Kiskimere Groundwater Well Investigation Site
Trip Report/Site Inspection

Parks Township, Armstrong County, Pennsylvania

Contract No: EP-S3-10-04
TL03-11-03-003-DCN315
November 30, 2012

TechLaw

EPA Region III
START IV - West
Superfund Technical Assessment and Response Team

Submitted to: Lisa Johnson, Site Assessment Manager
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TDD No.	: TL03-11-03-003
EPA Work Assignor	: Lisa Johnson
Date Prepared	: November 30, 2012
Prepared by	: [redacted], TechLaw, Inc.

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APPROVAL			
NAME	TITLE	SIGNATURE	DATE
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1.0 INTRODUCTION

TechLaw, Inc. (TechLaw) was tasked by the U.S. Environmental Protection Agency (EPA), Region 3, to conduct a focused Site Inspection (SI) at the Kiskimere Groundwater Well Investigation Site (Site) in Parks Township, Armstrong County, Pennsylvania. A Field Sampling Plan (FSP) was prepared to guide field operations during the SI, and was prepared in accordance with Technical Direction Document (TDD) # TL03-11-03-003, the EPA "Guidance for Performing Site Inspections Under CERCLA," Interim Final, September 1992, the "Region 3 Supplement to Guidance for Performing Site Inspections Under CERCLA" and the "TechLaw Quality Assurance Project Plan" (QAPP) (Techlaw, (2011). The SI field work included sampling and non-sampling data collection. Sampling activities included groundwater collection from residential homes and collection of surface water and sediment from the Kiskiminetas River. Sampling procedures adhered strictly to those outlined in the TechLaw Standard Operating Procedures (SOPs) for field operations at hazardous waste sites.

Site and study area characterization samples potentially could have included as many as 35 groundwater samples from residential homes in the Vandergrift and Leechburg areas and 5 surface water and sediment samples from the Kiskiminetas River. Actual sampling activities included collection of a total of seven surface water samples, nine sediment samples, and 15 groundwater samples. All samples were analyzed through the EPA Contract Laboratories Program (CLP), Routine Analytical Services (RAS) for Target Analyte List (TAL) Metals, plus mercury and uranium, volatile organic compounds (VOCs), gross alpha/beta, , and radium 226/228. Radiological samples were also subjected to gamma spectroscopy.

Non-sampling data collection activities included identification of sensitive environments including the delineation and characterization of wetlands; verification of surface water diversions; verification of fisheries along stream courses; identification of the recreational use of source areas and surface water courses; identification of residences proximal to source areas; photographic documentation; and Global Positioning System (GPS) sample station locations.

This report has been prepared in accordance with the EPA "Guidance for Performing Site Inspections under CERCLA," Interim Final, September 1992.

2.0 OBJECTIVES

The purpose of this SI is to gather information for the evaluation of this Site with regard to the EPA's HRS criteria. The specific objectives of this SI are:

- Determine if contamination exists in the groundwater of the Parks Township Area;

- Determine if contamination exists in the surface water and/or sediment of the Kiskiminetas River;
- Define the Groundwater Pathway and Surface Water Pathway in the Parks Township area;
- Evaluate contaminant migration through the Surface Water Pathway;
- Evaluate the impact on groundwater and surface water receptor targets.

3.0 SITE DESCRIPTION

3.1 SITE LOCATION

The area of concern (AOC) "Site" primarily encompasses the residential area of the Community of Kiskimere in Parks Township, Armstrong County, Pennsylvania, as depicted in Figure 1, Site Location Map. It is located to the south of the Shallow Land Disposal Area (SLDA) and Parks Township sites which are active remediation sites under the jurisdiction of the United States Army Corps of Engineers. The Site includes the residential neighborhood located to the south of the SLDA site, along with residences in the Lee's Lake area and along River Road. A background location was determined along Hungry Hollow Road, which is in the opposite direction of assumed groundwater flow from the SLDA site, though airborne deposition was not considered for the purpose of this study. The SLDA is a 44-acre nuclear waste burial site that is undergoing cleanup in Parks Township, located approximately 23 miles east-northeast of Pittsburgh, Pennsylvania. The Parks Township site is undergoing remediation due in part to groundwater and soil contamination from the operation of a former nuclear fuel facility. The Kiskiminetas River flows adjacent to these cleanup sites and communities, along the southwest border. The Kiskiminetas River is formed at Saltsburg, on the border between Westmoreland and Indiana Counties, by the confluence of the Conemaugh River and Loyalhanna Creek. It flows northwest, past Kiskimere, in a meandering course until it joins the Allegheny River, approximately eight miles downstream from Kiskimere. The Kiki-Conemaugh watershed includes much of the historical coal-producing region of Western Pennsylvania. The Kiskimere area and SLDA/Parks Township sites overlay a very large former coal mine. There are two major streams, Dry Run and Carnahan Run that flow from the AOC into the Kiskiminetas River. The latitude and longitude of the Site are (north) 40° 37' 17.72" and (west) 079° 34' 48.18", respectively (Google earth, imagery 07/02/2010).

3.2 SITE HISTORY

The Site is a residential neighborhood which is located directly to the south of the SLDA site. Citizens contacted the EPA because they were concerned about their risk of exposure to materials buried at the SLDA. EPA decided to investigate the groundwater as well as surface water in an attempt to determine if there was a pathway and exposure to residents in the Kiskimere neighborhood. It should also be noted that the entire area is built above a former coal mine. The SLDA site was used for disposal of radioactive

waste generated by the Nuclear Materials and Equipment Company (NUMEC) between 1961 and 1970. NUMEC operated the nearby Apollo nuclear fuel fabrication facility beginning in the late 1950s to convert enriched uranium into naval reactor fuel. In 1957, the Nuclear Materials and Equipment Company (NUMEC) initiated small-scale production of high- and low-enriched uranium and thorium fuel in Apollo, Pennsylvania. The Apollo facility was located approximately 2.5 miles (4 kilometers) south of the SLDA site. Waste from this facility was disposed of in 10 trenches at the SLDA in accordance with the United States Atomic Energy Commission (AEC) regulation in effect at the time, 10 CFR 20.304 (this regulation was rescinded in 1981). In 1970, NUMEC discontinued use of the SLDA for radioactive waste disposal. In 1967, ARCO acquired NUMEC and ceased operations in 1970. In 1971, the Babcock & Wilcox Company (B&W) acquired NUMEC. In 1997, BWX Technologies, Inc. (BWXT), a subsidiary of Babcock and Wilcox, assumed ownership of the SLDA as well as the Apollo and Parks properties. Until 1995, the SLDA site was included under a license issued by the United States Nuclear Regulatory Commission (NRC) for the adjacent Parks nuclear fuel fabrication facility (Spent Nuclear Material [SNM]-414). In 1995, to facilitate the decommissioning of the Parks facility, the SLDA site was issued a separate license (SNM-2001). BWXT was the licensee for the SLDA site and is responsible for compliance with the terms and conditions of NRC License SNM-2001. In 2011, the license was transferred to the Army Corps of Engineers.

The United States Army Corps of Engineers (USACE) under the Formerly Used Sites Remediation Action Program (FUSRAP) conducted an investigation of the radiological contamination at the SLDA site and the results of this investigation are presented in a Remedial Investigation (RI) report issued in October 2005. To support preparation of the RI report, USACE conducted a number of field investigations from August 2003 through January 2004 to determine the nature and extent of radioactive contamination at the SLDA site. These field investigations were conducted in accordance with field sampling plans that were provided to the Pennsylvania Department of Environmental Protection (PADEP) and NRC, and were discussed with local regulatory agencies prior to implementation. All input received from these oversight agencies was reflected in the characterization process. Prior to this fieldwork, in-depth historical record searches and analyses were conducted, and detailed interviews were performed with individuals familiar with disposal operations at the SLDA. In conducting the RI, USACE collected samples from surface and subsurface soils, trench waste, the five water-bearing geologic units, sediment, surface water, and groundwater seeps. This sampling program indicated that surface water and sediment in Carnahan Run were uncontaminated, while low levels of radioactive contamination were present at on-Site locations in Dry Run and groundwater seeps in the upper trench area. This indicated that the radioactive wastes in the trenches may be impacting on-Site surface water and sediment in Dry Run. The USACE claims such impacts were not noted at off-Site locations. Groundwater at the SLDA site, outside of perched areas within the trenches, did not appear to be contaminated, other than some

localized areas in the upper trench area in the upper shallow bedrock water-bearing zone downgradient of disposal trenches 1 and 2. Some low levels of contamination were identified at this location, which may have been associated with the radioactive wastes in these two trenches. In summary, the contaminated media identified at the SLDA site were the trench wastes, surface and subsurface soils, and sediment in Dry Run.

Residents from both the Community of Kiskimere and its neighboring towns (Vandergrift and Leechburg), have contacted EPA and expressed concern that their well water may have been contaminated by leachate from the disposed materials at the SLDA and Parks Township clean-up sites. EPA investigated these concerns and proceeded with collection of groundwater samples from residential homes that currently use well water and are located in the vicinity of the nearby cleanups. In addition, EPA investigated the impact of the materials that were disposed of at the SLDA site on the Kiskiminetas River.

3.3 SITE CHARACTERISTICS

3.3.1 Physical Geography

The Site is located on a hillside near the Kiskiminetas River which slopes from the southeast to the northwest. Topographic relief at the Site, as measured with field instrumentation during the Site reconnaissance conducted by TechLaw on July 15, 2011, ranges from approximately 942 feet above mean sea level (MSL) in the southeast to about 820 feet above MSL in the northwestern portion of the Site, which includes the bank of the Kiskiminetas River. There is an elevation change of approximately 122 feet from the highest residential location in Kiskimere to the Kiskiminetas River.

3.3.2 Geology and Hydrogeology

The Site is located southwest of the glaciated area of the state in the central portion of the Pittsburgh Low Plateau Physiographic Section of the Appalachian Plateau Physiographic Province. This region is characterized by rolling upland surfaces cut by numerous, narrow, relatively shallow valleys. The near-surface geologic units in the region are Pennsylvanian in age and belong to the Allegheny and Conemaugh groups, which lithologically consist of cyclic sequences of sandstone, siltstone, shale, claystone, and coal. The basal sandstones and shales are interpreted as river and delta deposits, whereas the coals formed in coastal swamps and the limestones formed in either shallow marine or freshwater swamps. Facies and lithologic changes occur rapidly in both horizontal and vertical directions. Mines located in Armstrong County extract Allegheny Group coals; the upper-most coal member of the sequence is the Upper Freeport Coal (USACE, 2005).

Bedrock Lithology

The subsurface bedrock lithology includes a series of interbedded horizontal sedimentary rocks including sandstone, siltstone, claystone, coal, and shale. Beneath the unconsolidated overburden at the Site, weathered bedrock with a clayey matrix including bedrock fragments and weathering products may be inconsistently present across the Site. The weathered zone may form a confining unit that limits downward percolation of groundwater by plugging the rock fractures in the upper portion of the bedrock. Beneath the weathered zone, sequences of alternating bands of siltstone, claystone, fine sandstone, and shale may be present (USACE, 2005). This may limit downward percolation but the zone has been found to be inconsistent.

Bedrock Stratigraphy

The bedrock units lying above the Upper Freeport Coal at the Site belong to the Conemaugh Group (Glenshaw Member). The Allegheny Group exists beneath the Conemaugh formation and the top of this formation includes the Freeport member which in turn includes the shale directly above the coal, the Upper Freeport coal, and the claystone (underclay) beneath the coal. The bedrock units beneath also belong to the Allegheny Group and include the Butler and Freeport Sandstones (USACE, 2005).

3.3.3 Hydrology

Regionally, drainage basins tend to be small with marked relief, which in conjunction with a humid climate generally produce a three-part groundwater system. The local or shallow flow system underlies hills and discharges to streams and springs and may in some cases be perched above beds of lower permeability. The hills may be considered "hydrologic islands" where discrete localized groundwater flow systems exist. The intermediate flow system is recharged by the shallow systems and recharge generally occurs at or near the drainage basin divide. Flow may pass below the two or more hydrologic islands and discharge in valleys above the lowest level of the drainage basin. The regional flow systems are deep flow systems with groundwater flow occurring beneath the level of the shallow and intermediate flow systems. These groundwater systems operate independently of the other systems but receive recharge from major drainage divides and from the upper systems (USACE, 2005). Figure 2-19 of the 2005 Remedial Investigation Report indicates a groundwater flow direction of southeast in the Upper Freeport coal layer.

Five principal hydrogeologic units have been identified during previous investigations:

- The overburden materials lying immediately over the weathered bedrock;

- The first shallow bedrock consisting of interbedded siltstone, sandstone, and shales;
- The second shallow bedrock consisting of similar interbeds as in the first shallow bedrock, but with slightly lower hydraulic conductivity;
- The Upper Freeport coal (including the mine workings); and the deep bedrock beneath the mine, consisting of siltstone and shale interbeds generally beneath the mine workings and gradually transitioning into sandstones at deeper depths (USACE, 2005).

Two short, unnamed streams flow from the Community of Kiskiminetas downgradient into the Kiskiminetas River. These streams were identified during the Site Reconnaissance that was conducted by TechLaw, Inc. on July 14, 2011. The Community of Kiskiminetas borders River Road, which directly borders the banks of the Kiskiminetas River. The Kiskiminetas River flows in a northerly direction, at a mean annual rate of 3,100 ft^3/sec, and enters the Allegheny River eight miles northwest of the Site.

Soils

The soils in the vicinity of the Site belong primarily to the Allegheny and Rainsboro series. Whereas the Allegheny soils generally occur on gently or sloping terrain, the Rainsboro soils are most often terrace deposits. Both series are described as silt loam and are moderately drained. These soils are formed from material weathered from the interbedded shale, siltstone, and sandstone parent rock. Depth to bedrock for both soil series is described to be generally greater than six feet (USACE, 2005).

The Site has a combination of the Allegheny silt loam (AlB) and the Rainsboro silt loam. The Allegheny silt loam (AlB), which has 3-8 percent slopes; is a deep, well-drained, gently sloping soil on terraces which is formed in loamy alluvium derived from sandstone, siltstone, and shale. The Rainsboro silt loam, which is a deep, moderately well drained, nearly level to sloping soil on undulating to rolling stream terraces, is formed in underlying loamy sediment that commonly grades to sandy or gravelly material (USACE, 2005).

3.3.4 Meteorology

Armstrong County is situated along the northern border of the Southwest Plateau climatic division where the climate is humid continental. Most weather systems that affect this area develop in the Central Plains or Midwest and are driven eastward by the prevailing winds. Cold air comes down from Canada to the north and warm air and moisture comes mainly from the Gulf of Mexico to the south.

Based on Ford City, PA records, Armstrong County receives an average of 39.6 inches (101 centimeters) of precipitation (equivalent rainfall) annually, including 40.1 inches (102 centimeters) of snow. The average daily maximum temperature is 61°F and the average daily minimum is 37°F. The highest and

lowest temperatures on record are 98°F and - 23°F, respectively. The National Oceanographic and Atmospheric Administration (NOAA) weather station located in Pittsburgh indicates Pittsburgh receives an average of 37.85 inches (96 centimeters) of precipitation (equivalent rainfall) annually, including 43.0 inches (109 centimeters) of snow (NOAA website 2004). The annual average maximum wind speed was reported to be 58 miles per hour (mph) (93 kilometers per hour) and the average wind speed as 9.0 mph (15 kilometers per hour) at this station.

4.0 PATHWAY CHARACTERIZATION

4.1 SOURCES (WASTE CHARACTERISTICS)

No sample data to date is available for the drinking water/groundwater in the Kiskimere/Parks Township Area. There is no known contamination in the drinking water/groundwater at the Site. Therefore, a source area for the Site is unknown.

4.2 SURFACE WATER PATHWAY

The principal surface water feature at the Site is the Kiskiminetas River. There are two unnamed runoff streams that flow from the Community of Kiskimere, downgradient into the Kiskiminetas River. These runoff streams were both identified as Probable Points of Entry (PPE). The distance from the downstream PPE to the confluence of the Kiskiminetas and Allegheny Rivers is eight miles.

Four drinking water suppliers were identified within 15 miles of the Site. The source of the drinking water is confidential and further investigation would be required to access the source data. The following information was obtained from EPA's Safe Drinking Water Information System, based on data extracted November 8, 2012 (targeting all water surface intakes within 15 miles of the Site):

- The Gilpin Municipal Authority Water Supply, which serves 2,050 people, may have an intake in the Kiskiminetas River, at a distance of [redacted] miles downstream from the Site. But it is speculated that they purchase water from another supplier.
- The South Buffalo Township Water Supply, which serves 825 people, is located at a distance of [redacted] miles downstream from the Site along the Allegheny River. They are listed as purchasing water from another supplier.
- The South Buffalo Township Freeport Water Supply, which serves 5,849 people, is located at a distance of [redacted] miles downstream from the Site along the Allegheny River. They have an intake in the river.
- The Harrison Township Water Supply, which serves 10,934 people, is located at a distance of [redacted] miles downstream from the Site in along the Allegheny River. They have an intake in the river.

4.3 GROUNDWATER PATHWAY

The hydraulic gradient in the shallow bedrock is in the direction of Dry Run, adjacent to and to the north-northeast of the SLDA, and away from the Community of Kiskimere. There are groundwater seeps along Dry Run, where groundwater from the upper trench area drains. Groundwater flow and storage in the shallow bedrock layer is primarily in secondary features such as fractures, joints, and dissolution cavities. These seeps may be the result of acid mine drainage and act as an additional pathway.

Although municipal water supply is available in the nearby community of Kiskimere, records indicate that there are at least five residential wells there (ARCO, 1995). These residential wells are believed to be screened in the Glenshaw Formation, above the Freeport Coal Seam and their status is unknown. Although these wells are located upgradient of the SLDA with respect to groundwater flow in the shallow bedrock zones, it is unknown what aquifer the wells of the Community of Kiskimere draw groundwater from. An inventory of wells within approximately 1.2 miles of the SLDA show groundwater for domestic use to be obtained also from wells screened below the Upper Freeport coal seam (ARCO, 1995). The exact number of drinking water wells that are present and/or in use is unknown. Municipal drinking water is available to the residents of the community of Kiskimere. Following the sampling event conducted on August 30-31, 2011, it was verified that at least 12 residential homes in the Kiskimere area were currently utilizing well water as their drinking water source. The average population per residence in Parks Township is 2.26 people per household. Therefore, the primary target population, utilizing the limited information available, is 27.12. The 4-mile distance rings and the 15-mile Target Distance Limit (TDL), which extends to Natrona Heights, PA, are depicted in Figure 3, NWI Eligible Wetlands Distribution Map 4-Mile Distance Rings and 15-Mile TDL.

4.4 SOIL EXPOSURE AND AIR PATHWAYS

The Community of Kiskimere is located directly adjacent (in a southern direction) to the SLDA site. Some of the residences are located within 100 feet of the SLDA site. All of the residences in the community of Kiskimere appeared to be inhabited based on observation during the July 15, 2011, Site reconnaissance and the sampling event on August 30-31, 2011. There was a children's playground at the southeastern edge of the community. No industries were observed in the area other than Cook Vascular which is 1,000 feet north of the SLDA.

Figure 2: 4-mile Distance Ring Map depicts target distance rings up to four miles from the center of the Site, which was chosen as the intersection of Johnson and Eisenhower Streets.

The following table shows population density within a four-mile radius of the Site (U.S. Census Bureau 2000):

TABLE 1:
Population Density within 4-Mile Radius

Radius	Population
0 - 0.25	52
0.25 - 0.50	134
0.50 - 1.0	1,523
1.0 - 2.0	11,888
2.0 - 3.0	7,744
3.0 - 4.0	5,298
Total Population	**26,639**

According to NWI, no wetlands are present within a four-mile radius of the Site. Figure 3, NWI Wetlands Distribution Map 4-Mile Distance Rings and 15-Mile TDL depicts the absence of wetlands in the area.

The focus of this investigation was on the groundwater and surface water pathways. Specific soil and air samples were not collected for this investigation.

The federally listed (1967) endangered Indiana Bat (*Myotis sodalist)* inhabit the area. The formerly federally listed (until 2007) threatened bald eagle also inhabits the area; the bald eagle is now on a monitoring plan through USFW.

5.0 SITE ACCESS

EPA representatives obtained access agreements from 27 residents in the Kiskimere area. On August 27, 2011, EPA's Superfund Technical Assessment and Response Team (START) contractor, TechLaw, attempted to contact these 27 residents. Five of these residents could not be contacted due to phone number changes or non-responsiveness. Contact was made with 22 of the residents. Of the 22 residents contacted, four of the residents utilized city water and 18 of the residents granted access to their wells for sample collection during the August 30-31, 2011, time period. EPA obtained access to the Kiskiminetas river bank for collection of surface water and sediment samples from local officials.

6.0 AUGUST 30-31, 2011 SAMPLING EVENT

Three EPA representatives and six START members met on Site, in the Town of Kiskimere, on August 30, 2011. The sampling event was conducted from August 30-31, 2011. Personnel split up into three sampling teams. Team 1 was comprised of EPA Site Assessment Manager (SAM) Lisa Johnson and

START [redacted] and [redacted]. Team 2 was comprised of EPA On-Scene Coordinator (OSC) Richard Rupert and START [redacted] and [redacted]. Team 3 was comprised of EPA Community Involvement Coordinator (CIC) Larry Johnson and START [redacted] and [redacted]. Following an appointment schedule, the three sampling teams collected groundwater samples from the residential water wells. Access to some of the wells was restricted due to pumps or enclosed spaces where sampling equipment could not be used. In addition, some of the wells were covered and not in use. Therefore, groundwater samples could not be collected from some of the residences that EPA was provided access to for sample collection. Access to the Kiskiminetas River was achieved along the river bank; all of the surface water and sediment samples were collected as described in the Sampling and Analysis Plan.

Sampling activities included collection of a total of seven surface water samples, nine sediment samples, and 15 groundwater samples. Quality Assurance/Quality Control (QA/QC) samples included the collection of two trip blank samples, two field blank samples, two groundwater duplicate samples, one surface water duplicate sample, and one sediment duplicate sample. A laboratory matrix spike/matrix spike duplicate (MS/MSD) was also collected for all three matrices, i.e. groundwater, surface water, and sediment. Appendix A, "Sample Locations Summary", includes the sample identification numbers and the corresponding sample locations, matrices, and collection dates and times. All of the samples were analyzed for the following parameters: Target Analyte List (TAL) metals + uranium, volatile organic compounds (VOC), gross alpha/beta, gamma spec, radium-226, and radium-228. The water samples collected for metals and radiochemistry analysis were preserved with nitric acid and the pH was measured with pH paper to ensure that the pH was less than or equal to two for each sample. The water samples collected for VOC analysis were preserved with hydrochloric acid and the pH was measured with pH paper to ensure that the pH was less than or equal to two for each sample. All of the samples were preserved with ice to a temperature less than or equal to four degrees Celsius. These samples were packaged in accordance with the Sampling QA/QC Work Plan and shipped via Federal Express to three separate laboratories for analysis: to A4 Scientific, a Contract Laboratory Program (CLP) laboratory, located in The Woodlands, Texas, for TAL metals + uranium analysis; to KAP Technologies, a CLP laboratory, located in The Woodlands, Texas, for VOC analysis; and to National Air and Radiation Environmental Laboratory (NAREL), an EPA laboratory, located in Montgomery, Alabama, for gross alpha/beta, gamma spec, radium-226, and radium-228 analysis.

6.1 Groundwater Sample Collection

During groundwater sample collection, each sampling team utilized a water quality meter (Model YSI 556 MPS) to monitor the stability of each groundwater sample's parameters, prior to sample collection.

Water quality readings that were monitored included temperature, conductivity, pH, and the oxidation reduction potential. Groundwater sample collection occurred following stabilization of water quality readings (i.e., pH +/- 0.1 unit, conductivity +/- 3%, oxidation reduction potential +/- 10 mv, and temperature +/- 3%) or after a minimum purge time of 15 minutes. Water quality readings for each of the samples are summarized in Appendix B: Residential Area Groundwater Sampling Record. The locations of all of the groundwater samples are depicted in Figure 4, Sample Location Map. More detailed views of the groundwater sample locations in the Kiskimere Area are depicted in Figure 5, Kiskimere Area Sample Locations, and in Figure 5A, Kiskimere Residential Area Sample Location Map. The groundwater sample collected from the Lee's Lake property is depicted in Figure 6, Lee's Lake Area Sample Location Map.

GW01

This groundwater sample was collected by Team 3 on August 30, 2011, at 0945 hours. The groundwater was collected from an outside water outlet. No filtration system was present prior to the sample collection point. Water quality parameters stabilized following 14 minutes of purging. Photographs depicting the purging method and water quality parameter monitoring are shown in Appendix C: Photographic Documentation, Photographs 1-2.

GW02

This groundwater sample was collected by Team 1 on August 30, 2011, at 1014 hours. The groundwater was collected from the spigot located inside the residence (trailer). The property owner resides alone. The groundwater sample was collected following 15 minutes of purging, when the water quality parameters stabilized. Photographs depicting this sample location and collection of the sample are shown in Appendix C: Photographic Documentation, Photographs 3-4.

GW03

This groundwater sample was collected by Team 2 on August 30, 2011, at 1035 hours. There was a well house on the property. Purging was accomplished through a 100-foot garden hose. Purging was conducted for 29 minutes prior to stability of water quality parameters and sample collection. The groundwater sample was collected from a spigot in the well house, directly below the tank. Photographs depicting the well house and monitoring for water quality parameters are shown in Appendix C: Photographic Documentation, Photographs 5-6.

GW04

This groundwater sample was collected by Team 1 on August 30, 2011, at 1736 hours (chain of custody, in error, indicates a time of 1536 hours). This sample location was designated as the background sample.

The well total depth was 8.15 feet. Purging was conducted for 76 minutes prior to stability of water quality parameters and sample collection. The groundwater sample was collected from a spigot located on the back of the residence. Photographs depicting this sample location and the well on the property are shown in Appendix C: Photographic Documentation, Photographs 7-8.

GW07

This groundwater sample was collected by Team 1 on August 30, 2011, at 1300 hours. There are four wells on this farm. The property owner showed EPA a spigot location; it was the spigot used for drinking water for a deer refuge located on the property. The property owner uses both city water and well water. The residents use city water and the well water is used for the animals. Purging was conducted for 10 minutes prior to stability of water quality parameters and sample collection. The groundwater sample was collected directly from the spigot. A photograph depicting this sample location is shown in Appendix C: Photographic Documentation, Photograph 9.

GW08D

This groundwater sample was collected by Team 2 on August 30, 2011, at 1650 hours. This residence has two wells on the property; one shallow well and one deep well. This groundwater sample was collected from the deep well (66.67 feet total depth). Purging was conducted for 26 minutes prior to stability of water quality parameters and sample collection. The groundwater sample was collected directly from the spigot, which was located directly prior to the pressure tank. Photographs depicting this sample location and collection of the sample are shown in Appendix C: Photographic Documentation, Photographs 10-11.

GW08S

This groundwater sample was collected by Team 2 on August 30, 2011, at 1710 hours. This residence has two wells on the property; one shallow well and one deep well. This groundwater sample was collected from the shallow well (5.55 feet total depth). Information could not be obtained to indicate whether this well extracts water from a different groundwater layer than that of GW08D. Purging was conducted for 12 minutes prior to stability of water quality parameters and sample collection. The groundwater sample was collected directly from the spigot, which was located 16 inches above the floor, prior to the tank.

GW09

This groundwater sample was collected by Team 3 on August 30, 2011, at 1645 hours. The water outlet was located in the basement of the house. There was no filtration system in the line. Purging was conducted for 22 minutes prior to stability of water quality parameters and sample collection. A

photograph depicting water quality monitoring and this sample location is shown in Appendix C: Photographic Documentation, Photograph 12.

GW10

This groundwater sample was collected by Team 3 on August 30, 2011, at 1500 hours. It was reported by the property owner that the well water at this residence is used only for washing the cars and watering the plants and former vegetable garden. The water outlet was located in the basement of the house. There is an in-line sediment filter on this well system. Purging was conducted for 16 minutes prior to stability of water quality parameters and sample collection from a spigot, following the sediment filter. Photographs depicting the well water system and collection spigot are shown in Appendix C: Photographic Documentation, Photographs 13-14.

GW14

This groundwater sample was collected by Team 3 on August 30, 2011, at 1041 hours. The sample was collected from the kitchen sink. No filtration system was utilized. Purging was conducted for 15 minutes prior to stability of water quality parameters and sample collection. A photograph depicting monitoring of water quality parameters and the location of the sample is shown in Appendix C: Photographic Documentation, Photograph 15.

GW15/GW27

These groundwater samples (duplicate pair) were collected by Team 3 on August 30, 2011, at 1125 hours (GW15) and 1135 hours (GW27). A total of five residences, with a total of eight children, share usage of this well. The samples were collected from a porch spigot located on the eastern side of the house. Purging was conducted for 15 minutes prior to stability of water quality parameters and sample collection. A photograph depicting this sample location and collection of the samples are shown in Appendix C: Photographic Documentation, Photograph 16.

GW24

This groundwater sample was collected by Team 3 on August 31, 2011, at 1305 hours. The well was shallow and located in the basement of the house. No filtration system was utilized. Purging was conducted from an outlet on the north side of the house, for 19 minutes prior to stability of water quality parameters and sample collection. Photographs depicting the well, the sample location, and collection of the sample are shown in Appendix C: Photographic Documentation, Photographs 17-19.

GW26/GW28

These groundwater samples (duplicate pair) were collected by Team 2 on August 31, 2011, at 1040 hours (GW26) and 1050 hours (GW28). The well on this property had a total depth approximately 360 feet. The water depth was approximately 120 feet. The interior of the wellbore was shale, and the water level was at 120 feet depth. Purging was conducted for 21 minutes prior to stability of water quality parameters and sample collection. The water was clear upon sample collection from the spigot. Photographs depicting the well system, the location of the well, and collection of the samples are shown in Appendix C: Photographic Documentation, Photographs 20-22.

6.2 Surface Water Sample Collection

6.2.1 Kiskiminetas River

EPA collected surface water samples from five locations in the Kiskiminetas River. The samples were collected from the farthest downstream location, SW05, first. Then sample collection proceeded upstream, at locations SW02 and at SW03/SW04 (duplicate pair), to the background location, SW01. The locations of all of the surface water samples are depicted in Figure 4, Sample Location Map. A more detailed view of surface water samples (SW02 and SW03/SW04) located adjacent to the Town of Kiskimere is depicted in Figure 5: Kiskimere Area Sample Location Map. The SAP did not indicate the exact location, depth, distance from shore, etc where the surface water and co-located sediment sample were to be taken.

SW05

This surface water sample was collected by Team 1 on August 30, 2011, at 1650 hours. The location of this sample was downstream of the SLDA site. EPA obtained access to the river bank from the property owner. The sample was collected adjacent to the right descending bank of the river. Photographs depicting this sample location and access to the sample location are shown in Appendix C: Photographic Documentation, Photographs 23-24.

SW03/SW04

These duplicate pair surface water samples were collected by Team 3 on August 31, 2011, at 1510 and 1520 hours. The location of these samples was chosen near a PPE (runoff stream originating in the Town of Kiskimere). Permission for access to the location was not required on scene; the river bank was located directly adjacent to the road, and the land was not privately owned. The sample was collected adjacent to the right descending bank of the river. Photographs depicting this sample location and collection of the sample are shown in Appendix C: Photographic Documentation, Photographs 26-27.

SW02

This surface water sample was collected by Team 1 on August 31, 2011, at 1100 hours. The SAP did not indicate the exact location, depth, distance from shore, etc. where the surface water and co-located sediment sample were to be taken. The location of this sample was chosen near a PPE (runoff stream originating in the Town of Kiskimere). EPA obtained access to the river bank from the property owner. A representative from The River Valley News was on scene to document collection of the sample. The sample was collected adjacent to the right descending bank of the river. A photograph depicting this sample location is shown in Appendix C: Photographic Documentation, Photograph 28.

SW01

This surface water sample was collected by Team 1 on August 31, 2011, at 1525 hours. This location was designated as the background location, and was located approximately two to three miles upstream of the Town of Kiskimere. Permission for access to the location was not required on scene; the river bank was located directly adjacent to the road, and the land was not privately owned. Local fishermen were observed at this location. They informed START that they often fish here, along with other local residents. They also informed START that they consume some of the fish that they catch. The sample was collected adjacent to the right descending bank of the river. Photographs depicting this sample location and collection of the surface water sample (and co-located sediment sample) are shown in Appendix C: Photographic Documentation, Photographs 30-31.

6.2.2 Lee's Lake Property

EPA collected surface water samples from mine seepage and Carnahan Run on the Lee's Lake Property. The property owner was on scene and granted access to these sample locations. The property owner observed collection of the surface water samples. The locations of these surface water samples are depicted in Figure 6, Lee's Lake Area Sample Location Map.

SW06

This surface water sample was collected by Team 1 on August 30, 2011, at 1130 hours. The sample was collected from mine seepage on the Lee's Lake Property. The mine seepage originated from the hillside and flowed directly into Carnahan Run. The sample was collected directly from the emerging point in the hillside, prior to entry into Carnahan Run. Photographs depicting this sample location are shown in Appendix C: Photographic Documentation, Photographs 32-33.

SW07

This surface water sample was collected by Team 1 on August 31, 2011, at 1310 hours. The sample was collected directly from Carnahan Run, adjacent to the right descending bank. The property owner stated

that the sample location was between two mine drainage points, and that appreciable water flow in the stream reaches 12 inches in depth, with an average depth of approximately six inches. A photograph depicting this sample location and collection of the sample are shown in Appendix C: Photographic Documentation, Photograph 34.

6.3 Sediment Sample Collection

6.3.1 Kiskiminetas River

EPA collected sediment samples from five locations in the Kiskiminetas River. Sample collection began at the locations (SD06 and SD05) farthest downstream. Then sample collection proceeded upstream, at locations SD02 and at SD03/SD04 (duplicate pair), to the background location, SD01. Each sediment sample was collected following collection of its co-located surface water sample. The SAP did not indicate the exact location, depth, distance from shore, etc. where the surface water and co-located sediment sample were to be taken. The locations of all of the sediment samples are depicted in Figure 4: Sample Location Map. A more detailed view of sediment samples (SD02 and SD03/SD04) located adjacent to the Town of Kiskimere is depicted in Figure 5: Kiskimere Area Sample Location Map.

<u>SD06</u>

This surface water sample was collected by Team 3 on August 30, 2011, 1635 hours. The location of the sample was approximately 1,500 feet downstream of SD05; this location was the farthest downstream of all of the sediment samples.

<u>SD05</u>

This sediment sample was collected by Team 1 on August 30, 2011, at 1650 hours. The location of this sample was downstream of the SLDA site. EPA obtained access to the river bank from the property owner. The sample was collected from the right descending bank of the river, at the same location that surface water sample SW05 was collected. Photographs depicting this sample location and access to the sample location are shown in Appendix C: Photographic Documentation, Photographs 23-25.

<u>SD03/SD04</u>

These duplicate pair sediment samples were collected by Team 3 on August 31, 2011, at 1545 and 1555 hours. The location of these samples was chosen near a PPE (runoff stream originating in the Town of Kiskimere). Permission for access to the location was not required on scene; the river bank was located directly adjacent to the road, and the land was not privately owned. The sample was collected from the right descending bank of the river, at the same location that surface water samples SW03/SW04 were collected. Photographs depicting this sample location and collection of the co-located surface water sample are shown in Appendix C: Photographic Documentation, Photographs 25-26.

SD02

This sediment sample was collected by Team 1 on August 31, 2011, at 1100 hours. The location of this sample was chosen near a PPE (runoff stream originating in the Town of Kiskimere). EPA obtained access to the river bank from the property owner. A representative from The River Valley News was on scene to document collection of the sample. The sample was collected from the right descending bank of the river, at the same location that surface water sample SW02 was collected. A photograph depicting this sample location and collection of the sample are shown in Appendix C: Photographic Documentation, Photograph 29.

SD01

This sediment sample was collected by Team 1 on August 31, 2011, at 1555 hours. This location was designated as the background location, and was located approximately two-three miles upstream of the Town of Kiskimere. Permission for access to the location was not required on scene; the river bank was located directly adjacent to the road, and the land was not privately owned. Local fishermen were observed at this location. They informed START that they often fish here, along with other local residents. They also informed START that they consume some of the fish that they catch. The sample was collected from the right descending bank of the river, at the same location that surface water sample SW01 was collected. Photographs depicting this sample location and collection of the sediment sample (and co-located surface water sample) are shown in Appendix C: Photographic Documentation, Photographs 30-31.

6.2.2 Lee's Lake Property

EPA collected sediment samples from Carnahan Run and Lee's Lake, on the Lee's Lake Property. The property owner was on scene and granted access to these sample locations. The property owner observed collection of the sediment samples. The locations of these sediment samples are depicted in Figure 6: Lee's Lake Area Sample Location Map.

SD08

This sediment sample was collected by Team 1 on August 30, 2011, at 1104 hours. The sample was collected directly from Lee's Lake. The property owner stated that the lake was utilized for recreational fishing. Photographs depicting this sample location and collection of the sample are shown in Appendix C: Photographic Documentation, Photographs 35-36.

SD09

This sediment sample was collected by Team 1 on August 30, 2011, at 1140 hours. The sample was collected directly below the emerging mine seepage water (surface water sample SW06) from the hillside, at the entry point into Carnahan Run. Photographs depicting the sample location are shown in Appendix C: Photographic Documentation, Photographs 32-33.

7.0 LABORATORY DATA ANALYSIS

The radiochemistry data for all of the samples collected during the sampling event is contained in Appendix D, Summary of Radiochemistry Data From NAREL. The validated inorganic data for all of the samples collected during the sampling event is contained in Appendix E, Inorganic Validation Reports. The validated organic data for all of the samples collected during the sampling event is contained in Appendix F, Organic Validation Reports. Appendices G-I (specified in each of the following sections) contain data taken directly from the validation reports provided by NAREL and ESAT. The tables are grouped according to each matrix, i.e. groundwater, surface water, and sediment. The analytical results from the trip blank and field blank samples are shown in Appendix J, Trip Blank Sample Results, and Appendix K, Field Blank Sample Results. The designated background samples for each matrix collected during this sampling event, groundwater (GW04), surface water (SW01), and sediment (SD01), are combined and summarized in Appendix L, Background Sample Results. The analytical results from the background sample for each matrix are again referenced in each of the Appendices, G-I, accordingly per each matrix, to allow direct comparison to the other samples.

7.1 Groundwater

EPA collected groundwater samples from well water at 12 residential homes in the Kiskimere area. The well located at one of the residences, GW04, was designated the background location. As identified in the data summary tables, included in Appendix G, Groundwater Sample Results, any contaminant values that exceed the background value, maximum contaminant level for drinking water (MCL), or the PA ACT 2 Regulations are either underlined or highlighted with differing colors (see "Data Summary Key", included in each Appendix).

7.2 Surface Water

EPA collected surface water samples from five locations in the Kiskiminetas River, from mine seepage along Carnahan Run, and from Carnahan Run itself. One of the surface sample locations upstream in the Kiskiminetas River, SW01, was designated the background location for those samples collected from the river. As identified in the data summary tables, included in Appendix H, Surface Water Sample Results, any contaminant values that exceed the background value, MCL or the PA ACT 2 Regulations are either underlined or highlighted with differing colors (see "Data Summary Key", included in each Appendix).

Analytical results for surface water are being compared to MCLs and ACT 2 regulations as part of a conservative approach comparison. It is not indicative of the source water body definitively being used as a drinking water source.

7.3 Sediment

EPA collected sediment samples from six locations in the Kiskiminetas River, from two locations in Carnahan Run, and from one location in Lee's Lake. One of the sediment sample locations upstream in the Kiskiminetas River, SD01, was designated the background location for those samples collected from the river. As identified in the data summary tables, included in Appendix I, Sediment Sample Results, any contaminant values that exceed the background value were underlined (see "Data Summary Key", included in each Appendix).

7.4 Data Validation

All of the samples were analyzed for CLP TAL Metals plus mercury plus uranium analysis by A4 Scientific, Inc. according to CLP SOW ISM01.2 through the Routine Analytical Services (RAS) program. All of the samples were collected on August 30-31, 2011. All samples were shipped to the laboratory on September 1, 2011. No holding times were exceeded nor sample preservation issues reported. Data validation was conducted by EPA Region III's Environmental Services Assistance Team (ESAT) and provided to the EPA SAM on October 27-28, 2011. These validation reports are contained in two separate reports in Appendix E, Inorganic Validation Reports. There were no major problems with the data; minor problems with the data and a summary of data qualifiers were reported by ESAT in each of the two reports.

All of the sediment samples were analyzed for CLP TCL VOA analysis and all of the water samples were analyzed for CLP TCL Trace VOA analysis by KAP Technologies, Inc. according to CLP SOW SOM01.2 through the (RAS) Program. All of samples were collected on August 30-31, 2011. All samples were shipped to the laboratory on September 1, 2011. No holding times were exceeded nor sample preservation issues reported. Data validation was conducted by EPA Region III's Environmental Services Assistance Team (ESAT) and provided to the EPA SAM on October 27, 2011. These validation reports are contained in two separate reports in Appendix F, Organic Validation Reports. There were no major problems with the data, and minor problems were reported by ESAT in each of the two reports.

