Analytical Resources, Incorporated
Analytical Chemists and Consultants

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

October 6, 2011

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

RE: Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Numbers: TM24, TM25

Dear John:

Please find enclosed the final data package for samples for the project referenced above. ARI received four water samples and one trip blank on September 14, 2011.

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

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

Sincerely,

ANALYTICAL RESOURCES, INC.

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

Enclosures

cc: file TM24, TM25

CO/esj

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

Table of Contents: ARI Job TM24, TM25

Client: AMEC Geomatrix

Project: 8769 FRP 2011 Shoreline Investigation

AMEC E&E
Received
OCT 10 2011
SEATTLE ORG. 5059

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BC
Signature

September-22-2011
Date

Chain of Custody Documentation

ARI Job ID: TM24, TM25

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: TM24
Turn-around Requested: Standard
Page: 1 of 1
ARI Client Company: AMEC
Phone: 206-342-1773
Date: 9/14/11
Ice Present? Y
Client Contact: Nik Bacher / John Long
No. of Coolers: 1
Cooler Temps: 0.9
Client Project Name: FRP 2011 Shoreline Investigation
Client Project #: 8769
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	Mercury 7470A	pH 150.1	VOCs 8260C	Cations - Ca, Mg, Na, K Si 200.8	Anions Cl, NO3, SO4, PO4 300.0	Sulfide 376.2	Ammonia 350.1	Alkalinity SM 2320	Specific Gravity D1298
FRP-091411-001	9/14/11	1015	H_2O	5	X	X	X	X						
FRP-091411-002	9/14/11	1245	H_2O	11	X	X	X	X	X	X	X	X	X	X
FRP-091411-003	9/14/11	1420	H_2O	5	X	X	X	X						
FRP-091411-004	9/14/11	1550	H_2O	5	X	X	X	X						
Trip Blank (TB)	9/12/11		H_2O	2				X						

Notes/Comments

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: Trevor Louviere	Printed Name: Trevor Louviere	Printed Name: Taylor Stanley
Company: AMEC	Company: AMEC	Company: AMEC	Company: ARI
Date & Time: 9/14/11 1640	Date & Time: 9/14/11 1640	Date & Time: 9/14/11 1655	Date & Time: 9-14-11 1655

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Amec

Project Name: FRP Shore line investigation

COC No(s): (NA)

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

Assigned ARI Job No: TM24

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) 0.9

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

Temp Gun ID#: 90877952

Cooler Accepted by: TS Date: 9-14-11 Time: 1655

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	9/17/11	

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

Samples Logged by: JM Date: 9/15/11 Time: 719

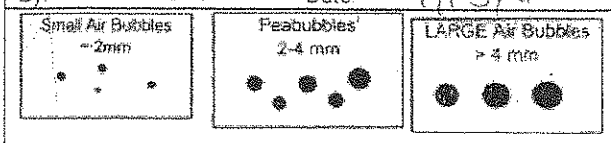
*** Notify Project Manager of discrepancies or concerns ***

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

Additional Notes, Discrepancies, & Resolutions:

FRP-091411-002 = sm in ~~2 of 2~~ 3 of 3 JM

By: JM Date: 9/15/11



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

PRESERVATION VERIFICATION 09/15/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TM24**

PC: Kelly
VTSR: 09/14/11

Inquiry Number: NONE
Analysis Requested: 09/15/11
Contact: Long, John
Client: AMEC Geomatrix
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

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

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-19981 **TM24A**	FRP-091411-001						TOT pass															
11-19982 **TM24B**	FRP-091411-002			fail			TOT fail						fail					S^{2-} NH_3	>12 <2	7659C 8091C	2mL 3mL	BA 9/15/11
11-19983 **TM24C**	FRP-091411-003						TOT															
11-19984 **TM24D**	FRP-091411-004						TOT															
11-19986 **TM24F**	FRP-091411-002						TOT															

S2 is only preserved with ZnOAC

TM24 : 000005

Checked By _____ Date _____

PRESERVATION VERIFICATION 09/15/11

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TM24**

Inquiry Number: NONE
Analysis Requested: 09/15/11
Contact: Long, John
Client: AMEC Geomatrix
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 09/14/11

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

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-19981 **TM24A**	FRP-091411-001						TOT pass															
11-19982 **TM24B**	FRP-091411-002			fail			TOT fail						fail						<2	111090	2.5mL	DM 9-15-11
11-19983 **TM24C**	FRP-091411-003						TOT														2.5mL	
11-19984 **TM24D**	FRP-091411-004						TOT														5mL	
11-19986 **TM24F**	FRP-091411-002						TOT												okay	Received	Preserved	

S2 is only preserved with ZnOAC

Checked By _____ Date _____

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: TM25
Turn-around Requested: Standard
Page: 1 of 1
ARI Client Company: AMEC
Phone: 206-342-1773
Date: 9/14/11
Ice Present? Y
Client Contact: Nik Bacher / John Long
No. of Coolers: 1
Cooler Temps: 0.9
Client Project Name: FRP 2011 Shoreline Investigation
Client Project #: 8769
Samplers: N. Bacher

Sample ID	Date	Time	Matrix	No. Containers	Total Metals 6010B	Mercury 7470A	pH 150.1	VOCs 8260C	Cations, Ca, Mg, Na, K, Si 200.8	Anions Cl, NO_3, SO_4, F, PO4 300.0	~~Sulfide SM 4500~~	Ammonia 350.1	Alkalinity SM 2320	Specific Gravity D1298
FRP-091411-001	9/14/11	1015	H_2O	5	X	X	X	X						
FRP-091411-002	9/14/11	1245	H_2O	11	X	X	X	X	X	X	X	X	X	X
FRP-091411-003	9/14/11	1420	H_2O	5	X	X	X	X						
FRP-091411-004	9/14/11	1550	H_2O	5	X	X	X	X						
Trip Blank (TB)	9/12/11		H_2O	2				X						

Notes/Comments

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: Trevor Louviere	Printed Name: Trevor Louviere	Printed Name: Taylor Steele
Company: AMEC	Company: AMEC	Company: AMEC	Company: ARI
Date & Time: 9/14/11 1640	Date & Time: 9/14/11 1640	Date & Time: 9/14/11 1655	Date & Time: 9-14-11 1655

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Amec

Project Name: FRP Shore line investigation

COC No(s): _____ (NA)

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

Assigned ARI Job No: TM25

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)..... 0.9 ____ ____ ____ ____ ____

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

Temp Gun ID#: 90877957

Cooler Accepted by: TS Date: 9-14-11 Time: 1655

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)	~~9/12/11~~ JM	

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

Samples Logged by: JM Date: 9/15/11 Time: 726

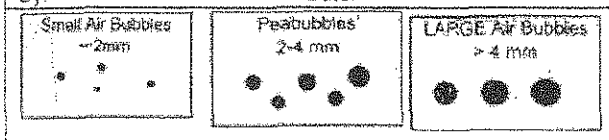
*** Notify Project Manager of discrepancies or concerns ***

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

Additional Notes, Discrepancies, & Resolutions:

~~FRP-091411-002 = sm in 2 of 2~~ JM

By: Date:



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

PRESERVATION VERIFICATION 09/15/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TM25**

Inquiry Number: NONE
Analysis Requested: 09/15/11
Contact: Long, John
Client: AMEC Geomatrix
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 09/14/11

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

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-19987 **TM25A**	FRP-091411-001						TOT pass															
11-19988 **TM25B**	FRP-091411-002						TOT fail												<2	111050	0.5mL	DM 9-15-11
11-19989 **TM25C**	FRP-091411-003						TOT														0.5mL	
11-19990 **TM25D**	FRP-091411-004						TOT														5mL	

Checked By JM Date 9/15/11

TM25 : 000009

AMEC Earth & Received JAN 24 2012 SEATTLE OHS

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

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

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

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

Thanks!
Crystal

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

---

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

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

Let me know and we can discuss details.

Crystal

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

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Tom 2110 9 a 1/21/12

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: TM24, TM25

Case Narrative

AMEC/Geomatrix
Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Numbers: TM24, TM25
October 6, 2011

Sample Receipt:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and analytical results for the project referenced above. Analytical Resources, Inc. (ARI) accepted four water samples and one trip blank in good condition on 9/14/11. Please see the enclosed Cooler Receipt Form for further details.

Volatiles by 8260C

The samples were analyzed on 9/19/11 - within the method recommended holding time.

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

Continuing calibration (s): The 9/19/11 VOCs CCAL is out of control low for Acrolein and 1,2,3-Trichlorobenzene. All associated samples that contain these analytes have been flagged with a "Q" qualifier.

LCS/LCSD/RPDs: All percent recoveries and RPDs were within compliance.

Surrogates: All surrogate recoveries were within control limits.

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

Samples: There were no anomalies associated with these samples.

Metals Analysis (6010, 200.8 and 7000 series)

The samples were digested on 9/19/11 - within the method recommended holding time and analyzed between 9/21/11 and 10/04/11.

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

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

Internal Standards: Internal standard areas were in control.

LCS/LCSD/RPDs: The LCS percent recovery of Silicon fell outside the control limits low. A post spike was analyzed with acceptable recoveries.

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

Samples: There were no anomalies associated with these samples.

Matrix spike/ Sample duplicate/ RPD(s): The matrix spike percent recovery of selenium was outside the control limits for sample **FRP-091411-002**. A post spike was analyzed with acceptable recoveries.

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

The samples were analyzed between 9/15/11 and 9/20/11 within method recommended holding time.

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

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

Sample duplicate/ RPD(s): The RPD is in control.

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

Geotechnical

A laboratory specific narrative follows.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Client: AMEC Geomatrix	**ARI Project No.:** TM24
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 15, 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: TM24
Client: AMEC Geomatrix
Project Event: 8769
Project Name: FRP 2011 Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-091411-001	TM24A	11-19981	Water	09/14/11 10:15	09/14/11 16:55
2.	FRP-091411-002	TM24B	11-19982	Water	09/14/11 12:45	09/14/11 16:55
3.	FRP-091411-003	TM24C	11-19983	Water	09/14/11 14:20	09/14/11 16:55
4.	FRP-091411-004	TM24D	11-19984	Water	09/14/11 15:50	09/14/11 16:55
5.	Trip Blank	TM24E	11-19985	Water	09/14/11	09/14/11 16:55
6.	FRP-091411-002	TM24F	11-19986	Water	09/14/11 12:45	09/14/11 16:55

Printed 09/15/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TM25
Client: AMEC Geomatrix
Project Event: 8769
Project Name: FRP 2011 Shoreline Investigation

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-091411-001	TM25A	11-19987	Water	09/14/11 10:15	09/14/11 16:55
2.	FRP-091411-002	TM25B	11-19988	Water	09/14/11 12:45	09/14/11 16:55
3.	FRP-091411-003	TM25C	11-19989	Water	09/14/11 14:20	09/14/11 16:55
4.	FRP-091411-004	TM25D	11-19990	Water	09/14/11 15:50	09/14/11 16:55

Printed 09/15/11

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).

TM24 : 00016

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)**

TM24:00017

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

TM24 : 00018

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

TM24 : 00019

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

TM24 : 00020

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					

TM24 : 00021

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Aqueous Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 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**

TM24 : 00022

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)

TM24 : 00023

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.

TM24 : 00024

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%

TM24 : 00025

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%

TM24 : 00026

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: TM24, TM25

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091411-001**
 SAMPLE

Lab Sample ID: TM24A
LIMS ID: 11-19981
Matrix: Water
Data Release Authorized: MW
Reported: 09/21/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/19/11 14:45

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**	**1.0**
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**	**1.2**
108-90-7	Chlorobenzene	0.04	0.2	< 0.2 U
100-41-4	Ethylbenzene	0.09	0.2	< 0.2 U
100-42-5	Styrene	0.07	0.2	< 0.2 U
75-69-4	Trichlorofluoromethane	0.09	0.2	< 0.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.11	0.2	< 0.2 U
179601-23-1	m,p-Xylene	0.14	0.4	< 0.4 U
95-47-6	o-Xylene	0.06	0.2	< 0.2 U
95-50-1	1,2-Dichlorobenzene	0.06	0.2	< 0.2 U
541-73-1	1,3-Dichlorobenzene	0.04	0.2	< 0.2 U
106-46-7	1,4-Dichlorobenzene	0.06	0.2	< 0.2 U
107-02-8	Acrolein	0.29	5.0	< 5.0 UJ
74-88-4	Methyl Iodide	0.04	1.0	< 1.0 U
74-96-4	Bromoethane	0.09	0.2	< 0.2 U
107-13-1	Acrylonitrile	0.18	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.09	0.2	< 0.2 U
74-95-3	Dibromomethane	0.08	0.2	< 0.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.07	0.2	< 0.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.21	0.5	< 0.5 U

 CM 1/24/12

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: FRP-091411-001
SAMPLE

Lab Sample ID: TM24A
LIMS ID: 11-19981
Matrix: Water
Date Analyzed: 09/19/11 14:45

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

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

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	101%
Bromofluorobenzene	103%
d4-1,2-Dichlorobenzene	99.4%

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

OK 2/14/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091411-002**
 SAMPLE

Lab Sample ID: TM24B
LIMS ID: 11-19982
Matrix: Water
Data Release Authorized: MW
Reported: 09/21/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/19/11 15:13

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.10	0.5	< 0.5 U
74-83-9	Bromomethane	0.04	1.0	< 1.0 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**	**12**
75-15-0	**Carbon Disulfide**	**0.09**	**0.2**	**0.4**
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**	**0.6**
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**	**47**
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 UJ
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-091411-002**
 SAMPLE

Lab Sample ID: TM24B
LIMS ID: 11-19982
Matrix: Water
Date Analyzed: 09/19/11 15:13

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

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

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	99.4%
Bromofluorobenzene	99.2%
d4-1,2-Dichlorobenzene	101%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-091411-003**
 SAMPLE

Lab Sample ID: TM24C
LIMS ID: 11-19983
Matrix: Water
Data Release Authorized: MW
Reported: 09/21/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/19/11 15:39

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**	**0.3**
75-35-4	1,1-Dichloroethene	0.09	0.2	< 0.2 U
75-34-3	1,1-Dichloroethane	0.05	0.2	< 0.2 U
156-60-5	trans-1,2-Dichloroethene	0.08	0.2	< 0.2 U
156-59-2	cis-1,2-Dichloroethene	0.10	0.2	< 0.2 U
67-66-3	Chloroform	0.08	0.2	< 0.2 U
107-06-2	1,2-Dichloroethane	0.08	0.2	< 0.2 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.09	0.2	< 0.2 U
56-23-5	Carbon Tetrachloride	0.08	0.2	< 0.2 U
108-05-4	Vinyl Acetate	0.07	1.0	< 1.0 U
75-27-4	Bromodichloromethane	0.05	0.2	< 0.2 U
78-87-5	1,2-Dichloropropane	0.09	0.2	< 0.2 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.2	< 0.2 U
79-01-6	Trichloroethene	0.08	0.2	< 0.2 U
124-48-1	Dibromochloromethane	0.09	0.2	< 0.2 U
79-00-5	1,1,2-Trichloroethane	0.04	0.2	< 0.2 U
71-43-2	**Benzene**	**0.06**	**0.2**	**0.6**
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**	**19**
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 UJ
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-091411-003**
 SAMPLE

