Analytical Resources, Incorporated
Analytical Chemists and Consultants

AMEC E&E
Received
SEP 22 2011
SEATTLE ORG. 9009

September 20, 2011

John Long
AMEC/Geomatrix
600 University Suite 1020
Seattle, WA 98101

RE: Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Number: TL23, TL28

Dear John:

Please find enclosed the final data package for samples for the project referenced above. ARI received ten soil samples, one water sample and a trip blank on September 7, 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.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Enclosures

cc: file TL23_TL28

KFB/ bc

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

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Project: 8769 FRP 2011 Shoreline Investigation

AMEC E&E Received SEP 22 2011 SEATTLE ORG. 6009

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Signature

September-19-2011
Date

Chain of Custody Documentation

ARI Job ID: TL23, TL28

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: TL23	Turn-around Requested: STANDARD
ARI Client Company: AMEC	Phone: (206) 342-1773
Client Contact: JOHN LONG / NIK BACHER	
Client Project Name: FRP 2011 SHORELINE INVESTIGATION	
Client Project #: 8769	Samplers: TREVOR LOUVIERE, DEVIN O'REILLY

Page: 3 of 3

Date: 9/7/11 | Ice Present? Y

No. of Coolers: 3 | Cooler Temps: 3.5, 3.6, 2.3

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	Metals (Total) 6010B	Mercury (Total) 7471A	VOCs 8260C	PH 9045D	Mercury (Total) 7470A	PH EPA 150.1			Notes/Comments
FRP-090711-021	9/7/11	1105	SOIL	4	X	X	X	X					
FRP-090711-022		1315	SOIL	4	X	X	X	X					
FRP-090711-023		1320	SOIL	4	X	X	X	X					
FRP-090711-024		1325	SOIL	4	X	X	X	X					
FRP-090711-025		1330	SOIL	4	X	X	X	X					
FRP-090711-026		1335	SOIL	4	X	X	X	X					
FRP-090711-027		1340	SOIL	4	X	X	X	X					
FRP-090711-028		1345	SOIL	4	X	X	X	X					
FRP-090711-029		1350	SOIL	4	X	X	X	X					
FRP-090711-030		1355	SOIL	4	X	X	X	X					
FRP-090711-031		1445	H2O	2	X		X		X	X			
TRIP BLANK	9/7/11		H2O	2			X						

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
METALS INCLUDE: Al, As, Cd, Cr, Cu, Pb, Ni, Se, Th, V, Zn	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: Trevor Louviere	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
H2O VOCs NOT PRESERVED	Company: AMEC	Company: ARI	Company:	Company:
	Date & Time: 9/7/11 1520	Date & Time: 9/7/11 1520	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 Investigation

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____

Assigned ARI Job No: TL23

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)..... 5.5 3.6 2.3 ___ ___

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

Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 9/7/11 Time: 1520

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: BOX			
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	*	

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

Samples Logged by: AV Date: 9/8/11 Time: 750

*** 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:

TB=2pb *TB has no label, made day bottle order went out
FRB-090711-028 one Sodium vial has a blank label.

By: AV Date: 9/8/11

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm	
			Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

PRESERVATION VERIFICATION 09/08/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TL23**

Inquiry Number: NONE
Analysis Requested: 09/08/11
Contact: Long, John
Client: Amec Geomatrix Inc.
Logged by: AV
Sample Set Used: Yes-490
Validatable Package: yes
Deliverables:

PC: Kelly
VTSR: 09/07/11

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
11-19448 **TL23K**	FRP-090711-031						TOT															

TL23 : 000085

Checked By AV Date 9/8/11

PRESERVATION VERIFICATION 09/08/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TL28**

Inquiry Number: NONE
Analysis Requested: 09/08/11
Contact: Long, John
Client: Amec Geomatrix Inc.
Logged by: AV
Sample Set Used: Yes-490
Validatable Package: yes
Deliverables:

PC: Kelly
VTSR: 09/07/11

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
11-19450 **TL28A**	FRP-090711-031						TOT															

Checked By AV Date 9/8/11

TL28 : 090908

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: AMEC

Project Name: FRP 2011 Shoreline Investigation

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____

Assigned ARI Job No: TL28

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)..... 5.5 3.6 2.3 ___ ___ ___

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

Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 9/7/11 Time: 1520

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: BOX			
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)		

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

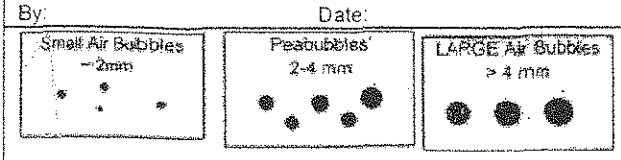
Samples Logged by: AV Date: 9/8/11 Time: 755

*** 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"

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: TL23, TL28

Case Narrative

AMEC/Geomatrix
Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Number: TL23, TL28
September 20, 2011

Sample Receipt:

Please find enclosed the original chain of custody (COC) record and analytical results for the project referenced above. Analytical Resources, Inc. accepted ten soil samples, one water sample and one trip blank in good condition on 9/7/11. Please see the enclosed Cooler Receipt Form for further details.

Volatiles by 8260C

The water sample was analyzed on 9/9/11 - within the method recommended holding time and the soil samples were analyzed on 9/13/11 and 9/14/11 - within the method recommended holding time.

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

Continuing calibration(s): The water 9/9/11 VOCs CCAL is out of control low for trans-1,4-dichloro-2-butene. All associated samples that contain this analyte have been flagged with a "Q" qualifier.

The soil 9/13/11 VOCs CCAL is out of control for 2-chloroethylvinylether (high), chloroethane (high), and bromomethane (low). All associated samples that contain these analytes have been flagged with a "Q" qualifier.

The soil 9/14/11 VOCs CCAL is out of control for 2-chloroethylvinylether (high), 1,1,2-trichloro-1,2,2-trifluoroethane (high), chloroethane (high), and bromomethane (low). All associated samples that contain these analytes have been flagged with a "Q" qualifier.

LCS/LCSD/RPDs: The 9/9/11 and 9/12/11 soil LCS(s) and LCSD(s) are out of control high for 2-chloroethylvinylether.

Surrogates: All surrogate recoveries were within control limits.

Method Blank (s): The soil method blank on 9/13/11 contained 1,2-dichlorobenzene. The soil method blank on 9/14/11 contained acetone and 1,2-dichlorobenzene. All associated samples that contain these analytes have been flagged with a "B" qualifier.

The soil method blank on 9/12/11 contained acetone. All associated samples that contain this analyte have been flagged with a "B" qualifier.

Samples: There were no anomalies associated with these samples.

Matrix spike/ Matrix spike duplicate/RPD(s): The matrix spike recovery of bromomethane is out of control low. The matrix spike and matrix spike duplicate recoveries for 1,1,2,2-tetrachloroethane and 1,2,4-trichlorobenzene are out of control low. The matrix spike and matrix spike duplicate recoveries of chloroethane, methylene chloride, acetone, 2-butanone, trichloroethene and 2-chloroethylvinylether are out of control high.

Metals Analysis (6010, 200.8 and 7000 series)

The samples were digested on 9/9/11, 9/12/11, and 9/13/11 - within the method recommended holding time and analyzed on 9/14/11, 9/15/11, 9/16/11, and 9/19/11.

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

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

Internal Standards: Internal standard areas were in control.

LCS/LCSD/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): All recoveries are in control.

pH by method 150.1 and 9045:

The samples were analyzed on 9/7/11 and 9/8/11 within method recommended holding time.

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

LCS/LCSD/RPDs: Are in control.

Sample duplicate/ RPD(s): Are in control.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TL23
Client: Amec Geomatrix Inc.
Project Event: 8769
Project Name: FRP 2011 Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-090711-021	TL23A	11-19438	Soil	09/07/11 11:05	09/07/11 15:20
2.	FRP-090711-022	TL23B	11-19439	Soil	09/07/11 13:15	09/07/11 15:20
3.	FRP-090711-023	TL23C	11-19440	Soil	09/07/11 13:20	09/07/11 15:20
4.	FRP-090711-024	TL23D	11-19441	Soil	09/07/11 13:25	09/07/11 15:20
5.	FRP-090711-025	TL23E	11-19442	Soil	09/07/11 13:30	09/07/11 15:20
6.	FRP-090711-026	TL23F	11-19443	Soil	09/07/11 13:35	09/07/11 15:20
7.	FRP-090711-027	TL23G	11-19444	Soil	09/07/11 13:40	09/07/11 15:20
8.	FRP-090711-028	TL23H	11-19445	Soil	09/07/11 13:45	09/07/11 15:20
9.	FRP-090711-029	TL23I	11-19446	Soil	09/07/11 13:50	09/07/11 15:20
10.	FRP-090711-030	TL23J	11-19447	Soil	09/07/11 13:55	09/07/11 15:20
11.	FRP-090711-031	TL23K	11-19448	Water	09/07/11 14:45	09/07/11 15:20
12.	Trip Blanks	TL23L	11-19449	Water	09/07/11	09/07/11 15:20

Printed 09/08/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TL28
Client: Amec Geomatrix Inc.
Project Event: 8769
Project Name: FRP 2011 Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-090711-031	TL28A	11-19450	Water	09/07/11 14:45	09/07/11 15:20

Printed 09/08/11

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).

TL23:00013

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)**

TL23:00014

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

TL23:00615

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

TL23:00016

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

TL23:00017

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				

TL23:00016

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 10 mL Purge Volume [1,6]

Effective: 8/30/2010

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 Control Limits	ARI ME Control Limits[2]
LCS Spike Recovery [5]		
Dichlorodifluoromethane	69 - 122	60 - 131
Chloromethane	76 - **120**	69 - 123
Vinyl Chloride	**80 - 120**	75 - 123
Bromomethane	71 - 120	63 - 129
Chloroethane	**80 - 120**	75 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	**80** - 121	76 - 128
Acrolein	69 - 126	60 - 136
Acetone	71 - **120**	64 - **120**
1,1-Dichloroethene	**80 - 120**	79 - 122
Bromoethane	**80 - 120**	80 - 121
Methyl Iodide	76 - 120	69 - 127
Methylene Chloride	**80 - 120**	77 - **120**
Acrylonitrile	79 - **120**	74 - **120**
Methyl tert-Butyl Ether	**80 - 120**	77 - 121
Carbon Disulfide	**80 - 120**	78 - 121
trans-1,2-Dichloroethene	**80 - 120**	**80 - 120**
Vinyl Acetate	**80 - 120**	76 - **120**
1,1-Dichloroethane	**80** - 120	**80 - 120**
2-Butanone	**80 - 120**	76 - **120**
2,2-Dichloropropane	**80 - 120**	77 - 120
cis-1,2-Dichloroethene	**80 - 120**	**80 - 120**
Chloroform	**80 - 120**	**80 - 120**
Bromodichloromethane	**80 - 120**	**80 - 120**
1,1,1-Trichloroethane	**80 - 120**	**80 - 120**
1,1-Dichloropropene	**80 - 120**	**80 - 120**
Carbon Tetrachloride	**80 - 120**	**80** - 123
1,2-Dichloroethane	**80 - 120**	**80 - 120**
Benzene	**80 - 120**	**80 - 120**
Trichloroethene	**80 - 120**	**80** - 120
1,2-Dichloropropane	**80 - 120**	**80 - 120**
Bromochloromethane	**80 - 120**	**80 - 120**
Dibromomethane	**80 - 120**	**80 - 120**
2-Chloroethylvinylether	**80 - 120**	75 - **120**
4-Methyl-2-Pentanone	**80 - 120**	78 - **120**
cis-1,3-Dichloropropene	**80 - 120**	**80 - 120**
Toluene	**80 - 120**	**80 - 120**
trans-1,3-Dichloropropene	**80 - 120**	**80 - 120**

TL23:00019

2-Hexanone	80 - 120	75 - 120
1,1,2-Trichloroethane	80 - 120	80 - 120
1,3-Dichloropropane	80 - 120	80 - 120
Tetrachloroethene	80 - 120	80 - 120
Dibromochloromethane	80 - 120	80 - 120
Ethylene Dibromide	80 - 120	80 - 120
Chlorobenzene	80 - 120	80 - 120
Ethylbenzene	80 - 120	80 - 121
1,1,2,2-Tetrachloroethane	80 - 120	78 - 120
m,p-Xylene	80 - 120	80 - 120
o-Xylene	80 - 120	80 - 120
Styrene	80 - 120	80 - 122
Trichlorofluoromethane	80 - 120	78 123
Isopropylbenzene	80 - 120	79 - 121
Bromoform	80 - 120	79 - 120
1,1,1,2-Tetrachloroethane	80 - 120	80 - 120
1,2,3-Trichloropropane	80 - 120	77 - 120
trans-1,4-Dichloro-2-butene	74 - 122	66 - 130
n-Propylbenzene	80 - 120	80 - 120
Bromobenzene	80 - 120	78 - 120
1,3,5-Trimethylbenzene	80 - 120	80 - 120
2-Chlorotoluene	80 - 120	80 - 120
4-Chlorotoluene	80 - 120	80 - 120
tert-Butylbenzene	80 - 120	80 - 121
1,2,4-Trimethylbenzene	80 - 120	80 - 120
sec-Butylbenzene	80 - 120	80 - 121
4-Isopropyltoluene	80 - 120	80 - 123
1,3-Dichlorobenzene	80 - 120	80 - 120
1,4-Dichlorobenzene	80 - 120	80 - 120
n-Butylbenzene	80 - 120	80 - 122
1,2-Dichlorobenzene	80 - 120	80 - 120
1,2-Dibromo-3-chloropropane	76 - 120	71 - 120
1,2,4-Trichlorobenzene	77 - 120	71 - 120
Hexachloro-1,3-butadiene	77 - 120	70 - 127
Naphthalene	76 - 120	70 - 120
1,2,3-Trichlorobenzene	79 - 120	74 - 120
MB/LCS Surrogate Recovery		
Dibromofluoromethane	80 - 120	(3)
d4-1,2-Dichloroethane	80 - 120	(3)
d8-Toluene	80 - 120	(3)
4-Bromofluorobenzene	80 - 120	(3)
d4-1,2-Dichlorobenzene	80 - 120	(3)
Sample Surrogate Recovery		
Dibromofluoromethane	80 - 120	(3)

TL23 : 00026

d4-1,2-Dichloroethane	**80 - 120**	(3)
d8-Toluene	**80 - 120**	(3)
4-Bromofluorobenzene	**80 - 120**	(3)
D4-1,2-Dichlorobenzene	**80 - 120**	(3)

(1) Control Limits calculated using all data generated 7/1/09 through 6/30/10.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard[4] 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. A corrective action is required for each surrogate recovery outside of the control limit range.
(4) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(5) 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.
(6) 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.

TL23.00020A

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

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

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80 - 120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80 - 120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80 - 120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80 - 120**	75 - 130
Trichloroethene	**80 - 120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80 - 120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

TL23 : 00021

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

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

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

TL23 : 00022

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

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

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **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.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NO**T use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
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.
(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.

TL23 : 00023

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%

TL23 : 00024

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%

TL23:00025

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: TL23, TL28

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-031**
 SAMPLE

Lab Sample ID: TL23K
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/12/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/09/11 14:37

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**	**1.7**
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**	**1.8**
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 UR
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: FRP-090711-031**
 SAMPLE

Lab Sample ID: TL23K
LIMS ID: 11-19448
Matrix: Water
Date Analyzed: 09/09/11 14:37

QC Report No: TL23-Amec Geomatrix Inc.
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 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	97.2%
d8-Toluene	96.0%
Bromofluorobenzene	99.2%
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: Trip Blanks**
 SAMPLE

Lab Sample ID: TL23L
LIMS ID: 11-19449
Matrix: Water
Data Release Authorized:
Reported: 09/12/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/09/11 13:17

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**	**0.6**
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 R
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: Trip Blanks**
 SAMPLE

Lab Sample ID: TL23L
LIMS ID: 11-19449
Matrix: Water
Date Analyzed: 09/09/11 13:17

QC Report No: TL23-Amec Geomatrix Inc.
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 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	95.4%
d8-Toluene	97.2%
Bromofluorobenzene	99.1%
d4-1,2-Dichlorobenzene	102%

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: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-090911	Method Blank	10	99.0%	99.1%	98.0%	100%	0
LCS-090911	Lab Control	10	96.3%	96.7%	102%	98.1%	0
LCSD-090911	Lab Control Dup	10	95.4%	98.4%	99.1%	99.4%	0
TL23K	FRP-090711-031	10	97.2%	96.0%	99.2%	101%	0
TL23L	Trip Blanks	10	95.4%	97.2%	99.1%	102%	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: 11-19448 to 11-19449

ANALYTICAL RESOURCES INCORPORATED

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

Lab Sample ID: LCS-090911
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/12/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/PKC
LCSD: NT3/PKC
Date Analyzed LCS: 09/09/11 11:26
LCSD: 09/09/11 11:53

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	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
Bromomethane	8.4	10.0	84.0%	8.8	10.0	88.0%	4.7%
Vinyl Chloride	9.2	10.0	92.0%	9.4	10.0	94.0%	2.2%
Chloroethane	8.8	10.0	88.0%	9.1	10.0	91.0%	3.4%
Methylene Chloride	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
Acetone	47.4	50.0	94.8%	46.8	50.0	93.6%	1.3%
Carbon Disulfide	9.3	10.0	93.0%	9.4	10.0	94.0%	1.1%
1,1-Dichloroethene	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
1,1-Dichloroethane	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
trans-1,2-Dichloroethene	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
cis-1,2-Dichloroethene	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
Chloroform	9.8	10.0	98.0%	10.0	10.0	100%	2.0%
1,2-Dichloroethane	10.0	10.0	100%	9.6	10.0	96.0%	4.1%
2-Butanone	47.5	50.0	95.0%	48.1	50.0	96.2%	1.3%
1,1,1-Trichloroethane	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
Carbon Tetrachloride	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
Vinyl Acetate	9.4	10.0	94.0%	10.1	10.0	101%	7.2%
Bromodichloromethane	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
1,2-Dichloropropane	9.9	10.0	99.0%	9.9	10.0	99.0%	0.0%
cis-1,3-Dichloropropene	9.8	10.0	98.0%	10.1	10.0	101%	3.0%
Trichloroethene	9.9	10.0	99.0%	10.0	10.0	100%	1.0%
Dibromochloromethane	9.8	10.0	98.0%	10.0	10.0	100%	2.0%
1,1,2-Trichloroethane	9.6	10.0	96.0%	9.8	10.0	98.0%	2.1%
Benzene	10.0	10.0	100%	10.2	10.0	102%	2.0%
trans-1,3-Dichloropropene	9.2	10.0	92.0%	9.7	10.0	97.0%	5.3%
2-Chloroethylvinylether	9.1	10.0	91.0%	9.9	10.0	99.0%	8.4%
Bromoform	9.5	10.0	95.0%	9.4	10.0	94.0%	1.1%
4-Methyl-2-Pentanone (MIBK)	49.5	50.0	99.0%	50.3	50.0	101%	1.6%
2-Hexanone	50.3	50.0	101%	50.4	50.0	101%	0.2%
Tetrachloroethene	9.8	10.0	98.0%	9.6	10.0	96.0%	2.1%
1,1,2,2-Tetrachloroethane	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
Toluene	9.5	10.0	95.0%	10.0	10.0	100%	5.1%
Chlorobenzene	10.0	10.0	100%	9.9	10.0	99.0%	1.0%
Ethylbenzene	10.0	10.0	100%	10.0	10.0	100%	0.0%
Styrene	10.0	10.0	100%	9.9	10.0	99.0%	1.0%
Trichlorofluoromethane	9.3	10.0	93.0%	9.5	10.0	95.0%	2.1%
1,1,2-Trichloro-1,2,2-trifluoroetha	9.7	10.0	97.0%	9.6	10.0	96.0%	1.0%
m,p-Xylene	19.9	20.0	99.5%	20.0	20.0	100%	0.5%
o-Xylene	10.1	10.0	101%	10.0	10.0	100%	1.0%
1,2-Dichlorobenzene	9.8	10.0	98.0%	9.5	10.0	95.0%	3.1%
1,3-Dichlorobenzene	9.6	10.0	96.0%	9.3	10.0	93.0%	3.2%
1,4-Dichlorobenzene	9.6	10.0	96.0%	9.3	10.0	93.0%	3.2%
Acrolein	44.7	50.0	89.4%	46.1	50.0	92.2%	3.1%
Methyl Iodide	9.5	10.0	95.0%	9.7	10.0	97.0%	2.1%
Bromoethane	10.3	10.0	103%	10.1	10.0	101%	2.0%

ANALYTICAL RESOURCES INCORPORATED

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

LAB CONTROL SAMPLE

Lab Sample ID: LCS-090911
LIMS ID: 11-19448
Matrix: Water

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Acrylonitrile	9.2	10.0	92.0%	9.4	10.0	94.0%	2.2%
1,1-Dichloropropene	10.1	10.0	101%	10.1	10.0	101%	0.0%
Dibromomethane	10.0	10.0	100%	9.9	10.0	99.0%	1.0%
1,1,1,2-Tetrachloroethane	9.8	10.0	98.0%	9.7	10.0	97.0%	1.0%
1,2-Dibromo-3-chloropropane	8.8	10.0	88.0%	8.7	10.0	87.0%	1.1%
1,2,3-Trichloropropane	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
trans-1,4-Dichloro-2-butene	7.4 Q	10.0	74.0%	7.8 Q	10.0	78.0%	5.3%
1,3,5-Trimethylbenzene	10.1	10.0	101%	9.8	10.0	98.0%	3.0%
1,2,4-Trimethylbenzene	10.0	10.0	100%	9.6	10.0	96.0%	4.1%
Hexachlorobutadiene	9.5	10.0	95.0%	9.3	10.0	93.0%	2.1%
Ethylene Dibromide	9.8	10.0	98.0%	10.0	10.0	100%	2.0%
Bromochloromethane	10.0	10.0	100%	9.9	10.0	99.0%	1.0%
2,2-Dichloropropane	9.4	10.0	94.0%	9.4	10.0	94.0%	0.0%
1,3-Dichloropropane	10.0	10.0	100%	10.2	10.0	102%	2.0%
Isopropylbenzene	10.0	10.0	100%	9.8	10.0	98.0%	2.0%
n-Propylbenzene	10.1	10.0	101%	9.8	10.0	98.0%	3.0%
Bromobenzene	9.8	10.0	98.0%	9.7	10.0	97.0%	1.0%
2-Chlorotoluene	9.8	10.0	98.0%	9.6	10.0	96.0%	2.1%
4-Chlorotoluene	9.8	10.0	98.0%	9.7	10.0	97.0%	1.0%
tert-Butylbenzene	10.0	10.0	100%	9.7	10.0	97.0%	3.0%
sec-Butylbenzene	9.9	10.0	99.0%	9.6	10.0	96.0%	3.1%
4-Isopropyltoluene	9.9	10.0	99.0%	9.6	10.0	96.0%	3.1%
n-Butylbenzene	9.8	10.0	98.0%	9.4	10.0	94.0%	4.2%
1,2,4-Trichlorobenzene	9.5	10.0	95.0%	9.4	10.0	94.0%	1.1%
Naphthalene	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
1,2,3-Trichlorobenzene	9.6	10.0	96.0%	9.4	10.0	94.0%	2.1%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	96.3%	95.4%
d8-Toluene	96.7%	98.4%
Bromofluorobenzene	102%	99.1%
d4-1,2-Dichlorobenzene	98.1%	99.4%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0909

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX INC.

ARI Job No: TL23

Project: FRP 2011 SHORELINE INVE

Lab File ID: MB0909

Lab Sample ID: MB0909

Date Analyzed: 09/09/11

Time Analyzed: 1220

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	LCS0909	LCS0909	LCS0909	1126
02	LCS0909	LCS0909	LCS0909A	1153
03	TRIP BLANKS	TL23L	TL23L2	1317
04	FRP-090711-0	TL23K	TL23K2	1437
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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-090911**
 METHOD BLANK

Lab Sample ID: MB-090911
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/12/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/09/11 12:20

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
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-090911**

METHOD BLANK

Lab Sample ID: MB-090911
LIMS ID: 11-19448
Matrix: Water
Date Analyzed: 09/09/11 12:20

QC Report No: TL23-Amec Geomatrix Inc.
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	99.0%
d8-Toluene	99.1%
Bromofluorobenzene	98.0%
d4-1,2-Dichlorobenzene	100%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX INC.

Lab Code: ARI Case No.: FRP 2011 SHORELINE INVESTIGATION SDG No.: TL23

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					
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21					
22					

FORM V VOA OLM3.2M

TL23:00037

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX INC.

Lab Code: ARI Case No.: FRP 2011 SHORELINE INVESTIGATION SDG No.: TL23

Lab File ID: BFB0909A BFB Injection Date: 09/09/11

Instrument ID: NT3 BFB Injection Time: 1024

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	15.7
75	30.0 - 66.0% of mass 95	49.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.3 (0.3)1
174	50.0 - 101.0% of mass 95	81.1
175	4.0 - 9.0% of mass 174	5.4 (6.7)1
176	93.0 - 101.0% of mass 174	78.2 (96.3)1
177	5.0 - 9.0% of mass 176	5.2 (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	CC0909	CC0909	CC0909	09/09/11	1059
02	LCS0909	LCS0909	LCS0909	09/09/11	1126
03	LCS0909	LCS0909	LCS0909A	09/09/11	1153
04	MB0909	MB0909	MB0909	09/09/11	1220
05	TRIP BLANKS	TL23L	TL23L2	09/09/11	1317
06	FRP-090711-031	TL23K	TL23K2	09/09/11	1437
07					
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19					
20					
21					
22					

FORM V VOA OLM3.2M

TL23:00038

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX INC.

ARI Job No: TL23 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 INC.

ARI Job No: TL23 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 INC.

ARI Job No: TL23 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 INC.

ARI Job No: TL23 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 INC.

ARI Job No: TL23 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 INC.

ARI Job No: TL23 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 INC.

ARI Job No: TL23 — 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 INC.

ARI Job No: TL23 — 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 INC.

ARI Job No: TL23 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 INC.

ARI Job No: TL23 — Project: FRP 2011 SHORELINE INVESTIG

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

Init. Calib. Date: 09/01/11 — Cont. Calib. Time: 1059

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Chloromethane	0.508	0.486	0.100	AVRG	-4.3
Vinyl Chloride	0.624	0.578	0.010	AVRG	-7.4
Bromomethane	0.376	0.326	0.010	AVRG	-13.3
Chloroethane	0.392	0.343	0.010	AVRG	-12.5
Trichlorofluoromethane	0.849	0.795	0.010	AVRG	-6.4
Acrolein	0.027	0.024	0.010	AVRG	-11.1
112Trichloro122Trifluoroetha	0.608	0.584	0.010	AVRG	-3.9
Acetone	0.039	0.033	0.010	AVRG	-15.4
1,1-Dichloroethene	0.507	0.479	0.010	AVRG	-5.5
Bromoethane	0.421	0.429	0.010	AVRG	1.9
Iodomethane	0.880	0.846	0.010	AVRG	-3.9
Methylene Chloride	10.000	9.517	0.010	LINR	-4.8
Acrylonitrile	0.048	0.045	0.010	AVRG	-6.2
Carbon Disulfide	1.706	1.593	0.010	AVRG	-6.6
Trans-1,2-Dichloroethene	0.574	0.547	0.010	AVRG	-4.7
Vinyl Acetate	0.294	0.270	0.010	AVRG	-8.2
1,1-Dichloroethane	0.864	0.816	0.100	AVRG	-5.6
2-Butanone	0.056	0.052	0.010	AVRG	-7.1
2,2-Dichloropropane	0.787	0.754	0.010	AVRG	-4.2
Cis-1,2-Dichloroethene	0.554	0.522	0.010	AVRG	-5.8
Chloroform	0.867	0.843	0.010	AVRG	-2.8
Bromochloromethane	0.201	0.199	0.010	AVRG	-1.0
1,1,1-Trichloroethane	0.919	0.878	0.010	AVRG	-4.5
1,1-Dichloropropene	0.455	0.454	0.010	AVRG	-0.2
Carbon Tetrachloride	0.484	0.461	0.010	AVRG	-4.8
1,2-Dichloroethane	0.267	0.252	0.010	AVRG	-5.6
Benzene	1.246	1.240	0.010	AVRG	-0.5
Trichloroethene	0.374	0.362	0.010	AVRG	-3.2
1,2-Dichloropropane	0.250	0.237	0.010	AVRG	-5.2
Bromodichloromethane	0.326	0.304	0.010	AVRG	-6.7
Dibromomethane	0.110	0.108	0.010	AVRG	-1.8
2-Chloroethyl Vinyl Ether	0.080	0.071	0.010	AVRG	-11.2
4-Methyl-2-Pentanone	0.096	0.089	0.010	AVRG	-7.3
Cis 1,3-dichloropropene	0.363	0.338	0.010	AVRG	-6.9
Toluene	0.865	0.815	0.010	AVRG	-5.8
Trans 1,3-Dichloropropene	0.291	0.267	0.010	AVRG	-8.2
2-Hexanone	0.065	0.061	0.010	AVRG	-6.2

<- 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 INC.

