Analytical Resources, Incorporated
Analytical Chemists and Consultants

AMEC E&E
Received
OCT 14 2011
SEATTLE ORG. 5009

October 11, 2011

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

RE: Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Numbers: TN00, TN03

Dear John:

Please find enclosed the final data package for samples for the project referenced above. ARI received one soil sample, five water samples, and one trip blank on September 19, 2011.

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

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

Sincerely,

ANALYTICAL RESOURCES, INC.

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

Enclosures

cc: file TN00, TN03

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

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Project: 8769 2011 FRP Shoreline Investigation

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Received
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SEATTLE ORG. 5009

Signature

September-28-2011
Date

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Project: 8769 2011 FRP Shoreline Investigation

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Signature

September-28-2011
Date

Chain of Custody Documentation

ARI Job ID: TN00, TN03

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: TNCO

Turn-around Requested: Standard

Page: 1 of 1

ARI Client Company: AMEC

Phone: 206-342-1773

Date: 9/19/11

Ice Present? Y

Client Contact: John Long / Nik Bacher

No. of Coolers: 1

Cooler Temps: 3

Client Project Name: 2011 FRP Shoreline Investigation

Client Project #: 8789

Samplers: N. Bacher

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

Sample ID	Date	Time	Matrix	No. Containers	Total Metals 6010B	Total Mercury 7470A/7471A	VOCs 8260C	pH 150.1/9045C	Cations Ca, Mg, Na, K, Si 200.8	Anions Cl, NO3, SO4, PO4 300.0	Sulfide SM 4500	Ammonia 350.1	Alkalinity SM 2320	Specific Gravity D1298
FRP-091911-001	9/19/11	1025	Soil	4	X	X	X	X						
FRP-091911-002		1155	H_2O	11	X	X	X	X	X	X	X	X	X	X
FRP-091911-003		1335	H_2O	5	X	X	X	X						
FRP-091911-004		1340	H_2O	5	X	X	X	X						
FRP-091911-005		1505	H_2O	5	X	X	X	X						
FRP-091911-006		1535	H_2O	5	X	X	X	X						
Trip Blank			H_2O	2			X							

Comments/Special Instructions

Metals include: Al, As, Cd, Cr, Cu, Pb, Ni, Se, Th, V, Zn.

H_2O VOAs not preserved

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: Nik Bacher	Printed Name: Taylor Streeter	Printed Name:	Printed Name:
Company: AMEC	Company: ARI	Company:	Company:
Date & Time: 9/19/11 1640	Date & Time: 9-19-11 1640	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: 20A FRP Shoreline investig

COC No(s): NA

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

Assigned ARI Job No: TN00

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): 1.3

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

Temp Gun ID#: 90941619

Cooler Accepted by: JS Date: 9-19-11 Time: 1640

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	9/10/11	

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

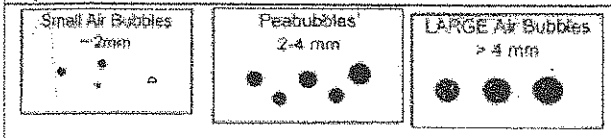
Samples Logged by: AV Date: 9/19/11 Time: 1705

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:



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

PRESERVATION VERIFICATION 09/19/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TN00**

Inquiry Number: NONE
Analysis Requested: 09/20/11
Contact: Long, John
Client: Amec Geomatrix Inc.
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: yes
Deliverables:

PC: Kelly
VTSR: 09/19/11

Project #: 8769
Project: 2011 FRP 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
11-20446 **TN00B**	FRP-091911-002			Pass			TOT Fail						* Fail					✓	7/2	~2ml ~2ml	ZnOAC NaOH 6N	9-19-11
11-20447 **TN00C**	FRP-091911-003						TOT Fail															
11-20448 **TN00D**	FRP-091911-004						TOT Fail															
11-20449 **TN00E**	FRP-091911-005						TOT Fail															
11-20450 **TN00F**	FRP-091911-006						TOT Pass															
11-20452 **TN00G**	FRP-091911-002						DIS Fail									N						

* lab to adjust Sulfide Ph.

all metals samples ph test was weak.

Checked By AV Date 9/19/11

PRESERVATION VERIFICATION 09/19/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TN00**

Inquiry Number: NONE
Analysis Requested: 09/20/11
Contact: Long, John
Client: Amec Geomatrix Inc.
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: yes
Deliverables:

PC: Kelly
VTSR: 09/19/11

Project #: 8769
Project: 2011 FRP 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
11-20446 **TN00B**	FRP-091911-002			Pass			TOT Fail						* Fail						<2	111030	7.5mL	9.20.11 DM
11-20447 **TN00C**	FRP-091911-003						TOT Fail												↓	↓	10mL	↓
11-20448 **TN00D**	FRP-091911-004						TOT Fail												↓	↓	5mL	↓
11-20449 **TN00E**	FRP-091911-005						TOT Fail												<2	↓	10mL	9.20.11 DM
11-20450 **TN00F**	FRP-091911-006						TOT Pass															
11-20452 **TN00G**	FRP-091911-002						DIS Fail									N						

* lab to adjust Sulfide Ph.

all metals samples ph test was weak.

TN00 - 000005

Checked By AV Date 9/19/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Amec

Project Name: 2011 FRP Shoreline investigation

COC No(s): NA

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

Assigned ARI Job No: ~~TN00~~ AV TN03

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): 1.3

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

Temp Gun ID#: 90941619

Cooler Accepted by: JS Date: 9-19-11 Time: 1640

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	9/10/11	

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

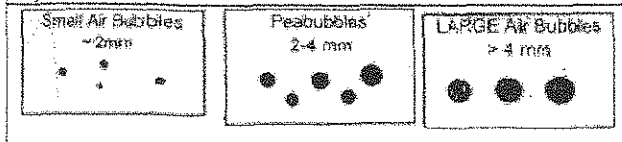
Samples Logged by: AV Date: ~~9/19/11~~ AV 9/20/11 Time: ~~1705~~ AV 1030

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:



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

PRESERVATION VERIFICATION 09/20/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TN03**

Inquiry Number: NONE
Analysis Requested: 09/20/11
Contact: Long, John
Client: Amec Geomatrix Inc.
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: yes
Deliverables:

PC: Kelly
VTSR: 09/19/11

Project #: 8769
Project: 2011 FRP 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
11-20469 **TN03A**	FRP-091911-002						TOT Fail															
11-20470 **TN03B**	FRP-091911-003						TOT															
11-20471 **TN03C**	FRP-091911-004						TOT															
11-20472 **TN03D**	FRP-091911-005						TOT															
11-20473 **TN03E**	FRP-091911-006						TOT Pass															

Dark colored metals had a weak pH.

Same bottles as TN00
preserved by DM on 9/20/11

Checked By AV Date 9/20/11

TN03 - 000035

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: TN00, TN03

Case Narrative

AMEC/Geomatrix
Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Numbers: TN00, TN03
October 11, 2011

Sample Receipt:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and analytical results for the project referenced above. Analytical Resources, Inc. (ARI) accepted one soil sample, five water samples, and one trip blank in good condition on 9/19/11. Please see the enclosed Cooler Receipt Form for further details.

Volatiles by 8260C

The samples were analyzed on 9/21/11, 9/26/11, and 9/30/11, within the method recommended holding times.

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

Continuing calibration (s): The continuing calibration (CCAL) on 9/21/11 fell outside the 20% control limit low for Hexachlorobutadiene. All detected results associated with this CCAL have been flagged with a "Q" qualifier.

The CCAL on 9/26/11 fell outside the 20% control limit low for Acetone, Methyl Iodide, and trans-1,4-Dichloro-2-butene. All detected results associated with this CCAL have been flagged with a "Q" qualifier.

The CCAL on 9/30/11 was outside the 20% control limit high for Carbon Disulfide, Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, Methyl Iodide, and 2,2-Dichloropropane. All detected results associated with this CCAL have been flagged with a "Q" qualifier.

LCS/LCSDs: The LCSD percent recovery of Isopropylbenzene was outside the control limits high for **LCS-092111**.

The LCS percent recovery of 2-Chloroethylvinylether fell outside the control limits low for **LCS-092611**.

The LCSD percent recovery of Trichlorofluoromethane was outside the control limits high for **LCS-093011**.

Surrogates: The surrogate percent recovery of d4-1,2-Dichloroethane was outside the control limits high for sample **FRP-091911-003**. All other surrogate percent recoveries were within control limits.

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

Samples: Samples **FRP-091911-002**, **FRP-091911-003**, **FRP-091911-004**, and **FRP-091911-005** had a pH of 12. Sample **FRP-0919110-006** had a pH between 6 and 8.

Case Narrative

AMEC/Geomatrix
Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Numbers: TN00, TN03
October 11, 2011

Matrix Spike/Matrix Spike Duplicates: Several matrix spike and matrix spike duplicate percent recoveries and RPDs were outside advisory control limits for sample **FRP-091911-003**. No corrective action is required for matrix QC.

Metals Analysis (6010, 200.8 and 7000 series)

The samples were digested between 9/20/11 and 10/4/11 - within the method recommended holding time and analyzed between 9/22/11 and 10/7/11.

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

Continuing calibration (s): Sodium was present in the fourth continuing calibration blank (CCB) at a level that was greater than the reporting limit. The associated sample contained a concentration of sodium that was greater than ten times the level found in the blank. The CCB was re-analyzed and sodium was undetected at the reporting limit.

Blank Spike (s): The blank spike percent recovery of silicon fell outside the control limits low.

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

Samples: There were no anomalies associated with these samples.

Matrix Spike/ Duplicate RPD(s): The matrix spike percent recoveries of selenium and vanadium fell outside the control limits low for sample **FRP-091911-002**. A post digestion spike was performed and recoveries were within control limits. All relevant data have been flagged with an "N" qualifier on the appropriate Form V.

The duplicate RPD of aluminum was outside the control limit for sample **FRP-091911-002**. All relevant data have been flagged with a "*" qualifier on the appropriate Form VI.

General Chemistry:

The samples were analyzed between 9/19/11 and 9/23/11 within method recommended holding times.

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

LCS/SRM (s): All percent recoveries were acceptable.

Replicate RPD(s): All RPDs were in control.

Matrix Spike (s): The matrix spike percent recovery of sulfide fell outside the control limits low for sample **FRP-091911-002**.

Geotechnical

A laboratory specific narrative follows.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Client: AMEC Geomatrix	**ARI Project No.:** TN00
Client Project: FRP 2011 Shoreline Investigation	**Client Project No.:** 8769

Case Narrative

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

Released by: _____ Date: Sept. 24, 2011
Technician

Reviewed by: _____ Date: Sept. 24, 2011
Technician

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TN00
Client: Amec Geomatrix Inc.
Project Event: 8769
Project Name: 2011 FRP Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-091911-001	TN00A	11-20445	Soil	09/19/11 10:25	09/19/11 16:40
2.	FRP-091911-002	TN00B	11-20446	Water	09/19/11 11:55	09/19/11 16:40
3.	FRP-091911-003	TN00C	11-20447	Water	09/19/11 13:35	09/19/11 16:40
4.	FRP-091911-004	TN00D	11-20448	Water	09/19/11 13:40	09/19/11 16:40
5.	FRP-091911-005	TN00E	11-20449	Water	09/19/11 15:05	09/19/11 16:40
6.	FRP-091911-006	TN00F	11-20450	Water	09/19/11 15:35	09/19/11 16:40
7.	Trip Blanks	TN00G	11-20451	Water	09/19/11	09/19/11 16:40
8.	FRP-091911-002	TN00G	11-20452	Water	09/19/11 11:55	09/19/11 16:40

Printed 09/19/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TN03
Client: Amec Geomatrix Inc.
Project Event: 8769
Project Name: 2011 FRP Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-091911-002	TN03A	11-20469	Water	09/19/11 11:55	09/19/11 16:40
2.	FRP-091911-003	TN03B	11-20470	Water	09/19/11 13:35	09/19/11 16:40
3.	FRP-091911-004	TN03C	11-20471	Water	09/19/11 13:40	09/19/11 16:40
4.	FRP-091911-005	TN03D	11-20472	Water	09/19/11 15:05	09/19/11 16:40
5.	FRP-091911-006	TN03E	11-20473	Water	09/19/11 15:35	09/19/11 16:40

Printed 09/20/11

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).

TN00 : 00015

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)**

TN00 : 00016

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

TN00 : 00017

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

TN00 : 00018

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

TN00 : 00019

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					

TN00 : 00020

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**

TN09 : 00021

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)

TN00 : 00022

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.

TN00 : 00023

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

TN00 : 00624

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

TN00 : 00625

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 NOT** 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.

TN00 : 00026

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%

TN00 : 00027

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%

TN00 : 00028

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: TN00, TN03

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C Sample ID: FRP-091911-002
  SAMPLE

Lab Sample ID: TN00B
LIMS ID: 11-20446
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT5/PAB
Date Analyzed: 09/21/11 14:33

Sample Amount: 2.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.49	2.5	< 2.5 U
74-83-9	Bromomethane	0.22	5.0	< 5.0 U
75-01-4	Vinyl Chloride	0.38	1.0	< 1.0 U
75-00-3	Chloroethane	0.76	1.0	< 1.0 U
75-09-2	Methylene Chloride	2.0	2.5	< 2.5 U
67-64-1	**Acetone**	**3.6**	**25**	**120**
75-15-0	**Carbon Disulfide**	**0.44**	**1.0**	**1.4**
75-35-4	1,1-Dichloroethene	0.46	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.26	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.42	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.50	1.0	< 1.0 U
67-66-3	Chloroform	0.40	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.38	1.0	< 1.0 U
78-93-3	2-Butanone	4.0	25	< 25 U
71-55-6	1,1,1-Trichloroethane	0.44	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.38	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.34	5.0	< 5.0 U
75-27-4	Bromodichloromethane	0.26	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.46	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.0	< 1.0 U
79-01-6	Trichloroethene	0.38	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.45	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.18	1.0	< 1.0 U
71-43-2	**Benzene**	**0.28**	**1.0**	**1.3**
10061-02-6	trans-1,3-Dichloropropene	0.30	1.0	< 1.0 U
110-75-8	2-Chloroethylvinylether	0.43	5.0	< 5.0 U
75-25-2	Bromoform	0.35	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	1.9	25	< 25 U
591-78-6	2-Hexanone	1.6	25	< 25 U
127-18-4	Tetrachloroethene	0.44	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.34	1.0	< 1.0 U
108-88-3	**Toluene**	**0.28**	**1.0**	**560 E** DNR
108-90-7	Chlorobenzene	0.21	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.47	1.0	< 1.0 U
100-42-5	Styrene	0.33	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.46	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.54	1.0	< 1.0 U
179601-23-1	m,p-Xylene	0.72	2.0	< 2.0 U
95-47-6	o-Xylene	0.28	1.0	< 1.0 U
95-50-1	1,2-Dichlorobenzene	0.28	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.20	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.28	1.0	< 1.0 U
107-02-8	Acrolein	1.5	25	< 25 U
74-88-4	Methyl Iodide	0.20	5.0	< 5.0 U
74-96-4	Bromoethane	0.45	1.0	< 1.0 U
107-13-1	Acrylonitrile	0.92	5.0	< 5.0 U
563-58-6	1,1-Dichloropropene	0.46	1.0	< 1.0 U
74-95-3	Dibromomethane	0.40	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.34	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	1.1	2.5	< 2.5 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-002**
 SAMPLE

Lab Sample ID: TN00B
LIMS ID: 11-20446
Matrix: Water
Date Analyzed: 09/21/11 14:33

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	1.1	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	1.2	5.0	< 5.0 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.56	2.5	< 2.5 U J
106-93-4	Ethylene Dibromide	0.38	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.34	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.42	1.0	< 1.0 U
142-28-9	1,3-Dichloropropane	0.10	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.31	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.40	1.0	< 1.0 U
108-86-1	Bromobenzene	0.26	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.21	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.36	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.30	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.38	1.0	< 1.0 U
99-87-6	**4-Isopropyltoluene**	**0.38**	**1.0**	**2.2**
104-51-8	n-Butylbenzene	0.54	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.50	2.5	< 2.5 U
91-20-3	Naphthalene	0.35	2.5	< 2.5 U
87-61-6	1,2,3-Trichlorobenzene	0.44	2.5	< 2.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	104%
Bromofluorobenzene	92.9%
d4-1,2-Dichlorobenzene	96.2%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-002**
 DILUTION

Lab Sample ID: TN00B
LIMS ID: 11-20446
Matrix: Water
Data Release Authorized: MW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT2/PAB
Date Analyzed: 09/26/11 12:55

Sample Amount: 0.33 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	2.9	15	< 15 U DNR
74-83-9	Bromomethane	1.3	30	< 30 U
75-01-4	Vinyl Chloride	2.3	6.0	< 6.0 U
75-00-3	Chloroethane	4.6	6.0	< 6.0 U
75-09-2	Methylene Chloride	12	15	< 15 U
67-64-1	Acetone	22	150	< 150 U
75-15-0	Carbon Disulfide	2.6	6.0	< 6.0 U
75-35-4	1,1-Dichloroethene	2.7	6.0	< 6.0 U
75-34-3	1,1-Dichloroethane	1.6	6.0	< 6.0 U
156-60-5	trans-1,2-Dichloroethene	2.6	6.0	< 6.0 U
156-59-2	cis-1,2-Dichloroethene	3.0	6.0	< 6.0 U
67-66-3	Chloroform	2.4	6.0	< 6.0 U
107-06-2	1,2-Dichloroethane	2.3	6.0	< 6.0 U
78-93-3	2-Butanone	24	150	< 150 U
71-55-6	1,1,1-Trichloroethane	2.7	6.0	< 6.0 U
56-23-5	Carbon Tetrachloride	2.3	6.0	< 6.0 U
108-05-4	Vinyl Acetate	2.0	30	< 30 U
75-27-4	Bromodichloromethane	1.6	6.0	< 6.0 U
78-87-5	1,2-Dichloropropane	2.8	6.0	< 6.0 U
10061-01-5	cis-1,3-Dichloropropene	1.7	6.0	< 6.0 U
79-01-6	Trichloroethene	2.3	6.0	< 6.0 U
124-48-1	Dibromochloromethane	2.7	6.0	< 6.0 U
79-00-5	1,1,2-Trichloroethane	1.1	6.0	< 6.0 U
71-43-2	Benzene	1.7	6.0	< 6.0 U
10061-02-6	trans-1,3-Dichloropropene	1.8	6.0	< 6.0 U
110-75-8	2-Chloroethylvinylether	2.6	30	< 30 U
75-25-2	Bromoform	2.1	6.0	< 6.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	12	150	< 150 U
591-78-6	2-Hexanone	9.3	150	< 150 U
127-18-4	Tetrachloroethene	2.6	6.0	< 6.0 U
79-34-5	1,1,2,2-Tetrachloroethane	2.0	6.0	< 6.0 U
108-88-3	**Toluene**	**1.7**	**6.0**	**390**
108-90-7	Chlorobenzene	1.3	6.0	< 6.0 U DNR
100-41-4	Ethylbenzene	2.8	6.0	< 6.0 U
100-42-5	Styrene	2.0	6.0	< 6.0 U
75-69-4	Trichlorofluoromethane	2.8	6.0	< 6.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	3.2	6.0	< 6.0 U
179601-23-1	m,p-Xylene	4.3	12	< 12 U
95-47-6	o-Xylene	1.7	6.0	< 6.0 U
95-50-1	1,2-Dichlorobenzene	1.7	6.0	< 6.0 U
541-73-1	1,3-Dichlorobenzene	1.2	6.0	< 6.0 U
106-46-7	1,4-Dichlorobenzene	1.7	6.0	< 6.0 U
107-02-8	Acrolein	8.8	150	< 150 U
74-88-4	Methyl Iodide	1.2	30	< 30 U
74-96-4	Bromoethane	2.7	6.0	< 6.0 U
107-13-1	Acrylonitrile	5.6	30	< 30 U
563-58-6	1,1-Dichloropropene	2.8	6.0	< 6.0 U
74-95-3	Dibromomethane	2.4	6.0	< 6.0 U
630-20-6	1,1,1,2-Tetrachloroethane	2.0	6.0	< 6.0 U
96-12-8	1,2-Dibromo-3-chloropropane	6.4	15	< 15 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-002
DILUTION

Lab Sample ID: TN00B
LIMS ID: 11-20446
Matrix: Water
Date Analyzed: 09/26/11 12:55

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	6.8	15	< 15 U DNR
110-57-6	trans-1,4-Dichloro-2-butene	7.3	30	< 30 U
108-67-8	1,3,5-Trimethylbenzene	1.9	6.0	< 6.0 U
95-63-6	1,2,4-Trimethylbenzene	1.7	6.0	< 6.0 U
87-68-3	Hexachlorobutadiene	3.4	15	< 15 U
106-93-4	Ethylene Dibromide	2.3	6.0	< 6.0 U
74-97-5	Bromochloromethane	2.0	6.0	< 6.0 U
594-20-7	2,2-Dichloropropane	2.5	6.0	< 6.0 U
142-28-9	1,3-Dichloropropane	0.60	6.0	< 6.0 U
98-82-8	Isopropylbenzene	1.9	6.0	< 6.0 U
103-65-1	n-Propylbenzene	2.4	6.0	< 6.0 U
108-86-1	Bromobenzene	1.5	6.0	< 6.0 U
95-49-8	2-Chlorotoluene	1.3	6.0	< 6.0 U
106-43-4	4-Chlorotoluene	2.2	6.0	< 6.0 U
98-06-6	tert-Butylbenzene	1.8	6.0	< 6.0 U
135-98-8	sec-Butylbenzene	2.3	6.0	< 6.0 U
99-87-6	4-Isopropyltoluene	2.3	6.0	< 6.0 U
104-51-8	n-Butylbenzene	3.2	6.0	< 6.0 U
120-82-1	1,2,4-Trichlorobenzene	3.0	15	< 15 U
91-20-3	Naphthalene	2.1	15	< 15 U
87-61-6	1,2,3-Trichlorobenzene	2.6	15	< 15 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	94.7%
d8-Toluene	98.8%
Bromofluorobenzene	96.4%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C
Page 1 of 2

Sample ID: FRP-091911-003
SAMPLE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized: MW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT5/PAB
Date Analyzed: 09/21/11 15:01

Sample Amount: 2.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.49	2.5	< 2.5 UJ
74-83-9	Bromomethane	0.22	5.0	< 5.0 UJ
75-01-4	Vinyl Chloride	0.38	1.0	< 1.0 U
75-00-3	Chloroethane	0.76	1.0	< 1.0 U
75-09-2	**Methylene Chloride**	**2.0**	**2.5**	**3.8** J
67-64-1	Acetone	3.6	25	< 25 U
75-15-0	**Carbon Disulfide**	**0.44**	**1.0**	**1.0** J
75-35-4	1,1-Dichloroethene	0.46	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.26	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.42	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.50	1.0	< 1.0 U
67-66-3	Chloroform	0.40	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.38	1.0	< 1.0 U
78-93-3	2-Butanone	4.0	25	< 25 U
71-55-6	1,1,1-Trichloroethane	0.44	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.38	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.34	5.0	< 5.0 UR
75-27-4	Bromodichloromethane	0.26	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.46	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.0	< 1.0 UJ
79-01-6	Trichloroethene	0.38	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.45	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.18	1.0	< 1.0 U
71-43-2	**Benzene**	**0.28**	**1.0**	**1.2** J
10061-02-6	trans-1,3-Dichloropropene	0.30	1.0	< 1.0 UJ
110-75-8	2-Chloroethylvinylether	0.43	5.0	< 5.0 UR
75-25-2	Bromoform	0.35	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	1.9	25	< 25 U
591-78-6	2-Hexanone	1.6	25	< 25 U
127-18-4	Tetrachloroethene	0.44	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.34	1.0	< 1.0 UJ
108-88-3	**Toluene**	**0.28**	**1.0**	**570 E** DNR
108-90-7	Chlorobenzene	0.21	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.47	1.0	< 1.0 U
100-42-5	Styrene	0.33	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.46	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.54	1.0	< 1.0 U
179601-23-1	m,p-Xylene	0.72	2.0	< 2.0 U
95-47-6	o-Xylene	0.28	1.0	< 1.0 U
95-50-1	1,2-Dichlorobenzene	0.28	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.20	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.28	1.0	< 1.0 U
107-02-8	Acrolein	1.5	25	< 25 U
74-88-4	Methyl Iodide	0.20	5.0	< 5.0 UJ
74-96-4	Bromoethane	0.45	1.0	< 1.0 U
107-13-1	Acrylonitrile	0.92	5.0	< 5.0 U
563-58-6	1,1-Dichloropropene	0.46	1.0	< 1.0 U
74-95-3	Dibromomethane	0.40	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.34	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	1.1	2.5	< 2.5 U

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-003
SAMPLE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Date Analyzed: 09/21/11 15:01

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	1.1	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	1.2	5.0	< 5.0 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.56	2.5	< 2.5 UJ
106-93-4	Ethylene Dibromide	0.38	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.34	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.42	1.0	< 1.0 UJ
142-28-9	1,3-Dichloropropane	0.10	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.31	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.40	1.0	< 1.0 U
108-86-1	Bromobenzene	0.26	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.21	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.36	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.30	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.38	1.0	< 1.0 U
99-87-6	4-Isopropyltoluene	0.38	1.0	< 1.0 U
104-51-8	n-Butylbenzene	0.54	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.50	2.5	< 2.5 U
91-20-3	Naphthalene	0.35	2.5	< 2.5 U
87-61-6	1,2,3-Trichlorobenzene	0.44	2.5	< 2.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	126%
d8-Toluene	115%
Bromofluorobenzene	92.5%
d4-1,2-Dichlorobenzene	98.5%

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

2/24/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-003**
 DILUTION

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT2/PAB
Date Analyzed: 09/26/11 13:22

Sample Amount: 0.33 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	2.9	15	< 15 U DNR
74-83-9	Bromomethane	1.3	30	< 30 U
75-01-4	Vinyl Chloride	2.3	6.0	< 6.0 U
75-00-3	Chloroethane	4.6	6.0	< 6.0 U
75-09-2	Methylene Chloride	12	15	< 15 U
67-64-1	**Acetone**	**22**	**150**	**230 Q**
75-15-0	Carbon Disulfide	2.6	6.0	< 6.0 U
75-35-4	1,1-Dichloroethene	2.7	6.0	< 6.0 U
75-34-3	1,1-Dichloroethane	1.6	6.0	< 6.0 U
156-60-5	trans-1,2-Dichloroethene	2.6	6.0	< 6.0 U
156-59-2	cis-1,2-Dichloroethene	3.0	6.0	< 6.0 U
67-66-3	Chloroform	2.4	6.0	< 6.0 U
107-06-2	1,2-Dichloroethane	2.3	6.0	< 6.0 U
78-93-3	2-Butanone	24	150	< 150 U
71-55-6	1,1,1-Trichloroethane	2.7	6.0	< 6.0 U
56-23-5	Carbon Tetrachloride	2.3	6.0	< 6.0 U
108-05-4	Vinyl Acetate	2.0	30	< 30 U
75-27-4	Bromodichloromethane	1.6	6.0	< 6.0 U
78-87-5	1,2-Dichloropropane	2.8	6.0	< 6.0 U
10061-01-5	cis-1,3-Dichloropropene	1.7	6.0	< 6.0 U
79-01-6	Trichloroethene	2.3	6.0	< 6.0 U
124-48-1	Dibromochloromethane	2.7	6.0	< 6.0 U
79-00-5	1,1,2-Trichloroethane	1.1	6.0	< 6.0 U
71-43-2	Benzene	1.7	6.0	< 6.0 U
10061-02-6	trans-1,3-Dichloropropene	1.8	6.0	< 6.0 U
110-75-8	2-Chloroethylvinylether	2.6	30	< 30 U
75-25-2	Bromoform	2.1	6.0	< 6.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	12	150	< 150 U
591-78-6	2-Hexanone	9.3	150	< 150 U
127-18-4	Tetrachloroethene	2.6	6.0	< 6.0 U
79-34-5	1,1,2,2-Tetrachloroethane	2.0	6.0	< 6.0 U
108-88-3	**Toluene**	**1.7**	**6.0**	**430**
108-90-7	Chlorobenzene	1.3	6.0	< 6.0 U DNR
100-41-4	Ethylbenzene	2.8	6.0	< 6.0 U
100-42-5	Styrene	2.0	6.0	< 6.0 U
75-69-4	Trichlorofluoromethane	2.8	6.0	< 6.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	3.2	6.0	< 6.0 U
179601-23-1	m,p-Xylene	4.3	12	< 12 U
95-47-6	o-Xylene	1.7	6.0	< 6.0 U
95-50-1	1,2-Dichlorobenzene	1.7	6.0	< 6.0 U
541-73-1	1,3-Dichlorobenzene	1.2	6.0	< 6.0 U
106-46-7	1,4-Dichlorobenzene	1.7	6.0	< 6.0 U
107-02-8	Acrolein	8.8	150	< 150 U
74-88-4	Methyl Iodide	1.2	30	< 30 U
74-96-4	Bromoethane	2.7	6.0	< 6.0 U
107-13-1	Acrylonitrile	5.6	30	< 30 U
563-58-6	1,1-Dichloropropene	2.8	6.0	< 6.0 U
74-95-3	Dibromomethane	2.4	6.0	< 6.0 U
630-20-6	1,1,1,2-Tetrachloroethane	2.0	6.0	< 6.0 U
96-12-8	1,2-Dibromo-3-chloropropane	6.4	15	< 15 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C Sample ID: FRP-091911-003
  DILUTION

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Date Analyzed: 09/26/11 13:22

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	6.8	15	< 15 U DNR
110-57-6	trans-1,4-Dichloro-2-butene	7.3	30	< 30 U
108-67-8	1,3,5-Trimethylbenzene	1.9	6.0	< 6.0 U
95-63-6	1,2,4-Trimethylbenzene	1.7	6.0	< 6.0 U
87-68-3	Hexachlorobutadiene	3.4	15	< 15 U
106-93-4	Ethylene Dibromide	2.3	6.0	< 6.0 U
74-97-5	Bromochloromethane	2.0	6.0	< 6.0 U
594-20-7	2,2-Dichloropropane	2.5	6.0	< 6.0 U
142-28-9	1,3-Dichloropropane	0.60	6.0	< 6.0 U
98-82-8	Isopropylbenzene	1.9	6.0	< 6.0 U
103-65-1	n-Propylbenzene	2.4	6.0	< 6.0 U
108-86-1	Bromobenzene	1.5	6.0	< 6.0 U
95-49-8	2-Chlorotoluene	1.3	6.0	< 6.0 U
106-43-4	4-Chlorotoluene	2.2	6.0	< 6.0 U
98-06-6	tert-Butylbenzene	1.8	6.0	< 6.0 U
135-98-8	sec-Butylbenzene	2.3	6.0	< 6.0 U
99-87-6	4-Isopropyltoluene	2.3	6.0	< 6.0 U
104-51-8	n-Butylbenzene	3.2	6.0	< 6.0 U
120-82-1	1,2,4-Trichlorobenzene	3.0	15	< 15 U
91-20-3	Naphthalene	2.1	15	< 15 U
87-61-6	1,2,3-Trichlorobenzene	2.6	15	< 15 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	94.7%
d8-Toluene	99.3%
Bromofluorobenzene	95.7%
d4-1,2-Dichlorobenzene	102%

2/24/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-004**
Page 1 of 2 **SAMPLE**

