D. S.

AECOM

AECOM Environment
1001 W. Seneca St., Ste 204, Ithaca, NY 14850
T 607-277-5716 F 607-277-9057 www.aecom.com

December 9, 2008

Mr. Charles Burke
National Fuel Gas Distribution Corporation
Building 8
365 Mineral Springs Road
Buffalo, NY 14210

Subject: **Groundwater and Surface Water Monitoring Results**
September 2008
Mineral Springs Road MGP Site

Dear Charlie,

This report provides the results of a groundwater and surface water sampling event completed by AECOM Environment (formerly ENSR) on September 9-10, 2008, at the Mineral Springs Road former manufactured gas plant (MGP) site in West Seneca (and Buffalo), New York.

The work at the Mineral Springs site is being conducted under a New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Agreement (number B9-0538-98-08) as described in the Remedial Design, dated February 10, 1999, and the Final Engineering Report, Volume II – Operations and Maintenance Plan, dated May 2002.

Summary

A total of 13 groundwater samples were collected and analyzed. A total of 14 depth-to-water measurements were taken. Sampling locations are shown in the attached figure. Analytical results are summarized in the attached table.

Groundwater elevations were similar to those in April 2008.

Concentrations of benzene, ethylbenzene, toluene, and xylene (BTEX) and/or polycyclic aromatic hydrocarbon (PAH) compounds were above NYSDEC standard or guidance values in three of the six onsite groundwater samples.

Total cyanide concentrations exceeded the NYSDEC groundwater standard in seven of the nine groundwater samples analyzed. Free cyanide was detected in seven of the nine groundwater samples.

BTEX and/or PAH compounds were not detected in the two surface water samples collected. Total cyanide concentrations in these surface water samples were also below the NYSDEC Class D Stream Standard. One surface water sample was below the NYSDEC standard for free cyanide while the other was not detected above method reporting limits

Groundwater elevations

Depth-to-water measurements were taken at the 14 monitoring wells. The measurements were used to construct the groundwater contours shown in the attached figure. Groundwater elevations were similar to the April 2008 event, while the groundwater elevations in August 2007 were the lowest measured since 2000.

At the time of the sampling, groundwater flowed onto the site from the east-southeast, and then flowed to the west towards Calais Street and Mineral Springs Road. Onsite groundwater usually appears to also discharge to the Class D Stream, which in turn discharges to the Calais Street storm sewer and the municipal wastewater treatment system.

Sampling and analysis

A total of 13 monitoring wells were purged and sampled by an ENSR geologist. Sampling locations are shown on the attached figure.

Test America (formerly Severn Trent Laboratories [STL]) of Pittsburgh, PA, performed the analyses of the groundwater samples for hydrocarbon compounds of concern. Test America is currently certified to perform the requested analyses under the NYSDOH Environmental Laboratory Approval Program. The samples were analyzed for manufactured gas plant (MGP) indicators using the following methods:

BTEX	Method SW846 8260B
PAHs	Method SW846 8270C

Samples were also sent to Clarkson University of Potsdam, NY (Clarkson) for cyanide analysis using the following methods:

Cyanide (free)	Method ASTM D4282-89
Cyanide (total)	Method APHA 4500-CN-

All sampling and analyses were conducted according to ENSR's Standard Operating Procedures as provided in the project Quality Assurance Plan (QAP) of June 11, 1999. Additionally, the cyanide samples were protected from light during collection to prevent the dissociation of metal-cyanide compounds, which would artificially elevate free cyanide results. The cyanide samples were also treated with lead carbonate and filtered to remove potential sulfide interferences.

Analytical results and conclusions

The results of the laboratory analyses are summarized in the attached table. The laboratory reports and the chain-of-custody forms are attached as well. The locations, sampling objectives, and a discussion of the analytical results for each of the specific areas of interest at the site are provided in the following sections.

Upgradient site perimeter

Well MW-17 is located in the southeast corner of the site and monitors upgradient groundwater quality. The results of the analyses indicate that no BTEX or PAH compounds were detected. Total cyanide was detected at a concentration of 144 µg/L, below the NYSDEC groundwater standard. Free cyanide was not detected at this well.

Downgradient site perimeter

Wells MW-20 and MW-21 are located downgradient of the western boundary of the site on Calais Street. Wells MW-13, MW-14, MW-22 and MW-23 are located just inside the northern property boundary near Mineral Springs Road. These six "sentinel" wells monitor groundwater quality downgradient of the site. The groundwater samples from these six wells were analyzed for total and free cyanide.

Five of the wells were found to contain total cyanide in concentrations above the NYSDEC groundwater standard of 200 µg/L. Concentrations ranged from 115 µg/L at MW-20 to 785 µg/L at MW-22. Free cyanide was detected in five of the six sentinel wells above method detection limits. These concentrations are generally consistent with previous results with the following exceptions:

- The total cyanide concentration in MW-13 increased from 54 µg/L in April 2008 to 467 µg/L. The concentration in August 2007 was 664 µg/L, 3 µg/L in April 2007, and 300 µg/L in August 2006.

- Free cyanide was detected above method detection limits in seven of the nine groundwater wells sampled, whereas in April of 2008, free cyanide was detected in all nine groundwater wells sampled. Free cyanide was not detected in any groundwater samples above method detection limits in the April 2007 or August 2006 sampling events.

On-site purifier residuals impacted areas

Wells MW-12 and MW-16 monitor groundwater quality at locations of known subsurface deposits of purifier box residuals. These deposits were remediated by capping. Samples from these two wells were analyzed for total and free cyanide.

Total cyanide concentrations were 550 µg/L at MW-12 and 540 µg/L at MW-16. Free cyanide was detected in both of these monitoring wells.

On-site hydrocarbon NAPL impacted areas

Wells MW-7, MW-10, MW-11A, and MW-19 monitor on-site groundwater quality downgradient of subsurface soil impacted with hydrocarbon non-aqueous phase liquid (NAPL). Samples from these wells were analyzed for BTEX and PAHs.

BTEX and PAHs were not detected at MW-10. Consistent with previous results, BTEX and PAH compounds were detected above the NYSDEC groundwater standards in MW-7, MW-11A, and MW-19.

Surface water

Two surface water samples were collected from the Class D Stream running along the south side of the site. BTEX and PAHs were not detected in either surface water sample.

Total cyanide was detected in both samples but did not exceed the NYSDEC standard. Free cyanide was detected at 10.1 µg/L in SW-02 which is below the NYSDEC standard. Free cyanide in SW-01 was not detected at a concentration greater than the method detection limits.

In August 2007, no surface water samples were collected because the stream was dry. In April 2007, the two surface water samples had no BTEX, PAHs, or total cyanide detected above method reporting limits but did have free cyanide concentrations below the NYSDEC standard.

QA/QC samples

Quality control samples were collected during the sampling event to meet the requirements of the project QAP.

An equipment blank (EB) was prepared using organic free water supplied by the laboratory that was run over and through a sample collection bailer and through peristaltic pump tubing. No compounds were detected in the equipment blank.

A trip blank (TB) sample was prepared by the laboratory and was stored in the sample cooler throughout the sampling event and during transportation back to the laboratory. The trip blank was analyzed for BTEX and no compounds were detected in it.

A duplicate sample was collected from SW-02 and submitted for analysis of BTEX, PAHs, and cyanide. The duplicate results were within the acceptable range for BTEX, PAHs, and cyanide samples.

DNAPL recovery test well (RTW-1)

During this groundwater sampling event, the Recovery System was operated to purge RTW-1 of dense non-aqueous phase liquid (DNAPL) that had accumulated since the April 2008 sampling event. Approximately ½ gallon of water was pumped out. The water contained only trace amounts (blebs) of NAPL.

If you have any questions or comments, please do not hesitate to call me at (607) 277-5716.

