	Company: AMEC	Company: ARI	Company:	Company:
	Date & Time: 9/9/11 1625	Date & Time: 9/9/11 1625	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: AMEC

Project Name: FRP 2011 Shoreline Investigati

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: TL76

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.1

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: ~~37044619~~ 90877952

Cooler Accepted by: JM Date: 9/9/11 Time: 1625

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	9-8-11	

Was Sample Split by ARI: NA YES Date/Time: Equipment: Split by:

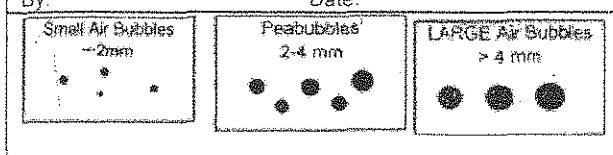
Samples Logged by: TS Date: 9-9-11 Time: 1715

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

PRESERVATION VERIFICATION 09/09/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TL76**

Inquiry Number: NONE
Analysis Requested: 09/12/11
Contact: Long, John
Client: AMEC Geomatrix
Logged by: TS
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 09/09/11

Project #: 8769
Project: FRP 2011 Shoreline Investigation
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-19760 **TL76A**	FRP-090911-001						TOT pass															
11-19761 **TL76B**	FRP-090911-003						TOT															
11-19762 **TL76C**	FRP-090911-004						TOT															
11-19763 **TL76D**	FRP-090911-005						TOT															
11-19764 **TL76E**	FRP-090911-006						TOT															
11-19765 **TL76F**	FRP-090911-007						TOT															
11-19766 **TL76G**	FRP-090911-002			fail			TOT						fail					NH3	C2	~ 0.5 mL H_2SO_4 1N		9-9-11
																		S	712	~ 2 mL 12N OAC		W
11-19775 **TL76I**	FRP-090911-002						~~DIS~~													~ 3 mL NaOH 6N		

Checked By TS Date 9-9-11

TL76 : 000005

PRESERVATION VERIFICATION 09/09/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TL77**

PC: Kelly
VTSR: 09/09/11

Inquiry Number: NONE
Analysis Requested: 09/12/11
Contact: Long, John
Client: AMEC Geomatrix
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: 8769
Project: FRP 2011 Shoreline Investigation
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-19768 **TL77A**	FRP-090911-001						TOT PASS															
11-19769 **TL77B**	FRP-090911-002						TOT															
11-19770 **TL77C**	FRP-090911-003						TOT															
11-19771 **TL77D**	FRP-090911-004						TOT															
11-19772 **TL77E**	FRP-090911-005						TOT															
11-19773 **TL77F**	FRP-090911-006						TOT															
11-19774 **TL77G**	FRP-090911-007						TOT															

Checked By JM Date 9/9/11

TL77 : 000005

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: AMEC

Project Name: FRP 2011 Shoreline Investig

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: ~~TE76~~ TL77

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: ~~70944619~~ 90877952

Cooler Accepted by: JM Date: 9/9/11 Time: 11:25

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	9-8-11	

Was Sample Split by ARI: NA YES Date/Time: Equipment: Split by:

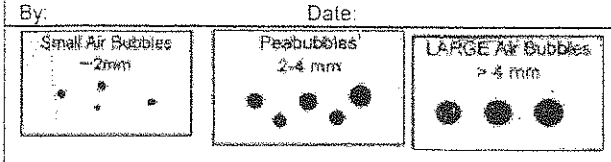
Samples Logged by: TS Date: 9-9-11 Time: 1715

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Subject: FW: FRP Metals Changes
From: "Neirby, Crystal" <Crystal.Neirby@amec.com>
Date: 12/28/2011 10:33 AM
To: Eric Branson <eric@arilabs.com>
CC: Kelly Bottem <kellyb@arilabs.com>, "Long, John" <John.Long@amec.com>

AMEC E&E Received JAN 24 2012

Hi Eric,
First, can you send me the log-ins for the porewater samples? I want to make sure everything got logged in correctly.

Second, I had emailed the below to Kelly and she said it could be done and asked me to forward the email along with the information to you. We would like iron and manganese added to the following five samples:
SDG TL89 – FRP-091211-003
SDG TM07 – FRP-091311-002 and FRP-091311-003
SDG TL76 – FRP-090911-002
SDG TM24 – FRP-091411-002

Hopefully there are very few affected pages. It is ok with me if you send revised pages to add into the existing packages. I will also need revised EDDs or just one EDD with the iron and manganese results for the above samples.

Thanks!
Crystal

Crystal Neirby | Project Scientist
AMEC | 600 University St, Suite 600 | Seattle, WA 98101
206.838.8469 (direct) | 781.724.1019 (cell) | crystal.neirby@amec.com

---

From: Neirby, Crystal
Sent: Wednesday, December 28, 2011 10:06 AM
To: 'Kelly Bottem'
Subject: FRP Metals Changes

Hi Kelly,
Are you in this week at all? I might need to change the metals list for five samples (collected in August and September). Possibly just adding iron and manganese. Is this feasible??

Let me know and we can discuss details.

Crystal

Crystal Neirby | Project Scientist
AMEC | 600 University St, Suite 600 | Seattle, WA 98101
206.838.8469 (direct) | 781.724.1019 (cell) | crystal.neirby@amec.com

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TI M. - 2a BC 1/27/12

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: TL76, TL77

Case Narrative

AMEC/Geomatrix
Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Numbers: TL76, TL77
October 6, 2011

Sample Receipt

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and analytical results for the project referenced above. Analytical Resources, Inc. (ARI) accepted seven water samples and one trip blank in good condition on 9/9/11. Please see the enclosed Cooler Receipt Form for further details.

Volatiles by 8260C

The samples were analyzed on 9/13/11 - within the method recommended holding time.

Initial calibration (s): All analytes of interest were within method acceptance criteria.

Continuing calibration(s): The 9/12/11 VOC CCAL is out of control low for Bromomethane, 2,2-Dichloropropane, trans-1,4-Dichloro-2-butene, and Hexachlorobutadiene. All associated samples that contain these analytes have been flagged with a "Q" qualifier.

LCS/LCSD/RPDs: The LCS and LCSD percent recoveries of Hexachlorobutadiene and 2,2-Dichloropropane fell outside the control limits low for **LCS-091211**.

Surrogates: All surrogate recoveries were within control limits.

Method Blank (s): The method blank contained 1,2,4-Trichlorobenzene, Naphthalene, and 1,2,3-Trichlorobenzene at values less than the reporting limit. All associated samples that contain these analytes have been flagged with a "B" qualifier.

Samples: There were no anomalies associated with these samples.

Metals Analysis (6010, 200.8 and 7000 series)

The samples were digested on 9/14/11 and 9/15/11 - within the method recommended holding time and analyzed between 9/19/11 and9/29/11.

Initial calibration (s): All analytes of interest were within method acceptance criteria.

Continuing calibration (s): All analytes of interest were within method acceptance criteria.

Internal Standards: Internal standard areas were in control.

LCS/LCSD/RPDs: The percent recoveries and RPDs are in control.

Method Blank (s): The method blank was free of contamination.

Samples: There were no anomalies associated with these samples.

Matrix spike/ Sample duplicate/ RPD(s): The percent recoveries and RPDs were in control.

Conventionals Analyses (150.1, 2320, 300.0, 350.1, 376.2)

The samples were analyzed between 9/09/11 and 9/20/11 within method recommended holding time.

Initial calibration (s): All analytes of interest were within method acceptance criteria.

Matrix spike/ Sample duplicate/ RPD(s): The percent recoveries and RPDs were in control.

SRM/LCS/LCSD/RPDs: The percent recoveries and RPDs are in control.

Method Blank (s): The method blanks were free of contamination.

Samples: There were no anomalies associated with these samples.

Geotechnical

A laboratory specific narrative follows.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Client: AMEC Geomatrix	**ARI Project No.:** TL76
Client Project: FRP 2011 Shoreline Investigation	**Client Project No.:** 8769

Case Narrative

1. One sample was submitted for density of a liquid determination using a hydrometer on September 12, 2011 and was in good condition.
2. The density is dependent on the analysis temperature. All reported values have been corrected to 20°C.
3. The data is provided in a summary table.
4. There were no noted anomalies in this project.

Released by: _____ Date: Sept 23, 2011
Technician

Reviewed by: _____ Date: 9/23/2011
Technician

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TL76
Client: AMEC Geomatrix
Project Event: 8769
Project Name: FRP 2011 Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-090911-001	TL76A	11-19760	Water	09/09/11 09:55	09/09/11 16:25
2.	FRP-090911-003	TL76B	11-19761	Water	09/09/11 12:55	09/09/11 16:25
3.	FRP-090911-004	TL76C	11-19762	Water	09/09/11 14:05	09/09/11 16:25
4.	FRP-090911-005	TL76D	11-19763	Water	09/09/11 15:20	09/09/11 16:25
5.	FRP-090911-006	TL76E	11-19764	Water	09/09/11 15:25	09/09/11 16:25
6.	FRP-090911-007	TL76F	11-19765	Water	09/09/11 15:40	09/09/11 16:25
7.	FRP-090911-002	TL76G	11-19766	Water	09/09/11 11:10	09/09/11 16:25
8.	Trip Blanks	TL76H	11-19767	Water	09/09/11	09/09/11 16:25
9.	FRP-090911-002	TL76I	11-19775	Water	09/09/11 11:10	09/09/11 16:25

Printed 09/09/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TL77
Client: AMEC Geomatrix
Project Event: 8769
Project Name: FRP 2011 Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-090911-001	TL77A	11-19768	Water	09/09/11 09:55	09/09/11 16:25
2.	FRP-090911-002	TL77B	11-19769	Water	09/09/11 11:10	09/09/11 16:25
3.	FRP-090911-003	TL77C	11-19770	Water	09/09/11 12:55	09/09/11 16:25
4.	FRP-090911-004	TL77D	11-19771	Water	09/09/11 14:05	09/09/11 16:25
5.	FRP-090911-005	TL77E	11-19772	Water	09/09/11 15:20	09/09/11 16:25
6.	FRP-090911-006	TL77F	11-19773	Water	09/09/11 15:25	09/09/11 16:25
7.	FRP-090911-007	TL77G	11-19774	Water	09/09/11 15:40	09/09/11 16:25

Printed 09/09/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

TL76 : 00014

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

TL76:00015

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

TL76:00016

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1889-3	ABN	100/150	MEOH	03/01/12
B	1874-2	SIM PNA	15/75	ACETONE	10/05/11
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1887-1	LOW PCB	0.2	ACETONE	12/16/11
E	1771-3	HERB	62.5	MEOH	10/06/11
F	1791-3	PCP	12.5	ACETONE	12/09/11
G	1863-2	d8-DIOXANE	100	MEOH	11/19/11
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1868-3	LOW S. PNA	1.5	ACETONE	10/05/11
J	1787-2	TBT-PORE	0.125	MECL2	11/27/11
K	1795-2	MED PCB	20	ACETONE	12/16/11
L	1862-3	TBT	2.5	MECL2	11/27/11
M	1888-4	EPH	1500	MECL2	04/04/12
N	1876-3	PCB	2	ACETONE	12/16/11
O	1879-2	TPH	450	MECL2	02/04/12
P	1868-1	HCID	2250	MECL2	02/04/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1791-4	LOW PCP	1.25	ACETONE	12/09/11

TL76:00017

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1888-2	PCB 1660	20	ACETONE	08/30/12
2#	NA	BCOC PEST	10	ACETONE	NA
3	1885-1	PEST	01/02/10	ACETONE	12/15/11
4	1885-2	LOW PEST	.1/.2/1	ACETONE	12/15/11
5	1779-1	EPH	1500	MECL2	11/11/11
6	1791-5	PCP	12.5/125	ACETONE	12/10/11
7	1888-1	ABN	100	MEOH	08/30/12
8	1785-3	TBT	2.5	MECL2	11/27/11
9	1786-3	PORE TBT	.125/.25	MECL2	11/27/11
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1838-4	LOW PCB	2	ACETONE	01/31/12
14					
15	1814-2	SIM PNA	15/75	MEOH	01/04/12
16	1879-3	1,4-DIOXANE	100	MEOH	02/05/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1814-3	LOW SIM PNA	1.5	ACETONE	01/04/12
19	1873-2	AK103	7500	ACETONE	01/02/12
20	1886-4	PNA	100	ACETONE	01/07/12
21	1874-3	SKY/BHT	100	MEOH	01/14/12
22	1864-3	HERB	02 to 2500	MEOH	12/03/11
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#	NA	DIPHENYL	100	MEOH	NA
26	1869-1	OP-PEST	25	MEOH	10/01/11
27	NA	STEROLS	200	MEOH	NA
28#	1807-1	ADD. PEST	2	ACETONE	08/31/11
29#	NA	DECANES	100	MEOH	NA

TL76 : 00018

LCS SOLUTIONS

30	NA	EDB/DBCP	0.2	MEOH	NA
31	1835-2	TERPINEOL	100	MEOH	09/02/11
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33	NA	RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36	NA	ALKYL PNA B	10	MEOH	NA
37	1773-1	CAR/PERY	100	ACETONE	10/14/11
38	1872-2	ABN ACID	200-450	MEOH	12/29/11
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1757-4	FULL RESIN	250	ACETONE	08/14/11
51	1772-1	DDTS	0.01	ACETONE	04/24/11
52	NA	1232 PCB	20	ACETONE	NA
53	1852-2	DALAPON	50	MEOH	12/03/11
54	1753-1	T-CHLORDANE	10	ACETONE	07/21/11
55	1753-2	TOXAPHENE	50	ACETONE	07/21/11
56	1874-1	ABN BASE	50-200	MEOH	01/05/12
	#=PROJECT SPECIFIC SOLUTION				
	*=REVERIFIED SOLUTION				

TL76:00019

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Aqueous Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	ARI[1] Control Limits	ARI[1,2] ME Limits	DoD[6] Control Limits	DoD[2,6] ME Limits
LCS Spike Recovery [8]				-
Dichlorodifluoromethane	48 - 147	32 - 164	30 - 155	10 - 175
Chloromethane	66 - 130	55 - 141	40 - 125	25 - 140
Vinyl Chloride	73 - 130	64 - 140	50 - 145	35 - 165
Bromomethane	60 - 138	47 - 151	30 - 145	10 - 165
Chloroethane	52 - 151	36 - 168	60 - 135	50 - 145
Trichlorofluoromethane	36 - 175	13 - 198	60 - 145	45 - 160
Acrolein	34 - 164	12 - 186	(4)	(4)
1,1,2-Trichloro-1,2,2-trifluoroethane	69 - 132	59 - 143	(4)	(4)
Acetone	60 - 144	46 - 158	40 - 140	20 - 160
1,1-Dichloroethene	73 - 124	65 - 133	70 - 130	55 - 140
Bromoethane	70 - 133	60 - 144	(4)	(4)
Methyl Iodide	57 - 149	42 - 164	(4)	(4)
Methylene Chloride	74 - 121	66 - 129	55 - 140	40 - 155
Acrylonitrile	75 - 141	64 - 152	(4)	(4)
Methyl tert-Butyl Ether	79 - 127	71 - 135	65 - 125	55 - 135
Carbon Disulfide	67 - 133	56 - 144	35 - 160	15 - 185
trans-1,2-Dichloroethene	80 - **120**	74 - 126	60 - 140	45 - 150
Vinyl Acetate	61 - 145	47 - 159	(4)	(4)
1,1-Dichloroethane	80 - 123	73 - 130	70 - 135	60 - 145
2-Butanone	64 - 149	50 - 163	30 - 150	10 - 170
2,2-Dichloropropane	72 - 136	61 - 147	70 - 135	60 - 150
cis-1,2-Dichloroethene	**80 - 120**	78 - 125	70 - 125	60 - 135
Chloroform	80 - 121	73 - 128	65 - 135	50 - 150
Bromodichloromethane	80 - 122	73 - 129	75 - 120	70 - 130
1,1,1-Trichloroethane	80 - 124	73 - 131	65 - 130	55 - 145
1,1-Dichloropropene	**80** - 123	76 - 130	75 - 130	65 - 140
Carbon Tetrachloride	77 - 123	69 - 131	65 - 140	55 - 150
1,2-Dichloroethane	78 - 121	71 - 128	70 - 130	60 - 140
Benzene	**80 - 120**	80 - 124	80 - 120	75 - 130
Trichloroethene	**80 - 120**	76 - 124	70 - 125	60 - 135
1,2-Dichloropropane	**80** - 120	76 - 126	75 - 125	65 - 135
Bromochloromethane	**80** - 120	77 - 126	65 - 130	55 - 140
Dibromomethane	**80 - 120**	76 - 122	75 - 125	65 - 135
2-Chloroethylvinylether	59 - 136	46 - 149	(4)	(4)
4-Methyl-2-Pentanone	68 - 138	56 - 150	60 - 135	45 - 145
cis-1,3-Dichloropropene	74 - 127	65 - 136	70 - 130	60 - 140