Lab Sample ID: TN00D
LIMS ID: 11-20448
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT5/PAB
Date Analyzed: 09/21/11 15:29

Sample Amount: 2.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.49	2.5	< 2.5 U
74-83-9	Bromomethane	0.22	5.0	< 5.0 U
75-01-4	Vinyl Chloride	0.38	1.0	< 1.0 U
75-00-3	Chloroethane	0.76	1.0	< 1.0 U
75-09-2	**Methylene Chloride**	**2.0**	**2.5**	**4.1**
67-64-1	Acetone	3.6	25	< 25 U
75-15-0	**Carbon Disulfide**	**0.44**	**1.0**	**1.1**
75-35-4	1,1-Dichloroethene	0.46	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.26	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.42	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.50	1.0	< 1.0 U
67-66-3	Chloroform	0.40	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.38	1.0	< 1.0 U
78-93-3	2-Butanone	4.0	25	< 25 U
71-55-6	1,1,1-Trichloroethane	0.44	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.38	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.34	5.0	< 5.0 U
75-27-4	Bromodichloromethane	0.26	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.46	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.0	< 1.0 U
79-01-6	Trichloroethene	0.38	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.45	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.18	1.0	< 1.0 U
71-43-2	Benzene	0.28	1.0	< 1.0 U
10061-02-6	trans-1,3-Dichloropropene	0.30	1.0	< 1.0 U
110-75-8	2-Chloroethylvinylether	0.43	5.0	< 5.0 U
75-25-2	Bromoform	0.35	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	1.9	25	< 25 U
591-78-6	2-Hexanone	1.6	25	< 25 U
127-18-4	Tetrachloroethene	0.44	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.34	1.0	< 1.0 U
108-88-3	**Toluene**	**0.28**	**1.0**	**440 E** DNR
108-90-7	Chlorobenzene	0.21	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.47	1.0	< 1.0 U
100-42-5	Styrene	0.33	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.46	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.54	1.0	< 1.0 U
179601-23-1	m,p-Xylene	0.72	2.0	< 2.0 U
95-47-6	o-Xylene	0.28	1.0	< 1.0 U
95-50-1	1,2-Dichlorobenzene	0.28	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.20	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.28	1.0	< 1.0 U
107-02-8	Acrolein	1.5	25	< 25 U
74-88-4	Methyl Iodide	0.20	5.0	< 5.0 U
74-96-4	Bromoethane	0.45	1.0	< 1.0 U
107-13-1	Acrylonitrile	0.92	5.0	< 5.0 U
563-58-6	1,1-Dichloropropene	0.46	1.0	< 1.0 U
74-95-3	Dibromomethane	0.40	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.34	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	1.1	2.5	< 2.5 U

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-004
SAMPLE

Lab Sample ID: TN00D
LIMS ID: 11-20448
Matrix: Water
Date Analyzed: 09/21/11 15:29

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	1.1	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	1.2	5.0	< 5.0 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.56	2.5	< 2.5 UJ
106-93-4	Ethylene Dibromide	0.38	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.34	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.42	1.0	< 1.0 U
142-28-9	1,3-Dichloropropane	0.10	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.31	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.40	1.0	< 1.0 U
108-86-1	Bromobenzene	0.26	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.21	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.36	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.30	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.38	1.0	< 1.0 U
99-87-6	4-Isopropyltoluene	0.38	1.0	< 1.0 U
104-51-8	n-Butylbenzene	0.54	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.50	2.5	< 2.5 U
91-20-3	Naphthalene	0.35	2.5	< 2.5 U
87-61-6	1,2,3-Trichlorobenzene	0.44	2.5	< 2.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	113%
d8-Toluene	95.0%
Bromofluorobenzene	80.9%
d4-1,2-Dichlorobenzene	107%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C Sample ID: FRP-091911-004
  DILUTION

Lab Sample ID: TN00D
LIMS ID: 11-20448
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT2/PAB
Date Analyzed: 09/26/11 13:49

Sample Amount: 0.33 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	2.9	15	< 15 U DNR
74-83-9	Bromomethane	1.3	30	< 30 U
75-01-4	Vinyl Chloride	2.3	6.0	< 6.0 U
75-00-3	Chloroethane	4.6	6.0	< 6.0 U
75-09-2	Methylene Chloride	12	15	< 15 U
67-64-1	**Acetone**	**22**	**150**	**230 Q**
75-15-0	Carbon Disulfide	2.6	6.0	< 6.0 U
75-35-4	1,1-Dichloroethene	2.7	6.0	< 6.0 U
75-34-3	1,1-Dichloroethane	1.6	6.0	< 6.0 U
156-60-5	trans-1,2-Dichloroethene	2.6	6.0	< 6.0 U
156-59-2	cis-1,2-Dichloroethene	3.0	6.0	< 6.0 U
67-66-3	Chloroform	2.4	6.0	< 6.0 U
107-06-2	1,2-Dichloroethane	2.3	6.0	< 6.0 U
78-93-3	2-Butanone	24	150	< 150 U
71-55-6	1,1,1-Trichloroethane	2.7	6.0	< 6.0 U
56-23-5	Carbon Tetrachloride	2.3	6.0	< 6.0 U
108-05-4	Vinyl Acetate	2.0	30	< 30 U
75-27-4	Bromodichloromethane	1.6	6.0	< 6.0 U
78-87-5	1,2-Dichloropropane	2.8	6.0	< 6.0 U
10061-01-5	cis-1,3-Dichloropropene	1.7	6.0	< 6.0 U
79-01-6	Trichloroethene	2.3	6.0	< 6.0 U
124-48-1	Dibromochloromethane	2.7	6.0	< 6.0 U
79-00-5	1,1,2-Trichloroethane	1.1	6.0	< 6.0 U
71-43-2	Benzene	1.7	6.0	< 6.0 U
10061-02-6	trans-1,3-Dichloropropene	1.8	6.0	< 6.0 U
110-75-8	2-Chloroethylvinylether	2.6	30	< 30 U
75-25-2	Bromoform	2.1	6.0	< 6.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	12	150	< 150 U
591-78-6	2-Hexanone	9.3	150	< 150 U
127-18-4	Tetrachloroethene	2.6	6.0	< 6.0 U
79-34-5	1,1,2,2-Tetrachloroethane	2.0	6.0	< 6.0 U
108-88-3	**Toluene**	**1.7**	**6.0**	**440** J
108-90-7	Chlorobenzene	1.3	6.0	< 6.0 U DNR
100-41-4	Ethylbenzene	2.8	6.0	< 6.0 U
100-42-5	Styrene	2.0	6.0	< 6.0 U
75-69-4	Trichlorofluoromethane	2.8	6.0	< 6.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	3.2	6.0	< 6.0 U
179601-23-1	m,p-Xylene	4.3	12	< 12 U
95-47-6	o-Xylene	1.7	6.0	< 6.0 U
95-50-1	1,2-Dichlorobenzene	1.7	6.0	< 6.0 U
541-73-1	1,3-Dichlorobenzene	1.2	6.0	< 6.0 U
106-46-7	1,4-Dichlorobenzene	1.7	6.0	< 6.0 U
107-02-8	Acrolein	8.8	150	< 150 U
74-88-4	Methyl Iodide	1.2	30	< 30 U
74-96-4	Bromoethane	2.7	6.0	< 6.0 U
107-13-1	Acrylonitrile	5.6	30	< 30 U
563-58-6	1,1-Dichloropropene	2.8	6.0	< 6.0 U
74-95-3	Dibromomethane	2.4	6.0	< 6.0 U
630-20-6	1,1,1,2-Tetrachloroethane	2.0	6.0	< 6.0 U
96-12-8	1,2-Dibromo-3-chloropropane	6.4	15	< 15 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-004
DILUTION

Lab Sample ID: TN00D
LIMS ID: 11-20448
Matrix: Water
Date Analyzed: 09/26/11 13:49

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	6.8	15	< 15 U DNR
110-57-6	trans-1,4-Dichloro-2-butene	7.3	30	< 30 U
108-67-8	1,3,5-Trimethylbenzene	1.9	6.0	< 6.0 U
95-63-6	1,2,4-Trimethylbenzene	1.7	6.0	< 6.0 U
87-68-3	Hexachlorobutadiene	3.4	15	< 15 U
106-93-4	Ethylene Dibromide	2.3	6.0	< 6.0 U
74-97-5	Bromochloromethane	2.0	6.0	< 6.0 U
594-20-7	2,2-Dichloropropane	2.5	6.0	< 6.0 U
142-28-9	1,3-Dichloropropane	0.60	6.0	< 6.0 U
98-82-8	Isopropylbenzene	1.9	6.0	< 6.0 U
103-65-1	n-Propylbenzene	2.4	6.0	< 6.0 U
108-86-1	Bromobenzene	1.5	6.0	< 6.0 U
95-49-8	2-Chlorotoluene	1.3	6.0	< 6.0 U
106-43-4	4-Chlorotoluene	2.2	6.0	< 6.0 U
98-06-6	tert-Butylbenzene	1.8	6.0	< 6.0 U
135-98-8	sec-Butylbenzene	2.3	6.0	< 6.0 U
99-87-6	4-Isopropyltoluene	2.3	6.0	< 6.0 U
104-51-8	n-Butylbenzene	3.2	6.0	< 6.0 U
120-82-1	1,2,4-Trichlorobenzene	3.0	15	< 15 U
91-20-3	Naphthalene	2.1	15	< 15 U
87-61-6	1,2,3-Trichlorobenzene	2.6	15	< 15 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	94.2%
d8-Toluene	98.7%
Bromofluorobenzene	94.2%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-005**
 SAMPLE

Lab Sample ID: TN00E
LIMS ID: 11-20449
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT5/PAB
Date Analyzed: 09/21/11 15:57

Sample Amount: 2.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.49	2.5	< 2.5 U
74-83-9	Bromomethane	0.22	5.0	< 5.0 U
75-01-4	Vinyl Chloride	0.38	1.0	< 1.0 U
75-00-3	Chloroethane	0.76	1.0	< 1.0 U
75-09-2	**Methylene Chloride**	**2.0**	**2.5**	**3.1**
67-64-1	Acetone	3.6	25	< 25 U
75-15-0	**Carbon Disulfide**	**0.44**	**1.0**	**1.0**
75-35-4	1,1-Dichloroethene	0.46	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.26	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.42	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.50	1.0	< 1.0 U
67-66-3	Chloroform	0.40	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.38	1.0	< 1.0 U
78-93-3	2-Butanone	4.0	25	< 25 U
71-55-6	1,1,1-Trichloroethane	0.44	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.38	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.34	5.0	< 5.0 U
75-27-4	Bromodichloromethane	0.26	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.46	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.0	< 1.0 U
79-01-6	Trichloroethene	0.38	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.45	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.18	1.0	< 1.0 U
71-43-2	Benzene	0.28	1.0	< 1.0 U
10061-02-6	trans-1,3-Dichloropropene	0.30	1.0	< 1.0 U
110-75-8	2-Chloroethylvinylether	0.43	5.0	< 5.0 U
75-25-2	Bromoform	0.35	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	1.9	25	< 25 U
591-78-6	2-Hexanone	1.6	25	< 25 U
127-18-4	Tetrachloroethene	0.44	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.34	1.0	< 1.0 U
108-88-3	**Toluene**	**0.28**	**1.0**	**310 E** DNR
108-90-7	Chlorobenzene	0.21	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.47	1.0	< 1.0 U
100-42-5	Styrene	0.33	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.46	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.54	1.0	< 1.0 U
179601-23-1	m,p-Xylene	0.72	2.0	< 2.0 U
95-47-6	o-Xylene	0.28	1.0	< 1.0 U
95-50-1	1,2-Dichlorobenzene	0.28	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.20	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.28	1.0	< 1.0 U
107-02-8	Acrolein	1.5	25	< 25 U
74-88-4	Methyl Iodide	0.20	5.0	< 5.0 U
74-96-4	Bromoethane	0.45	1.0	< 1.0 U
107-13-1	Acrylonitrile	0.92	5.0	< 5.0 U
563-58-6	1,1-Dichloropropene	0.46	1.0	< 1.0 U
74-95-3	Dibromomethane	0.40	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.34	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	1.1	2.5	< 2.5 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-005
SAMPLE

Lab Sample ID: TN00E
LIMS ID: 11-20449
Matrix: Water
Date Analyzed: 09/21/11 15:57

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	1.1	2.5	< 2.5 U
110-57-6	trans-1,4-Dichloro-2-butene	1.2	5.0	< 5.0 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.56	2.5	< 2.5 UJ
106-93-4	Ethylene Dibromide	0.38	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.34	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.42	1.0	< 1.0 U
142-28-9	1,3-Dichloropropane	0.10	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.31	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.40	1.0	< 1.0 U
108-86-1	Bromobenzene	0.26	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.21	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.36	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.30	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.38	1.0	< 1.0 U
99-87-6	4-Isopropyltoluene	0.38	1.0	< 1.0 U
104-51-8	n-Butylbenzene	0.54	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.50	2.5	< 2.5 U
91-20-3	Naphthalene	0.35	2.5	< 2.5 U
87-61-6	1,2,3-Trichlorobenzene	0.44	2.5	< 2.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	102%
Bromofluorobenzene	95.3%
d4-1,2-Dichlorobenzene	97.6%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-005**
 DILUTION

Lab Sample ID: TN00E
LIMS ID: 11-20449
Matrix: Water
Data Release Authorized: MW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT2/PAB
Date Analyzed: 09/26/11 14:15

Sample Amount: 0.67 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	1.5	7.5	< 7.5 U DNR
74-83-9	Bromomethane	0.65	15	< 15 U
75-01-4	Vinyl Chloride	1.1	3.0	< 3.0 U
75-00-3	Chloroethane	2.3	3.0	< 3.0 U
75-09-2	Methylene Chloride	5.9	7.5	< 7.5 U
67-64-1	**Acetone**	**11**	**75**	**170 Q**
75-15-0	Carbon Disulfide	1.3	3.0	< 3.0 U
75-35-4	1,1-Dichloroethene	1.4	3.0	< 3.0 U
75-34-3	1,1-Dichloroethane	0.80	3.0	< 3.0 U
156-60-5	trans-1,2-Dichloroethene	1.3	3.0	< 3.0 U
156-59-2	cis-1,2-Dichloroethene	1.5	3.0	< 3.0 U
67-66-3	Chloroform	1.2	3.0	< 3.0 U
107-06-2	1,2-Dichloroethane	1.1	3.0	< 3.0 U
78-93-3	2-Butanone	12	75	< 75 U
71-55-6	1,1,1-Trichloroethane	1.3	3.0	< 3.0 U
56-23-5	Carbon Tetrachloride	1.1	3.0	< 3.0 U
108-05-4	Vinyl Acetate	1.0	15	< 15 U
75-27-4	Bromodichloromethane	0.80	3.0	< 3.0 U
78-87-5	1,2-Dichloropropane	1.4	3.0	< 3.0 U
10061-01-5	cis-1,3-Dichloropropene	0.87	3.0	< 3.0 U
79-01-6	Trichloroethene	1.1	3.0	< 3.0 U
124-48-1	Dibromochloromethane	1.4	3.0	< 3.0 U
79-00-5	1,1,2-Trichloroethane	0.53	3.0	< 3.0 U
71-43-2	Benzene	0.84	3.0	< 3.0 U
10061-02-6	trans-1,3-Dichloropropene	0.89	3.0	< 3.0 U
110-75-8	2-Chloroethylvinylether	1.3	15	< 15 U
75-25-2	Bromoform	1.1	3.0	< 3.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.8	75	< 75 U
591-78-6	2-Hexanone	4.7	75	< 75 U
127-18-4	Tetrachloroethene	1.3	3.0	< 3.0 U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	3.0	< 3.0 U
108-88-3	**Toluene**	**0.84**	**3.0**	**250 J**
108-90-7	Chlorobenzene	0.63	3.0	< 3.0 U DNR
100-41-4	Ethylbenzene	1.4	3.0	< 3.0 U
100-42-5	Styrene	0.99	3.0	< 3.0 U
75-69-4	Trichlorofluoromethane	1.4	3.0	< 3.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	1.6	3.0	< 3.0 U
179601-23-1	m,p-Xylene	2.2	6.0	< 6.0 U
95-47-6	o-Xylene	0.86	3.0	< 3.0 U
95-50-1	1,2-Dichlorobenzene	0.83	3.0	< 3.0 U
541-73-1	1,3-Dichlorobenzene	0.60	3.0	< 3.0 U
106-46-7	1,4-Dichlorobenzene	0.86	3.0	< 3.0 U
107-02-8	Acrolein	4.4	75	< 75 U
74-88-4	Methyl Iodide	0.60	15	< 15 U
74-96-4	Bromoethane	1.4	3.0	< 3.0 U
107-13-1	Acrylonitrile	2.8	15	< 15 U
563-58-6	1,1-Dichloropropene	1.4	3.0	< 3.0 U
74-95-3	Dibromomethane	1.2	3.0	< 3.0 U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	3.0	< 3.0 U
96-12-8	1,2-Dibromo-3-chloropropane	3.2	7.5	< 7.5 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-005
DILUTION

Lab Sample ID: TN00E
LIMS ID: 11-20449
Matrix: Water
Date Analyzed: 09/26/11 14:15

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	3.4	7.5	< 7.5 U DNR
110-57-6	trans-1,4-Dichloro-2-butene	3.6	15	< 15 U
108-67-8	1,3,5-Trimethylbenzene	0.95	3.0	< 3.0 U
95-63-6	1,2,4-Trimethylbenzene	0.87	3.0	< 3.0 U
87-68-3	Hexachlorobutadiene	1.7	7.5	< 7.5 U
106-93-4	Ethylene Dibromide	1.1	3.0	< 3.0 U
74-97-5	Bromochloromethane	1.0	3.0	< 3.0 U
594-20-7	2,2-Dichloropropane	1.2	3.0	< 3.0 U
142-28-9	1,3-Dichloropropane	0.30	3.0	< 3.0 U
98-82-8	Isopropylbenzene	0.93	3.0	< 3.0 U
103-65-1	n-Propylbenzene	1.2	3.0	< 3.0 U
108-86-1	Bromobenzene	0.77	3.0	< 3.0 U
95-49-8	2-Chlorotoluene	0.63	3.0	< 3.0 U
106-43-4	4-Chlorotoluene	1.1	3.0	< 3.0 U
98-06-6	tert-Butylbenzene	0.92	3.0	< 3.0 U
135-98-8	sec-Butylbenzene	1.2	3.0	< 3.0 U
99-87-6	4-Isopropyltoluene	1.1	3.0	< 3.0 U
104-51-8	n-Butylbenzene	1.6	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.5	7.5	< 7.5 U
91-20-3	Naphthalene	1.1	7.5	< 7.5 U
87-61-6	1,2,3-Trichlorobenzene	1.3	7.5	< 7.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	96.3%
d8-Toluene	99.8%
Bromofluorobenzene	93.8%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-006**
 SAMPLE

Lab Sample ID: TN00F
LIMS ID: 11-20450
Matrix: Water
Data Release Authorized: MW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT5/PAB
Date Analyzed: 09/21/11 16:26

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 U
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**	**1.2**
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**	**2.3**
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: FRP-091911-006
SAMPLE

Lab Sample ID: TN00F
LIMS ID: 11-20450
Matrix: Water
Date Analyzed: 09/21/11 16:26

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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 J
106-93-4	Ethylene Dibromide	0.08	0.2	< 0.2 U
74-97-5	Bromochloromethane	0.07	0.2	< 0.2 U
594-20-7	2,2-Dichloropropane	0.08	0.2	< 0.2 U
142-28-9	1,3-Dichloropropane	0.02	0.2	< 0.2 U
98-82-8	Isopropylbenzene	0.06	0.2	< 0.2 U
103-65-1	n-Propylbenzene	0.08	0.2	< 0.2 U
108-86-1	Bromobenzene	0.05	0.2	< 0.2 U
95-49-8	2-Chlorotoluene	0.04	0.2	< 0.2 U
106-43-4	4-Chlorotoluene	0.07	0.2	< 0.2 U
98-06-6	tert-Butylbenzene	0.06	0.2	< 0.2 U
135-98-8	sec-Butylbenzene	0.08	0.2	< 0.2 U
99-87-6	4-Isopropyltoluene	0.08	0.2	< 0.2 U
104-51-8	n-Butylbenzene	0.11	0.2	< 0.2 U
120-82-1	1,2,4-Trichlorobenzene	0.10	0.5	< 0.5 U
91-20-3	Naphthalene	0.07	0.5	< 0.5 U
87-61-6	1,2,3-Trichlorobenzene	0.09	0.5	< 0.5 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	103%
Bromofluorobenzene	91.4%
d4-1,2-Dichlorobenzene	98.4%

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: TN00G
LIMS ID: 11-20451
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT5/PAB
Date Analyzed: 09/21/11 16:54

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.08	0.2	< 0.2 U
75-00-3	Chloroethane	0.15	0.2	< 0.2 U
75-09-2	**Methylene Chloride**	**0.39**	**0.5**	**0.7**
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	< 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: Trip Blanks**
 SAMPLE

Lab Sample ID: TN00G
LIMS ID: 11-20451
Matrix: Water
Date Analyzed: 09/21/11 16:54

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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	106%
d8-Toluene	98.5%
Bromofluorobenzene	94.3%
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: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
TN00B	FRP-091911-002	10	105%	104%	92.9%	96.2%	0
TN00BDL	FRP-091911-002	10	94.7%	98.8%	96.4%	102%	0
MB-092611	Method Blank	10	94.0%	99.0%	96.0%	100%	0
LCS-092611	Lab Control	10	93.9%	98.3%	98.1%	101%	0
LCSD-092611	Lab Control Dup	10	93.3%	99.9%	98.3%	99.9%	0
TN00C	FRP-091911-003	10	126%*	115%	92.5%	98.5%	1
TN00CDL	FRP-091911-003	10	94.7%	99.3%	95.7%	102%	0
TN00CMS	FRP-091911-003	10	92.3%	99.0%	95.4%	99.5%	0
TN00CMSD	FRP-091911-003	10	92.4%	99.7%	94.7%	101%	0
TN00D	FRP-091911-004	10	113%	95.0%	80.9%	107%	0
TN00DDL	FRP-091911-004	10	94.2%	98.7%	94.2%	102%	0
TN00E	FRP-091911-005	10	104%	102%	95.3%	97.6%	0
TN00EDL	FRP-091911-005	10	96.3%	99.8%	93.8%	101%	0
MB-092111	Method Blank	10	110%	102%	95.8%	101%	0
LCS-092111	Lab Control	10	105%	101%	104%	95.8%	0
LCSD-092111	Lab Control Dup	10	104%	99.7%	100%	95.4%	0
TN00F	FRP-091911-006	10	103%	103%	91.4%	98.4%	0
TN00G	Trip Blanks	10	106%	98.5%	94.3%	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: 11-20446 to 11-20451

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-003**
 MATRIX SPIKE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst MS: NT2/PAB
MSD: NT2/PAB
Date Analyzed MS: 09/26/11 18:43
MSD: 09/26/11 19:10

Sample Amount MS: 0.333 mL
MSD: 0.333 mL
Purge Volume MS: 10.0 mL
MSD: 10.0 mL

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Chloromethane	< 15.0 U	217	300	72.3%	210	300	70.0%	3.3%
Bromomethane	< 30.0 U	178	300	59.3%	192	300	64.0%	7.6%
Vinyl Chloride	< 6.0 U	249	300	83.0%	261	300	87.0%	4.7%
Chloroethane	< 6.0 U	246	300	82.0%	239	300	79.7%	2.9%
Methylene Chloride	< 15.0 U	274	300	91.3%	277	300	92.3%	1.1%
Acetone	233 Q	2640 Q	1500	160%	2750 Q	1500	168%	4.1%
Carbon Disulfide	< 6.0 U	154	300	51.3%	156	300	52.0%	1.3%
1,1-Dichloroethene	< 6.0 U	257	300	85.7%	258	300	86.0%	0.4%
1,1-Dichloroethane	< 6.0 U	265	300	88.3%	268	300	89.3%	1.1%
trans-1,2-Dichloroethene	< 6.0 U	269	300	89.7%	271	300	90.3%	0.7%
cis-1,2-Dichloroethene	< 6.0 U	274	300	91.3%	276	300	92.0%	0.7%
Chloroform	< 6.0 U	275	300	91.7%	277	300	92.3%	0.7%
1,2-Dichloroethane	< 6.0 U	261	300	87.0%	263	300	87.7%	0.8%
2-Butanone	< 150 U	2120	1500	141%	2200	1500	147%	3.7%
1,1,1-Trichloroethane	< 6.0 U	270	300	90.0%	271	300	90.3%	0.4%
Carbon Tetrachloride	< 6.0 U	267	300	89.0%	264	300	88.0%	1.1%
Vinyl Acetate	< 30.0 U	< 30.0 U	300	NA	< 30.0 U	300	NA	NA
Bromodichloromethane	< 6.0 U	268	300	89.3%	265	300	88.3%	1.1%
1,2-Dichloropropane	< 6.0 U	271	300	90.3%	274	300	91.3%	1.1%
cis-1,3-Dichloropropene	< 6.0 U	192	300	64.0%	187	300	62.3%	2.6%
Trichloroethene	< 6.0 U	509	300	170%	512	300	171%	0.6%
Dibromochloromethane	< 6.0 U	268	300	89.3%	268	300	89.3%	0.0%
1,1,2-Trichloroethane	< 6.0 U	268	300	89.3%	269	300	89.7%	0.4%
Benzene	< 6.0 U	280	300	93.3%	282	300	94.0%	0.7%
trans-1,3-Dichloropropene	< 6.0 U	200	300	66.7%	195	300	65.0%	2.5%
2-Chloroethylvinylether	< 30.0 U	254	300	84.7%	269	300	89.7%	5.7%
Bromoform	< 6.0 U	255	300	85.0%	263	300	87.7%	3.1%
4-Methyl-2-Pentanone (MIBK)	< 150 U	1440	1500	96.0%	1490	1500	99.3%	3.4%
2-Hexanone	< 150 U	1960	1500	131%	2030	1500	135%	3.5%
Tetrachloroethene	< 6.0 U	284	300	94.7%	279	300	93.0%	1.8%
1,1,2,2-Tetrachloroethane	< 6.0 U	6.6	300	2.2%	6.6	300	2.2%	0.0%
Toluene	426	698	300	90.7%	705	300	93.0%	1.0%
Chlorobenzene	< 6.0 U	277	300	92.3%	276	300	92.0%	0.4%
Ethylbenzene	< 6.0 U	271	300	90.3%	272	300	90.7%	0.4%
Styrene	< 6.0 U	268	300	89.3%	262	300	87.3%	2.3%
Trichlorofluoromethane	< 6.0 U	268	300	89.3%	263	300	87.7%	1.9%
1,1,2-Trichloro-1,2,2-trifl	< 6.0 U	259	300	86.3%	258	300	86.0%	0.4%
m,p-Xylene	< 12.0 U	552	601	91.8%	549	601	91.3%	0.5%
o-Xylene	< 6.0 U	274	300	91.3%	273	300	91.0%	0.4%
1,2-Dichlorobenzene	< 6.0 U	268	300	89.3%	272	300	90.7%	1.5%
1,3-Dichlorobenzene	< 6.0 U	268	300	89.3%	272	300	90.7%	1.5%
1,4-Dichlorobenzene	< 6.0 U	265	300	88.3%	267	300	89.0%	0.8%
Acrolein	< 150 U	1020	1500	68.0%	1070	1500	71.3%	4.8%
Methyl Iodide	< 30.0 U	207 Q	300	69.0%	213 Q	300	71.0%	2.9%
Bromoethane	< 6.0 U	282	300	94.0%	284	300	94.7%	0.7%
Acrylonitrile	< 30.0 U	240	300	80.0%	245	300	81.7%	2.1%
1,1-Dichloropropene	< 6.0 U	274	300	91.3%	271	300	90.3%	1.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C Sample ID: FRP-091911-003
  MATRIX SPIKE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Dibromomethane	< 6.0 U	271	300	90.3%	273	300	91.0%	0.7%
1,1,1,2-Tetrachloroethane	< 6.0 U	281	300	93.7%	280	300	93.3%	0.4%
1,2-Dibromo-3-chloropropane	< 15.0 U	237	300	79.0%	245	300	81.7%	3.3%
1,2,3-Trichloropropane	< 15.0 U	270	300	90.0%	278	300	92.7%	2.9%
trans-1,4-Dichloro-2-butene	< 30.0 U	< 30.0 U	300	NA	< 30.0 U	300	NA	NA
1,3,5-Trimethylbenzene	< 6.0 U	270	300	90.0%	272	300	90.7%	0.7%
1,2,4-Trimethylbenzene	< 6.0 U	269	300	89.7%	266	300	88.7%	1.1%
Hexachlorobutadiene	< 15.0 U	247	300	82.3%	244	300	81.3%	1.2%
Ethylene Dibromide	< 6.0 U	268	300	89.3%	273	300	91.0%	1.8%
Bromochloromethane	< 6.0 U	280	300	93.3%	285	300	95.0%	1.8%
2,2-Dichloropropane	< 6.0 U	224	300	74.7%	222	300	74.0%	0.9%
1,3-Dichloropropane	< 6.0 U	271	300	90.3%	274	300	91.3%	1.1%
Isopropylbenzene	< 6.0 U	270	300	90.0%	272	300	90.7%	0.7%
n-Propylbenzene	< 6.0 U	262	300	87.3%	266	300	88.7%	1.5%
Bromobenzene	< 6.0 U	278	300	92.7%	290	300	96.7%	4.2%
2-Chlorotoluene	< 6.0 U	264	300	88.0%	272	300	90.7%	3.0%
4-Chlorotoluene	< 6.0 U	262	300	87.3%	269	300	89.7%	2.6%
tert-Butylbenzene	< 6.0 U	268	300	89.3%	274	300	91.3%	2.2%
sec-Butylbenzene	< 6.0 U	260	300	86.7%	261	300	87.0%	0.4%
4-Isopropyltoluene	< 6.0 U	262	300	87.3%	257	300	85.7%	1.9%
n-Butylbenzene	< 6.0 U	255	300	85.0%	248	300	82.7%	2.8%
1,2,4-Trichlorobenzene	< 15.0 U	277	300	92.3%	271	300	90.3%	2.2%
Naphthalene	< 15.0 U	306	300	102%	312	300	104%	1.9%
1,2,3-Trichlorobenzene	< 15.0 U	293	300	97.7%	293	300	97.7%	0.0%

Reported in µg/L (ppb)

NA-No recovery due to high concentration of analyte in original sample, calculated negative recovery, or undetected spike.
RPD calculated using sample concentrations per SW846.
Recoveries calculated from secondary analysis.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-003**
 MATRIX SPIKE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized: TMW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT2/PAB
Date Analyzed: 09/26/11 18:43

