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June 25, 2013 DCN No.: TL01-13-02-005-DCN530

Mr. Rich Rupert, OSC
US EPA Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

RE: Summary Letter Report: Groundwater Seep, Spring, Outfall and Sediment Sampling Event, April 8-10, 2013; Kiskimere Groundwater Well Investigation Site, Vandergrift, Armstrong County, Pennsylvania; Technical Direction Document No. TL01-13-02-005, EPA Contract Number EP-S3-10-04

Dear Mr. Rupert:

This letter provides a summary of sampling activities and validated laboratory results relating to groundwater seep, spring, outfall and sediment sampling activities conducted at the Kiskimere Groundwater Well Investigation Site (Site), Vandergrift, Armstrong County, Pennsylvania on April 8-10, 2013. The work was directed by the U.S. Environmental Protection Agency Region III (EPA) and performed by Superfund Technical Assessment and Response Team (START4) contractor TechLaw, Inc. (TechLaw) as part of the removal site evaluation. Sampling was conducted in accordance with the EPA-approved Sampling QA/QC Work Plan (SQAP) dated March 29, 2013. Water and sediment samples collected during the event were analyzed at offsite laboratories scheduled through the EPA Region III Client Services Team (CST). The following paragraphs summarize the field and sample collection activities conducted at the Site and provide a brief synopsis of the sample analyses performed and the associated analytical results. In addition, sample location maps, data summary tables and the data validation reports are attached for reference.

Field Reconnaissance and Sampling Activities

During April 8-10, 2013, four TechLaw START personnel and the EPA On-Scene Coordinator (OSC) met at the Site to conduct water and sediment sampling pursuant to the SQAP. The team began with a reconnaissance of draws and tributaries in the area surrounding the Shallow Land Disposal Area (SLDA) and community of Kiskimere. All of the draws and tributaries that were inspected flowed into the Kiskiminetas River. The purpose of the inspections was to identify locations for collecting groundwater seep, spring, and outfall and/or sediment samples in areas downgradient of and outside the perimeter of the SLDA. The reconnaissance method included

walking the draws and tributaries to evaluate if surface water was present. If surface water was observed, temperature readings were measured and recorded along the water path to evaluate if springs or seeps were feeding into it as noted by change in surface water temperature. The team walked the surface water to its upgradient emergence point, where possible. Topographic maps and aerial photography (e.g. Google Earth©) were used to support the reconnaissance and identify extents of drainage basins. In addition, the reconnaissance team (a.k.a. sampling team) evaluated the drainage basin near the tributaries and draws for the presence of other non-related potential sources of contamination such as solid waste, septic systems, drainage pipes, utilities, and other anthropogenic sources that could affect the representativeness of the samples.

A total of four tributaries, a dry draw, a mine outfall, a groundwater seep and an emerging upwelling spring were evaluated during the reconnaissance for the purposes of sampling. The reconnaissance locations are presented on Figure 1. Water and sediment samples were collected from the mine outfall, groundwater seep, and upwelling spring locations. The map distance and quadrant bearings to these traces and points were measured from the intersection of Main and Kiskimere Streets using Google Earth© and are further described below:

1. Unnamed Tributary (UT1) located 2,500 feet N36^{o}E: This unnamed tributary was found to have surface water at a low flow rate which was evident in the lower field and upgradient into the tree line. An emerging point of flow was identified in the draw on the hillside within the tree line. Maps indicate that a pond is present at its headwaters further upstream (shown immediately west of "Leechburg Airport" on the USGS topographic map; see Figure 1). The reconnaissance team did not inspect the tributary upgradient from its emergence and did not collect a sample pending further review of the location by EPA. Groundwater seeps or springs were not observed entering UT1. The lowest water temperature was at the emergence point of the tributary.

2. Unnamed Draw (UD1) located 1,300 feet N45^{o}E: The draw was dry and was not sampled.

3. Dry Run located 1,010 feet N15^{o}E and below the SLDA fence line boundary: The tributary was found to have surface water flow at a low flow rate. Spring and or groundwater seep flow was observed to be entering Dry Run from a couple of locations below the SLDA fence line. The reconnaissance team did not inspect the tributary upgradient of the fence line which was on SLDA property and did not collect a sample from the downgradient section pending further review of the location by EPA.

4. Unnamed Tributary (UT2) located 350 feet N90^{o}W and at the north end of the community of Kiskimere: This tributary was found to have surface water at a low flow rate. The tributary can be accessed from Jane St. in Kiskimere which crosses over the

ravine. The basin of the tributary contained household solid waste, corroded steel piping, PVC piping, and tires among other rubbish. There was what appeared to be a well-tended oil storage tank downstream from Jane St. The emergence point of the tributary was not investigated but based on maps appeared to be within the residential neighborhood on Kiskimere's north side. The reconnaissance team did not collect a sample from the tributary due to the uncertainty of the sample being representative.

5. Unnamed Tributary (UT3) located 1,360 feet due south and located at the south end of the community of Kiskimere: UT3 can be accessed from the south end of Main Street. The emergence point was from a culvert pipe. This tributary was found to have surface water at a low flow rate and its basin contained significant amounts of solid waste and fill. The reconnaissance team did not collect a sample from the tributary due to the uncertainty of the sample being representative. Temperatures of the surface water were measured and remained relatively constant and no other groundwater seeps or springs were observed entering UT3.

6. SW01/SD01; Mine Outfall (ME1) located 2,720 feet S17^{o}E: This is a mine outfall located on the west side of Lee Lake and approximately 30 feet above and approximately 2,080 feet up stream from the mouth of Carnahan Run. The location was accessed via Lee's Lake Lane and a short walk. The reconnaissance team was unable to reach the point of emergence due to the steep "cliff-like" hillside; however they observed it to be an estimated 18-in diameter pipe. The effluent water was estimated to be flowing at 25-40 gallons per minute and observed cascading down the near-vertical stratified bedrock hillside and into Carnahan Run. Orange staining (iron) was evident on the soils in the vicinity of the water fall. No sediment was available directly below the waterfall since it had been washed out. Sediment receiving outfall spray was available on the side of the outfall at its base. The team collected water and sediment samples SW01 and SD01 from the base of the outfall location before it entered Carnahan Run.

7. SW02, SW03, SD02, SD03; Groundwater Seep (SP1) located 2,760 feet S26^{o}E: The location is approximately 5-6 feet above the right-descending bank of Carnahan Run on the north side of Lee Lake and approximately 2,370 feet up stream from the mouth of Carnahan Run. The location was accessed via Lee's Lake Lane and a short walk. Topographic lines suggest a draw above this area. A "stick-up" pre-cast concrete manhole is located in Carnahan Run approximately 15 feet south of the seep location. Flow rate was low and estimated to be 0.5 gallon per minute. The sampling team collected duplicate water and sediment samples SW02, SD02, SW03, and SD03 from the seep emergence location.

8. SW04, SD04; Emerging Spring (SP2) located 3,190 feet S66^{o}E: The location is approximately 5,700 feet up stream from the mouth of Carnahan Run and is along the

right descending bank at the base of the hillside. In this area, the flood plain along the right descending bank of Carnahan Run is approximately 150-200 feet broad, so the hillside and spring are set back off the river channel that distance. SP2 is an upwelling emerging spring that empties into an approximately 4-ft wide drainage channel that hugs the base of the hillside and flows east to a series of three settling ponds. Locally known as Booker Ponds, they were apparently constructed to control water emerging from SP2. The sediments in the runoff path are "orange-tinged" indicating elevated iron content was precipitating out. The upwelling spring pool SP2 was 4-5 feet deep and approximately 15 feet in diameter. The sampling team collected water sample SW04 from the point where the pool entered the drainage channel leading to Pond 1. No sediment was available for sampling at that location, so the sediment sample SD04 was collected where the drainage channel first entered Pond 1 approximately 540 feet downstream from the upwelling spring.

Photographs were taken at each sampling location and longitude and latitude coordinates were recorded using a Trimble ProXH receiver. Surface water sample locations (groundwater seep, spring and mine outfall samples are of surface water matrix) were screened with an YSI-556 water quality meter. Breathing zone ambient air screening was conducted using a Ludlum Model 19 Micro-R meter and MultiRae-Plus multi-sensor air monitor. Field observations and measurements were recorded in field logs and are summarized below.

Sample Coordinates, Field Observations, and Screening Measurements

Parameter	Measurement Location				
	SW01/SD01	**SW02/SW03 SD02/SD03**	**Carnahan Run at SW02/03**	**SW04**	**SD04 Drainage Path**
Longitude*	**-79.580885968**	**-79.579365434**	-	**-79.573222741**	**-79.571482165**
Latitude*	**40.615080623**	**40.615341753**	-	**40.618755458**	**40.618347256**
Sample Location Observations					
Odor	None	None	None	None	Strong organic decay
Appearance	Orange staining	Clear	Clear	Orange staining	Orange staining
YSI 556 Water Quality Measurements (Surface Water)					
Temp (°C)	15.3	9.7	16.4	11.9	11.3
DO	80.4	100.2	108.2	3%	81
SpC (uS/cm)	955	355.1	222.2	1,173	384.4
pH	3.58	5.06	7.97	6.6	7
ORP (mV)	430.9	-40.3	-109	-110.3	-66
Micro-R Meter –Gamma Readings (Breathing Zone)					
uR	12.5	13	-	12.5	-

Parameter	Measurement Location				
	SW01/SD01	SW02/SW03 SD02/SD03	Carnahan Run at SW02/03	SW04	SD04 Drainage Path
MultiRae Readings (Breathing Zone)					
O2	20.5	20.4	-	20.2	-
VOC	0	0	-	0	-
LEL	0	0	-	0	-
CO	1	0	-	0	-
H2S	0	0	-	0	-

* Datum WGS 1984
Temp °C – temperature in degrees Celsius
uS/cm – micro-Siemens/centimeter
DO – Dissolved oxygen
mg/L – milligrams per liter
O2 – Oxygen
VOC – Volatile Organic Compounds
LEL – Lower Explosive Limit
CO – Carbon Monoxide
H2S – Hydrogen Sulfide

Water and sediment samples were preserved and placed on ice in coolers immediately following collection. Sample documentation, including labels, tags, and chain-of-custody, was produced using SCRIBE® sample management software. Samples were packaged and shipped to off-site laboratories scheduled through the EPA Region III CST. The Table below lists the respective Case Nos., laboratories, analytical methods, parameters and matrices associated with the samples.

Off-Site Laboratories and Analytical Methods

Case No.	Laboratory	Method	M.A.	Parameters	Matrix
43423	A4	CLP SOM01.2	-	TCL Trace Volatiles + TICs	Surface Water
				TCL Volatiles + TICs (low water)	Sediment & Trip Blanks for Sediment
				TCL SVOCs + TICs	Sediment
		CLP SOM01.2	1679.3	1,4-Dioxane	Surface Water & Sediment
R34165	EPA R3 Lab	EPA 200.7, 200.8, 245.1, 245.5	-	TAL Metals+Hg+U	Surface Water, Sediment, Rinsate Blank
		CLP Equivalent	-	TCL SVOCs + TICs	Sediment
				TCL Aroclors (PCBs)	
R34160	EPA NAREL	EPA 903.1 or Equivalent	-	RA-226	Water & Sediment
		EPA 904.0 or Equivalent	-	RA-228	
		EPA 901.1 or Equivalent	-	Gamma Spec	
		EPA 900.0 or Equivalent	-	Gross Alpha/Beta	

Field duplicate samples were collected at a rate of 10% per matrix to assess reproducibility of laboratory and field procedures and to check for non-homogeneity. A field duplicate sample was collected from the water and sediment matrices. Two trip blanks, a field blank, and a rinsate blank were collected from deionized, ultra-filtered water. A trip blank was placed in each VOA cooler to assess contamination introduced during shipping and field handling procedure. The field blank was collected to assess contamination from field conditions during water sampling

activities. A rinsate blank was collected from the stainless steel trowels to test the adequacy of the decontamination process on the non-dedicated sampling implements.

Analytical Results

Validated data packages and associated electronic data deliverables (EDDs) were received during the time period of May 1, 2013 through June 7, 2013. Laboratory data received from A4 were validated by the EPA Region III Environmental Services Assistance Team (ESAT) according to National Functional Guidelines for Validation of Organic Data utilizing the Environmental Data Exchange and Evaluation System (EXES). The EPA Regional laboratory and EPA NAREL laboratory conducted internal data validation and reported the findings in case narratives included with the respective data reports. The validated organic, inorganic and radiological data packages for all matrices including the respective sample results as reported by the laboratories may be found in Attachment 2- Data Validation Reports.

The EPA Biological Technical Assistance Group (BTAG) July 2006 Freshwater and Freshwater Sediment Screening Benchmarks were used for comparison of organic and inorganic parameters detected in surface water and sediment samples. The comparisons are provided in data summary tables that may be found in Attachment 1 – Data Summary Tables. A general discussion regarding the sample results is provided below. Radiological data are summarized in the tables and provided in Attachment 2; however, benchmarks for comparison of radiological concentrations in surface water and sediment matrices were unavailable for comparison.

Surface Water Samples

There were no VOC or SVOC compounds detected in the surface water field samples (see Table 1). The SVOC compound di-n-butyl phthalate, a common laboratory contaminant, was reported at trace concentrations in samples SW02, SW03 and SW04, but was qualified BJ because it was also found in the field and rinsate blanks at similar trace concentrations. The detection limits for some of the SVOC compounds exceeded the concentrations of the BTAG benchmarks. These instances are highlighted in Table 1.

As shown in Table 2, metals were detected at concentrations exceeding BTAG benchmark concentrations in each of the surface water samples. Many of the detections with the highest concentrations were found in the mine outfall sample SW01. In summary, the following metals exceeded the BTAG freshwater benchmarks (sample number with highest concentration shown): aluminum (SW01 – 6,490 ug/L), iron (SW04 – 28,000 ug/L), manganese (SW01 – 620 ug/L), barium (SW02 – 23.3 ug/L), beryllium (SW01 – 2.4 ug/L), cobalt (SW01 – 35.8 ug/L), copper (SW01 – 23.5 ug/L), nickel (SW01 – 94.1 ug/L), and zinc (SW01 – 154 ug/L). It is reasonable to suspect that degradation of water quality with

respect to elevated metals concentrations is influenced by the presence of coal mine-related effluent in the study area.

Table 3 is a summary of radiological data for the surface water, field blank and rinsate samples. There were no benchmarks available for comparison of these results; however the concentrations appear to be low and generally within the concentration range found in the field and rinsate blanks.

Sediment Samples

Table 4 lists the VOCs, SVOCs and TCL Aroclors (PCBs) detected in sediment samples. The only exceedance of BTAG freshwater sediment benchmarks was indeno(1,2,3-cd)pyrene in sample SD01 (56 J ug/kg). Sample SD01 was collected at mine-outfall location (ME1). Other organic detections in the sediment samples with the exception of acetone in SD04 (22 J ug/kg) were low concentration polycyclic aromatic hydrocarbons generally detected at concentrations near the contract required quantitation limit and qualified "J". The detection limits for some of the VOC and SVOC compounds exceeded the concentrations of the BTAG benchmarks. These instances where the compounds are qualified as undetected at a concentration above the comparison benchmark are highlighted in Table 5 along with the indeno(1,2,3-cd)pyrene exceedance.

Table 5 tabulates the TAL metals, mercury and uranium results in sediment samples. Metals were detected at concentrations exceeding benchmark concentrations in each of the sediment samples. The following metals exceeded the BTAG freshwater sediment benchmark concentrations (sample number with highest concentration shown): copper (SD01 - 36.4 micro grams per gram (ug/g) (same as mg/kg)), iron (SD03 - 348,000 ug/g), nickel (SD03 - 26 ug/g), zinc (SD03 – 133 ug/g), arsenic (SD03 - 16.2 ug/g).). As with the metals contents detected in surface water, there appears to be a relationship between elevated metals concentrations in the sediment samples and the presence of coal mine-related effluent in the area of study.

Table 6 presents radiological data for the sediment samples. There were no benchmarks available for comparison of these results; however the concentrations appear to be low. A nuclide-specific procedure for Ra-226 analysis in sediment was unavailable at the laboratory. Instead, a gamma analysis was used to identify Bi-214 and Pb-214 which are daughter products of Ra-226. These isotopes are reported in Table 7.

Table 7 lists the complete suite of organic, inorganic and radiological compounds/analytes detected in the field blank, rinsate blank and trip blank samples. For reference, radiological parameters are repeated from Table 3 for FB01 and RB01. The blank water source was

ASTM Type II deionized, ultra-filtered water. Significant detections include toluene (1.2 and 1.6 ug/L) found in FB01 and RB01, respectively. The presence of toluene is further discussed in the data validation report (Attachment 2).

If you have any questions or comments regarding this document, please contact me at [redacted].

Sincerely,

[redacted]

[redacted]
START Site Leader

Enclosures:

Figures

Figure 1 – Reconnaissance Locations – Groundwater Seeps, Springs and Outfalls
Figure 2 – Sample Location Map (Contour Lines)
Figure 3 – Sample Location Map (Aerial)

Attachment 1 – Data Summary Tables

Table 1 – VOCs and SVOCs, Surface Water Samples
Table 2 – TAL Metals, Mercury and Uranium, Surface Water Samples
Table 3 – Radiological Data, Surface Water and Blank Samples
Table 4 – VOCs, SVOCs and PCB Aroclors, Sediment Samples
Table 5 – TAL Metals, Mercury and Uranium, Sediment Samples
Table 6 – Radiological Data, Sediment Samples
Table 7 – Organic, Inorganic and Radiological Compounds and Analytes, Blank Samples

Attachment 2 – Data Validation Reports

Case 43423, SDG C0AA5 - Trace Volatile Organic Compounds; Water Samples
Case 43423, SDG C0AA6, C0AB0 – VOC, SVOC, 1,4-Dioxane; Water and Sediment Samples
Case R34165, 1304007 - SVOCs, PCB Aroclors, Total Metals, Total Mercury; Surface Water, Sediment, Water Samples
Case R34160, 1300027- RA226, Ra-226 in Water
Case R34160, 1300027-RA228, Ra-228 in Environmental Matrices (Water)
Case R34160, 1300027-GAMMA, Gamma Spectrometry (Water, Surface Water)
Case R34160, 1300027-ALPBET, Gross Alpha and Beta on Water Samples

Case R34160, 1300028-RA228, Ra-228 in Environmental Matrices (Sediment)
Case R34160, 1300028-GAMMA, Gamma Spectrometry (Sediment)
Case R34160, 1300028-ALPBET, Gross Alpha and Beta on Solid Samples

cc: TL Central Files

FIGURES

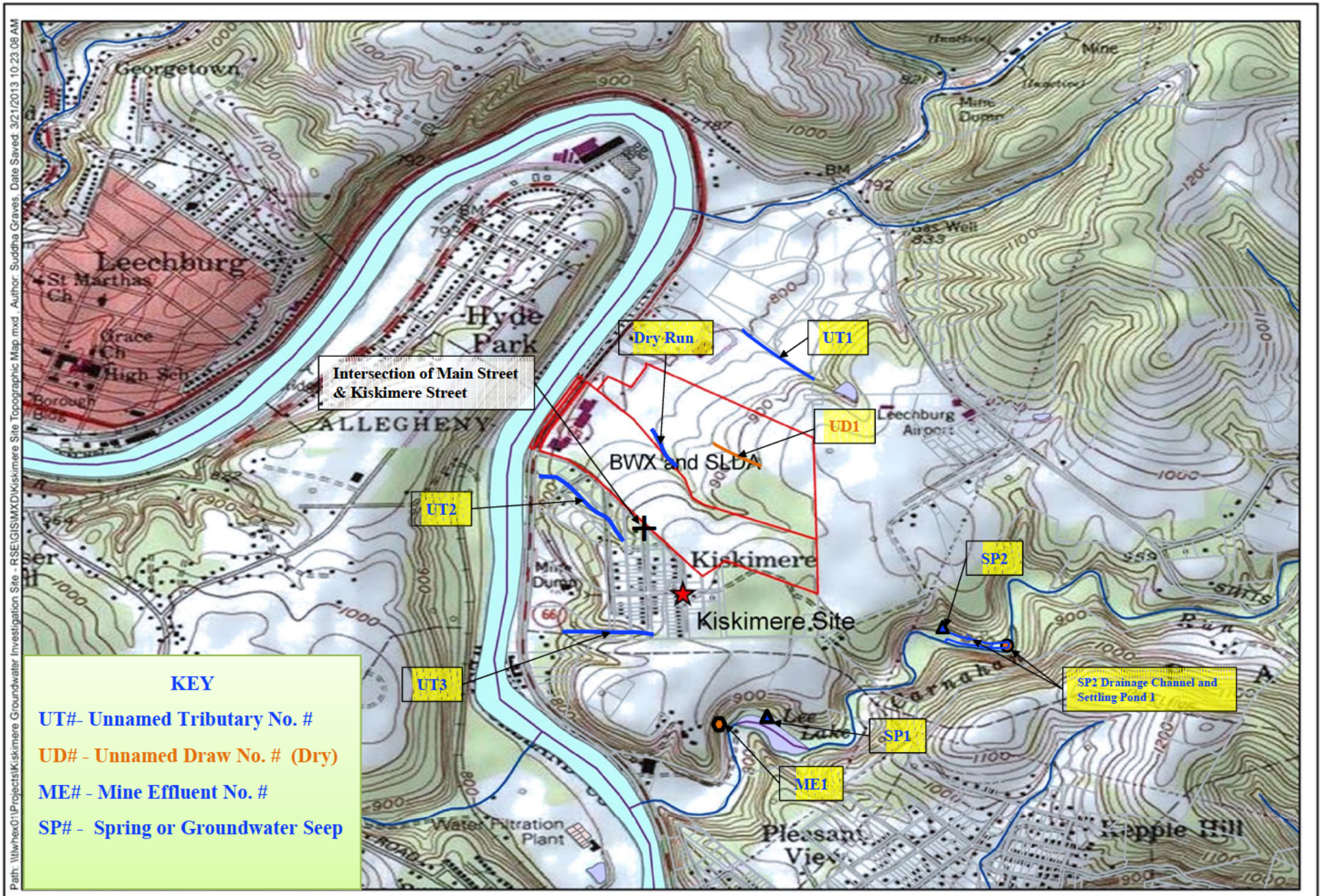

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Figure 1 – Reconnaissance Locations
Groundwater Seeps, Springs, and Outfalls

0 650 1,300 2,600 Feet
ESRI USA Topo Map

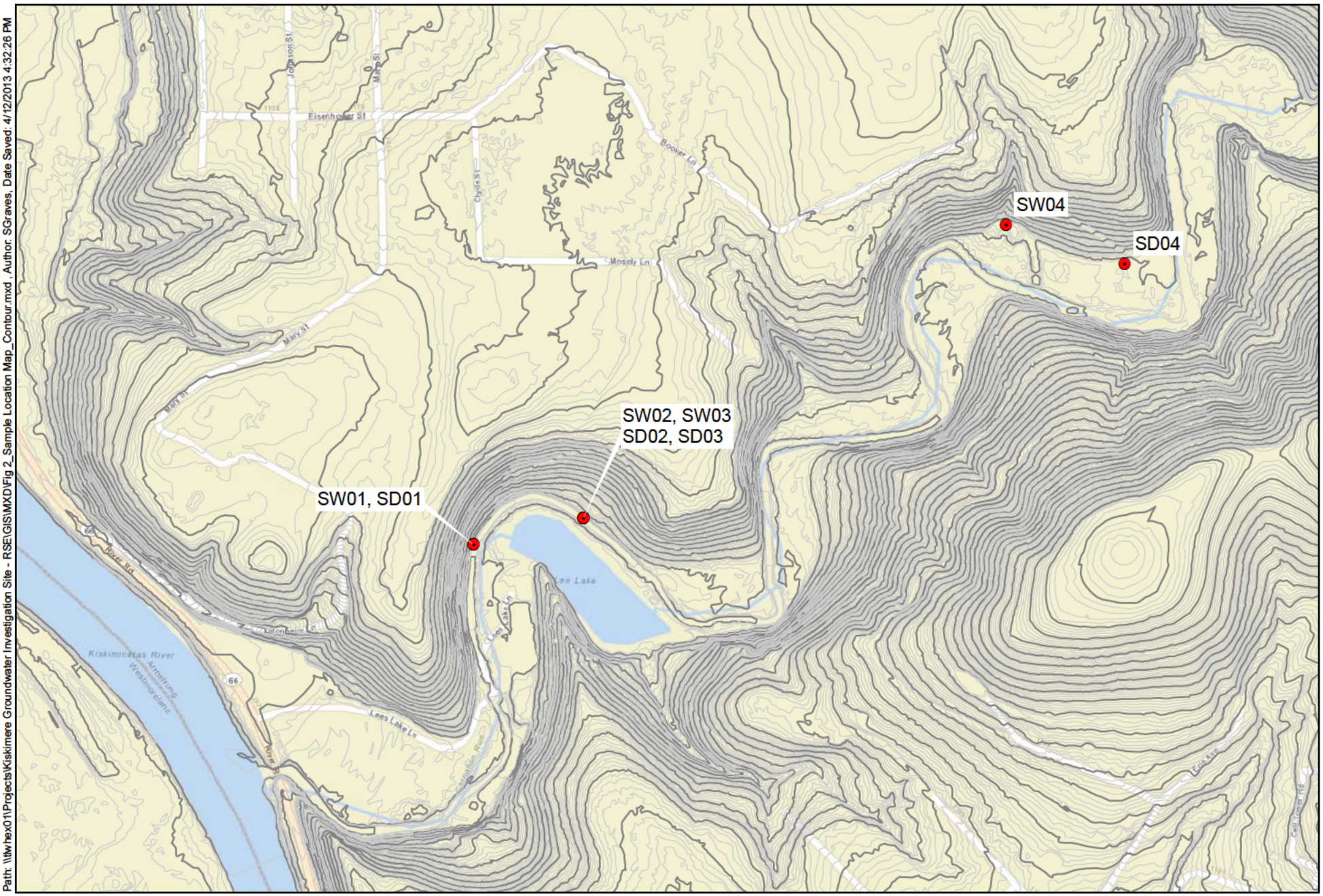

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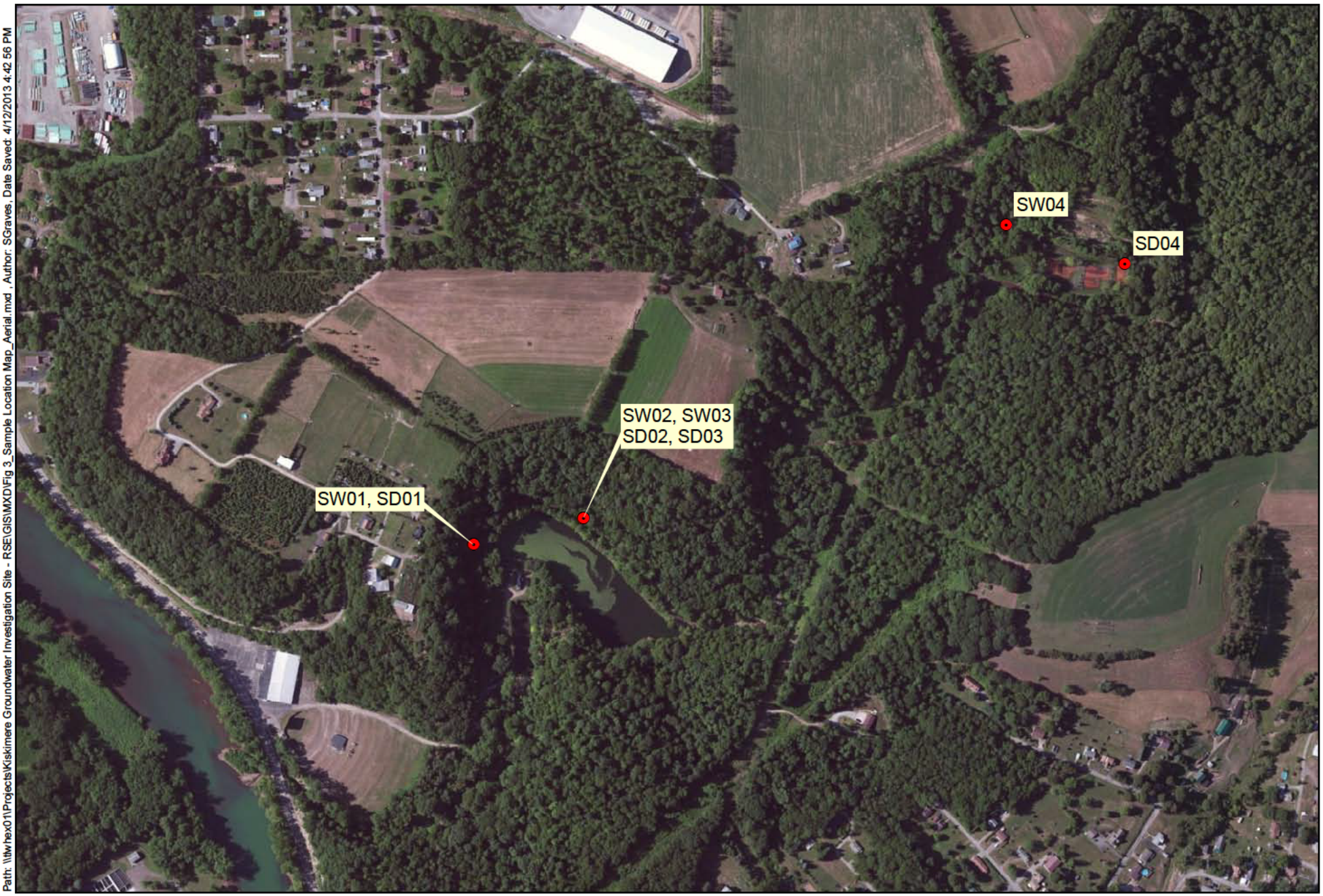
Figure 2 – Sample Location Map (Contour Lines)
Kiskimere Groundwater Well Investigation Site
Vandergrift, Armstrong County, Pennsylvania

0 200 400 800 Feet

ESRI Online World Imagery Layer



Path: \\tw hex01\Projects\Kiskimere Groundwater Investigation Site - RSE\GIS\MXD\Fig 3_Sample Location Map_Aerial.mxd , Author: SGraves, Date Saved: 4/12/2013 4:42 56 PM

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TDD: TL01-13-02-005

Figure 3 – Sample Location Map (Aerial)
Kiskimere Groundwater Well Investigation Site
Vandergrift, Armstrong County, Pennsylvania

0 200 400 800 Feet

ESRI Online World Imagery Layer

ATTACHMENT 1

DATA SUMMARY TABLES

(Key may be found at the end of the Tables)

Table 1
VOCs and SVOCs
Surface Water Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AA7		C0AA8		C0AA9		C0AB5	
Investigation Site	Sample #:	SW01		SW02		SW03		SW04	
Removal Site Evaluation	Sampling Location:	1		2		2		3	
	Matrix:	Water		Water		Water		Water	
	Units:	ug/L		ug/L		ug/L		ug/L	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	71-55-6	11								
1,1,2,2-Tetrachloroethane	79-34-5	610								
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0								
1,1,2-Trichloroethane	79-00-5	1200								
1,1-Dichloroethane	75-34-3	47								
1,1-Dichloroethene	75-35-4	25								
1,2,3-Trichlorobenzene	87-61-6	8								
1,2,4-Trichlorobenzene	120-82-1	24								
1,2-Dibromo-3-chloropropane	96-12-8	0								
1,2-Dibromoethane	106-93-4	0								
1,2-Dichlorobenzene	95-50-1	0.7								
1,2-Dichloroethane	107-06-2	100								
1,2-Dichloropropane	78-87-5	0								
1,3-Dichlorobenzene	541-73-1	150								
1,4-Dichlorobenzene	106-46-7	26								
2-Butanone	78-93-3	14000								
2-Hexanone	591-78-6	99								
4-Methyl-2-pentanone	108-10-1	170								
Acetone	67-64-1	1500								
Benzene	71-43-2	370								
Bromochloromethane	74-97-5	0								
Bromodichloromethane	75-27-4	0								
Bromoform	75-25-2	320								
Bromomethane	74-83-9	0								
Carbon Disulfide	75-15-0	0.92								
Carbon tetrachloride	56-23-5	13.3								
Chlorobenzene	108-90-7	1.3								
Chloroethane	75-00-3	0								
Chloroform	67-66-3	1.8								
Chloromethane	74-87-3	0								
cis-1,2-Dichloroethene	156-59-2	0								
cis-1,3-Dichloropropene	10061-01-5	0								
Cyclohexane	110-82-7	0								
Dibromochloromethane	124-48-1	0								
Dichlorodifluoromethane	75-71-8	0								
Ethylbenzene	100-41-4	90								
Isopropylbenzene	98-82-8	2.6								
m,p-Xylene	179601-23-1									
Methyl acetate	79-20-9									
Methyl tert-butyl ether	1634-04-4	11070								
Methylcyclohexane	108-87-2									

Table 1
VOCs and SVOCs
Surface Water Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AA7		C0AA8		C0AA9		C0AB5	
Investigation Site	Sample #:	SW01		SW02		SW03		SW04	
Removal Site Evaluation	Sampling Location:	1		2		2		3	
	Matrix:	Water		Water		Water		Water	
	Units:	ug/L		ug/L		ug/L		ug/L	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
Methylene chloride	75-09-2	98.1								
o-Xylene	95-47-6									
Styrene	100-42-5	72								
Tetrachloroethene	127-18-4	111								
Toluene	108-88-3	2								
trans-1,2-Dichloroethene	156-60-5	970								
trans-1,3-Dichloropropene	10061-02-6	0								
Trichloroethene	79-01-6	21								
Trichlorofluoromethane	75-69-4	0								
Vinyl chloride	75-01-4	930								
1,4-Dioxane	123-91-1	0								
1,1-Biphenyl	92-52-4	14								
2-methylphenol	95-48-7	13								
2-Nitroaniline	88-74-4	0								
4,6-Dinitro-2-methylphenol	534-52-1	0								
4-Chloro-3-methylphenol	59-50-7	0								
4-Chloroaniline	106-47-8	232								
4-methylphenol	106-44-5	543								
4-Nitroaniline	100-01-6	0								
Acenaphthene	83-32-9	5.8								
Acenaphthylene	208-96-8	0								
Acetophenone	98-86-2	0								
Anthracene	120-12-7	0.012								
Atrazine	1912-24-9	1.8								
Benzaldehyde	100-52-7									
Benzo(a)anthracene	56-55-3	0.018								
Benzo(a)pyrene	50-32-8	0.015								
Bromophenyl-4 Phenyl Ether	101-55-3	1.5								
Butylbenzyl phthalate	85-68-7	19								
Caprolactam	105-60-2									
Carbazole	86-74-8									
Chloronaphthalene-2	91-58-7	0								
Chlorophenol-2	95-57-8	24								
Chlorophenyl-4 phenyl ether	7005-72-3	0								
Chrysene	218-01-9	0								
Dibenz(a,h)anthracene	53-70-3	0								
Dibenzofuran	132-64-9	3.7								
Dichlorobenzidine-3,3'	91-94-1	4.5								
Dichlorophenol-2,4	120-83-2	11								
Dimethylphenol, 2,4-	105-67-9	0								
Dinitrophenol-2,4	51-28-5	0								