Lab Sample ID: TM24C
LIMS ID: 11-19983
Matrix: Water
Date Analyzed: 09/19/11 15:39

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

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

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	97.4%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	98.5%

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-091411-004**
 SAMPLE

Lab Sample ID: TM24D
LIMS ID: 11-19984
Matrix: Water
Data Release Authorized:
Reported: 09/21/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/19/11 19:41

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**	**1.7**
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**	**61**
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 UJ
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-091411-004
SAMPLE

Lab Sample ID: TM24D
LIMS ID: 11-19984
Matrix: Water
Date Analyzed: 09/19/11 19:41

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 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
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 J

Reported in µg/L (ppb)

Volatile Surrogate Recovery

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

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

Lab Sample ID: TM24E
LIMS ID: 11-19985
Matrix: Water
Data Release Authorized: MW
Reported: 09/21/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/19/11 12:04

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 UJ
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 Blank
SAMPLE

Lab Sample ID: TM24E
LIMS ID: 11-19985
Matrix: Water
Date Analyzed: 09/19/11 12:04

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

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

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	98.1%
d8-Toluene	102%
Bromofluorobenzene	102%
d4-1,2-Dichlorobenzene	98.5%

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: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-091911	Method Blank	10	101%	100%	100%	100%	0
LCS-091911	Lab Control	10	94.6%	100%	101%	99.7%	0
LCSD-091911	Lab Control Dup	10	98.2%	103%	101%	98.2%	0
TM24A	FRP-091411-001	10	103%	101%	103%	99.4%	0
TM24B	FRP-091411-002	10	110%	99.4%	99.2%	101%	0
TM24C	FRP-091411-003	10	101%	97.4%	101%	98.5%	0
TM24D	FRP-091411-004	10	108%	101%	102%	102%	0
TM24E	Trip Blank	10	98.1%	102%	102%	98.5%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(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: 11-19981 to 11-19985

ANALYTICAL RESOURCES INCORPORATED

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

Lab Sample ID: LCS-091911
LIMS ID: 11-19981
Matrix: Water
Data Release Authorized: MW
Reported: 09/21/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/PKC
LCSD: NT3/PKC
Date Analyzed LCS: 09/19/11 10:12
LCSD: 09/19/11 10:39

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

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%
Bromomethane	11.4	10.0	114%	11.1	10.0	111%	2.7%
Vinyl Chloride	10.6	10.0	106%	10.1	10.0	101%	4.8%
Chloroethane	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
Methylene Chloride	9.5	10.0	95.0%	9.7	10.0	97.0%	2.1%
Acetone	47.8	50.0	95.6%	48.2	50.0	96.4%	0.8%
Carbon Disulfide	10.8	10.0	108%	10.7	10.0	107%	0.9%
1,1-Dichloroethene	9.8	10.0	98.0%	10.0	10.0	100%	2.0%
1,1-Dichloroethane	10.0	10.0	100%	10.3	10.0	103%	3.0%
trans-1,2-Dichloroethene	10.3	10.0	103%	10.1	10.0	101%	2.0%
cis-1,2-Dichloroethene	10.4	10.0	104%	10.5	10.0	105%	1.0%
Chloroform	10.0	10.0	100%	10.0	10.0	100%	0.0%
1,2-Dichloroethane	9.3	10.0	93.0%	9.7	10.0	97.0%	4.2%
2-Butanone	47.0	50.0	94.0%	48.0	50.0	96.0%	2.1%
1,1,1-Trichloroethane	10.5	10.0	105%	10.3	10.0	103%	1.9%
Carbon Tetrachloride	10.7	10.0	107%	11.1	10.0	111%	3.7%
Vinyl Acetate	9.9	10.0	99.0%	9.9	10.0	99.0%	0.0%
Bromodichloromethane	10.3	10.0	103%	10.8	10.0	108%	4.7%
1,2-Dichloropropane	10.0	10.0	100%	10.2	10.0	102%	2.0%
cis-1,3-Dichloropropene	10.3	10.0	103%	10.7	10.0	107%	3.8%
Trichloroethene	9.8	10.0	98.0%	10.3	10.0	103%	5.0%
Dibromochloromethane	10.3	10.0	103%	10.9	10.0	109%	5.7%
1,1,2-Trichloroethane	9.5	10.0	95.0%	9.9	10.0	99.0%	4.1%
Benzene	10.0	10.0	100%	10.4	10.0	104%	3.9%
trans-1,3-Dichloropropene	10.3	10.0	103%	10.9	10.0	109%	5.7%
2-Chloroethylvinylether	10.0	10.0	100%	10.2	10.0	102%	2.0%
Bromoform	10.8	10.0	108%	10.5	10.0	105%	2.8%
4-Methyl-2-Pentanone (MIBK)	48.8	50.0	97.6%	51.1	50.0	102%	4.6%
2-Hexanone	46.5	50.0	93.0%	47.4	50.0	94.8%	1.9%
Tetrachloroethene	9.8	10.0	98.0%	10.1	10.0	101%	3.0%
1,1,2,2-Tetrachloroethane	9.9	10.0	99.0%	9.9	10.0	99.0%	0.0%
Toluene	9.9	10.0	99.0%	10.2	10.0	102%	3.0%
Chlorobenzene	9.7	10.0	97.0%	9.9	10.0	99.0%	2.0%
Ethylbenzene	9.9	10.0	99.0%	10.2	10.0	102%	3.0%
Styrene	10.3	10.0	103%	10.5	10.0	105%	1.9%
Trichlorofluoromethane	11.4	10.0	114%	11.1	10.0	111%	2.7%
1,1,2-Trichloro-1,2,2-trifluoroetha	10.8	10.0	108%	10.6	10.0	106%	1.9%
m,p-Xylene	20.1	20.0	100%	20.4	20.0	102%	1.5%
o-Xylene	10.0	10.0	100%	10.2	10.0	102%	2.0%
1,2-Dichlorobenzene	9.6	10.0	96.0%	9.8	10.0	98.0%	2.1%
1,3-Dichlorobenzene	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%
1,4-Dichlorobenzene	9.8	10.0	98.0%	9.8	10.0	98.0%	0.0%
Acrolein	34.9 Q	50.0	69.8%	35.2 Q	50.0	70.4%	0.9%
Methyl Iodide	10.0	10.0	100%	10.0	10.0	100%	0.0%
Bromoethane	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%

ANALYTICAL RESOURCES INCORPORATED

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

Lab Sample ID: LCS-091911
LIMS ID: 11-19981
Matrix: Water

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Acrylonitrile	9.5	10.0	95.0%	9.8	10.0	98.0%	3.1%
1,1-Dichloropropene	10.2	10.0	102%	10.4	10.0	104%	1.9%
Dibromomethane	9.7	10.0	97.0%	9.8	10.0	98.0%	1.0%
1,1,1,2-Tetrachloroethane	10.2	10.0	102%	10.6	10.0	106%	3.8%
1,2-Dibromo-3-chloropropane	10.5	10.0	105%	10.0	10.0	100%	4.9%
1,2,3-Trichloropropane	8.9	10.0	89.0%	9.1	10.0	91.0%	2.2%
trans-1,4-Dichloro-2-butene	10.5	10.0	105%	10.1	10.0	101%	3.9%
1,3,5-Trimethylbenzene	10.5	10.0	105%	10.4	10.0	104%	1.0%
1,2,4-Trimethylbenzene	10.5	10.0	105%	10.4	10.0	104%	1.0%
Hexachlorobutadiene	10.3	10.0	103%	10.4	10.0	104%	1.0%
Ethylene Dibromide	9.5	10.0	95.0%	10.1	10.0	101%	6.1%
Bromochloromethane	9.7	10.0	97.0%	9.4	10.0	94.0%	3.1%
2,2-Dichloropropane	11.1	10.0	111%	10.9	10.0	109%	1.8%
1,3-Dichloropropane	9.6	10.0	96.0%	9.6	10.0	96.0%	0.0%
Isopropylbenzene	10.4	10.0	104%	10.2	10.0	102%	1.9%
n-Propylbenzene	10.7	10.0	107%	10.6	10.0	106%	0.9%
Bromobenzene	10.0	10.0	100%	9.7	10.0	97.0%	3.0%
2-Chlorotoluene	10.1	10.0	101%	9.8	10.0	98.0%	3.0%
4-Chlorotoluene	10.2	10.0	102%	9.9	10.0	99.0%	3.0%
tert-Butylbenzene	10.2	10.0	102%	10.1	10.0	101%	1.0%
sec-Butylbenzene	10.6	10.0	106%	10.4	10.0	104%	1.9%
4-Isopropyltoluene	10.7	10.0	107%	10.6	10.0	106%	0.9%
n-Butylbenzene	10.8	10.0	108%	10.8	10.0	108%	0.0%
1,2,4-Trichlorobenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
Naphthalene	9.3	10.0	93.0%	9.8	10.0	98.0%	5.2%
1,2,3-Trichlorobenzene	9.1 Q	10.0	91.0%	10.0 Q	10.0	100%	9.4%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	94.6%	98.2%
d8-Toluene	100%	103%
Bromofluorobenzene	101%	101%
d4-1,2-Dichlorobenzene	99.7%	98.2%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0919

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No: TM24

Project: FRP 2011 SHORELINE INVEST

Lab File ID: MB0919

Lab Sample ID: MB0919

Date Analyzed: 09/19/11

Time Analyzed: 1106

Instrument ID: NT3

Heated Purge: (Y/N) N

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0919	LCS0919	LCS0919	1012
02	LCS0919	LCS0919	LCS0919A	1039
03	TRIP BLANK	TM24E	TM24E	1204
04	FRP-091411-0	TM24A	TM24A	1445
05	FRP-091411-0	TM24B	TM24B	1513
06	FRP-091411-0	TM24C	TM24C	1539
07	FRP-091411-0	TM24D	TM24D2	1941
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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-091911
  METHOD BLANK

Lab Sample ID: MB-091911
LIMS ID: 11-19981
Matrix: Water
Data Release Authorized: MW
Reported: 09/21/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/PKC
Date Analyzed: 09/19/11 11:06

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-091911**
 METHOD BLANK

Lab Sample ID: MB-091911
LIMS ID: 11-19981
Matrix: Water
Date Analyzed: 09/19/11 11:06

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

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

Reported in µg/L (ppb)

Volatile Surrogate Recovery

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

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX

Lab Code: ARI Case No.: FRP 2011 SHORELINE INVESTIGATION SDG No.: TM24

Lab File ID: BFB0916B BFB Injection Date: 09/16/11

Instrument ID: NT3 BFB Injection Time: 1134

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	16.6
75	30.0 - 66.0% of mass 95	48.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 101.0% of mass 95	87.7
175	4.0 - 9.0% of mass 174	6.4 (7.3)1
176	93.0 - 101.0% of mass 174	85.2 (97.2)1
177	5.0 - 9.0% of mass 176	5.4 (6.4)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_20916	09/16/11	1334
02	VSTD0.5	VSTD0.5	00_50916	09/16/11	1401
03	VSTD01	VSTD01	01_00916	09/16/11	1428
04	VSTD02	VSTD02	02_00916	09/16/11	1455
05	VSTD10	VSTD10	10_00916	09/16/11	1521
06	VSTD20	VSTD20	20_00916	09/16/11	1548
07	VSTD40	VSTD40	40_00916	09/16/11	1614
08	VSTD80	VSTD80	80_00916	09/16/11	1641
09	ICV0916	ICV0916	ICV0916A	09/16/11	1706
10					
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17					
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: AMEC GEOMATRIX

Lab Code: ARI Case No.: FRP 2011 SHORELINE INVESTIGATION SDG No.: TM24

Lab File ID: BFB0919 BFB Injection Date: 09/19/11

Instrument ID: NT3 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	15.9
75	30.0 - 66.0% of mass 95	47.7
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	0.4 (0.5)1
174	50.0 - 101.0% of mass 95	77.8
175	4.0 - 9.0% of mass 174	5.8 (7.5)1
176	93.0 - 101.0% of mass 174	77.2 (99.2)1
177	5.0 - 9.0% of mass 176	5.0 (6.4)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	CC0919	CC0919	CC0919	09/19/11	0942
02	LCS0919	LCS0919	LCS0919	09/19/11	1012
03	LCS0919	LCS0919	LCS0919A	09/19/11	1039
04	MB0919	MB0919	MB0919	09/19/11	1106
05	TRIP BLANK	TM24E	TM24E	09/19/11	1204
06	FRP-091411-001	TM24A	TM24A	09/19/11	1445
07	FRP-091411-002	TM24B	TM24B	09/19/11	1513
08	FRP-091411-003	TM24C	TM24C	09/19/11	1539
09	FRP-091411-004	TM24D	TM24D2	09/19/11	1941
10					
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22					

FORM V VOA OLM3.2M

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

LAB FILE ID: RF0.2: 00_20916 RF0.5: 00_50916 RF1: 01_00916
RF2: 02_00916 RF10: 10_00916

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
Chloromethane	0.678	0.576	0.577	0.510	0.546
Vinyl Chloride	0.703	0.616	0.667	0.572	0.645
Bromomethane		0.270	0.290	0.268	0.323
Chloroethane	0.427	0.403	0.419	0.336	0.372
Trichlorofluoromethane	0.687	0.660	0.776	0.646	0.803
Acrolein		0.029	0.031	0.026	0.028
112Trichloro122Trifluoroetha	0.501	0.546	0.546	0.482	0.539
Acetone			0.059	0.046	0.048
1,1-Dichloroethene	0.551	0.502	0.493	0.440	0.469
Bromoethane	0.443	0.363	0.424	0.360	0.387
Iodomethane		0.870	0.854	0.716	0.839
Methylene Chloride		0.579	0.560	0.453	0.478
Acrylonitrile			0.062	0.046	0.065
Carbon Disulfide	1.495	1.417	1.477	1.311	1.488
Trans-1,2-Dichloroethene	0.633	0.517	0.530	0.480	0.538
Vinyl Acetate			0.400	0.330	0.390
1,1-Dichloroethane	0.985	0.816	0.889	0.761	0.845
2-Butanone		0.079	0.082	0.068	0.073
2,2-Dichloropropane	0.709	0.710	0.715	0.602	0.714
Cis-1,2-Dichloroethene	0.505	0.543	0.578	0.482	0.560
Chloroform	0.894	0.935	0.974	0.818	0.911
Bromochloromethane	0.228	0.251	0.237	0.208	0.231
1,1,1-Trichloroethane	0.793	0.807	0.880	0.768	0.874
1,1-Dichloropropene	0.426	0.471	0.477	0.426	0.468
Carbon Tetrachloride	0.404	0.406	0.408	0.363	0.451
1,2-Dichloroethane	0.333	0.325	0.341	0.291	0.310
Benzene	1.293	1.257	1.310	1.164	1.271
Trichloroethene	0.358	0.365	0.374	0.336	0.376
1,2-Dichloropropane	0.256	0.262	0.269	0.243	0.270
Bromodichloromethane	0.289	0.324	0.324	0.309	0.378
Dibromomethane	0.112	0.146	0.124	0.125	0.134
2-Chloroethyl Vinyl Ether		0.097	0.092	0.088	0.099
4-Methyl-2-Pentanone		0.114	0.109	0.106	0.118
Cis 1,3-dichloropropene	0.342	0.396	0.402	0.363	0.430
Toluene	0.912	0.871	0.928	0.796	0.881
Trans 1,3-Dichloropropene	0.338	0.317	0.308	0.292	0.351
2-Hexanone		0.079	0.071	0.069	0.078