Sample Amount: 0.33 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	2.9	15	---
74-83-9	Bromomethane	1.3	30	---
75-01-4	Vinyl Chloride	2.3	6.0	---
75-00-3	Chloroethane	4.6	6.0	---
75-09-2	Methylene Chloride	12	15	---
67-64-1	Acetone	22	150	---
75-15-0	Carbon Disulfide	2.6	6.0	---
75-35-4	1,1-Dichloroethene	2.7	6.0	---
75-34-3	1,1-Dichloroethane	1.6	6.0	---
156-60-5	trans-1,2-Dichloroethene	2.6	6.0	---
156-59-2	cis-1,2-Dichloroethene	3.0	6.0	---
67-66-3	Chloroform	2.4	6.0	---
107-06-2	1,2-Dichloroethane	2.3	6.0	---
78-93-3	2-Butanone	24	150	---
71-55-6	1,1,1-Trichloroethane	2.7	6.0	---
56-23-5	Carbon Tetrachloride	2.3	6.0	---
108-05-4	Vinyl Acetate	2.0	30	---
75-27-4	Bromodichloromethane	1.6	6.0	---
78-87-5	1,2-Dichloropropane	2.8	6.0	---
10061-01-5	cis-1,3-Dichloropropene	1.7	6.0	---
79-01-6	Trichloroethene	2.3	6.0	---
124-48-1	Dibromochloromethane	2.7	6.0	---
79-00-5	1,1,2-Trichloroethane	1.1	6.0	---
71-43-2	Benzene	1.7	6.0	---
10061-02-6	trans-1,3-Dichloropropene	1.8	6.0	---
110-75-8	2-Chloroethylvinylether	2.6	30	---
75-25-2	Bromoform	2.1	6.0	---
108-10-1	4-Methyl-2-Pentanone (MIBK)	12	150	---
591-78-6	2-Hexanone	9.3	150	---
127-18-4	Tetrachloroethene	2.6	6.0	---
79-34-5	1,1,2,2-Tetrachloroethane	2.0	6.0	---
108-88-3	Toluene	1.7	6.0	---
108-90-7	Chlorobenzene	1.3	6.0	---
100-41-4	Ethylbenzene	2.8	6.0	---
100-42-5	Styrene	2.0	6.0	---
75-69-4	Trichlorofluoromethane	2.8	6.0	---
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	3.2	6.0	---
179601-23-1	m,p-Xylene	4.3	12	---
95-47-6	o-Xylene	1.7	6.0	---
95-50-1	1,2-Dichlorobenzene	1.7	6.0	---
541-73-1	1,3-Dichlorobenzene	1.2	6.0	---
106-46-7	1,4-Dichlorobenzene	1.7	6.0	---
107-02-8	Acrolein	8.8	150	---
74-88-4	Methyl Iodide	1.2	30	---
74-96-4	Bromoethane	2.7	6.0	---
107-13-1	Acrylonitrile	5.6	30	---
563-58-6	1,1-Dichloropropene	2.8	6.0	---
74-95-3	Dibromomethane	2.4	6.0	---
630-20-6	1,1,1,2-Tetrachloroethane	2.0	6.0	---
96-12-8	1,2-Dibromo-3-chloropropane	6.4	15	---

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-003
MATRIX SPIKE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Date Analyzed: 09/26/11 18:43

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	6.8	15	---
110-57-6	trans-1,4-Dichloro-2-butene	7.3	30	---
108-67-8	1,3,5-Trimethylbenzene	1.9	6.0	---
95-63-6	1,2,4-Trimethylbenzene	1.7	6.0	---
87-68-3	Hexachlorobutadiene	3.4	15	---
106-93-4	Ethylene Dibromide	2.3	6.0	---
74-97-5	Bromochloromethane	2.0	6.0	---
594-20-7	2,2-Dichloropropane	2.5	6.0	---
142-28-9	1,3-Dichloropropane	0.60	6.0	---
98-82-8	Isopropylbenzene	1.9	6.0	---
103-65-1	n-Propylbenzene	2.4	6.0	---
108-86-1	Bromobenzene	1.5	6.0	---
95-49-8	2-Chlorotoluene	1.3	6.0	---
106-43-4	4-Chlorotoluene	2.2	6.0	---
98-06-6	tert-Butylbenzene	1.8	6.0	---
135-98-8	sec-Butylbenzene	2.3	6.0	---
99-87-6	4-Isopropyltoluene	2.3	6.0	---
104-51-8	n-Butylbenzene	3.2	6.0	---
120-82-1	1,2,4-Trichlorobenzene	3.0	15	---
91-20-3	Naphthalene	2.1	15	---
87-61-6	1,2,3-Trichlorobenzene	2.6	15	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	92.3%
d8-Toluene	99.0%
Bromofluorobenzene	95.4%
d4-1,2-Dichlorobenzene	99.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-003**
 MATRIX SPIKE DUPLICATE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized: MW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT2/PAB
Date Analyzed: 09/26/11 19:10

Sample Amount: 0.33 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	2.9	15	---
74-83-9	Bromomethane	1.3	30	---
75-01-4	Vinyl Chloride	2.3	6.0	---
75-00-3	Chloroethane	4.6	6.0	---
75-09-2	Methylene Chloride	12	15	---
67-64-1	Acetone	22	150	---
75-15-0	Carbon Disulfide	2.6	6.0	---
75-35-4	1,1-Dichloroethene	2.7	6.0	---
75-34-3	1,1-Dichloroethane	1.6	6.0	---
156-60-5	trans-1,2-Dichloroethene	2.6	6.0	---
156-59-2	cis-1,2-Dichloroethene	3.0	6.0	---
67-66-3	Chloroform	2.4	6.0	---
107-06-2	1,2-Dichloroethane	2.3	6.0	---
78-93-3	2-Butanone	24	150	---
71-55-6	1,1,1-Trichloroethane	2.7	6.0	---
56-23-5	Carbon Tetrachloride	2.3	6.0	---
108-05-4	Vinyl Acetate	2.0	30	---
75-27-4	Bromodichloromethane	1.6	6.0	---
78-87-5	1,2-Dichloropropane	2.8	6.0	---
10061-01-5	cis-1,3-Dichloropropene	1.7	6.0	---
79-01-6	Trichloroethene	2.3	6.0	---
124-48-1	Dibromochloromethane	2.7	6.0	---
79-00-5	1,1,2-Trichloroethane	1.1	6.0	---
71-43-2	Benzene	1.7	6.0	---
10061-02-6	trans-1,3-Dichlorcpropene	1.8	6.0	---
110-75-8	2-Chloroethylvinylether	2.6	30	---
75-25-2	Bromoform	2.1	6.0	---
108-10-1	4-Methyl-2-Pentanone (MIBK)	12	150	---
591-78-6	2-Hexanone	9.3	150	---
127-18-4	Tetrachloroethene	2.6	6.0	---
79-34-5	1,1,2,2-Tetrachloroethane	2.0	6.0	---
108-88-3	Toluene	1.7	6.0	---
108-90-7	Chlorobenzene	1.3	6.0	---
100-41-4	Ethylbenzene	2.8	6.0	---
100-42-5	Styrene	2.0	6.0	---
75-69-4	Trichlorofluoromethane	2.8	6.0	---
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	3.2	6.0	---
179601-23-1	m,p-Xylene	4.3	12	---
95-47-6	o-Xylene	1.7	6.0	---
95-50-1	1,2-Dichlorobenzene	1.7	6.0	---
541-73-1	1,3-Dichlorobenzene	1.2	6.0	---
106-46-7	1,4-Dichlorobenzene	1.7	6.0	---
107-02-8	Acrolein	8.8	150	---
74-88-4	Methyl Iodide	1.2	30	---
74-96-4	Bromoethane	2.7	6.0	---
107-13-1	Acrylonitrile	5.6	30	---
563-58-6	1,1-Dichloropropene	2.8	6.0	---
74-95-3	Dibromomethane	2.4	6.0	---
630-20-6	1,1,1,2-Tetrachloroethane	2.0	6.0	---
96-12-8	1,2-Dibromo-3-chloropropane	6.4	15	---

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091911-003
MATRIX SPIKE DUPLICATE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Date Analyzed: 09/26/11 19:10

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	6.8	15	---
110-57-6	trans-1,4-Dichloro-2-butene	7.3	30	---
108-67-8	1,3,5-Trimethylbenzene	1.9	6.0	---
95-63-6	1,2,4-Trimethylbenzene	1.7	6.0	---
87-68-3	Hexachlorobutadiene	3.4	15	---
106-93-4	Ethylene Dibromide	2.3	6.0	---
74-97-5	Bromochloromethane	2.0	6.0	---
594-20-7	2,2-Dichloropropane	2.5	6.0	---
142-28-9	1,3-Dichloropropane	0.60	6.0	---
98-82-8	Isopropylbenzene	1.9	6.0	---
103-65-1	n-Propylbenzene	2.4	6.0	---
108-86-1	Bromobenzene	1.5	6.0	---
95-49-8	2-Chlorotoluene	1.3	6.0	---
106-43-4	4-Chlorotoluene	2.2	6.0	---
98-06-6	tert-Butylbenzene	1.8	6.0	---
135-98-8	sec-Butylbenzene	2.3	6.0	---
99-87-6	4-Isopropyltoluene	2.3	6.0	---
104-51-8	n-Butylbenzene	3.2	6.0	---
120-82-1	1,2,4-Trichlorobenzene	3.0	15	---
91-20-3	Naphthalene	2.1	15	---
87-61-6	1,2,3-Trichlorobenzene	2.6	15	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	92.4%
d8-Toluene	99.7%
Bromofluorobenzene	94.7%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-092111**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-092111
LIMS ID: 11-20450
Matrix: Water
Data Release Authorized: MW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/PAB
LCSD: NT5/PAB
Date Analyzed LCS: 09/21/11 10:01
LCSD: 09/21/11 10:29

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	10.7	10.0	107%	11.2	10.0	112%	4.6%
Bromomethane	9.2	10.0	92.0%	10.6	10.0	106%	14.1%
Vinyl Chloride	8.4	10.0	84.0%	10.0	10.0	100%	17.4%
Chloroethane	9.2	10.0	92.0%	9.9	10.0	99.0%	7.3%
Methylene Chloride	8.7	10.0	87.0%	9.9	10.0	99.0%	12.9%
Acetone	59.4	50.0	119%	51.9	50.0	104%	13.5%
Carbon Disulfide	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
1,1-Dichloroethene	9.7	10.0	97.0%	10.6	10.0	106%	8.9%
1,1-Dichloroethane	9.9	10.0	99.0%	10.6	10.0	106%	6.8%
trans-1,2-Dichloroethene	9.9	10.0	99.0%	10.4	10.0	104%	4.9%
cis-1,2-Dichloroethene	9.5	10.0	95.0%	10.6	10.0	106%	10.9%
Chloroform	9.8	10.0	98.0%	10.6	10.0	106%	7.8%
1,2-Dichloroethane	9.8	10.0	98.0%	10.8	10.0	108%	9.7%
2-Butanone	54.6	50.0	109%	53.0	50.0	106%	3.0%
1,1,1-Trichloroethane	10.2	10.0	102%	10.8	10.0	108%	5.7%
Carbon Tetrachloride	10.1	10.0	101%	10.9	10.0	109%	7.6%
Vinyl Acetate	9.6	10.0	96.0%	10.5	10.0	105%	9.0%
Bromodichloromethane	9.7	10.0	97.0%	10.6	10.0	106%	8.9%
1,2-Dichloropropane	9.9	10.0	99.0%	10.6	10.0	106%	6.8%
cis-1,3-Dichloropropene	9.7	10.0	97.0%	10.9	10.0	109%	11.7%
Trichloroethene	9.9	10.0	99.0%	10.7	10.0	107%	7.8%
Dibromochloromethane	10.1	10.0	101%	11.0	10.0	110%	8.5%
1,1,2-Trichloroethane	9.9	10.0	99.0%	10.5	10.0	105%	5.9%
Benzene	9.7	10.0	97.0%	10.6	10.0	106%	8.9%
trans-1,3-Dichloropropene	10.2	10.0	102%	11.1	10.0	111%	8.5%
2-Chloroethylvinylether	10.1	10.0	101%	11.2	10.0	112%	10.3%
Bromoform	9.9	10.0	99.0%	11.2	10.0	112%	12.3%
4-Methyl-2-Pentanone (MIBK)	50.3	50.0	101%	53.9	50.0	108%	6.9%
2-Hexanone	54.4	50.0	109%	55.5	50.0	111%	2.0%
Tetrachloroethene	9.9	10.0	99.0%	10.8	10.0	108%	8.7%
1,1,2,2-Tetrachloroethane	10.0	10.0	100%	11.5	10.0	115%	14.0%
Toluene	10.2	10.0	102%	11.2	10.0	112%	9.3%
Chlorobenzene	10.0	10.0	100%	11.0	10.0	110%	9.5%
Ethylbenzene	10.4	10.0	104%	11.3	10.0	113%	8.3%
Styrene	10.7	10.0	107%	11.6	10.0	116%	8.1%
Trichlorofluoromethane	10.2	10.0	102%	11.0	10.0	110%	7.5%
1,1,2-Trichloro-1,2,2-trifluoroetha	9.6	10.0	96.0%	10.4	10.0	104%	8.0%
m,p-Xylene	21.2	20.0	106%	23.4	20.0	117%	9.9%
o-Xylene	10.5	10.0	105%	11.8	10.0	118%	11.7%
1,2-Dichlorobenzene	9.3	10.0	93.0%	10.6	10.0	106%	13.1%
1,3-Dichlorobenzene	9.3	10.0	93.0%	10.8	10.0	108%	14.9%
1,4-Dichlorobenzene	9.0	10.0	90.0%	10.6	10.0	106%	16.3%
Acrolein	44.6	50.0	89.2%	46.8	50.0	93.6%	4.8%
Methyl Iodide	9.3	10.0	93.0%	10.3	10.0	103%	10.2%
Bromoethane	9.5	10.0	95.0%	10.4	10.0	104%	9.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-092111**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-092111
LIMS ID: 11-20450
Matrix: Water

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Acrylonitrile	10.7	10.0	107%	10.1	10.0	101%	5.8%
1,1-Dichloropropene	9.6	10.0	96.0%	10.6	10.0	106%	9.9%
Dibromomethane	9.8	10.0	98.0%	10.3	10.0	103%	5.0%
1,1,1,2-Tetrachloroethane	10.3	10.0	103%	11.0	10.0	110%	6.6%
1,2-Dibromo-3-chloropropane	8.1	10.0	81.0%	9.2	10.0	92.0%	12.7%
1,2,3-Trichloropropane	8.3	10.0	83.0%	9.4	10.0	94.0%	12.4%
trans-1,4-Dichloro-2-butene	9.2	10.0	92.0%	10.5	10.0	105%	13.2%
1,3,5-Trimethylbenzene	10.2	10.0	102%	12.0	10.0	120%	16.2%
1,2,4-Trimethylbenzene	10.1	10.0	101%	11.7	10.0	117%	14.7%
Hexachlorobutadiene	8.2 Q	10.0	82.0%	9.6 Q	10.0	96.0%	15.7%
Ethylene Dibromide	9.7	10.0	97.0%	10.3	10.0	103%	6.0%
Bromochloromethane	10.4	10.0	104%	10.8	10.0	108%	3.8%
2,2-Dichloropropane	10.6	10.0	106%	11.5	10.0	115%	8.1%
1,3-Dichloropropane	10.1	10.0	101%	10.7	10.0	107%	5.8%
Isopropylbenzene	10.3	10.0	103%	12.2	10.0	122%	16.9%
n-Propylbenzene	10.0	10.0	100%	11.6	10.0	116%	14.8%
Bromobenzene	9.5	10.0	95.0%	11.1	10.0	111%	15.5%
2-Chlorotoluene	9.8	10.0	98.0%	11.4	10.0	114%	15.1%
4-Chlorotoluene	9.8	10.0	98.0%	11.4	10.0	114%	15.1%
tert-Butylbenzene	9.9	10.0	99.0%	11.5	10.0	115%	15.0%
sec-Butylbenzene	9.7	10.0	97.0%	11.4	10.0	114%	16.1%
4-Isopropyltoluene	10.2	10.0	102%	12.0	10.0	120%	16.2%
n-Butylbenzene	9.9	10.0	99.0%	11.4	10.0	114%	14.1%
1,2,4-Trichlorobenzene	8.9	10.0	89.0%	10.2	10.0	102%	13.6%
Naphthalene	9.2	10.0	92.0%	10.6	10.0	106%	14.1%
1,2,3-Trichlorobenzene	9.7	10.0	97.0%	12.0	10.0	120%	21.2%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	105%	104%
d8-Toluene	101%	99.7%
Bromofluorobenzene	104%	100%
d4-1,2-Dichlorobenzene	95.8%	95.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-092611**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-092611
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized: hw
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/PAB
LCSD: NT2/PAB
Date Analyzed LCS: 09/26/11 10:06
LCSD: 09/26/11 10:33

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

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	8.4	10.0	84.0%	8.9	10.0	89.0%	5.8%
Bromomethane	8.0	10.0	80.0%	8.3	10.0	83.0%	3.7%
Vinyl Chloride	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
Chloroethane	8.8	10.0	88.0%	9.1	10.0	91.0%	3.4%
Methylene Chloride	9.2	10.0	92.0%	9.5	10.0	95.0%	3.2%
Acetone	41.3 Q	50.0	82.6%	41.9 Q	50.0	83.8%	1.4%
Carbon Disulfide	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
1,1-Dichloroethene	8.8	10.0	88.0%	9.2	10.0	92.0%	4.4%
1,1-Dichloroethane	9.2	10.0	92.0%	9.3	10.0	93.0%	1.1%
trans-1,2-Dichloroethene	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
cis-1,2-Dichloroethene	9.4	10.0	94.0%	9.7	10.0	97.0%	3.1%
Chloroform	9.5	10.0	95.0%	9.7	10.0	97.0%	2.1%
1,2-Dichloroethane	9.1	10.0	91.0%	9.4	10.0	94.0%	3.2%
2-Butanone	50.0	50.0	100%	49.8	50.0	99.6%	0.4%
1,1,1-Trichloroethane	9.4	10.0	94.0%	9.6	10.0	96.0%	2.1%
Carbon Tetrachloride	9.7	10.0	97.0%	9.9	10.0	99.0%	2.0%
Vinyl Acetate	9.6	10.0	96.0%	9.8	10.0	98.0%	2.1%
Bromodichloromethane	9.6	10.0	96.0%	9.8	10.0	98.0%	2.1%
1,2-Dichloropropane	9.3	10.0	93.0%	9.5	10.0	95.0%	2.1%
cis-1,3-Dichloropropene	9.6	10.0	96.0%	9.8	10.0	98.0%	2.1%
Trichloroethene	9.7	10.0	97.0%	9.9	10.0	99.0%	2.0%
Dibromochloromethane	10.0	10.0	100%	10.0	10.0	100%	0.0%
1,1,2-Trichloroethane	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
Benzene	9.4	10.0	94.0%	9.8	10.0	98.0%	4.2%
trans-1,3-Dichloropropene	9.6	10.0	96.0%	9.6	10.0	96.0%	0.0%
2-Chloroethylvinylether	7.7	10.0	77.0%	8.3	10.0	83.0%	7.5%
Bromoform	10.4	10.0	104%	10.3	10.0	103%	1.0%
4-Methyl-2-Pentanone (MIBK)	49.8	50.0	99.6%	51.4	50.0	103%	3.2%
2-Hexanone	49.1	50.0	98.2%	49.6	50.0	99.2%	1.0%
Tetrachloroethene	9.9	10.0	99.0%	9.9	10.0	99.0%	0.0%
1,1,2,2-Tetrachloroethane	10.0	10.0	100%	9.9	10.0	99.0%	1.0%
Toluene	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
Chlorobenzene	9.5	10.0	95.0%	9.7	10.0	97.0%	2.1%
Ethylbenzene	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
Styrene	10.0	10.0	100%	10.2	10.0	102%	2.0%
Trichlorofluoromethane	9.7	10.0	97.0%	9.8	10.0	98.0%	1.0%
1,1,2-Trichloro-1,2,2-trifluoroetha	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
m,p-Xylene	19.5	20.0	97.5%	19.8	20.0	99.0%	1.5%
o-Xylene	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
1,2-Dichlorobenzene	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
1,3-Dichlorobenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
1,4-Dichlorobenzene	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
Acrolein	53.6	50.0	107%	56.1	50.0	112%	4.6%
Methyl Iodide	7.6 Q	10.0	76.0%	8.0 Q	10.0	80.0%	5.1%
Bromoethane	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LCS-092611
LAB CONTROL SAMPLE

Lab Sample ID: LCS-092611
LIMS ID: 11-20447
Matrix: Water

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Acrylonitrile	9.4	10.0	94.0%	9.7	10.0	97.0%	3.1%
1,1-Dichloropropene	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
Dibromomethane	9.4	10.0	94.0%	9.7	10.0	97.0%	3.1%
1,1,1,2-Tetrachloroethane	9.9	10.0	99.0%	9.9	10.0	99.0%	0.0%
1,2-Dibromo-3-chloropropane	9.6	10.0	96.0%	9.4	10.0	94.0%	2.1%
1,2,3-Trichloropropane	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
trans-1,4-Dichloro-2-butene	7.8 Q	10.0	78.0%	7.7 Q	10.0	77.0%	1.3%
1,3,5-Trimethylbenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
1,2,4-Trimethylbenzene	9.7	10.0	97.0%	9.9	10.0	99.0%	2.0%
Hexachlorobutadiene	9.8	10.0	98.0%	10.3	10.0	103%	5.0%
Ethylene Dibromide	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
Bromochloromethane	9.7	10.0	97.0%	9.8	10.0	98.0%	1.0%
2,2-Dichloropropane	9.0	10.0	90.0%	9.0	10.0	90.0%	0.0%
1,3-Dichloropropane	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
Isopropylbenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
n-Propylbenzene	9.5	10.0	95.0%	9.7	10.0	97.0%	2.1%
Bromobenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
2-Chlorotoluene	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
4-Chlorotoluene	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
tert-Butylbenzene	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
sec-Butylbenzene	9.5	10.0	95.0%	9.8	10.0	98.0%	3.1%
4-Isopropyltoluene	9.6	10.0	96.0%	10.0	10.0	100%	4.1%
n-Butylbenzene	9.0	10.0	90.0%	9.7	10.0	97.0%	7.5%
1,2,4-Trichlorobenzene	9.8	10.0	98.0%	9.9	10.0	99.0%	1.0%
Naphthalene	10.2	10.0	102%	10.3	10.0	103%	1.0%
1,2,3-Trichlorobenzene	10.0	10.0	100%	10.2	10.0	102%	2.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	93.9%	93.3%
d8-Toluene	98.3%	99.9%
Bromofluorobenzene	98.1%	98.3%
d4-1,2-Dichlorobenzene	101%	99.9%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0921

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC EARTH AND ENVIRONME

ARI Job No: TN42

Project: 2011 FRP SHORELINE INVE

Lab File ID: MB0921

Lab Sample ID: MB0921

Date Analyzed: 09/21/11

Time Analyzed: 1057

Instrument ID: NT5

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	LCS0921	LCS0921	LCS0921	1001
02	LCS0921	LCS0921	LCS0921A	1029
03	FRP-091911-0	TN00B	TN00B	1433
04	FRP-091911-0	TN00C	TN00C	1501
05	FRP-091911-0	TN00D	TN00D	1529
06	FRP-091911-0	TN00E	TN00E	1557
07	FRP-091911-0	TN00F	TN00F	1626
08	TRIP BLANKS	TN00G	TN00G	1654
09	FRP-092011-0	TN19A	TN19A	1722
10	FRP-092011-0	TN19E	TN19E	1915
11	TRIP BLANKS	TN19F	TN19F	1944
12				
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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-092111**
 METHOD BLANK

Lab Sample ID: MB-092111
LIMS ID: 11-20450
Matrix: Water
Data Release Authorized:
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT5/PAB
Date Analyzed: 09/21/11 10:57

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-092111
METHOD BLANK

Lab Sample ID: MB-092111
LIMS ID: 11-20450
Matrix: Water
Date Analyzed: 09/21/11 10:57

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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	110%
d8-Toluene	102%
Bromofluorobenzene	95.8%
d4-1,2-Dichlorobenzene	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0926

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC EARTH AND ENVIRONME

ARI Job No: TN42

Project: 2011 FRP SHORELINE INVE

Lab File ID: MB0926

Lab Sample ID: MB0926

Date Analyzed: 09/26/11

Time Analyzed: 1100

Instrument ID: NT2

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	LCS0926	LCS0926	LCS0926	1006
02	LCS0926	LCS0926	LCS0926A	1033
03	TRIP BLANKS	TN42G	TN42G2	1228
04	FRP-091911-0	TN00B	TN00B2	1255
05	FRP-091911-0	TN00C	TN00C2	1322
06	FRP-091911-0	TN00D	TN00D2	1349
07	FRP-091911-0	TN00E	TN00E2	1415
08	FRP-092011-0	TN19B	TN19B2	1442
09	FRP-092011-0	TN19C	TN19C2	1509
10	FRP-092011-0	TN19D	TN19D2	1536
11	FRP-092111-0	TN42A	TN42A2	1603
12	FRP-092111-0	TN42B	TN42B2	1630
13	FRP-092111-0	TN42C	TN42C2	1657
14	FRP-092111-0	TN42D	TN42D2	1723
15	FRP-092111-0	TN42E	TN42E2	1750
16	FRP-092111-0	TN42F	TN42F2	1817
17	FRP-091911-0	TN00CMS	TN00CMS	1843
18	FRP-091911-0	TN00CMSD	TN00CMSD	1910
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COMMENTS:

FORM IV VOA

OLM3.2M

TN00:00084

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-092611**
 METHOD BLANK

Lab Sample ID: MB-092611
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized: TMW
Reported: 10/03/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/PAB
Date Analyzed: 09/26/11 11:00

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-092611
METHOD BLANK

Lab Sample ID: MB-092611
LIMS ID: 11-20447
Matrix: Water
Date Analyzed: 09/26/11 11:00

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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	94.0%
d8-Toluene	99.0%
Bromofluorobenzene	96.0%
d4-1,2-Dichlorobenzene	100%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC EARTH AND ENVIRONMENTAL

Lab Code: ARI Case No.: 2011 FRP SHORELINE INVESTIGATION SDG No.: TN42

Lab File ID: BFB0727 BFB Injection Date: 07/27/11

Instrument ID: NT5 BFB Injection Time: 1130

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	16.1
75	30.0 - 66.0% of mass 95	55.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.7 (1.0)1
174	50.0 - 101.0% of mass 95	72.0
175	4.0 - 9.0% of mass 174	6.0 (8.4)1
176	93.0 - 101.0% of mass 174	72.1 (100.1)1
177	5.0 - 9.0% of mass 176	4.7 (6.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD60	IC0727	6000727	07/27/11	1220
02	VSTD40	IC0727	4000727	07/27/11	1248
03	VSTD20	IC0727	2000727	07/27/11	1316
04	VSTD10	IC0727	1000727	07/27/11	1345
05	VSTD4	IC0727	0400727	07/27/11	1413
06	VSTD1	IC0727	0100727	07/27/11	1441
07	VSTD0.5	IC0727	0050727	07/27/11	1510
08	VSTD0.2	IC0727	0020727	07/27/11	1538
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FORM V VOA OLM3.2M

TN00:00067

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC EARTH AND ENVIRONMENTAL

Lab Code: ARI Case No.: 2011 FRP SHORELINE INVESTIGATION SDG No.: TN42

Lab File ID: BFB0921 BFB Injection Date: 09/21/11

Instrument ID: NT5 BFB Injection Time: 0812

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	18.7
75	30.0 - 66.0% of mass 95	55.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	5.9
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 101.0% of mass 95	73.7
175	4.0 - 9.0% of mass 174	5.4 (7.3)1
176	93.0 - 101.0% of mass 174	73.3 (99.4)1
177	5.0 - 9.0% of mass 176	4.4 (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	VSTD10	CC0921	1000921	09/21/11	0855
02	LCS0921	LCS0921	LCS0921	09/21/11	1001
03	LCS0921	LCS0921	LCS0921A	09/21/11	1029
04	MB0921	MB0921	MB0921	09/21/11	1057
05	FRP-091911-002	TN00B	TN00B	09/21/11	1433
06	FRP-091911-003	TN00C	TN00C	09/21/11	1501
07	FRP-091911-004	TN00D	TN00D	09/21/11	1529
08	FRP-091911-005	TN00E	TN00E	09/21/11	1557
09	FRP-091911-006	TN00F	TN00F	09/21/11	1626
10	TRIP BLANKS	TN00G	TN00G	09/21/11	1654
11	FRP-092011-001	TN19A	TN19A	09/21/11	1722
12	FRP-092011-005	TN19E	TN19E	09/21/11	1915
13	TRIP BLANKS	TN19F	TN19F	09/21/11	1944
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FORM V VOA OLM3.2M

TN00:00058

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC EARTH AND ENVIRONMENTAL

Lab Code: ARI Case No.: 2011 FRP SHORELINE INVESTIGATION SDG No.: TN42

Lab File ID: BFB0921 BFB Injection Date: 09/21/11

Instrument ID: NT2 BFB Injection Time: 1241

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	18.7
75	30.0 - 66.0% of mass 95	53.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 101.0% of mass 95	79.2
175	4.0 - 9.0% of mass 174	5.7 (7.2)1
176	93.0 - 101.0% of mass 174	79.4 (100.3)1
177	5.0 - 9.0% of mass 176	5.5 (7.0)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0.2	VSTD0.2	00_20921	09/21/11	1338
02	VSTD0.5	VSTD0.5	00_50921	09/21/11	1405
03	VSTD01	VSTD01	01_00921	09/21/11	1432
04	VSTD02	VSTD02	02_00921	09/21/11	1459
05	VSTD10	VSTD10	10_00921	09/21/11	1526
06	VSTD20	VSTD20	20_00921	09/21/11	1552
07	VSTD40	VSTD40	40_00921	09/21/11	1619
08	VSTD60	VSTD60	60_00921	09/21/11	1646
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FORM V VOA OLM3.2M

TN00:00069

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC EARTH AND ENVIRONMENTAL

Lab Code: ARI Case No.: 2011 FRP SHORELINE INVESTIGATION SDG No.: TN42

Lab File ID: BFB0926 BFB Injection Date: 09/26/11

Instrument ID: NT2 BFB Injection Time: 0901

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	17.4
75	30.0 - 66.0% of mass 95	51.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.1 (0.1)1
174	50.0 - 101.0% of mass 95	82.2
175	4.0 - 9.0% of mass 174	5.7 (6.9)1
176	93.0 - 101.0% of mass 174	81.9 (99.6)1
177	5.0 - 9.0% of mass 176	5.5 (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	CC0926	CC0926	CC0926	09/26/11	0939
02	LCS0926	LCS0926	LCS0926	09/26/11	1006
03	LCS0926	LCS0926	LCS0926A	09/26/11	1033
04	MB0926	MB0926	MB0926	09/26/11	1100
05	TRIP BLANKS	TN42G	TN42G2	09/26/11	1228
06	FRP-091911-002	TN00B	TN00B2	09/26/11	1255
07	FRP-091911-003	TN00C	TN00C2	09/26/11	1322
08	FRP-091911-004	TN00D	TN00D2	09/26/11	1349
09	FRP-091911-005	TN00E	TN00E2	09/26/11	1415
10	FRP-092011-002	TN19B	TN19B2	09/26/11	1442
11	FRP-092011-003	TN19C	TN19C2	09/26/11	1509
12	FRP-092011-004	TN19D	TN19D2	09/26/11	1536
13	FRP-092111-001	TN42A	TN42A2	09/26/11	1603
14	FRP-092111-002	TN42B	TN42B2	09/26/11	1630
15	FRP-092111-003	TN42C	TN42C2	09/26/11	1657
16	FRP-092111-004	TN42D	TN42D2	09/26/11	1723
17	FRP-092111-005	TN42E	TN42E2	09/26/11	1750
18	FRP-092111-006	TN42F	TN42F2	09/26/11	1817
19	FRP-091911-003MS	TN00CMS	TN00CMS	09/26/11	1843
20	FRP-091911-003MS	TN00CMSD	TN00CMSD	09/26/11	1910
21					
22					