Table 1
VOCs and SVOCs
Surface Water Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AA7		C0AA8		C0AA9		C0AB5	
Investigation Site	Sample #:	SW01		SW02		SW03		SW04	
Removal Site Evaluation	Sampling Location:	1		2		2		3	
	Matrix:	Water		Water		Water		Water	
	Units:	ug/L		ug/L		ug/L		ug/L	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
Dinitrotoluene-2,4	121-14-2	44								
Dinitrotoluene-2,6	606-20-2	81								
Ether, bis(2-chloroethyl)	111-44-4	0								
Ether-bis(2-chloroisopropyl)	39638-32-9									
Fluoranthene	206-44-0	0.04								
Fluoranthene benzo(k)	207-08-9	0								
Fluoranthene-benzo(b)	205-99-2	0								
Fluorene	86-73-7	3								
Hexachlorobenzene	118-74-1	0.0003								
Hexachlorobutadiene	87-68-3	1.3								
Hexachlorocyclopentadiene	77-47-4	0								
Hexachloroethane	67-72-1	12								
Isophorone	78-59-1	0								
Methane, bis(2-chloroethoxy)	111-91-1	0								
Methylnaphthalene-2	91-57-6	4.7								
Naphthalene	91-20-3	1.1								
Nitroaniline-3	99-09-2	0								
Nitrobenzene	98-95-3	0								
Nitrophenol-2	88-75-5	1920								
Nitrophenol-4	100-02-7	60								
Nitrosodimethylamine-n	62-75-9	117								
Nitrosodiphenylamine-n	86-30-6	210								
Pentachlorophenol	87-86-5	0.5								
Perylene-benzo(ghi)	191-24-2	0								
Phenanthrene	85-01-8	0.4								
Phenol	108-95-2	4								
Phthalate, bis(2-ethylhexyl) (DEHP)	117-81-7	16								
Phthalate, Dimethyl	131-11-3	0								
Phthalate, di-n-butyl-	84-74-2	19			0.461	B, J	0.302	B, J	0.536	B, J
Phthalate, di-n-octyl	117-84-0	22								
Phthalate-diethyl	84-66-2	210								
Propylamine,n-nitroso di-n-	621-64-7	0								
Pyrene	129-00-0	0.025								
Pyrene-indeno(1,2,3-cd)	193-39-5	0								
Tetrachlorobenzene, 1,2,4,5-	95-94-3	3								
Tetrachlorophenol, 2,3,4,6-	58-90-2	1.2								
Trichlorophenol-2,4,5	95-95-4	0								
Trichlorophenol-2,4,6	88-06-2	4.9								

Table 1
VOCs and SVOCs
Surface Water Samples

Kiskimere Groundwater Well		CLP Sample Number:	C0AA7		C0AA8		C0AA9		C0AB5	
Investigation Site		Sample #:	SW01		SW02		SW03		SW04	
Removal Site Evaluation		Sampling Location:	1		2		2		3	
		Matrix:	Water		Water		Water		Water	
		Units:	ug/L		ug/L		ug/L		ug/L	
		Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
		Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q

Table 2
TAL Metals, Mercury and Uranium
Surface Water Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AA7		C0AA8		C0AA9		C0AB5	
Investigation Site	Sample #:	SW01		SW02		SW03		SW04	
Removal Site Evaluation	Sampling Location:	1		2		2		3	
	Matrix:	WA		WA		WA		WA	
	Units:	ug/l		ug/l		ug/l		ug/l	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/24/2013		4/24/2013		4/24/2013		4/24/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	7429-90-5	87	***6940***		***767***		***747***			
Calcium	7440-70-2	116000	40500		13700		13400		29900	
Iron	7439-89-6	300	***2950***		***771***		***431***		***28000***	
Magnesium	7439-95-4	82000	17100		6320		6250		12600	
Manganese	7439-96-5	120	***620***		***312***		***308***		***609***	
Potassium	7440-09-7	53000	3170		1440		1380		3420	
Sodium	7440-23-5	680000	83800		29800		29100		175000	
Antimony	7440-36-0	30								
Arsenic	7440-38-2	5							2.1	
Barium	7440-39-3	4	***12.9***		***23.3***		***19.2***		***21.7***	
Beryllium	7440-41-7	0.66	***2.4***							
Cadmium	7440-43-9	0.25								
Chromium	7440-47-3	85			1					
Cobalt	7440-48-4	23	***35.8***		9.5		8.2		4.6	
Copper	7440-50-8	9	***23.5***						2.7	
Lead	7439-92-1	2.5			1.7		1.3			
Nickel	7440-02-0	52	***94.1***		27.3		23.8		8.7	
Selenium	7782-49-2	1								
Silver	7440-22-4	3.2								
Thallium	7440-28-0	0.8								
Uranium	7440-61-1	2.6								
Vanadium	7440-62-2	20								
Zinc	7440-66-6	120	***154***		25.2		21.5		4.8	
Mercury	7439-97-6	0.026								

Table 3
Radiological Data
Surface Water and Blank Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AB4		C0AA6		C0AA7		C0AA8		C0AA9		C0AB5	
Investigation Site	Sample #:	FB01		RB01		SW01		SW02		SW03		SW04	
Removal Site Evaluation	Sampling Location:	Z		Z		1		2		2		3	
	Matrix:	WATER		WATER		WATER-SURFACE		WATER-SURFACE		WATER-SURFACE		WATER-SURFACE	
	Units:	PCI/L		PCI/L		PCI/L		PCI/L		PCI/L		PCI/L	
	Date Sampled:	4/10/2013		4/9/2013		4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/30/2013		4/30/2013		5/1/2013		5/1/2013		4/30/2013		5/1/2013	
Parameter	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Ba140	NAREL GAM-01	-0.341		20.5		7.68		11.9		2.76		-9.3	
Co60	NAREL GAM-01	-0.628		0.135		-0.116		1.79		-0.742		-0.216	
Cs137	NAREL GAM-01	0.541		-0.663		0.982		-0.444		1.23		0.693	
I131	NAREL GAM-01	-6.95		-1.23		-3.38		-0.99		1.09		7.27	
K40	NAREL GAM-01	-24.5		1.72		-23.4		-11.6		-38.9		15.8	
Ra226	NAREL GAM-01	-31.2	J	0.614	J	-19.8	J	57.6	J	-37.4	J	-32.3	J
Ra228	NAREL GAM-01	-11.8		7.5		-5.38		4.21		0.672		6.64	
Alpha	NAREL GR-01	0.584		0.16		2.11		1.49		1.72		2.56	
Beta	NAREL GR-01	1.59		2.52		1.82		1.16		1.08		1.84	
Ra228	NAREL RA-05	0.155		0.458		0.331		0.477		0.379		0.194	
Ra226	NAREL RA226-EICHROM	0.081		0.048		0.0231		0.0302		0.121		0.0301	

Table 4
VOCs, SVOCs and PCB Aroclors
Sediment Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AB0		C0AB1		C0AB2		C0AB6	
Investigation Site	Sample #:	SD01		SD02		SD03		SD04	
Removal Site Evaluation	Sampling Location:	1		2		2		4	
	Matrix:	Soil		Soil		Soil		Soil	
	Units:	ug/kg		ug/kg		ug/kg		ug/kg	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	71-55-6	30.2								
1,1,2,2-Tetrachloroethane	79-34-5	1360								
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1									
1,1,2-Trichloroethane	79-00-5	1240								
1,1-Dichloroethane	75-34-3									
1,1-Dichloroethene	75-35-4	31								
1,2,3-Trichlorobenzene	87-61-6	858								
1,2,4-Trichlorobenzene	120-82-1	2100								
1,2-Dibromo-3-chloropropane	96-12-8									
1,2-Dibromoethane	106-93-4									
1,2-Dichlorobenzene	95-50-1	16.5								
1,2-Dichloroethane	107-06-2									
1,2-Dichloropropane	78-87-5									
1,3-Dichlorobenzene	541-73-1	4430								
1,4-Dichlorobenzene	106-46-7	599								
1,4-Dioxane	123-91-1									
2-Butanone	78-93-3									
2-Hexanone	591-78-6									
4-Methyl-2-pentanone	108-10-1									
Acetone	67-64-1								22	J
Benzene	71-43-2									
Bromochloromethane	74-97-5									
Bromodichloromethane	75-27-4									
Bromoform	75-25-2	654								
Bromomethane	74-83-9									
Carbon Disulfide	75-15-0	0.851								
Carbon tetrachloride	56-23-5	64.2								
Chlorobenzene	108-90-7	8.42								
Chloroethane	75-00-3									
Chloroform	67-66-3									
Chloromethane	74-87-3									
cis-1,2-Dichloroethene	156-59-2									
cis-1,3-Dichloropropene	10061-01-5									
Cyclohexane	110-82-7									
Dibromochloromethane	124-48-1									
Dichlorodifluoromethane	75-71-8									
Ethylbenzene	100-41-4	1100								
Isopropylbenzene	98-82-8	86								
m,p-Xylene	179601-23-1									
Methyl acetate	79-20-9									
Methyl tert-butyl ether	1634-04-4									

Table 4
VOCs, SVOCs and PCB Aroclors
Sediment Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AB0		C0AB1		C0AB2		C0AB6	
Investigation Site	Sample #:	SD01		SD02		SD03		SD04	
Removal Site Evaluation	Sampling Location:	1		2		2		4	
	Matrix:	Soil		Soil		Soil		Soil	
	Units:	ug/kg		ug/kg		ug/kg		ug/kg	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
Methylcyclohexane	108-87-2									
Methylene chloride	75-09-2									
o-Xylene	95-47-6									
Styrene	100-42-5	559								
Tetrachloroethene	127-18-4	468								
Toluene	108-88-3									
trans-1,2-Dichloroethene	156-60-5	1050								
trans-1,3-Dichloropropene	10061-02-6									
Trichloroethene	79-01-6	96.9								
Trichlorofluoromethane	75-69-4									
Vinyl chloride	75-01-4									
1,1'-Biphenyl	92-52-4	1220								
1,2,4,5-Tetrachlorobenzene	95-94-3	1090								
1,4-Dioxane	123-91-1									
2,2'-Oxybis(1-chloropropane)	108-60-1									
2,3,4,6-Tetrachlorophenol	58-90-2	284								
2,4,5-Trichlorophenol	95-95-4									
2,4,6-Trichlorophenol	88-06-2	213								
2,4-Dichlorophenol	120-83-2	117								
2,4-Dimethylphenol	105-67-9	29								
2,4-Dinitrophenol	51-28-5									
2,4-Dinitrotoluene	121-14-2	41.6								
2,6-Dinitrotoluene	606-20-2									
2-Chloronaphthalene	91-58-7									
2-Chlorophenol	95-57-8	31.2								
2-Methylnaphthalene	91-57-6	20.2								
2-Methylphenol	95-48-7									
2-Nitroaniline	88-74-4									
2-Nitrophenol	88-75-5									
3,3'-Dichlorobenzidine	91-94-1	127								
3-Nitroaniline	99-09-2									
4,6-Dinitro-2-methylphenol	534-52-1									
4-Bromophenyl-phenylether	101-55-3	1230								
4-Chloro-3-methylphenol	59-50-7									
4-Chloroaniline	106-47-8									
4-Chlorophenyl-phenylether	7005-72-3									
4-Methylphenol	106-44-5	670								
4-Nitroaniline	100-01-6									
4-Nitrophenol	100-02-7									
Acenaphthene	83-32-9	6.7								
Acenaphthylene	208-96-8	5.9								

Table 4
VOCs, SVOCs and PCB Aroclors
Sediment Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AB0		C0AB1		C0AB2		C0AB6	
Investigation Site	Sample #:	SD01		SD02		SD03		SD04	
Removal Site Evaluation	Sampling Location:	1		2		2		4	
	Matrix:	Soil		Soil		Soil		Soil	
	Units:	ug/kg		ug/kg		ug/kg		ug/kg	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
Acetophenone	98-86-2									
Anthracene	120-12-7	57.2								
Atrazine	1912-24-9	6.62								
Benzaldehyde	100-52-7									
Benzo(a)anthracene	56-55-3	108	96	J						
Benzo(a)pyrene	50-32-8	150	94	J			38	J	81	J
Benzo(b)fluoranthene	205-99-2		87	J			25	J		
Benzo(g,h,I)perylene	191-24-2	170	47	J						
Benzo(k)fluoranthene	207-08-9	240	69	J					64	J
Bis(2-chloroethoxy)methane	111-91-1									
Bis(2-Chloroethyl)ether	111-44-4									
Bis(2-ethylhexyl)phthalate	117-81-7	180			31	J	33	J	78	J
Butylbenzylphthalate	85-68-7	10900								
Caprolactam	105-60-2									
Carbazole	86-74-8									
Chrysene	218-01-9	166	120	J						
Dibenzo(a,h)anthracene	53-70-3	33								
Dibenzofuran	132-64-9	415								
Diethylphthalate	84-66-2	603								
Dimethylphthalate	131-11-3									
Di-n-butylphthalate	84-74-2	6470			64	J	37	J	130	J
Di-n-octylphthalate	117-84-0									
Fluoranthene	206-44-0	423	220	J						
Fluorene	86-73-7	77.4								
Hexachlorobenzene	118-74-1	20								
Hexachlorobutadiene	87-68-3									
Hexachlorocyclopentadiene	77-47-4									
Hexachloroethane	67-72-1	1027								
Indeno(1,2,3-cd)pyrene	193-39-5	17	***56***	J						
Isophorone	78-59-1									
Naphthalene	91-20-3	176								
Nitrobenzene	98-95-3									
N-Nitroso-di-n-propylamine	621-64-7									
N-Nitrosodiphenylamine	86-30-6	2680								
Pentachlorophenol	87-86-5	504								
Phenanthrene	85-01-8	204	54	J						
Phenol	108-95-2	420								
Pyrene	129-00-0	195	160	J						
Aroclor 1016	12674-11-2									
Aroclor 1221	11104-28-2									
Aroclor 1232	11141-16-5									

Table 4
VOCs, SVOCs and PCB Aroclors
Sediment Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AB0		C0AB1		C0AB2		C0AB6	
Investigation Site	Sample #:	SD01		SD02		SD03		SD04	
Removal Site Evaluation	Sampling Location:	1		2		2		4	
	Matrix:	Soil		Soil		Soil		Soil	
	Units:	ug/kg		ug/kg		ug/kg		ug/kg	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor 1242	53469-21-9									
Aroclor 1248	12672-29-6									
Aroclor 1254	11097-69-1									
Aroclor 1260	11096-82-5									
Aroclor 1262	37324-23-5									
Aroclor 1268	11100-14-4									

Table 5
TAL Metals, Mercury and Uranium
Sediment Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AB0		C0AB1		C0AB2		C0AB6	
Investigation Site	Sample #:	SD01		SD02		SD03		SD04	
Removal Site Evaluation	Sampling Location:	1		2		2		4	
	Matrix:	SO		SO		SO		SO	
	Units:	ug/g		ug/g		ug/g		ug/g	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	5/1/2013		5/1/2013		5/1/2013		5/1/2013	
Parameter	CAS No.	BTAG [1]	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	7429-90-5		5600		6860		2700		7090	
Barium	7440-39-3		70.7		67.9		72.9		64.9	
Calcium	7440-70-2		237		157		1480		165	
Cobalt	7440-48-4	50	9.5		6.7		16.2		6.6	
Copper	7440-50-8	31.6	***36.4***		13		5.7		12.1	
Iron	7439-89-6	20000	***122000***		***36100***		***348000***		***32200***	
Lead	7439-92-1	35.8	17.8		12.2		20.8		15.2	
Magnesium	7439-95-4		1350		1600		687		1620	
Manganese	7439-96-5	460	272	J	202		359		196	
Nickel	7440-02-0	22.7	14.6		14.1		***26***		14.1	
Potassium	7440-09-7		531		632		282		650	
Sodium	7440-23-5						570			
Zinc	7440-66-6	121	68.5		47.9		***133***		47.6	
Antimony	7440-36-0	2								
Arsenic	7440-38-2	9.8	9.5		4.2		***16.2***	J	5	
Beryllium	7440-41-7		0.5	J	0.5	J	1.2	J	0.5	J
Cadmium	7440-43-9	0.99					0.2			
Chromium	7440-47-3	43.4	15.6		13		3.6		15.8	
Selenium	7782-49-2	2								
Silver	7440-22-4	1								
Thallium	7440-28-0		0.2		0.1		0.2		0.2	
Uranium	7440-61-1		0.4		0.6		0.4		0.8	
Vanadium	7440-62-2		13.6		26.8	J	1.6		33.4	
Mercury	7439-97-6	0.18	0.03		0.02		0.02		0.02	

Table 6
Radiological Data
Sediment Samples

Kiskimere Groundwater Well	CLP Sample Number:	C0AB0		C0AB1		C0AB2		C0AB6	
Investigation Site	Sample #:	SD01		SD02		SD03		SD04	
Removal Site Evaluation	Sampling Location:	1		2		2		4	
	Matrix:	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
	Units:	PCI/GDRY		PCI/GDRY		PCI/GDRY		PCI/GDRY	
	Date Sampled:	4/9/2013		4/9/2013		4/9/2013		4/10/2013	
	Date Analyzed:	5/20/2013		5/20/2013		5/20/2013		5/21/2013	
Parameter	Analysis	Result	Q	Result	Q	Result	Q	Result	Q
Bi212	NAREL GAM-01	1.11	J	1.53	J	1.39	J	0.643	J
Bi214	NAREL GAM-01	0.836	J	1.16	J	1.06	J	0.51	J
Cs137	NAREL GAM-01	0.04						0.0885	
K40	NAREL GAM-01	13.5		16.6		15.5		4.6	
Pb212	NAREL GAM-01	0.961	J	1.26	J	1.13	J	0.549	J
Pb214	NAREL GAM-01	0.982	J	1.37	J	1.23	J	0.498	J
Ra228	NAREL GAM-01	1.14		1.53		1.4		0.729	
Th234	NAREL GAM-01	0.672	J	1.15	J	0.863	J		
Tl208	NAREL GAM-01	0.339	J	0.451	J	0.402	J	0.171	J
Alpha	NAREL GR-03	21.2		26.8		19.7		8.97	
Beta	NAREL GR-03	20.6		24.3		22		10.6	
Ra228	NAREL RA-05	0.608		2.21		0.88		0.916	

Table 7
Organic, Inorganic and Radiological Compounds and Analytes
Blank Samples

Kiskimere Groundwater Well			CLP Sample Number:	C0AB4		C0AA6		C0AA5		C0AB3	
Investigation Site			Sample #:	FB01		RB01		TB01		TB02	
Removal Site Evaluation			Sampling Location:	Z		Z		Z		Z	
			Matrix:	Water		Water		Water		Water	
			Date Sampled:	4/10/2013		4/9/2013		4/9/2013		4/10/2013	
			Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	Analysis	UNITs	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	71-55-6	E524.2	ug/L								
1,1,2,2-Tetrachloroethane	79-34-5	E524.2	ug/L								
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	E524.2	ug/L								
1,1,2-Trichloroethane	79-00-5	E524.2	ug/L								
1,1-Dichloroethane	75-34-3	E524.2	ug/L								
1,1-Dichloroethene	75-35-4	E524.2	ug/L								
1,2,3-Trichlorobenzene	87-61-6	E524.2	ug/L								
1,2,4-Trichlorobenzene	120-82-1	E524.2	ug/L								
1,2-Dibromo-3-chloropropane	96-12-8	E524.2	ug/L								
1,2-Dibromoethane	106-93-4	E524.2	ug/L								
1,2-Dichlorobenzene	95-50-1	E524.2	ug/L								
1,2-Dichloroethane	107-06-2	E524.2	ug/L								
1,2-Dichloropropane	78-87-5	E524.2	ug/L	0.57							
1,3-Dichlorobenzene	541-73-1	E524.2	ug/L								
1,4-Dichlorobenzene	106-46-7	E524.2	ug/L								
2-Butanone	78-93-3	E524.2	ug/L								
2-Hexanone	591-78-6	E524.2	ug/L								
4-Methyl-2-pentanone	108-10-1	E524.2	ug/L								
Acetone	67-64-1	E524.2	ug/L							1.3	J
Benzene	71-43-2	E524.2	ug/L								
Bromochloromethane	74-97-5	E524.2	ug/L								
Bromodichloromethane	75-27-4	E524.2	ug/L								
Bromoform	75-25-2	E524.2	ug/L								
Bromomethane	74-83-9	E524.2	ug/L								
Carbon Disulfide	75-15-0	E524.2	ug/L								
Carbon tetrachloride	56-23-5	E524.2	ug/L								
Chlorobenzene	108-90-7	E524.2	ug/L								
Chloroethane	75-00-3	E524.2	ug/L								
Chloroform	67-66-3	E524.2	ug/L	***2.5***		***2.5***		***2.9***		***2.4***	
Chloromethane	74-87-3	E524.2	ug/L								
cis-1,2-Dichloroethene	156-59-2	E524.2	ug/L								
cis-1,3-Dichloropropene	10061-01-5	E524.2	ug/L								
Cyclohexane	110-82-7	E524.2	ug/L								
Dibromochloromethane	124-48-1	E524.2	ug/L								
Dichlorodifluoromethane	75-71-8	E524.2	ug/L								
Ethylbenzene	100-41-4	E524.2	ug/L								
Isopropylbenzene	98-82-8	E524.2	ug/L								
m,p-Xylene	179601-23-1	E524.2	ug/L	0.13	J					0.11	J
Methyl acetate	79-20-9	E524.2	ug/L								
Methyl tert-butyl ether	1634-04-4	E524.2	ug/L								
Methylcyclohexane	108-87-2	E524.2	ug/L								
Methylene chloride	75-09-2	E524.2	ug/L	4.3		3.7	J	4.2		4.1	J
o-Xylene	95-47-6	E524.2	ug/L	0.056	J	0.068	J	0.081	J		
Styrene	100-42-5	E524.2	ug/L								
Tetrachloroethene	127-18-4	E524.2	ug/L								
Toluene	108-88-3	E524.2	ug/L	1.2		1.6				1.2	
trans-1,2-Dichloroethene	156-60-5	E524.2	ug/L								
trans-1,3-Dichloropropene	10061-02-6	E524.2	ug/L								
Trichloroethene	79-01-6	E524.2	ug/L								
Trichlorofluoromethane	75-69-4	E524.2	ug/L								
Vinyl chloride	75-01-4	E524.2	ug/L								
1,4-Dioxane	123-91-1	E625	ug/L								

Table 7
Organic, Inorganic and Radiological Compounds and Analytes
Blank Samples

Kiskimere Groundwater Well			CLP Sample Number:	C0AB4		C0AA6		C0AA5		C0AB3	
Investigation Site			Sample #:	FB01		RB01		TB01		TB02	
Removal Site Evaluation			Sampling Location:	Z		Z		Z		Z	
			Matrix:	Water		Water		Water		Water	
			Date Sampled:	4/10/2013		4/9/2013		4/9/2013		4/10/2013	
			Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	Analysis	UNITs	Result	Q	Result	Q	Result	Q	Result	Q
Calcium	7440-70-2	EPA200.7	ug/l								
Iron	7439-89-6	EPA200.7	ug/l								
Magnesium	7439-95-4	EPA200.7	ug/l								
Potassium	7440-09-7	EPA200.7	ug/l								
Sodium	7440-23-5	EPA200.7	ug/l								
Aluminum	7429-90-5	EPA200.8	ug/l								
Antimony	7440-36-0	EPA200.8	ug/l								
Arsenic	7440-38-2	EPA200.8	ug/l								
Barium	7440-39-3	EPA200.8	ug/l								
Beryllium	7440-41-7	EPA200.8	ug/l								
Cadmium	7440-43-9	EPA200.8	ug/l								
Chromium	7440-47-3	EPA200.8	ug/l								
Cobalt	7440-48-4	EPA200.8	ug/l								
Copper	7440-50-8	EPA200.8	ug/l								
Lead	7439-92-1	EPA200.8	ug/l								
Manganese	7439-96-5	EPA200.8	ug/l								
Nickel	7440-02-0	EPA200.8	ug/l								
Selenium	7782-49-2	EPA200.8	ug/l								
Silver	7440-22-4	EPA200.8	ug/l								
Thallium	7440-28-0	EPA200.8	ug/l								
Uranium	7440-61-1	EPA200.8	ug/l								
Vanadium	7440-62-2	EPA200.8	ug/l								
Zinc	7440-66-6	EPA200.8	ug/l								
Mercury	7439-97-6	EPA245.1	ug/l								
Ba140		NAREL GAM-01	PCI/L	-0.341		20.5					
Co60		NAREL GAM-01	PCI/L	-0.628		0.135					
Cs137		NAREL GAM-01	PCI/L	0.541		-0.663					
I131		NAREL GAM-01	PCI/L	-6.95		-1.23					
K40		NAREL GAM-01	PCI/L	-24.5		1.72					
Ra226		NAREL GAM-01	PCI/L	-31.2	J	0.614	J				
Ra228		NAREL GAM-01	PCI/L	-11.8		7.5					
Alpha		NAREL GR-01	PCI/L	0.584		0.16					
Beta		NAREL GR-01	PCI/L	1.59		2.52					
Ra228		NAREL RA-05	PCI/L	0.155		0.458					
Ra226		NAREL RA226-EICHROM	PCI/L	0.081		0.048					
Aroclor 1016	12674-11-2	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1221	11104-28-2	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1232	11141-16-5	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1242	53469-21-9	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1248	12672-29-6	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1254	11097-69-1	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1260	11096-82-5	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1262	37324-23-5	PCB Aroclors by CLP Equivalent	ug/l								
Aroclor 1268	11100-14-4	PCB Aroclors by CLP Equivalent	ug/l								
1,1-Biphenyl	92-52-4	SVOCs by CLP Equivalent	ug/l								
2-methylphenol	95-48-7	SVOCs by CLP Equivalent	ug/l								
2-Nitroaniline	88-74-4	SVOCs by CLP Equivalent	ug/l								
4,6-Dinitro-2-methylphenol	534-52-1	SVOCs by CLP Equivalent	ug/l								
4-Chloro-3-methylphenol	59-50-7	SVOCs by CLP Equivalent	ug/l								
4-Chloroaniline	106-47-8	SVOCs by CLP Equivalent	ug/l								
4-methylphenol	106-44-5	SVOCs by CLP Equivalent	ug/l								
4-Nitroaniline	100-01-6	SVOCs by CLP Equivalent	ug/l								

Table 7
Organic, Inorganic and Radiological Compounds and Analytes
Blank Samples

Kiskimere Groundwater Well			CLP Sample Number:	C0AB4		C0AA6		C0AA5		C0AB3	
Investigation Site			Sample #:	FB01		RB01		TB01		TB02	
Removal Site Evaluation			Sampling Location:	Z		Z		Z		Z	
			Matrix:	Water		Water		Water		Water	
			Date Sampled:	4/10/2013		4/9/2013		4/9/2013		4/10/2013	
			Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	Analysis	UNITs	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	83-32-9	SVOCs by CLP Equivalent	ug/l								
Acenaphthylene	208-96-8	SVOCs by CLP Equivalent	ug/l								
Acetophenone	98-86-2	SVOCs by CLP Equivalent	ug/l								
Anthracene	120-12-7	SVOCs by CLP Equivalent	ug/l								
Atrazine	1912-24-9	SVOCs by CLP Equivalent	ug/l								
Benzaldehyde	100-52-7	SVOCs by CLP Equivalent	ug/l								
Benzo(a)anthracene	56-55-3	SVOCs by CLP Equivalent	ug/l								
Benzo(a)pyrene	50-32-8	SVOCs by CLP Equivalent	ug/l								
Bromophenyl-4 Phenyl Ether	101-55-3	SVOCs by CLP Equivalent	ug/l								
Butylbenzyl phthalate	85-68-7	SVOCs by CLP Equivalent	ug/l								
Caprolactam	105-60-2	SVOCs by CLP Equivalent	ug/l								
Carbazole	86-74-8	SVOCs by CLP Equivalent	ug/l								
Chloronaphthalene-2	91-58-7	SVOCs by CLP Equivalent	ug/l								
Chlorophenol-2	95-57-8	SVOCs by CLP Equivalent	ug/l								
Chlorophenyl-4 phenyl ether	7005-72-3	SVOCs by CLP Equivalent	ug/l								
Chrysene	218-01-9	SVOCs by CLP Equivalent	ug/l								
Dibenz(a,h)anthracene	53-70-3	SVOCs by CLP Equivalent	ug/l								
Dibenzofuran	132-64-9	SVOCs by CLP Equivalent	ug/l								
Dichlorobenzidine-3,3'	91-94-1	SVOCs by CLP Equivalent	ug/l								
Dichlorophenol-2,4	120-83-2	SVOCs by CLP Equivalent	ug/l								
Dimethylphenol, 2,4-	105-67-9	SVOCs by CLP Equivalent	ug/l								
Dinitrophenol-2,4	51-28-5	SVOCs by CLP Equivalent	ug/l								
Dinitrotoluene-2,4	121-14-2	SVOCs by CLP Equivalent	ug/l								
Dinitrotoluene-2,6	606-20-2	SVOCs by CLP Equivalent	ug/l								
Ether, bis(2-chloroethyl)	111-44-4	SVOCs by CLP Equivalent	ug/l								
Ether-bis(2-chloroisopropyl)	39638-32-9	SVOCs by CLP Equivalent	ug/l								
Fluoranthene	206-44-0	SVOCs by CLP Equivalent	ug/l								
Fluoranthene benzo(k)	207-08-9	SVOCs by CLP Equivalent	ug/l								
Fluoranthene-benzo(b)	205-99-2	SVOCs by CLP Equivalent	ug/l								
Fluorene	86-73-7	SVOCs by CLP Equivalent	ug/l								
Hexachlorobenzene	118-74-1	SVOCs by CLP Equivalent	ug/l								
Hexachlorobutadiene	87-68-3	SVOCs by CLP Equivalent	ug/l								
Hexachlorocyclopentadiene	77-47-4	SVOCs by CLP Equivalent	ug/l								
Hexachloroethane	67-72-1	SVOCs by CLP Equivalent	ug/l								
Isophorone	78-59-1	SVOCs by CLP Equivalent	ug/l								
Methane, bis(2-chloroethoxy)	111-91-1	SVOCs by CLP Equivalent	ug/l								
Methylnaphthalene-2	91-57-6	SVOCs by CLP Equivalent	ug/l								
Naphthalene	91-20-3	SVOCs by CLP Equivalent	ug/l								
Nitroaniline-3	99-09-2	SVOCs by CLP Equivalent	ug/l								
Nitrobenzene	98-95-3	SVOCs by CLP Equivalent	ug/l								
Nitrophenol-2	88-75-5	SVOCs by CLP Equivalent	ug/l								
Nitrophenol-4	100-02-7	SVOCs by CLP Equivalent	ug/l								
Nitrosodimethylamine-n	62-75-9	SVOCs by CLP Equivalent	ug/l								
Nitrosodiphenylamine-n	86-30-6	SVOCs by CLP Equivalent	ug/l								
Pentachlorophenol	87-86-5	SVOCs by CLP Equivalent	ug/l								
Perylene-benzo(ghi)	191-24-2	SVOCs by CLP Equivalent	ug/l								
Phenanthrene	85-01-8	SVOCs by CLP Equivalent	ug/l								
Phenol	108-95-2	SVOCs by CLP Equivalent	ug/l								
Phthalate, bis(2-ethylhexyl) (DEHP)	117-81-7	SVOCs by CLP Equivalent	ug/l								
Phthalate, Dimethyl	131-11-3	SVOCs by CLP Equivalent	ug/l								
Phthalate, di-n-butyl-	84-74-2	SVOCs by CLP Equivalent	ug/l	0.569	B, J	0.453	B, J				
Phthalate, di-n-octyl	117-84-0	SVOCs by CLP Equivalent	ug/l								

Table 7
Organic, Inorganic and Radiological Compounds and Analytes
Blank Samples

Kiskimere Groundwater Well			CLP Sample Number:	C0AB4		C0AA6		C0AA5		C0AB3	
Investigation Site			Sample #:	FB01		RB01		TB01		TB02	
Removal Site Evaluation			Sampling Location:	Z		Z		Z		Z	
			Matrix:	Water		Water		Water		Water	
			Date Sampled:	4/10/2013		4/9/2013		4/9/2013		4/10/2013	
			Date Analyzed:	4/15/2013		4/15/2013		4/15/2013		4/15/2013	
Parameter	CAS No.	Analysis	UNITs	Result	Q	Result	Q	Result	Q	Result	Q
Phthalate-diethyl	84-66-2	SVOCs by CLP Equivalent	ug/l								
Propylamine,n-nitroso di-n-	621-64-7	SVOCs by CLP Equivalent	ug/l								
Pyrene	129-00-0	SVOCs by CLP Equivalent	ug/l								
Pyrene-indeno(1,2,3-cd)	193-39-5	SVOCs by CLP Equivalent	ug/l								
Tetrachlorobenzene, 1,2,4,5-	95-94-3	SVOCs by CLP Equivalent	ug/l								
Tetrachlorophenol, 2,3,4,6-	58-90-2	SVOCs by CLP Equivalent	ug/l								
Trichlorophenol-2,4,5	95-95-4	SVOCs by CLP Equivalent	ug/l								
Trichlorophenol-2,4,6	88-06-2	SVOCs by CLP Equivalent	ug/l								

KEY

- 1 – BTAG - EPA Biological Technical Assistance Group (BTAG) July 2006 Freshwater and Freshwater Sediment Screening Benchmarks
- Cells highlighted in pale yellow have values that exceed the benchmark concentration.
- Q – Validated Qualifier
- ug/L – micrograms per liter
- ug/kg – micrograms per kilogram
- ug/g – micrograms per gram (equivalent to milligrams per kilogram)
- PCI/L – picocuries per liter

- CAS – Chemical Abstract System No.

CASE 43423 - GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.
J = Analyte present. Reported value may not be accurate or precise.
UJ = Not detected, quantitation limit may be inaccurate or imprecise.
NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

CASE 43423 - GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
R = Unusable result. Analyte may or may not be present in the sample. Supporting data is necessary to confirm result.
J = Analyte present. Reported value may not be accurate or precise.
J+ = Analyte present. Reported value may be biased high. Actual value is expected to be lower.
J- = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ = Not detected, quantitation limit may be inaccurate or imprecise.

CASE R34165 GLOSSARY OF DATA QUALIFIER CODES (ORGANIC & INORGANIC)

UJ = The analyte was not detected at or above the quantitation limit. The quantitation limit is an estimate.
TD = Spike concentration is too dilute for accurate quantitation resulting in inaccurate recovery calculations..
T = Tentatively Identified Compound. Identified as a result of a library search using the EPA/NIST Mass Spectral Library. Standards were not used to verify the identity and quantity of the compound. The reported value is an estimate.
K = The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value. Reported value is an estimate.
J = The identification of the analyte is acceptable; the reported value is an estimate.
dry = Reported on a Dry Weight Basis
D = Source sample result and/or duplicate sample result are below the quantitation limit and the RPD is artificially high. Precision data (RPD value) has no significance for this QC Sample.
B = Not detected substantially above (10 times) the level reported in the laboratory or field blanks (including field, trip, rinsate, and equipment blanks).
A = Quality control value is outside acceptance limits.
RPD = Relative Percent Difference
%REC = Percent Recovery
U = Analyte included in the analysis, but not detected at or above the quantitation limit.
NR = Not Reported
QUANTITATION LIMIT: The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method and that takes into account analytical adjustments made during sample preparation and analysis.

ATTACHMENT 2

DATA VALIDATION REPORTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE : April 30, 2013

SUBJECT: Region III Data QA Review

FROM : Colleen K. Walling
Region III ESAT RPO (3EA22)

TO : Rich Rupert
On-Scene Coordinator (3HS31)

Attached is the organic data validation report for the Kiskimere Groundwater Well site for Case #: 43423, SDG#: C0AA5 completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachments

cc: Joe Carter (TechLaw, Inc.)
Gene Nance (TechLaw, Inc.)