ARI Job No: TL23 — Project: FRP 2011 SHORELINE INVESTIG

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

Init. Calib. Date: 09/01/11 — Cont. Calib. Time: 1059

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.162	0.149	0.010	AVRG	-8.0	
1,3-Dichloropropane	0.279	0.271	0.010	AVRG	-2.9	
Tetrachloroethene	0.410	0.400	0.010	AVRG	-2.4	
Chlorodibromomethane	0.200	0.191	0.010	AVRG	-4.5	
1,2-Dibromoethane	0.156	0.147	0.010	AVRG	-5.8	
Chlorobenzene	0.993	0.966	0.300	AVRG	-2.7	
Ethyl Benzene	1.804	1.794	0.010	AVRG	-0.6	
1,1,1,2-Tetrachloroethane	0.317	0.302	0.010	AVRG	-4.7	
m,p-xylene	0.721	0.718	0.010	AVRG	-0.4	
o-Xylene	0.713	0.690	0.010	AVRG	-3.2	
Styrene	1.052	1.052	0.010	AVRG	0.0	
Bromoform	0.172	0.153	0.100	AVRG	-11.0	
1,1,2,2-Tetrachloroethane	0.316	0.292	0.300	AVRG	-7.6	*
1,2,3-Trichloropropane	0.102	0.096	0.010	AVRG	-5.9	
Trans-1,4-Dichloro 2-Butene	0.079	0.061	0.010	AVRG	-22.8	<-
N-Propyl Benzene	3.641	3.638	0.010	AVRG	-0.1	
Bromobenzene	0.670	0.643	0.010	AVRG	-4.0	
Isopropyl Benzene	3.239	3.199	0.010	AVRG	-1.2	
2-Chloro Toluene	2.283	2.196	0.010	AVRG	-3.8	
4-Chloro Toluene	2.286	2.260	0.010	AVRG	-1.1	
T-Butyl Benzene	2.531	2.508	0.010	AVRG	-0.9	
1,3,5-Trimethyl Benzene	2.826	2.847	0.010	AVRG	0.7	
1,2,4-Trimethylbenzene	2.883	2.830	0.010	AVRG	-1.8	
S-Butyl Benzene	3.636	3.595	0.010	AVRG	-1.1	
4-Isopropyl Toluene	3.158	3.122	0.010	AVRG	-1.1	
1,3-Dichlorobenzene	1.551	1.482	0.010	AVRG	-4.4	
1,4-Dichlorobenzene	1.528	1.423	0.010	AVRG	-6.9	
N-Butyl Benzene	2.757	2.693	0.010	AVRG	-2.3	
1,2-Dichlorobenzene	1.308	1.229	0.010	AVRG	-6.0	
1,2-Dibromo 3-Chloropropane	0.053	0.049	0.010	AVRG	-7.5	
1,2,4-Trichlorobenzene	0.873	0.792	0.010	AVRG	-9.3	
Hexachloro 1,3-Butadiene	0.458	0.424	0.010	AVRG	-7.4	
Naphthalene	1.126	1.012	0.010	AVRG	-10.1	
1,2,3-Trichlorobenzene	0.646	0.586	0.010	AVRG	-9.3	
Dichlorodifluoromethane	0.556	0.512	0.010	AVRG	-7.9	
Methyl tert butyl ether	0.926	0.872	0.010	AVRG	-5.8	

<- 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 INC.

ARI Job No: TL23 — Project: FRP 2011 SHORELINE INVESTIG

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

Init. Calib. Date: 09/01/11 — Cont. Calib. Time: 1059

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.362	0.358	0.010	AVRG	-1.1
d8-Toluene	1.273	1.242	0.010	AVRG	-2.4
4-Bromofluorobenzene	0.508	0.518	0.010	AVRG	2.0
d4-1,2-Dichlorobenzene	0.841	0.852	0.010	AVRG	1.3
Dibromofluoromethane	0.442	0.443	0.010	AVRG	0.2

<- 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 INC.

ARI Job No: TL23 — 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							
06							
07							
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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 INC.

ARI Job No: TL23 — 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							
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12							
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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 INC.

ARI Job No: TL23 — Project: FRP 2011 SHORELINE INVESTIGA

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

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

		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	LCS0909	214277	5.25	332744	5.64	321102	7.71
02	LCS0909	214704	5.25	332492	5.64	329901	7.71
03	MB0909	216030	5.25	328052	5.64	329609	7.71
04	TRIP BLANKS	220284	5.25	331340	5.64	332186	7.72
05	FRP-090711-0	216566	5.25	331585	5.64	323519	7.71
06							
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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 INC.

ARI Job No: TL23 — Project: FRP 2011 SHORELINE INVESTIGA

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

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

		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	LCS0909	200029	9.41				
02	LCS0909	206033	9.41				
03	MB0909	196041	9.41				
04	TRIP BLANKS	196970	9.41				
05	FRP-090711-0	195896	9.41				
06							
07							
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09							
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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.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**
 SAMPLE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/13/11 19:59

Sample Amount: 4.03 g-dry-wt
Percent Moisture: 25.7%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.33	1.2	< 1.2 U
74-83-9	Bromomethane	0.23	1.2	< 1.2 U J
75-01-4	Vinyl Chloride	0.29	1.2	< 1.2 U
75-00-3	Chloroethane	0.57	1.2	< 1.2 U
75-09-2	Methylene Chloride	0.79	2.5	< 2.5 U
67-64-1	**Acetone**	**0.60**	**6.2**	**190** J
75-15-0	**Carbon Disulfide**	**0.69**	**1.2**	**3.6**
75-35-4	1,1-Dichloroethene	0.42	1.2	< 1.2 U
75-34-3	1,1-Dichloroethane	0.25	1.2	< 1.2 U
156-60-5	trans-1,2-Dichloroethene	0.33	1.2	< 1.2 U
156-59-2	cis-1,2-Dichloroethene	0.30	1.2	< 1.2 U
67-66-3	Chloroform	0.29	1.2	< 1.2 U
107-06-2	1,2-Dichloroethane	0.24	1.2	< 1.2 U
78-93-3	**2-Butanone**	**0.64**	**6.2**	**36** J
71-55-6	1,1,1-Trichloroethane	0.28	1.2	< 1.2 U
56-23-5	Carbon Tetrachloride	0.26	1.2	< 1.2 U
108-05-4	Vinyl Acetate	0.47	6.2	< 6.2 U
75-27-4	Bromodichloromethane	0.32	1.2	< 1.2 U
78-87-5	1,2-Dichloropropane	0.20	1.2	< 1.2 U
10061-01-5	cis-1,3-Dichloropropene	0.28	1.2	< 1.2 U
79-01-6	Trichloroethene	0.26	1.2	< 1.2 U
124-48-1	Dibromochloromethane	0.33	1.2	< 1.2 U
79-00-5	1,1,2-Trichloroethane	0.35	1.2	< 1.2 U
71-43-2	**Benzene**	**0.37**	**1.2**	**1.0 J**
10061-02-6	trans-1,3-Dichloropropene	0.27	1.2	< 1.2 U
110-75-8	2-Chloroethylvinylether	0.34	6.2	< 6.2 U
75-25-2	Bromoform	0.37	1.2	< 1.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.52	6.2	< 6.2 U
591-78-6	2-Hexanone	0.54	6.2	< 6.2 U
127-18-4	Tetrachloroethene	0.32	1.2	< 1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.31	1.2	< 1.2 U J
108-88-3	**Toluene**	**0.19**	**1.2**	**370 ES** DNR
108-90-7	Chlorobenzene	0.27	1.2	< 1.2 U
100-41-4	Ethylbenzene	0.25	1.2	< 1.2 U
100-42-5	Styrene	0.17	1.2	< 1.2 U
75-69-4	Trichlorofluoromethane	0.33	1.2	< 1.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.36	2.5	< 2.5 U
179601-23-1	m,p-Xylene	0.49	1.2	< 1.2 U
95-47-6	o-Xylene	0.28	1.2	< 1.2 U
95-50-1	1,2-Dichlorobenzene	0.36	1.2	< 1.2 U
541-73-1	1,3-Dichlorobenzene	0.28	1.2	< 1.2 U
106-46-7	1,4-Dichlorobenzene	0.29	1.2	< 1.2 U
107-02-8	Acrolein	4.7	62	< 62 U J
74-88-4	Methyl Iodide	0.27	1.2	< 1.2 U
74-96-4	Bromoethane	0.55	2.5	< 2.5 U
107-13-1	Acrylonitrile	1.3	6.2	< 6.2 U
563-58-6	1,1-Dichloropropene	0.39	1.2	< 1.2 U
74-95-3	Dibromomethane	0.18	1.2	< 1.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.29	1.2	< 1.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.73	6.2	< 6.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**
 SAMPLE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Date Analyzed: 09/13/11 19:59

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.64	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.54	6.2	< 6.2 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.2	< 1.2 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.2	< 1.2 U
87-68-3	Hexachlorobutadiene	0.51	6.2	< 6.2 U
106-93-4	Ethylene Dibromide	0.22	1.2	< 1.2 U
74-97-5	Bromochloromethane	0.40	1.2	< 1.2 U
594-20-7	2,2-Dichloropropane	0.36	1.2	< 1.2 U
142-28-9	1,3-Dichloropropane	0.26	1.2	< 1.2 U
98-82-8	Isopropylbenzene	0.29	1.2	< 1.2 U
103-65-1	n-Propylbenzene	0.34	1.2	< 1.2 U
108-86-1	Bromobenzene	0.19	1.2	< 1.2 U
95-49-8	2-Chlorotoluene	0.37	1.2	< 1.2 U
106-43-4	4-Chlorotoluene	0.34	1.2	< 1.2 U
98-06-6	tert-Butylbenzene	0.38	1.2	< 1.2 U
135-98-8	sec-Butylbenzene	0.30	1.2	< 1.2 U
99-87-6	**4-Isopropyltoluene**	**0.29**	**1.2**	**1.2 J**
104-51-8	n-Butylbenzene	0.33	1.2	< 1.2 U
120-82-1	1,2,4-Trichlorobenzene	0.41	6.2	< 6.2 U J
91-20-3	Naphthalene	0.53	6.2	< 6.2 U
87-61-6	1,2,3-Trichlorobenzene	0.38	6.2	< 6.2 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	112%
d8-Toluene	104%
Bromofluorobenzene	89.6%
d4-1,2-Dichlorobenzene	99.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**
 REANALYSIS

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/21/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 12:40

Sample Amount: 56.5 **mg-dry-wt**
Percent Moisture: 25.7%

CAS Number	Analyte	MDL	RL	Result	
74-87-3	Chloromethane	23	88	< 88 U	DNR
74-83-9	Bromomethane	17	88	< 88 U	
75-01-4	Vinyl Chloride	21	88	< 88 U	
75-00-3	Chloroethane	41	88	< 88 U	
75-09-2	**Methylene Chloride**	**56**	**180**	**79 J**	
67-64-1	Acetone	43	440	< 440 U	
75-15-0	Carbon Disulfide	49	88	< 88 U	
75-35-4	1,1-Dichloroethene	30	88	< 88 U	
75-34-3	1,1-Dichloroethane	18	88	< 88 U	
156-60-5	trans-1,2-Dichloroethene	24	88	< 88 U	
156-59-2	cis-1,2-Dichloroethene	21	88	< 88 U	
67-66-3	Chloroform	21	88	< 88 U	
107-06-2	1,2-Dichloroethane	17	88	< 88 U	
78-93-3	**2-Butanone**	**45**	**440**	**260 J**	
71-55-6	1,1,1-Trichloroethane	20	88	< 88 U	
56-23-5	Carbon Tetrachloride	19	88	< 88 U	
108-05-4	Vinyl Acetate	34	440	< 440 U	
75-27-4	Bromodichloromethane	22	88	< 88 U	
78-87-5	1,2-Dichloropropane	14	88	< 88 U	
10061-01-5	cis-1,3-Dichloropropene	20	88	< 88 U	
79-01-6	Trichloroethene	19	88	< 88 U	
124-48-1	Dibromochloromethane	24	88	< 88 U	
79-00-5	1,1,2-Trichloroethane	25	88	< 88 U	
71-43-2	Benzene	26	88	< 88 U	
10061-02-6	trans-1,3-Dichloropropene	19	88	< 88 U	
110-75-8	2-Chloroethylvinylether	24	440	< 440 U	
75-25-2	Bromoform	26	88	< 88 U	
108-10-1	4-Methyl-2-Pentanone (MIBK)	37	440	< 440 U	
591-78-6	2-Hexanone	39	440	< 440 U	
127-18-4	Tetrachloroethene	23	88	< 88 U	
79-34-5	1,1,2,2-Tetrachloroethane	22	88	< 88 U	
108-88-3	**Toluene**	**13**	**88**	**840**	
108-90-7	Chlorobenzene	19	88	< 88 U	DNR
100-41-4	Ethylbenzene	18	88	< 88 U	
100-42-5	Styrene	12	88	< 88 U	
75-69-4	Trichlorofluoromethane	24	88	< 88 U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	25	180	< 180 U	
179601-23-1	m,p-Xylene	35	88	< 88 U	
95-47-6	o-Xylene	20	88	< 88 U	
95-50-1	1,2-Dichlorobenzene	26	88	< 88 U	
541-73-1	1,3-Dichlorobenzene	20	88	< 88 U	
106-46-7	1,4-Dichlorobenzene	21	88	< 88 U	
107-02-8	Acrolein	340	4400	< 4,400 U	
74-88-4	Methyl Iodide	19	88	< 88 U	
74-96-4	Bromoethane	39	180	< 180 U	
107-13-1	Acrylonitrile	91	440	< 440 U	
563-58-6	1,1-Dichloropropene	28	88	< 88 U	
74-95-3	Dibromomethane	13	88	< 88 U	
630-20-6	1,1,1,2-Tetrachloroethane	21	88	< 88 U	
96-12-8	1,2-Dibromo-3-chloropropane	52	440	< 440 U	

T123:00057R 9/20/11

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**
 REANALYSIS

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Date Analyzed: 09/14/11 12:40

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	46	180	< 180 U DNR
110-57-6	trans-1,4-Dichloro-2-butene	39	440	< 440 U
108-67-8	1,3,5-Trimethylbenzene	22	88	< 88 U
95-63-6	1,2,4-Trimethylbenzene	20	88	< 88 U
87-68-3	Hexachlorobutadiene	36	440	< 440 U
106-93-4	Ethylene Dibromide	16	88	< 88 U
74-97-5	Bromochloromethane	29	88	< 88 U
594-20-7	2,2-Dichloropropane	26	88	< 88 U
142-28-9	1,3-Dichloropropane	18	88	< 88 U
98-82-8	Isopropylbenzene	21	88	< 88 U
103-65-1	n-Propylbenzene	24	88	< 88 U
108-86-1	Bromobenzene	14	88	< 88 U
95-49-8	2-Chlorotoluene	27	88	< 88 U
106-43-4	4-Chlorotoluene	25	88	< 88 U
98-06-6	tert-Butylbenzene	27	88	< 88 U
135-98-8	sec-Butylbenzene	21	88	< 88 U
99-87-6	4-Isopropyltoluene	21	88	< 88 U
104-51-8	n-Butylbenzene	23	88	< 88 U
120-82-1	1,2,4-Trichlorobenzene	29	440	< 440 U
91-20-3	Naphthalene	38	440	< 440 U
87-61-6	1,2,3-Trichlorobenzene	27	440	< 440 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	96.5%
d8-Toluene	101%
Bromofluorobenzene	94.6%
d4-1,2-Dichlorobenzene	97.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-022**
 SAMPLE

Lab Sample ID: TL23B
LIMS ID: 11-19439
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 13:08

Sample Amount: 4.92 g-dry-wt
Percent Moisture: 10.6%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.27	1.0	< 1.0 U
74-83-9	Bromomethane	0.19	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.24	1.0	< 1.0 U
75-00-3	Chloroethane	0.47	1.0	< 1.0 U
75-09-2	**Methylene Chloride**	**0.65**	**2.0**	**14**
67-64-1	**Acetone**	**0.49**	**5.1**	**38 B**
75-15-0	**Carbon Disulfide**	**0.57**	**1.0**	**2.3**
75-35-4	1,1-Dichloroethene	0.34	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.21	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.27	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.24	1.0	< 1.0 U
67-66-3	Chloroform	0.24	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.19	1.0	< 1.0 U
78-93-3	**2-Butanone**	**0.52**	**5.1**	**6.0**
71-55-6	1,1,1-Trichloroethane	0.23	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.22	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.39	5.1	< 5.1 U
75-27-4	Bromodichloromethane	0.26	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.16	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.23	1.0	< 1.0 U
79-01-6	Trichloroethene	0.22	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.27	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.29	1.0	< 1.0 U
71-43-2	**Benzene**	**0.30**	**1.0**	**0.8 J**
10061-02-6	trans-1,3-Dichloropropene	0.22	1.0	< 1.0 U
110-75-8	2-Chloroethylvinylether	0.28	5.1	< 5.1 U
75-25-2	Bromoform	0.30	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.43	5.1	< 5.1 U
591-78-6	2-Hexanone	0.45	5.1	< 5.1 U
127-18-4	Tetrachloroethene	0.26	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.0	< 1.0 U
108-88-3	**Toluene**	**0.15**	**1.0**	**0.8 J**
108-90-7	Chlorobenzene	0.22	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.21	1.0	< 1.0 U
100-42-5	Styrene	0.14	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.27	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.29	2.0	< 2.0 U
179601-23-1	m,p-Xylene	0.40	1.0	< 1.0 U
95-47-6	o-Xylene	0.23	1.0	< 1.0 U
95-50-1	1,2-Dichlorobenzene	0.30	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.23	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.24	1.0	< 1.0 U
107-02-8	Acrolein	3.9	51	< 51 U
74-88-4	Methyl Iodide	0.22	1.0	< 1.0 U
74-96-4	Bromoethane	0.45	2.0	< 2.0 U
107-13-1	Acrylonitrile	1.0	5.1	< 5.1 U
563-58-6	1,1-Dichloropropene	0.32	1.0	< 1.0 U
74-95-3	Dibromomethane	0.15	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.24	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	0.60	5.1	< 5.1 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-022**
 SAMPLE

Lab Sample ID: TL23B
LIMS ID: 11-19439
Matrix: Soil
Date Analyzed: 09/14/11 13:08

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.53	2.0	< 2.0 U
110-57-6	trans-1,4-Dichloro-2-butene	0.44	5.1	< 5.1 U
108-67-8	1,3,5-Trimethylbenzene	0.26	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.23	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.42	5.1	< 5.1 U
106-93-4	Ethylene Dibromide	0.18	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.33	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.30	1.0	< 1.0 U
142-28-9	1,3-Dichloropropane	0.21	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.24	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.28	1.0	< 1.0 U
108-86-1	Bromobenzene	0.16	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.30	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.28	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.31	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.24	1.0	< 1.0 U
99-87-6	4-Isopropyltoluene	0.24	1.0	< 1.0 U
104-51-8	n-Butylbenzene	0.27	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.34	5.1	< 5.1 U
91-20-3	Naphthalene	0.44	5.1	< 5.1 U
87-61-6	1,2,3-Trichlorobenzene	0.31	5.1	< 5.1 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	102%
Bromofluorobenzene	86.9%
d4-1,2-Dichlorobenzene	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-023**
 SAMPLE

Lab Sample ID: TL23C
LIMS ID: 11-19440
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 13:35

Sample Amount: 4.02 g-dry-wt
Percent Moisture: 11.8%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.33	1.2	< 1.2 U
74-83-9	Bromomethane	0.23	1.2	< 1.2 U J
75-01-4	Vinyl Chloride	0.29	1.2	< 1.2 U
75-00-3	Chloroethane	0.57	1.2	< 1.2 U
75-09-2	**Methylene Chloride**	**0.79**	**2.5**	**20**
67-64-1	**Acetone**	**0.60**	**6.2**	**31 B**
75-15-0	Carbon Disulfide	0.70	1.2	< 1.2 U
75-35-4	1,1-Dichloroethene	0.42	1.2	< 1.2 U
75-34-3	1,1-Dichloroethane	0.25	1.2	< 1.2 U
156-60-5	trans-1,2-Dichloroethene	0.33	1.2	< 1.2 U
156-59-2	cis-1,2-Dichloroethene	0.30	1.2	< 1.2 U
67-66-3	Chloroform	0.29	1.2	< 1.2 U
107-06-2	1,2-Dichloroethane	0.24	1.2	< 1.2 U
78-93-3	2-Butanone	0.64	6.2	< 6.2 U
71-55-6	1,1,1-Trichloroethane	0.28	1.2	< 1.2 U
56-23-5	Carbon Tetrachloride	0.26	1.2	< 1.2 U
108-05-4	Vinyl Acetate	0.47	6.2	< 6.2 U
75-27-4	Bromodichloromethane	0.32	1.2	< 1.2 U
78-87-5	1,2-Dichloropropane	0.20	1.2	< 1.2 U
10061-01-5	cis-1,3-Dichloropropene	0.28	1.2	< 1.2 U
79-01-6	Trichloroethene	0.26	1.2	< 1.2 U
124-48-1	Dibromochloromethane	0.33	1.2	< 1.2 U
79-00-5	1,1,2-Trichloroethane	0.36	1.2	< 1.2 U
71-43-2	**Benzene**	**0.37**	**1.2**	**1.0 J**
10061-02-6	trans-1,3-Dichloropropene	0.27	1.2	< 1.2 U
110-75-8	2-Chloroethylvinylether	0.34	6.2	< 6.2 U
75-25-2	Bromoform	0.37	1.2	< 1.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.52	6.2	< 6.2 U
591-78-6	2-Hexanone	0.55	6.2	< 6.2 U
127-18-4	Tetrachloroethene	0.32	1.2	< 1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.31	1.2	< 1.2 U
108-88-3	**Toluene**	**0.19**	**1.2**	**0.6 J**
108-90-7	Chlorobenzene	0.27	1.2	< 1.2 U
100-41-4	Ethylbenzene	0.25	1.2	< 1.2 U
100-42-5	Styrene	0.17	1.2	< 1.2 U
75-69-4	Trichlorofluoromethane	0.33	1.2	< 1.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.36	2.5	< 2.5 U
179601-23-1	m,p-Xylene	0.49	1.2	< 1.2 U
95-47-6	o-Xylene	0.28	1.2	< 1.2 U
95-50-1	1,2-Dichlorobenzene	0.36	1.2	< 1.2 U
541-73-1	1,3-Dichlorobenzene	0.28	1.2	< 1.2 U
106-46-7	1,4-Dichlorobenzene	0.29	1.2	< 1.2 U
107-02-8	Acrolein	4.7	62	< 62 U
74-88-4	Methyl Iodide	0.27	1.2	< 1.2 U
74-96-4	Bromoethane	0.55	2.5	< 2.5 U
107-13-1	Acrylonitrile	1.3	6.2	< 6.2 U
563-58-6	1,1-Dichloropropene	0.39	1.2	< 1.2 U
74-95-3	Dibromomethane	0.18	1.2	< 1.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.29	1.2	< 1.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.73	6.2	< 6.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: FRP-090711-023
SAMPLE

Lab Sample ID: TL23C
LIMS ID: 11-19440
Matrix: Soil
Date Analyzed: 09/14/11 13:35

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.64	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.54	6.2	< 6.2 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.2	< 1.2 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.2	< 1.2 U
87-68-3	Hexachlorobutadiene	0.51	6.2	< 6.2 U
106-93-4	Ethylene Dibromide	0.22	1.2	< 1.2 U
74-97-5	Bromochloromethane	0.40	1.2	< 1.2 U
594-20-7	2,2-Dichloropropane	0.36	1.2	< 1.2 U
142-28-9	1,3-Dichloropropane	0.26	1.2	< 1.2 U
98-82-8	Isopropylbenzene	0.29	1.2	< 1.2 U
103-65-1	n-Propylbenzene	0.34	1.2	< 1.2 U
108-86-1	Bromobenzene	0.19	1.2	< 1.2 U
95-49-8	2-Chlorotoluene	0.37	1.2	< 1.2 U
106-43-4	4-Chlorotoluene	0.34	1.2	< 1.2 U
98-06-6	tert-Butylbenzene	0.38	1.2	< 1.2 U
135-98-8	sec-Butylbenzene	0.30	1.2	< 1.2 U
99-87-6	4-Isopropyltoluene	0.29	1.2	< 1.2 U
104-51-8	n-Butylbenzene	0.33	1.2	< 1.2 U
120-82-1	1,2,4-Trichlorobenzene	0.41	6.2	< 6.2 U
91-20-3	Naphthalene	0.53	6.2	< 6.2 U
87-61-6	1,2,3-Trichlorobenzene	0.38	6.2	< 6.2 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	101%
Bromofluorobenzene	92.8%
d4-1,2-Dichlorobenzene	99.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-024**
 SAMPLE

Lab Sample ID: TL23D
LIMS ID: 11-19441
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 14:09

Sample Amount: 3.98 g-dry-wt
Percent Moisture: 23.9%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.33	1.3	< 1.3 U
74-83-9	Bromomethane	0.23	1.3	< 1.3 U
75-01-4	Vinyl Chloride	0.30	1.3	< 1.3 U
75-00-3	Chloroethane	0.58	1.3	< 1.3 U
75-09-2	**Methylene Chloride**	**0.80**	**2.5**	**16**
67-64-1	**Acetone**	**0.61**	**6.3**	**23 B**
75-15-0	**Carbon Disulfide**	**0.70**	**1.3**	**1.1 J**
75-35-4	1,1-Dichloroethene	0.42	1.3	< 1.3 U
75-34-3	1,1-Dichloroethane	0.26	1.3	< 1.3 U
156-60-5	trans-1,2-Dichloroethene	0.33	1.3	< 1.3 U
156-59-2	cis-1,2-Dichloroethene	0.30	1.3	< 1.3 U
67-66-3	Chloroform	0.29	1.3	< 1.3 U
107-06-2	1,2-Dichloroethane	0.24	1.3	< 1.3 U
78-93-3	2-Butanone	0.64	6.3	< 6.3 U
71-55-6	1,1,1-Trichloroethane	0.28	1.3	< 1.3 U
56-23-5	Carbon Tetrachloride	0.27	1.3	< 1.3 U
108-05-4	Vinyl Acetate	0.48	6.3	< 6.3 U
75-27-4	Bromodichloromethane	0.32	1.3	< 1.3 U
78-87-5	1,2-Dichloropropane	0.20	1.3	< 1.3 U
10061-01-5	cis-1,3-Dichloropropene	0.28	1.3	< 1.3 U
79-01-6	Trichloroethene	0.27	1.3	< 1.3 U
124-48-1	Dibromochloromethane	0.33	1.3	< 1.3 U
79-00-5	1,1,2-Trichloroethane	0.36	1.3	< 1.3 U
71-43-2	**Benzene**	**0.37**	**1.3**	**0.9 J**
10061-02-6	trans-1,3-Dichloropropene	0.27	1.3	< 1.3 U
110-75-8	2-Chloroethylvinylether	0.35	6.3	< 6.3 U
75-25-2	Bromoform	0.37	1.3	< 1.3 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.53	6.3	< 6.3 U
591-78-6	2-Hexanone	0.55	6.3	< 6.3 U
127-18-4	Tetrachloroethene	0.32	1.3	< 1.3 U
79-34-5	1,1,2,2-Tetrachloroethane	0.32	1.3	< 1.3 U
108-88-3	Toluene	0.19	1.3	< 1.3 U
108-90-7	Chlorobenzene	0.28	1.3	< 1.3 U
100-41-4	Ethylbenzene	0.25	1.3	< 1.3 U
100-42-5	Styrene	0.17	1.3	< 1.3 U
75-69-4	Trichlorofluoromethane	0.33	1.3	< 1.3 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.36	2.5	< 2.5 U
179601-23-1	m,p-Xylene	0.49	1.3	< 1.3 U
95-47-6	o-Xylene	0.28	1.3	< 1.3 U
95-50-1	1,2-Dichlorobenzene	0.37	1.3	< 1.3 U
541-73-1	1,3-Dichlorobenzene	0.29	1.3	< 1.3 U
106-46-7	1,4-Dichlorobenzene	0.29	1.3	< 1.3 U
107-02-8	Acrolein	4.8	63	< 63 U
74-88-4	Methyl Iodide	0.27	1.3	< 1.3 U
74-96-4	Bromoethane	0.55	2.5	< 2.5 U
107-13-1	Acrylonitrile	1.3	6.3	< 6.3 U
563-58-6	1,1-Dichloropropene	0.39	1.3	< 1.3 U
74-95-3	Dibromomethane	0.18	1.3	< 1.3 U
630-20-6	1,1,1,2-Tetrachloroethane	0.29	1.3	< 1.3 U
96-12-8	1,2-Dibromo-3-chloropropane	0.74	6.3	< 6.3 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-024**
 SAMPLE

Lab Sample ID: TL23D
LIMS ID: 11-19441
Matrix: Soil
Date Analyzed: 09/14/11 14:09

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.65	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.55	6.3	< 6.3 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.3	< 1.3 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.3	< 1.3 U
87-68-3	Hexachlorobutadiene	0.52	6.3	< 6.3 U
106-93-4	Ethylene Dibromide	0.22	1.3	< 1.3 U
74-97-5	Bromochloromethane	0.41	1.3	< 1.3 U
594-20-7	2,2-Dichloropropane	0.37	1.3	< 1.3 U
142-28-9	1,3-Dichloropropane	0.26	1.3	< 1.3 U
98-82-8	Isopropylbenzene	0.29	1.3	< 1.3 U
103-65-1	n-Propylbenzene	0.34	1.3	< 1.3 U
108-86-1	Bromobenzene	0.19	1.3	< 1.3 U
95-49-8	2-Chlorotoluene	0.38	1.3	< 1.3 U
106-43-4	4-Chlorotoluene	0.35	1.3	< 1.3 U
98-06-6	tert-Butylbenzene	0.38	1.3	< 1.3 U
135-98-8	sec-Butylbenzene	0.30	1.3	< 1.3 U
99-87-6	4-Isopropyltoluene	0.30	1.3	< 1.3 U
104-51-8	n-Butylbenzene	0.33	1.3	< 1.3 U
120-82-1	1,2,4-Trichlorobenzene	0.42	6.3	< 6.3 U
91-20-3	Naphthalene	0.54	6.3	< 6.3 U
87-61-6	1,2,3-Trichlorobenzene	0.38	6.3	< 6.3 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	99.1%
Bromofluorobenzene	91.5%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-025**
 SAMPLE

Lab Sample ID: TL23E
LIMS ID: 11-19442
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 14:30