FORM V VOA OLM3.2M

TN00:00070

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 Calibration Date: 07/27/11

LAB FILE ID: RF0.2: 0020727 RF0.5: 0050727 RF1: 0100727
RF4: 0400727 RF10: 1000727

COMPOUND	RF0.2	RF0.5	RF1	RF4	RF10
Chloromethane		0.445	0.457	0.360	0.340
Vinyl Chloride	0.387	0.360	0.422	0.419	0.431
Bromomethane	0.197	0.224	0.234	0.250	0.262
Chloroethane	0.276	0.227	0.280	0.231	0.255
Trichlorofluoromethane	0.957	0.998	1.258	1.074	1.068
Acrolein		0.042	0.034	0.033	0.034
112Trichloro122Trifluoroetha	0.463	0.450	0.550	0.466	0.445
Acetone			0.061	0.057	0.063
1,1-Dichloroethene	0.352	0.371	0.490	0.397	0.396
Bromoethane	0.262	0.252	0.278	0.248	0.257
Iodomethane		0.564	0.749	0.624	0.606
Methylene Chloride	0.348	0.486	0.452	0.387	0.396
Acrylonitrile			0.089	0.069	0.060
Carbon Disulfide	1.156	1.041	1.184	1.061	1.118
Trans-1,2-Dichloroethene	0.430	0.490	0.510	0.467	0.460
Vinyl Acetate		0.413	0.474	0.465	0.461
1,1-Dichloroethane	0.679	0.751	0.805	0.733	0.736
2-Butanone		0.078	0.097	0.087	0.083
2,2-Dichloropropane	0.862	0.880	1.027	0.962	0.990
Cis-1,2-Dichloroethene	0.446	0.434	0.510	0.463	0.474
Chloroform	1.037	0.831	1.051	0.976	0.911
Bromochloromethane	0.185	0.222	0.241	0.232	0.214
1,1,1-Trichloroethane	0.935	1.018	1.168	1.118	1.080
1,1-Dichloropropene	0.495	0.433	0.524	0.489	0.504
Carbon Tetrachloride	0.648	0.697	0.815	0.779	0.777
1,2-Dichloroethane	0.571	0.510	0.641	0.592	0.574
Benzene	1.219	1.141	1.347	1.264	1.263
Trichloroethene	0.359	0.361	0.405	0.402	0.397
1,2-Dichloropropane	0.197	0.242	0.301	0.233	0.240
Bromodichloromethane	0.587	0.499	0.577	0.564	0.540
Dibromomethane	0.172	0.180	0.213	0.200	0.194
2-Chloroethyl Vinyl Ether		0.094	0.116	0.115	0.124
4-Methyl-2-Pentanone		0.058	0.064	0.063	0.062
Cis 1,3-dichloropropene	0.466	0.524	0.587	0.555	0.548
Toluene	0.906	0.806	0.927	0.902	0.904
Trans 1,3-Dichloropropene	0.529	0.478	0.594	0.558	0.556
2-Hexanone		0.099	0.124	0.114	0.115

TN00:00071

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 Calibration Date: 07/27/11

LAB FILE ID: RF0.2: 0020727 RF0.5: 0050727 RF1: 0100727
RF4: 0400727 RF10: 1000727

COMPOUND	RF0.2	RF0.5	RF1	RF4	RF10
1,1,2-Trichloroethane	0.227	0.237	0.281	0.249	0.239
1,3-Dichloropropane	0.471	0.429	0.523	0.470	0.439
Tetrachloroethene	0.510	0.433	0.513	0.467	0.454
Chlorodibromomethane	0.381	0.358	0.464	0.425	0.420
1,2-Dibromoethane	0.280	0.234	0.279	0.264	0.262
Chlorobenzene	1.158	1.115	1.204	1.137	1.105
Ethyl Benzene	0.584	0.562	0.651	0.606	0.613
1,1,1,2-Tetrachloroethane	0.450	0.454	0.514	0.471	0.461
m,p-xylene	0.719	0.700	0.823	0.767	0.747
o-Xylene	0.592	0.609	0.769	0.695	0.714
Styrene	0.995	1.042	1.262	1.183	1.210
Bromoform	0.486	0.394	0.515	0.437	0.411
1,1,2,2-Tetrachloroethane	0.675	0.420	0.492	0.469	0.413
1,2,3-Trichloropropane	0.264	0.209	0.283	0.207	0.191
Trans-1,4-Dichloro 2-Butene			0.229	0.236	0.207
N-Propyl Benzene	3.544	3.127	3.884	3.502	3.307
Bromobenzene	0.950	0.906	1.048	0.900	0.835
Isopropyl Benzene	2.811	2.776	3.485	3.289	3.092
2-Chloro Toluene	2.351	2.305	2.711	2.443	2.307
4-Chloro Toluene	2.961	2.400	2.912	2.656	2.526
T-Butyl Benzene	2.160	2.101	2.624	2.386	2.279
1,3,5-Trimethyl Benzene	2.657	2.500	3.198	2.913	2.747
1,2,4-Trimethylbenzene	2.740	2.526	3.143	2.980	2.852
S-Butyl Benzene	3.035	2.770	3.343	2.996	2.938
4-Isopropyl Toluene	2.488	2.252	2.859	2.751	2.701
1,3-Dichlorobenzene	1.678	1.489	1.999	1.701	1.598
1,4-Dichlorobenzene	2.105	1.802	1.971	1.734	1.649
N-Butyl Benzene	1.928	1.951	2.329	2.148	2.111
1,2-Dichlorobenzene	1.733	1.498	1.780	1.579	1.456
1,2-Dibromo 3-Chloropropane	0.104	0.177	0.173	0.133	0.120
1,2,4-Trichlorobenzene	0.910	0.873	1.027	0.890	0.833
Hexachloro 1,3-Butadiene		0.550	0.577	0.472	0.444
Naphthalene	1.426	1.383	1.643	1.510	1.454
1,2,3-Trichlorobenzene	0.750	0.612	0.758	0.638	0.546
Dichlorodifluoromethane	0.511	0.578	0.594	0.616	0.646
Methyl tert butyl ether	1.258	1.246	1.428	1.319	1.291

TN00:000072

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 Calibration Date: 07/27/11

LAB FILE ID: RF0.2: 0020727 RF0.5: 0050727 RF1: 0100727
RF4: 0400727 RF10: 1000727

COMPOUND	RF0.2	RF0.5	RF1	RF4	RF10
d4-1,2-Dichloroethane	0.541	0.588	0.595	0.598	0.570
d8-Toluene	1.120	1.100	1.111	1.136	1.126
4-Bromofluorobenzene	0.554	0.579	0.575	0.589	0.596
d4-1,2-Dichlorobenzene	0.861	0.875	0.902	0.882	0.882
Dibromofluoromethane	0.399	0.403	0.423	0.423	0.426

TN00 : 00073

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 Calibration Date: 07/27/11

LAB FILE ID: RF20: 2000727 RF40: 4000727 RF60: 6000727

COMPOUND	RF20	RF40	RF60
Chloromethane	0.307	0.274	0.259
Vinyl Chloride	0.382	0.362	0.311
Bromomethane	0.267	0.276	0.256
Chloroethane	0.215	0.210	0.203
Trichlorofluoromethane	0.942	0.762	0.719
Acrolein	0.031	0.029	0.028
112Trichloro122Trifluoroetha	0.409	0.391	0.374
Acetone	0.049	0.054	0.053
1,1-Dichloroethene	0.359	0.339	0.314
Bromoethane	0.233	0.207	0.180
Iodomethane	0.548	0.505	0.418
Methylene Chloride	0.356	0.322	0.283
Acrylonitrile	0.060	0.059	0.058
Carbon Disulfide	0.995	0.897	0.942
Trans-1,2-Dichloroethene	0.437	0.405	0.414
Vinyl Acetate	0.456	0.463	0.423
1,1-Dichloroethane	0.690	0.698	0.621
2-Butanone	0.074	0.077	0.070
2,2-Dichloropropane	0.931	0.929	0.854
Cis-1,2-Dichloroethene	0.436	0.435	0.401
Chloroform	0.855	0.847	0.762
Bromochloromethane	0.200	0.194	0.182
1,1,1-Trichloroethane	0.993	0.975	0.872
1,1-Dichloropropene	0.468	0.452	0.424
Carbon Tetrachloride	0.718	0.701	0.637
1,2-Dichloroethane	0.540	0.532	0.492
Benzene	1.178	1.121	1.043
Trichloroethene	0.371	0.360	0.331
1,2-Dichloropropane	0.229	0.218	0.202
Bromodichloromethane	0.497	0.481	0.447
Dibromomethane	0.176	0.169	0.158
2-Chloroethyl Vinyl Ether	0.115	0.113	0.109
4-Methyl-2-Pentanone	0.057	0.054	0.050
Cis 1,3-dichloropropene	0.503	0.490	0.458
Toluene	0.830	0.800	0.734
Trans 1,3-Dichloropropene	0.525	0.499	0.455
2-Hexanone	0.102	0.080	

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 Calibration Date: 07/27/11

LAB FILE ID: RF20: 2000727 RF40: 4000727 RF60: 6000727

COMPOUND	RF20	RF40	RF60
1,1,2-Trichloroethane	0.221	0.218	0.204
1,3-Dichloropropane	0.402	0.396	0.376
Tetrachloroethene	0.430	0.409	0.384
Chlorodibromomethane	0.378	0.371	0.347
1,2-Dibromoethane	0.244	0.230	0.219
Chlorobenzene	1.021	0.986	0.894
Ethyl Benzene	0.575	0.540	0.497
1,1,1,2-Tetrachloroethane	0.426	0.411	0.376
m,p-xylene	0.690	0.647	0.578
o-Xylene	0.676	0.648	0.591
Styrene	1.125	1.045	0.944
Bromoform	0.358	0.339	
1,1,2,2-Tetrachloroethane	0.405		
1,2,3-Trichloropropane	0.174		
Trans-1,4-Dichloro 2-Butene	0.184	0.132	
N-Propyl Benzene	3.004	2.929	2.640
Bromobenzene	0.746	0.727	0.648
Isopropyl Benzene	2.818	2.721	2.425
2-Chloro Toluene	2.102	2.003	1.874
4-Chloro Toluene	2.340	2.147	2.131
T-Butyl Benzene	2.101	2.066	1.893
1,3,5-Trimethyl Benzene	2.529	2.467	2.227
1,2,4-Trimethylbenzene	2.608	2.552	2.326
S-Butyl Benzene	2.733	2.654	2.408
4-Isopropyl Toluene	2.494	2.465	2.192
1,3-Dichlorobenzene	1.470		
1,4-Dichlorobenzene	1.506	1.492	1.294
N-Butyl Benzene	1.986	1.974	
1,2-Dichlorobenzene	1.375	1.334	1.156
1,2-Dibromo 3-Chloropropane	0.113	0.105	0.090
1,2,4-Trichlorobenzene	0.766		
Hexachloro 1,3-Butadiene	0.385		
Naphthalene	1.353		
1,2,3-Trichlorobenzene	0.398		
Dichlorodifluoromethane	0.604	0.542	0.459
Methyl tert butyl ether	1.204	1.215	1.114

TN00:00075

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 Calibration Date: 07/27/11

LAB FILE ID: RF20: 2000727 RF40: 4000727 RF60: 6000727

COMPOUND	RF20	RF40	RF60
d4-1,2-Dichloroethane	0.570	0.588	0.563
d8-Toluene	1.125	1.115	1.108
4-Bromofluorobenzene	0.620	0.597	0.505
d4-1,2-Dichlorobenzene	0.894	0.880	0.839
Dibromofluoromethane	0.415	0.422	0.409

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC | Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 | Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 | Calibration Date: 07/27/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	LINR		0.9926
Vinyl Chloride	AVRG	0.384	10.4
Bromomethane	AVRG	0.246	10.5
Chloroethane	AVRG	0.237	12.5
Trichlorofluoromethane	AVRG	0.972	17.8
Acrolein	AVRG	0.033	13.6
112Trichloro122Trifluoroetha	AVRG	0.444	12.3
Acetone	AVRG	0.056	9.7
1,1-Dichloroethene	AVRG	0.377	14.1
Bromoethane	AVRG	0.240	13.4
Iodomethane	AVRG	0.573	18.0
Methylene Chloride	AVRG	0.379	17.6
Acrylonitrile	AVRG	0.066	18.2
Carbon Disulfide	AVRG	1.049	9.7
Trans-1,2-Dichloroethene	AVRG	0.452	8.1
Vinyl Acetate	AVRG	0.451	5.1
1,1-Dichloroethane	AVRG	0.714	7.7
2-Butanone	AVRG	0.081	11.3
2,2-Dichloropropane	AVRG	0.929	6.7
Cis-1,2-Dichloroethene	AVRG	0.450	7.3
Chloroform	AVRG	0.909	11.4
Bromochloromethane	AVRG	0.209	10.5
1,1,1-Trichloroethane	AVRG	1.020	9.6
1,1-Dichloropropene	AVRG	0.474	7.4
Carbon Tetrachloride	AVRG	0.722	8.9
1,2-Dichloroethane	AVRG	0.556	8.6
Benzene	AVRG	1.197	8.0
Trichloroethene	AVRG	0.373	7.0
1,2-Dichloropropane	AVRG	0.233	13.8
Bromodichloromethane	AVRG	0.524	9.6
Dibromomethane	AVRG	0.183	9.9
2-Chloroethyl Vinyl Ether	AVRG	0.112	8.4
4-Methyl-2-Pentanone	AVRG	0.058	8.9
Cis 1,3-dichloropropene	AVRG	0.516	8.8
Toluene	AVRG	0.851	8.1
Trans 1,3-Dichloropropene	AVRG	0.524	8.7
2-Hexanone	AVRG	0.105	14.6

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

TN00 : 000877

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 — Calibration Date: 07/27/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.234	10.0
1,3-Dichloropropane	AVRG	0.438	11.0
Tetrachloroethene	AVRG	0.450	10.1
Chlorodibromomethane	AVRG	0.393	10.1
1,2-Dibromoethane	AVRG	0.252	9.2
Chlorobenzene	AVRG	1.078	9.5
Ethyl Benzene	AVRG	0.578	8.2
1,1,1,2-Tetrachloroethane	AVRG	0.446	9.3
m,p-xylene	AVRG	0.709	10.6
o-Xylene	AVRG	0.662	9.6
Styrene	AVRG	1.101	10.2
Bromoform	AVRG	0.420	15.3
1,1,2,2-Tetrachloroethane	LINR		0.9985
1,2,3-Trichloropropane	AVRG	0.221	19.2
Trans-1,4-Dichloro 2-Butene	2ORDR		0.9956
N-Propyl Benzene	AVRG	3.242	12.2
Bromobenzene	AVRG	0.845	15.6
Isopropyl Benzene	AVRG	2.927	11.6
2-Chloro Toluene	AVRG	2.262	11.7
4-Chloro Toluene	AVRG	2.509	12.6
T-Butyl Benzene	AVRG	2.201	10.2
1,3,5-Trimethyl Benzene	AVRG	2.655	11.3
1,2,4-Trimethylbenzene	AVRG	2.716	9.8
S-Butyl Benzene	AVRG	2.860	9.9
4-Isopropyl Toluene	AVRG	2.525	9.3
1,3-Dichlorobenzene	AVRG	1.656	11.6
1,4-Dichlorobenzene	AVRG	1.694	15.7
N-Butyl Benzene	AVRG	2.061	7.0
1,2-Dichlorobenzene	AVRG	1.489	13.9
1,2-Dibromo 3-Chloropropane	2ORDR		0.9984
1,2,4-Trichlorobenzene	AVRG	0.883	9.8
Hexachloro 1,3-Butadiene	AVRG	0.485	16.1
Naphthalene	AVRG	1.461	7.1
1,2,3-Trichlorobenzene	2ORDR		0.9972
Dichlorodifluoromethane	AVRG	0.569	10.7
Methyl tert butyl ether	AVRG	1.260	7.3

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

TN00:00078

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC | Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 | Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 | Calibration Date: 07/27/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.577	3.4
d8-Toluene	AVRG	1.118	1.0
4-Bromofluorobenzene	AVRG	0.577	6.0
d4-1,2-Dichlorobenzene	AVRG	0.877	2.2
Dibromofluoromethane	AVRG	0.415	2.5

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

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 Calibration Date: 09/21/11

LAB FILE ID: RF0.2: 00_20921 RF0.5: 00_50921 RF1: 01_00921
RF2: 02_00921 RF10: 10_00921

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
Chloromethane		0.942	0.850	0.880	0.733
Vinyl Chloride	0.625	0.610	0.625	0.659	0.642
Bromomethane			0.323	0.325	0.307
Chloroethane	0.427	0.407	0.388	0.412	0.385
Trichlorofluoromethane	0.798	0.711	0.725	0.783	0.724
Acrolein	0.058	0.054	0.057	0.057	0.061
112Trichloro122Trifluoroetha	0.529	0.449	0.475	0.479	0.440
Acetone		0.231	0.193	0.173	0.148
1,1-Dichloroethene	0.625	0.508	0.473	0.498	0.444
Bromoethane	0.340	0.311	0.329	0.338	0.314
Iodomethane			0.526	0.521	0.551
Methylene Chloride		0.598	0.546	0.550	0.507
Acrylonitrile		0.155	0.158	0.169	0.160
Carbon Disulfide	1.638	1.529	1.519	1.651	1.514
Trans-1,2-Dichloroethene	0.564	0.536	0.523	0.543	0.502
Vinyl Acetate	0.978	0.950	0.997	1.058	1.040
1,1-Dichloroethane	1.007	0.928	0.954	0.988	0.910
2-Butanone	0.252	0.236	0.247	0.257	0.244
2,2-Dichloropropane	0.928	0.805	0.770	0.815	0.778
Cis-1,2-Dichloroethene	0.584	0.561	0.559	0.573	0.534
Chloroform	0.956	0.887	0.938	0.963	0.909
Bromochloromethane	0.265	0.250	0.254	0.272	0.250
1,1,1-Trichloroethane	0.897	0.862	0.869	0.900	0.842
1,1-Dichloropropene	0.509	0.504	0.492	0.522	0.490
Carbon Tetrachloride	0.456	0.431	0.439	0.462	0.459
1,2-Dichloroethane	0.498	0.505	0.489	0.510	0.455
Benzene	1.487	1.436	1.433	1.489	1.356
Trichloroethene	0.407	0.350	0.365	0.370	0.346
1,2-Dichloropropane	0.383	0.348	0.350	0.373	0.339
Bromodichloromethane	0.450	0.418	0.421	0.454	0.447
Dibromomethane	0.205	0.183	0.200	0.207	0.187
2-Chloroethyl Vinyl Ether		0.117	0.114	0.107	0.146
4-Methyl-2-Pentanone	0.118	0.126	0.131	0.140	0.135
Cis 1,3-dichloropropene	0.547	0.501	0.535	0.563	0.552
Toluene	0.946	0.932	0.930	0.961	0.874
Trans 1,3-Dichloropropene	0.468	0.467	0.480	0.522	0.521
2-Hexanone	0.251	0.252	0.262	0.286	0.280

TN00:00080

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 Calibration Date: 09/21/11

LAB FILE ID: RF0.2: 00_20921 RF0.5: 00_50921 RF1: 01_00921
RF2: 02_00921 RF10: 10_00921

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
1,1,2-Trichloroethane	0.328	0.290	0.297	0.308	0.286
1,3-Dichloropropane	0.575	0.562	0.574	0.590	0.558
Tetrachloroethene	0.412	0.403	0.418	0.415	0.394
Chlorodibromomethane	0.263	0.289	0.292	0.317	0.329
1,2-Dibromoethane	0.286	0.288	0.286	0.320	0.301
Chlorobenzene	1.135	1.029	1.070	1.096	1.005
Ethyl Benzene	0.608	0.561	0.552	0.588	0.548
1,1,1,2-Tetrachloroethane	0.347	0.304	0.329	0.358	0.353
m,p-xylene	0.689	0.688	0.693	0.737	0.677
o-Xylene	0.662	0.663	0.679	0.716	0.659
Styrene	0.991	1.031	1.056	1.187	1.121
Bromoform	0.280	0.276	0.289	0.304	0.343
1,1,2,2-Tetrachloroethane	0.602	0.660	0.667	0.683	0.684
1,2,3-Trichloropropane	0.250	0.226	0.232	0.229	0.226
Trans-1,4-Dichloro 2-Butene			0.119	0.136	0.125
N-Propyl Benzene	3.640	3.514	3.562	3.710	3.528
Bromobenzene	0.829	0.749	0.778	0.784	0.746
Isopropyl Benzene	2.501	2.530	2.531	2.670	2.579
2-Chloro Toluene	2.555	2.513	2.509	2.536	2.393
4-Chloro Toluene	2.419	2.278	2.373	2.345	2.236
T-Butyl Benzene	2.417	2.330	2.302	2.437	2.316
1,3,5-Trimethyl Benzene	2.501	2.530	2.531	2.670	2.579
1,2,4-Trimethylbenzene	2.527	2.071	2.293	2.468	2.448
S-Butyl Benzene	3.444	3.038	3.114	3.397	3.276
4-Isopropyl Toluene	2.861	2.170	2.452	2.708	2.665
1,3-Dichlorobenzene	1.651	1.547	1.536	1.610	1.506
1,4-Dichlorobenzene	1.674	1.654	1.641	1.681	1.556
N-Butyl Benzene	2.395	1.518	1.725	2.134	2.087
1,2-Dichlorobenzene	1.615	1.556	1.570	1.588	1.471
1,2-Dibromo 3-Chloropropane		0.112	0.127	0.133	0.135
1,2,4-Trichlorobenzene	1.082	0.757	0.815	0.997	0.996
Hexachloro 1,3-Butadiene		0.559	0.560	0.600	0.576
Naphthalene		1.645	1.739	2.138	2.152
1,2,3-Trichlorobenzene		0.704	0.719	0.921	0.886
Dichlorodifluoromethane	0.428	0.483	0.425	0.502	0.483
Methyl tert butyl ether	1.458	1.374	1.459	1.378	1.400

TN08:00081

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 Calibration Date: 09/21/11

LAB FILE ID: RF0.2: 00_20921 RF0.5: 00_50921 RF1: 01_00921
RF2: 02_00921 RF10: 10_00921

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
d4-1,2-Dichloroethane	0.582	0.575	0.582	0.580	0.575
d8-Toluene	1.240	1.232	1.232	1.241	1.212
4-Bromofluorobenzene	0.558	0.551	0.550	0.557	0.548
d4-1,2-Dichlorobenzene	0.906	0.898	0.914	0.904	0.910
Dibromofluoromethane	0.449	0.444	0.447	0.453	0.459

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 Calibration Date: 09/21/11

LAB FILE ID: RF20: 20_00921 RF40: 40_00921 RF60: 60_00921

COMPOUND	RF20	RF40	RF60
Chloromethane	0.729	0.758	0.786
Vinyl Chloride	0.640	0.684	0.645
Bromomethane	0.311	0.341	0.355
Chloroethane	0.329		
Trichlorofluoromethane	0.725	0.682	0.628
Acrolein	0.070	0.071	0.073
112Trichloro122Trifluoroetha	0.460	0.467	0.457
Acetone	0.156	0.155	0.157
1,1-Dichloroethene	0.457	0.462	0.460
Bromoethane	0.316	0.313	0.311
Iodomethane	0.545	0.517	0.534
Methylene Chloride	0.524	0.536	0.534
Acrylonitrile	0.172	0.176	0.178
Carbon Disulfide	1.611	1.623	1.614
Trans-1,2-Dichloroethene	0.526	0.528	0.532
Vinyl Acetate	1.115	1.160	1.165
1,1-Dichloroethane	0.954	0.972	0.980
2-Butanone	0.265	0.270	
2,2-Dichloropropane	0.814	0.826	0.822
Cis-1,2-Dichloroethene	0.558	0.567	0.565
Chloroform	0.952	0.968	0.972
Bromochloromethane	0.258	0.259	0.261
1,1,1-Trichloroethane	0.890	0.900	0.893
1,1-Dichloropropene	0.517	0.519	0.517
Carbon Tetrachloride	0.492	0.499	0.506
1,2-Dichloroethane	0.486	0.485	0.492
Benzene	1.419	1.402	1.387
Trichloroethene	0.362	0.363	0.366
1,2-Dichloropropane	0.358	0.361	0.364
Bromodichloromethane	0.488	0.492	0.500
Dibromomethane	0.199	0.198	0.199
2-Chloroethyl Vinyl Ether	0.158	0.162	0.173
4-Methyl-2-Pentanone	0.147	0.144	0.147
Cis 1,3-dichloropropene	0.604	0.610	0.616
Toluene	0.914	0.897	0.892
Trans 1,3-Dichloropropene	0.566	0.576	0.582
2-Hexanone	0.296	0.290	0.279

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 Calibration Date: 09/21/11

LAB FILE ID: RF20: 20_00921 RF40: 40_00921 RF60: 60_00921

COMPOUND	RF20	RF40	RF60
1,1,2-Trichloroethane	0.304	0.301	0.304
1,3-Dichloropropane	0.575	0.587	0.583
Tetrachloroethene	0.409	0.410	0.404
Chlorodibromomethane	0.360	0.377	0.379
1,2-Dibromoethane	0.318	0.320	0.326
Chlorobenzene	1.037	1.035	1.023
Ethyl Benzene	0.569	0.573	0.571
1,1,1,2-Tetrachloroethane	0.370	0.380	0.382
m,p-xylene	0.700	0.691	0.678
o-Xylene	0.682	0.690	0.695
Styrene	1.186	1.225	1.221
Bromoform	0.409	0.422	0.429
1,1,2,2-Tetrachloroethane	0.728	0.727	0.728
1,2,3-Trichloropropane	0.239	0.234	0.231
Trans-1,4-Dichloro 2-Butene	0.178	0.194	0.200
N-Propyl Benzene	3.624	3.444	3.194
Bromobenzene	0.780	0.778	0.774
Isopropyl Benzene	2.668	2.616	2.475
2-Chloro Toluene	2.494	2.461	2.388
4-Chloro Toluene	2.320	2.283	2.204
T-Butyl Benzene	2.394	2.368	2.271
1,3,5-Trimethyl Benzene	2.668	2.616	2.475
1,2,4-Trimethylbenzene	2.601	2.622	2.505
S-Butyl Benzene	3.306	3.277	3.045
4-Isopropyl Toluene	2.793	2.859	2.682
1,3-Dichlorobenzene	1.565	1.555	1.525
1,4-Dichlorobenzene	1.619	1.606	1.569
N-Butyl Benzene	2.079	2.322	2.111
1,2-Dichlorobenzene	1.524	1.514	1.485
1,2-Dibromo 3-Chloropropane	0.153	0.155	0.158
1,2,4-Trichlorobenzene	0.955	1.014	0.957
Hexachloro 1,3-Butadiene	0.572	0.560	0.548
Naphthalene	1.962	1.832	1.857
1,2,3-Trichlorobenzene	0.865	0.888	0.848
Dichlorodifluoromethane	0.488	0.513	0.472
Methyl tert butyl ether	1.496	1.501	1.544

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 Calibration Date: 09/21/11

LAB FILE ID: RF20: 20_00921 RF40: 40_00921 RF60: 60_00921

COMPOUND	RF20	RF40	RF60
d4-1,2-Dichloroethane	0.581	0.588	0.588
d8-Toluene	1.242	1.215	1.221
4-Bromofluorobenzene	0.550	0.558	0.573
d4-1,2-Dichlorobenzene	0.918	0.909	0.903
Dibromofluoromethane	0.461	0.470	0.478

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC | Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 | Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 | Calibration Date: 09/21/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	0.811	10.0
Vinyl Chloride	AVRG	0.641	3.5
Bromomethane	AVRG	0.327	5.6
Chloroethane	AVRG	0.391	8.7
Trichlorofluoromethane	AVRG	0.722	7.4
Acrolein	AVRG	0.063	11.9
112Trichloro122Trifluoroetha	AVRG	0.470	5.8
Acetone	AVRG	0.173	17.2
1,1-Dichloroethene	AVRG	0.491	11.9
Bromoethane	AVRG	0.321	3.8
Iodomethane	AVRG	0.532	2.6
Methylene Chloride	AVRG	0.542	5.3
Acrylonitrile	AVRG	0.167	5.4
Carbon Disulfide	AVRG	1.587	3.6
Trans-1,2-Dichloroethene	AVRG	0.532	3.3
Vinyl Acetate	AVRG	1.058	7.8
1,1-Dichloroethane	AVRG	0.962	3.3
2-Butanone	AVRG	0.253	4.7
2,2-Dichloropropane	AVRG	0.820	5.9
Cis-1,2-Dichloroethene	AVRG	0.563	2.6
Chloroform	AVRG	0.943	3.2
Bromochloromethane	AVRG	0.259	3.0
1,1,1-Trichloroethane	AVRG	0.882	2.4
1,1-Dichloropropene	AVRG	0.509	2.4
Carbon Tetrachloride	AVRG	0.468	6.0
1,2-Dichloroethane	AVRG	0.490	3.4
Benzene	AVRG	1.426	3.2
Trichloroethene	AVRG	0.366	5.0
1,2-Dichloropropane	AVRG	0.360	3.9
Bromodichloromethane	AVRG	0.459	6.9
Dibromomethane	AVRG	0.197	4.1
2-Chloroethyl Vinyl Ether	AVRG	0.140	19.1
4-Methyl-2-Pentanone	AVRG	0.136	7.7
Cis 1,3-dichloropropene	AVRG	0.566	7.2
Toluene	AVRG	0.918	3.2
Trans 1,3-Dichloropropene	AVRG	0.523	9.2
2-Hexanone	AVRG	0.274	6.4

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

TN00:00086

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 — Calibration Date: 09/21/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.302	4.2
1,3-Dichloropropane	AVRG	0.576	1.9
Tetrachloroethene	AVRG	0.408	1.8
Chlorodibromomethane	AVRG	0.326	13.3
1,2-Dibromoethane	AVRG	0.306	5.6
Chlorobenzene	AVRG	1.054	4.1
Ethyl Benzene	AVRG	0.571	3.4
1,1,1,2-Tetrachloroethane	AVRG	0.353	7.4
m,p-xylene	AVRG	0.694	2.7
o-Xylene	AVRG	0.681	2.9
Styrene	AVRG	1.127	8.1
Bromoform	AVRG	0.344	19.3
1,1,2,2-Tetrachloroethane	AVRG	0.685	6.4
1,2,3-Trichloropropane	AVRG	0.233	3.4
Trans-1,4-Dichloro 2-Butene	2ORDR		0.9976
N-Propyl Benzene	AVRG	3.527	4.5
Bromobenzene	AVRG	0.777	3.3
Isopropyl Benzene	AVRG	2.571	2.9
2-Chloro Toluene	AVRG	2.481	2.5
4-Chloro Toluene	AVRG	2.307	3.1
T-Butyl Benzene	AVRG	2.354	2.5
1,3,5-Trimethyl Benzene	AVRG	2.571	2.9
1,2,4-Trimethylbenzene	AVRG	2.442	7.4
S-Butyl Benzene	AVRG	3.237	4.8
4-Isopropyl Toluene	AVRG	2.649	8.8
1,3-Dichlorobenzene	AVRG	1.562	3.0
1,4-Dichlorobenzene	AVRG	1.625	2.8
N-Butyl Benzene	AVRG	2.046	14.2
1,2-Dichlorobenzene	AVRG	1.540	3.3
1,2-Dibromo 3-Chloropropane	AVRG	0.139	12.2
1,2,4-Trichlorobenzene	AVRG	0.947	11.4
Hexachloro 1,3-Butadiene	AVRG	0.568	3.0
Naphthalene	AVRG	1.904	10.1
1,2,3-Trichlorobenzene	AVRG	0.833	10.3
Dichlorodifluoromethane	AVRG	0.474	6.8
Methyl tert butyl ether	AVRG	1.451	4.3