TO No.: 0042 TDF#: 04053E

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Lockheed Martin IS&GS – Civil
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

DATE: April 30, 2013

SUBJECT: Organic Data Validation (S4VEM)
Case: 43423
SDG: C0AA5
Site: Kiskimere Groundwater Well

FROM: Lisa D. Penix
Organic Data Reviewer

Kenneth W. Curry
Oversight Chemist

TO: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 43423, Sample Delivery Group (SDG) C0AA5, consisted of eight (8) aqueous samples, including one (1) field duplicate pair, two (2) trip blanks, one (1) field blank and one (1) rinsate blank analyzed for trace volatile compounds. All analyses were performed by A4 Scientific, Inc. (A4) in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.2 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to National Functional Guidelines for Validation of Organic Data, utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). Areas of concern with respect to data usability are listed below.

MINOR PROBLEM

Recoveries for Deuterated Monitoring Compounds (DMCs) listed below were outside lower control limits for the referenced samples. Positive results and quantitation limits for associated compounds are estimated and qualified "J" and "UJ", respectively.

DMC	Sample
1,1,2,2-tetrachloroethane-d2	C0AA6, C0AB3, C0AB4
1,2-dichloroethane-d4	C0AA6, C0AB3
Chloroethane-d5	C0AA8

NOTES

Compounds detected below Contract Required Quantitation Limits (CRQLs) are qualified "J" unless reported at CRQL and qualified "U" due to blank contamination.

Detected concentrations of common laboratory contaminant ethylbenzene, and methylene chloride less than two time (<2X) the CRQL have been reported at CRQL and qualified "U" in samples for which the associated method, storage, trip, field and/or rinsate blanks had the same compounds present.

Tentatively Identified Compounds (TICs) were not validated. They are validated only at the specific request of the data users. TIC data are included on the Sample Summary Report (SSR) forms.

No positive results were reported in field duplicate pair C0AA8/C0AA9.

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

U = Not detected. The associated number indicates Contract Required Quantitation Limit.

R = Unusable result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

DCN: 43423_C0AA5

Sample Summary Report

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AA5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	TB01	pH:	2.0	Sample Date:	04/09/2013	Sample Time:	07:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	4.2	ug/L	1.0			Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	2.9	ug/L	1.0			Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	J	U	Yes	S4VEM
o-Xylene	0.081	ug/L	1.0	J	J	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
TIC:Toluene	2.6	ug/L	1.0	JN	JN	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AA6	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	RB01	pH:	2.0	Sample Date:	04/09/2013	Sample Time:	09:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Methylene chloride	3.7	ug/L	1.0		J	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	2.5	ug/L	1.0			Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	1.6	ug/L	1.0			Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.068	ug/L	1.0	J	J	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AA7	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	SW01	pH:	2.0	Sample Date:	04/09/2013	Sample Time:	10:35:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	0.50	ug/L	1.0	J	U	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AA8	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	SW02	pH:	2.0	Sample Date:	04/09/2013	Sample Time:	15:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AA9	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	SW03	pH:	2.0	Sample Date:	04/09/2013	Sample Time:	15:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AB3	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	TB02	pH:	2.0	Sample Date:	04/10/2013	Sample Time:	07:40:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Acetone	1.3	ug/L	1.0	J	J	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Methylene chloride	4.1	ug/L	1.0		J	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	2.4	ug/L	1.0			Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	1.2	ug/L	1.0			Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
m,p-Xylene	0.11	ug/L	1.0	J	J	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclotetrasiloxane, octamethyl-	0.33	ug/L	1.0	JN	JN	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AB4	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	FB01	pH:	2.0	Sample Date:	04/10/2013	Sample Time:	07:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	4.3	ug/L	1.0			Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	2.5	ug/L	1.0			Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.57	ug/L	1.0			Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	1.2	ug/L	1.0			Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.056	ug/L	1.0	J	J	Yes	S4VEM
m,p-Xylene	0.13	ug/L	1.0	J	J	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	UJ	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclotetrasiloxane, octamethyl-	0.21	ug/L	1.0	JN	JN	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	C0AB5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	SW04	pH:	2.0	Sample Date:	04/10/2013	Sample Time:	09:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	0.50	ug/L	1.0	J	U	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	VBLKJP	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	3040093-BLK1	pH:		Sample Date:	04/15/2013	Sample Time:	10:18:00
% Moisture :	0			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
o-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA5	Lab Code:	A4
Sample Number:	VHBLKGK	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	0017319-06	pH:	7.0	Sample Date:	04/15/2013	Sample Time:	19:51:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromomethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Acetone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Carbon Disulfide	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylene chloride	0.13	ug/L	1.0	J	J	Yes	S4VEM
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Butanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chloroform	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	S4VEM
Benzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Toluene	0.50	ug/L	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	S4VEM
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	S4VEM
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Ethylbenzene	0.079	ug/L	1.0	J	J	Yes	S4VEM
o-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Styrene	0.50	ug/L	1.0	U	U	Yes	S4VEM
Bromoform	0.50	ug/L	1.0	U	U	Yes	S4VEM
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	S4VEM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE : May 6, 2013

SUBJECT: Region III Data QA Review

FROM : Colleen K. Walling
Region III ESAT RPO (3EA22)

TO : Rich Rupert
On-Scene Coordinator (3HS31)

Attached is the organic data validation report for the Kiskimere Groundwater Well site for Case No. 43423, SDG# C0AA6 and C0AB0 completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachments

cc: Joe Carter (TechLaw, Inc.)
Gene Nance (TechLaw, Inc.)

TO No.: 0042 TDF#: 04056E

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Lockheed Martin IS&GS – Civil
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

DATE: May 6, 2013

SUBJECT: Organic Data Validation (S4VEM)
Case: 43423
SDGs: C0AA6 and C0AB0
Site: Kiskimere Groundwater Well

FROM: Lisa D. Penix
Organic Data Reviewer

Kenneth W. Curry
Oversight Chemist

TO: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 43423, Sample Delivery Groups (SDGs) C0AA6 and C0AB0, consisted of six (6) aqueous samples including one (1) field duplicate pair, one (1) field blank and one (1) rinsate blank analyzed for 1,4-Dioxane as well as four (4) soil samples including one (1) field duplicate pair analyzed for volatile and semivolatile compounds plus 1,4-Dioxane. All analyses were performed by A4 Scientific, Inc. (A4) in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.2 (modified) through the Routine Analytical Services (RAS) program. Modification Reference Number 1564.6 details the specifications and reporting requirements for the analysis of 1,4-Dioxane.

SUMMARY

Data were validated according to National Functional Guidelines for Validation of Organic Data, utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). Areas of concern with respect to data usability are listed below.

Trip blanks C0AA5 and C0AB3, as well as the volatiles results for rinsate blank C0AA6 and field blank C0AB4 were used in evaluating blank contamination for the associated samples in this case based on sampling date. These blanks were analyzed in SDG C0AA5. The positive result for toluene in rinsate blank C0AA6 impacted this data set.

MINOR PROBLEMS

Semivolatile target compound benzo(g,h,I)perylene failed precision criteria [percent Difference (%D)] in a continuing calibration. Positive results and quantitation limits for this compound are estimated and qualified "J" and "UJ", respectively.

Semivolatile target compounds indeno(1,2,3-cd)pyrene, pentachlorophenol and dibenzo(a,h)anthracene failed precision criteria [percent Relative Standard Deviation (%RSD)] in initial calibrations. The positive result for indeno(1,2,3-cd)lyrene in sample C0AB0 is estimated and qualified "J". Quantitation limits for these compounds were not impacted based on these outliers.

NOTES

Volatile target compound trans-1,3-dichloropropene failed precision criteria [percent Relative Standard Deviation (%RSD)] in the initial calibration. No positive results were reported for this compound. Quantitation limits for this compound were not impacted based on this outlier.

Compounds detected below Contract Required Quantitation Limits (CRQLs) are qualified "J" unless reported at CRQL and qualified "U" due to blank contamination.

Detected concentrations of common laboratory contaminant methylene chloride less than two time (<2X) the CRQL and other compounds less than the CRQL have been reported at the CRQL and qualified "U" in samples for which the associated method, storage, trip, field and/or rinsate blanks had the same compounds present.

Tentatively Identified Compounds (TICs) were not validated. They are validated only at the specific request of the data users. TIC data are included on the Sample Summary Report (SSR) forms.

No positive results were reported in field duplicate pair C0AA8/C0AA9.

Reported results for the field duplicate pair C0AB1/C0AB2 were comparable.

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

U = Not detected. The associated number indicates Contract Required Quantitation Limit.

R = Unusable result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

DCN: 43423_C0AA6_C0AB0

Sample Summary Report

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB0	Method:	VOA_Low_Med	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	SD01	pH:		Sample Date:	04/09/2013	Sample Time:	11:05:00
% Moisture :	40.92			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Chloromethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Vinyl chloride	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Bromomethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Chloroethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Trichlorofluorom ethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Acetone	15	ug/kg	1.0	U	U	Yes	S4VEM
Carbon Disulfide	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Methyl acetate	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Methylene chloride	7.5	ug/kg	1.0	JB	U	Yes	S4VEM
trans-1,2-Dichloroethene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
2-Butanone	15	ug/kg	1.0	U	U	Yes	S4VEM
Bromochloromet hane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Chloroform	7.5	ug/kg	1.0	JB	U	Yes	S4VEM
1,1,1-Trichloroethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Cyclohexane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Benzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	150	ug/kg	1.0	U	U	Yes	S4VEM
Trichloroethene	7.5	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Methylcyclohexane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Bromodichloromethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,3-Dichloropropene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	15	ug/kg	1.0	U	U	Yes	S4VEM
Toluene	7.5	ug/kg	1.0	J	U	Yes	S4VEM
trans-1,3-Dichloropropene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Tetrachloroethene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
2-Hexanone	15	ug/kg	1.0	U	U	Yes	S4VEM
Dibromochloromethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Chlorobenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Ethylbenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
o-Xylene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
m,p-Xylene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Styrene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Bromoform	7.5	ug/kg	1.0	U	U	Yes	S4VEM
Isopropylbenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	7.5	ug/kg	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB0	Method:	BNA	Matrix:	Soil	MA Number:	1564.6
Sample Location:	SD01	pH:	6.1	Sample Date:	04/09/2013	Sample Time:	11:05:00
% Moisture :	36.34			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Benzaldehyde	270	ug/kg	1.0	U	U	Yes	S4VEM
Phenol	270	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-Chloroethyl)ether	270	ug/kg	1.0	U	U	Yes	S4VEM
2-Chlorophenol	270	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylphenol	270	ug/kg	1.0	U	U	Yes	S4VEM
2,2'-Oxybis(1-chloropropane)	270	ug/kg	1.0	U	U	Yes	S4VEM
Acetophenone	270	ug/kg	1.0	U	U	Yes	S4VEM
4-Methylphenol	270	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitroso-di-n-propylamine	270	ug/kg	1.0	U	U	Yes	S4VEM
Hexachloroethane	270	ug/kg	1.0	U	U	Yes	S4VEM
Nitrobenzene	270	ug/kg	1.0	U	U	Yes	S4VEM
Isophorone	270	ug/kg	1.0	U	U	Yes	S4VEM
2-Nitrophenol	270	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dimethylphenol	270	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-chloroethoxy)methane	270	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dichlorophenol	270	ug/kg	1.0	U	U	Yes	S4VEM
Naphthalene	270	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloroaniline	270	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobutadiene	270	ug/kg	1.0	U	U	Yes	S4VEM
Caprolactam	270	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloro-3-methylphenol	270	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylnaphthalene	270	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorocyclopentadiene	270	ug/kg	1.0	U	U	Yes	S4VEM
2,4,6-Trichlorophenol	270	ug/kg	1.0	U	U	Yes	S4VEM
2,4,5-Trichlorophenol	270	ug/kg	1.0	U	U	Yes	S4VEM
1,1'-Biphenyl	270	ug/kg	1.0	U	U	Yes	S4VEM
2-Chloronaphthalene	270	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
2-Nitroaniline	520	ug/kg	1.0	U	U	Yes	S4VEM
Dimethylphthalate	270	ug/kg	1.0	U	U	Yes	S4VEM
2,6-Dinitrotoluene	270	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthylene	270	ug/kg	1.0	U	U	Yes	S4VEM
3-Nitroaniline	520	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthene	270	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrophenol	520	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitrophenol	520	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzofuran	270	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrotoluene	270	ug/kg	1.0	U	U	Yes	S4VEM
Diethylphthalate	270	ug/kg	1.0	U	U	Yes	S4VEM
Fluorene	270	ug/kg	1.0	U	U	Yes	S4VEM
4-Chlorophenyl-phenylether	270	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitroaniline	520	ug/kg	1.0	U	U	Yes	S4VEM
4,6-Dinitro-2-methylphenol	520	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitrosodiphenylamine	270	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4,5-Tetrachlorobenzene	270	ug/kg	1.0	U	U	Yes	S4VEM
4-Bromophenyl-phenylether	270	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobenzene	270	ug/kg	1.0	U	U	Yes	S4VEM
Atrazine	270	ug/kg	1.0	U	U	Yes	S4VEM
Pentachlorophenol	520	ug/kg	1.0	U	U	Yes	S4VEM
Phenanthrene	54	ug/kg	1.0	J	J	Yes	S4VEM
Anthracene	270	ug/kg	1.0	U	U	Yes	S4VEM
Carbazole	270	ug/kg	1.0	U	U	Yes	S4VEM
Di-n-butylphthalate	270	ug/kg	1.0	U	U	Yes	S4VEM
Fluoranthene	220	ug/kg	1.0	J	J	Yes	S4VEM
Pyrene	160	ug/kg	1.0	J	J	Yes	S4VEM
Butylbenzylphthalate	270	ug/kg	1.0	U	U	Yes	S4VEM
3,3'-Dichlorobenzidine	270	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)anthracene	96	ug/kg	1.0	J	J	Yes	S4VEM
Chrysene	120	ug/kg	1.0	J	J	Yes	S4VEM
Bis(2-ethylhexyl)	270	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
phthalate	270	ug/kg	1.0	U	U	Yes	S4VEM
Di-n-octylphthalate	270	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(b)fluoranthene	87	ug/kg	1.0	J	J	Yes	S4VEM
Benzo(k)fluoranthene	69	ug/kg	1.0	J	J	Yes	S4VEM
Benzo(a)pyrene	94	ug/kg	1.0	J	J	Yes	S4VEM
Indeno(1,2,3-cd)pyrene	56	ug/kg	1.0	J	J	Yes	S4VEM
Dibenzo(a,h)anthracene	270	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(g,h,I)perylene	47	ug/kg	1.0	J	J	Yes	S4VEM
2,3,4,6-Tetrachlorophenol	270	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	110	ug/kg	1.0	U	U	Yes	S4VEM
Total Alkane TICs	1200	ug/kg	1.0	J	J	Yes	S4VEM
Ethane, 1,1,2,2-tetrachloro-	690	ug/kg	1.0	JN	JN	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB1	Method:	VOA_Low_Med	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	SD02	pH:		Sample Date:	04/09/2013	Sample Time:	16:15:00
% Moisture :	20.63			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Chloromethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Vinyl chloride	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Bromomethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Chloroethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Acetone	11	ug/kg	1.0	U	U	Yes	S4VEM
Carbon Disulfide	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Methyl acetate	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Methylene chloride	5.7	ug/kg	1.0	JB	U	Yes	S4VEM
trans-1,2-Dichloroethene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
2-Butanone	11	ug/kg	1.0	U	U	Yes	S4VEM
Bromochloromethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Chloroform	5.7	ug/kg	1.0	JB	U	Yes	S4VEM
1,1,1-Trichloroethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Cyclohexane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Benzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	110	ug/kg	1.0	U	U	Yes	S4VEM
Trichloroethene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Methylcyclohexane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Bromodichlorom	5.7	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
ethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,3-Dichloropropene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	11	ug/kg	1.0	U	U	Yes	S4VEM
Toluene	5.7	ug/kg	1.0	J	U	Yes	S4VEM
trans-1,3-Dichloropropene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Tetrachloroethene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
2-Hexanone	11	ug/kg	1.0	U	U	Yes	S4VEM
Dibromochloromethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Chlorobenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Ethylbenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
o-Xylene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
m,p-Xylene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Styrene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Bromoform	5.7	ug/kg	1.0	U	U	Yes	S4VEM
Isopropylbenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	5.7	ug/kg	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB1	Method:	BNA	Matrix:	Soil	MA Number:	1564.6
Sample Location:	SD02	pH:	6.2	Sample Date:	04/09/2013	Sample Time:	16:15:00
% Moisture :	23.40			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Benzaldehyde	220	ug/kg	1.0	U	U	Yes	S4VEM
Phenol	220	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-Chloroethyl)ether	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Chlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2,2'-Oxybis(1-chloropropane)	220	ug/kg	1.0	U	U	Yes	S4VEM
Acetophenone	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Methylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitroso-di-n-propylamine	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachloroethane	220	ug/kg	1.0	U	U	Yes	S4VEM
Nitrobenzene	220	ug/kg	1.0	U	U	Yes	S4VEM
Isophorone	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Nitrophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dimethylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-chloroethoxy)methane	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dichlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
Naphthalene	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloroaniline	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobutadiene	220	ug/kg	1.0	U	U	Yes	S4VEM
Caprolactam	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloro-3-methylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylnaphthalene	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorocyclopentadiene	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4,6-Trichlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4,5-Trichlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
1,1'-Biphenyl	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Chloronaphthalene	220	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
2-Nitroaniline	430	ug/kg	1.0	U	U	Yes	S4VEM
Dimethylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
2,6-Dinitrotoluene	220	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthylene	220	ug/kg	1.0	U	U	Yes	S4VEM
3-Nitroaniline	430	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthene	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrophenol	430	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitrophenol	430	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzofuran	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrotoluene	220	ug/kg	1.0	U	U	Yes	S4VEM
Diethylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
Fluorene	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Chlorophenyl-phenylether	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitroaniline	430	ug/kg	1.0	U	U	Yes	S4VEM
4,6-Dinitro-2-methylphenol	430	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitrosodiphenylamine	220	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4,5-Tetrachlorobenzene	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Bromophenyl-phenylether	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobenzene	220	ug/kg	1.0	U	U	Yes	S4VEM
Atrazine	220	ug/kg	1.0	U	U	Yes	S4VEM
Pentachlorophenol	430	ug/kg	1.0	U	U	Yes	S4VEM
Phenanthrene	220	ug/kg	1.0	U	U	Yes	S4VEM
Anthracene	220	ug/kg	1.0	U	U	Yes	S4VEM
Carbazole	220	ug/kg	1.0	U	U	Yes	S4VEM
Di-n-butylphthalate	64	ug/kg	1.0	J	J	Yes	S4VEM
Fluoranthene	220	ug/kg	1.0	U	U	Yes	S4VEM
Pyrene	220	ug/kg	1.0	U	U	Yes	S4VEM
Butylbenzylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
3,3'-Dichlorobenzidine	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)anthracene	220	ug/kg	1.0	U	U	Yes	S4VEM
Chrysene	220	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-ethylhexyl)	31	ug/kg	1.0	J	J	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
phthalate	31	ug/kg	1.0	J	J	Yes	S4VEM
Di-n-octylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(b)fluoranthene	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(k)fluoranthene	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)pyrene	220	ug/kg	1.0	U	U	Yes	S4VEM
Indeno(1,2,3-cd)pyrene	220	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzo(a,h)anthracene	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(g,h,I)perylene	220	ug/kg	1.0	U	UJ	Yes	S4VEM
2,3,4,6-Tetrachlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	87	ug/kg	1.0	U	U	Yes	S4VEM
Ethane, 1,1,2,2-tetrachloro-	790	ug/kg	1.0	JN	JN	Yes	S4VEM
Total Alkane TICs	240	ug/kg	1.0	J	J	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB2	Method:	BNA	Matrix:	Soil	MA Number:	1564.6
Sample Location:	SD03	pH:	7.1	Sample Date:	04/09/2013	Sample Time:	16:35:00
% Moisture :	21.12			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Benzaldehyde	220	ug/kg	1.0	U	U	Yes	S4VEM
Phenol	220	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-Chloroethyl)ether	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Chlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2,2'-Oxybis(1-chloropropane)	220	ug/kg	1.0	U	U	Yes	S4VEM
Acetophenone	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Methylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitroso-di-n-propylamine	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachloroethane	220	ug/kg	1.0	U	U	Yes	S4VEM
Nitrobenzene	220	ug/kg	1.0	U	U	Yes	S4VEM
Isophorone	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Nitrophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dimethylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-chloroethoxy)methane	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dichlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
Naphthalene	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloroaniline	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobutadiene	220	ug/kg	1.0	U	U	Yes	S4VEM
Caprolactam	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloro-3-methylphenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylnaphthalene	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorocyclopentadiene	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4,6-Trichlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4,5-Trichlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
1,1'-Biphenyl	220	ug/kg	1.0	U	U	Yes	S4VEM
2-Chloronaphthalene	220	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
2-Nitroaniline	420	ug/kg	1.0	U	U	Yes	S4VEM
Dimethylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
2,6-Dinitrotoluene	220	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthylene	220	ug/kg	1.0	U	U	Yes	S4VEM
3-Nitroaniline	420	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthene	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrophenol	420	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitrophenol	420	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzofuran	220	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrotoluene	220	ug/kg	1.0	U	U	Yes	S4VEM
Diethylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
Fluorene	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Chlorophenyl-phenylether	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitroaniline	420	ug/kg	1.0	U	U	Yes	S4VEM
4,6-Dinitro-2-methylphenol	420	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitrosodiphenylamine	220	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4,5-Tetrachlorobenzene	220	ug/kg	1.0	U	U	Yes	S4VEM
4-Bromophenyl-phenylether	220	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobenzene	220	ug/kg	1.0	U	U	Yes	S4VEM
Atrazine	220	ug/kg	1.0	U	U	Yes	S4VEM
Pentachlorophenol	420	ug/kg	1.0	U	U	Yes	S4VEM
Phenanthrene	220	ug/kg	1.0	U	U	Yes	S4VEM
Anthracene	220	ug/kg	1.0	U	U	Yes	S4VEM
Carbazole	220	ug/kg	1.0	U	U	Yes	S4VEM
Di-n-butylphthalate	37	ug/kg	1.0	J	J	Yes	S4VEM
Fluoranthene	220	ug/kg	1.0	U	U	Yes	S4VEM
Pyrene	220	ug/kg	1.0	U	U	Yes	S4VEM
Butylbenzylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
3,3'-Dichlorobenzidine	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)anthracene	220	ug/kg	1.0	U	U	Yes	S4VEM
Chrysene	220	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-ethylhexyl)	33	ug/kg	1.0	J	J	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
phthalate	33	ug/kg	1.0	J	J	Yes	S4VEM
Di-n-octylphthalate	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(b)fluoranthene	25	ug/kg	1.0	J	J	Yes	S4VEM
Benzo(k)fluoranthene	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)pyrene	38	ug/kg	1.0	J	J	Yes	S4VEM
Indeno(1,2,3-cd)pyrene	220	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzo(a,h)anthracene	220	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(g,h,I)perylene	220	ug/kg	1.0	U	UJ	Yes	S4VEM
2,3,4,6-Tetrachlorophenol	220	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	85	ug/kg	1.0	U	U	Yes	S4VEM
Ethane, 1,1,2,2-tetrachloro-	810	ug/kg	1.0	JN	JN	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB2	Method:	VOA_Low_Med	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	SD03	pH:		Sample Date:	04/09/2013	Sample Time:	16:35:00
% Moisture :	19.03			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Chloromethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Vinyl chloride	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Bromomethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Chloroethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Acetone	12	ug/kg	1.0	U	U	Yes	S4VEM
Carbon Disulfide	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Methyl acetate	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Methylene chloride	5.8	ug/kg	1.0	JB	U	Yes	S4VEM
trans-1,2-Dichloroethene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
2-Butanone	12	ug/kg	1.0	U	U	Yes	S4VEM
Bromochloromethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Chloroform	5.8	ug/kg	1.0	JB	U	Yes	S4VEM
1,1,1-Trichloroethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Cyclohexane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Benzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	120	ug/kg	1.0	U	U	Yes	S4VEM
Trichloroethene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Methylcyclohexane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Bromodichlorom	5.8	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
ethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,3-Dichloropropene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	12	ug/kg	1.0	U	U	Yes	S4VEM
Toluene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Tetrachloroethene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
2-Hexanone	12	ug/kg	1.0	U	U	Yes	S4VEM
Dibromochloromethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Chlorobenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Ethylbenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
o-Xylene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
m,p-Xylene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Styrene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Bromoform	5.8	ug/kg	1.0	U	U	Yes	S4VEM
Isopropylbenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	5.8	ug/kg	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB6	Method:	BNA	Matrix:	Soil	MA Number:	1564.6
Sample Location:	SD04	pH:	6.4	Sample Date:	04/10/2013	Sample Time:	10:30:00
% Moisture :	68.04			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Benzaldehyde	530	ug/kg	1.0	U	U	Yes	S4VEM
Phenol	530	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-Chloroethyl)ether	530	ug/kg	1.0	U	U	Yes	S4VEM
2-Chlorophenol	530	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylphenol	530	ug/kg	1.0	U	U	Yes	S4VEM
2,2'-Oxybis(1-chloropropane)	530	ug/kg	1.0	U	U	Yes	S4VEM
Acetophenone	530	ug/kg	1.0	U	U	Yes	S4VEM
4-Methylphenol	530	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitroso-di-n-propylamine	530	ug/kg	1.0	U	U	Yes	S4VEM
Hexachloroethane	530	ug/kg	1.0	U	U	Yes	S4VEM
Nitrobenzene	530	ug/kg	1.0	U	U	Yes	S4VEM
Isophorone	530	ug/kg	1.0	U	U	Yes	S4VEM
2-Nitrophenol	530	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dimethylphenol	530	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-chloroethoxy)methane	530	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dichlorophenol	530	ug/kg	1.0	U	U	Yes	S4VEM
Naphthalene	530	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloroaniline	530	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobutadiene	530	ug/kg	1.0	U	U	Yes	S4VEM
Caprolactam	530	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloro-3-methylphenol	530	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylnaphthalene	530	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorocyclopentadiene	530	ug/kg	1.0	U	U	Yes	S4VEM
2,4,6-Trichlorophenol	530	ug/kg	1.0	U	U	Yes	S4VEM
2,4,5-Trichlorophenol	530	ug/kg	1.0	U	U	Yes	S4VEM
1,1'-Biphenyl	530	ug/kg	1.0	U	U	Yes	S4VEM
2-Chloronaphthalene	530	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
2-Nitroaniline	1000	ug/kg	1.0	U	U	Yes	S4VEM
Dimethylphthalate	530	ug/kg	1.0	U	U	Yes	S4VEM
2,6-Dinitrotoluene	530	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthylene	530	ug/kg	1.0	U	U	Yes	S4VEM
3-Nitroaniline	1000	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthene	530	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrophenol	1000	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitrophenol	1000	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzofuran	530	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrotoluene	530	ug/kg	1.0	U	U	Yes	S4VEM
Diethylphthalate	530	ug/kg	1.0	U	U	Yes	S4VEM
Fluorene	530	ug/kg	1.0	U	U	Yes	S4VEM
4-Chlorophenyl-phenylether	530	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitroaniline	1000	ug/kg	1.0	U	U	Yes	S4VEM
4,6-Dinitro-2-methylphenol	1000	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitrosodiphenylamine	530	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4,5-Tetrachlorobenzene	530	ug/kg	1.0	U	U	Yes	S4VEM
4-Bromophenyl-phenylether	530	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobenzene	530	ug/kg	1.0	U	U	Yes	S4VEM
Atrazine	530	ug/kg	1.0	U	U	Yes	S4VEM
Pentachlorophenol	1000	ug/kg	1.0	U	U	Yes	S4VEM
Phenanthrene	530	ug/kg	1.0	U	U	Yes	S4VEM
Anthracene	530	ug/kg	1.0	U	U	Yes	S4VEM
Carbazole	530	ug/kg	1.0	U	U	Yes	S4VEM
Di-n-butylphthalate	130	ug/kg	1.0	J	J	Yes	S4VEM
Fluoranthene	530	ug/kg	1.0	U	U	Yes	S4VEM
Pyrene	530	ug/kg	1.0	U	U	Yes	S4VEM
Butylbenzylphthalate	530	ug/kg	1.0	U	U	Yes	S4VEM
3,3'-Dichlorobenzidine	530	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)anthracene	530	ug/kg	1.0	U	U	Yes	S4VEM
Chrysene	530	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-ethylhexyl)	78	ug/kg	1.0	J	J	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
phthalate	78	ug/kg	1.0	J	J	Yes	S4VEM
Di-n-octylphthalate	530	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(b)fluoranthene	530	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(k)fluoranthene	64	ug/kg	1.0	J	J	Yes	S4VEM
Benzo(a)pyrene	81	ug/kg	1.0	J	J	Yes	S4VEM
Indeno(1,2,3-cd)pyrene	530	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzo(a,h)anthracene	530	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(g,h,I)perylene	530	ug/kg	1.0	U	UJ	Yes	S4VEM
2,3,4,6-Tetrachlorophenol	530	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	210	ug/kg	1.0	U	U	Yes	S4VEM
Total Alkane TICs	3300	ug/kg	1.0	J	J	Yes	S4VEM
Cyclic octaatomic sulfur	3700	ug/kg	1.0	JN	JN	Yes	S4VEM
Ethane, 1,1,2,2-tetrachloro-	2500	ug/kg	1.0	JN	JN	Yes	S4VEM
.beta.-Sitosterol	1100	ug/kg	1.0	JN	JN	Yes	S4VEM
Sulfur	610	ug/kg	1.0	JN	JN	Yes	S4VEM
Ethane, 1,1,2-trichloro-	490	ug/kg	1.0	JN	JN	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	C0AB6	Method:	VOA_Low_Med	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	SD04	pH:		Sample Date:	04/10/2013	Sample Time:	10:30:00
% Moisture :	65.46			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Chloromethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Vinyl chloride	12	ug/kg	1.0	U	U	Yes	S4VEM
Bromomethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Chloroethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	12	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Acetone	22	ug/kg	1.0	J	J	Yes	S4VEM
Carbon Disulfide	12	ug/kg	1.0	U	U	Yes	S4VEM
Methyl acetate	12	ug/kg	1.0	U	U	Yes	S4VEM
Methylene chloride	12	ug/kg	1.0	JB	U	Yes	S4VEM
trans-1,2-Dichloroethene	12	ug/kg	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	12	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	12	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	12	ug/kg	1.0	U	U	Yes	S4VEM
2-Butanone	25	ug/kg	1.0	U	U	Yes	S4VEM
Bromochloromethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Chloroform	12	ug/kg	1.0	JB	U	Yes	S4VEM
1,1,1-Trichloroethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Cyclohexane	12	ug/kg	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	12	ug/kg	1.0	U	U	Yes	S4VEM
Benzene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	12	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	250	ug/kg	1.0	U	U	Yes	S4VEM
Trichloroethene	12	ug/kg	1.0	U	U	Yes	S4VEM
Methylcyclohexane	12	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	12	ug/kg	1.0	U	U	Yes	S4VEM
Bromodichlorom	12	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
ethane	12	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,3-Dichloropropene	12	ug/kg	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	25	ug/kg	1.0	U	U	Yes	S4VEM
Toluene	12	ug/kg	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Tetrachloroethene	12	ug/kg	1.0	U	U	Yes	S4VEM
2-Hexanone	25	ug/kg	1.0	U	U	Yes	S4VEM
Dibromochloromethane	12	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	12	ug/kg	1.0	U	U	Yes	S4VEM
Chlorobenzene	12	ug/kg	1.0	U	U	Yes	S4VEM
Ethylbenzene	12	ug/kg	1.0	U	U	Yes	S4VEM
o-Xylene	12	ug/kg	1.0	U	U	Yes	S4VEM
m,p-Xylene	12	ug/kg	1.0	U	U	Yes	S4VEM
Styrene	12	ug/kg	1.0	U	U	Yes	S4VEM
Bromoform	12	ug/kg	1.0	U	U	Yes	S4VEM
Isopropylbenzene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	12	ug/kg	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	12	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	12	ug/kg	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	12	ug/kg	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	SBLK2B	Method:	BNA	Matrix:	Soil	MA Number:	1564.6
Sample Location:	3040097-BLK1	pH:		Sample Date:	04/18/2013	Sample Time:	19:15:00
% Moisture :	0			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Benzaldehyde	170	ug/kg	1.0	U	U	Yes	S4VEM
Phenol	170	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-Chloroethyl)ether	170	ug/kg	1.0	U	U	Yes	S4VEM
2-Chlorophenol	170	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylphenol	170	ug/kg	1.0	U	U	Yes	S4VEM
2,2'-Oxybis(1-chloropropane)	170	ug/kg	1.0	U	U	Yes	S4VEM
Acetophenone	170	ug/kg	1.0	U	U	Yes	S4VEM
4-Methylphenol	170	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitroso-di-n-propylamine	170	ug/kg	1.0	U	U	Yes	S4VEM
Hexachloroethane	170	ug/kg	1.0	U	U	Yes	S4VEM
Nitrobenzene	170	ug/kg	1.0	U	U	Yes	S4VEM
Isophorone	170	ug/kg	1.0	U	U	Yes	S4VEM
2-Nitrophenol	170	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dimethylphenol	170	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-chloroethoxy)methane	170	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dichlorophenol	170	ug/kg	1.0	U	U	Yes	S4VEM
Naphthalene	170	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloroaniline	170	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobutadiene	170	ug/kg	1.0	U	U	Yes	S4VEM
Caprolactam	170	ug/kg	1.0	U	U	Yes	S4VEM
4-Chloro-3-methylphenol	170	ug/kg	1.0	U	U	Yes	S4VEM
2-Methylnaphthalene	170	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorocyclopentadiene	170	ug/kg	1.0	U	U	Yes	S4VEM
2,4,6-Trichlorophenol	170	ug/kg	1.0	U	U	Yes	S4VEM
2,4,5-Trichlorophenol	170	ug/kg	1.0	U	U	Yes	S4VEM
1,1'-Biphenyl	170	ug/kg	1.0	U	U	Yes	S4VEM
2-Chloronaphthalene	170	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
2-Nitroaniline	330	ug/kg	1.0	U	U	Yes	S4VEM
Dimethylphthalate	170	ug/kg	1.0	U	U	Yes	S4VEM
2,6-Dinitrotoluene	170	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthylene	170	ug/kg	1.0	U	U	Yes	S4VEM
3-Nitroaniline	330	ug/kg	1.0	U	U	Yes	S4VEM
Acenaphthene	170	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrophenol	330	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitrophenol	330	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzofuran	170	ug/kg	1.0	U	U	Yes	S4VEM
2,4-Dinitrotoluene	170	ug/kg	1.0	U	U	Yes	S4VEM
Diethylphthalate	170	ug/kg	1.0	U	U	Yes	S4VEM
Fluorene	170	ug/kg	1.0	U	U	Yes	S4VEM
4-Chlorophenyl-phenylether	170	ug/kg	1.0	U	U	Yes	S4VEM
4-Nitroaniline	330	ug/kg	1.0	U	U	Yes	S4VEM
4,6-Dinitro-2-methylphenol	330	ug/kg	1.0	U	U	Yes	S4VEM
N-Nitrosodiphenylamine	170	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4,5-Tetrachlorobenzene	170	ug/kg	1.0	U	U	Yes	S4VEM
4-Bromophenyl-phenylether	170	ug/kg	1.0	U	U	Yes	S4VEM
Hexachlorobenzene	170	ug/kg	1.0	U	U	Yes	S4VEM
Atrazine	170	ug/kg	1.0	U	U	Yes	S4VEM
Pentachlorophenol	330	ug/kg	1.0	U	U	Yes	S4VEM
Phenanthrene	170	ug/kg	1.0	U	U	Yes	S4VEM
Anthracene	170	ug/kg	1.0	U	U	Yes	S4VEM
Carbazole	170	ug/kg	1.0	U	U	Yes	S4VEM
Di-n-butylphthalate	170	ug/kg	1.0	U	U	Yes	S4VEM
Fluoranthene	170	ug/kg	1.0	U	U	Yes	S4VEM
Pyrene	170	ug/kg	1.0	U	U	Yes	S4VEM
Butylbenzylphthalate	170	ug/kg	1.0	U	U	Yes	S4VEM
3,3'-Dichlorobenzidine	170	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)anthracene	170	ug/kg	1.0	U	U	Yes	S4VEM
Chrysene	170	ug/kg	1.0	U	U	Yes	S4VEM
Bis(2-ethylhexyl)	170	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
phthalate	170	ug/kg	1.0	U	U	Yes	S4VEM
Di-n-octylphthalate	170	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(b)fluoranthene	170	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(k)fluoranthene	170	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(a)pyrene	170	ug/kg	1.0	U	U	Yes	S4VEM
Indeno(1,2,3-cd)pyrene	170	ug/kg	1.0	U	U	Yes	S4VEM
Dibenzo(a,h)anthracene	170	ug/kg	1.0	U	U	Yes	S4VEM
Benzo(g,h,I)perylene	170	ug/kg	1.0	U	UJ	Yes	S4VEM
2,3,4,6-Tetrachlorophenol	170	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	67	ug/kg	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	VBLK86	Method:	VOA_Low_Med	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	3040100-BLK1	pH:		Sample Date:	04/15/2013	Sample Time:	15:09:00
% Moisture :	0			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chloromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Vinyl chloride	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Bromomethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Acetone	10	ug/kg	1.0	U	U	Yes	S4VEM
Carbon Disulfide	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methyl acetate	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methylene chloride	3.9	ug/kg	1.0	J	J	Yes	S4VEM
trans-1,2-Dichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
2-Butanone	10	ug/kg	1.0	U	U	Yes	S4VEM
Bromochloromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chloroform	1.4	ug/kg	1.0	J	J	Yes	S4VEM
1,1,1-Trichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Cyclohexane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Benzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	100	ug/kg	1.0	U	U	Yes	S4VEM
Trichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methylcyclohexane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Bromodichlorom	5.0	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
ethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,3-Dichloropropene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	10	ug/kg	1.0	U	U	Yes	S4VEM
Toluene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Tetrachloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
2-Hexanone	10	ug/kg	1.0	U	U	Yes	S4VEM
Dibromochloromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Ethylbenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
o-Xylene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
m,p-Xylene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Styrene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Bromoform	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Isopropylbenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	0.14	ug/kg	1.0	J	J	Yes	S4VEM
1,2-Dichlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	0.65	ug/kg	1.0	J	J	Yes	S4VEM
1,2,3-Trichlorobenzene	1.4	ug/kg	1.0	J	J	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AB0	Lab Code:	A4
Sample Number:	VHBLKGL	Method:	VOA_Low_Med	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	0017320-04	pH:		Sample Date:	04/15/2013	Sample Time:	17:42:00
% Moisture :	0			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chloromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Vinyl chloride	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Bromomethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Trichlorofluoromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Acetone	10	ug/kg	1.0	U	U	Yes	S4VEM
Carbon Disulfide	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methyl acetate	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methylene chloride	3.4	ug/kg	1.0	JB	J	Yes	S4VEM
trans-1,2-Dichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methyl tert-butyl ether	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1-Dichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,2-Dichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
2-Butanone	10	ug/kg	1.0	U	U	Yes	S4VEM
Bromochloromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chloroform	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1,1-Trichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Cyclohexane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Carbon tetrachloride	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Benzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dioxane	100	ug/kg	1.0	U	U	Yes	S4VEM
Trichloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Methylcyclohexane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichloropropane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Bromodichlorom	5.0	ug/kg	1.0	U	U	Yes	S4VEM