All of the samples were analyzed for gross alpha/beta, radium 226, and radium 228 and subjected to gamma spectroscopy by NAREL. All of the samples were collected on August 30-31, 2011. All samples were shipped to the laboratory on September 6, 2011. No holding times were exceeded nor sample preservation issues reported. EPA's SAM received a summary report of all of the radiochemistry results

on August 9, 2012. This summary report is contained in Appendix D, Summary of Radiochemistry Data from NAREL.

8.0 CONCLUSION

TechLaw was tasked by the EPA, Region 3, to conduct a focused SI at the Kiskimere Groundwater Well Investigation Site in Parks Township, Armstrong County, Pennsylvania. The SI field work included sampling and non-sampling data collection, groundwater collection from residential homes and collection of surface water and sediment from the Kiskiminetas River. The objective of this investigation was not to be an all-encompassing environmental assessment of the Site. EPA began the Kiskimere investigation with the intent to determine if there was a pathway of exposure for the residents to radiological and chemical substances as a result of past and ongoing environmental cleanups in the area. Evaluations of the environmental sampling data collected during this investigation have not warranted any immediate action; initial and subsequent investigation results did not indicate a need for any type of emergency response. Reported levels of chemical contaminants and radionuclides were within a normal range of background for the Parks Township area.

Complications Experienced During the Investigation

The area surrounding Kiskimere is geologically and hydrogeologically very complicated due to the proximity of the Kiskimenatas River, old coal mine beneath the entire area and complex geology. No data is available for the southern boundary of the SLDA making it difficult to make determinations regarding offsite contamination. Site and study area characterization samples potentially could have included as many as 35 groundwater samples from residential homes in the Vandergrift and Leechburg areas and 5 surface water and sediment samples from the Kiskiminetas River. Due to well and Site access issues, EPA was unable to obtain enough samples from the Kiskimere neighborhood to definitively make a determination regarding exposure.

Areas of Concern

EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) have reviewed all available data, including all groundwater and surface water data, and concluded that too many data gaps exist to determine potential risk and exposure to the nearby community of Kiskimere and other nearby residents. The Kiskimere neighborhood and Site area should be further evaluated to ensure contaminants are not moving offsite.

- Groundwater is showing unusual results in that it is unusually "clean" given the local mine activities and surrounding sites and past/present cleanup activities.
- Certain private wells which were most of interest during the EPA investigation were inaccessible for sampling. There is further concern with the lack of data for wells located on the SLDA site.

- Significant assumptions were made by USACE about lack of private groundwater use in the area of the SLDA during their RI and site characterization. EPA's investigation has shown that the groundwater is being utilized as a drinking water source for human and animal consumption as well as for watering vegetable gardens.

A comprehensive groundwater investigation should be conducted which focuses on ensuring contaminants are not migrating offsite and into the Kiskimere neighborhood. Installation and sampling of additional monitoring wells, specifically along the southern border of the SLDA is needed to confirm groundwater direction and impact.

- Three (3) large unlined passive treatment ponds have recently been installed by a local watershed protection group adjacent to the SLDA site to collect acid mine drainage. This has created a potential new source for radiological contamination in area groundwater. These ponds have not been evaluated for radionuclides and have little or no regulatory oversight.

The impact of these ponds should be assessed by collecting samples to determine if radiological constituents are present.

- Unknown amounts of mixed radiological waste may have been disposed of throughout the years in old mine shafts located on and around the SLDA site.

Additional soil sampling along the fenceline of the SLDA site as well additional sampling on the SLDA site would help assess soil contamination and the potential for re-suspension of soil particles in the atmosphere which could contribute to an inhalation hazard. It is suggested that former employee(s) be interviewed to determine where waste was entered into mine shafts so that stories of dumping and transport of waste materials into mine shafts could be fully investigated.

- Seeps and groundwater discharges in and around the SLDA site require further investigation and monitoring.
- Seeps and groundwater discharges as well as acid mine drainage discharges from the site/coal mine (underlying the site) should be identified and mapped.

Additional investigation should also include sampling the large number of seeps forming as a result of acid mine drainage in the area of the Site. These groundwater discharges carry contaminants through the remnants of the coal mine below the surface. These locations should be analyzed for Site related COCs and radionuclides as well as standard chemical parameters including pH.

EPA understands that a substantial amount of time, money and effort has been utilized by the USACE to determine the status of the SLDA. There is a significant amount of documentation and data available related to the site for review, and EPA has made great efforts to review all currently available information. Unfortunately, much of the data used to execute the ongoing USACE cleanup is dated. Monitoring well data reports show that many on site wells have been closed or are dry. Though EPA is not disputing previous information, it would be prudent to install new wells and investigate other

pathways of concern in an effort to update the known information, and ensure the conditions at the site have not changed. At this time, EPA is unable to conclude that residents in the area are not being exposed to contaminants from the SLDA and former Parks Township sites.

9.0 LIST OF REFERENCES

U.S. Environmental Protection Agency (EPA). 1992. "Guidance for Performing Site Inspections Under CERCLA," Interim Final September 1992.

US Army Corps of Engineers (USACE). 2002. "Preliminary Assessment. Shallow Land Disposal Area, Parks Township, Armstrong County, Pennsylvania." March 11, 2002

US Army Corps of Engineers (USACE). 2005. "Remedial Investigation: Shallow Land Disposal Area" October, 2005

Pennsylvania Groundwater Information System

ATTACHMENT 1:

FIGURES

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

TechLaw

TDD No. TL03-11-03-003
START Contract No. EP-S3-10-04

Figure 1: Site Location Map
Kiskimere Groundwater Well Investigation Site
Kiskimere, Armstrong County, Pennsylvania

0 650 1,300 2,600 Feet

Map By: WFH
Date Modified: 6/12/2011
Scale: 1:11,907

Source:
Bing Maps Online Services for ESRI - Bing Maps Aerial Layer

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

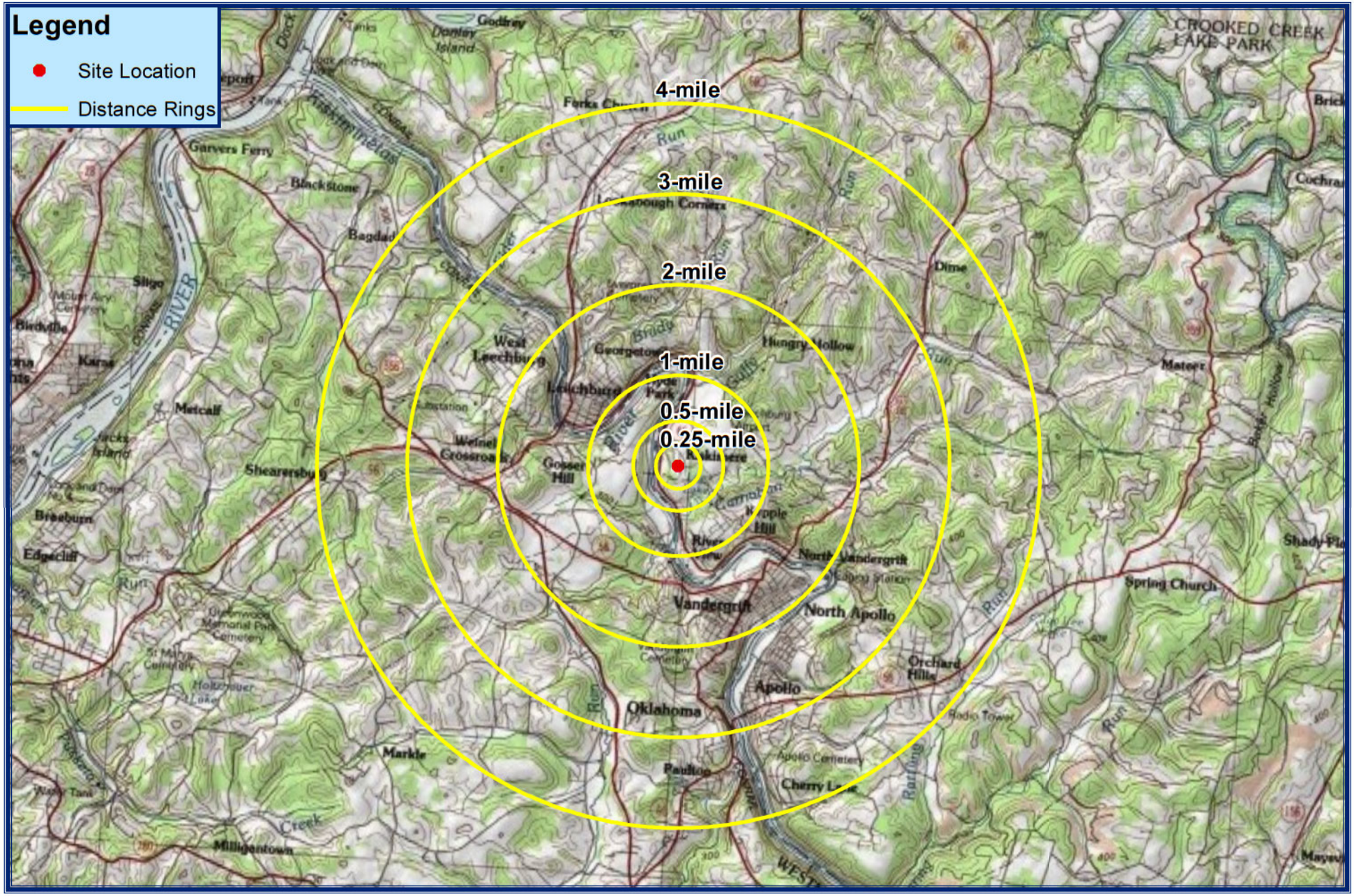


Figure 2: 4-mile Distance Ring Map
Kiskimere Groundwater Well Investigation Site
Kiskimere, Armstrong County, Pennsylvania

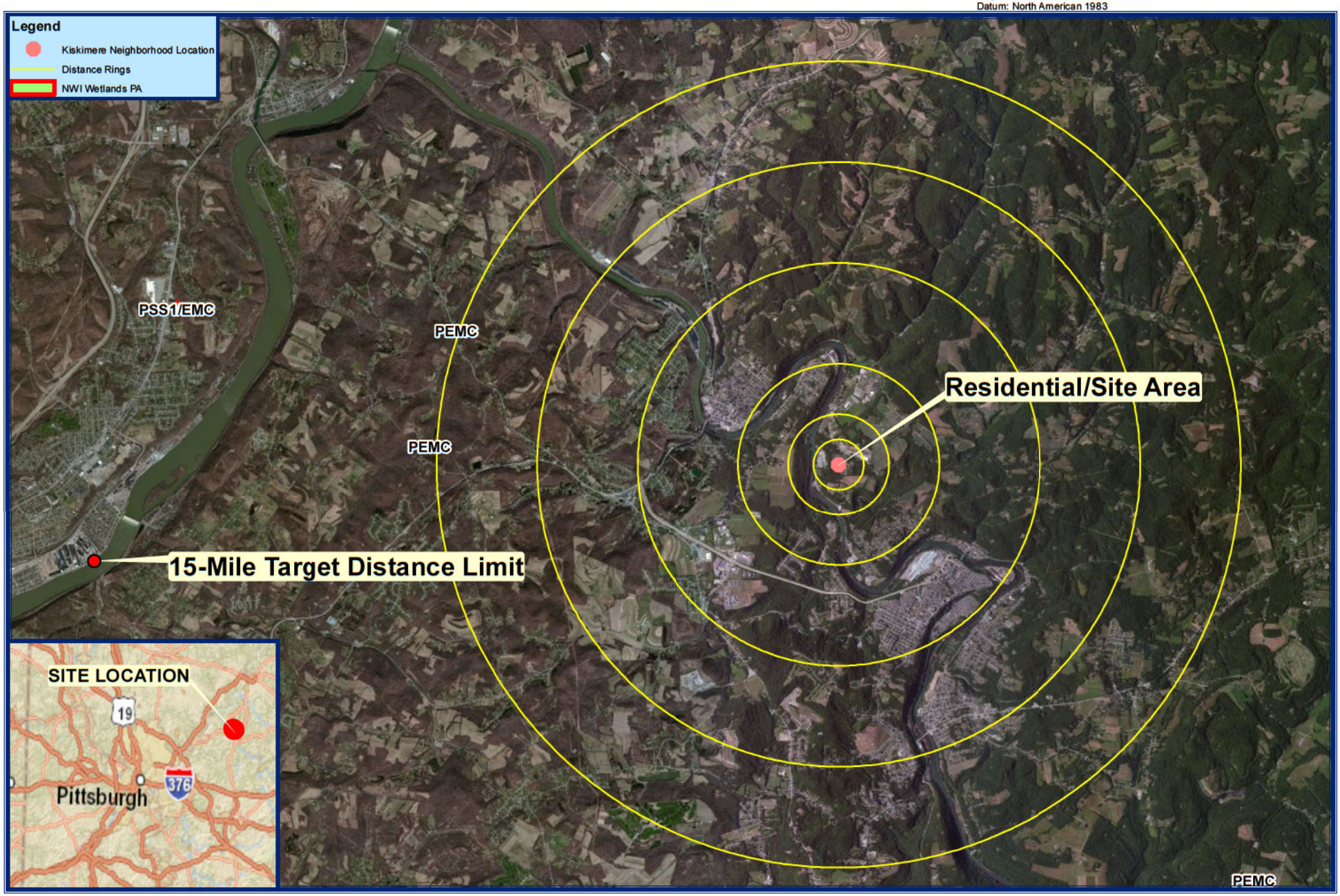
0 5,000 10,000 20,000 Feet

TechLaw
TDD No. TL03-11-03-003
START Contract No. EP-S3-10-04

Map By: WFH
Date Modified: 7/15/2011
Scale: 1:93,739

Source:
Bing Maps Online Services for ESRI - USGS 100K Topographic Map Layer NGS_Topo_US_2D

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983



TechLaw

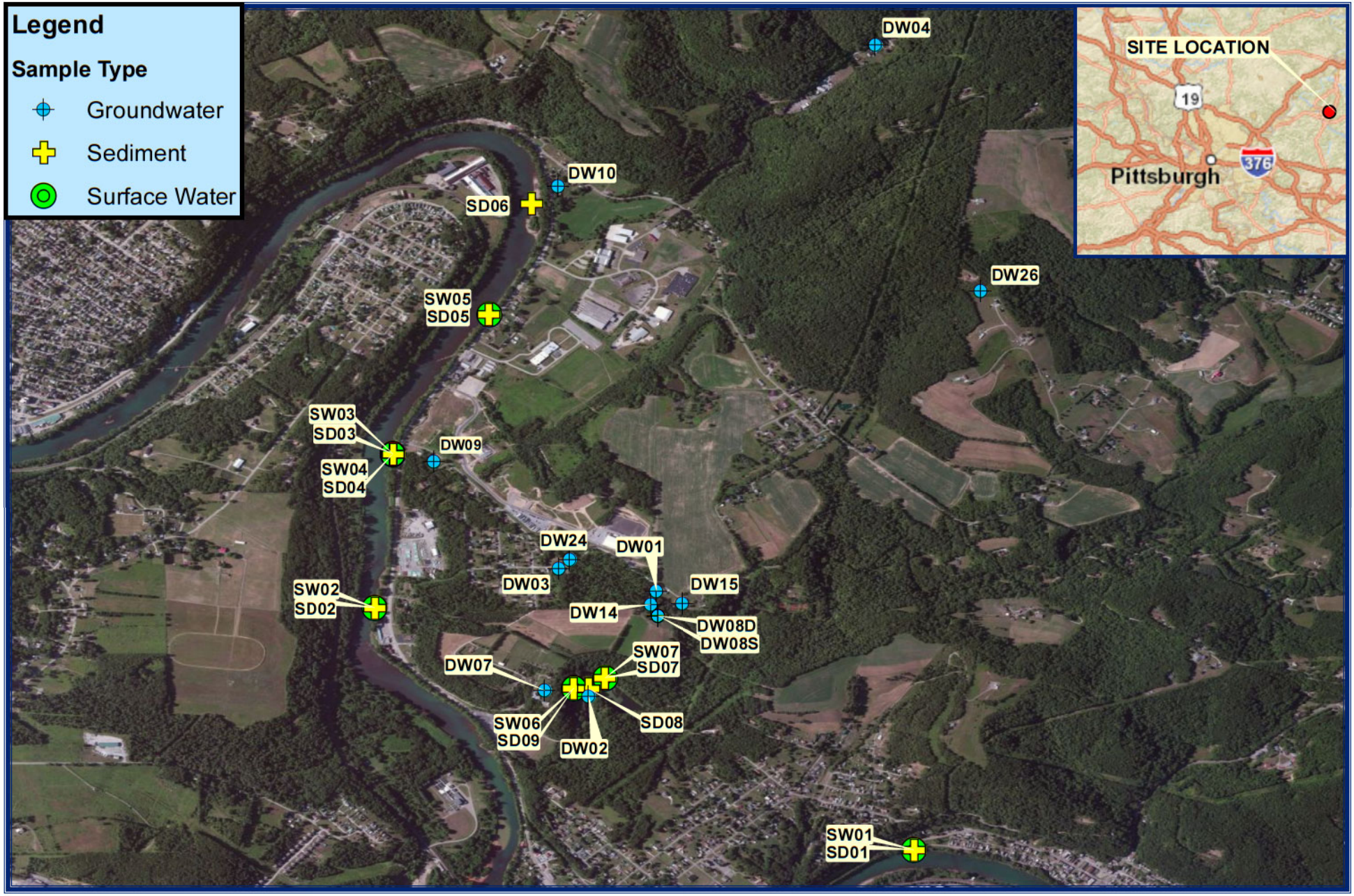
TDD No. TL03-11-03-003
START Contract No. EP-S3-10-04

Figure 3: NWI Eligible Wetlands Distribution Map
4-Mile Distance Rings and 15-Mile TDL
Kiskimere Groundwater Well Investigation Site
Kiskimere, Armstrong County, Pennsylvania

0 0.75 1.5 3 Miles

Map By: WFH
Date Modified: 8/30/2011
Scale: 1:83,249

Source:
Bing Maps Online Services for ESRI - StreetMap Layer



TechLaw

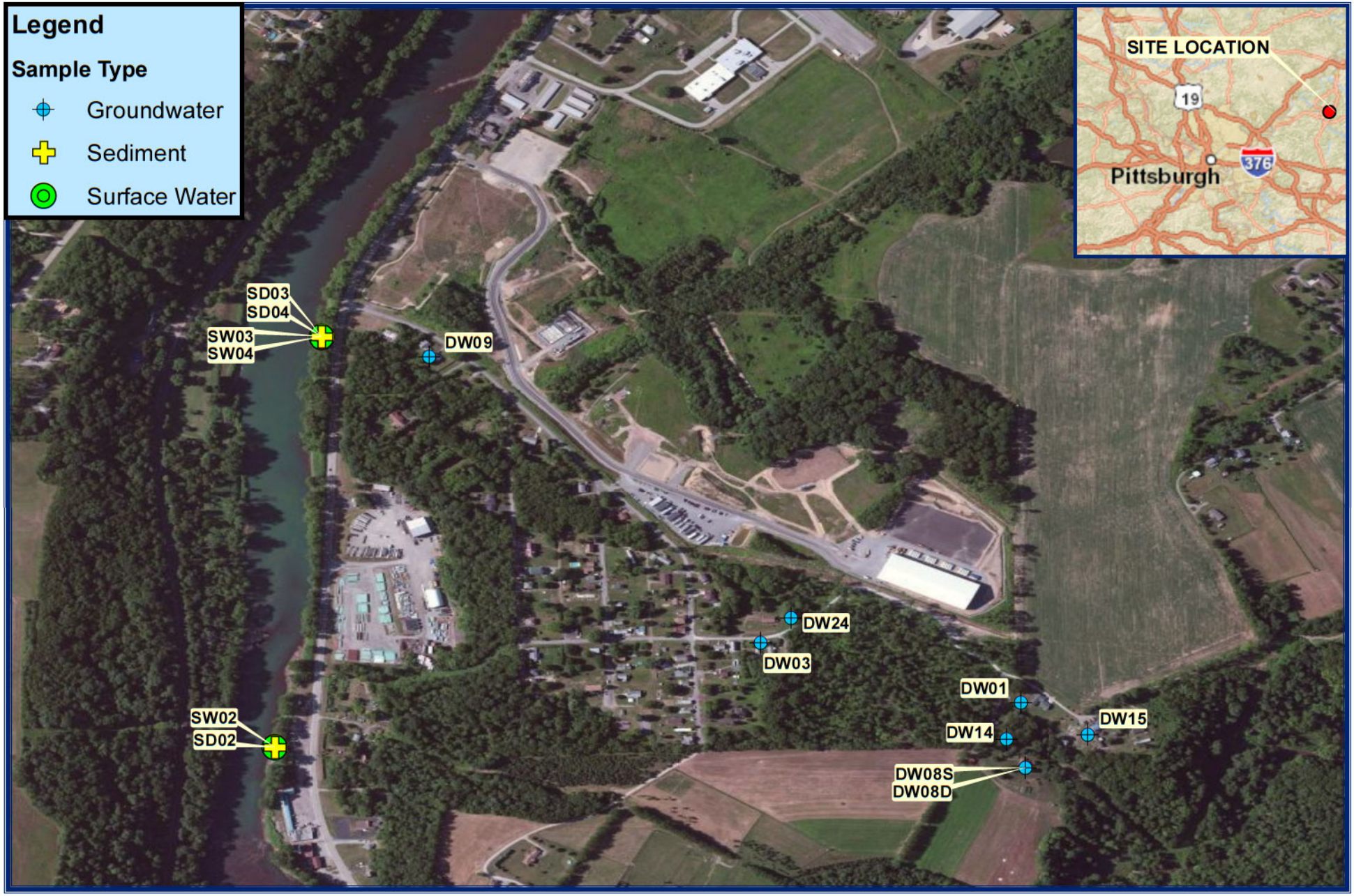
TDD No. TL03-11-03-003
START Contract No. EP-S3-10-04

Figure 4: Sample Location Map
Kiskimere Groundwater Well Investigation Site
Kiskimere, Armstrong County, Pennsylvania

0 1,250 2,500 5,000 Feet

Map By: WFH
Date Modified: 6/15/2012
Scale: 1:23,465

Source:
Bing Maps Online Services for ESRI - Bing Maps Aerial Layer
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree



TechLaw

TDD No. TL03-11-03-003
START Contract No. EP-S3-10-04

Figure 5: Kiskimere Area Sample Location Map
Kiskimere Groundwater Well Investigation Site
Kiskimere, Armstrong County, Pennsylvania

0 480 960 1,920 Feet

Map By: WFH

Date Modified: 6/15/2012

Scale: 1:8,843

Source:
Bing Maps Online Services for ESRI - Bing Maps Aerial Layer

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

TechLaw

TDD No. TL03-11-03-003
START Contract No. EP-S3-10-04

Figure 5A: Kiskimere Residential Area Sample Location Map
Kiskimere Groundwater Well Investigation Site
Kiskimere, Armstrong County, Pennsylvania

0 220 440 880 Feet

Map By: WFH

Date Modified: 11/15/2012

Scale: 1:4,069

Source:
Bing Maps Online Services for ESRI - Bing Maps Aerial Layer

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

TDD No. TL03-11-03-003
START Contract No. EP-S3-10-04

Figure 6: Lee's Lake Area Sample Location Map
Kiskimere Groundwater Well Investigation Site
Kiskimere, Armstrong County, Pennsylvania

0 87.5 175 350 Feet

Map By: WFH
Date Modified: 6/15/2012
Scale: 1:1,649

Source:
Bing Maps Online Services for ESRI - Bing Maps Aerial Layer
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

APPENDICES

APPENDIX A:

SAMPLE LOCATIONS SUMMARY

Kiskimere Groundwater Well Investigation Site
Cerclis ID: PAN000306740
Site Assessment August 30-31, 2011

SURFACE WATER

CLP Sample ID	DAS Sample ID	NAREL ID	Sample Designation	Duplicate/MS/MSD	Sample Location	Sample Collection Date	Sample Collection Time
C0074/MC0074	R33812-27	B1.11087A	SW01		Background- Kiskimere River, upstream	8/31/2011	1525
C0075/MC0075	R33812-28	B1.11088B	SW02	MS/MSD	Kiskimere River, upstream of SLDA	8/31/2011	1100
C0076/MC0076	R33812-29	B1.11089C	SW03	Duplicate of SW04	Kiskimere River, adjacent to Kiskimere Road/River Road	8/31/2011	1510
C0077/MC0077	R33812-30	B1.11090V	SW04	Duplicate of SW03	Kiskimere River, adjacent to Kiskimere Road/River Road	8/31/2011	1520
C0078/MC0078	R33812-31	B1.11091W	SW05		Kiskimere River, downstream of SLDA	8/30/2011	1650
C0079/MC0079	R33812-32	B1.11092X	SW06		Mine Seepage ([redacted])	8/30/2011	1130
C0080/MC0080	R33812-33	B1.11064T	SW07		Carnahan Run ([redacted])	8/31/2011	1310

SEDIMENT

CLP Sample ID	DAS Sample ID	NAREL ID	Sample Designation	Duplicate/MS/MSD	Sample Location	Sample Collection Date	Sample Collection Time
C0065/MC0065	R33812-18	B1.11078Z	SD01		Background- Kiskimere River, upstream	8/31/2011	1555
C0066/MC0066	R33812-19	B1.11079A	SD02		Kiskimere River, upstream of SLDA	8/31/2011	1100
C0067/MC0067	R33812-20	B1.11080T	SD03	Duplicate of SD04	Kiskimere River, adjacent to Kiskimere Road/River Road	8/31/2011	1545
C0068/MC0068	R33812-21	B1.11081U	SD04	Duplicate of SD03	Kiskimere River, adjacent to Kiskimere Road/River Road	8/31/2011	1555
C0069/MC0069	R33812-22	B1.11082V	SD05		Kiskimere River, downstream of SLDA	8/30/2011	1650
C0070/MC0070	R33812-23	B1.11083W	SD06	MS/MSD	Kiskimere River, downstream of SD06	8/30/2011	1635
C0071/MC0071	R33812-24	B1.11084X	SD07		Carnahan Run ([redacted])	8/31/2011	1310
C0072/MC0072	R33812-25	B1.11085Y	SD08		Lee's Lake	8/30/2011	1104
C0073/MC0073	R33812-26	B1.11086Z	SD09		below Mine Seepage (Lee's Lake Property)	8/30/2011	1140

GROUNDWATER

CLP Sample ID	DAS Sample ID	NAREL ID	Sample Designation	Duplicate/MS/MSD	Address/Sample Location	Sample Collection Date	Sample Collection Time
C0047/MC0047	R33812-03	B1.11062Q	GW01		[redacted] Booker Lane	8/30/2011	945
C0048/MC0048	R33812-04	B1.11063R	GW02		[redacted] Lee's Lake Lane	8/30/2011	1014
C0050/MC0050	R33812-05	B1.11065U	GW03	MS/MSD	[redacted] Clyde Street	8/30/2011	1035
C0051/MC0051	R33812-06	B1.11066V	GW04		[redacted] Hungry Hollow Road/Background	8/30/2011	1536
C0052/MC0052	R33812-07	B1.11067W	GW07		[redacted] Monheim Lane	8/30/2011	1300
C0053/MC0053	R33812-08	B1.11069Y	GW08D		[redacted] Mosley Lane	8/30/2011	1650
C0062/MC0062	R33812-17	B1.11068X	GW08S		[redacted] Mosley Lane	8/30/2011	1710
C0054/MC0054	R33812-09	B1.11070Q	GW09		[redacted] Kiskimere Road	8/30/2011	1645
C0055/MC0055	R33812-10	B1.11071R	GW10		[redacted] River Road	8/30/2011	1500
C0056/MC0056	R33812-11	B1.11072T	GW14		[redacted] Booker Lane	8/30/2011	1041
C0057/MC0057	R33812-12	B1.11073U	GW15	Duplicate of GW27	[redacted] Booker Lane	8/30/2011	1125
C0058/MC0058	R33812-13	B1.11074V	GW24		[redacted] Eisenhower Street	8/31/2011	1305
C0059/MC0059	R33812-14	B1.11075W	GW26	Duplicate of GW28	[redacted] Watkins Lane	8/31/2011	1040
C0060/MC0060	R33812-15	B1.11076X	GW27	Duplicate of GW15	[redacted] Booker Lane	8/30/2011	1135
C0061/MC0061	R33812-16	B1.11077Y	GW28	Duplicate of GW26	[redacted] Watkins Lane	8/31/2011	1050

TRIP AND FIELD BLANKS

CLP Sample ID	DAS Sample ID	NAREL ID	Sample Designation	Blank Type	Sample Collection Date	Sample Collection Time
C0083	N/A		TB01	Trip Blank	8/30/2011	810
C0082	N/A		TB02	Trip Blank	8/30/2011	815
MC0063	R33812-01	B1.11060N	FB01	Field Blank	8/30/2011	1820
MC0064	R33812-02	B1.11061P	FB02	Field Blank	8/31/2011	1730

APPENDIX B:

RESIDENTIAL AREA GROUNDWATER SAMPLING RECORD

TechLaw

Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID: _____

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC): _____

Sample Depth (ft TOC): _____

Water Qual Probe: YSI 556

Volume Purged: _____

Sample Method: Direct Collection -Spigot

Typ. Stabilization Criteria Collect at 3-5 Min Interval	
Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW01

Sample Date: 8/30/2011

Sample Time: 09:45

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
09:30 (Begin Purge)							*Started purging*
09:35 (1st Measurment)	20.97	0.108	5.32	189.9			
09:38	20.87	0.108	5.23	198.4			
09:41	20.94	0.108	5.22	201.5			
09:44	20.98	0.108	5.29	205.1			

TechLaw

Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID: _____

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC): _____

Sample Depth (ft TOC): _____

Water Qual Probe: YSI 556

Volume Purged: _____

Sample Method: Direct Collection -Spigot

Typ. Stabilization Criteria Collect at 3-5 Min Interval	
Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW02

Sample Date: 8/30/2011

Sample Time: 10:14

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
10:10 (Begin Purge)	19.13	0.125	7.9	138.8			*Water appears clear*
10:15 (1st Measurment)	18.87	0.123	6.98	130.2			
10:20	18.75	0.122	6.58	132.7			
10:25	18.67	0.122	6.43	135.4			

TechLaw

Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC): 37.8'

Sample Depth (ft TOC): UNK DTW 15.66 (TOC)

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection -Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW03

Sample Date: 8/30/2011

Sample Time: 10:35

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
10:01 (Begin Purge)							*Water appears clear*
10:02 (1st Measurment)	14.76	0.211	7.33	80.9			
10:05	15.32	0.208	6.93	73.5			
10:09	12.60	0.195	6.85	71.7			
10:13	14.38	0.201	6.38	79.5			
10:16	13.44	0.197	6.73	76.0			
10:20	12.64	0.193	6.81	81.1			
10:22	12.42	0.192	6.71	76.5			
10:24	12.59	0.191	6.71	76.8			
10:26	12.53	0.191	6.70	72.9			
10:28	12.39	0.190	6.69	72.2			
10:30	12.43	0.191	6.63	69.7			

ential Groundwater Sampling Record

Well ID:

mere GW Well Investigation Site

am: [redacted]

o Bottom (ft TOC): 8.15' T.D.

h (ft TOC): 2' Water Height

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection -Spigot

Typ. Stabilization Criteria Collect at 3-5 Min Interval	
Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).

Sample Date:

Sample Time:

	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
	19.38	0.278	6.05	187.6			
	19.15	0.259	5.29	182.3			
	19.23	0.260	5.83	149.5			

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Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID: _____

Sampling Team: _____

Well Depth to Bottom (ft TOC): _____

Sample Depth (ft TOC): _____

Water Qual Probe: YSI 556

Volume Purged: _____

Sample Method: Direct Collection -Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW06

Sample Date: 8/30/2011

Sample Time: No sample

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
(Begin Purge)							Well is not used
(1st Measurment)							Piping has been removed
							Well Cap has 7 holes in cap.
							GPS well

TechLaw

Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC): Unknown, shallow

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Pump jack

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW07

Sample Date: 8/30/2011

Sample Time: 13:00

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
12:50 (Begin Purge)	21.14	0.151	5.96	229.7			
12:55 (1st Measurment)	18.89	0.144	5.86	223.4			
13:00	18.43	0.142	5.87	223.9			

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Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC):

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW8S

Sample Date: 8/30/2011

Sample Time: 17:10

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
16:52 (Begin Purge)	20.21	0.132	6.50	120.3			
16:55 (1st Measurment)	20.92	0.130	6.10	108.7			
16:58	20.11	0.133	6.13	103.8			
17:01	20.17	0.132	6.17	104.4			
17:04	20.15	0.132	6.15	110.0			

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Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC): Unknown DTW 60.41 TOC

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW08D

Sample Date: 8/30/2011

Sample Time: 16:50

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
16:21 (Begin Purge)	22.10	0.202	6.97	82.6			
16:25 (1st Measurment)	20.93	0.186	6.97	27.5			Photo 2061
16:28	20.13	0.178	6.87	32.7			
16:31	19.60	0.177	6.84	73.6			
16:35	19.17	0.175	6.78	51.4			
16:38	18.84	0.173	6.79	77.8			
16:41	18.79	0.173	6.78	88.6			
16:44	18.54	0.172	6.75	77.2			
16:47	18.56	0.172	6.69	83.5			

TechLaw

Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC):

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW09

Sample Date: 8/30/2011

Sample Time: 16:45

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
16:22 (Begin Purge)							
16:26 (1st Measurment)	18.67	0.527	6.25	198.2			
16:29	18.35	0.522	6.36	196.7			
16:32	18.69	0.527	6.33	197.5			
16:35	17.06	0.510	6.39	194.9			
16:38	18.68	0.528	6.40	194.2			
16:41	17.68	0.517	6.42	192.8			
16:44	18.55	0.525	6.40	194.1			

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Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC):

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW10

Sample Date: 8/30/2011

Sample Time: 15:00

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
14:42 (Begin Purge)							Began purging
14:50 (1st Measurment)	14.69	0.206	5.68	155.7			
14:52	14.80	0.208	5.57	161.2			
14:54	14.82	0.211	5.53	162.0			
14:56	14.83	0.212	5.59	161.8			
14:58	14.90	0.212	5.60	162.1			

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Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC):

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW14

Sample Date: 8/30/2011

Sample Time: 10:41

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
10:25 (Begin Purge)							Began purging
10:28 (1st Measurment)	18.19	0.246	6.70	153.1			
10:31	17.45	0.241	6.66	147.6			
10:34	16.81	0.238	6.63	144.7			
10:36	16.64	0.237	6.60	144.2			
10:38	16.51	0.236	6.60	142.7			
10:40	16.46	0.236	6.57	142.7			

TechLaw

Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC):

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW15

Sample Date: 8/30/2011

Sample Time: 11:25

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
11:07 (Begin Purge)							Began purging
11:10 (1st Measurment)	14.51	0.254	6.94	159.8			
11:12	15.88	0.263	6.88	160.4			
11:14	16.85	0.270	6.90	158.2			
11:16	17.81	0.275	7.00	151.5			
11:18	18.42	0.280	6.99	149.2			
11:20	18.96	0.284	6.99	147.1			
11:22	19.40	0.286	6.98	145.1			

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Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC):

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW24

Sample Date: 8/31/2011

Sample Time: 13:05

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
12:42 (Begin Purge)							Began purging
12:45 (1st Measurment)	18.90	0.117	6.35	577.0			
12:48	18.93	0.117	5.89	540.0			
12:51	18.82	0.115	5.78	522.1			
12:55	18.89	0.114	5.60	515.3			
12:58	18.96	0.115	5.58	504.1			
13:01	19.05	0.115	5.50	497.7			

TechLaw

Residential Groundwater Sampling Record

Kiskimere GW Well Investigation Site

Well ID:

Sampling Team: [redacted]

Well Depth to Bottom (ft TOC):

Sample Depth (ft TOC):

Water Qual Probe: YSI 556

Volume Purged:

Sample Method: Direct Collection - Spigot

Typ. Stabilization Criteria
Collect at 3-5 Min Interval

Temp	+/- 3%
SpC	+/- 3%
pH	+/- 0.1 unit
ORP	+/- 10 mV

Sample No(s).: GW26 (GW28)

Sample Date: 8/31/2011

Sample Time: 10:40/10:50

Time	Temp (°C)	SpC (mS/cm)	pH (units)	ORP (mv)			Comments
10:11 (Begin Purge)	14.62	0.291	7.87	91.4			Began purging
10:14 (1st Measurment)	15.21	0.289	7.50	77.4			
10:17	13.47	0.274	7.34	81.7			
10:20	13.46	0.275	7.25	96.9			
10:23	13.03	0.271	7.26	81.3			
10:26	13.11	0.272	7.27	100.8			
10:29	13.34	0.274	7.38	100.3			
10:32	13.00	0.270	7.35	99.9			

APPENDIX C:

PHOTOGRAPHIC DOCUMENTATION

Photograph 1: Hose utilized for purging from the well at GW01 location

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 2: Monitoring water quality parameters at GW01

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 3: Location of GW02 collection

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 4: Collection of GW02 samples for VOC analysis

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 5: Well house at GW03 location

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 6: Monitoring water quality readings for GW03

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 7: Purge location of GW04 (background sample)

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 8: Well at GW04 location

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 9: Location of collection point for GW07.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 10: Tank associated with GW08D.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 11: Collection of GW08D.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 12: Water quality monitoring for GW09.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 13: Well water system in basement: location GW10

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 14: Collection spigot for GW10.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 15: Monitoring water quality parameters for GW14.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 16: Collection spigot for GW15/GW27.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 17: Location of the well in the basement of the house (GW24)

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 18: Location of the spigot, outside the house (GW24)

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 19: Collection of GW24

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 20: GW26/GW28 well system.

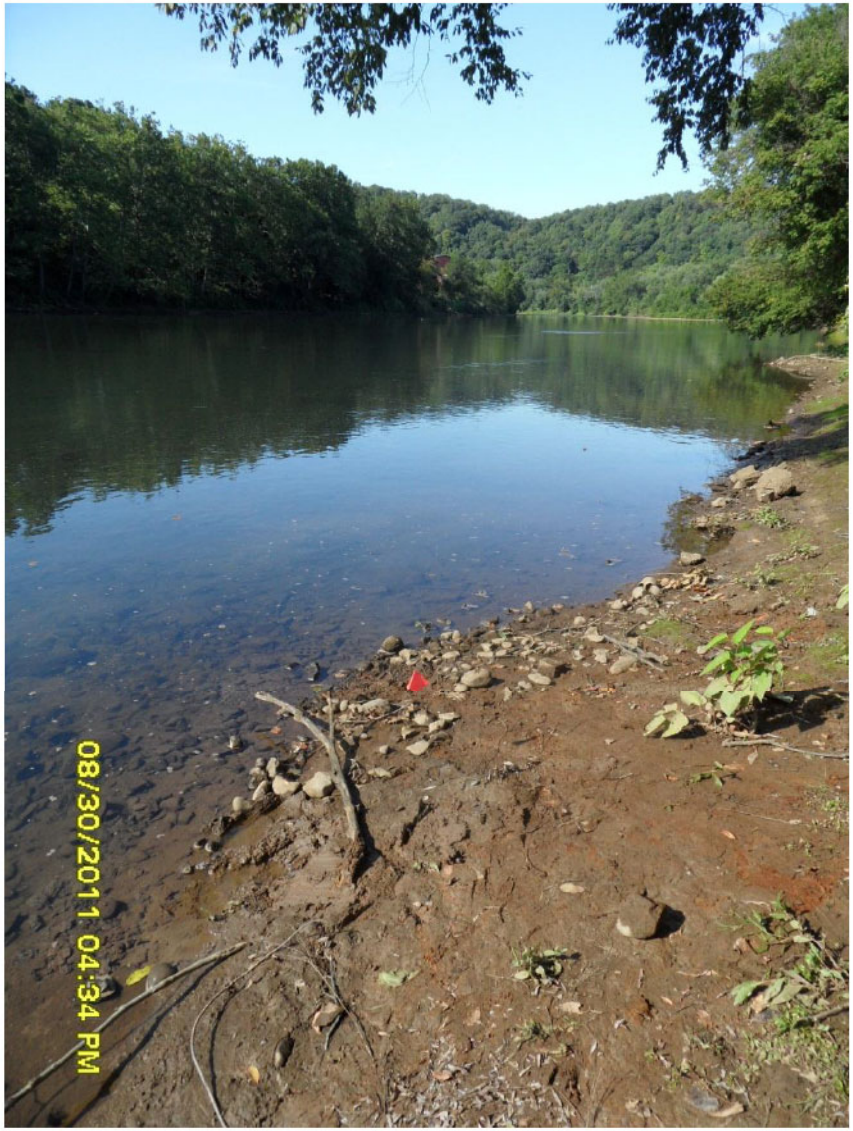
Site Identification: Kiskimere Groundwater Well Investigation

Photograph 21: Location of the well for GW26/GW28.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 22: Collection of GW26/GW28.

Site Identification: Kiskimere Groundwater Well Investigation



Photograph 23: Location of GW05/SD05.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 24: Access to GW05/SD05.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 25: Collection of sediment at SD05.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 26: Collection location of SW03/SW04 and SD03/SD04.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 27: Collection and location of SW03/SW04 and SD03/SD04.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 28: Location of SW02.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 29: Collection of sediment for SD02.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 30: Collection of sediment for SD01 (background).

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 31: Collection of surface water for GW01 (background).