Yours sincerely,

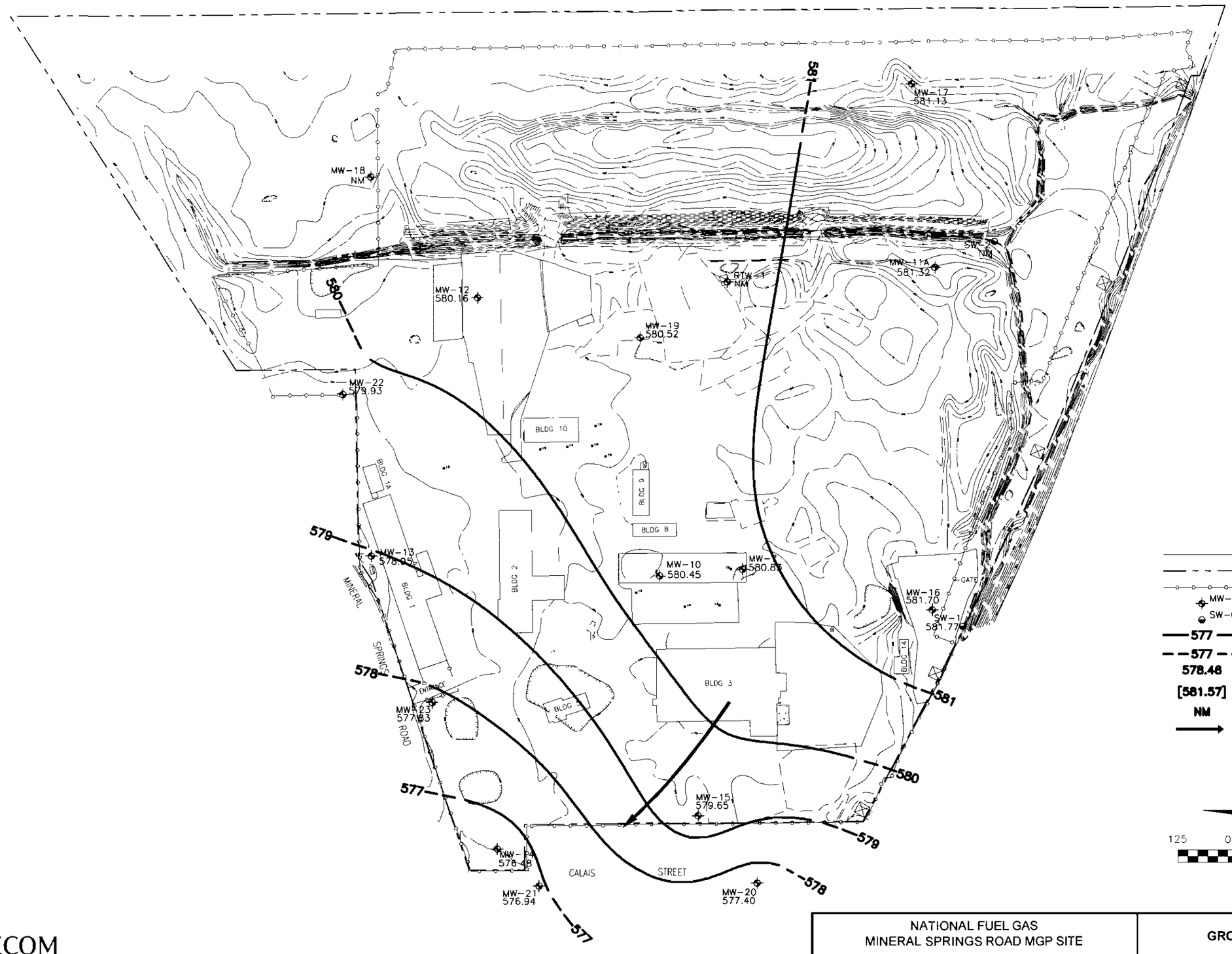
Helen A. Jones
Geochemist

John T. Finn, P.E.
Project Manager

Encl: Groundwater Contours (figure)
Laboratory Results Summary (table)
Laboratory Reports

cc: T. Alexander - NFG
R. Kennedy – Hodgson Russ LLP
D. Szymanski - NYSDEC
C. O'Connor - NYSDOH (w. figure/table only)
G. Bailey - NYSDEC (w. figure/table only)
G. Litwin - NYSDOH (w. figure/table only)
File: 04870-026

Groundwater Contours (figure)



ENSR | AECOM

NATIONAL FUEL GAS MINERAL SPRINGS ROAD MGP SITE 04870-026-300			GROUNDWATER CONTOURS SEPTEMBER 2008
DATE 11/07/08	DRWN MAW/BIL		FIGURE 1

File: J:\04870026\300\GW9-08.dwg Layout: ANSI_B(-LJ User: WilliamsonMA Plotted: Nov 07, 2008 7:43am Kreil's

Laboratory Results Summary (table)

Groundwater and Surface Water Monitoring Results
Mineral Springs Road MGP Site

September 2008

PARAMETER	GROUNDWATER														SURFACE WATER			QA / QC		
Sample ID :	MW-07	MW-10	MW-11A	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-19	MW-20	MW-21	MW-22	MW-23	*Groundwater*	SW-01	SW-02	*Class D Stream*	TB	EB	SW-02 Dup
Sample Date :	09 09 08	09 09 08	09 09 08	09 09 08	09 10 08	09 09 08	09 10 08	09 09 08	09 09 08	09 09 08	09 10 08	09 10 08	09 09 08	09 10 08	*Standard* (1)	09 09 08	09 09 08	*Standard* (1)	09 10 08	09 10 08	09 09 08
BTEX (ug/L)																					
Benzene	1100	nd	210	---	---	---	---	---	nd	3700	---	---	---	nd	1	nd	nd	10	nd	nd	nd
Toluene	590	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	5	nd	nd	6000	nd	nd	nd
Ethylbenzene	1500	nd	71	---	---	---	---	---	nd	120 J	---	---	---	nd	5	nd	nd	150 *	nd	nd	nd
Xylene (sum of isomers)	910	nd	30	---	---	---	---	---	nd	510	---	---	---	nd	5 (each)	nd	nd	590 *	nd	nd	nd
PAHs (ug/L)																					
Naphthalene	1000	nd	2.5 J	---	---	---	---	---	nd	2600	---	---	---	nd	10 *	nd	nd	110 *	---	nd	nd
Acenaphthylene	nd	nd	3.4 J	---	---	---	---	---	nd	nd	---	---	---	nd	NL *	nd	nd	NL	---	nd	nd
Acenaphthene	69	nd	5 J	---	---	---	---	---	nd	nd	---	---	---	nd	20 *	nd	nd	48 *	---	nd	nd
Fluorene	13	nd	0.86 J	---	---	---	---	---	nd	nd	---	---	---	nd	50 *	nd	nd	4.8 *	---	nd	nd
Phenanthrene	12	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	50 *	nd	nd	45 *	---	nd	nd
Anthraeene	1.5 J	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	50 *	nd	nd	35 *	---	nd	nd
Fluoranthene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	50 *	nd	nd	NL	---	nd	nd
Pyrene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	50 *	nd	nd	42 *	---	nd	nd
Benzo(a)anthracene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	0.002 *	nd	nd	0.23 *	---	nd	nd
Chrysene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	0.002 *	nd	nd	NL	---	nd	nd
Benzo(b)fluoranthene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	0.002 *	nd	nd	NL	---	nd	nd
Benzo(k)fluoranthene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	0.002 *	nd	nd	NL	---	nd	nd
Benzo(a)pyrene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	NL	nd	nd	0.0012 *	---	nd	nd
Indeno(1,2,3-cd)pyrene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	0.002 *	nd	nd	NL	---	nd	nd
Dibenz(a,h)anthracene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	NL	nd	nd	NL	---	nd	nd
Benzo(g,h,i)perylene	nd	nd	nd	---	---	---	---	---	nd	nd	---	---	---	nd	NL	nd	nd	NL	---	nd	nd
2-Methylnaphthalene	120	nd	nd	---	---	---	---	---	nd	3.5 J	---	---	---	nd	NL	nd	nd	NL	---	nd	nd
CYANIDE (ug/L)																					
Cyanide, total	---	---		550	467	486	---	540	144	---	115	417	785	344	200	5	86	9000	---	nd	79
Cyanide, free	---	---		7.2	8.2	2.5	---	5.0	nd	---	nd	4.2	3.3	11.7	NL	nd	10.1	22	---	nd	9.5
Water Elevation (feet)	580.83	580.45	581.32	580.16	578.95	576.48	579.65	581.7	581.13	580.52	577.4	576.94	579.93	577.83	NL	581.80	---	NL	---	---	---

Notes:

NL Not listed

nd Not detected above method detection limit

--- Not analyzed

J, E Indicates laboratory estimated value

(1) NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1)

* Groundwater or Surface Water Guidance Value (no Standard value listed).
Concentrations exceeding NYSDEC regulatory standard or guidance value

Laboratory Reports

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-A124 (1007)

Client	Project Manager	Date	Chain of Custody Number
ENSR	DAN SHEARER	9/11/08	095414
Address 1001 W. SENECA ST., SUITE 204	**Telephone Number (Area Code)/Fax Number** 518-951-2288	**Lab Number**	**Page** 1 of 2
City ITHACA	**State** NY	**Zip Code** 14850	**Site Contact** SCOTT HARRIGAN	**Lab Contact** DAVE DUNLAP
Project Name and Location (State) MINERAL SPRINGS SEPT 2008	**Carrier/Waybill Number**	
Contract/Purchase Order/Quote No.		