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
ethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
cis-1,3-Dichloropropene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
4-Methyl-2-pentanone	10	ug/kg	1.0	U	U	Yes	S4VEM
Toluene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
trans-1,3-Dichloropropene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2-Trichloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Tetrachloroethene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
2-Hexanone	10	ug/kg	1.0	U	U	Yes	S4VEM
Dibromochloromethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromoethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Chlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Ethylbenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
o-Xylene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
m,p-Xylene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Styrene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Bromoform	5.0	ug/kg	1.0	U	U	Yes	S4VEM
Isopropylbenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,1,2,2-Tetrachloroethane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,3-Dichlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,4-Dichlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dichlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2-Dibromo-3-chloropropane	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2,4-Trichlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM
1,2,3-Trichlorobenzene	5.0	ug/kg	1.0	U	U	Yes	S4VEM

Sample Summary Report

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA6	Lab Code:	A4
Sample Number:	C0AA6	Method:	BNA	Matrix:	Water	MA Number:	1679.3
Sample Location:	RB01	pH:	6.8	Sample Date:	04/09/2013	Sample Time:	09:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA6	Lab Code:	A4
Sample Number:	C0AA7	Method:	BNA	Matrix:	Water	MA Number:	1679.3
Sample Location:	SW01	pH:	5.9	Sample Date:	04/09/2013	Sample Time:	10:35:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA6	Lab Code:	A4
Sample Number:	C0AA8	Method:	BNA	Matrix:	Water	MA Number:	1679.3
Sample Location:	SW02	pH:	6.1	Sample Date:	04/09/2013	Sample Time:	15:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA6	Lab Code:	A4
Sample Number:	C0AA9	Method:	BNA	Matrix:	Water	MA Number:	1679.3
Sample Location:	SW03	pH:	6.6	Sample Date:	04/09/2013	Sample Time:	15:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA6	Lab Code:	A4
Sample Number:	C0AB4	Method:	BNA	Matrix:	Water	MA Number:	1679.3
Sample Location:	FB01	pH:	7.1	Sample Date:	04/10/2013	Sample Time:	07:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA6	Lab Code:	A4
Sample Number:	C0AB5	Method:	BNA	Matrix:	Water	MA Number:	1679.3
Sample Location:	SW04	pH:	7.2	Sample Date:	04/10/2013	Sample Time:	09:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	ug/L	1.0	U	U	Yes	S4VEM

Case No:	43423	Contract:	EPW10018	SDG No:	C0AA6	Lab Code:	A4
Sample Number:	SBLK2A	Method:	BNA	Matrix:	Water	MA Number:	1679.3
Sample Location:	3040096-BLK1	pH:		Sample Date:	04/17/2013	Sample Time:	11:38:00
% Moisture :	0			% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	ug/L	1.0	U	U	Yes	S4VEM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Final Analytical Report

Site Name.....	Kiskimere Groundwater Well Investigation
Sample Collection Date(s).....	04/09/13 09:10- 04/10/13 10:30
Contact.....	Richard Rupert
Report Date.....	05/16/13 17:23
Project #.....	DAS R34165
Work Order.....	1304007

Analyses included in this report:

PCB Aroclors by CLP Equivalent
SVOCs by CLP Equivalent
Total Mercury by EPA 245.5
Total Metals by EPA 200.8
Percent Dry Weight (105C) by USGS
Total Mercury by EPA 245.1
Total Metals by EPA 200.7

Approved for Release

OASQA Representative

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

Report Narrative

SVOAs Analysis Note:
Results for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol are qualified as estimated (UJ) in all samples due to exceeding limits in initial calibration.

Bis(2-chloroisopropyl)ether, 4-bromophenyl phenyl ether, 2-chloronaphthalene, 2,6-dinitrotoluene, fluorene, hexachloroethane, phenanthrene, and pyrene are qualified as estimated (UJ) in all samples due to outside low limits in the blank spike.

2-chloronaphthalene is qualified as estimated (UJ) in all samples due to outside low limits in the matrix spike.

Not enough sample was provided to perfrom matrix spike duplicate.

PCB Aroclor Analysis Note:
The surrogate Decachlorobiphenyl is qualified as biased high (k) because of a slightly high recovery in a continuing calibration verification quality control standard. It is unlikely that this has any impact on sample results.

Metals Analysis Note:
Significant amounts of scandium and lithium were found in the four solid samples, 1304007-05 thru -08. These elements are used as internal standards by the ICPMS (method 200.8) to compensate for instrument drift and sample matrix issues. Results for some arsenic, chromium, selenium, and vanadium have elevated reporting limits because of the dilutions needed to reduce the background concentrations of these elements for accurate calculation of the internal standards. The results for beryllium for samples 1304007-05 thru -08 and the matrix spike (BD32401-MS1) for chromium and vanadium are qualified estimated (J) due to background internal standards that could not be corrected for by dilution of the sample.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Matrix	Date Sampled	Date Received
SW01	1304007-01	Surface Water	4/09/13 10:35	4/12/13 11:10
SW02	1304007-02	Surface Water	4/09/13 15:15	4/12/13 11:10
SW03	1304007-03	Surface Water	4/09/13 15:30	4/12/13 11:10
SW04	1304007-04	Surface Water	4/10/13 09:05	4/12/13 11:10
SD01	1304007-05	Sediment	4/09/13 11:05	4/12/13 11:10
SD02	1304007-06	Sediment	4/09/13 16:15	4/12/13 11:10
SD03	1304007-07	Sediment	4/09/13 16:35	4/12/13 11:10
SD04	1304007-08	Sediment	4/10/13 10:30	4/12/13 11:10
RB01	1304007-09	Water	4/09/13 09:10	4/12/13 11:10
FB01	1304007-10	Water	4/10/13 07:50	4/12/13 11:10

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

Page 1 of 1

USEPA CLP Generic COC (LAB COPY)
DateShipped: 4/11/2013
CarrierName: FedEx
AirbillNo: 7995 0654 4227

CHAIN OF CUSTODY RECORD
Site #: A3RL
Case #: R34165
Cooler #: 09

No: 3-041113-161534-0009
Lab: EPA Region 3 Lab - OASQA
Lab Contact: Kevin Martin
Lab Phone: 410-305-3032

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	For Lab Use Only
R34165-02	Surface Water/ John Elson	Grab	SVOA+Tic(21), SVOA+Tic(21), TM+Hg+U(21), TM+Hg+U(21)	1080 (4 C), 1081 (4 C), 1082 (HNO3 pH<2), 1087 (HNO3 pH<2) (4)	SW01	04/09/2013 10:35	1304007-01
R34165-03	Surface Water/ John Elson	Grab	SVOA+Tic(21), SVOA+Tic(21), TM+Hg+U(21)	1101 (4 C), 1102 (4 C), 1103 (HNO3 pH<2) (3)	SW02	04/09/2013 15:15	1304007-02
R34165-04	Surface Water/ John Elson	Grab	TM+Hg+U(21)	1115 (HNO3 pH<2) (1)	SW03	04/09/2013 15:30	1304007-03
R34165-06	Surface Water/ John Elson	Grab	TM+Hg+U(21)	1181 (HNO3 pH<2) (1)	SW04	04/10/2013 09:05	1304007-084 Fax 4/12/13
R34165-07	Sediment/ John Elson	Grab	PCB(21), TM+Hg+U(21), PCB(21)	1127 (4 C), 1128 (4 C), 1133 (4 C) (3)	SD01	04/09/2013 11:05	1304007-085 Fax 4/12/13
R34165-08	Sediment/ John Elson	Grab	PCB(21), TM+Hg+U(21)	1146 (4 C), 1147 (4 C) (2)	SD02	04/09/2013 16:15	1304007-086 Fax 4/12/13
R34165-09	Sediment/ John Elson	Grab	PCB(21), TM+Hg+U(21)	1153 (4 C), 1154 (4 C) (2)	SD03	04/09/2013 16:35	1304007-087 Fax 4/12/13
R34165-10	Sediment/ John Elson	Grab	PCB(21), TM+Hg+U(21)	1192 (4 C), 1193 (4 C) (2)	SD04	04/10/2013 10:30	1304007-088 Fax 4/12/13

Sample(s) to be used for Lab QC: R34165-02, R34165-07

Temp Blk = 2.0°C
JMC 4/12/13

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Analysis Key: SVOA+Tic=Semivolatiles+Tic, TM+Hg+U=Metals+Hg+U, PCB=PCBs (AROCLORS)

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Joe Cate	4/11/13	Jacqueline Kham	4/12/13	11:10						

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

USEPA CLP Generic COC (LAB COPY)
DateShipped: 4/11/2013
CarrierName: FedEx
AirbillNo: 7995 0654 3941

CHAIN OF CUSTODY RECORD
Site #: A3RL
Case #: R34165
Cooler #: 08

No: 3-041113-103406-0003
Lab: EPA Region 3 Lab - OASQA
Lab Contact: Kevin Martin
Lab Phone: 410-305-3032

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	For Lab Use Only
R34165-01	Water/ John Elson	Grab	SVOA+Tic(21), SVOA+Tic(21), TM+Hg+U(21), PCB(21), PCB(21)	1068 (4 C), 1069 (4 C), 1070 (HNO3 pH<2), 1198 (4 C), 1199 (4 C) (5)	RB01	04/09/2013 09:10	1304007-[illegible] FAC 4/12/13
R34165-04	Surface Water/ John Elson	Grab	SVOA+Tic(21), SVOA+Tic(21)	1113 (4 C), 1114 (4 C) (2)	SW03	04/09/2013 15:30	1304007-[illegible] 03 FAC 4/12/13
R34165-05	Water/ Joe Carter	Grab	SVOA+Tic(21), SVOA+Tic(21), TM+Hg+U(21)	1167 (4 C), 1168 (4 C), 1169 (HNO3 pH<2) (3)	FB01	04/10/2013 07:50	1304007-[illegible] FAC 4/12/13
R34165-06	Surface Water/ John Elson	Grab	SVOA+Tic(21), SVOA+Tic(21)	1179 (4 C), 1180 (4 C) (2)	SW04	04/10/2013 09:05	1304007-[illegible] 04 FAC 4/12/13

Special Instructions: Temp. Blk = 4.0°C FAC 4/12/13

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key: SVOA+Tic=Semivolatiles+Tic, TM+Hg+U=Metals+Hg+U, PCB=PCBs (AROCLORS)

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Joe Carter	4/11/13	Jacque Clifton	4/12/13	11:10						

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW01
Lab ID: 1304007-01
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Acenaphthene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Acenaphthylene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Acetophenone	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Anthracene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Atrazine	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Benzaldehyde	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Benzo(a)anthracene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Benzo(a)pyrene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Benzo(b)fluoranthene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Benzo(ghi)perylene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Benzo(k)fluoranthene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
1,1-Biphenyl	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Bis(2-chloroethoxy)methane	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Bis(2-chloroethyl)ether	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Bis(2-chloroisopropyl)ether	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
Bis(2-ethylhexyl)phthalate	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4-Bromophenyl phenyl ether	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
Butyl benzyl phthalate	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Carbazole	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Caprolactam	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4-Chloroaniline	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4-Chloro-3-methylphenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2-Chloronaphthalene	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
2-Chlorophenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4-Chlorophenyl phenyl ether	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Chrysene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Dibenz(a,h)anthracene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Dibenzofuran	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
3,3´-Dichlorobenzidine	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Diethyl phthalate	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2,4-Dichlorophenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2,4-Dimethylphenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Dimethyl phthalate	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2,4-Dinitrophenol	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
Di-n-butyl phthalate	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4,6-Dinitro-2-methylphenol	U	UJ	9.35	1	04/15/13	04/17/13 17:26	R3QA201
2,4-Dinitrotoluene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2,6-Dinitrotoluene	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
Di-n-octyl phthalate	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Fluoranthene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW01
Lab ID: 1304007-01
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets (Continued)

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Fluorene	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
Hexachlorobenzene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Hexachlorobutadiene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Hexachlorocyclopentadiene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Hexachloroethane	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
Indeno(1,2,3-cd)pyrene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Isophorone	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2-Methylnaphthalene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2-Methylphenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4-Methylphenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Naphthalene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2-Nitroaniline	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
3-Nitroaniline	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4-Nitroaniline	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Nitrobenzene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2-Nitrophenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
4-Nitrophenol	U		9.35	1	04/15/13	04/17/13 17:26	R3QA201
N-Nitrosodimethylamine	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
N-Nitroso-di-n-propylamine	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
N-Nitrosodiphenylamine	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Pentachlorophenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Phenanthrene	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
Phenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
Pyrene	U	UJ	4.67	1	04/15/13	04/17/13 17:26	R3QA201
1,2,4,5-Tetrachlorobenzene	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2,3,4,6-Tetrachlorophenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2,4,5-Trichlorophenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201
2,4,6-Trichlorophenol	U		4.67	1	04/15/13	04/17/13 17:26	R3QA201

Surrogates

Analyte	Result ug/L	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate 2-Fluorophenol	25.4		**54 %**	*21-110*	04/15/13	04/17/13 17:26	*R3QA201*
Surrogate Phenol-d5	27.9		**60 %**	*39-106*	04/15/13	04/17/13 17:26	*R3QA201*
Surrogate Nitrobenzene-d5	13.7		**58 %**	*43-108*	04/15/13	04/17/13 17:26	*R3QA201*
Surrogate 2-Fluorobiphenyl	13.8		**59 %**	*43-116*	04/15/13	04/17/13 17:26	*R3QA201*
Surrogate 2,4,6-Tribromophenol	29.1		**62 %**	*10-123*	04/15/13	04/17/13 17:26	*R3QA201*
Surrogate Terphenyl-d14	13.8		**59 %**	*33-141*	04/15/13	04/17/13 17:26	*R3QA201*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW02
Lab ID: 1304007-02
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Acenaphthene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Acenaphthylene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Acetophenone	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Anthracene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Atrazine	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Benzaldehyde	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Benzo(a)anthracene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Benzo(a)pyrene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Benzo(b)fluoranthene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Benzo(ghi)perylene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Benzo(k)fluoranthene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
1,1-Biphenyl	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Bis(2-chloroethoxy)methane	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Bis(2-chloroethyl)ether	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Bis(2-chloroisopropyl)ether	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
Bis(2-ethylhexyl)phthalate	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
4-Bromophenyl phenyl ether	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
Butyl benzyl phthalate	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Carbazole	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Caprolactam	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
4-Chloroaniline	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
4-Chloro-3-methylphenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2-Chloronaphthalene	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
2-Chlorophenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
4-Chlorophenyl phenyl ether	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Chrysene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Dibenz(a,h)anthracene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Dibenzofuran	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
3,3´-Dichlorobenzidine	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Diethyl phthalate	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2,4-Dichlorophenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2,4-Dimethylphenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Dimethyl phthalate	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2,4-Dinitrophenol	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
Di-n-butyl phthalate	**0.461**	B, J	4.67	1	04/15/13	04/17/13 19:08	R3QA201
4,6-Dinitro-2-methylphenol	U	UJ	9.35	1	04/15/13	04/17/13 19:08	R3QA201
2,4-Dinitrotoluene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2,6-Dinitrotoluene	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
Di-n-octyl phthalate	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Fluoranthene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW02
Lab ID: 1304007-02
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets (Continued)

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Fluorene	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
Hexachlorobenzene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Hexachlorobutadiene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Hexachlorocyclopentadiene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Hexachloroethane	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
Indeno(1,2,3-cd)pyrene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Isophorone	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2-Methylnaphthalene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2-Methylphenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
4-Methylphenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Naphthalene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2-Nitroaniline	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
3-Nitroaniline	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
4-Nitroaniline	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Nitrobenzene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2-Nitrophenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
4-Nitrophenol	U		9.35	1	04/15/13	04/17/13 19:08	R3QA201
N-Nitrosodimethylamine	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
N-Nitroso-di-n-propylamine	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
N-Nitrosodiphenylamine	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Pentachlorophenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Phenanthrene	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
Phenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
Pyrene	U	UJ	4.67	1	04/15/13	04/17/13 19:08	R3QA201
1,2,4,5-Tetrachlorobenzene	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2,3,4,6-Tetrachlorophenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2,4,5-Trichlorophenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201
2,4,6-Trichlorophenol	U		4.67	1	04/15/13	04/17/13 19:08	R3QA201

Surrogates

Analyte	Result ug/L	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate 2-Fluorophenol	20.4		**44 %**	*21-110*	04/15/13	04/17/13 19:08	*R3QA201*
Surrogate Phenol-d5	26.8		**57 %**	*39-106*	04/15/13	04/17/13 19:08	*R3QA201*
Surrogate Nitrobenzene-d5	13.2		**57 %**	*43-108*	04/15/13	04/17/13 19:08	*R3QA201*
Surrogate 2-Fluorobiphenyl	13.1		**56 %**	*43-116*	04/15/13	04/17/13 19:08	*R3QA201*
Surrogate 2,4,6-Tribromophenol	30.1		**64 %**	*10-123*	04/15/13	04/17/13 19:08	*R3QA201*
Surrogate Terphenyl-d14	13.1		**56 %**	*33-141*	04/15/13	04/17/13 19:08	*R3QA201*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW03
Lab ID: 1304007-03
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Acenaphthene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Acenaphthylene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Acetophenone	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Anthracene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Atrazine	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Benzaldehyde	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Benzo(a)anthracene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Benzo(a)pyrene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Benzo(b)fluoranthene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Benzo(ghi)perylene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Benzo(k)fluoranthene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
1,1-Biphenyl	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Bis(2-chloroethoxy)methane	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Bis(2-chloroethyl)ether	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Bis(2-chloroisopropyl)ether	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
Bis(2-ethylhexyl)phthalate	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
4-Bromophenyl phenyl ether	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
Butyl benzyl phthalate	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Carbazole	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Caprolactam	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
4-Chloroaniline	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
4-Chloro-3-methylphenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2-Chloronaphthalene	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
2-Chlorophenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
4-Chlorophenyl phenyl ether	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Chrysene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Dibenz(a,h)anthracene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Dibenzofuran	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
3,3´-Dichlorobenzidine	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Diethyl phthalate	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2,4-Dichlorophenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2,4-Dimethylphenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Dimethyl phthalate	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2,4-Dinitrophenol	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
Di-n-butyl phthalate	**0.302**	B, J	4.76	1	04/15/13	04/17/13 19:59	R3QA201
4,6-Dinitro-2-methylphenol	U	UJ	9.52	1	04/15/13	04/17/13 19:59	R3QA201
2,4-Dinitrotoluene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2,6-Dinitrotoluene	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
Di-n-octyl phthalate	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Fluoranthene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW03
Lab ID: 1304007-03
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets (Continued)

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Fluorene	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
Hexachlorobenzene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Hexachlorobutadiene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Hexachlorocyclopentadiene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Hexachloroethane	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
Indeno(1,2,3-cd)pyrene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Isophorone	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2-Methylnaphthalene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2-Methylphenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
4-Methylphenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Naphthalene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2-Nitroaniline	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
3-Nitroaniline	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
4-Nitroaniline	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Nitrobenzene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2-Nitrophenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
4-Nitrophenol	U		9.52	1	04/15/13	04/17/13 19:59	R3QA201
N-Nitrosodimethylamine	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
N-Nitroso-di-n-propylamine	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
N-Nitrosodiphenylamine	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Pentachlorophenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Phenanthrene	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
Phenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
Pyrene	U	UJ	4.76	1	04/15/13	04/17/13 19:59	R3QA201
1,2,4,5-Tetrachlorobenzene	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2,3,4,6-Tetrachlorophenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2,4,5-Trichlorophenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201
2,4,6-Trichlorophenol	U		4.76	1	04/15/13	04/17/13 19:59	R3QA201

Surrogates

Analyte	Result ug/L	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate 2-Fluorophenol	24.1		**51 %**	*21-110*	04/15/13	04/17/13 19:59	*R3QA201*
Surrogate Phenol-d5	26.3		**55 %**	*39-106*	04/15/13	04/17/13 19:59	*R3QA201*
Surrogate Nitrobenzene-d5	13.3		**56 %**	*43-108*	04/15/13	04/17/13 19:59	*R3QA201*
Surrogate 2-Fluorobiphenyl	13.1		**55 %**	*43-116*	04/15/13	04/17/13 19:59	*R3QA201*
Surrogate 2,4,6-Tribromophenol	28.2		**59 %**	*10-123*	04/15/13	04/17/13 19:59	*R3QA201*
Surrogate Terphenyl-d14	13.4		**56 %**	*33-141*	04/15/13	04/17/13 19:59	*R3QA201*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW04
Lab ID: 1304007-04
Sample Matrix: Surface Water
Date Collected: 04/10/2013

Semivolatile Organic Compounds
Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Acenaphthene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Acenaphthylene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Acetophenone	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Anthracene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Atrazine	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Benzaldehyde	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Benzo(a)anthracene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Benzo(a)pyrene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Benzo(b)fluoranthene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Benzo(ghi)perylene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Benzo(k)fluoranthene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
1,1-Biphenyl	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Bis(2-chloroethoxy)methane	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Bis(2-chloroethyl)ether	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Bis(2-chloroisopropyl)ether	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
Bis(2-ethylhexyl)phthalate	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
4-Bromophenyl phenyl ether	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
Butyl benzyl phthalate	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Carbazole	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Caprolactam	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
4-Chloroaniline	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
4-Chloro-3-methylphenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2-Chloronaphthalene	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
2-Chlorophenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
4-Chlorophenyl phenyl ether	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Chrysene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Dibenz(a,h)anthracene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Dibenzofuran	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
3,3´-Dichlorobenzidine	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Diethyl phthalate	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2,4-Dichlorophenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2,4-Dimethylphenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Dimethyl phthalate	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2,4-Dinitrophenol	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
Di-n-butyl phthalate	**0.536**	B, J	4.76	1	04/15/13	04/17/13 20:50	R3QA201
4,6-Dinitro-2-methylphenol	U	UJ	9.52	1	04/15/13	04/17/13 20:50	R3QA201
2,4-Dinitrotoluene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2,6-Dinitrotoluene	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
Di-n-octyl phthalate	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Fluoranthene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW04
Lab ID: 1304007-04
Sample Matrix: Surface Water
Date Collected: 04/10/2013

Semivolatile Organic Compounds
Targets (Continued)

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Fluorene	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
Hexachlorobenzene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Hexachlorobutadiene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Hexachlorocyclopentadiene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Hexachloroethane	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
Indeno(1,2,3-cd)pyrene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Isophorone	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2-Methylnaphthalene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2-Methylphenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
4-Methylphenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Naphthalene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2-Nitroaniline	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
3-Nitroaniline	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
4-Nitroaniline	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Nitrobenzene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2-Nitrophenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
4-Nitrophenol	U		9.52	1	04/15/13	04/17/13 20:50	R3QA201
N-Nitrosodimethylamine	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
N-Nitroso-di-n-propylamine	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
N-Nitrosodiphenylamine	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Pentachlorophenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Phenanthrene	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
Phenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
Pyrene	U	UJ	4.76	1	04/15/13	04/17/13 20:50	R3QA201
1,2,4,5-Tetrachlorobenzene	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2,3,4,6-Tetrachlorophenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2,4,5-Trichlorophenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201
2,4,6-Trichlorophenol	U		4.76	1	04/15/13	04/17/13 20:50	R3QA201

Surrogates

Analyte	Result ug/L	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate 2-Fluorophenol	23.1		**48 %**	*21-110*	04/15/13	04/17/13 20:50	*R3QA201*
Surrogate Phenol-d5	25.5		**53 %**	*39-106*	04/15/13	04/17/13 20:50	*R3QA201*
Surrogate Nitrobenzene-d5	12.7		**53 %**	*43-108*	04/15/13	04/17/13 20:50	*R3QA201*
Surrogate 2-Fluorobiphenyl	12.9		**54 %**	*43-116*	04/15/13	04/17/13 20:50	*R3QA201*
Surrogate 2,4,6-Tribromophenol	28.4		**60 %**	*10-123*	04/15/13	04/17/13 20:50	*R3QA201*
Surrogate Terphenyl-d14	13.0		**55 %**	*33-141*	04/15/13	04/17/13 20:50	*R3QA201*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD01
Lab ID: 1304007-05
Sample Matrix: Sediment
Date Collected: 04/09/2013

Physical Parameters

Targets

Analyte	Result % by Weight	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
% Solids	**65.3**			1	04/17/13	04/18/13 10:35	USGS I-5753-85

Organochlorine Pesticides and PCBs

Targets

Analyte	Result mg/kg dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aroclor-1016	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1221	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1232	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1242	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1248	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1254	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1260	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1262	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207
Aroclor-1268	U		0.048	1	04/15/13	04/22/13 16:20	R3QA207

Surrogates

Analyte	Result mg/kg dry	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate Tetrachloro-meta-xylene	0.0424		**88 %**	*30-150*	04/15/13	04/22/13 16:20	*R3QA207*
Surrogate Decachlorobiphenyl	0.0475	*K*	**99 %**	*30-150*	04/15/13	04/22/13 16:20	*R3QA207*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD02
Lab ID: 1304007-06
Sample Matrix: Sediment
Date Collected: 04/09/2013

Physical Parameters

Targets

Analyte	Result % by Weight	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
% Solids	**78.5**			1	04/17/13	04/18/13 10:35	USGS I-5753-85

Organochlorine Pesticides and PCBs

Targets

Analyte	Result mg/kg dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aroclor-1016	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1221	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1232	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1242	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1248	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1254	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1260	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1262	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207
Aroclor-1268	U		0.041	1	04/15/13	04/22/13 17:16	R3QA207

Surrogates

Analyte	Result mg/kg dry	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate Tetrachloro-meta-xylene	0.0424		**103 %**	*30-150*	04/15/13	04/22/13 17:16	*R3QA207*
Surrogate Decachlorobiphenyl	0.0485	*K*	**117 %**	*30-150*	04/15/13	04/22/13 17:16	*R3QA207*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD03
Lab ID: 1304007-07
Sample Matrix: Sediment
Date Collected: 04/09/2013

Physical Parameters

Targets

Analyte	Result % by Weight	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
% Solids	**80.4**			1	04/17/13	04/18/13 10:35	USGS I-5753-85

Organochlorine Pesticides and PCBs

Targets

Analyte	Result mg/kg dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aroclor-1016	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1221	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1232	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1242	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1248	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1254	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1260	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1262	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207
Aroclor-1268	U		0.040	1	04/15/13	04/22/13 17:34	R3QA207

Surrogates

Analyte	Result mg/kg dry	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate Tetrachloro-meta-xylene	0.0385		**96 %**	*30-150*	04/15/13	04/22/13 17:34	*R3QA207*
Surrogate Decachlorobiphenyl	0.0455	*K*	**114 %**	*30-150*	04/15/13	04/22/13 17:34	*R3QA207*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD04
Lab ID: 1304007-08
Sample Matrix: Sediment
Date Collected: 04/10/2013

Physical Parameters

Targets

Analyte	Result % by Weight	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
% Solids	**37.2**			1	04/17/13	04/18/13 10:35	USGS I-5753-85

Organochlorine Pesticides and PCBs

Targets

Analyte	Result mg/kg dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aroclor-1016	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1221	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1232	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1242	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1248	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1254	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1260	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1262	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207
Aroclor-1268	U		0.084	1	04/15/13	04/22/13 17:53	R3QA207

Surrogates

Analyte	Result mg/kg dry	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate Tetrachloro-meta-xylene	0.0773		**91 %**	*30-150*	04/15/13	04/22/13 17:53	*R3QA207*
Surrogate Decachlorobiphenyl	0.0850	*K*	**101 %**	*30-150*	04/15/13	04/22/13 17:53	*R3QA207*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: RB01
Lab ID: 1304007-09
Sample Matrix: Water
Date Collected: 04/09/2013

Organochlorine Pesticides and PCBs
Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aroclor-1016	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1221	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1232	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1242	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1248	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1254	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1260	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1262	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207
Aroclor-1268	U		0.971	1	04/15/13	04/22/13 15:43	R3QA207

Surrogates

Analyte	Result ug/L	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate Tetrachloro-meta-xylene	0.697		**72 %**	*30-150*	04/15/13	04/22/13 15:43	*R3QA207*
Surrogate Decachlorobiphenyl	0.339	*K*	**35 %**	*30-150*	04/15/13	04/22/13 15:43	*R3QA207*

Semivolatile Organic Compounds
Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Acenaphthene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Acenaphthylene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Acetophenone	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Anthracene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Atrazine	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Benzaldehyde	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Benzo(a)anthracene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Benzo(a)pyrene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Benzo(b)fluoranthene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Benzo(ghi)perylene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Benzo(k)fluoranthene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
1,1-Biphenyl	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Bis(2-chloroethoxy)methane	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Bis(2-chloroethyl)ether	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Bis(2-chloroisopropyl)ether	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
Bis(2-ethylhexyl)phthalate	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
4-Bromophenyl phenyl ether	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
Butyl benzyl phthalate	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: RB01
Lab ID: 1304007-09
Sample Matrix: Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets (Continued)

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Carbazole	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Caprolactam	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
4-Chloroaniline	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
4-Chloro-3-methylphenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2-Chloronaphthalene	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
2-Chlorophenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
4-Chlorophenyl phenyl ether	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Chrysene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Dibenz(a,h)anthracene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Dibenzofuran	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
3,3´-Dichlorobenzidine	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Diethyl phthalate	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2,4-Dichlorophenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2,4-Dimethylphenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Dimethyl phthalate	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2,4-Dinitrophenol	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
Di-n-butyl phthalate	**0.453**	B, J	4.67	1	04/15/13	04/17/13 21:40	R3QA201
4,6-Dinitro-2-methylphenol	U	UJ	9.35	1	04/15/13	04/17/13 21:40	R3QA201
2,4-Dinitrotoluene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2,6-Dinitrotoluene	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
Di-n-octyl phthalate	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Fluoranthene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Fluorene	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
Hexachlorobenzene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Hexachlorobutadiene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Hexachlorocyclopentadiene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Hexachloroethane	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
Indeno(1,2,3-cd)pyrene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Isophorone	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2-Methylnaphthalene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2-Methylphenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
4-Methylphenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Naphthalene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2-Nitroaniline	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
3-Nitroaniline	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
4-Nitroaniline	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Nitrobenzene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2-Nitrophenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
4-Nitrophenol	U		9.35	1	04/15/13	04/17/13 21:40	R3QA201
N-Nitrosodimethylamine	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: RB01
Lab ID: 1304007-09
Sample Matrix: Water
Date Collected: 04/09/2013

Semivolatile Organic Compounds
Targets (Continued)

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
N-Nitroso-di-n-propylamine	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
N-Nitrosodiphenylamine	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Pentachlorophenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Phenanthrene	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
Phenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
Pyrene	U	UJ	4.67	1	04/15/13	04/17/13 21:40	R3QA201
1,2,4,5-Tetrachlorobenzene	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2,3,4,6-Tetrachlorophenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2,4,5-Trichlorophenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201
2,4,6-Trichlorophenol	U		4.67	1	04/15/13	04/17/13 21:40	R3QA201

Surrogates

Analyte	Result ug/L	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate 2-Fluorophenol	24.9		**53 %**	*21-110*	04/15/13	04/17/13 21:40	*R3QA201*
Surrogate Phenol-d5	27.2		**58 %**	*39-106*	04/15/13	04/17/13 21:40	*R3QA201*
Surrogate Nitrobenzene-d5	13.2		**56 %**	*43-108*	04/15/13	04/17/13 21:40	*R3QA201*
Surrogate 2-Fluorobiphenyl	13.3		**57 %**	*43-116*	04/15/13	04/17/13 21:40	*R3QA201*
Surrogate 2,4,6-Tribromophenol	28.4		**61 %**	*10-123*	04/15/13	04/17/13 21:40	*R3QA201*
Surrogate Terphenyl-d14	12.7		**55 %**	*33-141*	04/15/13	04/17/13 21:40	*R3QA201*

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: FB01
Lab ID: 1304007-10
Sample Matrix: Water
Date Collected: 04/10/2013