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 32: Location of SW06, the mine seepage into Carnahan Run

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 33: Location of SW07

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 34: Collection of SW07

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 35: Collection of sediment from Lee's Lake, SD08.

Site Identification: Kiskimere Groundwater Well Investigation

Photograph 36: Lee's Lake sediment sample SD08.

Site Identification: Kiskimere Groundwater Well Investigation

APPENDIX D:

SUMMARY OF RADIOCHEMISTRY DATA FROM NAREL

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		6.10E+01	PCI/L		8/30/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		5.19E+00	PCI/L		8/30/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.54E+00	PCI/L		8/30/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.34E+01	PCI/L		8/30/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.77E+01	PCI/L		8/30/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		8.72E+01	PCI/L		8/30/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.21E+01	PCI/L		8/30/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GR-01	ANA	Alpha	2.50E-01	8.60E-01	7.63E-01	PCI/L		10/3/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL GR-01	ANA	Beta	3.20E-01	8.60E-01	1.33E+00	PCI/L		10/3/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL RA-05	ANA	Ra228	5.50E-01	4.40E-01	6.93E-01	PCI/L		11/17/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	5.50E-02	6.90E-02	8.57E-02	PCI/L		11/28/2011
B1.11060N	KISKIMERE GRND WATER	WATER - GROUND	R33812-01			8/30/2011 18:20:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	9.57E+01	8.00E+00		%		11/28/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		6.24E+01	PCI/L		8/31/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		3.95E+00	PCI/L		8/31/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.90E+00	PCI/L		8/31/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.33E+01	PCI/L		8/31/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.02E+01	PCI/L		8/31/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		8.67E+01	PCI/L		8/31/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.26E+01	PCI/L		8/31/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GR-01	ANA	Alpha	-4.00E-02	8.10E-01	7.33E-01	PCI/L		10/3/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL GR-01	ANA	Beta	3.80E-01	9.20E-01	1.43E+00	PCI/L		10/3/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL RA-05	ANA	Ra228	1.09E+00	5.10E-01	7.28E-01	PCI/L		11/17/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	3.10E-02	5.40E-02	6.59E-02	PCI/L		11/28/2011
B1.11061P	KISKIMERE GRND WATER	WATER - GROUND	R33812-02			8/31/2011 17:30:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.93E+01	7.50E+00		%		11/28/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		7.53E+01	PCI/L		8/30/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		6.35E+00	PCI/L		8/30/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.90E+00	PCI/L		8/30/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GAM-01	ANA	I131	ND		4.70E+01	PCI/L		8/30/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GAM-01	ANA	K40	ND		6.76E+01	PCI/L		8/30/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		7.40E+01	PCI/L		8/30/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		3.61E+01	PCI/L		8/30/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GR-01	ANA	Alpha	1.00E+00	1.80E+00	1.47E+00	PCI/L		10/3/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GR-01	ANA	Beta	1.50E+00	1.40E+00	2.11E+00	PCI/L		10/3/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GR-01	DUP	Alpha	7.00E-01	1.70E+00	1.54E+00	PCI/L		10/3/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GR-01	DUP	Beta	1.70E+00	1.50E+00	2.24E+00	PCI/L		10/3/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GR-01	MS	Alpha	7.80E+01	1.70E+01	1.29E+00	PCI/L		10/3/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL GR-01	MS	Beta	9.50E+01	1.10E+01	5.56E+00	PCI/L		10/3/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL RA-05	ANA	Ra228	8.60E-01	5.30E-01	7.91E-01	PCI/L		11/17/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.03E-01	9.70E-02	1.29E-01	PCI/L		11/28/2011
B1.11062Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-03			8/30/2011 9:45:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	9.22E+01	7.70E+00		%		11/28/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		6.13E+01	PCI/L		8/30/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		4.50E+00	PCI/L		8/30/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.45E+00	PCI/L		8/30/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GAM-01	ANA	I131	ND		4.35E+01	PCI/L		8/30/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GAM-01	ANA	K40	ND		4.75E+01	PCI/L		8/30/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		7.35E+01	PCI/L		8/30/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		2.71E+01	PCI/L		8/30/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GR-01	ANA	Alpha	2.00E-01	1.20E+00	1.11E+00	PCI/L		10/3/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL GR-01	ANA	Beta	1.90E+00	1.10E+00	1.55E+00	PCI/L		10/3/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL RA-05	ANA	Ra228	8.10E-01	4.90E-01	7.32E-01	PCI/L		11/17/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	8.20E-02	7.80E-02	8.28E-02	PCI/L		11/28/2011
B1.11063R	KISKIMERE GRND WATER	WATER - GROUND	R33812-04			8/30/2011 10:14:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	9.82E+01	8.10E+00		%		11/28/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		7.20E+01	PCI/L		8/31/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		6.61E+00	PCI/L		8/31/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.76E+00	PCI/L		8/31/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.66E+01	PCI/L		8/31/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.44E+01	PCI/L		8/31/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		7.69E+01	PCI/L		8/31/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		2.74E+01	PCI/L		8/31/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GR-01	ANA	Alpha	5.00E-01	1.80E+00	1.50E+00	PCI/L		10/3/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL GR-01	ANA	Beta	1.70E+00	1.60E+00	2.38E+00	PCI/L		10/3/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL RA-05	ANA	Ra228	3.10E-01	3.90E-01	6.44E-01	PCI/L		11/17/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	3.90E-02	6.10E-02	8.41E-02	PCI/L		11/28/2011
B1.11064T	KISKIMERE GRND WATER	WATER - SURFACE	R33812-33			8/31/2011 13:10:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	9.10E+01	7.60E+00		%		11/28/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		5.99E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		5.64E+00	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.44E+00	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	ANA	I131	ND		3.93E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	ANA	K40	ND		5.27E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		6.49E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		2.83E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	DUP	Ba140	ND		8.46E+01	PCI/L		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	DUP	Co60	ND		7.51E+00	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	DUP	Cs137	ND		6.00E+00	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	DUP	I131	ND		5.51E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	DUP	K40	ND		7.09E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	DUP	Ra226	ND		9.07E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GAM-01	DUP	Ra228	ND		4.08E+01	PCI/L		8/30/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GR-01	ANA	Alpha	4.00E-01	1.90E+00	1.68E+00	PCI/L		10/3/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL GR-01	ANA	Beta	2.00E+00	1.50E+00	2.19E+00	PCI/L		10/3/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL RA-05	MS	Ra228	1.39E+01	1.40E+00	7.19E-01	PCI/L		11/17/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL RA-05	DUP	Ra228	4.60E-01	5.30E-01	8.62E-01	PCI/L		11/17/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL RA-05	ANA	Ra228	7.90E-01	4.60E-01	6.97E-01	PCI/L		11/17/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	9.00E-02	8.00E-02	6.47E-02	PCI/L		11/28/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	9.05E+01	7.60E+00		%		11/28/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL RA226-EICHROM	DUP	Ra226	8.10E-02	8.80E-02	1.16E-01	PCI/L		11/28/2011
B1.11065U	KISKIMERE GRND WATER	WATER - GROUND	R33812-05			8/30/2011 10:35:00 AM EDT	NAREL RA226-EICHROM	DUP	Yield	8.68E+01	7.40E+00		%		11/28/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		6.64E+01	PCI/L		8/30/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		5.18E+00	PCI/L		8/30/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.74E+00	PCI/L		8/30/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.71E+01	PCI/L		8/30/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.58E+01	PCI/L		8/30/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		8.67E+01	PCI/L		8/30/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.20E+01	PCI/L		8/30/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GR-01	ANA	Alpha	5.00E-01	1.90E+00	1.58E+00	PCI/L		10/3/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL GR-01	ANA	Beta	2.60E+00	1.70E+00	2.41E+00	PCI/L		10/3/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL RA-05	ANA	Ra228	3.10E-01	4.10E-01	6.76E-01	PCI/L		11/17/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	5.40E-02	6.80E-02	8.46E-02	PCI/L		11/29/2011
B1.11066V	KISKIMERE GRND WATER	WATER - GROUND	R33812-06			8/30/2011 15:36:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	9.69E+01	8.20E+00		%		11/29/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		6.75E+01	PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		5.71E+00	PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.84E+00	PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.51E+01	PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.86E+01	PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	Pb212	4.00E+00	4.30E+00		PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		7.12E+01	PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.11E+01	PCI/L		8/30/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GR-01	ANA	Alpha	0.00E+00	1.20E+00	1.12E+00	PCI/L		10/3/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL GR-01	ANA	Beta	1.70E+00	1.10E+00	1.54E+00	PCI/L		10/3/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL RA-05	ANA	Ra228	5.60E-01	4.20E-01	6.43E-01	PCI/L		11/17/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.50E-01	1.10E-01	7.10E-02	PCI/L		11/29/2011
B1.11067W	KISKIMERE GRND WATER	WATER - GROUND	R33812-07			8/30/2011 13:00:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.30E+01	7.20E+00		%		11/29/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		6.24E+01	PCI/L		8/30/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		4.64E+00	PCI/L		8/30/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		3.87E+00	PCI/L		8/30/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.54E+01	PCI/L		8/30/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GAM-01	ANA	K40	ND		4.59E+01	PCI/L		8/30/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		7.48E+01	PCI/L		8/30/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		2.71E+01	PCI/L		8/30/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GR-01	ANA	Alpha	2.00E-01	1.10E+00	9.57E-01	PCI/L		10/3/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL GR-01	ANA	Beta	4.20E+00	1.30E+00	1.69E+00	PCI/L		10/3/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL RA-05	ANA	Ra228	1.50E-01	4.20E-01	7.16E-01	PCI/L		11/17/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.40E-01	1.10E-01	1.38E-01	PCI/L		11/29/2011
B1.11068X	KISKIMERE GRND WATER	WATER - GROUND	R33812-17			8/30/2011 17:10:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.58E+01	7.40E+00		%		11/29/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		5.38E+01	PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		3.75E+00	PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		3.65E+00	PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	I131	ND		3.31E+01	PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	K40	ND		3.62E+01	PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Pb212	3.60E+00	4.80E+00		PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		5.37E+01	PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		2.85E+01	PCI/L		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Tl208	2.50E+00	3.50E+00		PCI/L		8/30/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GR-01	ANA	Alpha	2.00E-01	1.90E+00	1.71E+00	PCI/L		10/3/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL GR-01	ANA	Beta	1.70E+00	1.50E+00	2.19E+00	PCI/L		10/3/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL RA-05	ANA	Ra228	1.60E-01	3.50E-01	6.00E-01	PCI/L		11/17/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	2.00E-01	1.20E-01	9.01E-02	PCI/L		11/29/2011
B1.11069Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-08			8/30/2011 16:50:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	9.03E+01	7.70E+00		%		11/29/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		7.04E+01	PCI/L		8/30/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		4.96E+00	PCI/L		8/30/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.66E+00	PCI/L		8/30/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GAM-01	ANA	I131	ND		5.22E+01	PCI/L		8/30/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GAM-01	ANA	K40	3.70E+01	3.70E+01		PCI/L		8/30/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		9.29E+01	PCI/L		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.08E+01	PCI/L		8/30/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GR-01	ANA	Alpha	-5.00E-01	3.50E+00	3.20E+00	PCI/L		10/3/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL GR-01	ANA	Beta	1.10E+01	3.80E+00	5.06E+00	PCI/L		10/3/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL RA-05	ANA	Ra228	5.80E-01	3.90E-01	5.94E-01	PCI/L		11/17/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.80E-01	1.10E-01	8.82E-02	PCI/L		11/29/2011
B1.11070Q	KISKIMERE GRND WATER	WATER - GROUND	R33812-09			8/30/2011 16:45:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.68E+01	7.40E+00		%		11/29/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		6.89E+01	PCI/L		8/30/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		4.35E+00	PCI/L		8/30/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.04E+00	PCI/L		8/30/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.61E+01	PCI/L		8/30/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GAM-01	ANA	K40	ND		4.95E+01	PCI/L		8/30/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		6.80E+01	PCI/L		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		2.57E+01	PCI/L		8/30/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GR-01	ANA	Alpha	-2.00E-01	1.70E+00	1.65E+00	PCI/L		10/3/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL GR-01	ANA	Beta	8.00E-01	1.40E+00	2.21E+00	PCI/L		10/3/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL RA-05	ANA	Ra228	3.20E-01	3.90E-01	6.32E-01	PCI/L		11/17/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	8.80E-02	7.80E-02	6.33E-02	PCI/L		11/29/2011
B1.11071R	KISKIMERE GRND WATER	WATER - GROUND	R33812-10			8/30/2011 15:00:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	9.25E+01	7.80E+00		%		11/29/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		7.38E+01	PCI/L		8/30/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		5.31E+00	PCI/L		8/30/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.60E+00	PCI/L		8/30/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GAM-01	ANA	I131	ND		5.31E+01	PCI/L		8/30/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GAM-01	ANA	K40	ND		5.08E+01	PCI/L		8/30/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		8.80E+01	PCI/L		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		3.26E+01	PCI/L		8/30/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GR-01	ANA	Alpha	1.10E+00	2.90E+00	2.49E+00	PCI/L		10/6/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL GR-01	ANA	Beta	2.90E+00	2.00E+00	2.85E+00	PCI/L		10/6/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL RA-05	ANA	Ra228	2.20E-01	4.00E-01	6.72E-01	PCI/L		10/28/2011
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.03E-01	8.90E-02	8.83E-02	PCI/L		1/18/2012
B1.11072T	KISKIMERE GRND WATER	WATER - GROUND	R33812-11			8/30/2011 10:41:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	9.17E+01	7.80E+00		%		1/18/2012
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		8.90E+01	PCI/L		8/30/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		6.72E+00	PCI/L		8/30/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		6.00E+00	PCI/L		8/30/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GAM-01	ANA	I131	ND		5.93E+01	PCI/L		8/30/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GAM-01	ANA	K40	ND		6.82E+01	PCI/L		8/30/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		8.82E+01	PCI/L		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		3.90E+01	PCI/L		8/30/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GR-01	ANA	Alpha	1.00E-01	1.20E+00	1.16E+00	PCI/L		10/6/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL GR-01	ANA	Beta	1.95E+00	8.70E-01	1.17E+00	PCI/L		10/6/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL RA-05	ANA	Ra228	6.30E-01	4.60E-01	7.02E-01	PCI/L		10/28/2011
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	3.00E-01	1.40E-01	8.62E-02	PCI/L		1/18/2012
B1.11073U	KISKIMERE GRND WATER	WATER - GROUND	R33812-12			8/30/2011 11:25:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	9.32E+01	7.90E+00		%		1/18/2012
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		7.05E+01	PCI/L		8/31/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		4.92E+00	PCI/L		8/31/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		5.09E+00	PCI/L		8/31/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.49E+01	PCI/L		8/31/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.74E+01	PCI/L		8/31/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		7.27E+01	PCI/L		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.25E+01	PCI/L		8/31/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GR-01	ANA	Alpha	7.00E-01	1.10E+00	8.47E-01	PCI/L		10/6/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL GR-01	ANA	Beta	2.15E+00	8.30E-01	1.09E+00	PCI/L		10/6/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL RA-05	ANA	Ra228	6.80E-01	4.50E-01	6.77E-01	PCI/L		10/28/2011
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.00E-01	9.20E-02	1.04E-01	PCI/L		1/18/2012
B1.11074V	KISKIMERE GRND WATER	WATER - GROUND	R33812-13			8/31/2011 13:05:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.95E+01	7.70E+00		%		1/18/2012
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		6.81E+01	PCI/L		8/31/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		4.62E+00	PCI/L		8/31/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.97E+00	PCI/L		8/31/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GAM-01	ANA	I131	ND		4.82E+01	PCI/L		8/31/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GAM-01	ANA	K40	ND		4.35E+01	PCI/L		8/31/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		9.03E+01	PCI/L		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		3.49E+01	PCI/L		8/31/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GR-01	ANA	Alpha	2.00E+00	2.60E+00	2.14E+00	PCI/L		10/6/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GR-01	ANA	Beta	4.10E+00	1.70E+00	2.27E+00	PCI/L		10/6/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GR-01	DUP	Alpha	3.20E+00	2.80E+00	1.85E+00	PCI/L		10/6/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GR-01	DUP	Beta	4.40E+00	1.70E+00	2.31E+00	PCI/L		10/6/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GR-01	MS	Alpha	5.20E+01	1.20E+01	2.04E+00	PCI/L		10/6/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL GR-01	MS	Beta	8.16E+01	9.60E+00	5.04E+00	PCI/L		10/6/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL RA-05	ANA	Ra228	4.90E-01	4.50E-01	7.08E-01	PCI/L		10/28/2011
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.60E-01	1.10E-01	6.90E-02	PCI/L		1/18/2012
B1.11075W	KISKIMERE GRND WATER	WATER - GROUND	R33812-14			8/31/2011 10:40:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	8.96E+01	7.70E+00		%		1/18/2012
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		8.71E+01	PCI/L		8/30/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		7.26E+00	PCI/L		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		5.00E+00	PCI/L		8/30/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GAM-01	ANA	I131	ND		5.68E+01	PCI/L		8/30/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GAM-01	ANA	K40	3.00E+01	4.40E+01		PCI/L		8/30/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		7.38E+01	PCI/L		8/30/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		3.42E+01	PCI/L		8/30/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GR-01	ANA	Alpha	0.00E+00	2.80E+00	2.63E+00	PCI/L		10/6/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL GR-01	ANA	Beta	1.30E+00	1.80E+00	2.75E+00	PCI/L		10/6/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL RA-05	ANA	Ra228	4.90E-01	4.20E-01	6.56E-01	PCI/L		10/28/2011
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	2.20E-01	1.30E-01	1.19E-01	PCI/L		1/18/2012
B1.11076X	KISKIMERE GRND WATER	WATER - GROUND	R33812-15			8/30/2011 11:35:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	9.35E+01	8.00E+00		%		1/18/2012
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		6.85E+01	PCI/L		8/31/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		5.50E+00	PCI/L		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.39E+00	PCI/L		8/31/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GAM-01	ANA	I131	ND		4.79E+01	PCI/L		8/31/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GAM-01	ANA	K40	ND		4.95E+01	PCI/L		8/31/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		7.36E+01	PCI/L		8/31/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		2.98E+01	PCI/L		8/31/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GR-01	ANA	Alpha	5.00E-01	7.30E+00	6.68E+00	PCI/L		10/6/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL GR-01	ANA	Beta	2.10E+00	5.20E+00	7.94E+00	PCI/L		10/6/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL RA-05	ANA	Ra228	3.70E-01	4.20E-01	6.84E-01	PCI/L		10/28/2011
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.50E-01	1.20E-01	1.37E-01	PCI/L		1/18/2012
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	8.80E+01	7.70E+00		%		1/18/2012
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL RA226-EICHROM	DUP	Ra226	7.80E-02	9.30E-02	1.31E-01	PCI/L		1/18/2012
B1.11077Y	KISKIMERE GRND WATER	WATER - GROUND	R33812-16			8/31/2011 10:50:00 AM EDT	NAREL RA226-EICHROM	DUP	Yield	8.50E+01	7.40E+00		%		1/18/2012

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		1.64E+00	PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Be7	6.42E+00	8.00E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Bi212	1.34E+00	2.60E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Bi214	1.02E+00	1.30E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		4.09E-02	PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Cs137	5.70E-02	2.00E-02		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	I131	ND		1.94E+00	PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	K40	1.26E+01	1.50E+00		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Pa234m	2.40E+00	1.70E+00		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Pb210	2.02E+00	4.10E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Pb212	1.22E+00	1.50E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Pb214	1.12E+00	1.30E-01		PCI/GDRY		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ra223	3.10E-01	8.30E-02		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ra226	2.10E+00	4.70E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ra228	1.30E+00	1.60E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Th234	1.09E+00	2.20E-01		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Tl208	3.90E-01	5.10E-02		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	U235	1.32E-01	2.90E-02		PCI/GDRY		8/31/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GR-03	ANA	Alpha	1.54E+01	6.80E+00	3.74E+00	PCI/GASH		11/9/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL GR-03	ANA	Beta	2.97E+01	5.70E+00	5.94E+00	PCI/GASH		11/9/2011
B1.11078Z	KISKIMERE GRND WATER	SEDIMENT	R33812-18	0.20938	0.86724	8/31/2011 15:55:00 PM EDT	NAREL RA-05	ANA	Ra228	2.00E+00	1.00E+00	1.43E+00	PCI/GASH		11/8/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		8.97E-01	PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Be7	9.40E-01	1.60E-01		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Bi212	1.21E+00	1.80E-01		PCI/GDRY		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Bi214	9.70E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		2.05E-02	PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Cs137	4.70E-02	1.20E-02		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	I131	ND		1.26E+00	PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	K40	1.42E+01	1.70E+00		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Pa234m	9.90E-01	9.60E-01		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Pb212	1.15E+00	1.30E-01		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Pb214	1.06E+00	1.20E-01		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Ra223	2.98E-01	5.90E-02		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Ra226	1.77E+00	3.00E-01		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Ra228	1.22E+00	1.50E-01		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Th234	7.80E-01	2.20E-01		PCI/GDRY		8/31/2011

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Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Tl208	3.70E-01	4.50E-02		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	U235	1.11E-01	1.90E-02		PCI/GDRY		8/31/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GR-03	ANA	Alpha	8.30E+00	5.30E+00	3.30E+00	PCI/GASH		11/9/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL GR-03	ANA	Beta	2.01E+01	4.80E+00	5.65E+00	PCI/GASH		11/9/2011
B1.11079A	KISKIMERE GRND WATER	SEDIMENT	R33812-19	0.73811	0.92516	8/31/2011 11:00:00 AM EDT	NAREL RA-05	ANA	Ra228	1.49E+00	9.20E-01	1.37E+00	PCI/GASH		11/8/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		9.44E-01	PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Be7	1.30E-01	1.20E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Bi212	1.05E+00	1.90E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Bi214	9.30E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		2.08E-02	PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Cs137	7.60E-02	1.40E-02		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	I131	ND		1.27E+00	PCI/GDRY		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	K40	9.00E+00	1.10E+00		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Pb212	9.80E-01	1.20E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Pb214	9.60E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Ra223	2.54E-01	6.10E-02		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Ra226	1.95E+00	3.20E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Ra228	1.00E+00	1.20E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Th234	6.30E-01	1.90E-01		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	Tl208	3.13E-01	3.90E-02		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GAM-01	ANA	U235	1.19E-01	1.90E-02		PCI/GDRY		8/31/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GR-03	ANA	Alpha	6.80E+00	5.20E+00	3.76E+00	PCI/GASH		11/9/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL GR-03	ANA	Beta	2.24E+01	4.90E+00	5.61E+00	PCI/GASH		11/9/2011
B1.11080T	KISKIMERE GRND WATER	SEDIMENT	R33812-20	0.66836	0.89407	8/31/2011 15:45:00 PM EDT	NAREL RA-05	ANA	Ra228	1.72E+00	8.20E-01	1.14E+00	PCI/GASH		11/8/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		9.40E-01	PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Be7	1.60E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Bi212	1.14E+00	1.80E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Bi214	9.10E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		2.24E-02	PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Cs137	6.90E-02	1.30E-02		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	I131	ND		1.33E+00	PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	K40	9.40E+00	1.10E+00		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Pa234m	1.70E+00	1.00E+00		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Pb212	9.70E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Pb214	9.50E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ra223	2.99E-01	5.90E-02		PCI/GDRY		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ra226	2.07E+00	3.30E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Ra228	9.80E-01	1.20E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Th234	6.70E-01	1.90E-01		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	Tl208	3.13E-01	3.90E-02		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GAM-01	ANA	U235	1.27E-01	2.00E-02		PCI/GDRY		8/31/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GR-03	ANA	Alpha	6.30E+00	5.20E+00	4.16E+00	PCI/GASH		11/9/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL GR-03	ANA	Beta	1.76E+01	4.60E+00	5.64E+00	PCI/GASH		11/9/2011
B1.11081U	KISKIMERE GRND WATER	SEDIMENT	R33812-21	0.6603	0.9179	8/31/2011 15:55:00 PM EDT	NAREL RA-05	ANA	Ra228	5.00E-01	7.20E-01	1.19E+00	PCI/GASH		11/8/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		1.26E+00	PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Bi212	1.63E+00	2.40E-01		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Bi214	1.58E+00	1.80E-01		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		2.57E-02	PCI/GDRY		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		2.37E-02	PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	I131	ND		1.86E+00	PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	K40	1.61E+01	1.90E+00		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Pa234m	3.20E+00	1.00E+00		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Pb212	1.57E+00	1.80E-01		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Pb214	1.71E+00	2.00E-01		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ra226	2.76E+00	4.10E-01		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ra228	1.58E+00	1.90E-01		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Th234	7.00E-01	1.60E-01		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Tl208	4.88E-01	5.80E-02		PCI/GDRY		8/30/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GR-03	ANA	Alpha	1.09E+01	6.00E+00	3.74E+00	PCI/GASH		11/9/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GR-03	ANA	Beta	3.35E+01	6.00E+00	6.00E+00	PCI/GASH		11/9/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GR-03	DUP	Alpha	1.61E+01	6.80E+00	3.31E+00	PCI/GASH		11/9/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL GR-03	DUP	Beta	3.26E+01	6.00E+00	6.24E+00	PCI/GASH		11/9/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL RA-05	ANA	Ra228	2.00E+00	1.00E+00	1.46E+00	PCI/GASH		11/9/2011
B1.11082V	KISKIMERE GRND WATER	SEDIMENT	R33812-22	0.53739	0.8886	8/30/2011 16:50:00 PM EDT	NAREL RA-05	DUP	Ra228	1.47E+00	9.50E-01	1.43E+00	PCI/GASH		11/9/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		7.19E-01	PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Be7	6.90E-01	1.30E-01		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Bi212	1.02E+00	1.70E-01		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Bi214	8.42E-01	9.90E-02		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		1.58E-02	PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Cs137	3.17E-02	8.00E-03		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	I131	ND		9.21E-01	PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	K40	9.60E+00	1.10E+00		PCI/GDRY		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Pa234m	7.50E-01	7.90E-01		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Pb212	9.30E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Pb214	8.90E-01	1.00E-01		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Ra223	2.62E-01	4.50E-02		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Ra226	1.57E+00	2.30E-01		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Ra228	1.01E+00	1.20E-01		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	Tl208	2.89E-01	3.50E-02		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GAM-01	ANA	U235	9.90E-02	1.40E-02		PCI/GDRY		8/31/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GR-03	ANA	Alpha	4.30E+00	4.70E+00	3.74E+00	PCI/GASH		11/9/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL GR-03	ANA	Beta	1.66E+01	4.30E+00	5.20E+00	PCI/GASH		11/9/2011
B1.11083W	KISKIMERE GRND WATER	SEDIMENT	R33812-23	0.74312	0.94412	8/31/2011 16:35:00 PM EDT	NAREL RA-05	ANA	Ra228	2.10E+00	1.00E+00	1.51E+00	PCI/GASH		11/9/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		1.20E+00	PCI/GDRY		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Be7	6.80E-01	1.60E-01		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Bi212	1.22E+00	1.90E-01		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Bi214	7.90E-01	9.50E-02		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		2.32E-02	PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Cs137	3.02E-02	9.50E-03		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	I131	ND		1.65E+00	PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	K40	1.08E+01	1.30E+00		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Pb212	9.60E-01	1.10E-01		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Pb214	8.40E-01	1.00E-01		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Ra226	1.47E+00	3.00E-01		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Ra228	9.60E-01	1.20E-01		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	Tl208	3.23E-01	4.00E-02		PCI/GDRY		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GAM-01	ANA	U235	9.20E-02	1.90E-02		PCI/GDRY		8/31/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GR-03	ANA	Alpha	2.90E+00	4.30E+00	3.31E+00	PCI/GASH		11/9/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL GR-03	ANA	Beta	1.44E+01	4.20E+00	5.34E+00	PCI/GASH		11/9/2011
B1.11084X	KISKIMERE GRND WATER	SEDIMENT	R33812-24	0.76227	0.94465	8/31/2011 13:10:00 PM EDT	NAREL RA-05	ANA	Ra228	1.48E+00	9.30E-01	1.39E+00	PCI/GASH		11/9/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		5.65E-01	PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Be7	2.33E-01	6.90E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Bi212	7.80E-01	1.20E-01		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Bi214	6.42E-01	7.60E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		1.20E-02	PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Cs137	3.37E-02	6.70E-03		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	I131	ND		8.25E-01	PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	K40	9.90E+00	1.10E+00		PCI/GDRY		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Pa234m	8.00E-01	5.30E-01		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Pb212	8.06E-01	9.40E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Pb214	6.96E-01	8.10E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Ra223	1.84E-01	3.00E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Ra226	1.30E+00	1.90E-01		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Ra228	7.90E-01	9.40E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Th234	4.29E-01	8.70E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	Tl208	2.44E-01	2.90E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GAM-01	ANA	U235	7.90E-02	1.20E-02		PCI/GDRY		8/30/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GR-03	ANA	Alpha	8.20E+00	5.50E+00	3.77E+00	PCI/GASH		11/9/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL GR-03	ANA	Beta	1.45E+01	4.20E+00	5.32E+00	PCI/GASH		11/9/2011
B1.11085Y	KISKIMERE GRND WATER	SEDIMENT	R33812-25	0.74235	0.95831	8/30/2011 11:04:00 AM EDT	NAREL RA-05	ANA	Ra228	2.04E+00	9.60E-01	1.34E+00	PCI/GASH		11/9/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		1.43E+00	PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Be7	2.50E-01	1.60E-01		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Bi212	1.41E+00	2.60E-01		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Bi214	1.05E+00	1.30E-01		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		2.48E-02	PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Cs137	6.80E-02	1.50E-02		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	I131	ND		2.28E+00	PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	K40	1.44E+01	1.70E+00		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Pa234m	1.70E+00	1.30E+00		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Pb212	1.33E+00	1.60E-01		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Pb214	1.10E+00	1.30E-01		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Ra226	1.86E+00	3.60E-01		PCI/GDRY		8/30/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Ra228	1.34E+00	1.60E-01		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Th227	8.70E-02	7.30E-02		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	Tl208	4.33E-01	5.30E-02		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GAM-01	ANA	U235	1.17E-01	2.20E-02		PCI/GDRY		8/30/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GR-03	ANA	Alpha	9.50E+00	5.80E+00	4.23E+00	PCI/GASH		11/9/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL GR-03	ANA	Beta	2.19E+01	5.10E+00	5.94E+00	PCI/GASH		11/9/2011
B1.11086Z	KISKIMERE GRND WATER	SEDIMENT	R33812-26	0.7002	0.91834	8/30/2011 11:40:00 AM EDT	NAREL RA-05	ANA	Ra228	1.87E+00	9.30E-01	1.32E+00	PCI/GASH		11/9/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		6.32E+01	PCI/L		8/31/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		5.21E+00	PCI/L		8/31/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.24E+00	PCI/L		8/31/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.25E+01	PCI/L		8/31/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.02E+01	PCI/L		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		6.57E+01	PCI/L		8/31/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		2.59E+01	PCI/L		8/31/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GR-01	ANA	Alpha	4.30E+00	8.20E+00	7.26E+00	PCI/L		10/6/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL GR-01	ANA	Beta	9.00E-01	5.00E+00	7.80E+00	PCI/L		10/6/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL RA-05	ANA	Ra228	9.00E-02	5.00E-01	8.67E-01	PCI/L		10/28/2011
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	7.50E-02	8.00E-02	9.16E-02	PCI/L		1/19/2012
B1.11087A	KISKIMERE GRND WATER	WATER - SURFACE	R33812-27			8/31/2011 15:25:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.83E+01	7.80E+00		%		1/19/2012
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		8.01E+01	PCI/L		8/31/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		5.44E+00	PCI/L		8/31/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.87E+00	PCI/L		8/31/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	I131	ND		5.53E+01	PCI/L		8/31/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	K40	ND		5.08E+01	PCI/L		8/31/2011

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Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		8.76E+01	PCI/L		8/31/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		3.24E+01	PCI/L		8/31/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GR-01	ANA	Alpha	-1.20E+00	7.10E+00	6.20E+00	PCI/L		10/6/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL GR-01	ANA	Beta	-5.00E-01	4.80E+00	7.53E+00	PCI/L		10/6/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL RA-05	ANA	Ra228	4.10E-01	4.90E-01	8.00E-01	PCI/L		10/28/2011
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	-6.00E-03	3.80E-02	9.72E-02	PCI/L		1/19/2012
B1.11088B	KISKIMERE GRND WATER	WATER - SURFACE	R33812-28			8/31/2011 11:00:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	8.28E+01	7.40E+00		%		1/19/2012
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		1.10E+02	PCI/L		8/31/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		7.95E+00	PCI/L		8/31/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		5.55E+00	PCI/L		8/31/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GAM-01	ANA	I131	ND		8.11E+01	PCI/L		8/31/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GAM-01	ANA	K40	ND		6.54E+01	PCI/L		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		9.10E+01	PCI/L		8/31/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.71E+01	PCI/L		8/31/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GR-01	ANA	Alpha	5.00E+00	2.50E+00	1.50E+00	PCI/L		10/6/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL GR-01	ANA	Beta	4.80E+00	1.40E+00	1.78E+00	PCI/L		10/6/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL RA-05	ANA	Ra228	7.60E-01	5.10E-01	7.75E-01	PCI/L		10/28/2011
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	8.80E-02	8.90E-02	1.08E-01	PCI/L		1/19/2012
B1.11089C	KISKIMERE GRND WATER	WATER - SURFACE	R33812-29			8/31/2011 15:10:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.63E+01	7.70E+00		%		1/19/2012
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		7.28E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		5.24E+00	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		4.56E+00	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	ANA	I131	ND		4.96E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.55E+01	PCI/L		8/31/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		7.39E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		2.62E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	DUP	Ba140	ND		9.01E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	DUP	Co60	ND		5.79E+00	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	DUP	Cs137	ND		4.76E+00	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	DUP	I131	ND		6.97E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	DUP	K40	ND		4.84E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	DUP	Ra226	ND		9.02E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GAM-01	DUP	Ra228	ND		3.65E+01	PCI/L		8/31/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GR-01	ANA	Alpha	3.00E-01	3.90E+00	3.56E+00	PCI/L		10/6/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL GR-01	ANA	Beta	2.60E+00	2.80E+00	4.10E+00	PCI/L		10/6/2011
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL RA-05	ANA	Ra228	6.00E-01	4.80E-01	7.58E-01	PCI/L		10/28/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.30E-01	1.00E-01	7.25E-02	PCI/L		1/19/2012
B1.11090V	KISKIMERE GRND WATER	WATER - SURFACE	R33812-30			8/31/2011 15:20:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.53E+01	7.60E+00		%		1/19/2012
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ba140	ND		1.06E+02	PCI/L		8/30/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Co60	ND		6.28E+00	PCI/L		8/30/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Cs137	ND		5.29E+00	PCI/L		8/30/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	I131	ND		7.68E+01	PCI/L		8/30/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	K40	ND		5.44E+01	PCI/L		8/30/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ra226	ND		7.27E+01	PCI/L		8/30/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GAM-01	ANA	Ra228	ND		3.26E+01	PCI/L		8/30/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GR-01	ANA	Alpha	4.00E-01	3.00E+00	2.86E+00	PCI/L		10/6/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL GR-01	ANA	Beta	3.90E+00	2.10E+00	2.91E+00	PCI/L		10/6/2011
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL RA-05	ANA	Ra228	2.70E-01	4.50E-01	7.59E-01	PCI/L		10/28/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL RA226-EICHROM	ANA	Ra226	1.10E-02	6.00E-02	1.24E-01	PCI/L		1/19/2012
B1.11091W	KISKIMERE GRND WATER	WATER - SURFACE	R33812-31			8/30/2011 16:50:00 PM EDT	NAREL RA226-EICHROM	ANA	Yield	8.99E+01	7.90E+00		%		1/19/2012
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	Ba140	ND		9.25E+01	PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	Co60	ND		4.36E+00	PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	Cs137	ND		4.38E+00	PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	I131	ND		8.02E+01	PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	K40	ND		4.37E+01	PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	Pb212	3.70E+00	4.90E+00		PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	Ra226	ND		7.65E+01	PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GAM-01	ANA	Ra228	ND		2.79E+01	PCI/L		8/30/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GR-01	ANA	Alpha	8.00E-01	7.70E+00	6.39E+00	PCI/L		10/6/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL GR-01	ANA	Beta	5.90E+00	5.50E+00	7.94E+00	PCI/L		10/6/2011

Kiskimere Groundwater Well Investigation Site
Summary of Radiochemistry Data from NAREL

Sample ID	Project ID	Matrix	Client ID	Dry / Wet	Ash / Dry	Coll. Begin / End	Procedure	QC	Analyte	Result	2*u	MDC	Unit	B	Date
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL RA-05	ANA	Ra228	8.50E-01	5.00E-01	7.39E-01	PCI/L		10/28/2011
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL RA226-EICHROM	ANA	Ra226	4.30E-02	8.90E-02	1.54E-01	PCI/L		1/19/2012
B1.11092X	KISKIMERE GRND WATER	WATER - SURFACE	R33812-32			8/30/2011 11:30:00 AM EDT	NAREL RA226-EICHROM	ANA	Yield	7.83E+01	7.30E+00		%		1/19/2012

APPENDIX E:

INORGANIC VALIDATION REPORTS

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

DATE : October 27, 2011

SUBJECT: Region III Data QA Review

FROM: Colleen Walling
Region III ESAT RPO (3EA20)

TO: Lisa Johnson
Remedial Project Manager (3HS12)

Attached is the inorganic data validation report for the Kiskimere Groundwater Well (Case#41667; SDG#: MC0047) 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.

Attachment

cc: [redacted] (TechLaw, Inc.)

TO #0037 TDF: #10029

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

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

LOCKHEED MARTIN
We never forget who we're working for™

Date: October 26, 2011

Subject: Inorganic Data Validation (IM2 Level)
Case: 41667
SDG: MC0047
Site: Kiskimere Groundwater Well

From: Kurt Roby
Inorganic Data Reviewer

Mahboobeh Mecanic
Senior Oversight Chemist

To: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 41667, Sample Delivery Group (SDG) MC0047, consisted of twenty (20) aqueous samples including two (2) field blanks and three (3) field duplicate pairs analyzed for mercury (Hg) by cold vapor technique, for aluminum (Al), calcium (Ca), iron (Fe), magnesium (Mg), potassium (K) and sodium (Na) by ICP-AES and for all remaining analytes by ICP-MS. Samples were analyzed by A4 Scientific, Inc. (A4) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.2 (modified) through the Routine Analytical Services (RAS) program. Modification reference number 2183.0 details the specifications and reporting requirements for the addition of uranium (U) to the target analyte list.

SUMMARY

Data were validated according to Region 3 Modifications to the National Functional Guidelines for Inorganic Data Review, Level IM2, and is assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual). Areas of concern with respect to data usability are listed below.

Data in this case have been impacted by outliers present in a laboratory blank as well as the ICP serial dilution analysis. Details of these outliers are discussed under "Minor Problems," specific samples affected are outlined in "Table 1A" and qualified analytical results for all samples are summarized on Data Summary Forms (DSFs).

MINOR PROBLEMS

A Continuing Calibration Blank (CCB) had a reported result greater than the Method Detection Limit (MDL) for Fe. Positive results for this analyte in affected samples which are less than five times (<5X) the blank concentration may be biased high and have been qualified "B" on the DSF.

Percent Difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) for manganese (Mn). Positive results for this analyte are estimated due to possible matrix interferences and have been qualified "J" on the DSFs.

NOTES

Reported results between MDLs and Contract Required Quantitation Limits (CRQLs) were qualified "J" unless superseded by "B" on the DSFs.

Reported results for field duplicate pairs MC0057/MC0060, MC0059/MC0061 and MC0076/MC0077 were within 20% Relative Percent Difference (RPD), ± CRQL for all analytes except copper (Cu) in field duplicate pair MC0059/MC0061.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

Table 1A is a summary of qualifiers applied to the laboratory-generated results during data validation.

Table 1A	Summary of qualifiers on data summary forms after data validation
Table 1B	Codes used in comments column of Table 1A
Appendix A	Glossary of Data Qualifier Codes
Appendix B	Data Summary Form(s)
Appendix C	Chain of Custody Records
Appendix D	Laboratory Case Narrative

DCN: 41667_ MC0047

TABLE 1A
SUMMARY OF QUALIFIERS ON DATA SUMMARY FORM AFTER DATA VALIDATION

Case 41667, SDG MC0047

ANALYTE	SAMPLES AFFECTED	POSITIVE VALUES	NON-DETECTED VALUES	BIAS	COMMENTS*
Fe	MC0052, MC0053, MC0056	B		High	CCB (41.0 J ug/L)
Mn	All samples except MC0063, MC0064	J			ISD (19%)

* See explanation of comments in Table 1B

TABLE 1B
CODES USED IN COMMENTS COLUMN

CCB	=	Continuing calibration blank had a result >MDL [result is in parenthesis]. Positive results which are <5X the blank concentration may be biased high.
ISD	=	Percent difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) [%D is in parenthesis]. Positive results are estimated.