TL75 : 00620

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Aqueous Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	ARI[1] Control Limits	ARI[1,2] ME Limits	DoD[6] Control Limits	DoD[2,6] ME Limits
Toluene	**80 - 120**	78 - 122	75 - 120	70 - 130
trans-1,3-Dichloropropene	68 - 131	58 - 142	55 - 140	40 - 155
2-Hexanone	70 - 136	59 - 147	55 - 130	45 - 140
1,1,2-Trichloroethane	**80 - 120**	79 - 120	75 - 125	65 - 135
1,3-Dichloropropane	**80** - 120	76 - 126	75 - 125	65 - 135
Tetrachloroethene	79 - **120**	73 - 125	45 - 150	25 - 165
Dibromochloromethane	77 - 123	69 - 131	60 - 135	45 - 145
Ethylene Dibromide	**80** - 121	76 - 128	(4)	(4)
Chlorobenzene	**80 - 120**	77 - 121	80 - 120	75 - 130
Ethylbenzene	83 - 122	77 - 129	75 - 125	65 - 135
1,1,2,2-Tetrachloroethane	**80** - 121	74 - 128	65 - 130	55 - 140
m,p-Xylene	**80** - 123	79 - 129	75 - 130	65 - 135
o-Xylene	**80** - 125	75 - 132	80 - 120	75 - 130
Styrene	72 - 130	62 - 140	65 - 135	55 - 145
Isopropylbenzene	**80** - 129	78 - 136	75 - 125	65 - 135
Bromoform	71 - **120**	63 - 126	70 - 130	60 - 140
1,1,1,2-Tetrachloroethane	77 - 122	70 - 130	80 - 130	75 - 135
1,2,3-Trichloropropane	**80** - 120	76 - 126	75 - 125	65 - 130
trans-1,4-Dichloro-2-butene	62 - 146	48 - 160	(4)	(4)
n-Propylbenzene	**80** - 128	78 - 135	70 - 130	65 - 140
Bromobenzene	**80 - 120**	78 - 122	75 - 125	70 - 130
1,3,5-Trimethylbenzene	**80** - 129	77 - 137	75 - 130	65 - 140
2-Chlorotoluene	**80** - 124	75 - 131	75 - 125	65 - 135
4-Chlorotoluene	**80** - 124	75 - 131	75 - 130	65 - 135
tert-Butylbenzene	**80** - 128	76 - 136	70 - 130	60 - 140
1,2,4-Trimethylbenzene	**80** - 130	75 - 138	75 - 130	65 - 140
sec-Butylbenzene	**80** - 129	78 - 136	70 - 125	65 - 135
4-Isopropyltoluene	**80** - 133	75 - 141	75 - 130	65 - 140
1,3-Dichlorobenzene	**80 - 120**	76 - 124	75 - 125	65 - 130
1,4-Dichlorobenzene	**80 - 120**	75 - 122	75 - 125	65 - 130
n-Butylbenzene	78 - 140	68 - 150	70 - 135	55 - 150
1,2-Dichlorobenzene	**80 - 120**	77 - 121	70 - 120	60 - 130
1,2-Dibromo-3-chloropropane	72 - 131	62 - 141	50 - 130	35 - 145
1,2,4-Trichlorobenzene	75 - 130	66 - 139	65 - 135	55 - 145
Hexachloro-1,3-butadiene	73 - 129	64 - 138	50 - 140	35 - 160
Naphthalene	66 - 140	54 - 152	55 - 140	40 - 150
1,2,3-Trichlorobenzene	74 - 130	65 - 139	55 - 140	45 - 155

TL76 : 00021

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Aqueous Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	ARI[1] Control Limits	ARI[1,2] ME Limits	DoD[6] Control Limits	DoD[2,6] ME Limits
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(3)	85 - 115	(3)
d4-1,2-Dichloroethane	**80** - 122	(3)	70 - 120	(3)
d8-Toluene	**80 - 120**	(3)	85 - 120	(3)
4-Bromofluorobenzene	**80 - 120**	(3)	75 - 120	(3)
d4-1,2-Dichlorobenzene	**80 - 120**	(3)	(4)	(3)(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160 [7]	(3)	85 - 115	(3)
d4-1,2-Dichloroethane	**80** - 125	(3)	70 - 120	(3)
d8-Toluene	**80 - 120**	(3)	85 - 120	(3)
4-Bromofluorobenzene	**80 - 120**	(3)	75 - 120	(3)
D4-1,2-Dichlorobenzene	**80 - 120**	(3)	(4)	(3)(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(3) Marginal Exceedances not allowed for surrogate standards.
(4) The DoD-QSM [6] does not list recovery limits for these compounds.
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) Page 182 of: **Department of Defense Quality Systems Manual for Environmental Laboratories, Version 3 Final, March 2005** Prepared By Environmental Data Quality Workgroup, Department of Navy, Lead Service (Based On National Environmental Laboratory Accreditation Conference (NELAC) Chapter 5 (Quality Systems) NELAC Voted Version – 5 June 2003
(7) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(9) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.

TL76 : 00022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

TL76 : 00023

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Conventional Wet Chemistry

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	ARI's Control Limits	
Sample Matrix:	Water	Soil / Sediment
Matrix Spike Recoveries	% Recovery	% Recovery
Ammonia	75 - 125	75 - 125
Bromide	75 125	75 - 125
Chloride	75 125	75 - 125
Cyanide	75 - 125	75 - 125
Ferrous Iron	75 - 125	75 - 125
Fluoride	75 - 125	75 - 125
Formaldehyde	75 - 125	75 - 125
Hexane Extractable Material	-- - --	78 - 114
Hexavalent Chromium	75 - 125	75 - 125
Nitrate/Nitrite	75 - 125	75 - 125
Oil and Grease	75 - 125	75 - 125
Phenol	75 - 125	75 - 125
Phosphorous	75 - 125	75 - 125
Sulfate	75 - 125	75 - 125
Sulfide	75 - 125	75 - 125
Total Kjeldahl Nitrogen	75 - 125	75 - 125
Total Organic Carbon	75 - 125	75 - 125
Duplicate RPDs		
Acidity	±20%	±20%
Alkalinity	±20%	±20%
BOD	±20%	±20%
Cation Exchange	±20%	±20%
COD	±20%	±20%
Conductivity	±20%	±20%
Salinity	±20%	±20%
Solids	±20%	±20%
Turbidity	±20%	±20%

TL76 : 00024

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: TL76, TL77

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-001**
 SAMPLE

Lab Sample ID: TL76A
LIMS ID: 11-19760
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 00:46

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 UJ
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	Acetone	0.72	5.0	< 5.0 U
75-15-0	**Carbon Disulfide**	**0.09**	**0.2**	**0.2 J**
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	**Benzene**	**0.06**	**0.2**	**0.2**
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	**Toluene**	**0.06**	**0.2**	**11**
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	**1,4-Dichlorobenzene**	**0.06**	**0.2**	**0.1 J**
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-001**
 SAMPLE

Lab Sample ID: TL76A
LIMS ID: 11-19760
Matrix: Water
Date Analyzed: 09/13/11 00:46

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 UJ
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 UJ
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 UJ
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	**4-Isopropyltoluene**	**0.08**	**0.2**	**0.2 J**
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	96.4%
Bromofluorobenzene	103%
d4-1,2-Dichlorobenzene	105%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

09/21/11

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-003**
 SAMPLE

Lab Sample ID: TL76B
LIMS ID: 11-19761
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 01:13

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 UJ
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	Acetone	0.72	5.0	< 5.0 U
75-15-0	**Carbon Disulfide**	**0.09**	**0.2**	**0.3**
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	Benzene	0.06	0.2	< 0.2 U
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	**Toluene**	**0.06**	**0.2**	**0.4**
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-003**
 SAMPLE

Lab Sample ID: TL76B
LIMS ID: 11-19761
Matrix: Water
Date Analyzed: 09/13/11 01:13

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 U
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	115%
d8-Toluene	95.8%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	106%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-004**
 SAMPLE

Lab Sample ID: TL76C
LIMS ID: 11-19762
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 01:40

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 UJ
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	Acetone	0.72	5.0	< 5.0 U
75-15-0	**Carbon Disulfide**	**0.09**	**0.2**	**0.5**
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	Benzene	0.06	0.2	< 0.2 U
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	**Toluene**	**0.06**	**0.2**	**2.2**
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-004**
 SAMPLE

Lab Sample ID: TL76C
LIMS ID: 11-19762
Matrix: Water
Date Analyzed: 09/13/11 01:40

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 UJ
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 UJ
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 UJ
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	98.5%
Bromofluorobenzene	98.1%
d4-1,2-Dichlorobenzene	106%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

09/21/11

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-005**
 SAMPLE

Lab Sample ID: TL76D
LIMS ID: 11-19763
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 02:07

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 U J
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	Acetone	0.72	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.09	0.2	< 0.2 U
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	Benzene	0.06	0.2	< 0.2 U
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	Toluene	0.06	0.2	< 0.2 U
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

on spike

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-005**
 SAMPLE

Lab Sample ID: TL76D
LIMS ID: 11-19763
Matrix: Water
Date Analyzed: 09/13/11 02:07

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 U J
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 U J
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U J
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	96.5%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	101%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-006**
 SAMPLE

Lab Sample ID: TL76E
LIMS ID: 11-19764
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 02:33

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 UJ
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	Acetone	0.72	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.09	0.2	< 0.2 U
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	Benzene	0.06	0.2	< 0.2 U
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	Toluene	0.06	0.2	< 0.2 U
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

CM 2/24/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-006**
 SAMPLE

Lab Sample ID: TL76E
LIMS ID: 11-19764
Matrix: Water
Date Analyzed: 09/13/11 02:33

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 U
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	98.0%
Bromofluorobenzene	98.9%
d4-1,2-Dichlorobenzene	101%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-007**
 SAMPLE

Lab Sample ID: TL76F
LIMS ID: 11-19765
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 02:59

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 U J
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	**Methylene Chloride**	**0.39**	**0.5**	**1.0**
67-64-1	**Acetone**	**0.72**	**5.0**	**5.5**
75-15-0	Carbon Disulfide	0.09	0.2	< 0.2 U
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	**Chloroform**	**0.08**	**0.2**	**3.6**
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	Benzene	0.06	0.2	< 0.2 U
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	**Toluene**	**0.06**	**0.2**	**0.2 J**
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	**Styrene**	**0.07**	**0.2**	**0.2 J**
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

CM 2/24/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-007**
 SAMPLE

Lab Sample ID: TL76F
LIMS ID: 11-19765
Matrix: Water
Date Analyzed: 09/13/11 02:59

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 U J
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 U J
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U J
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	96.3%
Bromofluorobenzene	99.2%
d4-1,2-Dichlorobenzene	103%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-002**
 SAMPLE

Lab Sample ID: TL76G
LIMS ID: 11-19766
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 03:26

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 U J
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	**Acetone**	**0.72**	**5.0**	~~**1.3 J**~~ 5.0U
75-15-0	**Carbon Disulfide**	**0.09**	**0.2**	**0.7**
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	**Benzene**	**0.06**	**0.2**	**0.2 J**
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	**Toluene**	**0.06**	**0.2**	**17**
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090911-002**
 SAMPLE

Lab Sample ID: TL76G
LIMS ID: 11-19766
Matrix: Water
Date Analyzed: 09/13/11 03:26

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 U J
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 U J
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U J
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	112%
d8-Toluene	97.5%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	105%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

CM 2/20/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blanks**
 SAMPLE

Lab Sample ID: TL76H
LIMS ID: 11-19767
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/13/11 00:20

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 U J
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	Acetone	0.72	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.09	0.2	< 0.2 U
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	Benzene	0.06	0.2	< 0.2 U
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	Toluene	0.06	0.2	< 0.2 U
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

CM 2/19/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blanks**
 SAMPLE

Lab Sample ID: TL76H
LIMS ID: 11-19767
Matrix: Water
Date Analyzed: 09/13/11 00:20

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 U J
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 U J
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U J
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	95.7%
Bromofluorobenzene	99.5%
d4-1,2-Dichlorobenzene	103%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-091211	Method Blank	10	96.4%	97.5%	96.6%	102%	0
LCS-091211	Lab Control	10	99.1%	98.7%	102%	101%	0
LCSD-091211	Lab Control Dup	10	100%	94.9%	102%	101%	0
TL76A	FRP-090911-001	10	108%	96.4%	103%	105%	0
TL76B	FRP-090911-003	10	115%	95.8%	101%	106%	0
TL76C	FRP-090911-004	10	110%	98.5%	98.1%	106%	0
TL76D	FRP-090911-005	10	103%	96.5%	101%	101%	0
TL76E	FRP-090911-006	10	103%	98.0%	98.9%	101%	0
TL76F	FRP-090911-007	10	101%	96.3%	99.2%	103%	0
TL76G	FRP-090911-002	10	112%	97.5%	100%	105%	0
TL76H	Trip Blanks	10	102%	95.7%	99.5%	103%	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	80-120	80-120
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 11-19760 to 11-19767

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091211**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-091211
LIMS ID: 11-19760
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/PKC
LCSD: NT3/PKC
Date Analyzed LCS: 09/12/11 23:01
LCSD: 09/12/11 23:27

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	8.6	10.0	86.0%	9.0	10.0	90.0%	4.5%
Bromomethane	8.1 Q	10.0	81.0%	8.1 Q	10.0	81.0%	0.0%
Vinyl Chloride	8.6	10.0	86.0%	8.7	10.0	87.0%	1.2%
Chloroethane	8.4	10.0	84.0%	8.3	10.0	83.0%	1.2%
Methylene Chloride	9.0	10.0	90.0%	9.3	10.0	93.0%	3.3%
Acetone	49.4	50.0	98.8%	50.5	50.0	101%	2.2%
Carbon Disulfide	8.6	10.0	86.0%	8.5	10.0	85.0%	1.2%
1,1-Dichloroethene	8.5	10.0	85.0%	8.6	10.0	86.0%	1.2%
1,1-Dichloroethane	9.0	10.0	90.0%	9.3	10.0	93.0%	3.3%
trans-1,2-Dichloroethene	8.7	10.0	87.0%	8.7	10.0	87.0%	0.0%
cis-1,2-Dichloroethene	8.9	10.0	89.0%	9.2	10.0	92.0%	3.3%
Chloroform	9.3	10.0	93.0%	9.5	10.0	95.0%	2.1%
1,2-Dichloroethane	9.8	10.0	98.0%	9.7	10.0	97.0%	1.0%
2-Butanone	49.5	50.0	99.0%	51.6	50.0	103%	4.2%
1,1,1-Trichloroethane	8.9	10.0	89.0%	8.9	10.0	89.0%	0.0%
Carbon Tetrachloride	9.2	10.0	92.0%	9.2	10.0	92.0%	0.0%
Vinyl Acetate	9.9	10.0	99.0%	10.5	10.0	105%	5.9%
Bromodichloromethane	9.6	10.0	96.0%	9.4	10.0	94.0%	2.1%
1,2-Dichloropropane	9.8	10.0	98.0%	9.5	10.0	95.0%	3.1%
cis-1,3-Dichloropropene	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
Trichloroethene	9.2	10.0	92.0%	9.3	10.0	93.0%	1.1%
Dibromochloromethane	10.2	10.0	102%	10.2	10.0	102%	0.0%
1,1,2-Trichloroethane	9.9	10.0	99.0%	9.5	10.0	95.0%	4.1%
Benzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
trans-1,3-Dichloropropene	9.5	10.0	95.0%	9.3	10.0	93.0%	2.1%
2-Chloroethylvinylether	9.5	10.0	95.0%	9.8	10.0	98.0%	3.1%
Bromoform	9.7	10.0	97.0%	10.0	10.0	100%	3.0%
4-Methyl-2-Pentanone (MIBK)	52.6	50.0	105%	53.1	50.0	106%	0.9%
2-Hexanone	54.7	50.0	109%	56.4	50.0	113%	3.1%
Tetrachloroethene	9.0	10.0	90.0%	9.0	10.0	90.0%	0.0%
1,1,2,2-Tetrachloroethane	9.7	10.0	97.0%	10.0	10.0	100%	3.0%
Toluene	9.4	10.0	94.0%	9.2	10.0	92.0%	2.2%
Chlorobenzene	9.6	10.0	96.0%	9.6	10.0	96.0%	0.0%
Ethylbenzene	9.5	10.0	95.0%	9.7	10.0	97.0%	2.1%
Styrene	9.8	10.0	98.0%	9.9	10.0	99.0%	1.0%
Trichlorofluoromethane	8.6	10.0	86.0%	8.7	10.0	87.0%	1.2%
1,1,2-Trichloro-1,2,2-trifluoroetha	8.2	10.0	82.0%	8.3	10.0	83.0%	1.2%
m,p-Xylene	19.0	20.0	95.0%	19.2	20.0	96.0%	1.0%
o-Xylene	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
1,2-Dichlorobenzene	9.4	10.0	94.0%	9.6	10.0	96.0%	2.1%
1,3-Dichlorobenzene	9.0	10.0	90.0%	9.3	10.0	93.0%	3.3%
1,4-Dichlorobenzene	8.9	10.0	89.0%	9.3	10.0	93.0%	4.4%
Acrolein	43.0	50.0	86.0%	43.4	50.0	86.8%	0.9%
Methyl Iodide	8.9	10.0	89.0%	8.9	10.0	89.0%	0.0%
Bromoethane	9.3	10.0	93.0%	9.5	10.0	95.0%	2.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091211**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-091211
LIMS ID: 11-19760
Matrix: Water

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Acrylonitrile	9.8	10.0	98.0%	10.1	10.0	101%	3.0%
1,1-Dichloropropene	9.5	10.0	95.0%	9.7	10.0	97.0%	2.1%
Dibromomethane	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
1,1,1,2-Tetrachloroethane	9.8	10.0	98.0%	9.5	10.0	95.0%	3.1%
1,2-Dibromo-3-chloropropane	9.0	10.0	90.0%	10.4	10.0	104%	14.4%
1,2,3-Trichloropropane	10.0	10.0	100%	10.2	10.0	102%	2.0%
trans-1,4-Dichloro-2-butene	8.4 Q	10.0	84.0%	9.2 Q	10.0	92.0%	9.1%
1,3,5-Trimethylbenzene	9.1	10.0	91.0%	9.3	10.0	93.0%	2.2%
1,2,4-Trimethylbenzene	9.0	10.0	90.0%	9.2	10.0	92.0%	2.2%
Hexachlorobutadiene	7.2 Q	10.0	72.0%	7.2 Q	10.0	72.0%	0.0%
Ethylene Dibromide	10.3	10.0	103%	9.7	10.0	97.0%	6.0%
Bromochloromethane	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
2,2-Dichloropropane	7.5 Q	10.0	75.0%	7.3 Q	10.0	73.0%	2.7%
1,3-Dichloropropane	10.2	10.0	102%	10.2	10.0	102%	0.0%
Isopropylbenzene	9.2	10.0	92.0%	9.5	10.0	95.0%	3.2%
n-Propylbenzene	9.1	10.0	91.0%	9.3	10.0	93.0%	2.2%
Bromobenzene	9.4	10.0	94.0%	9.8	10.0	98.0%	4.2%
2-Chlorotoluene	9.3	10.0	93.0%	9.4	10.0	94.0%	1.1%
4-Chlorotoluene	9.2	10.0	92.0%	9.5	10.0	95.0%	3.2%
tert-Butylbenzene	9.0	10.0	90.0%	9.2	10.0	92.0%	2.2%
sec-Butylbenzene	8.7	10.0	87.0%	8.9	10.0	89.0%	2.3%
4-Isopropyltoluene	8.6	10.0	86.0%	8.9	10.0	89.0%	3.4%
n-Butylbenzene	8.0	10.0	80.0%	8.2	10.0	82.0%	2.5%
1,2,4-Trichlorobenzene	8.4 B	10.0	84.0%	8.6 B	10.0	86.0%	2.4%
Naphthalene	9.4 B	10.0	94.0%	9.6 B	10.0	96.0%	2.1%
1,2,3-Trichlorobenzene	9.0 B	10.0	90.0%	9.0 B	10.0	90.0%	0.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	99.1%	100%
d8-Toluene	98.7%	94.9%
Bromofluorobenzene	102%	102%
d4-1,2-Dichlorobenzene	101%	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0912