Semivolatile Organic Compounds
Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Acenaphthene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Acenaphthylene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Acetophenone	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Anthracene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Atrazine	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Benzaldehyde	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Benzo(a)anthracene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Benzo(a)pyrene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Benzo(b)fluoranthene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Benzo(ghi)perylene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Benzo(k)fluoranthene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
1,1-Biphenyl	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Bis(2-chloroethoxy)methane	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Bis(2-chloroethyl)ether	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Bis(2-chloroisopropyl)ether	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
Bis(2-ethylhexyl)phthalate	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
4-Bromophenyl phenyl ether	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
Butyl benzyl phthalate	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Carbazole	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Caprolactam	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
4-Chloroaniline	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
4-Chloro-3-methylphenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2-Chloronaphthalene	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
2-Chlorophenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
4-Chlorophenyl phenyl ether	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Chrysene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Dibenz(a,h)anthracene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Dibenzofuran	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
3,3´-Dichlorobenzidine	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Diethyl phthalate	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2,4-Dichlorophenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2,4-Dimethylphenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Dimethyl phthalate	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2,4-Dinitrophenol	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
Di-n-butyl phthalate	**0.569**	B, J	4.76	1	04/15/13	04/17/13 22:31	R3QA201
4,6-Dinitro-2-methylphenol	U	UJ	9.52	1	04/15/13	04/17/13 22:31	R3QA201
2,4-Dinitrotoluene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2,6-Dinitrotoluene	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
Di-n-octyl phthalate	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Fluoranthene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: FB01
Lab ID: 1304007-10
Sample Matrix: Water
Date Collected: 04/10/2013

Semivolatile Organic Compounds
Targets (Continued)

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Fluorene	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
Hexachlorobenzene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Hexachlorobutadiene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Hexachlorocyclopentadiene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Hexachloroethane	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
Indeno(1,2,3-cd)pyrene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Isophorone	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2-Methylnaphthalene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2-Methylphenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
4-Methylphenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Naphthalene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2-Nitroaniline	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
3-Nitroaniline	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
4-Nitroaniline	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Nitrobenzene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2-Nitrophenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
4-Nitrophenol	U		9.52	1	04/15/13	04/17/13 22:31	R3QA201
N-Nitrosodimethylamine	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
N-Nitroso-di-n-propylamine	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
N-Nitrosodiphenylamine	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Pentachlorophenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Phenanthrene	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
Phenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
Pyrene	U	UJ	4.76	1	04/15/13	04/17/13 22:31	R3QA201
1,2,4,5-Tetrachlorobenzene	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2,3,4,6-Tetrachlorophenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2,4,5-Trichlorophenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201
2,4,6-Trichlorophenol	U		4.76	1	04/15/13	04/17/13 22:31	R3QA201

Surrogates

Analyte	Result ug/L	Flags Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed	Method/SOP#
Surrogate 2-Fluorophenol	22.1		**46 %**	*21-110*	04/15/13	04/17/13 22:31	*R3QA201*
Surrogate Phenol-d5	27.2		**57 %**	*39-106*	04/15/13	04/17/13 22:31	*R3QA201*
Surrogate Nitrobenzene-d5	13.3		**56 %**	*43-108*	04/15/13	04/17/13 22:31	*R3QA201*
Surrogate 2-Fluorobiphenyl	13.3		**56 %**	*43-116*	04/15/13	04/17/13 22:31	*R3QA201*
Surrogate 2,4,6-Tribromophenol	28.5		**60 %**	*10-123*	04/15/13	04/17/13 22:31	*R3QA201*
Surrogate Terphenyl-d14	13.3		**56 %**	*33-141*	04/15/13	04/17/13 22:31	*R3QA201*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW01
Lab ID: 1304007-01
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Total Metals

Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	**6940**		200	1	04/15/13	04/24/13 11:45	EPA 200.7/R3QA159
Antimony	U		2.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Arsenic	U		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Barium	**12.9**		10.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Beryllium	**2.4**		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Cadmium	U		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Calcium	**40500**		500	1	04/15/13	04/24/13 11:45	EPA 200.7/R3QA159
Chromium	U		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Cobalt	**35.8**		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Copper	**23.5**		2.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Iron	**2950**		100	1	04/15/13	04/24/13 11:45	EPA 200.7/R3QA159
Lead	U		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Magnesium	**17100**		500	1	04/15/13	04/24/13 11:45	EPA 200.7/R3QA159
Manganese	**620**		20.0	1	04/15/13	04/24/13 11:45	EPA 200.7/R3QA159
Mercury	U		0.2	1	04/23/13	04/30/13 12:36	EPA 245.1/R3QA131
Nickel	**94.1**		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Potassium	**3170**		500	1	04/15/13	04/24/13 11:45	EPA 200.7/R3QA159
Selenium	U		2.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Silver	U		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Sodium	**83800**		1000	1	04/15/13	04/24/13 11:45	EPA 200.7/R3QA159
Thallium	U		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Uranium	U		1.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Vanadium	U		5.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116
Zinc	**154**		2.0	2.5	04/15/13	04/24/13 11:38	EPA 200.8/R3QA116

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW02
Lab ID: 1304007-02
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Total Metals

Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	**767**		200	1	04/15/13	04/24/13 11:51	EPA 200.7/R3QA159
Antimony	U		2.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Arsenic	U		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Barium	**23.3**		10.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Beryllium	U		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Cadmium	U		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Calcium	**13700**		500	1	04/15/13	04/24/13 11:51	EPA 200.7/R3QA159
Chromium	**1.0**		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Cobalt	**9.5**		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Copper	U		2.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Iron	**771**		100	1	04/15/13	04/24/13 11:51	EPA 200.7/R3QA159
Lead	**1.7**		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Magnesium	**6320**		500	1	04/15/13	04/24/13 11:51	EPA 200.7/R3QA159
Manganese	**312**		20.0	1	04/15/13	04/24/13 11:51	EPA 200.7/R3QA159
Mercury	U		0.2	1	04/23/13	04/30/13 12:40	EPA 245.1/R3QA131
Nickel	**27.3**		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Potassium	**1440**		500	1	04/15/13	04/24/13 11:51	EPA 200.7/R3QA159
Selenium	U		2.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Silver	U		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Sodium	**29800**		1000	1	04/15/13	04/24/13 11:51	EPA 200.7/R3QA159
Thallium	U		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Uranium	U		1.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Vanadium	U		5.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116
Zinc	**25.2**		2.0	2.5	04/15/13	04/24/13 11:09	EPA 200.8/R3QA116

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW03
Lab ID: 1304007-03
Sample Matrix: Surface Water
Date Collected: 04/09/2013

Total Metals

Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	**747**		200	1	04/15/13	04/24/13 11:57	EPA 200.7/R3QA159
Antimony	U		2.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Arsenic	U		1.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Barium	**19.2**		10.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Beryllium	U		1.0	2.5	04/15/13	05/09/13 13:33	EPA 200.8/R3QA116
Cadmium	U		1.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Calcium	**13400**		500	1	04/15/13	04/24/13 11:57	EPA 200.7/R3QA159
Chromium	U		2.0	2.5	04/15/13	05/09/13 13:33	EPA 200.8/R3QA116
Cobalt	**8.2**		1.0	2.5	04/15/13	05/09/13 13:33	EPA 200.8/R3QA116
Copper	U		2.0	2.5	04/15/13	05/09/13 13:33	EPA 200.8/R3QA116
Iron	**431**		100	1	04/15/13	04/24/13 11:57	EPA 200.7/R3QA159
Lead	**1.3**		1.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Magnesium	**6250**		500	1	04/15/13	04/24/13 11:57	EPA 200.7/R3QA159
Manganese	**308**		20.0	1	04/15/13	04/24/13 11:57	EPA 200.7/R3QA159
Mercury	U		0.2	1	04/23/13	04/30/13 12:44	EPA 245.1/R3QA131
Nickel	**23.8**		1.0	2.5	04/15/13	05/09/13 13:33	EPA 200.8/R3QA116
Potassium	**1380**		500	1	04/15/13	04/24/13 11:57	EPA 200.7/R3QA159
Selenium	U		5.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Silver	U		1.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Sodium	**29100**		1000	1	04/15/13	04/24/13 11:57	EPA 200.7/R3QA159
Thallium	U		1.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Uranium	U		1.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116
Vanadium	U		5.0	2.5	04/15/13	05/09/13 13:33	EPA 200.8/R3QA116
Zinc	**21.5**		2.0	2.5	04/15/13	04/24/13 12:03	EPA 200.8/R3QA116

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SW04
Lab ID: 1304007-04
Sample Matrix: Surface Water
Date Collected: 04/10/2013

Total Metals

Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	U		200	1	04/15/13	04/24/13 12:00	EPA 200.7/R3QA159
Antimony	U		2.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Arsenic	**2.1**		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Barium	**21.7**		10.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Beryllium	U		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Cadmium	U		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Calcium	**29900**		500	1	04/15/13	04/24/13 12:00	EPA 200.7/R3QA159
Chromium	U		2.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Cobalt	**4.6**		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Copper	**2.7**		2.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Iron	**28000**		100	1	04/15/13	04/24/13 12:00	EPA 200.7/R3QA159
Lead	U		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Magnesium	**12600**		500	1	04/15/13	04/24/13 12:00	EPA 200.7/R3QA159
Manganese	**609**		20.0	1	04/15/13	04/24/13 12:00	EPA 200.7/R3QA159
Mercury	U		0.2	1	04/23/13	04/30/13 12:46	EPA 245.1/R3QA131
Nickel	**8.7**		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Potassium	**3420**		500	1	04/15/13	04/24/13 12:00	EPA 200.7/R3QA159
Selenium	U		5.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Silver	U		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Sodium	**175000**		1000	1	04/15/13	04/24/13 12:00	EPA 200.7/R3QA159
Thallium	U		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Uranium	U		1.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Vanadium	U		5.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116
Zinc	**4.8**		2.0	2.5	04/15/13	04/24/13 12:08	EPA 200.8/R3QA116

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD01
Lab ID: 1304007-05
Sample Matrix: Sediment
Date Collected: 04/09/2013

Total Metals

Targets

Analyte	Result ug/g dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	**5600**		19.8	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Antimony	U		0.2	2.5	04/24/13	05/06/13 12:28	EPA 200.8/R3QA116
Arsenic	**9.5**		0.8	20	04/24/13	05/09/13 13:03	EPA 200.8/R3QA116
Barium	**70.7**		19.8	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Beryllium	**0.5**	J	0.1	2.5	04/24/13	05/06/13 12:28	EPA 200.8/R3QA116
Cadmium	U		0.1	2.5	04/24/13	05/06/13 12:28	EPA 200.8/R3QA116
Calcium	**237**		49.5	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Chromium	**15.6**		1.6	20	04/24/13	05/09/13 13:03	EPA 200.8/R3QA116
Cobalt	**9.5**		5.0	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Copper	**36.4**		4.0	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Iron	**122000**		49.5	5	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Lead	**17.8**		5.0	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Magnesium	**1350**		49.5	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Manganese	**272**	J	1.5	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Mercury	**0.03**		0.005	1	04/23/13	04/30/13 01:01	EPA 245.5/R3QA131
Nickel	**14.6**		4.0	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Potassium	**531**		198	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Selenium	U		4.0	20	04/24/13	05/09/13 13:03	EPA 200.8/R3QA116
Silver	U		0.1	2.5	04/24/13	05/06/13 12:28	EPA 200.8/R3QA116
Sodium	U		99.0	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159
Thallium	**0.2**		0.1	2.5	04/24/13	05/06/13 12:28	EPA 200.8/R3QA116
Uranium	**0.4**		0.1	2.5	04/24/13	05/06/13 12:28	EPA 200.8/R3QA116
Vanadium	**13.6**		0.5	2.5	04/24/13	05/06/13 12:28	EPA 200.8/R3QA116
Zinc	**68.5**		2.0	1	04/24/13	05/01/13 10:49	EPA 200.7/R3QA159

Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD02
Lab ID: 1304007-06
Sample Matrix: Sediment
Date Collected: 04/09/2013

Total Metals

Targets

Analyte	Result ug/g dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	**6860**		19.9	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Antimony	U	J	0.2	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Arsenic	**4.2**		0.1	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Barium	**67.9**		19.9	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Beryllium	**0.5**	J	0.1	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Cadmium	U		0.1	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Calcium	**157**		49.7	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Chromium	**13.0**		1.6	20	04/24/13	05/09/13 13:12	EPA 200.8/R3QA116
Cobalt	**6.7**		5.0	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Copper	**13.0**		4.0	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Iron	**36100**		19.9	2	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Lead	**12.2**		5.0	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Magnesium	**1600**		49.7	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Manganese	**202**		1.5	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Mercury	**0.02**		0.005	1	04/23/13	04/30/13 01:05	EPA 245.5/R3QA131
Nickel	**14.1**		4.0	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Potassium	**632**		199	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Selenium	U	J	0.5	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Silver	U		0.1	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Sodium	U		99.4	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159
Thallium	**0.1**		0.1	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Uranium	**0.6**		0.1	2.5	04/24/13	05/06/13 12:37	EPA 200.8/R3QA116
Vanadium	**26.8**	J	4.0	20	04/24/13	05/09/13 12:37	EPA 200.8/R3QA116
Zinc	**47.9**		2.0	1	04/24/13	05/01/13 10:58	EPA 200.7/R3QA159

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Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD03
Lab ID: 1304007-07
Sample Matrix: Sediment
Date Collected: 04/09/2013

Total Metals

Targets

Analyte	Result ug/g dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	**2700**		19.8	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Antimony	U		0.2	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Arsenic	**16.2**	J	0.8	20	04/24/13	05/09/13 13:21	EPA 200.8/R3QA116
Barium	**72.9**		19.8	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Beryllium	**1.2**	J	0.1	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Cadmium	**0.2**		0.1	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Calcium	**1480**		49.6	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Chromium	**3.6**		0.2	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Cobalt	**16.2**		5.0	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Copper	**5.7**		4.0	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Iron	**348000**		99.2	10	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Lead	**20.8**		5.0	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Magnesium	**687**		49.6	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Manganese	**359**		1.5	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Mercury	**0.02**		0.005	1	04/23/13	04/30/13 01:09	EPA 245.5/R3QA131
Nickel	**26.0**		4.0	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Potassium	**282**		198	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Selenium	U	J	4.0	20	04/24/13	05/09/13 13:21	EPA 200.8/R3QA116
Silver	U		0.1	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Sodium	**570**		99.2	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159
Thallium	**0.2**		0.1	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Uranium	**0.4**		0.1	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Vanadium	**1.6**		0.5	2.5	04/24/13	05/06/13 12:46	EPA 200.8/R3QA116
Zinc	**133**		2.0	1	04/24/13	05/01/13 11:07	EPA 200.7/R3QA159

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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701 Mapes Road
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Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: SD04
Lab ID: 1304007-08
Sample Matrix: Sediment
Date Collected: 04/10/2013

Total Metals

Targets

Analyte	Result ug/g dry	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	**7090**		19.8	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Antimony	U		0.2	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Arsenic	**5.0**		0.1	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Barium	**64.9**		19.8	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Beryllium	**0.5**	J	0.1	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Cadmium	U		0.1	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Calcium	**165**		49.4	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Chromium	**15.8**		1.6	20	04/24/13	05/09/13 13:25	EPA 200.8/R3QA116
Cobalt	**6.6**		4.9	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Copper	**12.1**		4.0	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Iron	**32200**		19.8	2	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Lead	**15.2**		4.9	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Magnesium	**1620**		49.4	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Manganese	**196**		1.5	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Mercury	**0.02**		0.005	1	04/23/13	04/30/13 01:10	EPA 245.5/R3QA131
Nickel	**14.1**		4.0	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Potassium	**650**		198	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Selenium	U		0.5	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Silver	U		0.1	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Sodium	U		98.8	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159
Thallium	**0.2**		0.1	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Uranium	**0.8**		0.1	2.5	04/24/13	05/06/13 12:51	EPA 200.8/R3QA116
Vanadium	**33.4**		4.0	20	04/24/13	05/09/13 12:51	EPA 200.8/R3QA116
Zinc	**47.6**		2.0	1	04/24/13	05/01/13 11:12	EPA 200.7/R3QA159

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: RB01
Lab ID: 1304007-09
Sample Matrix: Water
Date Collected: 04/09/2013

Total Metals

Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	U		30.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Antimony	U		2.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Arsenic	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Barium	U		10.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Beryllium	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Cadmium	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Calcium	U		500	1	04/15/13	04/24/13 12:04	EPA 200.7/R3QA159
Chromium	U		2.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Cobalt	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Copper	U		2.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Iron	U		100	1	04/15/13	04/24/13 12:04	EPA 200.7/R3QA159
Lead	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Magnesium	U		500	1	04/15/13	04/24/13 12:04	EPA 200.7/R3QA159
Manganese	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Mercury	U		0.2	1	04/23/13	04/30/13 12:48	EPA 245.1/R3QA131
Nickel	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Potassium	U		500	1	04/15/13	04/24/13 12:04	EPA 200.7/R3QA159
Selenium	U		5.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Silver	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Sodium	U		1000	1	04/15/13	04/24/13 12:04	EPA 200.7/R3QA159
Thallium	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Uranium	U		1.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Vanadium	U		5.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116
Zinc	U		2.0	2.5	04/15/13	04/24/13 12:13	EPA 200.8/R3QA116

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701 Mapes Road
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Site Name: Kiskimere Groundwater Well Investigation
Project #: DAS R34165
Station ID: FB01
Lab ID: 1304007-10
Sample Matrix: Water
Date Collected: 04/10/2013

Total Metals

Targets

Analyte	Result ug/L	Flags Qualifiers	Quantitation Limit	Dilution	Prepared	Analyzed	Method/SOP#
Aluminum	U		30.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Antimony	U		2.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Arsenic	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Barium	U		10.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Beryllium	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Cadmium	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Calcium	U		500	1	04/15/13	04/24/13 12:13	EPA 200.7/R3QA159
Chromium	U		2.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Cobalt	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Copper	U		2.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Iron	U		100	1	04/15/13	04/24/13 12:13	EPA 200.7/R3QA159
Lead	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Magnesium	U		500	1	04/15/13	04/24/13 12:13	EPA 200.7/R3QA159
Manganese	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Mercury	U		0.2	1	04/23/13	04/30/13 12:54	EPA 245.1/R3QA131
Nickel	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Potassium	U		500	1	04/15/13	04/24/13 12:13	EPA 200.7/R3QA159
Selenium	U		5.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Silver	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Sodium	U		1000	1	04/15/13	04/24/13 12:13	EPA 200.7/R3QA159
Thallium	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Uranium	U		1.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Vanadium	U		5.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116
Zinc	U		2.0	2.5	04/15/13	04/24/13 12:18	EPA 200.8/R3QA116

Site Name: **Kiskimere Groundwater Well Investigation** **Project #:** **DAS R34165**

Tentatively Identified Compound (TIC) Report

Semivolatile Organic Compounds

CAS Number	Compound	Result ug/L	Analyte Qualifiers	Retention Time	Analyzed	Method/SOP#
Lab ID:	1304007-01					
Station ID:	SW01					
Sample Matrix:	Surface Water					
Collected:	04/09/2013					
	None Detected	0.00			04/17/13 17:26	R3QA201

Semivolatile Organic Compounds

CAS Number	Compound	Result ug/L	Analyte Qualifiers	Retention Time	Analyzed	Method/SOP#
Lab ID:	1304007-02					
Station ID:	SW02					
Sample Matrix:	Surface Water					
Collected:	04/09/2013					
	None Detected	0.00			04/17/13 19:08	R3QA201

Semivolatile Organic Compounds

CAS Number	Compound	Result ug/L	Analyte Qualifiers	Retention Time	Analyzed	Method/SOP#
Lab ID:	1304007-03					
Station ID:	SW03					
Sample Matrix:	Surface Water					
Collected:	04/09/2013					
	None Detected	0.00			04/17/13 19:59	R3QA201

Site Name: **Kiskimere Groundwater Well Investigation** **Project #:** **DAS R34165**

Tentatively Identified Compound (TIC) Report

Semivolatile Organic Compounds

CAS Number	Compound	Result ug/L	Analyte Qualifiers	Retention Time	Analyzed	Method/SOP#
Lab ID:	1304007-04					
Station ID:	SW04					
Sample Matrix:	Surface Water					
Collected:	04/10/2013					
	None Detected	0.00			04/17/13 20:50	R3QA201

Semivolatile Organic Compounds

CAS Number	Compound	Result ug/L	Analyte Qualifiers	Retention Time	Analyzed	Method/SOP#
Lab ID:	1304007-09					
Station ID:	RB01					
Sample Matrix:	Water					
Collected:	04/09/2013					
	None Detected	0.00			04/17/13 21:40	R3QA201

Semivolatile Organic Compounds

CAS Number	Compound	Result ug/L	Analyte Qualifiers	Retention Time	Analyzed	Method/SOP#
Lab ID:	1304007-10					
Station ID:	FB01					
Sample Matrix:	Water					
Collected:	04/10/2013					
	None Detected	0.00			04/17/13 22:31	R3QA201

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Physical Parameters

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31701 - PD60/PD105										
Duplicate (BD31701-DUP1)		**Source: 1304007-05**		Prepared: 04/17/13 09:11		Analyzed: 04/18/13 10:35				
% Solids	63 7		% by Weight		65 3			2	20	

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Organochlorine Pesticides and PCBs

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31202 - EPA 3520C PCB/Pest										
Blank (BD31202-BLK1)				Prepared: 04/15/13 08:10		Analyzed: 04/22/13 14:28				
Aroclor-1016	U	1 00	ug/L							
Aroclor-1221	U	1 00	"							
Aroclor-1232	U	1 00	"							
Aroclor-1242	U	1 00	"							
Aroclor-1248	U	1 00	"							
Aroclor-1254	U	1 00	"							
Aroclor-1260	U	1 00	"							
Aroclor-1262	U	1 00	"							
Aroclor-1268	U	1 00	"							
Surrogate: Tetrachloro-meta-xylene	*0.762*		"	*1.0000*		*76*	*30-150*			
Surrogate: Decachlorobiphenyl	*0.605*		"	*1.0000*		*61*	*30-150*			
LCS (BD31202-BS1)				Prepared: 04/15/13 08:10		Analyzed: 04/22/13 15:06				
Aroclor-1016	9 15	1 00	ug/L	10 000		91	70-130			
Aroclor-1221	U	1 00	"				70-130			
Aroclor-1232	U	1 00	"				70-130			
Aroclor-1242	U	1 00	"				70-130			
Aroclor-1248	U	1 00	"				70-130			
Aroclor-1254	U	1 00	"				70-130			
Aroclor-1260	10 5	1 00	"	10 000		105	70-130			
Aroclor-1262	U	1 00	"				70-130			
Aroclor-1268	U	1 00	"				70-130			
Surrogate: Tetrachloro-meta-xylene	*0.769*		"	*1.0000*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl	*0.587*		"	*1.0000*		*59*	*30-150*			
Matrix Spike (BD31202-MS1)	**Source: 1304007-09**			Prepared: 04/15/13 08:10		Analyzed: 04/22/13 16:01				
Aroclor-1016	9 08	0 971	ug/L	9 7087	U	94	50-150			
Aroclor-1221	U	0 971	"		0 00		50-150			
Aroclor-1232	U	0 971	"		0 00		50-150			
Aroclor-1242	U	0 971	"		0 00		50-150			
Aroclor-1248	U	0 971	"		0 00		50-150			
Aroclor-1254	U	0 971	"		0 00		50-150			
Aroclor-1260	10 3	0 971	"	9 7087	U	106	50-150			
Aroclor-1262	U	0 971	"		0 00		50-150			
Aroclor-1268	U	0 971	"		0 00		50-150			
Surrogate: Tetrachloro-meta-xylene	*0.693*		"	*0.97087*		*71*	*30-150*			
Surrogate: Decachlorobiphenyl	*0.327*		"	*0.97087*		*34*	*30-150*			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Organochlorine Pesticides and PCBs

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31203 - EPA 3545A PCB/Pest										
Blank (BD31203-BLK1)				Prepared: 04/15/13 09:00		Analyzed: 04/22/13 14:47				
Aroclor-1016	U	0 033	mg/kg wet							
Aroclor-1221	U	0 033	"							
Aroclor-1232	U	0 033	"							
Aroclor-1242	U	0 033	"							
Aroclor-1248	U	0 033	"							
Aroclor-1254	U	0 033	"							
Aroclor-1260	U	0 033	"							
Aroclor-1262	U	0 033	"							
Aroclor-1268	U	0 033	"							
Surrogate: Tetrachloro-meta-xylene	*0.0318*		"	*0.033333*		*95*	*30-150*			
Surrogate: Decachlorobiphenyl	*0.0364*		"	*0.033333*		*109*	*30-150*			
LCS (BD31203-BS1)				Prepared: 04/15/13 09:00		Analyzed: 04/22/13 15:24				
Aroclor-1016	0 314	0 033	mg/kg wet	0 33333		94	70-130			
Aroclor-1221	U	0 033	"				70-130			
Aroclor-1232	U	0 033	"				70-130			
Aroclor-1242	U	0 033	"				70-130			
Aroclor-1248	U	0 033	"				70-130			
Aroclor-1254	U	0 033	"				70-130			
Aroclor-1260	0 342	0 033	"	0 33333		103	70-130			
Aroclor-1262	U	0 033	"				70-130			
Aroclor-1268	U	0 033	"				70-130			
Surrogate: Tetrachloro-meta-xylene	*0.0306*		"	*0.033333*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl	*0.0360*		"	*0.033333*		*108*	*30-150*			
Matrix Spike (BD31203-MS1)	**Source: 1304007-05**			Prepared: 04/15/13 09:00		Analyzed: 04/22/13 16:38				
Aroclor-1016	0 433	0 047	mg/kg dry	0 46754	U	93	50-150			
Aroclor-1221	U	0 047	"		0 00		50-150			
Aroclor-1232	U	0 047	"		0 00		50-150			
Aroclor-1242	U	0 047	"		0 00		50-150			
Aroclor-1248	U	0 047	"		0 00		50-150			
Aroclor-1254	U	0 047	"		0 00		50-150			
Aroclor-1260	0 456	0 047	"	0 46754	U	98	50-150			
Aroclor-1262	U	0 047	"		0 00		50-150			
Aroclor-1268	U	0 047	"		0 00		50-150			
Surrogate: Tetrachloro-meta-xylene	*0.0416*		"	*0.046754*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl	*0.0481*		"	*0.046754*		*103*	*30-150*			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Organochlorine Pesticides and PCBs

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31203 - EPA 3545A PCB/Pest										
Matrix Spike Dup (BD31203-MSD1)	**Source: 1304007-05**			Prepared: 04/15/13 09:00		Analyzed: 04/22/13 16:57				
Aroclor-1016	0 455	0 051	mg/kg dry	0 50855	U	89	50-150	3	25	
Aroclor-1221	U	0 051	"		0 00		50-150		25	
Aroclor-1232	U	0 051	"		0 00		50-150		25	
Aroclor-1242	U	0 051	"		0 00		50-150		25	
Aroclor-1248	U	0 051	"		0 00		50-150		25	
Aroclor-1254	U	0 051	"		0 00		50-150		25	
Aroclor-1260	0 482	0 051	"	0 50855	U	95	50-150	3	25	
Aroclor-1262	U	0 051	"		0 00		50-150		25	
Aroclor-1268	U	0 051	"		0 00		50-150		25	
Surrogate: Tetrachloro-meta-xylene	*0.0441*		"	*0.050855*		*87*	*30-150*			
Surrogate: Decachlorobiphenyl	*0.0508*		"	*0.050855*		*100*	*30-150*			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Semivolatile Organic Compounds

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31503 - EPA 3520C SVOC										
Blank (BD31503-BLK1)				Prepared: 04/15/13 10:43	Analyzed: 04/17/13 15:45					
Acenaphthene	U	5 00	ug/L							
Acenaphthylene	U	5 00	"							
Acetophenone	U	5 00	"							
Anthracene	U	5 00	"							
Atrazine	U	5 00	"							
Benzaldehyde	U	5 00	"							
Benzo(a)anthracene	U	5 00	"							
Benzo(a)pyrene	U	5 00	"							
Benzo(b)fluoranthene	U	5 00	"							
Benzo(ghi)perylene	U	5 00	"							
Benzo(k)fluoranthene	U	5 00	"							
1,1-Biphenyl	U	5 00	"							
Bis(2-chloroethoxy)methane	U	5 00	"							
Bis(2-chloroethyl)ether	U	5 00	"							
Bis(2-chloroisopropyl)ether	U	5 00	"							UJ
Bis(2-ethylhexyl)phthalate	0 222	5 00	"							J
4-Bromophenyl phenyl ether	U	5 00	"							UJ
Butyl benzyl phthalate	U	5 00	"							
Carbazole	U	5 00	"							
Caprolactam	U	5 00	"							
4-Chloroaniline	U	5 00	"							
4-Chloro-3-methylphenol	U	5 00	"							
2-Chloronaphthalene	U	5 00	"							UJ
2-Chlorophenol	U	5 00	"							
4-Chlorophenyl phenyl ether	U	5 00	"							
Chrysene	U	5 00	"							
Dibenz(a,h)anthracene	U	5 00	"							
Dibenzofuran	U	5 00	"							
3,3´-Dichlorobenzidine	U	5 00	"							
Diethyl phthalate	U	5 00	"							
2,4-Dichlorophenol	U	5 00	"							
2,4-Dimethylphenol	U	5 00	"							
Dimethyl phthalate	U	5 00	"							
2,4-Dinitrophenol	U	5 00	"							
Di-n-butyl phthalate	0 504	5 00	"							J
4,6-Dinitro-2-methylphenol	U	10 0	"							
2,4-Dinitrotoluene	U	5 00	"							
2,6-Dinitrotoluene	U	5 00	"							UJ
Di-n-octyl phthalate	U	5 00	"							
Fluoranthene	U	5 00	"							
Fluorene	U	5 00	"							UJ

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Semivolatile Organic Compounds

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31503 - EPA 3520C SVOC										
Blank (BD31503-BLK1)				Prepared: 04/15/13 10:43		Analyzed: 04/17/13 15:45				
Hexachlorobenzene	U	5 00	ug/L							
Hexachlorobutadiene	U	5 00	"							
Hexachlorocyclopentadiene	U	5 00	"							
Hexachloroethane	U	5 00	"							UJ
Indeno(1,2,3-cd)pyrene	U	5 00	"							
Isophorone	U	5 00	"							
2-Methylnaphthalene	U	5 00	"							
2-Methylphenol	U	5 00	"							
4-Methylphenol	U	5 00	"							
Naphthalene	U	5 00	"							
2-Nitroaniline	U	5 00	"							
3-Nitroaniline	U	5 00	"							
4-Nitroaniline	U	5 00	"							
Nitrobenzene	U	5 00	"							
2-Nitrophenol	U	5 00	"							
4-Nitrophenol	U	10 0	"							
N-Nitrosodimethylamine	U	5 00	"							
N-Nitroso-di-n-propylamine	U	5 00	"							
N-Nitrosodiphenylamine	U	5 00	"							
Pentachlorophenol	U	5 00	"							
Phenanthrene	U	5 00	"							UJ
Phenol	U	5 00	"							
Pyrene	U	5 00	"							UJ
1,2,4,5-Tetrachlorobenzene	U	5 00	"							
2,3,4,6-Tetrachlorophenol	U	5 00	"							
2,4,5-Trichlorophenol	U	5 00	"							
2,4,6-Trichlorophenol	U	5 00	"							
Cyclohexane, 1-methyl-3-propyl-	3 54		"							T
unknown (02)	3 71		"							T
unknown (01)	2 17		"							T
Propanoic acid, 2-methyl-, 3-methylbutyl ester	2 34		"							T
Surrogate: 2-Fluorophenol	*22.3*		"	*50.000*		*45*	*21-110*			
Surrogate: Phenol-d5	*27.7*		"	*50.000*		*55*	*39-106*			
Surrogate: Nitrobenzene-d5	*14.2*		"	*25.000*		*57*	*43-108*			
Surrogate: 2-Fluorobiphenyl	*13.9*		"	*25.000*		*56*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*29.1*		"	*50.000*		*58*	*10-123*			
Surrogate: Terphenyl-d14	*15.4*		"	*25.000*		*62*	*33-141*			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Semivolatile Organic Compounds

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31503 - EPA 3520C SVOC										
LCS (BD31503-BS1)				Prepared: 04/15/13 10:43		Analyzed: 04/17/13 16:35				
Acenaphthene	24 1	5 00	ug/L	40 000		60	60-132			
Acenaphthylene	23 0	5 00	"	40 000		57	53-126			
Acetophenone	22 7	5 00	"	40 000		57	30-160			
Anthracene	24 1	5 00	"	40 000		60	43-118			
Atrazine	24 2	5 00	"	40 000		60	30-160			
Benzaldehyde	28 1	5 00	"	40 000		70	30-160			
Benzo(a)anthracene	24 9	5 00	"	40 000		62	41-133			
Benzo(a)pyrene	26 1	5 00	"	40 000		65	31-148			
Benzo(b)fluoranthene	23 7	5 00	"	40 000		59	42-140			
Benzo(ghi)perylene	22 0	5 00	"	40 000		55	0 01-195			
Benzo(k)fluoranthene	26 6	5 00	"	40 000		66	25-146			
1,1-Biphenyl	23 1	5 00	"	40 000		58	30-160			
Bis(2-chloroethoxy)methane	24 5	5 00	"	40 000		61	19-165			
Bis(2-chloroethyl)ether	21 8	5 00	"	40 000		54	42-126			
Bis(2-chloroisopropyl)ether	21 2	5 00	"	40 000		53	62-139			A
Bis(2-ethylhexyl)phthalate	22 5	5 00	"	40 000		56	28-137			
4-Bromophenyl phenyl ether	24 1	5 00	"	40 000		60	64-114			A
Butyl benzyl phthalate	23 6	5 00	"	40 000		59	0 01-140			
Carbazole	26 2	5 00	"	40 000		66	30-160			
Caprolactam	25 3	5 00	"	40 000		63	30-160			
4-Chloroaniline	20 4	5 00	"	40 000		51	30-160			
4-Chloro-3-methylphenol	24 3	5 00	"	40 000		61	40-128			
2-Chloronaphthalene	23 1	5 00	"	40 000		58	64-114			A
2-Chlorophenol	20 8	5 00	"	40 000		52	36-121			
4-Chlorophenyl phenyl ether	23 3	5 00	"	40 000		58	38-145			
Chrysene	24 1	5 00	"	40 000		60	44-140			
Dibenz(a,h)anthracene	23 3	5 00	"	40 000		58	0 01-200			
Dibenzofuran	23 5	5 00	"	40 000		59	30-160			
3,3´-Dichlorobenzidine	34 5	5 00	"	40 000		86	8-213			
Diethyl phthalate	25 1	5 00	"	40 000		63	10-100			
2,4-Dichlorophenol	23 4	5 00	"	40 000		59	52-122			
2,4-Dimethylphenol	23 3	5 00	"	40 000		58	41-109			
Dimethyl phthalate	24 8	5 00	"	40 000		62	0 01-100			
2,4-Dinitrophenol	6 74	5 00	"	40 000		17	0 01-173			
Di-n-butyl phthalate	24 0	5 00	"	40 000		60	8-111			
4,6-Dinitro-2-methylphenol	27 4	10 0	"	40 000		68	53-100			
2,4-Dinitrotoluene	26 0	5 00	"	40 000		65	47-127			
2,6-Dinitrotoluene	26 7	5 00	"	40 000		67	68-138			A
Di-n-octyl phthalate	23 5	5 00	"	40 000		59	18-132			
Fluoranthene	24 7	5 00	"	40 000		62	42-122			
Fluorene	24 2	5 00	"	40 000		61	71-109			A

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Semivolatile Organic Compounds