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

LAB FILE ID: RF0.2: 00_20916 RF0.5: 00_50916 RF1: 01_00916
RF2: 02_00916 RF10: 10_00916

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
1,1,2-Trichloroethane	0.199	0.205	0.207	0.181	0.205
1,3-Dichloropropane	0.309	0.322	0.307	0.280	0.324
Tetrachloroethene	0.371	0.357	0.375	0.356	0.384
Chlorodibromomethane	0.146	0.202	0.195	0.170	0.247
1,2-Dibromoethane	0.155	0.198	0.209	0.188	0.210
Chlorobenzene	0.946	0.994	1.024	0.909	1.014
Ethyl Benzene	1.756	1.743	1.760	1.570	1.764
1,1,1,2-Tetrachloroethane	0.240	0.285	0.287	0.255	0.338
m,p-xylene	0.723	0.645	0.674	0.627	0.712
o-Xylene	0.577	0.670	0.696	0.638	0.711
Styrene	0.880	0.914	1.036	0.976	1.154
Bromoform	0.159	0.150	0.160	0.142	0.210
1,1,2,2-Tetrachloroethane	0.293	0.376	0.366	0.328	0.364
1,2,3-Trichloropropane		0.124	0.116	0.114	0.123
Trans-1,4-Dichloro 2-Butene			0.089	0.078	0.089
N-Propyl Benzene	3.213	3.224	3.366	3.090	3.363
Bromobenzene	0.660	0.687	0.667	0.631	0.685
Isopropyl Benzene	2.757	3.002	2.960	2.673	2.958
2-Chloro Toluene	2.356	2.178	2.400	1.956	2.122
4-Chloro Toluene	2.283	2.311	2.203	2.033	2.177
T-Butyl Benzene	2.240	2.388	2.326	2.111	2.324
1,3,5-Trimethyl Benzene	2.628	2.597	2.555	2.366	2.661
1,2,4-Trimethylbenzene	2.474	2.595	2.714	2.485	2.730
S-Butyl Benzene	3.164	3.426	3.439	3.078	3.372
4-Isopropyl Toluene	2.732	2.775	2.844	2.638	2.922
1,3-Dichlorobenzene	1.519	1.503	1.555	1.333	1.497
1,4-Dichlorobenzene	1.577	1.536	1.548	1.373	1.479
N-Butyl Benzene	2.460	2.474	2.442	2.318	2.587
1,2-Dichlorobenzene	1.300	1.400	1.382	1.214	1.306
1,2-Dibromo 3-Chloropropane		0.046	0.055	0.046	0.062
1,2,4-Trichlorobenzene		0.743	0.742	0.668	0.762
Hexachloro 1,3-Butadiene		0.397	0.422	0.391	0.415
Naphthalene		0.973	0.982	0.866	1.090
1,2,3-Trichlorobenzene		0.437	0.418	0.383	0.464
Dichlorodifluoromethane	0.762	0.762	0.729	0.692	0.738
Methyl tert butyl ether	1.051	0.988	0.973	0.888	1.010

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

LAB FILE ID: RF0.2: 00_20916 RF0.5: 00_50916 RF1: 01_00916
RF2: 02_00916 RF10: 10_00916

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
d4-1,2-Dichloroethane	0.404	0.404	0.431	0.403	0.414
d8-Toluene	1.247	1.267	1.262	1.244	1.247
4-Bromofluorobenzene	0.534	0.521	0.528	0.537	0.540
d4-1,2-Dichlorobenzene	0.864	0.867	0.886	0.865	0.862
Dibromofluoromethane	0.448	0.439	0.464	0.443	0.463

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

LAB FILE ID: RF20: 20_00916 RF40: 40_00916 RF80: 80_00916

COMPOUND	RF20	RF40	RF80
Chloromethane	0.541	0.525	0.506
Vinyl Chloride	0.645	0.630	0.629
Bromomethane	0.317	0.336	0.311
Chloroethane	0.361	0.378	0.351
Trichlorofluoromethane	0.862	0.818	0.777
Acrolein	0.029	0.030	0.030
112Trichloro122Trifluoroetha	0.542	0.515	0.515
Acetone	0.047	0.047	0.048
1,1-Dichloroethene	0.478	0.471	0.468
Bromoethane	0.402	0.392	0.388
Iodomethane	0.836	0.812	0.793
Methylene Chloride	0.484	0.473	0.467
Acrylonitrile	0.065	0.066	0.066
Carbon Disulfide	1.526	1.488	1.462
Trans-1,2-Dichloroethene	0.541	0.538	0.528
Vinyl Acetate	0.393	0.419	0.427
1,1-Dichloroethane	0.849	0.843	0.835
2-Butanone	0.072	0.078	0.076
2,2-Dichloropropane	0.697	0.668	0.646
Cis-1,2-Dichloroethene	0.552	0.554	0.544
Chloroform	0.916	0.901	0.878
Bromochloromethane	0.234	0.226	0.227
1,1,1-Trichloroethane	0.878	0.863	0.840
1,1-Dichloropropene	0.469	0.462	0.448
Carbon Tetrachloride	0.472	0.456	0.438
1,2-Dichloroethane	0.309	0.310	0.295
Benzene	1.280	1.262	1.187
Trichloroethene	0.377	0.372	0.364
1,2-Dichloropropane	0.268	0.273	0.269
Bromodichloromethane	0.375	0.378	0.370
Dibromomethane	0.132	0.132	0.131
2-Chloroethyl Vinyl Ether	0.101	0.107	0.107
4-Methyl-2-Pentanone	0.119	0.124	0.120
Cis 1,3-dichloropropene	0.422	0.434	0.431
Toluene	0.882	0.874	0.840
Trans 1,3-Dichloropropene	0.352	0.365	0.363
2-Hexanone	0.078	0.081	0.079

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

LAB FILE ID: RF20: 20_00916 RF40: 40_00916 RF80: 80_00916

COMPOUND	RF20	RF40	RF80
1,1,2-Trichloroethane	0.196	0.197	0.199
1,3-Dichloropropane	0.320	0.325	0.318
Tetrachloroethene	0.384	0.386	0.372
Chlorodibromomethane	0.241	0.251	0.249
1,2-Dibromoethane	0.201	0.205	0.201
Chlorobenzene	1.014	1.001	0.938
Ethyl Benzene	1.756	1.721	1.539
1,1,1,2-Tetrachloroethane	0.338	0.340	0.335
m,p-xylene	0.708	0.697	0.642
o-Xylene	0.720	0.712	0.691
Styrene	1.136	1.140	1.073
Bromoform	0.211	0.214	0.223
1,1,2,2-Tetrachloroethane	0.372	0.371	0.373
1,2,3-Trichloropropane	0.121	0.120	0.117
Trans-1,4-Dichloro 2-Butene	0.090	0.094	0.093
N-Propyl Benzene	3.360	3.176	2.749
Bromobenzene	0.677	0.671	0.669
Isopropyl Benzene	2.968	2.822	2.515
2-Chloro Toluene	2.196	2.117	2.007
4-Chloro Toluene	2.192	2.118	1.984
T-Butyl Benzene	2.364	2.288	2.106
1,3,5-Trimethyl Benzene	2.695	2.579	2.322
1,2,4-Trimethylbenzene	2.752	2.641	2.350
S-Butyl Benzene	3.396	3.217	2.773
4-Isopropyl Toluene	2.953	2.807	2.471
1,3-Dichlorobenzene	1.510	1.464	1.407
1,4-Dichlorobenzene	1.501	1.459	1.394
N-Butyl Benzene	2.609	2.523	2.258
1,2-Dichlorobenzene	1.339	1.299	1.247
1,2-Dibromo 3-Chloropropane	0.063	0.064	0.063
1,2,4-Trichlorobenzene	0.782	0.759	0.712
Hexachloro 1,3-Butadiene	0.423	0.416	0.404
Naphthalene	1.136	1.111	1.014
1,2,3-Trichlorobenzene	0.470	0.446	0.389
Dichlorodifluoromethane	0.732	0.706	0.690
Methyl tert butyl ether	1.005	0.999	0.989

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

LAB FILE ID: RF20: 20_00916 RF40: 40_00916 RF80: 80_00916

COMPOUND	RF20	RF40	RF80
d4-1,2-Dichloroethane	0.410	0.407	0.413
d8-Toluene	1.262	1.258	1.243
4-Bromofluorobenzene	0.532	0.544	0.538
d4-1,2-Dichlorobenzene	0.864	0.856	0.862
Dibromofluoromethane	0.451	0.460	0.462

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	0.557	9.9
Vinyl Chloride	AVRG	0.638	6.0
Bromomethane	AVRG	0.302	8.8
Chloroethane	AVRG	0.381	8.6
Trichlorofluoromethane	AVRG	0.754	10.5
Acrolein	AVRG	0.029	5.6
112Trichloro122Trifluoroetha	AVRG	0.523	4.5
Acetone	AVRG	0.049	9.9
1,1-Dichloroethene	AVRG	0.484	6.8
Bromoethane	AVRG	0.395	7.2
Iodomethane	AVRG	0.817	6.3
Methylene Chloride	AVRG	0.499	9.9
Acrylonitrile	AVRG	0.062	12.8
Carbon Disulfide	AVRG	1.458	4.6
Trans-1,2-Dichloroethene	AVRG	0.538	8.0
Vinyl Acetate	AVRG	0.393	8.7
1,1-Dichloroethane	AVRG	0.853	7.6
2-Butanone	AVRG	0.076	6.0
2,2-Dichloropropane	AVRG	0.683	6.0
Cis-1,2-Dichloroethene	AVRG	0.540	5.8
Chloroform	AVRG	0.903	5.0
Bromochloromethane	AVRG	0.230	5.3
1,1,1-Trichloroethane	AVRG	0.838	5.2
1,1-Dichloropropene	AVRG	0.456	4.4
Carbon Tetrachloride	AVRG	0.425	8.4
1,2-Dichloroethane	AVRG	0.314	5.6
Benzene	AVRG	1.253	4.1
Trichloroethene	AVRG	0.365	3.7
1,2-Dichloropropane	AVRG	0.264	3.7
Bromodichloromethane	AVRG	0.343	10.4
Dibromomethane	AVRG	0.130	7.3
2-Chloroethyl Vinyl Ether	AVRG	0.099	7.2
4-Methyl-2-Pentanone	AVRG	0.116	5.6
Cis 1,3-dichloropropene	AVRG	0.402	8.4
Toluene	AVRG	0.873	4.7
Trans 1,3-Dichloropropene	AVRG	0.336	8.1
2-Hexanone	AVRG	0.076	6.0

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

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TM24 — Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 — Calibration Date: 09/16/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.199	4.1
1,3-Dichloropropane	AVRG	0.313	4.8
Tetrachloroethene	AVRG	0.373	3.2
Chlorodibromomethane	AVRG	0.213	19.0
1,2-Dibromoethane	AVRG	0.196	9.1
Chlorobenzene	AVRG	0.980	4.4
Ethyl Benzene	AVRG	1.701	5.4
1,1,1,2-Tetrachloroethane	AVRG	0.302	13.5
m,p-xylene	AVRG	0.679	5.4
o-Xylene	AVRG	0.677	7.1
Styrene	AVRG	1.039	10.2
Bromoform	AVRG	0.184	18.4
1,1,2,2-Tetrachloroethane	AVRG	0.355	8.3
1,2,3-Trichloropropane	AVRG	0.119	3.1
Trans-1,4-Dichloro 2-Butene	AVRG	0.089	6.3
N-Propyl Benzene	AVRG	3.192	6.4
Bromobenzene	AVRG	0.668	2.7
Isopropyl Benzene	AVRG	2.832	6.1
2-Chloro Toluene	AVRG	2.166	7.1
4-Chloro Toluene	AVRG	2.163	5.2
T-Butyl Benzene	AVRG	2.268	4.8
1,3,5-Trimethyl Benzene	AVRG	2.550	5.3
1,2,4-Trimethylbenzene	AVRG	2.593	5.6
S-Butyl Benzene	AVRG	3.233	7.1
4-Isopropyl Toluene	AVRG	2.768	5.6
1,3-Dichlorobenzene	AVRG	1.473	4.8
1,4-Dichlorobenzene	AVRG	1.483	4.9
N-Butyl Benzene	AVRG	2.459	5.0
1,2-Dichlorobenzene	AVRG	1.311	4.8
1,2-Dibromo 3-Chloropropane	AVRG	0.057	14.1
1,2,4-Trichlorobenzene	AVRG	0.738	5.1
Hexachloro 1,3-Butadiene	AVRG	0.410	3.1
Naphthalene	AVRG	1.024	9.2
1,2,3-Trichlorobenzene	AVRG	0.430	8.0
Dichlorodifluoromethane	AVRG	0.726	3.9
Methyl tert butyl ether	AVRG	0.988	4.7

<- 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 GEOMATRIX

ARI Job No: TM24 Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 Calibration Date: 09/16/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.411	2.2
d8-Toluene	AVRG	1.254	0.8
4-Bromofluorobenzene	AVRG	0.534	1.3
d4-1,2-Dichlorobenzene	AVRG	0.866	1.0
Dibromofluoromethane	AVRG	0.454	2.2

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

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TM24 — Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 — Cont. Calib. Date: 09/19/11