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No: TL76

Project: FRP 2011 SHORELINE INVE

Lab File ID: MB0912X

Lab Sample ID: MB0912

Date Analyzed: 09/12/11

Time Analyzed: 2354

Instrument ID: NT3

Heated Purge: (Y/N) N

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0912	LCS0912	LCS0912X	2301
02	LCS0912	LCS0912	LCS0912Y	2327
03	TRIP BLANKS	TL76H	TL76H	0020
04	FRP-090911-0	TL76A	TL76A	0046
05	FRP-090911-0	TL76B	TL76B	0113
06	FRP-090911-0	TL76C	TL76C	0140
07	FRP-090911-0	TL76D	TL76D	0207
08	FRP-090911-0	TL76E	TL76E	0233
09	FRP-090911-0	TL76F	TL76F	0259
10	FRP-090911-0	TL76G	TL76G	0326
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COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-091211**
 METHOD BLANK

Lab Sample ID: MB-091211
LIMS ID: 11-19760
Matrix: Water
Data Release Authorized:
Reported: 09/13/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/12/11 23:54

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	Methylene Chloride	0.39	0.5	< 0.5 U
67-64-1	Acetone	0.72	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.09	0.2	< 0.2 U
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	Benzene	0.06	0.2	< 0.2 U
10061-02-6	trans-1,3-Dichloropropene	0.06	0.2	< 0.2 U
110-75-8	2-Chloroethylvinylether	0.09	1.0	< 1.0 U
75-25-2	Bromoform	0.07	0.2	< 0.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.38	5.0	< 5.0 U
591-78-6	2-Hexanone	0.31	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.09	0.2	< 0.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.07	0.2	< 0.2 U
108-88-3	Toluene	0.06	0.2	< 0.2 U
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 U
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-091211**
 METHOD BLANK

Lab Sample ID: MB-091211
LIMS ID: 11-19760
Matrix: Water
Date Analyzed: 09/12/11 23:54

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.23	0.5	< 0.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.24	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.06	0.2	< 0.2 U
95-63-6	1,2,4-Trimethylbenzene	0.06	0.2	< 0.2 U
87-68-3	Hexachlorobutadiene	0.11	0.5	< 0.5 U
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	**1,2,4-Trichlorobenzene**	**0.10**	**0.5**	**0.2 J**
91-20-3	**Naphthalene**	**0.07**	**0.5**	**0.2 J**
87-61-6	**1,2,3-Trichlorobenzene**	**0.09**	**0.5**	**0.3 J**

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	96.4%
d8-Toluene	97.5%
Bromofluorobenzene	96.6%
d4-1,2-Dichlorobenzene	102%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX

Lab Code: ARI Case No.: FRP 2011 SHORELINE INVESTIGATION SDG No.: TL76

Lab File ID: BFB0901 BFB Injection Date: 09/01/11

Instrument ID: NT3 BFB Injection Time: 1058

GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.3
75	30.0 - 66.0% of mass 95	48.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	0.3 (0.4)1
174	50.0 - 101.0% of mass 95	76.7
175	4.0 - 9.0% of mass 174	5.5 (7.1)1
176	93.0 - 101.0% of mass 174	74.2 (96.7)1
177	5.0 - 9.0% of mass 176	4.9 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0.2	VSTD0.2	00_20901	09/01/11	1147
02	VSTD0.5	VSTD0.5	00_50901	09/01/11	1214
03	VSTD01	VSTD01	01_00901	09/01/11	1241
04	VSTD02	VSTD02	02_00901	09/01/11	1308
05	VSTD10	VSTD10	10_00901	09/01/11	1334
06	VSTD20	VSTD20	20_00901	09/01/11	1402
07	VSTD40	VSTD40	40_00901	09/01/11	1428
08	VSTD80	VSTD80	80_00901	09/01/11	1455
09	ICV10	ICV10	ICV0901	09/01/11	1548
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA OLM3.2M

TL76:00048

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX

Lab Code: ARI Case No.: FRP 2011 SHORELINE INVESTIGATION SDG No.: TL76

Lab File ID: BFB0912Y BFB Injection Date: 09/12/11

Instrument ID: NT3 BFB Injection Time: 2143

GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	15.8
75	30.0 - 66.0% of mass 95	47.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	50.0 - 101.0% of mass 95	74.5
175	4.0 - 9.0% of mass 174	5.6 (7.5)1
176	93.0 - 101.0% of mass 174	72.6 (97.4)1
177	5.0 - 9.0% of mass 176	5.4 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0912	CC0912	CC0912Y	09/12/11	2234
02	LCS0912	LCS0912	LCS0912X	09/12/11	2301
03	LCS0912	LCS0912	LCS0912Y	09/12/11	2327
04	MB0912	MB0912	MB0912X	09/12/11	2354
05	TRIP BLANKS	TL76H	TL76H	09/13/11	0020
06	FRP-090911-001	TL76A	TL76A	09/13/11	0046
07	FRP-090911-003	TL76B	TL76B	09/13/11	0113
08	FRP-090911-004	TL76C	TL76C	09/13/11	0140
09	FRP-090911-005	TL76D	TL76D	09/13/11	0207
10	FRP-090911-006	TL76E	TL76E	09/13/11	0233
11	FRP-090911-007	TL76F	TL76F	09/13/11	0259
12	FRP-090911-002	TL76G	TL76G	09/13/11	0326
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA OLM3.2M

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL76 Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 Calibration Date: 09/01/11

LAB FILE ID: RF0.2: 00_20901 RF0.5: 00_50901 RF1: 01_00901
RF2: 02_00901 RF10: 10_00901

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
Chloromethane	0.531	0.556	0.498	0.490	0.489
Vinyl Chloride	0.652	0.660	0.641	0.595	0.596
Bromomethane		0.375	0.409	0.351	0.381
Chloroethane	0.444	0.412	0.401	0.368	0.370
Trichlorofluoromethane	0.870	0.860	0.849	0.829	0.828
Acrolein		0.025	0.028	0.025	0.026
112Trichloro122Trifluoroetha	0.745	0.629	0.583	0.568	0.573
Acetone		0.042	0.039	0.035	0.037
1,1-Dichloroethene	0.553	0.517	0.524	0.474	0.486
Bromoethane	0.406	0.461	0.396	0.400	0.423
Iodomethane		0.902	0.907	0.823	0.870
Methylene Chloride		0.882	0.683	0.546	0.478
Acrylonitrile			0.030	0.050	0.048
Carbon Disulfide	2.027	1.704	1.684	1.574	1.647
Trans-1,2-Dichloroethene	0.640	0.576	0.566	0.546	0.553
Vinyl Acetate			0.281	0.259	0.282
1,1-Dichloroethane	0.940	0.837	0.872	0.823	0.846
2-Butanone		0.051	0.059	0.052	0.055
2,2-Dichloropropane	0.900	0.794	0.826	0.754	0.760
Cis-1,2-Dichloroethene	0.614	0.563	0.543	0.530	0.531
Chloroform	0.814	0.900	0.873	0.843	0.860
Bromochloromethane	0.194	0.191	0.207	0.190	0.208
1,1,1-Trichloroethane	0.977	0.932	0.909	0.856	0.912
1,1-Dichloropropene	0.480	0.475	0.450	0.422	0.451
Carbon Tetrachloride	0.497	0.497	0.462	0.445	0.486
1,2-Dichloroethane	0.276	0.280	0.282	0.265	0.256
Benzene	1.241	1.298	1.268	1.244	1.249
Trichloroethene	0.420	0.372	0.378	0.370	0.367
1,2-Dichloropropane	0.225	0.274	0.249	0.244	0.251
Bromodichloromethane	0.333	0.316	0.333	0.310	0.317
Dibromomethane	0.101	0.116	0.112	0.116	0.105
2-Chloroethyl Vinyl Ether		0.076	0.079	0.068	0.082
4-Methyl-2-Pentanone		0.094	0.090	0.095	0.099
Cis 1,3-dichloropropene	0.348	0.355	0.359	0.338	0.362
Toluene	0.935	0.850	0.873	0.870	0.844
Trans 1,3-Dichloropropene	0.277	0.304	0.269	0.271	0.289
2-Hexanone		0.058	0.064	0.066	0.067

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL76 Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 Calibration Date: 09/01/11

LAB FILE ID: RF0.2: 00_20901 RF0.5: 00_50901 RF1: 01_00901
RF2: 02_00901 RF10: 10_00901

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
1,1,2-Trichloroethane	0.153	0.160	0.163	0.168	0.161
1,3-Dichloropropane	0.278	0.260	0.291	0.280	0.283
Tetrachloroethene	0.466	0.416	0.422	0.398	0.398
Chlorodibromomethane	0.174	0.188	0.192	0.188	0.205
1,2-Dibromoethane	0.134	0.157	0.152	0.152	0.162
Chlorobenzene	1.013	1.012	1.035	1.002	0.984
Ethyl Benzene	1.976	1.852	1.847	1.803	1.820
1,1,1,2-Tetrachloroethane	0.283	0.327	0.316	0.307	0.315
m,p-xylene	0.781	0.742	0.704	0.716	0.727
o-Xylene	0.725	0.681	0.728	0.707	0.716
Styrene	1.071	0.954	1.053	1.028	1.080
Bromoform	0.172	0.149	0.156	0.161	0.169
1,1,2,2-Tetrachloroethane	0.292	0.316	0.349	0.313	0.309
1,2,3-Trichloropropane		0.103	0.103	0.108	0.096
Trans-1,4-Dichloro 2-Butene			0.082	0.074	0.076
N-Propyl Benzene	4.033	3.815	3.775	3.775	3.693
Bromobenzene	0.622	0.714	0.702	0.660	0.670
Isopropyl Benzene	3.644	3.370	3.421	3.240	3.226
2-Chloro Toluene	2.361	2.429	2.335	2.289	2.303
4-Chloro Toluene	2.378	2.364	2.370	2.287	2.284
T-Butyl Benzene	2.674	2.679	2.543	2.534	2.536
1,3,5-Trimethyl Benzene	2.939	2.931	2.863	2.861	2.862
1,2,4-Trimethylbenzene	3.083	3.024	2.922	2.872	2.905
S-Butyl Benzene	3.988	3.888	3.750	3.756	3.652
4-Isopropyl Toluene	3.593	3.238	3.210	3.209	3.160
1,3-Dichlorobenzene	1.715	1.599	1.551	1.541	1.525
1,4-Dichlorobenzene	1.654	1.631	1.556	1.504	1.494
N-Butyl Benzene	2.998	2.865	2.818	2.743	2.737
1,2-Dichlorobenzene	1.335	1.374	1.330	1.326	1.293
1,2-Dibromo 3-Chloropropane		0.057	0.053	0.053	0.050
1,2,4-Trichlorobenzene		0.872	0.839	0.855	0.867
Hexachloro 1,3-Butadiene		0.488	0.508	0.458	0.416
Naphthalene		0.977	1.064	1.052	1.157
1,2,3-Trichlorobenzene		0.641	0.618	0.640	0.648
Dichlorodifluoromethane	0.589	0.606	0.551	0.516	0.540
Methyl tert butyl ether	0.748	0.932	1.000	0.903	0.946

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL76 Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 Calibration Date: 09/01/11

LAB FILE ID: RF0.2: 00_20901 RF0.5: 00_50901 RF1: 01_00901
RF2: 02_00901 RF10: 10_00901

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
d4-1,2-Dichloroethane	0.336	0.366	0.360	0.365	0.365
d8-Toluene	1.309	1.268	1.258	1.255	1.269
4-Bromofluorobenzene	0.484	0.504	0.507	0.515	0.508
d4-1,2-Dichlorobenzene	0.822	0.865	0.848	0.851	0.846
Dibromofluoromethane	0.418	0.444	0.432	0.439	0.439

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL76 Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 Calibration Date: 09/01/11

LAB FILE ID: RF20: 20_00901 RF40: 40_00901 RF80: 80_00901

COMPOUND	RF20	RF40	RF80
Chloromethane	0.498	0.520	0.483
Vinyl Chloride	0.605	0.635	0.610
Bromomethane	0.368	0.389	0.357
Chloroethane	0.381	0.404	0.353
Trichlorofluoromethane	0.850	0.881	0.822
Acrolein	0.027	0.029	0.028
112Trichloro122Trifluoroetha	0.585	0.616	0.567
Acetone	0.039	0.041	0.040
1,1-Dichloroethene	0.491	0.526	0.488
Bromoethane	0.424	0.443	0.412
Iodomethane	0.891	0.913	0.852
Methylene Chloride	0.470	0.487	0.456
Acrylonitrile	0.052	0.056	0.054
Carbon Disulfide	1.670	1.746	1.596
Trans-1,2-Dichloroethene	0.566	0.591	0.558
Vinyl Acetate	0.296	0.317	0.332
1,1-Dichloroethane	0.854	0.895	0.846
2-Butanone	0.056	0.059	0.059
2,2-Dichloropropane	0.756	0.800	0.707
Cis-1,2-Dichloroethene	0.544	0.570	0.539
Chloroform	0.874	0.905	0.866
Bromochloromethane	0.202	0.210	0.203
1,1,1-Trichloroethane	0.906	0.968	0.895
1,1-Dichloropropene	0.452	0.470	0.443
Carbon Tetrachloride	0.488	0.518	0.482
1,2-Dichloroethane	0.256	0.267	0.252
Benzene	1.231	1.282	1.158
Trichloroethene	0.360	0.374	0.350
1,2-Dichloropropane	0.247	0.260	0.249
Bromodichloromethane	0.324	0.346	0.333
Dibromomethane	0.109	0.114	0.108
2-Chloroethyl Vinyl Ether	0.084	0.086	0.086
4-Methyl-2-Pentanone	0.096	0.101	0.095
Cis 1,3-dichloropropene	0.368	0.396	0.378
Toluene	0.854	0.884	0.810
Trans 1,3-Dichloropropene	0.297	0.317	0.302
2-Hexanone	0.067	0.068	0.066

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL76 Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 Calibration Date: 09/01/11

LAB FILE ID: RF20: 20_00901 RF40: 40_00901 RF80: 80_00901

COMPOUND	RF20	RF40	RF80
1,1,2-Trichloroethane	0.162	0.169	0.160
1,3-Dichloropropane	0.273	0.288	0.279
Tetrachloroethene	0.390	0.405	0.386
Chlorodibromomethane	0.208	0.223	0.222
1,2-Dibromoethane	0.162	0.169	0.162
Chlorobenzene	0.978	0.997	0.920
Ethyl Benzene	1.793	1.796	1.545
1,1,1,2-Tetrachloroethane	0.318	0.338	0.330
m,p-xylene	0.720	0.729	0.648
o-Xylene	0.705	0.742	0.703
Styrene	1.075	1.116	1.043
Bromoform	0.178	0.193	0.195
1,1,2,2-Tetrachloroethane	0.313	0.322	0.314
1,2,3-Trichloropropane	0.099	0.103	0.100
Trans-1,4-Dichloro 2-Butene	0.079	0.081	0.084
N-Propyl Benzene	3.617	3.527	2.893
Bromobenzene	0.656	0.679	0.655
Isopropyl Benzene	3.189	3.150	2.675
2-Chloro Toluene	2.252	2.240	2.056
4-Chloro Toluene	2.268	2.284	2.054
T-Butyl Benzene	2.503	2.540	2.236
1,3,5-Trimethyl Benzene	2.864	2.850	2.439
1,2,4-Trimethylbenzene	2.897	2.903	2.457
S-Butyl Benzene	3.612	3.555	2.890
4-Isopropyl Toluene	3.150	3.109	2.591
1,3-Dichlorobenzene	1.502	1.539	1.435
1,4-Dichlorobenzene	1.476	1.506	1.402
N-Butyl Benzene	2.767	2.770	2.359
1,2-Dichlorobenzene	1.280	1.300	1.225
1,2-Dibromo 3-Chloropropane	0.051	0.055	0.055
1,2,4-Trichlorobenzene	0.894	0.906	0.881
Hexachloro 1,3-Butadiene	0.446	0.452	0.442
Naphthalene	1.217	1.228	1.184
1,2,3-Trichlorobenzene	0.662	0.666	0.645
Dichlorodifluoromethane	0.550	0.574	0.524
Methyl tert butyl ether	0.955	0.993	0.932

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL76 Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 Calibration Date: 09/01/11

LAB FILE ID: RF20: 20_00901 RF40: 40_00901 RF80: 80_00901

COMPOUND	RF20	RF40	RF80
d4-1,2-Dichloroethane	0.360	0.363	0.377
d8-Toluene	1.263	1.294	1.269
4-Bromofluorobenzene	0.516	0.509	0.518
d4-1,2-Dichlorobenzene	0.832	0.836	0.827
Dibromofluoromethane	0.455	0.451	0.459