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31503 - EPA 3520C SVOC										
LCS (BD31503-BS1)				Prepared: 04/15/13 10:43		Analyzed: 04/17/13 16:35				
Hexachlorobenzene	25 0	5 00	ug/L	40 000		62	10-142			
Hexachlorobutadiene	23 3	5 00	"	40 000		58	37-103			
Hexachlorocyclopentadiene	14 6	5 00	"	40 000		36	0 01-104			
Hexachloroethane	21 5	5 00	"	40 000		54	55-100			A
Indeno(1,2,3-cd)pyrene	23 0	5 00	"	40 000		57	0 01-151			
Isophorone	22 9	5 00	"	40 000		57	46-181			
2-Methylnaphthalene	24 2	5 00	"	40 000		61	30-160			
2-Methylphenol	22 3	5 00	"	40 000		56	30-160			
4-Methylphenol	22 4	5 00	"	40 000		56	30-160			
Naphthalene	23 3	5 00	"	40 000		58	35-120			
2-Nitroaniline	25 1	5 00	"	40 000		63	30-160			
3-Nitroaniline	27 6	5 00	"	40 000		69	30-160			
4-Nitroaniline	31 6	5 00	"	40 000		79	30-160			
Nitrobenzene	23 3	5 00	"	40 000		58	54-158			
2-Nitrophenol	25 1	5 00	"	40 000		63	45-167			
4-Nitrophenol	23 7	10 0	"	40 000		59	13-107			
N-Nitrosodimethylamine	19 4	5 00	"	40 000		49	30-160			
N-Nitroso-di-n-propylamine	22 7	5 00	"	40 000		57	41-116			
N-Nitrosodiphenylamine	27 2	5 00	"	40 000		68	30-160			
Pentachlorophenol	21 9	5 00	"	40 000		55	9-103			
Phenanthrene	23 8	5 00	"	40 000		60	65-109			A
Phenol	21 1	5 00	"	40 000		53	12-110			
Pyrene	23 5	5 00	"	40 000		59	69-100			A
1,2,4,5-Tetrachlorobenzene	27 8	5 00	"	40 000		69	30-160			
2,3,4,6-Tetrachlorophenol	30 1	5 00	"	40 000		75	30-160			
2,4,5-Trichlorophenol	24 0	5 00	"	40 000		60	30-160			
2,4,6-Trichlorophenol	25 0	5 00	"	40 000		62	52-130			
Surrogate: 2-Fluorophenol	*24.2*		*"*	*50.000*		*48*	*21-110*			
Surrogate: Phenol-d5	*29.2*		*"*	*50.000*		*58*	*39-106*			
Surrogate: Nitrobenzene-d5	*15.3*		*"*	*25.000*		*61*	*43-108*			
Surrogate: 2-Fluorobiphenyl	*15.1*		*"*	*25.000*		*60*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*36.1*		*"*	*50.000*		*72*	*10-123*			
Surrogate: Terphenyl-d14	*15.1*		*"*	*25.000*		*60*	*33-141*			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Semivolatile Organic Compounds

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31503 - EPA 3520C SVOC										
Matrix Spike (BD31503-MS1)	**Source: 1304007-01**			Prepared: 04/15/13 10:43		Analyzed: 04/17/13 18:17				
Acenaphthene	22 9	4 76	ug/L	38 095	0 00	60	47-145			
Acenaphthylene	21 5	4 76	"	38 095	0 00	56	33-145			
Acetophenone	21 7	4 76	"	38 095	0 00	57	30-160			
Anthracene	23 4	4 76	"	38 095	0 00	61	27-133			
Atrazine	23 9	4 76	"	38 095	0 00	63	30-160			
Benzaldehyde	26 6	4 76	"	38 095	0 00	70	30-160			
Benzo(a)anthracene	23 6	4 76	"	38 095	0 00	62	33-143			
Benzo(a)pyrene	24 9	4 76	"	38 095	0 00	65	17-163			
Benzo(b)fluoranthene	23 4	4 76	"	38 095	0 00	61	24-159			
Benzo(ghi)perylene	22 4	4 76	"	38 095	0 00	59	0 01-219			
Benzo(k)fluoranthene	23 6	4 76	"	38 095	0 00	62	11-162			
1,1-Biphenyl	21 6	4 76	"	38 095	0 00	57	30-160			
Bis(2-chloroethoxy)methane	23 3	4 76	"	38 095	0 00	61	33-184			
Bis(2-chloroethyl)ether	20 8	4 76	"	38 095	0 00	55	12-158			
Bis(2-chloroisopropyl)ether	20 0	4 76	"	38 095	0 00	52	36-166			
Bis(2-ethylhexyl)phthalate	21 5	4 76	"	38 095	0 00	57	8-158			
4-Bromophenyl phenyl ether	23 1	4 76	"	38 095	0 00	61	53-127			
Butyl benzyl phthalate	21 9	4 76	"	38 095	0 00	58	0 01-152			
Carbazole	25 5	4 76	"	38 095	0 00	67	30-160			
Caprolactam	22 3	4 76	"	38 095	0 00	59	30-160			
4-Chloroaniline	20 1	4 76	"	38 095	0 00	53	30-160			
4-Chloro-3-methylphenol	23 6	4 76	"	38 095	0 00	62	22-147			
2-Chloronaphthalene	21 9	4 76	"	38 095	0 00	57	60-118			A
2-Chlorophenol	19 8	4 76	"	38 095	0 00	52	23-134			
4-Chlorophenyl phenyl ether	22 2	4 76	"	38 095	0 00	58	25-158			
Chrysene	22 7	4 76	"	38 095	0 00	60	17-168			
Dibenz(a,h)anthracene	23 5	4 76	"	38 095	0 00	62	0 01-127			
Dibenzofuran	22 5	4 76	"	38 095	0 00	59	30-160			
3,3´-Dichlorobenzidine	34 6	4 76	"	38 095	0 00	91	0 01-262			
Diethyl phthalate	24 3	4 76	"	38 095	0 00	64	0 01-114			
2,4-Dichlorophenol	22 8	4 76	"	38 095	0 00	60	39-135			
2,4-Dimethylphenol	21 8	4 76	"	38 095	0 00	57	32-119			
Dimethyl phthalate	23 3	4 76	"	38 095	0 00	61	0 01-112			
2,4-Dinitrophenol	9 27	4 76	"	38 095	0 00	24	0 01-191			
Di-n-butyl phthalate	23 1	4 76	"	38 095	0 00	61	1-118			
4,6-Dinitro-2-methylphenol	29 5	9 52	"	38 095	0 00	77	0 01-181			
2,4-Dinitrotoluene	25 7	4 76	"	38 095	0 00	68	39-139			
2,6-Dinitrotoluene	25 4	4 76	"	38 095	0 00	67	50-158			
Di-n-octyl phthalate	22 0	4 76	"	38 095	0 00	58	4-146			
Fluoranthene	24 0	4 76	"	38 095	0 00	63	26-137			
Fluorene	22 3	4 76	"	38 095	0 00	59	59-121			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Semivolatile Organic Compounds

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BD31503 - EPA 3520C SVOC

Matrix Spike (BD31503-MS1) **Source: 1304007-01** Prepared: 04/15/13 10:43 Analyzed: 04/17/13 18:17

Hexachlorobenzene	23 9	4 76	ug/L	38 095	0 00	63	0 01-152			
Hexachlorobutadiene	22 3	4 76	"	38 095	0 00	59	24-116			
Hexachlorocyclopentadiene	15 1	4 76	"	38 095	0 00	40	0 01-111			
Hexachloroethane	20 7	4 76	"	38 095	0 00	54	40-113			
Indeno(1,2,3-cd)pyrene	23 3	4 76	"	38 095	0 00	61	0 01-171			
Isophorone	21 5	4 76	"	38 095	0 00	56	21-196			
2-Methylnaphthalene	22 3	4 76	"	38 095	0 00	59	30-160			
2-Methylphenol	21 2	4 76	"	38 095	0 00	56	30-160			
4-Methylphenol	21 7	4 76	"	38 095	0 00	57	30-160			
Naphthalene	22 3	4 76	"	38 095	0 00	59	21-133			
2-Nitroaniline	24 5	4 76	"	38 095	0 00	64	30-160			
3-Nitroaniline	27 5	4 76	"	38 095	0 00	72	30-160			
4-Nitroaniline	33 3	4 76	"	38 095	0 00	87	30-160			
Nitrobenzene	21 9	4 76	"	38 095	0 00	57	35-180			
2-Nitrophenol	24 4	4 76	"	38 095	0 00	64	29-182			
4-Nitrophenol	24 9	9 52	"	38 095	0 00	65	0 01-132			
N-Nitrosodimethylamine	19 1	4 76	"	38 095	0 00	50	30-160			
N-Nitroso-di-n-propylamine	21 3	4 76	"	38 095	0 00	56	0 01-230			
N-Nitrosodiphenylamine	23 8	4 76	"	38 095	0 00	63	30-160			
Pentachlorophenol	23 1	4 76	"	38 095	0 00	61	14-176			
Phenanthrene	22 9	4 76	"	38 095	0 00	60	54-120			
Phenol	19 9	4 76	"	38 095	0 00	52	5-112			
Pyrene	21 2	4 76	"	38 095	0 00	56	52-115			
1,2,4,5-Tetrachlorobenzene	26 7	4 76	"	38 095	0 00	70	30-160			
2,3,4,6-Tetrachlorophenol	29 6	4 76	"	38 095	0 00	78	30-160			
2,4,5-Trichlorophenol	23 4	4 76	"	38 095	0 00	61	30-160			
2,4,6-Trichlorophenol	23 7	4 76	"	38 095	0 00	62	37-144			
Surrogate: 2-Fluorophenol	*24.8*		"	*47.619*		*52*	*21-110*			
Surrogate: Phenol-d5	*27.1*		"	*47.619*		*57*	*39-106*			
Surrogate: Nitrobenzene-d5	*14.6*		"	*23.810*		*61*	*43-108*			
Surrogate: 2-Fluorobiphenyl	*14.3*		"	*23.810*		*60*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*35.8*		"	*47.619*		*75*	*10-123*			
Surrogate: Terphenyl-d14	*13.9*		"	*23.810*		*58*	*33-141*			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BD31504 - Metals Water Prep

Blank (BD31504-BLK1) Prepared: 04/15/13 12:28 Analyzed: 04/24/13 10:51

Antimony	U	2 0	ug/L							
Arsenic	U	1 0	"							
Barium	U	10 0	"							
Beryllium	U	1 0	"							
Cadmium	U	1 0	"							
Chromium	U	1 0	"							
Cobalt	U	1 0	"							
Copper	U	2 0	"							
Lead	U	1 0	"							
Manganese	U	1 0	"							
Nickel	U	1 0	"							
Selenium	U	2 0	"							
Silver	U	1 0	"							
Thallium	U	1 0	"							
Vanadium	U	5 0	"							
Zinc	U	2 0	"							
Aluminum	U	10 0	"							
Uranium	U	1 0	"							

Blank (BD31504-BLK2) Prepared: 04/15/13 12:28 Analyzed: 04/24/13 11:40

Aluminum	U	200	ug/L							
Calcium	U	500	"							
Iron	U	100	"							
Magnesium	U	500	"							
Potassium	U	500	"							
Sodium	U	1000	"							
Manganese	U	20 0	"							

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31504 - Metals Water Prep										
LCS (BD31504-BS1)				Prepared: 04/15/13 12:28		Analyzed: 04/24/13 11:23				
Antimony	54 4667	2 0	ug/L	50 000		109	85-115			
Arsenic	49 0376	1 0	"	50 000		98	85-115			
Barium	199 447	10 0	"	200 00		100	85-115			
Beryllium	4 93500	1 0	"	5 0000		99	85-115			
Cadmium	4 93000	1 0	"	5 0000		99	85-115			
Chromium	49 2648	1 0	"	50 000		99	85-115			
Cobalt	50 4394	1 0	"	50 000		101	85-115			
Copper	48 8879	2 0	"	50 000		98	85-115			
Lead	51 5345	1 0	"	50 000		103	85-115			
Manganese	51 4002	1 0	"	50 000		103	85-115			
Nickel	48 8620	1 0	"	50 000		98	85-115			
Selenium	49 9865	2 0	"	50 000		100	85-115			
Silver	5 48708	1 0	"	5 0000		110	85-115			
Thallium	47 5383	1 0	"	50 000		95	85-115			
Vanadium	48 0064	5 0	"	50 000		96	85-115			
Zinc	53 9836	2 0	"	50 000		108	85-115			
Aluminum	177 013	10 0	"	200 00		89	85-115			
Uranium	50 5698	1 0	"	50 000		101	85-115			
LCS (BD31504-BS2)				Prepared: 04/15/13 12:28		Analyzed: 04/24/13 11:42				
Aluminum	1959 30	200	ug/L	2000 0		98	85-115			
Calcium	9694 02	500	"	10000		97	85-115			
Iron	4894 08	100	"	5000 0		98	85-115			
Magnesium	10076 0	500	"	10000		101	85-115			
Potassium	19385 8	500	"	20000		97	85-115			
Sodium	9814 76	1000	"	10000		98	85-115			
Manganese	508 136	20 0	"	500 00		102	85-115			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31504 - Metals Water Prep										
Duplicate (BD31504-DUP1)	**Source: 1304007-01**			Prepared: 04/15/13 12:28	Analyzed: 04/24/13 11:48					
Antimony	0 019605	2 0	ug/L		0 021585			10	20	
Arsenic	0 255302	1 0	"		0 552658			74	20	D
Barium	12 7234	10 0	"		12 8955			1	20	
Beryllium	2 33500	1 0	"		2 35000			0 6	20	
Cadmium	0 318278	1 0	"		0 296290			7	20	
Chromium	U	1 0	"		U				20	
Cobalt	34 8192	1 0	"		35 8317			3	20	
Copper	23 1735	2 0	"		23 5445			2	20	
Lead	0 293368	1 0	"		0 285232			3	20	
Nickel	94 1164	1 0	"		94 1203			0 004	20	
Selenium	1 00544	2 0	"		1 05060			4	20	
Silver	0 001302	1 0	"		U			200	20	D
Thallium	0 343902	1 0	"		0 440940			25	20	D
Vanadium	U	5 0	"		U				20	
Zinc	152 202	2 0	"		153 681			1	20	
Uranium	0 512575	1 0	"		0 506210			1	20	
Duplicate (BD31504-DUP2)	**Source: 1304007-01**			Prepared: 04/15/13 12:28	Analyzed: 04/24/13 11:48					
Aluminum	7005 51	200	ug/L		6940 46			0 9	20	
Calcium	40898 7	500	"		40485 9			1	20	
Iron	2958 74	100	"		2950 09			0 3	20	
Magnesium	17231 2	500	"		17111 0			0 7	20	
Potassium	3248 42	500	"		3168 50			2	20	
Sodium	85073 8	1000	"		83784 9			2	20	
Manganese	622 400	20 0	"		620 356			0 3	20	
Matrix Spike (BD31504-MS1)	**Source: 1304007-02**			Prepared: 04/15/13 12:28	Analyzed: 04/24/13 11:58					
Antimony	62 1732	2 0	ug/L	50 000	0 023875	124	70-130			
Arsenic	55 2629	1 0	"	50 000	0 931680	109	70-130			
Barium	240 022	10 0	"	200 00	23 3412	108	70-130			
Beryllium	5 81750	1 0	"	5 0000	0 392500	108	70-130			
Cadmium	5 64762	1 0	"	5 0000	0 049968	112	70-130			
Chromium	57 7417	1 0	"	50 000	1 04424	113	70-130			
Cobalt	64 4126	1 0	"	50 000	9 50891	110	70-130			
Copper	56 1466	2 0	"	50 000	1 29124	110	70-130			
Lead	60 4457	1 0	"	50 000	1 65313	118	70-130			
Nickel	78 7800	1 0	"	50 000	27 3064	103	70-130			
Selenium	54 2248	2 0	"	50 000	1 17093	106	70-130			
Silver	6 19354	1 0	"	5 0000	0 002898	124	70-130			
Thallium	55 2303	1 0	"	50 000	0 075480	110	70-130			
Vanadium	56 2474	5 0	"	50 000	0 295312	112	70-130			
Zinc	84 3562	2 0	"	50 000	25 1642	118	70-130			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD31504 - Metals Water Prep										
Matrix Spike (BD31504-MS1)	**Source: 1304007-02**			Prepared: 04/15/13 12:28		Analyzed: 04/24/13 11:58				
Uranium	59 7118	1 0	ug/L	50 000	0 112588	119	70-130			
Matrix Spike (BD31504-MS2)	**Source: 1304007-02**			Prepared: 04/15/13 12:28		Analyzed: 04/24/13 11:54				
Aluminum	2841 85	200	ug/L	2000 0	766 783	104	70-130			
Calcium	24180 3	500	"	10000	13712 9	105	70-130			
Iron	5832 07	100	"	5000 0	771 152	101	70-130			
Magnesium	17033 0	500	"	10000	6315 41	107	70-130			
Potassium	21539 7	500	"	20000	1439 64	101	70-130			
Sodium	39887 2	1000	"	10000	29813 1	101	70-130			
Manganese	816 667	20 0	"	500 00	312 387	101	70-130			
Batch BD32201 - Mercury 245.1/245.2/7470a Prep										
Blank (BD32201-BLK1)				Prepared: 04/23/13 11:20		Analyzed: 04/30/13 12:32				
Mercury	U	0 2	ug/L							
LCS (BD32201-BS1)				Prepared: 04/23/13 11:20		Analyzed: 04/30/13 12:34				
Mercury	1 89000	0 2	ug/L	2 0000		94	85-115			
Duplicate (BD32201-DUP1)	**Source: 1304007-01**			Prepared: 04/23/13 11:20		Analyzed: 04/30/13 12:38				
Mercury	U	0 2	ug/L		U				20	
Matrix Spike (BD32201-MS1)	**Source: 1304007-02**			Prepared: 04/23/13 11:20		Analyzed: 04/30/13 12:42				
Mercury	1 94000	0 2	ug/L	2 0000	U	97	70-130			
Batch BD32202 - Mercury 245.5/7471a Prep										
Blank (BD32202-BLK1)				Prepared: 04/23/13 11:20		Analyzed: 04/30/13 12:56				
Mercury	U	0 0002	ug/g							

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD32202 - Mercury 245.5/7471a Prep										
LCS (BD32202-BS1)				Prepared: 04/23/13 11:20		Analyzed: 04/30/13 12:34				
Mercury	0 001890	0 0002	ug/g	0 0020000		94	85-115			
Duplicate (BD32202-DUP1)		Source: 1304007-05		Prepared: 04/23/13 11:20		Analyzed: 04/30/13 01:03				
Mercury	0 038146	0 005	ug/g		0 029018			27	35	
Matrix Spike (BD32202-MS1)		Source: 1304007-06		Prepared: 04/23/13 11:20		Analyzed: 04/30/13 01:07				
Mercury	0 063735	0 005	ug/g	0 049407	0 017822	93	70-130			
Reference (BD32202-SRM1)				Prepared: 04/23/13 11:20		Analyzed: 04/30/13 12:58				
Mercury	2 44156	0 1	ug/g	2 8000		87	68-132			
Batch BD32401 - Metals Solid prep										
Blank (BD32401-BLK1)				Prepared: 04/24/13 08:43		Analyzed: 05/06/13 12:14				
Antimony	U	0 2	ug/g							
Arsenic	U	0 1	"							
Beryllium	U	0 1	"							
Cadmium	U	0 1	"							
Chromium	U	0 2	"							
Selenium	U	0 5	"							
Silver	U	0 1	"							
Thallium	U	0 1	"							
Vanadium	U	0 5	"							
Uranium	U	0 1	"							
Blank (BD32401-BLK2)				Prepared: 04/24/13 08:43		Analyzed: 05/01/13 10:43				
Aluminum	U	20 0	ug/g							
Barium	U	20 0	"							
Calcium	U	50 0	"							
Cobalt	U	5 0	"							
Copper	U	4 0	"							
Iron	U	10 0	"							
Lead	U	5 0	"							
Magnesium	U	50 0	"							
Manganese	U	1 5	"							
Nickel	U	4 0	"							
Potassium	U	200	"							
Sodium	U	100	"							
Zinc	U	2 0	"							

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD32401 - Metals Solid prep										
LCS (BD32401-BS1)				Prepared: 04/24/13 08:43		Analyzed: 05/06/13 12:19				
Antimony	4 97540	0 2	ug/g	5 0000		100	85-115			
Arsenic	4 75518	0 1	"	5 0000		95	85-115			
Beryllium	0 465800	0 1	"	0 50000		93	85-115			
Cadmium	0 471148	0 1	"	0 50000		94	85-115			
Chromium	4 71000	0 2	"	5 0000		94	85-115			
Selenium	4 82642	0 5	"	5 0000		97	85-115			
Silver	0 498697	0 1	"	0 50000		100	85-115			
Thallium	4 71254	0 1	"	5 0000		94	85-115			
Vanadium	4 98961	0 5	"	5 0000		100	85-115			
Uranium	4 92278	0 1	"	5 0000		98	85-115			
LCS (BD32401-BS2)				Prepared: 04/24/13 08:43		Analyzed: 05/01/13 10:46				
Aluminum	400 949	20 0	ug/g	400 00		100	85-115			
Barium	391 645	20 0	"	400 00		98	85-115			
Calcium	2018 20	50 0	"	2000 0		101	85-115			
Cobalt	94 1886	5 0	"	100 00		94	85-115			
Copper	106 409	4 0	"	100 00		106	85-115			
Iron	998 546	10 0	"	1000 0		100	85-115			
Lead	90 3716	5 0	"	100 00		90	85-115			
Magnesium	2060 46	50 0	"	2000 0		103	85-115			
Manganese	98 5995	1 5	"	100 00		99	85-115			
Nickel	108 666	4 0	"	100 00		109	85-115			
Potassium	4001 81	200	"	4000 0		100	85-115			
Sodium	1995 11	100	"	2000 0		100	85-115			
Zinc	101 985	2 0	"	100 00		102	85-115			
Duplicate (BD32401-DUP1)	**Source: 1304007-05**			Prepared: 04/24/13 08:43		Analyzed: 05/06/13 12:33				
Antimony	0 169409	0 2	ug/g		0 131218			25	35	
Arsenic	9 90396	0 8	"		9 49533			4	35	
Beryllium	0 574170	0 1	"		0 536077			7	35	
Cadmium	0 084267	0 1	"		0 088171			5	35	
Chromium	15 7401	1 6	"		15 6351			0 7	35	
Selenium	0 032304	4 0	"		0 064891			67	35	D
Silver	0 041033	0 1	"		0 068576			50	35	D
Thallium	0 174078	0 1	"		0 191585			10	35	
Vanadium	16 3777	0 5	"		13 5501			19	35	
Uranium	0 465072	0 1	"		0 432258			7	20	

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD32401 - Metals Solid prep										
Duplicate (BD32401-DUP2)	**Source: 1304007-05**			Prepared: 04/24/13 08:43	Analyzed: 05/01/13 10:53					
Aluminum	5625 12	19 8	ug/g		5595 63			0 5	35	
Barium	67 3956	19 8	"		70 7494			5	35	
Calcium	231 531	49 6	"		236 811			2	35	
Cobalt	8 80688	5 0	"		9 51762			8	35	
Copper	32 5625	4 0	"		36 4051			11	35	
Iron	122321	49 6	"		121584			0 6	35	
Lead	18 8852	5 0	"		17 8452			6	35	
Magnesium	1357 58	49 6	"		1351 01			0 5	35	
Manganese	415 008	1 5	"		271 796			42	35	A
Nickel	13 4302	4 0	"		14 6254			9	35	
Potassium	507 276	198	"		530 941			5	35	
Sodium	69 7143	99 2	"		83 2069			18	35	
Zinc	68 3400	2 0	"		68 5184			0 3	35	
Matrix Spike (BD32401-MS1)	**Source: 1304007-06**			Prepared: 04/24/13 08:43	Analyzed: 05/06/13 12:42					
Antimony	2 35665	0 2	ug/g	4 8356	0 056492	48	70-130			A
Arsenic	7 80710	0 1	"	4 8356	4 21870	74	70-130			
Beryllium	0 880873	0 1	"	0 48356	0 457686	88	70-130			
Cadmium	0 488908	0 1	"	0 48356	0 047211	91	70-130			
Chromium	19 2520	1 5	"	4 8356	13 0238	129	70-130			J
Selenium	3 18358	0 5	"	4 8356	0 156233	63	70-130			A
Silver	0 478078	0 1	"	0 48356	0 015000	96	70-130			
Thallium	4 11819	0 1	"	4 8356	0 137244	82	70-130			
Vanadium	33 1373	3 9	"	4 8356	26 7515	132	70-130			A, J
Uranium	4 84040	0 1	"	4 8356	0 648142	87	70-130			
Matrix Spike (BD32401-MS2)	**Source: 1304007-06**			Prepared: 04/24/13 08:43	Analyzed: 05/01/13 11:03					
Aluminum	8302 04	19 8	ug/g	396 04	6861 12	364	70-130			TD
Barium	436 084	19 8	"	396 04	67 8835	93	70-130			
Calcium	2018 74	49 5	"	1980 2	156 723	94	70-130			
Cobalt	93 4941	5 0	"	99 010	6 68665	88	70-130			
Copper	111 744	4 0	"	99 010	13 0448	100	70-130			
Iron	35029 7	19 8	"	990 10	36143 1	NR	70-130			TD
Lead	98 1723	5 0	"	99 010	12 1526	87	70-130			
Magnesium	3607 65	49 5	"	1980 2	1598 60	101	70-130			
Manganese	303 317	1 5	"	99 010	201 690	103	70-130			
Nickel	108 116	4 0	"	99 010	14 0596	95	70-130			
Potassium	4399 60	198	"	3960 4	631 661	95	70-130			
Sodium	1949 13	99 0	"	1980 2	55 7760	96	70-130			
Zinc	139 119	2 0	"	99 010	47 8991	92	70-130			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BD32401 - Metals Solid prep										
Reference (BD32401-SRM1)				Prepared: 04/24/13 08:43		Analyzed: 05/06/13 12:24				
Antimony	76 8131	3 7	ug/g	60 900		126	9 8-223			
Arsenic	154 903	1 8	"	161 00		96	80-120			
Beryllium	88 8655	1 8	"	94 400		94	82-118			
Cadmium	122 764	1 8	"	128 00		96	81-125			
Chromium	59 8967	3 7	"	69 500		86	79-121			
Selenium	66 5151	9 1	"	64 200		104	76-124			
Silver	120 156	1 8	"	130 00		92	53-147			
Thallium	82 5874	1 8	"	84 000		98	76-125			
Vanadium	108 765	9 1	"	97 300		112	75-125			
Reference (BD32401-SRM2)				Prepared: 04/24/13 08:43		Analyzed: 05/01/13 11:17				
Aluminum	5092 93	45 7	ug/g	6320 0		81	58-142			
Barium	251 421	45 7	"	252 00		100	82-118			
Calcium	3436 58	114	"	3320 0		104	79-121			
Cobalt	35 6974	11 4	"	35 200		101	73-127			
Copper	154 015	9 1	"	148 00		104	82 4-118			
Iron	10022 2	22 8	"	11200		89	57-143			
Lead	140 319	11 4	"	142 00		99	80-120			
Magnesium	1943 09	114	"	2040 0		95	77-123			
Manganese	403 724	3 4	"	408 00		99	80-120			
Nickel	164 296	9 1	"	147 00		112	81 6-118 36			
Potassium	1810 93	457	"	1920 0		94	71-129			
Sodium	444 332	228	"	445 00		100	56-144			
Zinc	173 958	4 6	"	165 00		105	79-121			

Site Name: Kiskimere Groundwater Well Investigation **Project #: DAS R34165**

Notes and Definitions

UJ	The analyte was not detected at or above the quantitation limit. The quantitation limit is an estimate.
TD	Spike concentration is too dilute for accurate quantitation resulting in inaccurate recovery calculations..
T	Tentatively Identified Compound. Identified as a result of a library search using the EPA/NIST Mass Spectral Library. Standards were not used to verify the identity and quantity of the compound. The reported value is an estimate.
K	The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value. Reported value is an estimate.
J	The identification of the analyte is acceptable; the reported value is an estimate.
dry	Reported on a Dry Weight Basis
D	Source sample result and/or duplicate sample result are below the quantitation limit and the RPD is artificially high. Precision data (RPD value) has no significance for this QC Sample.
B	Not detected substantially above (10 times) the level reported in the laboratory or field blanks (including field, trip, rinsate, and equipment blanks).
A	Quality control value is outside acceptance limits.
%REC	Percent Recovery
RPD	Relative Percent Difference
U	Analyte included in the analysis, but not detected at or above the quantitation limit.
NR	Not Reported

QUANTITATION LIMIT: The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method and that takes into account analytical adjustments made during sample preparation and analysis.

SOLID SAMPLE RESULTS - REPORTING PROTOCOL: Solid samples where % Solids (percent dry wt at 105 degrees C) has been performed, are analyzed wet and converted to a dry weight result for reporting purposes. This is routine for organics and most inorganic analyses. When metals and mercury analyses are requested, solid samples are routinely analyzed and reported on a dry weight basis. Solid samples for metals/mercury are prepared for analysis by an initial drying at 60 degree C and homogenization before digestion. Oil-type samples will be analyzed and reported on a wet weight basis for all analyses because of the nature of the sample. Any exceptions to the protocol will be noted with a qualifier

ON-DEMAND: The term 'on-demand' analysis, if noted in the report narrative, refers to Section 13.1.4 in the Region III OASQA Laboratory Quality Manual, which provides procedures for non-routine analyses or analytes.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RADIATION AND INDOOR AIR
National Air and Radiation Environmental Laboratory
540 South Morris Avenue, Montgomery, AL 36115-2601
(334) 270-3400

June 6, 2013

MEMORANDUM

SUBJECT: Radiochemical Results for
Kiskimere Ground Water Samples

FROM: Cindy White, Director
Center for Environmental Radioanalytical Laboratory Science

TO: John Kwedar, RPM
Region 3

Attached are data packages for radium-226 and radium-228 analysis of samples collected from the Parks Township, PA. The samples constitute NAREL batch number 1300027. Also attached are data packages for gamma and radium-228 analysis of NAREL batch number 1300028. The original sample container tags and chain-of-custody sheets for all samples associated with this project were included with the initial shipment of data and therefore cannot be sent with subsequent shipments of data. NAREL does not attach custody seals to and does not include DC-1, DC-2, or air bills in the data delivery package.

Specific information concerning all aspects of the radiological analysis of the samples is contained in the batch case narratives of the data packages. If you have any questions concerning the analytical results, please contact me at (334)270-7052.

Due to a reorganization within the Office of Radiation and Indoor Air, the National Air and Radiation Environmental Laboratory is now called the National Analytical Radiation Environmental Laboratory (acronym remains the same, NAREL).

Attachments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RADIATION AND INDOOR AIR
National Air and Radiation Environmental Laboratory
540 South Morris Avenue, Montgomery, AL 36115-2601
(334) 270-3400

May 21, 2013

MEMORANDUM

SUBJECT: Radiochemical Results for
Kiskimere Ground Water Samples

FROM: Cindy White, Director
Center for Environmental Radioanalytical Laboratory Science

TO: John Kwedar, RPM
Region 3

Attached are data packages for gamma and gross alpha and beta analysis of samples collected from the Parks Township, PA. The samples constitute NAREL batch number 1300027. Also attached is a data package for gamma analysis of NAREL batch number 1300028. The original sample container tags and chain-of-custody sheets for all samples associated with this project are included and therefore cannot be sent with subsequent shipments of data. NAREL does not attach custody seals to and does not include DC-1, DC-2, or air bills in the data delivery package.

Specific information concerning all aspects of the radiological analysis of the samples is contained in the batch case narratives of the data packages. If you have any questions concerning the analytical results, please contact me at (334)270-7052.

Due to a reorganization within the Office of Radiation and Indoor Air, the National Air and Radiation Environmental Laboratory is now called the National Analytical Radiation Environmental Laboratory (acronym remains the same, NAREL).

Attachments

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY
540 S. MORRIS AVE., MONTGOMERY, AL 36115
RA226 ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #1300027

Project: Kiskimere GW Well Investigation, Kiskimer, PA - 2013
Analysis method: Radium-226 in Water: Rapid Method for High-Activity Samples
Report ID: 1300027-RA226
Report type: Original
Date reported: 06/03/2013
Total pages in report: 14

SAMPLES

NAREL Sample #	Client Sample ID	Location	Matrix	Date Collected	Date Received
B3.04281W	R34160-01, RB01	PA:KISKIMERE	WATER	04/09/2013	04/12/2013
B3.04282X	R34160-03, SW02	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04283Y	R34160-04, SW03	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04284Z	R34160-05, FB01	PA:KISKIMERE	WATER	04/10/2013	04/12/2013
B3.04285A	R34160-02, SW01	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04287C	R34160-06, SW04	PA:KISKIMERE	WATER-SURFACE	04/10/2013	04/12/2013

EXCEPTIONS

1. **Packaging and shipping** – No problems were observed.
2. **Documentation** – No problems were observed.
3. **Sample preparation** – No problems were encountered.
4. **Analysis** – No problems were encountered.
5. **Holding times** – No holding times were specified.

QUALITY CONTROL

1. **QC samples** – All QC analysis results met NAREL acceptance criteria.
2. **Yields** – All chemical yields were within acceptance limits.
3. **Instruments** – Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

ACCREDITATION

All analyses included in this data package are accredited by the Oregon Environmental Laboratory Accreditation Program (ORELAP) to the TNI standard.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Director of the Center for Environmental Radioanalytical Laboratory Science and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

Cynthia White — Date
Director, Center for Environmental Radioanalytical Laboratory Science

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank
STD	External standard (used for ^{228}Ra yield determination)

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

RADIOCHEMICAL DATA

Radiochemical analyses usually require the subtraction of an instrument background measurement result from a gross sample measurement result. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical importance, as for example in the evaluation of trends or the comparison of two groups of samples.

To the extent practical, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the "2-sigma" measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The measurement result, uncertainty, and MDC are always expressed in the same unit of measurement.