Sample Amount: 3.93 g-dry-wt
Percent Moisture: 21.8%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.33	1.3	< 1.3 U
74-83-9	Bromomethane	0.24	1.3	< 1.3 UJ
75-01-4	Vinyl Chloride	0.30	1.3	< 1.3 U
75-00-3	Chloroethane	0.59	1.3	< 1.3 U
75-09-2	**Methylene Chloride**	**0.81**	**2.5**	**19**
67-64-1	**Acetone**	**0.61**	**6.4**	**26 B**
75-15-0	**Carbon Disulfide**	**0.71**	**1.3**	**2.6**
75-35-4	1,1-Dichloroethene	0.43	1.3	< 1.3 U
75-34-3	1,1-Dichloroethane	0.26	1.3	< 1.3 U
156-60-5	trans-1,2-Dichloroethene	0.34	1.3	< 1.3 U
156-59-2	cis-1,2-Dichloroethene	0.31	1.3	< 1.3 U
67-66-3	Chloroform	0.30	1.3	< 1.3 U
107-06-2	1,2-Dichloroethane	0.24	1.3	< 1.3 U
78-93-3	2-Butanone	0.65	6.4	< 6.4 U
71-55-6	1,1,1-Trichloroethane	0.29	1.3	< 1.3 U
56-23-5	Carbon Tetrachloride	0.27	1.3	< 1.3 U
108-05-4	Vinyl Acetate	0.48	6.4	< 6.4 U
75-27-4	Bromodichloromethane	0.32	1.3	< 1.3 U
78-87-5	1,2-Dichloropropane	0.21	1.3	< 1.3 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.3	< 1.3 U
79-01-6	Trichloroethene	0.27	1.3	< 1.3 U
124-48-1	Dibromochloromethane	0.34	1.3	< 1.3 U
79-00-5	1,1,2-Trichloroethane	0.36	1.3	< 1.3 U
71-43-2	**Benzene**	**0.38**	**1.3**	**1.0 J**
10061-02-6	trans-1,3-Dichloropropene	0.27	1.3	< 1.3 U
110-75-8	2-Chloroethylvinylether	0.35	6.4	< 6.4 U
75-25-2	Bromoform	0.38	1.3	< 1.3 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.53	6.4	< 6.4 U
591-78-6	2-Hexanone	0.56	6.4	< 6.4 U
127-18-4	Tetrachloroethene	0.33	1.3	< 1.3 U
79-34-5	1,1,2,2-Tetrachloroethane	0.32	1.3	< 1.3 U
108-88-3	**Toluene**	**0.19**	**1.3**	**0.6 J**
108-90-7	Chlorobenzene	0.28	1.3	< 1.3 U
100-41-4	Ethylbenzene	0.26	1.3	< 1.3 U
100-42-5	Styrene	0.18	1.3	< 1.3 U
75-69-4	Trichlorofluoromethane	0.34	1.3	< 1.3 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.37	2.5	< 2.5 U
179601-23-1	m,p-Xylene	0.50	1.3	< 1.3 U
95-47-6	o-Xylene	0.28	1.3	< 1.3 U
95-50-1	1,2-Dichlorobenzene	0.37	1.3	< 1.3 U
541-73-1	1,3-Dichlorobenzene	0.29	1.3	< 1.3 U
106-46-7	1,4-Dichlorobenzene	0.30	1.3	< 1.3 U
107-02-8	Acrolein	4.8	64	< 64 U
74-88-4	Methyl Iodide	0.27	1.3	< 1.3 U
74-96-4	Bromoethane	0.56	2.5	< 2.5 U
107-13-1	Acrylonitrile	1.3	6.4	< 6.4 U
563-58-6	1,1-Dichloropropene	0.40	1.3	< 1.3 U
74-95-3	Dibromomethane	0.19	1.3	< 1.3 U
630-20-6	1,1,1,2-Tetrachloroethane	0.30	1.3	< 1.3 U
96-12-8	1,2-Dibromo-3-chloropropane	0.75	6.4	< 6.4 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-025**
 SAMPLE

Lab Sample ID: TL23E
LIMS ID: 11-19442
Matrix: Soil
Date Analyzed: 09/14/11 14:30

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.66	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.56	6.4	< 6.4 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.3	< 1.3 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.3	< 1.3 U
87-68-3	Hexachlorobutadiene	0.52	6.4	< 6.4 U
106-93-4	Ethylene Dibromide	0.22	1.3	< 1.3 U
74-97-5	Bromochloromethane	0.41	1.3	< 1.3 U
594-20-7	2,2-Dichloropropane	0.37	1.3	< 1.3 U
142-28-9	1,3-Dichloropropane	0.27	1.3	< 1.3 U
98-82-8	Isopropylbenzene	0.30	1.3	< 1.3 U
103-65-1	n-Propylbenzene	0.35	1.3	< 1.3 U
108-86-1	Bromobenzene	0.19	1.3	< 1.3 U
95-49-8	2-Chlorotoluene	0.38	1.3	< 1.3 U
106-43-4	4-Chlorotoluene	0.35	1.3	< 1.3 U
98-06-6	tert-Butylbenzene	0.39	1.3	< 1.3 U
135-98-8	sec-Butylbenzene	0.31	1.3	< 1.3 U
99-87-6	4-Isopropyltoluene	0.30	1.3	< 1.3 U
104-51-8	n-Butylbenzene	0.33	1.3	< 1.3 U
120-82-1	1,2,4-Trichlorobenzene	0.42	6.4	< 6.4 U
91-20-3	Naphthalene	0.55	6.4	< 6.4 U
87-61-6	1,2,3-Trichlorobenzene	0.39	6.4	< 6.4 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	104%
Bromofluorobenzene	94.3%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-026**
 SAMPLE

Lab Sample ID: TL23F
LIMS ID: 11-19443
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 14:58

Sample Amount: 4.24 g-dry-wt
Percent Moisture: 20.6%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.31	1.2	< 1.2 U
74-83-9	Bromomethane	0.22	1.2	< 1.2 UJ
75-01-4	Vinyl Chloride	0.28	1.2	< 1.2 U
75-00-3	Chloroethane	0.54	1.2	< 1.2 U
75-09-2	**Methylene Chloride**	**0.75**	**2.4**	**16**
67-64-1	**Acetone**	**0.57**	**5.9**	**18 B**
75-15-0	**Carbon Disulfide**	**0.66**	**1.2**	**3.3**
75-35-4	1,1-Dichloroethene	0.40	1.2	< 1.2 U
75-34-3	1,1-Dichloroethane	0.24	1.2	< 1.2 U
156-60-5	trans-1,2-Dichloroethene	0.31	1.2	< 1.2 U
156-59-2	cis-1,2-Dichloroethene	0.28	1.2	< 1.2 U
67-66-3	Chloroform	0.28	1.2	< 1.2 U
107-06-2	1,2-Dichloroethane	0.23	1.2	< 1.2 U
78-93-3	2-Butanone	0.60	5.9	< 5.9 U
71-55-6	1,1,1-Trichloroethane	0.27	1.2	< 1.2 U
56-23-5	Carbon Tetrachloride	0.25	1.2	< 1.2 U
108-05-4	Vinyl Acetate	0.45	5.9	< 5.9 U
75-27-4	Bromodichloromethane	0.30	1.2	< 1.2 U
78-87-5	1,2-Dichloropropane	0.19	1.2	< 1.2 U
10061-01-5	cis-1,3-Dichloropropene	0.27	1.2	< 1.2 U
79-01-6	Trichloroethene	0.25	1.2	< 1.2 U
124-48-1	Dibromochloromethane	0.31	1.2	< 1.2 U
79-00-5	1,1,2-Trichloroethane	0.34	1.2	< 1.2 U
71-43-2	**Benzene**	**0.35**	**1.2**	**0.6 J**
10061-02-6	trans-1,3-Dichloropropene	0.25	1.2	< 1.2 U
110-75-8	2-Chloroethylvinylether	0.33	5.9	< 5.9 U
75-25-2	Bromoform	0.35	1.2	< 1.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.50	5.9	< 5.9 U
591-78-6	2-Hexanone	0.52	5.9	< 5.9 U
127-18-4	Tetrachloroethene	0.30	1.2	< 1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.30	1.2	< 1.2 U
108-88-3	Toluene	0.18	1.2	< 1.2 U
108-90-7	Chlorobenzene	0.26	1.2	< 1.2 U
100-41-4	Ethylbenzene	0.24	1.2	< 1.2 U
100-42-5	Styrene	0.16	1.2	< 1.2 U
75-69-4	Trichlorofluoromethane	0.31	1.2	< 1.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.34	2.4	< 2.4 U
179601-23-1	m,p-Xylene	0.46	1.2	< 1.2 U
95-47-6	o-Xylene	0.26	1.2	< 1.2 U
95-50-1	1,2-Dichlorobenzene	0.35	1.2	< 1.2 U
541-73-1	1,3-Dichlorobenzene	0.27	1.2	< 1.2 U
106-46-7	1,4-Dichlorobenzene	0.27	1.2	< 1.2 U
107-02-8	Acrolein	4.5	59	< 59 U
74-88-4	Methyl Iodide	0.25	1.2	< 1.2 U
74-96-4	Bromoethane	0.52	2.4	< 2.4 U
107-13-1	Acrylonitrile	1.2	5.9	< 5.9 U
563-58-6	1,1-Dichloropropene	0.37	1.2	< 1.2 U
74-95-3	Dibromomethane	0.17	1.2	< 1.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.27	1.2	< 1.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.69	5.9	< 5.9 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-026**
 SAMPLE

Lab Sample ID: TL23F
LIMS ID: 11-19443
Matrix: Soil
Date Analyzed: 09/14/11 14:58

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.61	2.4	< 2.4 U
110-57-6	trans-1,4-Dichloro-2-butene	0.52	5.9	< 5.9 U
108-67-8	1,3,5-Trimethylbenzene	0.30	1.2	< 1.2 U
95-63-6	1,2,4-Trimethylbenzene	0.27	1.2	< 1.2 U
87-68-3	Hexachlorobutadiene	0.48	5.9	< 5.9 U
106-93-4	Ethylene Dibromide	0.21	1.2	< 1.2 U
74-97-5	Bromochloromethane	0.38	1.2	< 1.2 U
594-20-7	2,2-Dichloropropane	0.34	1.2	< 1.2 U
142-28-9	1,3-Dichloropropane	0.25	1.2	< 1.2 U
98-82-8	Isopropylbenzene	0.27	1.2	< 1.2 U
103-65-1	n-Propylbenzene	0.32	1.2	< 1.2 U
108-86-1	Bromobenzene	0.18	1.2	< 1.2 U
95-49-8	2-Chlorotoluene	0.35	1.2	< 1.2 U
106-43-4	4-Chlorotoluene	0.33	1.2	< 1.2 U
98-06-6	tert-Butylbenzene	0.36	1.2	< 1.2 U
135-98-8	sec-Butylbenzene	0.28	1.2	< 1.2 U
99-87-6	4-Isopropyltoluene	0.28	1.2	< 1.2 U
104-51-8	n-Butylbenzene	0.31	1.2	< 1.2 U
120-82-1	1,2,4-Trichlorobenzene	0.39	5.9	< 5.9 U
91-20-3	Naphthalene	0.51	5.9	< 5.9 U
87-61-6	1,2,3-Trichlorobenzene	0.36	5.9	< 5.9 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	102%
Bromofluorobenzene	94.2%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-027**
 SAMPLE

Lab Sample ID: TL23G
LIMS ID: 11-19444
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 15:26

Sample Amount: 4.05 g-dry-wt
Percent Moisture: 20.4%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.32	1.2	< 1.2 U
74-83-9	Bromomethane	0.23	1.2	< 1.2 UJ
75-01-4	Vinyl Chloride	0.29	1.2	< 1.2 U
75-00-3	Chloroethane	0.57	1.2	< 1.2 U
75-09-2	**Methylene Chloride**	**0.78**	**2.5**	**20**
67-64-1	**Acetone**	**0.60**	**6.2**	**16 B**
75-15-0	**Carbon Disulfide**	**0.69**	**1.2**	**4.0**
75-35-4	1,1-Dichloroethene	0.41	1.2	< 1.2 U
75-34-3	1,1-Dichloroethane	0.25	1.2	< 1.2 U
156-60-5	trans-1,2-Dichloroethene	0.33	1.2	< 1.2 U
156-59-2	cis-1,2-Dichloroethene	0.30	1.2	< 1.2 U
67-66-3	Chloroform	0.29	1.2	< 1.2 U
107-06-2	1,2-Dichloroethane	0.24	1.2	< 1.2 U
78-93-3	2-Butanone	0.63	6.2	< 6.2 U
71-55-6	1,1,1-Trichloroethane	0.28	1.2	< 1.2 U
56-23-5	Carbon Tetrachloride	0.26	1.2	< 1.2 U
108-05-4	Vinyl Acetate	0.47	6.2	< 6.2 U
75-27-4	Bromodichloromethane	0.31	1.2	< 1.2 U
78-87-5	1,2-Dichloropropane	0.20	1.2	< 1.2 U
10061-01-5	cis-1,3-Dichloropropene	0.28	1.2	< 1.2 U
79-01-6	Trichloroethene	0.26	1.2	< 1.2 U
124-48-1	Dibromochloromethane	0.33	1.2	< 1.2 U
79-00-5	1,1,2-Trichloroethane	0.35	1.2	< 1.2 U
71-43-2	Benzene	0.37	1.2	< 1.2 U
10061-02-6	trans-1,3-Dichloropropene	0.27	1.2	< 1.2 U
110-75-8	2-Chloroethylvinylether	0.34	6.2	< 6.2 U
75-25-2	Bromoform	0.37	1.2	< 1.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.52	6.2	< 6.2 U
591-78-6	2-Hexanone	0.54	6.2	< 6.2 U
127-18-4	Tetrachloroethene	0.32	1.2	< 1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.31	1.2	< 1.2 U
108-88-3	**Toluene**	**0.19**	**1.2**	**0.8 J**
108-90-7	Chlorobenzene	0.27	1.2	< 1.2 U
100-41-4	Ethylbenzene	0.25	1.2	< 1.2 U
100-42-5	Styrene	0.17	1.2	< 1.2 U
75-69-4	Trichlorofluoromethane	0.33	1.2	< 1.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.35	2.5	< 2.5 U
179601-23-1	m,p-Xylene	0.48	1.2	< 1.2 U
95-47-6	o-Xylene	0.28	1.2	< 1.2 U
95-50-1	1,2-Dichlorobenzene	0.36	1.2	< 1.2 U
541-73-1	1,3-Dichlorobenzene	0.28	1.2	< 1.2 U
106-46-7	1,4-Dichlorobenzene	0.29	1.2	< 1.2 U
107-02-8	Acrolein	4.7	62	< 62 U
74-88-4	Methyl Iodide	0.27	1.2	< 1.2 U
74-96-4	Bromoethane	0.54	2.5	< 2.5 U
107-13-1	Acrylonitrile	1.3	6.2	< 6.2 U
563-58-6	1,1-Dichloropropene	0.39	1.2	< 1.2 U
74-95-3	Dibromomethane	0.18	1.2	< 1.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.29	1.2	< 1.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.72	6.2	< 6.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: FRP-090711-027
SAMPLE

Lab Sample ID: TL23G
LIMS ID: 11-19444
Matrix: Soil
Date Analyzed: 09/14/11 15:26

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.64	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	0.54	6.2	< 6.2 U
108-67-8	1,3,5-Trimethylbenzene	0.31	1.2	< 1.2 U
95-63-6	1,2,4-Trimethylbenzene	0.28	1.2	< 1.2 U
87-68-3	Hexachlorobutadiene	0.51	6.2	< 6.2 U
106-93-4	Ethylene Dibromide	0.22	1.2	< 1.2 U
74-97-5	Bromochloromethane	0.40	1.2	< 1.2 U
594-20-7	2,2-Dichloropropane	0.36	1.2	< 1.2 U
142-28-9	1,3-Dichloropropane	0.26	1.2	< 1.2 U
98-82-8	Isopropylbenzene	0.29	1.2	< 1.2 U
103-65-1	n-Propylbenzene	0.34	1.2	< 1.2 U
108-86-1	Bromobenzene	0.19	1.2	< 1.2 U
95-49-8	2-Chlorotoluene	0.37	1.2	< 1.2 U
106-43-4	4-Chlorotoluene	0.34	1.2	< 1.2 U
98-06-6	tert-Butylbenzene	0.38	1.2	< 1.2 U
135-98-8	sec-Butylbenzene	0.30	1.2	< 1.2 U
99-87-6	4-Isopropyltoluene	0.29	1.2	< 1.2 U
104-51-8	n-Butylbenzene	0.32	1.2	< 1.2 U
120-82-1	1,2,4-Trichlorobenzene	0.41	6.2	< 6.2 U
91-20-3	Naphthalene	0.53	6.2	< 6.2 U
87-61-6	1,2,3-Trichlorobenzene	0.38	6.2	< 6.2 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	101%
Bromofluorobenzene	94.4%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-028**
 SAMPLE

Lab Sample ID: TL23H
LIMS ID: 11-19445
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 15:53

Sample Amount: 3.46 g-dry-wt
Percent Moisture: 15.0%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.38	1.4	< 1.4 U
74-83-9	Bromomethane	0.27	1.4	< 1.4 UJ
75-01-4	Vinyl Chloride	0.34	1.4	< 1.4 U
75-00-3	Chloroethane	0.67	1.4	< 1.4 U
75-09-2	**Methylene Chloride**	**0.92**	**2.9**	**22**
67-64-1	**Acetone**	**0.70**	**7.2**	**23 B**
75-15-0	**Carbon Disulfide**	**0.81**	**1.4**	**6.5**
75-35-4	1,1-Dichloroethene	0.49	1.4	< 1.4 U
75-34-3	1,1-Dichloroethane	0.29	1.4	< 1.4 U
156-60-5	trans-1,2-Dichloroethene	0.38	1.4	< 1.4 U
156-59-2	cis-1,2-Dichloroethene	0.35	1.4	< 1.4 U
67-66-3	Chloroform	0.34	1.4	< 1.4 U
107-06-2	1,2-Dichloroethane	0.28	1.4	< 1.4 U
78-93-3	2-Butanone	0.74	7.2	< 7.2 U
71-55-6	1,1,1-Trichloroethane	0.33	1.4	< 1.4 U
56-23-5	Carbon Tetrachloride	0.31	1.4	< 1.4 U
108-05-4	Vinyl Acetate	0.55	7.2	< 7.2 U
75-27-4	Bromodichloromethane	0.37	1.4	< 1.4 U
78-87-5	1,2-Dichloropropane	0.23	1.4	< 1.4 U
10061-01-5	cis-1,3-Dichloropropene	0.33	1.4	< 1.4 U
79-01-6	Trichloroethene	0.31	1.4	< 1.4 U
124-48-1	Dibromochloromethane	0.38	1.4	< 1.4 U
79-00-5	1,1,2-Trichloroethane	0.41	1.4	< 1.4 U
71-43-2	Benzene	0.43	1.4	< 1.4 U
10061-02-6	trans-1,3-Dichloropropene	0.31	1.4	< 1.4 U
110-75-8	2-Chloroethylvinylether	0.40	7.2	< 7.2 U
75-25-2	Bromoform	0.43	1.4	< 1.4 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.61	7.2	< 7.2 U
591-78-6	2-Hexanone	0.63	7.2	< 7.2 U
127-18-4	Tetrachloroethene	0.37	1.4	< 1.4 U
79-34-5	1,1,2,2-Tetrachloroethane	0.37	1.4	< 1.4 U
108-88-3	**Toluene**	**0.22**	**1.4**	**4.4**
108-90-7	Chlorobenzene	0.32	1.4	< 1.4 U
100-41-4	Ethylbenzene	0.29	1.4	< 1.4 U
100-42-5	Styrene	0.20	1.4	< 1.4 U
75-69-4	Trichlorofluoromethane	0.38	1.4	< 1.4 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.41	2.9	< 2.9 U
179601-23-1	m,p-Xylene	0.57	1.4	< 1.4 U
95-47-6	o-Xylene	0.32	1.4	< 1.4 U
95-50-1	1,2-Dichlorobenzene	0.42	1.4	< 1.4 U
541-73-1	1,3-Dichlorobenzene	0.33	1.4	< 1.4 U
106-46-7	1,4-Dichlorobenzene	0.34	1.4	< 1.4 U
107-02-8	Acrolein	5.5	72	< 72 U
74-88-4	Methyl Iodide	0.31	1.4	< 1.4 U
74-96-4	Bromoethane	0.64	2.9	< 2.9 U
107-13-1	Acrylonitrile	1.5	7.2	< 7.2 U
563-58-6	1,1-Dichloropropene	0.45	1.4	< 1.4 U
74-95-3	Dibromomethane	0.21	1.4	< 1.4 U
630-20-6	1,1,1,2-Tetrachloroethane	0.34	1.4	< 1.4 U
96-12-8	1,2-Dibromo-3-chloropropane	0.85	7.2	< 7.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-028**
 SAMPLE

Lab Sample ID: TL23H
LIMS ID: 11-19445
Matrix: Soil
Date Analyzed: 09/14/11 15:53

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.75	2.9	< 2.9 U
110-57-6	trans-1,4-Dichloro-2-butene	0.63	7.2	< 7.2 U
108-67-8	1,3,5-Trimethylbenzene	0.37	1.4	< 1.4 U
95-63-6	1,2,4-Trimethylbenzene	0.33	1.4	< 1.4 U
87-68-3	Hexachlorobutadiene	0.59	7.2	< 7.2 U
106-93-4	Ethylene Dibromide	0.25	1.4	< 1.4 U
74-97-5	Bromochloromethane	0.47	1.4	< 1.4 U
594-20-7	2,2-Dichloropropane	0.42	1.4	< 1.4 U
142-28-9	1,3-Dichloropropane	0.30	1.4	< 1.4 U
98-82-8	Isopropylbenzene	0.34	1.4	< 1.4 U
103-65-1	n-Propylbenzene	0.39	1.4	< 1.4 U
108-86-1	Bromobenzene	0.22	1.4	< 1.4 U
95-49-8	2-Chlorotoluene	0.43	1.4	< 1.4 U
106-43-4	4-Chlorotoluene	0.40	1.4	< 1.4 U
98-06-6	tert-Butylbenzene	0.44	1.4	< 1.4 U
135-98-8	sec-Butylbenzene	0.35	1.4	< 1.4 U
99-87-6	**4-Isopropyltoluene**	**0.34**	**1.4**	**1.9**
104-51-8	n-Butylbenzene	0.38	1.4	< 1.4 U
120-82-1	1,2,4-Trichlorobenzene	0.48	7.2	< 7.2 U
91-20-3	Naphthalene	0.62	7.2	< 7.2 U
87-61-6	1,2,3-Trichlorobenzene	0.44	7.2	< 7.2 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	99.8%
Bromofluorobenzene	94.1%
d4-1,2-Dichlorobenzene	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-029**
 SAMPLE

Lab Sample ID: TL23I
LIMS ID: 11-19446
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 16:21

Sample Amount: 3.46 g-dry-wt
Percent Moisture: 23.8%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.38	1.4	< 1.4 U
74-83-9	Bromomethane	0.27	1.4	< 1.4 U J
75-01-4	Vinyl Chloride	0.34	1.4	< 1.4 U
75-00-3	Chloroethane	0.67	1.4	< 1.4 U
75-09-2	**Methylene Chloride**	**0.92**	**2.9**	**22**
67-64-1	**Acetone**	**0.70**	**7.2**	**24 B**
75-15-0	**Carbon Disulfide**	**0.81**	**1.4**	**6.2**
75-35-4	1,1-Dichloroethene	0.49	1.4	< 1.4 U
75-34-3	1,1-Dichloroethane	0.29	1.4	< 1.4 U
156-60-5	trans-1,2-Dichloroethene	0.38	1.4	< 1.4 U
156-59-2	cis-1,2-Dichloroethene	0.35	1.4	< 1.4 U
67-66-3	Chloroform	0.34	1.4	< 1.4 U
107-06-2	1,2-Dichloroethane	0.28	1.4	< 1.4 U
78-93-3	2-Butanone	0.74	7.2	< 7.2 U
71-55-6	1,1,1-Trichloroethane	0.33	1.4	< 1.4 U
56-23-5	Carbon Tetrachloride	0.31	1.4	< 1.4 U
108-05-4	Vinyl Acetate	0.55	7.2	< 7.2 U
75-27-4	Bromodichloromethane	0.37	1.4	< 1.4 U
78-87-5	1,2-Dichloropropane	0.23	1.4	< 1.4 U
10061-01-5	cis-1,3-Dichloropropene	0.33	1.4	< 1.4 U
79-01-6	Trichloroethene	0.31	1.4	< 1.4 U
124-48-1	Dibromochloromethane	0.38	1.4	< 1.4 U
79-00-5	1,1,2-Trichloroethane	0.41	1.4	< 1.4 U
71-43-2	Benzene	0.43	1.4	< 1.4 U
10061-02-6	trans-1,3-Dichloropropene	0.31	1.4	< 1.4 U
110-75-8	2-Chloroethylvinylether	0.40	7.2	< 7.2 U
75-25-2	Bromoform	0.43	1.4	< 1.4 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.61	7.2	< 7.2 U
591-78-6	2-Hexanone	0.63	7.2	< 7.2 U
127-18-4	Tetrachloroethene	0.37	1.4	< 1.4 U
79-34-5	1,1,2,2-Tetrachloroethane	0.37	1.4	< 1.4 U
108-88-3	**Toluene**	**0.22**	**1.4**	**18**
108-90-7	Chlorobenzene	0.32	1.4	< 1.4 U
100-41-4	Ethylbenzene	0.29	1.4	< 1.4 U
100-42-5	Styrene	0.20	1.4	< 1.4 U
75-69-4	Trichlorofluoromethane	0.38	1.4	< 1.4 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.41	2.9	< 2.9 U
179601-23-1	m,p-Xylene	0.57	1.4	< 1.4 U
95-47-6	o-Xylene	0.32	1.4	< 1.4 U
95-50-1	1,2-Dichlorobenzene	0.42	1.4	< 1.4 U
541-73-1	1,3-Dichlorobenzene	0.33	1.4	< 1.4 U
106-46-7	1,4-Dichlorobenzene	0.34	1.4	< 1.4 U
107-02-8	Acrolein	5.5	72	< 72 U
74-88-4	Methyl Iodide	0.31	1.4	< 1.4 U
74-96-4	Bromoethane	0.64	2.9	< 2.9 U
107-13-1	Acrylonitrile	1.5	7.2	< 7.2 U
563-58-6	1,1-Dichloropropene	0.45	1.4	< 1.4 U
74-95-3	Dibromomethane	0.21	1.4	< 1.4 U
630-20-6	1,1,1,2-Tetrachloroethane	0.34	1.4	< 1.4 U
96-12-8	1,2-Dibromo-3-chloropropane	0.85	7.2	< 7.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-029**
 SAMPLE

Lab Sample ID: TL23I
LIMS ID: 11-19446
Matrix: Soil
Date Analyzed: 09/14/11 16:21

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.75	2.9	< 2.9 U
110-57-6	trans-1,4-Dichloro-2-butene	0.63	7.2	< 7.2 U
108-67-8	1,3,5-Trimethylbenzene	0.37	1.4	< 1.4 U
95-63-6	1,2,4-Trimethylbenzene	0.33	1.4	< 1.4 U
87-68-3	Hexachlorobutadiene	0.59	7.2	< 7.2 U
106-93-4	Ethylene Dibromide	0.25	1.4	< 1.4 U
74-97-5	Bromochloromethane	0.47	1.4	< 1.4 U
594-20-7	2,2-Dichloropropane	0.42	1.4	< 1.4 U
142-28-9	1,3-Dichloropropane	0.30	1.4	< 1.4 U
98-82-8	Isopropylbenzene	0.34	1.4	< 1.4 U
103-65-1	n-Propylbenzene	0.39	1.4	< 1.4 U
108-86-1	Bromobenzene	0.22	1.4	< 1.4 U
95-49-8	2-Chlorotoluene	0.43	1.4	< 1.4 U
106-43-4	4-Chlorotoluene	0.40	1.4	< 1.4 U
98-06-6	tert-Butylbenzene	0.44	1.4	< 1.4 U
135-98-8	sec-Butylbenzene	0.35	1.4	< 1.4 U
99-87-6	**4-Isopropyltoluene**	**0.34**	**1.4**	**7.7**
104-51-8	n-Butylbenzene	0.38	1.4	< 1.4 U
120-82-1	1,2,4-Trichlorobenzene	0.48	7.2	< 7.2 U
91-20-3	Naphthalene	0.62	7.2	< 7.2 U
87-61-6	1,2,3-Trichlorobenzene	0.44	7.2	< 7.2 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	102%
Bromofluorobenzene	96.2%
d4-1,2-Dichlorobenzene	98.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-030**
 SAMPLE

Lab Sample ID: TL23J
LIMS ID: 11-19447
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 16:48

Sample Amount: 3.58 g-dry-wt
Percent Moisture: 23.7%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.37	1.4	< 1.4 U
74-83-9	Bromomethane	0.26	1.4	< 1.4 UJ
75-01-4	Vinyl Chloride	0.33	1.4	< 1.4 U
75-00-3	Chloroethane	0.65	1.4	< 1.4 U
75-09-2	**Methylene Chloride**	**0.89**	**2.8**	~~1.4 J~~ 2.8U
67-64-1	**Acetone**	**0.67**	**7.0**	**16 ~~B~~**
75-15-0	**Carbon Disulfide**	**0.78**	**1.4**	**6.2**
75-35-4	1,1-Dichloroethene	0.47	1.4	< 1.4 U
75-34-3	1,1-Dichloroethane	0.28	1.4	< 1.4 U
156-60-5	trans-1,2-Dichloroethene	0.37	1.4	< 1.4 U
156-59-2	cis-1,2-Dichloroethene	0.34	1.4	< 1.4 U
67-66-3	Chloroform	0.33	1.4	< 1.4 U
107-06-2	1,2-Dichloroethane	0.27	1.4	< 1.4 U
78-93-3	2-Butanone	0.72	7.0	< 7.0 U
71-55-6	1,1,1-Trichloroethane	0.32	1.4	< 1.4 U
56-23-5	Carbon Tetrachloride	0.30	1.4	< 1.4 U
108-05-4	Vinyl Acetate	0.53	7.0	< 7.0 U
75-27-4	Bromodichloromethane	0.35	1.4	< 1.4 U
78-87-5	1,2-Dichloropropane	0.23	1.4	< 1.4 U
10061-01-5	cis-1,3-Dichloropropene	0.32	1.4	< 1.4 U
79-01-6	Trichloroethene	0.30	1.4	< 1.4 U
124-48-1	Dibromochloromethane	0.37	1.4	< 1.4 U
79-00-5	1,1,2-Trichloroethane	0.40	1.4	< 1.4 U
71-43-2	Benzene	0.41	1.4	< 1.4 U
10061-02-6	trans-1,3-Dichloropropene	0.30	1.4	< 1.4 U
110-75-8	2-Chloroethylvinylether	0.39	7.0	< 7.0 U
75-25-2	Bromoform	0.41	1.4	< 1.4 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.59	7.0	< 7.0 U
591-78-6	2-Hexanone	0.61	7.0	< 7.0 U
127-18-4	Tetrachloroethene	0.36	1.4	< 1.4 U
79-34-5	1,1,2,2-Tetrachloroethane	0.35	1.4	< 1.4 U
108-88-3	**Toluene**	**0.21**	**1.4**	**17**
108-90-7	Chlorobenzene	0.31	1.4	< 1.4 U
100-41-4	Ethylbenzene	0.28	1.4	< 1.4 U
100-42-5	Styrene	0.19	1.4	< 1.4 U
75-69-4	Trichlorofluoromethane	0.37	1.4	< 1.4 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.40	2.8	< 2.8 U
179601-23-1	m,p-Xylene	0.55	1.4	< 1.4 U
95-47-6	o-Xylene	0.31	1.4	< 1.4 U
95-50-1	1,2-Dichlorobenzene	0.41	1.4	< 1.4 U
541-73-1	1,3-Dichlorobenzene	0.32	1.4	< 1.4 U
106-46-7	1,4-Dichlorobenzene	0.32	1.4	< 1.4 U
107-02-8	Acrolein	5.3	70	< 70 U
74-88-4	Methyl Iodide	0.30	1.4	< 1.4 U
74-96-4	Bromoethane	0.61	2.8	< 2.8 U
107-13-1	Acrylonitrile	1.4	7.0	< 7.0 U
563-58-6	1,1-Dichloropropene	0.44	1.4	< 1.4 U
74-95-3	Dibromomethane	0.21	1.4	< 1.4 U
630-20-6	1,1,1,2-Tetrachloroethane	0.33	1.4	< 1.4 U
96-12-8	1,2-Dibromo-3-chloropropane	0.82	7.0	< 7.0 U