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL76 Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 Calibration Date: 09/01/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	0.508	5.0
Vinyl Chloride	AVRG	0.624	4.2
Bromomethane	AVRG	0.376	5.2
Chloroethane	AVRG	0.392	7.5
Trichlorofluoromethane	AVRG	0.849	2.5
Acrolein	AVRG	0.027	5.5
112Trichloro122Trifluoroetha	AVRG	0.608	9.8
Acetone	AVRG	0.039	6.5
1,1-Dichloroethene	AVRG	0.508	5.2
Bromoethane	AVRG	0.421	5.3
Iodomethane	AVRG	0.880	3.8
Methylene Chloride	LINR		0.9987
Acrylonitrile	AVRG	0.048	19.6
Carbon Disulfide	AVRG	1.706	8.3
Trans-1,2-Dichloroethene	AVRG	0.575	5.2
Vinyl Acetate	AVRG	0.294	9.0
1,1-Dichloroethane	AVRG	0.864	4.3
2-Butanone	AVRG	0.056	6.1
2,2-Dichloropropane	AVRG	0.787	7.4
Cis-1,2-Dichloroethene	AVRG	0.554	5.1
Chloroform	AVRG	0.867	3.4
Bromochloromethane	AVRG	0.200	4.0
1,1,1-Trichloroethane	AVRG	0.919	4.3
1,1-Dichloropropene	AVRG	0.455	4.2
Carbon Tetrachloride	AVRG	0.484	4.6
1,2-Dichloroethane	AVRG	0.267	4.3
Benzene	AVRG	1.246	3.4
Trichloroethene	AVRG	0.374	5.6
1,2-Dichloropropane	AVRG	0.250	5.6
Bromodichloromethane	AVRG	0.326	3.6
Dibromomethane	AVRG	0.110	4.9
2-Chloroethyl Vinyl Ether	AVRG	0.080	8.1
4-Methyl-2-Pentanone	AVRG	0.096	3.5
Cis 1,3-dichloropropene	AVRG	0.363	5.0
Toluene	AVRG	0.865	4.2
Trans 1,3-Dichloropropene	AVRG	0.291	5.9
2-Hexanone	AVRG	0.065	5.3

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 — Calibration Date: 09/01/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.162	3.1
1,3-Dichloropropane	AVRG	0.279	3.4
Tetrachloroethene	AVRG	0.410	6.2
Chlorodibromomethane	AVRG	0.200	8.7
1,2-Dibromoethane	AVRG	0.156	6.8
Chlorobenzene	AVRG	0.993	3.5
Ethyl Benzene	AVRG	1.804	6.7
1,1,1,2-Tetrachloroethane	AVRG	0.317	5.3
m,p-xylene	AVRG	0.721	5.2
o-Xylene	AVRG	0.713	2.6
Styrene	AVRG	1.053	4.6
Bromoform	AVRG	0.172	9.6
1,1,2,2-Tetrachloroethane	AVRG	0.316	5.0
1,2,3-Trichloropropane	AVRG	0.102	3.6
Trans-1,4-Dichloro 2-Butene	AVRG	0.080	4.6
N-Propyl Benzene	AVRG	3.641	9.3
Bromobenzene	AVRG	0.670	4.3
Isopropyl Benzene	AVRG	3.239	8.6
2-Chloro Toluene	AVRG	2.283	4.8
4-Chloro Toluene	AVRG	2.286	4.6
T-Butyl Benzene	AVRG	2.531	5.4
1,3,5-Trimethyl Benzene	AVRG	2.826	5.7
1,2,4-Trimethylbenzene	AVRG	2.883	6.5
S-Butyl Benzene	AVRG	3.636	9.2
4-Isopropyl Toluene	AVRG	3.158	8.7
1,3-Dichlorobenzene	AVRG	1.551	5.2
1,4-Dichlorobenzene	AVRG	1.528	5.4
N-Butyl Benzene	AVRG	2.757	6.6
1,2-Dichlorobenzene	AVRG	1.308	3.4
1,2-Dibromo 3-Chloropropane	AVRG	0.053	4.8
1,2,4-Trichlorobenzene	AVRG	0.873	2.6
Hexachloro 1,3-Butadiene	AVRG	0.458	6.7
Naphthalene	AVRG	1.126	8.5
1,2,3-Trichlorobenzene	AVRG	0.646	2.4
Dichlorodifluoromethane	AVRG	0.556	5.6
Methyl tert butyl ether	AVRG	0.926	8.5

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC | Client: AMEC GEOMATRIX

ARI Job No: TL76 | Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 | Calibration Date: 09/01/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.362	3.2
d8-Toluene	AVRG	1.273	1.5
4-Bromofluorobenzene	AVRG	0.508	2.1
d4-1,2-Dichlorobenzene	AVRG	0.841	1.7
Dibromofluoromethane	AVRG	0.442	3.0

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 — Cont. Calib. Date: 09/12/11

Init. Calib. Date: 09/01/11 — Cont. Calib. Time: 2234

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	0.508	0.454	0.100	AVRG	-10.6	
Vinyl Chloride	0.624	0.554	0.010	AVRG	-11.2	
Bromomethane	0.376	0.296	0.010	AVRG	-21.3	<-
Chloroethane	0.392	0.330	0.010	AVRG	-15.8	
Trichlorofluoromethane	0.849	0.738	0.010	AVRG	-13.1	
Acrolein	0.027	0.022	0.010	AVRG	-18.5	
112Trichloro122Trifluoroetha	0.608	0.516	0.010	AVRG	-15.1	
Acetone	0.039	0.038	0.010	AVRG	-2.6	
1,1-Dichloroethene	0.507	0.439	0.010	AVRG	-13.4	
Bromoethane	0.421	0.414	0.010	AVRG	-1.7	
Iodomethane	0.880	0.798	0.010	AVRG	-9.3	
Methylene Chloride	10.000	9.150	0.010	LINR	-8.5	
Acrylonitrile	0.048	0.050	0.010	AVRG	4.2	
Carbon Disulfide	1.706	1.489	0.010	AVRG	-12.7	
Trans-1,2-Dichloroethene	0.574	0.511	0.010	AVRG	-11.0	
Vinyl Acetate	0.294	0.281	0.010	AVRG	-4.4	
1,1-Dichloroethane	0.864	0.808	0.100	AVRG	-6.5	
2-Butanone	0.056	0.056	0.010	AVRG	0.0	
2,2-Dichloropropane	0.787	0.582	0.010	AVRG	-26.0	<-
Cis-1,2-Dichloroethene	0.554	0.509	0.010	AVRG	-8.1	
Chloroform	0.867	0.846	0.010	AVRG	-2.4	
Bromochloromethane	0.201	0.192	0.010	AVRG	-4.5	
1,1,1-Trichloroethane	0.919	0.835	0.010	AVRG	-9.1	
1,1-Dichloropropene	0.455	0.438	0.010	AVRG	-3.7	
Carbon Tetrachloride	0.484	0.458	0.010	AVRG	-5.4	
1,2-Dichloroethane	0.267	0.260	0.010	AVRG	-2.6	
Benzene	1.246	1.230	0.010	AVRG	-1.3	
Trichloroethene	0.374	0.348	0.010	AVRG	-7.0	
1,2-Dichloropropane	0.250	0.244	0.010	AVRG	-2.4	
Bromodichloromethane	0.326	0.316	0.010	AVRG	-3.1	
Dibromomethane	0.110	0.111	0.010	AVRG	0.9	
2-Chloroethyl Vinyl Ether	0.080	0.077	0.010	AVRG	-3.8	
4-Methyl-2-Pentanone	0.096	0.099	0.010	AVRG	3.1	
Cis 1,3-dichloropropene	0.363	0.348	0.010	AVRG	-4.1	
Toluene	0.865	0.811	0.010	AVRG	-6.2	
Trans 1,3-Dichloropropene	0.291	0.280	0.010	AVRG	-3.8	
2-Hexanone	0.065	0.067	0.010	AVRG	3.1	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 — Cont. Calib. Date: 09/12/11

Init. Calib. Date: 09/01/11 — Cont. Calib. Time: 2234

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.162	0.160	0.010	AVRG	-1.2	
1,3-Dichloropropane	0.279	0.278	0.010	AVRG	-0.4	
Tetrachloroethene	0.410	0.371	0.010	AVRG	-9.5	
Chlorodibromomethane	0.200	0.205	0.010	AVRG	2.5	
1,2-Dibromoethane	0.156	0.158	0.010	AVRG	1.3	
Chlorobenzene	0.993	0.955	0.300	AVRG	-3.8	
Ethyl Benzene	1.804	1.724	0.010	AVRG	-4.4	
1,1,1,2-Tetrachloroethane	0.317	0.302	0.010	AVRG	-4.7	
m,p-xylene	0.721	0.679	0.010	AVRG	-5.8	
o-Xylene	0.713	0.678	0.010	AVRG	-4.9	
Styrene	1.052	1.025	0.010	AVRG	-2.6	
Bromoform	0.172	0.170	0.100	AVRG	-1.2	
1,1,2,2-Tetrachloroethane	0.316	0.311	0.300	AVRG	-1.6	
1,2,3-Trichloropropane	0.102	0.095	0.010	AVRG	-6.9	
Trans-1,4-Dichloro 2-Butene	0.079	0.062	0.010	AVRG	-21.5	<-
N-Propyl Benzene	3.641	3.452	0.010	AVRG	-5.2	
Bromobenzene	0.670	0.657	0.010	AVRG	-1.9	
Isopropyl Benzene	3.239	3.100	0.010	AVRG	-4.3	
2-Chloro Toluene	2.283	2.171	0.010	AVRG	-4.9	
4-Chloro Toluene	2.286	2.171	0.010	AVRG	-5.0	
T-Butyl Benzene	2.531	2.368	0.010	AVRG	-6.4	
1,3,5-Trimethyl Benzene	2.826	2.665	0.010	AVRG	-5.7	
1,2,4-Trimethylbenzene	2.883	2.676	0.010	AVRG	-7.2	
S-Butyl Benzene	3.636	3.324	0.010	AVRG	-8.6	
4-Isopropyl Toluene	3.158	2.831	0.010	AVRG	-10.4	
1,3-Dichlorobenzene	1.551	1.434	0.010	AVRG	-7.5	
1,4-Dichlorobenzene	1.528	1.417	0.010	AVRG	-7.3	
N-Butyl Benzene	2.757	2.289	0.010	AVRG	-17.0	
1,2-Dichlorobenzene	1.308	1.249	0.010	AVRG	-4.5	
1,2-Dibromo 3-Chloropropane	0.053	0.052	0.010	AVRG	-1.9	
1,2,4-Trichlorobenzene	0.873	0.751	0.010	AVRG	-14.0	
Hexachloro 1,3-Butadiene	0.458	0.334	0.010	AVRG	-27.1	<-
Naphthalene	1.126	1.050	0.010	AVRG	-6.7	
1,2,3-Trichlorobenzene	0.646	0.564	0.010	AVRG	-12.7	
Dichlorodifluoromethane	0.556	0.436	0.010	AVRG	-21.6	<-
Methyl tert butyl ether	0.926	0.858	0.010	AVRG	-7.3	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIG

Instrument ID: NT3 — Cont. Calib. Date: 09/12/11

Init. Calib. Date: 09/01/11 — Cont. Calib. Time: 2234

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.362	0.360	0.010	AVRG	-0.6
d8-Toluene	1.273	1.256	0.010	AVRG	-1.3
4-Bromofluorobenzene	0.508	0.509	0.010	AVRG	0.2
d4-1,2-Dichlorobenzene	0.841	0.872	0.010	AVRG	3.7
Dibromofluoromethane	0.442	0.448	0.010	AVRG	1.4

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIGA

Ical Midpoint ID: 10_00901 — Ical Date: 09/01/11

Instrument ID: NT3 — Project Run Date: 09/01/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	220246	5.25	342057	5.64	343287	7.71
	UPPER LIMIT	440492	5.75	684114	6.14	686574	8.21
	LOWER LIMIT	110123	4.75	171028	5.14	171644	7.21
	Sample ID						
01	ICV10	221214	5.25	349993	5.64	342678	7.71
02							
03							
04							
05							
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21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIGA

Ical Midpoint ID: 10_00901 — Ical Date: 09/01/11

Instrument ID: NT3 — Project Run Date: 09/01/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	212149	9.41				
	UPPER LIMIT	424298	9.91				
	LOWER LIMIT	106074	8.91				
	Sample ID						
01	ICV10	211854	9.41				
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
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15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIGA

Ical Midpoint ID: 10_00901 — Ical Date: 09/01/11

Instrument ID: NT3 — Project Run Date: 09/12/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	220246	5.25	342057	5.64	343287	7.71
	UPPER LIMIT	440492	5.75	684114	6.14	686574	8.21
	LOWER LIMIT	110123	4.75	171028	5.14	171644	7.21
	Sample ID						
01	LCS0912	223044	5.25	339994	5.64	328149	7.71
02	LCS0912	223565	5.25	346520	5.64	329830	7.71
03	MB0912	225972	5.25	335989	5.64	335129	7.71
04	TRIP BLANKS	218120	5.26	333959	5.65	319169	7.72
05	FRP-090911-0	223911	5.25	344246	5.65	330591	7.72
06	FRP-090911-0	225336	5.25	344947	5.64	342144	7.71
07	FRP-090911-0	219447	5.25	341168	5.64	342808	7.71
08	FRP-090911-0	216970	5.26	333639	5.64	323151	7.71
09	FRP-090911-0	216368	5.25	330920	5.64	327228	7.71
10	FRP-090911-0	219020	5.26	336606	5.65	328136	7.71
11	FRP-090911-0	218365	5.25	335092	5.64	339459	7.71
12							
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19							
20							
21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL76 — Project: FRP 2011 SHORELINE INVESTIGA

Ical Midpoint ID: 10_00901 — Ical Date: 09/01/11

Instrument ID: NT3 — Project Run Date: 09/12/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	212149	9.41				
	UPPER LIMIT	424298	9.91				
	LOWER LIMIT	106074	8.91				
	Sample ID						
01	LCS0912	205739	9.41				
02	LCS0912	202774	9.41				
03	MB0912	198047	9.41				
04	TRIP BLANKS	195025	9.41				
05	FRP-090911-0	200961	9.41				
06	FRP-090911-0	208681	9.41				
07	FRP-090911-0	202350	9.41				
08	FRP-090911-0	201949	9.41				
09	FRP-090911-0	201806	9.41				
10	FRP-090911-0	198996	9.41				
11	FRP-090911-0	206808	9.41				
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

Metals Analysis
Report and Summary QC Forms

ARI Job ID: TL76, TL77

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL76

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-090911-001	TL76A	11-19760	
FRP-090911-003	TL76B	11-19761	
FRP-090911-004	TL76C	11-19762	
FRP-090911-005	TL76D	11-19763	
FRP-090911-006	TL76E	11-19764	
FRP-090911-007	TL76F	11-19765	
FRP-090911-002	TL76G	11-19766	
FRP-090911-002D	TL76GDUP	11-19766	
FRP-090911-002S	TL76GSPK	11-19766	
PBW	TL76MB1	11-19766	
LCSW	TL76MB1SPK	11-19766	
FRP-090911-002	TL76I	11-19775	
PBW	TL76MB2	11-19775	
LCSW	TL76MB2SPK	11-19775	

Were ICP interelement corrections applied ?	Yes/No	YES
Were ICP background corrections applied ?	Yes/No	YES
If yes - were raw data generated before application of background corrections ?	Yes/No	NO

Comments: _____

THIS DATA PACKAGE HAS BEEN REVIEWED AND AUTHORIZED FOR RELEASE BY:

Signature: _____ Name: Jay Kuhn

Date: 10/6/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-001
SAMPLE

Lab Sample ID: TL76A
LIMS ID: 11-19760
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	**7429-90-5**	**Aluminum**	0.0257	0.05	**21.3**	
200.8	09/15/11	200.8	09/29/11	**7440-38-2**	**Arsenic**	0.00012	0.001	**0.008**	
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/15/11	6010B	09/20/11	**7440-47-3**	**Chromium**	0.00124	0.005	**0.108**	
3010A	09/15/11	6010B	09/20/11	**7440-50-8**	**Copper**	0.00092	0.002	**0.105**	
200.8	09/15/11	200.8	09/20/11	**7439-92-1**	**Lead**	0.000046	0.0001	**0.0097**	
3010A	09/15/11	6010B	09/20/11	**7440-02-0**	**Nickel**	0.0039	0.01	**0.04**	
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	**7440-62-2**	**Vanadium**	0.00027	0.003	**0.178**	
3010A	09/15/11	6010B	09/20/11	**7440-66-6**	**Zinc**	0.0014	0.01	**0.15**	

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-003
SAMPLE

Lab Sample ID: TL76B
LIMS ID: 11-19761
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	**7429-90-5**	**Aluminum**	0.051	0.1	**200**	
200.8	09/15/11	200.8	09/29/11	**7440-38-2**	**Arsenic**	0.00048	0.005	**0.042**	
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.00036	0.004	0.004	U
3010A	09/15/11	6010B	09/20/11	**7440-47-3**	**Chromium**	0.0025	0.01	**0.80**	
3010A	09/15/11	6010B	09/20/11	**7440-50-8**	**Copper**	0.00184	0.004	**0.641**	
200.8	09/15/11	200.8	09/21/11	**7439-92-1**	**Lead**	0.00046	0.001	**0.094**	
3010A	09/15/11	6010B	09/20/11	**7440-02-0**	**Nickel**	0.0077	0.02	**0.22**	
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.010	0.1	0.1	U
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.006	0.1	0.1	U
3010A	09/15/11	6010B	09/20/11	**7440-62-2**	**Vanadium**	0.00054	0.006	**0.446**	
3010A	09/15/11	6010B	09/20/11	**7440-66-6**	**Zinc**	0.0029	0.02	**0.87**	

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-004
SAMPLE

Lab Sample ID: TL76C
LIMS ID: 11-19762
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	**7429-90-5**	**Aluminum**	0.128	0.2	**593**	
200.8	09/15/11	200.8	09/29/11	**7440-38-2**	**Arsenic**	0.00048	0.005	**0.093**	
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.0009	0.01	0.01	U
3010A	09/15/11	6010B	09/20/11	**7440-47-3**	**Chromium**	0.0062	0.02	**2.18**	
3010A	09/15/11	6010B	09/20/11	**7440-50-8**	**Copper**	0.0046	0.01	**1.59**	
200.8	09/15/11	200.8	09/21/11	**7439-92-1**	**Lead**	0.00046	0.001	**0.196**	
3010A	09/15/11	6010B	09/20/11	**7440-02-0**	**Nickel**	0.0193	0.05	**0.61**	
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.025	0.2	0.2	U
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.016	0.2	0.2	U
3010A	09/15/11	6010B	09/20/11	**7440-62-2**	**Vanadium**	0.0014	0.02	**1.54**	
3010A	09/15/11	6010B	09/20/11	**7440-66-6**	**Zinc**	0.0072	0.05	**2.00**	