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: BTEX (8270B)	PAH (8260C)	Special Instructions/ Conditions of Receipt
SW-1	9/9/08	1000		X			2			2			X	X	
SW-2	9/9/08	1220		X			2			3			X	X	
SW-2DUP	9/9/08	1220		X			2			3			X	X	
MW-19	9/9/08	1250		X			2			3			X	X	
MW-11A	9/9/08	1300		X			2			3			X	X	
MW-10	9/9/08	1535		X			2			3			X	X	
MW-17	9/9/08	1640		X			2			3			X	X	
MW-7	9/9/08	1537		X			2			3			X	X	
MW-23	9/10/08	0850		X			2			2			X	X	
TB-091008	9/10/08	1000		X						2			X		
EB-091008	9/10/08	1000		X						3			X	X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other ROUTINE

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
SCOTT HARRIGAN	9/11/08	1700 FED EX			
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: ENSR	Project Manager: DAN SHEARER	Date: 9/11/08	Chain of Custody Number: 315517
Address: 1001 W. SENECA ST., SUITE 204	Telephone Number (Area Code)/Fax Number: 518-951-2288	Lab Number:	Page 1 of 2
City: ITHACA / State: NY / Zip Code: 14850	Site Contact: SCOTT HARRIGAN	Lab Contact: GLEANOR	
Project Name and Location (State): MINERAL SPRINGS SEPT 2008	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: C3737-206			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: TOTAL (2)	FILT (2)	Special Instructions/ Conditions of Receipt
SW01	9/9/08	1000		X							2		X	X	
MW-16	9/9/08	1145		X							2		X	X	
SW-2	9/9/08	1220		X							2		X	X	
SW-2DUP	9/9/08	1220		X							2		X	X	
MW-27	9/9/08	1405		X							2		X	X	
MW-12	9/9/08	1440		X							2		X	X	
MW-17	9/9/08	1640		X							2		X	X	
MW-14	9/9/08	1650		X							2		X	X	
MW-23	9/10/08	0950		X							2		X	X	
MW-20	9/10/08	0940		X							2		X	X	
MW-21	9/10/08	1000		X							2		X	X	
MW-13	9/10/08	1000		X							2		X	X	

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [X] Other ROUTINE

QC Requirements (Specify):

1. Relinquished By: [signature]	SCOTT HARRIGAN	Date: 9/11/08	Time: 1700 FED EX	1. Received By	Date / Time
2. Relinquished By		Date	Time	2. Received By	Date / Time
3. Relinquished By		Date	Time	3. Received By	Date / Time

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
ENSR	DAN SHEARER	9/11/08	315518
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 2 of 7
1601 W. SENECA ST, SUITE 204	518-951-2288		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
ITHACA / NY / 14850	SCOTT HAPRIGAN	ELEANOR	
Project Name and Location (State)	**Carrier/Waybill Number**		
MINERAL SPRINGS, SEPT. 2008			
Contract/Purchase Order/Quote No.			
03737-206			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): TOTAL CN	FREE CN	Special Instructions/ Conditions of Receipt
EB-091008	9/10/08	1100		X							2		X	X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other ROUTINE

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
SCOTT HAPRIGAN	9/11/08	1740 FED EX			
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

September 27, 2008

Dan Shearer
ENSR Corporation
40 British American Boulevard
Latham, NY 12110

Re: Groundwater samples analyzed for cyanide by Eleanor Hopke, Clarkson University

Dear Mr. Shearer:

Thirteen groundwater samples from the Mineral Springs site were received from ENSR Corporation on September 12, 2008. The cooler and samples were stored at 4°C until Septemer 21, 2008, at which time the cooler was opened and the samples logged in. They were in brown plastic bottles, two 250-ml bottles for each sample. Requested analyses were Total Cyanide and Free Cyanide by Microdiffusion.

The duplicate sample containers were composited before analysis. pH's of the samples were all greater than pH 13. Laboratory matrix spikes and matrix spike duplicates, check standards, continuing calibration verification standards, and reagent blanks were analyzed along with the samples.

The following methods were used to analyze the samples:

Total Cyanide – APHA *Standard Methods* 4500-CN^- C. "Total Cyanide after Distillation" and APHA *Standard Methods* 4500-CN^- E., "Colorimetric Method."

Free Cyanide - *ASTM* D4282-95. "Standard Test Method for Determination of Free Cyanide in Water and Wastewater by Microdiffusion." using lower concentration standards to better bracket the sample concentrations, and substituting APHA 4500-CN^- D. to standardize the stock cyanide standard. Sample pH's were reduced by adding sulfuric acid so that the buffer would adequately reduce the pH during the analysis. I have had success with doing this. Samples with positive cyanide concentrations were treated with lead carbonate, filtered and reanalyzed to check for sulfide contamination. Results for both treated and untreated samples were similar.

For Diffusible and Total Cyanide, the stock cyanide standard was calibrated using APHA *Standard Methods*, 4500-CN^- D., "Titrimetric Method."

The analytical results follow:

Groundwater Samples
TOTAL CYANIDE and FREE CYANIDE
Results in µg CN^- /L (ppb)

ID	Free Cyanide	Total Cyanide
MW-12	7.2	550
MW-13	8.2	467
MW-14	2.5	486
MW-16	5.0	540
MW-17	<2.3	144
MW-20	<2.3	115
MW-21	4.2	417
MW-22	3.3	785
MW-23	11.7	344
SW-01	<2.3	5
SW-2	10.1	86
SW-2 DUP	9.5	79
EB 091008	<2.3	<3
Matrix Spike and Matrix Spike Duplicate	102.8%, 98.2% (MW-16)	92.7%, 95.0% (MW-13)
Reagent Blank	<2.3	<3
Check Std	90.5%	95.8%

Analytical Dates

ID	Sampling Date	Arrival Date	Free CN Analysis Date	Total CN Analysis Date
MW-12	9/9/08	9/12/08	9/22/08	9/23/08
MW-13	9/10/08	9/12/08	9/22/08	9/23/08
MW-14	9/9/08	9/12/08	9/22/08	9/23/08
MW-16	9/9/08	9/12/08	9/22/08	9/23/08
MW-17	9/9/08	9/12/08	9/22/08	9/23/08
MW-20	9/10/08	9/12/08	9/22/08	9/23/08
MW-21	9/10/08	9/12/08	9/22/08	9/23/08
MW-22	9/9/08	9/12/08	9/22/08	9/23/08
MW-23	9/10/08	9/12/08	9/22/08	9/23/08
SW-01	9/9/08	9/12/08	9/22/08	9/23/08
SW-2	9/9/08	9/12/08	9/22/08	9/23/08
SW-2 DUP	9/9/08	9/12/08	9/22/08	9/23/08
EB 091008	9/10/08	9/12/08	9/22/08	9/23/08

I will be very glad to answer any questions you might have about these results. Thank you very much for sending them to Clarkson for analysis.

Sincerely,

Eleanor Hopke
Research Technician
Clarkson University
Box 5710
Potsdam, NY 13699

Tel: 315-212-0975
e-mail: hopkeef@clarkson.edu

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 04870-026-200

ENSR-Mineral Springs

Lot #: C8I120148

Dan Shearer

ENSR International

TESTAMERICA LABORATORIES, INC.

Dave Dunlap
Project Manager

September 22, 2008

301 Alpha Drive Pittsburgh, PA 15238 tel 412.963.7058 fax 412.963.2468 www.testamericainc.com

CASE NARRATIVE

ENSR –Mineral Springs

Lot # C8I120148

Sample Receiving:
Samples were received at TestAmerica's Pittsburgh laboratory on September 12 and 16, 2008. The coolers were received within the proper temperature range.