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-030**
 SAMPLE

Lab Sample ID: TL23J
LIMS ID: 11-19447
Matrix: Soil
Date Analyzed: 09/14/11 16:48

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.72	2.8	< 2.8 U
110-57-6	trans-1,4-Dichloro-2-butene	0.61	7.0	< 7.0 U
108-67-8	1,3,5-Trimethylbenzene	0.35	1.4	< 1.4 U
95-63-6	1,2,4-Trimethylbenzene	0.32	1.4	< 1.4 U
87-68-3	Hexachlorobutadiene	0.57	7.0	< 7.0 U
106-93-4	Ethylene Dibromide	0.25	1.4	< 1.4 U
74-97-5	Bromochloromethane	0.45	1.4	< 1.4 U
594-20-7	2,2-Dichloropropane	0.41	1.4	< 1.4 U
142-28-9	1,3-Dichloropropane	0.29	1.4	< 1.4 U
98-82-8	Isopropylbenzene	0.33	1.4	< 1.4 U
103-65-1	n-Propylbenzene	0.38	1.4	< 1.4 U
108-86-1	Bromobenzene	0.21	1.4	< 1.4 U
95-49-8	2-Chlorotoluene	0.42	1.4	< 1.4 U
106-43-4	4-Chlorotoluene	0.39	1.4	< 1.4 U
98-06-6	tert-Butylbenzene	0.43	1.4	< 1.4 U
135-98-8	sec-Butylbenzene	0.34	1.4	< 1.4 U
99-87-6	**4-Isopropyltoluene**	**0.33**	**1.4**	**7.2**
104-51-8	n-Butylbenzene	0.37	1.4	< 1.4 U
120-82-1	1,2,4-Trichlorobenzene	0.46	7.0	< 7.0 U
91-20-3	Naphthalene	0.60	7.0	< 7.0 U
87-61-6	1,2,3-Trichlorobenzene	0.43	7.0	< 7.0 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	104%
Bromofluorobenzene	97.0%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-091411	Method Blank	Med	100%	102%	94.2%	98.8%	0
LCS-091411	Lab Control	Med	93.4%	100%	94.6%	99.1%	0
LCSD-091411	Lab Control Dup	Med	94.7%	100%	95.3%	99.8%	0
TL23A	FRP-090711-021	Low	112%	104%	89.6%	99.6%	0
TL23ARE	FRP-090711-021	Med	96.5%	101%	94.6%	97.1%	0
TL23AMS	FRP-090711-021	Med	97.2%	103%	95.5%	102%	0
TL23AMSD	FRP-090711-021	Med	95.9%	101%	95.7%	99.5%	0
MB-091311	Method Blank	Low	101%	104%	93.4%	101%	0
LCS-091311	Lab Control	Low	95.2%	100%	95.7%	100%	0
LCSD-091311	Lab Control Dup	Low	94.0%	101%	97.2%	101%	0
TL23B	FRP-090711-022	Low	110%	102%	86.9%	100%	0
MB-091411	Method Blank	Low	100%	102%	94.2%	98.8%	0
LCS-091411	Lab Control	Low	93.4%	100%	94.6%	99.1%	0
LCSD-091411	Lab Control Dup	Low	94.7%	100%	95.3%	99.8%	0
TL23C	FRP-090711-023	Low	106%	101%	92.8%	99.5%	0
TL23D	FRP-090711-024	Low	106%	99.1%	91.5%	101%	0
TL23E	FRP-090711-025	Low	106%	104%	94.3%	101%	0
TL23F	FRP-090711-026	Low	108%	102%	94.2%	101%	0
TL23G	FRP-090711-027	Low	108%	101%	94.4%	101%	0
TL23H	FRP-090711-028	Low	110%	99.8%	94.1%	103%	0
TL23I	FRP-090711-029	Low	106%	102%	96.2%	98.4%	0
TL23J	FRP-090711-030	Low	110%	104%	97.0%	101%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 11-19438 to 11-19447

TL23:00077

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**
 MATRIX SPIKE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst MS: FINN5/PAB
MSD: FINN5/PAB
Date Analyzed MS: 09/14/11 20:01
MSD: 09/14/11 20:28

Sample Amount MS: 56.5 mg-dry-wt
MSD: 56.5 mg-dry-wt
Purge Volume MS: 5.0 mL
MSD: 5.0 mL
Moisture: 25.7%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Chloromethane	< 88.5 U	4790	4420	108%	4940	4420	112%	3.1%
Bromomethane	< 88.5 U	1550 Q	4420	35.1%	2110 Q	4420	47.7%	30.6%
Vinyl Chloride	< 88.5 U	4360	4420	98.6%	4290	4420	97.1%	1.6%
Chloroethane	< 88.5 U	6170 Q	4420	140%	5910 Q	4420	134%	4.3%
Methylene Chloride	78.8 J	5640	4420	126%	5680	4420	127%	0.7%
Acetone	< 442 U	42100 B	22100	190%	42100 B	22100	190%	0.0%
Carbon Disulfide	< 88.5 U	5140	4420	116%	5060	4420	114%	1.6%
1,1-Dichloroethene	< 88.5 U	5130	4420	116%	5210	4420	118%	1.5%
1,1-Dichloroethane	< 88.5 U	5080	4420	115%	5150	4420	117%	1.4%
trans-1,2-Dichloroethene	< 88.5 U	5160	4420	117%	5140	4420	116%	0.4%
cis-1,2-Dichloroethene	< 88.5 U	5440	4420	123%	5460	4420	124%	0.4%
Chloroform	< 88.5 U	4780	4420	108%	4830	4420	109%	1.0%
1,2-Dichloroethane	< 88.5 U	4180	4420	94.6%	4130	4420	93.4%	1.2%
2-Butanone	256 J	35800	22100	161%	35600	22100	160%	0.6%
1,1,1-Trichloroethane	< 88.5 U	4390	4420	99.3%	4400	4420	99.5%	0.2%
Carbon Tetrachloride	< 88.5 U	3960	4420	89.6%	3960	4420	89.6%	0.0%
Vinyl Acetate	< 442 U	4680	4420	106%	4810	4420	109%	2.7%
Bromodichloromethane	< 88.5 U	4530	4420	102%	4500	4420	102%	0.7%
1,2-Dichloropropane	< 88.5 U	4890	4420	111%	4860	4420	110%	0.6%
cis-1,3-Dichloropropene	< 88.5 U	4700	4420	106%	4620	4420	105%	1.7%
Trichloroethene	< 88.5 U	5750	4420	130%	5530	4420	125%	3.9%
Dibromochloromethane	< 88.5 U	4540	4420	103%	4580	4420	104%	0.9%
1,1,2-Trichloroethane	< 88.5 U	4940	4420	112%	4870	4420	110%	1.4%
Benzene	< 88.5 U	4870	4420	110%	4910	4420	111%	0.8%
trans-1,3-Dichloropropene	< 88.5 U	4700	4420	106%	4630	4420	105%	1.5%
2-Chloroethylvinylether	< 442 U	10600 Q	4420	240%	10500 Q	4420	238%	0.9%
Bromoform	< 88.5 U	4600	4420	104%	4450	4420	101%	3.3%
4-Methyl-2-Pentanone (MIBK)	< 442 U	25400	22100	115%	25000	22100	113%	1.6%
2-Hexanone	< 442 U	27100	22100	123%	28200	22100	128%	4.0%
Tetrachloroethene	< 88.5 U	4130	4420	93.4%	4230	4420	95.7%	2.4%
1,1,2,2-Tetrachloroethane	< 88.5 U	3220	4420	72.9%	3360	4420	76.0%	4.3%
Toluene	840	5580	4420	107%	5540	4420	106%	0.7%
Chlorobenzene	< 88.5 U	4590	4420	104%	4660	4420	105%	1.5%
Ethylbenzene	< 88.5 U	4500	4420	102%	4580	4420	104%	1.8%
Styrene	< 88.5 U	4550	4420	103%	4620	4420	105%	1.5%
Trichlorofluoromethane	< 88.5 U	5160	4420	117%	5120	4420	116%	0.8%
1,1,2-Trichloro-1,2,2-trifl	< 177 U	5870 Q	4420	133%	5840 Q	4420	132%	0.5%
m,p-Xylene	< 88.5 U	8890	8850	100%	9040	8850	102%	1.7%
o-Xylene	< 88.5 U	4580	4420	104%	4750	4420	107%	3.6%
1,2-Dichlorobenzene	< 88.5 U	4450 B	4420	101%	4440 B	4420	100%	0.2%
1,3-Dichlorobenzene	< 88.5 U	4260	4420	96.4%	4230	4420	95.7%	0.7%
1,4-Dichlorobenzene	< 88.5 U	4220	4420	95.5%	4210	4420	95.2%	0.2%
Acrolein	< 4420 U	8670	22100	39.2%	8960	22100	40.5%	3.3%
Methyl Iodide	< 88.5 U	2970	4420	67.2%	3490	4420	79.0%	16.1%
Bromoethane	< 177 U	5040	4420	114%	5140	4420	116%	2.0%
Acrylonitrile	< 442 U	5630	4420	127%	5620	4420	127%	0.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**

MATRIX SPIKE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
1,1-Dichloropropene	< 88.5 U	4380	4420	99.1%	4390	4420	99.3%	0.2%
Dibromomethane	< 88.5 U	4770	4420	108%	4790	4420	108%	0.4%
1,1,1,2-Tetrachloroethane	< 88.5 U	4160	4420	94.1%	4280	4420	96.8%	2.8%
1,2-Dibromo-3-chloropropane	< 442 U	4360	4420	98.6%	4220	4420	95.5%	3.3%
1,2,3-Trichloropropane	< 177 U	4390	4420	99.3%	4490	4420	102%	2.3%
trans-1,4-Dichloro-2-butene	< 442 U	4060	4420	91.9%	4020	4420	91.0%	1.0%
1,3,5-Trimethylbenzene	< 88.5 U	4310	4420	97.5%	4330	4420	98.0%	0.5%
1,2,4-Trimethylbenzene	< 88.5 U	4280	4420	96.8%	4290	4420	97.1%	0.2%
Hexachlorobutadiene	< 442 U	3670	4420	83.0%	3680	4420	83.3%	0.3%
Ethylene Dibromide	< 88.5 U	4920	4420	111%	4930	4420	112%	0.2%
Bromochloromethane	< 88.5 U	5500	4420	124%	5550	4420	126%	0.9%
2,2-Dichloropropane	< 88.5 U	4280	4420	96.8%	4260	4420	96.4%	0.5%
1,3-Dichloropropane	< 88.5 U	4670	4420	106%	4780	4420	108%	2.3%
Isopropylbenzene	< 88.5 U	4480	4420	101%	4490	4420	102%	0.2%
n-Propylbenzene	< 88.5 U	4540	4420	103%	4560	4420	103%	0.4%
Bromobenzene	< 88.5 U	4480	4420	101%	4510	4420	102%	0.7%
2-Chlorotoluene	< 88.5 U	4240	4420	95.9%	4430	4420	100%	4.4%
4-Chlorotoluene	< 88.5 U	4260	4420	96.4%	4110	4420	93.0%	3.6%
tert-Butylbenzene	< 88.5 U	4380	4420	99.1%	4410	4420	99.8%	0.7%
sec-Butylbenzene	< 88.5 U	4540	4420	103%	4560	4420	103%	0.4%
4-Isopropyltoluene	< 88.5 U	4200	4420	95.0%	4190	4420	94.8%	0.2%
n-Butylbenzene	< 88.5 U	4110	4420	93.0%	4140	4420	93.7%	0.7%
1,2,4-Trichlorobenzene	< 442 U	3440	4420	77.8%	3510	4420	79.4%	2.0%
Naphthalene	< 442 U	4050	4420	91.6%	4180	4420	94.6%	3.2%
1,2,3-Trichlorobenzene	< 442 U	3620	4420	81.9%	3770	4420	85.3%	4.1%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**
 MATRIX SPIKE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/21/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 20:01

Sample Amount: 56.5 **mg-dry-wt**
Percent Moisture: 25.7%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	23	88	---
74-83-9	Bromomethane	17	88	---
75-01-4	Vinyl Chloride	21	88	---
75-00-3	Chloroethane	41	88	---
75-09-2	Methylene Chloride	56	180	---
67-64-1	Acetone	43	440	---
75-15-0	Carbon Disulfide	49	88	---
75-35-4	1,1-Dichloroethene	30	88	---
75-34-3	1,1-Dichloroethane	18	88	---
156-60-5	trans-1,2-Dichloroethene	24	88	---
156-59-2	cis-1,2-Dichloroethene	21	88	---
67-66-3	Chloroform	21	88	---
107-06-2	1,2-Dichloroethane	17	88	---
78-93-3	2-Butanone	45	440	---
71-55-6	1,1,1-Trichloroethane	20	88	---
56-23-5	Carbon Tetrachloride	19	88	---
108-05-4	Vinyl Acetate	34	440	---
75-27-4	Bromodichloromethane	22	88	---
78-87-5	1,2-Dichloropropane	14	88	---
10061-01-5	cis-1,3-Dichloropropene	20	88	---
79-01-6	Trichloroethene	19	88	---
124-48-1	Dibromochloromethane	24	88	---
79-00-5	1,1,2-Trichloroethane	25	88	---
71-43-2	Benzene	26	88	---
10061-02-6	trans-1,3-Dichloropropene	19	88	---
110-75-8	2-Chloroethylvinylether	24	440	---
75-25-2	Bromoform	26	88	---
108-10-1	4-Methyl-2-Pentanone (MIBK)	37	440	---
591-78-6	2-Hexanone	39	440	---
127-18-4	Tetrachloroethene	23	88	---
79-34-5	1,1,2,2-Tetrachloroethane	22	88	---
108-88-3	Toluene	13	88	---
108-90-7	Chlorobenzene	19	88	---
100-41-4	Ethylbenzene	18	88	---
100-42-5	Styrene	12	88	---
75-69-4	Trichlorofluoromethane	24	88	---
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	25	180	---
179601-23-1	m,p-Xylene	35	88	---
95-47-6	o-Xylene	20	88	---
95-50-1	1,2-Dichlorobenzene	26	88	---
541-73-1	1,3-Dichlorobenzene	20	88	---
106-46-7	1,4-Dichlorobenzene	21	88	---
107-02-8	Acrolein	340	4400	---
74-88-4	Methyl Iodide	19	88	---
74-96-4	Bromoethane	39	180	---
107-13-1	Acrylonitrile	91	440	---
563-58-6	1,1-Dichloropropene	28	88	---
74-95-3	Dibromomethane	13	88	---
630-20-6	1,1,1,2-Tetrachloroethane	21	88	---
96-12-8	1,2-Dibromo-3-chloropropane	52	440	---

TL23: 0080R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: FRP-090711-021
MATRIX SPIKE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Date Analyzed: 09/14/11 20:01

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	46	180	---
110-57-6	trans-1,4-Dichloro-2-butene	39	440	---
108-67-8	1,3,5-Trimethylbenzene	22	88	---
95-63-6	1,2,4-Trimethylbenzene	20	88	---
87-68-3	Hexachlorobutadiene	36	440	---
106-93-4	Ethylene Dibromide	16	88	---
74-97-5	Bromochloromethane	29	88	---
594-20-7	2,2-Dichloropropane	26	88	---
142-28-9	1,3-Dichloropropane	18	88	---
98-82-8	Isopropylbenzene	21	88	---
103-65-1	n-Propylbenzene	24	88	---
108-86-1	Bromobenzene	14	88	---
95-49-8	2-Chlorotoluene	27	88	---
106-43-4	4-Chlorotoluene	25	88	---
98-06-6	tert-Butylbenzene	27	88	---
135-98-8	sec-Butylbenzene	21	88	---
99-87-6	4-Isopropyltoluene	21	88	---
104-51-8	n-Butylbenzene	23	88	---
120-82-1	1,2,4-Trichlorobenzene	29	440	---
91-20-3	Naphthalene	38	440	---
87-61-6	1,2,3-Trichlorobenzene	27	440	---

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	97.2%
d8-Toluene	103%
Bromofluorobenzene	95.5%
d4-1,2-Dichlorobenzene	102%

TL23:00081R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-090711-021**

MATRIX SPIKE DUPLICATE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/21/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 20:28

Sample Amount: 56.5 **mg-dry-wt**
Percent Moisture: 25.7%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	23	88	---
74-83-9	Bromomethane	17	88	---
75-01-4	Vinyl Chloride	21	88	---
75-00-3	Chloroethane	41	88	---
75-09-2	Methylene Chloride	56	180	---
67-64-1	Acetone	43	440	---
75-15-0	Carbon Disulfide	49	88	---
75-35-4	1,1-Dichloroethene	30	88	---
75-34-3	1,1-Dichloroethane	18	88	---
156-60-5	trans-1,2-Dichloroethene	24	88	---
156-59-2	cis-1,2-Dichloroethene	21	88	---
67-66-3	Chloroform	21	88	---
107-06-2	1,2-Dichloroethane	17	88	---
78-93-3	2-Butanone	45	440	---
71-55-6	1,1,1-Trichloroethane	20	88	---
56-23-5	Carbon Tetrachloride	19	88	---
108-05-4	Vinyl Acetate	34	440	---
75-27-4	Bromodichloromethane	22	88	---
78-87-5	1,2-Dichloropropane	14	88	---
10061-01-5	cis-1,3-Dichloropropene	20	88	---
79-01-6	Trichloroethene	19	88	---
124-48-1	Dibromochloromethane	24	88	---
79-00-5	1,1,2-Trichloroethane	25	88	---
71-43-2	Benzene	26	88	---
10061-02-6	trans-1,3-Dichloropropene	19	88	---
110-75-8	2-Chloroethylvinylether	24	440	---
75-25-2	Bromoform	26	88	---
108-10-1	4-Methyl-2-Pentanone (MIBK)	37	440	---
591-78-6	2-Hexanone	39	440	---
127-18-4	Tetrachloroethene	23	88	---
79-34-5	1,1,2,2-Tetrachloroethane	22	88	---
108-88-3	Toluene	13	88	---
108-90-7	Chlorobenzene	19	88	---
100-41-4	Ethylbenzene	18	88	---
100-42-5	Styrene	12	88	---
75-69-4	Trichlorofluoromethane	24	88	---
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	25	180	---
179601-23-1	m,p-Xylene	35	88	---
95-47-6	o-Xylene	20	88	---
95-50-1	1,2-Dichlorobenzene	26	88	---
541-73-1	1,3-Dichlorobenzene	20	88	---
106-46-7	1,4-Dichlorobenzene	21	88	---
107-02-8	Acrolein	340	4400	---
74-88-4	Methyl Iodide	19	88	---
74-96-4	Bromoethane	39	180	---
107-13-1	Acrylonitrile	91	440	---
563-58-6	1,1-Dichloropropene	28	88	---
74-95-3	Dibromomethane	13	88	---
630-20-6	1,1,1,2-Tetrachloroethane	21	88	---
96-12-8	1,2-Dibromo-3-chloropropane	52	440	---

TL23.00082R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: FRP-090711-021
MATRIX SPIKE DUPLICATE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Date Analyzed: 09/14/11 20:28

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	46	180	---
110-57-6	trans-1,4-Dichloro-2-butene	39	440	---
108-67-8	1,3,5-Trimethylbenzene	22	88	---
95-63-6	1,2,4-Trimethylbenzene	20	88	---
87-68-3	Hexachlorobutadiene	36	440	---
106-93-4	Ethylene Dibromide	16	88	---
74-97-5	Bromochloromethane	29	88	---
594-20-7	2,2-Dichloropropane	26	88	---
142-28-9	1,3-Dichloropropane	18	88	---
98-82-8	Isopropylbenzene	21	88	---
103-65-1	n-Propylbenzene	24	88	---
108-86-1	Bromobenzene	14	88	---
95-49-8	2-Chlorotoluene	27	88	---
106-43-4	4-Chlorotoluene	25	88	---
98-06-6	tert-Butylbenzene	27	88	---
135-98-8	sec-Butylbenzene	21	88	---
99-87-6	4-Isopropyltoluene	21	88	---
104-51-8	n-Butylbenzene	23	88	---
120-82-1	1,2,4-Trichlorobenzene	29	440	---
91-20-3	Naphthalene	38	440	---
87-61-6	1,2,3-Trichlorobenzene	27	440	---

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	95.9%
d8-Toluene	101%
Bromofluorobenzene	95.7%
d4-1,2-Dichlorobenzene	99.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091311**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-091311
LIMS ID: 11-19439
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 09/13/11 09:30
LCSD: 09/13/11 10:05

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	51.3	50.0	103%	52.6	50.0	105%	2.5%
Bromomethane	37.2 Q	50.0	74.4%	39.3 Q	50.0	78.6%	5.5%
Vinyl Chloride	43.8	50.0	87.6%	46.6	50.0	93.2%	6.2%
Chloroethane	62.6 Q	50.0	125%	63.4 Q	50.0	127%	1.3%
Methylene Chloride	56.0	50.0	112%	56.7	50.0	113%	1.2%
Acetone	240	250	96.0%	262	250	105%	8.8%
Carbon Disulfide	54.8	50.0	110%	57.1	50.0	114%	4.1%
1,1-Dichloroethene	52.2	50.0	104%	54.5	50.0	109%	4.3%
1,1-Dichloroethane	52.9	50.0	106%	54.0	50.0	108%	2.1%
trans-1,2-Dichloroethene	52.4	50.0	105%	54.8	50.0	110%	4.5%
cis-1,2-Dichloroethene	56.7	50.0	113%	57.4	50.0	115%	1.2%
Chloroform	51.2	50.0	102%	50.9	50.0	102%	0.6%
1,2-Dichloroethane	42.5	50.0	85.0%	44.6	50.0	89.2%	4.8%
2-Butanone	263	250	105%	276	250	110%	4.8%
1,1,1-Trichloroethane	48.1	50.0	96.2%	49.7	50.0	99.4%	3.3%
Carbon Tetrachloride	42.2	50.0	84.4%	45.2	50.0	90.4%	6.9%
Vinyl Acetate	48.5	50.0	97.0%	51.9	50.0	104%	6.8%
Bromodichloromethane	48.7	50.0	97.4%	50.4	50.0	101%	3.4%
1,2-Dichloropropane	50.7	50.0	101%	52.7	50.0	105%	3.9%
cis-1,3-Dichloropropene	50.6	50.0	101%	53.6	50.0	107%	5.8%
Trichloroethene	47.9	50.0	95.8%	50.0	50.0	100%	4.3%
Dibromochloromethane	50.5	50.0	101%	53.4	50.0	107%	5.6%
1,1,2-Trichloroethane	51.3	50.0	103%	52.8	50.0	106%	2.9%
Benzene	50.5	50.0	101%	53.8	50.0	108%	6.3%
trans-1,3-Dichloropropene	51.2	50.0	102%	52.8	50.0	106%	3.1%
2-Chloroethylvinylether	109 Q	50.0	218%	112 Q	50.0	224%	2.7%
Bromoform	51.7	50.0	103%	53.4	50.0	107%	3.2%
4-Methyl-2-Pentanone (MIBK)	244	250	97.6%	262	250	105%	7.1%
2-Hexanone	243	250	97.2%	258	250	103%	6.0%
Tetrachloroethene	46.7	50.0	93.4%	49.3	50.0	98.6%	5.4%
1,1,2,2-Tetrachloroethane	52.0	50.0	104%	54.7	50.0	109%	5.1%
Toluene	49.5	50.0	99.0%	51.7	50.0	103%	4.3%
Chlorobenzene	49.9	50.0	99.8%	53.1	50.0	106%	6.2%
Ethylbenzene	49.3	50.0	98.6%	52.4	50.0	105%	6.1%
Styrene	50.2	50.0	100%	52.0	50.0	104%	3.5%
Trichlorofluoromethane	53.5	50.0	107%	56.0	50.0	112%	4.6%
1,1,2-Trichloro-1,2,2-trifluoroetha	58.6	50.0	117%	60.4	50.0	121%	3.0%
m,p-Xylene	98.5	100	98.5%	104	100	104%	5.4%
o-Xylene	50.5	50.0	101%	53.3	50.0	107%	5.4%
1,2-Dichlorobenzene	51.1 B	50.0	102%	52.1 B	50.0	104%	1.9%
1,3-Dichlorobenzene	50.4	50.0	101%	51.3	50.0	103%	1.8%
1,4-Dichlorobenzene	50.6	50.0	101%	51.5	50.0	103%	1.8%
Acrolein	289	250	116%	298	250	119%	3.1%
Methyl Iodide	47.4	50.0	94.8%	48.7	50.0	97.4%	2.7%
Bromoethane	53.0	50.0	106%	54.7	50.0	109%	3.2%
Acrylonitrile	56.0	50.0	112%	57.7	50.0	115%	3.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091311**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-091311
LIMS ID: 11-19439
Matrix: Soil

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,1-Dichloropropene	45.2	50.0	90.4%	49.4	50.0	98.8%	8.9%
Dibromomethane	48.7	50.0	97.4%	51.1	50.0	102%	4.8%
1,1,1,2-Tetrachloroethane	47.4	50.0	94.8%	49.5	50.0	99.0%	4.3%
1,2-Dibromo-3-chloropropane	47.3	50.0	94.6%	50.1	50.0	100%	5.7%
1,2,3-Trichloropropane	48.7	50.0	97.4%	50.9	50.0	102%	4.4%
trans-1,4-Dichloro-2-butene	48.0	50.0	96.0%	50.0	50.0	100%	4.1%
1,3,5-Trimethylbenzene	49.1	50.0	98.2%	50.9	50.0	102%	3.6%
1,2,4-Trimethylbenzene	49.2	50.0	98.4%	51.5	50.0	103%	4.6%
Hexachlorobutadiene	42.2	50.0	84.4%	43.5	50.0	87.0%	3.0%
Ethylene Dibromide	51.2	50.0	102%	53.8	50.0	108%	5.0%
Bromochloromethane	55.7	50.0	111%	58.5	50.0	117%	4.9%
2,2-Dichloropropane	49.5	50.0	99.0%	50.7	50.0	101%	2.4%
1,3-Dichloropropane	49.7	50.0	99.4%	52.2	50.0	104%	4.9%
Isopropylbenzene	49.7	50.0	99.4%	51.8	50.0	104%	4.1%
n-Propylbenzene	52.1	50.0	104%	53.6	50.0	107%	2.8%
Bromobenzene	49.8	50.0	99.6%	51.6	50.0	103%	3.6%
2-Chlorotoluene	49.4	50.0	98.8%	49.4	50.0	98.8%	0.0%
4-Chlorotoluene	48.8	50.0	97.6%	50.8	50.0	102%	4.0%
tert-Butylbenzene	47.5	50.0	95.0%	49.7	50.0	99.4%	4.5%
sec-Butylbenzene	50.7	50.0	101%	53.1	50.0	106%	4.6%
4-Isopropyltoluene	48.8	50.0	97.6%	51.1	50.0	102%	4.6%
n-Butylbenzene	50.4	50.0	101%	52.5	50.0	105%	4.1%
1,2,4-Trichlorobenzene	47.9	50.0	95.8%	48.0	50.0	96.0%	0.2%
Naphthalene	47.5	50.0	95.0%	50.3	50.0	101%	5.7%
1,2,3-Trichlorobenzene	46.5	50.0	93.0%	47.8	50.0	95.6%	2.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	95.2%	94.0%
d8-Toluene	100%	101%
Bromofluorobenzene	95.7%	97.2%
d4-1,2-Dichlorobenzene	100%	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091411**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-091411
LIMS ID: 11-19440
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 09/14/11 09:47
LCSD: 09/14/11 10:21

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	47.8	50.0	95.6%	54.4	50.0	109%	12.9%
Bromomethane	34.6 Q	50.0	69.2%	40.9 Q	50.0	81.8%	16.7%
Vinyl Chloride	42.0	50.0	84.0%	47.3	50.0	94.6%	11.9%
Chloroethane	58.9 Q	50.0	118%	66.1 Q	50.0	132%	11.5%
Methylene Chloride	51.8	50.0	104%	58.6	50.0	117%	12.3%
Acetone	319 B	250	128%	267 B	250	107%	17.7%
Carbon Disulfide	50.7	50.0	101%	57.7	50.0	115%	12.9%
1,1-Dichloroethene	47.9	50.0	95.8%	56.0	50.0	112%	15.6%
1,1-Dichloroethane	48.6	50.0	97.2%	54.6	50.0	109%	11.6%
trans-1,2-Dichloroethene	48.9	50.0	97.8%	56.2	50.0	112%	13.9%
cis-1,2-Dichloroethene	50.1	50.0	100%	56.4	50.0	113%	11.8%
Chloroform	46.1	50.0	92.2%	52.3	50.0	105%	12.6%
1,2-Dichloroethane	39.3	50.0	78.6%	43.0	50.0	86.0%	9.0%
2-Butanone	284	250	114%	273	250	109%	3.9%
1,1,1-Trichloroethane	42.9	50.0	85.8%	49.7	50.0	99.4%	14.7%
Carbon Tetrachloride	38.6	50.0	77.2%	44.7	50.0	89.4%	14.6%
Vinyl Acetate	46.4	50.0	92.8%	53.9	50.0	108%	15.0%
Bromodichloromethane	45.3	50.0	90.6%	48.8	50.0	97.6%	7.4%
1,2-Dichloropropane	47.1	50.0	94.2%	52.9	50.0	106%	11.6%
cis-1,3-Dichloropropene	48.4	50.0	96.8%	52.8	50.0	106%	8.7%
Trichloroethene	43.4	50.0	86.8%	50.2	50.0	100%	14.5%
Dibromochloromethane	46.3	50.0	92.6%	51.1	50.0	102%	9.9%
1,1,2-Trichloroethane	47.2	50.0	94.4%	52.0	50.0	104%	9.7%
Benzene	46.5	50.0	93.0%	53.0	50.0	106%	13.1%
trans-1,3-Dichloropropene	47.7	50.0	95.4%	51.6	50.0	103%	7.9%
2-Chloroethylvinylether	103 Q	50.0	206%	110 Q	50.0	220%	6.6%
Bromoform	48.6	50.0	97.2%	52.3	50.0	105%	7.3%
4-Methyl-2-Pentanone (MIBK)	232	250	92.8%	255	250	102%	9.4%
2-Hexanone	237	250	94.8%	248	250	99.2%	4.5%
Tetrachloroethene	43.8	50.0	87.6%	49.8	50.0	99.6%	12.8%
1,1,2,2-Tetrachloroethane	49.7	50.0	99.4%	53.5	50.0	107%	7.4%
Toluene	47.1	50.0	94.2%	53.9	50.0	108%	13.5%
Chlorobenzene	46.7	50.0	93.4%	52.3	50.0	105%	11.3%
Ethylbenzene	45.5	50.0	91.0%	52.1	50.0	104%	13.5%
Styrene	46.6	50.0	93.2%	51.7	50.0	103%	10.4%
Trichlorofluoromethane	49.7	50.0	99.4%	57.0	50.0	114%	13.7%
1,1,2-Trichloro-1,2,2-trifluoroetha	55.0 Q	50.0	110%	63.6 Q	50.0	127%	14.5%
m,p-Xylene	91.9	100	91.9%	103	100	103%	11.4%
o-Xylene	47.2	50.0	94.4%	52.6	50.0	105%	10.8%
1,2-Dichlorobenzene	48.6 B	50.0	97.2%	53.2 B	50.0	106%	9.0%
1,3-Dichlorobenzene	48.9	50.0	97.8%	53.7	50.0	107%	9.4%
1,4-Dichlorobenzene	49.4	50.0	98.8%	53.4	50.0	107%	7.8%
Acrolein	273	250	109%	289	250	116%	5.7%
Methyl Iodide	41.5	50.0	83.0%	48.4	50.0	96.8%	15.4%
Bromoethane	49.0	50.0	98.0%	55.7	50.0	111%	12.8%
Acrylonitrile	52.5	50.0	105%	56.4	50.0	113%	7.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091411**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-091411
LIMS ID: 11-19440
Matrix: Soil