Appendix A
Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

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

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = 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.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Appendix B
Data Summary Forms

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047 Number of Soil Samples : 0
Site : KISKIMERE GROUNDWATER WELL Number of Water Samples : 20
Lab. : A4

Sample Number :		MC0047		MC0048		MC0050		MC0051		MC0052	
Sampling Location :		GW01		GW02		GW03		GW04		GW07	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		09:45		10:14		10:35		15:36		13:00	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200										
CALCIUM	5000	10600		9770		33100		17400		13300	
IRON	100					812		298		59.5	B
MAGNESIUM	5000	3010	J	7260		7470		6040		6810	
MERCURY	0.2										
POTASSIUM	5000									2890	J
SODIUM	5000	4080	J	1890	J	4960	J	31100		2790	J

Sample Number :		MC0053		MC0054		MC0055		MC0056		MC0057	
Sampling Location :		GW08D		GW09		GW10		GW14		GW15	
Field QC :										Dup. of MC0060	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		16:50		16:45		15:00		10:41		11:25	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200										
CALCIUM	5000	17400		47300		13500		38100		43300	
IRON	100	76.3	B			2350		33.8	B		
MAGNESIUM	5000	6000		9920		6900		8610		8250	
MERCURY	0.2										
POTASSIUM	5000			9760							
SODIUM	5000	14600		41200		20700		2010	J	4650	J

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0058		MC0059		MC0060		MC0061		MC0062	
Sampling Location :		GW24		GW26		GW27		GW28		GW8S	
Field QC :				Dup. of MC0061		Dup. of MC0057		Dup. of MC0059			
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/31/2011		08/31/2011		08/30/2011		08/31/2011		08/30/2011	
Time Sampled :		13:05		10:40		11:35		10:50		17:10	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200										
CALCIUM	5000	7540		47800		43000		46400		16400	
IRON	100									1190	
MAGNESIUM	5000	5630		10900		8150		10600		4080	J
MERCURY	0.2										
POTASSIUM	5000									2960	J
SODIUM	5000	3510	J	5380		4550	J	5180		1850	J

Sample Number :		MC0063		MC0064		MC0074		MC0076		MC0077	
Sampling Location :		FB01		FB02		SW01		SW03		SW04	
Field QC :		Field Blank		Field Blank				Dup. of MC0077		Dup. of MC0076	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/31/2011		08/31/2011		08/31/2011		08/31/2011	
Time Sampled :		18:20		17:30		15:25		15:10		15:20	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200					98.7	J	92.2	J	87.6	J
CALCIUM	5000					60100		61400		60400	
IRON	100					256		223		242	
MAGNESIUM	5000					18100		18500		18100	
MERCURY	0.2										
POTASSIUM	5000					3200	J	3160	J	3090	J
SODIUM	5000					41100		41600		41300	

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0047		MC0048		MC0050		MC0051		MC0052	
Sampling Location :		GW01		GW02		GW03		GW04		GW07	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		09:45		10:14		10:35		15:36		13:00	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	2										
ARSENIC	1										
BARIUM	10	42.6		80.6		154		81.7		72.2	
BERYLLIUM	1										
CADMIUM	1										
CHROMIUM	2	1.3	J			2.6		1.6	J		
COBALT	1					1.1					
COPPER	2	34.1		1.4	J	17.2		0.93	J	60.2	
LEAD	1	2.2				0.84	J			1.7	
MANGANESE	1	4.1	J	2.7	J	305	J	8.9	J	10.6	J
NICKEL	1	4.5		9.7		0.83	J	0.83	J	12.6	
SELENIUM	5										
SILVER	1										
THALLIUM	1										
URANIUM	1										
VANADIUM	5										
ZINC	2	28.4		6.6		27.7		1.4	J	44.6	

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0053		MC0054		MC0055		MC0056		MC0057	
Sampling Location :		GW08D		GW09		GW10		GW14		GW15	
Field QC :										Dup. of MC0060	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		16:50		16:45		15:00		10:41		11:25	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	2										
ARSENIC	1			0.49	J						
BARIUM	10	284		49.8		68.1		66.5		251	
BERYLLIUM	1										
CADMIUM	1										
CHROMIUM	2	1.1	J	1.7	J	1.5	J	2.2		2.7	
COBALT	1										
COPPER	2	55.0		23.0		240		11.6		4.9	
LEAD	1	9.6		2.5		3.9		0.49	J		
MANGANESE	1	30.9	J	2.3	J	58.4	J	0.95	J	0.93	J
NICKEL	1	0.72	J	8.7		5.6		1.1			
SELENIUM	5										
SILVER	1			0.39	J						
THALLIUM	1										
URANIUM	1										
VANADIUM	5										
ZINC	2	95.9		59.7		173		16.0		20.3	

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0058		MC0059		MC0060		MC0061		MC0062	
Sampling Location :		GW24		GW26		GW27		GW28		GW8S	
Field QC :				Dup. of MC0061		Dup. of MC0057		Dup. of MC0059			
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/31/2011		08/31/2011		08/30/2011		08/31/2011		08/30/2011	
Time Sampled :		13:05		10:40		11:35		10:50		17:10	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	2										
ARSENIC	1										
BARIUM	10	35.6		65.9		253		66.6		57.2	
BERYLLIUM	1										
CADMIUM	1										
CHROMIUM	2	1.5	J	2.4		2.6		2.2		1.5	J
COBALT	1										
COPPER	2	86.7		8.0		5.4		14.4		24.1	
LEAD	1	3.5		1.1				1.3		5.1	
MANGANESE	1	17.2	J	1.7	J	1.1	J	2.7	J	28.7	J
NICKEL	1	9.8								5.6	
SELENIUM	5										
SILVER	1										
THALLIUM	1										
URANIUM	1			0.85	J			0.81	J		
VANADIUM	5										
ZINC	2	255		2.5		19.3		2.0	J	16.1	

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0063		MC0064		MC0074		MC0076		MC0077	
Sampling Location :		FB01		FB02		SW01		SW03		SW04	
Field QC :		Field Blank		Field Blank				Dup. of MC0077		Dup. of MC0076	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/31/2011		08/31/2011		08/31/2011		08/31/2011	
Time Sampled :		18:20		17:30		15:25		15:10		15:20	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	2										
ARSENIC	1										
BARIUM	10					53.0		54.1		53.2	
BERYLLIUM	1										
CADMIUM	1										
CHROMIUM	2										
COBALT	1					0.56	J	0.45	J	0.48	J
COPPER	2										
LEAD	1										
MANGANESE	1					80.5	J	60.5	J	61.2	J
NICKEL	1					3.2		3.2		3.3	
SELENIUM	5										
SILVER	1										
THALLIUM	1										
URANIUM	1										
VANADIUM	5										
ZINC	2					2.2		2.1		1.9	J

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

Appendix C
Chain of Custody Records

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011
Project Code:	CT5653	Carrier Name:	FedEx
Account Code:	2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7326
CERCLIS ID:	PAN000306740	Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277
Spill ID:	ARL		
Site Name/State:	Kiskimere GW Well Investigation/WV		
Project Leader:	[redacted]		
Action:	Site Evaluation		
Sampling Co:	TechLaw, Inc.		

Chain of Custody Record

Sampler Signature: [redacted]

Relinquished By	(Date / Time)	Received By	(Date / Time)
1 [redacted]	9/1/11 / 1900		
2			
3			
4			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0047	Ground Water/ John Elson	L/G	TAL + U (21)	224 (HNO3) (1)	GW01	S: 8/30/2011 9:45		–
MC0048	Ground Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	225 (HNO3) (1)	GW02	S: 8/30/2011 10:14		–
MC0050	Ground Water/ Dan Buckley	L/G	TAL + U (21)	227 (HNO3), 228 (HNO3), 229 (HNO3) (3)	GW03	S: 8/30/2011 10:35		Lab QC
MC0051	Ground Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	230 (HNO3) (1)	GW04	S: 8/30/2011 15:36		–
MC0074	Surface Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	254 (HNO3) (1)	SW01	S: 8/31/2011 15:25		–
MC0075	Surface Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	255 (HNO3) (1)	SW02	S: 8/31/2011 11:00		Lab QC
MC0076	Surface Water/ John Elson	L/G	TAL + U (21)	256 (HNO3) (1)	SW03	S: 8/31/2011 15:10		Field Duplicate of SW04
MC0077	Surface Water/ John Elson	L/G	TAL + U (21)	257 (HNO3) (1)	SW04	S: 8/31/2011 15:20		Field Duplicate of SW03

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: MC0050, MC0075	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TAL + U = CLP TAL Metals + U	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-090111-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3
Project Code:	CT5653
Account Code:	2011T03N302DD2C03ZZQB00
CERCLIS ID:	PAN000306740
Spill ID:	ARL
Site Name/State:	Kiskimere GW Well Investigation/WV
Project Leader:	[redacted]
Action:	Site Evaluation
Sampling Co:	TechLaw, Inc.

Date Shipped:	9/1/2011
Carrier Name:	FedEx
Airbill:	8768 8339 7337
Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277

Chain of Custody Record

Sampler Signature: [redacted]

Relinquished By	(Date / Time)	Received By	(Date / Time)
1 [redacted]	9/1/11/1900		
2			
3			
4			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0052	Ground Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	231 (HNO3) (1)	GW07	S: 8/30/2011 13:00		–
MC0053	Ground Water/ Dan Buckley	L/G	TAL + U (21)	232 (HNO3) (1)	GW08D	S: 8/30/2011 16:50		–
MC0054	Ground Water/ John Elson	L/G	TAL + U (21)	233 (HNO3) (1)	GW09	S: 8/30/2011 16:45		–
MC0055	Ground Water/ John Elson	L/G	TAL + U (21)	234 (HNO3) (1)	GW10	S: 8/30/2011 15:00		–
MC0056	Ground Water/ John Elson	L/G	TAL + U (21)	235 (HNO3) (1)	GW14	S: 8/30/2011 10:41		–
MC0057	Ground Water/ John Elson	L/G	TAL + U (21)	236 (HNO3) (1)	GW15	S: 8/30/2011 11:25		Field Duplicate of GW27
MC0058	Ground Water/ John Elson	L/G	TAL + U (21)	237 (HNO3) (1)	GW24	S: 8/31/2011 13:05		–
MC0059	Ground Water/ Dan Buckley	L/G	TAL + U (21)	238 (HNO3) (1)	GW26	S: 8/31/2011 10:40		Field Duplicate of GW28
MC0060	Ground Water/ John Elson	L/G	TAL + U (21)	239 (HNO3) (1)	GW27	S: 8/30/2011 11:35		Field Duplicate of GW15
MC0061	Ground Water/ Dan Buckley	L/G	TAL + U (21)	240 (HNO3) (1)	GW28	S: 8/31/2011 10:50		Field Duplicate of GW26

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TAL + U = CLP TAL Metals + U	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-090111-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

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USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011	Chain of Custody Record	Sampler Signature: [redacted]
Project Code:	CT5653	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7337	1 [illegible] 9/1/11/1900	
CERCLIS ID:	PAN000306740	Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277	2	
Spill ID:	ARL			3	
Site Name/State:	Kiskimere GW Well Investigation/WV			4	
Project Leader:	[redacted]				
Action:	Site Evaluation				
Sampling Co:	TechLaw, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0062	Ground Water/ Dan Buckley	L/G	TAL + U (21)	241 (HNO3) (1)	GW8S	S: 8/30/2011 17:10		–
MC0063	Ground Water/ Dan Buckley	L/G	TAL + U (21)	242 (HNO3) (1)	FB01	S: 8/30/2011 18:20		Field Blank
MC0064	Ground Water/ Dan Buckley	L/G	TAL + U (21)	243 (HNO3) (1)	FB02	S: 8/31/2011 17:30		Field Blank

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TAL + U = CLP TAL Metals + U	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-090111-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

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U.S EPA Region III Analytical Request Form

Revision 11.09

41667

OASQA USE ONLY			
Control #	CT5653	RAS #	41667
DAS#		NSF #	
PES #		Analytical TAT	21 days

Date: 08/10/11	Site Activity: Site Assessment		
Site Name: Kiskimere Groundwater Well Investigation		Street Address: intersection of Eisenhower and Main Streets	
City: Parks Township, Armstrong Co.	State: PA	Latitude: 40 degrees 37'11.24"	Longitude: -079 degrees 35'01.16"
Program: Superfund	Acct. #: 2011T03N302DD2CA3RLQB00	CERCLIS #: PAN000306740	
Site ID: 0306740	Spill ID: A3RL	Operable Unit:	
Site Specific QA Plan Submitted: ☐ No ☒ Yes	Title: Sampling QA/QC Work Plan		Date Approved: Aug 10, 2011
EPA Project Leader: Lisa Johnson	Phone#: 215-814-3314	Cell Phone #: NA	E-mail: johnson.lisa@epa.gov
Request Preparer: [redacted]	Phone#: 740-867-0968	Cell Phone #: 304-830-1442	E-mail: gnance@techlawinc.com
Site Leader: [redacted]	Phone#: 304-230-1230	Cell Phone #: 304-830-1444	E-mail: mdallessandro@techlawinc.com
Contractor: TechLaw, Inc.		EPA CO/PO: Denise T. Page/Karen Esposito	
#Samples 45	Matrix: Water	Parameter: ICP-MS TAL metals+Hg+U A4	Method: CLP ISM01.2 ICP-MS/ M.A. for U 34388
#Samples 48	Matrix: Water	Parameter: TCL Trace VOA KAP	Method: CLP SOM01.2 34389
#Samples 7	Matrix: sediment	Parameter: ICP-AES TAL metals+Hg+U A4	Method: CLP ISM01.2 ICP-AES/ M.A. for U 34391
#Samples 7	Matrix: sediment	Parameter: TCL VOA KAP	Method: CLP SOM01.2 34390
#Samples	Matrix:	Parameter	Method:
#Samples	Matrix;	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
Ship Date From: August 30, 2011	Ship Date To: September 1, 2011	Org. Validation Level M3	Inorg. Validation Level IM2

Unvalidated Data Requested: ☐ No ☒ Yes If Yes, TAT Needed: ☐ 14days ☐ 7days ☐ 72hrs ☐ 48hrs ☐ 24hrs ☐ Other (Specify) **21 days**

Validated Data Package Due: ☒ 42 days ☐ 30 days ☐ 21days ☐ 14 days ☐ Other (Specify) 21/21

Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)

Special Instructions: See attached CLP TCL and TAL for analytes and CRQLs. Request CLP Modified Analyis (M.A.) for Uranium with 1 ug/l QL in water and **?? for sediment samples.**

Request for Quote (RFQ) for Modified Analysis

Date: August 22, 2011

Subject: Modification Reference Number: 2183.0
Title: ICP-MS plus Uranium
Sample Matrix: Water and Soil
Fraction Affected: ICP-MS
Statement of Work: ISM01.2

Purpose:

The Contractor Laboratory is requested to perform the following modified analyses under the Inorganic Statement of Work (SOW) ISM01.2, based on the additional specifications listed below. Unless specifically modified by this modification, all analyses, Quality Control (QC), and reporting requirements specified in SOW ISM01.2 remain unchanged and in full force and effect. The number of samples requested in this modification is not guaranteed.

Please note that accepting a modified analysis request is voluntary, and that the Laboratory is not required to accept the modified analysis. There will be no adverse effect to the Laboratory for not accepting the modified analysis request. However, once the Laboratory accepts the request for modified analysis, it shall perform the analysis in accordance with this modification and as specified in SOW ISM01.2.

The Laboratory is requested to review the modification described herein, determine whether or not it shall accept the requested modified analyses, and complete the attached response form. The Laboratory shall provide comments in response to the required changes in the designated area, in order to ensure that the modified analysis can be completed in accordance with the specifications described herein.

Modification to the SOW Specifications:

The contract Laboratory shall analyze water/aqueous samples and soil/sediment samples for the Target Analyte List and the additional analyte Uranium (U, CASRN 7440-61-1) by ICP-MS as indicated on the Traffic Report/Chain of Custody Record.

The Contract Required Quantitation Limits (CRQLs) for the following analytes and matrices have been modified. All other CRQLs remain at the level specified in the SOW.

Analyte	Aqueous CRQL (µg/L)	Aqueous Spike level (µg/L)	Soil CRQL (mg/kg)	Soil Spike level (mg/kg)
Uranium	1.0	100	1.0	20

If Method Detection Limits (MDLs) have not already been determined, the Laboratory shall determine MDLs for this analyte using the appropriate preparation methods. The MDLs must be lower than the CRQLs, but are not required to be less than one-half the CRQL.

The Laboratory shall:

- Perform the Initial Calibration with at least one non-blank standard at or below the modified aqueous CRQL.
- Add U to the ICV and CCV at appropriate mid-range concentrations.
- Evaluate the ICB and CCB against the modified aqueous CRQL.
- Perform the Matrix Spike at the levels specified above. Post-digestion spike requirements are per the SOW.
- Add U to the LCS at 2 times the appropriate modified CRQL.
- Add U to Forms 1, 2A, 3, 4B, 5A (5B), 6, 7, 8, 9, 11, 13, and 16.

The Laboratory is not required to add U to the ICSA/ICSAB solutions. The Laboratory shall use a true value of zero (0) and acceptance windows of ±2x the modified aqueous CRQL unless a non-zero value has been determined for the solutions.

The Laboratory is not required to bracket U with an internal standard having a mass greater than 238. The analysis of the Bismuth internal standard at mass 209 is sufficient.

Reporting Requirements:

Hardcopy and electronic data reporting are required as specified per SOW ISM01.2. All hardcopy and electronic data shall be adjusted to incorporate modified specifications. This includes attaching a copy of the requirements for modified analysis to the SDG Narrative. If specific problems occur with incorporation of the modified analysis into the hardcopy and/or electronic deliverable, the Laboratory shall contact the DASS Manager within the Sample Management Office (SMO) at (703) 818-4233 or via email at CCSSUPPORT@fedcsc.com for resolution.

All samples analyzed for the same fraction within an SDG must be analyzed under the same fractional requirements. The Laboratory shall not include data for the same fraction with different requirements in the same SDG.

The Laboratory shall include the Modification Reference Number 2183.0 on each hardcopy data form under the "Mod. Ref. No:" header appearing on each form as well as the SamplePlusMethod/ClientMethodModificationID element of the electronic deliverable. The Laboratory shall also document the Modification Reference Number and Solicitation Number on the SDG Coversheet and SDG Narrative.

Clarifications/Revisions to the RFQ for Modified Analysis:

Laboratory Name:
Laboratory Comments:

Appendix D
Laboratory Case Narrative

USEPA - CLP

COVER PAGE

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW09035

Lab Code: A4 Case No.: 41667 Mod. Ref. No.: _____ SDG No.: MC0047

SOW No.: ISM01.2

EPA Sample No.	Lab Sample ID
MC0047	0014659-14
MC0048	0014659-15
MC0050	0014659-16
MC0050D	1090051-DUP1
MC0050D	1090168-DUP1
MC0050S	1090051-MS1
MC0050S	1090168-MS1
MC0051	0014659-17
MC0052	0014659-01
MC0053	0014659-02
MC0054	0014659-03
MC0055	0014659-04
MC0056	0014659-05
MC0057	0014659-06
MC0058	0014659-07
MC0059	0014659-08
MC0060	0014659-09
MC0061	0014659-10
MC0062	0014659-11
MC0063	0014659-12
MC0064	0014659-13
MC0074	0014659-18
MC0076	0014659-19
MC0077	0014659-20

		ICP-AES	ICP-MS
Were ICP-AES and ICP interelement corrections applied?	(Yes/No)	Yes	
Were ICP-AES and ICP background corrections applied?	(Yes/No)	Yes	
If yes, were raw data generated before application of background corrections?	(Yes/No)	No	

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [redacted] Name: [redacted]

Date 09/21/2011 Title : Data Reviewer

USEPA - CLP

COVER PAGE

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW09035

Lab Code: A4 Case No.: 41667 Mod. Ref. No.: 2183.0 SDG No.: MC0047

SOW No.: ISM01.2

EPA Sample No.	Lab Sample ID
MC0047	0014659-14
MC0048	0014659-15
MC0050	0014659-16
MC0050D	1090164-DUP1
MC0050S	1090164-MS1
MC0050S	1090164-MS2
MC0051	0014659-17
MC0052	0014659-01
MC0053	0014659-02
MC0054	0014659-03
MC0055	0014659-04
MC0056	0014659-05
MC0057	0014659-06
MC0058	0014659-07
MC0059	0014659-08
MC0060	0014659-09
MC0061	0014659-10
MC0062	0014659-11
MC0063	0014659-12
MC0064	0014659-13
MC0074	0014659-18
MC0076	0014659-19
MC0077	0014659-20

		ICP-AES	ICP-MS
Were ICP-AES and ICP interelement corrections applied?	(Yes/No)		Yes
Were ICP-AES and ICP background corrections applied?	(Yes/No)		Yes
If yes, were raw data generated before application of background corrections?	(Yes/No)		No

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [redacted] Name: [redacted]

Date 09/21/2011 Title: Data Reviewer

A4 SCIENTIFIC, INC.

1544 Sawdust Road, Suite 505 • The Woodlands, TX 77380 • Phone (281) 292-5277

Contract #: EPW09035	Case #: 41667	SDG #: MC0047

SDG NARRATIVE

SAMPLE RECIEPT & LOGIN

The following samples were received on the dates listed against them. The samples were logged in for analysis as listed.

Client Sample	*Lab Sample*	*Matrix*	*#Cont.*	*Received*	*Analysis*	*Comments*
MC0052	0014659-01	Water	1	09/02/11 10:00	ISM01.2 HG	1st Sx
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0053	0014659-02	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0054	0014659-03	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPMS+2183.0	
					ISM01.2 ICPAES	
MC0055	0014659-04	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0056	0014659-05	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
MC0056	0014659-05	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
MC0057	0014659-06	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0058	0014659-07	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	

A4 SCIENTIFIC, INC.

1544 Sawdust Road, Suite 505 • The Woodlands, TX 77380 • Phone (281) 292-5277

Contract #: EPW09035	Case #: 41667	SDG #: MC0047

SDG NARRATIVE

Client Sample	Lab Sample	Matrix	#Cont.	Received	Analysis	Comments
MC0059	0014659-08	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0060	0014659-09	Water	1	09/02/11 10:00	ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
					ISM01.2 HG	
MC0061	0014659-10	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0062	0014659-11	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0063	0014659-12	Water	1	09/02/11 10:00	ISM01.2 HG	FIELD BLANK
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0064	0014659-13	Water	1	09/02/11 10:00	ISM01.2 HG	FIELD BLANK
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0047	0014659-14	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 HG	
					ISM01.2 ICPAES	

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Contract #: EPW09035	Case #: 41667	SDG #: MC0047

SDG NARRATIVE

Client Sample	*Lab Sample*	*Matrix*	*#Cont.*	*Received*	*Analysis*	*Comments*
MC0048	0014659-15	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 HG	
					ISM01.2 ICPAES	
MC0050	0014659-16	Water	3	09/02/11 10:00	ISM01.2 HG	MS/Dup
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0051	0014659-17	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 HG	
					ISM01.2 ICPAES	
MC0074	0014659-18	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 HG	
					ISM01.2 ICPAES	
MC0076	0014659-19	Water	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPAES	
					ISM01.2 ICPMS+2183.0	
MC0077	0014659-20	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	Last Sx
					ISM01.2 HG	
					ISM01.2 ICPAES	

The following issues were noted:

Issue: The lab received and analyzed samples by ICP-MS (MA 2183.0) and found there are extremely high concentrations of Ca, Fe, K, Na, Mg and Al in almost all samples. Due to the high concentrations, the laboratory would like to run these analytes by ICP-AES and the remainder of the analytes by ICP-MS for all samples.
Resolution: Per Region 3, the laboratory may run all samples by ICP-AEs for Al, Ca, Fe, K, Mg, and Na and all remaining analytes by ICP-MS (MA 2183.0)

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Contract #: EPW09035	Case #: 41667	SDG #: MC0047

SDG NARRATIVE

Directive is enclosed. No other discrepancies of issues were noted during receipt and login.

pH of the water samples was verified upon sample receipt and the reading is listed below. pH determination log is included in the data package.

EPA SAMPLE #	LAB SAMPLE #	pH-ICP-AES, ICP-MS, Hg
MC0052	0014659-01	<2
MC0053	0014659-02	<2
MC0054	0014659-3	<2
MC0055	0014659-04	<2
MC0056	0014659-05	<2
MC0057	0014659-06	<2
MC0058	0014659-07	<2
MC0059	0014659-08	<2
MC0060	0014659-09	<2
MC0061	0014659-10	<2
MC0062	0014659-11	<2
MC0063	0014659-12	<2
MC0064	0014659-13	<2
MC0047	0014659-14	<2
MC0048	0014659-15	<2
MC0050	0014659-16	<2
MC0051	0014659-17	<2
MC0074	0014659-18	<2
MC0076	0014659-19	<2
MC0077	0014659-20	<2

MERCURY

Water samples were digested by Hot-Block technique (7470A) and analyzed using a Perkin Elmer FIMs-100 Mercury Analyzer.

MS and DUP were performed on sample "MC0050" and they were within the QC limits.

No problems were encountered during sample preparation or analysis.

ICP-AES

Water Samples were digested by Hot-Block technique (200.7) and analyzed using a Thermo Electron ICAP6500.

MS was performed on sample "MC0050". Recoveries were within the QC limits.

Dup was performed on sample "MC0050". RPDs were within the QC limits

Serial Dilution is performed on sample "MC0050". Percent Differences (%D) were within QC limits

No other problems were encountered during sample preparation or analysis.

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Contract #: EPW09035	Case #: 41667	SDG #: MC0047

SDG NARRATIVE

ICP-MS

Samples were analyzed as per ISM01.2. MA 2183.0.

Water samples were digested by Hot-Block technique (200.8) and analyzed using a Thermo Electron Corporation ICP MS model X-II.

MS was performed on sample "MC0050". Recoveries were within the QC limits

Dup was performed on sample "MC0050". RPDs were within the QC limits

Serial Dilution is performed on sample "MC0050". Percent Differences (%D) were outside QC limits for MANGANESE.

No other problems were encountered during sample preparation or analysis.

The following equations are used for calculation of sample results from raw instrument output data:

MERCURY

WATER Samples:

A standard curve is prepared by plotting the instrumental response of processed standards against true concentration values. Using a linear regression equation, the concentration of field and Quality Control (QC) samples is determined.

ICP-AES

WATER Samples:

Concentration (µg/L) = $C * \frac{V_f}{V_i} * DF$

Where,
C = Instrument value in µg/L
V_f = Final digestion volume (mL) (50ml)
V_i = Initial digestion volume (mL) (50ml)
DF = Dilution Factor

ICP-MS

WATER Samples:

Concentration (µg/L) = $C * \frac{V_f}{V_i} * DF$

Where,
C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL) (50ml)
V_i = Initial digestion volume (mL) (50ml)
DF = Dilution Factor

SAMPLE LOG-IN SHEET 14659-A

Lab Name A4SCIENTIFIC		Page 1 of 1
Received By (Print Name) [redacted]		Log-in Date 9-2-11
Received By (Signature) [redacted]		
Case Number 41667	Sample Delivery Group No. MC0047	Mod. Ref. No. 21830

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal NOs.	NA
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	876883397337
6. Sample Tags	Present/Absent*
Sample Tag Numbers	Listed/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition	Intact/Broken*/Leaking
8. Cooler Temperature Indicator Bottle	Present/Absent*
9. Cooler Temperature	4°C
10. Does information on Traffic Reports/Chain of Custody Records and sample tags agree?	Yes/No*
11. Date Received at Lab	9-2-11
12. Time Received	10:00

Sample Transfer	
Fraction Metals	Fraction
Area# Cooler A	Area#
By [signature]	By [signature] 9-2-11
On 9-2-11	On

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MC00052	<2	231	0014659-01	1-1L plastic
2	53		232	-02	
3	54		233	-03	
4	55		234	-04	
5	56		235	-05	
6	57		236	-06	
7	58		237	-07	
8	59		238	-08	
9	60		239	-09	
10	61		240	-10	
11	62		241	-11	
12	63		242	-12	
13	64		243	-13	
14					
15					
16					
17					
18					
19					
20					
21					[signature] 9-2-11
22					

* Contact SMO and attach record of resolution

Reviewed By	[redacted]	Logbook No.	NA
Date	9/2/11	Logbook Page No.	NA

SAMPLE LOG-IN SHEET 14659-B

Lab Name A4SCIENTIFIC		Page 1 of 1
Received By (Print Name) [redacted]		Log-in Date 9-2-11
Received By (Signature) [redacted]		
Case Number 41667	Sample Delivery Group No. MC0047	Mod. Ref. No. 21830

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal NOs.	NA
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	87688339 7326
6. Sample Tags	Present/Absent*
Sample Tag Numbers	Listed/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition	Intact/Broken*/Leaking
8. Cooler Temperature Indicator Bottle	Present/Absent*
9. Cooler Temperature	4°C
10. Does information on Traffic Reports/Chain of Custody Records and sample tags agree?	Yes/No*
11. Date Received at Lab	9-2-11
12. Time Received	10:62

Sample Transfer	
Fraction Metals	Fraction
Area# Cooler A	Area#
By [signature]	By [signature] 9-2-11
On 9-2-11	On

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MC0047	<2	224	0014659-14	1-1LPlastic
2	48		225	-15	
3	50		227 +229	-16	3-1LPlastic
4	51		230	-17	1-1LPlastic
5	74		254	-18	
6	76		256	-19	
7	77		257	-20	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					9-2-11
22					

* Contact SMO and attach record of resolution

Reviewed By [redacted]	Logbook No. NA
Date 9/2/11	Logbook Page No. NA

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

DATE : October 28, 2011

SUBJECT: Region III Data QA Review

FROM: Colleen Walling
Region III ESAT RPO (3EA20)

TO: Lisa Johnson
Remedial Project Manager (3HS12)

Attached is the inorganic data validation report for the Kiskimere Groundwater Well (Case#41667; SDG#: MC0075 and MC0065) 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.

Attachment

cc: [redacted] (TechLaw, Inc.)

TO #0037 TDF: #10030

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

LOCKHEED MARTIN
We never forget who we're working for™

Date: October 27, 2011

Subject: Inorganic Data Validation (IM2 Level)
Case: 41667
SDGs: MC0065, MC0075
Site: Kiskimere Groundwater Well

From: [redacted]
Inorganic Data Reviewer

[redacted]
Senior Oversight Chemist

To: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 41667, Sample Delivery Groups (SDGs) MC0065 and MC0075, consisted of nine (9) sediment samples including one (1) field duplicate pair and four (4) aqueous samples analyzed for mercury (Hg) by cold vapor technique, for aluminum (Al), calcium (Ca), iron (Fe), magnesium (Mg), potassium (K) and sodium (Na) by ICP-AES and for the remaining analytes by ICP-MS. All samples were analyzed by A4 Scientific, Inc. (A4) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.2 (modified) through the Routine Analytical Services (RAS) program. Modification reference number 2183.0 details the specifications and reporting requirements for the addition of uranium (U) to the target analyte list.

SUMMARY

Data were validated according to Region 3 Modifications to the National Functional Guidelines for Inorganic Data Review, Level IM2, and is assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual). Areas of concern with respect to data usability are listed below.

Data in this case have been impacted by outliers present in a laboratory blank as well as matrix spike, laboratory duplicate and ICP serial dilution analyses. Details of these outliers are discussed under "Minor Problems," specific samples affected are outlined in "Table 1A" and qualified analytical results for all samples are summarized on Data Summary Forms (DSFs).

Field blanks MC0063 and MC0064 were used in evaluating blank contamination for the associated samples in this case based on sampling date. These blanks were analyzed in SDG MC0047 and results may be found in Appendix C. No positive results were reported in these blanks.

MINOR PROBLEMS

In SDG MC0075, a Continuing Calibration Blank (CCB) had a reported result greater than the Method Detection Limit (MDL) for Fe. The positive result for this analyte in affected sample MC0075 which is equal to five times (5X) the blank concentration may be biased high and has been qualified "B" on the DSF.

In SDG MC0065, percent Difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) for copper (Cu). Positive results for this analyte are estimated due to possible matrix interferences and have been qualified "J" on the DSFs.

In SDG MC0065, Relative Percent Differences (RPDs) in the laboratory duplicate analysis were outside control limits [35% RPD, ±2X Contract Required Quantitation Limits (CRQLs)] for arsenic (As), chromium (Cr), lead (Pb) and vanadium (V). Positive results for these analytes are estimated and have been qualified "J" on the DSFs.

In SDGs MC0065 and MC0075, matrix spike recoveries were low (<75% but >30%) for beryllium (Be) and U, respectively. Low recoveries may be attributed to matrix interferences or analyte lost during the digestion process. Positive results for Be in SDG MC0065 may be biased low and are qualified "L" on the DSFs. Quantitation limits for U in SDG MC0075 may be biased low and have been qualified "UL" on the DSF.

In SDG MC0065, matrix spike recovery was high (>125%) for U. Positive results for this analyte may be biased high; however, the "K" qualifier for this outlier has been superseded by "J" on the DSFs.

NOTES

In SDG MC0065, the laboratory reported that all samples were initially analyzed at five-fold (5X) dilution to avoid high interferences. The laboratory adjusted the calibration standard concentrations in order to achieve the required CRQLs. The adjusted CRQL and dilution factor of five (5) are reported on the DSFs by the reviewer.

The concentration of manganese (Mn) exceeded the calibration range in the initial analysis for the samples listed below. These samples were re-analyzed to bring the concentration of the analyte within the calibration range. Results for this analyte were reported from the diluted analyses and annotated with a (+) symbol on the DSFs by the reviewer.

SDG	Sample	Dilution
MC0065	MC0065	27.5X
	MC0066	58.5X
	MC0067	35X
	MC0068	20X
	MC0069	6.5X
	MC0070	36X
	MC0071	19X
	MC0072	8.5X
MC0075	MC0079	2.3X

Reported results between MDLs and CRQLs were qualified "J" on the DSFs.

In SDG MC0065, Cu was flagged on Form Is and Form 8 by the reviewer for having a serial dilution %D greater than ten percent (>10%).

In SDG MC0065, The RPD in the laboratory duplicate analysis was outside contractual control limits (20% RPD, ±CRQL) for Cu. However, the RPD for this analyte was within Region 3 established control limits (35% RPD, ±2XCRQL) for soil analysis. No data were qualified for this analyte based on laboratory duplicate imprecision.

In SDG MC0065, the laboratory flagged selenium (Se) on Form 5 indicating matrix spike outside control limit for this analyte. However, raw data confirm recovery for this analyte as one hundred percent (100%). The reviewer crossed off laboratory flag on this Form.

In SDG MC0075, matrix spike recovery was high (>125%) for Se. No positive results were reported for this analyte; therefore, no data were impacted due to this outlier.

In SDG MC0075, Se and U were flagged on Form Is and Form 5 by the reviewer for having recoveries outside control limit (75%-125%).

Reported results for field duplicate pair MC0067/MC0068 were within 35% RPD, ± 2XCRQL for all analytes except As and Mn.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

Table 1A is a summary of qualifiers applied to the laboratory-generated results during data validation.

Table 1A	Summary of qualifiers on data summary forms after data validation
Table 1B	Codes used in comments column of Table 1A
Appendix A	Glossary of Data Qualifier Codes
Appendix B	Data Summary Form(s)
Appendix C	Chain of Custody Records
Appendix D	Laboratory Case Narrative

DCN: 41667_ MC0065_75

TABLE 1A
SUMMARY OF QUALIFIERS ON DATA SUMMARY FORM AFTER DATA VALIDATION

Case 41667, SDG MC0065

ANALYTE	SAMPLES AFFECTED	POSITIVE VALUES	NON-DETECTED VALUES	BIAS	COMMENTS*
As	All samples	J			DUP (72%)
Be	All samples	L		Low	MSL (73%)
Cr	All samples	J			DUP (42%)
Cu	All samples	J			ISD (29%)
Pb	All samples	J			DUP (101%)
U	MC0065, MC0068, MC0069, MC0070	J			>MDL<CRQL MSH (154%)
V	All samples	J			DUP (35.4%)

Case 41667, SDG MC0075

ANALYTE	SAMPLES AFFECTED	POSITIVE VALUES	NON-DETECTED VALUES	BIAS	COMMENTS*
Fe	MC0075	B		High	CCB (41.0 J ug/L)
U	All samples		UL	Low	MSL (74.6%)

* See explanation of comments in Table 1B

TABLE 1B
CODES USED IN COMMENTS COLUMN

DUP	=	Relative Percent Differences (RPDs) for the laboratory duplicate analysis were outside the control limit (35% RPD, ±2XCRQL) [RPDs are in parenthesis]. Positive results are to be considered estimates.
MSL	=	Matrix spike recoveries were low (<75% but >30%) [percent recoveries are in parenthesis]. Positive results and quantitation limits may be biased low.
ISD	=	Percent difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) [%D is in parenthesis]. Positive results are estimated.
>MDL<CRQL	=	Reported results are greater than MDLs but less than CRQLs and are considered estimated.
MSH	=	Matrix spike recovery was high (>125%) [percent recovery is in parenthesis]. Positive results may be biased high.
CCB	=	Continuing calibration blank had a result >MDL [result is in parenthesis]. Positive results which are ≤5X the blank concentration may be biased high.

Appendix A
Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

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

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = 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.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Appendix B
Data Summary Forms

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0065 Number of Sediment Samples : 9
Site : KISKIMERE GROUNDWATER WELL Number of Water Samples : 0
Lab. : A4

Sample Number :		MC0065		MC0066		MC0067		MC0068		MC0069	
Sampling Location :		SD01		SD02		SD03		SD04		SD05	
Field QC :						Dup. of MC0068		Dup. of MC0067			
Matrix :		Sediment		Sediment		Sediment		Sediment		Sediment	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		08/31/2011		08/31/2011		08/31/2011		08/31/2011		08/31/2011	
Time Sampled :		15:55		11:00		15:45		15:55		16:50	
% Solids :		65.8		23.0		74.1		65.2		50.9	
Dilution Factor :		5.0 / 27.5		5.0 / 58.5		5.0 / 35.0		5.0 / 20.0		5.0 / 6.5	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	0.2										
ARSENIC	0.1	5.1	J	7.3	J	3.0	J	4.6	J	7.7	J
BARIUM	1	131		224		92.5		111		265	
BERYLLIUM	0.1	1.3	L	3.6	L	1.1	L	1.2	L	1.3	L
CADMIUM	0.1	0.68	J	1.9	J	0.45	J	0.54	J	0.57	J
CHROMIUM	0.2	20.9	J	18.7	J	18.9	J	16.4	J	15.0	J
COBALT	0.1	27.2		105		29.3		22.1		13.5	
COPPER	0.2	32.0	J	41.9	J	22.0	J	28.3	J	20.7	J
LEAD	0.1	75.9	J	48.7	J	29.0	J	39.7	J	23.1	J
MANGANESE	0.1	1620 +		10200 +		1840+		1190 +		497 +	
NICKEL	0.1	38.6		160		41.7		32.3		33.9	
SELENIUM	0.5										
SILVER	0.1										
THALLIUM	0.1	0.27	J								
URANIUM	0.2	1.1	J					1.1	J	1.1	J
VANADIUM	0.5	16.5	J	17.3	J	12.5	J	14.7	J	19.5	J
ZINC	0.2	164		433		155		152		102	

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99

"+" = Result reported from the diluted analysis.

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0065
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0070		MC0071		MC0072		MC0073			
Sampling Location :		SD06		SD07		SD08		SD09			
Matrix :		Sediment		Sediment		Sediment		Sediment			
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg			
Date Sampled :		08/31/2011		08/31/2011		08/30/2011		08/30/2011			
Time Sampled :		16:35		13:10		11:04		11:40			
% Solids :		74.3		79.1		68.8		64.4			
Dilution Factor :		5.0 / 36.0		5.0 / 19.0		5.0 / 8.5		5.0			
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	0.2										
ARSENIC	0.1	5.5	J	1.8	J	2.0	J	2.4	J		
BARIUM	1	134		97.4		97.8		102			
BERYLLIUM	0.1	1.3	L	0.88	L	0.97	L	1.3	L		
CADMIUM	0.1	0.50	J			0.31	J				
CHROMIUM	0.2	20.5	J	15.6	J	16.6	J	15.0	J		
COBALT	0.1	38.3		14.3		13.6		13.4			
COPPER	0.2	23.4	J	12.5	J	20.0	J	20.3	J		
LEAD	0.1	72.8	J	18.8	J	40.0	J	22.7	J		
MANGANESE	0.1	1910 +		955 +		468 +		344			
NICKEL	0.1	54.5		24.3		25.8		28.7			
SELENIUM	0.5										
SILVER	0.1	0.27	J								
THALLIUM	0.1										
URANIUM	0.2	0.71	J								
VANADIUM	0.5	19.3	J	15.7	J	24.1	J	16.5	J		
ZINC	0.2	192		75.7		108		101			

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99

"+" = Result reported from the diluted analysis.