Init. Calib. Date: 09/16/11 — Cont. Calib. Time: 0942

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	0.557	0.568	0.100	AVRG	2.0	
Vinyl Chloride	0.638	0.677	0.010	AVRG	6.1	
Bromomethane	0.302	0.324	0.010	AVRG	7.3	
Chloroethane	0.381	0.367	0.010	AVRG	-3.7	
Trichlorofluoromethane	0.754	0.820	0.010	AVRG	8.8	
Acrolein	0.029	0.016	0.010	AVRG	-44.8	<-
112Trichloro122Trifluoroetha	0.523	0.564	0.010	AVRG	7.8	
Acetone	0.049	0.043	0.010	AVRG	-12.2	
1,1-Dichloroethene	0.484	0.484	0.010	AVRG	0.0	
Bromoethane	0.395	0.396	0.010	AVRG	0.2	
Iodomethane	0.817	0.831	0.010	AVRG	1.7	
Methylene Chloride	0.499	0.474	0.010	AVRG	-5.0	
Acrylonitrile	0.062	0.059	0.010	AVRG	-4.8	
Carbon Disulfide	1.458	1.584	0.010	AVRG	8.6	
Trans-1,2-Dichloroethene	0.538	0.561	0.010	AVRG	4.3	
Vinyl Acetate	0.393	0.360	0.010	AVRG	-8.4	
1,1-Dichloroethane	0.853	0.859	0.100	AVRG	0.7	
2-Butanone	0.075	0.070	0.010	AVRG	-6.7	
2,2-Dichloropropane	0.683	0.772	0.010	AVRG	13.0	
Cis-1,2-Dichloroethene	0.540	0.540	0.010	AVRG	0.0	
Chloroform	0.903	0.893	0.010	AVRG	-1.1	
Bromochloromethane	0.230	0.222	0.010	AVRG	-3.5	
1,1,1-Trichloroethane	0.838	0.878	0.010	AVRG	4.8	
1,1-Dichloropropene	0.456	0.477	0.010	AVRG	4.6	
Carbon Tetrachloride	0.425	0.484	0.010	AVRG	13.9	
1,2-Dichloroethane	0.314	0.296	0.010	AVRG	-5.7	
Benzene	1.253	1.305	0.010	AVRG	4.2	
Trichloroethene	0.365	0.381	0.010	AVRG	4.4	
1,2-Dichloropropane	0.264	0.276	0.010	AVRG	4.5	
Bromodichloromethane	0.343	0.367	0.010	AVRG	7.0	
Dibromomethane	0.130	0.128	0.010	AVRG	-1.5	
2-Chloroethyl Vinyl Ether	0.099	0.097	0.010	AVRG	-2.0	
4-Methyl-2-Pentanone	0.116	0.107	0.010	AVRG	-7.8	
Cis 1,3-dichloropropene	0.402	0.427	0.010	AVRG	6.2	
Toluene	0.873	0.899	0.010	AVRG	3.0	
Trans 1,3-Dichloropropene	0.336	0.348	0.010	AVRG	3.6	
2-Hexanone	0.076	0.067	0.010	AVRG	-11.8	

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

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TM24 — Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3 — Cont. Calib. Date: 09/19/11

Init. Calib. Date: 09/16/11 — Cont. Calib. Time: 0942

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.199	0.187	0.010	AVRG	-6.0	
1,3-Dichloropropane	0.313	0.294	0.010	AVRG	-6.1	
Tetrachloroethene	0.373	0.381	0.010	AVRG	2.1	
Chlorodibromomethane	0.213	0.228	0.010	AVRG	7.0	
1,2-Dibromoethane	0.196	0.192	0.010	AVRG	-2.0	
Chlorobenzene	0.980	0.978	0.300	AVRG	-0.2	
Ethyl Benzene	1.701	1.764	0.010	AVRG	3.7	
1,1,1,2-Tetrachloroethane	0.302	0.311	0.010	AVRG	3.0	
m,p-xylene	0.678	0.698	0.010	AVRG	2.9	
o-Xylene	0.677	0.703	0.010	AVRG	3.8	
Styrene	1.039	1.087	0.010	AVRG	4.6	
Bromoform	0.184	0.199	0.100	AVRG	8.2	
1,1,2,2-Tetrachloroethane	0.355	0.336	0.300	AVRG	-5.4	
1,2,3-Trichloropropane	0.119	0.106	0.010	AVRG	-10.9	
Trans-1,4-Dichloro 2-Butene	0.089	0.087	0.010	AVRG	-2.2	
N-Propyl Benzene	3.193	3.596	0.010	AVRG	12.6	
Bromobenzene	0.668	0.666	0.010	AVRG	-0.3	
Isopropyl Benzene	2.832	3.090	0.010	AVRG	9.1	
2-Chloro Toluene	2.166	2.247	0.010	AVRG	3.7	
4-Chloro Toluene	2.163	2.265	0.010	AVRG	4.7	
T-Butyl Benzene	2.268	2.424	0.010	AVRG	6.9	
1,3,5-Trimethyl Benzene	2.550	2.782	0.010	AVRG	9.1	
1,2,4-Trimethylbenzene	2.593	2.825	0.010	AVRG	8.9	
S-Butyl Benzene	3.233	3.544	0.010	AVRG	9.6	
4-Isopropyl Toluene	2.768	3.092	0.010	AVRG	11.7	
1,3-Dichlorobenzene	1.474	1.499	0.010	AVRG	1.7	
1,4-Dichlorobenzene	1.483	1.463	0.010	AVRG	-1.3	
N-Butyl Benzene	2.459	2.802	0.010	AVRG	13.9	
1,2-Dichlorobenzene	1.311	1.264	0.010	AVRG	-3.6	
1,2-Dibromo 3-Chloropropane	0.057	0.051	0.010	AVRG	-10.5	
1,2,4-Trichlorobenzene	0.738	0.672	0.010	AVRG	-8.9	
Hexachloro 1,3-Butadiene	0.410	0.413	0.010	AVRG	0.7	
Naphthalene	1.024	0.862	0.010	AVRG	-15.8	
1,2,3-Trichlorobenzene	0.430	0.334	0.010	AVRG	-22.3	<-
Dichlorodifluoromethane	0.726	0.761	0.010	AVRG	4.8	
Methyl tert butyl ether	0.988	0.914	0.010	AVRG	-7.5	

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

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No: TM24

Project: FRP 2011 SHORELINE INVESTIGAT

Instrument ID: NT3

Cont. Calib. Date: 09/19/11

Init. Calib. Date: 09/16/11

Cont. Calib. Time: 0942

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.411	0.391	0.010	AVRG	-4.9
d8-Toluene	1.254	1.302	0.010	AVRG	3.8
4-Bromofluorobenzene	0.534	0.537	0.010	AVRG	0.6
d4-1,2-Dichlorobenzene	0.866	0.844	0.010	AVRG	-2.5
Dibromofluoromethane	0.454	0.454	0.010	AVRG	0.0

<- 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 GEOMATRIX

ARI Job No: TM24 — Project: FRP 2011 SHORELINE INVESTIGATI

Ical Midpoint ID: 10_00916 — Ical Date: 09/16/11

Instrument ID: NT3 — Project Run Date: 09/16/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	187738	5.26	295194	5.65	314755	7.72
	UPPER LIMIT	375476	5.76	590388	6.15	629510	8.22
	LOWER LIMIT	93869	4.76	147597	5.15	157378	7.22
	Sample ID						
01	ICV0916	180861	5.26	291619	5.65	314306	7.72
02							
03							
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22							

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

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: AMEC GEOMATRIX

ARI Job No: TM24 | Project: FRP 2011 SHORELINE INVESTIGATI

Ical Midpoint ID: 10_00916 | Ical Date: 09/16/11

Instrument ID: NT3 | Project Run Date: 09/16/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	209244	9.41				
	UPPER LIMIT	418488	9.91				
	LOWER LIMIT	104622	8.91				
	Sample ID						
01	ICV0916	208869	9.41				
02							
03							
04							
05							
06							
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22							

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

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TM24 — Project: FRP 2011 SHORELINE INVESTIGATI

Ical Midpoint ID: 10_00916 — Ical Date: 09/16/11

Instrument ID: NT3 — Project Run Date: 09/19/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	187738	5.26	295194	5.65	314755	7.72
	UPPER LIMIT	375476	5.76	590388	6.15	629510	8.22
	LOWER LIMIT	93869	4.76	147597	5.15	157378	7.22
	Sample ID						
01	LCS0919	192527	5.26	315568	5.65	347656	7.71
02	LCS0919	193577	5.26	305630	5.65	341655	7.71
03	MB0919	188245	5.26	308744	5.65	342650	7.72
04	TRIP BLANK	188115	5.26	298859	5.65	330763	7.71
05	FRP-091411-0	182903	5.26	288941	5.65	330727	7.72
06	FRP-091411-0	186452	5.26	296663	5.65	328437	7.72
07	FRP-091411-0	176140	5.26	276242	5.65	284814	7.71
08	FRP-091411-0	227331	5.25	365930	5.64	389790	7.71
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IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
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RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
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* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TM24 — Project: FRP 2011 SHORELINE INVESTIGATI

Ical Midpoint ID: 10_00916 — Ical Date: 09/16/11

Instrument ID: NT3 — Project Run Date: 09/19/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	209244	9.41				
	UPPER LIMIT	418488	9.91				
	LOWER LIMIT	104622	8.91				
	Sample ID						
01	LCS0919	221674	9.41				
02	LCS0919	225696	9.41				
03	MB0919	213467	9.41				
04	TRIP BLANK	216402	9.41				
05	FRP-091411-0	220988	9.41				
06	FRP-091411-0	207695	9.41				
07	FRP-091411-0	177196	9.41				
08	FRP-091411-0	241478	9.41				
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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: TM24, TM25

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM24

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-091411-001	TM24A	11-19981	
PBW	TM24MB1	11-19981	
LCSW	TM24MB1SPK	11-19981	
FRP-091411-002	TM24B	11-19982	
FRP-091411-002D	TM24BDUP	11-19982	
FRP-091411-002S	TM24BSPK	11-19982	
FRP-091411-003	TM24C	11-19983	
FRP-091411-004	TM24D	11-19984	
FRP-091411-002	TM24F	11-19986	
PBW	TM24MB2	11-19986	
LCSW	TM24MB2SPK	11-19986	

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

Comments: _____

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

Signature: _____ Name: Jay Kuhn

Date: 10/6/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091411-001
SAMPLE

Lab Sample ID: TM24A
LIMS ID: 11-19981
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/19/11	6010B	09/21/11	**7429-90-5**	**Aluminum**	25.7	50	**2,050**	
200.8	09/19/11	200.8	09/29/11	**7440-38-2**	**Arsenic**	0.12	1	**7**	
3010A	09/19/11	6010B	09/21/11	7440-43-9	Cadmium	0.18	2	2	U
3010A	09/19/11	6010B	09/21/11	**7440-47-3**	**Chromium**	1.24	5	**45**	
3010A	09/19/11	6010B	09/21/11	**7440-50-8**	**Copper**	0.92	2	**39**	
200.8	09/19/11	200.8	09/29/11	**7439-92-1**	**Lead**	0.115	0.2	**3.1**	
3010A	09/19/11	6010B	09/21/11	7440-02-0	Nickel	3.9	10	10	U
3010A	09/19/11	6010B	09/21/11	7782-49-2	Selenium	5.0	50	50	U
3010A	09/19/11	6010B	09/21/11	7440-28-0	Thallium	3.1	50	50	U
3010A	09/19/11	6010B	09/21/11	**7440-62-2**	**Vanadium**	0.27	3	**392**	
3010A	09/19/11	6010B	09/21/11	**7440-66-6**	**Zinc**	1.4	10	**20**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091411-002
SAMPLE

Lab Sample ID: TM24B
LIMS ID: 11-19982
Matrix: Water
Data Release Authorized:
Reported: 01/16/12

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/19/11	6010B	09/21/11	7429-90-5	Aluminum	0.0076	0.05	107	
200.8	09/19/11	200.8	10/04/11	7440-38-2	Arsenic	0.00024	0.002	0.032	
3010A	09/19/11	6010B	09/21/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/19/11	6010B	09/21/11	7440-70-2	Calcium	0.0113	0.05	74.1	
3010A	09/19/11	6010B	09/21/11	7440-47-3	Chromium	0.00124	0.005	0.959	
3010A	09/19/11	6010B	09/21/11	7440-50-8	Copper	0.00092	0.002	1.55	
3010A	09/19/11	6010B	09/21/11	7439-89-6	Iron	0.0075	0.05	177	
200.8	09/19/11	200.8	10/03/11	7439-92-1	Lead	0.000230	0.0005	0.0385	
3010A	09/19/11	6010B	09/21/11	7439-95-4	Magnesium	0.0096	0.05	23.6	
3010A	09/19/11	6010B	09/21/11	7439-96-5	Manganese	0.00028	0.001	1.49	
3010A	09/19/11	6010B	09/21/11	7440-02-0	Nickel	0.0039	0.01	0.20	
3010A	09/19/11	6010B	09/21/11	7440-09-7	Potassium	0.066	0.5	24.9	
3010A	09/19/11	6010B	09/21/11	7782-49-2	Selenium	0.0050	0.05	0.05	UJ
3010A	09/19/11	6010B	09/21/11	7440-23-5	Sodium	0.011	0.5	3,890	
3010A	09/19/11	6010B	09/21/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/19/11	6010B	09/21/11	7440-62-2	Vanadium	0.00027	0.003	1.18	
3010A	09/19/11	6010B	09/21/11	7440-66-6	Zinc	0.0014	0.01	1.30	

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-091411-002
MATRIX SPIKE

Lab Sample ID: TM24B
LIMS ID: 11-19982
Matrix: Water
Data Release Authorized:
Reported: 01/16/12

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	107	107	2.00	0.0%	H
Arsenic	200.8	0.032	0.054	0.025	88.0%	
Cadmium	6010B	0.002 U	0.523	0.500	105%	
Calcium	6010B	74.1	83.0	10.0	89.0%	H
Chromium	6010B	0.959	1.42	0.500	92.2%	
Copper	6010B	1.55	2.09	0.500	108%	
Iron	6010B	177	176	2.00	-50.0%	H
Lead	200.8	0.0385	0.0623	0.0250	95.2%	
Magnesium	6010B	23.6	32.7	10.0	91.0%	
Manganese	6010B	1.49	1.93	0.500	88.0%	
Nickel	6010B	0.204	0.650	0.500	89.2%	
Potassium	6010B	24.9	35.1	10.0	102%	
Selenium	6010B	0.05 U	1.40	2.00	70.0%	N
Sodium	6010B	3,890	3,660	10.0	-2300%	H
Thallium	6010B	0.05 U	2.05	2.00	102%	
Vanadium	6010B	1.18	1.61	0.500	86.0%	
Zinc	6010B	1.30	1.75	0.500	90.0%	