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,1-Dichloropropene	41.6	50.0	83.2%	49.4	50.0	98.8%	17.1%
Dibromomethane	45.2	50.0	90.4%	49.9	50.0	99.8%	9.9%
1,1,1,2-Tetrachloroethane	43.0	50.0	86.0%	46.5	50.0	93.0%	7.8%
1,2-Dibromo-3-chloropropane	43.7	50.0	87.4%	47.8	50.0	95.6%	9.0%
1,2,3-Trichloropropane	45.8	50.0	91.6%	49.3	50.0	98.6%	7.4%
trans-1,4-Dichloro-2-butene	46.3	50.0	92.6%	49.4	50.0	98.8%	6.5%
1,3,5-Trimethylbenzene	46.7	50.0	93.4%	52.0	50.0	104%	10.7%
1,2,4-Trimethylbenzene	47.5	50.0	95.0%	52.0	50.0	104%	9.0%
Hexachlorobutadiene	39.6	50.0	79.2%	45.0	50.0	90.0%	12.8%
Ethylene Dibromide	49.7	50.0	99.4%	52.8	50.0	106%	6.0%
Bromochloromethane	53.2	50.0	106%	58.5	50.0	117%	9.5%
2,2-Dichloropropane	44.8	50.0	89.6%	51.4	50.0	103%	13.7%
1,3-Dichloropropane	46.2	50.0	92.4%	50.0	50.0	100%	7.9%
Isopropylbenzene	47.3	50.0	94.6%	52.8	50.0	106%	11.0%
n-Propylbenzene	49.2	50.0	98.4%	55.6	50.0	111%	12.2%
Bromobenzene	47.5	50.0	95.0%	51.8	50.0	104%	8.7%
2-Chlorotoluene	45.4	50.0	90.8%	50.4	50.0	101%	10.4%
4-Chlorotoluene	47.7	50.0	95.4%	53.5	50.0	107%	11.5%
tert-Butylbenzene	43.9	50.0	87.8%	49.9	50.0	99.8%	12.8%
sec-Butylbenzene	47.3	50.0	94.6%	54.0	50.0	108%	13.2%
4-Isopropyltoluene	46.5	50.0	93.0%	52.1	50.0	104%	11.4%
n-Butylbenzene	49.1	50.0	98.2%	54.1	50.0	108%	9.7%
1,2,4-Trichlorobenzene	47.5	50.0	95.0%	50.5	50.0	101%	6.1%
Naphthalene	45.2	50.0	90.4%	48.1	50.0	96.2%	6.2%
1,2,3-Trichlorobenzene	44.8	50.0	89.6%	47.8	50.0	95.6%	6.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	93.4%	94.7%
d8-Toluene	100%	100%
Bromofluorobenzene	94.6%	95.3%
d4-1,2-Dichlorobenzene	99.1%	99.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091411**
Page 1 of 2 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-091411
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 09/14/11 09:47
LCSD: 09/14/11 10:21

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	2390		2500	95.6%	2720		2500	109%	12.9%
Bromomethane	1730	Q	2500	69.2%	2040	Q	2500	81.6%	16.4%
Vinyl Chloride	2100		2500	84.0%	2370		2500	94.8%	12.1%
Chloroethane	2950	Q	2500	118%	3300	Q	2500	132%	11.2%
Methylene Chloride	2590		2500	104%	2930		2500	117%	12.3%
Acetone	15900	B	12500	127%	13300	B	12500	106%	17.8%
Carbon Disulfide	2540		2500	102%	2890		2500	116%	12.9%
1,1-Dichloroethene	2400		2500	96.0%	2800		2500	112%	15.4%
1,1-Dichloroethane	2430		2500	97.2%	2730		2500	109%	11.6%
trans-1,2-Dichloroethene	2440		2500	97.6%	2810		2500	112%	14.1%
cis-1,2-Dichloroethene	2500		2500	100%	2820		2500	113%	12.0%
Chloroform	2300		2500	92.0%	2610		2500	104%	12.6%
1,2-Dichloroethane	1960		2500	78.4%	2150		2500	86.0%	9.2%
2-Butanone	14200		12500	114%	13700		12500	110%	3.6%
1,1,1-Trichloroethane	2140		2500	85.6%	2480		2500	99.2%	14.7%
Carbon Tetrachloride	1930		2500	77.2%	2240		2500	89.6%	14.9%
Vinyl Acetate	2320		2500	92.8%	2700		2500	108%	15.1%
Bromodichloromethane	2260		2500	90.4%	2440		2500	97.6%	7.7%
1,2-Dichloropropane	2360		2500	94.4%	2650		2500	106%	11.6%
cis-1,3-Dichloropropene	2420		2500	96.8%	2640		2500	106%	8.7%
Trichloroethene	2170		2500	86.8%	2510		2500	100%	14.5%
Dibromochloromethane	2320		2500	92.8%	2560		2500	102%	9.8%
1,1,2-Trichloroethane	2360		2500	94.4%	2600		2500	104%	9.7%
Benzene	2320		2500	92.8%	2650		2500	106%	13.3%
trans-1,3-Dichloropropene	2380		2500	95.2%	2580		2500	103%	8.1%
2-Chloroethylvinylether	5160	Q	2500	206%	5480	Q	2500	219%	6.0%
Bromoform	2430		2500	97.2%	2610		2500	104%	7.1%
4-Methyl-2-Pentanone (MIBK)	11600		12500	92.8%	12800		12500	102%	9.8%
2-Hexanone	11900		12500	95.2%	12400		12500	99.2%	4.1%
Tetrachloroethene	2190		2500	87.6%	2490		2500	99.6%	12.8%
1,1,2,2-Tetrachloroethane	2490		2500	99.6%	2670		2500	107%	7.0%
Toluene	2360		2500	94.4%	2700		2500	108%	13.4%
Chlorobenzene	2340		2500	93.6%	2620		2500	105%	11.3%
Ethylbenzene	2280		2500	91.2%	2600		2500	104%	13.1%
Styrene	2330		2500	93.2%	2580		2500	103%	10.2%
Trichlorofluoromethane	2490		2500	99.6%	2850		2500	114%	13.5%
1,1,2-Trichloro-1,2,2-trifluoroetha	2750	Q	2500	110%	3180	Q	2500	127%	14.5%
m,p-Xylene	4590		5000	91.8%	5160		5000	103%	11.7%
o-Xylene	2360		2500	94.4%	2630		2500	105%	10.8%
1,2-Dichlorobenzene	2430	B	2500	97.2%	2660	B	2500	106%	9.0%
1,3-Dichlorobenzene	2450		2500	98.0%	2680		2500	107%	9.0%
1,4-Dichlorobenzene	2470		2500	98.8%	2670		2500	107%	7.8%
Acrolein	13600		12500	109%	14500		12500	116%	6.4%
Methyl Iodide	2080		2500	83.2%	2420		2500	96.8%	15.1%
Bromoethane	2450		2500	98.0%	2790		2500	112%	13.0%
Acrylonitrile	2630		2500	105%	2820		2500	113%	7.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-091411**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-091411
LIMS ID: 11-19438
Matrix: Soil

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,1-Dichloropropene	2080	2500	83.2%	2470	2500	98.8%	17.1%
Dibromomethane	2260	2500	90.4%	2490	2500	99.6%	9.7%
1,1,1,2-Tetrachloroethane	2150	2500	86.0%	2320	2500	92.8%	7.6%
1,2-Dibromo-3-chloropropane	2190	2500	87.6%	2390	2500	95.6%	8.7%
1,2,3-Trichloropropane	2290	2500	91.6%	2460	2500	98.4%	7.2%
trans-1,4-Dichloro-2-butene	2310	2500	92.4%	2470	2500	98.8%	6.7%
1,3,5-Trimethylbenzene	2340	2500	93.6%	2600	2500	104%	10.5%
1,2,4-Trimethylbenzene	2380	2500	95.2%	2600	2500	104%	8.8%
Hexachlorobutadiene	1980	2500	79.2%	2250	2500	90.0%	12.8%
Ethylene Dibromide	2490	2500	99.6%	2640	2500	106%	5.8%
Bromochloromethane	2660	2500	106%	2920	2500	117%	9.3%
2,2-Dichloropropane	2240	2500	89.6%	2570	2500	103%	13.7%
1,3-Dichloropropane	2310	2500	92.4%	2500	2500	100%	7.9%
Isopropylbenzene	2370	2500	94.8%	2640	2500	106%	10.8%
n-Propylbenzene	2460	2500	98.4%	2780	2500	111%	12.2%
Bromobenzene	2370	2500	94.8%	2590	2500	104%	8.9%
2-Chlorotoluene	2270	2500	90.8%	2520	2500	101%	10.4%
4-Chlorotoluene	2380	2500	95.2%	2670	2500	107%	11.5%
tert-Butylbenzene	2190	2500	87.6%	2490	2500	99.6%	12.8%
sec-Butylbenzene	2360	2500	94.4%	2700	2500	108%	13.4%
4-Isopropyltoluene	2330	2500	93.2%	2600	2500	104%	11.0%
n-Butylbenzene	2450	2500	98.0%	2710	2500	108%	10.1%
1,2,4-Trichlorobenzene	2380	2500	95.2%	2530	2500	101%	6.1%
Naphthalene	2260	2500	90.4%	2410	2500	96.4%	6.4%
1,2,3-Trichlorobenzene	2240	2500	89.6%	2390	2500	95.6%	6.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	93.4%	94.7%
d8-Toluene	100%	100%
Bromofluorobenzene	94.6%	95.3%
d4-1,2-Dichlorobenzene	99.1%	99.8%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0913

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No: TL23

Project: FRP SHORELINE INVESTIGA

Lab File ID: MB0913

Lab Sample ID: MB0913

Date Analyzed: 09/13/11

Time Analyzed: 1032

Instrument ID: FINN5

Heated Purge: (Y/N) Y

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0913	LCS0913	LCS0913	0930
02	LCS0913	LCS0913	LCS0913A	1005
03	FRP-090711-0	TL23A	TL23A	1959
04				
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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-091311**
 METHOD BLANK

Lab Sample ID: MB-091311
LIMS ID: 11-19439
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/13/11 10:32

Sample Amount: 5.00 g-dry-wt
Percent Moisture: NA

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.26	1.0	< 1.0 U
74-83-9	Bromomethane	0.19	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.24	1.0	< 1.0 U
75-00-3	Chloroethane	0.46	1.0	< 1.0 U
75-09-2	Methylene Chloride	0.64	2.0	< 2.0 U
67-64-1	Acetone	0.48	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.56	1.0	< 1.0 U
75-35-4	1,1-Dichloroethene	0.34	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.20	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.27	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.24	1.0	< 1.0 U
67-66-3	Chloroform	0.23	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.19	1.0	< 1.0 U
78-93-3	2-Butanone	0.51	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.23	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.21	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.38	5.0	< 5.0 U
75-27-4	Bromodichloromethane	0.25	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.16	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.23	1.0	< 1.0 U
79-01-6	Trichloroethene	0.21	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.27	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.29	1.0	< 1.0 U
71-43-2	Benzene	0.30	1.0	< 1.0 U
10061-02-6	trans-1,3-Dichloropropene	0.22	1.0	< 1.0 U
110-75-8	2-Chloroethylvinylether	0.28	5.0	< 5.0 U
75-25-2	Bromoform	0.30	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.42	5.0	< 5.0 U
591-78-6	2-Hexanone	0.44	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.26	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.25	1.0	< 1.0 U
108-88-3	Toluene	0.15	1.0	< 1.0 U
108-90-7	Chlorobenzene	0.22	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.20	1.0	< 1.0 U
100-42-5	Styrene	0.14	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.27	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.29	2.0	< 2.0 U
179601-23-1	m,p-Xylene	0.39	1.0	< 1.0 U
95-47-6	o-Xylene	0.22	1.0	< 1.0 U
95-50-1	**1,2-Dichlorobenzene**	**0.29**	**1.0**	**0.5 J**
541-73-1	1,3-Dichlorobenzene	0.23	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.23	1.0	< 1.0 U
107-02-8	Acrolein	3.8	50	< 50 U
74-88-4	Methyl Iodide	0.22	1.0	< 1.0 U
74-96-4	Bromoethane	0.44	2.0	< 2.0 U
107-13-1	Acrylonitrile	1.0	5.0	< 5.0 U
563-58-6	1,1-Dichloropropene	0.31	1.0	< 1.0 U
74-95-3	Dibromomethane	0.15	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.23	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	0.59	5.0	< 5.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-091311**

METHOD BLANK

Lab Sample ID: MB-091311
LIMS ID: 11-19439
Matrix: Soil
Date Analyzed: 09/13/11 10:32

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.52	2.0	< 2.0 U
110-57-6	trans-1,4-Dichloro-2-butene	0.44	5.0	< 5.0 U
108-67-8	1,3,5-Trimethylbenzene	0.25	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.23	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.41	5.0	< 5.0 U
106-93-4	Ethylene Dibromide	0.18	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.32	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.29	1.0	< 1.0 U
142-28-9	1,3-Dichloropropane	0.21	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.23	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.27	1.0	< 1.0 U
108-86-1	Bromobenzene	0.15	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.30	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.28	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.31	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.24	1.0	< 1.0 U
99-87-6	4-Isopropyltoluene	0.24	1.0	< 1.0 U
104-51-8	n-Butylbenzene	0.26	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.33	5.0	< 5.0 U
91-20-3	Naphthalene	0.43	5.0	< 5.0 U
87-61-6	1,2,3-Trichlorobenzene	0.30	5.0	< 5.0 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	104%
Bromofluorobenzene	93.4%
d4-1,2-Dichlorobenzene	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0914

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No: TL23

Project: FRP SHORELINE INVESTIGA

Lab File ID: MB0914

Lab Sample ID: MB0914

Date Analyzed: 09/14/11

Time Analyzed: 1049

Instrument ID: FINN5

Heated Purge: (Y/N) Y

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0914	LCS0914	LCS0914	0947
02	LCS0914	LCS0914	LCS0914A	1021
03	FRP-090711-0	TL23A	TL23A2	1240
04	FRP-090711-0	TL23B	TL23B2	1308
05	FRP-090711-0	TL23C	TL23C	1335
06	FRP-090711-0	TL23D	TL23D	1409
07	FRP-090711-0	TL23E	TL23E	1430
08	FRP-090711-0	TL23F	TL23F	1458
09	FRP-090711-0	TL23G	TL23G	1526
10	FRP-090711-0	TL23H	TL23H	1553
11	FRP-090711-0	TL23I	TL23I	1621
12	FRP-090711-0	TL23J	TL23J	1648
13	FRP-090711-0	TL23AMS	TL23AMS	2001
14	FRP-090711-0	TL23AMSD	TL23AMSD	2028
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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-091411**
 METHOD BLANK

Lab Sample ID: MB-091411
LIMS ID: 11-19440
Matrix: Soil
Data Release Authorized:
Reported: 09/16/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 10:49

Sample Amount: 5.00 g-dry-wt
Percent Moisture: NA

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.26	1.0	< 1.0 U
74-83-9	Bromomethane	0.19	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.24	1.0	< 1.0 U
75-00-3	Chloroethane	0.46	1.0	< 1.0 U
75-09-2	Methylene Chloride	0.64	2.0	< 2.0 U
67-64-1	**Acetone**	**0.48**	**5.0**	**3.0 J**
75-15-0	Carbon Disulfide	0.56	1.0	< 1.0 U
75-35-4	1,1-Dichloroethene	0.34	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.20	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.27	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.24	1.0	< 1.0 U
67-66-3	Chloroform	0.23	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.19	1.0	< 1.0 U
78-93-3	2-Butanone	0.51	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.23	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.21	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.38	5.0	< 5.0 U
75-27-4	Bromodichloromethane	0.25	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.16	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.23	1.0	< 1.0 U
79-01-6	Trichloroethene	0.21	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.27	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.29	1.0	< 1.0 U
71-43-2	Benzene	0.30	1.0	< 1.0 U
10061-02-6	trans-1,3-Dichloropropene	0.22	1.0	< 1.0 U
110-75-8	2-Chloroethylvinylether	0.28	5.0	< 5.0 U
75-25-2	Bromoform	0.30	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.42	5.0	< 5.0 U
591-78-6	2-Hexanone	0.44	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.26	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.25	1.0	< 1.0 U
108-88-3	Toluene	0.15	1.0	< 1.0 U
108-90-7	Chlorobenzene	0.22	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.20	1.0	< 1.0 U
100-42-5	Styrene	0.14	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.27	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.29	2.0	< 2.0 U
179601-23-1	m,p-Xylene	0.39	1.0	< 1.0 U
95-47-6	o-Xylene	0.22	1.0	< 1.0 U
95-50-1	**1,2-Dichlorobenzene**	**0.29**	**1.0**	**0.5 J**
541-73-1	1,3-Dichlorobenzene	0.23	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.23	1.0	< 1.0 U
107-02-8	Acrolein	3.8	50	< 50 U
74-88-4	Methyl Iodide	0.22	1.0	< 1.0 U
74-96-4	Bromoethane	0.44	2.0	< 2.0 U
107-13-1	Acrylonitrile	1.0	5.0	< 5.0 U
563-58-6	1,1-Dichloropropene	0.31	1.0	< 1.0 U
74-95-3	Dibromomethane	0.15	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.23	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	0.59	5.0	< 5.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-091411**

METHOD BLANK

Lab Sample ID: MB-091411
LIMS ID: 11-19440
Matrix: Soil
Date Analyzed: 09/14/11 10:49

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.52	2.0	< 2.0 U
110-57-6	trans-1,4-Dichloro-2-butene	0.44	5.0	< 5.0 U
108-67-8	1,3,5-Trimethylbenzene	0.25	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.23	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.41	5.0	< 5.0 U
106-93-4	Ethylene Dibromide	0.18	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.32	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.29	1.0	< 1.0 U
142-28-9	1,3-Dichloropropane	0.21	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.23	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.27	1.0	< 1.0 U
108-86-1	Bromobenzene	0.15	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.30	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.28	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.31	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.24	1.0	< 1.0 U
99-87-6	4-Isopropyltoluene	0.24	1.0	< 1.0 U
104-51-8	n-Butylbenzene	0.26	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.33	5.0	< 5.0 U
91-20-3	Naphthalene	0.43	5.0	< 5.0 U
87-61-6	1,2,3-Trichlorobenzene	0.30	5.0	< 5.0 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	102%
Bromofluorobenzene	94.2%
d4-1,2-Dichlorobenzene	98.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-091411**

METHOD BLANK

Lab Sample ID: MB-091411
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/21/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 09/14/11 10:49

Sample Amount: 100 **mg-dry-wt**
Percent Moisture: NA

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	13	50	< 50 U
74-83-9	Bromomethane	9.4	50	< 50 U
75-01-4	Vinyl Chloride	12	50	< 50 U
75-00-3	Chloroethane	23	50	< 50 U
75-09-2	Methylene Chloride	32	100	< 100 U
67-64-1	**Acetone**	**24**	**250**	**150 J**
75-15-0	Carbon Disulfide	28	50	< 50 U
75-35-4	1,1-Dichloroethene	17	50	< 50 U
75-34-3	1,1-Dichloroethane	10	50	< 50 U
156-60-5	trans-1,2-Dichloroethene	13	50	< 50 U
156-59-2	cis-1,2-Dichloroethene	12	50	< 50 U
67-66-3	Chloroform	12	50	< 50 U
107-06-2	1,2-Dichloroethane	9.6	50	< 50 U
78-93-3	2-Butanone	26	250	< 250 U
71-55-6	1,1,1-Trichloroethane	11	50	< 50 U
56-23-5	Carbon Tetrachloride	11	50	< 50 U
108-05-4	Vinyl Acetate	19	250	< 250 U
75-27-4	Bromodichloromethane	13	50	< 50 U
78-87-5	1,2-Dichloropropane	8.1	50	< 50 U
10061-01-5	cis-1,3-Dichloropropene	11	50	< 50 U
79-01-6	Trichloroethene	11	50	< 50 U
124-48-1	Dibromochloromethane	13	50	< 50 U
79-00-5	1,1,2-Trichloroethane	14	50	< 50 U
71-43-2	Benzene	15	50	< 50 U
10061-02-6	trans-1,3-Dichloropropene	11	50	< 50 U
110-75-8	2-Chloroethylvinylether	14	250	< 250 U
75-25-2	Bromoform	15	50	< 50 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	21	250	< 250 U
591-78-6	2-Hexanone	22	250	< 250 U
127-18-4	Tetrachloroethene	13	50	< 50 U
79-34-5	1,1,2,2-Tetrachloroethane	13	50	< 50 U
108-88-3	Toluene	7.6	50	< 50 U
108-90-7	Chlorobenzene	11	50	< 50 U
100-41-4	Ethylbenzene	10	50	< 50 U
100-42-5	Styrene	6.9	50	< 50 U
75-69-4	Trichlorofluoromethane	13	50	< 50 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	14	100	< 100 U
179601-23-1	m,p-Xylene	20	50	< 50 U
95-47-6	o-Xylene	11	50	< 50 U
95-50-1	**1,2-Dichlorobenzene**	**15**	**50**	**26 J**
541-73-1	1,3-Dichlorobenzene	11	50	< 50 U
106-46-7	1,4-Dichlorobenzene	12	50	< 50 U
107-02-8	Acrolein	190	2500	< 2,500 U
74-88-4	Methyl Iodide	11	50	< 50 U
74-96-4	Bromoethane	22	100	< 100 U
107-13-1	Acrylonitrile	52	250	< 250 U
563-58-6	1,1-Dichloropropene	16	50	< 50 U
74-95-3	Dibromomethane	7.4	50	< 50 U
630-20-6	1,1,1,2-Tetrachloroethane	12	50	< 50 U
96-12-8	1,2-Dibromo-3-chloropropane	29	250	< 250 U

T/23: 00096 P

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-091411**

METHOD BLANK

Lab Sample ID: MB-091411
LIMS ID: 11-19438
Matrix: Soil
Date Analyzed: 09/14/11 10:49

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	26	100	< 100 U
110-57-6	trans-1,4-Dichloro-2-butene	22	250	< 250 U
108-67-8	1,3,5-Trimethylbenzene	13	50	< 50 U
95-63-6	1,2,4-Trimethylbenzene	12	50	< 50 U
87-68-3	Hexachlorobutadiene	20	250	< 250 U
106-93-4	Ethylene Dibromide	8.8	50	< 50 U
74-97-5	Bromochloromethane	16	50	< 50 U
594-20-7	2,2-Dichloropropane	15	50	< 50 U
142-28-9	1,3-Dichloropropane	10	50	< 50 U
98-82-8	Isopropylbenzene	12	50	< 50 U
103-65-1	n-Propylbenzene	14	50	< 50 U
108-86-1	Bromobenzene	7.6	50	< 50 U
95-49-8	2-Chlorotoluene	15	50	< 50 U
106-43-4	4-Chlorotoluene	14	50	< 50 U
98-06-6	tert-Butylbenzene	15	50	< 50 U
135-98-8	sec-Butylbenzene	12	50	< 50 U
99-87-6	4-Isopropyltoluene	12	50	< 50 U
104-51-8	n-Butylbenzene	13	50	< 50 U
120-82-1	1,2,4-Trichlorobenzene	17	250	< 250 U
91-20-3	Naphthalene	21	250	< 250 U
87-61-6	1,2,3-Trichlorobenzene	15	250	< 250 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	102%
Bromofluorobenzene	94.2%
d4-1,2-Dichlorobenzene	98.8%

TL23:00097R

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX

Lab Code: ARI Case No.: FRP SHORELINE INVESTIGATION SDG No.: TL23

Lab File ID: BFB0817A BFB Injection Date: 08/17/11

Instrument ID: FINN5 BFB Injection Time: 1806

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	26.4
75	30.0 - 66.0% of mass 95	52.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.8 (0.9)1
174	50.0 - 101.0% of mass 95	94.0
175	4.0 - 9.0% of mass 174	6.9 (7.3)1
176	93.0 - 101.0% of mass 174	90.9 (96.7)1
177	5.0 - 9.0% of mass 176	5.4 (5.9)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	VSTD1	IC0817	0010817	08/17/11	1842
02	VSTD5	IC0817	0050817	08/17/11	1932
03	VSTD200	IC0817	2000817	08/17/11	1959
04	VSTD150	IC0817	1500817	08/17/11	2027
05	VSTD100	IC0817	1000817	08/17/11	2054
06	VSTD50	IC0817	0500817	08/17/11	2122
07	VSTD10	IC0817	0100817	08/17/11	2149
08	VSTD2	IC0817	0020817	08/17/11	2244
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FORM V VOA OLM3.2M

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX

Lab Code: ARI Case No.: FRP SHORELINE INVESTIGATION SDG No.: TL23

Lab File ID: BFB09130 BFB Injection Date: 09/13/11

Instrument ID: FINN5 BFB Injection Time: 0829

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	26.0
75	30.0 - 66.0% of mass 95	50.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 101.0% of mass 95	81.8
175	4.0 - 9.0% of mass 174	4.5 (5.6)1
176	93.0 - 101.0% of mass 174	77.9 (95.2)1
177	5.0 - 9.0% of mass 176	4.4 (5.6)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	CC0913	0500913	09/13/11	0856
02	LCS0913	LCS0913	LCS0913	09/13/11	0930
03	LCS0913	LCS0913	LCS0913A	09/13/11	1005
04	MB0913	MB0913	MB0913	09/13/11	1032
05	FRP-090711-021	TL23A	TL23A	09/13/11	1959
06					
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FORM V VOA OLM3.2M

TL23:00099

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX

Lab Code: ARI Case No.: FRP SHORELINE INVESTIGATION SDG No.: TL23

Lab File ID: BFB0914 BFB Injection Date: 09/14/11

Instrument ID: FINN5 BFB Injection Time: 0843

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	8.0 - 40.0% of mass 95	26.1	
75	30.0 - 66.0% of mass 95	49.5	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	6.6	
173	Less than 2.0% of mass 174	0.5	(0.5)1
174	50.0 - 101.0% of mass 95	83.4	
175	4.0 - 9.0% of mass 174	4.2	(5.0)1
176	93.0 - 101.0% of mass 174	81.9	(98.2)1
177	5.0 - 9.0% of mass 176	4.5	(5.6)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	CC0914	0500914	09/14/11	0910
02	LCS0914	LCS0914	LCS0914	09/14/11	0947
03	LCS0914	LCS0914	LCS0914A	09/14/11	1021
04	MB0914	MB0914	MB0914	09/14/11	1049
05	FRP-090711-021	TL23A	TL23A2	09/14/11	1240
06	FRP-090711-022	TL23B	TL23B2	09/14/11	1308
07	FRP-090711-023	TL23C	TL23C	09/14/11	1335
08	FRP-090711-024	TL23D	TL23D	09/14/11	1409
09	FRP-090711-025	TL23E	TL23E	09/14/11	1430
10	FRP-090711-026	TL23F	TL23F	09/14/11	1458
11	FRP-090711-027	TL23G	TL23G	09/14/11	1526
12	FRP-090711-028	TL23H	TL23H	09/14/11	1553
13	FRP-090711-029	TL23I	TL23I	09/14/11	1621
14	FRP-090711-030	TL23J	TL23J	09/14/11	1648
15	FRP-090711-021 M	TL23AMS	TL23AMS	09/14/11	2001
16	FRP-090711-021 M	TL23AMSD	TL23AMSD	09/14/11	2028
17					
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FORM V VOA OLM3.2M

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL23 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF1: 0010817 RF2: 0020817 RF5: 0050817
RF10: 0100817 RF50: 0500817