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

TN00:00087

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 — Calibration Date: 09/21/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.581	0.9
d8-Toluene	AVRG	1.229	1.0
4-Bromofluorobenzene	AVRG	0.556	1.5
d4-1,2-Dichlorobenzene	AVRG	0.908	0.7
Dibromofluoromethane	AVRG	0.458	2.6

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

TN00:00088

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 — Cont. Calib. Date: 09/21/11

Init. Calib. Date: 07/27/11 — Cont. Calib. Time: 0855

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Chloromethane	10.000	10.543	0.100	LINR	5.4
Vinyl Chloride	0.384	0.3528	0.010	AVRG	-8.1
Bromomethane	0.246	0.2324	0.010	AVRG	-5.5
Chloroethane	0.237	0.2146	0.010	AVRG	-9.4
Trichlorofluoromethane	0.972	0.9913	0.010	AVRG	2.0
Acrolein	0.033	0.0303	0.010	AVRG	-8.2
112Trichloro122Trifluoroetha	0.444	0.4240	0.010	AVRG	-4.5
Acetone	0.056	0.0489	0.010	AVRG	-12.7
1,1-Dichloroethene	0.377	0.3766	0.010	AVRG	-0.1
Bromoethane	0.240	0.2370	0.010	AVRG	-1.2
Iodomethane	0.573	0.4921	0.010	AVRG	-14.1
Methylene Chloride	0.379	0.3484	0.010	AVRG	-8.1
Acrylonitrile	0.066	0.0676	0.010	AVRG	2.4
Carbon Disulfide	1.049	0.9808	0.010	AVRG	-6.5
Trans-1,2-Dichloroethene	0.452	0.4315	0.010	AVRG	-4.5
Vinyl Acetate	0.451	0.4325	0.010	AVRG	-4.1
1,1-Dichloroethane	0.714	0.6726	0.100	AVRG	-5.8
2-Butanone	0.081	0.0755	0.010	AVRG	-6.8
2,2-Dichloropropane	0.929	0.9488	0.010	AVRG	2.1
Cis-1,2-Dichloroethene	0.450	0.4126	0.010	AVRG	-8.3
Chloroform	0.909	0.8849	0.010	AVRG	-2.6
Bromochloromethane	0.209	0.2127	0.010	AVRG	1.8
1,1,1-Trichloroethane	1.020	1.0202	0.010	AVRG	0.0
1,1-Dichloropropene	0.474	0.4458	0.010	AVRG	-5.9
Carbon Tetrachloride	0.722	0.7128	0.010	AVRG	-1.3
1,2-Dichloroethane	0.556	0.5306	0.010	AVRG	-4.6
Benzene	1.197	1.1563	0.010	AVRG	-3.4
Trichloroethene	0.373	0.3559	0.010	AVRG	-4.6
1,2-Dichloropropane	0.233	0.2231	0.010	AVRG	-4.2
Bromodichloromethane	0.524	0.5080	0.010	AVRG	-3.0
Dibromomethane	0.183	0.1727	0.010	AVRG	-5.6
2-Chloroethyl Vinyl Ether	0.112	0.1079	0.010	AVRG	-3.7
4-Methyl-2-Pentanone	0.058	0.0562	0.010	AVRG	-3.1
Cis 1,3-dichloropropene	0.516	0.5221	0.010	AVRG	1.2
Toluene	0.851	0.8520	0.010	AVRG	0.1
Trans 1,3-Dichloropropene	0.524	0.5342	0.010	AVRG	1.9
2-Hexanone	0.106	0.1038	0.010	AVRG	-2.1

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

FORM VII VOA

TN00:00089

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 — Cont. Calib. Date: 09/21/11

Init. Calib. Date: 07/27/11 — Cont. Calib. Time: 0855

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.234	0.2259	0.010	AVRG	-3.5	
1,3-Dichloropropane	0.438	0.4065	0.010	AVRG	-7.2	
Tetrachloroethene	0.450	0.4315	0.010	AVRG	-4.1	
Chlorodibromomethane	0.393	0.3813	0.010	AVRG	-3.0	
1,2-Dibromoethane	0.252	0.2334	0.010	AVRG	-7.4	
Chlorobenzene	1.078	1.0625	0.300	AVRG	-1.4	
Ethyl Benzene	0.578	0.5836	0.010	AVRG	1.0	
1,1,1,2-Tetrachloroethane	0.445	0.4498	0.010	AVRG	1.1	
m,p-xylene	0.709	0.7255	0.010	AVRG	2.3	
o-Xylene	0.662	0.6936	0.010	AVRG	4.8	
Styrene	1.101	1.1331	0.010	AVRG	2.9	
Bromoform	0.420	0.4161	0.100	AVRG	-0.9	
1,1,2,2-Tetrachloroethane	10.000	9.575	0.300	LINR	-4.2	
1,2,3-Trichloropropane	0.221	0.1824	0.010	AVRG	-17.5	
Trans-1,4-Dichloro 2-Butene	10.000	9.288	0.010	2ORDR	-7.1	
N-Propyl Benzene	3.242	3.2580	0.010	AVRG	0.5	
Bromobenzene	0.845	0.8105	0.010	AVRG	-4.1	
Isopropyl Benzene	2.927	3.0401	0.010	AVRG	3.9	
2-Chloro Toluene	2.262	2.2173	0.010	AVRG	-2.0	
4-Chloro Toluene	2.509	2.4414	0.010	AVRG	-2.7	
T-Butyl Benzene	2.201	2.2160	0.010	AVRG	0.7	
1,3,5-Trimethyl Benzene	2.655	2.6918	0.010	AVRG	1.4	
1,2,4-Trimethylbenzene	2.716	2.7018	0.010	AVRG	-0.5	
S-Butyl Benzene	2.860	2.8260	0.010	AVRG	-1.2	
4-Isopropyl Toluene	2.525	2.5807	0.010	AVRG	2.2	
1,3-Dichlorobenzene	1.656	1.5027	0.010	AVRG	-9.2	
1,4-Dichlorobenzene	1.694	1.5410	0.010	AVRG	-9.0	
N-Butyl Benzene	2.061	1.9744	0.010	AVRG	-4.2	
1,2-Dichlorobenzene	1.489	1.3406	0.010	AVRG	-10.0	
1,2-Dibromo 3-Chloropropane	10.000	8.092	0.010	2ORDR	-19.1	
1,2,4-Trichlorobenzene	0.883	0.7558	0.010	AVRG	-14.4	
Hexachloro 1,3-Butadiene	0.486	0.3883	0.010	AVRG	-20.1	<-
Naphthalene	1.462	1.2831	0.010	AVRG	-12.2	
1,2,3-Trichlorobenzene	10.000	9.332	0.010	2ORDR	-6.7	
Dichlorodifluoromethane	0.569	0.4152	0.010	AVRG	-27.0	<-
Methyl tert butyl ether	1.259	1.2289	0.010	AVRG	-2.4	

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

FORM VII VOA

TN00 : 00099

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT5 — Cont. Calib. Date: 09/21/11

Init. Calib. Date: 07/27/11 — Cont. Calib. Time: 0855

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.577	0.6210	0.010	AVRG	7.6
d8-Toluene	1.118	1.1258	0.010	AVRG	0.7
4-Bromofluorobenzene	0.577	0.5841	0.010	AVRG	1.2
d4-1,2-Dichlorobenzene	0.877	0.8668	0.010	AVRG	-1.2
Dibromofluoromethane	0.415	0.4271	0.010	AVRG	2.9

<- 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 EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 — Cont. Calib. Date: 09/26/11

Init. Calib. Date: 09/21/11 — Cont. Calib. Time: 0939

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	0.811	0.6624	0.100	AVRG	-18.3	
Vinyl Chloride	0.641	0.6043	0.010	AVRG	-5.7	
Bromomethane	0.327	0.2645	0.010	AVRG	-19.1	
Chloroethane	0.391	0.3501	0.010	AVRG	-10.5	
Trichlorofluoromethane	0.722	0.7138	0.010	AVRG	-1.1	
Acrolein	0.063	0.0569	0.010	AVRG	-9.7	
112Trichloro122Trifluoroetha	0.470	0.4519	0.010	AVRG	-3.8	
Acetone	0.173	0.1353	0.010	AVRG	-21.8	<-
1,1-Dichloroethene	0.491	0.4429	0.010	AVRG	-9.8	
Bromoethane	0.322	0.2964	0.010	AVRG	-8.0	
Iodomethane	0.532	0.3701	0.010	AVRG	-30.4	<-
Methylene Chloride	0.542	0.4977	0.010	AVRG	-8.2	
Acrylonitrile	0.167	0.1518	0.010	AVRG	-9.1	
Carbon Disulfide	1.587	1.5028	0.010	AVRG	-5.3	
Trans-1,2-Dichloroethene	0.532	0.5005	0.010	AVRG	-5.9	
Vinyl Acetate	1.058	0.9871	0.010	AVRG	-6.7	
1,1-Dichloroethane	0.962	0.8756	0.100	AVRG	-9.0	
2-Butanone	0.253	0.2338	0.010	AVRG	-7.6	
2,2-Dichloropropane	0.820	0.7671	0.010	AVRG	-6.4	
Cis-1,2-Dichloroethene	0.563	0.5241	0.010	AVRG	-6.9	
Chloroform	0.943	0.8900	0.010	AVRG	-5.6	
Bromochloromethane	0.259	0.2441	0.010	AVRG	-5.8	
1,1,1-Trichloroethane	0.882	0.8295	0.010	AVRG	-6.0	
1,1-Dichloropropene	0.509	0.4885	0.010	AVRG	-4.0	
Carbon Tetrachloride	0.468	0.4581	0.010	AVRG	-2.1	
1,2-Dichloroethane	0.490	0.4422	0.010	AVRG	-9.8	
Benzene	1.426	1.3452	0.010	AVRG	-5.7	
Trichloroethene	0.366	0.3516	0.010	AVRG	-3.9	
1,2-Dichloropropane	0.360	0.3312	0.010	AVRG	-8.0	
Bromodichloromethane	0.459	0.4406	0.010	AVRG	-4.0	
Dibromomethane	0.197	0.1840	0.010	AVRG	-6.6	
2-Chloroethyl Vinyl Ether	0.140	0.1201	0.010	AVRG	-14.2	
4-Methyl-2-Pentanone	0.136	0.1282	0.010	AVRG	-5.7	
Cis 1,3-dichloropropene	0.566	0.5365	0.010	AVRG	-5.2	
Toluene	0.918	0.8681	0.010	AVRG	-5.4	
Trans 1,3-Dichloropropene	0.523	0.5003	0.010	AVRG	-4.3	
2-Hexanone	0.274	0.2542	0.010	AVRG	-7.2	

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

FORM VII VOA

TN00:00092

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 — Cont. Calib. Date: 09/26/11

Init. Calib. Date: 09/21/11 — Cont. Calib. Time: 0939

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.302	0.2814	0.010	AVRG	-6.8	
1,3-Dichloropropane	0.576	0.5226	0.010	AVRG	-9.3	
Tetrachloroethene	0.408	0.4040	0.010	AVRG	-1.0	
Chlorodibromomethane	0.326	0.3289	0.010	AVRG	0.9	
1,2-Dibromoethane	0.306	0.2876	0.010	AVRG	-6.0	
Chlorobenzene	1.054	0.9954	0.300	AVRG	-5.6	
Ethyl Benzene	0.571	0.5373	0.010	AVRG	-5.9	
1,1,1,2-Tetrachloroethane	0.353	0.3456	0.010	AVRG	-2.1	
m,p-xylene	0.694	0.6739	0.010	AVRG	-2.9	
o-Xylene	0.681	0.6435	0.010	AVRG	-5.5	
Styrene	1.127	1.1296	0.010	AVRG	0.2	
Bromoform	0.344	0.3439	0.100	AVRG	-0.0	
1,1,2,2-Tetrachloroethane	0.685	0.6328	0.300	AVRG	-7.6	
1,2,3-Trichloropropane	0.233	0.2092	0.010	AVRG	-10.2	
Trans-1,4-Dichloro 2-Butene	10.000	7.018	0.010	2ORDR	-29.8	<-
N-Propyl Benzene	3.527	3.3874	0.010	AVRG	-4.0	
Bromobenzene	0.777	0.7278	0.010	AVRG	-6.3	
Isopropyl Benzene	2.571	2.4754	0.010	AVRG	-3.7	
2-Chloro Toluene	2.481	2.2921	0.010	AVRG	-7.6	
4-Chloro Toluene	2.307	2.1471	0.010	AVRG	-6.9	
T-Butyl Benzene	2.354	2.2400	0.010	AVRG	-4.8	
1,3,5-Trimethyl Benzene	2.571	2.4754	0.010	AVRG	-3.7	
1,2,4-Trimethylbenzene	2.442	2.4454	0.010	AVRG	0.1	
S-Butyl Benzene	3.237	3.1945	0.010	AVRG	-1.3	
4-Isopropyl Toluene	2.649	2.7596	0.010	AVRG	4.2	
1,3-Dichlorobenzene	1.562	1.4829	0.010	AVRG	-5.1	
1,4-Dichlorobenzene	1.625	1.5263	0.010	AVRG	-6.1	
N-Butyl Benzene	2.046	2.1562	0.010	AVRG	5.4	
1,2-Dichlorobenzene	1.540	1.4386	0.010	AVRG	-6.6	
1,2-Dibromo 3-Chloropropane	0.139	0.1218	0.010	AVRG	-12.4	
1,2,4-Trichlorobenzene	0.947	0.9954	0.010	AVRG	5.1	
Hexachloro 1,3-Butadiene	0.568	0.5674	0.010	AVRG	-0.1	
Naphthalene	1.904	2.0082	0.010	AVRG	5.5	
1,2,3-Trichlorobenzene	0.833	0.8534	0.010	AVRG	2.4	
Dichlorodifluoromethane	0.474	0.4563	0.010	AVRG	-3.7	
Methyl tert butyl ether	1.451	1.3215	0.010	AVRG	-8.9	

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

FORM VII VOA

TN00:00099

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT2 — Cont. Calib. Date: 09/26/11

Init. Calib. Date: 09/21/11 — Cont. Calib. Time: 0939

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.581	0.5513	0.010	AVRG	-5.1
d8-Toluene	1.229	1.2170	0.010	AVRG	-1.0
4-Bromofluorobenzene	0.556	0.5536	0.010	AVRG	-0.4
d4-1,2-Dichlorobenzene	0.908	0.9103	0.010	AVRG	0.2
Dibromofluoromethane	0.458	0.4536	0.010	AVRG	-1.0

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

FORM VII VOA

TN00:00094

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIGA

Ical Midpoint ID: 1000727 — Ical Date: 07/27/11

Instrument ID: NT5 — Project Run Date: 09/21/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	319331	4.77	421917	5.21	402459	7.67
	UPPER LIMIT	638662	5.27	843834	5.71	804918	8.17
	LOWER LIMIT	159666	4.27	210958	4.71	201230	7.17
	Sample ID						
01	LCS0921	333608	4.77	454880	5.21	420554	7.67
02	LCS0921	316220	4.77	427131	5.21	395480	7.67
03	MB0921	297550	4.77	419779	5.21	387163	7.66
04	FRP-091911-0	243958	4.77	318525	5.21	289593	7.66
05	FRP-091911-0	259731	4.77	365931	5.21	382933	7.66
06	FRP-091911-0	292481	4.85	462562	5.28	394770	7.75
07	FRP-091911-0	293301	4.77	385524	5.21	364245	7.66
08	FRP-091911-0	265354	4.77	356334	5.21	338365	7.66
09	TRIP BLANKS	258822	4.77	347379	5.21	328343	7.66
10	FRP-092011-0	264434	4.77	356649	5.21	320607	7.67
11	FRP-092011-0	258738	4.77	345053	5.21	317057	7.67
12	TRIP BLANKS	255052	4.77	337989	5.21	315968	7.66
13							
14							
15							
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 EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIGA

Ical Midpoint ID: 1000727 — Ical Date: 07/27/11

Instrument ID: NT5 — Project Run Date: 09/21/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	245371	9.72				
	UPPER LIMIT	490742	10.22				
	LOWER LIMIT	122686	9.22				
	Sample ID						
01	LCS0921	251539	9.72				
02	LCS0921	223163	9.72				
03	MB0921	200860	9.72				
04	FRP-091911-0	152885	9.72				
05	FRP-091911-0	206198	9.72				
06	FRP-091911-0	152847	9.76				
07	FRP-091911-0	214077	9.72				
08	FRP-091911-0	186056	9.72				
09	TRIP BLANKS	174317	9.72				
10	FRP-092011-0	179204	9.72				
11	FRP-092011-0	173682	9.72				
12	TRIP BLANKS	167717	9.72				
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIGA

Ical Midpoint ID: 10_00921 — Ical Date: 09/21/11

Instrument ID: NT2 — Project Run Date: 09/26/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	331438	5.46	505777	5.86	491374	7.92
	UPPER LIMIT	662876	5.96	1011554	6.36	982748	8.42
	LOWER LIMIT	165719	4.96	252888	5.36	245687	7.42
	Sample ID						
01	LCS0926	302141	5.46	463384	5.86	458683	7.92
02	LCS0926	294107	5.46	447017	5.86	452687	7.92
03	MB0926	310738	5.46	468089	5.86	469380	7.92
04	TRIP BLANKS	306553	5.46	459320	5.86	459420	7.92
05	FRP-091911-0	321519	5.46	480140	5.86	472582	7.92
06	FRP-091911-0	312530	5.46	469646	5.85	462564	7.92
07	FRP-091911-0	318130	5.46	478761	5.85	472117	7.92
08	FRP-091911-0	312866	5.46	470323	5.85	465816	7.92
09	FRP-092011-0	305691	5.46	455665	5.86	454285	7.92
10	FRP-092011-0	297479	5.46	445846	5.86	448317	7.92
11	FRP-092011-0	304173	5.46	455255	5.86	455236	7.92
12	FRP-092111-0	317417	5.46	475118	5.85	466598	7.92
13	FRP-092111-0	321297	5.46	479180	5.85	472408	7.92
14	FRP-092111-0	318994	5.46	480834	5.85	469531	7.92
15	FRP-092111-0	324022	5.46	490358	5.85	479960	7.92
16	FRP-092111-0	319766	5.46	483678	5.85	474939	7.92
17	FRP-092111-0	299278	5.46	446469	5.86	445768	7.92
18	FRP-091911-0	315458	5.46	478667	5.85	464572	7.92
19	FRP-091911-0	324929	5.46	492284	5.85	477416	7.92
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 EARTH AND ENVIRONMENTAL

ARI Job No: TN42 — Project: 2011 FRP SHORELINE INVESTIGA

Ical Midpoint ID: 10_00921 — Ical Date: 09/21/11

Instrument ID: NT2 — Project Run Date: 09/26/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	306350	9.62				
	UPPER LIMIT	612700	10.12				
	LOWER LIMIT	153175	9.12				
	Sample ID						
01	LCS0926	286825	9.61				
02	LCS0926	286948	9.61				
03	MB0926	284610	9.61				
04	TRIP BLANKS	282436	9.61				
05	FRP-091911-0	286008	9.61				
06	FRP-091911-0	277671	9.61				
07	FRP-091911-0	278594	9.61				
08	FRP-091911-0	277588	9.61				
09	FRP-092011-0	266535	9.61				
10	FRP-092011-0	273338	9.61				
11	FRP-092011-0	277228	9.61				
12	FRP-092111-0	278502	9.61				
13	FRP-092111-0	275481	9.61				
14	FRP-092111-0	270111	9.61				
15	FRP-092111-0	277630	9.61				
16	FRP-092111-0	279134	9.61				
17	FRP-092111-0	275086	9.61				
18	FRP-091911-0	284602	9.61				
19	FRP-091911-0	279507	9.61				
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-091911-001**
 SAMPLE

Lab Sample ID: TN00A
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/04/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Instrument/Analyst: NT9/PAB
Date Analyzed: 09/30/11 19:35

Sample Amount: 4.14 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.0%

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 U
75-01-4	Vinyl Chloride	0.28	1.2	< 1.2 U
75-00-3	Chloroethane	0.56	1.2	< 1.2 U
75-09-2	**Methylene Chloride**	**0.77**	**2.4**	**2.5**
67-64-1	**Acetone**	**0.58**	**6.0**	**64**
75-15-0	**Carbon Disulfide**	**0.68**	**1.2**	**2.7** ~~Q~~ J
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	0.32	1.2	< 1.2 U
156-59-2	cis-1,2-Dichloroethene	0.29	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**	**0.62**	**6.0**	**9.8**
71-55-6	1,1,1-Trichloroethane	0.27	1.2	< 1.2 U
56-23-5	Carbon Tetrachloride	0.26	1.2	< 1.2 U
108-05-4	Vinyl Acetate	0.46	6.0	< 6.0 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	0.27	1.2	< 1.2 U
79-01-6	Trichloroethene	0.26	1.2	< 1.2 U
124-48-1	Dibromochloromethane	0.32	1.2	< 1.2 U
79-00-5	1,1,2-Trichloroethane	0.35	1.2	< 1.2 U
71-43-2	Benzene	0.36	1.2	< 1.2 U
10061-02-6	trans-1,3-Dichloropropene	0.26	1.2	< 1.2 U
110-75-8	2-Chloroethylvinylether	0.33	6.0	< 6.0 U
75-25-2	Bromoform	0.36	1.2	< 1.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.51	6.0	< 6.0 U
591-78-6	2-Hexanone	0.53	6.0	< 6.0 U
127-18-4	Tetrachloroethene	0.31	1.2	< 1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.31	1.2	< 1.2 U
108-88-3	**Toluene**	**0.18**	**1.2**	**51**
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	0.17	1.2	< 1.2 U
75-69-4	Trichlorofluoromethane	0.32	1.2	< 1.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.35	2.4	< 2.4 U
179601-23-1	m,p-Xylene	0.47	1.2	< 1.2 U
95-47-6	o-Xylene	0.27	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	0.28	1.2	< 1.2 U
107-02-8	Acrolein	4.6	60	< 60 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091911-001**
 SAMPLE

Lab Sample ID: TN00A
LIMS ID: 11-20445
Matrix: Soil
Date Analyzed: 09/30/11 19:35

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
74-88-4	Methyl Iodide	0.26	1.2	< 1.2 U
74-96-4	Bromoethane	0.53	2.4	< 2.4 U
107-13-1	Acrylonitrile	1.2	6.0	< 6.0 U
563-58-6	1,1-Dichloropropene	0.38	1.2	< 1.2 U
74-95-3	Dibromomethane	0.18	1.2	< 1.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.28	1.2	< 1.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.71	6.0	< 6.0 U
96-18-4	1,2,3-Trichloropropane	0.62	2.4	< 2.4 U
110-57-6	trans-1,4-Dichloro-2-butene	0.53	6.0	< 6.0 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	0.50	6.0	< 6.0 U
106-93-4	Ethylene Dibromide	0.21	1.2	< 1.2 U
74-97-5	Bromochloromethane	0.39	1.2	< 1.2 U
594-20-7	2,2-Dichloropropane	0.35	1.2	< 1.2 U
142-28-9	1,3-Dichloropropane	0.25	1.2	< 1.2 U
98-82-8	Isopropylbenzene	0.28	1.2	< 1.2 U
103-65-1	n-Propylbenzene	0.33	1.2	< 1.2 U
108-86-1	Bromobenzene	0.18	1.2	< 1.2 U
95-49-8	2-Chlorotoluene	0.36	1.2	< 1.2 U
106-43-4	4-Chlorotoluene	0.33	1.2	< 1.2 U
98-06-6	tert-Butylbenzene	0.37	1.2	< 1.2 U
135-98-8	sec-Butylbenzene	0.29	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	0.40	6.0	< 6.0 U
91-20-3	Naphthalene	0.52	6.0	< 6.0 U
87-61-6	1,2,3-Trichlorobenzene	0.37	6.0	< 6.0 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	126%
d8-Toluene	101%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	104%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-093011	Method Blank	Low	113%	100%	98.8%	101%	0
LCS-093011	Lab Control	Low	112%	101%	101%	102%	0
LCSD-093011	Lab Control Dup	Low	112%	101%	101%	101%	0
TN00A	FRP-091911-001	Low	126%	101%	100%	104%	0

SW8260C	LCS/MB LIMITS Low	LCS/MB LIMITS Med	QC LIMITS Low	QC LIMITS 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: 11-20445 to 11-20445

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-093011**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-093011
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/04/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 09/30/11 14:45
LCSD: 09/30/11 16:58

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	48.1	50.0	96.2%	52.7	50.0	105%	9.1%
Bromomethane	45.0	50.0	90.0%	47.9	50.0	95.8%	6.2%
Vinyl Chloride	49.7	50.0	99.4%	55.2	50.0	110%	10.5%
Chloroethane	46.4	50.0	92.8%	49.9	50.0	99.8%	7.3%
Methylene Chloride	47.4	50.0	94.8%	51.1	50.0	102%	7.5%
Acetone	211	250	84.4%	197	250	78.8%	6.9%
Carbon Disulfide	52.1 Q	50.0	104%	58.1 Q	50.0	116%	10.9%
1,1-Dichloroethene	50.7	50.0	101%	56.8	50.0	114%	11.3%
1,1-Dichloroethane	48.5	50.0	97.0%	52.4	50.0	105%	7.7%
trans-1,2-Dichloroethene	49.0	50.0	98.0%	54.4	50.0	109%	10.4%
cis-1,2-Dichloroethene	51.0	50.0	102%	54.3	50.0	109%	6.3%
Chloroform	49.8	50.0	99.6%	53.3	50.0	107%	6.8%
1,2-Dichloroethane	42.1	50.0	84.2%	42.6	50.0	85.2%	1.2%
2-Butanone	267	250	107%	251	250	100%	6.2%
1,1,1-Trichloroethane	51.7	50.0	103%	57.5	50.0	115%	10.6%
Carbon Tetrachloride	48.0	50.0	96.0%	53.3	50.0	107%	10.5%
Vinyl Acetate	47.4	50.0	94.8%	46.0	50.0	92.0%	3.0%
Bromodichloromethane	45.8	50.0	91.6%	47.1	50.0	94.2%	2.8%
1,2-Dichloropropane	42.9	50.0	85.8%	44.6	50.0	89.2%	3.9%
cis-1,3-Dichloropropene	46.6	50.0	93.2%	48.0	50.0	96.0%	3.0%
Trichloroethene	45.2	50.0	90.4%	49.4	50.0	98.8%	8.9%
Dibromochloromethane	47.2	50.0	94.4%	46.9	50.0	93.8%	0.6%
1,1,2-Trichloroethane	44.1	50.0	88.2%	44.0	50.0	88.0%	0.2%
Benzene	43.6	50.0	87.2%	47.0	50.0	94.0%	7.5%
trans-1,3-Dichloropropene	47.1	50.0	94.2%	47.3	50.0	94.6%	0.4%
2-Chloroethylvinylether	43.3	50.0	86.6%	41.6	50.0	83.2%	4.0%
Bromoform	47.5	50.0	95.0%	45.6	50.0	91.2%	4.1%
4-Methyl-2-Pentanone (MIBK)	224	250	89.6%	210	250	84.0%	6.5%
2-Hexanone	214	250	85.6%	200	250	80.0%	6.8%
Tetrachloroethene	45.9	50.0	91.8%	51.0	50.0	102%	10.5%
1,1,2,2-Tetrachloroethane	41.2	50.0	82.4%	39.6	50.0	79.2%	4.0%
Toluene	43.7	50.0	87.4%	47.3	50.0	94.6%	7.9%
Chlorobenzene	43.1	50.0	86.2%	46.0	50.0	92.0%	6.5%
Ethylbenzene	43.8	50.0	87.6%	47.8	50.0	95.6%	8.7%
Styrene	47.4	50.0	94.8%	50.2	50.0	100%	5.7%
Trichlorofluoromethane	55.1 Q	50.0	110%	69.2 Q	50.0	138%	22.7%
1,1,2-Trichloro-1,2,2-trifluoroetha	52.1 Q	50.0	104%	59.3 Q	50.0	119%	12.9%
m,p-Xylene	91.1	100	91.1%	99.3	100	99.3%	8.6%
o-Xylene	45.7	50.0	91.4%	49.1	50.0	98.2%	7.2%
1,2-Dichlorobenzene	43.6	50.0	87.2%	44.9	50.0	89.8%	2.9%
1,3-Dichlorobenzene	45.2	50.0	90.4%	47.7	50.0	95.4%	5.4%
1,4-Dichlorobenzene	44.8	50.0	89.6%	47.0	50.0	94.0%	4.8%
Acrolein	242	250	96.8%	228	250	91.2%	6.0%
Methyl Iodide	52.2 Q	50.0	104%	59.6 Q	50.0	119%	13.2%
Bromoethane	48.7	50.0	97.4%	53.3	50.0	107%	9.0%
Acrylonitrile	46.8	50.0	93.6%	44.1	50.0	88.2%	5.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-093011**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-093011
LIMS ID: 11-20445
Matrix: Soil

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,1-Dichloropropene	45.4	50.0	90.8%	50.2	50.0	100%	10.0%
Dibromomethane	43.5	50.0	87.0%	43.6	50.0	87.2%	0.2%
1,1,1,2-Tetrachloroethane	46.1	50.0	92.2%	48.0	50.0	96.0%	4.0%
1,2-Dibromo-3-chloropropane	42.2	50.0	84.4%	38.5	50.0	77.0%	9.2%
1,2,3-Trichloropropane	41.4	50.0	82.8%	39.6	50.0	79.2%	4.4%
trans-1,4-Dichloro-2-butene	42.8	50.0	85.6%	40.6	50.0	81.2%	5.3%
1,3,5-Trimethylbenzene	45.6	50.0	91.2%	49.1	50.0	98.2%	7.4%
1,2,4-Trimethylbenzene	46.1	50.0	92.2%	49.3	50.0	98.6%	6.7%
Hexachlorobutadiene	46.9	50.0	93.8%	50.4	50.0	101%	7.2%
Ethylene Dibromide	45.3	50.0	90.6%	44.6	50.0	89.2%	1.6%
Bromochloromethane	50.8	50.0	102%	51.5	50.0	103%	1.4%
2,2-Dichloropropane	53.1 Q	50.0	106%	58.6 Q	50.0	117%	9.8%
1,3-Dichloropropane	42.0	50.0	84.0%	42.1	50.0	84.2%	0.2%
Isopropylbenzene	44.6	50.0	89.2%	48.9	50.0	97.8%	9.2%
n-Propylbenzene	44.5	50.0	89.0%	48.5	50.0	97.0%	8.6%
Bromobenzene	43.6	50.0	87.2%	44.9	50.0	89.8%	2.9%
2-Chlorotoluene	44.0	50.0	88.0%	46.4	50.0	92.8%	5.3%
4-Chlorotoluene	44.9	50.0	89.8%	47.5	50.0	95.0%	5.6%
tert-Butylbenzene	44.7	50.0	89.4%	48.6	50.0	97.2%	8.4%
sec-Butylbenzene	45.1	50.0	90.2%	49.1	50.0	98.2%	8.5%
4-Isopropyltoluene	47.3	50.0	94.6%	51.6	50.0	103%	8.7%
n-Butylbenzene	47.8	50.0	95.6%	52.2	50.0	104%	8.8%
1,2,4-Trichlorobenzene	51.4	50.0	103%	52.0	50.0	104%	1.2%
Naphthalene	46.6	50.0	93.2%	43.8	50.0	87.6%	6.2%
1,2,3-Trichlorobenzene	49.2	50.0	98.4%	48.5	50.0	97.0%	1.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	112%	112%
d8-Toluene	101%	101%
Bromofluorobenzene	101%	101%
d4-1,2-Dichlorobenzene	102%	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0930