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0065
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0065		MC0066		MC0067		MC0068		MC0069	
Sampling Location :		SD01		SD02		SD03		SD04		SD05	
Field QC :						Dup. of MC0068		Dup. of MC0067			
Matrix :		Sediment		Sediment		Sediment		Sediment		Sediment	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		08/31/2011		08/31/2011		08/31/2011		08/31/2011		08/31/2011	
Time Sampled :		15:55		11:00		15:45		15:55		16:50	
% Solids :		65.8		23.0		74.1		65.2		50.9	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
MERCURY	0.1	0.084	J	0.19	J	0.062	J	0.085	J	0.098	J

Sample Number :		MC0070		MC0071		MC0072		MC0073			
Sampling Location :		SD06		SD07		SD08		SD09			
Matrix :		Sediment		Sediment		Sediment		Sediment			
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg			
Date Sampled :		08/31/2011		08/31/2011		08/30/2011		08/30/2011			
Time Sampled :		16:35		13:10		11:04		11:40			
% Solids :		74.3		79.1		68.8		64.4			
Dilution Factor :		1.0		1.0		1.0		1.0			
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
MERCURY	0.1	0.054	J	0.046	J	0.038	J	0.060	J		

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0075 Number of Water Samples : 4
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0075		MC0078		MC0079		MC0080			
Sampling Location :		SW02		SW05		SW06		SW07			
Matrix :		Water		Water		Water		Water			
Units :		ug/L		ug/L		ug/L		ug/L			
Date Sampled :		08/31/2011		08/30/2011		08/30/2011		08/31/2011			
Time Sampled :		11:00		16:50		11:30		13:10			
Dilution Factor :		1.0		1.0		1.0		1.0			
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	75.6	J	99.3	J	8930					
CALCIUM	5000	60800		57200		43900		25700			
IRON	100	205	B	533		4910		112			
MAGNESIUM	5000	18400		17200		19200		7050			
MERCURY	0.2										
POTASSIUM	5000	3070	J	2940	J	2830	J	1970	J		
SODIUM	5000	41200		38800		62500		34900			

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0075
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0075		MC0078		MC0079		MC0080			
Sampling Location :		SW02		SW05		SW06		SW07			
Matrix :		Water		Water		Water		Water			
Units :		ug/L		ug/L		ug/L		ug/L			
Date Sampled :		08/31/2011		08/30/2011		08/30/2011		08/31/2011			
Time Sampled :		11:00		16:50		11:30		13:10			
Dilution Factor :		1.0		1.0		1.0 / 2.3		1.0			
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	2										
ARSENIC	1			0.48	J	0.73	J				
BARIUM	10	53.9		51.6		13.9		41.2			
BERYLLIUM	1					3.9					
CADMIUM	1										
CHROMIUM	2	0.78	J	0.81	J	1.5	J	1.2	J		
COBALT	1	0.41	J	0.56	J	56.4					
COPPER	2			0.92	J	5.0					
LEAD	1										
MANGANESE	1	55.8		81.3		947 +		22.9			
NICKEL	1	3.2		3.5		145		0.58	J		
SELENIUM	5										
SILVER	1										
THALLIUM	1					0.40	J				
URANIUM	1		UL		UL		UL		UL		
VANADIUM	5										
ZINC	2	2.0		3.2		214					

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99
"+" = Result reported from the diluted analysis.

Appendix C
Chain of Custody Records

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3
Project Code:	CT5653
Account Code:	2011T03N302DD2C03ZZQB00
CERCLIS ID:	PAN000306740
Spill ID:	ARL
Site Name/State:	Kiskimere GW Well Investigation/WV
Project Leader:	[redacted]
Action:	Site Evaluation
Sampling Co:	TechLaw, Inc.

Date Shipped:	9/1/2011
Carrier Name:	FedEx
Airbill:	8768 8339 7315
Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1 [redacted]	9/1/11/1900		
2			
3			
4			

Sample Signat[redacted]

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		ORGANIC SAMPLE No.	QC Type
MC0065	Sediment/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	244 (Ice Only) (1)	SD01	S: 8/31/2011	15:55		–
MC0066	Sediment/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	245 (Ice Only) (1)	SD02	S: 8/31/2011	11:00		–
MC0067	Sediment/ John Elson	L/G	TAL + U (21)	246 (Ice Only) (1)	SD03	S: 8/31/2011	15:45		Field Duplicate of SD04
MC0068	Sediment/ John Elson	L/G	TAL + U (21)	247 (Ice Only) (1)	SD04	S: 8/31/2011	15:55		Field Duplicate of SD03
MC0069	Sediment/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	248 (Ice Only) (1)	SD05	S: 8/30/2011	16:50		–
MC0070	Sediment/ Dan Buckley	L/G	TAL + U (21)	249 (Ice Only), 250 (Ice Only) (2)	SD06	S: 8/31/2011	16:35		Lab QC
MC0071	Sediment/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	251 (Ice Only) (1)	SD07	S: 8/31/2011	13:10		–
MC0072	Sediment/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	252 (Ice Only) (1)	SD08	S: 8/30/2011	11:04		–

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: MC0070	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TAL + U = CLP TAL Metals + U	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-090111-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011	Chain of Custody Record	Sampler Signature: [redacted]
Project Code:	CT5653	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7315	[redacted] 9/1/11/1900	
CERCLIS ID:	PAN000306740	Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277	2	
Spill ID:	ARL			3	
Site Name/State:	Kiskimere GW Well Investigation/WV			4	
Project Leader:	[redacted]				
Action:	Site Evaluation				
Sampling Co:	TechLaw, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0073	Sediment/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	253 (Ice Only) (1)	SD09	S: 8/30/2011 11:40		

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: MC0070	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TAL + U = CLP TAL Metals + U	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?

TR Number: 3-043013577-090111-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3
Project Code:	CT5653
Account Code:	2011T03N302DD2C03ZZQB00
CERCLIS ID:	PAN000306740
Spill ID:	ARL
Site Name/State:	Kiskimere GW Well Investigation/WV
Project Leader:	[redacted]
Action:	Site Evaluation
Sampling Co:	TechLaw, Inc.

Date Shipped:	9/1/2011
Carrier Name:	FedEx
Airbill:	6768 8339 7326
Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277

Chain of Custody Record

Sampler Signature: [redacted]

Relinquished By	(Date / Time)	Received By	(Date / Time)
1 [redacted]	9/1/11 / 1900		
2			
3			
4			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0047	Ground Water/ John Elson	L/G	TAL + U (21)	224 (HNO3) (1)	GW01	S: 8/30/2011 9:45		–
MC0048	Ground Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	225 (HNO3) (1)	GW02	S: 8/30/2011 10:14		–
MC0050	Ground Water/ Dan Buckley	L/G	TAL + U (21)	227 (HNO3), 228 (HNO3), 229 (HNO3) (3)	GW03	S: 8/30/2011 10:35		Lab QC
MC0051	Ground Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	230 (HNO3) (1)	GW04	S: 8/30/2011 15:36		–
MC0074	Surface Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	254 (HNO3) (1)	SW01	S: 8/31/2011 15:25		–
MC0075	Surface Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	255 (HNO3) (1)	SW02	S: 8/31/2011 11:00		Lab QC
MC0076	Surface Water/ John Elson	L/G	TAL + U (21)	256 (HNO3) (1)	SW03	S: 8/31/2011 15:10		Field Duplicate of SW04
MC0077	Surface Water/ John Elson	L/G	TAL + U (21)	257 (HNO3) (1)	SW04	S: 8/31/2011 15:20		Field Duplicate of SW03

Shipment for Case Complete?N	Sample(s) to be used for laboratory QC: MC0050, MC0075	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TAL + U = CLP TAL Metals + U	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?

TR Number: 3-043013577-090111-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3
Project Code:	
Account Code:	CT5653 2011T03N302DD2C03ZZQB00
CERCLIS ID:	PAN000306740
Spill ID:	ARL
Site Name/State:	Kiskimere GW Well Investigation/WV
Project Leader:	[redacted]
Action:	Site Evaluation
Sampling Co:	TechLaw, Inc.

Date Shipped:	9/1/2011
Carrier Name:	FedEx
Airbill:	8768 8339 7326
Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277

Chain of Custody Record

Sampler Signature: [redacted]

Relinquished By	(Date / Time)	Received By	(Date / Time)
[redacted]	9/1/11 / 1900		
2			
3			
4			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0078	Surface Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	258 (HNO3) (1)	SW05	S: 8/30/2011 16:50		–
MC0079	Surface Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	259 (HNO3) (1)	SW06	S: 8/30/2011 11:30		–
MC0080	Surface Water/ MICHELLE DALLESSANDRO	L/G	TAL + U (21)	260 (HNO3) (1)	SW07	S: 8/31/2011 13:10		–

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: MC0050, MC0075	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TAL + U = CLP TAL Metals + U	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-090111-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

U.S EPA Region III Analytical Request Form

Revision 11.09

41667

OASQA USE ONLY			
Control #	CT5653	RAS #	41667
DAS#		NSF#	
PES #		Analytical TAT	21 days

Date: 08/10/11	Site Activity: Site Assessment		
Site Name: Kiskimere Groundwater Well Investigation		Street Address: intersection of Eisenhower and Main Streets	
City: Parks Township, Armstrong Co.	State: PA	Latitude: 40 degrees 37'11.24"	Longitude: -079 degrees 35'01.16"
Program: Superfund	Acct. #: 2011T03N302DD2CA3RLQB00	CERCLIS #: PAN000306740	
Site ID: 0306740	Spill ID: A3RL	Operable Unit:	
Site Specific QA Plan Submitted: ☐ No ☒ Yes	Title: Sampling QA/QC Work Plan		Date Approved: Aug 10, 2011
EPA Project Leader: Lisa Johnson	Phone#: 215-814-3314	Cell Phone #: NA	E-mail: johnson.lisa@epa.gov
Request Preparer: [redacted]	Phone#: 740-867-0968	Cell Phone #: 304-830-1442	E-mai[redacted]
Site Leader: [redacted]	Phone#: 304-230-1230	Cell Phone #: 304-830-1444	E-mail[redacted]
Contractor: TechLaw, Inc.		EPA CO/PO: Denise T. Page/Karen Esposito	

#Samples 45	Matrix: Water	Parameter: ICP-MS TAL metals+Hg+U	A4	Method: CLP ISM01.2 ICP-MS/ M.A. for U 34388
#Samples 48	Matrix: Water	Parameter: TCL Trace VOA	KAP	Method: CLP SOM01.2 34389
#Samples 7	Matrix: sediment	Parameter: ICP-AES TAL metals+Hg+U	A4	Method: CLP ISM01.2 ICP-AES/ M.A. for U 34391
#Samples 7	Matrix: sediment	Parameter: TCL VOA	KAP	Method: CLP SOM01.2 34390
#Samples	Matrix:	Parameter		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:

Ship Date From: August 30, 2011	Ship Date To: September 1, 2011	Org. Validation Level M3	Inorg. Validation Level IM2

Unvalidated Data Requested: ☐ No ☒ Yes If Yes, TAT Needed: ☐ 14days ☐ 7days ☐ 72hrs ☐ 48hrs ☐ 24hrs ☐ Other (Specify) **21 days**

Validated Data Package Due: ☒ 42 days ☐ 30 days ☐ 21days ☐ 14 days ☐ Other (Specify) 21/21

Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)

Special Instructions: See attached CLP TCL and TAL for analytes and CRQLs. Request CLP Modified Analyis (M.A.) for Uranium with 1 ug/l QL in water and **?? for sediment samples.**

Request for Quote (RFQ) for Modified Analysis

Date: August 22, 2011

Subject: Modification Reference Number: 2183.0
Title: ICP-MS plus Uranium
Sample Matrix: Water and Soil
Fraction Affected: ICP-MS
Statement of Work: ISM01.2

Purpose:

The Contractor Laboratory is requested to perform the following modified analyses under the Inorganic Statement of Work (SOW) ISM01.2, based on the additional specifications listed below. Unless specifically modified by this modification, all analyses, Quality Control (QC), and reporting requirements specified in SOW ISM01.2 remain unchanged and in full force and effect. The number of samples requested in this modification is not guaranteed.

Please note that accepting a modified analysis request is voluntary, and that the Laboratory is not required to accept the modified analysis. There will be no adverse effect to the Laboratory for not accepting the modified analysis request. However, once the Laboratory accepts the request for modified analysis, it shall perform the analysis in accordance with this modification and as specified in SOW ISM01.2.

The Laboratory is requested to review the modification described herein, determine whether or not it shall accept the requested modified analyses, and complete the attached response form. The Laboratory shall provide comments in response to the required changes in the designated area, in order to ensure that the modified analysis can be completed in accordance with the specifications described herein.

Modification to the SOW Specifications:

The contract Laboratory shall analyze water/aqueous samples and soil/sediment samples for the Target Analyte List and the additional analyte Uranium (U, CASRN 7440-61-1) by ICP-MS as indicated on the Traffic Report/Chain of Custody Record.

The Contract Required Quantitation Limits (CRQLs) for the following analytes and matrices have been modified. All other CRQLs remain at the level specified in the SOW.

Analyte	Aqueous CRQL (µg/L)	Aqueous Spike level (µg/L)	Soil CRQL (mg/kg)	Soil Spike level (mg/kg)
Uranium	1.0	100	1.0	20

If Method Detection Limits (MDLs) have not already been determined, the Laboratory shall determine MDLs for this analyte using the appropriate preparation methods. The MDLs must be lower than the CRQLs, but are not required to be less than one-half the CRQL.

The Laboratory shall:

- Perform the Initial Calibration with at least one non-blank standard at or below the modified aqueous CRQL.
- Add U to the ICV and CCV at appropriate mid-range concentrations.
- Evaluate the ICB and CCB against the modified aqueous CRQL.
- Perform the Matrix Spike at the levels specified above. Post-digestion spike requirements are per the SOW.
- Add U to the LCS at 2 times the appropriate modified CRQL.
- Add U to Forms 1, 2A, 3, 4B, 5A (5B), 6, 7, 8, 9, 11, 13, and 16.

The Laboratory is not required to add U to the ICSA/ICSAB solutions. The Laboratory shall use a true value of zero (0) and acceptance windows of ±2x the modified aqueous CRQL unless a non-zero value has been determined for the solutions.

The Laboratory is not required to bracket U with an internal standard having a mass greater than 238. The analysis of the Bismuth internal standard at mass 209 is sufficient.

Reporting Requirements:

Hardcopy and electronic data reporting are required as specified per SOW ISM01.2. All hardcopy and electronic data shall be adjusted to incorporate modified specifications. This includes attaching a copy of the requirements for modified analysis to the SDG Narrative. If specific problems occur with incorporation of the modified analysis into the hardcopy and/or electronic deliverable, the Laboratory shall contact the DASS Manager within the Sample Management Office (SMO) at (703) 818-4233 or via email at CCSSUPPORT@fedcsc.com for resolution.

All samples analyzed for the same fraction within an SDG must be analyzed under the same fractional requirements. The Laboratory shall not include data for the same fraction with different requirements in the same SDG.

The Laboratory shall include the Modification Reference Number 2183.0 on each hardcopy data form under the "Mod. Ref. No:" header appearing on each form as well as the SamplePlusMethod/ClientMethodModificationID element of the electronic deliverable. The Laboratory shall also document the Modification Reference Number and Solicitation Number on the SDG Coversheet and SDG Narrative.

Clarifications/Revisions to the RFQ for Modified Analysis:

Laboratory Name:
Laboratory Comments:

000008

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0063		MC0064							
Sampling Location :		FB01		FB02							
Field QC :		Field Blank		Field Blank							
Matrix :		Water		Water							
Units :		ug/L		ug/L							
Date Sampled :		08/30/2011		08/31/2011							
Time Sampled :		18:20		17:30							
Dilution Factor :		1.0		1.0							
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200										
CALCIUM	5000										
IRON	100										
MAGNESIUM	5000										
MERCURY	0.2										
POTASSIUM	5000										
SODIUM	5000										

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 41667 SDG : MC0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : A4

Sample Number :		MC0063		MC0064							
Sampling Location :		FB01		FB02							
Field QC :		Field Blank		Field Blank							
Matrix :		Water		Water							
Units :		ug/L		ug/L							
Date Sampled :		08/30/2011		08/31/2011							
Time Sampled :		18:20		17:30							
Dilution Factor :		1.0		1.0							
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ANTIMONY	2										
ARSENIC	1										
BARIUM	10										
BERYLLIUM	1										
CADMIUM	1										
CHROMIUM	2										
COBALT	1										
COPPER	2										
LEAD	1										
MANGANESE	1										
NICKEL	1										
SELENIUM	5										
SILVER	1										
THALLIUM	1										
URANIUM	1										
VANADIUM	5										
ZINC	2										

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Appendix D
Laboratory Case Narrative

SDG MC0065

USEPA - CLP

COVER PAGE

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW09035

Lab Code: A4 Case No.: 41667 Mod. Ref. No.: 2183.0 SDG No.: MC0065

SOW No.: ISM01.2

EPA Sample No.	Lab Sample ID
MC0065	0014661-01
MC0066	0014661-02
MC0067	0014661-03
MC0068	0014661-04
MC0069	0014661-05
MC0070	0014661-06
MC0070D	1090082-DUP2
MC0070D	1090082-DUP1
MC0070S	1090082-MS2
MC0070S	1090082-MS1
MC0071	0014661-07
MC0072	0014661-08
MC0073	0014661-09

		ICP-AES	ICP-MS
Were ICP-AES and ICP interelement corrections applied?	(Yes/No)		Yes
Were ICP-AES and ICP background corrections applied?	(Yes/No)		Yes
If yes, were raw data generated before application of background corrections?	(Yes/No)		No

The laboratory did not receive any instructions with these samples to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [redacted] Name: [redacted]

Date: 10/05/2011 Title: QA Specialist

A4 SCIENTIFIC, INC.

1544 Sawdust Road, Suite 505 • The Woodlands, TX 77380 • Phone (281) 292-5277

Contract #: EPW09035	Case #: 41667	SDG #: MC0065

SDG NARRATIVE

SAMPLE RECIEPT & LOGIN

The following samples were received on the dates listed against them. The samples were logged in for analysis as listed.

Client Sample	*Lab Sample*	*Matrix*	*#Cont.*	*Received*	*Analysis*	*Comments*
MC0065	0014661-01	Soil	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	1st Sx
					ISM01.2 HG	
MC0066	0014661-02	Soil	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPMS+2183.0	
MC0067	0014661-03	Soil	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPMS+2183.0	
MC0068	0014661-04	Soil	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 HG	
MC0069	0014661-05	Soil	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 HG	
MC0070	0014661-06	Soil	2	09/02/11 10:00	ISM01.2 HG	MS/Dup
					ISM01.2 ICPMS+2183.0	
MC0071	0014661-07	Soil	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPMS+2183.0	
MC0072	0014661-08	Soil	1	09/02/11 10:00	ISM01.2 HG	
					ISM01.2 ICPMS+2183.0	
MC0073	0014661-09	Soil	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	Last Sx
					ISM01.2 HG	

A4 SCIENTIFIC, INC.

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Contract #: EPW09035	Case #: 41667	SDG #: MC0065

SDG NARRATIVE

No issues were noted

MERCURY

Soil samples were digested by Hot-Block technique (7471B) and analyzed using a Perkin Elmer FIMs-100 Mercury Analyzer.

MS and DUP were performed on sample "MC0070" and they were within the QC limits.

No problems were encountered during sample preparation or analysis.

ICP-MS

Soil Samples were digested by Hot-Block technique (3050B) and analyzed using a Thermo Electron Corporation ICP MS model X-II.

All samples are digested as per SOW requirements and prior to the analysis samples were 5X diluted and analyzed to avoid high interferences.

Below are the calibration levels:

Analytes	TRUE	TRUE	TRUE	TRUE	TRUE
Antimony	2	20	200	500	1000
Arsenic	1	10	100	250	500
Barium	10	100	1000	2500	5000
Beryllium	1	10	100	250	500
Cadmium	1	10	100	250	500
Chromium	2	20	200	500	1000
Cobalt	1	10	100	250	500
Copper	2	20	200	500	1000
Lead	1	10	100	250	500
Manganese	1	10	100	250	500
Nickel	1	10	100	250	500
Selenium	5	50	500	1250	2500
Silver	1	10	100	250	500
Thallium	1	10	100	250	500
Vanadium	5	50	500	1250	2500
Zinc	2	20	200	500	1000
Uranium	1	10	100	250	500

MS and DUP were performed on sample "MC0070" and they were within the QC limits. The RPD is outside the control limit for As, Cr, Cu, Pb & V.

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Contract #: EPW09035	Case #: 41667	SDG #: MC0065

SDG NARRATIVE

Serial Dilution is performed on sample "MC0070" and they were within the QC limits.

No problems were encountered during sample preparation or analysis.

The following Samples were analyzed at a dilution for the analytes listed against them to bring the concentration below the Upper range of calibration. The dilutions were made as below:

Sample ID	Analyte	Dilution
MC0065	Mn	27.5
MC0066	Mn	58.5
MC0067	Mn	35.0
MC0068	Mn	20.0
MC0069	Mn	6.5
MC0070	Mn	~~3.6~~ 36.0
MC0071	Mn	19
MC0072	Mn	8.5
~~MC0073~~	~~Mn~~	~~5.0~~

DV 10/20/11

The following equations are used for calculation of sample results from raw instrument output data:

MERCURY

SOIL Samples:

Hg Concentration (mg/kg) = Hg µg/g = $\frac{C}{W * S} * (0.1l)$

Where,
C = Concentration from curve (µg/L)
W = Wet sample weight (g) (0.2gm)
S = % solids/100

ICP-MS

SOIL Samples:

Concentration (dry Wt.) (mg/kg) = $\frac{C * V}{W * S} * DF$

Where,
C = Concentration (mg/L)
V = Final sample volume in Liters (L) (0.1L)
W = Wet sample weight (kg) (0.001kg)
S = % solids/100
DF = Dilution Factor

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INSTRUMENT RUN-LOG

Instrument:	A-ICPMSX	***Sequence:***	1I21006
		Logbook RCN #:	858-0708
		Logbook Page No(s).:	163
Start Date:	09/18/2011 18:41	***Analyst/Date:***	SM 09/21/2011
End Date:	09/19/2011 00:33	***Reviewer/Date:***	RW 9/21/11

File	Analyzed	Instrument	Lab Sample	Client Sample	Dil	STD ID / Comments
plasmalab-0	09/18/2011 22:50	A-ICPMSX	1I21006-IBLE	ZZZZZZ	5.0	
plasmalab-0	09/18/2011 22:54	A-ICPMSX	1I21006-IBLF	ZZZZZZ	1	
plasmalab-0	09/18/2011 22:57	A-ICPMSX	1I21006-IBLG	ZZZZZZ	1	
plasmalab-0	09/18/2011 23:01	A-ICPMSX	1I21006-CCV3	CCV	1	
plasmalab-0	09/18/2011 23:05	A-ICPMSX	1I21006-CCB3	CCB	1	
plasmalab-0	09/18/2011 23:09	A-ICPMSX	0014661-01	MC0065	5.0	> Mn
plasmalab-0	09/18/2011 23:12	A-ICPMSX	0014661-02	MC0066	5.0	> Mn
plasmalab-0	09/18/2011 23:16	A-ICPMSX	0014661-03	MC0067	5.0	> Mn
plasmalab-0	09/18/2011 23:19	A-ICPMSX	0014661-04	MC0068	5.0	> Mn
plasmalab-0	09/18/2011 23:23	A-ICPMSX	0014661-05	MC0069	5.0	> Mn
plasmalab-0	09/18/2011 23:27	A-ICPMSX	0014661-07	MC0071	5.0	> Mn
plasmalab-0	09/18/2011 23:30	A-ICPMSX	0014661-08	MC0072	5.0	> Mn
plasmalab-0	09/18/2011 23:34	A-ICPMSX	0014661-09	MC0073	5.0	
plasmalab-0	09/18/2011 23:38	A-ICPMSX	1I21006-IBLH	ZZZZZZ	1	
plasmalab-0	09/18/2011 23:41	A-ICPMSX	0014660-03RE1	MC0079	2.3	Mn
plasmalab-0	09/18/2011 23:45	A-ICPMSX	0014661-06RE1	MC0070	36	Mn
plasmalab-0	09/18/2011 23:49	A-ICPMSX	1090082-DUP2	MC0070D	39	Mn
plasmalab-0	09/18/2011 23:53	A-ICPMSX	1090082-MS2	MC0070S	36.5	Mn
plasmalab-0	09/18/2011 23:56	A-ICPMSX	1I21006-SRD4	MC0070L	180	Mn
plasmalab-0	09/19/2011 00:00	A-ICPMSX	0014661-01RE1	MC0065	27.5	Mn
plasmalab-0	09/19/2011 00:03	A-ICPMSX	0014661-02RE1	MC0066	58.5	Mn
plasmalab-0	09/19/2011 00:07	A-ICPMSX	0014661-03RE1	MC0067	350	Mn
plasmalab-0	09/19/2011 00:11	A-ICPMSX	0014661-04RE1	MC0068	200	Mn
plasmalab-0	09/19/2011 00:15	A-ICPMSX	0014661-05RE1	MC0069	6.5	Mn
plasmalab-0	09/19/2011 00:18	A-ICPMSX	0014661-07RE1	MC0071	19	Mn
plasmalab-0	09/19/2011 00:22	A-ICPMSX	0014661-08RE1	MC0072	8.5	Mn
plasmalab-0	09/19/2011 00:26	A-ICPMSX	1090065-MS2	MC0075S	1.4	Mn
plasmalab-0	09/19/2011 00:29	A-ICPMSX	1I21006-CCV4	CCV	1	
plasmalab-0	09/19/2011 00:33	A-ICPMSX	1I21006-CCB4	CCB	1	

14661-A

SAMPLE LOG-IN SHEET

Lab Name A4SCIENTIFIC		Page 1 of 1
Received By (Print Name) [redacted]		Log-in Date 9-2-11
Received By (Signature) [redacted]		
Case Number 41667	Sample Delivery Group No. MC0065	Mod. Ref. No. 21830

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal NOs.	MA
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	87688339 7315
6. Sample Tags	Present/Absent*
Sample Tag Numbers	Listed/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition	Intact/Broken*/Leaking
8. Cooler Temperature Indicator Bottle	Present/Absent*
9. Cooler Temperature	4°C
10. Does information on Traffic Reports/Chain of Custody Records and sample tags agree?	Yes/No*
11. Date Received at Lab	9-2-11
12. Time Received	10:00

Sample Transfer	
Fraction Metals	Fraction
Area# Cooler A	Area#
By [signature]	By [signature] 9-2-11
On 9-2-11	On

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MC0065	MA	244	0014661-01	1-802 Tritac
2	66		245	-02	
3	67		246	-03	
4	68		247	-04	
5	69		248	-05	
6	70		249 +250	-06	2-802
7	71		251	-07	1-802
8	72		252	-08	
9	73		253	-09	
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					R
21					9-2-11
22					

* Contact SMO and attach record of resolution

Reviewed By [redacted]	Logbook No. MA
Date 9/2/11	Logbook Page No. MA

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BENCH SHEET - PERCENT SOLIDS

BATCH - 1090047

BATCH_1090047

Percent Solids [5SOP03-B] - ASTMD2216-92 / SM2540G / ISM01.2 / SOM01.2 / OTHER _____

OVEN ID: A THERMOMETER ID: Spec-1

DATE IN: 9-6-11 TIME IN: 15:00 TEMP IN: 104°C ANALYST: [illegible]
DATE OUT (1): 9-7-11 TIME OUT(1): 9:50 TEMP OUT(1): 104°C ANALYST: [illegible]
DATE OUT (2): — TIME OUT(2): — TEMP OUT(2): — ANALYST: —
DATE OUT (3): — TIME OUT(3): — TEMP OUT(3): — ANALYST: —

Lab Sample ID	Client Sample ID	Pan #	Pan Weight (g)	Pan + Wet Sample (g)	(1) Pan+Dry Sample (g)	(2) Pan+Dry Sample (g)	(3) Pan+Dry Sample (g)	Comments
0014661-01	MC0065	39	1.904	10.217	7.376	NA	NA	
0014661-02	MC0066	38	1.776	8.407	3.300			
0014661-03	MC0067	121	1.801	9.265	7.329			
0014661-04	MC0068	107	1.811	8.344	6.072			
0014661-05	MC0069	13	1.822	8.493	5.217			[illegible]
0014661-06	MC0070	140	1.837	9.015	7.167			9/7/11
0014661-07	MC0071	101	1.881	9.774	8.128			
0014661-08	MC0072	31	1.843	9.730	7.270			
0014661-09	MC0073	102	1.8210	9.460	6.746			
1090047-BLK1	PMBLK92	81	1.880	1.881	1.881			
1090047-DUP1	MC0070D	34	1.839	9.423	7.473			0014661-06

Notes: _____

[redacted] 9/07/2011 10:00
Reviewed by / Date&Time

See LIMS report for the Percent Solids results.

000394

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RESULTS - PERCENT SOLIDS

BATCH - 1090047

BATCH_1090047

Lab Sample ID	Client Sample ID	Percent Solids	Percent Moisture	RPD	Analyzed	Comments
0014661-03	MC0067	74.06	25.94		09/06/2011	
0014661-07	MC0071	79.15	20.85		09/06/2011	
0014661-02	MC0066	22.98	77.02		09/06/2011	
0014661-06	MC0070	74.25	25.75		09/06/2011	
0014661-04	MC0068	65.22	34.78		09/06/2011	
0014661-08	MC0072	68.81	31.19		09/06/2011	
0014661-01	MC0065	65.82	34.18		09/06/2011	
0014661-05	MC0069	50.89	49.11		09/06/2011	
0014661-09	MC0073	64.45	35.55		09/06/2011	
1090047-BLK1	Blank	100.00	0.00		09/06/2011	
1090047-DUP1	Duplicate	74.29	25.71	0.04	09/06/2011	0014661-06

laxmi@a4scientific.com

From: [redacted]@fedcsc.com>
To: <[redacted]@a4scientific.com>; <[redacted]@a4scientific.com>; <[redacted]@a4scientific.com>
Cc: <[redacted]@a4scientific.com>; "Mondon-Konan, Emilie" <[redacted]@fedcsc.com>; <mecanic.mahboobeh@epa.gov>; <Slizys.Dan@epamail.epa.gov>
Sent: Tuesday, October 18, 2011 9:01 AM
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

Reddy,

In regards to SDG MC0065/Case 41667, no additional corrections are required at this time. However, the laboratory is to submit a revised SDG narrative that includes detailed information about the calibration, analysis, and reporting procedures for the ICP-MS analysis in this SDG.

Please send this information to Region 3 and SMO as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818[redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604 [redacted]@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Tuesday, October 18, 2011 8:55 AM
To: [redacted]@a4scientific.com'; [redacted]@a4scientific.com'; [redacted]@a4scientific.com'
Cc: '[redacted]@a4scientific.com';[redacted] 'mecanic.mahboobeh@epa.gov'; 'Slizys.Dan@epamail.epa.gov'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

[redacted]

It is specified in MA# 2183.0 that "the Contract Required Quantitation Limits (CRQLs) for the following analytes (Uranium, in this instance) and matrices have been modified. **All other CRQLs remain at the level specified in the SOW.**"

For example, the soil MS CRQL for Antimony in SOW ISM01.2 is 1 mg/kg. Therefore, the Antimony result in Sample MC0065 should be 7.6 U not 1.5 U.

Please make the appropriate corrections and submit the revised EDD to SMO as NFG Resubmittal and the hardcopy Forms 1, 5A, 6, and 8 to Region 3 and SMO as soon as possible. Please note that the

Region has an immediate need for this data.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818[redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604[redacted]@fedcsc.com| www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]@a4scientific.com [mailto:[redacted]@a4scientific.com]
Sent: Monday, October 17, 2011 7:26 PM
To: [redacted]@a4scientific.com; [redacted]@a4scientific.com
Cc: [redacted]@a4scientific.com; [redacted]; mecanic.mahboobeh@epa.gov; Slizys.Dan@epamail.epa.gov
Subject: Re; REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

[redacted]

The Non-detected values reported on Forms and EDDS are correct. Below is an example calculation for Antimony in sample MC0065.

Instrument results= 0.2883 ug/L
Final digestion volume =100ml
Initial Aliquot Amount = 1.0gm
DF = 5
S= %solids/100 = 0.658

MDL = 0.078mg/Kg
Quantitation limit = 0.2 mg/Kg (based on the concentration of the lowest non-zero standard =2ug/L)

Sample Results (EQ. 2 of SOW) = 0.2883ug/L * 100ml * 5 / 1000 / 1.0 / 0.658 = **0.2191 mg/Kg**
Adjusted MDL = 0.078 * 5 / 0.658 = **0.593 mg/Kg.**
Adjusted CRQL = 0.2 * 5 / 0.658 = **1.52 mg/Kg.**

We have therefore reported the results of Antimony as 1.5 U on Form 1.

Please let me know if you have any questions.

Regards,

[redacted]
A4 Scientific Inc.
281-292-[redacted]
[redacted]@a4scientific.com

----- Original Message -----
From: [redacted]

To: [redacted]@a4scientific.com ; [redacted]@a4scientific.com ; [redacted]@a4scientific.com
Cc: [redacted]@a4scientific.com [redacted] ; mecanic.mahboobeh@epa.gov ; Slizys.Dan@epamail.epa.gov
Sent: Monday, October 17, 2011 12:59 PM
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

SMO received the EDD and revised Forms 9 for SDG MC0065/Case 41667 on 10/17/11. However, the following issues still remain:

1) The non-detected values in all samples were not adjusted for the 5X sample dilution factor indicated on Form 13. These values are to be corrected in the EDD and on hardcopy Forms 1, 5A, 6, and 8.

2) Also note that, for Sample MC0070L, the non-detected values in the EDD and in the "Serial Dilution Result" field on hardcopy Form 8 are to be adjusted by a factor of 25 not 5.

Please make the appropriate corrections and submit the revised EDD to SMO as NFG Resubmittal and the hardcopy Forms 1, 5A, 6, and 8 to Region 3 and SMO as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819 | Fax:703-818-4604 | chammelman@fedcsc.com | www.CSC.com

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From: [redacted]a4scientific.com [mailto[redacted]@a4scientific.com]
Sent: Monday, October 17, 2011 12:13 PM
To: [redacted]@a4scientific.com; [redacted]@a4scientific.com
Cc: [redacted]@a4scientific.com; [redacted], [redacted] mecanic.mahboobeh@epa.gov; Slizys.Dan@epamail.epa.gov
Subject: Re: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

Caitlin,

Its already uploaded.

----- Original Message -----
From: [redacted]
To: [redacted]@a4scientific.com ; [redacted]@a4scientific.com ; [redacted]@a4scientific.com
Cc: [redacted]@a4scientific.com ; [redacted] ; mecanic.mahboobeh@epa.gov ; Slizys.Dan@epamail.epa.gov

Sent: Monday, October 17, 2011 11:09 AM
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

Hello [redacted]

As follow up to our phone conversation regarding SDG MC0065/Case 41667, please resubmit the corrected EDD to SMO as soon as possible, complete with ALL fractions for the SDG. Please note that the appropriate submission type is "NFG Resubmittal".

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604|chammelman@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Thursday, October 13, 2011 8:56 AM
To: [redacted]@a4scientific.com'; [redacted]@a4scientific.com'; [redacted]@a4scientific.com'
Cc: [redacted]@a4scientific.com'; [redacted] 'mecanic.mahboobeh@epa.gov'; 'Slizys.Dan@epamail.epa.gov'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

Good morning [redacted]

SMO has not yet received the corrected EDD and hardcopy Forms 1 that were requested for SDG MC0065/Case 41667 (see attached email below). Please provide information on the status and expected delivery of these corrected data to SMO and Region 3. Your immediate response is requested.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604|chammelman@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Tuesday, October 11, 2011 11:33 AM
To: [redacted]@a4scientific.com'; [redacted]@a4scientific.com'; [redacted]a4scientific.com'
Cc: 'mecanic.mahboobeh@epa.gov'; [redacted]e; '[redacted]@a4scientific.com'; 'Slizys.Dan@epamail.epa.gov'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

SMO received the revised Forms 1 for SDG MC0065/Case 41667 on 10/10/11. However, the following issues have been noted:

1) The non-detect values in all samples were not corrected for the 5X dilution factor indicated on Form 13.

2) It seems that the Cadmium results reported as detects are actually non-detects, considering the MDL value of 0.19 mg/kg reported on hardcopy Form 9.

   For example, the raw data value for Cadmium in Sample MC0065 (page 181) is 0.892 ug/L. This value converts to 0.0892 mg/kg (prior to the 5X dilution adjustment), which is less than the 0.19 mg/kg MDL. Therefore, the result on Form 1 should be 3.8 U not 0.68 J.

Please make the appropriate corrections and submit the corrected EDD to SMO as NFG Resubmittal and the hardcopy Forms 1 to Region 3 and SMO as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818[redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819| Fax:703-818-4604| chammelman@fedcsc.com| www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Thursday, October 06, 2011 8:53 AM
To: [redacted]a4scientific.com'; [redacted]a4scientific.com'; [redacted]@a4scientific.com'
Cc: [redacted]@a4scientific.com'; [redacted]; 'Slizys.Dan@epamail.epa.gov'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

In regards to SDG MC0065/Case 41667, the lab indicated that the corrected EDD for this SDG would be submitted today (see attached ROC) to address the following issues:

- The EDD and hardcopy Form 1 values do not match for Cadmium in all samples. For example, in Sample MC0066, the EDD result is 1.9 J and the hardcopy Form 1 result is 2.2 U.

Please submit the corrected EDD to SMO as submission type "NFG Resubmittal" as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818[redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604|chammelman@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Wednesday, October 05, 2011 11:24 AM
To: 'ROCv2.0TEST-DASS@fedcsc.com'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

ROC

10/5/2011 11:00 A.M. Phone conversation between Laxmi Teerupalli, A4, and Caitlin Hammelman, DASS. SMO contacted the lab to follow up regarding SDG MC0065/Case 41667. As indicated in the emails below, SMO had previously made the lab aware of discrepancies between the Hardcopy Form 1s and EDD and requested the lab submit a corrected EDD as NFG Resubmittal. SMO inquired about the status of the corrected EDD and was informed that the lab had experienced a power outage until mid-day yesterday (10/4). The lab indicated that the corrected EDD would be submitted to SMO tomorrow (10/6).

From: [redacted]
Sent: Tuesday, October 04, 2011 8:52 AM
To: [redacted]@a4scientific.com'; [redacted]@a4scientific.com'; [redacted]@a4scientific.com'
Cc: [redacted] 'Slizys.Dan@epamail.epa.gov'; [redacted]@a4scientific.com'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT

Hello [redacted]

In regards to the resubmission request for SDG MC0065/Case 41667, SMO has still not received a corrected EDD addressing the outstanding issues with this SDG (see email below). Please provide information on the status and expected resubmission of the corrected EDD. Your immediate response is appreciated.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604|[redacted]@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Friday, September 30, 2011 9:26 AM
To: [redacted]@a4scientific.com'; [redacted]a4scientific.com'; [redacted]a4scientific.com'
[redacted], 'Slizys.Dan@epamail.epa.gov'; [redacted]@a4scientific.com'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

In regards to SDG MC0065/Case 41667, SMO has noted the following issue:

The EDD and hardcopy Form 1 values do not match for Cadmium in all samples. For example, in Sample MC0066, the EDD result is 1.9 J and the hardcopy Form 1 result is 2.2 U.

Please make the appropriate corrections and submit the corrected EDD to SMO as submission type "NFG Resubmittal" as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604|[redacted]n@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

[redacted]@a4scientific.com

From: [redacted]@fedcsc.com>
To: <[redacted]@a4scientific.com>; <[redacted]@a4scientific.com>; <parveen@a4scientific.com>
Cc: <[redacted]@a4scientific.com>; "[redacted]@fedcsc.com>; <mecanic.mahboobeh@epa.gov>; <Slizys.Dan@epamail.epa.gov>
Sent: Thursday, October 13, 2011 7:55 AM
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

Good morning Laxmi,

SMO has not yet received the corrected EDD and hardcopy Forms 1 that were requested for SDG MC0065/Case 41667 (see attached email below). Please provide information on the status and expected delivery of these corrected data to SMO and Region 3. Your immediate response is requested.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 4059

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-460[redacted]@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Tuesday, October 11, 2011 11:33 AM
To: [redacted]a4scientific.com'; [redacted]@a4scientific.com'; [redacted]a4scientific.com'
Cc: 'mecanic.mahboobeh@epa.gov'; [redacted]@a4scientific.com'; 'Slizys.Dan@epamail.epa.gov'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

SMO received the revised Forms 1 for SDG MC0065/Case 41667 on 10/10/11. However, the following issues have been noted:

1) The non-detect values in all samples were not corrected for the 5X dilution factor indicated on Form 13.

2) It seems that the Cadmium results reported as detects are actually non-detects, considering the MDL value of 0.19 mg/kg reported on hardcopy Form 9.

   For example, the raw data value for Cadmium in Sample MC0065 (page 181) is 0.892 ug/L. This value converts to 0.0892 mg/kg (prior to the 5X dilution adjustment), which is less than the 0.19 mg/kg MDL. Therefore, the result on Form 1 should be 3.8 U not 0.68 J.

Please make the appropriate corrections and submit the corrected EDD to SMO as NFG Resubmittal and the hardcopy Forms 1 to Region 3 and SMO as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818[redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604[redacted]fedcsc.com| www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Thursday, October 06, 2011 8:53 AM
To: [redacted]@a4scientific.com'; [redacted]a4scientific.com'; [redacted]a4scientific.com'
Cc: [redacted]@a4scientific.com'; [redacted] 'Slizys.Dan@epamail.epa.gov'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

In regards to SDG MC0065/Case 41667, the lab indicated that the corrected EDD for this SDG would be submitted today (see attached ROC) to address the following issues:

- The EDD and hardcopy Form 1 values do not match for Cadmium in all samples. For example, in Sample MC0066, the EDD result is 1.9 J and the hardcopy Form 1 result is 2.2 U.