COMPOUND	RF1	RF2	RF5	RF10	RF50
Chloromethane	1.220	0.918	0.947	0.990	0.997
Vinyl Chloride	0.915	0.804	0.996	1.151	1.086
Bromomethane	0.452	0.456	0.384	0.483	0.469
Chloroethane	0.446	0.508	0.455	0.515	0.457
Trichlorofluoromethane	0.864	0.785	0.885	0.973	0.951
Acrolein		0.093	0.090	0.095	0.091
112Trichloro122Trifluoroetha	0.525	0.454	0.515	0.548	0.528
Acetone	0.274	0.203	0.225	0.221	0.200
1,1-Dichloroethene	0.461	0.432	0.456	0.482	0.472
Bromoethane	0.335	0.325	0.352	0.391	0.376
Iodomethane	0.638	0.555	0.683	0.630	0.810
Methylene Chloride		0.898	0.735	0.690	0.555
Acrylonitrile		0.168	0.188	0.206	0.197
Carbon Disulfide	1.991	1.688	1.817	1.851	1.822
Trans-1,2-Dichloroethene	0.522	0.486	0.503	0.532	0.503
Vinyl Acetate		1.046	0.938	0.967	0.851
1,1-Dichloroethane	1.143	1.042	1.102	1.186	1.130
2-Butanone	0.282	0.294	0.272	0.327	0.312
2,2-Dichloropropane	0.758	0.646	0.709	0.736	0.741
Cis-1,2-Dichloroethene	0.504	0.496	0.522	0.572	0.535
Chloroform	1.025	0.943	0.985	1.050	1.007
Bromochloromethane	0.216	0.238	0.260	0.274	0.273
1,1,1-Trichloroethane	0.822	0.723	0.774	0.831	0.830
1,1-Dichloropropene	0.613	0.580	0.606	0.659	0.610
Carbon Tetrachloride	0.590	0.527	0.590	0.630	0.591
1,2-Dichloroethane	0.598	0.585	0.621	0.681	0.616
Benzene	1.584	1.460	1.557	1.668	1.477
Trichloroethene	0.486	0.417	0.474	0.485	0.453
1,2-Dichloropropane	0.536	0.495	0.529	0.558	0.514
Bromodichloromethane	0.568	0.526	0.580	0.587	0.568
Dibromomethane	0.244	0.264	0.275	0.288	0.271
2-Chloroethyl Vinyl Ether			0.063	0.087	0.082
4-Methyl-2-Pentanone	0.118	0.126	0.128	0.156	0.142
Cis 1,3-dichloropropene	0.573	0.529	0.574	0.623	0.624
Toluene	0.882	0.761	0.856	0.902	0.826
Trans 1,3-Dichloropropene	0.464	0.424	0.465	0.517	0.521
2-Hexanone	0.337	0.422	0.370	0.521	0.441

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL23 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF1: 0010817 RF2: 0020817 RF5: 0050817
RF10: 0100817 RF50: 0500817

COMPOUND	RF1	RF2	RF5	RF10	RF50
1,1,2-Trichloroethane	0.296	0.276	0.295	0.322	0.295
1,3-Dichloropropane	0.574	0.569	0.609	0.673	0.634
Tetrachloroethene	0.568	0.439	0.544	0.544	0.516
Chlorodibromomethane	0.453	0.412	0.443	0.484	0.489
1,2-Dibromoethane	0.306	0.292	0.318	0.357	0.340
Chlorobenzene	0.951	0.955	1.032	1.124	1.020
Ethyl Benzene	1.853	1.704	1.854	1.987	1.779
1,1,1,2-Tetrachloroethane	0.478	0.370	0.409	0.427	0.400
m,p-xylene	0.658	0.599	0.658	0.701	0.637
o-Xylene	0.599	0.575	0.632	0.700	0.645
Styrene	1.042	0.960	1.035	1.137	1.031
Bromoform	0.618	0.547	0.646	0.661	0.690
1,1,2,2-Tetrachloroethane	0.902	0.866	0.886	1.000	0.953
1,2,3-Trichloropropane		0.160	0.183	0.213	0.209
Trans-1,4-Dichloro 2-Butene		0.272	0.311	0.346	0.346
N-Propyl Benzene	4.185	3.727	4.026	4.221	4.044
Bromobenzene	0.940	0.860	0.983	1.018	0.975
Isopropyl Benzene	3.438	3.036	3.345	3.553	3.468
2-Chloro Toluene	2.665	2.299	2.543	2.763	2.455
4-Chloro Toluene	2.736	2.568	2.645	2.735	2.654
T-Butyl Benzene	2.642	2.169	2.458	2.563	2.524
1,3,5-Trimethyl Benzene	2.764	2.479	2.741	2.948	2.800
1,2,4-Trimethylbenzene	2.755	2.428	2.706	2.862	2.748
S-Butyl Benzene	3.658	3.272	3.617	3.755	3.759
4-Isopropyl Toluene	2.789	2.454	2.655	2.844	2.791
1,3-Dichlorobenzene	1.706	1.512	1.623	1.665	1.579
1,4-Dichlorobenzene	1.609	1.461	1.592	1.620	1.534
N-Butyl Benzene	3.138	2.713	2.940	3.017	2.983
1,2-Dichlorobenzene	1.446	1.348	1.470	1.586	1.460
1,2-Dibromo 3-Chloropropane		0.168	0.166	0.214	0.200
1,2,4-Trichlorobenzene		1.154	1.187	1.261	1.127
Hexachloro 1,3-Butadiene	0.826	0.939	0.904	1.008	0.894
Naphthalene		2.139	1.756	2.364	2.035
1,2,3-Trichlorobenzene		1.142	1.063	1.252	1.053
Dichlorodifluoromethane	0.614	0.407	0.498	0.564	0.658
Methyl tert-Butyl Ether	1.226	1.088	1.171	1.282	1.236

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL23 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF1: 0010817 RF2: 0020817 RF5: 0050817
RF10: 0100817 RF50: 0500817

COMPOUND	RF1	RF2	RF5	RF10	RF50
d4-1,2-Dichloroethane	0.646	0.688	0.648	0.671	0.680
d8-Toluene	1.172	1.214	1.191	1.202	1.194
4-Bromofluorobenzene	0.536	0.554	0.545	0.562	0.558
d4-1,2-Dichlorobenzene	0.885	0.897	0.894	0.890	0.913
Dibromofluoromethane	0.545	0.547	0.526	0.529	0.544

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL23 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF100: 1000817 RF150: 1500817 RF200: 2000817

COMPOUND	RF100	RF150	RF200
Chloromethane	0.992	0.994	0.916
Vinyl Chloride	1.147	1.064	0.983
Bromomethane	0.443	0.434	0.392
Chloroethane	0.444	0.440	0.427
Trichlorofluoromethane	0.955	0.949	0.921
Acrolein	0.092	0.089	0.088
112Trichloro122Trifluoroetha	0.523	0.523	0.512
Acetone	0.200	0.192	0.188
1,1-Dichloroethene	0.460	0.469	0.455
Bromoethane	0.375	0.377	0.367
Iodomethane	0.812	0.830	0.818
Methylene Chloride	0.548	0.546	0.531
Acrylonitrile	0.200	0.199	0.199
Carbon Disulfide	1.791	1.788	1.695
Trans-1,2-Dichloroethene	0.500	0.502	0.498
Vinyl Acetate	0.849	0.842	0.838
1,1-Dichloroethane	1.134	1.144	1.116
2-Butanone	0.318	0.315	0.311
2,2-Dichloropropane	0.759	0.760	0.738
Cis-1,2-Dichloroethene	0.529	0.539	0.523
Chloroform	1.003	1.013	0.974
Bromochloromethane	0.275	0.283	0.274
1,1,1-Trichloroethane	0.831	0.830	0.811
1,1-Dichloropropene	0.600	0.586	0.579
Carbon Tetrachloride	0.594	0.577	0.577
1,2-Dichloroethane	0.616	0.607	0.602
Benzene	1.440	1.382	1.236
Trichloroethene	0.453	0.443	0.440
1,2-Dichloropropane	0.505	0.496	0.489
Bromodichloromethane	0.572	0.562	0.568
Dibromomethane	0.269	0.261	0.263
2-Chloroethyl Vinyl Ether	0.094	0.097	0.104
4-Methyl-2-Pentanone	0.143	0.138	0.136
Cis 1,3-dichloropropene	0.639	0.647	0.648
Toluene	0.823	0.829	0.810
Trans 1,3-Dichloropropene	0.559	0.566	0.563
2-Hexanone	0.416	0.346	0.277

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL23 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF100: 1000817 RF150: 1500817 RF200: 2000817

COMPOUND	RF100	RF150	RF200
1,1,2-Trichloroethane	0.295	0.291	0.289
1,3-Dichloropropane	0.615	0.613	0.588
Tetrachloroethene	0.512	0.510	0.484
Chlorodibromomethane	0.490	0.489	0.477
1,2-Dibromoethane	0.349	0.359	0.354
Chlorobenzene	1.005	1.004	0.956
Ethyl Benzene	1.755	1.679	1.406
1,1,1,2-Tetrachloroethane	0.390	0.380	0.375
m,p-xylene	0.613	0.614	0.573
o-Xylene	0.633	0.640	0.614
Styrene	1.004	1.015	0.962
Bromoform	0.701	0.707	0.691
1,1,2,2-Tetrachloroethane	0.956	0.932	0.871
1,2,3-Trichloropropane	0.209	0.202	0.192
Trans-1,4-Dichloro 2-Butene	0.353	0.345	0.328
N-Propyl Benzene	3.899	3.569	2.917
Bromobenzene	0.955	0.971	0.943
Isopropyl Benzene	3.380	3.400	2.890
2-Chloro Toluene	2.402	2.584	2.213
4-Chloro Toluene	2.483	2.508	2.492
T-Butyl Benzene	2.452	2.528	2.347
1,3,5-Trimethyl Benzene	2.771	2.765	2.502
1,2,4-Trimethylbenzene	2.659	2.725	2.456
S-Butyl Benzene	3.533	3.427	2.925
4-Isopropyl Toluene	2.712	2.812	2.510
1,3-Dichlorobenzene	1.543	1.572	1.520
1,4-Dichlorobenzene	1.495	1.515	1.480
N-Butyl Benzene	2.921	2.889	2.643
1,2-Dichlorobenzene	1.427	1.421	1.385
1,2-Dibromo 3-Chloropropane	0.196	0.190	0.187
1,2,4-Trichlorobenzene	1.041	1.084	1.097
Hexachloro 1,3-Butadiene	0.816	0.865	0.866
Naphthalene	1.831	1.806	1.789
1,2,3-Trichlorobenzene	0.959	0.978	0.979
Dichlorodifluoromethane	0.650	0.632	0.599
Methyl tert-Butyl Ether	1.237	1.236	1.197

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL23 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF100: 1000817 RF150: 1500817 RF200: 2000817

COMPOUND	RF100	RF150	RF200
d4-1,2-Dichloroethane	0.677	0.670	0.673
d8-Toluene	1.210	1.180	1.225
4-Bromofluorobenzene	0.554	0.550	0.546
d4-1,2-Dichlorobenzene	0.920	0.896	0.913
Dibromofluoromethane	0.540	0.536	0.539

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TL23 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	0.997	9.7
Vinyl Chloride	AVRG	1.018	11.7
Bromomethane	AVRG	0.439	7.9
Chloroethane	AVRG	0.461	7.0
Trichlorofluoromethane	AVRG	0.910	6.9
Acrolein	AVRG	0.091	2.6
112Trichloro122Trifluoroetha	AVRG	0.516	5.3
Acetone	AVRG	0.213	13.1
1,1-Dichloroethene	AVRG	0.461	3.2
Bromoethane	AVRG	0.362	6.3
Iodomethane	AVRG	0.722	15.0
Methylene Chloride	LINR		0.9991
Acrylonitrile	AVRG	0.194	6.4
Carbon Disulfide	AVRG	1.805	5.3
Trans-1,2-Dichloroethene	AVRG	0.506	2.9
Vinyl Acetate	AVRG	0.904	8.9
1,1-Dichloroethane	AVRG	1.125	3.7
2-Butanone	AVRG	0.304	6.3
2,2-Dichloropropane	AVRG	0.731	5.2
Cis-1,2-Dichloroethene	AVRG	0.528	4.4
Chloroform	AVRG	1.000	3.3
Bromochloromethane	AVRG	0.262	8.8
1,1,1-Trichloroethane	AVRG	0.806	4.8
1,1-Dichloropropene	AVRG	0.604	4.3
Carbon Tetrachloride	AVRG	0.584	4.9
1,2-Dichloroethane	AVRG	0.616	4.7
Benzene	AVRG	1.476	9.0
Trichloroethene	AVRG	0.456	5.3
1,2-Dichloropropane	AVRG	0.515	4.6
Bromodichloromethane	AVRG	0.566	3.2
Dibromomethane	AVRG	0.267	4.8
2-Chloroethyl Vinyl Ether	AVRG	0.088	16.3
4-Methyl-2-Pentanone	AVRG	0.136	8.8
Cis 1,3-dichloropropene	AVRG	0.607	7.1
Toluene	AVRG	0.836	5.3
Trans 1,3-Dichloropropene	AVRG	0.510	10.5
2-Hexanone	AVRG	0.391	19.2

<- 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: TL23 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Calibration Date: 08/17/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.295	4.3
1,3-Dichloropropane	AVRG	0.609	5.6
Tetrachloroethene	AVRG	0.515	7.8
Chlorodibromomethane	AVRG	0.467	6.1
1,2-Dibromoethane	AVRG	0.334	7.7
Chlorobenzene	AVRG	1.006	5.7
Ethyl Benzene	AVRG	1.752	9.7
1,1,1,2-Tetrachloroethane	AVRG	0.404	8.8
m,p-xylene	AVRG	0.632	6.4
o-Xylene	AVRG	0.630	5.8
Styrene	AVRG	1.023	5.4
Bromoform	AVRG	0.658	8.2
1,1,2,2-Tetrachloroethane	AVRG	0.921	5.2
1,2,3-Trichloropropane	AVRG	0.195	9.8
Trans-1,4-Dichloro 2-Butene	AVRG	0.329	8.7
N-Propyl Benzene	AVRG	3.824	11.2
Bromobenzene	AVRG	0.956	4.8
Isopropyl Benzene	AVRG	3.314	6.9
2-Chloro Toluene	AVRG	2.491	7.4
4-Chloro Toluene	AVRG	2.603	4.0
T-Butyl Benzene	AVRG	2.460	6.0
1,3,5-Trimethyl Benzene	AVRG	2.721	5.7
1,2,4-Trimethylbenzene	AVRG	2.667	5.6
S-Butyl Benzene	AVRG	3.493	8.1
4-Isopropyl Toluene	AVRG	2.696	5.4
1,3-Dichlorobenzene	AVRG	1.590	4.4
1,4-Dichlorobenzene	AVRG	1.538	4.0
N-Butyl Benzene	AVRG	2.906	5.5
1,2-Dichlorobenzene	AVRG	1.443	4.9
1,2-Dibromo 3-Chloropropane	AVRG	0.189	9.2
1,2,4-Trichlorobenzene	AVRG	1.136	6.4
Hexachloro 1,3-Butadiene	AVRG	0.890	7.0
Naphthalene	AVRG	1.960	11.6
1,2,3-Trichlorobenzene	AVRG	1.061	10.0
Dichlorodifluoromethane	AVRG	0.578	14.9
Methyl tert-Butyl Ether	AVRG	1.209	4.8

<- 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: TL23 | Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 | Calibration Date: 08/17/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.669	2.2
d8-Toluene	AVRG	1.198	1.5
4-Bromofluorobenzene	AVRG	0.550	1.5
d4-1,2-Dichlorobenzene	AVRG	0.901	1.4
Dibromofluoromethane	AVRG	0.538	1.4

<- 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: TL23 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/13/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 0856

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	0.997	1.056	0.100	AVRG	5.9	
Vinyl Chloride	1.018	0.943	0.010	AVRG	-7.4	
Bromomethane	0.439	0.286	0.010	AVRG	-34.8	<-
Chloroethane	0.462	0.566	0.010	AVRG	22.5	<-
Trichlorofluoromethane	0.910	1.000	0.010	AVRG	9.9	
Acrolein	0.091	0.099	0.010	AVRG	8.8	
112Trichloro122Trifluoroetha	0.516	0.614	0.010	AVRG	19.0	
Acetone	0.213	0.195	0.010	AVRG	-8.4	
1,1-Dichloroethene	0.461	0.489	0.010	AVRG	6.1	
Bromoethane	0.362	0.385	0.010	AVRG	6.4	
Iodomethane	0.722	0.628	0.010	AVRG	-13.0	
Methylene Chloride	50.000	55.397	0.010	LINR	10.8	
Acrylonitrile	0.194	0.207	0.010	AVRG	6.7	
Carbon Disulfide	1.805	2.023	0.010	AVRG	12.1	
Trans-1,2-Dichloroethene	0.506	0.540	0.010	AVRG	6.7	
Vinyl Acetate	0.904	0.866	0.010	AVRG	-4.2	
1,1-Dichloroethane	1.125	1.205	0.100	AVRG	7.1	
2-Butanone	0.304	0.302	0.010	AVRG	-0.6	
2,2-Dichloropropane	0.731	0.736	0.010	AVRG	0.7	
Cis-1,2-Dichloroethene	0.528	0.578	0.010	AVRG	9.5	
Chloroform	1.000	1.012	0.010	AVRG	1.2	
Bromochloromethane	0.262	0.294	0.010	AVRG	12.2	
1,1,1-Trichloroethane	0.806	0.785	0.010	AVRG	-2.6	
1,1-Dichloropropene	0.604	0.562	0.010	AVRG	-7.0	
Carbon Tetrachloride	0.584	0.509	0.010	AVRG	-12.8	
1,2-Dichloroethane	0.616	0.512	0.010	AVRG	-16.9	
Benzene	1.476	1.488	0.010	AVRG	0.8	
Trichloroethene	0.456	0.441	0.010	AVRG	-3.3	
1,2-Dichloropropane	0.515	0.519	0.010	AVRG	0.8	
Bromodichloromethane	0.566	0.542	0.010	AVRG	-4.2	
Dibromomethane	0.267	0.255	0.010	AVRG	-4.5	
2-Chloroethyl Vinyl Ether	0.088	0.188	0.010	AVRG	113.6	<-
4-Methyl-2-Pentanone	0.136	0.127	0.010	AVRG	-6.6	
Cis 1,3-dichloropropene	0.607	0.622	0.010	AVRG	2.5	
Toluene	0.836	0.828	0.010	AVRG	-1.0	
Trans 1,3-Dichloropropene	0.510	0.514	0.010	AVRG	0.8	
2-Hexanone	0.391	0.354	0.010	AVRG	-9.5	

<- 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: TL23 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/13/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 0856

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,1,2-Trichloroethane	0.295	0.293	0.010	AVRG	-0.7
1,3-Dichloropropane	0.609	0.582	0.010	AVRG	-4.4
Tetrachloroethene	0.515	0.488	0.010	AVRG	-5.2
Chlorodibromomethane	0.467	0.477	0.010	AVRG	2.1
1,2-Dibromoethane	0.334	0.349	0.010	AVRG	4.5
Chlorobenzene	1.006	1.014	0.300	AVRG	0.8
Ethyl Benzene	1.752	1.744	0.010	AVRG	-0.4
1,1,1,2-Tetrachloroethane	0.404	0.375	0.010	AVRG	-7.2
m,p-xylene	0.632	0.618	0.010	AVRG	-2.2
o-Xylene	0.630	0.643	0.010	AVRG	2.1
Styrene	1.023	1.012	0.010	AVRG	-1.1
Bromoform	0.658	0.656	0.100	AVRG	-0.3
1,1,2,2-Tetrachloroethane	0.921	0.922	0.300	AVRG	0.1
1,2,3-Trichloropropane	0.195	0.179	0.010	AVRG	-8.2
Trans-1,4-Dichloro 2-Butene	0.329	0.297	0.010	AVRG	-9.7
N-Propyl Benzene	3.824	3.926	0.010	AVRG	2.7
Bromobenzene	0.956	0.940	0.010	AVRG	-1.7
Isopropyl Benzene	3.314	3.305	0.010	AVRG	-0.3
2-Chloro Toluene	2.490	2.322	0.010	AVRG	-6.7
4-Chloro Toluene	2.603	2.667	0.010	AVRG	2.4
T-Butyl Benzene	2.460	2.410	0.010	AVRG	-2.0
1,3,5-Trimethyl Benzene	2.721	2.689	0.010	AVRG	-1.2
1,2,4-Trimethylbenzene	2.667	2.655	0.010	AVRG	-0.4
S-Butyl Benzene	3.493	3.527	0.010	AVRG	1.0
4-Isopropyl Toluene	2.696	2.654	0.010	AVRG	-1.6
1,3-Dichlorobenzene	1.590	1.601	0.010	AVRG	0.7
1,4-Dichlorobenzene	1.538	1.550	0.010	AVRG	0.8
N-Butyl Benzene	2.906	2.976	0.010	AVRG	2.4
1,2-Dichlorobenzene	1.443	1.455	0.010	AVRG	0.8
1,2-Dibromo 3-Chloropropane	0.189	0.167	0.010	AVRG	-11.6
1,2,4-Trichlorobenzene	1.136	1.076	0.010	AVRG	-5.3
Hexachloro 1,3-Butadiene	0.890	0.755	0.010	AVRG	-15.2
Naphthalene	1.960	1.763	0.010	AVRG	-10.0
1,2,3-Trichlorobenzene	1.061	0.966	0.010	AVRG	-9.0
Dichlorodifluoromethane	0.578	0.495	0.010	AVRG	-14.4
Methyl tert-Butyl Ether	1.209	1.168	0.010	AVRG	-3.4

<- 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: TL23 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/13/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 0856

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.669	0.645	0.010	AVRG	-3.6
d8-Toluene	1.198	1.216	0.010	AVRG	1.5
4-Bromofluorobenzene	0.551	0.542	0.010	AVRG	-1.6
d4-1,2-Dichlorobenzene	0.901	0.922	0.010	AVRG	2.3
Dibromofluoromethane	0.538	0.582	0.010	AVRG	8.2

<- 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: TL23 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/14/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 0910

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	0.997	1.094	0.100	AVRG	9.7	
Vinyl Chloride	1.018	0.983	0.010	AVRG	-3.4	
Bromomethane	0.439	0.301	0.010	AVRG	-31.4	<-
Chloroethane	0.462	0.613	0.010	AVRG	32.7	<-
Trichlorofluoromethane	0.910	1.054	0.010	AVRG	15.8	
Acrolein	0.091	0.104	0.010	AVRG	14.3	
112Trichloro122Trifluoroetha	0.516	0.665	0.010	AVRG	28.9	<-
Acetone	0.213	0.205	0.010	AVRG	-3.8	
1,1-Dichloroethene	0.461	0.508	0.010	AVRG	10.2	
Bromoethane	0.362	0.406	0.010	AVRG	12.2	
Iodomethane	0.722	0.640	0.010	AVRG	-11.4	
Methylene Chloride	50.000	57.414	0.010	LINR	14.8	
Acrylonitrile	0.194	0.214	0.010	AVRG	10.3	
Carbon Disulfide	1.805	2.106	0.010	AVRG	16.7	
Trans-1,2-Dichloroethene	0.506	0.564	0.010	AVRG	11.5	
Vinyl Acetate	0.904	0.939	0.010	AVRG	3.9	
1,1-Dichloroethane	1.125	1.240	0.100	AVRG	10.2	
2-Butanone	0.304	0.312	0.010	AVRG	2.6	
2,2-Dichloropropane	0.731	0.757	0.010	AVRG	3.6	
Cis-1,2-Dichloroethene	0.528	0.618	0.010	AVRG	17.0	
Chloroform	1.000	1.066	0.010	AVRG	6.6	
Bromochloromethane	0.262	0.302	0.010	AVRG	15.3	
1,1,1-Trichloroethane	0.806	0.813	0.010	AVRG	0.9	
1,1-Dichloropropene	0.604	0.597	0.010	AVRG	-1.2	
Carbon Tetrachloride	0.584	0.545	0.010	AVRG	-6.7	
1,2-Dichloroethane	0.616	0.542	0.010	AVRG	-12.0	
Benzene	1.476	1.616	0.010	AVRG	9.5	
Trichloroethene	0.456	0.480	0.010	AVRG	5.3	
1,2-Dichloropropane	0.515	0.567	0.010	AVRG	10.1	
Bromodichloromethane	0.566	0.571	0.010	AVRG	0.9	
Dibromomethane	0.267	0.274	0.010	AVRG	2.6	
2-Chloroethyl Vinyl Ether	0.088	0.195	0.010	AVRG	121.6	<-
4-Methyl-2-Pentanone	0.136	0.140	0.010	AVRG	2.9	
Cis 1,3-dichloropropene	0.607	0.654	0.010	AVRG	7.7	
Toluene	0.836	0.911	0.010	AVRG	9.0	
Trans 1,3-Dichloropropene	0.510	0.547	0.010	AVRG	7.2	
2-Hexanone	0.391	0.366	0.010	AVRG	-6.4	

<- 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: TL23 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/14/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 0910

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,1,2-Trichloroethane	0.295	0.322	0.010	AVRG	9.2
1,3-Dichloropropane	0.609	0.624	0.010	AVRG	2.5
Tetrachloroethene	0.515	0.514	0.010	AVRG	-0.2
Chlorodibromomethane	0.467	0.481	0.010	AVRG	3.0
1,2-Dibromoethane	0.334	0.367	0.010	AVRG	9.9
Chlorobenzene	1.006	1.073	0.300	AVRG	6.7
Ethyl Benzene	1.752	1.814	0.010	AVRG	3.5
1,1,1,2-Tetrachloroethane	0.404	0.389	0.010	AVRG	-3.7
m,p-xylene	0.632	0.659	0.010	AVRG	4.3
o-Xylene	0.630	0.669	0.010	AVRG	6.2
Styrene	1.023	1.060	0.010	AVRG	3.6
Bromoform	0.658	0.664	0.100	AVRG	0.9
1,1,2,2-Tetrachloroethane	0.921	0.942	0.300	AVRG	2.3
1,2,3-Trichloropropane	0.195	0.181	0.010	AVRG	-7.2
Trans-1,4-Dichloro 2-Butene	0.329	0.312	0.010	AVRG	-5.2
N-Propyl Benzene	3.824	4.154	0.010	AVRG	8.6
Bromobenzene	0.956	0.972	0.010	AVRG	1.7
Isopropyl Benzene	3.314	3.445	0.010	AVRG	4.0
2-Chloro Toluene	2.490	2.446	0.010	AVRG	-1.8
4-Chloro Toluene	2.603	2.738	0.010	AVRG	5.2
T-Butyl Benzene	2.460	2.430	0.010	AVRG	-1.2
1,3,5-Trimethyl Benzene	2.721	2.767	0.010	AVRG	1.7
1,2,4-Trimethylbenzene	2.667	2.782	0.010	AVRG	4.3
S-Butyl Benzene	3.493	3.725	0.010	AVRG	6.6
4-Isopropyl Toluene	2.696	2.765	0.010	AVRG	2.6
1,3-Dichlorobenzene	1.590	1.659	0.010	AVRG	4.3
1,4-Dichlorobenzene	1.538	1.613	0.010	AVRG	4.9
N-Butyl Benzene	2.906	3.118	0.010	AVRG	7.3
1,2-Dichlorobenzene	1.443	1.508	0.010	AVRG	4.5
1,2-Dibromo 3-Chloropropane	0.189	0.170	0.010	AVRG	-10.0
1,2,4-Trichlorobenzene	1.136	1.111	0.010	AVRG	-2.2
Hexachloro 1,3-Butadiene	0.890	0.795	0.010	AVRG	-10.7
Naphthalene	1.960	1.800	0.010	AVRG	-8.2
1,2,3-Trichlorobenzene	1.061	1.000	0.010	AVRG	-5.7
Dichlorodifluoromethane	0.578	0.512	0.010	AVRG	-11.4
Methyl tert-Butyl Ether	1.209	1.173	0.010	AVRG	-3.0

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

FORM VII VOA

TL23:00114

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TL23 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/14/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 0910

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.669	0.626	0.010	AVRG	-6.4
d8-Toluene	1.198	1.277	0.010	AVRG	6.6
4-Bromofluorobenzene	0.551	0.535	0.010	AVRG	-2.9
d4-1,2-Dichlorobenzene	0.901	0.910	0.010	AVRG	1.0
Dibromofluoromethane	0.538	0.571	0.010	AVRG	6.1

<- 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: TL23 — Project: FRP SHORELINE INVESTIGATION

Ical Midpoint ID: 0500817 — Ical Date: 08/17/11

Instrument ID: FINN5 — Project Run Date: 09/13/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	102251	6.44	137593	7.45	119527	10.59
	UPPER LIMIT	204502	6.94	275186	7.95	239054	11.09
	LOWER LIMIT	51126	5.94	68796	6.95	59764	10.09
	Sample ID						
01	LCS0913	126468	6.43	188233	7.44	169042	10.57
02	LCS0913	127606	6.42	184803	7.43	165700	10.57
03	MB0913	121014	6.43	174471	7.44	161754	10.58
04	FRP-090711-0	108917	6.42	161623	7.43	153179	10.56
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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: TL23 — Project: FRP SHORELINE INVESTIGATION

Ical Midpoint ID: 0500817 — Ical Date: 08/17/11

Instrument ID: FINN5 — Project Run Date: 09/13/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	61044	13.27				
	UPPER LIMIT	122088	13.77				
	LOWER LIMIT	30522	12.77				
	Sample ID						
01	LCS0913	87369	13.26				
02	LCS0913	86622	13.25				
03	MB0913	81240	13.27				
04	FRP-090711-0	66697	13.25				
05							
06							
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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: TL23 — Project: FRP SHORELINE INVESTIGATION

Ical Midpoint ID: 0500817 — Ical Date: 08/17/11

Instrument ID: FINN5 — Project Run Date: 09/14/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	102251	6.44	137593	7.45	119527	10.59
	UPPER LIMIT	204502	6.94	275186	7.95	239054	11.09
	LOWER LIMIT	51126	5.94	68796	6.95	59764	10.09
	Sample ID						
01	LCS0914	120311	6.43	177871	7.44	162128	10.58
02	LCS0914	117499	6.44	173446	7.45	158116	10.59
03	MB0914	115265	6.44	167816	7.45	153125	10.58
04	FRP-090711-0	121763	6.44	173965	7.45	160461	10.59
05	FRP-090711-0	111268	6.44	163583	7.45	146481	10.58
06	FRP-090711-0	109090	6.43	160232	7.43	148456	10.57
07	FRP-090711-0	107930	6.42	160548	7.43	148595	10.57
08	FRP-090711-0	107119	6.45	158101	7.45	143226	10.59
09	FRP-090711-0	107712	6.43	161545	7.44	147080	10.58
10	FRP-090711-0	106195	6.44	157873	7.45	149443	10.59
11	FRP-090711-0	110657	6.43	164767	7.44	154146	10.58
12	FRP-090711-0	107206	6.43	162354	7.44	145961	10.57
13	FRP-090711-0	105081	6.45	157497	7.45	143929	10.59
14	FRP-090711-0	117266	6.43	171463	7.44	161365	10.58
15	FRP-090711-0	119553	6.45	175125	7.46	159815	10.59
16							
17							
18							
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: TL23 — Project: FRP SHORELINE INVESTIGATION