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of method blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

ANALYSIS SUMMARY

Analysis method: NAREL RA226-EICHROM
Title: Radium-226 in Water: Rapid Method for High-Activity Samples

NAREL Sample #	Client Sample ID	QC Type	Date Completed	Preparation Batch #	Assay Batch #
B3.04281W	R34160-01, RB01		05/17/2013	0009917U	0017031U
B3.04282X	R34160-03, SW02		05/17/2013	0009917U	0017031U
B3.04283Y	R34160-04, SW03		05/17/2013	0009917U	0017031U
B3.04283Y	R34160-04, SW03	DUP	05/17/2013	0009917U	0017031U
B3.04284Z	R34160-05, FB01		05/17/2013	0009917U	0017031U
B3.04285A	R34160-02, SW01		05/17/2013	0009917U	0017031U
B3.04287C	R34160-06, SW04		05/17/2013	0009917U	0017031U
LCS-00665367Z *		LCS	05/17/2013	0009917U	0017031U
RBK-00665366Y *		RBK	05/17/2013	0009917U	0017031U

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04281W	Amount analyzed:	2.000e-01 L
Client sample ID:	R34160-01, RB01	Preparation batch #:	0009917U
Matrix:	WATER	Assay batch #:	0017031U
Collected:	2013-04-09 09:10 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS85	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	4.80e-02	6.7e-02	9.4e-02	PCI/L	05/15/2013 11:59 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04282X	Amount analyzed:	2.000e-01 L
Client sample ID:	R34160-03, SW02	Preparation batch #:	0009917U
Matrix:	WATER-SURFACE	Assay batch #:	0017031U
Collected:	2013-04-09 15:15 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS86	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	3.02e-02	6.4e-02	1.1e-01	PCI/L	05/15/2013 12:19 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04283Y	Amount analyzed:	2.000e-01 L
Client sample ID:	R34160-04, SW03	Preparation batch #:	0009917U
Matrix:	WATER-SURFACE	Assay batch #:	0017031U
Collected:	2013-04-09 15:30 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS88	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	1.21e-01	9.2e-02	6.5e-02	PCI/L	05/15/2013 12:24 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04283Y	Amount analyzed:	2.000e-01 L
Client sample ID:	R34160-04, SW03	Preparation batch #:	0009917U
Matrix:	WATER-SURFACE	Assay batch #:	0017031U
Collected:	2013-04-09 15:30 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS98	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	4.78e-02	6.6e-02	9.4e-02	PCI/L	05/15/2013 12:26 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04284Z	Amount analyzed:	2.000e-01 L
Client sample ID:	R34160-05, FB01	Preparation batch #:	0009917U
Matrix:	WATER	Assay batch #:	0017031U
Collected:	2013-04-10 07:50 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS99	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	8.10e-02	8.2e-02	1.0e-01	PCI/L	05/15/2013 12:06 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	2.000e-01 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009917U
Matrix:	WATER-SURFACE	Assay batch #:	0017031U
Collected:	2013-04-09 10:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS100	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	2.31e-02	6.3e-02	1.1e-01	PCI/L	05/15/2013 12:21 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04287C	Amount analyzed:	2.000e-01 L
Client sample ID:	R34160-06, SW04	Preparation batch #:	0009917U
Matrix:	WATER-SURFACE	Assay batch #:	0017031U
Collected:	2013-04-10 09:05 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS101	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	3.01e-02	6.5e-02	1.0e-01	PCI/L	05/15/2013 12:04 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	LCS-00665367Z	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009917U
Matrix:	N/A	Assay batch #:	0017031U
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS103	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	3.46e+00	3.4e-01	2.1e-02	PCI	05/15/2013 12:12 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	RBK-00665366Y	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009917U
Matrix:	N/A	Assay batch #:	0017031U
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL RA226-EICHROM
Dry/wet weight:	N/A	Analyst:	PH
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/16/2013 13:08	1000.0	AS110	RCL

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra226	-1.11e-03	7.3e-03	1.9e-02	PCI	05/15/2013 12:06 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG 1300027

PREPARATION BATCH SUMMARY

Preparation batch #: 0009917U
Analysis method: NAREL RA226-EICHROM
Preparation procedure: N/A

NAREL Sample #	Client Sample ID	Analysis #	QC Type	Yield	± 2 σ Uncertainty	Analyst
B3.04281W	R34160-01, RB01	00663933Z		102.19 %	8.19 %	PH
B3.04282X	R34160-03, SW02	00663937D		98.42 %	8.04 %	PH
B3.04283Y	R34160-04, SW03	00663941Z		93.40 %	7.62 %	PH
B3.04283Y	R34160-04, SW03	00665365X	DUP	98.10 %	7.88 %	PH
B3.04284Z	R34160-05, FB01	00663945D		93.39 %	7.62 %	PH
B3.04285A	R34160-02, SW01	00663949H		82.75 %	7.06 %	PH
B3.04287C	R34160-06, SW04	00663916Y		79.45 %	6.86 %	PH
LCS-00665367Z *		00665367Z	LCS	87.52 %	7.31 %	PH
RBK-00665366Y *		00665366Y	RBK	88.13 %	7.41 %	PH

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

QC RESULTS FOR BATCH 0009917U

NAREL Sample #	Analysis #	QC Type	Analyte	%R	RPD	Z	Evaluation
B3.04283Y	00665365X	DUP	RA226		86.6	-1.29	PASS
LCS-00665367Z	00665367Z	LCS	RA226	102.6		0.48	PASS
RBK-00665366Y	00665366Y	RBK	RA226				PASS

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY
540 S. MORRIS AVE., MONTGOMERY, AL 36115
RA228 ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #1300027

Project: Kiskimere GW Well Investigation, Kiskimer, PA - 2013
Analysis method: Radium-228 in Environmental Matrices
Report ID: 1300027-RA228
Report type: Original
Date reported: 06/03/2013
Total pages in report: 17

SAMPLES

NAREL Sample #	Client Sample ID	Location	Matrix	Date Collected	Date Received
B3.04281W	R34160-01, RB01	PA:KISKIMERE	WATER	04/09/2013	04/12/2013
B3.04282X	R34160-03, SW02	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04283Y	R34160-04, SW03	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04284Z	R34160-05, FB01	PA:KISKIMERE	WATER	04/10/2013	04/12/2013
B3.04285A	R34160-02, SW01	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04287C	R34160-06, SW04	PA:KISKIMERE	WATER-SURFACE	04/10/2013	04/12/2013

EXCEPTIONS

1. **Packaging and shipping** – No problems were observed.
2. **Documentation** – No problems were observed.
3. **Sample preparation** – No problems were encountered.
4. **Analysis** – This SDG was reanalyzed because of a duplicate failure during the original analysis of the SDG. The results of the reanalyses are reported in this data package.
5. **Holding times** – No holding times were specified.

QUALITY CONTROL

1. **QC samples** – All QC analysis results met NAREL acceptance criteria.
2. **Yields** – All chemical yields were within acceptance limits.
3. **Instruments** – Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

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Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

Cynthia White — Date
Director, Center for Environmental Radioanalytical Laboratory Science

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
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EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

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NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

ANALYSIS SUMMARY

Analysis method: NAREL RA-05
Title: Radium-228 in Environmental Matrices

NAREL Sample #	Client Sample ID	QC Type	Date Completed	Preparation Batch #	Assay Batch #
B3.04281W	R34160-01, RB01		06/03/2013	0009970Z	0017064D
B3.04282X	R34160-03, SW02		06/03/2013	0009970Z	0017064D
B3.04283Y	R34160-04, SW03		06/03/2013	0009970Z	0017064D
B3.04284Z	R34160-05, FB01		06/03/2013	0009970Z	0017064D
B3.04285A	R34160-02, SW01		06/03/2013	0009970Z	0017064D
B3.04285A	R34160-02, SW01	DUP	06/03/2013	0009970Z	0017064D
B3.04285A	R34160-02, SW01	MS	06/03/2013	0009970Z	0017064D
B3.04287C	R34160-06, SW04		06/03/2013	0009970Z	0017064D
LCS-00666719H *		LCS	06/03/2013	0009970Z	0017064D
RBK-00666720A *		RBK	06/03/2013	0009970Z	0017064D
STD-00666723D *		STD	06/03/2013	0009970Z	0017064D

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04281W	Amount analyzed:	9.500e-01 L
Client sample ID:	R34160-01, RB01	Preparation batch #:	0009970Z
Matrix:	WATER	Assay batch #:	0017064D
Collected:	2013-04-09 09:10 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	GQ2A	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	4.58e-01	4.9e-01	7.9e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04282X	Amount analyzed:	9.500e-01 L
Client sample ID:	R34160-03, SW02	Preparation batch #:	0009970Z
Matrix:	WATER-SURFACE	Assay batch #:	0017064D
Collected:	2013-04-09 15:15 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	GQ2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	4.77e-01	5.2e-01	8.4e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04283Y	Amount analyzed:	9.600e-01 L
Client sample ID:	R34160-04, SW03	Preparation batch #:	0009970Z
Matrix:	WATER-SURFACE	Assay batch #:	0017064D
Collected:	2013-04-09 15:30 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	GQ2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	3.79e-01	5.0e-01	8.2e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04284Z	Amount analyzed:	9.500e-01 L
Client sample ID:	R34160-05, FB01	Preparation batch #:	0009970Z
Matrix:	WATER	Assay batch #:	0017064D
Collected:	2013-04-10 07:50 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	GQ2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	1.55e-01	5.0e-01	8.6e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009970Z
Matrix:	WATER-SURFACE	Assay batch #:	0017064D
Collected:	2013-04-09 10:35 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	QA1A	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	3.31e-01	4.6e-01	7.6e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009970Z
Matrix:	WATER-SURFACE	Assay batch #:	0017064D
Collected:	2013-04-09 10:35 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	QA1B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	1.82e-01	4.4e-01	7.4e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009970Z
Matrix:	WATER-SURFACE	Assay batch #:	0017064D
Collected:	2013-04-09 10:35 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	MS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	QA1C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	1.41e+01	1.5e+00	7.7e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04287C	Amount analyzed:	9.900e-01 L
Client sample ID:	R34160-06, SW04	Preparation batch #:	0009970Z
Matrix:	WATER-SURFACE	Assay batch #:	0017064D
Collected:	2013-04-10 09:05 EDT	Prep procedure:	NAREL RA-03
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	QA1D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	1.94e-01	4.3e-01	7.3e-01	PCI/L	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	LCS-00666719H	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009970Z
Matrix:	N/A	Assay batch #:	0017064D
Collected:	N/A	Prep procedure:	NAREL RA-03
Sample type:	N/A	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	QA2A	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	1.49e+01	1.5e+00	7.0e-01	PCI	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	RBK-00666720A	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009970Z
Matrix:	N/A	Assay batch #:	0017064D
Collected:	N/A	Prep procedure:	NAREL RA-03
Sample type:	N/A	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	QA2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	4.06e-01	4.2e-01	6.8e-01	PCI	05/30/2013 15:50 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	STD-00666723D	Amount analyzed:	1.000e+00 ML
Client sample ID:	N/A	Preparation batch #:	0009970Z
Matrix:	N/A	Assay batch #:	0017064D
Collected:	N/A	Prep procedure:	NAREL RA-03
Sample type:	N/A	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	STD
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
06/03/2013 11:22	100.0	QA2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	8.43e+01	5.2e+00		%	05/30/2013 15:50 CDT

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SDG 1300027

PREPARATION BATCH SUMMARY

Preparation batch #: 0009970Z
Analysis method: NAREL RA-05
Preparation procedure: NAREL RA-03

NAREL Sample #	Client Sample ID	Analysis #	QC Type	Yield	± 2 σ Uncertainty	Analyst
B3.04281W	R34160-01, RB01	00666713B		N/A		VH
B3.04282X	R34160-03, SW02	00666714C		N/A		VH
B3.04283Y	R34160-04, SW03	00666715D		N/A		VH
B3.04284Z	R34160-05, FB01	00666716E		N/A		VH
B3.04285A	R34160-02, SW01	00666711Z		N/A		VH
B3.04285A	R34160-02, SW01	00666717F	DUP	N/A		VH
B3.04285A	R34160-02, SW01	00666718G	MS	N/A		VH
B3.04287C	R34160-06, SW04	00666712A		N/A		VH
LCS-00666719H *		00666719H	LCS	N/A		VH
RBK-00666720A *		00666720A	RBK	N/A		VH
STD-00666723D *		00666723D	STD	N/A		VH

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

QC RESULTS FOR BATCH 0009970Z

NAREL Sample #	Analysis #	QC Type	Analyte	%R	RPD	Z	Evaluation
B3.04285A	00666717F	DUP	RA228		58.2	-0.47	PASS
LCS-00666719H	00666719H	LCS	RA228	102.2		0.28	PASS
B3.04285A	00666718G	MS	RA228	94.9		-0.64	PASS
RBK-00666720A	00666720A	RBK	RA228				PASS

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG 1300027

ASSAY BATCH SUMMARY

EXTERNAL STANDARD

Assay Batch	Analysis #	Analyte	Standard Concentration	Reference Date	Yield	± 2 σ Uncertainty
0017064D	00666723D	RA228	9.07e+01 PCI/ML	04/19/2010	84.33 %	5.23 %

SAMPLES ANALYZED

NAREL Sample #	QC Type	Aliquot Size	Completion Date	Assay Batch
B3.04281W		9.50e-01 L	06/03/2013	0017064D
B3.04282X		9.50e-01 L	06/03/2013	0017064D
B3.04283Y		9.60e-01 L	06/03/2013	0017064D
B3.04284Z		9.50e-01 L	06/03/2013	0017064D
B3.04285A		1.00e+00 L	06/03/2013	0017064D
B3.04285A	DUP	1.00e+00 L	06/03/2013	0017064D
B3.04285A	MS	1.00e+00 L	06/03/2013	0017064D
B3.04287C		9.90e-01 L	06/03/2013	0017064D
LCS-00666719H *	LCS	1.00e+00 SAMP	06/03/2013	0017064D
RBK-00666720A *	RBK	1.00e+00 SAMP	06/03/2013	0017064D
STD-00666723D *	STD	1.00e+00 ML	06/03/2013	0017064D

Samples marked with an asterisk (*) are not in SDG #1300027 but were analyzed with it for QC purposes

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY
540 S. MORRIS AVE., MONTGOMERY, AL 36115
GAMMA ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #1300027

Project: Kiskimere GW Well Investigation, Kiskimer, PA - 2013
Analysis method: Gamma Spectrometry
Report ID: 1300027-GAMMA
Report type: Original
Date reported: 05/14/2013
Total pages in report: 15

SAMPLES

NAREL Sample #	Client Sample ID	Location	Matrix	Date Collected	Date Received
B3.04281W	R34160-01, RB01	PA:KISKIMERE	WATER	04/09/2013	04/12/2013
B3.04282X	R34160-03, SW02	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04283Y	R34160-04, SW03	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04284Z	R34160-05, FB01	PA:KISKIMERE	WATER	04/10/2013	04/12/2013
B3.04285A	R34160-02, SW01	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04287C	R34160-06, SW04	PA:KISKIMERE	WATER-SURFACE	04/10/2013	04/12/2013

EXCEPTIONS

1. **Packaging and shipping** – No problems were observed.
2. **Documentation** – No problems were observed.
3. **Sample preparation** – No problems were encountered.
4. **Analysis** – No problems were encountered.
5. **Holding times** – No holding times were specified.

QUALITY CONTROL

1. **QC samples** – All QC analysis results met NAREL acceptance criteria.
2. **Instruments** – Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

ACCREDITATION

All analyses included in this data package are accredited by the Oregon Environmental Laboratory Accreditation Program (ORELAP) to the TNI standard.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Director of the Center for Environmental Radioanalytical Laboratory Science and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

Cynthia White — Date
Director, Center for Environmental Radioanalytical Laboratory Science

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank
STD	External standard (used for ^{228}Ra yield determination)

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

RADIOCHEMICAL DATA

Radiochemical analyses usually require the subtraction of an instrument background measurement result from a gross sample measurement result. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical importance, as for example in the evaluation of trends or the comparison of two groups of samples.

To the extent practical, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the "2-sigma" measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The measurement result, uncertainty, and MDC are always expressed in the same unit of measurement.

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of method blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

GENERAL INFORMATION (CONTINUED)

GAMMA ANALYSIS

The reporting format lists the gamma emitters in alphabetical order. The activity, 2-sigma uncertainty, and a sample-specific estimate of the MDC for radionuclides measured by gamma spectroscopy are reported only if the nuclide is detected above background with the exception of client requested nuclides of interest. The activity for each of the requested nuclides is reported whether negative, positive, or zero along with the associated 2-sigma uncertainty and the sample-specific estimate of the MDC.

Due to potential spectral interferences and other possible problems associated with the determination of the activity of certain radionuclides, the activities for ^{214}Bi, ^{214}Pb, ^{234}Th, ^{234m}Pa, ^{226}Ra, ^{231}Th, and ^{235}U are subject to greater uncertainty than other commonly reported radionuclides. It should be noted that this potential uncertainty is not included in the two-sigma expanded uncertainty that is reported with each result. Although in this report we do provide the calculated activities for these radionuclides, we recommend that the results be used only as a qualitative means of indicating the presence of these radionuclides and not as a quantitative measure of their concentration. The results for these nuclides are not used in the evaluation of quality control samples. Furthermore, because of mutual interference between ^{226}Ra and ^{235}U, NAREL's gamma analysis software tends to overestimate the amounts of these nuclides whenever both are present in a sample. Lower estimates for ^{226}Ra activities can be obtained from the reported activities of its decay products, ^{214}Pb and ^{214}Bi, which are likely to be somewhat less than the ^{226}Ra activity because of the potential escape of radon gas.

NAREL's gamma spectroscopy software corrects activities and MDCs for decay between collection and analysis, but only up to a limit of ten half-lives. So, if the decay time for a sample is more than ten half-lives of a radionuclide, that nuclide will almost always be undetected and the reported MDC will be meaningless. This is usually a problem only for short-lived radionuclides, such as ^{131}I and ^{140}Ba, when there is a long delay between collection and analysis.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

ANALYSIS SUMMARY

Analysis method: NAREL GAM-01
Title: Gamma Spectrometry

NAREL Sample #	Client Sample ID	QC Type	Date Completed	Preparation Batch #	Assay Batch #
B3.04281W	R34160-01, RB01		05/01/2013	0009865Z	0016970B
B3.04282X	R34160-03, SW02		05/01/2013	0009865Z	0016970B
B3.04283Y	R34160-04, SW03		05/01/2013	0009865Z	0016970B
B3.04284Z	R34160-05, FB01		05/01/2013	0009865Z	0016970B
B3.04285A	R34160-02, SW01		05/02/2013	0009865Z	0016970B
B3.04285A	R34160-02, SW01	DUP	05/02/2013	0009865Z	0016970B
B3.04287C	R34160-06, SW04		05/01/2013	0009865Z	0016970B
LCS-00664664B *		LCS	05/03/2013	0009865Z	0016970B
RBK-00664665C *		RBK	05/02/2013	0009865Z	0016970B

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04281W	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-01, RB01	Preparation batch #:	0009865Z
Matrix:	WATER	Assay batch #:	0016970B
Collected:	2013-04-09 09:10 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
04/30/2013 16:12	500.0	GE13	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		2.05e+01	2.4e+01	3.9e+01	PCI/L	04/09/2013 09:10 EDT
Co60		1.35e-01	1.7e+00	3.0e+00	PCI/L	04/09/2013 09:10 EDT
Cs137		-6.63e-01	6.1e+00	3.3e+00	PCI/L	04/09/2013 09:10 EDT
I131		-1.23e+00	3.9e+02	2.4e+01	PCI/L	04/09/2013 09:10 EDT
K40		1.72e+00	3.2e+01	5.7e+01	PCI/L	04/09/2013 09:10 EDT
Ra226	J	6.14e-01	5.8e+01	9.7e+01	PCI/L	04/09/2013 09:10 EDT
Ra228		7.50e+00	8.9e+00	1.6e+01	PCI/L	04/09/2013 09:10 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

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SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04282X	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-03, SW02	Preparation batch #:	0009865Z
Matrix:	WATER-SURFACE	Assay batch #:	0016970B
Collected:	2013-04-09 15:15 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/01/2013 00:34	500.0	GE13	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		1.19e+01	2.3e+01	3.9e+01	PCI/L	04/09/2013 15:15 EDT
Co60		1.79e+00	1.8e+00	3.0e+00	PCI/L	04/09/2013 15:15 EDT
Cs137		-4.44e-01	4.9e+00	4.0e+00	PCI/L	04/09/2013 15:15 EDT
I131		-9.90e-01	8.5e+01	2.2e+01	PCI/L	04/09/2013 15:15 EDT
K40		-1.16e+01	3.4e+01	5.5e+01	PCI/L	04/09/2013 15:15 EDT
Ra226	J	5.76e+01	6.7e+01	1.0e+02	PCI/L	04/09/2013 15:15 EDT
Ra228		4.21e+00	9.7e+00	1.7e+01	PCI/L	04/09/2013 15:15 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

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SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04283Y	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-04, SW03	Preparation batch #:	0009865Z
Matrix:	WATER-SURFACE	Assay batch #:	0016970B
Collected:	2013-04-09 15:30 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
04/30/2013 17:33	1000.0	GE07	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		2.76e+00	2.3e+01	3.9e+01	PCI/L	04/09/2013 15:30 EDT
Co60		-7.42e-01	6.2e+01	3.0e+00	PCI/L	04/09/2013 15:30 EDT
Cs137		1.23e+00	2.2e+00	3.6e+00	PCI/L	04/09/2013 15:30 EDT
I131		1.09e+00	1.3e+01	2.2e+01	PCI/L	04/09/2013 15:30 EDT
K40		-3.89e+01	4.4e+01	5.6e+01	PCI/L	04/09/2013 15:30 EDT
Ra226	J	-3.74e+01	6.7e+01	7.9e+01	PCI/L	04/09/2013 15:30 EDT
Ra228		6.72e-01	1.2e+01	1.8e+01	PCI/L	04/09/2013 15:30 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04284Z	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-05, FB01	Preparation batch #:	0009865Z
Matrix:	WATER	Assay batch #:	0016970B
Collected:	2013-04-10 07:50 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
04/30/2013 17:36	1000.0	GE09	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		-3.41e-01	2.0e+01	3.5e+01	PCI/L	04/10/2013 07:50 EDT
Co60		-6.28e-01	2.0e+00	3.5e+00	PCI/L	04/10/2013 07:50 EDT
Cs137		5.41e-01	1.9e+00	3.3e+00	PCI/L	04/10/2013 07:50 EDT
I131		-6.95e+00	1.9e+01	1.8e+01	PCI/L	04/10/2013 07:50 EDT
K40		-2.45e+01	4.9e+01	4.3e+01	PCI/L	04/10/2013 07:50 EDT
Ra226	J	-3.12e+01	5.4e+01	7.0e+01	PCI/L	04/10/2013 07:50 EDT
Ra228		-1.18e+01	2.4e+01	1.6e+01	PCI/L	04/10/2013 07:50 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009865Z
Matrix:	WATER-SURFACE	Assay batch #:	0016970B
Collected:	2013-04-09 10:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/01/2013 14:13	1000.0	GE07	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		7.68e+00	2.2e+01	3.7e+01	PCI/L	04/09/2013 10:35 EDT
Co60		-1.16e-01	2.6e+00	3.5e+00	PCI/L	04/09/2013 10:35 EDT
Cs137		9.82e-01	2.2e+00	3.6e+00	PCI/L	04/09/2013 10:35 EDT
I131		-3.38e+00	1.3e+01	2.2e+01	PCI/L	04/09/2013 10:35 EDT
K40		-2.34e+01	4.2e+01	5.6e+01	PCI/L	04/09/2013 10:35 EDT
Ra226	J	-1.98e+01	6.1e+01	8.4e+01	PCI/L	04/09/2013 10:35 EDT
Ra228		-5.38e+00	1.3e+01	1.7e+01	PCI/L	04/09/2013 10:35 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009865Z
Matrix:	WATER-SURFACE	Assay batch #:	0016970B
Collected:	2013-04-09 10:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/01/2013 14:15	1000.0	GE09	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		6.37e+00	2.0e+01	3.3e+01	PCI/L	04/09/2013 10:35 EDT
Co60		0.00e+00	1.3e+00	2.3e+00	PCI/L	04/09/2013 10:35 EDT
Cs137		1.54e-02	2.0e+00	3.5e+00	PCI/L	04/09/2013 10:35 EDT
I131		-2.26e+00	9.0e+01	2.1e+01	PCI/L	04/09/2013 10:35 EDT
K40		-3.15e+01	6.6e+01	4.3e+01	PCI/L	04/09/2013 10:35 EDT
Ra226	J	-6.39e+01	7.5e+01	7.0e+01	PCI/L	04/09/2013 10:35 EDT
Ra228		-1.15e+01	2.3e+01	1.6e+01	PCI/L	04/09/2013 10:35 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04287C	Amount analyzed:	1.000e+00 L
Client sample ID:	R34160-06, SW04	Preparation batch #:	0009865Z
Matrix:	WATER-SURFACE	Assay batch #:	0016970B
Collected:	2013-04-10 09:05 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/01/2013 12:08	500.0	GE13	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		-9.30e+00	3.7e+01	4.1e+01	PCI/L	04/10/2013 09:05 EDT
Co60		-2.16e-01	1.1e+01	3.0e+00	PCI/L	04/10/2013 09:05 EDT
Cs137		6.93e-01	2.2e+00	3.8e+00	PCI/L	04/10/2013 09:05 EDT
I131		7.27e+00	1.4e+01	2.3e+01	PCI/L	04/10/2013 09:05 EDT
K40		1.58e+01	3.2e+01	5.7e+01	PCI/L	04/10/2013 09:05 EDT
Ra226	J	-3.23e+01	7.7e+01	9.6e+01	PCI/L	04/10/2013 09:05 EDT
Ra228		6.64e+00	9.8e+00	1.7e+01	PCI/L	04/10/2013 09:05 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

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SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	LCS-00664664B	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009865Z
Matrix:	N/A	Assay batch #:	0016970B
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/02/2013 11:13	1000.0	GE07	MO

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi207	2.98e+03	3.3e+02	6.2e+01	PCI	12/15/2010 11:00 CDT
Eu155	6.98e+02	8.7e+01	5.0e+01	PCI	12/15/2010 11:00 CDT

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SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	RBK-00664665C	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009865Z
Matrix:	N/A	Assay batch #:	0016970B
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/01/2013 20:31	500.0	GE13	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ba140		-4.60e-01	4.5e+01	1.3e+01	PCI	04/30/2013 12:00 CDT
Co60		-3.87e-01	1.3e+01	3.5e+00	PCI	04/30/2013 12:00 CDT
Cs137		-1.32e+00	6.1e+01	4.1e+00	PCI	04/30/2013 12:00 CDT
I131		-2.21e-01	7.4e+01	4.4e+00	PCI	04/30/2013 12:00 CDT
K40		1.02e+01	3.4e+01	5.7e+01	PCI	04/30/2013 12:00 CDT
Ra226	J	2.41e+01	6.2e+01	9.9e+01	PCI	04/30/2013 12:00 CDT
Ra228		5.79e+00	1.0e+01	1.7e+01	PCI	04/30/2013 12:00 CDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG 1300027

PREPARATION BATCH SUMMARY

Preparation batch #: 0009865Z
Analysis method: NAREL GAM-01
Preparation procedure: N/A

NAREL Sample #	Client Sample ID	Analysis #	QC Type	Yield	± 2 σ Uncertainty	Analyst
B3.04281W	R34160-01, RB01	00663930W		N/A		MO
B3.04282X	R34160-03, SW02	00663934A		N/A		MO
B3.04283Y	R34160-04, SW03	00663938E		N/A		MO
B3.04284Z	R34160-05, FB01	00663942A		N/A		MO
B3.04285A	R34160-02, SW01	00663946E		N/A		MO
B3.04285A	R34160-02, SW01	00664663A	DUP	N/A		MO
B3.04287C	R34160-06, SW04	00663914W		N/A		MO
LCS-00664664B *		00664664B	LCS	N/A		MO
RBK-00664665C *		00664665C	RBK	N/A		MO

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

QC RESULTS FOR BATCH 0009865Z

NAREL Sample #	Analysis #	QC Type	Analyte	%R	RPD	Z	Evaluation
B3.04285A	00664663A	DUP	BA140		18.6	-0.09	PASS
B3.04285A	00664663A	DUP	CO60		-200.0	0.08	PASS
B3.04285A	00664663A	DUP	CS137		193.8	-0.65	PASS
B3.04285A	00664663A	DUP	I131		-39.7	0.02	PASS
B3.04285A	00664663A	DUP	K40		-29.3	-0.20	PASS
B3.04285A	00664663A	DUP	RA226		-105.3	-0.91	PASS-J
B3.04285A	00664663A	DUP	RA228		-72.8	-0.46	PASS
LCS-00664664B	00664664B	LCS	BI207	96.9		-0.53	PASS
LCS-00664664B	00664664B	LCS	EU155	104.8		0.67	PASS
RBK-00664665C	00664665C	RBK	BA140				PASS
RBK-00664665C	00664665C	RBK	CO60				PASS
RBK-00664665C	00664665C	RBK	CS137				PASS
RBK-00664665C	00664665C	RBK	I131				PASS
RBK-00664665C	00664665C	RBK	K40				PASS
RBK-00664665C	00664665C	RBK	RA226				PASS-J
RBK-00664665C	00664665C	RBK	RA228				PASS

Note: Results qualified with -J may be significantly under or over-estimated and are not evaluated for QC purposes.

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY
540 S. MORRIS AVE., MONTGOMERY, AL 36115
ALPBET ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #1300027

Project: Kiskimere GW Well Investigation, Kiskimer, PA - 2013
Analysis method: Gross Alpha and Beta on Water Samples
Report ID: 1300027-ALPBET
Report type: Original
Date reported: 05/20/2013
Total pages in report: 16

SAMPLES

NAREL Sample #	Client Sample ID	Location	Matrix	Date Collected	Date Received
B3.04281W	R34160-01, RB01	PA:KISKIMERE	WATER	04/09/2013	04/12/2013
B3.04282X	R34160-03, SW02	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04283Y	R34160-04, SW03	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04284Z	R34160-05, FB01	PA:KISKIMERE	WATER	04/10/2013	04/12/2013
B3.04285A	R34160-02, SW01	PA:KISKIMERE	WATER-SURFACE	04/09/2013	04/12/2013
B3.04287C	R34160-06, SW04	PA:KISKIMERE	WATER-SURFACE	04/10/2013	04/12/2013

EXCEPTIONS

1. **Packaging and shipping** – No problems were observed.
2. **Documentation** – No problems were observed.
3. **Sample preparation** – No problems were encountered.
4. **Analysis** – No problems were encountered.
5. **Holding times** – No holding times were specified.

QUALITY CONTROL

1. **QC samples** – All QC analysis results met NAREL acceptance criteria.
2. **Instruments** – Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

ACCREDITATION

All analyses included in this data package are accredited by the Oregon Environmental Laboratory Accreditation Program (ORELAP) to the TNI standard.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Director of the Center for Environmental Radioanalytical Laboratory Science and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

Cynthia White — Date
Director, Center for Environmental Radioanalytical Laboratory Science

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank
STD	External standard (used for ^{228}Ra yield determination)

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

RADIOCHEMICAL DATA

Radiochemical analyses usually require the subtraction of an instrument background measurement result from a gross sample measurement result. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical importance, as for example in the evaluation of trends or the comparison of two groups of samples.

To the extent practical, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the "2-sigma" measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The measurement result, uncertainty, and MDC are always expressed in the same unit of measurement.

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of method blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

GENERAL INFORMATION (CONTINUED)

GROSS ALPHA AND BETA ANALYSIS

In comparison to the methods employed to determine radionuclide-specific activities, the method used by NAREL to determine gross alpha and beta activities has the potential for greater analytical uncertainty. Although NAREL attempts to estimate the total uncertainty of each result, the analytical method does not admit a rigorous uncertainty analysis. Significant components of the uncertainty must be based on professional judgment and historical data. For this reason results from gross alpha and beta analyses should be used only as gross approximations of the alpha and beta activity present.

Note that NAREL does not automatically qualify individual results from gross alpha/beta measurements, although the values may be significantly overestimated or underestimated in relation to the reported uncertainty.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

ANALYSIS SUMMARY

Analysis method: NAREL GR-01
Title: Gross Alpha and Beta on Water Samples

NAREL Sample #	Client Sample ID	QC Type	Date Completed	Preparation Batch #	Assay Batch #
B3.04281W	R34160-01, RB01		05/08/2013	0009889H	0016993J
B3.04282X	R34160-03, SW02		05/08/2013	0009889H	0016993J
B3.04283Y	R34160-04, SW03		05/08/2013	0009889H	0016993J
B3.04284Z	R34160-05, FB01		05/08/2013	0009889H	0016993J
B3.04285A	R34160-02, SW01		05/08/2013	0009889H	0016993J
B3.04285A	R34160-02, SW01	DUP	05/08/2013	0009889H	0016993J
B3.04285A	R34160-02, SW01	MS	05/08/2013	0009889H	0016993J
B3.04287C	R34160-06, SW04		05/08/2013	0009889H	0016993J
LCS-00664971K *		LCS	05/08/2013	0009889H	0016993J
RBK-00664972L *		RBK	05/08/2013	0009889H	0016993J

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04281W	Amount analyzed:	1.000e-01 L
Client sample ID:	R34160-01, RB01	Preparation batch #:	0009889H
Matrix:	WATER	Assay batch #:	0016993J
Collected:	2013-04-09 09:10 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 12:21	100.0	GQ2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	1.60e-01	2.3e+00	2.0e+00	PCI/L	05/08/2013 12:21 CDT
Beta	2.52e+00	2.8e+00	4.3e+00	PCI/L	05/08/2013 12:21 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
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SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04282X	Amount analyzed:	1.000e-01 L
Client sample ID:	R34160-03, SW02	Preparation batch #:	0009889H
Matrix:	WATER-SURFACE	Assay batch #:	0016993J
Collected:	2013-04-09 15:15 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 12:21	100.0	GQ2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	1.49e+00	3.3e+00	2.7e+00	PCI/L	05/08/2013 12:21 CDT
Beta	1.16e+00	2.8e+00	4.3e+00	PCI/L	05/08/2013 12:21 CDT

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SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04283Y	Amount analyzed:	1.000e-01 L
Client sample ID:	R34160-04, SW03	Preparation batch #:	0009889H
Matrix:	WATER-SURFACE	Assay batch #:	0016993J
Collected:	2013-04-09 15:30 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 12:21	100.0	GQ2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	1.72e+00	3.2e+00	2.6e+00	PCI/L	05/08/2013 12:21 CDT
Beta	1.08e+00	2.9e+00	4.5e+00	PCI/L	05/08/2013 12:21 CDT

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SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04284Z	Amount analyzed:	1.000e-01 L
Client sample ID:	R34160-05, FB01	Preparation batch #:	0009889H
Matrix:	WATER	Assay batch #:	0016993J
Collected:	2013-04-10 07:50 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 14:01	100.0	GQ2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	5.84e-01	2.4e+00	2.0e+00	PCI/L	05/08/2013 14:01 CDT
Beta	1.59e+00	2.8e+00	4.2e+00	PCI/L	05/08/2013 14:01 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	5.000e-02 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009889H
Matrix:	WATER-SURFACE	Assay batch #:	0016993J
Collected:	2013-04-09 10:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 14:01	100.0	GQ2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	2.11e+00	7.1e+00	5.9e+00	PCI/L	05/08/2013 14:01 CDT
Beta	1.82e+00	5.6e+00	8.7e+00	PCI/L	05/08/2013 14:01 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	5.000e-02 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009889H
Matrix:	WATER-SURFACE	Assay batch #:	0016993J
Collected:	2013-04-09 10:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 14:01	100.0	GQ2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	-8.34e-01	6.3e+00	5.7e+00	PCI/L	05/08/2013 14:01 CDT
Beta	1.84e+00	5.8e+00	9.0e+00	PCI/L	05/08/2013 14:01 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04285A	Amount analyzed:	5.000e-02 L
Client sample ID:	R34160-02, SW01	Preparation batch #:	0009889H
Matrix:	WATER-SURFACE	Assay batch #:	0016993J
Collected:	2013-04-09 10:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	MS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 15:41	100.0	GQ2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	3.03e+02	6.7e+01	5.8e+00	PCI/L	05/08/2013 15:41 CDT
Beta	3.02e+02	3.7e+01	2.1e+01	PCI/L	05/08/2013 15:41 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04287C	Amount analyzed:	5.000e-02 L
Client sample ID:	R34160-06, SW04	Preparation batch #:	0009889H
Matrix:	WATER-SURFACE	Assay batch #:	0016993J
Collected:	2013-04-10 09:05 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 15:41	100.0	GQ2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	2.56e+00	8.6e+00	7.2e+00	PCI/L	05/08/2013 15:41 CDT
Beta	1.84e+00	5.7e+00	8.9e+00	PCI/L	05/08/2013 15:41 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	LCS-00664971K	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009889H
Matrix:	N/A	Assay batch #:	0016993J
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 15:41	100.0	GQ2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	2.18e+01	4.6e+00	2.6e-01	PCI	05/08/2013 15:41 CDT
Beta	1.57e+01	2.0e+00	1.1e+00	PCI	05/08/2013 15:41 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300027

SAMPLE ANALYSIS REPORT

Lab sample #:	RBK-00664972L	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009889H
Matrix:	N/A	Assay batch #:	0016993J
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL GR-01
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/08/2013 17:21	100.0	GQ2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	-3.27e-02	2.9e-01	2.5e-01	PCI	05/08/2013 17:21 CDT
Beta	4.47e-02	2.7e-01	4.3e-01	PCI	05/08/2013 17:21 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG 1300027

PREPARATION BATCH SUMMARY

Preparation batch #: 0009889H
Analysis method: NAREL GR-01
Preparation procedure: N/A

NAREL Sample #	Client Sample ID	Analysis #	QC Type	Yield	± 2 σ Uncertainty	Analyst
B3.04281W	R34160-01, RB01	00663931X		N/A		ARM
B3.04282X	R34160-03, SW02	00663935B		N/A		ARM
B3.04283Y	R34160-04, SW03	00663939F		N/A		ARM
B3.04284Z	R34160-05, FB01	00663943B		N/A		ARM
B3.04285A	R34160-02, SW01	00663947F		N/A		ARM
B3.04285A	R34160-02, SW01	00664969R	DUP	N/A		ARM
B3.04285A	R34160-02, SW01	00664970J	MS	N/A		ARM
B3.04287C	R34160-06, SW04	00663915X		N/A		ARM
LCS-00664971K *		00664971K	LCS	N/A		ARM
RBK-00664972L *		00664972L	RBK	N/A		ARM

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

QC RESULTS FOR BATCH 0009889H

NAREL Sample #	Analysis #	QC Type	Analyte	%R	RPD	Z	Evaluation
B3.04285A	00664969R	DUP	ALPHA		461.1	-0.62	PASS
B3.04285A	00664969R	DUP	BETA		1.0	0.00	PASS
LCS-00664971K	00664971K	LCS	ALPHA	117.8		1.42	PASS
LCS-00664971K	00664971K	LCS	BETA	105.4		0.79	PASS
B3.04285A	00664970J	MS	ALPHA	81.3		-2.05	WARN
B3.04285A	00664970J	MS	BETA	101.0		0.15	PASS
RBK-00664972L	00664972L	RBK	ALPHA				PASS
RBK-00664972L	00664972L	RBK	BETA				PASS

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY
540 S. MORRIS AVE., MONTGOMERY, AL 36115
RA228 ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #1300028

Project: Kiskimere GW Well Investigation, Kiskimer, PA - 2013
Analysis method: Radium-228 in Environmental Matrices
Report ID: 1300028-RA228
Report type: Original
Date reported: 06/03/2013
Total pages in report: 15

SAMPLES

NAREL Sample #	Client Sample ID	Location	Matrix	Date Collected	Date Received
B3.04286B	R34160-07, SD01	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04288D	R34160-08, SD02	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04289E	R34160-09, SD03	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04290X	R34160-10, SD04	PA:KISKIMERE	SEDIMENT	04/10/2013	04/12/2013

EXCEPTIONS

1. **Packaging and shipping** – No problems were observed.
2. **Documentation** – No problems were observed.
3. **Sample preparation** – No problems were encountered.
4. **Analysis** – The analyst noted that some of sample B3.04290 DUP was lost during analysis. Therefore this sample has been flagged as an estimation of the concentration present.
5. **Holding times** – No holding times were specified.