Please submit the corrected EDD to SMO as submission type "NFG Resubmittal" as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 4059

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604|[redacted]@fedcsc.com| www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]

Sent: Wednesday, October 05, 2011 11:24 AM
To: 'ROCv2.0TEST-DASS@fedcsc.com'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

ROC

10/5/2011 11:00 A.M. Phone conversation between [redacted] A4, and [redacted] DASS. SMO contacted the lab to follow up regarding SDG MC0065/Case 41667. As indicated in the emails below, SMO had previously made the lab aware of discrepancies between the Hardcopy Form 1s and EDD and requested the lab submit a corrected EDD as NFG Resubmittal. SMO inquired about the status of the corrected EDD and was informed that the lab had experienced a power outage until mid-day yesterday (10/4). The lab indicated that the corrected EDD would be submitted to SMO tomorrow (10/6).

From: [redacted]
Sent: Tuesday, October 04, 2011 8:52 AM
To: [redacted]@a4scientific.com'; [redacted]@a4scientific.com'; [redacted]@a4scientific.com'
Cc: [redacted]; 'Slizys.Dan@epamail.epa.gov'; [redacted]@a4scientific.com'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT

Hell[redacted]

In regards to the resubmission request for SDG MC0065/Case 41667, SMO has still not received a corrected EDD addressing the outstanding issues with this SDG (see email below). Please provide information on the status and expected resubmission of the corrected EDD. Your immediate response is appreciated.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818[redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604|[redacted]@fedcsc.com| www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: [redacted]
Sent: Friday, September 30, 2011 9:26 AM
To: [redacted]@a4scientific.com'; [redacted]@a4scientific.com'; [redacted]@a4scientific.com'
Cc: [redacted]; 'Slizys.Dan@epamail.epa.gov'; '[redacted]@a4scientific.com'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

In regards to SDG MC0065/Case 41667, SMO has noted the following issue:

The EDD and hardcopy Form 1 values do not match for Cadmium in all samples. For example, in Sample

MC0066, the EDD result is 1.9 J and the hardcopy Form 1 result is 2.2 U.

Please make the appropriate corrections and submit the corrected EDD to SMO as submission type "NFG Resubmittal" as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819 | Fax:703-818-4604 [redacted] @fedcsc.com | www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

add'l Information from SMO

[redacted]a4scientific.com

From: [redacted]@fedcsc.com>
To: [redacted]@a4scientific.com>; [redacted]@a4scientific.com>; [redacted]@a4scientific.com>
Cc: [redacted]@fedcsc.com>; <Slizys.Dan@epamail.epa.gov>; [redacted]@a4scientific.com>
Sent: Tuesday, October 04, 2011 7:52 AM
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT

Hello [redacted]

In regards to the resubmission request for SDG MC0065/Case 41667, SMO has still not received a corrected EDD addressing the outstanding issues with this SDG (see email below). Please provide information on the status and expected resubmission of the corrected EDD. Your immediate response is appreciated.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC
(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604| [redacted]@fedcsc.com|
www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

From: Hammelman, Caitlin
Sent: Friday, September 30, 2011 9:26 AM
To: 'laxmi@a4scientific.com'; 'pakanati@a4scientific.com'; 'parveen@a4scientific.com'
Cc: Mondon-Konan, Emilie; 'Slizys.Dan@epamail.epa.gov'; 'a4clpROC@a4scientific.com'
Subject: REGION 3 | CASE 41667 | LAB A4 | SDG MC0065 | ISSUE NFG SUPPORT | FINAL

A4,

In regards to SDG MC0065/Case 41667, SMO has noted the following issue:

The EDD and hardcopy Form 1 values do not match for Cadmium in all samples. For example, in Sample MC0066, the EDD result is 1.9 J and the hardcopy Form 1 result is 2.2 U.

Please make the appropriate corrections and submit the corrected EDD to SMO as submission type "NFG Resubmittal" as soon as possible.

Thank you,

[redacted]
Data Assessment Environmental Coordinator
CSC

(703) 818 [redacted]

15000 Conference Center Drive, Chantilly, VA 20151-3819|Fax:703-818-4604 [redacted]@fedcsc.com| www.CSC.com

Please send all DASS/CCS inquiries to: CCSSupport@fedcsc.com

SDG MC0075

USEPA - CLP

COVER PAGE

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW09035

Lab Code: A4 Case No.: 41667 Mod. Ref. No.: _____ SDG No.: MC0075

SOW No.: ISM01.2

EPA Sample No.	Lab Sample ID
MC0075	0014660-01
MC0075D	1090169-DUP1
MC0075S	1090169-MS1
MC0078	0014660-02
MC0079	0014660-03
MC0080	0014660-04

		ICP-AES	ICP-MS
Were ICP-AES and ICP interelement corrections applied?	(Yes/No)	Yes	
Were ICP-AES and ICP background corrections applied?	(Yes/No)	Yes	
If yes, were raw data generated before application of background corrections?	(Yes/No)	No	

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the fol[redacted]

Signature: [redacted] Name: [redacted]

Date 09/21/2011 Title : Data Reviewer

USEPA - CLP

COVER PAGE

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW09035

Lab Code: A4 Case No.: 41667 Mod. Ref. No.: 2183.0 SDG No.: MC0075

SOW No.: ISM01.2

EPA Sample No.	Lab Sample ID
MC0075	0014660-01
MC0075D	1090165-DUP1
MC0075S	1090165-MS2
MC0075S	1090165-MS1
MC0078	0014660-02
MC0079	0014660-03
MC0080	0014660-04

		ICP-AES	ICP-MS
Were ICP-AES and ICP interelement corrections applied?	(Yes/No)		Yes
Were ICP-AES and ICP background corrections applied?	(Yes/No)		Yes
If yes, were raw data generated before application of background corrections?	(Yes/No)		No

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [redacted] Name: [redacted]

Date 09/21/2011 Title : Data Reviewer

A4 SCIENTIFIC, INC.

1544 Sawdust Road, Suite 505 • The Woodlands, TX 77380 • Phone (281) 292-5277

Contract #: EPW09035	Case #: 41667	SDG #: MC0075

SDG NARRATIVE

SAMPLE RECIEPT & LOGIN

The following samples were received on the dates listed against them. The samples were logged in for analysis as listed.

Client Sample	*Lab Sample*	*Matrix*	*#Cont.*	*Received*	*Analysis*	*Comments*
MC0075	0014660-01	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	1st Sx,Ms/Dup
					ISM01.2 ICPAES	
					ISM01.2 HG	
MC0078	0014660-02	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 ICPAES	
					ISM01.2 HG	
MC0079	0014660-03	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	
					ISM01.2 ICPAES	
					ISM01.2 HG	
MC0080	0014660-04	Water	1	09/02/11 10:00	ISM01.2 ICPMS+2183.0	Last Sx
					ISM01.2 ICPAES	
					ISM01.2 HG	

The following issues were noted:

Following issues were encountered during sample receive and log in.

Issue: The lab received and analyzed samples by ICP-MS (MA 2183.0) and found there are extremely high concentrations of Ca, Fe, K, Na, Mg and Al in almost all samples. Due to the high concentrations, the laboratory would like to run these analytes by ICP-AES and the remainder of the analytes by ICP-MS for all samples.
Resolution: Per Region 3, the laboratory may run all samples by ICP-AEs for Al, Ca, Fe, K, Mg, and Na and all remaining analytes by ICP-MS (MA 2183.0)

Directive is enclosed. No other discrepancies of issues were noted during receipt and login.

A4 SCIENTIFIC, INC.

1544 Sawdust Road, Suite 505 • The Woodlands, TX 77380 • Phone (281) 292-5277

Contract #: EPW09035	Case #: 41667	SDG #: MC0075

SDG NARRATIVE

pH of the water samples was verified upon sample receipt and the reading is listed below. pH determination log is included in the data package.

EPA SAMPLE #	LAB SAMPLE #	pH-ICP-AES, ICP-MS, Hg
MC0075	0014660-01	<2
MC0078	0014660-02	<2
MC0079	0014660-03	<2
MC0080	0014660-04	<2

MERCURY

Water samples were digested by Hot-Block technique (7470A) and analyzed using a Perkin Elmer FIMs-100 Mercury Analyzer.

MS and DUP were performed on sample "MC0075" and they were within the QC limits.

No problems were encountered during sample preparation or analysis.

ICP-AES

Water Samples were digested by Hot-Block technique (200.7) and analyzed using a Thermo Electron ICAP6500.

MS was performed on sample "MC0075". Recoveries were within the QC limits.

Dup was performed on sample "MC0075". RPDs were within the QC limits.

Serial Dilution is performed on sample "MC0075". Percent Differences (%D) were within QC limits

No other problems were encountered during sample preparation or analysis.

ICP-MS

Samples were analyzed as per ISM01.2. / MA 2183.0.

Water samples were digested by Hot-Block technique (200.8) and analyzed using a Thermo Electron Corporation ICP MS model X-II.

MS was performed on sample "MC0075". Recoveries were within the QC limits

Dup was performed on sample "MC0075". RPDs were within the QC limits.

Serial Dilution is performed on sample "MC0075". Percent Differences (%D) were within QC limits

No other problems were encountered during sample preparation or analysis.

A4 SCIENTIFIC, INC.

1544 Sawdust Road, Suite 505 • The Woodlands, TX 77380 • Phone (281) 292-5277

Contract #: EPW09035	Case #: 41667	SDG #: MC0075

SDG NARRATIVE

The following Samples were analyzed at a dilution for the analytes listed against them to bring the concentration below the upper calibration range. The dilutions were made as below:

Sample ID	Analyte	Dilution
MC0079	Mn	2.3

The following equations are used for calculation of sample results from raw instrument output data:

MERCURY

WATER Samples:

A standard curve is prepared by plotting the instrumental response of processed standards against true concentration values. Using a linear regression equation, the concentration of field and Quality Control (QC) samples is determined.

ICP-AES

WATER Samples:

Concentration (µg/L) = $C * \frac{V_f}{V_i} * DF$

Where,
C = Instrument value in µg/L
V_f = Final digestion volume (mL) (50ml)
V_i = Initial digestion volume (mL) (50ml)
DF = Dilution Factor

ICP-MS

WATER Samples:

Concentration (µg/L) = $C * \frac{V_f}{V_i} * DF$

Where,
C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL) (50ml)
V_i = Initial digestion volume (mL) (50ml)
DF = Dilution Factor

SAMPLE LOG-IN SHEET 14660-A

Lab Name A4SCIENTIFIC		Page 1 of 1
Received By (Print Name) [redacted]		Log-in Date 9-2-11
Received By (Signature) [redacted]		
Case Number 41667	Sample Delivery Group No. MC0075	Mod. Ref. No. 21830

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal NOs.	NA
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	8768833973 26
6. Sample Tags	Present/Absent*
Sample Tag Numbers	Listed/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition	Intact/Broken*/Leaking
8. Cooler Temperature Indicator Bottle	Present/Absent*
9. Cooler Temperature	4°C
10. Does information on Traffic Reports/Chain of Custody Records and sample tags agree?	Yes/No*
11. Date Received at Lab	9-2-11
12. Time Received	10:00

Sample Transfer	
Fraction Metals	Fraction
Area# Cooler A	Area#
By [signature]	By [signature] 9-2-11
On 9-2-11	On

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MC0075	L2	255	0014660-01	1-1L plastic tote
2	78		258	-02	
3	79		259	-03	
4	80		260	-04	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					[signature] 9-2-11
22					

* Contact SMO and attach record of resolution

Reviewed By	[redacted]	Logbook No.	NA
Date	9/2/11	Logbook Page No.	NA

APPENDIX F:

ORGANIC VALIDATION REPORTS

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

DATE : October 27, 2011

SUBJECT: Region III Data QA Review

FROM: Colleen Walling
Region III ESAT RPO (3EA20)

TO: Lisa Johnson
Remedial Project Manager (3HS12)

Attached is the organic data validation report for the Kiskimere Groundwater Well (Case#41667; SDG#: C0047) 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.

Attachment

cc: [redacted] TechLaw, Inc.)

TO #0037 TDF: #10028

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

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

LOCKHEED MARTIN
We never forget who we're working for™

Date: October 26, 2011

Subject: Organic Data Validation (M3 Level)
Case: 41667
SDG: C0047
Site: Kiskimere Groundwater Well

From: [redacted]
Organic Data Reviewer

[redacted]
Senior Oversight Chemist

To: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 41667, Sample Delivery Group (SDG) C0047, consisted of twenty (20) aqueous samples including two (2) field duplicate pairs, two (2) field blanks and one (1) trip blank analyzed for trace volatile compounds. Samples were analyzed by KAP Technologies, Inc. (KAP) according to Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.2 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Region 3 Modifications to the National Functional Guidelines for Organic Data Review, Level M3 and is assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual). Areas of concern with respect to data usability are listed below.

MINOR PROBLEMS

- Several compounds failed precision criteria [Percent Relative Standard Deviation (%RSD) and/or Percent Difference (%D)] in the initial and/or continuing calibrations. The positive result reported for methylene chloride was impacted in sample C0048; however, the "J" qualifier for this outlier has been superseded by "B" on the DSF. Quantitation limits were not impacted since the %RSD or %D did not exceed the 50% criteria.

- Recoveries for several Deuterated Monitoring Compounds (DMCs) were outside lower control limits for the samples listed below. The positive result reported for acetone in sample C0053 was impacted and qualified "L" on the DSF. Quantitation limits for compounds associated with these DMCs in these samples were qualified "UL" on the DSFs.

DMC	Sample(s)
2-butanone-d_5	C0053
trans-1,3-dichloropropene-d_4	C0058
1,1,2,2-tetrachloroethane-d_2	C0056, C0058, C0061
1,2-dichlorobenzene-d_4	C0058

NOTES

- Concentrations of target compounds found in the analysis of the associated blanks are listed below. Only the compounds used to qualify data are listed. Samples with concentrations of common laboratory contaminants (*) less than ten times (<10X) the blank concentration or with concentrations of other contaminants less than five times (<5X) blank concentration have been qualified "B" on the DSFs.

Blanks	Compound	Concentration	Affected Samples
Field (C0063)	methylene chloride*	1.5 ug/L	C0048
	toluene	0.65 ug/L	C0050

- No positive results were reported in field duplicate pairs C0057/C0060 and C0059/C0061.

- Tentatively Identified Compounds (TICs) were reviewed during data validation. TIC Form Is for samples in which TICs were identified are included in Appendix E. Compounds identified as blank and/or common laboratory contaminants were crossed off TIC Form Is by the reviewer.

- The "J" qualifier for methylene chloride which was detected below Contract Required Quantitation Limit (CRQL) was superseded by "B" on the DSF.

ATTACHMENTS

Appendix A – Glossary of Data Qualifier Codes
Appendix B – Data Summary Form(s)
Appendix C – Chain of Custody Records
Appendix D – Laboratory Case Narrative
Appendix E – Tentatively Identified Compounds

DCN: 41667_C0047

Appendix A
Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

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.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

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

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = 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.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

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

Q = No analytical result.

Appendix B
Data Summary Forms

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0047
KISKIMERE GROUNDWATER WELL
KAP

Number of Soil Samples : 0
Number of Water Samples : 20

Sample Number :		C0047		C0048		C0050		C0051		C0052	
Sampling Location :		GW01		GW02		GW03		GW04		GW07	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		09:45		10:14		10:35		15:36		13:00	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	0.50										
Chloromethane	0.50										
*Vinyl chloride	0.50										
Bromomethane	0.50										
Chloroethane	0.50										
Trichlorofluoromethane	0.50										
*1,1-Dichloroethene	0.50										
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50										
Acetone	5.0										
Carbon Disulfide	0.50										
Methyl acetate	0.50										
*Methylene chloride	0.50			0.27	B						
trans-1,2-Dichloroethene	0.50										
Methyl tert-butyl ether	0.50										
1,1-Dichloroethane	0.50										
cis-1,2-Dichloroethene	0.50										
*2-Butanone	5.0										
Bromochloromethane	0.50										
Chloroform	0.50										
*1,1,1-Trichloroethane	0.50										
Cyclohexane	0.50										
*Carbon tetrachloride	0.50										
*Benzene	0.50										
*1,2-Dichloroethane	0.50										
Trichloroethene	0.50										
Methylcyclohexane	0.50										
*1,2-Dichloropropane	0.50										
Bromodichloromethane	0.50										
cis-1,3-Dichloropropene	0.50										
4-Methyl-2-pentanone	5.0										
*Toluene	0.50					0.56	B				
trans-1,3-Dichloropropene	0.50										
1,1,2-Trichloroethane	0.50										

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667 SDG : C0047
Site : KISKIMERE GROUNDWATER WELL
Lab. : KAP

Sample Number :		C0047		C0048		C0050		C0051		C0052	
Sampling Location :		GW01		GW02		GW03		GW04		GW07	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		09:45		10:14		10:35		15:36		13:00	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50										
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50										
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50										
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0047
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0053		C0054		C0055		C0056		C0057	
Sampling Location :		GW08D		GW09		GW10		GW14		GW15	
Field QC :										Dup. of C0060	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		16:50		16:45		15:00		10:41		11:25	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	0.50										
Chloromethane	0.50										
*Vinyl chloride	0.50										
Bromomethane	0.50										
Chloroethane	0.50										
Trichlorofluoromethane	0.50										
*1,1-Dichloroethene	0.50										
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50										
Acetone	5.0	13	L								
Carbon Disulfide	0.50										
Methyl acetate	0.50										
*Methylene chloride	0.50										
trans-1,2-Dichloroethene	0.50										
Methyl tert-butyl ether	0.50										
1,1-Dichloroethane	0.50										
cis-1,2-Dichloroethene	0.50										
*2-Butanone	5.0		UL								
Bromochloromethane	0.50										
Chloroform	0.50										
*1,1,1-Trichloroethane	0.50										
Cyclohexane	0.50										
*Carbon tetrachloride	0.50										
*Benzene	0.50										
*1,2-Dichloroethane	0.50										
Trichloroethene	0.50										
Methylcyclohexane	0.50										
*1,2-Dichloropropane	0.50										
Bromodichloromethane	0.50										
cis-1,3-Dichloropropene	0.50										
4-Methyl-2-pentanone	5.0										
*Toluene	0.50										
trans-1,3-Dichloropropene	0.50										
1,1,2-Trichloroethane	0.50										

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0047
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0053		C0054		C0055		C0056		C0057	
Sampling Location :		GW08D		GW09		GW10		GW14		GW15	
Field QC :										Dup. of C0060	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/30/2011		08/30/2011		08/30/2011		08/30/2011	
Time Sampled :		16:50		16:45		15:00		10:41		11:25	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50	0.55									
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50								UL		
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50								UL		
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0047
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0058		C0059		C0060		C0061		C0062	
Sampling Location :		GW24		GW26		GW27		GW28		GW8S	
Field QC :				Dup. of C0061		Dup. of C0057		Dup. of C0059			
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/31/2011		08/31/2011		08/30/2011		08/31/2011		08/30/2011	
Time Sampled :		13:05		10:40		11:35		10:50		17:10	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	0.50										
Chloromethane	0.50										
*Vinyl chloride	0.50										
Bromomethane	0.50										
Chloroethane	0.50										
Trichlorofluoromethane	0.50										
*1,1-Dichloroethene	0.50										
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50										
Acetone	5.0										
Carbon Disulfide	0.50										
Methyl acetate	0.50										
*Methylene chloride	0.50										
trans-1,2-Dichloroethene	0.50										
Methyl tert-butyl ether	0.50										
1,1-Dichloroethane	0.50										
cis-1,2-Dichloroethene	0.50										
*2-Butanone	5.0										
Bromochloromethane	0.50										
Chloroform	0.50										
*1,1,1-Trichloroethane	0.50										
Cyclohexane	0.50										
*Carbon tetrachloride	0.50										
*Benzene	0.50										
*1,2-Dichloroethane	0.50										
Trichloroethene	0.50										
Methylcyclohexane	0.50										
*1,2-Dichloropropane	0.50										
Bromodichloromethane	0.50										
cis-1,3-Dichloropropene	0.50		UL								
4-Methyl-2-pentanone	5.0										
*Toluene	0.50										
trans-1,3-Dichloropropene	0.50		UL								
1,1,2-Trichloroethane	0.50		UL								

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0047
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0058		C0059		C0060		C0061		C0062	
Sampling Location :		GW24		GW26		GW27		GW28		GW8S	
Field QC :				Dup. of C0061		Dup. of C0057		Dup. of C0059			
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/31/2011		08/31/2011		08/30/2011		08/31/2011		08/30/2011	
Time Sampled :		13:05		10:40		11:35		10:50		17:10	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50									2.7	
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50		UL								
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50		UL						UL		
*1,3-Dichlorobenzene	0.50		UL								
*1,4-Dichlorobenzene	0.50		UL								
1,2-Dichlorobenzene	0.50		UL								
1,2-Dibromo-3-chloropropane	0.50		UL						UL		
1,2,4-Trichlorobenzene	0.50		UL								
1,2,3-Trichlorobenzene	0.50		UL								

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0047
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0063		C0064		C0074		C0075		C0082	
Sampling Location :		FB01		FB02		SW01		SW02		TB02	
Field QC :		Field Blank		Field Blank						Trip Blank	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/31/2011		08/31/2011		08/31/2011		08/30/2011	
Time Sampled :		18:20		17:30		15:25		11:00		08:15	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	0.50										
Chloromethane	0.50										
*Vinyl chloride	0.50										
Bromomethane	0.50										
Chloroethane	0.50										
Trichlorofluoromethane	0.50										
*1,1-Dichloroethene	0.50										
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50										
Acetone	5.0										
Carbon Disulfide	0.50										
Methyl acetate	0.50										
*Methylene chloride	0.50	1.5		1.6						1.7	
trans-1,2-Dichloroethene	0.50										
Methyl tert-butyl ether	0.50										
1,1-Dichloroethane	0.50										
cis-1,2-Dichloroethene	0.50										
*2-Butanone	5.0										
Bromochloromethane	0.50										
Chloroform	0.50	0.73								0.78	
*1,1,1-Trichloroethane	0.50										
Cyclohexane	0.50										
*Carbon tetrachloride	0.50										
*Benzene	0.50										
*1,2-Dichloroethane	0.50										
Trichloroethene	0.50										
Methylcyclohexane	0.50										
*1,2-Dichloropropane	0.50										
Bromodichloromethane	0.50										
cis-1,3-Dichloropropene	0.50										
4-Methyl-2-pentanone	5.0										
*Toluene	0.50	0.65		0.50						0.70	
trans-1,3-Dichloropropene	0.50										
1,1,2-Trichloroethane	0.50										

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0047
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0063		C0064		C0074		C0075		C0082	
Sampling Location :		FB01		FB02		SW01		SW02		TB02	
Field QC :		Field Blank		Field Blank						Trip Blank	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		08/30/2011		08/31/2011		08/31/2011		08/31/2011		08/30/2011	
Time Sampled :		18:20		17:30		15:25		11:00		08:15	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50										
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50										
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50										
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Appendix C
Chain of Custody Records

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3
Project Code:	CT5653
Account Code:	2011T03N302DD2C03ZZQB00
CERCLIS ID:	PAN000306740
Spill ID:	ARL
Site Name/State:	Kiskimere GW Well Investigation/WV
Project Leader:	[redacted]
Action:	Site Evaluation
Sampling Co:	TechLaw, Inc.

Date Shipped:	9/1/2011
Carrier Name:	FedEx
Airbill:	8768 8339 7359
Shipped to:	KAP Technologies 9391 Grogans Mill Rd Suite A2 The Woodlands TX 77380 (281) 367-0065

Chain of Custody Record

Sampler Signatur[redacted]

Relinquished By	(Date / Time)	Received By	(Date / Time)
1 [redacted]	9/1/11/1900		
2			
3			
4			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	QC Type
C0047	Ground Water/ John Elson	L/G	TVOA (21)	303 (HCL), 304 (HCL), 305 (HCL) (3)	GW01	S: 8/30/2011	9:45	MC0047	–
C0048	Ground Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	306 (HCL), 307 (HCL), 308 (HCL) (3)	GW02	S: 8/30/2011	10:14	MC0048	–
C0050	Ground Water/ Dan Buckley	L/G	TVOA (21)	309 (HCL), 310 (HCL), 311 (HCL) (3)	GW03	S: 8/30/2011	10:35	MC0050	Lab QC
C0051	Ground Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	312 (HCL), 313 (HCL), 314 (HCL) (3)	GW04	S: 8/30/2011	15:36	MC0051	–
C0052	Ground Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	315 (HCL), 316 (HCL), 317 (HCL) (3)	GW07	S: 8/30/2011	13:00	MC0052	–
C0053	Ground Water/ Dan Buckley	L/G	TVOA (21)	318 (HCL), 319 (HCL), 320 (HCL) (3)	GW08D	S: 8/30/2011	16:50	MC0053	–
C0054	Ground Water/ John Elson	L/G	TVOA (21)	321 (HCL), 322 (HCL), 323 (HCL) (3)	GW09	S: 8/30/2011	16:45	MC0054	–
C0055	Ground Water/ John Elson	L/G	TVOA (21)	324 (HCL), 325 (HCL), 326 (HCL) (3)	GW10	S: 8/30/2011	15:00	MC0055	–
C0056	Ground Water/ John Elson	L/G	TVOA (21)	327 (HCL), 328 (HCL), 329 (HCL) (3)	GW14	S: 8/30/2011	10:41	MC0056	–

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TVOA = CLP Trace VOA	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-090111-0005

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011
Project Code:	CT5653	Carrier Name:	FedEx
Account Code:	2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7359
CERCLIS ID:	PAN000306740	Shipped to:	KAP Technologies 9391 Grogans Mill Rd Suite A2 The Woodlands TX 77380 (281) 367-0065
Spill ID:	ARL		
Site Name/State:	Kiskimere GW Well Investigation/WV		
Project Leader:	[redacted]		
Action:	Site Evaluation		
Sampling Co:	TechLaw, Inc.		

Chain of Custody Record

Sampler Signatur [redacted]

Relinquished By	(Date / Time)	Received By	(Date / Time)
[redacted]	9/1/11 / 1900		
2			
3			
4			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	QC Type
C0057	Ground Water/ John Elson	L/G	TVOA (21)	330 (HCL), 331 (HCL), 332 (HCL) (3)	GW15	S: 8/30/2011	11:25	MC0057	Field Duplicate of GW27 C0060
C0058	Ground Water/ John Elson	L/G	TVOA (21)	333 (HCL), 334 (HCL), 335 (HCL) (3)	GW24	S: 8/31/2011	13:05	MC0058	–
C0059	Ground Water/ Dan Buckley	L/G	TVOA (21)	336 (HCL), 337 (HCL), 338 (HCL) (3)	GW26	S: 8/31/2011	10:40	MC0059	Field Duplicate of GW28 C0061
C0060	Ground Water/ John Elson	L/G	TVOA (21)	339 (HCL), 340 (HCL), 341 (HCL) (3)	GW27	S: 8/30/2011	11:35	MC0060	Field Duplicate of GW15 C0057
C0061	Ground Water/ Dan Buckley	L/G	TVOA (21)	342 (HCL), 343 (HCL), 344 (HCL) (3)	GW28	S: 8/31/2011	10:50	MC0061	Field Duplicate of GW26 C0059
C0062	Ground Water/ Dan Buckley	L/G	TVOA (21)	345 (HCL), 346 (HCL), 347 (HCL) (3)	GW8S	S: 8/30/2011	17:10	MC0062	–
C0063	Ground Water/ Dan Buckley	L/G	TVOA (21)	348 (HCL), 349 (HCL), 350 (HCL) (3)	FB01	S: 8/30/2011	18:20	MC0063	Field Blank
C0064	Ground Water/ Dan Buckley	L/G	TVOA (21)	351 (HCL), 352 (HCL), 353 (HCL) (3)	FB02	S: 8/31/2011	17:30	MC0064	Field Blank
C0074	Surface Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	354 (HCL), 355 (HCL), 356 (HCL) (3)	SW01	S: 8/31/2011	15:25	MC0074	–
C0075	Surface Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	357 (HCL), 358 (HCL), 359 (HCL) (3)	SW02	S: 8/31/2011	11:00	MC0075	Lab QC

MS & MSD C0047 9-23-11

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key: TVOA = CLP Trace VOA	Concentration: L = Low, M = Low/Medium, H = High	T [redacted]	Shipment Iced? _____

TR Number: 3-043013577-090111-0005

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011	Chain of Custody Record	Sampler Signature: [redacted]
Project Code:		Carrier Name:	FedEx	Relinquished By / (Date / Time)	Received By / (Date / Time)
Account Code:	CT5653 2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7348	1 [redacted] 9/1/11/1900	
CERCLIS ID:	PAN000306740	Shipped to:	KAP Technologies 9391 Grogans Mill Rd Suite A2 The Woodlands TX 77380 (281) 367-0065	2	
Spill ID:	ARL			3	
Site Name/State:	Kiskimere GW Well Investigation/WV			4	
Project Leader:	[redacted]				
Action:	Site Evaluation				
Sampling Co:	TechLaw, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C0073	Sediment/ MICHELLE DALLESSANDRO	L/G	VOA (21)	293 (Ice Only), 294 (Ice Only), 295 (Ice Only), 296 (Ice Only) (4)	SD09	S: 8/30/2011 11:40	MC0073	-
C0082	Ground Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	300 (HCL), 301 (HCL), 302 (HCL) (3)	TB02	S: 8/30/2011 8:15		Trip Blank

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High		Shipment Iced?

TVOA = CLP Trace VOA, VOA = CLP TCL Volatiles

TR Number: 3-043013577-090111-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

U.S EPA Region III Analytical Request Form

Revision 11.09

41667

OASQA USE ONLY			
Control #	CT5653	RAS #	41667
DAS#		NSF #	
PES #		Analytical TAT	21 days

Date: 08/10/11	Site Activity: Site Assessment		
Site Name: Kiskimere Groundwater Well Investigation		Street Address: intersection of Eisenhower and Main Streets	
City: Parks Township, Armstrong Co.	State: PA	Latitude: 40 degrees 37'11.24"	Longitude: -079 degrees 35'01.16"
Program: Superfund	Acct. #: 2011T03N302DD2CA3RLQB00	CERCLIS #: PAN000306740	
Site ID: 0306740	Spill ID: A3RL	Operable Unit:	
Site Specific QA Plan Submitted: ☐ No ☒ Yes	Title: Sampling QA/QC Work Plan		Date Approved: Aug 10, 2011
EPA Project Leader: Lisa Johnson	Phone#: 215-814-3314	Cell Phone #: NA	E-mail: johnson.lisa@epa.gov
Request Prepare[redacted]	Phone#: 740-867-0968	Cell Phone #: 304-830-1442	E-mail[redacted]
Site Leader:[redacted]	Phone#: 304-230-1230	Cell Phone #: 304-830-1444	E-mail:[redacted]
Contractor: TechLaw, Inc.		EPA CO/PO: Denise T. Page/Karen Esposito	

#Samples 45	Matrix: Water	Parameter: ICP-MS TAL metals+Hg+U A4	Method: CLP ISM01.2 ICP-MS/ M.A. for U 34388
#Samples 48	Matrix: Water	Parameter: TCL Trace VOA KAP	Method: CLP SOM01.2 34389
#Samples 7	Matrix: sediment	Parameter: ICP-AES TAL metals+Hg+U A4	Method: CLP ISM01.2 ICP-AES/ M.A. for U 34391
#Samples 7	Matrix: sediment	Parameter: TCL VOA KAP	Method: CLP SOM01.2 34390
#Samples	Matrix:	Parameter	Method:
#Samples	Matrix;	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:

Ship Date From: August 30, 2011	Ship Date To: September 1, 2011	Org. Validation Level M3	Inorg. Validation Level IM2

Unvalidated Data Requested: ☐ No ☒ Yes If Yes, TAT Needed: ☐ 14days ☐ 7days ☐ 72hrs ☐ 48hrs ☐ 24hrs ☐ Other (Specify) **21 days**

Validated Data Package Due: ☒ 42 days ☐ 30 days ☐ 21days ☐ 14 days ☐ Other (Specify) 21/21

Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)

Special Instructions: See attached CLP TCL and TAL for analytes and CRQLs. Request CLP Modified Analyis (M.A.) for Uranium with 1 ug/l QL in water and **?? for sediment samples.**

Appendix D
Laboratory Case Narrative

KAP TECHNOLOGIES, INC.
9391 Grogans Mill Rd, Suite A2 • The Woodlands, TX 77380 • Phone (281) 367-0065

Contract No. EPW11031	Case No. 41667	SDG No. C0047

SDG NARRATIVE

SAMPLE RECEIPT:

On 09/02/11 @ 10:30 A.M. - Received two coolers via FedEx with shipment numbers 876883397348 and 876883397359. The cooler temperature was 4.1^{0}C and 3.3^{0}C.

The package contained the following samples for TVOA analyses.
The custody seals and the samples were intact.

EPA SAMPLE ID	pH	EPA SAMPLE ID	pH
C0047	<2	C0058	<2
C0048	<2	C0059	<2
C0050	<2	C0060	<2
C0051	<2	C0061	<2
C0052	<2	C0062	<2
C0053	<2	C0063	<2
C0054	<2	C0064	<2
C0055	<2	C0074	<2
C0056	<2	C0075	<2
C0057	<2	C0082	<2

No problems were encountered during sample receiving and login.

TRACE VOLATILES:

All samples were analyzed on G-5973 GC/MS using a 30-meter long RTX-VMS column having a 0.25mm ID and 3µm film thickness. The trap used was OV-1/Tenax/Silica Gel (Tekmar #6 CAT #14-1755-003).

A 25 mL purge volume was used for all samples, blanks and standards. The concentrations of the standards and spikes were maintained at the levels required by the Statement of Work (SOW).

These samples were analyzed for Trace Volatiles as per SOM 1.2 statement of work.

No problems were encountered during the sample analyses.

KAP TECHNOLOGIES, INC.
9391 Grogans Mill Rd, Suite A2 • The Woodlands, TX 77380 • Phone (281) 367-0065

Contract No. EPW11031	Case No. 41667	SDG No. C0047

SDG NARRATIVE

The formula used to calculate the Sample concentration:

$$\text{Concentration in } \mathbf{ug/L} = \frac{(A_x)\,(I_s)\,(DF)}{(A_{is})\,(RRF)\,(V_o)}$$

Where,

A_x = Area of the characteristic ion (EICP) for the compound to be measured.
A_{is} = Area of the characteristic ion (EICP) for the internal standard.
Is = Amount of internal standard added in ng.
RRF = Mean relative Response Factor from the initial calibration standard.
V_o = Total Volume of water purged, in ml.
DF = Dilution Factor.

Manual Integrations:

The software did not pick-up the following compounds and these compounds were manually integrated and the EICP is enclosed in the data package.

C0047 – 1,1-Dichlorothene-d2
C0054 – Chloroethane-d5
C0056 – trans-1,3-Dichloropropene-d3
C0058 – 1,2-Dichloropropane-d6
C0059 – 1,1-Dichlorothene-d2
C0061 – trans-1,3-Dichloropropene-d3
C0062 – 1,1-Dichlorothene-d2
C0063 – Toulene
C0064 – Toulene
C0082 – Toulene
VSTD0102G – Chloromethane
VSTD0052G – Bromomethane
VSTD0012G – Chloroethane
VSTD0012G – Bromomethane
VSTD0.52G – Chloromethane
VSTD0.52G – 1,1-Dichloroethene
VSTD0.52G – Acetone
VSTD0.52G – Methyl acetate
VSTD0.52G – 1,2-Dichloroethane
VSTD0053G – Methyl acetate
VSTD0053G – 1,2-Dichloroethane
VSTD0053F – Chloromethane
VSTD0053H – Chloromethane
VSTD0053H – Methyl acetate
VSTD0053Q – Chloroethane
VSTD0053Q – Acetone
VSTD0053Q – Methyl acetate
VSTD0053R – 1,2-Dibromom-3-chloropropane
VBLK3C – 1,1,2,2-Tetrachloroethane-d2
VBLK3G – 1,1-Dichloroethene-d2

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy sample data package and in the electronic data deliverable has been authorized by the laboratory manager or the manager's designee, as verified by the following signature:

[redacted]
Signature/Title

9/20/11
Date of Signature

SAMPLE LOG-IN SHEET
FORM DC-1

Lab Name	KAP TECHNOLOGIES, INC.	Page 1 of 1
Received By (Print Name)	[redacted]	Log-in Date 9/2/11
Received By (Signature)		
Case Number 416667	Sample Delivery Group No. C0047	Mod. Ref. No. —

Remarks:

1. Custody Seal(s) — Present/Absent* — Intact/Broken
2. Custody Seal Nos. —
3. Traffic Reports/ Chain of Custody Records (TR/COCs) or Packing Lists — Present/Absent*
4. Airbill — Airbill/Sticker Present/Absent*
5. Airbill No. 8768 8339 7359
6. Sample Tags — Present/Absent*
   Sample Tag Numbers — Listed/Not Listed on Chain-of-Custody
7. Sample Condition — Intact/Broken*/ Leaking
8. Cooler Temperature Indicator Bottle — Present/Absent*
9. Cooler Temperature — 4.1°C
10. Does information on TR/COCs and sample tags agree? — Yes / No*
11. Date Received at Laboratory — 9/2/11
12. Time Received — 10:30

Sample Transfer

Fraction TVOA	Fraction
Area # Cooler E	Area #
By NH	By
On 9/2/11	On

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
C0047	303 - 305	S-4306.01	Intact 3-40 mL vials
48	306 - 308	.02	
50	309 - 311	.03	
51	312 - 314	.04	
52	315 - 317	.05	
53	318 - 320	.06	
54	321 - 323	.07	
55	324 - 326	.08	
56	327 - 329	.09	
57	330 - 332	.10	
58	33 - 335	.11	
59	336 - 338	.12	
60	339 - 341	.13	
61	342 - 344	.14	
62	345 - 347	.15	
63	348 - 350	.16	
64	351 - 353	.17	
74	354 - 356	.18	
75	357 - 359	.19	
VHBLK01	—	.20	—

* Contact SMO and attach record of resolution

Reviewed By [redacted]	Logbook No.
Date 9/2/11	Logbook Page No.

0058

SOM01.1 (5/2005)

SAMPLE LOG-IN SHEET
FORM DC-1

Lab Name	KAP TECHNOLOGIES, INC.	Page 1 of 1
Received By (Print Name)	[redacted]	Log-In Date 9/2/11
Received By (Signature)		
Case Number 41667	Sample Delivery Group No. C0047	Mod. Ref. No.

Remarks:

1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal Nos.	— —
3. Traffic Reports/ Chain of Custody Records (TR/COCs) or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	8768 8339 7348
6. Sample Tags	Present/Absent*
Sample Tag Numbers	Listed/Not Listed on Chain-of-Custody
7. Sample Condition	Intact/Broken*/ Leaking
8. Cooler Temperature Indicator Bottle	Present/Absent*
9. Cooler Temperature	3.3°C
10. Does information on TR/COCs and sample tags agree?	Yes / No*
11. Date Received at Laboratory	9/2/11
12. Time Received	10:30

Sample Transfer	
Fraction TVOA	Fraction
Area # Cooler E	Area #
By NH	By
On 9/2/11	On

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
C0082	300-302	S-4306.20	Intact 3-40ml Vials

* Contact SMO and attach record of resolution

Reviewed By [redacted]	Logbook No.
Date 9/2/11	Logbook Page No.

0651

SOM01.1 (5/2005)

Appendix E
Tentatively Identified Compounds (TICs)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0047

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.01

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15803

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
01	~~001825-61-2~~	~~Silane, methoxytrimethyl-~~	~~4.19~~	~~0.51~~	~~NJ~~	
02		~~Unknown 01~~	~~4.20~~	~~0.66~~	~~J~~	FB
03		~~Unknown 02~~ silane	~~6.40~~	~~0.78~~	~~J~~	
04		~~Unknown 03~~	~~9.82~~	~~5.6~~	~~J~~	SB
05	000527-84-4	Benzene, 1-methyl-2-(1-methyl	16.21	0.59	NJ	
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27						
28						
29						
30						
	E966796[1]	Total Alkanes	N/A			

[1] EPA-designated Registry Number.

DV
10/24/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0053

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.06

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15837

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	~~000420-56-4~~	~~Trimethylsilyl fluoride~~	~~2.34~~	~~0.69~~	~~NJ~~
02		~~Unknown-01~~	~~6.75~~	~~1.8~~	~~J~~
03		Unknown-02	6.76	0.63	J
04		~~Unknown-03~~	~~9.82~~	~~5.4~~	~~J~~
05		Unknown-04	16.21	0.74	J
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28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DV 10/24/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0056

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.09

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15822

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	2.59	0.57	J
02		Unknown-02	2.60	0.51	J
03		Unknown-03	2.62	0.86	J
04		~~Unknown-04~~	~~4.20~~	~~0.96~~	~~J~~ TB
05		~~Unknown-05~~	~~9.82~~	~~5.1~~	~~J~~ SB
06					
07					
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09					
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21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DV
10/24/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0057

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.10

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15847

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	2.60	0.80	J
02		~~Unknown-02~~	~~9.82~~	~~5.8~~	~~J~~
03					
04					
05					
06					
07					
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28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SB

DV 10/24/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0058

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.11

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15824

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-02	2.63	0.55	J
02		Unknown-01	2.63	1.2	J
03		~~Unknown-03~~	~~9.82~~	~~4.7~~	~~J~~ SB
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
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28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DV
10/24/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0059

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.12

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15825

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	~~000420-56-4~~	~~Trimethylsilyl fluoride~~	~~2.34~~	~~0.52~~	~~NJ~~
02		Unknown-01	2.63	1.6	J
03	~~001025-61-2~~	~~Silane, methoxytrimethyl~~	~~4.19~~	~~0.57~~	~~NJ~~
04		Unknown-02	6.48	0.57	J
05		~~Unknown-03~~	~~9.82~~	~~6.0~~	~~J~~ SB
06					
07					
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DV 10/24/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0060

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.13

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15826

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	~~000420 56 4~~	~~Trimethylsilyl fluoride~~	~~2.34~~	~~0.65~~	~~NJ~~
02		~~Unknown-01~~	~~4.19~~	~~0.65~~	~~J~~
03		~~Unknown-02~~ silane	~~4.20~~	~~0.93~~	~~J~~
04		Unknown-03	6.48	0.64	J
05		~~Unknown-04~~	~~9.82~~	~~6.4~~	~~J~~ SB
06					
07					
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09					
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11					
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14					
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23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DV 10/24/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0062

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.15

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15841

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
01		~~Unknown-01~~	~~4.20~~	~~1.2~~	~~J~~	TB
02		Unknown-02	6.46	0.65	J	
03		~~Unknown-03~~	~~9.82~~	~~5.5~~	~~J~~	SB
04						
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25						
26						
27						
28						
29						
30						
	E966796[1]	Total Alkanes	N/A			

[1] EPA-designated Registry Number.