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-091411-002
DUPLICATE

Lab Sample ID: TM24B
LIMS ID: 11-19982
Matrix: Water
Data Release Authorized:
Reported: 01/16/12

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	107	108	0.9%	+/- 20%	
Arsenic	200.8	0.032	0.031	3.2%	+/- 20%	
Cadmium	6010B	0.002 U	0.002 U	0.0%	+/- 0.002	L
Calcium	6010B	74.1	74.4	0.4%	+/- 20%	
Chromium	6010B	0.959	0.958	0.1%	+/- 20%	
Copper	6010B	1.55	1.55	0.0%	+/- 20%	
Iron	6010B	177	179	1.1%	+/- 20%	
Lead	200.8	0.0385	0.0374	2.9%	+/- 20%	
Magnesium	6010B	23.6	23.9	1.3%	+/- 20%	
Manganese	6010B	1.49	1.50	0.7%	+/- 20%	
Nickel	6010B	0.20	0.21	4.9%	+/- 20%	
Potassium	6010B	24.9	24.8	0.4%	+/- 20%	
Selenium	6010B	0.05 U	0.05 U	0.0%	+/- 0.05	L
Sodium	6010B	3,890	3,810	2.1%	+/- 20%	
Thallium	6010B	0.05 U	0.05 U	0.0%	+/- 0.05	L
Vanadium	6010B	1.18	1.18	0.0%	+/- 20%	
Zinc	6010B	1.30	1.29	0.8%	+/- 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: FRP-091411-003
SAMPLE

Lab Sample ID: TM24C
LIMS ID: 11-19983
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/19/11	6010B	09/21/11	**7429-90-5**	**Aluminum**	25.7	50	**79,500**	
200.8	09/19/11	200.8	10/04/11	**7440-38-2**	**Arsenic**	1.2	10	**40**	
3010A	09/19/11	6010B	09/21/11	7440-43-9	Cadmium	0.18	2	2	U
3010A	09/19/11	6010B	09/21/11	**7440-47-3**	**Chromium**	1.24	5	**1,050**	
3010A	09/19/11	6010B	09/21/11	**7440-50-8**	**Copper**	0.92	2	**703**	
200.8	09/19/11	200.8	09/29/11	**7439-92-1**	**Lead**	0.230	0.5	**23.5**	
3010A	09/19/11	6010B	09/21/11	**7440-02-0**	**Nickel**	3.9	10	**200**	
3010A	09/19/11	6010B	09/21/11	7782-49-2	Selenium	5.0	50	50	UJ
3010A	09/19/11	6010B	09/21/11	7440-28-0	Thallium	3.1	50	50	U
3010A	09/19/11	6010B	09/21/11	**7440-62-2**	**Vanadium**	0.27	3	**2,040**	
3010A	09/19/11	6010B	09/21/11	**7440-66-6**	**Zinc**	1.4	10	**840**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091411-004
SAMPLE

Lab Sample ID: TM24D
LIMS ID: 11-19984
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/19/11	6010B	09/21/11	**7429-90-5**	**Aluminum**	51.3	100	**244,000**	
200.8	09/19/11	200.8	10/04/11	**7440-38-2**	**Arsenic**	1.2	10	**80**	
3010A	09/19/11	6010B	09/21/11	**7440-43-9**	**Cadmium**	0.36	4	**4**	
3010A	09/19/11	6010B	09/21/11	**7440-47-3**	**Chromium**	2.5	10	**2,590**	
3010A	09/19/11	6010B	09/21/11	**7440-50-8**	**Copper**	1.84	4	**2,740**	
200.8	09/19/11	200.8	09/29/11	**7439-92-1**	**Lead**	0.230	0.5	**98.4**	
3010A	09/19/11	6010B	09/21/11	**7440-02-0**	**Nickel**	7.7	20	**550**	
3010A	09/19/11	6010B	09/21/11	7782-49-2	Selenium	10.0	100	100	UJ
3010A	09/19/11	6010B	09/21/11	7440-28-0	Thallium	6.2	100	100	U
3010A	09/19/11	6010B	09/21/11	**7440-62-2**	**Vanadium**	0.54	6	**4,290**	
3010A	09/19/11	6010B	09/21/11	**7440-66-6**	**Zinc**	2.9	20	**2,770**	

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-091411-002
SAMPLE

Lab Sample ID: TM24F
LIMS ID: 11-19986
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/19/11	6010B	09/21/11	**7440-21-3**	**Silicon**	8.2	60	**16,300**	J-

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TM24LCS
LIMS ID: 11-19981
Matrix: Water
Data Release Authorized:
Reported: 01/16/12

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010B	2.11	2.00	106%	
Arsenic	200.8	0.0269	0.0250	108%	
Cadmium	6010B	0.526	0.500	105%	
Calcium	6010B	10.2	10.0	102%	
Chromium	6010B	0.541	0.500	108%	
Copper	6010B	0.541	0.500	108%	
Iron	6010B	2.14	2.00	107%	
Lead	200.8	0.0263	0.0250	105%	
Magnesium	6010B	10.6	10.0	106%	
Manganese	6010B	0.500	0.500	100%	
Nickel	6010B	0.51	0.50	102%	
Potassium	6010B	10.8	10.0	108%	
Selenium	6010B	1.98	2.00	99.0%	
Sodium	6010B	11.3	10.0	113%	
Thallium	6010B	1.98	2.00	99.0%	
Vanadium	6010B	0.528	0.500	106%	
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
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: TM24MB
LIMS ID: 11-19981
Matrix: Water
Data Release Authorized:
Reported: 01/16/12

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/19/11	6010B	09/21/11	7429-90-5	Aluminum	0.0076	0.05	0.05	U
200.8	09/19/11	200.8	09/29/11	7440-38-2	Arsenic	0.000048	0.0002	0.0002	U
3010A	09/19/11	6010B	09/21/11	7440-43-9	Cadmium	0.00018	0.002	0.002	U
3010A	09/19/11	6010B	09/21/11	7440-70-2	Calcium	0.0113	0.05	0.05	U
3010A	09/19/11	6010B	09/21/11	7440-47-3	Chromium	0.00124	0.005	0.005	U
3010A	09/19/11	6010B	09/21/11	7440-50-8	Copper	0.00092	0.002	0.002	U
3010A	09/19/11	6010B	09/21/11	7439-89-6	Iron	0.0075	0.05	0.05	U
200.8	09/19/11	200.8	09/29/11	7439-92-1	Lead	0.000046	0.0001	0.0001	U
3010A	09/19/11	6010B	09/21/11	7439-95-4	Magnesium	0.0096	0.05	0.05	U
3010A	09/19/11	6010B	09/21/11	7439-96-5	Manganese	0.00028	0.001	0.001	U
3010A	09/19/11	6010B	09/21/11	7440-02-0	Nickel	0.0039	0.01	0.01	U
3010A	09/19/11	6010B	09/21/11	7440-09-7	Potassium	0.066	0.5	0.5	U
3010A	09/19/11	6010B	09/21/11	7782-49-2	Selenium	0.0050	0.05	0.05	U
3010A	09/19/11	6010B	09/21/11	7440-23-5	Sodium	0.011	0.5	0.5	U
3010A	09/19/11	6010B	09/21/11	7440-28-0	Thallium	0.0031	0.05	0.05	U
3010A	09/19/11	6010B	09/21/11	7440-62-2	Vanadium	0.00027	0.003	0.003	U
3010A	09/19/11	6010B	09/21/11	7440-66-6	Zinc	0.0014	0.01	0.01	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TM24LCS
LIMS ID: 11-19986
Matrix: Water
Data Release Authorized
Reported: 10/05/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Silicon	6010B	4610	10000	46.1%	N

Reported in µg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: TM24MB
LIMS ID: 11-19986
Matrix: Water
Data Release Authorized:
Reported: 10/05/11

QC Report No: TM24-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3010A	09/19/11	6010B	09/21/11	7440-21-3	Silicon	8.2	60	60	U

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

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Aluminum	AL	ICP	IP092175	2000.0	1974.71	98.7	2000.0	1995.14	99.8	2018.58	100.9	1975.98	98.8	1991.20	99.6	1924.84	96.2
Arsenic	AS	PMS	MS092981	50.0	50.87	101.7	50.0	50.57	101.1	50.67	101.3	50.54	101.1	50.73	101.5	51.00	102.0
Cadmium	CD	ICP	IP092175	1000.0	1028.50	102.9	1000.0	1050.29	105.0	1036.08	103.6	1030.30	103.0	1036.76	103.7	996.72	99.7
Calcium	CA	ICP	IP092175	2000.0	2031.89	101.6	2000.0	2049.84	102.5	2104.62	105.2	2081.84	104.1	2073.41	103.7	2033.08	101.7
Chromium	CR	ICP	IP092175	1000.0	1025.87	102.6	1000.0	1027.22	102.7	1048.41	104.8	1039.32	103.9	1033.62	103.4	1018.03	101.8
Copper	CU	ICP	IP092175	1000.0	1010.87	101.1	1000.0	1038.22	103.8	1017.64	101.8	1025.18	102.5	1026.41	102.6	1000.07	100.0
Iron	FE	ICP	IP092175	2000.0	2006.52	100.3	2000.0	2031.17	101.6	2072.43	103.6	2011.47	100.6	2029.39	101.5	1967.32	98.4
Lead	PB	PMS	MS092981	50.0	49.83	99.7	50.0	50.74	101.5	50.89	101.8	50.83	101.7	51.09	102.2	50.86	101.7
Magnesium	MG	ICP	IP092175	2000.0	1966.84	98.3	2000.0	1983.49	99.2	2013.00	100.7	1981.47	99.1	1985.88	99.3	1936.73	96.8
Manganese	MN	ICP	IP092175	1000.0	1015.32	101.5	1000.0	1010.25	101.0	1020.38	102.0	963.57	96.4	997.22	99.7	938.10	93.8
Nickel	NI	ICP	IP092175	1000.0	992.40	99.2	1000.0	988.78	98.9	1005.83	100.6	986.03	98.6	985.83	98.6	964.42	96.4
Potassium	K	ICP	IP092175	20000.0	20354.93	101.8	20000.0	20398.93	102.0	20882.20	104.4	20691.44	103.5	20674.55	103.4	20315.66	101.6
Selenium	SE	ICP	IP092175	2000.0	1973.50	98.7	2000.0	2026.14	101.3	1984.57	99.2	1948.59	97.4	1958.18	97.9	1886.54	94.3
Silicon	SI	ICP	IP092175	2000.0	2065.55	103.3	2000.0	2057.83	102.9	2085.55	104.3	2105.90	105.3	2060.77	103.0	2031.26	101.6
Sodium	NA	ICP	IP092175	50000.0	49838.05	99.7	50000.0	49144.90	98.3	48498.70	97.0	47613.19	95.2	47306.52	94.6	45837.94	91.7
Thallium	TL	ICP	IP092175	2000.0	1947.84	97.4	2000.0	1989.25	99.5	1956.92	97.8	1915.03	95.8	1929.10	96.5	1867.70	93.4
Vanadium	V	ICP	IP092175	1000.0	962.19	96.2	1000.0	986.00	98.6	973.56	97.4	974.69	97.5	980.02	98.0	946.26	94.6
Zinc	ZN	ICP	IP092175	1000.0	967.49	96.7	1000.0	968.17	96.8	993.99	99.4	978.24	97.8	975.48	97.5	957.44	95.7

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

FORM II (1)

TM24 : 00015R

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Aluminum	AL	ICP	IP092175	2000.0	1991.44	99.6	2000.31	100.0	2000.32	100.0						
Arsenic	AS	PMS	MS092981	50.0	50.43	100.9	51.18	102.4	50.65	101.3	50.39	100.8	49.84	99.7		
Cadmium	CD	ICP	IP092175	1000.0	1026.21	102.6	1014.86	101.5	1016.01	101.6						
Calcium	CA	ICP	IP092175	2000.0	2065.47	103.3	2086.09	104.3	2081.00	104.1						
Chromium	CR	ICP	IP092175	1000.0	1037.42	103.7	1042.53	104.3	1042.76	104.3						
Copper	CU	ICP	IP092175	1000.0	1021.31	102.1	1013.40	101.3	1011.68	101.2						
Iron	FE	ICP	IP092175	2000.0	2009.50	100.5	2017.21	100.9	2011.95	100.6						
Lead	PB	PMS	MS092981	50.0	49.55	99.1	53.40	106.8	53.68	107.4	52.15	104.3	53.72	107.4		
Magnesium	MG	ICP	IP092175	2000.0	1978.97	98.9	1992.92	99.6	1993.15	99.7						
Manganese	MN	ICP	IP092175	1000.0	1011.15	101.1	968.40	96.8	1006.69	100.7						
Nickel	NI	ICP	IP092175	1000.0	992.85	99.3	989.84	99.0	987.03	98.7						
Potassium	K	ICP	IP092175	20000.0	21000.93	105.0	20764.40	103.8	20512.31	102.6						
Selenium	SE	ICP	IP092175	2000.0	1904.72	95.2	1850.05	92.5	1888.12	94.4						
Silicon	SI	ICP	IP092175	2000.0	2082.00	104.1	2097.79	104.9	2084.63	104.2						
Sodium	NA	ICP	IP092175	50000.0	48568.14	97.1	49504.50	99.0	49571.32	99.1						
Thallium	TL	ICP	IP092175	2000.0	1891.82	94.6	1827.15	91.4	1861.35	93.1						
Vanadium	V	ICP	IP092175	1000.0	967.11	96.7	961.29	96.1	965.41	96.5						
Zinc	ZN	ICP	IP092175	1000.0	975.21	97.5	983.95	98.4	983.44	98.3						

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

FORM II (1)

TM24 00067 62

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM24

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Lead	PB	PMS	MS100381	50.0	49.83	99.7	50.0	50.47	100.9	50.19	100.4	50.53	101.1	49.81	99.6	50.41	100.8

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

FORM II (1)

1142 : 00007

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Lead	PB	PMS	MS100381	50.0	50.65	101.3	50.69	101.4	50.84	101.7	50.43	100.9	48.92	97.8		

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

T1124 : 0808 / 8

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS100481	50.0	49.71	99.4	50.0	49.68	99.4	50.51	101.0	50.12	100.2	50.29	100.6		