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-005
SAMPLE

Lab Sample ID: TL76D
LIMS ID: 11-19763
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	**7429-90-5**	**Aluminum**	0.0257	0.05	**5.67**	
200.8	09/15/11	200.8	09/20/11	**7440-38-2**	**Arsenic**	0.000048	0.0002	**0.0046**	
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/15/11	6010B	09/20/11	**7440-47-3**	**Chromium**	0.00124	0.005	**0.038**	
3010A	09/15/11	6010B	09/20/11	**7440-50-8**	**Copper**	0.00092	0.002	**0.215**	
200.8	09/15/11	200.8	09/20/11	**7439-92-1**	**Lead**	0.000046	0.0001	**0.0086**	
3010A	09/15/11	6010B	09/20/11	7440-02-0	Nickel	0.0039	0.01	0.01	U
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	**7440-62-2**	**Vanadium**	0.00027	0.003	**0.261**	
3010A	09/15/11	6010B	09/20/11	**7440-66-6**	**Zinc**	0.0014	0.01	**0.01**	

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-006
SAMPLE

Lab Sample ID: TL76E
LIMS ID: 11-19764
Matrix: Water
Data Release Authorized
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	**7429-90-5**	**Aluminum**	0.0257	0.05	**5.29**	
200.8	09/15/11	200.8	09/20/11	**7440-38-2**	**Arsenic**	0.000048	0.0002	**0.0048**	
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/15/11	6010B	09/20/11	**7440-47-3**	**Chromium**	0.00124	0.005	**0.035**	
3010A	09/15/11	6010B	09/20/11	**7440-50-8**	**Copper**	0.00092	0.002	**0.207**	
200.8	09/15/11	200.8	09/20/11	**7439-92-1**	**Lead**	0.000046	0.0001	**0.0090**	
3010A	09/15/11	6010B	09/20/11	7440-02-0	Nickel	0.0039	0.01	0.01	U
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	**7440-62-2**	**Vanadium**	0.00027	0.003	**0.253**	
3010A	09/15/11	6010B	09/20/11	**7440-66-6**	**Zinc**	0.0014	0.01	**0.01**	

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-007
SAMPLE

Lab Sample ID: TL76F
LIMS ID: 11-19765
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	7429-90-5	Aluminum	0.0257	0.05	0.05	U
200.8	09/15/11	200.8	09/21/11	7440-38-2	Arsenic	0.000048	0.0002	0.0002	U
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/15/11	6010B	09/20/11	7440-47-3	Chromium	0.00124	0.005	0.005	U
3010A	09/15/11	6010B	09/20/11	7440-50-8	Copper	0.00092	0.002	0.002	U
200.8	09/15/11	200.8	09/20/11	7439-92-1	Lead	0.000046	0.0001	0.0001	U
3010A	09/15/11	6010B	09/20/11	7440-02-0	Nickel	0.0039	0.01	0.01	U
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-62-2	Vanadium	0.00027	0.003	0.003	U
3010A	09/15/11	6010B	09/20/11	7440-66-6	Zinc	0.0014	0.01	0.01	U

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-002
SAMPLE

Lab Sample ID: TL76G
LIMS ID: 11-19766
Matrix: Water
Data Release Authorized:
Reported: 01/17/12

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	7429-90-5	Aluminum	0.0076	0.05	199	
200.8	09/15/11	200.8	09/29/11	7440-38-2	Arsenic	0.00024	0.002	0.047	
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.00018	0.002	0.002	
3010A	09/15/11	6010B	09/20/11	7440-70-2	Calcium	0.0113	0.05	176	
3010A	09/15/11	6010B	09/20/11	7440-47-3	Chromium	0.00124	0.005	0.629	
3010A	09/15/11	6010B	09/20/11	7440-50-8	Copper	0.00092	0.002	0.628	
3010A	09/15/11	6010B	09/20/11	7439-89-6	Iron	0.0075	0.05	248	
200.8	09/15/11	200.8	09/21/11	7439-92-1	Lead	0.000230	0.0005	0.0845	
3010A	09/15/11	6010B	09/20/11	7439-95-4	Magnesium	0.0096	0.05	288	
3010A	09/15/11	6010B	09/20/11	7439-96-5	Manganese	0.00028	0.001	2.86	
3010A	09/15/11	6010B	09/20/11	7440-02-0	Nickel	0.0039	0.01	0.21	
3010A	09/15/11	6010B	09/20/11	7440-09-7	Potassium	0.066	0.5	103	
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-23-5	Sodium	0.011	0.5	3,840	
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.0031	0.05	0.05	
3010A	09/15/11	6010B	09/20/11	7440-62-2	Vanadium	0.00027	0.003	0.602	
3010A	09/15/11	6010B	09/20/11	7440-66-6	Zinc	0.0014	0.01	0.70	

Calculated Hardness (mg-CaCO3/L): 1600

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

TL 76: 740 BC 1/21

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-002
MATRIX SPIKE

Lab Sample ID: TL76G
LIMS ID: 11-19766
Matrix: Water
Data Release Authorized:
Reported: 01/17/12

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	199	197	2.00	-100%	H
Arsenic	200.8	0.047	0.068	0.025	84.0%	
Cadmium	6010B	0.002	0.543	0.500	108%	
Calcium	6010B	176	181	10.0	50.0%	H
Chromium	6010B	0.629	1.08	0.500	90.2%	
Copper	6010B	0.628	1.21	0.500	116%	
Iron	6010B	248	241	2.00	-350%	H
Lead	200.8	0.0845	0.106	0.0250	86.0%	
Magnesium	6010B	288	286	10.0	-20.0%	H
Manganese	6010B	2.86	3.18	0.500	64.0%	H
Nickel	6010B	0.208	0.647	0.500	87.8%	
Potassium	6010B	103	111	10.0	80.0%	H
Selenium	6010B	0.05 U	1.61	2.00	80.5%	
Sodium	6010B	3,840	3,700	10.0	-1400%	H
Thallium	6010B	0.05	2.12	2.00	104%	
Vanadium	6010B	0.602	1.06	0.500	91.6%	
Zinc	6010B	0.701	1.12	0.500	83.8%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-002
DUPLICATE

Lab Sample ID: TL76G
LIMS ID: 11-19766
Matrix: Water
Data Release Authorized:
Reported: 01/17/12

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/09/11
Date Received: 09/09/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	199	201	1.0%	+/- 20%	
Arsenic	200.8	0.047	0.045	4.3%	+/- 20%	
Cadmium	6010B	0.002	0.002	0.0%	+/- 0.002	L
Calcium	6010B	176	175	0.6%	+/- 20%	
Chromium	6010B	0.629	0.629	0.0%	+/- 20%	
Copper	6010B	0.628	0.625	0.5%	+/- 20%	
Iron	6010B	248	251	1.2%	+/- 20%	
Lead	200.8	0.0845	0.0826	2.3%	+/- 20%	
Magnesium	6010B	288	290	0.7%	+/- 20%	
Manganese	6010B	2.86	2.89	1.0%	+/- 20%	
Nickel	6010B	0.21	0.21	0.0%	+/- 20%	
Potassium	6010B	103	104	1.0%	+/- 20%	
Selenium	6010B	0.05 U	0.05 U	0.0%	+/- 0.05	L
Sodium	6010B	3,840	3,870	0.8%	+/- 20%	
Thallium	6010B	0.05	0.05	0.0%	+/- 0.05	L
Vanadium	6010B	0.602	0.603	0.2%	+/- 20%	
Zinc	6010B	0.70	0.70	0.0%	+/- 20%	

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

BC 1/31

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-002
SAMPLE

Lab Sample ID: TL76I
LIMS ID: 11-19775
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	**7440-21-3**	**Silicon**	0.0082	0.06	**40.8**	

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TL76LCS
LIMS ID: 11-19766
Matrix: Water
Data Release Authorized:
Reported: 01/17/12

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010B	2.06	2.00	103%	
Arsenic	200.8	0.0270	0.0250	108%	
Cadmium	6010B	0.534	0.500	107%	
Calcium	6010B	10.2	10.0	102%	
Chromium	6010B	0.537	0.500	107%	
Copper	6010B	0.534	0.500	107%	
Iron	6010B	2.13	2.00	106%	
Lead	200.8	0.0268	0.0250	107%	
Magnesium	6010B	10.5	10.0	105%	
Manganese	6010B	0.498	0.500	99.6%	
Nickel	6010B	0.51	0.50	102%	
Potassium	6010B	10.6	10.0	106%	
Selenium	6010B	2.00	2.00	100%	
Sodium	6010B	10.3	10.0	103%	
Thallium	6010B	2.02	2.00	101%	
Vanadium	6010B	0.524	0.500	105%	
Zinc	6010B	0.51	0.50	102%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TL76LCS
LIMS ID: 11-19775
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Silicon	6010B	9.37	10.0	93.7%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: TL76MB
LIMS ID: 11-19766
Matrix: Water
Data Release Authorized:
Reported: 01/17/12

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	7429-90-5	Aluminum	0.0076	0.05	0.05	U
200.8	09/15/11	200.8	09/21/11	7440-38-2	Arsenic	0.000048	0.0002	0.0002	U
3010A	09/15/11	6010B	09/20/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/15/11	6010B	09/20/11	7440-70-2	Calcium	0.0113	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-47-3	Chromium	0.00124	0.005	0.005	U
3010A	09/15/11	6010B	09/20/11	7440-50-8	Copper	0.00092	0.002	0.002	U
3010A	09/15/11	6010B	09/20/11	7439-89-6	Iron	0.0075	0.05	0.05	U
200.8	09/15/11	200.8	09/20/11	7439-92-1	Lead	0.000046	0.0001	0.0001	U
3010A	09/15/11	6010B	09/20/11	7439-95-4	Magnesium	0.0096	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7439-96-5	Manganese	0.00028	0.001	0.001	U
3010A	09/15/11	6010B	09/20/11	7440-02-0	Nickel	0.0039	0.01	0.01	U
3010A	09/15/11	6010B	09/20/11	7440-09-7	Potassium	0.066	0.5	0.5	U
3010A	09/15/11	6010B	09/20/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-23-5	Sodium	0.011	0.5	0.5	U
3010A	09/15/11	6010B	09/20/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/15/11	6010B	09/20/11	7440-62-2	Vanadium	0.00027	0.003	0.003	U
3010A	09/15/11	6010B	09/20/11	7440-66-6	Zinc	0.0014	0.01	0.01	U

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: TL76MB
LIMS ID: 11-19775
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TL76-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/15/11	6010B	09/20/11	7440-21-3	Silicon	0.0082	0.06	0.06	U

Reported in mg/L (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Aluminum	AL	ICP	IP092071	2000.0	1951.32	97.6	2000.0	2030.19	101.5	1961.67	98.1	1868.39	93.4	1856.68	92.8	1875.67	93.8
Arsenic	AS	PMS	MS092081	50.0	49.50	99.0	50.0	49.71	99.4	50.64	101.3	50.13	100.3	50.49	101.0	49.25	98.5
Cadmium	CD	ICP	IP092071	1000.0	1037.05	103.7	1000.0	1068.23	106.8	1051.49	105.1	1010.21	101.0	994.95	99.5	993.33	99.3
Calcium	CA	ICP	IP092071	2000.0	2044.88	102.2	2000.0	2096.97	104.8	2066.15	103.3	1990.34	99.5	1969.65	98.5	1999.94	100.0
Chromium	CR	ICP	IP092071	1000.0	1031.13	103.1	1000.0	1050.63	105.1	1039.00	103.9	995.35	99.5	988.76	98.9	1000.50	100.1
Copper	CU	ICP	IP092071	1000.0	1003.57	100.4	1000.0	1028.66	102.9	1022.11	102.2	980.71	98.1	971.64	97.2	976.60	97.7
Iron	FE	ICP	IP092071	2000.0	2026.93	101.3	2000.0	2093.62	104.7	2011.36	100.6	1939.04	97.0	1916.78	95.8	1950.01	97.5
Lead	PB	PMS	MS092081	50.0	50.98	102.0	50.0	50.92	101.8	50.62	101.2	52.04	104.1	51.72	103.4	52.53	105.1
Magnesium	MG	ICP	IP092071	2000.0	1973.62	98.7	2000.0	2024.95	101.2	1982.17	99.1	1897.74	94.9	1886.46	94.3	1920.74	96.0
Manganese	MN	ICP	IP092071	1000.0	1015.12	101.5	1000.0	1032.29	103.2	971.47	97.1	959.29	95.9	954.40	95.4	935.42	93.5
Nickel	NI	ICP	IP092071	1000.0	1013.40	101.3	1000.0	1029.83	103.0	1004.49	100.4	960.10	96.0	953.86	95.4	970.98	97.1
Potassium	K	ICP	IP092071	20000.0	20157.46	100.8	20000.0	20603.05	103.0	20450.64	102.3	19569.22	97.8	19688.30	98.4	20071.66	100.4
Selenium	SE	ICP	IP092071	2000.0	1979.55	99.0	2000.0	2008.87	100.4	1977.18	98.9	1893.78	94.7	1857.25	92.9	1852.41	92.6
Silicon	SI	ICP	IP092071	2000.0	2065.86	103.3	2000.0	2098.76	104.9	2066.86	103.3	2001.72	100.1	1996.54	99.8	2046.33	102.3
Sodium	NA	ICP	IP092071	50000.0	49715.46	99.4	50000.0	52115.63	104.2	49474.98	98.9	46481.65	93.0	46069.74	92.1	46682.48	93.4
Thallium	TL	ICP	IP092071	2000.0	1968.81	98.4	2000.0	2009.59	100.5	1969.32	98.5	1865.90	93.3	1842.72	92.1	1855.19	92.8
Vanadium	V	ICP	IP092071	1000.0	969.46	96.9	1000.0	991.83	99.2	984.14	98.4	940.76	94.1	931.41	93.1	938.79	93.9
Zinc	ZN	ICP	IP092071	1000.0	1000.30	100.0	1000.0	1019.61	102.0	1005.13	100.5	969.72	97.0	957.77	95.8	973.71	97.4

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TL76 : 008827

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Aluminum	AL	ICP	IP092071	2000.0	1941.24	97.1	1898.96	94.9								
Arsenic	AS	PMS	MS092081	50.0	50.17	100.3	49.27	98.5	48.30	96.6						
Cadmium	CD	ICP	IP092071	1000.0	1019.06	101.9	993.10	99.3								
Calcium	CA	ICP	IP092071	2000.0	2067.56	103.4	2017.97	100.9								
Chromium	CR	ICP	IP092071	1000.0	1037.82	103.8	1007.26	100.7								
Copper	CU	ICP	IP092071	1000.0	996.11	99.6	972.43	97.2								
Iron	FE	ICP	IP092071	2000.0	2030.36	101.5	1995.22	99.8								
Lead	PB	PMS	MS092081	50.0	51.53	103.1	52.13	104.3	50.16	100.3						
Magnesium	MG	ICP	IP092071	2000.0	1972.02	98.6	1930.23	96.5								
Manganese	MN	ICP	IP092071	1000.0	963.64	96.4	942.53	94.3								
Nickel	NI	ICP	IP092071	1000.0	1010.56	101.1	980.09	98.0								
Potassium	K	ICP	IP092071	20000.0	20514.03	102.6	20060.46	100.3								
Selenium	SE	ICP	IP092071	2000.0	1885.30	94.3	1858.97	92.9								
Silicon	SI	ICP	IP092071	2000.0	2083.16	104.2	2006.08	100.3								
Sodium	NA	ICP	IP092071	50000.0	47454.80	94.9	45907.93	91.8								
Thallium	TL	ICP	IP092071	2000.0	1898.45	94.9	1884.07	94.2								
Vanadium	V	ICP	IP092071	1000.0	955.04	95.5	944.09	94.4								
Zinc	ZN	ICP	IP092071	1000.0	1009.40	100.9	983.15	98.3								

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TL76 : 000092

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS092182	50.0	50.34	100.7	50.0	50.24	100.5	49.59	99.2	50.35	100.7	50.23	100.5	50.27	100.5
Lead	PB	PMS	MS092182	50.0	50.10	100.2	50.0	50.12	100.2	49.69	99.4	48.01	96.0	48.45	96.9	48.89	97.8

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TL76 : 000031

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Arsenic	AS	PMS	MS092182	50.0	51.03	102.1	52.37	104.7	51.99	104.0	51.64	103.3	50.38	100.8		
Lead	PB	PMS	MS092182	50.0	48.85	97.7	48.81	97.6	49.21	98.4	48.93	97.9	51.54	103.1		

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TL76:00085

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS092981	50.0	50.87	101.7	50.0	50.57	101.1	50.67	101.3	50.54	101.1	50.73	101.5	51.00	102.0

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TL76:000066

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Arsenic	AS	PMS	MS092981	50.0	50.43	100.9	51.18	102.4	50.65	101.3						

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TL76 : 00007

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	M	RUN	CRA/I TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Aluminum	AL	ICP	IP092071	50.0	48.45	**96.9**	47.72	**95.4**	60.55	**121.1**						
Arsenic	AS	PMS	MS092081	0.2	0.19	**95.0**										
Cadmium	CD	ICP	IP092071	2.0	1.88	**94.0**	1.28	**64.0**	1.58	**79.0**						
Calcium	CA	ICP	IP092071	50.0	50.13	**100.3**	53.27	**106.5**	56.32	**112.6**						
Chromium	CR	ICP	IP092071	5.0	5.71	**114.2**	4.98	**99.6**	5.80	**116.0**						
Copper	CU	ICP	IP092071	2.0	1.75	**87.5**	1.61	**80.5**	1.86	**93.0**						
Iron	FE	ICP	IP092071	50.0	52.85	**105.7**	59.04	**118.1**	59.08	**118.2**						
Lead	PB	PMS	MS092081	0.1	0.12	**120.0**										
Magnesium	MG	ICP	IP092071	50.0	48.98	**98.0**	51.36	**102.7**	48.48	**97.0**						
Manganese	MN	ICP	IP092071	1.0	1.01	**101.0**	1.06	**106.0**	1.21	**121.0**						
Nickel	NI	ICP	IP092071	10.0	10.06	**100.6**	11.10	**111.0**	9.81	**98.1**						
Potassium	K	ICP	IP092071	500.0	517.18	**103.4**	579.23	**115.8**	600.39	**120.1**						
Selenium	SE	ICP	IP092071	50.0	54.26	**108.5**	57.19	**114.4**	54.08	**108.2**						
Silicon	SI	ICP	IP092071	60.0	65.02	**108.4**	81.44	**135.7**	87.09	**145.2**						
Sodium	NA	ICP	IP092071	500.0	497.80	**99.6**	656.79	**131.4**	664.02	**132.8**						
Thallium	TL	ICP	IP092071	50.0	47.42	**94.8**	39.16	**78.3**	42.37	**84.7**						
Vanadium	V	ICP	IP092071	3.0	2.85	**95.0**	2.09	**69.7**	1.71	**57.0**						
Zinc	ZN	ICP	IP092071	10.0	10.20	**102.0**	10.12	**101.2**	10.45	**104.5**						
Arsenic	AS	PMS	MS092182	0.2	0.19	**95.0**										
Lead	PB	PMS	MS092182	0.1	0.11	**110.0**										
Arsenic	AS	PMS	MS092981	0.2	0.22	**110.0**										

Control Limits: no control limits have been established by the EPA at this time.