DV 09/21/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0074

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.18

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15844

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	~~000420-56-4~~	~~Trimethylsilyl fluoride~~	~~2.34~~	~~0.02~~	~~NJ~~
02		Unknown-01	6.47	0.70	J
03		~~Unknown-02~~	~~9.82~~	~~5.6~~	~~J~~ SB
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

DV 10/24/11

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0063

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047 FB

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.16

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15842

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000060-29-7	Ethyl ether	3.08	0.72	NJ
02		Unknown-01	3.08	1.2	J
03		~~Unknown-02~~	~~9.82~~	~~5.1~~	~~J~~ 4b
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0064

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031 FB

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.17

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15843

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	3.07	0.73	J
02		Unknown-02	4.19	0.96	J
03		~~Unknown-03~~	~~9.02~~	~~5.7~~	~~J~~ SB
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0082

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031 TB

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0047

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4306.20

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15846

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	3.08	1.1	J
02		Unknown-02	4.19	0.88	J
03		~~Unknown-03~~	~~9.82~~	~~4.6~~	~~J~~ SB
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

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

DATE : October 27, 2011

SUBJECT: Region III Data QA Review

FROM: Colleen Walling
Region III ESAT RPO (3EA20)

TO: Lisa Johnson
Remedial Project Manager (3HS12)

Attached is the organic data validation report for the Kiskimere Groundwater Well (Case#41667; SDG#: C0065 and C0076) 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.

Attachment

cc: [redacted] (TechLaw, Inc.)

TO #0037 TDF: #10027

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

LOCKHEED MARTIN
We never forget who we're working for™

Date: October 26, 2011

Subject: Organic Data Validation (M3 Level)
Case: 41667
SDGs: C0065, C0076
Site: Kiskimere Groundwater Well

From: [redacted]
Organic Data Reviewer

[redacted]
Senior Oversight Chemist

To: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 41667, Sample Delivery Groups (SDGs) C0065 and C0076, consisted of nine (9) soil samples analyzed for volatile organic compounds and six (6) aqueous samples analyzed for trace volatile compounds. All samples were analyzed by KAP Technologies Incorporated (KAP). The sample set included one (1) trip blank and one (1) aqueous field duplicate pair analyzed for trace volatile compounds and one (1) soil field duplicate pair analyzed for volatile organic compounds. The samples were analyzed according to Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.2 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Region III Modifications to the National Functional Guidelines for Organic Data Review, Level M3 and is assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual). Areas of concern with respect to data usability are listed below.

It should be noted that in SOM01.2, 1,4-dioxane is no longer a target analyte by Trace VOA and Trace VOA SIM analyses. Using SOM01.2 for the detection and reporting of 1,4-dioxane at low and medium levels has not consistently generated data of sufficiently known quality. This is due to poor purge efficiency. Results for 1,4-dioxane using this method should be considered advisory.

MINOR PROBLEMS

- Several compounds failed precision criteria [Percent Relative Standard Deviation (%RSD) and/or Percent Difference (%D)] in the trace volatile and/or volatile initial and continuing calibrations. The "J" qualifier for methylene chloride in the soil samples has been superseded by "B" on the Data Summary Forms (DSFs). The precisions did not exceed the 50% criteria. Therefore, no quantitation limits were qualified based on these outliers.

- In the trace volatile analyses, recovery of Deuterated Monitoring Compound (DMC) 1,1,2,2-tetrachloroethane-d2 was outside the lower control limit in sample C0080. No positive results were reported for compounds associated with this DMC. Quantitation limits for compounds associated with this DMC in this sample were qualified "UL" on the DSF.

- In the volatile analyses, recovery of DMC 1,1-dichloroethene-d2 was outside the lower control limit in sample C0067. No positive results were reported for compounds associated with this DMC. Quantitation limits for compounds associated with this DMC in this sample were qualified "UL" on the DSF.

NOTES

- Compounds detected below Contract Required Quantitation Limits (CRQLs) are qualified "J" on the DSFs unless superseded by "B".

- In the volatile analyses, recovery of DMC benzene-d6 was outside the upper control limit in sample C0066. No positive results were reported for the compounds associated with this DMC in these samples. Therefore, no data were qualified based on this outlier.

- Concentrations of target compounds found in the analysis of samples' associated trip, storage and method blanks are listed below. Only compounds used to qualify data are listed. Samples with concentrations of this common laboratory contaminants less than ten times (<10X) the blank concentration have been qualified "B" on the DSFs.

SDG: C0065

Blank	Compound	Concentration	Affected Samples
Method (VBLK2W)	methylene chloride	3.1 J µg/Kg	C0065, C0066, C0067, C0068, C0069, C0071

SDG: C0076

Blank	Compound	Concentration	Affected Samples
Storage (VHBLK01)	methylene chloride	0.41 J µg/L	C0080, C0083

- Tentatively Identified Compounds (TICs) were reviewed during data validation. TICs identified as blank contaminants were crossed-off the TIC Form Is by the reviewer. TIC Form Is for samples in which TICs were identified are included in Appendix E.

- Sample weights other than five (5) grams in the volatile analyses were used for these samples. The dilution factors reported on the DSFs reflect actual sample weights analyzed.

- The volatile soil samples were collected utilizing Encore samplers. The samples were placed in a freezer upon sample receipt until sample analysis.

- No positive results were reported in the aqueous trace volatile field duplicate pair, samples C0076/C0077.

- Results reported for soil field duplicate pair, samples C0067/C0068, were comparable except for toluene.

ATTACHMENTS

Appendix A – Glossary of Data Qualifier Codes
Appendix B – Data Summary Form(s)
Appendix C – Chain of Custody Records
Appendix D – Laboratory Case Narrative
Appendix E – Tentatively Identified Compounds

DCN: 41667M3

Appendix A

Glossary of Data Qualifiers

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

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.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

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

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = 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.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

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

Q = No analytical result.

Appendix B

Data Summary Forms

DATA SUMMARY FORM: Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0065
KISKIMERE GROUNDWATER WELL
KAP

Number of Soil Samples : 9
Number of Water Samples : 0

Sample Number :		C0065		C0066		C0067		C0068		C0069	
Sampling Location :		SD01		SD02		SD03		SD04		SD05	
Field QC:						Field Dup. of C0068		Field Dup. of C0067			
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		8/31/2011		8/31/2011		8/31/2011		8/31/2011		8/30/2011	
Time Sampled :		15:55		11:00		15:45		15:55		16:50	
%Moisture :		76		31		34		43		46	
Dilution Factor :		1.0		0.93		0.96		0.94		0.91	
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.0										
Chloromethane	5.0										
Vinyl chloride	5.0										
Bromomethane	5.0										
Chloroethane	5.0										
Trichlorofluoromethane	5.0										
1,1-Dichloroethene	5.0						UL				
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0										
Acetone	10	72									
Carbon Disulfide	5.0										
Methyl acetate	5.0										
Methylene chloride	5.0	16	B	4.8	B	5.3	B	5.8	B	5.3	B
trans-1,2-Dichloroethene	5.0						UL				
Methyl tert-butyl ether	5.0										
1,1-Dichloroethane	5.0										
cis-1,2-Dichloroethene	5.0						UL				
2-Butanone	10										
Bromochloromethane	5.0										
Chloroform	5.0										
1,1,1-Trichloroethane	5.0										
Cyclohexane	5.0										
Carbon tetrachloride	5.0										
Benzene	5.0										
1,2-Dichloroethane	5.0										
1,4-Dioxane	100										
Trichloroethene	5.0	18	J								
Methylcyclohexane	5.0										
1,2-Dichloropropane	5.0										
Bromodichloromethane	5.0										
cis-1,3-Dichloropropene	5.0										
4-Methyl-2-pentanone	10										
Toluene	5.0	51		22				16		38	
trans-1,3-Dichloropropene	5.0										

DATA SUMMARY FORM: Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0065
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0065		C0066		C0067		C0068		C0069	
Sampling Location :		SD01		SD02		SD03		SD04		SD05	
Field QC:						Field Dup. of C0068		Field Dup. of C0067			
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		8/31/2011		8/31/2011		8/31/2011		8/31/2011		8/30/2011	
Time Sampled :		15:55		11:00		15:45		15:55		16:50	
%Moisture :		76		31		34		43		46	
Dilution Factor :		1.0		0.93		0.96		0.94		0.91	
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0										
Tetrachloroethene	5.0										
2-Hexanone	10										
Dibromochloromethane	5.0										
1,2-Dibromoethane	5.0										
Chlorobenzene	5.0										
Ethylbenzene	5.0										
o-Xylene	5.0										
m,p-Xylene	5.0										
Styrene	5.0										
Bromoform	5.0										
Isopropylbenzene	5.0										
1,1,2,2-Tetrachloroethane	5.0										
1,3-Dichlorobenzene	5.0										
1,4-Dichlorobenzene	5.0										
1,2-Dichlorobenzene	5.0										
1,2-Dibromo-3-chloropropane	5.0										
1,2,4-Trichlorobenzene	5.0										
1,2,3-Trichlorobenzene	5.0										

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / [(100 - %Moisture) / 100]

Revised 09/99

DATA SUMMARY FORM: Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0065
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0070		C0071		C0072		C0073			
Sampling Location :		SD06		SD07		SD08		SD09			
Field QC:											
Matrix :		Soil		Soil		Soil		Soil			
Units :		ug/Kg		ug/Kg		ug/Kg		ug/Kg			
Date Sampled :		8/31/2011		8/31/2011		8/30/2011		8/30/2011			
Time Sampled :		16:35		13:10		11:04		11:40			
%Moisture :		39		21		38		34			
Dilution Factor :		0.93		1.0		1.02		1.0			
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.0										
Chloromethane	5.0										
Vinyl chloride	5.0										
Bromomethane	5.0										
Chloroethane	5.0										
Trichlorofluoromethane	5.0										
1,1-Dichloroethene	5.0										
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0										
Acetone	10										
Carbon Disulfide	5.0										
Methyl acetate	5.0										
Methylene chloride	5.0			4.4	B						
trans-1,2-Dichloroethene	5.0										
Methyl tert-butyl ether	5.0										
1,1-Dichloroethane	5.0										
cis-1,2-Dichloroethene	5.0										
2-Butanone	10										
Bromochloromethane	5.0										
Chloroform	5.0										
1,1,1-Trichloroethane	5.0										
Cyclohexane	5.0										
Carbon tetrachloride	5.0										
Benzene	5.0										
1,2-Dichloroethane	5.0										
1,4-Dioxane	100										
Trichloroethene	5.0										
Methylcyclohexane	5.0										
1,2-Dichloropropane	5.0										
Bromodichloromethane	5.0										
cis-1,3-Dichloropropene	5.0										
4-Methyl-2-pentanone	10										
Toluene	5.0	26		15		17		36			
trans-1,3-Dichloropropene	5.0										

DATA SUMMARY FORM: Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0065
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0070		C0071		C0072		C0073			
Sampling Location :		SD06		SD07		SD08		SD09			
Field QC:											
Matrix :		Soil		Soil		Soil		Soil			
Units :		ug/Kg		ug/Kg		ug/Kg		ug/Kg			
Date Sampled :		8/31/2011		8/31/2011		8/30/2011		8/30/2011			
Time Sampled :		16:35		13:10		11:04		11:40			
%Moisture :		39		21		38		34			
Dilution Factor :		0.93		1.0		1.02		1.0			
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0										
Tetrachloroethene	5.0										
2-Hexanone	10										
Dibromochloromethane	5.0										
1,2-Dibromoethane	5.0										
Chlorobenzene	5.0										
Ethylbenzene	5.0										
o-Xylene	5.0										
m,p-Xylene	5.0										
Styrene	5.0										
Bromoform	5.0										
Isopropylbenzene	5.0										
1,1,2,2-Tetrachloroethane	5.0										
1,3-Dichlorobenzene	5.0										
1,4-Dichlorobenzene	5.0										
1,2-Dichlorobenzene	5.0										
1,2-Dibromo-3-chloropropane	5.0										
1,2,4-Trichlorobenzene	5.0										
1,2,3-Trichlorobenzene	5.0										

CRQL = Contract Required Quantitation Limit
SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / [(100 - %Moisture) / 100]
Revised 09/99

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0076
KISKIMERE GROUNDWATER WELL
KAP

Number of Soil Samples : 0
Number of Water Samples : 6

Sample Number :		C0076		C0077		C0078		C0079		C0080	
Sampling Location :		SW03		SW04		SW05		SW06		SW07	
Field QC :		Field Dup. of C0077		Field Dup. of C0076							
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		8/31/2011		8/31/2011		8/30/2011		8/30/2011		8/31/2011	
Time Sampled :		15:10		15:20		16:50		11:30		13:10	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	0.50										
Chloromethane	0.50										
*Vinyl chloride	0.50										
Bromomethane	0.50										
Chloroethane	0.50										
Trichlorofluoromethane	0.50										
*1,1-Dichloroethene	0.50										
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50										
Acetone	5.0										
Carbon disulfide	0.50										
Methyl acetate	0.50										
*Methylene chloride	0.50									1.7	B
trans-1,2-Dichloroethene	0.50										
Methyl tert-butyl ether	0.50										
1,1-Dichloroethane	0.50										
cis-1,2-Dichloroethene	0.50										
*2-Butanone	5.0										
Bromochloromethane	0.50										
Chloroform	0.50									0.74	
*1,1,1-Trichloroethane	0.50										
Cyclohexane	0.50										
*Carbon tetrachloride	0.50										
*Benzene	0.50										
*1,2-Dichloroethane	0.50										
Trichloroethene	0.50										
Methylcyclohexane	0.50										
*1,2-Dichloropropane	0.50										
Bromodichloromethane	0.50										
cis-1,3-Dichloropropene	0.50										
4-Methyl-2-pentanone	5.0										
*Toluene	0.50									0.63	
trans-1,3-Dichloropropene	0.50										
1,1,2-Trichloroethane	0.50										

+ = Result reported from the diluted analysis. See dilution table in the case narrative.

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0076
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0076		C0077		C0078		C0079		C0080	
Sampling Location :		SW03		SW04		SW05		SW06		SW07	
Field QC :		Field Dup. of C0077		Field Dup. of C0076							
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		8/31/2011		8/31/2011		8/30/2011		8/30/2011		8/31/2011	
Time Sampled :		15:10		15:20		16:50		11:30		13:10	
pH :		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50										
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50										UL
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50										UL
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

+ = Result reported from the diluted analysis. See dilution table in the case narrative.

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0076
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0083									
Sampling Location :		TB01									
Field QC :		Trip Blank									
Matrix :		Water									
Units :		ug/L									
Date Sampled :		8/30/2011									
Time Sampled :		08:10									
pH :		< 2									
Dilution Factor :		1.0									
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	0.50										
Chloromethane	0.50										
*Vinyl chloride	0.50										
Bromomethane	0.50										
Chloroethane	0.50										
Trichlorofluoromethane	0.50										
*1,1-Dichloroethene	0.50										
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50										
Acetone	5.0										
Carbon disulfide	0.50										
Methyl acetate	0.50										
*Methylene chloride	0.50	0.39	B								
trans-1,2-Dichloroethene	0.50										
Methyl tert-butyl ether	0.50										
1,1-Dichloroethane	0.50										
cis-1,2-Dichloroethene	0.50										
*2-Butanone	5.0										
Bromochloromethane	0.50										
Chloroform	0.50										
*1,1,1-Trichloroethane	0.50										
Cyclohexane	0.50										
*Carbon tetrachloride	0.50										
*Benzene	0.50										
*1,2-Dichloroethane	0.50										
Trichloroethene	0.50										
Methylcyclohexane	0.50										
*1,2-Dichloropropane	0.50										
Bromodichloromethane	0.50										
cis-1,3-Dichloropropene	0.50										
4-Methyl-2-pentanone	5.0										
*Toluene	0.50										
trans-1,3-Dichloropropene	0.50										
1,1,2-Trichloroethane	0.50										

+ = Result reported from the diluted analysis.

DATA SUMMARY FORM: Trace Volatiles

Case #: 41667
Site :
Lab. :

SDG : C0076
KISKIMERE GROUNDWATER WELL
KAP

Sample Number :		C0083									
Sampling Location :		TB01									
Field QC :		Trip Blank									
Matrix :		Water									
Units :		ug/L									
Date Sampled :		8/30/2011									
Time Sampled :		08:10									
pH :		< 2									
Dilution Factor :		1.0									
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50										
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50										
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50										
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Appendix C

Chain of Custody (COC) Records

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011
Project Code:	CT5653	Carrier Name:	FedEx
Account Code:	2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7348
CERCLIS ID:	PAN000306740	Shipped to:	KAP Technologies 9391 Grogans Mill Rd Suite A2 The Woodlands TX 77380 (281) 367-0065
Spill ID:	ARL		
Site Name/State:	Kiskimere GW Well Investigation/WV		
Project Leader:	[redacted]		
Action:	Site Evaluation		
Sampling Co:	TechLaw, Inc.		

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
[redacted]	9/1/1900		
2			
3			
4			

Sampler Signatur [redacted]

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	QC Type
C0065	Sediment/ MICHELLE DALLESSANDRO	L/G	VOA (21)	261 (Ice Only), 262 (Ice Only), 263 (Ice Only), 264 (Ice Only) (4)	SD01	S: 8/31/2011	15:55	MC0065	–
C0066	Sediment/ MICHELLE DALLESSANDRO	L/G	VOA (21)	265 (Ice Only), 266 (Ice Only), 267 (Ice Only), 268 (Ice Only) (4)	SD02	S: 8/31/2011	11:00	MC0066	–
C0067	Sediment/ John Elson	L/G	VOA (21)	269 (Ice Only), 270 (Ice Only), 271 (Ice Only), 272 (Ice Only) (4)	SD03	S: 8/31/2011	15:45	MC0067	Field Duplicate of SD04
C0068	Sediment/ John Elson	L/G	VOA (21)	273 (Ice Only), 274 (Ice Only), 275 (Ice Only), 276 (Ice Only) (4)	SD04	S: 8/31/2011	15:55	MC0068	Field Duplicate of SD03
C0069	Sediment/ MICHELLE DALLESSANDRO	L/G	VOA (21)	277 (Ice Only), 278 (Ice Only), 279 (Ice Only), 280 (Ice Only) (4)	SD05	S: 8/30/2011	16:50	MC0069	–
C0070	Sediment/ Dan Buckley	L/G	VOA (21)	281 (Ice Only), 282 (Ice Only), 283 (Ice Only), 284 (Ice Only) (4)	SD06	S: 8/31/2011	16:35	MC0070	Lab QC
C0071	Sediment/ MICHELLE DALLESSANDRO	L/G	VOA (21)	285 (Ice Only), 286 (Ice Only), 287 (Ice Only), 288 (Ice Only) (4)	SD07	S: 8/31/2011	13:10	MC0071	–
C0072	Sediment/ MICHELLE DALLESSANDRO	L/G	VOA (21)	289 (Ice Only), 290 (Ice Only), 291 (Ice Only), 292 (Ice Only) (4)	SD08	S: 8/30/2011	11:04	MC0072	–

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TVOA = CLP Trace VOA, VOA = CLP TCL Volatiles

TR Number: 3-043013577-090111-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011	Chain of Custody Record	Sample Signat[redacted]
Project Code:	CT5653	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7348	[redacted] 9/11/1900	
CERCLIS ID:	PAN000306740	Shipped to:	KAP Technologies 9391 Grogans Mill Rd Suite A2 The Woodlands TX 77380 (281) 367-0065	2	
Spill ID:	ARL			3	
Site Name/State:	Kiskimere GW Well Investigation/WV			4	
Project Leader:	[redacted]				
Action:	Site Evaluation				
Sampling Co:	TechLaw, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C0073	Sediment/ MICHELLE DALLESSANDRO	L/G	VOA (21)	293 (Ice Only), 294 (Ice Only), 295 (Ice Only), 296 (Ice Only) (4)	SD09	S: 8/30/2011 11:40	MC0073	–
C0082	Ground Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	300 (HCL), 301 (HCL), 302 (HCL) (3)	TB02	S: 8/30/2011 8:15		Trip Blank

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): [redacted]	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____
TVOA = CLP Trace VOA, VOA = CLP TCL Volatiles			

TR Number: 3-043013577-090111-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 41667
DAS No:
R

Region:	3	Date Shipped:	9/1/2011
Project Code:	CT5653	Carrier Name:	FedEx
Account Code:	2011T03N302DD2C03ZZQB00	Airbill:	8768 8339 7359
CERCLIS ID:	PAN000306740	Shipped to:	KAP Technologies 9391 Grogans Mill Rd Suite A2 The Woodlands TX 77380 (281) 367-0065
Spill ID:	ARL		
Site Name/State:	Kiskimere GW Well Investigation/WV		
Project Leader:	[redacted]		
Action:	Site Evaluation		
Sampling Co:	TechLaw, Inc.		

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
[redacted]	9/1/11 1900		
2			
3			
4			

Sampl[redacted]
Signat[redacted]

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	QC Type
C0076	Surface Water/ John Elson	L/G	TVOA (21)	360 (HCL), 361 (HCL), 362 (HCL) (3)	SW03	S: 8/31/2011	15:10	MC0076	Field Duplicate of SW04
C0077	Surface Water/ John Elson	L/G	TVOA (21)	363 (HCL), 364 (HCL), 365 (HCL) (3)	SW04	S: 8/31/2011	15:20	MC0077	Field Duplicate of SW03
C0078	Surface Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	366 (HCL), 367 (HCL), 368 (HCL) (3)	SW05	S: 8/30/2011	16:50	MC0078	–
C0079	Surface Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	369 (HCL), 370 (HCL), 371 (HCL) (3)	SW06	S: 8/30/2011	11:30	MC0079	–
C0080	Surface Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	372 (HCL), 373 (HCL), 374 (HCL) (3)	SW07	S: 8/31/2011	13:10	MC0080	–
C0083	Ground Water/ MICHELLE DALLESSANDRO	L/G	TVOA (21)	375 (HCL), 376 (HCL), 377 (HCL) (3)	TB01	S: 8/30/2011	8:10		Trip Blank

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Add[redacted]	Chain of Custody Seal Number:
Analysis Key: TVOA = CLP Trace VOA	Concentration: L = Low, M = Low/Medium, H = High	Ty[redacted]	Shipment Iced? _____

TR Number: 3-043013577-090111-0005

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

U.S EPA Region III Analytical Request Form

Revision 11.09

OASQA USE ONLY			
Control #	**CT5653**	**RAS #**	**41667**
DAS#		**NSE #**	
PES #		**Analytical TAT**	**21 days**

41667

Date: 08/10/11	Site Activity: Site Assessment		
Site Name: Kiskimere Groundwater Well Investigation		Street Address: intersection of Eisenhower and Main Streets	
City: Parks Township, Armstrong Co.	State: PA	Latitude: 40 degrees 37'11.24"	Longitude: -079 degrees 35'01.16"
Program: Superfund	Acct. #: 2011T03N302DD2CA3RLQB00	CERCLIS #: PAN000306740	
Site ID: 0306740	Spill ID: A3RL	Operable Unit:	
Site Specific QA Plan Submitted: ☐ No ☒ Yes	Title: Sampling QA/QC Work Plan		Date Approved: Aug 10, 2011
EPA Project Leader: Lisa Johnson	Phone#: 215-814-3314	Cell Phone #: NA	E-mail: johnson.lisa@epa.gov
Request Prepar[redacted]	Phone#: 740-867-[redacted]	Cell Phone #: 304-830-1442	E-mai[redacted]
Site Leader[redacted]	Phone#: 304-230-[redacted]	Cell Phone #: 304-830-1444	E-mail[redacted]
Contractor: TechLaw, Inc.		EPA CO/PO: Denise T. Page/Karen Esposito	

#Samples 45	Matrix: Water	Parameter: ICP-MS TAL metals+Hg+U	AY	Method: CLP ISM01.2 ICP-MS/ M.A. for U 34388
#Samples 48	Matrix: Water	Parameter: TCL Trace VOA	KAP	Method: CLP SOM01.2 34389
#Samples 7	Matrix: sediment	Parameter: ICP-AES TAL metals+Hg+U	AY	Method: CLP ISM01.2 ICP-AES/ M.A. for U 34391
#Samples 7	Matrix: sediment	Parameter: TCL VOA	KAP	Method: CLP SOM01.2 34390
#Samples	Matrix:	Parameter		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:

Ship Date From: August 30, 2011	Ship Date To: September 1, 2011	Org. Validation Level M3	Inorg. Validation Level IM2

Unvalidated Data Requested: ☐ No ☒ Yes If Yes, TAT Needed: ☐ 14days ☐ 7days ☐ 72hrs ☐ 48hrs ☐ 24hrs ☐ Other (Specify) **21 days**

Validated Data Package Due: ☒ 42 days ☐ 30 days ☐ 21days ☐ 14 days ☐ Other (Specify) 21/21

Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)

Special Instructions: See attached CLP TCL and TAL for analytes and CRQLs. Request CLP Modified Analyis (M.A.) for Uranium with 1 ug/l QL in water and **?? for sediment samples.**

Appendix D

Laboratory Case Narrative

KAP TECHNOLOGIES, INC.
9391 Grogans Mill Rd, Suite A2 • The Woodlands, TX 77380 • Phone (281) 367-0065

Contract No. EPW11031	Case No. 41667	SDG No. C0065

SDG NARRATIVE

SAMPLE RECEIPT:

On 09/02/11 @ 10:30 A.M. - Received one cooler via FedEx with shipment numbers 876883397348. The cooler temperature was 3.3^{0}C.

The cooler contained the following samples for VOA analyses.
The custody seals and the samples were intact.

EPA SAMPLE ID	pH	EPA SAMPLE ID	pH
C0065	NA	C0070	NA
C0066	NA	C0071	NA
C0067	NA	C0072	NA
C0068	NA	C0073	NA
C0069	NA		

No problems were encountered during sample receiving and login.

VOA SOIL SAMPLE:

This sample was analyzed on G-5973 GC/MS using a 30 meters long RTX-VMS column having a 0.25mm ID and 3µm film thickness. The trap used was OV-1/Tenax/Silica Gel (Tekmar #6 CAT #14-1755-003).

A 10 mL purge volume was used for all samples, blanks and standards. The concentrations of the standards and spikes were maintained at the levels required by the Statement of Work (SOW).

The sample was analyzed for Volatiles as per SOM 1.2 statement of work.

No problems were encountered during the sample analysis.

The formula used to calculate the Sample concentration:

LOW-MED-VOA SOIL SAMPLE:

$$\text{Concentration in ug/L} = \frac{(A_x)\,(I_s)\,(DF)}{(A_{is})\,(RRF)\,(W_s)(D)}$$

Where,

A_x = Area of the characteristic ion (EICP) for the compound to be measured.
A_{is} = Area of the characteristic ion (EICP) for the internal standard.

Contract No. EPW11031	Case No. 41667	SDG No. C0065

SDG NARRATIVE

Is = Amount of internal standard added in ng.
RRF = Mean relative Response Factor from the initial calibration standard.

$$D = \frac{100 - \%\ Moisture}{100}$$

W_s = *Weight of sample added to the purge tube, in g.*

Manual Integrations:

The software did not pick-up the following compounds and these compounds were manually integrated and the EICP is enclosed in the data package.

C0065 - 1,4-Dioxane-d8
C0066 - 1,4-Dioxane-d8
C0067 – Chloroethane-d5
C0067 – 1,2-Dichloroethane-d4
C0067 - 1,4-Dioxane-d8
C0068 - 1,4-Dioxane-d8
C0069 - 1,4-Dioxane-d8
C0070 - 1,4-Dioxane-d8
C0071 - 1,4-Dioxane-d8
C0073 - 1,4-Dioxane-d8
VSTD0502K - 1,4-Dioxane-d8
VSTD0502K – Methyl acetate
VSTD0502K - 1,4-Dioxane
VSTD0252K - 1,4-Dioxane-d8
VSTD0252K – Methyl acetate
VSTD0252K - 1,4-Dioxane
VSTD0052K - 1,4-Dioxane-d8
VSTD0052K - 1,4-Dioxane
VSTD2.52K - 1,4-Dioxane-d8
VSTD2.52K – Dichlorodifluoromethane
VSTD2.52K - 1,4-Dioxane
VSTD1004E – 1,1-Dichloroethene-d2
VSTD1004E – 1,4-Dioxane-d4
VSTD1004E – 1,1-Dichloroethene
VSTD1004E - 1,4-Dioxane
VSTD0504E – 1,1-Dichloroethene-d2
VSTD0504E – 1,2-Dichloroethane-d4
VSTD0504E – 1,4-Dioxane-d4
VSTD0504E - Bromomethane
VSTD0504E – 1,1-Dichloroethene
VSTD0504E - 1,4-Dioxane
VSTD0504E – Toluene
VSTD0054E – 1,2-Dichloroethane-d4

KAP TECHNOLOGIES, INC.
9391 Grogans Mill Rd, Suite A2 • The Woodlands, TX 77380 • Phone (281) 367-0065

Contract No. EPW11031	Case No. 41667	SDG No. C0065

SDG NARRATIVE

VSTD0054E – 1,4-Dioxane-d4
VSTD0054E – 1,4-Dioxane
VSTD2.54E – 1,2-Dichloroethane-d4
VSTD2.54E – 1,4-Dioxane-d4
VSTD2.54E – trans-1,3-Dichloropropene
VSTD2.54E – Methyl acetate
VSTD254E – 1,4-Dioxane
VSTD0254E – 1,1,2,2-Tetrachloroethane-d2
VSTD0254E – Methyl acetate
VSTD0252W - 1,4-Dioxane
VSTD0252W - 1,4-Dioxane-d8
VSTD0252W –Methyl acetate
VSTD0252X - 1,4-Dioxane
VSTD0252X - 1,4-Dioxane-d8
VSTD0254E – 1,1,2,2-Tetrachloroethane-d2
VSTD0254E – Methyl acetate
VSTD0254F - 1,4-Dioxane-d8
VBLK2W - 1,4-Dioxane-d8
VBLK4E - 1,4-Dioxane-d8

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy sample data package and in the electronic data deliverable has been authorized by the laboratory manager or the manager's designee, as verified by the following signature:

[redacted]
Signature/Title

9/22/11
Date of Signature

Contract Laboratory Program

Sample Delivery Group (SDG) Cover Sheet

SDG Number	C0065	Case Number	41667	Contract Number	EPW11031
Lab Code	KAP	SDG Turnaround	21 DAY	Delivery CLIN(s)	_____

First Sample Received in SDG	C0065	Last Sample Received in SDG	C0073
First Sample Receipt Date	09/02/2011	Last Sample Receipt Date	09/02/2011

USEPA Sample Numbers in SDG (Listed in Numerical Order)

CLP Sample ID	Sample Type	Requested Analytical CLIN(s)/SubCLIN(s)	Solicitation Number	MA Number(s)
1 C0065	SOIL	VOA		
2 C0066	SOIL	VOA		
3 C0067	SOIL	VOA		
4 C0068	SOIL	VOA		
5 C0069	SOIL	VOA		
6 C0070	SOIL	VOA		
7 C0071	SOIL	VOA		
8 C0072	SOIL	VOA		
9 C0073	SOIL	VOA		
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Note: *There are a maximum of 20* ***field*** *samples (excluding PE samples) in an SDG. Attach TR/COC Records to this form in alphanumeric order (the order listed above on this form).*

Signature _____ [redacted] _____ Date 9/7/2011

KAP TECHNOLOGIES, INC.
9391 Grogans Mill Rd., Suite A2
The Woodlands, TX 77380

RCN: 306-0711

RUNLOG – PERCENT MOISTURE

DATE IN: 9/15/11 **DATE OUT:** 9/16/11

TIME IN: 13:00 **TEMP IN:** 105°C **TIME OUT:** 13:30 **TEMP OUT:** 105°C

	Sample ID	Pan Weight (g)	Pan + Wet Sample (g)	Pan + Dry Sample (g)	Sample wt (g)	Dry Sample wt (g)	% Moisture	% Solids
7	S-4308.01	1.3119	10.1805	3.4364	8.8686	2.1245	76%	
33	.02	1.3049	10.1022	7.3819	8.7973	6.0770	31%	
171	.03	1.3032	10.0112	7.0164	8.7080	5.7132	34%	
33	.04	1.2996	10.2993	6.4554	8.9997	5.1558	43%	
5	.05	1.3027	10.1949	6.1067	8.8922	4.8040	46%	
911	.06	1.3034	10.4441	6.8513	9.1407	5.5484	39%	
30	.07	1.3191	10.0229	8.1532	8.7038	6.8341	21%	
22	.08	1.2989	10.5945	7.0288	9.2956	5.7299	38%	
13	.09	1.3053	10.1488	7.1538	8.8435	5.8485	34%	

Analyst: [redacted]

Reviewer: [redacted]

319A
0047

KAP TECHNOLOGIES, INC.
9391 Grogans Mill Rd, Suite A2 • The Woodlands, TX 77380 • Phone (281) 367-0065

Contract No. EPW11031	Case No. 41667	SDG No. C0076

SDG NARRATIVE

SAMPLE RECEIPT:

On 09/02/11 @ 10:30 A.M. - Received one cooler via FedEx with shipment number 876883397359. The cooler temperature was 4.1^{0}C.

The package contained the following samples for TVOA analyses.
The custody seals and the samples were intact.

EPA SAMPLE ID	pH	EPA SAMPLE ID	pH
C0076	<2	C0079	<2
C0077	<2	C0080	<2
C0078	<2	C0083	<2

No problems were encountered during sample receiving and login.

TRACE VOLATILES:

All samples were analyzed on G-5973 GC/MS using a 30-meter long RTX-VMS column having a 0.25mm ID and 3µm film thickness. The trap used was OV-1/Tenax/Silica Gel (Tekmar #6 CAT #14-1755-003).

A 25 mL purge volume was used for all samples, blanks and standards. The concentrations of the standards and spikes were maintained at the levels required by the Statement of Work (SOW).

These samples were analyzed for Trace Volatiles as per SOM 1.2 statement of work.

No problems were encountered during the sample analyses.

The formula used to calculate the Sample concentration:

$$\text{Concentration in } \mathbf{ug/L} = \frac{(A_x)\,(I_s)\,(DF)}{(A_{is})\,(RRF)\,(V_o)}$$

Where,
A_x = Area of the characteristic ion (EICP) for the compound to be measured.
A_{is} = Area of the characteristic ion (EICP) for the internal standard.
Is = Amount of internal standard added in ng.
RRF = Mean relative Response Factor from the initial calibration standard.
V_o = Total Volume of water purged, in ml.
DF = Dilution Factor.

KAP TECHNOLOGIES, INC.
9391 Grogans Mill Rd, Suite A2 • The Woodlands, TX 77380 • Phone (281) 367-0065

Contract No. EPW11031	Case No. 41667	SDG No. C0076

SDG NARRATIVE

Manual Integrations:

The software did not pick-up the following compounds and these compounds were manually integrated and the EICP is enclosed in the data package.

C0077 – trans-1,3-Dichloropropene-d3
C0079 – Chloroethane-d5
C0080 – Toulene
C0083 – Chloroethane-d5
VSTD0102G – Chloromethane
VSTD0052G – Bromomethane
VSTD0012G – Chloroethane
VSTD0012G – Bromomethane
VSTD0.52G – Chloromethane
VSTD0.52G – 1,1-Dichloroethene
VSTD0.52G – Acetone
VSTD0.52G – Methyl acetate
VSTD0.52G – 1,2-Dichloroethane
VSTD0052R – Chloroethane
VSTD0052R – 1,2-Dibromoethane
VSTD0053H – Chloromethane
VSTD0053H – Methyl acetate
VSTD0053Q – Chloroethane
VSTD0053Q – Acetone
VSTD0053Q – Methyl acetate
VSTD0053R – 1,2-Dibromom-3-chloropropane
VBLK3G – 1,1-Dichloroethene-d2

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy sample data package and in the electronic data deliverable has been authorized by the laboratory manager or the manager's designee, as verified by the following signature:

[redacted]
Signature/Title

9/20/11
Date of Signature

Contract Laboratory Program

Sample Delivery Group (SDG) Cover Sheet

SDG Number	C0076	Case Number	41667	Contract Number	EPW11031
Lab Code	KAP	SDG Turnaround	21 DAY	Delivery CLIN(s)	_____

First Sample Received in SDG	C0076	Last Sample Received in SDG	C0083
First Sample Receipt Date	09/02/2011	Last Sample Receipt Date	09/02/2011

USEPA Sample Numbers in SDG (Listed in Numerical Order)

CLP Sample ID	Sample Type	Requested Analytical CLIN(s)/SubCLIN(s)	Solicitation Number	MA Number(s)
1 C0076	WATER	TVOA		
2 C0077	WATER	TVOA		
3 C0078	WATER	TVOA		
4 C0079	WATER	TVOA		
5 C0080	WATER	TVOA		
6 C0083	WATER	TVOA		
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Note: *There are a maximum of 20* ***field*** *samples (excluding PE samples) in an SDG. Attach TR/COC Records to this form in alphanumeric order (the order listed above on this form).*

Signature [redacted] Date 9/7/2011

0003

February 2010

Appendix E

TIC Form Is

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0067

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0065

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-4308.03

Sample wt/vol: 5.200 (g/mL) G Lab File ID: G15750

Level: (TRACE or LOW/MED) LOW Date Received: 09/02/2011

% Moisture: not dec. 34 Date Analyzed: 09/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown-01~~	~~10.78~~	~~43~~	~~J~~ 50
02		Unknown-02	10.78	8.1	J
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
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18					
19					
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22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

DJ
10/21/11

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0071

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0065

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-4308.07

Sample wt/vol: 5.000 (g/mL) G Lab File ID: G15754

Level: (TRACE or LOW/MED) LOW Date Received: 09/02/2011

% Moisture: not dec. 21 Date Analyzed: 09/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown-01~~	~~10.79~~	~~44~~	~~J~~ SB
02	000079-92-5	Camphene	16.36	11	NJ
03		Unknown-02	17.72	3.4	J
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DJ 10/21/11

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0072

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0065

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-4308.08

Sample wt/vol: 4.900 (g/mL) G Lab File ID: G15756

Level: (TRACE or LOW/MED) LOW Date Received: 09/02/2011

% Moisture: not dec. 38 Date Analyzed: 09/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown-01~~	~~10.79~~	~~57~~	~~J~~
02	007785-26-4	1S-.alpha.-Pinene	15.56	11	NJ
03	000079-92-5	Camphene	16.37	26	NJ
04					
05					
06					
07					
08					
09					
10					
11					
12					
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23					
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

DI
10/21/11

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0076

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0076

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4307.01

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15848

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000420-56-4	Trimethylsilyl fluoride	2.34	1.5	NJ
02		Unknown-01	6.48	0.80	J
03		~~Unknown-02~~	~~9.82~~	~~5.7~~	~~J~~ B
04					
05					
06					
07					
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14					
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24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DJ 10/21/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0077

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0076

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4307.02

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15849

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000420-56-4	Trimethylsilyl fluoride	2.34	0.53	NJ
02		Unknown-01	9.81	5.5	~~J~~ B
03					
04					
05					
06					
07					
08					
09					
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12					
13					
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24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

D) 10/21/4

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0078

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0076

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4307.03

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15850

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	4.20	0.65	J
02		Unknown-02	9.81	3.8	J
03		Unknown-03	9.82	1.4	J
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

DJ 10/21/11

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0079

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0076

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4307.04

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15851

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000420-56-4	Trimethylsilyl fluoride	2.34	0.63	NJ
02		Unknown-01	9.82	5.4	J
03		Unknown-02	12.21	0.57	J
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

JJ 10/21/14

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0080

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0076

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4307.05

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15852

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/11/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	2.61	1.2	J
02		Unknown-02	3.07	1.1	J
03		Unknown-03	9.81	5.1	J
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

DJ 10/4/11

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
C0083

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 41667 Mod. Ref No.: _____ SDG No.: C0076

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4307.06

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G15702

Level: (TRACE or LOW/MED) TRACE Date Received: 09/02/2011

% Moisture: not dec. _____ Date Analyzed: 09/07/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	2.62	0.58	J
02		Unknown-02	~~9.81~~	~~5.6~~	~~J~~
03		Unknown-03	12.21	0.98	J
04		Unknown-04	15.71	0.93	J
05	000535-77-3	Benzene, 1-methyl-3-(1-methyl	16.20	0.68	NJ
06	000488-23-3	Benzene, 1,2,3,4-tetramethyl-	17.06	0.78	NJ
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

APPENDIX G:

GROUNDWATER SAMPLE RESULTS

Kiskimere Groundwater Well Investigation Site
Data Summary Key

MCL = Maximum Contaminant Level - National Primary Drinking Water Regulations
PA ACT 2 = Pennsylvania Act 2 Residential Groundwater and Soil Standards

mg/kg = milligrams per killogram
µg/L = micrograms per liter
µg/kg = micrograms per kilogram

100	Exceeds MCL
100	Exceeds PA ACT 2 Regulations
100	Exceeds MCL and PA ACT 2 Regulations
100	Concentration is elevated when compared to background sample

NA = No Action Level
N/A = Not Analyzed
ND = Not detected at or below the quantitation limit
B = Not detected substantially above the level reported in laboratory or field blank
J = Analyte present. Reported value may not be accurate or precise.
K = Analyte Present. Reported value may be biased high. Actual value is expected to be lower
L = Analyte Present. Reported value may be biased low. Actual value is expected to be lower
UL = Not detected, quantitation limit is probably higher.
U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
* National Secondary Drinking Water Regulations (Secondary MCL) or Secondary PA ACT 2 Residential Groundwater Standards
(+) Result reported from the diluted analysis
CRQL = Contract Required Quantitation Limit
SQL = Sampling Quantitation Limit

Notes:
Only analytes that were detected are included in media specific result tables.
SQLs are not adjusted for qualified sample results.
Radio Chemistry results report activity only; uncertainty is not reported.
Percent moisture or percent solid results used in SQL calculation were reported on data validation report data summary forms.