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC

ARI Job No: TN00

Project: 2011 FRP SHORELINE INVE

Lab File ID: MB0930

Lab Sample ID: MB0930

Date Analyzed: 09/30/11

Time Analyzed: 1527

Instrument ID: NT9

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	LCS0930	LCS0930	LCS0930	1445
02	LCS0930	LCS0930	LCS0930B	1658
03	FRP-091911-0	TN00A	TN00A	1935
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
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20				
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25				
26				
27				
28				
29				
30				

COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-093011**
 METHOD BLANK

Lab Sample ID: MB-093011
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/04/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 09/30/11 15:27

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
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	< 1.0 U
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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-093011**
 METHOD BLANK

Lab Sample ID: MB-093011
LIMS ID: 11-20445
Matrix: Soil
Date Analyzed: 09/30/11 15:27

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

CAS Number	Analyte	MDL	RL	Result
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
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	113%
d8-Toluene	100%
Bromofluorobenzene	98.8%
d4-1,2-Dichlorobenzene	101%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC

Lab Code: ARI Case No.: 2011 FRP SHORELINE INVESTIGATION SDG No.: TN00

Lab File ID: BFB0928 BFB Injection Date: 09/28/11

Instrument ID: NT9 BFB Injection Time: 1342

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	14.3
75	30.0 - 66.0% of mass 95	45.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.4 (0.6)1
174	50.0 - 101.0% of mass 95	70.9
175	4.0 - 9.0% of mass 174	5.0 (7.1)1
176	93.0 - 101.0% of mass 174	68.1 (96.1)1
177	5.0 - 9.0% of mass 176	4.4 (6.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD10	IC0928	0100928	09/28/11	1501
02	VSTD5	IC0928	0050928	09/28/11	1522
03	VSTD7.5	IC0928	00750928	09/28/11	1728
04	VSTD1	IC0928	0010928	09/28/11	1833
05	VSTD2	IC0928	0020928	09/28/11	2011
06	VSTD100	IC0928	1000928	09/28/11	2100
07	VSTD125	IC0928	1250928	09/28/11	2135
08	VSTD150	IC0928	1500928	09/28/11	2209
09	VSTD75	IC0928	0750928	09/28/11	2230
10	VSTD50	IC0928	0500928	09/28/11	2252
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FORM V VOA OLM3.2M

TN00:00107

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC

Lab Code: ARI Case No.: 2011 FRP SHORELINE INVESTIGATION SDG No.: TN00

Lab File ID: BFB0930 BFB Injection Date: 09/30/11

Instrument ID: NT9 BFB Injection Time: 1210

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	13.6
75	30.0 - 66.0% of mass 95	44.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.4 (0.6)1
174	50.0 - 101.0% of mass 95	74.5
175	4.0 - 9.0% of mass 174	5.2 (6.9)1
176	93.0 - 101.0% of mass 174	72.1 (96.8)1
177	5.0 - 9.0% of mass 176	4.7 (6.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	CC0930	0500930A	09/30/11	1413
02	LCS0930	LCS0930	LCS0930	09/30/11	1445
03	MB0930	MB0930	MB0930	09/30/11	1527
04	LCS0930	LCS0930	LCS0930B	09/30/11	1658
05	FRP-091911-001	TN00A	TN00A	09/30/11	1935
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FORM V VOA OLM3.2M

TN00:00198

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

LAB FILE ID: RF1: 0010928 RF2: 0020928 RF5: 0050928
RF7.5: 00750928 RF10: 0100928

COMPOUND	RF1	RF2	RF5	RF7.5	RF10
Chloromethane	0.372	0.364	0.404	0.418	0.385
Vinyl Chloride	0.310	0.398	0.395	0.429	0.377
Bromomethane	0.343	0.355	0.347	0.353	0.325
Chloroethane	0.152	0.145	0.091	0.092	0.081
Trichlorofluoromethane	0.159	0.155	0.139	0.110	0.092
Acrolein	0.035	0.038	0.036	0.039	0.034
112Trichloro122Trifluoroetha	0.268	0.324	0.291	0.318	0.256
Acetone	0.060	0.066	0.052	0.054	0.049
1,1-Dichloroethene	0.277	0.322	0.297	0.322	0.273
Bromoethane	0.217	0.258	0.246	0.264	0.227
Iodomethane	0.386	0.357	0.309	0.342	0.278
Methylene Chloride		0.803	0.534	0.420	0.402
Acrylonitrile		0.074	0.081	0.085	0.077
Carbon Disulfide	0.858	0.996	0.994	1.061	0.902
Trans-1,2-Dichloroethene	0.348	0.400	0.365	0.402	0.338
Vinyl Acetate			0.433	0.466	0.434
1,1-Dichloroethane	0.588	0.681	0.668	0.720	0.633
2-Butanone	0.030	0.032	0.030	0.033	0.030
2,2-Dichloropropane	0.488	0.572	0.556	0.601	0.511
Cis-1,2-Dichloroethene	0.371	0.417	0.429	0.462	0.409
Chloroform	0.580	0.661	0.654	0.713	0.627
Bromochloromethane	0.172	0.182	0.186	0.203	0.184
1,1,1-Trichloroethane	0.504	0.580	0.569	0.620	0.528
1,1-Dichloropropene	0.282	0.320	0.312	0.340	0.286
Carbon Tetrachloride	0.212	0.262	0.256	0.281	0.239
1,2-Dichloroethane	0.229	0.248	0.245	0.270	0.242
Benzene	0.849	0.986	0.975	1.072	0.937
Trichloroethene	0.197	0.274	0.245	0.263	0.228
1,2-Dichloropropane	0.186	0.209	0.215	0.237	0.209
Bromodichloromethane	0.209	0.237	0.249	0.278	0.249
Dibromomethane	0.095	0.104	0.108	0.117	0.104
2-Chloroethyl Vinyl Ether			0.091	0.104	0.096
4-Methyl-2-Pentanone	0.040	0.047	0.051	0.058	0.053
Cis 1,3-dichloropropene	0.264	0.294	0.328	0.366	0.324
Toluene	0.613	0.728	0.656	0.717	0.622
Trans 1,3-Dichloropropene	0.212	0.249	0.276	0.315	0.277
2-Hexanone	0.067	0.077	0.084	0.096	0.087

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

LAB FILE ID: RF1: 0010928 RF2: 0020928 RF5: 0050928
RF7.5: 00750928 RF10: 0100928

COMPOUND	RF1	RF2	RF5	RF7.5	RF10
1,1,2-Trichloroethane	0.144	0.163	0.167	0.185	0.164
1,3-Dichloropropane	0.286	0.334	0.336	0.379	0.332
Tetrachloroethene	0.262	0.317	0.282	0.319	0.250
Chlorodibromomethane	0.137	0.156	0.173	0.201	0.181
1,2-Dibromoethane	0.129	0.150	0.155	0.173	0.156
Chlorobenzene	0.748	0.841	0.794	0.888	0.738
Ethyl Benzene	1.222	1.462	1.354	1.528	1.258
1,1,1,2-Tetrachloroethane	0.184	0.206	0.222	0.254	0.222
m,p-xylene	0.455	0.548	0.530	0.597	0.488
o-Xylene	0.400	0.466	0.484	0.549	0.463
Styrene	0.589	0.705	0.765	0.877	0.734
Bromoform	0.131	0.164	0.177	0.222	0.191
1,1,2,2-Tetrachloroethane	0.350	0.404	0.416	0.497	0.424
1,2,3-Trichloropropane		0.138	0.139	0.166	0.142
Trans-1,4-Dichloro 2-Butene			0.105	0.131	0.103
N-Propyl Benzene	2.693	3.265	3.076	3.684	2.817
Bromobenzene	0.561	0.644	0.624	0.745	0.587
Isopropyl Benzene	2.105	2.682	2.631	3.171	2.491
2-Chloro Toluene	1.653	1.965	1.921	2.282	1.765
4-Chloro Toluene	1.724	2.010	1.956	2.338	1.765
T-Butyl Benzene	1.573	1.933	1.956	2.334	1.832
1,3,5-Trimethyl Benzene	1.789	2.228	2.230	2.689	2.074
1,2,4-Trimethylbenzene	1.751	2.163	2.199	2.681	2.058
S-Butyl Benzene	2.332	2.995	2.913	3.509	2.688
4-Isopropyl Toluene	1.844	2.325	2.335	2.838	2.104
1,3-Dichlorobenzene	1.178	1.337	1.269	1.512	1.102
1,4-Dichlorobenzene	1.254	1.413	1.283	1.536	1.111
N-Butyl Benzene	1.754	2.226	2.085	2.546	1.809
1,2-Dichlorobenzene	1.106	1.230	1.168	1.385	1.046
1,2-Dibromo 3-Chloropropane			0.058	0.071	0.059
1,2,4-Trichlorobenzene	0.674	0.754	0.705	0.872	0.546
Hexachloro 1,3-Butadiene	0.275	0.324	0.312	0.376	0.262
Naphthalene	1.300	1.402	1.386	1.747	1.318
1,2,3-Trichlorobenzene	0.593	0.648	0.624	0.778	0.522
Dichlorodifluoromethane	0.234	0.266	0.317	0.342	0.309
Methyl tert butyl ether	0.800	0.832	0.859	0.934	0.844

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

LAB FILE ID: RF1: 0010928 RF2: 0020928 RF5: 0050928
RF7.5: 00750928 RF10: 0100928

COMPOUND	RF1	RF2	RF5	RF7.5	RF10
d4-1,2-Dichloroethane	0.459	0.440	0.440	0.442	0.443
d8-Toluene	1.176	1.165	1.175	1.164	1.175
4-Bromofluorobenzene	0.471	0.463	0.473	0.465	0.470
d4-1,2-Dichlorobenzene	0.876	0.877	0.873	0.890	0.873
Dibromofluoromethane	0.441	0.429	0.440	0.435	0.437

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

LAB FILE ID: RF50: 0500928 RF75: 0750928 RF100: 1000928
RF125: 1250928 RF150: 1500928

COMPOUND	RF50	RF75	RF100	RF125	RF150
Chloromethane	0.419	0.413	0.398	0.436	0.405
Vinyl Chloride	0.417	0.418	0.397	0.435	0.407
Bromomethane	0.322	0.301	0.252	0.280	0.271
Chloroethane	0.145				
Trichlorofluoromethane	0.142				
Acrolein	0.038	0.035	0.033	0.038	0.037
112Trichloro122Trifluoroetha	0.278	0.298	0.270	0.258	0.249
Acetone	0.049	0.046	0.044	0.048	0.046
1,1-Dichloroethene	0.290	0.299	0.272		
Bromoethane	0.247	0.242	0.226	0.255	0.240
Iodomethane	0.379	0.399	0.449	0.485	0.438
Methylene Chloride	0.365	0.353	0.335	0.380	0.358
Acrylonitrile	0.085	0.077	0.075	0.087	0.083
Carbon Disulfide	0.983	1.016	0.923		
Trans-1,2-Dichloroethene	0.366	0.366	0.335	0.378	0.352
Vinyl Acetate	0.512	0.475	0.455	0.535	0.516
1,1-Dichloroethane	0.693	0.676	0.637	0.726	0.686
2-Butanone	0.033	0.035	0.031	0.034	0.033
2,2-Dichloropropane	0.572	0.604	0.513	0.594	0.558
Cis-1,2-Dichloroethene	0.456	0.443	0.415	0.474	0.449
Chloroform	0.694	0.673	0.632	0.727	0.687
Bromochloromethane	0.202	0.192	0.182	0.209	0.201
1,1,1-Trichloroethane	0.596	0.605	0.556	0.635	0.598
1,1-Dichloropropene	0.312	0.324	0.293	0.329	0.309
Carbon Tetrachloride	0.269	0.285	0.254	0.292	0.275
1,2-Dichloroethane	0.256	0.241	0.234	0.265	0.255
Benzene	1.002	0.988	0.939	1.055	0.996
Trichloroethene	0.244	0.245	0.221	0.250	0.236
1,2-Dichloropropane	0.224	0.215	0.208	0.234	0.223
Bromodichloromethane	0.281	0.274	0.261	0.300	0.290
Dibromomethane	0.113	0.107	0.103	0.117	0.112
2-Chloroethyl Vinyl Ether	0.115	0.111	0.106	0.123	0.119
4-Methyl-2-Pentanone	0.060	0.055	0.055	0.061	0.059
Cis 1,3-dichloropropene	0.370	0.365	0.332	0.384	0.368
Toluene	0.646	0.643	0.598	0.668	0.625
Trans 1,3-Dichloropropene	0.316	0.311	0.284	0.327	0.311
2-Hexanone	0.101	0.095	0.095	0.106	0.103

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

LAB FILE ID: RF50: 0500928 RF75: 0750928 RF100: 1000928
RF125: 1250928 RF150: 1500928

COMPOUND	RF50	RF75	RF100	RF125	RF150
1,1,2-Trichloroethane	0.179	0.169	0.165	0.188	0.180
1,3-Dichloropropane	0.363	0.342	0.339	0.386	0.368
Tetrachloroethene	0.266	0.280	0.246	0.277	0.255
Chlorodibromomethane	0.216	0.209	0.204	0.238	0.229
1,2-Dibromoethane	0.171	0.164	0.158	0.180	0.174
Chlorobenzene	0.786	0.768	0.720	0.813	0.754
Ethyl Benzene	1.354	1.369	1.277	1.441	1.323
1,1,1,2-Tetrachloroethane	0.254	0.246	0.239	0.273	0.258
m,p-xylene	0.526	0.530	0.484	0.535	0.486
o-Xylene	0.518	0.513	0.482	0.544	0.504
Styrene	0.856	0.858	0.798	0.908	0.836
Bromoform	0.229	0.226	0.225	0.262	0.250
1,1,2,2-Tetrachloroethane	0.438	0.417	0.424	0.473	0.451
1,2,3-Trichloropropane	0.147	0.135	0.137	0.153	0.144
Trans-1,4-Dichloro 2-Butene	0.113	0.115	0.104	0.122	0.115
N-Propyl Benzene	2.999	3.155	2.831	3.182	2.882
Bromobenzene	0.624	0.612	0.575	0.648	0.599
Isopropyl Benzene	2.695	2.771	2.578	2.886	2.642
2-Chloro Toluene	1.890	1.907	1.795	2.020	1.812
4-Chloro Toluene	1.894	1.974	1.730	1.975	1.796
T-Butyl Benzene	1.991	2.027	1.928	2.125	1.928
1,3,5-Trimethyl Benzene	2.240	2.328	2.106	2.355	2.136
1,2,4-Trimethylbenzene	2.235	2.336	2.078	2.351	2.136
S-Butyl Benzene	2.893	3.034	2.797	3.080	2.780
4-Isopropyl Toluene	2.338	2.494	2.192	2.440	2.191
1,3-Dichlorobenzene	1.182	1.237	1.054	1.206	1.090
1,4-Dichlorobenzene	1.176	1.231	1.036	1.183	1.074
N-Butyl Benzene	2.011	2.228	1.827	2.061	1.855
1,2-Dichlorobenzene	1.104	1.111	0.997	1.130	1.036
1,2-Dibromo 3-Chloropropane	0.070	0.067	0.068	0.079	0.076
1,2,4-Trichlorobenzene	0.621	0.728	0.504	0.626	0.559
Hexachloro 1,3-Butadiene	0.284	0.310	0.261	0.293	0.261
Naphthalene	1.575	1.572	1.390	1.715	1.594
1,2,3-Trichlorobenzene	0.588	0.637	0.491	0.612	0.554
Dichlorodifluoromethane	0.374	0.376	0.358	0.393	0.361
Methyl tert butyl ether	0.942	0.880	0.837	0.971	0.938

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

LAB FILE ID: RF50: 0500928 RF75: 0750928 RF100: 1000928
RF125: 1250928 RF150: 1500928

COMPOUND	RF50	RF75	RF100	RF125	RF150
d4-1,2-Dichloroethane	0.447	0.451	0.445	0.445	0.454
d8-Toluene	1.184	1.184	1.177	1.179	1.176
4-Bromofluorobenzene	0.480	0.486	0.479	0.481	0.487
d4-1,2-Dichlorobenzene	0.858	0.874	0.870	0.855	0.859
Dibromofluoromethane	0.451	0.455	0.448	0.448	0.452

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	0.401	5.5
Vinyl Chloride	AVRG	0.398	8.9
Bromomethane	AVRG	0.315	11.7
Chloroethane	2ORDR		0.9984
Trichlorofluoromethane	AVRG	0.133	20.0
Acrolein	AVRG	0.036	5.7
112Trichloro122Trifluoroetha	AVRG	0.281	9.3
Acetone	AVRG	0.051	13.8
1,1-Dichloroethene	AVRG	0.294	6.8
Bromoethane	AVRG	0.242	6.2
Iodomethane	AVRG	0.382	16.7
Methylene Chloride	LINR		0.9956
Acrylonitrile	AVRG	0.080	5.8
Carbon Disulfide	AVRG	0.966	6.9
Trans-1,2-Dichloroethene	AVRG	0.365	6.4
Vinyl Acetate	AVRG	0.478	8.1
1,1-Dichloroethane	AVRG	0.671	6.2
2-Butanone	AVRG	0.032	5.6
2,2-Dichloropropane	AVRG	0.557	7.3
Cis-1,2-Dichloroethene	AVRG	0.432	7.1
Chloroform	AVRG	0.665	6.6
Bromochloromethane	AVRG	0.191	6.2
1,1,1-Trichloroethane	AVRG	0.579	7.0
1,1-Dichloropropene	AVRG	0.311	6.1
Carbon Tetrachloride	AVRG	0.262	9.1
1,2-Dichloroethane	AVRG	0.248	5.4
Benzene	AVRG	0.980	6.4
Trichloroethene	AVRG	0.240	9.0
1,2-Dichloropropane	AVRG	0.216	6.8
Bromodichloromethane	AVRG	0.263	10.4
Dibromomethane	AVRG	0.108	6.4
2-Chloroethyl Vinyl Ether	AVRG	0.108	10.1
4-Methyl-2-Pentanone	AVRG	0.054	11.8
Cis 1,3-dichloropropene	AVRG	0.340	11.3
Toluene	AVRG	0.652	6.5
Trans 1,3-Dichloropropene	AVRG	0.288	12.5
2-Hexanone	AVRG	0.091	13.7

<- 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

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.170	7.7
1,3-Dichloropropane	AVRG	0.346	8.4
Tetrachloroethene	AVRG	0.276	9.3
Chlorodibromomethane	AVRG	0.194	16.6
1,2-Dibromoethane	AVRG	0.161	9.3
Chlorobenzene	AVRG	0.785	6.5
Ethyl Benzene	AVRG	1.359	7.1
1,1,1,2-Tetrachloroethane	AVRG	0.236	11.5
m,p-xylene	AVRG	0.518	7.8
o-Xylene	AVRG	0.492	8.9
Styrene	AVRG	0.792	12.2
Bromoform	AVRG	0.208	19.7
1,1,2,2-Tetrachloroethane	AVRG	0.429	9.3
1,2,3-Trichloropropane	AVRG	0.144	6.6
Trans-1,4-Dichloro 2-Butene	AVRG	0.114	8.4
N-Propyl Benzene	AVRG	3.058	9.4
Bromobenzene	AVRG	0.622	8.3
Isopropyl Benzene	AVRG	2.665	10.2
2-Chloro Toluene	AVRG	1.901	9.0
4-Chloro Toluene	AVRG	1.916	9.6
T-Butyl Benzene	AVRG	1.963	9.9
1,3,5-Trimethyl Benzene	AVRG	2.218	10.4
1,2,4-Trimethylbenzene	AVRG	2.199	10.9
S-Butyl Benzene	AVRG	2.902	10.4
4-Isopropyl Toluene	AVRG	2.310	11.4
1,3-Dichlorobenzene	AVRG	1.217	11.1
1,4-Dichlorobenzene	AVRG	1.230	12.5
N-Butyl Benzene	AVRG	2.040	12.0
1,2-Dichlorobenzene	AVRG	1.131	9.8
1,2-Dibromo 3-Chloropropane	AVRG	0.068	10.8
1,2,4-Trichlorobenzene	AVRG	0.659	16.8
Hexachloro 1,3-Butadiene	AVRG	0.296	12.2
Naphthalene	AVRG	1.500	10.8
1,2,3-Trichlorobenzene	AVRG	0.605	13.1
Dichlorodifluoromethane	AVRG	0.333	15.4
Methyl tert butyl ether	AVRG	0.884	6.6

<- 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

ARI Job No: TN00 Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 Calibration Date: 09/28/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.447	1.4
d8-Toluene	AVRG	1.176	0.6
4-Bromofluorobenzene	AVRG	0.475	1.7
d4-1,2-Dichlorobenzene	AVRG	0.870	1.2
Dibromofluoromethane	AVRG	0.444	1.9

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

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC

ARI Job No: TN00 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 — Cont. Calib. Date: 09/30/11

Init. Calib. Date: 09/28/11 — Cont. Calib. Time: 1413

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	0.401	0.4392	0.100	AVRG	9.5	
Vinyl Chloride	0.398	0.4654	0.010	AVRG	16.9	
Bromomethane	0.315	0.3146	0.010	AVRG	-0.1	
Chloroethane	50.000	48.459	0.010	2ORDR	-3.1	
Trichlorofluoromethane	0.133	0.1950	0.010	AVRG	46.6	<-
Acrolein	0.036	0.0362	0.010	AVRG	0.6	
112Trichloro122Trifluoroetha	0.281	0.3462	0.010	AVRG	23.2	<-
Acetone	0.051	0.0441	0.010	AVRG	-13.5	
1,1-Dichloroethene	0.294	0.3434	0.010	AVRG	16.8	
Bromoethane	0.242	0.2685	0.010	AVRG	11.0	
Iodomethane	0.382	0.4610	0.010	AVRG	20.7	<-
Methylene Chloride	50.000	52.257	0.010	LINR	4.5	
Acrylonitrile	0.080	0.0780	0.010	AVRG	-2.5	
Carbon Disulfide	0.967	1.1663	0.010	AVRG	20.6	<-
Trans-1,2-Dichloroethene	0.365	0.4093	0.010	AVRG	12.1	
Vinyl Acetate	0.478	0.4793	0.010	AVRG	0.3	
1,1-Dichloroethane	0.671	0.7332	0.100	AVRG	9.3	
2-Butanone	0.032	0.0352	0.010	AVRG	10.0	
2,2-Dichloropropane	0.557	0.6860	0.010	AVRG	23.2	<-
Cis-1,2-Dichloroethene	0.432	0.4940	0.010	AVRG	14.4	
Chloroform	0.665	0.7384	0.010	AVRG	11.0	
Bromochloromethane	0.191	0.2092	0.010	AVRG	9.5	
1,1,1-Trichloroethane	0.579	0.6913	0.010	AVRG	19.4	
1,1-Dichloropropene	0.311	0.3272	0.010	AVRG	5.2	
Carbon Tetrachloride	0.262	0.2987	0.010	AVRG	14.0	
1,2-Dichloroethane	0.248	0.2238	0.010	AVRG	-9.8	
Benzene	0.980	0.9686	0.010	AVRG	-1.2	
Trichloroethene	0.240	0.2521	0.010	AVRG	5.0	
1,2-Dichloropropane	0.216	0.2046	0.010	AVRG	-5.3	
Bromodichloromethane	0.263	0.2666	0.010	AVRG	1.4	
Dibromomethane	0.108	0.1012	0.010	AVRG	-6.3	
2-Chloroethyl Vinyl Ether	0.108	0.0990	0.010	AVRG	-8.3	
4-Methyl-2-Pentanone	0.054	0.0501	0.010	AVRG	-7.2	
Cis 1,3-dichloropropene	0.340	0.3473	0.010	AVRG	2.1	
Toluene	0.652	0.6473	0.010	AVRG	-0.7	
Trans 1,3-Dichloropropene	0.288	0.2943	0.010	AVRG	2.2	
2-Hexanone	0.091	0.0807	0.010	AVRG	-11.3	

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

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC

ARI Job No: TN00 — Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 — Cont. Calib. Date: 09/30/11

Init. Calib. Date: 09/28/11 — Cont. Calib. Time: 1413

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.170	0.1617	0.010	AVRG	-4.9	
1,3-Dichloropropane	0.346	0.3112	0.010	AVRG	-10.0	
Tetrachloroethene	0.275	0.2926	0.010	AVRG	6.4	
Chlorodibromomethane	0.194	0.2000	0.010	AVRG	3.1	
1,2-Dibromoethane	0.161	0.1549	0.010	AVRG	-3.8	
Chlorobenzene	0.785	0.7572	0.300	AVRG	-3.5	
Ethyl Benzene	1.359	1.3539	0.010	AVRG	-0.4	
1,1,1,2-Tetrachloroethane	0.236	0.2396	0.010	AVRG	1.5	
m,p-xylene	0.518	0.5361	0.010	AVRG	3.5	
o-Xylene	0.492	0.5045	0.010	AVRG	2.5	
Styrene	0.793	0.8355	0.010	AVRG	5.4	
Bromoform	0.208	0.2148	0.100	AVRG	3.3	
1,1,2,2-Tetrachloroethane	0.429	0.3798	0.300	AVRG	-11.5	
1,2,3-Trichloropropane	0.144	0.1250	0.010	AVRG	-13.2	
Trans-1,4-Dichloro 2-Butene	0.114	0.1032	0.010	AVRG	-9.5	
N-Propyl Benzene	3.058	3.1496	0.010	AVRG	3.0	
Bromobenzene	0.622	0.5960	0.010	AVRG	-4.2	
Isopropyl Benzene	2.665	2.7469	0.010	AVRG	3.1	
2-Chloro Toluene	1.901	1.8910	0.010	AVRG	-0.5	
4-Chloro Toluene	1.916	1.9444	0.010	AVRG	1.5	
T-Butyl Benzene	1.963	2.0220	0.010	AVRG	3.0	
1,3,5-Trimethyl Benzene	2.218	2.3084	0.010	AVRG	4.1	
1,2,4-Trimethylbenzene	2.199	2.3036	0.010	AVRG	4.8	
S-Butyl Benzene	2.902	3.0405	0.010	AVRG	4.8	
4-Isopropyl Toluene	2.310	2.5239	0.010	AVRG	9.2	
1,3-Dichlorobenzene	1.217	1.2312	0.010	AVRG	1.2	
1,4-Dichlorobenzene	1.230	1.2240	0.010	AVRG	-0.5	
N-Butyl Benzene	2.040	2.2591	0.010	AVRG	10.7	
1,2-Dichlorobenzene	1.131	1.0847	0.010	AVRG	-4.1	
1,2-Dibromo 3-Chloropropane	0.068	0.0588	0.010	AVRG	-13.5	
1,2,4-Trichlorobenzene	0.659	0.7139	0.010	AVRG	8.3	
Hexachloro 1,3-Butadiene	0.296	0.3122	0.010	AVRG	5.5	
Naphthalene	1.500	1.4153	0.010	AVRG	-5.6	
1,2,3-Trichlorobenzene	0.605	0.6140	0.010	AVRG	1.5	
Dichlorodifluoromethane	0.333	0.4267	0.010	AVRG	28.1	<-
Methyl tert butyl ether	0.884	0.9060	0.010	AVRG	2.5	

<- 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

ARI Job No: TN00 | Project: 2011 FRP SHORELINE INVESTIG

Instrument ID: NT9 | Cont. Calib. Date: 09/30/11

Init. Calib. Date: 09/28/11 | Cont. Calib. Time: 1413

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.447	0.4988	0.010	AVRG	11.6
d8-Toluene	1.176	1.1832	0.010	AVRG	0.6
4-Bromofluorobenzene	0.476	0.4769	0.010	AVRG	0.2
d4-1,2-Dichlorobenzene	0.870	0.8893	0.010	AVRG	2.2
Dibromofluoromethane	0.444	0.5282	0.010	AVRG	19.0

<- 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

ARI Job No: TN00 — Project: 2011 FRP SHORELINE INVESTIGA

Ical Midpoint ID: 00750928 — Ical Date: 09/28/11

Instrument ID: NT9 — Project Run Date: 09/30/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	820421	5.27	1377676	5.66	1202988	7.73
	UPPER LIMIT	1640842	5.77	2755352	6.16	2405976	8.23
	LOWER LIMIT	410210	4.77	688838	5.16	601494	7.23
	Sample ID						
01	LCS0930	896052	5.27	1757904	5.66	1609955	7.72
02	MB0930	835960	5.27	1649822	5.66	1506193	7.73
03	LCS0930	858773	5.27	1689261	5.66	1536586	7.72
04	FRP-091911-0	748195	5.27	1496831	5.66	1411085	7.73
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
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

ARI Job No: TN00 | Project: 2011 FRP SHORELINE INVESTIGA

Ical Midpoint ID: 00750928 | Ical Date: 09/28/11

Instrument ID: NT9 | Project Run Date: 09/30/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	556253	9.41				
	UPPER LIMIT	1112506	9.91				
	LOWER LIMIT	278126	8.91				
	Sample ID						
01	LCS0930	811124	9.41				
02	MB0930	748195	9.41				
03	LCS0930	777077	9.41				
04	FRP-091911-0	713946	9.41				
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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

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

* Values outside of QC limits.