Sample EB-091008 for PAHs was not included in the shipment received on September 12, 2008. The sample was shipped on September 15, 2008 and received on September 16, 2008.

If project specific QC was not required for samples contained in this report, when batch QC was completed on these samples, anomalous results will be discussed below.

GC/MS Volatiles:
Due to the concentration of target compounds detected, several samples were analyzed at a dilution.

GC/MS Semivolatiles:
Due to the concentration of target compounds detected, several samples were analyzed at a dilution.

NELAC REPORTING:

At the time of analysis the laboratory was in compliance with the current NELAC standards and held accreditation for all analyses performed unless noted by a qualifier. The labs accreditation numbers are listed below. The format and contents of the report meets all applicable NELAC standards except as noted in the narrative and shall not be reproduced except in full, without the written approval of the laboratory. The table below presents a summary of the certifications held by TestAmerica Pittsburgh. Our primary accreditation authority for the Non-potable water and Solid & Hazardous waste programs is Pennsylvania DEP. A more detailed parameter list is available upon request. Please ask your project manager for this information when required.

Certifying State/Program	Certificate #	Program Types	TestAmerica
NFESC	NA	NAVY	X
US Dept of Agriculture	(#P330-07-00101)	Foreign Soil Import Permit	X
Arkansas	(#03-022-1)	WW	X
		HW	X
California – NELAC	04224CA	WW	X
		HW	X
Connecticut	(#PH-0688)	WW	X
		HW	X
Florida – NELAC	(#E87660)	WW	X
		HW	X
Illinois – NELAC	(#200005)	WW	X
		HW	X
Kansas – NELAC	(#E-10350)	WW	X
		HW	X
Louisiana – NELAC	(#93200)	WW	X
		HW	X
New Hampshire – NELAC	(#203002)	WW	X
		–	--
New Jersey – NELAC	(PA-005)	WW	X
		HW	X
New York – NELAC	(#11182)	WW	X
		HW	X
North Carolina	(#434)	WW	X
		HW	X
Pennsylvania - NELAC	(#02-00416)	WW	X
		HW	X
South Carolina	(#89014001)	WW	X
		HW	X
Utah – NELAC	(STLP)	WW	X
		HW	X
West Virginia	(#142)	WW	X
		HW	X
Wisconsin	998027800	WW	X
		HW	X

The codes utilized for program types are described below:

HW Hazardous Waste certification
WW Non-potable Water and/or Wastewater certification
X Laboratory has some form of certification under the specific program. Many states certify laboratories for specific parameters or tests within a category. The information in the table indicates the lab is certified in a general category of testing. Please contact the laboratory if parameter specific certification information is required.

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: ENSR	Project Manager: DAN SHEARER	Date: 9/11/08	Chain of Custody Number: 095414
Address: 1001 W. SENECA ST., SUITE 204	Telephone Number (Area Code)/Fax Number: 518-951-2288	Lab Number:	Page 1 of 2
City: ITHACA / State: NY / Zip Code: 14850	Site Contact: SCOTT HARRIGAN	Lab Contact: DAVE DUNLAP	
Project Name and Location (State): MINERAL SPRINGS SEPT 2008	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: BTEX (8260B)	PAH (8260C)	Special Instructions/ Conditions of Receipt
SW-1	9/9/08	1000		X			2			2			X	X	
SW-2	9/9/08	1220		X			2			3			X	X	
SW-2DUP	9/9/08	1220		X			2			3			X	X	
MW-19	9/9/08	1250		X			2			3			X	X	
MW-11A	9/9/08	1300		X			2			3			X	X	
MW-10	9/9/08	1535		X			2			3			X	X	
MW-17	9/9/08	1640		X			2			3			X	X	
MW-7	9/9/08	1537		X			2			3			X	X	
MW-23	9/10/08	0850		X			2			2			X	X	
TB-091008	9/10/08	1000		X						2			X		
EB-091008	9/10/08	1000		X						3			X	X	← Received PAHs 9/16/08 for EB-091008 DWD #160

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other ROUTINE

QC Requirements (Specify)

1. Relinquished By: SCOTT HARRIGAN	Date: 9/11/08	Time: 1700 - FED EX	1. Received By:	Date: 9/12/08	Time: 1030
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

METHODS SUMMARY

C8I120148

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C8I120148

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
KWQP6	001	SW-1	09/09/08	10:00
KWQQH	002	SW-2	09/09/08	12:20
KWQQK	003	SW-2 DUP	09/09/08	12:20
KWQQN	004	MW-19	09/09/08	12:50
KWQQR	005	MW-11A	09/09/08	13:00
KWQRF	006	MW-10	09/09/08	15:35
KWQRJ	007	MW-17	09/09/08	16:40
KWQRN	008	MW-7	09/09/08	15:37
KWQRR	009	MW-23	09/10/08	08:50
KWQR0	010	TB-091008	09/10/08	10:00
KWQR2	011	EB-091008	09/10/08	10:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

ENSR International

Client Sample ID: SW-1

GC/MS Volatiles

Lot-Sample #...: C8I120148-001	**Work Order #...:** KWQP61AA	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8260361
Prep Date.....: 09/16/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8260527		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	104	(71 - 118)
1,2-Dichloroethane-d4	109	(64 - 135)
4-Bromofluorobenzene	97	(70 - 118)
Dibromofluoromethane	97	(64 - 128)

RNSR International

Client Sample ID: SW-2

GC/MS Volatiles

Lot-Sample #...: C8I120148-002	**Work Order #...:** KWQQH1AA	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8260361
Prep Date.....: 09/16/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8260527		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	103	(71 - 118)
1,2-Dichloroethane-d4	112	(64 - 135)
4-Bromofluorobenzene	97	(70 - 118)
Dibromofluoromethane	97	(64 - 128)

ENSR International

Client Sample ID: SW-2 DUP

GC/MS Volatiles

Lot-Sample #...: C8I120148-003	**Work Order #...:** KWQQK1AA	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8260361
Prep Date.....: 09/16/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8260527		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	106	(71 - 118)
1,2-Dichloroethane-d4	115	(64 - 135)
4-Bromofluorobenzene	98	(70 - 118)
Dibromofluoromethane	98	(64 - 128)

ENSR International

Client Sample ID: MW-19

GC/MS Volatiles

Lot-Sample #...: C8I120148-004	**Work Order #...:** KWQQN1AA	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8257075
Prep Date.....: 09/13/08	**Analysis Date..:** 09/13/08	
Prep Batch #...: 8257097		
Dilution Factor: 150	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**3700**	**150**	**ug/L**
Ethylbenzene	**120 J**	**150**	**ug/L**
Toluene	ND	150	ug/L
Xylenes (total)	**510**	**450**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	108	(71 - 118)
1,2-Dichloroethane-d4	103	(64 - 135)
4-Bromofluorobenzene	92	(70 - 118)
Dibromofluoromethane	93	(64 - 128)

NOTE(S):

J Estimated result. Result is less than RL.

ENSR International

Client Sample ID: MW-11A

GC/MS Volatiles

Lot-Sample #...:	C8I120148-005	**Work Order #...:**	KWQQR1AA	**Matrix.....:**	WATER
Date Sampled...:	09/09/08	**Date Received..:**	09/12/08	**MS Run #.....:**	8260361
Prep Date.....:	09/16/08	**Analysis Date..:**	09/17/08		
Prep Batch #...:	8260527				
Dilution Factor:	10	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**210**	**10**	**ug/L**
Ethylbenzene	**71**	**10**	**ug/L**
Toluene	ND	10	ug/L
Xylenes (total)	**30**	**30**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	107	(71 - 118)
1,2-Dichloroethane-d4	108	(64 - 135)
4-Bromofluorobenzene	94	(70 - 118)
Dibromofluoromethane	95	(64 - 128)

ENSR International

Client Sample ID: MW-10

GC/MS Volatiles

Lot-Sample #...: C8I120148-006	**Work Order #...:** KWQRF1AA	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8260361
Prep Date.....: 09/16/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8260527		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	108	(71 - 118)
1,2-Dichloroethane-d4	108	(64 - 135)
4-Bromofluorobenzene	96	(70 - 118)
Dibromofluoromethane	95	(64 - 128)