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	4/2012 Tapwater RSL (MCL)	MCL	PA ACT 2	Background Sample GW04	GW01	Qualifier	GW02	Qualifier	GW03	Qualifier	GW07	Qualifier
CLP TAL Metals + Mercury (ISM01.2) (µg/L or µg/kg)												
Aluminum	16000	NA	200*	SQL = 200	ND		ND		ND		ND	
Calcium	x	NA	NA	17,400	10,600		9,770		33,100		13,300	
Iron	11000	NA	300*	298	ND		ND		812		59.5	B
Magnesium	x	NA	NA	6,040	3,010	J	7,260		7,470		6,810	
Mercury	0.63	2	2	SQL = 0.2	ND		ND		ND		ND	
Potassium	x	NA	NA	SQL = 5,000	ND		ND		ND		2,890	J
Sodium	x	NA	NA	31,100	4,080	J	1,890	J	4,960	J	2,790	J
Arsenic	0.045	10	10	SQL =2	ND		ND		ND		ND	
Barium	2900	2,000	2,000	81.7	42.6		80.6		154		72.2	
Chromium	x	100	100	1.6 J	1.3	J	ND		2.6		ND	
Cobalt	x	NA	11	SQL = 1	ND		ND		1.1		ND	
Copper	620	1,300	1,000	.93J	34.1		1.4	J	17.2		60.2	
Lead	x	15	5	SQL = 1	2.2		ND		0.84	J	1.7	
Manganese	320	50*	300	8.9J	4.1	J	2.7	J	305	J	10.6	J
Nickel	300	NA	100	.83J	4.5		9.7		0.83		12.6	
Silver	71	100	100	SQL = 1	ND		ND		ND		ND	
Uranium	47	30	NA	SQL = 5	ND		ND		ND		ND	
Zinc	4700	5,000*	2,000	1.4 J	28.4		6.6		27.7		44.6	

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	4/2012 Tapwater RSL (MCL)	MCL	PA ACT 2	Background Sample GW04	GW01	Qualifier	GW02	Qualifier	GW03	Qualifier	GW07	Qualifier
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)												
Acetone	12000	NA	33,000	SQL = 5	ND		ND		ND		ND	
2-Butanone	x	NA	NA	SQL =5	ND		ND		ND		ND	
Chlrobenzene	72	100	100	SQL = 0.5	ND		ND		ND		ND	
cis-1,3-Dichloropropene	0.41	NA	NA	SQL = 0.5	ND		ND		ND		ND	
trans-1,3-Dichloropropene	0.41	NA	NA	SQL = 0.5	ND		ND		ND		ND	
1,1,2-Trichloroethane	0.24	NA	5	SQL = 0.5	ND		ND		ND		ND	
Methylene Chloride	99	5	30	SQL = 0.5	ND		0.27	B	ND		ND	
Tetrachloroethene	x	5	5	SQL = 0.5	ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane	0.066	NA	0.84	SQL = 0.5	ND		ND		ND		ND	
1,3-Dichlrobenzene	x	NA	600	SQL = 0.5	ND		ND		ND		ND	
1,4-Dichlrobenzene	0.42	NA	NA	SQL = 0.5	ND		ND		ND		ND	
1,2-Dichlorobenzene	280	NA	600	SQL = 0.5	ND		ND		ND		ND	
1,2-Dibromo-3-chloropropane	0.00032	0.2	0.2	SQL = 0.5	ND		ND		ND		ND	
1,2,4-Trichlorobenzene	0.99	70	70	SQL = 0.5	ND		ND		ND		ND	
1,2,3-Trichlrobenzene	52	NA	NA	SQL = 0.5	ND		ND		ND		ND	
Toluene	860	1,000	1,000	SQL = 0.5	ND		ND		0.56	B	ND	

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	4/2012 Tapwater RSL (MCL)	MCL	PA ACT 2	GW8S	Qualifier	GW8D	Qualifier	GW09	Qualifier	GW10	Qualifier	GW14	Qualifier
CLP TAL Metals + Mercury (ISM01.2) (µg/L or µg/kg)													
Aluminum	16000	NA	200*	ND		ND		ND		ND		ND	
Calcium	x	NA	NA	16,400		17,400		47,300		13,500		38,100	
Iron	11000	NA	300*	1,190		76.3	B	ND		2,350		33.8	B
Magnesium	x	NA	NA	4,080	J	6,000		9,920		6,900		8,610	
Mercury	0.63	2	2	ND		ND		ND		ND		ND	
Potassium	x	NA	NA	2,960	J	ND		9,760		ND		ND	
Sodium	x	NA	NA	1,850	J	14,600		41,200		20,700		2,010	J
Arsenic	0.045	10	10	ND		ND		0.49	J	ND		ND	
Barium	2900	2,000	2,000	57.2		284		49.8		68.1		66.5	
Chromium	x	100	100	1.5	J	1.1	J	1.7	J	1.5	J	2.2	
Cobalt	x	NA	11	ND		ND		ND		ND		ND	
Copper	620	1,300	1,000	24.1		55		23.0		240		11.6	
Lead	x	15	5	5.1		9.6		2.5		3.9		0.49	J
Manganese	320	50*	300	28.7	J	30.9	J	2.3	J	58.4	J	0.95	J
Nickel	300	NA	100	5.6		0.72	J	8.7		5.6		1.1	
Silver	71	100	100	ND		ND		0.39	J	ND		ND	
Uranium	47	30	NA	ND		ND		ND		ND		ND	
Zinc	4700	5,000*	2,000	16.1		95.9		59.7		173		16	

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	4/2012 Tapwater RSL (MCL)	MCL	PA ACT 2	GW8S	Qualifier	GW8D	Qualifier	GW09	Qualifier	GW10	Qualifier	GW14	Qualifier
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)													
Acetone	12000	NA	33,000	ND		13	L	ND		ND		ND	
2-Butanone	x	NA	NA	ND		5	UL	ND		ND		ND	
Chlrobenzene	72	100	100	ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene	0.41	NA	NA	ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene	0.41	NA	NA	ND		ND		ND		ND		ND	
1,1,2-Trichloroethane	0.24	NA	5	ND		ND		ND		ND		ND	
Methylene Chloride	99	5	30	ND		0.55		ND		ND		ND	
Tetrachloroethene	x	5	5	2.7		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane	0.066	NA	0.84	ND		ND		ND		ND		0.50	UL
1,3-Dichlrobenzene	x	NA	600	ND		ND		ND		ND		ND	
1,4-Dichlrobenzene	0.42	NA	NA	ND		ND		ND		ND		ND	
1,2-Dichlorobenzene	280	NA	600	ND		ND		ND		ND		ND	
1,2-Dibromo-3-chloropropane	0.00032	0.2	0.2	ND		ND		ND		ND		0.50	UL
1,2,4-Trichlorobenzene	0.99	70	70	ND		ND		ND		ND		ND	
1,2,3-Trichlrobenzene	52	NA	NA	ND		ND		ND		ND		ND	
Toluene	860	1,000	1,000	ND		ND		ND		ND		ND	

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	4/2012 Tapwater RSL (MCL)	MCL	PA ACT 2	GW15 Dup. of GW27	Qualifier	GW24	Qualifier	GW26- Dup. of DW28	Qualifier	GW27- Dup. of DW15	Qualifier	GW28- Dup. of DW26	Qualifier
CLP TAL Metals + Mercury (ISM01.2) (µg/L or µg/kg)													
Aluminum	16000	NA	200*	ND		ND		ND		ND		ND	
Calcium	x	NA	NA	43300		7,540		47,800		43,000		46,400	
Iron	11000	NA	300*	ND		ND		ND		ND		ND	
Magnesium	x	NA	NA	8250		5,630		10,900		8,150		10,600	
Mercury	0.63	2	2	ND		ND		ND		ND		ND	
Potassium	x	NA	NA	ND		ND		ND		ND		ND	
Sodium	x	NA	NA	4650	J	3,510	J	5,380		4,550	J	5,180	
Arsenic	0.045	10	10	ND		ND		ND		ND		ND	
Barium	2900	2,000	2,000	251		35.6		65.9		253		66.6	
Chromium	x	100	100	2.7		1.5	J	2.4		2.6		2.2	
Cobalt	x	NA	11	ND		ND		ND		ND		ND	
Copper	620	1,300	1,000	4.9		86.7		8.0		5.4		14.4	
Lead	x	15	5	ND		3.5		1.1		ND		1.3	
Manganese	320	50*	300	0.93	J	17.2	J	1.7	J	1.1	J	2.7	J
Nickel	300	NA	100	ND		9.8		ND		ND		ND	
Silver	71	100	100	ND		ND		ND		ND		ND	
Uranium	47	30	NA	ND		ND		0.85	J	ND		0.81	J
Zinc	4700	5,000*	2,000	20.3		255		2.5		19.3		2.0	J

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	4/2012 Tapwater RSL (MCL)	MCL	PA ACT 2	GW15 Dup. of GW27	Qualifier	GW24	Qualifier	GW26- Dup. of DW28	Qualifier	GW27- Dup. of DW15	Qualifier	GW28- Dup. of DW26	Qualifier
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)													
Acetone	12000	NA	33,000	ND		ND		ND		ND		ND	
2-Butanone	x	NA	NA	ND		ND		ND		ND		ND	
Chlrobenzene	72	100	100	ND		0.50	UL	ND		ND		ND	
cis-1,3-Dichloropropene	0.41	NA	NA	ND		0.50	UL	ND		ND		ND	
trans-1,3-Dichloropropene	0.41	NA	NA	ND		0.50	UL	ND		ND		ND	
1,1,2-Trichloroethane	0.24	NA	5	ND		0.50	UL	ND		ND		ND	
Methylene Chloride	99	5	30	ND		ND		ND		ND		ND	
Tetrachloroethene	x	5	5	ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane	0.066	NA	0.84	ND		0.50	UL	ND		ND		0.50	UL
1,3-Dichlrobenzene	x	NA	600	ND		0.50	UL	ND		ND		ND	
1,4-Dichlrobenzene	0.42	NA	NA	ND		0.50	UL	ND		ND		ND	
1,2-Dichlorobenzene	280	NA	600	ND		0.50	UL	ND		ND		ND	
1,2-Dibromo-3-chloropropane	0.00032	0.2	0.2	ND		0.50	UL	ND		ND		0.50	UL
1,2,4-Trichlorobenzene	0.99	70	70	ND		0.50	UL	ND		ND		ND	
1,2,3-Trichlrobenzene	52	NA	NA	ND		0.50	UL	ND		ND		ND	
Toluene	860	1,000	1,000	ND		ND		ND		ND		ND	

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	MCL	PA ACT 2	Background Sample GW04	GW01	GW02	GW03	GW07	GW08D	GW8S
Radiochemistry									
Gross Alpha (pCi/L)	15 pCi/L	15 pCi/L	0.5	1	0.2	0.4	0	0.2	0.2
Gross Beta (pCi/L)	50 pCi/L	50 pCi/L	2.6	1.5	1.9	2	1.7	1.7	4.2
Radium 228 (pCi/L)	5 pCi/L	5 pCi/L	0.31	0.86	0.81	0.79	0.56	0.16	0.15
Radium 226 (pCi/L)	5 pCi/L	5 pCi/L	0.054	0.103	0.082	0.09	0.15	0.2	0.14
Tl208 (pCi/L)	.5 µg/L	2 µg/L						2.5	
Pb212 (pCi/L)	15 µg/L	5 µg/L					4	3.6	
Gamma Spectroscopy									
Ba140 (pCi/L)	2000 µg/L	2000 µg/L	ND	ND	ND	ND	ND	ND	ND
Co60 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cs137 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND
I131 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND
K40 (pCi/L)			ND	ND	ND	ND	ND	ND	ND
Ra226 (pCi/L)	5 pCi/L	5 pCi/L	ND	ND	ND	ND	ND	ND	ND
Ra228 (pCi/L)	5 pCi/L	5 pCi/L	ND	ND	ND	ND	ND	ND	ND

Kiskimere Groundwater Well Investigation Site
Groundwater Sample Results

Parameter/Method	GW09	GW10	GW14	GW15-Dup. of GW27	GW24	GW26-Dup. of GW28	GW27-Dup. of GW15	GW28-Dup. of GW26
Radiochemistry								
Gross Alpha (pCi/L)	-0.5	-0.2	1.1	0.1	0.7	2	0	0.5
Gross Beta (pCi/L)	11	0.8	2.9	1.95	2.15	4.1	1.3	2.1
Radium 228 (pCi/L)	0.58	0.32	0.22	0.63	0.68	0.49	0.49	0.37
Radium 226 (pCi/L)	0.18	0.088	0.103	0.3	0.1	0.16	0.22	0.15
Tl208 (pCi/L)								
Pb212 (pCi/L)								
Gamma Spectroscopy								
Ba140 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND
Co60 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND
Cs137 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND
I131 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND
K40 (pCi/L)	37.00	ND	ND	ND	ND	ND	30	ND
Ra226 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND
Ra228 (pCi/L)	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX H:

SURFACE WATER SAMPLE RESULTS

Kiskimere Groundwater Well Investigation Site
Data Summary Key

MCL = Maximum Contaminant Level - National Primary Drinking Water Regulations
PA ACT 2 = Pennsylvania Act 2 Residential Groundwater and Soil Standards

mg/kg = milligrams per killogram
µg/L = micrograms per liter
µg/kg = micrograms per kilogram

100	Exceeds MCL
100	Exceeds PA ACT 2 Regulations
100	Exceeds MCL and PA ACT 2 Regulations
100	Concentration is elevated when compared to background sample

NA = No Action Level
N/A = Not Analyzed
ND = Not detected at or below the quantitation limit
B = Not detected substantially above the level reported in laboratory or field blank
J = Analyte present. Reported value may not be accurate or precise.
K = Analyte Present. Reported value may be biased high. Actual value is expected to be lower
L = Analyte Present. Reported value may be biased low. Actual value is expected to be lower
UL = Not detected, quantitation limit is probably higher.
U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
* National Secondary Drinking Water Regulations (Secondary MCL) or Secondary PA ACT 2 Residential Groundwater Standards
(+) Result reported from the diluted analysis
CRQL = Contract Required Quantitation Limit
SQL = Sampling Quantitation Limit

Notes:
Only analytes that were detected are included in media specific result tables.
SQLs are not adjusted for qualified sample results.
Radio Chemistry results report activity only; uncertainty is not reported.
Percent moisture or percent solid results used in SQL calculation were reported on data validation report data summary forms.

Kiskimere Groundwater Well Investigation Site
Surface Water Sample Results

4/2012 Tapwater RSL (MCL)	4/2012 Tapwater RSL	MCL	PA ACT 2	Background Sample SW01	Qualifier	SW02	Qualifier	SW03-Dup. of SW04	Qualifier
CLP TAL Metals + Mercury (ISM01.2) (µg/L or µg/kg)									
Aluminum	16000	NA	200*	98.7 J	J	75.6	J	92.2	J
Calcium	x	NA	NA	60,100		60800		61,400	
Iron	11000	NA	300*	256		205	B	223	
Magnesium	x	NA	NA	18,100		18400		18,500	
Mercury	0.63	2	2	SQL = 0.2		0.2	U	ND	
Potassium	x	NA	NA	3,200 J	J	3070	J	3,160	J
Sodium	x	NA	NA	41,100		41200		41,600	
Arsenic	0.045	10	10	SQL = 1		1	U	ND	
Barium	2900	2,000	2,000	53		53.9		54.1	
Beryllium	16	4	4	SQL = 1		1	U	ND	
Chromium	x	100	100	SQL = 2		0.78	J	ND	
Cobalt	x	NA	11	0.56	J	0.41	J	0.45	J
Copper	620	1,300	1,000	SQL = 2		2	U	ND	
Manganese	320	50*	300	80.5	J	55.8		60.5	J
Nickel	300	NA	100	3.2		3.2		3.2	
Thallium	0.16	2	2	SQL = 1		1	U	ND	
Uranium	47	30	NA	SQL = 1		1	U	ND	
Zinc	4700	5,000*	2,000	2.2		2		2.1	
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)									
Methylene Chloride	99	5	30	SQL = 5		ND		ND	
Chlroroform	0.19	80	80	SQL = 5		ND		ND	
1,1,2,2-Tetrachloroethane	0.066	NA	70	SQL = 5		ND		ND	
1,2-Dibromo-3-chloropropane	0.00032	0.2	0.2	SQL = 5		ND		ND	
Toluene	8600	1,000	1,000	SQL = 5		ND		ND	

Kiskimere Groundwater Well Investigation Site
Surface Water Sample Results

4/2012 Tapwater RSL (MCL)	MCL	PA ACT 2	SW05	Qualifier	SW06	Qualifier	SW07	Qualifier
CLP TAL Metals + Mercury (ISM01.2) (µg/L or µg/kg)								
Aluminum	NA	200*	99.3	J	8,930		200	U
Calcium	NA	NA	57200		43,900		25700	
Iron	NA	300*	533		4,910		112	
Magnesium	NA	NA	17200		19,200		7050	
Mercury	2	2	0.2	U	0	U	0.2	U
Potassium	NA	NA	2940	J	2,830	J	1970	J
Sodium	NA	NA	38800		62,500		34900	
Arsenic	10	10	0.48	J	0.73	J	1	U
Barium	2,000	2,000	51.6		13.9		41.2	
Beryllium	4	4	1	U	3.9		1	U
Chromium	100	100	0.81	J	1.5	J	1.2	J
Cobalt	NA	11	0.56	J	56.4		1	U
Copper	1,300	1,000	0.92	J	5.0		2	U
Manganese	50*	300	81.3		947	D	22.9	
Nickel	NA	100	3.5		145		0.58	J
Thallium	2	2	1	U	0.40	J	1	U
Uranium	30	NA	1	U	1	U	1	U
Zinc	5,000*	2,000	3.2		214		2	U
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)								
Methylene Chloride	5	30	ND		ND		1.7	B
Chlroroform	80	80	ND		ND		0.74	
1,1,2,2-Tetrachloroethane	NA	70	ND		ND		0.5	UL
1,2-Dibromo-3-chloropropane	0.2	0.2	ND		ND		0.5	UL
Toluene	1,000	1,000	ND		ND		0.63	

eter/Method	MCL	PA ACT 2	Background Sample SW01	SW02	SW03-Dup. of SW04	SW04-Dup. of SW03	SW05	SW06	SW07
chemistry									
m 226 (pCi/L)	5 pCi/L	5 pCi/L	0.075	-0.006	0.088	0.13	0.011	0.043	0.039
m 228 (pCi/L)	5 pCi/L	5 pCi/L	0.09	0.41	0.76	0.6	0.27	0.85	0.31
Alpha (pCi/L)	15 pCi/L	15 pCi/L	4.3	-1.2	5	0.3	0.4	0.8	0.5
Beta (pCi/L)	50 pCi/L	50 pCi/L	0.9	-0.5	4.8	2.6	3.9	5.9	1.7
a Spectroscopy									
(pCi/L)	2000 µg/L	2000 µg/L	ND	ND	ND	ND	ND	ND	ND
pCi/L)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND
(pCi/L)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND
pCi/L)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND
Ci/L)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND
(pCi/L)	15 µg/L	5 µg/L						3.7	
(pCi/L)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND
(pCi/L)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND

APPENDIX I:

SEDIMENT SAMPLE RESULTS

Kiskimere Groundwater Well Investigation Site
Data Summary Key

MCL = Maximum Contaminant Level - National Primary Drinking Water Regulations
PA ACT 2 = Pennsylvania Act 2 Residential Groundwater and Soil Standards

mg/kg = milligrams per killogram
µg/L = micrograms per liter
µg/kg = micrograms per kilogram

100	Exceeds MCL
100	Exceeds PA ACT 2 Regulations
100	Exceeds MCL and PA ACT 2 Regulations
100	Concentration is elevated when compared to background sample

NA = No Action Level
N/A = Not Analyzed
ND = Not detected at or below the quantitation limit
B = Not detected substantially above the level reported in laboratory or field blank
J = Analyte present. Reported value may not be accurate or precise.
K = Analyte Present. Reported value may be biased high. Actual value is expected to be lower
L = Analyte Present. Reported value may be biased low. Actual value is expected to be lower
UL = Not detected, quantitation limit is probably higher.
U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
* National Secondary Drinking Water Regulations (Secondary MCL) or Secondary PA ACT 2 Residential Groundwater Standards
(+) Result reported from the diluted analysis
CRQL = Contract Required Quantitation Limit
SQL = Sampling Quantitation Limit

Notes:
Only analytes that were detected are included in media specific result tables.
SQLs are not adjusted for qualified sample results.
Radio Chemistry results report activity only; uncertainty is not reported.
Percent moisture or percent solid results used in SQL calculation were reported on data validation report data summary forms.

Sediment Sample Results

Parameter/Method	Background Sample SD01	SD02	Qualifier	SD03-Dup. of SD04	Qualifier	SD04-Dup. of SD03	Qualifier
Radiochemistry							
Alpha (pCi/gDry)	15.40	8.3		6.09 ± 4.7		6.3	
Beta (pCi/gDry)	29.70	20.1		20.0 ± 4.4		17.6	
Gamma Spectroscopy							
Ba140 (pCi/gDry)	ND	ND		ND		ND	
Be7 (pCi/gDry)	6.42	0.94		0.130 ± .12		0.16	
Bi212 (pCi/gDry)	1.34	1.21		1.05 ± .19		1.14	
Bi214 (pCi/gDry)	1.02	0.97	*	0.927 ± .11	*	0.91	*
Co60 (pCi/gDry)	ND	ND		ND		ND	
Cs137 (pCi/gDry)	0.06	0.047		0.0758 ± .014		0.069	
I131 (pCi/gDry)	ND	ND		ND		ND	
K40 (pCi/gDry)	12.60	14.2		9.02 ± 1.1		9.4	
Pa234m (pCi/gDry)	2.40	0.99	*			1.7	*
Pb210 (pCi/gDry)	2.02						
Pb212 (pCi/gDry)	1.22	1.15		0.978 ± .12		0.97	
Pb214 (pCi/gDry)	1.12	1.06	*	0.956 ± .11	*	0.95	*
Ra223 (pCi/gDry)	0.31	0.298	*	0.254 ± .061	*	0.299	*
Ra226 (pCi/gDry)	2.10	1.77	*	1.95 ± .32	*	2.07	*
Ra228 (pCi/gDry)	1.30	1.22		1.00 ± .12		0.98	
Th227 (pCi/gDry)							
Th234 (pCi/gDry)	1.09	0.78	*	0.628 ± .19	*	0.67	*
T1208 (pCi/gDry)	0.39	0.37		0.313 ± .039		0.313	
U235 (pCi/gDry)	0.13	0.111	*	0.119 ± .019	*	0.127	*

Kiskimere Groundwater Well Investigation Site
Sediment Sample Results

Parameter/Method	Background Sample SD01	SD02	Qualifier	SD03-Dup. of SD04	Qualifier	SD04-Dup. of SD03	Qualifier
CLP TAL Metals + Mercury (ISM01.2) (mg/kg sediment)							
Mercury	0.084 J	0.19	J	0.062	J	0.085	J
Arsenic	5.1 J	7.3	J	3.0	J	4.6	J
Barium	131.00	224		92.5		111	
Beryllium	1.3 L	3.6	L	1.1	L	1.2	L
Cadmium	0.68 J	1.9	J	0.45	J	0.54	J
Chromium	20..9 J	18.7	J	18.9	J	16.4	J
Cobalt	27.20	105		29.3		22.1	
Copper	32 J	41.9	J	22.0	J	28.3	J
Lead	75.9 J	48.7	J	29.0	J	39.7	J
Manganese	1,620 +	10,200+		1,840+		1,190+	
Nickel	38.60	160		41.7		32.3	
Silver	SQL = 0.76	ND		ND		ND	
Uranium	1.1 J	ND		ND		1.1	J
Vanadium	16.5 J	17.3	J	12.5	J	14.7	J
Zinc	164.00	433		155		152	
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)							
1,1-Dichloroethene	SQL = 20.83	ND		5.0	UL	ND	
Methylene chloride	16 B	4.8	B	5.3	B	5.8	B
trans-1,2-Dichloroethene	SQL = 20.83	ND		5.0	UL	ND	
cis-1,2-Dichloroethene	SQL = 20.83	ND		5.0	UL	ND	
Toluene	51.00	22		ND		16	

Sediment Sample Results

Parameter/Method	SD05	Qualifier	SD06	Qualifier	SD07	Qualifier	SD08	Qualifier	SD09	Qualifier
Radiochemistry										
Alpha (pCi/gDry)	10.9		4.3		2.9		8.2		9.5	
Beta (pCi/gDry)	33.5		16.6		14.4		14.5		21.9	
Gamma Spectroscopy										
Ba140 (pCi/gDry)	ND		ND		ND		ND		ND	
Be7 (pCi/gDry)			0.69		0.68		0.233		0.25	
Bi212 (pCi/gDry)	1.63		1.02		1.22		0.78		1.41	
Bi214 (pCi/gDry)	1.58	*	0.842	*	0.79	*	0.64	*	1.05	*
Co60 (pCi/gDry)	ND		ND		ND		ND		ND	
Cs137 (pCi/gDry)	ND		0.317		0.0302		0.034		0.068	
I131 (pCi/gDry)	ND		ND		ND		ND		ND	
K40 (pCi/gDry)	16.1		9.6		10.8		9.9		14.4	
Pa234m (pCi/gDry)	3.2	*	0.75	*			0.8	*	1.7	*
Pb210 (pCi/gDry)										
Pb212 (pCi/gDry)	1.57		0.93		0.96		0.806		1.33	
Pb214 (pCi/gDry)	1.71	*	0.89	*	0.84	*	0.696	*	1.1	*
Ra223 (pCi/gDry)			0.262	*			0.184	*		
Ra226 (pCi/gDry)	2.76	*	1.57	*	1.47	*	1.3	*	1.86	*
Ra228 (pCi/gDry)	1.58		1.01		0.96		0.79		1.34	
Th227 (pCi/gDry)									0.087	
Th234 (pCi/gDry)	0.7	*					0.429	*		
T1208 (pCi/gDry)	0.488		0.289		0.323		0.244		0.433	
U235 (pCi/gDry)			0.099	*	0.92	*	0.079	*	0.117	*

Riskimere Groundwater Well Investigation Site

Sediment Sample Results

Parameter/Method	SD05	Qualifier	SD06	Qualifier	SD07	Qualifier	SD08	Qualifier	SD09	Qualifier
CLP TAL Metals + Mercury (ISM01.2) (mg/kg sediment)										
Mercury	0.098	J	0.054	J	0.046	J	0.038	J	0.060	J
Arsenic	**7.7**	J	**5.5**	J	**1.8**	J	**2.0**	J	**2.4**	J
Barium	265		134		97.4		97.8		102	
Beryllium	1.3	L	1.3	L	0.88	L	0.97	L	1.3	L
Cadmium	0.57	J	0.50	J	ND		0.31	J	ND	
Chromium	15.0	J	20.5	J	15.6	J	16.6	J	15.0	J
Cobalt	13.5		**38.3**		14.3		13.6		13.4	
Copper	20.7	J	23.4	J	12.5	J	20.0	J	20.3	J
Lead	23.1	J	72.8	J	18.8	J	40.0	J	22.7	J
Manganese	497+		1,910+		955+		468+		344	
Nickel	33.9		54.5		24.3		25.8		28.7	
Silver	ND		0.27	J	ND		ND		ND	
Uranium	1.1	J	0.71	J	ND		ND		ND	
Vanadium	19.5	J	19.3	J	15.7	J	24.1	J	16.5	J
Zinc	102		192		75.7		108		101	
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)										
1,1-Dichloroethene	ND		ND		4.4	B	ND		ND	
Methylene chloride	5.3	B	ND		ND		ND		ND	
trans-1,2-Dichloroethene	ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene	ND		ND		ND		ND		ND	
Toluene	38		26		15		17		36	

APPENDIX J:

TRIP BLANK SAMPLE RESULTS

Kiskimere Groundwater Well Investigation Site
Data Summary Key

MCL = Maximum Contaminant Level - National Primary Drinking Water Regulations
PA ACT 2 = Pennsylvania Act 2 Residential Groundwater and Soil Standards

mg/kg = milligrams per killogram
µg/L = micrograms per liter
µg/kg = micrograms per kilogram

100	Exceeds MCL
100	Exceeds PA ACT 2 Regulations
100	Exceeds MCL and PA ACT 2 Regulations
100	Concentration is elevated when compared to background sample

NA = No Action Level
N/A = Not Analyzed
ND = Not detected at or below the quantitation limit
B = Not detected substantially above the level reported in laboratory or field blank
J = Analyte present. Reported value may not be accurate or precise.
K = Analyte Present. Reported value may be biased high. Actual value is expected to be lower
L = Analyte Present. Reported value may be biased low. Actual value is expected to be lower
UL = Not detected, quantitation limit is probably higher.
U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
* National Secondary Drinking Water Regulations (Secondary MCL) or Secondary PA ACT 2 Residential Groundwater Standards
(+) Result reported from the diluted analysis
CRQL = Contract Required Quantitation Limit
SQL = Sampling Quantitation Limit

Notes:
Only analytes that were detected are included in media specific result tables.
SQLs are not adjusted for qualified sample results.
Radio Chemistry results report activity only; uncertainty is not reported.
Percent moisture or percent solid results used in SQL calculation were reported on data validation report data summary forms.

Kiskimere Groundwater Well Investgation Results
Trip Blank Sample Results

Parameter/Method	MCL	PA ACT 2	TB01	Qualifier	TB02	Qualifier
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)						
Methylene Chloride	5	30	*0.39*	*B*	1.7	
Chloroform	80	80	*ND*		0.78	
Toluene	1,000	1,000	*ND*		0.7	

APPENDIX K:

FIELD BLANK SAMPLE RESULTS

Kiskimere Groundwater Well Investigation Site
Data Summary Key

MCL = Maximum Contaminant Level - National Primary Drinking Water Regulations
PA ACT 2 = Pennsylvania Act 2 Residential Groundwater and Soil Standards

mg/kg = milligrams per killogram
µg/L = micrograms per liter
µg/kg = micrograms per kilogram

100	Exceeds MCL
100	Exceeds PA ACT 2 Regulations
100	Exceeds MCL and PA ACT 2 Regulations
100	Concentration is elevated when compared to background sample

NA = No Action Level
N/A = Not Analyzed
ND = Not detected at or below the quantitation limit
B = Not detected substantially above the level reported in laboratory or field blank
J = Analyte present. Reported value may not be accurate or precise.
K = Analyte Present. Reported value may be biased high. Actual value is expected to be lower
L = Analyte Present. Reported value may be biased low. Actual value is expected to be lower
UL = Not detected, quantitation limit is probably higher.
U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
* National Secondary Drinking Water Regulations (Secondary MCL) or Secondary PA ACT 2 Residential Groundwater Standards
(+) Result reported from the diluted analysis
CRQL = Contract Required Quantitation Limit
SQL = Sampling Quantitation Limit

Notes:
Only analytes that were detected are included in media specific result tables.
SQLs are not adjusted for qualified sample results.
Radio Chemistry results report activity only; uncertainty is not reported.
Percent moisture or percent solid results used in SQL calculation were reported on data validation report data summary forms.

Kiskimere Groundwater Well Investigation Site
Field Blank Sample Results

Parameter/Method	MCL	PA ACT 2	FB01	Qualifier	FB02	Qualifier
Radiochemistry						
Radium 226	5 pCi/L	5 pCi/L	0.055		0.031	
Radium 228	5 pCi/L	5 pCi/L	0.55		1.09	
Gross Alpha	15 pCi/L	15 pCi/L	0.25		-0.04	
Gross Beta	50 pCi/L	50 pCi/L	0.32		0.38	
CLP TAL Metals + Mercury (ISM01.2) (µg/L or µg/kg)						
Aluminum	NA	200*	ND		ND	
Calcium	NA	NA	ND		ND	
Iron	NA	300*	ND		ND	
Magnesium	NA	NA	ND		ND	
Mercury	2	2	ND		ND	
Potassium	NA	NA	ND		ND	
Sodium	NA	NA	ND		ND	
Metals, Single Analyte (per Metal) (6020A) (µg/L)						
Arsenic	10	10	ND		ND	
Barium	2,000	2,000	ND		ND	
Chromium	100	100	ND		ND	
Cobalt	NA	11	ND		ND	
Copper	1,300	1,000	ND		ND	
Lead	15	5	ND		ND	
Manganese	50*	300	ND		ND	
Nickel	NA	100	ND		ND	
Silver	100	100	ND		ND	
Uranium	30	NA	ND		ND	
Zinc	5,000*	2,000	ND		ND	
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)						
Methylene Chloride	5	30	1.5		1.6	
Chloroform	80	80	0.73		ND	
Toluene	1,000	1,000	0.65		0.5	

APPENDIX L:

BACKGROUND SAMPLE RESULTS

Kiskimere Groundwater Well Investigation Site
Data Summary Key

MCL = Maximum Contaminant Level - National Primary Drinking Water Regulations
PA ACT 2 = Pennsylvania Act 2 Residential Groundwater and Soil Standards

mg/kg = milligrams per killogram
µg/L = micrograms per liter
µg/kg = micrograms per kilogram

100	Exceeds MCL
100	Exceeds PA ACT 2 Regulations
100	Exceeds MCL and PA ACT 2 Regulations
100	Concentration is elevated when compared to background sample

NA = No Action Level
N/A = Not Analyzed
ND = Not detected at or below the quantitation limit
B = Not detected substantially above the level reported in laboratory or field blank
J = Analyte present. Reported value may not be accurate or precise.
K = Analyte Present. Reported value may be biased high. Actual value is expected to be lower
L = Analyte Present. Reported value may be biased low. Actual value is expected to be lower
UL = Not detected, quantitation limit is probably higher.
U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
* National Secondary Drinking Water Regulations (Secondary MCL) or Secondary PA ACT 2 Residential Groundwater Standards
(+) Result reported from the diluted analysis
CRQL = Contract Required Quantitation Limit
SQL = Sampling Quantitation Limit

Notes:
Only analytes that were detected are included in media specific result tables.
SQLs are not adjusted for qualified sample results.
Radio Chemistry results report activity only; uncertainty is not reported.
Percent moisture or percent solid results used in SQL calculation were reported on data validation report data summary forms.

Kiskimere Groundwater Well Investigation Site
Background Sample Results

Parameter/Method	CRQL Water	CRQL Soil/Sediment	GW-04	SQL	Qualifier	SW-01	SQL	Qualifier	SD-01	SQL	Qualifier
Radiochemistry											
Radiochemistry results are listed in media specific result tables											
CLP TAL Metals + Mercury (ISM01.2) (µg/L water, mg/kg sediment)											
Aluminum	200	N/A	ND	200		98.7	200	J	N/A	N/A	
Calcium	5,000	N/A	17,400	5,000		60,100	5,000		N/A	N/A	
Iron	100	N/A	298	100		256	100		N/A	N/A	x
Magnesium	5,000	N/A	6,040	5,000		18,100	5,000		N/A	N/A	
Mercury	0.2	0.1	ND	0.2		ND	0.2		0.084	0.2	J
Potassium	5,000	N/A	ND	5000		3,200	5,000	J	N/A	N/A	
Sodium	5,000	N/A	31,100	5,000		41,100	5,000		N/A	N/A	
Antimony	2	200	ND	2		ND	2		ND	304.0	
Arsenic	1	100	ND	1		ND	1		5.1	152.0	J
Barium	10	1,000	81.7	10		53	10		131	1519.8	
Berryllium	1	100	ND	1		ND	1		1.3	152.0	L
Cadmium	1	100	ND	1		ND	1		0.68	152.0	J
Chromium	2	200	1.6	2	J	ND	2		20.9	304.0	J
Cobalt	1	100	ND	1		0.56	1	J	27.2	152.0	
Copper	2	200	0.93	2	J	ND	2		32	304.0	J
Lead	1	100	ND	1		ND	1		75.9	152.0	J
Manganese	1	100	8.9	1	J	80.5	1	J	1620+	4179.3	
Nickel	1	100	0.83	1	J	3.2	1		38.6	759.9	
Selenium	5	500	ND	5		ND	5		ND	3799.4	
Silver	1	100	ND	1		ND	1		ND	759.9	
Thallium	1	100	ND	1		ND	1		0.27	759.9	J
Uranium	1	200	ND	1		ND	1		1.1	1519.8	J
Vanadium	5	500	ND	5		ND	5		16.5	3799.4	J
Zinc	2	200	1.4	2	J	2.2	2		164	1519.8	

GW SQL = CRQL * Dilution Factor; SW SQL = CRQL * Dilution Factor
SD SQL = (CRQL * Dilution Factor) / [(100 - % Moisture) / 100] or
SD SQL = (CRQL * Dilution Factor) / (% Solids / 100)

Kiskimere Groundwater Well Investigation Site
Background Sample Results

Parameter/Method	CRQL Water	CRQL Soil/Sediment	GW-04	SQL	Qualifier	SW-01	SQL	Qualifier	SD-01	SQL	Qualifier
CLP TCL Organics (SOM01.2) (µg/L or µg/kg)											
Dichlorodifluoromethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Chloromethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Vinyl Chloride	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Bromomethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Chloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Trichlorofluoromethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,1-Dichloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Acetone	5	5	ND	5		ND	5		72	20.8	
Carbon Disulfide	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Methyl acetate	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Methylene chloride	0.5	5	ND	0.5		ND	0.5		16	20.8	B
trans-1,2-Dichloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Methyl tert-butyl ether	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,1-Dichloroethene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
cis-1,2-Dichloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
2-Butanone	5	10	ND	5		ND	5		ND	41.7	
Bromochloromethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Chloroform	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,1,1-Trichloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Cyclohexane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Carbon tetrachloride	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Benzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,2-Dichloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,4-Dioxane	N/A	100	N/A	N/A		N/A	N/A		ND	416.7	
Trichloroethane	0.5	5	ND	0.5		ND	0.5		18	20.8	J
Methylcyclohexane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,2-Dichloropropane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Bromodichloromthane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
cis-1,3-Dichloropropane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
4-Methyl-2-pentanone	5	10	ND	5		ND	5		ND	41.7	
Toluene	0.5	5	ND	0.5		ND	0.5		51	20.8	
trans-1,3-Dichloropropane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,1,2-Trichloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Tetrachloroethene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
2-Hexanone	5	10	ND	5		ND	5		ND	41.7	

GW SQL = CRQL * Dilution Factor; SW SQL = CRQL * Dilution Factor
SD SQL = (CRQL * Dilution Factor) / [(100 - % Moisture) / 100] or
SD SQL = (CRQL * Dilution Factor) / (% Solids / 100)

Kiskimere Groundwater Well Investigation Site
Background Sample Results

Parameter/Method	CRQL Water	CRQL Soil/Sediment	GW-04	SQL	Qualifier	SW-01	SQL	Qualifier	SD-01	SQL	Qualifier
Dibromochloromethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,2-Dibromoethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Chlrobenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Ethylbenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
o-Xylene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
m,p-Xylene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Styrene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Bromoform	0.5	5	ND	0.5		ND	0.5		ND	20.8	
Isopropylbenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,1,2,2-Tetreachloroethane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,3-Dichlrobenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,4-Dichlrobenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,2-Dichlorobenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,2-Dibromo-3-chloropropane	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,2,4-Trichlorobenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	
1,2,3-Trichlrobenzene	0.5	5	ND	0.5		ND	0.5		ND	20.8	

GW SQL = CRQL * Dilution Factor; SW SQL = CRQL * Dilution Factor
SD SQL = (CRQL * Dilution Factor) / [(100 - % Moisture) / 100] or
SD SQL = (CRQL * Dilution Factor) / (% Solids / 100)