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

TM24 : 000079

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ug/L

SDG: TM24

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	IP092175	50.0	52.58	**105.2**	54.66	**109.3**	53.79	**107.6**	61.16	**122.3**				
Arsenic	AS	PMS	MS092981	0.2	0.22	**110.0**										
Cadmium	CD	ICP	IP092175	2.0	1.81	**90.5**	1.44	**72.0**	1.45	**72.5**	1.67	**83.5**				
Calcium	CA	ICP	IP092175	50.0	50.99	**102.0**	53.27	**106.5**	58.16	**116.3**	51.47	**102.9**				
Chromium	CR	ICP	IP092175	5.0	5.52	**110.4**	5.37	**107.4**	4.86	**97.2**	5.43	**108.6**				
Copper	CU	ICP	IP092175	2.0	2.07	**103.5**	2.17	**108.5**	2.20	**110.0**	2.43	**121.5**				
Iron	FE	ICP	IP092175	50.0	52.95	**105.9**	55.08	**110.2**	53.96	**107.9**	51.88	**103.8**				
Lead	PB	PMS	MS092981	0.1	0.11	**110.0**										
Magnesium	MG	ICP	IP092175	50.0	46.41	**92.8**	48.98	**98.0**	50.06	**100.1**	48.98	**98.0**				
Manganese	MN	ICP	IP092175	1.0	0.96	**96.0**	0.69	**69.0**	0.89	**89.0**	1.02	**102.0**				
Nickel	NI	ICP	IP092175	10.0	11.42	**114.2**	11.08	**110.8**	10.41	**104.1**	12.09	**120.9**				
Potassium	K	ICP	IP092175	500.0	550.53	**110.1**	570.92	**114.2**	566.99	**113.4**	550.96	**110.2**				
Selenium	SE	ICP	IP092175	50.0	52.45	**104.9**	58.23	**116.5**	56.95	**113.9**	51.70	**103.4**				
Silicon	SI	ICP	IP092175	60.0	60.74	**101.2**	74.76	**124.6**	64.41	**107.4**	63.69	**106.2**				
Sodium	NA	ICP	IP092175	500.0	512.22	**102.4**	556.63	**111.3**	745.39	**149.1**	747.08	**149.4**				
Thallium	TL	ICP	IP092175	50.0	44.45	**88.9**	40.61	**81.2**	38.78	**77.6**	43.49	**87.0**				
Vanadium	V	ICP	IP092175	3.0	2.58	**86.0**	2.58	**86.0**	2.67	**89.0**	2.63	**87.7**				
Zinc	ZN	ICP	IP092175	10.0	9.84	**98.4**	10.67	**106.7**	9.80	**98.0**	9.46	**94.6**				
Lead	PB	PMS	MS100381	0.1	0.11	**110.0**										
Arsenic	AS	PMS	MS100481	0.2	0.21	**105.0**										

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

FORM II (2)

TM24 : 000089

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Aluminum	AL	ICP	IP092175	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	MS092981	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	IP092175	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	IP092175	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	IP092175	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	IP092175	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Iron	FE	ICP	IP092175	100.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Lead	PB	PMS	MS092981	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	IP092175	5000.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Manganese	MN	ICP	IP092175	15.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	NI	ICP	IP092175	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	IP092175	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	IP092175	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	IP092175	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	IP092175	5000.0	500.0	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U
Thallium	TL	ICP	IP092175	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	IP092175	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	IP092175	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

TM24 : 00081R

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Aluminum	AL	ICP	IP092175	200.0	50.0	50.0	U	50.0	U	50.0	U						
Arsenic	AS	PMS	MS092981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U		
Cadmium	CD	ICP	IP092175	5.0	2.0	2.0	U	2.0	U	2.0	U						
Calcium	CA	ICP	IP092175	5000.0	50.0	50.0	U	50.0	U	50.0	U						
Chromium	CR	ICP	IP092175	10.0	5.0	5.0	U	5.0	U	5.0	U						
Copper	CU	ICP	IP092175	25.0	2.0	2.0	U	2.0	U	2.0	U						
Iron	FE	ICP	IP092175	100.0	50.0	50.0	U	50.0	U	50.0	U						
Lead	PB	PMS	MS092981	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		
Magnesium	MG	ICP	IP092175	5000.0	50.0	50.0	U	50.0	U	50.0	U						
Manganese	MN	ICP	IP092175	15.0	1.0	1.0	U	1.0	U	1.0	U						
Nickel	NI	ICP	IP092175	40.0	10.0	10.0	U	10.0	U	10.0	U						
Potassium	K	ICP	IP092175	5000.0	500.0	500.0	U	500.0	U	500.0	U						
Selenium	SE	ICP	IP092175	5.0	50.0	50.0	U	50.0	U	50.0	U						
Silicon	SI	ICP	IP092175	60.0	60.0	60.0	U	60.0	U	60.0	U						
Sodium	NA	ICP	IP092175	5000.0	500.0	500.0	U	500.0	U	500.0	U						
Thallium	TL	ICP	IP092175	10.0	50.0	50.0	U	50.0	U	50.0	U						
Vanadium	V	ICP	IP092175	50.0	3.0	3.0	U	3.0	U	3.0	U						
Zinc	ZN	ICP	IP092175	20.0	10.0	10.0	U	10.0	U	10.0	U						

TM24 : 00082

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Lead	PB	PMS	MS100381	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

C0000 . 1 2 1 1

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM24

UNITS:ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Lead	PB	PMS	MS100381	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		

TM24 : 000091

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ug/L

SDG: TM24

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS100481	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U		

TM21.00085

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: IP092175

SDG: TM24

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	198396.1	196836.9	**98.4**	195080.2	196515.1	**98.3**	195701.8	200310.1	**100.2**
Antimony		1000	100.6	1061.1	**106.1**	91.3	1032.6	**103.3**	87.5	1022.1	**102.2**
Arsenic		1000	5.0	1000.2	**100.0**	4.6	966.9	**96.7**	2.3	960.1	**96.0**
Barium		1000	-3.1	1004.3	**100.4**	-2.7	999.3	**99.9**	-2.2	1007.8	**100.8**
Beryllium		1000	0.1	983.5	**98.4**	0.1	981.0	**98.1**	0.0	979.6	**98.0**
Boron			-7.6	-7.3		-8.1	-6.9		-7.9	-7.0	
Cadmium		1000	0.5	1033.5	**103.4**	0.3	1017.5	**101.8**	0.5	1022.6	**102.3**
Calcium	100000	100000	102375.9	101814.8	**101.8**	102644.3	102776.2	**102.8**	101811.3	103747.3	**103.7**
Chromium		1000	-2.7	1023.5	**102.4**	-0.4	1031.3	**103.1**	-1.1	1037.7	**103.8**
Cobalt		1000	2.7	1006.2	**100.6**	2.8	1000.8	**100.1**	2.9	999.7	**100.0**
Copper		1000	0.3	1065.6	**106.6**	0.8	1067.4	**106.7**	1.2	1070.6	**107.1**
Iron	200000	200000	197741.8	193226.6	**96.6**	195326.8	193345.5	**96.7**	193410.4	195129.9	**97.6**
Lead		1000	-7.2	987.1	**98.7**	-5.7	967.6	**96.8**	-8.2	955.3	**95.5**
Magnesium	100000	100000	101395.3	96206.3	**96.2**	100271.0	96588.5	**96.6**	98684.9	97935.7	**97.9**
Manganese		1000	0.3	957.3	**95.7**	0.3	945.6	**94.6**	0.3	957.2	**95.7**
Molybdenum			3.7	4.0		3.1	2.9		2.7	2.7	
Nickel		1000	-1.5	939.3	**93.9**	-0.5	937.2	**93.7**	-0.3	937.4	**93.7**
Potassium			51.5	225.6		86.4	249.6		98.8	260.7	
Selenium		1000	-36.4	958.4	**95.8**	-33.3	930.9	**93.1**	-30.8	909.5	**91.0**
Silicon			-7.0	-4.7		11.7	4.4		2.6	-2.1	
Silver		1000	0.4	1035.8	**103.6**	0.6	1007.4	**100.7**	0.6	1012.6	**101.3**
Sodium			13.0	6.9		80.2	77.2		219.9	199.7	
Strontium			10.5	10.3		10.4	10.4		10.1	10.3	
Thallium		1000	38.1	1029.2	**102.9**	29.2	1002.2	**100.2**	33.0	993.0	**99.3**
Tin			3.3	1.4		1.8	2.7		2.3	1.9	
Titanium			-8.0	-8.3		-8.6	-8.4		-8.7	-8.7	
Vanadium		1000	3.9	985.4	**98.5**	0.7	984.9	**98.5**	0.4	988.7	**98.9**
Zinc		1000	0.4	921.9	**92.2**	0.5	930.5	**93.1**	0.4	936.2	**93.6**

TM24 : 000056

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: MS092981

SDG: TM24

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

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

TM24 : 085857

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ICS SOURCE: I.V.

PROJECT: FRP 2011 Shoreline I

RUNID: MS100381

SDG: TM24

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Cadmium		20	0.0	19.5	**97.5**						
Chromium		20	0.8	20.7	**103.5**						
Cobalt		20	0.1	19.5	**97.5**						
Copper		20	0.5	20.3	**101.5**						
Iron	20000	20000	20057.7	20179.4	**100.9**						
Manganese		20	0.9	20.6	**103.0**						
Molybdenum	400	400	418.8	422.5	**105.6**						
Nickel		20	0.6	20.1	**100.5**						
Silver		20	0.0	19.1	**95.5**						
Vanadium			0.0	-0.4							
Zinc		20	0.9	19.9	**99.5**						

TM24 : 00068

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM24

ICS SOURCE: I.V.

RUNID: MS100481

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Cadmium		20	0.0	19.9	**99.5**						
Chromium		20	0.8	20.4	**102.0**						
Cobalt		20	0.0	19.1	**95.5**						
Copper		20	0.5	20.4	**102.0**						
Manganese		20	0.6	20.2	**101.0**						
Molybdenum	400	400	439.5	447.5	**111.9**						
Nickel		20	0.6	20.2	**101.0**						
Selenium			0.1	0.1							
Silver		20	0.0	19.2	**96.0**						
Thorium			0.2	0.1							
Vanadium			0.0	-0.4							
Zinc		20	1.0	19.9	**99.5**						

TM24 00085

Post Digest Spike Sample Recovery

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: ICP

SDG: TM24

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	RUNID	SPIKED SAMPLE RESULT	C	SAMPLE RESULT	C	SPIKE ADDED	MATRIX	%R
Selenium	FRP-091411-002A	TM24BPOST	IP092175	1839.47		50.00	U	2000	Water	92.0

FORM V

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: ICP

SDG: TM24

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-091411-002L	TM24B-L	Water	IP092175	106551.07		101419.95		4.8	
Cadmium	FRP-091411-002L	TM24B-L	Water	IP092175	0.94	U	10.00	U		
Calcium	FRP-091411-002L	TM24B-L	Water	IP092175	74065.92		73753.65		0.4	
Chromium	FRP-091411-002L	TM24B-L	Water	IP092175	958.85		971.40		1.3	
Copper	FRP-091411-002L	TM24B-L	Water	IP092175	1545.91		1500.50		2.9	
Iron	FRP-091411-002L	TM24B-L	Water	IP092175	177223.38		175708.25		0.9	
Magnesium	FRP-091411-002L	TM24B-L	Water	IP092175	23617.02		24978.85	B	5.8	
Manganese	FRP-091411-002L	TM24B-L	Water	IP092175	1489.33		1480.50		0.6	
Nickel	FRP-091411-002L	TM24B-L	Water	IP092175	203.70		216.40		6.2	
Potassium	FRP-091411-002L	TM24B-L	Water	IP092175	24909.60		23862.70	B	4.2	
Selenium	FRP-091411-002L	TM24B-L	Water	IP092175	-11.71	U	250.00	U		
Sodium	FRP-091411-002L	TM24B-L	Water	IP092175	3885897.89		3747317.75		3.6	
Thallium	FRP-091411-002L	TM24B-L	Water	IP092175	30.25	U	250.00	U		
Vanadium	FRP-091411-002L	TM24B-L	Water	IP092175	1184.02		1251.75		5.7	
Zinc	FRP-091411-002L	TM24B-L	Water	IP092175	1303.88		1332.30		2.2	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: PMS

SDG: TM24

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-091411-002L	TM24B-L	Water	MS092981	6.35	B	16.05	B	152.8	
Lead	FRP-091411-002L	TM24B-L	Water	MS092981	7.70		14.90	B	93.5	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: PMS

SDG: TM24

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-091411-002L	TM24B-L	Water	MS100381	6.35	B	8.70	B	37.0	
Lead	FRP-091411-002L	TM24B-L	Water	MS100381	7.70		7.60	B	1.3	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

ANALYSIS METHOD: PMS

SDG: TM24

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-091411-002L	TM24B-L	Water	MS100481	6.35	B	8.95	B	40.9	
Lead	FRP-091411-002L	TM24B-L	Water	MS100481	7.70		7.35	B	4.5	

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM24

UNITS: ug/L

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

TM24: 95% BC 4/7/12

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

IEC DATE: 9/7/2011

SDG: TM24

INSTRUMENT ID: OPTIMA ICP 2

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

TM24 : 000055

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

IEC DATE: 9/7/2011

SDG: TM24

INSTRUMENT ID: OPTIMA ICP 2

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

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ANALYSIS METHOD: ICP

PROJECT: FRP 2011 Shoreline I

ARI PREP CODE: TWC

SDG: TM24

PREPDATE: 9/19/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091411-001	TM24A	0.000	50.0	50.0
FRP-091411-002	TM24B	0.000	50.0	50.0
FRP-091411-002D	TM24BDUP	0.000	50.0	50.0
FRP-091411-002S	TM24BSPK	0.000	50.0	50.0
FRP-091411-003	TM24C	0.000	50.0	50.0
FRP-091411-004	TM24D	0.000	50.0	50.0
FRP-091411-002	TM24F	0.000	50.0	50.0
PBW	TM24MB1	0.000	50.0	50.0
LCSW	TM24MB1SPK	0.000	50.0	50.0
PBW	TM24MB2	0.000	50.0	50.0
LCSW	TM24MB2SPK	0.000	50.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM24

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 9/19/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091411-001	TM24A	0.000	50.0	25.0
FRP-091411-002	TM24B	0.000	50.0	25.0
FRP-091411-002D	TM24BDUP	0.000	50.0	25.0
FRP-091411-002S	TM24BSPK	0.000	50.0	25.0
FRP-091411-003	TM24C	0.000	50.0	25.0
FRP-091411-004	TM24D	0.000	50.0	25.0
PBW	TM24MB1	0.000	50.0	25.0
LCSW	TM24MB1SPK	0.000	50.0	25.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/21/2011