ENSR International

Client Sample ID: MW-17

GC/MS Volatiles

Lot-Sample #...: C8I120148-007	**Work Order #...:** KWQRJ1AA	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8260361
Prep Date.....: 09/16/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8260527		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	105	(71 - 118)
1,2-Dichloroethane-d4	109	(64 - 135)
4-Bromofluorobenzene	96	(70 - 118)
Dibromofluoromethane	97	(64 - 128)

ENSR International

Client Sample ID: MW-7

GC/MS Volatiles

Lot-Sample #...: C8I120148-008	**Work Order #...:** KWQRN1AA	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8262202
Prep Date.....: 09/18/08	**Analysis Date..:** 09/18/08	
Prep Batch #...: 8262316		
Dilution Factor: 50	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**1100**	**50**	**ug/L**
Ethylbenzene	**1500**	**50**	**ug/L**
Toluene	**590**	**50**	**ug/L**
Xylenes (total)	**910**	**150**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	107	(71 - 118)
1,2-Dichloroethane-d4	109	(64 - 135)
4-Bromofluorobenzene	93	(70 - 118)
Dibromofluoromethane	96	(64 - 128)

ENSR International

Client Sample ID: MW-23

GC/MS Volatiles

Lot-Sample #...: C8I120148-009	**Work Order #...:** KWQRR1AA	**Matrix.....:** WATER
Date Sampled...: 09/10/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8261175
Prep Date.....: 09/17/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8261291		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	104	(71 - 118)
1,2-Dichloroethane-d4	109	(64 - 135)
4-Bromofluorobenzene	98	(70 - 118)
Dibromofluoromethane	94	(64 - 128)

ENSR International

Client Sample ID: TB-091008

GC/MS Volatiles

Lot-Sample #...: C8I120148-010	**Work Order #...:** KWQR01AA	**Matrix.....:** WATER
Date Sampled...: 09/10/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8257075
Prep Date.....: 09/13/08	**Analysis Date..:** 09/13/08	
Prep Batch #...: 8257097		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	110	(71 - 118)
1,2-Dichloroethane-d4	104	(64 - 135)
4-Bromofluorobenzene	94	(70 - 118)
Dibromofluoromethane	92	(64 - 128)

ENSR International

Client Sample ID: EB-091008

GC/MS Volatiles

Lot-Sample #...: C8I120148-011	**Work Order #...:** KWQR21AA	**Matrix.....:** WATER
Date Sampled...: 09/10/08	**Date Received..:** 09/12/08	**MS Run #.....:** 8257075
Prep Date.....: 09/13/08	**Analysis Date..:** 09/13/08	
Prep Batch #...: 8257097		
Dilution Factor: 1	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	105	(71 - 118)
1,2-Dichloroethane-d4	105	(64 - 135)
4-Bromofluorobenzene	94	(70 - 118)
Dibromofluoromethane	93	(64 - 128)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KWVWP1AA **Matrix.....:** WATER
MB Lot-Sample #: C8I130000-097

Prep Date.....: 09/13/08
Analysis Date..: 09/13/08 **Prep Batch #...:** 8257097
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	3.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	76	(71 - 118)
1,2-Dichloroethane-d4	116	(64 - 135)
4-Bromofluorobenzene	89	(70 - 118)
Dibromofluoromethane	116	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KW1M71AA **Matrix.....:** WATER
MB Lot-Sample #: C8I160000-527

Prep Date.....: 09/16/08
Analysis Date..: 09/16/08 **Prep Batch #...:** 8260527
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	3.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	107	(71 - 118)
1,2-Dichloroethane-d4	105	(64 - 135)
4-Bromofluorobenzene	99	(70 - 118)
Dibromofluoromethane	96	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KW2J01AA **Matrix.....:** WATER
MB Lot-Sample #: C8I170000-291

Prep Date.....: 09/17/08
Analysis Date..: 09/17/08 **Prep Batch #...:** 8261291
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	3.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	107	(71 - 118)
1,2-Dichloroethane-d4	106	(64 - 135)
4-Bromofluorobenzene	97	(70 - 118)
Dibromofluoromethane	99	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KW45L1AA **Matrix.....:** WATER
MB Lot-Sample #: C8I180000-316

Prep Date.....: 09/18/08
Analysis Date..: 09/18/08 **Prep Batch #...:** 8262316
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	3.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	107	(71 - 118)
1,2-Dichloroethane-d4	110	(64 - 135)
4-Bromofluorobenzene	98	(70 - 118)
Dibromofluoromethane	100	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KWVWP1AC **Matrix.....:** WATER
LCS Lot-Sample#: C8I130000-097
Prep Date.....: 09/13/08 **Analysis Date..:** 09/13/08
Prep Batch #...: 8257097
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**90**	**(80 - 120)**	**SW846 8260B**
Toluene	**100**	**(80 - 123)**	**SW846 8260B**
1,1-Dichloroethene	**100**	**(65 - 136)**	**SW846 8260B**
Chlorobenzene	**92**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**90**	**(73 - 120)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	105	(71 - 118)
1,2-Dichloroethane-d4	97	(64 - 135)
4-Bromofluorobenzene	93	(70 - 118)
Dibromofluoromethane	92	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KW1M71AC **Matrix.....:** WATER
LCS Lot-Sample#: C8I160000-527
Prep Date.....: 09/16/08 **Analysis Date..:** 09/17/08
Prep Batch #...: 8260527
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**93**	**(80 - 120)**	**SW846 8260B**
Toluene	**103**	**(80 - 123)**	**SW846 8260B**
1,1-Dichloroethene	**105**	**(65 - 136)**	**SW846 8260B**
Chlorobenzene	**95**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**94**	**(73 - 120)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	112	(71 - 118)
1,2-Dichloroethane-d4	108	(64 - 135)
4-Bromofluorobenzene	95	(70 - 118)
Dibromofluoromethane	95	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KW2J01AC **Matrix.....:** WATER
LCS Lot-Sample#: C8I170000-291
Prep Date.....: 09/17/08 **Analysis Date..:** 09/17/08
Prep Batch #...: 8261291
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**91**	**(80 - 120)**	**SW846 8260B**
Toluene	**95**	**(80 - 123)**	**SW846 8260B**
1,1-Dichloroethene	**101**	**(65 - 136)**	**SW846 8260B**
Chlorobenzene	**86**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**90**	**(73 - 120)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	103	(71 - 118)
1,2-Dichloroethane-d4	106	(64 - 135)
4-Bromofluorobenzene	93	(70 - 118)
Dibromofluoromethane	98	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KW45L1AC **Matrix.....:** WATER
LCS Lot-Sample#: C8I180000-316
Prep Date.....: 09/18/08 **Analysis Date..:** 09/18/08
Prep Batch #...: 8262316
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**97**	**(80 - 120)**	**SW846 8260B**
Toluene	**99**	**(80 - 123)**	**SW846 8260B**
1,1-Dichloroethene	**104**	**(65 - 136)**	**SW846 8260B**
Chlorobenzene	**91**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**95**	**(73 - 120)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	104	(71 - 118)
1,2-Dichloroethane-d4	106	(64 - 135)
4-Bromofluorobenzene	93	(70 - 118)
Dibromofluoromethane	101	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KWM0C1AM-MS **Matrix.....:** WATER
MS Lot-Sample #: C8I110115-004 KWM0C1AN-MSD
Date Sampled...: 09/10/08 **Date Received..:** 09/11/08 **MS Run #.....:** 8257075
Prep Date.....: 09/13/08 **Analysis Date..:** 09/13/08
Prep Batch #...: 8257097
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**89**	**(73 - 120)**			**SW846 8260B**
	97	**(73 - 120)**	**8.3**	**(0-32)**	**SW846 8260B**
Toluene	**102**	**(75 - 126)**			**SW846 8260B**
	107	**(75 - 126)**	**5.3**	**(0-35)**	**SW846 8260B**
1,1-Dichloroethene	**101**	**(60 - 139)**			**SW846 8260B**
	106	**(60 - 139)**	**5.7**	**(0-48)**	**SW846 8260B**
Trichloroethene	**90**	**(53 - 135)**			**SW846 8260B**
	97	**(53 - 135)**	**7.5**	**(0-36)**	**SW846 8260B**
Chlorobenzene	**93**	**(80 - 120)**			**SW846 8260B**
	100	**(80 - 120)**	**7.3**	**(0-29)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	101	(71 - 118)
	110	(71 - 118)
1,2-Dichloroethane-d4	93	(64 - 135)
	102	(64 - 135)
4-Bromofluorobenzene	85	(70 - 118)
	91	(70 - 118)
Dibromofluoromethane	85	(64 - 128)
	92	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KWM171AC-MS **Matrix.....:** WATER
MS Lot-Sample #: C8I110126-002 KWM171AD-MSD
Date Sampled...: 09/10/08 **Date Received..:** 09/11/08 **MS Run #.....:** 8260361
Prep Date.....: 09/16/08 **Analysis Date..:** 09/16/08
Prep Batch #...: 8260527
Dilution Factor: 50