FORM II (2)

TL76 : 000060

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TL76

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Aluminum	AL	ICP	IP092071	200.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	AS	PMS	MS092081	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Cadmium	CD	ICP	IP092071	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	CA	ICP	IP092071	5000.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Chromium	CR	ICP	IP092071	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Copper	CU	ICP	IP092071	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Iron	FE	ICP	IP092071	100.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Lead	PB	PMS	MS092081	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	MG	ICP	IP092071	5000.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Manganese	MN	ICP	IP092071	15.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	NI	ICP	IP092071	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Potassium	K	ICP	IP092071	5000.0	500.0	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U
Selenium	SE	ICP	IP092071	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Silicon	SI	ICP	IP092071	60.0	60.0	60.0	U	60.0	U	60.0	U	60.0	U	60.0	U	60.0	U
Sodium	NA	ICP	IP092071	5000.0	500.0	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U	515.5	B
Thallium	TL	ICP	IP092071	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Vanadium	V	ICP	IP092071	50.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Zinc	ZN	ICP	IP092071	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

TL76:00089

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Aluminum	AL	ICP	IP092071	200.0	50.0	50.0	U	50.0	U								
Arsenic	AS	PMS	MS092081	10.0	0.2	0.2	U	0.2	U	0.2	B						
Cadmium	CD	ICP	IP092071	5.0	2.0	2.0	U	2.0	U								
Calcium	CA	ICP	IP092071	5000.0	50.0	50.0	U	50.0	U								
Chromium	CR	ICP	IP092071	10.0	5.0	5.0	U	5.0	U								
Copper	CU	ICP	IP092071	25.0	2.0	2.0	U	2.0	U								
Iron	FE	ICP	IP092071	100.0	50.0	50.0	U	50.0	U								
Lead	PB	PMS	MS092081	3.0	0.1	0.1	U	0.1	U	0.1	U						
Magnesium	MG	ICP	IP092071	5000.0	50.0	50.0	U	50.0	U								
Manganese	MN	ICP	IP092071	15.0	1.0	1.0	U	1.0	U								
Nickel	NI	ICP	IP092071	40.0	10.0	10.0	U	10.0	U								
Potassium	K	ICP	IP092071	5000.0	500.0	500.0	U	500.0	U								
Selenium	SE	ICP	IP092071	5.0	50.0	50.0	U	50.0	U								
Silicon	SI	ICP	IP092071	60.0	60.0	60.0	U	60.0	U								
Sodium	NA	ICP	IP092071	5000.0	500.0	500.0	U	500.0	U								
Thallium	TL	ICP	IP092071	10.0	50.0	50.0	U	50.0	U								
Vanadium	V	ICP	IP092071	50.0	3.0	3.0	U	3.0	U								
Zinc	ZN	ICP	IP092071	20.0	10.0	10.0	U	10.0	U								

TL76 : 000506

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TL76

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS092182	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Lead	PB	PMS	MS092182	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

TL76 : 000031

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Arsenic	AS	PMS	MS092182	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U		
Lead	PB	PMS	MS092182	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		

TL76:00052

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TL76

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS092981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

TL76 : 00553

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL76

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Arsenic	AS	PMS	MS092981	10.0	0.2	0.2	U	0.2	U	0.2	U						

TL76 : 000051

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: IP092071

SDG: TL76

INSTRUMENT ID: OPTIMA ICP 2

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	199745.5	200676.1	**100.3**	186936.7	190508.9	**95.3**			
Antimony		1000	101.2	1094.3	**109.4**	80.5	1042.6	**104.3**			
Arsenic		1000	7.3	1028.7	**102.9**	1.8	995.5	**99.6**			
Barium		1000	-1.5	1044.9	**104.5**	-1.9	1002.1	**100.2**			
Beryllium		1000	0.1	1022.4	**102.2**	0.0	981.4	**98.1**			
Boron			-6.8	-8.3		-9.3	-7.9				
Cadmium		1000	0.8	1077.3	**107.7**	0.0	1050.6	**105.1**			
Calcium	100000	100000	104585.8	104538.5	**104.5**	99951.9	101355.8	**101.4**			
Chromium		1000	-1.3	1060.0	**106.0**	-1.5	1022.4	**102.2**			
Cobalt		1000	2.7	1049.5	**105.0**	3.2	1043.5	**104.4**			
Copper		1000	1.2	1090.4	**109.0**	0.9	1082.2	**108.2**			
Iron	200000	200000	203326.0	200559.4	**100.3**	191854.5	192630.0	**96.3**			
Lead		1000	-8.2	1021.6	**102.2**	-6.3	997.8	**99.8**			
Magnesium	100000	100000	102583.4	99005.1	**99.0**	98639.6	95211.4	**95.2**			
Manganese		1000	0.5	986.0	**98.6**	0.4	945.7	**94.6**			
Molybdenum			2.8	3.6		1.8	2.1				
Nickel		1000	-1.7	991.5	**99.2**	-1.2	947.4	**94.7**			
Potassium			35.9	228.3		99.6	264.0				
Selenium		1000	-41.9	978.2	**97.8**	-24.8	942.4	**94.2**			
Silicon			-2.5	-5.1		19.4	12.2				
Silver		1000	0.6	1067.7	**106.8**	0.7	1029.3	**102.9**			
Sodium			5.6	7.7		160.3	145.5				
Strontium			10.7	10.6		10.2	10.2				
Thallium		1000	35.2	1078.7	**107.9**	34.1	1045.1	**104.5**			
Tin			1.5	2.3		1.5	2.2				
Titanium			-8.5	-8.7		-8.5	-9.0				
Vanadium		1000	0.7	1017.9	**101.8**	-0.9	1015.9	**101.6**			
Zinc		1000	0.9	982.7	**98.3**	0.9	950.9	**95.1**			

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: MS092081

SDG: TL76

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Cadmium		20	0.0	20.1	**100.5**						
Chromium		20	0.9	20.7	**103.5**						
Cobalt		20	0.0	19.6	**98.0**						
Copper		20	0.5	20.0	**100.0**						
Manganese		20	0.7	20.6	**103.0**						
Molybdenum	400	400	415.5	417.9	**104.5**						
Nickel		20	0.6	19.7	**98.5**						
Selenium			0.0	-0.1							
Silver		20	0.0	19.0	**95.0**						
Vanadium			0.0	-0.5							
Zinc		20	1.0	19.9	**99.5**						

TL76:000056

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL76

ICS SOURCE: I.V.

RUNID: MS092182

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.0	0.1							
Cadmium		20	0.1	19.9	**99.5**						
Chromium		20	0.8	20.6	**103.0**						
Cobalt		20	0.0	19.5	**97.5**						
Copper		20	0.5	19.5	**97.5**						
Manganese		20	0.8	20.1	**100.5**						
Molybdenum	400	400	415.9	417.6	**104.4**						
Nickel		20	0.5	18.9	**94.5**						
Silver		20	0.0	19.1	**95.5**						
Vanadium			0.0	-0.4							
Zinc		20	1.2	19.7	**98.5**						

TL76 : 00097

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL76

ICS SOURCE: I.V.

RUNID: MS092981

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Cadmium		20	0.0	19.5	**97.5**						
Chromium		20	0.9	20.6	**103.0**						
Cobalt		20	0.0	19.5	**97.5**						
Copper		20	0.5	20.4	**102.0**						
Manganese		20	0.7	20.6	**103.0**						
Molybdenum	400	400	414.4	410.3	**102.6**						
Nickel		20	0.5	19.8	**99.0**						
Selenium			0.0	-0.1							
Silver		20	0.0	19.2	**96.0**						
Vanadium			0.0	-0.5							
Zinc		20	1.0	19.7	**98.5**						

TL76 : 000095

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: ICP

SDG: TL76

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFER-ENCE	Q
Aluminum	FRP-090911-002L	TL76G-L	Water	IP092071	198857.48		193197.85		2.8	
Cadmium	FRP-090911-002L	TL76G-L	Water	IP092071	2.20	B	10.00	U	100.0	
Calcium	FRP-090911-002L	TL76G-L	Water	IP092071	175854.43		179338.30		2.0	
Chromium	FRP-090911-002L	TL76G-L	Water	IP092071	628.59		647.15		3.0	
Copper	FRP-090911-002L	TL76G-L	Water	IP092071	628.10		596.90		5.0	
Iron	FRP-090911-002L	TL76G-L	Water	IP092071	248379.63		255961.70		3.1	
Magnesium	FRP-090911-002L	TL76G-L	Water	IP092071	288003.22		288450.05		0.2	
Manganese	FRP-090911-002L	TL76G-L	Water	IP092071	2857.73		2907.60		1.7	
Nickel	FRP-090911-002L	TL76G-L	Water	IP092071	207.86		211.55		1.8	
Potassium	FRP-090911-002L	TL76G-L	Water	IP092071	102922.61		96965.35		5.8	
Selenium	FRP-090911-002L	TL76G-L	Water	IP092071	-31.05	U	250.00	U		
Sodium	FRP-090911-002L	TL76G-L	Water	IP092071	3841543.79		3789748.65		1.3	
Thallium	FRP-090911-002L	TL76G-L	Water	IP092071	50.94		250.00	U	100.0	
Vanadium	FRP-090911-002L	TL76G-L	Water	IP092071	601.82		639.80		6.3	
Zinc	FRP-090911-002L	TL76G-L	Water	IP092071	701.26		740.65		5.6	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: PMS

SDG: TL76

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFER-ENCE	Q
Arsenic	FRP-090911-002L	TL76G-L	Water	MS092182	9.40	B	12.75	B	35.6	
Lead	FRP-090911-002L	TL76G-L	Water	MS092182	16.90		18.75		10.9	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: PMS

SDG: TL76

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFER-ENCE	Q
Arsenic	FRP-090911-002L	TL76G-L	Water	MS092981	9.40	B	12.15	B	29.3	
Lead	FRP-090911-002L	TL76G-L	Water	MS092981	16.90		18.85		11.5	

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL76

UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Aluminum	AL	ICP	OPTIMA ICP 2	308.22		200	50.0	4/1/2011	250000.0	8/3/2011
Arsenic	AS	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		
Cadmium	CD	ICP	OPTIMA ICP 2	228.80		5	2.0	4/1/2011	20000.0	8/3/2011
Calcium	CA	ICP	OPTIMA ICP 2	317.93		5000	50.0	4/1/2011	500000.0	8/3/2011
Chromium	CR	ICP	OPTIMA ICP 2	267.72		10	5.0	4/1/2011	100000.0	8/3/2011
Copper	CU	ICP	OPTIMA ICP 2	324.75		25	2.0	4/1/2011	40000.0	8/3/2011
Iron	FE	ICP	OPTIMA ICP 2	259.94		100	50.0	4/1/2011	250000.0	8/3/2011
Lead	PB	PMS	PE ELAN 6000 MS	0.00		3	0.1	4/1/2011		
Magnesium	MG	ICP	OPTIMA ICP 2	279.08		5000	50.0	4/1/2011	500000.0	8/3/2011
Manganese	MN	ICP	OPTIMA ICP 2	257.61		15	1.0	4/1/2011	30000.0	8/3/2011
Nickel	NI	ICP	OPTIMA ICP 2	231.60		40	10.0	4/1/2011	100000.0	8/3/2011
Potassium	K	ICP	OPTIMA ICP 2	766.49		5000	500.0	4/1/2011	500000.0	8/3/2011
Selenium	SE	ICP	OPTIMA ICP 2	196.02		5	50.0	4/1/2011	20000.0	8/3/2011
Silicon	SI	ICP	OPTIMA ICP 2	288.16		60	60.0	4/1/2011	90000.0	8/3/2011
Sodium	NA	ICP	OPTIMA ICP 2	589.00		5000	500.0	4/1/2011	5000000.0	8/3/2011
Thallium	TL	ICP	OPTIMA ICP 2	190.86		10	50.0	4/1/2011	30000.0	8/3/2011
Vanadium	V	ICP	OPTIMA ICP 2	292.40		50	3.0	4/1/2011	50000.0	8/3/2011
Zinc	ZN	ICP	OPTIMA ICP 2	213.86		20	10.0	4/1/2011	100000.0	8/3/2011

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

IEC DATE: 9/7/2011

SDG: TL76

INSTRUMENT ID: OPTIMA ICP 2

ANALYTE	WAVELENGTH	AL	AS	BA	BE	CA	CD	CO	CR	CU	FE
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	10.6149000	0.0000000	0.0000000
Arsenic	188.98	0.0000000	0.0000000	0.0000000	0.0000000	0.0773398	0.0000000	-0.8345790	1.1215100	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.1892080	0.0000000	0.0000000	0.0622379
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	5.2418600	0.0000000	0.0000000	0.0000000	0.0000000	0.1195910	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.5252460	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0187178	0.0000000	0.0000000	0.0000000	0.0000000	-0.0439811
Cobalt	228.62	0.0000000	0.0000000	0.1238430	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.2279050	-0.0318969	0.0000000	-0.0695283
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.6163900	0.0000000	0.0000000
Lead	220.35	-0.1778670	0.0000000	0.0000000	0.0000000	-0.0252598	0.0000000	0.0000000	-2.3072100	1.2452600	0.0570036
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.1525560	0.0000000	-1.6380600	-1.2519300	0.0000000	0.6727000
Manganese	257.61	0.0051426	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.0048944
Molybdenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0228298	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0634207	0.0000000	0.3514040	0.0000000	0.0000000	0.0000000
Silicon	288.16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.4885200	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	6.5805300	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0678735	0.0000000	1.7836600	0.3510820	0.0000000	-0.1294840
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	-0.1147000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.0000000	0.0000000	0.1641450	0.0000000	0.0000000	0.1632010	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.9361800	0.0000000	0.1100040
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.1475900	0.0000000	0.0000000

TL76 - 0001 03

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

IEC DATE: 9/7/2011

SDG: TL76

INSTRUMENT ID: OPTIMA ICP 2

ANALYTE	WAVELENGTH	MG	MN	MO	NI	PB	SB	TI	TL	V	ZN
Aluminum	308.22	0.0000000	0.0000000	15.3131000	0.0000000	0.0000000	0.0000000	1.5167500	0.0000000	17.6996000	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	-0.4730780	0.0000000	0.0000000	-0.8897510	0.0000000	-3.3546800	0.0000000
Arsenic	188.98	0.0000000	0.0000000	2.3330800	0.0000000	0.0000000	0.0000000	-5.4412000	0.0000000	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0766262	0.0000000	0.0000000	0.0000000	0.0000000	0.6419380	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.2960780	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	-0.7324130	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0581570	0.0000000	0.1395070	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.2773470	0.0000000
Cobalt	228.62	0.0000000	0.0000000	-0.1579570	0.1588330	0.0000000	0.0000000	1.8115900	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0080384	0.0000000	0.2688440	0.0000000	0.0000000	0.0000000	0.2461180	0.0000000	0.0000000	0.0000000
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	8.4403600	0.0000000
Lead	220.35	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	279.08	0.0000000	0.0000000	-4.6256200	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0048376	0.0000000	0.0000000	0.0000000	-0.2175850	0.0000000	0.0000000	0.0000000	-0.0271775	0.0000000
Molybdenum	202.03	0.0148620	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.7744280	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0735290	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silicon	288.16	-0.1460000	0.0000000	-2.7358100	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.2442620	0.2419260	0.0000000	0.0000000	0.0000000	-0.0470302	0.0000000	-0.2758080	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	242.4230000	0.0000000	0.0000000	318.1570000
Thallium	190.80	0.0000000	-1.4179000	1.9562000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	1.2892100	0.0000000
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.5848020	-0.3044710	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.9873960	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	-0.1398510	-0.6804250	0.0000000	0.0000000	0.0000000	0.6004670	0.0000000	0.0000000	0.0000000
Zinc	206.20	0.0000000	0.0000000	0.2377960	0.0000000	-0.0708227	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

TL76 : 091691

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL76

ANALYSIS METHOD: ICP

ARI PREP CODE: TWC

PREPDATE: 9/15/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090911-001	TL76A	0.000	50.0	50.0
FRP-090911-003	TL76B	0.000	50.0	50.0
FRP-090911-004	TL76C	0.000	50.0	50.0
FRP-090911-005	TL76D	0.000	50.0	50.0
FRP-090911-006	TL76E	0.000	50.0	50.0
FRP-090911-007	TL76F	0.000	50.0	50.0
FRP-090911-002	TL76G	0.000	50.0	50.0
FRP-090911-002D	TL76GDUP	0.000	50.0	50.0
FRP-090911-002S	TL76GSPK	0.000	50.0	50.0
FRP-090911-002	TL76I	0.000	50.0	50.0
PBW	TL76MB1	0.000	50.0	50.0
LCSW	TL76MB1SPK	0.000	50.0	50.0
PBW	TL76MB2	0.000	50.0	50.0
LCSW	TL76MB2SPK	0.000	50.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL76