Metals Analysis
Report and Summary QC Forms

ARI Job ID: TN00, TN03

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN00

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-091911-001	TN00A	11-20445	
FRP-091911-001D	TN00ADUP	11-20445	
FRP-091911-001S	TN00ASPK	11-20445	
PBS	TN00MB1	11-20445	
LCSS	TN00MB1SPK	11-20445	
FRP-091911-002	TN00B	11-20446	
FRP-091911-002D	TN00BDUP	11-20446	
FRP-091911-002S	TN00BSPK	11-20446	
PBW	TN00MB2	11-20446	
LCSW	TN00MB2SPK	11-20446	
FRP-091911-003	TN00C	11-20447	
FRP-091911-004	TN00D	11-20448	
FRP-091911-005	TN00E	11-20449	
FRP-091911-006	TN00F	11-20450	
FRP-091911-002	TN00G	11-20452	
PBW	TN00MB3	11-20452	
LCSW	TN00MB3SPK	11-20452	

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

Comments: _____

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

Signature: _____ Name: Jay Kuhn

Date: 10/11/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-001
SAMPLE

Lab Sample ID: TN00A
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Percent Total Solids: 77.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/20/11	6010B	09/29/11	**7429-90-5**	**Aluminum**	4.4	6	**10,800**	
3050B	09/20/11	200.8	10/06/11	**7440-38-2**	**Arsenic**	0.10	0.2	**1.7**	
3050B	09/20/11	6010B	09/29/11	7440-43-9	Cadmium	0.14	0.2	0.2	U
3050B	09/20/11	6010B	09/29/11	**7440-47-3**	**Chromium**	0.34	0.6	**9.6**	
3050B	09/20/11	6010B	09/29/11	**7440-50-8**	**Copper**	0.062	0.2	**16.4**	
3050B	09/20/11	6010B	09/29/11	7439-92-1	Lead	0.16	2	2	U
CLP	09/20/11	7471A	09/22/11	7439-97-6	Mercury	0.0012	0.02	0.02	U
3050B	09/20/11	6010B	09/29/11	**7440-02-0**	**Nickel**	0.37	1	**6**	
3050B	09/20/11	6010B	09/29/11	7782-49-2	Selenium	0.81	6	6	U
3050B	09/20/11	6010B	09/29/11	7440-28-0	Thallium	0.66	6	6	U
3050B	09/20/11	6010B	09/29/11	**7440-62-2**	**Vanadium**	0.075	0.4	**37.7**	
3050B	09/20/11	6010B	09/29/11	**7440-66-6**	**Zinc**	0.15	1	**20**	

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-091911-001
MATRIX SPIKE

Lab Sample ID: TN00A
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	10,800	11,300	250	200%	H
Arsenic	200.8	1.7	33.7	29.6	108%	
Cadmium	6010B	0.2 U	66.8	62.5	107%	
Chromium	6010B	9.6	72.2	62.5	100%	
Copper	6010B	16.4	80.7	62.5	103%	
Lead	6010B	2 U	261	250	104%	
Mercury	7471A	0.02 U	0.28	0.234	120%	
Nickel	6010B	6	68	62.5	99.2%	
Selenium	6010B	6 U	254	250	102%	
Thallium	6010B	6 U	263	250	105%	
Vanadium	6010B	37.7	98.0	62.5	96.5%	
Zinc	6010B	20	80	62.5	96.0%	

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-091911-001
DUPLICATE

Lab Sample ID: TN00A
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	10,800	10,200	5.7%	+/- 20%	
Arsenic	200.8	1.7	1.7	0.0%	+/- 20%	
Cadmium	6010B	0.2 U	0.3 U	0.0%	+/- 0.2	L
Chromium	6010B	9.6	10.0	4.1%	+/- 20%	
Copper	6010B	16.4	17.1	4.2%	+/- 20%	
Lead	6010B	2 U	3 U	0.0%	+/- 2	L
Mercury	7471A	0.02 U	0.02 U	0.0%	+/- 0.02	L
Nickel	6010B	6	7	15.4%	+/- 20%	
Selenium	6010B	6 U	6 U	0.0%	+/- 6	L
Thallium	6010B	6 U	6 U	0.0%	+/- 6	L
Vanadium	6010B	37.7	38.1	1.1%	+/- 20%	
Zinc	6010B	20	21	4.9%	+/- 20%	

Reported in mg/kg-dry

*-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: TN00LCS
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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	204	200	102%	
Arsenic	200.8	28.7	25.0	115%	
Cadmium	6010B	50.3	50.0	101%	
Chromium	6010B	50.3	50.0	101%	
Copper	6010B	49.9	50.0	99.8%	
Lead	6010B	201	200	100%	
Mercury	7471A	0.53	0.50	106%	
Nickel	6010B	50	50	100%	
Selenium	6010B	202	200	101%	
Thallium	6010B	201	200	100%	
Vanadium	6010B	49.3	50.0	98.6%	
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: TN00MB
LIMS ID: 11-20445
Matrix: Soil
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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	09/20/11	6010B	09/29/11	7429-90-5	Aluminum	3.6	5	5	U
3050B	09/20/11	200.8	10/06/11	7440-38-2	Arsenic	0.087	0.2	0.2	U
3050B	09/20/11	6010B	09/29/11	7440-43-9	Cadmium	0.11	0.2	0.2	U
3050B	09/20/11	6010B	09/29/11	7440-47-3	Chromium	0.27	0.5	0.5	U
3050B	09/20/11	6010B	09/29/11	7440-50-8	Copper	0.050	0.2	0.2	U
3050B	09/20/11	6010B	09/29/11	7439-92-1	Lead	0.13	2	2	U
CLP	09/20/11	7471A	09/22/11	7439-97-6	Mercury	0.0013	0.02	0.02	U
3050B	09/20/11	6010B	09/29/11	7440-02-0	Nickel	0.30	1	1	U
3050B	09/20/11	6010B	09/29/11	7782-49-2	Selenium	0.65	5	5	U
3050B	09/20/11	6010B	09/29/11	7440-28-0	Thallium	0.53	5	5	U
3050B	09/20/11	6010B	09/29/11	7440-62-2	Vanadium	0.060	0.3	0.3	U
3050B	09/20/11	6010B	09/29/11	7440-66-6	Zinc	0.12	1	1	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-002
SAMPLE

Lab Sample ID: TN00B
LIMS ID: 11-20446
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/26/11	6010B	09/29/11	7429-90-5	Aluminum	0.0257	0.05	32.1	J
200.8	09/26/11	200.8	10/06/11	7440-38-2	Arsenic	0.00024	0.001	0.031	
3010A	09/26/11	6010B	09/29/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/26/11	6010B	09/29/11	7440-70-2	Calcium	0.0113	0.05	20.0	
3010A	09/26/11	6010B	09/29/11	7440-47-3	Chromium	0.00124	0.005	0.261	
3010A	09/26/11	6010B	09/29/11	7440-50-8	Copper	0.00092	0.002	0.210	
200.8	09/26/11	200.8	10/06/11	7439-92-1	Lead	0.000230	0.0005	0.0107	
3010A	09/26/11	6010B	09/29/11	7439-95-4	Magnesium	0.0096	0.05	7.02	
3010A	09/26/11	6010B	09/29/11	7440-02-0	Nickel	0.0039	0.01	0.08	
3010A	09/26/11	6010B	09/29/11	7440-09-7	Potassium	0.066	0.5	87.2	
3010A	09/26/11	6010B	09/29/11	7782-49-2	Selenium	0.0050	0.05	0.05	UJ
3010A	09/26/11	6010B	09/29/11	7440-23-5	Sodium	0.011	0.5	2,920	
3010A	09/26/11	6010B	09/29/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	7440-62-2	Vanadium	0.00027	0.003	1.32	J
3010A	09/26/11	6010B	09/29/11	7440-66-6	Zinc	0.0014	0.01	0.27	

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

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-003
SAMPLE

Lab Sample ID: TN00C
LIMS ID: 11-20447
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/26/11	6010B	09/29/11	**7429-90-5**	**Aluminum**	0.0257	0.05	**52.9**	J
200.8	09/26/11	200.8	10/06/11	**7440-38-2**	**Arsenic**	0.00048	0.002	**0.067**	
3010A	09/26/11	6010B	09/29/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/26/11	6010B	09/29/11	**7440-47-3**	**Chromium**	0.00124	0.005	**0.600**	
3010A	09/26/11	6010B	09/29/11	**7440-50-8**	**Copper**	0.00092	0.002	**0.251**	
200.8	09/26/11	200.8	10/06/11	**7439-92-1**	**Lead**	0.00046	0.001	**0.014**	
3010A	09/26/11	6010B	09/29/11	**7440-02-0**	**Nickel**	0.0039	0.01	**0.15**	
3010A	09/26/11	6010B	09/29/11	7782-49-2	Selenium	0.0050	0.05	0.05	UJ
3010A	09/26/11	6010B	09/29/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	**7440-62-2**	**Vanadium**	0.00027	0.003	**1.84**	J
3010A	09/26/11	6010B	09/29/11	**7440-66-6**	**Zinc**	0.0014	0.01	**0.42**	

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

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-004
SAMPLE

Lab Sample ID: TN00D
LIMS ID: 11-20448
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/26/11	6010B	09/29/11	**7429-90-5**	**Aluminum**	1.28	2	**158**	J
200.8	09/26/11	200.8	10/06/11	**7440-38-2**	**Arsenic**	0.0060	0.02	**0.08**	
3010A	09/26/11	6010B	09/29/11	7440-43-9	Cadmium	0.009	0.1	0.1	U
3010A	09/26/11	6010B	09/29/11	**7440-47-3**	**Chromium**	0.062	0.2	**1.3**	J
3010A	09/26/11	6010B	09/29/11	**7440-50-8**	**Copper**	0.046	0.1	**0.4**	
200.8	09/26/11	200.8	10/06/11	**7439-92-1**	**Lead**	0.0058	0.01	**0.02**	J
3010A	09/26/11	6010B	09/29/11	7440-02-0	Nickel	0.193	0.5	0.5	U
3010A	09/26/11	6010B	09/29/11	7782-49-2	Selenium	0.25	2	2	UJ
3010A	09/26/11	6010B	09/29/11	7440-28-0	Thallium	0.16	2	2	U
3010A	09/26/11	6010B	09/29/11	**7440-62-2**	**Vanadium**	0.014	0.2	**3.8**	J
3010A	09/26/11	6010B	09/29/11	**7440-66-6**	**Zinc**	0.072	0.5	**0.7**	

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

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-005
SAMPLE

Lab Sample ID: TN00E
LIMS ID: 11-20449
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/26/11	6010B	09/29/11	**7429-90-5**	**Aluminum**	0.0257	0.05	**135**	J
200.8	09/26/11	200.8	10/06/11	**7440-38-2**	**Arsenic**	0.00048	0.002	**0.089**	
3010A	09/26/11	6010B	09/29/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/26/11	6010B	09/29/11	**7440-47-3**	**Chromium**	0.00124	0.005	**0.740**	J
3010A	09/26/11	6010B	09/29/11	**7440-50-8**	**Copper**	0.00092	0.002	**0.356**	
200.8	09/26/11	200.8	10/06/11	**7439-92-1**	**Lead**	0.00046	0.001	**0.028**	J
3010A	09/26/11	6010B	09/29/11	**7440-02-0**	**Nickel**	0.0039	0.01	**0.20**	
3010A	09/26/11	6010B	09/29/11	7782-49-2	Selenium	0.0050	0.05	0.05	UJ
3010A	09/26/11	6010B	09/29/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	**7440-62-2**	**Vanadium**	0.00027	0.003	**1.53**	J
3010A	09/26/11	6010B	09/29/11	**7440-66-6**	**Zinc**	0.0014	0.01	**0.60**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-006
SAMPLE

Lab Sample ID: TN00F
LIMS ID: 11-20450
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/26/11	6010B	09/29/11	7429-90-5	Aluminum	0.0257	0.05	0.05	UJ
200.8	09/26/11	200.8	10/07/11	7440-38-2	Arsenic	0.000048	0.0002	0.0002	U
3010A	09/26/11	6010B	09/29/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/26/11	6010B	09/29/11	7440-47-3	Chromium	0.00124	0.005	0.005	U
3010A	09/26/11	6010B	09/29/11	7440-50-8	Copper	0.00092	0.002	0.002	U
200.8	09/26/11	200.8	10/07/11	7439-92-1	Lead	0.000046	0.0001	0.0001	U
3010A	09/26/11	6010B	09/29/11	7440-02-0	Nickel	0.0039	0.01	0.01	U
3010A	09/26/11	6010B	09/29/11	7782-49-2	Selenium	0.0050	0.05	0.05	UJ
3010A	09/26/11	6010B	09/29/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	7440-62-2	Vanadium	0.00027	0.003	0.003	UJ
3010A	09/26/11	6010B	09/29/11	7440-66-6	Zinc	0.0014	0.01	0.01	U

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

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: FRP-091911-002
SAMPLE

Lab Sample ID: TN00G
LIMS ID: 11-20452
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/26/11	6010B	09/29/11	**7440-21-3**	**Silicon**	0.0082	0.06	**2.12**	J-

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-002
MATRIX SPIKE

Lab Sample ID: TN00B
LIMS ID: 11-20446
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	32.1	31.5	2.00	-30.0%	H
Arsenic	200.8	0.031	0.058	0.025	108%	
Cadmium	6010B	0.002 U	0.500	0.500	100%	
Calcium	6010B	20.0	27.6	10.0	76.0%	
Chromium	6010B	0.261	0.691	0.500	86.0%	
Copper	6010B	0.210	0.699	0.500	97.8%	
Lead	200.8	0.0107	0.0338	0.0250	92.4%	
Magnesium	6010B	7.02	15.7	10.0	86.8%	
Nickel	6010B	0.083	0.509	0.500	85.2%	
Potassium	6010B	87.2	93.0	10.0	58.0%	H
Selenium	6010B	0.05 U	1.32	2.00	66.0%	N
Sodium	6010B	2,920	2,790	10.0	-1300%	H
Thallium	6010B	0.05 U	2.04	2.00	102%	
Vanadium	6010B	1.32	1.63	0.500	62.0%	N
Zinc	6010B	0.268	0.724	0.500	91.2%	

Reported in mg/L

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

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091911-002
DUPLICATE

Lab Sample ID: TN00B
LIMS ID: 11-20446
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	32.1	26.1	20.6%	+/- 20%	*
Arsenic	200.8	0.031	0.034	9.2%	+/- 20%	
Cadmium	6010B	0.002 U	0.002 U	0.0%	+/- 0.002	L
Calcium	6010B	20.0	16.7	18.0%	+/- 20%	
Chromium	6010B	0.261	0.230	12.6%	+/- 20%	
Copper	6010B	0.210	0.182	14.3%	+/- 20%	
Lead	200.8	0.0107	0.0116	8.1%	+/- 20%	
Magnesium	6010B	7.02	5.87	17.8%	+/- 20%	
Nickel	6010B	0.08	0.07	13.3%	+/- 20%	
Potassium	6010B	87.2	73.9	16.5%	+/- 20%	
Selenium	6010B	0.05 U	0.05 U	0.0%	+/- 0.05	L
Sodium	6010B	2,920	2,550	13.5%	+/- 20%	
Thallium	6010B	0.05 U	0.05 U	0.0%	+/- 0.05	L
Vanadium	6010B	1.32	1.15	13.8%	+/- 20%	
Zinc	6010B	0.27	0.24	11.8%	+/- 20%	

Reported in mg/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: TN00LCS
LIMS ID: 11-20446
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010B	2.11	2.00	106%	
Arsenic	200.8	0.0280	0.0250	112%	
Cadmium	6010B	0.521	0.500	104%	
Calcium	6010B	10.3	10.0	103%	
Chromium	6010B	0.518	0.500	104%	
Copper	6010B	0.517	0.500	103%	
Lead	200.8	0.0263	0.0250	105%	
Magnesium	6010B	10.7	10.0	107%	
Nickel	6010B	0.51	0.50	102%	
Potassium	6010B	10.6	10.0	106%	
Selenium	6010B	2.04	2.00	102%	
Sodium	6010B	9.9	10.0	99.0%	
Thallium	6010B	2.06	2.00	103%	
Vanadium	6010B	0.508	0.500	102%	
Zinc	6010B	0.50	0.50	100%	

Reported in mg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: LAB CONTROL

Lab Sample ID: TN00LCS
LIMS ID: 11-20452
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Silicon	6010B	2.95	10.0	29.5%	N

Reported in mg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: TN00MB
LIMS ID: 11-20446
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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	09/26/11	6010B	09/29/11	7429-90-5	Aluminum	0.0257	0.05	0.05	U
200.8	09/26/11	200.8	10/06/11	7440-38-2	Arsenic	0.000048	0.0002	0.0002	U
3010A	09/26/11	6010B	09/29/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/26/11	6010B	09/29/11	7440-70-2	Calcium	0.0113	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	7440-47-3	Chromium	0.00124	0.005	0.005	U
3010A	09/26/11	6010B	09/29/11	7440-50-8	Copper	0.00092	0.002	0.002	U
200.8	09/26/11	200.8	10/06/11	7439-92-1	Lead	0.000046	0.0001	0.0001	U
3010A	09/26/11	6010B	09/29/11	7439-95-4	Magnesium	0.0096	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	7440-02-0	Nickel	0.0039	0.01	0.01	U
3010A	09/26/11	6010B	09/29/11	7440-09-7	Potassium	0.066	0.5	0.5	U
3010A	09/26/11	6010B	09/29/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	7440-23-5	Sodium	0.011	0.5	0.5	U
3010A	09/26/11	6010B	09/29/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/26/11	6010B	09/29/11	7440-62-2	Vanadium	0.00027	0.003	0.003	U
3010A	09/26/11	6010B	09/29/11	7440-66-6	Zinc	0.0014	0.01	0.01	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: METHOD BLANK

Lab Sample ID: TN00MB
LIMS ID: 11-20452
Matrix: Water
Data Release Authorized:
Reported: 10/11/11

QC Report No: TN00-Amec Geomatrix Inc.
Project: 2011 FRP 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	09/26/11	6010B	09/29/11	7440-21-3	Silicon	0.0600	0.06	0.06	U

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

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS: ug/L

SDG: TN00

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Aluminum	AL	ICP	IP092971	2000.0	1997.12	99.9	2000.0	2031.30	101.6	1942.21	97.1	1971.23	98.6	1937.48	96.9	2005.68	100.3
Arsenic	AS	PMS	MS100682	50.0	50.04	100.1	50.0	49.47	98.9	49.11	98.2	49.56	99.1	50.17	100.3	49.55	99.1
Cadmium	CD	ICP	IP092971	1000.0	1003.94	100.4	1000.0	1004.61	100.5	993.57	99.4	996.92	99.7	977.06	97.7	981.25	98.1
Calcium	CA	ICP	IP092971	2000.0	2071.13	103.6	2000.0	2108.37	105.4	2036.89	101.8	2070.40	103.5	2068.31	103.4	2098.89	104.9
Chromium	CR	ICP	IP092971	1000.0	989.79	99.0	1000.0	1006.24	100.6	972.99	97.3	985.78	98.6	980.52	98.1	997.20	99.7
Copper	CU	ICP	IP092971	1000.0	969.08	96.9	1000.0	973.47	97.3	963.67	96.4	975.80	97.6	962.84	96.3	964.33	96.4
Lead	PB	ICP	IP092971	2000.0	1968.42	98.4	2000.0	1977.52	98.9	1945.86	97.3	1938.82	96.9	1873.33	93.7	1888.48	94.4
Lead	PB	PMS	MS100682	50.0	49.54	99.1	50.0	49.07	98.1	48.89	97.8	48.84	97.7	48.99	98.0	49.54	99.1
Magnesium	MG	ICP	IP092971	2000.0	2007.45	100.4	2000.0	2047.43	102.4	1968.91	98.4	1991.69	99.6	1970.68	98.5	2012.14	100.6
Mercury	HG	CVA	HG092202	8.0	8.03	100.4	4.0	4.12	103.0	4.13	103.3	4.14	103.5				
Nickel	NI	ICP	IP092971	1000.0	1005.08	100.5	1000.0	1013.98	101.4	971.94	97.2	981.97	98.2	961.61	96.2	978.07	97.8
Potassium	K	ICP	IP092971	20000.0	20419.79	102.1	20000.0	20854.96	104.3	20293.38	101.5	20529.92	102.6	20053.68	100.3	20384.35	101.9
Selenium	SE	ICP	IP092971	2000.0	1965.25	98.3	2000.0	1971.93	98.6	1936.95	96.8	1916.69	95.8	1839.27	92.0	1855.04	92.8
Silicon	SI	ICP	IP092971	2000.0	2054.60	102.7	2000.0	2062.14	103.1	1994.11	99.7	2017.57	100.9	1989.85	99.5	2052.81	102.6
Sodium	NA	ICP	IP092971	50000.0	51848.98	103.7	50000.0	52559.31	105.1	47549.91	95.1	48066.05	96.1	47561.38	95.1	48268.41	96.5
Thallium	TL	ICP	IP092971	2000.0	1957.58	97.9	2000.0	1973.89	98.7	1936.85	96.8	1919.10	96.0	1838.49	91.9	1857.39	92.9
Vanadium	V	ICP	IP092971	1000.0	936.70	93.7	1000.0	939.36	93.9	924.92	92.5	939.07	93.9	923.23	92.3	920.95	92.1
Zinc	ZN	ICP	IP092971	1000.0	986.48	98.6	1000.0	996.89	99.7	960.26	96.0	973.69	97.4	954.07	95.4	972.69	97.3

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

FORM II (1)

TN00 : 000142

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS:ug/L

SDG: TN00

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Aluminum	AL	ICP	IP092971	2000.0	1963.67	98.2										
Arsenic	AS	PMS	MS100682	50.0	50.12	100.2										
Cadmium	CD	ICP	IP092971	1000.0	994.42	99.4										
Calcium	CA	ICP	IP092971	2000.0	2062.53	103.1										
Chromium	CR	ICP	IP092971	1000.0	979.47	97.9										
Copper	CU	ICP	IP092971	1000.0	974.37	97.4										
Lead	PB	ICP	IP092971	2000.0	1913.54	95.7										
Lead	PB	PMS	MS100682	50.0	48.91	97.8										
Magnesium	MG	ICP	IP092971	2000.0	1984.23	99.2										
Mercury	HG	CVA	HG092202	4.0												
Nickel	NI	ICP	IP092971	1000.0	965.66	96.6										
Potassium	K	ICP	IP092971	20000.0	20150.78	100.8										
Selenium	SE	ICP	IP092971	2000.0	1872.11	93.6										
Silicon	SI	ICP	IP092971	2000.0	1995.96	99.8										
Sodium	NA	ICP	IP092971	50000.0	47139.30	94.3										
Thallium	TL	ICP	IP092971	2000.0	1889.34	94.5										
Vanadium	V	ICP	IP092971	1000.0	935.24	93.5										
Zinc	ZN	ICP	IP092971	1000.0	957.12	95.7										

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

TN00 : 00114

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS: ug/L

SDG: TN00

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS100781	50.0	49.12	98.2	50.0	49.66	99.3	50.34	100.7	50.86	101.7				
Lead	PB	PMS	MS100781	50.0	48.89	97.8	50.0	48.79	97.6	48.49	97.0	47.95	95.9				

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

TN00S.0021.14

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS: ug/L

SDG: TN00

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	IP092971	50.0	45.80	**91.6**	50.43	**100.9**								
Arsenic	AS	PMS	MS100682	0.2	0.19	**95.0**										
Cadmium	CD	ICP	IP092971	2.0	2.06	**103.0**	1.98	**99.0**								
Calcium	CA	ICP	IP092971	50.0	50.26	**100.5**	50.68	**101.4**								
Chromium	CR	ICP	IP092971	5.0	5.37	**107.4**	6.11	**122.2**								
Copper	CU	ICP	IP092971	2.0	1.93	**96.5**	2.62	**131.0**								
Lead	PB	PMS	MS100682	0.1	0.11	**110.0**										
Lead	PB	ICP	IP092971	20.0	19.04	**95.2**	16.49	**82.5**								
Magnesium	MG	ICP	IP092971	50.0	57.84	**115.7**	61.45	**122.9**								
Mercury	HG	CVA	HG092202	0.1	0.10	**100.0**										
Nickel	NI	ICP	IP092971	10.0	10.81	**108.1**	9.55	**95.5**								
Potassium	K	ICP	IP092971	500.0	510.44	**102.1**	557.51	**111.5**								
Selenium	SE	ICP	IP092971	50.0	51.64	**103.3**	53.87	**107.7**								
Silicon	SI	ICP	IP092971	60.0	65.59	**109.3**	60.22	**100.4**								
Sodium	NA	ICP	IP092971	500.0	487.60	**97.5**	914.52	**182.9**								
Thallium	TL	ICP	IP092971	50.0	49.79	**99.6**	43.03	**86.1**								
Vanadium	V	ICP	IP092971	3.0	3.05	**101.7**	2.60	**86.7**								
Zinc	ZN	ICP	IP092971	10.0	9.61	**96.1**	9.54	**95.4**								
Arsenic	AS	PMS	MS100781	0.2	0.17	**85.0**										
Lead	PB	PMS	MS100781	0.1	0.11	**110.0**										

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

FORM II (2)

TN00 . 00115

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS: ug/L

SDG: TN00

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Aluminum	AL	ICP	IP092971	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	MS100682	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	IP092971	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	CA	ICP	IP092971	5000.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Chromium	CR	ICP	IP092971	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	IP092971	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	IP092971	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Lead	PB	PMS	MS100682	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	MG	ICP	IP092971	5000.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Mercury	HG	CVA	HG092202	0.2	0.1	0.1	U	0.1	U	0.1	U	0.1	U				
Nickel	NI	ICP	IP092971	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Potassium	K	ICP	IP092971	5000.0	500.0	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U
Selenium	SE	ICP	IP092971	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Silicon	SI	ICP	IP092971	60.0	60.0	60.0	U	60.0	U	60.0	U	60.0	U	60.0	U	60.0	U
Sodium	NA	ICP	IP092971	5000.0	500.0	500.0	U	500.0	U	500.0	U	500.0	U	1041.3	B	500.0	U
Thallium	TL	ICP	IP092971	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	IP092971	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	IP092971	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

TN00 - 00015

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS:ug/L

SDG: TN00

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Aluminum	AL	ICP	IP092971	200.0	50.0	50.0	U										
Arsenic	AS	PMS	MS100682	10.0	0.2	0.2	U										
Cadmium	CD	ICP	IP092971	5.0	2.0	2.0	U										
Calcium	CA	ICP	IP092971	5000.0	50.0	50.0	U										
Chromium	CR	ICP	IP092971	10.0	5.0	5.0	U										
Copper	CU	ICP	IP092971	25.0	2.0	2.0	U										
Lead	PB	ICP	IP092971	3.0	20.0	20.0	U										
Lead	PB	PMS	MS100682	3.0	0.1	0.1	U										
Magnesium	MG	ICP	IP092971	5000.0	50.0	50.0	U										
Mercury	HG	CVA	HG092202	0.2	0.1												
Nickel	NI	ICP	IP092971	40.0	10.0	10.0	U										
Potassium	K	ICP	IP092971	5000.0	500.0	500.0	U										
Selenium	SE	ICP	IP092971	5.0	50.0	50.0	U										
Silicon	SI	ICP	IP092971	60.0	60.0	60.0	U										
Sodium	NA	ICP	IP092971	5000.0	500.0	500.0	U										
Thallium	TL	ICP	IP092971	10.0	50.0	50.0	U										
Vanadium	V	ICP	IP092971	50.0	3.0	3.0	U										
Zinc	ZN	ICP	IP092971	20.0	10.0	10.0	U										

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS:ug/L

SDG: TN00

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS100781	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U				
Lead	PB	PMS	MS100781	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U				

TN00 . 00114

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

ICS SOURCE: I.V.

PROJECT: 2011 FRP Shoreline I

RUNID: IP092971

SDG: TN00

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	197939.8	197820.6	**98.9**	193244.0	203724.9	**101.9**			
Antimony		1000	30.9	962.3	**96.2**	16.7	934.0	**93.4**			
Arsenic		1000	5.5	977.2	**97.7**	2.3	949.0	**94.9**			
Barium		1000	0.0	959.4	**95.9**	0.1	959.3	**95.9**			
Beryllium		1000	0.0	976.0	**97.6**	0.0	963.7	**96.4**			
Boron			-4.4	-5.3		-5.7	-5.5				
Cadmium		1000	1.0	990.5	**99.1**	0.8	988.5	**98.9**			
Calcium	100000	100000	103341.1	101725.0	**101.7**	101665.5	103216.4	**103.2**			
Chromium		1000	0.3	968.3	**96.8**	0.9	992.6	**99.3**			
Cobalt		1000	2.6	967.7	**96.8**	2.8	969.0	**96.9**			
Copper		1000	-0.8	1002.1	**100.2**	0.0	1018.7	**101.9**			
Iron	200000	200000	197984.8	196917.9	**98.5**	190365.3	199701.0	**99.9**			
Lead		1000	-4.2	981.0	**98.1**	-3.5	958.5	**95.9**			
Magnesium	100000	100000	102184.9	97189.9	**97.2**	99667.0	100419.6	**100.4**			
Manganese		1000	0.1	910.7	**91.1**	0.0	912.2	**91.2**			
Molybdenum			6.4	6.2		5.2	5.3				
Nickel		1000	0.2	933.5	**93.4**	-0.8	930.1	**93.0**			
Potassium			19.5	203.2		97.4	116.3				
Selenium		1000	-31.1	936.9	**93.7**	-26.7	903.7	**90.4**			
Silicon			-17.5	-17.4		-15.4	-16.4				
Silver		1000	-0.6	1015.0	**101.5**	-0.2	984.1	**98.4**			
Sodium			19.9	14.5		482.9	447.0				
Strontium			10.3	10.1		10.0	10.2				
Thallium		1000	16.0	1001.3	**100.1**	13.5	966.6	**96.7**			
Tin			-8.3	-8.2		-7.8	-9.4				
Titanium			0.5	1.2		0.6	1.2				
Vanadium		1000	3.1	939.1	**93.9**	1.1	948.7	**94.9**			
Zinc		1000	0.1	918.5	**91.9**	-0.2	928.4	**92.8**			

6h1999 : 6681

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

ICS SOURCE: I.V.

PROJECT: 2011 FRP Shoreline I

RUNID: MS100682

SDG: TN00

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Cadmium		20	0.0	20.0	**100.0**						
Chromium		20	0.8	20.5	**102.5**						
Cobalt		20	0.1	19.6	**98.0**						
Copper		20	0.5	19.4	**97.0**						
Iron	20000	20000	20327.5	20246.7	**101.2**						
Manganese		20	0.7	20.0	**100.0**						
Molybdenum	400	400	427.1	421.6	**105.4**						
Nickel		20	0.7	18.7	**93.5**						
Silver		20	0.0	19.3	**96.5**						
Vanadium			0.0	-0.5							
Zinc		20	1.1	19.8	**99.0**						

TN00 : 00150

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

ICS SOURCE: I.V.