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**73**	**(73 - 120)**			**SW846 8260B**
	96	**(73 - 120)**	**19**	**(0-32)**	**SW846 8260B**
Toluene	**81**	**(75 - 126)**			**SW846 8260B**
	104	**(75 - 126)**	**25**	**(0-35)**	**SW846 8260B**
1,1-Dichloroethene	**75**	**(60 - 139)**			**SW846 8260B**
	101	**(60 - 139)**	**30**	**(0-48)**	**SW846 8260B**
Trichloroethene	**70**	**(53 - 135)**			**SW846 8260B**
	93	**(53 - 135)**	**28**	**(0-36)**	**SW846 8260B**
Chlorobenzene	**66 a**	**(80 - 120)**			**SW846 8260B**
	84	**(80 - 120)**	**8.0**	**(0-29)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	106	(71 - 118)
	106	(71 - 118)
1,2-Dichloroethane-d4	106	(64 - 135)
	105	(64 - 135)
4-Bromofluorobenzene	92	(70 - 118)
	92	(70 - 118)
Dibromofluoromethane	96	(64 - 128)
	96	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KWM2E1AF-MS **Matrix.....:** WATER
MS Lot-Sample #: C8I110126-006 KWM2E1AG-MSD
Date Sampled...: 09/10/08 **Date Received..:** 09/11/08 **MS Run #.....:** 8261175
Prep Date.....: 09/17/08 **Analysis Date..:** 09/17/08
Prep Batch #...: 8261291
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**93**	**(73 - 120)**			**SW846 8260B**
	92	**(73 - 120)**	**1.5**	**(0-32)**	**SW846 8260B**
Toluene	**97**	**(75 - 126)**			**SW846 8260B**
	96	**(75 - 126)**	**0.77**	**(0-35)**	**SW846 8260B**
1,1-Dichloroethene	**105**	**(60 - 139)**			**SW846 8260B**
	100	**(60 - 139)**	**4.9**	**(0-48)**	**SW846 8260B**
Trichloroethene	**92**	**(53 - 135)**			**SW846 8260B**
	89	**(53 - 135)**	**3.0**	**(0-36)**	**SW846 8260B**
Chlorobenzene	**89**	**(80 - 120)**			**SW846 8260B**
	89	**(80 - 120)**	**0.20**	**(0-29)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	105	(71 - 118)
	106	(71 - 118)
1,2-Dichloroethane-d4	104	(64 - 135)
	104	(64 - 135)
4-Bromofluorobenzene	95	(70 - 118)
	98	(70 - 118)
Dibromofluoromethane	98	(64 - 128)
	95	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C8I120148 **Work Order #...:** KWVDV1AF-MS **Matrix.....:** WATER
MS Lot-Sample #: C8I130159-001 KWVDV1AG-MSD
Date Sampled...: 09/12/08 **Date Received..:** 09/13/08 **MS Run #.....:** 8262202
Prep Date.....: 09/18/08 **Analysis Date..:** 09/18/08
Prep Batch #...: 8262316
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**93**	**(73 - 120)**			**SW846 8260B**
	91	**(73 - 120)**	**2.4**	**(0-32)**	**SW846 8260B**
Toluene	**96**	**(75 - 126)**			**SW846 8260B**
	94	**(75 - 126)**	**1.7**	**(0-35)**	**SW846 8260B**
1,1-Dichloroethene	**96**	**(60 - 139)**			**SW846 8260B**
	92	**(60 - 139)**	**3.4**	**(0-48)**	**SW846 8260B**
Trichloroethene	**56**	**(53 - 135)**			**SW846 8260B**
	43 a	**(53 - 135)**	**3.8**	**(0-36)**	**SW846 8260B**
Chlorobenzene	**91**	**(80 - 120)**			**SW846 8260B**
	88	**(80 - 120)**	**3.0**	**(0-29)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	103	(71 - 118)
	106	(71 - 118)
1,2-Dichloroethane-d4	106	(64 - 135)
	104	(64 - 135)
4-Bromofluorobenzene	93	(70 - 118)
	92	(70 - 118)
Dibromofluoromethane	100	(64 - 128)
	97	(64 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

ENSR International

Client Sample ID: SW-1

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-001	**Work Order #...:** KWQP61AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8259295		
Dilution Factor: 0.95	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	9.5	ug/L
Acenaphthylene	ND	9.5	ug/L
Anthracene	ND	9.5	ug/L
Benzo(a)anthracene	ND	9.5	ug/L
Benzo(b)fluoranthene	ND	9.5	ug/L
Benzo(k)fluoranthene	ND	9.5	ug/L
Benzo(ghi)perylene	ND	9.5	ug/L
Benzo(a)pyrene	ND	9.5	ug/L
Chrysene	ND	9.5	ug/L
Fluoranthene	ND	9.5	ug/L
Fluorene	ND	9.5	ug/L
Indeno(1,2,3-cd)pyrene	ND	9.5	ug/L
2-Methylnaphthalene	ND	9.5	ug/L
Naphthalene	ND	9.5	ug/L
Phenanthrene	ND	9.5	ug/L
Pyrene	ND	9.5	ug/L
Dibenzo(a,h)anthracene	ND	9.5	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	70	(20 - 107)
2-Fluorobiphenyl	51	(27 - 104)
2-Fluorophenol	51	(17 - 102)
Nitrobenzene-d5	57	(33 - 103)
Phenol-d5	55	(25 - 107)
Terphenyl-d14	41	(14 - 127)

ENSR International

Client Sample ID: SW-2

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-002	**Work Order #...:** KWQQH1AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8259295		
Dilution Factor: 1.03	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Chrysene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	63	(20 - 107)
2-Fluorobiphenyl	49	(27 - 104)
2-Fluorophenol	50	(17 - 102)
Nitrobenzene-d5	58	(33 - 103)
Phenol-d5	51	(25 - 107)
Terphenyl-d14	41	(14 - 127)

ENSR International

Client Sample ID: SW-2 DUP

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-003	**Work Order #...:** KWQQK1AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8259295		
Dilution Factor: 0.99	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	9.9	ug/L
Acenaphthylene	ND	9.9	ug/L
Anthracene	ND	9.9	ug/L
Benzo(a)anthracene	ND	9.9	ug/L
Benzo(b)fluoranthene	ND	9.9	ug/L
Benzo(k)fluoranthene	ND	9.9	ug/L
Benzo(ghi)perylene	ND	9.9	ug/L
Benzo(a)pyrene	ND	9.9	ug/L
Chrysene	ND	9.9	ug/L
Fluoranthene	ND	9.9	ug/L
Fluorene	ND	9.9	ug/L
Indeno(1,2,3-cd)pyrene	ND	9.9	ug/L
2-Methylnaphthalene	ND	9.9	ug/L
Naphthalene	ND	9.9	ug/L
Phenanthrene	ND	9.9	ug/L
Pyrene	ND	9.9	ug/L
Dibenzo(a,h)anthracene	ND	9.9	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	71	(20 - 107)
2-Fluorobiphenyl	48	(27 - 104)
2-Fluorophenol	48	(17 - 102)
Nitrobenzene-d5	56	(33 - 103)
Phenol-d5	50	(25 - 107)
Terphenyl-d14	43	(14 - 127)

ENSR International

Client Sample ID: MW-19

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-004	**Work Order #...:** KWQQN1AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8259295		
Dilution Factor: 1.02	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Chrysene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	**3.5 J**	**10**	**ug/L**
Naphthalene	**680 E**	**10**	**ug/L**
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	71	(20 - 107)
2-Fluorobiphenyl	54	(27 - 104)
2-Fluorophenol	51	(17 - 102)
Nitrobenzene-d5	58	(33 - 103)
Phenol-d5	54	(25 - 107)
Terphenyl-d14	47	(14 - 127)

NOTE(S):