Ical Midpoint ID: 0500817 — Ical Date: 08/17/11

Instrument ID: FINN5 — Project Run Date: 09/14/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	61044	13.27				
	UPPER LIMIT	122088	13.77				
	LOWER LIMIT	30522	12.77				
	Sample ID						
01	LCS0914	81880	13.27				
02	LCS0914	79966	13.28				
03	MB0914	78339	13.27				
04	FRP-090711-0	82364	13.27				
05	FRP-090711-0	60830	13.27				
06	FRP-090711-0	72081	13.26				
07	FRP-090711-0	70442	13.25				
08	FRP-090711-0	70819	13.28				
09	FRP-090711-0	73500	13.26				
10	FRP-090711-0	76187	13.27				
11	FRP-090711-0	77059	13.26				
12	FRP-090711-0	76563	13.26				
13	FRP-090711-0	75136	13.28				
14	FRP-090711-0	82361	13.27				
15	FRP-090711-0	82753	13.28				
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: TL23, TL28

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-090711-021	TL23A	11-19438	
FRP-090711-021D	TL23ADUP	11-19438	
FRP-090711-021S	TL23ASPK	11-19438	
FRP-090711-022	TL23B	11-19439	
PBS	TL23MB1	11-19439	
LCSS	TL23MB1SPK	11-19439	
FRP-090711-023	TL23C	11-19440	
FRP-090711-024	TL23D	11-19441	
FRP-090711-025	TL23E	11-19442	
FRP-090711-026	TL23F	11-19443	
FRP-090711-027	TL23G	11-19444	
FRP-090711-028	TL23H	11-19445	
FRP-090711-029	TL23I	11-19446	
FRP-090711-030	TL23J	11-19447	
FRP-090711-031	TL23K	11-19448	
FRP-090711-031D	TL23KDUP	11-19448	
FRP-090711-031S	TL23KSPK	11-19448	
PBW	TL23MB2	11-19448	
LCSW	TL23MB2SPK	11-19448	

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: 9/19/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-031
SAMPLE

Lab Sample ID: TL23K
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/09/11	6010B	09/14/11	7429-90-5	Aluminum	25.7	50	50	U
200.8	09/09/11	200.8	09/15/11	7440-38-2	Arsenic	0.048	0.2	0.2	U
3010A	09/09/11	6010B	09/14/11	7440-43-9	Cadmium	0.18	2	2	U
3010A	09/09/11	6010B	09/14/11	7440-47-3	Chromium	1.24	5	5	U
3010A	09/09/11	6010B	09/14/11	7440-50-8	Copper	0.92	2	2	U
200.8	09/09/11	200.8	09/15/11	**7439-92-1**	**Lead**	0.046	0.1	**0.1**	
3010A	09/09/11	6010B	09/14/11	7440-02-0	Nickel	3.9	10	10	U
3010A	09/09/11	6010B	09/14/11	7782-49-2	Selenium	5.0	50	50	U
3010A	09/09/11	6010B	09/14/11	7440-28-0	Thallium	3.1	50	50	U
3010A	09/09/11	6010B	09/14/11	7440-62-2	Vanadium	0.27	3	3	U
3010A	09/09/11	6010B	09/14/11	7440-66-6	Zinc	1.4	10	10	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-031
MATRIX SPIKE

Lab Sample ID: TL23K
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	50.0 U	2,120	2,000	106%	
Arsenic	200.8	0.200 U	26.1	25.0	104%	
Cadmium	6010B	2.00 U	509	500	102%	
Chromium	6010B	5.00 U	522	500	104%	
Copper	6010B	2.00 U	484	500	96.8%	
Lead	200.8	0.110	26.5	25.0	106%	
Nickel	6010B	10.0 U	504	500	101%	
Selenium	6010B	50.0 U	2,030	2,000	102%	
Thallium	6010B	50.0 U	2,030	2,000	102%	
Vanadium	6010B	3.00 U	509	500	102%	
Zinc	6010B	10.0 U	497	500	99.4%	

Reported in µg/L

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

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-031
DUPLICATE

Lab Sample ID: TL23K
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	50 U	50 U	0.0%	+/- 50	L
Arsenic	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Cadmium	6010B	2 U	2 U	0.0%	+/- 2	L
Chromium	6010B	5 U	5 U	0.0%	+/- 5	L
Copper	6010B	2 U	2 U	0.0%	+/- 2	L
Lead	200.8	0.1	0.1 U	0.0%	+/- 0.1	L
Nickel	6010B	10 U	10 U	0.0%	+/- 10	L
Selenium	6010B	50 U	50 U	0.0%	+/- 50	L
Thallium	6010B	50 U	50 U	0.0%	+/- 50	L
Vanadium	6010B	3 U	3 U	0.0%	+/- 3	L
Zinc	6010B	10 U	10 U	0.0%	+/- 10	L

Reported in µg/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: TL23LCS
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
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	2130	2000	106%	
Arsenic	200.8	26.0	25.0	104%	
Cadmium	6010B	514	500	103%	
Chromium	6010B	520	500	104%	
Copper	6010B	506	500	101%	
Lead	200.8	26.6	25.0	106%	
Nickel	6010B	500	500	100%	
Selenium	6010B	2050	2000	102%	
Thallium	6010B	2050	2000	102%	
Vanadium	6010B	513	500	103%	
Zinc	6010B	500	500	100%	

Reported in µg/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: TL23MB
LIMS ID: 11-19448
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
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	09/09/11	6010B	09/14/11	7429-90-5	Aluminum	25.7	50	50	U
200.8	09/09/11	200.8	09/15/11	7440-38-2	Arsenic	0.048	0.2	0.2	U
3010A	09/09/11	6010B	09/14/11	7440-43-9	Cadmium	0.18	2	2	U
3010A	09/09/11	6010B	09/14/11	7440-47-3	Chromium	1.24	5	5	U
3010A	09/09/11	6010B	09/14/11	7440-50-8	Copper	0.92	2	2	U
200.8	09/09/11	200.8	09/15/11	7439-92-1	Lead	0.046	0.1	0.1	U
3010A	09/09/11	6010B	09/14/11	7440-02-0	Nickel	3.9	10	10	U
3010A	09/09/11	6010B	09/14/11	7782-49-2	Selenium	5.0	50	50	U
3010A	09/09/11	6010B	09/14/11	7440-28-0	Thallium	3.1	50	50	U
3010A	09/09/11	6010B	09/14/11	7440-62-2	Vanadium	0.27	3	3	U
3010A	09/09/11	6010B	09/14/11	7440-66-6	Zinc	1.4	10	10	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-021
SAMPLE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 74.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.6	6	**8,060**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.11	0.3	**1.5**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.14	0.3	0.3	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.35	0.6	**9.1**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.064	0.3	**10.9**	
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.17	3	3	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0015	0.03	0.03	U
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.38	1	**6**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.83	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.68	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.077	0.4	**34.7**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.15	1	**18**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-022
SAMPLE

Lab Sample ID: TL23B
LIMS ID: 11-19439
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 89.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	3.8	5	**10,900**	
3050B	09/13/11	200.8	09/14/11	**7440-38-2**	**Arsenic**	0.095	0.2	**3.8**	
3050B	09/13/11	6010B	09/14/11	**7440-43-9**	**Cadmium**	0.12	0.2	**0.3**	
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.29	0.5	**27.4**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.054	0.2	**80.0**	
3050B	09/13/11	6010B	09/14/11	**7439-92-1**	**Lead**	0.14	2	**11**	
CLP	09/13/11	7471A	09/16/11	**7439-97-6**	**Mercury**	0.0010	0.02	**0.21**	
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.32	1	**15**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.70	5	5	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.57	5	5	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.065	0.3	**43.2**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.13	1	**64**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-023
SAMPLE

Lab Sample ID: TL23C
LIMS ID: 11-19440
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 88.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	3.7	5	**10,300**	
3050B	09/13/11	200.8	09/14/11	**7440-38-2**	**Arsenic**	0.095	0.2	**2.0**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.11	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.28	0.5	**13.6**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.052	0.2	**13.8**	
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.13	2	2	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0012	0.02	0.02	U
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.31	1	**9**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.67	5	5	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.55	5	5	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.062	0.3	**40.3**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.12	1	**26**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-024
SAMPLE

Lab Sample ID: TL23D
LIMS ID: 11-19441
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 76.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.5	6	**13,700**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.11	0.3	**3.7**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.14	0.3	0.3	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.34	0.6	**17.0**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.064	0.3	**31.0**	
3050B	09/13/11	6010B	09/14/11	**7439-92-1**	**Lead**	0.17	3	**3**	
CLP	09/13/11	7471A	09/16/11	**7439-97-6**	**Mercury**	0.0015	0.03	**0.04**	
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.38	1	**12**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.83	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.67	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.076	0.4	**53.3**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.15	1	**29**	

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

TL23:00190

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-025
SAMPLE

Lab Sample ID: TL23E
LIMS ID: 11-19442
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 78.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.3	6	**13,700**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.11	0.2	**3.9**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.13	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.33	0.6	**17.8**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.060	0.2	**26.8**	
3050B	09/13/11	6010B	09/14/11	**7439-92-1**	**Lead**	0.16	2	**4**	
CLP	09/13/11	7471A	09/16/11	**7439-97-6**	**Mercury**	0.0013	0.03	**0.04**	
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.36	1	**12**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.79	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.64	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.073	0.4	**42.9**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.15	1	**28**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-026
SAMPLE

Lab Sample ID: TL23F
LIMS ID: 11-19443
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 79.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.1	6	**7,690**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.10	0.2	**1.9**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.13	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.32	0.6	**15.7**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.058	0.2	**16.3**	
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.15	2	2	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0012	0.02	0.02	U
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.35	1	**10**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.76	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.62	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.070	0.4	**46.0**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.14	1	**24**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-027
SAMPLE

Lab Sample ID: TL23G
LIMS ID: 11-19444
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 79.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.1	6	**7,420**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.11	0.2	**1.7**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.13	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.31	0.6	**10.5**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.057	0.2	**13.6**	
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.15	2	2	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0012	0.02	0.02	U
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.34	1	**10**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.75	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.61	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.069	0.3	**37.0**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.14	1	**25**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-028
SAMPLE

Lab Sample ID: TL23H
LIMS ID: 11-19445
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 85.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.0	6	**9,730**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.10	0.2	**5.2**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.12	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.30	0.6	**11.3**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.056	0.2	**15.0**	
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.15	2	2	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0012	0.02	0.02	U
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.34	1	**14**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.73	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.59	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.067	0.3	**39.7**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.13	1	**39**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-029
SAMPLE

Lab Sample ID: TL23I
LIMS ID: 11-19446
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 76.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.3	6	**6,070**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.11	0.3	**1.2**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.13	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.33	0.6	**10.3**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.061	0.2	**8.8**	
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.16	2	2	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0013	0.03	0.03	U
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.37	1	**6**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.80	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.65	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.073	0.4	**35.7**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.15	1	**19**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-030
SAMPLE

Lab Sample ID: TL23J
LIMS ID: 11-19447
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Percent Total Solids: 76.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	**7429-90-5**	**Aluminum**	4.3	6	**5,520**	
3050B	09/13/11	200.8	09/15/11	**7440-38-2**	**Arsenic**	0.11	0.3	**1.1**	
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.13	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	**7440-47-3**	**Chromium**	0.33	0.6	**10.5**	
3050B	09/13/11	6010B	09/14/11	**7440-50-8**	**Copper**	0.061	0.2	**8.4**	
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.16	2	2	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0014	0.03	0.03	U
3050B	09/13/11	6010B	09/14/11	**7440-02-0**	**Nickel**	0.36	1	**6**	
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.79	6	6	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.64	6	6	U
3050B	09/13/11	6010B	09/14/11	**7440-62-2**	**Vanadium**	0.073	0.4	**34.4**	
3050B	09/13/11	6010B	09/14/11	**7440-66-6**	**Zinc**	0.15	1	**19**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-021
MATRIX SPIKE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike Added	% Recovery	Q
Aluminum	6010B	8,060	8,000	256	-23.4%	H
Arsenic	200.8	1.5	33.7	32.2	100%	
Cadmium	6010B	0.3 U	66.1	64.0	103%	
Chromium	6010B	9.1	73.2	64.0	100%	
Copper	6010B	10.9	73.5	64.0	97.8%	
Lead	6010B	3 U	254	256	99.2%	
Mercury	7471A	0.03 U	0.31	0.282	110%	
Nickel	6010B	6	68	64.0	96.9%	
Selenium	6010B	6 U	260	256	102%	
Thallium	6010B	6 U	250	256	97.7%	
Vanadium	6010B	34.7	94.3	64.0	93.1%	
Zinc	6010B	18	79	64.0	95.3%	

Reported in mg/kg-dry

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-090711-021
DUPLICATE

Lab Sample ID: TL23A
LIMS ID: 11-19438
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	8,060	8,390	4.0%	+/- 20%	
Arsenic	200.8	1.5	1.5	0.0%	+/- 20%	
Cadmium	6010B	0.3 U	0.3 U	0.0%	+/- 0.3	L
Chromium	6010B	9.1	9.3	2.2%	+/- 20%	
Copper	6010B	10.9	11.1	1.8%	+/- 20%	
Lead	6010B	3 U	3 U	0.0%	+/- 3	L
Mercury	7471A	0.03 U	0.03 U	0.0%	+/- 0.03	L
Nickel	6010B	6	6	0.0%	+/- 1	L
Selenium	6010B	6 U	6 U	0.0%	+/- 6	L
Thallium	6010B	6 U	6 U	0.0%	+/- 6	L
Vanadium	6010B	34.7	35.6	2.6%	+/- 20%	
Zinc	6010B	18	17	5.7%	+/- 20%	

Reported in mg/kg-dry

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

TL23:00138

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TL23LCS
LIMS ID: 11-19439
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
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	209	200	104%	
Arsenic	200.8	25.9	25.0	104%	
Cadmium	6010B	50.5	50.0	101%	
Chromium	6010B	51.2	50.0	102%	
Copper	6010B	47.9	50.0	95.8%	
Lead	6010B	197	200	98.5%	
Mercury	7471A	0.50	0.50	100%	
Nickel	6010B	50	50	100%	
Selenium	6010B	205	200	102%	
Thallium	6010B	201	200	100%	
Vanadium	6010B	50.4	50.0	101%	
Zinc	6010B	49	50	98.0%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: TL23MB
LIMS ID: 11-19439
Matrix: Soil
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/13/11	6010B	09/14/11	7429-90-5	Aluminum	3.6	5	5	U
3050B	09/13/11	200.8	09/15/11	7440-38-2	Arsenic	0.087	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	7440-43-9	Cadmium	0.11	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	7440-47-3	Chromium	0.27	0.5	0.5	U
3050B	09/13/11	6010B	09/14/11	7440-50-8	Copper	0.050	0.2	0.2	U
3050B	09/13/11	6010B	09/14/11	7439-92-1	Lead	0.13	2	2	U
CLP	09/13/11	7471A	09/16/11	7439-97-6	Mercury	0.0013	0.02	0.02	U
3050B	09/13/11	6010B	09/14/11	7440-02-0	Nickel	0.30	1	1	U
3050B	09/13/11	6010B	09/14/11	7782-49-2	Selenium	0.65	5	5	U
3050B	09/13/11	6010B	09/14/11	7440-28-0	Thallium	0.53	5	5	U
3050B	09/13/11	6010B	09/14/11	7440-62-2	Vanadium	0.060	0.3	0.3	U
3050B	09/13/11	6010B	09/14/11	7440-66-6	Zinc	0.12	1	1	U

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

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

UNITS:ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Aluminum	AL	ICP	IP091471	2000.0	2014.86	100.7	2000.0	2021.61	101.1	2012.68	100.6	2021.78	101.1	1967.04	98.4	1993.76	99.7
Arsenic	AS	PMS	MS091481	50.0	50.47	100.9	50.0	50.27	100.5	50.38	100.8	49.50	99.0	49.99	100.0	50.06	100.1
Cadmium	CD	ICP	IP091471	1000.0	1045.56	104.6	1000.0	1040.07	104.0	1017.50	101.8	1027.39	102.7	1016.29	101.6	1019.14	101.9
Chromium	CR	ICP	IP091471	1000.0	1010.82	101.1	1000.0	1011.84	101.2	1009.04	100.9	1011.45	101.1	989.03	98.9	995.00	99.5
Copper	CU	ICP	IP091471	1000.0	1006.86	100.7	1000.0	1006.77	100.7	980.92	98.1	1003.66	100.4	983.49	98.3	986.25	98.6
Lead	PB	ICP	IP091471	2000.0	1984.71	99.2	2000.0	1962.52	98.1	1970.76	98.5	1940.99	97.0	1910.52	95.5	1923.15	96.2
Mercury	HG	CVA	HG091601	8.0	8.13	101.6	4.0	4.10	102.5	4.16	104.0	4.11	102.8	4.08	102.0		
Nickel	NI	ICP	IP091471	1000.0	1001.80	100.2	1000.0	1003.59	100.4	996.68	99.7	993.15	99.3	974.50	97.5	979.22	97.9
Selenium	SE	ICP	IP091471	2000.0	2007.69	100.4	2000.0	2024.07	101.2	2005.21	100.3	2031.18	101.6	2010.75	100.5	1988.61	99.4
Thallium	TL	ICP	IP091471	2000.0	1977.83	98.9	2000.0	1978.12	98.9	1954.77	97.7	1973.12	98.7	1945.82	97.3	1938.20	96.9
Vanadium	V	ICP	IP091471	1000.0	996.27	99.6	1000.0	999.35	99.9	980.61	98.1	996.20	99.6	976.09	97.6	981.26	98.1
Zinc	ZN	ICP	IP091471	1000.0	981.78	98.2	1000.0	987.32	98.7	987.34	98.7	983.68	98.4	964.60	96.5	973.79	97.4

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

FORM II (1)

TL23.001111

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TL23

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Aluminum	AL	ICP	IP091471	2000.0												
Arsenic	AS	PMS	MS091481	50.0	49.81	99.6	49.62	99.2	49.88	99.8	49.75	99.5	49.19	98.4		
Cadmium	CD	ICP	IP091471	1000.0												
Chromium	CR	ICP	IP091471	1000.0												
Copper	CU	ICP	IP091471	1000.0												
Lead	PB	ICP	IP091471	2000.0												
Mercury	HG	CVA	HG091601	4.0												
Nickel	NI	ICP	IP091471	1000.0												
Selenium	SE	ICP	IP091471	2000.0												
Thallium	TL	ICP	IP091471	2000.0												
Vanadium	V	ICP	IP091471	1000.0												
Zinc	ZN	ICP	IP091471	1000.0												

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

TL23.00112

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TL23

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS091581	50.0	50.65	101.3	50.0	48.05	96.1	47.92	95.8	48.94	97.9	49.28	98.6	49.01	98.0
Lead	PB	PMS	MS091581	50.0	51.19	102.4	50.0	48.11	96.2	48.43	96.9	49.87	99.7	49.52	99.0	49.89	99.8

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

FORM II (1)

TL23:00148

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

UNITS:ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Arsenic	AS	PMS	MS091581	50.0	50.60	101.2	50.11	100.2								
Lead	PB	PMS	MS091581	50.0	51.35	102.7	51.43	102.9								

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

TL23 : 091414

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL23

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	IP091471	50.0	48.44	**96.9**	63.06	**126.1**								
Arsenic	AS	PMS	MS091481	0.2	0.23	**115.0**										
Cadmium	CD	ICP	IP091471	2.0	2.11	**105.5**	1.75	**87.5**								
Chromium	CR	ICP	IP091471	5.0	5.60	**112.0**	6.21	**124.2**								
Copper	CU	ICP	IP091471	2.0	1.98	**99.0**	2.03	**101.5**								
Lead	PB	ICP	IP091471	20.0	19.83	**99.2**	20.97	**104.9**								
Mercury	HG	CVA	HG091601	0.1	0.11	**110.0**										
Nickel	NI	ICP	IP091471	10.0	9.97	**99.7**	9.81	**98.1**								
Selenium	SE	ICP	IP091471	50.0	57.45	**114.9**	58.61	**117.2**								
Thallium	TL	ICP	IP091471	50.0	51.26	**102.5**	51.26	**102.5**								
Vanadium	V	ICP	IP091471	3.0	3.03	**101.0**	3.00	**100.0**								
Zinc	ZN	ICP	IP091471	10.0	9.71	**97.1**	9.64	**96.4**								

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

TL23 00115

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

UNITS: ug/L

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
Arsenic	AS	PMS	MS091581	0.2	0.20	100.0										
Lead	PB	PMS	MS091581	0.1	0.11	110.0										

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

FORM II (2)

TL23.001146

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TL23

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Aluminum	AL	ICP	IP091471	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	MS091481	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	IP091471	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Chromium	CR	ICP	IP091471	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	IP091471	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Lead	PB	ICP	IP091471	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Mercury	HG	CVA	HG091601	0.2	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		
Nickel	NI	ICP	IP091471	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Selenium	SE	ICP	IP091471	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Thallium	TL	ICP	IP091471	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	IP091471	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	IP091471	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

TL23.0017

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TL23

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Aluminum	AL	ICP	IP091471	200.0	50.0												
Arsenic	AS	PMS	MS091481	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U		
Cadmium	CD	ICP	IP091471	5.0	2.0												
Chromium	CR	ICP	IP091471	10.0	5.0												
Copper	CU	ICP	IP091471	25.0	2.0												
Lead	PB	ICP	IP091471	3.0	20.0												
Mercury	HG	CVA	HG091601	0.2	0.1												
Nickel	NI	ICP	IP091471	40.0	10.0												
Selenium	SE	ICP	IP091471	5.0	50.0												
Thallium	TL	ICP	IP091471	10.0	50.0												
Vanadium	V	ICP	IP091471	50.0	3.0												
Zinc	ZN	ICP	IP091471	20.0	10.0												

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS091581	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	MS091581	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

TL23.00115

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TL23

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Arsenic	AS	PMS	MS091581	10.0	0.2	0.2	U	0.2	U								
Lead	PB	PMS	MS091581	3.0	0.1	0.1	U	0.1	U								

TL23.00159

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: IP091471

SDG: TL23

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	203081.9	199559.0	**99.8**	197419.0	195335.6	**97.7**			
Antimony		1000	-0.9	965.7	**96.6**	-4.1	946.0	**94.6**			
Arsenic		1000	8.9	1021.2	**102.1**	11.8	1005.3	**100.5**			
Barium		1000	0.6	985.5	**98.6**	0.5	969.6	**97.0**			
Beryllium		1000	0.1	1012.2	**101.2**	0.1	991.9	**99.2**			
Boron			-5.7	-5.8		-4.6	-6.9				
Cadmium		1000	1.5	1012.6	**101.3**	1.3	990.6	**99.1**			
Calcium	100000	100000	105608.6	103682.8	**103.7**	103304.3	102140.2	**102.1**			
Chromium		1000	-1.1	994.6	**99.5**	-0.5	981.9	**98.2**			
Cobalt		1000	1.0	970.2	**97.0**	1.0	956.5	**95.7**			
Copper		1000	-0.2	1007.8	**100.8**	0.0	989.4	**98.9**			
Iron	200000	200000	204552.8	197592.6	**98.8**	199038.2	193991.5	**97.0**			
Lead		1000	-2.7	974.0	**97.4**	-1.1	954.4	**95.4**			
Magnesium	100000	100000	104993.0	99599.1	**99.6**	103768.1	97900.9	**97.9**			
Manganese		1000	0.4	942.5	**94.3**	0.2	923.8	**92.4**			
Molybdenum			0.9	0.8		0.6	0.6				
Nickel		1000	-1.9	944.3	**94.4**	0.9	928.8	**92.9**			
Potassium			7.4	240.7		57.2	244.1				
Selenium		1000	17.2	1024.8	**102.5**	19.6	1006.1	**100.6**			
Silicon			-2.8	-2.4		-0.3	-5.9				
Silver		1000	-0.9	1022.0	**102.2**	-0.1	995.4	**99.5**			
Sodium			8.7	10.5		13.6	8.9				
Strontium			10.4	10.2		10.4	10.0				
Thallium		1000	11.4	966.9	**96.7**	16.1	945.2	**94.5**			
Tin			-8.1	-8.3		-8.3	-8.5				
Titanium			4.8	3.5		3.8	3.2				
Vanadium		1000	1.0	968.6	**96.9**	0.8	953.9	**95.4**			
Zinc		1000	-0.1	937.3	**93.7**	0.6	927.1	**92.7**			

TL23.0031

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: MS091481

SDG: TL23

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							
Arsenic		20	0.0	19.7	**98.5**						
Cadmium		20	0.0	20.1	**100.5**						
Chromium		20	0.9	20.9	**104.5**						
Cobalt		20	0.0	19.9	**99.5**						
Copper		20	0.4	19.7	**98.5**						
Manganese		20	0.7	20.7	**103.5**						
Molybdenum	400	400	416.7	411.9	**103.0**						
Nickel		20	0.5	19.2	**96.0**						
Silver		20	0.0	19.2	**96.0**						
Vanadium			0.0	-0.3							
Zinc		20	0.8	19.8	**99.0**						

TL23.00152

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: MS091581

SDG: TL23

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							
Arsenic		20	0.0	19.9	**99.5**						
Cadmium		20	0.0	20.2	**101.0**						
Chromium		20	0.9	20.9	**104.5**						
Cobalt		20	0.0	20.0	**100.0**						
Copper		20	0.5	20.5	**102.5**						
Iron	20000	20000	20846.1	20631.4	**103.2**						
Manganese		20	0.8	20.8	**104.0**						
Molybdenum	400	400	420.3	420.6	**105.2**						
Nickel		20	0.5	19.5	**97.5**						
Selenium			0.0	0.1							
Silver		20	0.0	19.7	**98.5**						
Vanadium			0.0	-0.3							
Zinc		20	0.7	19.9	**99.5**						

TL23.001.58

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: ICP

SDG: TL23

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-090711-021L	TL23A-L	Soil	IP091471	62838.81		60810.75		3.2	
Cadmium	FRP-090711-021L	TL23A-L	Soil	IP091471	0.58	U	10.00	U		
Chromium	FRP-090711-021L	TL23A-L	Soil	IP091471	71.17		72.45		1.8	
Copper	FRP-090711-021L	TL23A-L	Soil	IP091471	84.78		84.55	B	0.3	
Lead	FRP-090711-021L	TL23A-L	Soil	IP091471	7.22	U	100.00	U		
Nickel	FRP-090711-021L	TL23A-L	Soil	IP091471	44.27		50.00	U	100.0	
Selenium	FRP-090711-021L	TL23A-L	Soil	IP091471	11.59	U	250.00	U		
Thallium	FRP-090711-021L	TL23A-L	Soil	IP091471	12.59	U	250.00	U		
Vanadium	FRP-090711-021L	TL23A-L	Soil	IP091471	270.61		272.20		0.6	
Zinc	FRP-090711-021L	TL23A-L	Soil	IP091471	140.71		142.20		1.1	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: ICP

SDG: TL23

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-090711-031L	TL23K-L	Water	IP091471	8.25	U	250.00	U		
Cadmium	FRP-090711-031L	TL23K-L	Water	IP091471	-0.46	U	10.00	U		
Chromium	FRP-090711-031L	TL23K-L	Water	IP091471	0.98	U	25.00	U		
Copper	FRP-090711-031L	TL23K-L	Water	IP091471	0.21	U	10.00	U		
Nickel	FRP-090711-031L	TL23K-L	Water	IP091471	-0.40	U	50.00	U		
Selenium	FRP-090711-031L	TL23K-L	Water	IP091471	1.39	U	250.00	U		
Thallium	FRP-090711-031L	TL23K-L	Water	IP091471	-0.40	U	250.00	U		
Vanadium	FRP-090711-031L	TL23K-L	Water	IP091471	0.10	U	15.00	U		
Zinc	FRP-090711-031L	TL23K-L	Water	IP091471	2.00	U	50.00	U		

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: PMS

SDG: TL23

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-090711-021L	TL23A-L	Soil	MS091581	1.15	B	1.15	B	0.0	
Arsenic	FRP-090711-031L	TL23K-L	Water	MS091581	0.04	U	0.05	B		
Lead	FRP-090711-031L	TL23K-L	Water	MS091581	0.11	B	0.10	B	9.1	

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23 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
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
Lead	PB	ICP	OPTIMA ICP 2	220.35		3	20.0	4/1/2011	300000.0	8/3/2011
Lead	PB	PMS	PE ELAN 6000 MS	0.00		3	0.1	4/1/2011		
Mercury	HG	CVA	CETAC MERCURY	253.70		0.2	0.1	4/1/2011		
Nickel	NI	ICP	OPTIMA ICP 2	231.60		40	10.0	4/1/2011	100000.0	8/3/2011
Selenium	SE	ICP	OPTIMA ICP 2	196.02		5	50.0	4/1/2011	20000.0	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 Inc.