QUALITY CONTROL

1. **QC samples** – All QC analysis results met NAREL acceptance criteria.
2. **Yields** – All chemical yields were within acceptance limits.
3. **Instruments** – Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

ACCREDITATION

All analyses included in this data package are accredited by the Oregon Environmental Laboratory Accreditation Program (ORELAP) to the TNI standard.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Director of the Center for Environmental Radioanalytical Laboratory Science and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

Cynthia White — Date
Director, Center for Environmental Radioanalytical Laboratory Science

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank
STD	External standard (used for ^{228}Ra yield determination)

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

RADIOCHEMICAL DATA

Radiochemical analyses usually require the subtraction of an instrument background measurement result from a gross sample measurement result. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical importance, as for example in the evaluation of trends or the comparison of two groups of samples.

To the extent practical, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the "2-sigma" measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The measurement result, uncertainty, and MDC are always expressed in the same unit of measurement.

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of method blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

ANALYSIS SUMMARY

Analysis method: NAREL RA-05
Title: Radium-228 in Environmental Matrices

NAREL Sample #	Client Sample ID	QC Type	Date Completed	Preparation Batch #	Assay Batch #
B3.04286B	R34160-07, SD01		05/28/2013	0009956B	0017054B
B3.04288D	R34160-08, SD02		05/28/2013	0009956B	0017054B
B3.04289E	R34160-09, SD03		05/28/2013	0009956B	0017054B
B3.04290X	R34160-10, SD04		05/28/2013	0009956B	0017054B
B3.04290X	R34160-10, SD04	DUP	05/28/2013	0009956B	0017054B
B3.04290X	R34160-10, SD04	MS	05/28/2013	0009956B	0017054B
LCS-00666330P *		LCS	05/28/2013	0009956B	0017054B
RBK-00666331Q *		RBK	05/28/2013	0009956B	0017054B
STD-00666336W *		STD	05/28/2013	0009956B	0017054B

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04286B	Amount analyzed:	4.965e-01 GASH
Client sample ID:	R34160-07, SD01	Preparation batch #:	0009956B
Matrix:	SEDIMENT	Assay batch #:	0017054B
Collected:	2013-04-09 11:05 EDT	Prep procedure:	NAREL RA-01
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	65.78 %	Analyst:	VH
Ash/dry weight:	90.82 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA1A	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	6.08e-01	1.0e+00	1.7e+00	PCI/GDRY	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04288D	Amount analyzed:	4.999e-01 GASH
Client sample ID:	R34160-08, SD02	Preparation batch #:	0009956B
Matrix:	SEDIMENT	Assay batch #:	0017054B
Collected:	2013-04-09 16:15 EDT	Prep procedure:	NAREL RA-01
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	80.59 %	Analyst:	VH
Ash/dry weight:	96.21 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA1B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	2.21e+00	1.2e+00	1.7e+00	PCI/GDRY	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04289E	Amount analyzed:	4.980e-01 GASH
Client sample ID:	R34160-09, SD03	Preparation batch #:	0009956B
Matrix:	SEDIMENT	Assay batch #:	0017054B
Collected:	2013-04-09 16:35 EDT	Prep procedure:	NAREL RA-01
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	80.56 %	Analyst:	VH
Ash/dry weight:	96.08 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:50	100.0	GQ2A	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	8.80e-01	1.1e+00	1.8e+00	PCI/GDRY	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04290X	Amount analyzed:	4.993e-01 GASH
Client sample ID:	R34160-10, SD04	Preparation batch #:	0009956B
Matrix:	SEDIMENT	Assay batch #:	0017054B
Collected:	2013-04-10 10:30 EDT	Prep procedure:	NAREL RA-01
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	32.53 %	Analyst:	VH
Ash/dry weight:	86.52 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA1C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	9.16e-01	1.0e+00	1.6e+00	PCI/GDRY	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04290X	Amount analyzed:	5.060e-01 GASH
Client sample ID:	R34160-10, SD04	Preparation batch #:	0009956B
Matrix:	SEDIMENT	Assay batch #:	0017054B
Collected:	2013-04-10 10:30 EDT	Prep procedure:	NAREL RA-01
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	32.53 %	Analyst:	VH
Ash/dry weight:	86.52 %	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA1D	GVJ

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	J	1.57e+00	9.9e-01	1.5e+00	PCI/GDRY	05/23/2013 15:20 CDT

Note: A "J" qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04290X	Amount analyzed:	4.981e-01 GASH
Client sample ID:	R34160-10, SD04	Preparation batch #:	0009956B
Matrix:	SEDIMENT	Assay batch #:	0017054B
Collected:	2013-04-10 10:30 EDT	Prep procedure:	NAREL RA-01
Sample type:	SAM	Analysis method:	NAREL RA-05
Dry/wet weight:	32.53 %	Analyst:	VH
Ash/dry weight:	86.52 %	QC type:	MS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA2A	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	2.47e+01	3.7e+00	1.4e+00	PCI/GDRY	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	LCS-00666330P	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009956B
Matrix:	N/A	Assay batch #:	0017054B
Collected:	N/A	Prep procedure:	NAREL RA-01
Sample type:	N/A	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	1.41e+01	1.6e+00	8.4e-01	PCI	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	RBK-00666331Q	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009956B
Matrix:	N/A	Assay batch #:	0017054B
Collected:	N/A	Prep procedure:	NAREL RA-01
Sample type:	N/A	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	6.19e-02	4.7e-01	8.1e-01	PCI	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	STD-00666336W	Amount analyzed:	1.000e+00 ML
Client sample ID:	N/A	Preparation batch #:	0009956B
Matrix:	N/A	Assay batch #:	0017054B
Collected:	N/A	Prep procedure:	NAREL RA-01
Sample type:	N/A	Analysis method:	NAREL RA-05
Dry/wet weight:	N/A	Analyst:	VH
Ash/dry weight:	N/A	QC type:	STD
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/28/2013 11:46	100.0	QA2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Ra228	7.40e+01	4.8e+00		%	05/23/2013 15:20 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG 1300028

PREPARATION BATCH SUMMARY

Preparation batch #: 0009956B
Analysis method: NAREL RA-05
Preparation procedure: NAREL RA-01

NAREL Sample #	Client Sample ID	Analysis #	QC Type	Yield	± 2 σ Uncertainty	Analyst
B3.04286B	R34160-07, SD01	00663913V		N/A		VH
B3.04288D	R34160-08, SD02	00663921V		N/A		VH
B3.04289E	R34160-09, SD03	00663925Z		N/A		VH
B3.04290X	R34160-10, SD04	00663929D		N/A		VH
B3.04290X	R34160-10, SD04	00666332R	DUP	N/A		VH
B3.04290X	R34160-10, SD04	00666333T	MS	N/A		VH
LCS-00666330P *		00666330P	LCS	N/A		VH
RBK-00666331Q *		00666331Q	RBK	N/A		VH
STD-00666336W *		00666336W	STD	N/A		VH

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

QC RESULTS FOR BATCH 0009956B

NAREL Sample #	Analysis #	QC Type	Analyte	%R	RPD	Z	Evaluation
B3.04290X	00666332R	DUP	RA228		52.5	0.91	PASS
LCS-00666330P	00666330P	LCS	RA228	96.8		-0.41	PASS
B3.04290X	00666333T	MS	RA228	94.0		-0.63	PASS
RBK-00666331Q	00666331Q	RBK	RA228				PASS

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NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG 1300028

ASSAY BATCH SUMMARY

EXTERNAL STANDARD

Assay Batch	Analysis #	Analyte	Standard Concentration	Reference Date	Yield	± 2 σ Uncertainty
0017054B	00666336W	RA228	9.07e+01 PCI/ML	04/19/2010	74.04 %	4.75 %

SAMPLES ANALYZED

NAREL Sample #	QC Type	Aliquot Size	Completion Date	Assay Batch
B3.04286B		4.97e-01 GASH	05/28/2013	0017054B
B3.04288D		5.00e-01 GASH	05/28/2013	0017054B
B3.04289E		4.98e-01 GASH	05/28/2013	0017054B
B3.04290X		4.99e-01 GASH	05/28/2013	0017054B
B3.04290X	DUP	5.06e-01 GASH	05/28/2013	0017054B
B3.04290X	MS	4.98e-01 GASH	05/28/2013	0017054B
LCS-00666330P *	LCS	1.00e+00 SAMP	05/28/2013	0017054B
RBK-00666331Q *	RBK	1.00e+00 SAMP	05/28/2013	0017054B
STD-00666336W *	STD	1.00e+00 ML	05/28/2013	0017054B

Samples marked with an asterisk (*) are not in SDG #1300028 but were analyzed with it for QC purposes

U.S.ENVIRONMENTAL PROTECTION AGENCY
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540 S. MORRIS AVE., MONTGOMERY, AL 36115
GAMMA ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #1300028

Project: Kiskimere GW Well Investigation, Kiskimer, PA - 2013
Analysis method: Gamma Spectrometry
Report ID: 1300028-GAMMA
Report type: Original
Date reported: 05/22/2013
Total pages in report: 13

SAMPLES

NAREL Sample #	Client Sample ID	Location	Matrix	Date Collected	Date Received
B3.04286B	R34160-07, SD01	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04288D	R34160-08, SD02	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04289E	R34160-09, SD03	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04290X	R34160-10, SD04	PA:KISKIMERE	SEDIMENT	04/10/2013	04/12/2013

EXCEPTIONS

1. **Packaging and shipping** – No problems were observed.
2. **Documentation** – No problems were observed.
3. **Sample preparation** – No problems were encountered.
4. **Analysis** – Samples were held for 21-day ingrowth before counting.
5. **Holding times** – No holding times were specified.

QUALITY CONTROL

1. **QC samples** – All QC analysis results met NAREL acceptance criteria.
2. **Instruments** – Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

ACCREDITATION

All analyses included in this data package are accredited by the Oregon Environmental Laboratory Accreditation Program (ORELAP) to the TNI standard.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Director of the Center for Environmental Radioanalytical Laboratory Science and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

Cynthia White — Date
Director, Center for Environmental Radioanalytical Laboratory Science

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank
STD	External standard (used for ^{228}Ra yield determination)

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

RADIOCHEMICAL DATA

Radiochemical analyses usually require the subtraction of an instrument background measurement result from a gross sample measurement result. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical importance, as for example in the evaluation of trends or the comparison of two groups of samples.

To the extent practical, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the "2-sigma" measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The measurement result, uncertainty, and MDC are always expressed in the same unit of measurement.

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of method blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

GENERAL INFORMATION (CONTINUED)

GAMMA ANALYSIS

The reporting format lists the gamma emitters in alphabetical order. The activity, 2-sigma uncertainty, and a sample-specific estimate of the MDC for radionuclides measured by gamma spectroscopy are reported only if the nuclide is detected above background with the exception of client requested nuclides of interest. The activity for each of the requested nuclides is reported whether negative, positive, or zero along with the associated 2-sigma uncertainty and the sample-specific estimate of the MDC.

Due to potential spectral interferences and other possible problems associated with the determination of the activity of certain radionuclides, the activities for ^{214}Bi, ^{214}Pb, ^{234}Th, ^{234m}Pa, ^{226}Ra, ^{231}Th, and ^{235}U are subject to greater uncertainty than other commonly reported radionuclides. It should be noted that this potential uncertainty is not included in the two-sigma expanded uncertainty that is reported with each result. Although in this report we do provide the calculated activities for these radionuclides, we recommend that the results be used only as a qualitative means of indicating the presence of these radionuclides and not as a quantitative measure of their concentration. The results for these nuclides are not used in the evaluation of quality control samples. Furthermore, because of mutual interference between ^{226}Ra and ^{235}U, NAREL's gamma analysis software tends to overestimate the amounts of these nuclides whenever both are present in a sample. Lower estimates for ^{226}Ra activities can be obtained from the reported activities of its decay products, ^{214}Pb and ^{214}Bi, which are likely to be somewhat less than the ^{226}Ra activity because of the potential escape of radon gas.

NAREL's gamma spectroscopy software corrects activities and MDCs for decay between collection and analysis, but only up to a limit of ten half-lives. So, if the decay time for a sample is more than ten half-lives of a radionuclide, that nuclide will almost always be undetected and the reported MDC will be meaningless. This is usually a problem only for short-lived radionuclides, such as ^{131}I and ^{140}Ba, when there is a long delay between collection and analysis.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

ANALYSIS SUMMARY

Analysis method: NAREL GAM-01
Title: Gamma Spectrometry

NAREL Sample #	Client Sample ID	QC Type	Date Completed	Preparation Batch #	Assay Batch #
B3.04286B	R34160-07, SD01		05/20/2013	0009942V	0017042X
B3.04288D	R34160-08, SD02		05/20/2013	0009942V	0017042X
B3.04289E	R34160-09, SD03		05/21/2013	0009942V	0017042X
B3.04290X	R34160-10, SD04		05/21/2013	0009942V	0017042X
B3.04290X	R34160-10, SD04	DUP	05/22/2013	0009942V	0017042X
LCS-00666073R *		LCS	05/21/2013	0009942V	0017042X
RBK-00666074T *		RBK	05/21/2013	0009942V	0017042X

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

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NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04286B	Amount analyzed:	4.305e+02 GDRY
Client sample ID:	R34160-07, SD01	Preparation batch #:	0009942V
Matrix:	SEDIMENT	Assay batch #:	0017042X
Collected:	2013-04-09 11:05 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	65.78 %	Analyst:	MO
Ash/dry weight:	90.82 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/20/2013 11:11	300.0	GE14	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi212	J	1.11e+00	2.2e-01	2.0e-01	PCI/GDRY	04/09/2013 11:05 EDT
Bi214	J	8.36e-01	9.7e-02	3.1e-02	PCI/GDRY	04/09/2013 11:05 EDT
Cs137		4.00e-02	1.2e-02	1.4e-02	PCI/GDRY	04/09/2013 11:05 EDT
K40		1.35e+01	1.5e+00	1.5e-01	PCI/GDRY	04/09/2013 11:05 EDT
Pb212	J	9.61e-01	1.1e-01	3.9e-02	PCI/GDRY	04/09/2013 11:05 EDT
Pb214	J	9.82e-01	1.1e-01	3.6e-02	PCI/GDRY	04/09/2013 11:05 EDT
Ra228		1.14e+00	1.3e-01	5.3e-02	PCI/GDRY	04/09/2013 11:05 EDT
Th234	J	6.72e-01	4.3e-01	6.8e-01	PCI/GDRY	04/09/2013 11:05 EDT
Tl208	J	3.39e-01	4.1e-02	1.6e-02	PCI/GDRY	04/09/2013 11:05 EDT

Note: A "J" qualifier indicates a result that may be significantly under or overestimated.

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NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04288D	Amount analyzed:	4.372e+02 GDRY
Client sample ID:	R34160-08, SD02	Preparation batch #:	0009942V
Matrix:	SEDIMENT	Assay batch #:	0017042X
Collected:	2013-04-09 16:15 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	80.59 %	Analyst:	MO
Ash/dry weight:	96.21 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/20/2013 16:13	300.0	GE14	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi212	J	1.53e+00	2.5e-01	2.0e-01	PCI/GDRY	04/09/2013 16:15 EDT
Bi214	J	1.16e+00	1.3e-01	3.3e-02	PCI/GDRY	04/09/2013 16:15 EDT
K40		1.66e+01	1.8e+00	1.5e-01	PCI/GDRY	04/09/2013 16:15 EDT
Pb212	J	1.26e+00	1.4e-01	4.4e-02	PCI/GDRY	04/09/2013 16:15 EDT
Pb214	J	1.37e+00	1.6e-01	3.8e-02	PCI/GDRY	04/09/2013 16:15 EDT
Ra228		1.53e+00	1.8e-01	5.8e-02	PCI/GDRY	04/09/2013 16:15 EDT
Th234	J	1.15e+00	4.8e-01	6.6e-01	PCI/GDRY	04/09/2013 16:15 EDT
Tl208	J	4.51e-01	5.2e-02	1.6e-02	PCI/GDRY	04/09/2013 16:15 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04289E	Amount analyzed:	4.726e+02 GDRY
Client sample ID:	R34160-09, SD03	Preparation batch #:	0009942V
Matrix:	SEDIMENT	Assay batch #:	0017042X
Collected:	2013-04-09 16:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	80.56 %	Analyst:	MO
Ash/dry weight:	96.08 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/20/2013 21:16	300.0	GE14	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi212	J	1.39e+00	2.2e-01	1.7e-01	PCI/GDRY	04/09/2013 16:35 EDT
Bi214	J	1.06e+00	1.2e-01	2.9e-02	PCI/GDRY	04/09/2013 16:35 EDT
K40		1.55e+01	1.7e+00	1.5e-01	PCI/GDRY	04/09/2013 16:35 EDT
Pb212	J	1.13e+00	1.3e-01	4.0e-02	PCI/GDRY	04/09/2013 16:35 EDT
Pb214	J	1.23e+00	1.4e-01	3.4e-02	PCI/GDRY	04/09/2013 16:35 EDT
Ra228		1.40e+00	1.7e-01	5.4e-02	PCI/GDRY	04/09/2013 16:35 EDT
Th234	J	8.63e-01	4.3e-01	6.1e-01	PCI/GDRY	04/09/2013 16:35 EDT
Tl208	J	4.02e-01	4.7e-02	1.7e-02	PCI/GDRY	04/09/2013 16:35 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

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SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04290X	Amount analyzed:	2.677e+02 GDRY
Client sample ID:	R34160-10, SD04	Preparation batch #:	0009942V
Matrix:	SEDIMENT	Assay batch #:	0017042X
Collected:	2013-04-10 10:30 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	32.53 %	Analyst:	MO
Ash/dry weight:	86.52 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/21/2013 02:18	300.0	GE14	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi212	J	6.43e-01	1.7e-01	1.9e-01	PCI/GDRY	04/10/2013 10:30 EDT
Bi214	J	5.10e-01	6.9e-02	3.8e-02	PCI/GDRY	04/10/2013 10:30 EDT
Cs137		8.85e-02	1.7e-02	1.6e-02	PCI/GDRY	04/10/2013 10:30 EDT
K40		4.60e+00	5.6e-01	1.9e-01	PCI/GDRY	04/10/2013 10:30 EDT
Pb212	J	5.49e-01	7.2e-02	4.5e-02	PCI/GDRY	04/10/2013 10:30 EDT
Pb214	J	4.98e-01	6.9e-02	4.4e-02	PCI/GDRY	04/10/2013 10:30 EDT
Ra228		7.29e-01	1.0e-01	6.1e-02	PCI/GDRY	04/10/2013 10:30 EDT
Tl208	J	1.71e-01	2.7e-02	2.0e-02	PCI/GDRY	04/10/2013 10:30 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

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NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04290X	Amount analyzed:	2.677e+02 GDRY
Client sample ID:	R34160-10, SD04	Preparation batch #:	0009942V
Matrix:	SEDIMENT	Assay batch #:	0017042X
Collected:	2013-04-10 10:30 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GAM-01
Dry/wet weight:	32.53 %	Analyst:	MO
Ash/dry weight:	86.52 %	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/21/2013 16:33	1000.0	GE03	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi212	J	7.01e-01	1.5e-01	1.5e-01	PCI/GDRY	04/10/2013 10:30 EDT
Bi214	J	4.30e-01	5.3e-02	2.6e-02	PCI/GDRY	04/10/2013 10:30 EDT
Cs137		9.56e-02	1.4e-02	1.1e-02	PCI/GDRY	04/10/2013 10:30 EDT
K40		4.41e+00	5.1e-01	1.4e-01	PCI/GDRY	04/10/2013 10:30 EDT
Pb212	J	5.44e-01	6.3e-02	2.3e-02	PCI/GDRY	04/10/2013 10:30 EDT
Pb214	J	4.95e-01	5.9e-02	2.5e-02	PCI/GDRY	04/10/2013 10:30 EDT
Ra228		7.11e-01	9.3e-02	4.8e-02	PCI/GDRY	04/10/2013 10:30 EDT
Tl208	J	1.86e-01	2.4e-02	1.3e-02	PCI/GDRY	04/10/2013 10:30 EDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	LCS-00666073R	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009942V
Matrix:	N/A	Assay batch #:	0017042X
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/21/2013 18:44	300.0	GE14	MO

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi207	4.77e+03	5.3e+02	7.9e+01	PCI	12/15/2010 11:00 CDT
Eu155	1.14e+03	1.4e+02	5.9e+01	PCI	12/15/2010 11:00 CDT

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NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	RBK-00666074T	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009942V
Matrix:	N/A	Assay batch #:	0017042X
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	MO
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/21/2013 13:42	300.0	GE14	MO

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Bi212	J	-3.03e+01	1.4e+02	5.7e+01	PCI	05/20/2013 07:00 CDT
Bi214	J	5.91e+00	6.2e+00	8.5e+00	PCI	05/20/2013 07:00 CDT
K40		-2.88e+01	4.2e+01	5.0e+01	PCI	05/20/2013 07:00 CDT
Pb212	J	2.94e+00	5.4e+00	9.3e+00	PCI	05/20/2013 07:00 CDT
Pb214	J	-7.76e-01	7.8e+00	1.1e+01	PCI	05/20/2013 07:00 CDT
Ra228		7.61e-02	8.1e+00	1.5e+01	PCI	05/20/2013 07:00 CDT
Tl208	J	1.32e+00	2.6e+00	4.6e+00	PCI	05/20/2013 07:00 CDT

Note: A “J” qualifier indicates a result that may be significantly under or overestimated.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG 1300028

PREPARATION BATCH SUMMARY

Preparation batch #: 0009942V
Analysis method: NAREL GAM-01
Preparation procedure: N/A

NAREL Sample #	Client Sample ID	Analysis #	QC Type	Yield	± 2 σ Uncertainty	Analyst
B3.04286B	R34160-07, SD01	00663910R		N/A		MO
B3.04288D	R34160-08, SD02	00663918A		N/A		MO
B3.04289E	R34160-09, SD03	00663922W		N/A		MO
B3.04290X	R34160-10, SD04	00663926A		N/A		MO
B3.04290X	R34160-10, SD04	00666070N	DUP	N/A		MO
LCS-00666073R *		00666073R	LCS	N/A		MO
RBK-00666074T *		00666074T	RBK	N/A		MO

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

QC RESULTS FOR BATCH 0009942V

NAREL Sample #	Analysis #	QC Type	Analyte	%R	RPD	Z	Evaluation
B3.04290X	00666070N	DUP	BI212		8.7	0.52	PASS-J
B3.04290X	00666070N	DUP	BI214		17.1	-1.85	PASS-J
B3.04290X	00666070N	DUP	CS137		7.7	0.63	PASS
B3.04290X	00666070N	DUP	K40		4.2	-0.50	PASS
B3.04290X	00666070N	DUP	PB212		0.9	-0.11	PASS-J
B3.04290X	00666070N	DUP	PB214		0.7	-0.07	PASS-J
B3.04290X	00666070N	DUP	RA228		2.4	-0.25	PASS
B3.04290X	00666070N	DUP	TL208		8.3	0.83	PASS-J
LCS-00666073R	00666073R	LCS	BI207	93.0		-1.26	PASS
LCS-00666073R	00666073R	LCS	EU155	102.7		0.40	PASS
RBK-00666074T	00666074T	RBK	BI212				PASS-J
RBK-00666074T	00666074T	RBK	BI214				PASS-J
RBK-00666074T	00666074T	RBK	K40				PASS
RBK-00666074T	00666074T	RBK	PB212				PASS-J
RBK-00666074T	00666074T	RBK	PB214				PASS-J
RBK-00666074T	00666074T	RBK	RA228				PASS
RBK-00666074T	00666074T	RBK	TL208				PASS-J

Note: Results qualified with -J may be significantly under or over-estimated and are not evaluated for QC purposes.

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY
540 S. MORRIS AVE., MONTGOMERY, AL 36115
ALPBET ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #1300028

Project: Kiskimere GW Well Investigation, Kiskimer, PA - 2013
Analysis method: Gross Alpha and Beta on Solid Samples
Report ID: 1300028-ALPBET
Report type: Original
Date reported: 05/14/2013
Total pages in report: 12

SAMPLES

NAREL Sample #	Client Sample ID	Location	Matrix	Date Collected	Date Received
B3.04286B	R34160-07, SD01	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04288D	R34160-08, SD02	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04289E	R34160-09, SD03	PA:KISKIMERE	SEDIMENT	04/09/2013	04/12/2013
B3.04290X	R34160-10, SD04	PA:KISKIMERE	SEDIMENT	04/10/2013	04/12/2013

EXCEPTIONS

1. **Packaging and shipping** – No problems were observed.
2. **Documentation** – No problems were observed.
3. **Sample preparation** – No problems were encountered.
4. **Analysis** – No problems were encountered.
5. **Holding times** – No holding times were specified.

QUALITY CONTROL

1. **QC samples** – All QC analysis results met NAREL acceptance criteria.
2. **Instruments** – Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

ACCREDITATION

All analyses included in this data package are accredited by the Oregon Environmental Laboratory Accreditation Program (ORELAP) to the TNI standard.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Director of the Center for Environmental Radioanalytical Laboratory Science and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

Cynthia White — Date
Director, Center for Environmental Radioanalytical Laboratory Science

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank
STD	External standard (used for ^{228}Ra yield determination)

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

RADIOCHEMICAL DATA

Radiochemical analyses usually require the subtraction of an instrument background measurement result from a gross sample measurement result. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical importance, as for example in the evaluation of trends or the comparison of two groups of samples.

To the extent practical, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the "2-sigma" measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The measurement result, uncertainty, and MDC are always expressed in the same unit of measurement.

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of method blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

GENERAL INFORMATION (CONTINUED)

GROSS ALPHA AND BETA ANALYSIS

In comparison to the methods employed to determine radionuclide-specific activities, the method used by NAREL to determine gross alpha and beta activities has the potential for greater analytical uncertainty. Although NAREL attempts to estimate the total uncertainty of each result, the analytical method does not admit a rigorous uncertainty analysis. Significant components of the uncertainty must be based on professional judgment and historical data. For this reason results from gross alpha and beta analyses should be used only as gross approximations of the alpha and beta activity present.

Note that NAREL does not automatically qualify individual results from gross alpha/beta measurements, although the values may be significantly overestimated or underestimated in relation to the reported uncertainty.

The 2009 TNI accreditation standard for environmental laboratories (Volume 1, Module 6, 1.7.2.1(b)) does not require method blanks for gross alpha/beta analysis of solid samples. In 2013 NAREL, while considering the TNI requirements, examined historical method blank data from NAREL method GR-03 "Gross Alpha and Beta Analysis of Solid Samples" to assess their usefulness. We decided, effective April 25, 2013, to discontinue method blanks for method GR-03. Method blanks are still required for gross alpha/beta analysis of samples analyzed using other methods (e.g., NAREL GR-01) and for other matrices, such as water.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

ANALYSIS SUMMARY

Analysis method: NAREL GR-03
Title: Gross Alpha and Beta on Solid Samples

NAREL Sample #	Client Sample ID	QC Type	Date Completed	Preparation Batch #	Assay Batch #
B3.04286B	R34160-07, SD01		05/06/2013	0009888G	0016992H
B3.04286B	R34160-07, SD01	DUP	05/06/2013	0009888G	0016992H
B3.04288D	R34160-08, SD02		05/06/2013	0009888G	0016992H
B3.04289E	R34160-09, SD03		05/06/2013	0009888G	0016992H
B3.04290X	R34160-10, SD04		05/06/2013	0009888G	0016992H
LCS-00664966N *		LCS	05/06/2013	0009888G	0016992H

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04286B	Amount analyzed:	1.025e-01 GASH
Client sample ID:	R34160-07, SD01	Preparation batch #:	0009888G
Matrix:	SEDIMENT	Assay batch #:	0016992H
Collected:	2013-04-09 11:05 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-03
Dry/wet weight:	65.78 %	Analyst:	ARM
Ash/dry weight:	90.82 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/06/2013 13:39	100.0	GQ2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	2.12e+01	1.0e+01	5.4e+00	PCI/GDRY	05/06/2013 13:39 CDT
Beta	2.06e+01	4.7e+00	5.5e+00	PCI/GDRY	05/06/2013 13:39 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ANALYTICAL RADIATION ENVIRONMENTAL LABORATORY

SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04286B	Amount analyzed:	1.026e-01 GASH
Client sample ID:	R34160-07, SD01	Preparation batch #:	0009888G
Matrix:	SEDIMENT	Assay batch #:	0016992H
Collected:	2013-04-09 11:05 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-03
Dry/wet weight:	65.78 %	Analyst:	ARM
Ash/dry weight:	90.82 %	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/06/2013 13:39	100.0	GQ2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	1.56e+01	9.4e+00	5.8e+00	PCI/GDRY	05/06/2013 13:39 CDT
Beta	2.57e+01	5.1e+00	5.7e+00	PCI/GDRY	05/06/2013 13:39 CDT

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SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04288D	Amount analyzed:	1.036e-01 GASH
Client sample ID:	R34160-08, SD02	Preparation batch #:	0009888G
Matrix:	SEDIMENT	Assay batch #:	0016992H
Collected:	2013-04-09 16:15 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-03
Dry/wet weight:	80.59 %	Analyst:	ARM
Ash/dry weight:	96.21 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/06/2013 13:39	100.0	GQ2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	2.68e+01	1.2e+01	5.9e+00	PCI/GDRY	05/06/2013 13:39 CDT
Beta	2.43e+01	5.2e+00	6.0e+00	PCI/GDRY	05/06/2013 13:39 CDT

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SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04289E	Amount analyzed:	9.720e-02 GASH
Client sample ID:	R34160-09, SD03	Preparation batch #:	0009888G
Matrix:	SEDIMENT	Assay batch #:	0016992H
Collected:	2013-04-09 16:35 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-03
Dry/wet weight:	80.56 %	Analyst:	ARM
Ash/dry weight:	96.08 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/06/2013 15:19	100.0	GQ2B	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	1.97e+01	1.0e+01	5.8e+00	PCI/GDRY	05/06/2013 15:19 CDT
Beta	2.20e+01	5.1e+00	6.0e+00	PCI/GDRY	05/06/2013 15:19 CDT

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SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	B3.04290X	Amount analyzed:	9.100e-02 GASH
Client sample ID:	R34160-10, SD04	Preparation batch #:	0009888G
Matrix:	SEDIMENT	Assay batch #:	0016992H
Collected:	2013-04-10 10:30 EDT	Prep procedure:	N/A
Sample type:	SAM	Analysis method:	NAREL GR-03
Dry/wet weight:	32.53 %	Analyst:	ARM
Ash/dry weight:	86.52 %	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/06/2013 15:19	100.0	GQ2C	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	8.97e+00	8.1e+00	5.7e+00	PCI/GDRY	05/06/2013 15:19 CDT
Beta	1.06e+01	3.8e+00	5.1e+00	PCI/GDRY	05/06/2013 15:19 CDT

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SDG #1300028

SAMPLE ANALYSIS REPORT

Lab sample #:	LCS-00664966N	Amount analyzed:	1.000e+00 SAMP
Client sample ID:	N/A	Preparation batch #:	0009888G
Matrix:	N/A	Assay batch #:	0016992H
Collected:	N/A	Prep procedure:	N/A
Sample type:	N/A	Analysis method:	NAREL GR-03
Dry/wet weight:	N/A	Analyst:	ARM
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
05/06/2013 15:19	100.0	GQ2D	GVJ

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Reference Date
Alpha	2.11e+01	4.5e+00	2.6e-01	PCI	05/06/2013 15:19 CDT
Beta	1.52e+01	2.0e+00	1.1e+00	PCI	05/06/2013 15:19 CDT

U.S. ENVIRONMENTAL PROTECTION AGENCY
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SDG 1300028

PREPARATION BATCH SUMMARY

Preparation batch #: 0009888G
Analysis method: NAREL GR-03
Preparation procedure: N/A

NAREL Sample #	Client Sample ID	Analysis #	QC Type	Yield	± 2 σ Uncertainty	Analyst
B3.04286B	R34160-07, SD01	00663911T		N/A		ARM
B3.04286B	R34160-07, SD01	00664965M	DUP	N/A		ARM
B3.04288D	R34160-08, SD02	00663919B		N/A		ARM
B3.04289E	R34160-09, SD03	00663923X		N/A		ARM
B3.04290X	R34160-10, SD04	00663927B		N/A		ARM
LCS-00664966N *		00664966N	LCS	N/A		ARM

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

QC RESULTS FOR BATCH 0009888G

NAREL Sample #	Analysis #	QC Type	Analyte	%R	RPD	Z	Evaluation
B3.04286B	00664965M	DUP	ALPHA		30.4	-0.80	PASS
B3.04286B	00664965M	DUP	BETA		21.6	1.45	PASS
LCS-00664966N	00664966N	LCS	ALPHA	113.7		1.13	PASS
LCS-00664966N	00664966N	LCS	BETA	102.1		0.32	PASS