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

ENSR International

Client Sample ID: MW-19

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-004	**Work Order #...:** KWQQN2AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/18/08	
Prep Batch #...: 8259295		
Dilution Factor: 10.2	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	100	ug/L
Acenaphthylene	ND	100	ug/L
Anthracene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Chrysene	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Fluorene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
2-Methylnaphthalene	ND	100	ug/L
Naphthalene	**2600**	**100**	**ug/L**
Phenanthrene	ND	100	ug/L
Pyrene	ND	100	ug/L
Dibenzo(a,h)anthracene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	70	(20 - 107)
2-Fluorobiphenyl	55	(27 - 104)
2-Fluorophenol	52	(17 - 102)
Nitrobenzene-d5	69	(33 - 103)
Phenol-d5	58	(25 - 107)
Terphenyl-d14	47	(14 - 127)

ENSR International

Client Sample ID: MW-11A

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-005	**Work Order #...:** KWQQR1AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8259295		
Dilution Factor: 0.99	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**5.0 J**	**9.9**	**ug/L**
Acenaphthylene	**3.4 J**	**9.9**	**ug/L**
Anthracene	ND	9.9	ug/L
Benzo(a)anthracene	ND	9.9	ug/L
Benzo(b)fluoranthene	ND	9.9	ug/L
Benzo(k)fluoranthene	ND	9.9	ug/L
Benzo(ghi)perylene	ND	9.9	ug/L
Benzo(a)pyrene	ND	9.9	ug/L
Chrysene	ND	9.9	ug/L
Fluoranthene	ND	9.9	ug/L
Fluorene	**0.86 J**	**9.9**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	9.9	ug/L
2-Methylnaphthalene	ND	9.9	ug/L
Naphthalene	**2.5 J**	**9.9**	**ug/L**
Phenanthrene	ND	9.9	ug/L
Pyrene	ND	9.9	ug/L
Dibenzo(a,h)anthracene	ND	9.9	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	67	(20 - 107)
2-Fluorobiphenyl	49	(27 - 104)
2-Fluorophenol	49	(17 - 102)
Nitrobenzene-d5	59	(33 - 103)
Phenol-d5	54	(25 - 107)
Terphenyl-d14	47	(14 - 127)

NOTE(S):

J Estimated result. Result is less than RL.

ENSR International

Client Sample ID: MW-10

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-006 **Work Order #...:** KWQRF1AC **Matrix.....:** WATER
Date Sampled...: 09/09/08 **Date Received..:** 09/12/08 **MS Run #.....:**
Prep Date.....: 09/15/08 **Analysis Date..:** 09/17/08
Prep Batch #...: 8259295
Dilution Factor: 1.02 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Chrysene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	74	(20 - 107)
2-Fluorobiphenyl	54	(27 - 104)
2-Fluorophenol	54	(17 - 102)
Nitrobenzene-d5	61	(33 - 103)
Phenol-d5	60	(25 - 107)
Terphenyl-d14	46	(14 - 127)

ENSR International

Client Sample ID: MW-17

GC/MS Semivolatiles

Lot-Sample #...:	C8I120148-007	**Work Order #...:**	KWQRJ1AC	**Matrix.....:**	WATER
Date Sampled...:	09/09/08	**Date Received..:**	09/12/08	**MS Run #.....:**	
Prep Date.....:	09/15/08	**Analysis Date..:**	09/17/08		
Prep Batch #...:	8259295				
Dilution Factor:	0.95	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	9.5	ug/L
Acenaphthylene	ND	9.5	ug/L
Anthracene	ND	9.5	ug/L
Benzo(a)anthracene	ND	9.5	ug/L
Benzo(b)fluoranthene	ND	9.5	ug/L
Benzo(k)fluoranthene	ND	9.5	ug/L
Benzo(ghi)perylene	ND	9.5	ug/L
Benzo(a)pyrene	ND	9.5	ug/L
Chrysene	ND	9.5	ug/L
Fluoranthene	ND	9.5	ug/L
Fluorene	ND	9.5	ug/L
Indeno(1,2,3-cd)pyrene	ND	9.5	ug/L
2-Methylnaphthalene	ND	9.5	ug/L
Naphthalene	ND	9.5	ug/L
Phenanthrene	ND	9.5	ug/L
Pyrene	ND	9.5	ug/L
Dibenzo(a,h)anthracene	ND	9.5	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	82	(20 - 107)
2-Fluorobiphenyl	58	(27 - 104)
2-Fluorophenol	55	(17 - 102)
Nitrobenzene-d5	63	(33 - 103)
Phenol-d5	62	(25 - 107)
Terphenyl-d14	55	(14 - 127)

ENSR International

Client Sample ID: MW-7

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-008	**Work Order #...:** KWQRN1AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8259295		
Dilution Factor: 1.02	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**69**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Anthracene	**1.5 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Chrysene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	**13**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	**120**	**10**	**ug/L**
Naphthalene	**480 E**	**10**	**ug/L**
Phenanthrene	**12**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	77	(20 - 107)
2-Fluorobiphenyl	55	(27 - 104)
2-Fluorophenol	53	(17 - 102)
Nitrobenzene-d5	65	(33 - 103)
Phenol-d5	59	(25 - 107)
Terphenyl-d14	53	(14 - 127)

NOTE(S):

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

ENSR International

Client Sample ID: MW-7

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-008	**Work Order #...:** KWQRN2AC	**Matrix.....:** WATER
Date Sampled...: 09/09/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/18/08	
Prep Batch #...: 8259295		
Dilution Factor: 10.2	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**72 J**	**100**	**ug/L**
Acenaphthylene	ND	100	ug/L
Anthracene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Chrysene	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Fluorene	**15 J**	**100**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
2-Methylnaphthalene	**110**	**100**	**ug/L**
Naphthalene	**1000**	**100**	**ug/L**
Phenanthrene	**13 J**	**100**	**ug/L**
Pyrene	ND	100	ug/L
Dibenzo(a,h)anthracene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	78	(20 - 107)
2-Fluorobiphenyl	53	(27 - 104)
2-Fluorophenol	56	(17 - 102)
Nitrobenzene-d5	67	(33 - 103)
Phenol-d5	56	(25 - 107)
Terphenyl-d14	44	(14 - 127)

NOTE(S):

J Estimated result. Result is less than RL.

ENSR International

Client Sample ID: MW-23

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-009	**Work Order #...:** KWQRR1AC	**Matrix.....:** WATER
Date Sampled...: 09/10/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/15/08	**Analysis Date..:** 09/17/08	
Prep Batch #...: 8259295		
Dilution Factor: 0.97	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	9.7	ug/L
Acenaphthylene	ND	9.7	ug/L
Anthracene	ND	9.7	ug/L
Benzo(a)anthracene	ND	9.7	ug/L
Benzo(b)fluoranthene	ND	9.7	ug/L
Benzo(k)fluoranthene	ND	9.7	ug/L
Benzo(ghi)perylene	ND	9.7	ug/L
Benzo(a)pyrene	ND	9.7	ug/L
Chrysene	ND	9.7	ug/L
Fluoranthene	ND	9.7	ug/L
Fluorene	ND	9.7	ug/L
Indeno(1,2,3-cd)pyrene	ND	9.7	ug/L
2-Methylnaphthalene	ND	9.7	ug/L
Naphthalene	ND	9.7	ug/L
Phenanthrene	ND	9.7	ug/L
Pyrene	ND	9.7	ug/L
Dibenzo(a,h)anthracene	ND	9.7	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	68	(20 - 107)
2-Fluorobiphenyl	38	(27 - 104)
2-Fluorophenol	48	(17 - 102)
Nitrobenzene-d5	56	(33 - 103)
Phenol-d5	50	(25 - 107)
Terphenyl-d14	64	(14 - 127)