PROJECT: FRP 2011 Shoreline I

IEC DATE: 9/7/2011

SDG: TL23

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

TL23 . 001158

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

IEC DATE: 9/7/2011

SDG: TL23

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

TL23-00159

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

ANALYSIS METHOD: ICP

ARI PREP CODE: SWC

PREPDATE: 9/13/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090711-021	TL23A	1.051	0.0	50.0
FRP-090711-021D	TL23ADUP	1.047	0.0	50.0
FRP-090711-021S	TL23ASPK	1.052	0.0	50.0
FRP-090711-022	TL23B	1.038	0.0	50.0
FRP-090711-023	TL23C	1.093	0.0	50.0
FRP-090711-024	TL23D	1.032	0.0	50.0
FRP-090711-025	TL23E	1.058	0.0	50.0
FRP-090711-026	TL23F	1.077	0.0	50.0
FRP-090711-027	TL23G	1.094	0.0	50.0
FRP-090711-028	TL23H	1.050	0.0	50.0
FRP-090711-029	TL23I	1.074	0.0	50.0
FRP-090711-030	TL23J	1.077	0.0	50.0
PBS	TL23MB1	1.000	0.0	50.0
LCSS	TL23MB1SPK	1.000	0.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

ANALYSIS METHOD: ICP

ARI PREP CODE: TWC

PREPDATE: 9/9/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090711-031	TL23K	0.000	50.0	50.0
FRP-090711-031D	TL23KDUP	0.000	50.0	50.0
FRP-090711-031S	TL23KSPK	0.000	50.0	50.0
PBW	TL23MB2	0.000	50.0	50.0
LCSW	TL23MB2SPK	0.000	50.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 9/9/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090711-031	TL23K	0.000	50.0	25.0
FRP-090711-031D	TL23KDUP	0.000	50.0	25.0
FRP-090711-031S	TL23KSPK	0.000	50.0	25.0
PBW	TL23MB2	0.000	50.0	25.0
LCSW	TL23MB2SPK	0.000	50.0	25.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

ANALYSIS METHOD: PMS

ARI PREP CODE: SWN

PREPDATE: 9/13/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090711-021	TL23A	1.051	0.0	50.0
FRP-090711-021D	TL23ADUP	1.054	0.0	50.0
FRP-090711-021S	TL23ASPK	1.047	0.0	50.0
FRP-090711-022	TL23B	1.026	0.0	50.0
FRP-090711-023	TL23C	1.042	0.0	50.0
FRP-090711-024	TL23D	1.035	0.0	50.0
FRP-090711-025	TL23E	1.043	0.0	50.0
FRP-090711-026	TL23F	1.080	0.0	50.0
FRP-090711-027	TL23G	1.040	0.0	50.0
FRP-090711-028	TL23H	1.011	0.0	50.0
FRP-090711-029	TL23I	1.049	0.0	50.0
FRP-090711-030	TL23J	1.008	0.0	50.0
PBS	TL23MB1	1.000	0.0	50.0
LCSS	TL23MB1SPK	1.000	0.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL23

ANALYSIS METHOD: CVA

ARI PREP CODE: SMM

PREPDATE: 9/13/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090711-021	TL23A	0.235	0.0	50.0
FRP-090711-021D	TL23ADUP	0.238	0.0	50.0
FRP-090711-021S	TL23ASPK	0.239	0.0	50.0
FRP-090711-022	TL23B	0.294	0.0	50.0
FRP-090711-023	TL23C	0.242	0.0	50.0
FRP-090711-024	TL23D	0.231	0.0	50.0
FRP-090711-025	TL23E	0.255	0.0	50.0
FRP-090711-026	TL23F	0.284	0.0	50.0
FRP-090711-027	TL23G	0.267	0.0	50.0
FRP-090711-028	TL23H	0.249	0.0	50.0
FRP-090711-029	TL23I	0.262	0.0	50.0
FRP-090711-030	TL23J	0.249	0.0	50.0
PBS	TL23MB1	0.200	0.0	50.0
LCSW	TL23MB1SPK	0.200	0.0	50.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/14/2011

SDG: TL23 RUNID: IP091471 METHOD: ICP END DATE: 9/14/2011

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	09282			X						X		X	X								X	X		X				X		X	X
S2	S2	1.00	09324									X		X	X																	X	
S3	S3	1.00	09342																				X	X		X				X			X
S4	S4	1.00	09365																														
S5	S5	1.00	09390			X																											
ICV	ICV	1.00	09423			X						X		X	X								X	X		X				X		X	X
ICB	ICB	1.00	09463			X						X		X	X								X	X		X				X		X	X
CRI	CRII	1.00	09505			X						X		X	X								X	X		X				X		X	X
ICSA	ICSAI	1.00	09550			X						X		X	X								X	X		X				X		X	X
ICSAB	ICSABI	1.00	09591			X						X		X	X								X	X		X				X		X	X
CCV	CCV1	1.00	10040			X						X		X	X								X	X		X				X		X	X
CCB	CCB1	1.00	10080			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	TL86MB	2.00	10121																														
PBW	TL23MB2	1.00	10163			X						X		X	X								X			X				X		X	X
FRP-090711-031L	TL23K-L	5.00	10204			X						X		X	X								X			X				X		X	X
FRP-090711-031	TL23K	1.00	10245			X						X		X	X								X			X				X		X	X
FRP-090711-031D	TL23KDUP	1.00	10291			X						X		X	X								X			X				X		X	X
FRP-090711-031S	TL23KSPK	1.00	10332			X						X		X	X								X			X				X		X	X
ZZZZZZ	TL86A	2.00	10372																														
FRP-090711-022	TL23B	2.00	10412			X						X		X	X								X	X		X				X		X	X
LCSW	TL23MB2SPK	1.00	10452			X						X		X	X								X			X				X		X	X
ZZZZZZ	TL86MBSPK	2.00	10491																														
CCV	CCV2	1.00	10531			X						X		X	X								X	X		X				X		X	X
CCB	CCB2	1.00	10571			X						X		X	X								X	X		X				X		X	X
PBS	TL23MB1	2.00	11013			X						X		X	X								X	X		X				X		X	X
FRP-090711-021L	TL23A-L	10.00	11054			X						X		X	X								X	X		X				X		X	X
FRP-090711-021	TL23A	2.00	11095			X						X		X	X								X	X		X				X		X	X
FRP-090711-021D	TL23ADUP	2.00	11141			X						X		X	X								X	X		X				X		X	X
FRP-090711-021S	TL23ASPK	2.00	11181			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	ZZZZZZ	2.00	11215																														
FRP-090711-023	TL23C	2.00	11254			X						X		X	X								X	X		X				X		X	X
FRP-090711-024	TL23D	2.00	11294			X						X		X	X								X	X		X				X		X	X
FRP-090711-025	TL23E	2.00	11334			X						X		X	X								X	X		X				X		X	X
LCSS	TL23MB1SPK	2.00	11374			X						X		X	X								X	X		X				X		X	X
CCV	CCV3	1.00	11414			X						X		X	X								X	X		X				X		X	X

FORM XIV

TL23.00155

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/14/2011

SDG: TL23 RUNID: IP091471 METHOD: ICP END DATE: 9/14/2011

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	11454			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	TL45MB	2.00	11495																														
FRP-090711-026	TL23F	2.00	11540			X						X		X	X								X	X		X				X		X	X
FRP-090711-027	TL23G	2.00	11580			X						X		X	X								X	X		X				X		X	X
FRP-090711-028	TL23H	2.00	12020			X						X		X	X								X	X		X				X		X	X
FRP-090711-029	TL23I	2.00	12060			X						X		X	X								X	X		X				X		X	X
FRP-090711-030	TL23J	2.00	12100			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	TL45A	2.00	12135																														
ZZZZZZ	TL45B	2.00	12175																														
ZZZZZZ	TL45MBSPK	2.00	12215																														
CCV	CCV4	1.00	12255			X						X		X	X								X	X		X				X		X	X
CCB	CCB4	1.00	12295			X						X		X	X								X	X		X				X		X	X
CRI	CRIF	1.00	12341			X						X		X	X								X	X		X				X		X	X
ICSA	ICSAF	1.00	12382			X						X		X	X								X	X		X				X		X	X
ICSAB	ICSABF	1.00	12423			X						X		X	X								X	X		X				X		X	X
CCV	CCV5	1.00	12472			X						X		X	X								X	X		X				X		X	X
CCB	CCB5	1.00	12512			X						X		X	X								X	X		X				X		X	X

TL23.00156

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/14/2011

SDG: TL23 RUNID: MS091481 METHOD: PMS END DATE: 9/14/2011

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	11569				X																										
S1	S1	1.00	12046				X																										
S2	S2	1.00	12123				X																										
S3	S3	1.00	12192				X																										
S4	S4	1.00	12271				X																										
ZZZZZZ	Rinse Sampl	1.00	12354																														
ICV	MICV	1.00	12428				X																										
ICB	ICB	1.00	12493				X																										
CCV	MCCV1	1.00	12565				X																										
CCB	CCB1	1.00	13048				X																										
CRI	MCRI	1.00	13119				X																										
ICSA	ICSAI	1.00	13180				X																										
ICSAB	ICSABI	1.00	13261				X																										
ZZZZZZ	LR200	1.00	13331																														
ZZZZZZ	LR300	1.00	13410																														
CCV	MCCV2	1.00	13481				X																										
CCB	CCB2	1.00	13554				X																										
ZZZZZZ	TK92P	2.00	14035																														
ZZZZZZ	TK92Q	2.00	14108																														
ZZZZZZ	TK92AB	2.00	14161																														
ZZZZZZ	TK92AC	2.00	14234																														
ZZZZZZ	TK92E-L	2500.00	14298																														
ZZZZZZ	TK92E	500.00	14363																														
ZZZZZZ	TK92EDUP	500.00	14428																														
ZZZZZZ	TK92ESPK	500.00	14493																														
ZZZZZZ	TK92F	500.00	14569																														
ZZZZZZ	TL10K	2.00	15026																														
CCV	MCCV3	1.00	15091				X																										
CCB	CCB3	1.00	15164				X																										
S0	S0	1.00	15245				X																										
CCV	MCCV4	1.00	15317				X																										
CCB	CCB4	1.00	15380				X																										
ZZZZZZ	TL86MB	20.00	15463																														
ZZZZZZ	TL86MBSPK	20.00	15529																														
ZZZZZZ	TL86A	20.00	15592																														

FORM XIV

TL23.00157

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/14/2011

SDG: TL23 RUNID: MS091481 METHOD: PMS END DATE: 9/14/2011

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	TL10ADUP	2.00	16053																														
ZZZZZZ	TL10A	2.00	16123																														
ZZZZZZ	TL10ASPK	2.00	16185																														
ZZZZZZ	TL10C	5.00	16256																														
ZZZZZZ	TL10G	5.00	16318																														
ZZZZZZ	TL10E	10.00	16380																														
ZZZZZZ	TL10F	10.00	16443																														
CCV	MCCV5	1.00	16516				X																										
CCB	CCB5	1.00	16588				X																										
ZZZZZZ	TL13MB1	20.00	17120																														
ZZZZZZ	TL13MB1SPK	20.00	17194																														
ZZZZZZ	ZZZZZZ	100.00	17258																														
ZZZZZZ	TL13A	20.00	17323																														
ZZZZZZ	TL13ADUP	20.00	17393																														
ZZZZZZ	TL13ASPK	20.00	17459																														
ZZZZZZ	ZZZZZZ	20.00	17525																														
ZZZZZZ	TL13B	20.00	17582																														
ZZZZZZ	TL13C	20.00	18055																														
ZZZZZZ	TL13D	20.00	18115																														
CCV	MCCV6	1.00	18187				X																										
CCB	CCB6	1.00	18259				X																										
ZZZZZZ	TL13E	20.00	18320																														
ZZZZZZ	TL13F	20.00	18391																														
ZZZZZZ	TL13G	20.00	18452																														
ZZZZZZ	TL13H	20.00	18523																														
ZZZZZZ	TL13I	20.00	18586																														
ZZZZZZ	TL13J	20.00	19058																														
ZZZZZZ	TL30B	20.00	19121																														
ZZZZZZ	TL30C	20.00	19185																														
ZZZZZZ	TL30D	20.00	19259																														
ZZZZZZ	TL30E	20.00	19314																														
CCV	MCCV7	1.00	19383				X																										
CCB	CCB7	1.00	19455				X																										
ZZZZZZ	TL30MB1	20.00	19528																														
ZZZZZZ	TL30MB1SPK	20.00	19594																														

FORM XIV

TL23.00158

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/14/2011

SDG: TL23 RUNID: MS091481 METHOD: PMS END DATE: 9/14/2011

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	TL30A-L	100.00	20059																														
ZZZZZZ	TL30A	20.00	20122																														
ZZZZZZ	TL30ADUP	20.00	20191																														
ZZZZZZ	TL30ASPK	20.00	20251																														
ZZZZZZ	ZZZZZZ	20.00	20321																														
ZZZZZZ	TL30F	20.00	20381																														
ZZZZZZ	TL30G	20.00	20452																														
ZZZZZZ	TL30H	20.00	20514																														
CCV	MCCV8	1.00	20586				X																										
CCB	CCB8	1.00	21059				X																										
ZZZZZZ	TL30I	20.00	21120																														
ZZZZZZ	TL30J	20.00	21193																														
ZZZZZZ	TL30K	20.00	21256																														
ZZZZZZ	TL30L	20.00	21329																														
ZZZZZZ	TL30M	20.00	21388																														
ZZZZZZ	TL30N	20.00	21453																														
ZZZZZZ	TL30O	20.00	21518																														
ZZZZZZ	TL30P	20.00	21583																														
ZZZZZZ	TL30Q	20.00	22059																														
ZZZZZZ	TL30R	20.00	22112																														
CCV	MCCV9	1.00	22183				X																										
CCB	CCB9	1.00	22256				X																										
ZZZZZZ	TL21MB1	2.00	22326																														
ZZZZZZ	TL21MB2	2.00	22396																														
ZZZZZZ	TL21MB2SPK	2.00	22456																														
ZZZZZZ	TL21MB1SPK	2.00	22526																														
ZZZZZZ	TL21A	2.00	22587																														
ZZZZZZ	TL21B	2.00	23059																														
ZZZZZZ	TL30S	20.00	23111																														
ZZZZZZ	TL30T	20.00	23183																														
FRP-090711-022	TL23B	20.00	23246				X																										
FRP-090711-023	TL23C	20.00	23310				X																										
CCV	MCCV10	1.00	23374				X																										
CCB	CCB10	1.00	23456				X																										

TL23 : 00159

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/15/2011

SDG: TL23 RUNID: MS091581 METHOD: PMS END DATE: 9/15/2011

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	11400				X																	X									
S1	S1	1.00	11470				X																	X									
S2	S2	1.00	11550				X																	X									
S3	S3	1.00	12020				X																	X									
S4	S4	1.00	12100				X																	X									
ZZZZZZ	Rinse Sampl	1.00	12180																														
ICV	MICV	1.00	12250				X																	X									
ICB	ICB	1.00	12320				X																	X									
CCV	MCCV1	1.00	12400				X																	X									
CCB	CCB1	1.00	12470				X																	X									
CRI	MCRI	1.00	12540				X																	X									
ICSA	ICSAI	1.00	13010				X																	X									
ICSAB	ICSABI	1.00	13090				X																	X									
ZZZZZZ	LR200	1.00	13170																														
ZZZZZZ	LR300	1.00	13240																														
CCV	MCCV2	1.00	13320				X																	X									
CCB	CCB2	1.00	13390				X																	X									
ZZZZZZ	TL34MB	2.00	13470																														
ZZZZZZ	TL34MBSPK	2.00	13530																														
ZZZZZZ	TL34A	2.00	14000																														
ZZZZZZ	TL34B	2.00	14060																														
ZZZZZZ	TL30B	20.00	14130																														
ZZZZZZ	TL30C	20.00	14200																														
ZZZZZZ	TL30D	20.00	14270																														
ZZZZZZ	TL30E	20.00	14330																														
ZZZZZZ	TL13B	20.00	14400																														
ZZZZZZ	TL13C	20.00	14470																														
CCV	MCCV3	1.00	14530				X																	X									
CCB	CCB3	1.00	15010				X																	X									
ZZZZZZ	TL13MB1	20.00	15080																														
ZZZZZZ	TL13MB1SPK	20.00	15150																														
ZZZZZZ	TL13A-L	100.00	15220																														
ZZZZZZ	TL13A	20.00	15280																														
ZZZZZZ	TL13ADUP	20.00	15350																														
ZZZZZZ	TL13ASPK	20.00	15420																														

FORM XIV

TL23 : 001 78

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/15/2011

SDG: TL23 RUNID: MS091581 METHOD: PMS END DATE: 9/15/2011

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	TL13D	20.00	15480																														
ZZZZZZ	TL13E	20.00	15550																														
ZZZZZZ	TL13F	20.00	16010																														
ZZZZZZ	TL13G	20.00	16080																														
CCV	MCCV4	1.00	16150				X																	X									
CCB	CCB4	1.00	16220				X																	X									
PBW	TL23MB2	2.00	16290				X																	X									
LCSW	TL23MB2SPK	2.00	16360				X																	X									
FRP-090711-031L	TL23K-L	10.00	16430				X																	X									
FRP-090711-031	TL23K	2.00	16490				X																	X									
FRP-090711-031D	TL23KDUP	2.00	16560				X																	X									
FRP-090711-031S	TL23KSPK	2.00	17030				X																	X									
FRP-090711-024	TL23D	20.00	17100				X																										
ZZZZZZ	TL13H	20.00	17160																														
ZZZZZZ	TL13I	20.00	17230																														
ZZZZZZ	TL13J	20.00	17300																														
CCV	MCCV5	1.00	17360				X																	X									
CCB	CCB5	1.00	17440				X																	X									
PBS	TL23MB1	20.00	17550				X																										
LCSS	TL23MB1SPK	20.00	18020				X																										
FRP-090711-021L	TL23A-L	100.00	18090				X																										
FRP-090711-021	TL23A	20.00	18150				X																										
FRP-090711-021D	TL23ADUP	20.00	18220				X																										
FRP-090711-021S	TL23ASPK	20.00	18290				X																										
FRP-090711-025	TL23E	20.00	18350				X																										
FRP-090711-026	TL23F	20.00	18420				X																										
FRP-090711-027	TL23G	20.00	18490				X																										
FRP-090711-028	TL23H	20.00	18550				X																										
CCV	MCCV6	1.00	19020				X																	X									
CCB	CCB6	1.00	19090				X																	X									
ZZZZZZ	TM11MB2	20.00	19170																														
ZZZZZZ	TM11MB2SPK	20.00	19230																														
ZZZZZZ	TM11D	20.00	19300																														
ZZZZZZ	TM16B	20.00	19370																														
ZZZZZZ	TM16C	20.00	19430																														

FORM XIV

TL23:00171

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/15/2011

SDG: TL23 RUNID: MS091581` METHOD: PMS END DATE: 9/15/2011

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	TM16D	20.00	19500																														
ZZZZZZ	TM16E	20.00	19560																														
FRP-090711-029	TL23I	20.00	20030				X																										
FRP-090711-030	TL23J	20.00	20100				X																										
ZZZZZZ	TL34B	10.00	20160																														
CCV	MCCV7	1.00	20230				X																	X									
CCB	CCB7	1.00	20300				X																	X									

TL23.061172

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/16/2011

SDG: TL23 RUNID: HG091601 METHOD: CVA END DATE: 9/16/2011

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	08343														X																
S0.1	S0.1	1.00	08361														X																
S0.5	S0.5	1.00	08374														X																
S1	S1	1.00	08392														X																
S2	S2	1.00	08410														X																
S5	S5	1.00	08424														X																
S10	S10	1.00	08441														X																
ICV	AICV	1.00	08472														X																
ICB	ICB	1.00	08490														X																
CCV	ACCV1	1.00	08504														X																
CCB	CCB1	1.00	08522														X																
CRA	CRA	1.00	08535														X																
ZZZZZZ	TM02MB1	1.00	08553																														
ZZZZZZ	TM02MB1SPK	1.00	08570																														
ZZZZZZ	TM02A	1.00	08584																														
ZZZZZZ	TM02ADUP	1.00	09002																														
ZZZZZZ	TM02ASPK	1.00	09015																														
ZZZZZZ	TL52MB1	1.00	09033																														
ZZZZZZ	TL52MB1SPK	1.00	09051																														
ZZZZZZ	TL52A	1.00	09065																														
ZZZZZZ	TL52ADUP	1.00	09082																														
CCV	ACCV2	1.00	09100														X																
CCB	CCB2	1.00	09114														X																
ZZZZZZ	TL52ASPK	1.00	09132																														
ZZZZZZ	TL52B	1.00	09150																														
PBW	TL23MB1	1.00	09163														X																
LCSW	TL23MB1SPK	1.00	09181														X																
FRP-090711-021	TL23A	1.00	09194														X																
FRP-090711-021D	TL23ADUP	1.00	09212														X																
FRP-090711-021S	TL23ASPK	1.00	09230														X																
FRP-090711-022	TL23B	1.00	09243														X																
FRP-090711-023	TL23C	1.00	09261														X																
FRP-090711-024	TL23D	1.00	09275														X																
CCV	ACCV3	1.00	09293														X																
CCB	CCB3	1.00	09311														X																

FORM XIV

TL23.00173

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/16/2011

SDG: TL23 RUNID: HG091601 METHOD: CVA END DATE: 9/16/2011

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-090711-025	TL23E	1.00	09325														X																
FRP-090711-026	TL23F	1.00	09343														X																
FRP-090711-027	TL23G	1.00	09360														X																
FRP-090711-028	TL23H	1.00	09374														X																
FRP-090711-029	TL23I	1.00	09391														X																
FRP-090711-030	TL23J	1.00	09405														X																
ZZZZZZ	TM21MB1	1.00	09423																														
ZZZZZZ	TM21MB1SPK	1.00	09440																														
ZZZZZZ	TM21A	1.00	09454																														
ZZZZZZ	TM21ADUP	1.00	09472																														
CCV	ACCV4	1.00	09490														X																
CCB	CCB4	1.00	09504														X																

TL23 . 0091 TM

Mercury Analysis
Report and Summary QC Forms

ARI Job ID: TL23, TL28

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL28

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-090711-031	TL28A	11-19450	
FRP-090711-031D	TL28ADUP	11-19450	
FRP-090711-031S	TL28ASPK	11-19450	
PBW	TL28MB1	11-19450	
LCSW	TL28MB1SPK	11-19450	

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: 09/07/11

QC Report No: TL28-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
FRP-090711-031 TL28A 11-19450	09/07/11	Water	09/12/11 09/19/11	20.0	20.0 U
MB-091211 Method Blank	NA	Water	09/12/11 09/19/11	20.0	20.0 U

Reported in ng/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-090711-031
MATRIX SPIKE

Lab Sample ID: TL28A
LIMS ID: 11-19450
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL28-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	20.0 U	83.7	100	83.7%	

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-090711-031
DUPLICATE

Lab Sample ID: TL28A
LIMS ID: 11-19450
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL28-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/07/11
Date Received: 09/07/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	20.0 U	20.0 U	0.0%	+/- 20.0	L

Reported in ng/L

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

TL28:00175

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TL28LCS
LIMS ID: 11-19450
Matrix: Water
Data Release Authorized:
Reported: 09/19/11

QC Report No: TL28-Amec Geomatrix Inc.
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	182	200	91.0%	

Reported in ng/L

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

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS:ng/L

SDG: TL28

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						

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

TL28.001.81

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS: ng/L

SDG: TL28

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.

TL23.001.02

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

UNITS:ng/L

SDG: TL28

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						

TL28.00153

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL28

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 Inc.

PROJECT: FRP 2011 Shoreline I

SDG: TL28

ANALYSIS METHOD: CVL

ARI PREP CODE: TLM

PREPDATE: 9/12/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-090711-031	TL28A	0.000	20.0	20.0
FRP-090711-031D	TL28ADUP	0.000	20.0	20.0
FRP-090711-031S	TL28ASPK	0.000	20.0	20.0
PBW	TL28MB1	0.000	20.0	20.0
LCSW	TL28MB1SPK	0.000	20.0	20.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

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

SDG: TL28 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																
PBW	TL28MB1	1.00	10454														X																
LCSW	TL28MB1SPK	1.00	10482														X																
FRP-090711-031	TL28A	1.00	10510														X																
FRP-090711-031D	TL28ADUP	1.00	10534														X																
FRP-090711-031S	TL28ASPK	1.00	10562														X																
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																

TL23:006186

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: TL23, TL28

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
pH by Method EPA 150.1

Data Release Authorized:
Reported: 09/12/11
Date Received: 09/07/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Client/ ARI ID	Date Sampled	Matrix	Analysis Date & Batch	RL	Result
FRP-090711-031 TL23K 11-19448	09/07/11	Water	09/07/11 17:39 090711#1	0.01	5.56

Reported in std units

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

REPLICATE RESULTS-CONVENTIONALS
TL23-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/12/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TL23K Client ID: FRP-090711-031					
pH	09/07/11	std units	5.56	5.56	0.00

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

LAB CONTROL RESULTS-CONVENTIONALS
TL23-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/12/11

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

Analyte	Date/Time	Units	LCS	Spike Added	Recovery
pH	09/07/11	std units	7.03	7.00	0.03

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
pH by Method SW9045

Data Release Authorized:
Reported: 09/09/11
Date Received: 09/07/11

QC Report No: TL23-Amec Geomatrix Inc.
Project: FRP 2011 Shoreline Investigation
8769

Client/ ARI ID	Date Sampled	Matrix	Analysis Date	RL	Result
FRP-090711-021 TL23A 11-19438	09/07/11	Soil	09/08/11	0.01	11.27
FRP-090711-022 TL23B 11-19439	09/07/11	Soil	09/08/11	0.01	8.19
FRP-090711-023 TL23C 11-19440	09/07/11	Soil	09/08/11	0.01	7.99
FRP-090711-024 TL23D 11-19441	09/07/11	Soil	09/08/11	0.01	7.27
FRP-090711-025 TL23E 11-19442	09/07/11	Soil	09/08/11	0.01	6.99
FRP-090711-026 TL23F 11-19443	09/07/11	Soil	09/08/11	0.01	8.72
FRP-090711-027 TL23G 11-19444	09/07/11	Soil	09/08/11	0.01	9.31
FRP-090711-028 TL23H 11-19445	09/07/11	Soil	09/08/11	0.01	10.18
FRP-090711-029 TL23I 11-19446	09/07/11	Soil	09/08/11	0.01	10.54
FRP-090711-030 TL23J 11-19447	09/07/11	Soil	09/08/11	0.01	10.62

Reported in std units

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

REPLICATE RESULTS-CONVENTIONALS
TL23-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/07/11
Date Received: 09/07/11

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TL23A Client ID: FRP-090711-021					
pH	09/08/11	std units	11.27	11.27	0.00

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

LAB CONTROL RESULTS-CONVENTIONALS
TL23-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

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

Analyte	Date	Units	LCS	Spike Added	Recovery
pH	09/08/11	std units	7.01	7.00	0.01

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

Total Solids

ARI Job ID: TL23, TL28

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 9/14/11

Worklist: 6065
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. TL23A 11-19438	0.98	10.58	8.11	74.27
2. TL23B 11-19439	1.01	10.14	9.17	89.38
3. TL23C 11-19440	1.01	10.28	9.19	88.24
4. TL23D 11-19441	1.01	10.10	7.93	76.13
5. TL23E 11-19442	1.02	10.77	8.64	78.15
6. TL23F 11-19443	0.99	10.98	8.92	79.38
7. TL23G 11-19444	1.02	10.57	8.62	79.58
8. TL23H 11-19445	0.99	10.26	8.87	85.01
9. TL23I 11-19446	1.01	10.78	8.45	76.15
10. TL23J 11-19447	1.01	10.18	8.01	76.34

* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Total Solids Bench Sheet

Laboratory Section Metals

Oven Identification: 07 **Balance ID:** 068755

Samples in Oven: Date: 9-13-11 Time: 0955 Temp: 101°C Analyst: DM

Removed from Oven: Date: 9-14-11 Time: 0650 Temp: 102°C Analyst: DM

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs[1]
TL23 A	0.984	10.581	8.107	–	✓
" B	1.012	10.143	9.171	–	✓
" C	1.011	10.285	9.187	–	✓
" D	1.007	10.095	7.929	–	✓
" E	1.024	10.766	8.640	–	✓
" F	0.991	10.975	8.922	–	✓
" G	1.022	10.573	8.624	–	✓
" H	0.994	10.262	8.867	–	✓
" I	1.010	10.782	8.447	–	✓
" J	1.006	10.179	8.011	–	✓
TL29 A	0.983	10.493	7.700	–	✓
" B	1.010	10.589	4.963	–	✓
" C	1.025	10.318	4.759	–	✓
" D	1.020	10.802	4.352	–	✓
" E	0.987	10.644	5.447	–	✓
" F	0.974	10.539	4.638	–	✓
" G	0.989	10.350	6.534	–	✓
" H	0.976	10.262	7.443	–	✓
" I	1.028	10.795	5.427	–	✓
TL86 A	1.011	10.336	9.737	–	✓
		9-13-11 DM			

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

TL23:00196

Solids Data Entry Report Checked by: MJ Date: 09/14/11
Date: 09/14/11 Data Analyst: DM

Solids Determination performed on 09/13/11 by DM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
TL23	A	FRP-090711-021	0.984	10.581	8.107	74.22
TL23	B	FRP-090711-022	1.012	10.143	9.171	89.35
TL23	C	FRP-090711-023	1.011	10.285	9.187	88.16
TL23	D	FRP-090711-024	1.007	10.095	7.929	76.17
TL23	E	FRP-090711-025	1.024	10.766	8.640	78.18
TL23	F	FRP-090711-026	0.991	10.975	8.922	79.44
TL23	G	FRP-090711-027	1.022	10.573	8.624	79.59
TL23	H	FRP-090711-028	0.994	10.262	8.867	84.95
TL23	I	FRP-090711-029	1.010	10.782	8.447	76.11
TL23	J	FRP-090711-030	1.006	10.179	8.011	76.37

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Total Solids Bench Sheet

Laboratory Section Metals

Oven Identification: 07 **Balance ID:** 068755

Samples in Oven: Date: 9-13-11 Time: 0955 Temp: 101°C Analyst: DM

Removed from Oven: Date: 9-14-11 Time: 0650 Temp: 102°C Analyst: DM

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs[1]
TL23 A	0.984	10.581	8.107	–	✓
" B	1.012	10.143	9.171	–	✓
" C	1.011	10.285	9.187	–	✓
" D	1.007	10.095	7.929	–	✓
" E	1.024	10.766	8.640	–	✓
" F	0.991	10.975	8.922	–	✓
" G	1.022	10.573	8.624	–	✓
" H	0.994	10.262	8.867	–	✓
" I	1.010	10.782	8.447	–	✓
" J	1.006	10.179	8.011	–	✓
TL29 A	0.983	10.493	7.700	–	✓
" B	1.010	10.589	4.963	–	✓
" C	1.025	10.318	4.759	–	✓
" D	1.020	10.802	4.352	–	✓
" E	0.987	10.644	5.447	–	✓
" F	0.974	10.539	4.638	–	✓
" G	0.989	10.350	6.534	–	✓
" H	0.976	10.262	7.443	–	✓
" I	1.028	10.795	5.427	–	✓
TL86 A	1.011	10.336	9.737	–	✓
		9-13-11 DM			

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

Volatile Raw Data
Preparation Log

ARI Job ID: TL23, TL28

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No.: TL23

Client ID/Project:

Extraction Date: 1st Extraction: 2nd Extraction:

MeOH Lot No.:

Analyst: PSK

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	TL23 AL	3		—	33.41	28.693	4.727	15mL	100mL	
2	B	2	—		37.09	31.595	5.495			
3	C	1	—		36.77	32.208	4.562			
4	D	1	—		37.42	32.192	5.228			
5	E	2	—		37.16	32.130	5.030			
6	F	1	—		37.52	32.181	5.339			
7	G	2	—		37.33	32.242	5.088			
8	H	1	—		36.28	32.206	4.074			
9	I	2	—		37.17	32.627	4.543			
10	J	1	—		36.82	32.134	4.686			
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

TL23-002206

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No. TL23

Client ID/Project

Extraction Date

MeOH Lot No.

Analyst

1st Extraction:

2nd Extraction:

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	TL23A	1	—		37.29	31.842	5.42			
2	B	1	—		36.93	32.278	4.65			
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

TL23 : 00201