SDG: TM24 RUNID: IP092175 METHOD: ICP END DATE: 9/21/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	11155			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
S2	S2	1.00	11200									X		X	X					X												X	
S3	S3	1.00	11215																				X			X				X			X
S4	S4	1.00	11241																								X						
S5	S5	1.00	11262			X					X					X		X	X			X											
ICV	ICV	1.00	11300			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICB	ICB	1.00	11335			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CRI	CRII	1.00	11380			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSA	ICSAI	1.00	11421			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSAB	ICSABI	1.00	11460			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCV	CCV1	1.00	11495			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB1	1.00	11533			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	TM07MB1	1.00	11574																														
ZZZZZZ	TM97MB1	2.00	12020																														
ZZZZZZ	TM92MB	5.00	12061																														
ZZZZZZ	TM92ADUP	5.00	12104																														
ZZZZZZ	TM92A	5.00	12150																														
ZZZZZZ	TM92ASPK	5.00	12193																														
ZZZZZZ	TM97ADUP	2.00	12240																														
ZZZZZZ	TM97A	2.00	12274																														
ZZZZZZ	TM97ASPK	2.00	12314																														
ZZZZZZ	TM97MB1SPK	2.00	12353																														
CCV	CCV2	1.00	12392			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB2	1.00	12431			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	TL89A-L	5.00	12472																														
ZZZZZZ	TL89A	1.00	12513																														
ZZZZZZ	TL89ADUP	1.00	12555																														
ZZZZZZ	TL89ASPK	1.00	13001																														
ZZZZZZ	TL89APOST	1.00	13042																														
ZZZZZZ	TM07B-L	5.00	13083																														
ZZZZZZ	TM07B	1.00	13124																														
ZZZZZZ	TM07BDUP	1.00	13171																														
ZZZZZZ	TM07BSPK	1.00	13214																														
ZZZZZZ	TM07BPOST	1.00	13255																														
CCV	CCV3	1.00	13301			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X

FORM XIV

TM24 : 00100

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: OPTIMA ICP 2 START DATE: 9/21/2011

SDG: TM24 RUNID: IP092175 METHOD: ICP END DATE: 9/21/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CCB	CCB3	1.00	13335			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CRI	CRIF	1.00	13380			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSA	ICSAF	1.00	13421			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSAB	ICSABF	1.00	13463			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCV	CCV4	1.00	13501			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB4	1.00	13535			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	TN08MB	2.00	13581																														
ZZZZZZ	TM07A	1.00	14022																														
ZZZZZZ	TM07C	1.00	14065																														
ZZZZZZ	TM07D	1.00	14111																														
ZZZZZZ	TM07E	1.00	14155																														
ZZZZZZ	TM07F	1.00	14203																														
ZZZZZZ	TM07G	1.00	14251																														
ZZZZZZ	TM07H	1.00	14294																														
ZZZZZZ	TN08A	2.00	14341																														
ZZZZZZ	TN08MBSPK	2.00	14380																														
CCV	CCV5	1.00	14420			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB5	1.00	14455			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
FRP-091411-002L	TM24B-L	5.00	14500			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-091411-002	TM24B	1.00	14542			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-091411-002D	TM24BDUP	1.00	14581			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-091411-002S	TM24BSPK	1.00	15021			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
FRP-091411-002A	TM24BPOST	1.00	15060																							X							
FRP-091411-001	TM24A	1.00	15094			X						X		X	X								X			X				X		X	X
FRP-091411-003	TM24C	1.00	15142			X						X		X	X								X			X				X		X	X
ZZZZZZ	TM07I	1.00	15183																														
ZZZZZZ	TM07J	1.00	15230																														
ZZZZZZ	TM07MB1SPK	1.00	15271																														
CCV	CCV6	1.00	15311			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB6	1.00	15345			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
PBW	TM24MB1	1.00	15390			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X
PBW	TM24MB2	1.00	15432																								X						
FRP-091411-004	TM24D	1.00	15473																														
FRP-091411-002	TM24F	1.00	15513																								X						
LCSW	TM24MB1SPK	1.00	15554			X					X	X		X	X	X		X	X	X		X	X			X				X		X	X

FORM XIV

TM24 : 00100 2

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 9/21/2011

SDG: TM24 | RUNID: IP092175 METHOD: ICP | END DATE: 9/21/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
LCSW	TM24MB2SPK	1.00	15594																								X						
FRP-091411-004	TM24D	2.00	16064			X						X		X	X								X			X				X		X	X
ZZZZZZ	D1	1.00	16103																														
LCSW	TM24MB2SPK	1.00	16144																														
CCV	CCV7	1.00	16185			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB7	1.00	16223			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ZZZZZZ	ZZZZZZ	1.00	16265																														
CRI	CRIF1	1.00	16312			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSA	ICSAF1	1.00	16353			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
ICSAB	ICSABF1	1.00	16394			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCV	CCV8	1.00	16433			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X
CCB	CCB8	1.00	16471			X					X	X		X	X	X		X	X	X		X	X			X	X			X		X	X

TM24 : 00152

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

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

SDG: TM24 RUNID: MS092981 METHOD: PMS END DATE: 9/29/2011

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

FORM XIV

TM24 : 00163 2

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

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

SDG: TM24 | RUNID: MS092981 METHOD: PMS | END DATE: 9/29/2011

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

FORM XIV

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

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

SDG: TM24 RUNID: MS092981 METHOD: PMS END DATE: 9/29/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TL76G	10.00	17450																														
ZZZZZZ	TL76GDUP	10.00	17520																														
ZZZZZZ	TL76GSPK	10.00	17590																														
ZZZZZZ	TM09A	2.00	18050																														
ZZZZZZ	TM09B	2.00	18120																														
CCV	MCCV7	1.00	18180				X																	X									
CCB	CCB7	1.00	18260				X																	X									
ZZZZZZ	TM07MB1	2.00	18320																														
ZZZZZZ	TM07MB1SPK	2.00	18380																														
ZZZZZZ	TM07B-L	25.00	18450																														
ZZZZZZ	TM07B	5.00	18510																														
ZZZZZZ	TM07BDUP	5.00	18580																														
ZZZZZZ	TM07BSPK	5.00	19040																														
ZZZZZZ	TM07A	5.00	19110																														
ZZZZZZ	TM07J	5.00	19180																														
ZZZZZZ	TL76B	20.00	19240																														
ZZZZZZ	TL76C	20.00	19310																														
CCV	MCCV8	1.00	19380				X																	X									
CCB	CCB8	1.00	19450				X																	X									
PBW	TM24MB1	2.00	19510				X																	X									
LCSW	TM24MB1SPK	2.00	19570				X																	X									
ZZZZZZ	TM07C	10.00	20040																														
ZZZZZZ	TM07D	10.00	20100																														
ZZZZZZ	TM07E	10.00	20170																														
ZZZZZZ	TM07F	5.00	20240																														
ZZZZZZ	TM07G	5.00	20300																														
ZZZZZZ	TM07H	10.00	20370																														
ZZZZZZ	TM07I	5.00	20430																														
FRP-091411-001	TM24A	5.00	20500				X																	X									
CCV	MCCV9	1.00	20570				X																	X									
CCB	CCB9	1.00	21040				X																	X									
FRP-091411-002L	TM24B-L	25.00	21100																														
FRP-091411-002	TM24B	5.00	21170																														
FRP-091411-002D	TM24BDUP	5.00	21230																														
FRP-091411-002S	TM24BSPK	5.00	21300																														

FORM XIV

TM24 : 00150

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

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

SDG: TM24 RUNID: MS092981 METHOD: PMS END DATE: 9/29/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TM29A-L	25.00	21370																														
ZZZZZZ	TM29A	5.00	21430																														
ZZZZZZ	TM29ADUP	5.00	21500																														
ZZZZZZ	TM29ASPK	5.00	21570																														
FRP-091411-003	TM24C	10.00	22030																					X									
FRP-091411-004	TM24D	10.00	22100																					X									
CCV	MCCV10	1.00	22160				X																	X									
CCB	CCB10	1.00	22240				X																	X									

TM24 : 00105

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 10/3/2011

SDG: TM24 RUNID: MS100381 METHOD: PMS END DATE: 10/3/2011

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	08560																					X									
S1	S1	1.00	09030																					X									
S2	S2	1.00	09090																					X									
S3	S3	1.00	09160																					X									
S4	S4	1.00	09230																					X									
ZZZZZZ	Rinse Sampl	1.00	09310																														
ICV	MICV	1.00	09420																					X									
ICB	ICB	1.00	09520																					X									
CCV	MCCV1	1.00	09590																					X									
CCB	CCB1	1.00	10060																					X									
CRI	MCRI	1.00	10140																					X									
ICSA	ICSAI	1.00	10210																					X									
ICSAB	ICSABI	1.00	10290																					X									
ZZZZZZ	LR200	1.00	10370																														
ZZZZZZ	LR300	1.00	10440																														
CCV	MCCV2	1.00	10520																					X									
CCB	CCB2	1.00	11000																					X									
ZZZZZZ	TN71MB1	2.00	11080																														
ZZZZZZ	TM09MB1	2.00	11140																														
ZZZZZZ	TO74MB	2.00	11200																														
ZZZZZZ	TO74MBSPK	2.00	11260																														
ZZZZZZ	TM09MB1SPK	2.00	11320																														
ZZZZZZ	TO74C	2.00	11390																														
ZZZZZZ	TM09A	2.00	11460																														
ZZZZZZ	TM09B	2.00	11520																														
ZZZZZZ	TM47D	20.00	11590																														
ZZZZZZ	TM48C	20.00	12060																														
CCV	MCCV3	1.00	12130																					X									
CCB	CCB3	1.00	12200																					X									
ZZZZZZ	TO07MB1	2.00	12270																														
ZZZZZZ	TO07MB2	2.00	12330																														
ZZZZZZ	TO07MB1SPK	2.00	12390																														
ZZZZZZ	TO07MB2SPK	2.00	12460																														
ZZZZZZ	TO07A	2.00	12520																														
ZZZZZZ	TO07B	2.00	12590																														

FORM XIV

TM24 : 00167

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 10/3/2011

SDG: TM24 RUNID: MS100381 METHOD: PMS END DATE: 10/3/2011

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	TO07C	2.00	13060																														
ZZZZZZ	TO07D	2.00	13130																														
ZZZZZZ	TO07E	2.00	13190																														
ZZZZZZ	TO07F	2.00	13260																														
CCV	MCCV4	1.00	13330																					X									
CCB	CCB4	1.00	13400																					X									
ZZZZZZ	TO04MB1	2.00	13480																														
ZZZZZZ	TO04MB2	2.00	13540																														
ZZZZZZ	TO04MB1SPK	2.00	14000																														
ZZZZZZ	TO04MB2SPK	2.00	14060																														
ZZZZZZ	TM48BDUP	20.00	14130																														
ZZZZZZ	TM48B	20.00	14200																														
ZZZZZZ	TM48BSPK	20.00	14270																														
ZZZZZZ	TM47CDUP	20.00	14330																														
ZZZZZZ	TM47C	20.00	14400																														
ZZZZZZ	TM47CSPK	20.00	14470																														
CCV	MCCV5	1.00	14540																					X									
CCB	CCB5	1.00	15010																					X									
ZZZZZZ	TO32MB1	2.00	15200																														
ZZZZZZ	TO32MB2	2.00	15260																														
ZZZZZZ	TO32MB1SPK	2.00	15320																														
ZZZZZZ	TO32MB2SPK	2.00	15380																														
ZZZZZZ	TO32A	2.00	15450																														
ZZZZZZ	TO32B	2.00	15520																														
ZZZZZZ	TO32C	2.00	15580																														
ZZZZZZ	TO32D	2.00	16050																														
ZZZZZZ	TO04B	2.00	16120																														
ZZZZZZ	TO04C	2.00	16190																														
CCV	MCCV6	1.00	16250																					X									
CCB	CCB6	1.00	16330																					X									
ZZZZZZ	TO43MB	2.00	16390																														
ZZZZZZ	TO43MBSPK	2.00	16450																														
ZZZZZZ	TO43A	2.00	16510																														
ZZZZZZ	TO43B	2.00	16580																														
ZZZZZZ	TO32E	2.00	17050																														

FORM XIV

T42-1.065.03 0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 10/3/2011

SDG: TM24 RUNID: MS100381 METHOD: PMS END DATE: 10/3/2011

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	TO32F	2.00	17120																														
ZZZZZZ	TO32G	2.00	17180																														
ZZZZZZ	TO32H	2.00	17250																														
ZZZZZZ	TO32I	2.00	17320																														
ZZZZZZ	TO32J	2.00	17380																														
CCV	MCCV7	1.00	17450																					X									
CCB	CCB7	1.00	17530																					X									
ZZZZZZ	TO26MB1	2.00	17580																														
ZZZZZZ	TO26MB2	2.00	18040																														
ZZZZZZ	TO26MB1SPK	2.00	18100																														
ZZZZZZ	TO26MB2SPK	2.00	18170																														
ZZZZZZ	TO26A	2.00	18240																														
ZZZZZZ	TO26B	2.00	18300																														
ZZZZZZ	TO26C	2.00	18370																														
ZZZZZZ	TO26D	2.00	18440																														
ZZZZZZ	TO26E	2.00	18510																														
ZZZZZZ	TO26F	2.00	18570																														
CCV	MCCV8	1.00	19040																					X									
CCB	CCB8	1.00	19120																					X									
ZZZZZZ	TO07MB2	2.00	19170																														
ZZZZZZ	TO25MB1	2.00	19230																														
ZZZZZZ	TO25MB2	2.00	19290																														
ZZZZZZ	TO25MB1SPK	2.00	19350																														
ZZZZZZ	TO25MB2SPK	2.00	19420																														
ZZZZZZ	TO26G	2.00	19490																														
ZZZZZZ	TO26H	2.00	19550																														
ZZZZZZ	TO25A	2.00	20020																														
ZZZZZZ	TO25B	2.00	20090																														
ZZZZZZ	TM07J	2.00	20150																														
CCV	MCCV9	1.00	20220																					X									
CCB	CCB9	1.00	20300																					X									
FRP-091411-002L	TM24B-L	50.00	20360																														
FRP-091411-002	TM24B	10.00	20420																					X									
FRP-091411-002D	TM24BDUP	10.00	20490																					X									
FRP-091411-002S	TM24BSPK	10.00	20560																					X									

FORM XIV

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 10/3/2011

SDG: TM24 RUNID: MS100381 METHOD: PMS END DATE: 10/3/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-091411-003	TM24C	20.00	21020																														
FRP-091411-004	TM24D	20.00	21090																														
ZZZZZZ	TM29B	20.00	21160																														
ZZZZZZ	TM29C	10.00	21230																														
ZZZZZZ	TM29D	10.00	21290																														
ZZZZZZ	TM53B	5.00	21360																														
CCV	MCCV10	1.00	21430																					X									
CCB	CCB10	1.00	21500																					X									

TM24 : 001 of

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: PE ELAN 6000 MS START DATE: 10/4/2011