ENSR International

Client Sample ID: KB-091008

GC/MS Semivolatiles

Lot-Sample #...: C8I120148-011	**Work Order #...:** KWQR21AC	**Matrix.....:** WATER
Date Sampled...: 09/10/08	**Date Received..:** 09/12/08	**MS Run #.....:**
Prep Date.....: 09/17/08	**Analysis Date..:** 09/19/08	
Prep Batch #...: 8261295		
Dilution Factor: 0.96	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	9.6	ug/L
Acenaphthylene	ND	9.6	ug/L
Anthracene	ND	9.6	ug/L
Benzo(a)anthracene	ND	9.6	ug/L
Benzo(b)fluoranthene	ND	9.6	ug/L
Benzo(k)fluoranthene	ND	9.6	ug/L
Benzo(ghi)perylene	ND	9.6	ug/L
Benzo(a)pyrene	ND	9.6	ug/L
Chrysene	ND	9.6	ug/L
Fluoranthene	ND	9.6	ug/L
Fluorene	ND	9.6	ug/L
Indeno(1,2,3-cd)pyrene	ND	9.6	ug/L
2-Methylnaphthalene	ND	9.6	ug/L
Naphthalene	ND	9.6	ug/L
Phenanthrene	ND	9.6	ug/L
Pyrene	ND	9.6	ug/L
Dibenzo(a,h)anthracene	ND	9.6	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	65	(20 - 107)
2-Fluorobiphenyl	63	(27 - 104)
2-Fluorophenol	56	(17 - 102)
Nitrobenzene-d5	64	(33 - 103)
Phenol-d5	59	(25 - 107)
Terphenyl-d14	89	(14 - 127)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: C8I120148 **Work Order #...:** KWWXL1AA **Matrix.....:** WATER
MB Lot-Sample #: C8I150000-295

Prep Date.....: 09/15/08
Analysis Date..: 09/17/08 **Prep Batch #...:** 8259295
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	76	(20 - 107)
2-Fluorobiphenyl	70	(27 - 104)
2-Fluorophenol	67	(17 - 102)
Nitrobenzene-d5	70	(33 - 103)
Phenol-d5	73	(25 - 107)
Terphenyl-d14	91	(14 - 127)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: C8I120148 **Work Order #...:** KW2J91AA **Matrix.....:** WATER
MB Lot-Sample #: C8I170000-295

Prep Date.....: 09/17/08
Analysis Date..: 09/19/08 **Prep Batch #...:** 8261295
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	61	(20 - 107)
2-Fluorobiphenyl	65	(27 - 104)
2-Fluorophenol	63	(17 - 102)
Nitrobenzene-d5	65	(33 - 103)
Phenol-d5	69	(25 - 107)
Terphenyl-d14	93	(14 - 127)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C8I120148 **Work Order #...:** KWWXL1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: C8I150000-295 KWWXL1AD-LCSD
Prep Date.....: 09/15/08 **Analysis Date..:** 09/17/08
Prep Batch #...: 8259295
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2,4-Trichloro-benzene	67	(39 - 97)			SW846 8270C
	74	(39 - 97)	11	(0-32)	SW846 8270C
1,4-Dichlorobenzene	62	(38 - 94)			SW846 8270C
	67	(38 - 94)	7.9	(0-33)	SW846 8270C
2,4-Dinitrotoluene	70	(37 - 103)			SW846 8270C
	79	(37 - 103)	12	(0-32)	SW846 8270C
Acenaphthene	71	(40 - 97)			SW846 8270C
	78	(40 - 97)	8.5	(0-32)	SW846 8270C
2-Chlorophenol	68	(38 - 97)			SW846 8270C
	74	(38 - 97)	8.7	(0-31)	SW846 8270C
4-Chloro-3-methylphenol	69	(38 - 100)			SW846 8270C
	77	(38 - 100)	11	(0-32)	SW846 8270C
4-Nitrophenol	68	(30 - 112)			SW846 8270C
	75	(30 - 112)	10	(0-39)	SW846 8270C
N-Nitrosodi-n-propyl-amine	70	(36 - 102)			SW846 8270C
	79	(36 - 102)	12	(0-36)	SW846 8270C
Pentachlorophenol	65	(13 - 120)			SW846 8270C
	79	(13 - 120)	19	(0-56)	SW846 8270C
Phenol	66	(36 - 98)			SW846 8270C
	70	(36 - 98)	7.0	(0-35)	SW846 8270C
Butyl benzyl phthalate	77	(39 - 105)			SW846 8270C
	85	(39 - 105)	9.6	(0-35)	SW846 8270C
4-Bromophenyl phenyl ether	77	(40 - 105)			SW846 8270C
	83	(40 - 105)	7.9	(0-40)	SW846 8270C
4-Methylphenol	67	(33 - 106)			SW846 8270C
	75	(33 - 106)	12	(0-34)	SW846 8270C
Hexachloroethane	65	(35 - 96)			SW846 8270C
	72	(35 - 96)	9.8	(0-43)	SW846 8270C
Naphthalene	69	(38 - 98)			SW846 8270C
	76	(38 - 98)	9.5	(0-39)	SW846 8270C
Pyrene	80	(39 - 108)			SW846 8270C
	87	(39 - 108)	8.9	(0-38)	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C8I120148 **Work Order #...:** KWWXL1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: C8I150000-295 KWWXL1AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	84	(20 - 107)
	91	(20 - 107)
2-Fluorobiphenyl	74	(27 - 104)
	80	(27 - 104)
2-Fluorophenol	67	(17 - 102)
	76	(17 - 102)
Nitrobenzene-d5	71	(33 - 103)
	79	(33 - 103)
Phenol-d5	74	(25 - 107)
	80	(25 - 107)
Terphenyl-d14	93	(14 - 127)
	101	(14 - 127)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C8I120148 **Work Order #...:** KW2J91AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: C8I170000-295 KW2J91AD-LCSD
Prep Date.....: 09/17/08 **Analysis Date..:** 09/19/08
Prep Batch #...: 8261295
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2,4-Trichloro-benzene	66	(39 - 97)			SW846 8270C
	66	(39 - 97)	0.83	(0-32)	SW846 8270C
1,4-Dichlorobenzene	63	(38 - 94)			SW846 8270C
	63	(38 - 94)	0.11	(0-33)	SW846 8270C
2,4-Dinitrotoluene	77	(37 - 103)			SW846 8270C
	81	(37 - 103)	4.7	(0-32)	SW846 8270C
Acenaphthene	71	(40 - 97)			SW846 8270C
	74	(40 - 97)	4.8	(0-32)	SW846 8270C
2-Chlorophenol	68	(38 - 97)			SW846 8270C
	69	(38 - 97)	2.2	(0-31)	SW846 8270C
4-Chloro-3-methylphenol	66	(38 - 100)			SW846 8270C
	70	(38 - 100)	6.0	(0-32)	SW846 8270C
4-Nitrophenol	63	(30 - 112)			SW846 8270C
	70	(30 - 112)	10	(0-39)	SW846 8270C
N-Nitrosodi-n-propyl-amine	72	(36 - 102)			SW846 8270C
	72	(36 - 102)	0.0	(0-36)	SW846 8270C
Pentachlorophenol	56	(13 - 120)			SW846 8270C
	58	(13 - 120)	4.0	(0-56)	SW846 8270C
Phenol	66	(36 - 98)			SW846 8270C
	67	(36 - 98)	2.2	(0-35)	SW846 8270C
Butyl benzyl phthalate	80	(39 - 105)			SW846 8270C
	80	(39 - 105)	0.84	(0-35)	SW846 8270C
4-Bromophenyl phenyl ether	77	(40 - 105)			SW846 8270C
	74	(40 - 105)	2.9	(0-40)	SW846 8270C
4-Methylphenol	67	(33 - 106)			SW846 8270C
	69	(33 - 106)	3.4	(0-34)	SW846 8270C
Hexachloroethane	66	(35 - 96)			SW846 8270C
	66	(35 - 96)	0.25	(0-43)	SW846 8270C
Naphthalene	68	(38 - 98)			SW846 8270C
	68	(38 - 98)	0.0	(0-39)	SW846 8270C
Pyrene	82	(39 - 108)			SW846 8270C
	81	(39 - 108)	1.7	(0-38)	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C8I120148 **Work Order #...:** KW2J91AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: C8I170000-295 KW2J91AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	82	(20 - 107)
	81	(20 - 107)
2-Fluorobiphenyl	73	(27 - 104)
	76	(27 - 104)
2-Fluorophenol	69	(17 - 102)
	68	(17 - 102)
Nitrobenzene-d5	71	(33 - 103)
	74	(33 - 103)
Phenol-d5	76	(25 - 107)
	75	(25 - 107)
Terphenyl-d14	97	(14 - 127)
	94	(14 - 127)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

About AECOM Environment

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Contact AECOM Environment

Asia: +603.7725.0380

Australia: +61.2.8484.8999

Europe: +39.02.3180.771

Latin America: +55.21.3526.8160

North America: +1.800.722.2440

Global: AskEnvironment@aecom.com