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 9/15/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090911-001	TL76A	0.000	50.0	25.0
FRP-090911-003	TL76B	0.000	50.0	25.0
FRP-090911-004	TL76C	0.000	50.0	25.0
FRP-090911-005	TL76D	0.000	50.0	25.0
FRP-090911-006	TL76E	0.000	50.0	25.0
FRP-090911-007	TL76F	0.000	50.0	25.0
FRP-090911-002	TL76G	0.000	50.0	25.0
FRP-090911-002D	TL76GDUP	0.000	50.0	25.0
FRP-090911-002S	TL76GSPK	0.000	50.0	25.0
PBW	TL76MB1	0.000	50.0	25.0
LCSW	TL76MB1SPK	0.000	50.0	25.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/20/2011

SDG: TL76 RUNID: IP092071 METHOD: ICP END DATE: 9/20/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	11261			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
S2	S2	1.00	11302									X		X	X					X												X	
S3	S3	1.00	11320																				X			X				X			X
S4	S4	1.00	11343																								X						
S5	S5	1.00	11364			X					X					X		X	X			X											
ICV	ICV	1.00	11385			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICB	ICB	1.00	11423			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CRI	CRII	1.00	11464			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSA	ICSAI	1.00	11505			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSAB	ICSABI	1.00	11551			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCV	CCV1	1.00	11585			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB1	1.00	12023			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	TM64MB2	5.00	12064																														
ZZZZZZ	TM50MB2	5.00	12111																														
ZZZZZZ	TM50Bt	5.00	12154																														
ZZZZZZ	TM50AtDUP	5.00	12200																														
ZZZZZZ	TM50At	5.00	12241																														
ZZZZZZ	TM50AtSPK	5.00	12282																														
ZZZZZZ	TM64B	5.00	12324																														
ZZZZZZ	TM64AtDUP	5.00	12365																														
ZZZZZZ	TM64At	5.00	12410																														
ZZZZZZ	TM64AtSPK	5.00	12452																														
CCV	CCV2	1.00	12493			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB2	1.00	12532			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	DICHECK	1.00	12573																														
ZZZZZZ	TM02MB1	2.00	13014																														
FRP-090911-001	TL76A	1.00	13055			X						X		X	X								X			X				X		X	X
FRP-090911-003	TL76B	1.00	13101																														
FRP-090911-004	TL76C	1.00	13142																														
FRP-090911-005	TL76D	1.00	13182			X						X		X	X								X			X				X		X	X
ZZZZZZ	TM02ADUP	2.00	13225																														
ZZZZZZ	TM02A	5.00	13290																														
ZZZZZZ	TM02ASPK	5.00	13330																														
ZZZZZZ	TM02MB1SPK	2.00	13364																														
CCV	CCV3	1.00	13404			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X

FORM XIV

TL76.001027

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/20/2011

SDG: TL76 RUNID: IP092071 METHOD: ICP END DATE: 9/20/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CCB	CCB3	1.00	13442			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
PBW	TL76MB1	1.00	13483			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
PBW	TL76MB2	1.00	13524																								X						
FRP-090911-002L	TL76G-L	5.00	13565			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-090911-002	TL76G	1.00	14013			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-090911-002D	TL76GDUP	1.00	14052			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-090911-002S	TL76GSPK	1.00	14092			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-090911-006	TL76E	1.00	14124			X						X		X	X								X			X				X		X	X
FRP-090911-007	TL76F	1.00	14170			X						X		X	X								X			X				X		X	X
LCSW	TL76MB1SPK	1.00	14212			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
LCSW	TL76MB2SPK	1.00	14251																								X						
CCV	CCV4	1.00	14292			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB4	1.00	14331			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	ZZZZZZ	5.00	14372																														
ZZZZZZ	TL89A	1.00	14413																														
ZZZZZZ	TL89ADUP	1.00	14455																														
ZZZZZZ	TL89ASPK	1.00	14501																														
ZZZZZZ	TL89B	1.00	14542																														
ZZZZZZ	TL89C	1.00	14585																														
ZZZZZZ	TL89D	1.00	15030																														
ZZZZZZ	TL89F	1.00	15073																														
FRP-090911-002	TL76I	1.00	15120																								X						
ZZZZZZ	TL89MB1SPK	1.00	15160																														
CCV	CCV5	1.00	15195			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB5	1.00	15234			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	TL89MB1	1.00	15275																														
ZZZZZZ	TL89MB2	1.00	15320																														
ZZZZZZ	TL89MB3	1.00	15361																														
ZZZZZZ	TL89G	1.00	15403																														
FRP-090911-003	TL76B	2.00	15445			X						X		X	X								X			X				X		X	X
FRP-090911-004	TL76C	5.00	15485			X						X		X	X								X			X				X		X	X
ZZZZZZ	TM02ADUP	5.00	15531																														
ZZZZZZ	TL89MB2SPK	1.00	15571																														
ZZZZZZ	TL89MB3SPK	1.00	16011																														
CCV	CCV6	1.00	16052			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X

FORM XIV

TL76:00198 2

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/20/2011

SDG: TL76 RUNID: IP092071 METHOD: ICP END DATE: 9/20/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CCB	CCB6	1.00	16090			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CRI	CRIF	1.00	16131			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSA	ICSAF	1.00	16173			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSAB	ICSABF	1.00	16214			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCV	CCV7	1.00	16252			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB7	1.00	16291			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X

TL76 : 021165

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/20/2011

SDG: TL76 RUNID: MS092081 METHOD: PMS END DATE: 9/20/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	09290				X																	X									
S1	S1	1.00	09360				X																	X									
S2	S2	1.00	09440				X																	X									
S3	S3	1.00	09520				X																	X									
S4	S4	1.00	10000				X																	X									
ZZZZZZ	Rinse Sampl	1.00	10070																														
ICV	MICV	1.00	10220				X																	X									
ICB	ICB	1.00	10290				X																	X									
CCV	MCCV1	1.00	10360				X																	X									
CCB	CCB1	1.00	10440				X																	X									
CRI	MCRI	1.00	10510				X																	X									
ICSA	ICSA1	1.00	10580				X																	X									
ICSAB	ICSABI	1.00	11060				X																	X									
ZZZZZZ	LR200	1.00	11130																														
ZZZZZZ	LR300	1.00	11200																														
CCV	MCCV2	1.00	11280				X																	X									
CCB	CCB2	1.00	11350				X																	X									
ZZZZZZ	TM19MB	10.00	11420																														
ZZZZZZ	TM75MB	2.00	11490																														
ZZZZZZ	TM75MBSPK	2.00	11560																														
ZZZZZZ	TM19ADUP	10.00	12020																														
ZZZZZZ	TM19A	10.00	12090																														
ZZZZZZ	TM19ASPK	20.00	12150																														
ZZZZZZ	TL50O	2.00	12220																														
ZZZZZZ	TL50R	2.00	12280																														
ZZZZZZ	TM75A	2.00	12350																														
ZZZZZZ	TL50ASPK	20.00	12420																														
CCV	MCCV3	1.00	12480				X																	X									
CCB	CCB3	1.00	12550				X																	X									
ZZZZZZ	TM66MB	10.00	13030																														
ZZZZZZ	TM66AaDUP	10.00	13090																														
ZZZZZZ	TM66Aa	10.00	13160																														
ZZZZZZ	TM66AaSPK	20.00	13220																														
ZZZZZZ	TM73B	20.00	13340																														
ZZZZZZ	TM73B	20.00	13420																														

FORM XIV

TL76 : 0013100

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 9/20/2011

SDG: TL76 | RUNID: MS092081 METHOD: PMS | END DATE: 9/20/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TM57B	20.00	13530																														
CCV	MCCV4	1.00	13590				X																	X									
CCB	CCB4	1.00	14060				X																	X									
ZZZZZZ	TL50MB2	2.00	14140																														
ZZZZZZ	TL50MB2SPK	2.00	14200																														
ZZZZZZ	TL50N-L	10.00	14270																														
ZZZZZZ	TL50N	2.00	14330																														
ZZZZZZ	TL50NDUP	2.00	14400																														
ZZZZZZ	TL50NSPK	2.00	14460																														
ZZZZZZ	TL84BDUP	20.00	14530																														
ZZZZZZ	TL84B	20.00	14590																														
ZZZZZZ	TL84BSPK	20.00	15060																														
ZZZZZZ	TL84A	20.00	15130																														
CCV	MCCV5	1.00	15190				X																	X									
CCB	CCB5	1.00	15260				X																	X									
S0	S0	1.00	15340				X																	X									
CCV	MCCV6	1.00	15420				X																	X									
CCB	CCB6	1.00	15490				X																	X									
ZZZZZZ	TL84MB	20.00	15560																														
ZZZZZZ	TL84MBSPK	20.00	16030																														
ZZZZZZ	TL50P	2.00	16090																														
ZZZZZZ	TL50Q	2.00	16160																														
ZZZZZZ	TL84C	20.00	16220																														
ZZZZZZ	TL84D	20.00	16290																														
ZZZZZZ	TL84E	20.00	16350																														
ZZZZZZ	TL84F	20.00	16420																														
FRP-090911-005	TL76D	2.00	16480				X																	X									
FRP-090911-006	TL76E	2.00	16550				X																	X									
CCV	MCCV7	1.00	17010				X																	X									
CCB	CCB7	1.00	17090				X																	X									
PBW	TL76MB1	2.00	17160																					X									
LCSW	TL76MB1SPK	2.00	17220																					X									
ZZZZZZ	ZZZZZZ	10.00	17290																														
FRP-090911-002	TL76G	2.00	17360																														
FRP-090911-002D	TL76GDUP	2.00	17420																														

FORM XIV

TL76:001117

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/20/2011

SDG: TL76 RUNID: MS092081 METHOD: PMS END DATE: 9/20/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-090911-002S	TL76GSPK	2.00	17490																														
FRP-090911-001	TL76A	2.00	17550																					X									
FRP-090911-003	TL76B	2.00	18020																														
FRP-090911-004	TL76C	2.00	18080																														
FRP-090911-007	TL76F	2.00	18150																					X									
CCV	MCCV8	1.00	18210				X																	X									
CCB	CCB8	1.00	18290				X																	X									

FORM XIV

TL76 : 081127

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 9/21/2011

SDG: TL76 | RUNID: MS092182 METHOD: PMS | END DATE: 9/21/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	10212				X																	X									
S1	S1	1.00	10298				X																	X									
S2	S2	1.00	10376				X																	X									
S3	S3	1.00	10475				X																	X									
S4	S4	1.00	10561				X																	X									
S4	S4	1.00	11145				X																	X									
ICV	MICV	1.00	11311				X																	X									
ICB	ICB	1.00	11396				X																	X									
CCV	MCCV1	1.00	11468				X																	X									
CCB	CCB1	1.00	11541				X																	X									
CRI	MCRI	1.00	12012				X																	X									
ZZZZZZ	ZZZZZZ	1.00	12088																														
ICSA	ICSAI	1.00	12245				X																	X									
ICSAB	ICSABI	1.00	12317				X																	X									
ZZZZZZ	LR200	1.00	12397																														
ZZZZZZ	LR300	1.00	12465																														
CCV	MCCV2	1.00	12546				X																	X									
CCB	CCB2	1.00	13019				X																	X									
ZZZZZZ	TN02MB1	20.00	13081																														
ZZZZZZ	TN02MB1SPK	20.00	13164																														
ZZZZZZ	TN02C-L	100.00	13227																														
ZZZZZZ	TN02C	20.00	13290																														
ZZZZZZ	TN02DUP	20.00	13354																														
ZZZZZZ	TN02CSPK	20.00	13428																														
ZZZZZZ	TN02CPOST	20.00	13483																														
ZZZZZZ	TN02A	20.00	13558																														
ZZZZZZ	TN02B	20.00	14024																														
ZZZZZZ	TN02D	20.00	14080																														
CCV	MCCV3	1.00	14155				X																	X									
CCB	CCB3	1.00	14228				X																	X									
ZZZZZZ	TN02MB1	20.00	14291																														
ZZZZZZ	TN02E	20.00	14368																														
ZZZZZZ	TN02F	20.00	14422																														
ZZZZZZ	TN02G	20.00	14492																														
ZZZZZZ	TN02A	20.00	14553																														

FORM XIV

TL76 : 00118

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/21/2011

SDG: TL76 RUNID: MS092182 METHOD: PMS END DATE: 9/21/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TN02G	100.00	15024																														
CCV	MCCV4	1.00	15086				X																	X									
CCB	CCB4	1.00	15169				X																	X									
ZZZZZZ	TL84MBSPK	20.00	15312																														
ZZZZZZ	ZZZZZZ	25.00	15384																														
ZZZZZZ	TL50N	5.00	15449																														
ZZZZZZ	TL50NDUP	5.00	15513																														
ZZZZZZ	TL50NSPK	5.00	15576																														
ZZZZZZ	TL84BDUP	50.00	16041																														
ZZZZZZ	TL84B	50.00	16116																														
ZZZZZZ	TL84BSPK	50.00	16171																														
ZZZZZZ	TL84A	50.00	16247																														
ZZZZZZ	TL84C	50.00	16303																														
CCV	MCCV5	1.00	16379				X																	X									
CCB	CCB5	1.00	16442				X																	X									
ZZZZZZ	TL92MB1	20.00	16516																														
ZZZZZZ	TL92MB1SPK	20.00	16584																														
ZZZZZZ	TL94A	2.00	17057																														
ZZZZZZ	TL94B	2.00	17117																														
ZZZZZZ	TL89B	5.00	17188																														
ZZZZZZ	TL89C	2.00	17249																														
ZZZZZZ	TL92A	20.00	17311																														
ZZZZZZ	TL92C	20.00	17379																														
ZZZZZZ	TL84D	50.00	17441																														
ZZZZZZ	TL84E	50.00	17504																														
CCV	MCCV6	1.00	17578				X																	X									
CCB	CCB6	1.00	18041				X																	X									
ZZZZZZ	TM01MB1	20.00	18114																														
ZZZZZZ	TM01MB1SPK	20.00	18188																														
ZZZZZZ	TM01ADUP	20.00	18243																														
ZZZZZZ	TM01A	20.00	18318																														
ZZZZZZ	TM01ASPK	20.00	18383																														
ZZZZZZ	ZZZZZZ	20.00	18449																														
ZZZZZZ	TM01B	20.00	18516																														
ZZZZZZ	TM01C	20.00	18579																														

FORM XIV

TL76:001142

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 9/21/2011

SDG: TL76 | RUNID: MS092182 METHOD: PMS | END DATE: 9/21/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TM01D	20.00	19048																														
ZZZZZZ	TM01E	20.00	19108																														
CCV	MCCV7	1.00	19171				X																	X									
CCB	CCB7	1.00	19244				X																	X									
ZZZZZZ	TM06MB1	2.00	19315																														
ZZZZZZ	TM06MB1SPK	2.00	19381																														
ZZZZZZ	TM06A-L	10.00	19443																														
ZZZZZZ	TM06A	2.00	19515																														
ZZZZZZ	TM06ADUP	2.00	19577																														
ZZZZZZ	TM06ASPK	2.00	20040																														
ZZZZZZ	TM06F-L	10.00	20104																														
ZZZZZZ	TM06F	2.00	20178																														
ZZZZZZ	TM06FDUP	2.00	20242																														
ZZZZZZ	TM06FSPK	2.00	20307																														
CCV	MCCV8	1.00	20372				X																	X									
CCB	CCB8	1.00	20444				X																	X									
ZZZZZZ	TM06MB2	2.00	20518																														
ZZZZZZ	TM06MB2SPK	2.00	20584																														
ZZZZZZ	TM06B	2.00	21040																														
ZZZZZZ	TM06C	2.00	21113																														
ZZZZZZ	TM06D	2.00	21172																														
ZZZZZZ	TM06E	2.00	21242																														
ZZZZZZ	TM06G	2.00	21302																														
ZZZZZZ	TM06H	2.00	21378																														
ZZZZZZ	TM06I	2.00	21439																														
ZZZZZZ	TM06J	2.00	21501																														
CCV	MCCV9	1.00	21563				X																	X									
CCB	CCB9	1.00	22046				X																	X									
PBW	TL76MB1	2.00	22118				X																										
LCSW	TL76MB1SPK	2.00	22170				X																										
FRP-090911-007	TL76F	2.00	22243				X																										
FRP-090911-001	TL76A	5.00	22306																														
FRP-090911-002L	TL76G-L	50.00	22370																														
FRP-090911-002	TL76G	10.00	22445																					X									
FRP-090911-002D	TL76GDUP	10.00	22509																					X									

FORM XIV

TL76 : 0811150

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

INSTRUMENT ID: PE ELAN 6000 MS

START DATE: 9/21/2011

SDG: TL76

RUNID: MS092182 METHOD: PMS

END DATE: 9/21/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-090911-002S	TL76GSPK	10.00	22575																					X									
FRP-090911-003	TL76B	20.00	23037																					X									
FRP-090911-004	TL76C	20.00	23105																					X									
CCV	MCCV10	1.00	23166				X																	X									
CCB	CCB10	1.00	23239				X																	X									

TL76.00116

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 9/29/2011

SDG: TL76 | RUNID: MS092981 METHOD: PMS | END DATE: 9/29/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	09090				X																										
S1	S1	1.00	09150				X																										
S2	S2	1.00	09220				X																										
S3	S3	1.00	09290				X																										
S4	S4	1.00	09350				X																										
ZZZZZZ	Rinse Sampl	1.00	09430																														
ICV	MICV	1.00	09510				X																										
ICB	ICB	1.00	09590				X																										
CCV	MCCV1	1.00	10050				X																										
CCB	CCB1	1.00	10120				X																										
CRI	MCRI	1.00	10180				X																										
ICSA	ICSAI	1.00	10250				X																										
ICSAB	ICSABI	1.00	10320				X																										
ZZZZZZ	LR200	1.00	10390																														
ZZZZZZ	LR300	1.00	10440																														
CCV	MCCV2	1.00	10510				X																										
CCB	CCB2	1.00	10590				X																										
ZZZZZZ	TN22MB1	20.00	11080																														
ZZZZZZ	TN22MB1SPK	20.00	11140																														
ZZZZZZ	TL50N-L	25.00	11200																														
ZZZZZZ	TL50N	5.00	11270																														
ZZZZZZ	TN22A-L	100.00	11340																														
ZZZZZZ	TN22A	20.00	11400																														
ZZZZZZ	TN22ADUP	20.00	11470																														
ZZZZZZ	TN22ASPK	20.00	11540																														
ZZZZZZ	ZZZZZZ	20.00	12000																														
ZZZZZZ	TN22B	20.00	12070																														
CCV	MCCV3	1.00	12130				X																										
CCB	CCB3	1.00	12210				X																										
ZZZZZZ	TN44MB1	20.00	12290																														
ZZZZZZ	TN39MB1	20.00	12460																														
ZZZZZZ	TN39MB1SPK	20.00	12520																														
ZZZZZZ	TN39REF1	50.00	12590																														
ZZZZZZ	TN39ADUP	20.00	13060																														
ZZZZZZ	TN39A	20.00	13120																														