PROJECT: 2011 FRP Shoreline I

RUNID: MS100781

SDG: TN00

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Cadmium		20	0.0	20.0	**100.0**						
Chromium		20	0.8	20.2	**101.0**						
Cobalt		20	0.1	18.7	**93.5**						
Copper		20	0.4	20.2	**101.0**						
Iron	20000	20000	19767.1	19820.1	**99.1**						
Manganese		20	0.7	19.2	**96.0**						
Molybdenum	400	400	453.7	461.5	**115.4**						
Nickel		20	0.6	20.0	**100.0**						
Selenium			0.0	0.1							
Silver		20	0.0	19.3	**96.5**						
Vanadium			0.0	-0.4							
Zinc		20	0.9	20.1	**100.5**						

TN00 : 00151

Post Digest Spike Sample Recovery

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

ANALYSIS METHOD: ICP

SDG: TN00

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	RUNID	SPIKED SAMPLE RESULT	C	SAMPLE RESULT	C	SPIKE ADDED	MATRIX	%R
Vanadium	FRP-091911-002A	TN00BPOST	IP092971	1722.94		1318.52		500	Water	80.9
Selenium	FRP-091911-002A	TN00BPOST	IP092971	1849.57		50.00	U	2000	Water	92.5

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

ANALYSIS METHOD: ICP

SDG: TN00

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-091911-001L	TN00A-L	Soil	IP092971	86394.26		85723.05		0.8	
Cadmium	FRP-091911-001L	TN00A-L	Soil	IP092971	0.96	U	10.00	U		
Chromium	FRP-091911-001L	TN00A-L	Soil	IP092971	77.15		82.45		6.9	
Copper	FRP-091911-001L	TN00A-L	Soil	IP092971	131.53		129.50		1.5	
Lead	FRP-091911-001L	TN00A-L	Soil	IP092971	10.57	U	100.00	U		
Nickel	FRP-091911-001L	TN00A-L	Soil	IP092971	50.69		60.50	B	19.4	
Selenium	FRP-091911-001L	TN00A-L	Soil	IP092971	-11.76	U	250.00	U		
Thallium	FRP-091911-001L	TN00A-L	Soil	IP092971	11.25	U	250.00	U		
Vanadium	FRP-091911-001L	TN00A-L	Soil	IP092971	302.31		301.90		0.1	
Zinc	FRP-091911-001L	TN00A-L	Soil	IP092971	157.75		162.75		3.2	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

ANALYSIS METHOD: ICP

SDG: TN00

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-091911-002L	TN00B-L	Water	IP092971	32064.81		31987.45		0.2	
Cadmium	FRP-091911-002L	TN00B-L	Water	IP092971	0.48	U	10.00	U		
Calcium	FRP-091911-002L	TN00B-L	Water	IP092971	19961.40		20244.20	B	1.4	
Chromium	FRP-091911-002L	TN00B-L	Water	IP092971	261.36		269.35		3.1	
Copper	FRP-091911-002L	TN00B-L	Water	IP092971	210.25		203.20		3.4	
Magnesium	FRP-091911-002L	TN00B-L	Water	IP092971	7016.03		7131.60	B	1.6	
Nickel	FRP-091911-002L	TN00B-L	Water	IP092971	82.83		86.75	B	4.7	
Potassium	FRP-091911-002L	TN00B-L	Water	IP092971	87163.18		82656.80		5.2	
Selenium	FRP-091911-002L	TN00B-L	Water	IP092971	10.66	U	250.00	U		
Sodium	FRP-091911-002L	TN00B-L	Water	IP092971	2921587.43		2979862.15		2.0	
Thallium	FRP-091911-002L	TN00B-L	Water	IP092971	11.92	U	250.00	U		
Vanadium	FRP-091911-002L	TN00B-L	Water	IP092971	1318.52		1360.80		3.2	
Zinc	FRP-091911-002L	TN00B-L	Water	IP092971	268.06		269.90		0.7	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

ANALYSIS METHOD: PMS

SDG: TN00

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-091911-001L	TN00A-L	Soil	MS100682	1.45	B	1.55	B	6.9	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

ANALYSIS METHOD: PMS

SDG: TN00

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-091911-002L	TN00B-L	Water	MS100682	6.18	B	6.05	B	2.1	
Lead	FRP-091911-002L	TN00B-L	Water	MS100682	2.14	B	2.10	B	1.9	

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN00 UNITS: ug/L

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

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

IEC DATE: 9/26/2011

SDG: TN00

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	0.3618900	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	10.6149000	0.0000000	0.0000000
Arsenic	188.98	0.0473543	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.8345790	1.1215100	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0000000	-0.0061516	0.0000000	-0.1892080	0.0000000	0.0000000	0.0499666
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	0.0220343	0.0000000	0.0000000	0.0000000	0.0000000	-0.0461558
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	-0.0514304
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	-0.2408020	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-2.3072100	1.2452600	0.0597200
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.6380600	-1.2519300	0.0000000	0.5288270
Manganese	257.61	0.0065976	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.0045330
Molybdenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0103467	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	0.0000000	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	0.0118175	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	8.8385500	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.80	0.1350590	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	1.7836600	0.3510820	0.0000000	-0.1171730
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	-0.0244672	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0593584	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	0.0934302
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0135250	0.0000000	0.0000000	-0.1475900	0.0000000	0.0000000

TN00-0001558

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

IEC DATE: 9/26/2011

SDG: TN00

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	0.0464480	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	0.0000000	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	0.0039764	0.0000000	0.0000000	0.0000000	-0.2175850	0.0000000	0.0000000	0.0000000	-0.0271775	0.0000000
Molybdenum	202.03	0.0000000	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	0.0780238	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silicon	288.16	0.0000000	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

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN00

ANALYSIS METHOD: ICP

ARI PREP CODE: SWC

PREPDATE: 9/20/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091911-001	TN00A	1.040	0.0	50.0
FRP-091911-001D	TN00ADUP	1.038	0.0	50.0
FRP-091911-001S	TN00ASPK	1.039	0.0	50.0
PBS	TN00MB1	1.000	0.0	50.0
LCSS	TN00MB1SPK	1.000	0.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN00

ANALYSIS METHOD: PMS

ARI PREP CODE: SWN

PREPDATE: 9/20/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091911-001	TN00A	1.096	0.0	50.0
FRP-091911-001D	TN00ADUP	1.092	0.0	50.0
FRP-091911-001S	TN00ASPK	1.097	0.0	50.0
PBS	TN00MB1	1.000	0.0	50.0
LCSS	TN00MB1SPK	1.000	0.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN00

ANALYSIS METHOD: ICP

ARI PREP CODE: TWC

PREPDATE: 9/26/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091911-002	TN00B	0.000	50.0	50.0
FRP-091911-002D	TN00BDUP	0.000	50.0	50.0
FRP-091911-002S	TN00BSPK	0.000	50.0	50.0
FRP-091911-003	TN00C	0.000	50.0	50.0
FRP-091911-004	TN00D	0.000	1.0	50.0
FRP-091911-005	TN00E	0.000	50.0	50.0
FRP-091911-006	TN00F	0.000	50.0	50.0
FRP-091911-002	TN00G	0.000	50.0	50.0
PBW	TN00MB2	0.000	50.0	50.0
LCSW	TN00MB2SPK	0.000	50.0	50.0
PBW	TN00MB3	0.000	50.0	50.0
LCSW	TN00MB3SPK	0.000	50.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN00

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 9/26/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091911-002	TN00B	0.000	50.0	25.0
FRP-091911-002D	TN00BDUP	0.000	50.0	25.0
FRP-091911-002S	TN00BSPK	0.000	50.0	25.0
FRP-091911-003	TN00C	0.000	50.0	25.0
FRP-091911-004	TN00D	0.000	1.0	25.0
FRP-091911-005	TN00E	0.000	50.0	25.0
FRP-091911-006	TN00F	0.000	50.0	25.0
PBW	TN00MB2	0.000	50.0	25.0
LCSW	TN00MB2SPK	0.000	50.0	25.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

ANALYSIS METHOD: CVA

PROJECT: 2011 FRP Shoreline I

ARI PREP CODE: SMM

SDG: TN00

PREPDATE: 9/20/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091911-001	TN00A	0.282	0.0	50.0
FRP-091911-001D	TN00ADUP	0.287	0.0	50.0
FRP-091911-001S	TN00ASPK	0.278	0.0	50.0
PBS	TN00MB1	0.200	0.0	50.0
LCSW	TN00MB1SPK	0.200	0.0	50.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/29/2011

SDG: TN00 RUNID: IP092971 METHOD: ICP END DATE: 9/29/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	10241			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
S2	S2	1.00	10282									X		X	X																	X	
S3	S3	1.00	10300																				X	X		X				X			X
S4	S4	1.00	10323																								X						
S5	S5	1.00	10344			X					X							X	X			X											
ICV	ICV	1.00	10382			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
ICB	ICB	1.00	10421			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CRI	CRII	1.00	10462			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
ICSA	ICSAI	1.00	10503			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
ICSAB	ICSABI	1.00	10544			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCV	CCV1	1.00	10582			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCB	CCB1	1.00	11021			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
PBS	TN00MB1	2.00	11062			X						X		X	X								X	X		X				X		X	X
PBW	TN00MB3	1.00	11103																								X						
FRP-091911-002	TN00G	2.00	11144																														
FRP-091911-001L	TN00A-L	10.00	11192			X						X		X	X								X	X		X				X		X	X
FRP-091911-001	TN00A	2.00	11233			X						X		X	X								X	X		X				X		X	X
FRP-091911-001D	TN00ADUP	2.00	11274			X						X		X	X								X	X		X				X		X	X
FRP-091911-001S	TN00ASPK	2.00	11314			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	ZZZZZZ	2.00	11352																														
LCSS	TN00MB1SPK	2.00	11391			X						X		X	X								X	X		X				X		X	X
LCSW	TN00MB2SPK	1.00	11430			X					X	X		X	X			X	X			X	X			X				X		X	X
CCV	CCV2	1.00	11470			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCB	CCB2	1.00	11505			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
PBW	TN00MB2	1.00	11550			X					X	X		X	X			X	X			X	X			X				X		X	X
ZZZZZZ	ZZZZZZ	10.00	11591																														
FRP-091911-002	TN00B	2.00	12034																														
FRP-091911-002D	TN00BDUP	2.00	12080																														
FRP-091911-002S	TN00BSPK	2.00	12123																														
ZZZZZZ	ZZZZZZ	2.00	12165																														
FRP-091911-003	TN00C	5.00	12212																														
FRP-091911-004	TN00D	1.00	12254			X						X		X	X								X			X				X		X	X
FRP-091911-005	TN00E	5.00	12295																														
LCSW	TN00MB3SPK	1.00	12341																								X						
CCV	CCV3	1.00	12382			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X

FORM XIV

TN00 : 00165

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/29/2011

SDG: TN00 RUNID: IP092971 METHOD: ICP END DATE: 9/29/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CCB	CCB3	1.00	12420			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
FRP-091911-006	TN00F	1.00	12471			X						X		X	X								X			X				X		X	X
FRP-091911-002L	TN00B-L	5.00	12512			X					X	X		X	X			X	X			X	X			X				X		X	X
FRP-091911-002	TN00B	1.00	12555			X					X	X		X	X			X	X			X	X			X				X		X	X
FRP-091911-002D	TN00BDUP	1.00	12595			X					X	X		X	X			X	X			X	X			X				X		X	X
FRP-091911-002S	TN00BSPK	1.00	13034			X					X	X		X	X			X	X			X	X			X				X		X	X
FRP-091911-002A	TN00BPOST	1.00	13073																							X						X	
FRP-091911-003	TN00C	1.00	13111			X						X		X	X								X			X				X		X	X
FRP-091911-005	TN00E	1.00	13151			X						X		X	X								X			X				X		X	X
FRP-091911-002	TN00G	1.00	13191																								X						
ZZZZZZ	D1	1.00	13230																														
CCV	CCV4	1.00	13272			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCB	CCB4	1.00	13310			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCV	CCV5	1.00	13485			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCB	CCB5	1.00	13524			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CRI	CRIF	1.00	13565			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
ICSA	ICSAF	1.00	14011			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
ICSAB	ICSABF	1.00	14052			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCV	CCV6	1.00	14092			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X
CCB	CCB6	1.00	14130			X					X	X		X	X			X	X			X	X	X		X	X			X		X	X

TN00-091155

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 10/6/2011

SDG: TN00 | RUNID: MS100682 METHOD: PMS | END DATE: 10/6/2011

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	11460				X																	X									
ZZZZZZ	ZZZZZZ	1.00	11520																														
ZZZZZZ	ZZZZZZ	1.00	11590																														
S3	S3	1.00	12050				X																	X									
S4	S4	1.00	12120				X																	X									
S1	S1	1.00	12190				X																	X									
S2	S2	1.00	12250				X																	X									
ICV	MICV	1.00	12320				X																	X									
ICB	ICB	1.00	12400				X																	X									
CCV	MCCV1	1.00	12450				X																	X									
CCB	CCB1	1.00	12520				X																	X									
CRI	MCRI	1.00	12580				X																	X									
ICSA	ICSAI	1.00	13030				X																	X									
ICSAB	ICSABI	1.00	13100				X																	X									
ZZZZZZ	LR200	1.00	13160																														
ZZZZZZ	LR300	1.00	13230																														
CCV	MCCV2	1.00	13310				X																	X									
CCB	CCB2	1.00	13380				X																	X									
ZZZZZZ	TM71MB	2.00	13460																														
ZZZZZZ	TM67MBSPK	2.00	13520																														
ZZZZZZ	TM71R	2.00	13580																														
ZZZZZZ	TM71S	2.00	14050																														
ZZZZZZ	TM79C	2.00	14110																														
ZZZZZZ	TM67C	2.00	14180																														
ZZZZZZ	TM67A	5.00	14240																														
ZZZZZZ	TM67B	1000.00	14310																														
ZZZZZZ	TM79H	20.00	14370																														
ZZZZZZ	TM79J	5.00	14430																														
ZZZZZZ	ZZZZZZ	1.00	14500																														
CCV	MCCV3	1.00	14560				X																	X									
CCB	CCB3	1.00	15030				X																	X									
ZZZZZZ	TM79FDUP	1000.00	15150																														
ZZZZZZ	TM79F	1000.00	15210																														
ZZZZZZ	TM79FSPK	1000.00	15270																														
ZZZZZZ	TM79K	1000.00	15330																														

FORM XIV

1400 : 005167

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 10/6/2011

SDG: TN00 RUNID: MS100682 METHOD: PMS END DATE: 10/6/2011

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	TM79G	1000.00	15390																														
ZZZZZZ	TM79G	2.00	15460																														
FRP-091911-001L	TN00A-L	100.00	15520				X																										
FRP-091911-001	TN00A	20.00	15590				X																										
FRP-091911-001D	TN00ADUP	20.00	16050				X																										
FRP-091911-001S	TN00ASPK	20.00	16120				X																										
CCV	MCCV4	1.00	16220				X																	X									
CCB	CCB4	1.00	16300				X																	X									
PBW	TN00MB2	2.00	16350				X																	X									
PBS	TN00MB1	20.00	16410				X																										
LCSS	TN00MB1SPK	20.00	16460				X																										
LCSW	TN00MB2SPK	2.00	16530				X																	X									
FRP-091911-002L	TN00B-L	50.00	16590				X																	X									
FRP-091911-002	TN00B	10.00	17060				X																	X									
FRP-091911-002D	TN00BDUP	10.00	17120				X																	X									
FRP-091911-002S	TN00BSPK	10.00	17180				X																	X									
FRP-091911-003	TN00C	20.00	17250				X																	X									
FRP-091911-004	TN00D	5.00	17310				X																	X									
CCV	MCCV5	1.00	17370				X																	X									
CCB	CCB5	1.00	17440				X																	X									
ZZZZZZ	TN19MB1	2.00	17500																														
ZZZZZZ	TN19MB1SPK	2.00	17550																														
FRP-091911-005	TN00E	20.00	18020				X																	X									
FRP-091911-006	TN00F	5.00	18080																														
ZZZZZZ	ZZZZZZ	25.00	18140																														
ZZZZZZ	TN19A	5.00	18210																														
ZZZZZZ	TN19ADUP	5.00	18270																														
ZZZZZZ	TN19ASPK	5.00	18340																														
ZZZZZZ	TN19B	5.00	18400																														
ZZZZZZ	TN19C	5.00	18470																														
CCV	MCCV6	1.00	18520				X																	X									
CCB	CCB6	1.00	18590				X																	X									

TN00-001158

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 10/7/2011

SDG: TN00 RUNID: MS100781 METHOD: PMS END DATE: 10/7/2011

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	08520				X																	X									
S1	S1	1.00	08580				X																	X									
S2	S2	1.00	09040				X																	X									
S3	S3	1.00	09110				X																	X									
S4	S4	1.00	09170				X																	X									
ZZZZZZ	Rinse Sampl	1.00	09240																														
ICV	MICV	1.00	09320				X																	X									
ICB	ICB	1.00	09390				X																	X									
CCV	MCCV1	1.00	09440				X																	X									
CCB	CCB1	1.00	09510				X																	X									
CRI	MCRI	1.00	09570				X																	X									
ICSA	ICSAI	1.00	10030				X																	X									
ICSAB	ICSABI	1.00	10090				X																	X									
ZZZZZZ	ZZZZZZ	1.00	10160																														
ZZZZZZ	LR200	1.00	10240																														
ZZZZZZ	LR300	1.00	10320																														
CCV	MCCV2	1.00	10390				X																	X									
CCB	CCB2	1.00	10460				X																	X									
ZZZZZZ	TN63MB2	2.00	10560																														
FRP-091911-006	TN00F	2.00	11020				X																	X									
ZZZZZZ	TN42F	2.00	11070																														
ZZZZZZ	TN19E	2.00	11130																														
ZZZZZZ	ZZZZZZ	50.00	11190																														
ZZZZZZ	TN19A	10.00	11250																														
ZZZZZZ	TN19ADUP	10.00	11310																														
ZZZZZZ	TN19ASPK	10.00	11380																														
ZZZZZZ	TN24A	100.00	11440																														
ZZZZZZ	TN24A	2.00	11510																														
CCV	MCCV3	1.00	11580				X																	X									
CCB	CCB3	1.00	12050				X																	X									

TN99 : 00165

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/22/2011

SDG: TN00 RUNID: HG092202 METHOD: CVA END DATE: 9/22/2011

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	11245														X																
S0.1	S0.1	1.00	11263														X																
S0.5	S0.5	1.00	11280														X																
S1	S1	1.00	11294														X																
S2	S2	1.00	11312														X																
S5	S5	1.00	11325														X																
S10	S10	1.00	11343														X																
ICV	AICV	1.00	12131														X																
ICB	ICB	1.00	12144														X																
CCV	ACCV1	1.00	12162														X																
CCB	CCB1	1.00	12180														X																
CRA	CRA	1.00	12194														X																
ZZZZZZ	TM48MB1	1.00	12211																														
ZZZZZZ	TM48MB1SPK	1.00	12225																														
ZZZZZZ	TM48B	1.00	12243																														
ZZZZZZ	TM48BDUP	1.00	12260																														
ZZZZZZ	TM48BSPK	1.00	12274																														
ZZZZZZ	TM48C	1.00	12292																														
PBW	TN00MB1	1.00	12305														X																
LCSW	TN00MB1SPK	1.00	12323														X																
FRP-091911-001	TN00A	1.00	12341														X																
CCV	ACCV2	1.00	12355														X																
CCB	CCB2	1.00	12373														X																
FRP-091911-001D	TN00ADUP	1.00	12391														X																
FRP-091911-001S	TN00ASPK	1.00	12404														X																
ZZZZZZ	TN02MB1	1.00	12422																														
ZZZZZZ	TN02MB1SPK	1.00	12435																														
ZZZZZZ	TN02C	1.00	12453																														
ZZZZZZ	TN02CDUP	1.00	12470																														
ZZZZZZ	TN02CSPK	1.00	12484																														
ZZZZZZ	TN02D	1.00	12502																														
ZZZZZZ	TN02E	1.00	12520																														
ZZZZZZ	TN02G	1.00	12533																														
CCV	ACCV3	1.00	12551														X																
CCB	CCB3	1.00	12565														X																

FORM XIV

TN00 : 0001 70

Mercury Analysis
Report and Summary QC Forms

ARI Job ID: TN00, TN03

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN03

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-091911-002	TN03A	11-20469	
FRP-091911-002D	TN03ADUP	11-20469	
FRP-091911-002S	TN03ASPK	11-20469	
FRP-091911-003	TN03B	11-20470	
PBW	TN03MB1	11-20470	
LCSW	TN03MB1SPK	11-20470	
FRP-091911-004	TN03C	11-20471	
FRP-091911-005	TN03D	11-20472	
FRP-091911-006	TN03E	11-20473	
FRP-091911-002	TN03RA	11-20469	R
FRP-091911-002D	TN03RADUP	11-20469	R
FRP-091911-002S	TN03RASPK	11-20469	R
FRP-091911-003	TN03RB	11-20470	R
PBW	TN03RMB1	11-20470	R
LCSW	TN03RMB1SPK	11-20470	R
FRP-091911-004	TN03RC	11-20471	R
FRP-091911-005	TN03RD	11-20472	R
FRP-091911-006	TN03RE	11-20473	R

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

Comments: _____

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

Signature: _____ Name: Jay Kuhn

Date: 10/5/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 10/07/11
Date Received: 09/19/11

QC Report No: TN03-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation
8769

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
FRP-091911-002 TN03A 11-20469	09/19/11	Water	10/04/11 10/06/11	400	400 U
FRP-091911-003 TN03B 11-20470	09/19/11	Water	10/04/11 10/06/11	400	400 U
FRP-091911-004 TN03C 11-20471	09/19/11	Water	10/04/11 10/06/11	400	400 U
FRP-091911-005 TN03D 11-20472	09/19/11	Water	10/04/11 10/06/11	**400**	**542**
FRP-091911-006 TN03E 11-20473	09/19/11	Water	10/04/11 10/06/11	20.0	20.0 U
MB-100411 Method Blank	NA	Water	10/04/11 10/06/11	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-091911-002
MATRIX SPIKE

Lab Sample ID: TN03A
LIMS ID: 11-20469
Matrix: Water
Data Release Authorized:
Reported: 10/07/11

QC Report No: TN03-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	400 U	2,180	2,000	109%	

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-091911-002
DUPLICATE

Lab Sample ID: TN03A
LIMS ID: 11-20469
Matrix: Water
Data Release Authorized:
Reported: 10/07/11

QC Report No: TN03-Amec Geomatrix Inc.
Project: 2011 FRP Shoreline Investigation 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	400 U	400 U	0.0%	+/- 400	L

Reported in ng/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TN03LCS
LIMS ID: 11-20470
Matrix: Water
Data Release Authorized:
Reported: 10/07/11

QC Report No: TN03-Amec Geomatrix Inc.
Project: 2011 FRP 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	208	200	104%	

Reported in ng/L

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

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS:ng/L

SDG: TN03

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Mercury	HG	CVL	HG100601	500.0	503.00	100.6	500.0	511.00	102.2	516.00	103.2						

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

FORM II (1)

TN03 : 00177

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

UNITS: ng/L

SDG: TN03

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	HG100601	20.0		20.00	100.0										

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

FORM II (2)

TN003 : 00017 3

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN03

UNITS:ng/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Mercury	HG	CVL	HG100601	25.0	20.0	20.0	U	20.0	U	20.0	U						

TN03 : 00017 9

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN03

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		

TN00:00180

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN03

ANALYSIS METHOD: CVL

ARI PREP CODE: TLM

PREPDATE: 9/23/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091911-002	TN03A	0.000	20.0	20.0
FRP-091911-002D	TN03ADUP	0.000	20.0	20.0
FRP-091911-002S	TN03ASPK	0.000	20.0	20.0
FRP-091911-003	TN03B	0.000	1.0	20.0
FRP-091911-004	TN03C	0.000	0.5	20.0
FRP-091911-005	TN03D	0.000	1.0	20.0
FRP-091911-006	TN03E	0.000	20.0	20.0
PBW	TN03MB1	0.000	20.0	20.0
LCSW	TN03MB1SPK	0.000	20.0	20.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I

SDG: TN03

ANALYSIS METHOD: CVL

ARI PREP CODE: TLM

PREPDATE: 10/4/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091911-002	TN03RA	0.000	1.0	20.0
FRP-091911-002D	TN03RADUP	0.000	1.0	20.0
FRP-091911-002S	TN03RASPK	0.000	1.0	20.0
FRP-091911-003	TN03RB	0.000	1.0	20.0
FRP-091911-004	TN03RC	0.000	1.0	20.0
FRP-091911-005	TN03RD	0.000	1.0	20.0
FRP-091911-006	TN03RE	0.000	20.0	20.0
PBW	TN03RMB1	0.000	20.0	20.0
LCSW	TN03RMB1SPK	0.000	20.0	20.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Amec Geomatrix Inc.

PROJECT: 2011 FRP Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 10/6/2011

SDG: TN03 RUNID: HG100601 METHOD: CVL END DATE: 10/6/2011

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	11362														X																
S20	S20	1.00	11390														X																
S50	S50	1.00	11414														X																
S100	S100	1.00	11442														X																
S200	S200	1.00	11470														X																
S400	S400	1.00	11495														X																
S1000	S1000	1.00	11523														X																
ICV	AICV	1.00	11595														X																
ICB	ICB	1.00	12023														X																
CCV	ACCV1	1.00	12051														X																
CCB	CCB1	1.00	12080														X																
CRA	CRA	1.00	12104														X																
PBW	TN03RMB1	1.00	12132														X																
LCSW	TN03RMB1SPK	1.00	12160														X																
FRP-091911-002	TN03RA	1.00	12184														X																
FRP-091911-002D	TN03RADUP	1.00	12212														X																
FRP-091911-002S	TN03RASPK	1.00	12240														X																
FRP-091911-003	TN03RB	1.00	12265														X																
FRP-091911-004	TN03RC	1.00	12293														X																
FRP-091911-005	TN03RD	1.00	12321														X																
FRP-091911-006	TN03RE	1.00	12345														X																
CCV	ACCV2	1.00	12374														X																
CCB	CCB2	1.00	12402														X																

TN03 : 00183

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: TN00, TN03

SAMPLE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Client ID: FRP-091911-002
ARI ID: 11-20446 TN00B

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/19/11 091911#1	EPA 150.1	std units	0.01	11.4
Alkalinity	09/23/11 092311#1	SM 2320	mg/L CaCO3	1.0	5,800
Carbonate	09/23/11	SM 2320	mg/L CaCO3	1.0	3,190
Bicarbonate	09/23/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Hydroxide	09/23/11	SM 2320	mg/L CaCO3	1.0	2,610
Chloride	09/22/11 092211#1	EPA 300.0	mg/L	20.0	665
N-Nitrate	09/20/11 092011#1	EPA 300.0	mg-N/L	5.0	5.3
Ortho-Phosphorous	09/20/11 092011#1	EPA 300.0	mg-P/L	5.0	16.7
N-Ammonia	09/20/11 092011#1	EPA 350.1M	mg-N/L	0.200	14.8
Sulfate	09/20/11 092011#1	EPA 300.0	mg/L	5.0	74.6
Sulfide	09/22/11 092211#1	EPA 376.2	mg/L	5.00	52.0 J-

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Client ID: FRP-091911-003
ARI ID: 11-20447 TN00C

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/19/11 091911#1	EPA 150.1	std units	0.01	11.5

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Client ID: FRP-091911-004
ARI ID: 11-20448 TN00D

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/19/11 091911#1	EPA 150.1	std units	0.01	11.5

RL Analytical reporting limit
U Undetected at reported detection limit

TN00:00187

SAMPLE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Client ID: FRP-091911-005
ARI ID: 11-20449 TN00E

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/19/11 091911#1	EPA 150.1	std units	0.01	11.2

RL Analytical reporting limit
U Undetected at reported detection limit

TN00 : 00188

SAMPLE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Client ID: FRP-091911-006
ARI ID: 11-20450 TN00F

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/19/11 091911#1	EPA 150.1	std units	0.01	6.35

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: TN00B Client ID: FRP-091911-002							
Sulfide	EPA 376.2	09/22/11	mg/L	52.0	49.7	7.44	-30.9%

REPLICATE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TN00B Client ID: FRP-091911-002						
pH	EPA 150.1	09/19/11	std units	11.4	11.4	0.00
Alkalinity	SM 2320	09/23/11	mg/L CaCO3	5,800	5,790	0.2%
Carbonate	SM 2320	09/23/11	mg/L CaCO3	3,190	3,240	1.6%
Bicarbonate	SM 2320	09/23/11	mg/L CaCO3	< 1.0	< 1.0	NA
Hydroxide	SM 2320	09/23/11	mg/L CaCO3	2,610	2,550	2.3%
Chloride	EPA 300.0	09/22/11	mg/L	665	671	0.9%
N-Nitrate	EPA 300.0	09/20/11	mg-N/L	5.3	5.2	1.9%
Ortho-Phosphorous	EPA 300.0	09/20/11	mg-P/L	16.7	16.6	0.6%
Sulfate	EPA 300.0	09/20/11	mg/L	74.6	74.4	0.3%
Sulfide	EPA 376.2	09/22/11	mg/L	52.0	52.9	1.7%

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

LAB CONTROL RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

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

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
pH EPA 150.1	ICVL	09/19/11	std units	7.00	7.00	0.00
Sulfide EPA 376.2	ICVL PREP	09/22/11 09/22/11	mg/L	0.485 7.61	0.500 7.44	97.0% 102.3%

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

METHOD BLANK RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

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

Analyte	Method	Date	Units	Blank	ID
Chloride	EPA 300.0	09/22/11	mg/L	< 0.1 U	
N-Nitrate	EPA 300.0	09/20/11	mg-N/L	< 0.1 U	
Ortho-Phosphorous	EPA 300.0	09/20/11	mg-P/L	< 0.1 U	
N-Ammonia	EPA 350.1M	09/20/11	mg-N/L	< 0.010 U	FB
Sulfate	EPA 300.0	09/20/11	mg/L	< 0.1 U	
Sulfide	EPA 376.2	09/22/11 09/22/11	mg/L	< 0.050 U < 0.050 U	

FB Filtration Blank

STANDARD REFERENCE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/26/11

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

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Alkalinity ERA #P114506	SM 2320	09/23/11	mg/L CaCO3	51.1	49.2	103.9%
Chloride ERA #230109	EPA 300.0	09/22/11	mg/L	2.8	3.0	93.3%
N-Nitrate ERA #09127	EPA 300.0	09/20/11	mg-N/L	2.8	3.0	93.3%
Ortho-Phosphorous EAR #210109	EPA 300.0	09/20/11	mg-P/L	2.8	3.0	93.3%
N-Ammonia ERA #15125	EPA 350.1M	09/20/11	mg-N/L	0.474	0.500	94.8%
Sulfate ERA #220109	EPA 300.0	09/20/11	mg/L	2.9	3.0	96.7%

SAMPLE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Client ID: FRP-091911-001
ARI ID: 11-20445 TN00A

Analyte	Date	Method	Units	RL	Sample
pH	09/20/11 092011#1	SW9045	std units	0.01	10.51

RL Analytical reporting limit
U Undetected at reported detection limit

Results reported on a fresh weight basis
pH determined on 1:1 soil:D.I. water extracts.

REPLICATE RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 09/26/11

Project: 2011 FRP Shoreline Investiga
Event: 8769
Date Sampled: 09/19/11
Date Received: 09/19/11

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TN00A Client ID: FRP-091911-001					
pH	09/20/11	std units	10.51	10.52	0.01

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

LAB CONTROL RESULTS-CONVENTIONALS
TN00-Amec Geomatrix Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 09/26/11

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

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
pH SW9045	ICVL	09/20/11	std units	7.01	7.00	0.01

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

Geotechnical Analysis
Report and Summary QC Forms

ARI Job ID: TN00, TN03

AMEC Geomatrix
FRP 2011 Shoreline Investigation

Density of Liquid According to ASTM D1298

Sample ID	Density (g/ml at 20°C)
DI BLANK	0.992
FRP-091911-002	0.994
FRP-091911-002	0.994
FRP-091911-002	0.994

TN00

Total Solids

ARI Job ID: TN00, TN03

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 9/29/11

Worklist: 1269
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. TN00A 11-20445				% 77.01

Worklist ID: 1269 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Solids Data Entry Report Checked by: MJ Date: 09/21/11
Date: 09/21/11 Data Analyst: DM

Solids Determination performed on 09/20/11 by DM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
TN00	A	FRP-091911-001	1.014	10.312	8.174	77.01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Total Solids Bench Sheet

Laboratory Section Metals

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

Samples in Oven: Date: 9-20-11 Time: 1430 Temp: 102°c Analyst: DM

Removed from Oven: Date: 9-21-11 Time: 0710 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]
TN00 A	1.014	10.312	8.174	–	✓
TN08 A	1.011	10.762	1.702	–	✓
TN02 A	1.001	10.753	9.550	–	✓
" B	1.005	10.323	9.157	–	✓
" C	1.006	10.277	7.637	–	✓
" D	0.995	10.368	9.478	–	✓
" E	1.009	10.505	9.362	–	✓
" F	0.998	10.339	9.197	–	✓
" G	1.004	10.775	9.535	–	✓
		9.20.11 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.