SDG: TM24 RUNID: MS100481 METHOD: PMS END DATE: 10/4/2011

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	12310				X																										
S1	S1	1.00	12370				X																										
S2	S2	1.00	12440				X																										
S3	S3	1.00	12500				X																										
S4	S4	1.00	12570				X																										
ZZZZZZ	Rinse Sampl	1.00	13040																														
ICV	MICV	1.00	13120				X																										
ICB	ICB	1.00	13190				X																										
CCV	MCCV1	1.00	13250				X																										
CCB	CCB1	1.00	13320				X																										
CRI	MCRI	1.00	13380				X																										
ICSA	ICSAI	1.00	13440				X																										
ICSAB	ICSABI	1.00	13500				X																										
ZZZZZZ	LR200	1.00	13570																														
ZZZZZZ	LR300	1.00	14040																														
CCV	MCCV2	1.00	14120				X																										
CCB	CCB2	1.00	14190				X																										
ZZZZZZ	TM82MB1	2.00	14290																														
ZZZZZZ	TM82MB1SPK	2.00	14340																														
ZZZZZZ	TO04B	20.00	14400																														
ZZZZZZ	TM53A-L	25.00	14460																														
ZZZZZZ	TM53A	5.00	14530																														
ZZZZZZ	TM53ADUP	5.00	14590																														
ZZZZZZ	TM53ASPK	5.00	15060																														
ZZZZZZ	TM53C	5.00	15120																														
ZZZZZZ	TM53E	10.00	15190																														
CCV	MCCV3	1.00	15260				X																										
CCB	CCB3	1.00	15330				X																										
ZZZZZZ	TM83MB1	2.00	15580																														
ZZZZZZ	TM83MB1SPK	2.00	16040																														
FRP-091411-002L	TM24B-L	50.00	16110				X																	X									
FRP-091411-002	TM24B	10.00	16170				X																										
FRP-091411-002D	TM24BDUP	10.00	16240				X																										
FRP-091411-002S	TM24BSPK	10.00	16310				X																										
FRP-091411-003	TM24C	50.00	16370				X																										

FORM XIV

TM24 : 001 of 1

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

INSTRUMENT ID: PE ELAN 6000 MS

START DATE: 10/4/2011

SDG: TM24

RUNID: MS100481 METHOD: PMS

END DATE: 10/4/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-091411-004	TM24D	50.00	16440				X																										
ZZZZZZ	TM29C	20.00	16510																														
ZZZZZZ	TM29D	20.00	16570																														
CCV	MCCV4	1.00	17040				X																										
CCB	CCB4	1.00	17110				X																										

TM24:091122

Mercury Analysis
Report and Summary QC Forms

ARI Job ID: TM24, TM25

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM25

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-091411-001	TM25A	11-19987	
FRP-091411-001D	TM25ADUP	11-19987	
FRP-091411-001S	TM25ASPK	11-19987	
FRP-091411-002	TM25B	11-19988	
PBW	TM25MB1	11-19988	
LCSW	TM25MB1SPK	11-19988	
FRP-091411-003	TM25C	11-19989	
FRP-091411-004	TM25D	11-19990	

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

Comments: _____

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

Signature: _____ Name: Jay Kuhn

Date: 9/26/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 09/26/11
Date Received: 09/14/11
Page 1 of 1

QC Report No: TM25-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
FRP-091411-001 TM25A 11-19987	09/14/11	Water	09/19/11 09/23/11	20.0	55.9
FRP-091411-002 TM25B 11-19988	09/14/11	Water	09/19/11 09/23/11	200	4,110
FRP-091411-003 TM25C 11-19989	09/14/11	Water	09/19/11 09/23/11	400	1,540
FRP-091411-004 TM25D 11-19990	09/14/11	Water	09/19/11 09/23/11	400	9,460
MB-091911 Method Blank	NA	Water	09/19/11 09/23/11	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-091411-001
MATRIX SPIKE

Lab Sample ID: TM25A
LIMS ID: 11-19987
Matrix: Water
Data Release Authorized:
Reported: 09/26/11

QC Report No: TM25-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	55.9	137	100	81.1%	

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-091411-001
DUPLICATE

Lab Sample ID: TM25A
LIMS ID: 11-19987
Matrix: Water
Data Release Authorized:
Reported: 09/26/11

QC Report No: TM25-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation
8769
Date Sampled: 09/14/11
Date Received: 09/14/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	55.9	65.1	15.2%	+/- 20.0	L

Reported in ng/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TM25LCS
LIMS ID: 11-19988
Matrix: Water
Data Release Authorized:
Reported: 09/26/11

QC Report No: TM25-AMEC Geomatrix
Project: FRP 2011 Shoreline Investigation 8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	180	200	90.0%	

Reported in ng/L

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

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM25

UNITS:ng/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Mercury	HG	CVL	HG092301	500.0	474.00	94.8	500.0	494.00	98.8	492.00	98.4	484.00	96.8	462.00	92.4	473.00	94.6

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

TMC1:00139

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ng/L

SDG: TM25

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Mercury	HG	CVL	HG092301	500.0	476.00	95.2	479.00	95.8	469.00	93.8						

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

TM24 : 00128

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM25

UNITS:ng/L

ANALYTE	EL	M	RUN	CRA/I	TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Mercury	HG	CVL	HG092301		20.0	15.20	76.0										

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

1 2 5 0 0 1 2 1 4

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS:ng/L

SDG: TM25

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Mercury	HG	CVL	HG092301	25.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U

TM24 . 0021 22

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

UNITS: ng/L

SDG: TM25

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Mercury	HG	CVL	HG092301	25.0	20.0	20.0	U	20.0	U	20.0	U						

TM25 : 00012

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I

SDG: TM25 UNITS: ng/L

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

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ANALYSIS METHOD: CVL

PROJECT: FRP 2011 Shoreline I

ARI PREP CODE: TLM

SDG: TM25

PREPDATE: 9/19/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-091411-001	TM25A	0.000	20.0	20.0
FRP-091411-001D	TM25ADUP	0.000	20.0	20.0
FRP-091411-001S	TM25ASPK	0.000	20.0	20.0
FRP-091411-002	TM25B	0.000	20.0	20.0
FRP-091411-003	TM25C	0.000	1.0	20.0
FRP-091411-004	TM25D	0.000	1.0	20.0
PBW	TM25MB1	0.000	20.0	20.0
LCSW	TM25MB1SPK	0.000	20.0	20.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/23/2011

SDG: TM25 RUNID: HG092301 METHOD: CVL END DATE: 9/23/2011

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	16161														X																
S20	S20	1.00	16185														X																
S50	S50	1.00	16213														X																
S100	S100	1.00	16242														X																
S200	S200	1.00	16270														X																
S400	S400	1.00	16294														X																
S1000	S1000	1.00	16323														X																
ICV	AICV	1.00	16365														X																
ICB	ICB	1.00	16393														X																
CCV	ACCV1	1.00	16421														X																
CCB	CCB1	1.00	16450														X																
CRA	CRA	1.00	16474														X																
ZZZZZZ	TM90MB1	1.00	16502																														
ZZZZZZ	TM90MB1SPK	1.00	16530																														
ZZZZZZ	TM90A	1.00	16554																														
ZZZZZZ	TM90ADUP	1.00	16582																														
ZZZZZZ	TM90ASPK	1.00	17011																														
ZZZZZZ	TM90MB2	1.00	17035																														
ZZZZZZ	TM90MB2SPK	1.00	17063																														
ZZZZZZ	TM90B	1.00	17091																														
ZZZZZZ	TM90BDUP	1.00	17120																														
CCV	ACCV2	1.00	17144														X																
CCB	CCB2	1.00	17173														X																
ZZZZZZ	TM90BSPK	1.00	17201																														
ZZZZZZ	TN21MB1	1.00	17225																														
ZZZZZZ	TN21MB1SPK	1.00	17253																														
ZZZZZZ	TN21A	1.00	17281																														
ZZZZZZ	TN21ADUP	1.00	17305																														
ZZZZZZ	TN21ASPK	1.00	17333																														
ZZZZZZ	TN21B	1.00	17361																														
ZZZZZZ	TN21C	1.00	17390																														
ZZZZZZ	TN21D	1.00	17414																														
ZZZZZZ	TN21E	1.00	17442																														
CCV	ACCV3	1.00	17471														X																
CCB	CCB3	1.00	17495														X																

FORM XIV

TM25 : 00125

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/23/2011

SDG: TM25 RUNID: HG092301 METHOD: CVL END DATE: 9/23/2011

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	TM08MB1	1.00	17524																														
ZZZZZZ	TM08MB1SPK	1.00	17552																														
ZZZZZZ	TM08A	1.00	17580																														
ZZZZZZ	TM08ADUP	1.00	18004																														
ZZZZZZ	TM08ASPK	1.00	18032																														
ZZZZZZ	TM08B	1.00	18060																														
ZZZZZZ	TM08C	1.00	18085																														
ZZZZZZ	TM08D	1.00	18113																														
ZZZZZZ	TM08E	1.00	18141																														
ZZZZZZ	TM08F	1.00	18165																														
CCV	ACCV4	1.00	18194														X																
CCB	CCB4	1.00	18222														X																
ZZZZZZ	TM08G	1.00	18251																														
ZZZZZZ	TM08H	1.00	18275																														
ZZZZZZ	TM08I	1.00	18303																														
ZZZZZZ	TM08J	1.00	18332																														
PBW	TM25MB1	1.00	18360														X																
LCSW	TM25MB1SPK	1.00	18384														X																
FRP-091411-001	TM25A	1.00	18412														X																
FRP-091411-001D	TM25ADUP	1.00	18440														X																
FRP-091411-001S	TM25ASPK	1.00	18464														X																
FRP-091411-002	TM25B	1.00	18493																														
CCV	ACCV5	1.00	18532														X																
CCB	CCB5	1.00	18561														X																
FRP-091411-003	TM25C	1.00	18585														X																
FRP-091411-004	TM25D	1.00	19014														X																
CCV	ACCV6	1.00	19042														X																
CCB	CCB6	1.00	19071														X																
ZZZZZZ	TM88MB1	1.00	19095																														
ZZZZZZ	TM88MB1SPK	1.00	19123																														
ZZZZZZ	TM88A	1.00	19152																														
ZZZZZZ	TM88MB2	1.00	19180																														
ZZZZZZ	TM88MB2SPK	1.00	19204																														
ZZZZZZ	TM88B	1.00	19233																														
CCV	ACCV7	1.00	19261														X																

FORM XIV

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Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP 2011 Shoreline I INSTRUMENT ID: CETAC MERCURY START DATE: 9/23/2011

SDG: TM25 RUNID: HG092301 METHOD: CVL END DATE: 9/23/2011

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	CCB7	1.00	19285														X																
FRP-091411-002	TM25B	10.00	19321														X																
CCV	ACCV8	1.00	19345														X																
CCB	CCB8	1.00	19374														X																

TM2411 0001 28

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: TM24, TM25

SAMPLE RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Client ID: FRP-091411-001
ARI ID: 11-19981 TM24A

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/15/11 091511#1	EPA 150.1	std units	0.01	9.54

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Client ID: FRP-091411-002
ARI ID: 11-19982 TM24B

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/15/11 091511#1	EPA 150.1	std units	0.01	10.1
Alkalinity	09/19/11 091911#1	SM 2320	mg/L CaCO3	1.0	2,620
Carbonate	09/19/11	SM 2320	mg/L CaCO3	1.0	2,290
Bicarbonate	09/19/11	SM 2320	mg/L CaCO3	1.0	328
Hydroxide	09/19/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Chloride	09/16/11 091611#1	EPA 300.0	mg/L	200	3,800
N-Nitrate	09/15/11 091511#1	EPA 300.0	mg-N/L	5.0	5.4
Ortho-Phosphorous	09/15/11 091511#1	EPA 300.0	mg-P/L	5.0	10.4
N-Ammonia	09/20/11 092011#1	EPA 350.1M	mg-N/L	0.500	17.2
Sulfate	09/15/11 091511#1	EPA 300.0	mg/L	5.0	196
Sulfide	09/16/11 091611#1	EPA 376.2	mg/L	5.00	53.6

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Client ID: FRP-091411-003
ARI ID: 11-19983 TM24C

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/15/11 091511#1	EPA 150.1	std units	0.01	9.93

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Client ID: FRP-091411-004
ARI ID: 11-19984 TM24D

Analyte	Date Batch	Method	Units	RL	Sample
pH	09/15/11 091511#1	EPA 150.1	std units	0.01	10.9

RL Analytical reporting limit
U Undetected at reported detection limit

REPLICATE RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

Project: FRP 2011 Shoreline Investiga
Event: 8769
Date Sampled: 09/14/11
Date Received: 09/14/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TM24A Client ID: FRP-091411-001						
pH	EPA 150.1	09/15/11	std units	9.54	9.54	0.00
ARI ID: TM24B Client ID: FRP-091411-002						
Chloride	EPA 300.0	09/16/11	mg/L	3,800	3,850	1.3%
N-Nitrate	EPA 300.0	09/15/11	mg-N/L	5.4	5.4	0.0%
Ortho-Phosphorous	EPA 300.0	09/15/11	mg-P/L	10.4	10.3	1.0%
Sulfate	EPA 300.0	09/15/11	mg/L	196	198	1.0%

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

LAB CONTROL RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

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

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
pH EPA 150.1	ICVL	09/15/11	std units	7.00	7.00	0.00
Sulfide EPA 376.2	ICVL	09/16/11	mg/L	0.525	0.500	105.0%
	PREP	09/16/11		6.11	6.51	93.9%

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

METHOD BLANK RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

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

Analyte	Method	Date	Units	Blank	ID
Chloride	EPA 300.0	09/16/11	mg/L	< 0.1 U	
N-Nitrate	EPA 300.0	09/15/11	mg-N/L	< 0.1 U	
Ortho-Phosphorous	EPA 300.0	09/15/11	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	09/15/11	mg/L	< 0.1 U	
Sulfide	EPA 376.2	09/16/11 09/16/11	mg/L	< 0.050 U < 0.050 U	

FB Filtration Blank

STANDARD REFERENCE RESULTS-CONVENTIONALS
TM24-AMEC Geomatrix

ANALYTICAL RESOURCES INCORPORATED

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

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

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Alkalinity ERA #P114506	SM 2320	09/19/11	mg/L CaCO3	49.9	49.2	101.4%
Chloride ERA #230109	EPA 300.0	09/16/11	mg/L	2.8	3.0	93.3%
N-Nitrate ERA #09127	EPA 300.0	09/15/11	mg-N/L	2.8	3.0	93.3%
Ortho-Phosphorous EAR #210109	EPA 300.0	09/15/11	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	09/15/11	mg/L	2.9	3.0	96.7%

Geotechnical Analysis
Report and Summary QC Forms

ARI Job ID: TM24, TM25

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-091411-002	0.994
FRP-091411-002	0.994
FRP-091411-002	0.994

TM24