FORM XIV

TL76.001.17

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/29/2011

SDG: TL76 RUNID: MS092981 METHOD: PMS END DATE: 9/29/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TN39ASPK	20.00	13190																														
ZZZZZZ	TN39REF1	50.00	13260																														
ZZZZZZ	TN39B	20.00	13320																														
ZZZZZZ	TM01D	50.00	13390																														
CCV	MCCV4	1.00	13450				X																										
CCB	CCB4	1.00	13530				X																										
ZZZZZZ	TN44MB1SPK	20.00	14010																														
ZZZZZZ	TN44ADUP	20.00	14080																														
ZZZZZZ	TN44A	20.00	14150																														
ZZZZZZ	TN44ASPK	20.00	14210																														
ZZZZZZ	TN44APOST	20.00	14280																														
ZZZZZZ	TN44B	20.00	14340																														
ZZZZZZ	TN44C	20.00	14410																														
ZZZZZZ	TN44D	20.00	14480																														
ZZZZZZ	TN44E	20.00	14540																														
ZZZZZZ	TN44F	20.00	15010																														
CCV	MCCV5	1.00	15080				X																										
CCB	CCB5	1.00	15150				X																										
ZZZZZZ	TN71MB1	2.00	15540																														
ZZZZZZ	TN71MB2	2.00	16010																														
ZZZZZZ	TN88MB	20.00	16070																														
ZZZZZZ	TN88MBSPK	20.00	16130																														
ZZZZZZ	TN71MB1SPK	2.00	16200																														
ZZZZZZ	TN71MB2SPK	2.00	16270																														
ZZZZZZ	TN71A	2.00	16330																														
ZZZZZZ	TN71B	2.00	16400																														
ZZZZZZ	TN88A	20.00	16460																														
ZZZZZZ	TL92A	20.00	16530																														
CCV	MCCV6	1.00	17000				X																										
CCB	CCB6	1.00	17070				X																										
ZZZZZZ	TL92MB1	20.00	17130																														
ZZZZZZ	TM09MB1	2.00	17190																														
ZZZZZZ	TM09MB1SPK	2.00	17250																														
FRP-090911-001	TL76A	5.00	17320				X																										
FRP-090911-002L	TL76G-L	50.00	17390				X																	X									

FORM XIV

TL76S:001182

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/29/2011

SDG: TL76 RUNID: MS092981 METHOD: PMS END DATE: 9/29/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-090911-002	TL76G	10.00	17450				X																										
FRP-090911-002D	TL76GDUP	10.00	17520				X																										
FRP-090911-002S	TL76GSPK	10.00	17590				X																										
ZZZZZZ	TM09A	2.00	18050																														
ZZZZZZ	TM09B	2.00	18120																														
CCV	MCCV7	1.00	18180				X																										
CCB	CCB7	1.00	18260				X																										
ZZZZZZ	TM07MB1	2.00	18320																														
ZZZZZZ	TM07MB1SPK	2.00	18380																														
ZZZZZZ	TM07B-L	25.00	18450																														
ZZZZZZ	TM07B	5.00	18510																														
ZZZZZZ	TM07BDUP	5.00	18580																														
ZZZZZZ	TM07BSPK	5.00	19040																														
ZZZZZZ	TM07A	5.00	19110																														
ZZZZZZ	TM07J	5.00	19180																														
FRP-090911-003	TL76B	20.00	19240				X																										
FRP-090911-004	TL76C	20.00	19310				X																										
CCV	MCCV8	1.00	19380				X																										
CCB	CCB8	1.00	19450				X																										

TL76:081192

Mercury Analysis
Report and Summary QC Forms

ARI Job ID: TL76, TL77

TL76 : 00120

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL77

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-090911-001	TL77A	11-19768	
FRP-090911-001D	TL77ADUP	11-19768	
FRP-090911-001S	TL77ASPK	11-19768	
FRP-090911-002	TL77B	11-19769	
PBW	TL77MB1	11-19769	
LCSW	TL77MB1SPK	11-19769	
FRP-090911-003	TL77C	11-19770	
FRP-090911-004	TL77D	11-19771	
FRP-090911-005	TL77E	11-19772	
FRP-090911-006	TL77F	11-19773	
FRP-090911-007	TL77G	11-19774	

Were ICP interelement corrections applied ?	Yes/No	YES
Were ICP background corrections applied ?	Yes/No	YES
If yes - were raw data generated before application of background corrections ?	Yes/No	NO

Comments: _____

THIS DATA PACKAGE HAS BEEN REVIEWED AND AUTHORIZED FOR RELEASE BY:

Signature: _____ Name: Jay Kuhn

Date: 9/20/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 09/19/11
Date Received: 09/09/11
Page 1 of 1

QC Report No: TL77-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
FRP-090911-001 TL77A 11-19768	09/09/11	Water	09/14/11 09/19/11	20.0	91.8
FRP-090911-002 TL77B 11-19769	09/09/11	Water	09/14/11 09/19/11	20.0	932
FRP-090911-003 TL77C 11-19770	09/09/11	Water	09/14/11 09/19/11	40.0	1,030
FRP-090911-004 TL77D 11-19771	09/09/11	Water	09/14/11 09/19/11	100	2,700
FRP-090911-005 TL77E 11-19772	09/09/11	Water	09/14/11 09/19/11	20.0	101
FRP-090911-006 TL77F 11-19773	09/09/11	Water	09/14/11 09/19/11	20.0	97.1
FRP-090911-007 TL77G 11-19774	09/09/11	Water	09/14/11 09/19/11	20.0	20.0 U
MB-091411 Method Blank	NA	Water	09/14/11 09/19/11	20.0	20.0 U

Reported in ng/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-001
MATRIX SPIKE

Lab Sample ID: TL77A
LIMS ID: 11-19768
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL77-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	91.8	177	100	85.2%	

Reported in ng/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090911-001
DUPLICATE

Lab Sample ID: TL77A
LIMS ID: 11-19768
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL77-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	91.8	102	10.5%	+/- 20.0	L

Reported in ng/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TL77LCS
LIMS ID: 11-19769
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL77-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	181	200	90.5%	

Reported in ng/L

N-Control limit not met
Control Limits: 80-120%

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ng/L

SDG: TL77

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Mercury	HG	CVL	HG091901	500.0	502.00	100.4	500.0	502.00	100.4	503.00	100.6	500.00	100.0	504.00	100.8	500.00	100.0

Control Limits: Mercury 80-120; Other Metals 90-110

TL78:062120

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ng/L

SDG: TL77

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Mercury	HG	CVL	HG091901	500.0	502.00	100.4										

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TL78.00127

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ng/L

SDG: TL77

ANALYTE	EL	M	RUN	CRA/I TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Mercury	HG	CVL	HG091901	20.0	15.00	75.0										

Control Limits: no control limits have been established by the EPA at this time.

FORM II (2)

TL 15 . 00128

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ng/L

SDG: TL77

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Mercury	HG	CVL	HG091901	25.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U

TL77.00125

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL77

UNITS:ng/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Mercury	HG	CVL	HG091901	25.0	20.0	20.0	U										

TL77 : 00139

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TL77

UNITS: ng/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ng/L)	ICP LR DATE
Mercury	HG	CVL	CETAC MERCURY	253.70		25	20.0	4/1/2011		

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ANALYSIS METHOD: CVL

PROJECT: FRP 2011 Shoreline I

ARI PREP CODE: TLM

SDG: TL77

PREPDATE: 9/14/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090911-001	TL77A	0.000	20.0	20.0
FRP-090911-001D	TL77ADUP	0.000	20.0	20.0
FRP-090911-001S	TL77ASPK	0.000	20.0	20.0
FRP-090911-002	TL77B	0.000	20.0	20.0
FRP-090911-003	TL77C	0.000	20.0	20.0
FRP-090911-004	TL77D	0.000	20.0	20.0
FRP-090911-005	TL77E	0.000	20.0	20.0
FRP-090911-006	TL77F	0.000	20.0	20.0
FRP-090911-007	TL77G	0.000	20.0	20.0
PBW	TL77MB1	0.000	20.0	20.0
LCSW	TL77MB1SPK	0.000	20.0	20.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/19/2011

SDG: TL77 RUNID: HG091901 METHOD: CVL END DATE: 9/19/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	10113														X																
S20	S20	1.00	10142														X																
S50	S50	1.00	10170														X																
S100	S100	1.00	10194														X																
S200	S200	1.00	10222														X																
S400	S400	1.00	10250														X																
S1000	S1000	1.00	10275														X																
ICV	AICV	1.00	10321														X																
ICB	ICB	1.00	10345														X																
CCV	ACCV1	1.00	10373														X																
CCB	CCB1	1.00	10401														X																
CRA	CRA	1.00	10430														X																
ZZZZZZ	TL28MB1	1.00	10454																														
ZZZZZZ	TL28MB1SPK	1.00	10482																														
ZZZZZZ	TL28A	1.00	10510																														
ZZZZZZ	TL28ADUP	1.00	10534																														
ZZZZZZ	TL28ASPK	1.00	10562																														
ZZZZZZ	TL56MB1	1.00	10590																														
ZZZZZZ	TL56MB1SPK	1.00	11015																														
ZZZZZZ	TL56A	1.00	11043																														
ZZZZZZ	TL56B	1.00	11071																														
CCV	ACCV2	1.00	11100														X																
CCB	CCB2	1.00	11124														X																
ZZZZZZ	TL56C	1.00	11152																														
ZZZZZZ	TL56D	1.00	11180																														
ZZZZZZ	TL56E	1.00	11204																														
PBW	TL77MB1	1.00	11233														X																
LCSW	TL77MB1SPK	1.00	11261														X																
FRP-090911-001	TL77A	1.00	11285														X																
FRP-090911-001D	TL77ADUP	1.00	11313														X																
FRP-090911-001S	TL77ASPK	1.00	11341														X																
FRP-090911-002	TL77B	1.00	11365														X																
FRP-090911-003	TL77C	1.00	11394																														
CCV	ACCV3	1.00	11422														X																
CCB	CCB3	1.00	11451														X																

FORM XIV

TL76:001193

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/19/2011

SDG: TL77 RUNID: HG091901 METHOD: CVL END DATE: 9/19/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-090911-004	TL77D	1.00	11475																														
FRP-090911-005	TL77E	1.00	11511														X																
FRP-090911-006	TL77F	1.00	11535														X																
FRP-090911-007	TL77G	1.00	11563														X																
ZZZZZZ	TL90MB1	1.00	11591																														
ZZZZZZ	TL90MB1SPK	1.00	12015																														
ZZZZZZ	TL90A	1.00	12044																														
ZZZZZZ	TL90ADUP	1.00	12072																														
ZZZZZZ	TL90ASPK	1.00	12100																														
ZZZZZZ	TL90B	1.00	12124																														
CCV	ACCV4	1.00	12153														X																
CCB	CCB4	1.00	12181														X																
ZZZZZZ	TL90C	1.00	12210																														
ZZZZZZ	TL90D	1.00	12234																														
CCV	ACCV5	1.00	12262														X																
CCB	CCB5	1.00	12291														X																
FRP-090911-003	TL77C	2.00	12320														X																
FRP-090911-004	TL77D	5.00	12344														X																
ZZZZZZ	TL90A	1.00	12372																														
ZZZZZZ	TL90ADUP	1.00	12400																														
ZZZZZZ	TL90ASPK	1.00	12425																														
CCV	ACCV6	1.00	12453														X																
CCB	CCB6	1.00	12481														X																

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: TL76, TL77

SAMPLE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Client ID: FRP-090911-001
ARI ID: 11-19760 TL76A

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/09/11 090911#1	EPA 150.1	std units	0.01	9.97

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Client ID: FRP-090911-003
ARI ID: 11-19761 TL76B

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/09/11 090911#1	EPA 150.1	std units	0.01	7.36

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Client ID: FRP-090911-004
ARI ID: 11-19762 TL76C

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/09/11 090911#1	EPA 150.1	std units	0.01	7.87

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Client ID: FRP-090911-005
ARI ID: 11-19763 TL76D

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/09/11 090911#1	EPA 150.1	std units	0.01	8.15

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Client ID: FRP-090911-006
ARI ID: 11-19764 TL76E

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/09/11 090911#1	EPA 150.1	std units	0.01	8.08

RL Analytical reporting limit
U Undetected at reported detection limit

TL76 : 00139

SAMPLE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Client ID: FRP-090911-007
ARI ID: 11-19765 TL76F

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/09/11 090911#1	EPA 150.1	std units	0.01	6.33

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Client ID: FRP-090911-002
ARI ID: 11-19766 TL76G

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/09/11 090911#1	EPA 150.1	std units	0.01	8.72
Alkalinity	09/19/11 091911#1	SM 2320	mg/L CaCO3	1.0	970
Carbonate	09/19/11	SM 2320	mg/L CaCO3	1.0	154
Bicarbonate	09/19/11	SM 2320	mg/L CaCO3	1.0	816
Hydroxide	09/19/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Chloride	09/13/11 091311#1	EPA 300.0	mg/L	200	5,770
N-Nitrate	09/09/11 090911#1	EPA 300.0	mg-N/L	1.0	< 1.0 U
Ortho-Phosphorous	09/09/11 090911#1	EPA 300.0	mg-P/L	1.0	7.9
N-Ammonia	09/20/11 092011#1	EPA 350.1M	mg-N/L	0.200	8.93
Sulfate	09/10/11 091011#1	EPA 300.0	mg/L	20.0	341
Sulfide	09/16/11 091611#1	EPA 376.2	mg/L	0.714	6.23

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: TL76G Client ID: FRP-090911-002							
N-Nitrate	EPA 300.0	09/09/11	mg-N/L	< 1.0	19.0	20.0	95.0%
Ortho-Phosphorous	EPA 300.0	09/09/11	mg-P/L	7.9	26.5	20.0	93.0%
N-Ammonia	EPA 350.1M	09/20/11	mg-N/L	8.93	35.1	25.0	104.7%

REPLICATE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/09/11
Date Received: 09/09/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TL76A Client ID: FRP-090911-001						
pH	EPA 150.1	09/09/11	std units	9.97	9.97	0.00
ARI ID: TL76G Client ID: FRP-090911-002						
Alkalinity	SM 2320	09/19/11	mg/L CaCO3	970	972	0.2%
Carbonate	SM 2320	09/19/11	mg/L CaCO3	154	148	4.0%
Bicarbonate	SM 2320	09/19/11	mg/L CaCO3	816	825	1.1%
Hydroxide	SM 2320	09/19/11	mg/L CaCO3	< 1.0	< 1.0	NA
Chloride	EPA 300.0	09/13/11	mg/L	5,770	5,760	0.2%
N-Nitrate	EPA 300.0	09/09/11	mg-N/L	< 1.0	< 1.0	NA
Ortho-Phosphorous	EPA 300.0	09/09/11	mg-P/L	7.9	7.9	0.0%
N-Ammonia	EPA 350.1M	09/20/11	mg-N/L	8.93	9.21	3.1%
Sulfate	EPA 300.0	09/10/11	mg/L	341	342	0.3%

pH is evaluated as the Absolute Difference between the values rather than Relative Percent Difference

LAB CONTROL RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
pH EPA 150.1	ICVL	09/09/11	std units	7.03	7.00	0.03
Sulfide EPA 376.2	ICVL PREP	09/16/11 09/16/11	mg/L	0.525 6.11	0.500 6.51	105.0% 93.9%

pH is evaluated as the Absolute Difference between the values rather than Percent Recovery.

METHOD BLANK RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Chloride	EPA 300.0	09/13/11	mg/L	< 0.1 U	
N-Nitrate	EPA 300.0	09/09/11	mg-N/L	< 0.1 U	
Ortho-Phosphorous	EPA 300.0	09/09/11	mg-P/L	< 0.1 U	
N-Ammonia	EPA 350.1M	09/20/11	mg-N/L	< 0.010 U	FB
Sulfate	EPA 300.0	09/10/11	mg/L	< 0.1 U	
Sulfide	EPA 376.2	09/16/11	mg/L	< 0.050 U	
		09/16/11		< 0.050 U	

FB Filtration Blank

STANDARD REFERENCE RESULTS-CONVENTIONALS
TL76-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/23/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Alkalinity ERA #P114506	SM 2320	09/19/11	mg/L CaCO3	49.9	49.2	101.4%
Chloride ERA #230109	EPA 300.0	09/13/11	mg/L	2.8	3.0	93.3%
N-Nitrate ERA #09127	EPA 300.0	09/09/11	mg-N/L	2.9	3.0	96.7%
Ortho-Phosphorous EAR #210109	EPA 300.0	09/09/11	mg-P/L	3.0	3.0	100.0%
N-Ammonia ERA #15125	EPA 350.1M	09/20/11	mg-N/L	0.474	0.500	94.8%
Sulfate ERA #220109	EPA 300.0	09/10/11	mg/L	3.2	3.0	106.7%

Geotechnical Analysis
Report and Summary QC Forms

ARI Job ID: TL76, TL77

AMEC Geomatrix
FRP 2011 Shoreline Investigation

Density of Liquid According to ASTM D1298

Sample ID	Density (g/ml at 20°C)
DI BLANK	0.992
FRP-090911-002	0.994
FRP-090911-002	0.994
FRP-090911-002	0.994

TL76